

RETRAN-02 MOD005.3 Trouble Report List

The following table summarizes the status of all trouble reports that have been filed since RETRAN-02 was placed under a formal Quality Assurance program. There are no unresolved trouble reports at the release of RETRAN-3D MOD005.3.

Originally, Trouble Reports 1 through 435 were maintained as ASCII files on a UNIX workstation. Following the release of RETRAN-02 MOD005.2, trouble reports were filed and maintained on PC network using word processor forms. This file is a combination of both, where Trouble Reports 1 through 435 are generally in the form of the old text files. Exceptions are trouble reports that were unresolved when MOD005.2 was released and have since been resolved. These trouble reports were revised to use the new table format used for Trouble Reports 436 through 460. A separate trouble report summary containing trouble reports received subsequent to the release of RETRAN-3D MOD005.3 can be obtained from [RETRAN Trouble Reports](#).

All trouble reports are reviewed after receipt to determine if there are any 10CFR Part 21, *Reporting of Defects and Noncompliance*, requirements. Trouble Reports 1 through 435 were reviewed for Part 21 requirements, but the trouble report forms used at that time did not include information about the review findings. At Trouble Report 436 and beyond, the trouble report forms contained information regarding the review and status. The results of the review are summarized in the summary table below. The **Part 21 Status Codes** regarding relevance to 10CFR Part 21, *Reporting of Defects and Noncompliance*, are interpreted as follows;

- 1) "not a safety issue"
- 2) "potentially a substantial safety issue"
- 3) "indeterminate; must be evaluated by licensee"

Errors that are assigned a **Part 21 Status Code** of 2 (potentially a substantial safety issue) must be reported directly to the U.S. Nuclear Regulatory Commission. To date, no such error has been discovered in the RETRAN-02 code. The **Part 21 Status Code** for Trouble Reports 1 through 435 are shown as 1 indicating that no reportable errors were found in this group of trouble reports. Note: some trouble reports in the range between 1 and 435 do contain Part 21 review information because they were still unresolved when the trouble report forms were updated to contain the review information.

The "Corr. Status" column in the following table generally lists the individual modification number that corrected the reported error. Some trouble reports have been shown to be resolved by a particular code version without the effort being spent to identify the individual modification(s) that resolved the reported problem. In this situation, the code version is listed in the "Corr. Status" column. When a trouble report identifies a documentation error or short coming, the document revision where the problem is resolved is included. Trouble reports determined to be model limitations or those that could not be reproduced (possibly due to lack of input model) are also indicated as "Model Limitation" or "Closed", respectively.

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
1	Error 209 in TEMZ	1	Closed
2	Plotting, three tapes	1	95
3	Plot scaling	1	2
		1	2
4	Nonequilibrium volume	1	96
5	Plot default scaling	1	99
6	Heat transfer mode 15	1	97
7	Initialize loss coefficient	1	102
8	Trip summary	1	103
9	Trip summary	1	112
10	Mode 2 from input error	1	101
11	Critical flow h (iterative)	1	106
12	Arithmetic overflow in junprp	1	112
13	Local condition model	1	-----
14	Critical heat flux	1	113
15	Nonequilibrium minor edits	1	109
16	Input option, noneq. Separator	1	121
17	Mode 4 error in edata4	1	111
18	Trip action for valves	1	112
19	Stored energy calculation	1	118
20	Question on timing edit	1	-----
21	Plot cases	1	131
22	Extra edits with iterative	1	110
23	Input diagnostic for pumps	1	108
24	Time dependent volume	1	107
25	Air-water volume	1	-----
26	Nonequilibrium volume input	1	109
27	Two-sided conductor convergence	1	114
28	Transport delay minor edits	1	-----
29	Error 207 from wat9	1	115
30	Heat transfer mode 7 error	1	124
31	Stagnant separated volume	1	116
32	Plot and reedit (ibm)	1	3
		1	129
33	Reedit frequency	1	3
34	Reedit auxiliary file option	1	130
35	Steam generator initialization	1	-----
36	6250 bpi tape density	1	4
37	Random disk files	1	3
38	Backward move option	1	5

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
39	Continuation cards in inp	1	6
40	Ftb address	1	3
41	Nos system	1	3
42	Head term for separator model	1	117
43	Initialize volume average flow	1	119
44	Conductor gap model	1	122
45	Sum power fraction .ne. 1.0	1	235
46	Restart for a volume with air	1	132
47	Insufficient rfl	1	-----
48	Enthalpy with negative fill	1	-----
49	Plot label	1	133
50	Superheat vapor in pressurizer	1	123
51	Fill junction, angle .ne. 0.0	1	127
52	Iterative, air volume	1	134
53	Junprp, nonequilibrium volume	1	-----
54	Critical flow	1	106
55	Metal water reaction	1	125
56	Minor error in heat conduction	1	126
57	Enthalpy for zero flow volume	1	128
58	Minor edit for saturation pres.	1	135
59	Junction h for multiple junc.	1	-----
60	Superheated time depend. Vol.	1	136
61	Delta t for conductor with tdv	1	Closed
62	Mixture level in separator	1	-----
63	Time step limits for restart	1	-----
64	One valve card for two junctions	1	109
65	Restart with tdv from tape	1	137
66	Negative log, heat transf. 15	1	138
67	Restart with metal water	1	139
68	Turbine speed, standard numerics	1	140
69	Forced/free convection option	1	-----
70	Minor edit "dtold"	1	-----
71	Enthalpy init. For single vol.	1	141
72	Error in prsork for fill	1	142
73	Sign on momentum flux term	1	143
74	Edit for tdv	1	136
75	Kinetic energy for tdv	1	144
76	Containment condensing h.t.	1	145
77	Default separator curves	1	146
78	Kinetic energy flux for slip	1	168
79	Initialize steam filled noneq	1	147

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
80	Diagnostic for missing table	1	148
81	Initial. Noneq with steam only	1	147
82	Bub. Rise for multiple noneq	1	149
83	Changed input values in init.	1	174
84	Error in heat trans. Mode 15	1	150
85	Added input for heat trans. 15	1	179
86	Particle size selection in jsve	1	151
87	Transport delay, mesh=1 or 2	1	180
88	Transport delay, flow reversal	1	180
89	Initialize supercritical tdv	1	162
90	Indirect trips at end time	1	152
91	Control block input out of range	1	153
92	Two-sided cond. Convergence	1	197
93	Dispersed flow agl	1	154
94	Reedit three data tapes	1	155
95	Plot axis significant figures	1	6
		1	8
96	Microfiche output, 1-d kinetics	1	156
97	Cpu time minor edit	1	157
98	Null transient for dynamic slip	1	213
		1	218
99	Dyn. Slip and boiling boundary	1	-----
100	Alg. Slip and boiling boundary	1	-----
101	Tabular data input	1	158
102	Benign error in inedit	1	159
103	Sign conven. For turb. Torque	1	-----
104	Benign error in tran	1	161
105	B&w-2 chf correl. (subcooling)	1	175
106	Slip interpolation	1	169
107	Coeff. In b&w-2 chf correl.	1	163
108	Actinide coefficient change	1	164
109	Large reactivity insertion	1	-----
110	Differential pressure trip	1	165
111	Initialize air-only tdv	1	-----
112	Input in gpm/ft2 (neg. Fill)	1	186
113	Negative heat transf. Areas	1	114
114	Restart at last data record	1	181
115	Differential pressure trips	1	165
116	Cp or io time limit	1	-----
117	Tabular plot data	1	178
118	Turbine modifications	1	160

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
119	Closed valve; t=0., junc. Prop	1	-----
120	Null tran with enthalpy trans.	1	180
121	Otsg low power initialization	1	Closed
122	Control system time step	1	183
123	Using rhoIn to add reactivity	1	211
124	Plotting "cout"	1	-----
125	Duplicate report (no. 124)	1	-----
126	Enth. Transp., low flow	1	-----
127	Fluid temp. For heat transfer	1	-----
128	Junction enthalpy edit	1	-----
129	Steady-state, motor torque	1	192
130	End trip on conductor temp.	1	190
131	Input for local conditions model	1	184
132	Condens./convect. H.t. trans.	1	176
133	Null transient with dyn. Slip	1	213
134	Multireel files on nos system	1	-----
135	Editing error for type 2 hx	1	185
136	Top entry control rod bank	1	177
137	Error in polate with fill	1	223
138	Temp. Transport convergence	1	180
139	Failed using large time step	1	Closed
140	Spurious trips on high level	1	Closed
141	Auto-recall error after plot	1	4
142	Input edit error, noncond hx	1	188
143	Input edit error, noncond hx	1	188
144	Mode 2 when fill tripped on	1	191
145	Retran-01/retran-02 choking	1	-----
146	Overwrites frames for y axis	1	212
147	Valve trip/reset problem	1	195
148	Initialize volume with air	1	200
149	Ihtmap=1 flow transition	1	224
150	Initialization with pump q	1	236
151	Two problems with trips	1	195
152	Divide check for closed valve	1	223
153	Extrapolation of area tables	1	195
154	Divide check in advflo	1	246
155	Controlling bubble rise model	1	196
156	Volume property initialization	1	203
157	Heater controlled by 3 trips	1	210
158	Wat7, wat9 and vapor1 failures	1	198
159	Direct moderat. Heat. 1-d kin.	1	221

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
160	Mixt. Level = 0.0 in separator	1	198
161	Mixt. Level = 0.0 in noneq vol	1	199
162	Trip/reset problem with valve	1	195
163	Momentum flux/slip for large dp	1	-----
164	Vertically distributed junc.	1	227
165	Ftb storage allocation	1	201
166	Error in mode 10/15 h.t. logic	1	202
167	Mode 4 error in polate	1	223
168	Mw calculation, no clad radius	1	206
169	Ecs memory size error	1	7
170	Edited value of field length	1	205
171	Ftb extended dump package	1	8
172	Core memory reduction	1	9
173	Mass flux minor edit units	1	209
174	Debug output with 1-d kinetics	1	204
175	Error in flow when break occurs	1	207
176	Equation for choking check	1	208
177	Overflow in wat9	1	Closed
178	Trip/reset problem	1	210
179	Possible zero divide in jsvel	1	215
180	Temp. Trans delay initial.	1	216
181	Input error for tape label	1	217
182	Restart error in flxwg	1	228
183	Every time step edit	1	229
184	Junction pressure calculation	1	230
185	Standard time step counter	1	232
186	Default pump torque curve	1	233
187	Null transient with separator	1	199
188	Stacked cases; retran	1	-----
189	Stacked cases; ploter	1	-----
190	Trip/reset pressurizer heater	1	112
		1	195
191	Error in fw enthalpy bias	1	258
192	Stacked cases; retran	1	-----
193	Xsec minor edits; 1-d kinetics	1	269
194	Restart with inertial valve	1	239
195	Otsg initialization	1	240
196	Time step cards on restart	1	-----
197	Reedit option	1	-----
198	Control integration; iterative	1	237
199	Control pump speed vs. Time	1	241

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
200	Control system input	1	-----
201	Junc. Prop. When valve closes	1	112
202	Multiple data tapes	1	10
203	Local cond.; mixture level = 0.	1	242
204	End of tape at restart	1	13
205	Dependent axes label location	1	244
206	Behavior of mixture level	1	247
207	Divide check in qdot; mod003c	1	250
208	Valve trip with fjunf = -1.	1	273
209	Pump coast down rates	1	Closed
210	Heat trans. Mode 2/3 transition	1	251
211	Tabular plot data input	1	14
212	Heat trans. Mode 16 near pcrit	1	259
213	Divide check in neq. Vol pcrit	1	260
214	Zero divide in bubb; jvertl=0	1	252
215	Inconsistent trip behavior	1	-----
216	Wilson bubble rise in noneq vol	1	253
217	Reedit two tapes; labels	1	256
218	Profile fit, two-phase at inlet	1	254
219	Neg. Power to water for pump	1	-----
220	Kin. Energy in junc. Enthalpy	1	-----
221	Multiple trip/reset trips	1	277
222	Control inputs from a tdv	1	275
223	Error 208, exponent underflow	1	262
224	Mode 6 in expint for noneq vol	1	257
225	Axis label and scale missing	1	-----
226	Zero wilson bubble velocity	1	264
227	Restart valve failure in polate	1	261
228	Read data tape for plotting	1	266
229	Error 208, exponent underflow	1	262
230	Error 209 if dtmax = 0.002	1	303
231	Minor edit heading; cond. Node	1	265
232	Multiple cases on ibm	1	-----
233	Missing message for input error	1	276
234	Aphysical separator steam flow	1	-----
235	Divide by zero in sub. Edata3	1	267
236	Time dependent data table input	1	271
237	Error with zero cont. Sys. Vbub	1	284
238	Ftb error 14 on ibm restarts	1	263
239	Time 0 junction loss coef. Edit	1	268
240	Base run - restart differences	1	-----

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
241	Ftb error 16 from sub. Reduce	1	11
242	Profile fit nonconverg. Message	1	-----
243	Two curves on printer plots	1	-----
244	Cdc/nos 2.0 error/printer plots	1	309
245	Initialization with ihtmap=1	1	272
246	Pres. Drop difference mod2/mod3	1	-----
247	Minor edit heading; cond. Node	1	265
248	Cp time with iterative numerics	1	305
249	Core void profile-dynamic slip	1	-----
250	Core void profile-dynamic slip	1	-----
251	Core void profile-algebraic slip	1	282
252	Code failure with iterative	1	270
253	Control block input with restart	1	276
254	Oc4 error with combination plots	1	274
255	Possible initialization problem	1	282
256	Mode 11 heat transfer converge.	1	310
257	Ftb 14 error at restart	1	263
258	Reading data tape for tdv	1	15
259	Pump flow after valve opening	1	-----
260	Nonsymmetric pump speed values	1	281
261	Minor edit continuation cards	1	-----
262	Underflow error with iterative	1	306
263	Writing to "ge" tape	1	-----
264	Reedit of restart data tape	1	15
265	Boiling boundary perturbation	1	281
266	Anomaly for bwr stability run	1	-----
267	Missing input check	1	285
268	Fails to hold null transient	1	280
269	Reset trips at restart	1	278
270	Initialize conductors in noneq.	1	287
271	End of record on unit 40	1	-----
272	Junction properties at break	1	Closed
273	Pres. Above crit in tdv	1	283
274	Reedit multiple tapes	1	279
275	Nonequilibrium mass transfer	1	280
276	Atws mod2 versus mod3	1	-----
277	Small junction flow, iterative	1	306
278	Hot bundle model input	1	286
279	1-d kinetics, kudys=1	1	293
280	Condensing mdot in przr	1	307
281	Condensing heat transfer	1	-----

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
282	Mixl=0 for tdv tape	1	292
283	Large vbub in noneq. Volume	1	289
284	Dimension error in edata3(mod4a)	1	288
285	Input without bubble rise model	1	290
286	Error in input processing	1	291
287	Null trans. With 1-d kinetics	1	-----
288	Null trans. With separator model	1	308
289	Tdv input from restart data tape	1	15
290	Separator filling/draining	1	-----
291	Separator model warning message	1	-----
292	Control blocks with separator	1	294
293	Separator init. At design cond.	1	295
294	Separator liquid level calc.	1	-----
295	Variable type error in havg	1	296
296	Multiple data tapes for restart	1	297
297	Plot axis position	1	16
		1	12
298	Vbub with small time step	1	264
		1	289
299	Initialize with uchida correl.	1	301
300	Mode 2 error in pumps	1	302
301	Positive pump head for neg. Flow	1	-----
302	Incorrect cont. Block output	1	299
303	Wrong enthalpy for opening valve	1	298
304	Heat transfer convergence	1	311
305	Mode 2 error in stepit	1	304
306	Debug output for steady-state	1	300
307	Asymmetric flows-pump coastdown	1	-----
308	Low quality choked flow	1	315
309	Average metal temperature	1	316
310	Fortran error in pchf	1	317
311	Junction h with temp. Tran.	1	-----
312	Control region edit	1	318
313	Control rod model comments	1	319
314	Plot debug statements printed	1	321
315	Equilibrium separator initial.	1	326
316	Initialization problem	1	-----
317	Junction property error	1	Closed
318	Bubble rise using control sys.	1	322
319	Cold water above hot water	1	-----
320	Reading multiple tapes	1	-----

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
321	Negative sqrt in steady-state	1	323
322	Input failed w/only core dump	1	330
323	Baroczy two-phase multiplier	1	-----
324	Initial pump speed edit	1	-----
325	Left side local conditions	1	324
326	Local conditions in noneq. Vol.	1	325
327	Noneq. Volume heat trans. Coef.	1	-----
328	Conductors in noneq. Vol. Only	1	287
329	Minor edit for "avdj"	1	-----
330	Neutronic mesh interval limit	1	-----
331	Mode 2 error in tave	1	332
332	Metal-water reaction error	1	327
333	Null transient with separator	1	337
334	Time-dep. Volume input	1	Closed
335	Divide by zero in mixflo	1	329
336	Separator model carryover input	1	333
337	Neg value of specific heat	1	-----
338	Control block input message	1	328
339	Theory manual error, separator	1	-----
340	Incorrect input error message	1	331
341	Reset trips during restart	1	334
342	Control block output near zero	1	Closed
343	Junction "from - to" convention	1	343
344	Junction pressure calculation	1	338
345	Noneq. Vol. Vapor temperature	1	-----
346	Noneq. Vol. Heat transfer	1	-----
347	Local conditions in noneq. Vol.	1	340
348	Condensation in noneq. Volume	1	336
349	Region temp. In noneq. Volume	1	335
350	Overflow in impstp	1	-----
351	Mod003 cxgen error	1	-----
352	Fiocs# unresolved ex. Reference	1	18
353	Negative thermal bucklings	1	-----
354	Large step change in phir	1	Closed
355	Control block trip at time zero	1	-----
356	Initial separator carryunder	1	-----
357	Tave change from mod005a	1	339
358	Zero value of choked flow	1	-----
359	Heat transfer in noneq. Pres.	1	341
360	Do loops in chain	1	342
361	Separator input check message	1	344

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
362	Order of y-function data	1	-----
363	Delimiters in 'npme' formats	1	345
		1	353
364	Multiple pump conection message	1	349
365	Trip card input error missing	1	350
366	Mixture/liquid level difference	1	Closed
367	Decay heat history defaults	1	351
368	Point kinetics on ibm	1	352
369	Delayed neutron decay constants	1	354
370	Decay heat minor edits	1	355
371	Tdv x= 1.0 fails in headc	1	364
372	Retran03 carried out w/retran02	1	-----
373	Pressure increase in non-eq vol	1	-----
374	Tavg diff with more condctr reg	1	-----
375	Sep. Mix level drops abnormally	1	-----
376	Control reactivity, no motion.	1	Closed
377	Mode 4 error in dnbm routine	1	356
378	Manual desc. Of decay ht data	1	-----
379	No. Of c.s. limited to 2	1	357
380	Blksize of zero for ftb15f01	1	-----
381	Enthalpy bias fails for ss init	1	-----
382	Reactivity edits in 1-d kin	1	358
383	Ss acc. Dp varies with method	1	360
384	Ss friction dp across valve	1	359
385	Zero power to water in reedit	1	363
386	Subcooled boiling at low press	1	-----
387	No null trans if qmev ne 192	1	-----
388	Non-eq vol allows carryover	1	-----
389	Core power discontinuity	1	-----
390	Ftb dump at first time step	1	365
391	Nonzero initial rod react. Edit	1	366
392	Control block output inconsist.	1	361
393	Undocumented h.t. mode switching	1	-----
394	Anomalous heat trans. Behavior	1	MOD005P2
395	Anomalous heat trans. Behavior	1	-----
396	Conversion factor in wati	1	367
397	Pressure increase in noneq vol	1	-----
398	Heat transfer mode differnces	1	-----
399	Manual desc. Of decay heat data	1	-----
400	Reverse flow loss coef ss- init	1	368
401	Non-symmetric behavior pump trp	1	369

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
402	Fluid temp discont near pcrit	1	-----
403	Control system problem	1	-----
404	Two-surface heat trans. Failed	1	372
405	Deck not initializing	1	373
406	Selected mods for allf77 source	1	370
407	Selected mods to port source	1	374
E001	Modifications to md1 library	1	E001
408	OTSG heat transfer problems	1	Model Limitation
409	Gnrlzd tranport behavior	1	376
410	Pressurizer insurge behavior	1	-----
411	Plotr error	1	377
412	Gnrlzd transport problem	1	378
413	Incorrect vsn no.in ibm output	1	Closed
414	Cpu limit termination problem	1	-----
415	1-d kin null trans	1	379
416	Missing end card error	1	E002
417	1-d kin null trans	1	-----
418	Mixture level drops below junc	1	381
419	Jobs terminate abnormally	1	380
420	Junct input affects liq mass	1	389
421	Sg has split fw flow	1	-----
422	Sg exceed chf	1	382
423	Enthalpy transport error	1	390
424	Anom results when from/to switch	1	383
425	Div. Of zero error in dyna slip	1	384
426	Retran02/retran03 diffs	1	386
427	Trip reset condition	1	387
428	Zero power asymmetry	1	388
429	Boiling boundary/slip	1	385
430	Direct moder. Heating prob.	1	391
431	Failure in jn properties	1	406
432	Logic to apply lim. Cross sec.	1	392
433	Positive flow fill no input pres	1	393
434	Chf calculation for a single vol	1	394
435	Atr sipt loop break analysis	1	395
E002	Modifications to md1 library	1	E002
E003	Modifications to md3 library	1	E003
E004	Modifications to md4 library	1	E004

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
436	In subroutine QDOT, the Prandtl number is discontinuous for wall temperatures exceeding 1500 degrees F. In the Bennett problem, this resulted in conduction solution converge warning messages to be printed during steady-state initialization.	1	405
437	During a non-limiting MSLB transient using a single node steam generator (SG) secondary, transition boiling heat transfer modes 4 and 7 are predicted on the SG tube bundle surface for considerable periods.	1	----
438	A failure in restart is encountered using the temperature transport delay option.	1	407
439	If the actinide breeding ratio is not supplied on Record 140000 the code defaults to a value of 0.0. This is not what is discussed in the RETRAN input manual.	3	408
440	When a system turbine trip calculation is exercised, error messages relating to junction property evaluation are observed. Review of the information indicates a problem in the calculation of the kinetic energy at junctions that have time-dependent flow areas.	1	414
441	A BWR slow recirculation flow transient shows anomalous power behavior. The flow increase and the rate of flow increase are continuous. However, the reactivity increase is discontinuous.	1	----
442	The calculation failed with a time step reduced below the allowed minimum because of a "failure in pressure". No diagnostics are printed regarding the volume causing the problem and there are no identifiable problems in the final major edit.	1	Model Limitation
443	While reviewing the RETRAN-3D pressurizer model and its performance relative to RETRAN-02, an error was discovered in the formulation of the liquid region work term. This error also exists in RETRAN-02. In equations VIII.5-29 and VIII.5-30 (EPRI-1850-CCM, Vol. 1 Rev. 6) the partial derivatives for the liquid region volume with respect to vapor and liquid energy are transposed incorrectly. The coding in the subroutine PRZR is also incorrect.	3	411

Trouble ⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr. ⁽²⁾ Status
444	A LaSalle RETRAN feedwater controller failure (FWCF) transient showed anomalous kinetics during the overcooling phase. At 8 seconds the power undergoes an unexplained oscillation. A core node void fraction (Volume 410) takes a step change at the time of the oscillation. Also the slip velocity ($v_l - v_g$) is positive for the junction entering volume 410. The slip model employed in the BWR model is the algebraic slip model. This apparent non-physical behavior for the slip model seems to be causing the step change in the void fraction, which leads to the oscillation in reactor power.	3	Model Limitation (mod_412 available – model change)
445	The behavior of the general transport system in some large analysis models was noted to be inconsistent with expected behavior. The sample deck illustrates that the impurity (e.g., boron) concentration of an accumulator varies significantly during blowdown. The expected behavior would be to have a constant boron concentration in the accumulator during blowdown. Changes in boron concentration were noted when flow rate or time-step size changes significantly, and the potential exists when the implicit convergence criteria are not satisfied.	3	409
446	The documentation of the calculation of the junction kinetic energy in the bubble rise volume is not correct in the RETRAN-02 theory manual. The description of the enthalpy associated with phase separation given by Equation III.3-55 is not correct. The more appropriate expression for a bubble rise volume should indicate that the junction enthalpy is the vapor phase saturated enthalpy, if the mixture level is below the junction elevation.	1	Document Error
447	Smoothing algorithm in subroutine SVOID does not use correct equilibrium quality (XE). A better method is to use the actual equilibrium quality (WGV/WVBAR). Using correct quality negates the need for the smoothing term XGAMMA (i.e., can set XGAMMA to 1.0).	1	----

Trouble ⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr. ⁽²⁾ Status
448	User's Manual is not correct for the specification of decay heat isotope fractions. On page IV-96a, on Input Record 146010, Word 3 and Word 4 should be transposed. That is, word 3 should be fraction due to PU-239, and Word 4 should be U-238. This is consistent with the code and with the order given on 14700X.	3	Document Error
449	When initializing the LOFW deck in steady-state, the location of the EFW fill junctions has a significant impact on SG mass. This behavior is strange since EFW is not initiated until well into the transient.	1	Model Limitation
450	The vector momentum option contains an error for models using junction angles that are not 0, 90, 180, or 270 degrees. Use of any of the above angles in any combination will not encounter the error. This error applies to all versions of RETRAN-02 prior to and including MOD005.2 and RETRAN-3D MOD003 and prior versions.	3	410
451	At 900 seconds, the vessel head (Volume 10) is all vapor yet the heat transfer mode for Conductor 23, the metal mass in Volume 10, indicates forced convection to liquid. This is not correct.	3	413
452	There are two problems, both relating to the RETRAN-02 User's Manual. First, the definition for the Dittus Boelter heat transfer modes (1 and 8) given in Appendix A, Page A-17 is not accurate. The definition for Mode 1 should say single phase liquid instead of subcooled liquid. Mode 8 should say single phase vapor instead of superheated vapor. Second, there is no description for the control system minor edit variable, "TSIG". Table IV.6-13 on page IV-26 should be changed to include a description for TSIG. TSIG is the value (in problem time) that a trip setpoint has been reached. The region number for this minor edit variable is the trip id.	1	Document Error
453	While evaluating the compiler upgrade on a Sun platform, this case showed a floating point exception (divide by zero.) The transient finishes without a code failure, and the results appear reasonable, but the code reports that a single divide by zero has occurred.	3	415

Trouble⁽¹⁾ Report Number	Description	Part 21 Status Code	Corr.⁽²⁾ Status
454	The enthalpy exiting the first bundle volume is superheated excessively. As a result, the secondary side volume above the first transfers heat from the secondary to the primary.	3	Model Limitation
455	The COUT minor edit does not match the PRES minor edit for the volume pressure monitored by the control input. (Note the COUT value is known to be one time step behind the monitored parameter when the minor edits are printed. This difference has been accounted for.)	1	Model Limitation
456	A bad junction enthalpy causes the code to fail in the critical flow model.	1	414
457	The junction enthalpy exiting hot leg volumes 101, 102, 103 demonstrate a peculiar (but small) change in the junction enthalpies when the temperature transport delay model is active	1	417
458	An error in the decay heat model can result in under prediction of power for models using 1-D kinetics (generally BWRs).	1	418
459	The code is showing different results on the Unix platform vs. the Linux platform.	1	----
460	The pressurizer liquid region is not re-established after the level goes to 0, which is followed by an insurge.	3	419

- (1) **num** bold indicates a new trouble report or an old one whose status changed since last report
(2) ---- indicates the reported problem is not an error
**** indicates the reported problem has not been resolved
num indicates modification number or document and revision number for corrections

THE CODE UPDATE IDENTIFIERS ARE LISTED BELOW WITH CODE MODIFICATION NUMBERS IN PARENTHESES:

RETRAN-02	CDC LIBRARY	IBM LIBRARY
MOD003A (95-130)	MOD22 (1-3)	MOD26 (1-4)
MOD003B (131-171)	MOD23 (4-6)	MOD27 (5-8)
MOD003C (172-195)	MOD24 (7-9)	MOD28 (9-12)
MOD003D (196-240)	MOD25 (10)	MOD29 (13)
MOD003 (241-256)		
MOD004A (257-282)	MOD26 (11)	MOD30 (14-15)
MOD004B (283-297)	MOD27 (12)	MOD31 (16)
MOD004C (298-311)	MOD28 (13)	MOD32 (17)
MOD004D (312-314)		
MOD004 (315-321)		
MOD005A (322-333)		MOD33 (18)
MOD005B (334-341)		
MOD005C (342-349)		
MOD005.0 (350-355)		
MOD0050G (370-372)		NON-MACHINE LANGUAGE LIBRARY
MOD0050H (375)		MD1 (FIRST VERSION)
MOD005.1 (357-374)		MD2 (E001)
MOD005.1A (397-404)		MD3-MD5 (E002-E004)
MOD005.1B (396-398)		
MOD005.2 (399-404)		
MOD005.3 (405-419)		

REPORTED BY: PHIL SMITH (GPU) DATE: 12/09/81
REPORTED TO: CRAIG PETERSON (EI) DATE: 12/09/81

METHOD OF REPORT: TELEPHONE CONVERSATION

CODE VERSION: RETRAN-02 MOD001

COMPUTER/
OPERATING SYSTEM: IBM

LISTING SUPPLIED: YES. A RUN WAS SUPPLIED THAT ENCOUNTERED THE
ERROR AND ALSO A RUN THAT THE INPUT WAS
MODIFIED TO GET AROUND THE ERROR.

DECK SUPPLIED: NO

DECK DESCRIPTION: THE PROBLEM WAS ENCOUNTERED WITH AN OYSTER
CREEK TURBINE TRIP DECK. THE DECK IS NOT
AVAILABLE.

DESCRIPTION OF PROBLEM: AN ERROR NUMBER 209 WAS ENCOUNTERED IN
SUBROUTINE TEMZ. THE PRESSURE SUPPLIED IN
VOLUME 7 WAS CHANGED BY 0.54 PSI AND THE 209
ERROR IN SUBROUTINE TEMZ DID NOT OCCUR. BOTH
RUNS WERE SENT TO EI.

DISPOSITION: THE RETRAN-02 MOD002 CODING HAS BEEN REVIEWED,
BUT A POSSIBLE CAUSE FOR THE REPORTED ERROR
HAS NOT BEEN IDENTIFIED. SINCE THIS ERROR (1)
OCCURRED ON MOD001, (2) COULD BE OVERCOME BY
AN INPUT CHANGE, AND (3) HAS NOT BEEN REPORTED
BY ANY OTHER USER, WE ARE NO LONGER PURSUING
THE REPORTED PROBLEM.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE AN INPUT
DECK WAS NOT SUPPLIED THAT CORRESPONDED TO THE
ORIGINAL PROBLEM REPORT. RETRAN-02 MOD001 IS AN
OBSOLETE CODE VERSION AND IS NOT SUPPORTED.

MODELING ALTERNATIVES: NONE HAVE BEEN IDENTIFIED. HOWEVER, THE USER
WAS ABLE TO GET AROUND THE PROBLEM BY
ADJUSTING THE INPUT PRESSURE.

***** PROBLEM REPORT NUMBER 2 *****

REPORTED BY: DICK FARMAN (EI) 12/28/81
REPORTED TO: GREG RICE (EI) 12/28/81

METHOD OF REPORT: VERBAL

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: 176/NOSBE

LISTING SUPPLIED: YES

DECK SUPPLIED: YES

DECK DESCRIPTION: PLOT INPUT DECK. THE ORIGINAL DECK IS NO LONGER
AVAILABLE BUT, A DECK DEVELOPED TO RECREATE THE
PROBLEM IS LOCATED IN UDD:OP:RET:QA:DECKS:2.

DESCRIPTION OF PROBLEM:

A DATA SET OF MORE THAN TWO CONTINUOUS TAPES COULD NOT BE PLOTTED
THE INPUT PROCESSING WOULD NOT ALLOW MORE THAN 2 VSN-DEN-DATE
TRIPLICATES TO BE SUPPLIED.

DISPOSITION:

AN ERROR WAS CONFIRMED AND IS CORRECTED IN RETRAN SOURCE UNDER IDENT
MOD003A, MODIFICATION NUMBER 95.

THE ERROR CORRECTION WAS CONFIRMED BY EXECUTING THE MODIFIED CODE WITH
A DECK SIMILAR TO THE INPUT DECK THAT ENCOUNTERED THE ERROR.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 3 *****

REPORTED BY: DICK FARMAN (EI) 01/06/82
REPORTED TO: AL CRAIL (EI) 01/06/82

METHOD OF REPORT: VERBAL

CODE VERSION: RETRAN-02 MOD002 (ENVIRONMENTAL LIBRARIES)

COMPUTER/OPERATING SYSTEM: 176/NOSBE, UCCEL

LISTING SUPPLIED: YES

DECK SUPPLIED: YES

DECK DESCRIPTION: THE PROBLEM CAN BE ENCOUNTERED BY ANY DECK THAT TRIES
TO PLOT A VARIABLE THAT RANGES BETWEEN 0.0 AND 1.0,
SUCH AS NORMALIZED POWER. THE SPECIFIC DECK THAT
ORIGINALLY ENCOUNTERED THE PROBLEM IS NOT AVAILABLE.

DESCRIPTION OF PROBLEM:

PLOTS CAN NOT BE MADE WITH A SCALING FACTOR LESS THAN ONE.

DISPOSITION:

AN ERROR WAS FOUND AND CORRECTED IN THE ENVIRONMENT LIBRARIES.
THE CHANGE IS INCLUDED IN IDENT MOD22(CDC) AND MOD26(IBM) AS
MODIFICATION NUMBER 2

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 4 *****

REPORTED BY: CAL SLATER (ITI) 01/11/82
REPORTED TO: MARK PAULSEN (EI) 01/11/82

METHOD OF REPORT: TELEPHONE CONVERSATION

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: 176/NOSBE

LISTING SUPPLIED: NO (ORIGINAL LISTING NO LONGER AVAILABLE)

DECK SUPPLIED: YES

DECK DESCRIPTION: THE PROBLEM WAS ENCOUNTERED WITH AN ITI MODEL OF
LOFT. A RESTART DECK WAS USED TO REPRODUCE AND
IDENTIFY THE ERROR. THE DECK IS NO LONGER AVAILABLE.

DESCRIPTION OF PROBLEM:

A ZERO ENTHALPY FOR A JUNCTION COMING FROM A NONEQUILIBRIUM VOLUME
WILL BE COMPUTED WHEN THE NONEQUILIBRIUM DEVELOPS TWO REGIONS FROM
A SINGLE REGION IF THE JUNCTION IS AT THE TOP OF THE VOLUME AND
JVERTL = 2. A NEGATIVE ARGUMENT TO SQRT COULD ALSO BE ENCOUNTERED.

DISPOSITION:

AN ERROR WAS CONFIRMED AND IS CORRECTED IN THE RETRAN SOURCE UNDER
IDENT MOD003A, MODIFICATION NUMBER 96.

THE ERROR CORRECTION WAS CONFIRMED BY EXECUTING THE MODIFIED CODE WITH
THE INPUT DECK THAT ENCOUNTERED THE ERROR.

MODELING ALTERNATIVES:

DO NOT USE JVERTL = 2, JVERTL = 0 OR 1 WOULD BE BETTER. SMALLER TIME
STEPS MAY BE REQUIRED UNTIL TWO REGIONS ARE WELL ESTABLISHED.

***** PROBLEM REPORT NUMBER 5 *****

REPORTED BY: BYRON HANSON (EI) 01/12/82
REPORTED TO: AL CRAIL (EI) 01/12/82
REPORTED BY: P.R. SHIRE (WPPSS) 02/16/82
REPORTED TO: JIM MCFADDEN (EI) 02/16/82

METHOD OF REPORT: (EI) VERBAL
(WPPSS) LETTER WITH EXAMPLES AND INPUT LISTING

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: 176/NOSBE

LISTING SUPPLIED: YES

DECK SUPPLIED: YES (EI) AND A LISTING (WPPSS)

DECK DESCRIPTION: (EI) THE PROBLEM WAS ENCOUNTERED WITH A DECK TO PLOT THE RESULTS OF THE PRAIRIE ISLAND STEAM GENERATOR TUBE RUPTURE TRANSIENT. THE DECK REQUESTED ABOUT 15 FRAMES ALL WITH DEFAULT AXIS SCALING. THE DECK IS NO LONGER AVAILABLE.

(WPPSS) THE PROBLEM ENCOUNTERED INVOLVED A PLOT DECK FOR THEIR TURBINE TRIP CASE.

DESCRIPTION OF PROBLEM:

(EI) DEFAULT SCALING OF THE Y AXIS WOULD NOT WORK. THE PROBLEM WAS INTERMITTANT IN THAT IT WOULD WORK FOR SOME FRAMES AND NOT OTHERS.

(WPPSS) THE Y-AXIS SCALE AND TITLE WERE OVERLAYED ONTO THE ACTUAL PLOT IN THREE CASES. IN THREE OTHER CASES, THE AXIS AND TITLE WERE LOCATED CORRECTLY. ALL SIX CASES WERE RUN USING THE DEFAULT INPUT DATA.

DISPOSITION:

AN ERROR WAS CONFIRMED AND IS CORRECTED IN THE RETRAN SOURCE UNDER IDENT MOD003A, MODIFICATION NUMBER 99.

THE ERROR CORRECTION WAS CONFIRMED BY EXECUTING THE MODIFIED CODE WITH THE INPUT DECK THAT ENCOUNTERED THE ERROR.

MODELING ALTERNATIVES:

SPECIFY AXIS SCALING.

***** PROBLEM REPORT NUMBER 6 *****

REPORTED BY: CAL SLATER (ITI) 01/15/82
REPORTED TO: KENT RICHERT (EI) 01/15/82

METHOD OF REPORT: TELEPHONE

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: 176/NOSBE

LISTING SUPPLIED: NO (ORIGINAL LISTING NO LONGER AVAILABLE)

DECK SUPPLIED: YES

DECK DESCRIPTION: THE PROBLEM WAS ENCOUNTERED WITH AN ITI LOFT MODEL.
A RESTART DECK WAS USED TO ENCOUNTER AND IDENTIFY THE
ERROR. THE DECK IS NO LONGER AVAILABLE.

DESCRIPTION OF PROBLEM:

THE HEAT TRANSFER WOULD NOT CONVERGE AT A CERTAIN POINT IN THE
TRANSIENT FOR HEAT TRANSFER MODE 15.

DISPOSITION:

AN ERROR WAS CONFIRMED AND IS CORRECTED IN THE RETRAN SOURCE UNDER
IDENT MOD003A, MODIFICATION NUMBER 97.

THE ERROR CORRECTION WAS CONFIRMED BY EXECUTING THE MODIFIED CODE WITH
THE RESTART DECK THAT ENCOUNTERED THE ERROR.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 7 *****

REPORTED BY: ADI IRANI (GPU) 1/15/82
REPORTED TO: CRAIG PETERSON (EI) 1/15/82
REPORTED BY: GREGG SWINDLEHURST (DUKE) 5/14/82
REPORTED TO: JIM MCFADDEN (EI) 5/14/82

METHOD OF REPORT: TELEPHONE CONVERSATION (EPSC TROUBLE REPORT, DATED
12/31/81 WAS SENT BY MAIL)(IRANI)
LETTER DATED 5/14/82 (SWINDLEHURST)

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: IBM

LISTING SUPPLIED: NO (IRANI)
NO (SWINDLEHURST)

DECK SUPPLIED: IRANI ENCOUNTERED THE PROBLEM WITH AN OYSTER CREEK DECK
OF WHICH WE HAD A COPY.
A DECK WAS NOT SUPPLIED BY SWINDLEHURST.

DECK DESCRIPTION: AN OYSTER CREEK MODEL IN RET:QA:DECKS:7

DESCRIPTION OF PROBLEM:

THERE CERTAIN SITUATIONS IN WHICH THE REVERSE JUNCTION LOSS
COEFFICIENT WILL NOT BE SET TO THE FORWARD LOSS COEFFICIENT IF
THAT OPTION IS USED. THE PROBLEM IS EASILY RECOGNIZED BY THE
REVERSE LOSS COEFFICIENT SET EQUAL TO -1.0 AFTER STEADY STATE
INITIALIZATION IS COMPLETE.

DISPOSITION:

AN ERROR WAS CONFIRMED AND IS CORRECTED IN RETRAN SOURCE UNDER
IDENT MOD003A, MODIFICATION NUMBER 102.

THE ERROR CORRECTION WAS CONFIRMED BY EXECUTING THE MODIFIED CODE WITH
THE OYSTER CREEK DECK THAT ENCOUNTERED THE ERROR.

MODELING ALTERNATIVES:

SUPPLY VALUES FOR JUNCTION REVERSE LOSS COEFFICIENTS.

***** PROBLEM REPORT NUMBER 8 *****

REPORTED BY: CRAIG PETERSON (EI) 1/16/82
REPORTED TO: CRAIG PETERSON (EI) 1/16/82
REPORTED BY: EVA GILEADI (DE) 7/15/82
REPORTED TO: MARK PAULSEN (EI) 7/15/82

METHOD OF REPORT: LETTER (DE)

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: 176/NOSBE (EI)
IBM (DE)

LISTING SUPPLIED: YES (EI); NO (DE)

DECK SUPPLIED: YES (EI); NO (DE)

DECK DESCRIPTION: THIS IS A COMMON PROBLEM THAT IS ENCOUNTERED ON
MANY DECKS. ONE OF THE DECKS USED TO CHECK OUT
THE CORRECTIONS IS A MODEL OF THE QUAD CITIES
PLANT IN RET:QA:DECKS:8

DESCRIPTION OF PROBLEM:

THE TRIP SUMMARY WOULD NOT WRITE CORRECT VALUES FOR IX1 AND IX2
FOR MOST TRIPS OCCURRING DURING THE CALCULATION.

DISPOSITION:

AN ERROR WAS CONFIRMED AND IS CORRECTED IN THE RETRAN SOURCE UNDER
IDENT MOD003A, MODIFICATION NUMBER 103.

THE ERROR CORRECTION WAS CONFIRMED BY EXECUTING THE MODIFIED CODE WITH
THE INPUT DECK THAT ENCOUNTERED THE ERROR.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 9 *****

REPORTED BY : GLENN MILLER (PP&L) DATE: 01/20/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 01/20/82

METHOD OF REPORT : CONVERSATION AT USER GROUP MEETING

CODE VERSION : RETRAN-02 MOD001

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NOT INITIALLY, BUT IT WAS RECEIVED LATER

DECK DESCRIPTION : DECKS ARE IN RET:QA:9.1 AND RET:QA:9.2

DESCRIPTION OF PROBLEM:

THE TRIP SUMMARY INDICATED TRIPS WERE (1) NOT OCCURRING AT THE
CORRECT TIME, AND (2) THAT TRIPS WERE GOING ON AND OFF WHEN USING
THE ITERATIVE NUMERICS.

DISPOSITION:

THE TRIP ACTIONS WERE REVIEWED AND DETERMINED TO BE WORKING
CORRECTLY FOR THIS PROBLEM, BUT THE INFORMATION BEING WRITTEN TO
THE FILE WHICH PROVIDES THE TRIP SUMMARY AT THE END OF THE RUN WAS
INCORRECT.

THE REVISIONS TO THE TRIP LOGIC (MODIFICATION 112, IDENT MOD003A)
CORRECT THE PROBLEM WITH THE TRIP SUMMARY EDIT.

MODELING ALTERNATIVES:

IT IS NOT POSSIBLE TO CORRECT THE PROBLEM WITH THE TRIP SUMMARY
EDIT UNLESS THE CODE IS UPDATED. THE USER CAN MONITOR THE STATUS
OF ANY TRIP USING MINOR EDITS TO DETERMINE IF THE TRIP IS
FUNCTIONING CORRECTLY.

***** PROBLEM REPORT NUMBER 10 *****

REPORTED BY: TALMADGE CLEMENTS (CPL) DATE: 01/28/82
REPORTED TO: JIM MCFADDEN (EI) DATE: 01/28/82

METHOD OF REPORT: TELEPHONE CONVERSATION.

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: 176/NOSBE

LISTING SUPPLIED: NO (CPL) YES(EI)

DECK SUPPLIED: NO (CPL) YES(EI)

DECK DESCRIPTION: THE PROBLEM CAN BE ENCOUNTERED ON ANY DECK THAT
A JUNCTION USING THE MOMENTUM MIXING OPTION (MVMIX=1
OR 2) AND HAS NO JUNCTION TO MIX WITH. I. E. THERE
IS ONLY ONE JUNCTION OUT OR INTO THE VOLUME. THE
DECK THAT ORIGINALLY ENCOUNTERED THE PROBLEM IS NOT
AVAILABLE. THE TTWOB SAMPLE WAS MODIFIED BY EI TO
ENCOUNTER THE PROBLEM AND IS LOCATED IN UDD:OP:RET:
QA:DECKS:10.

DESCRIPTION OF PROBLEM:

A MODE 2 ERROR WAS ENCOUNTERED.

DISPOSITION:

THE MODE 2 ERROR WAS CAUSED BY AN INPUT ERROR THAT WAS NOT IDENTIFIED
AND DIAGNOSED BY THE INPUT PROCESSING. THE USER MODIFIED HIS DECK
AND RERUN THE PROBLEM AND THE ERROR WAS NOT ENCOUNTERED. THE RETRAN
SOURCE CODE WAS MODIFIED TO IDENTIFY THE INPUT ERROR AND WRITE THE
APPROPRIATE MESSAGE. THE MODIFICATION WAS MADE TO IDENT MOD003A AS
MODIFICATION NUMBER 101.

THE INPUT DIAGNOSTICS WERE VERIFIED BY EXECUTING A SAMPLE PROBLEM
MODIFIED WITH THE SAME INPUT ERROR.

MODELING ALTERNATIVES:

NONE REQUIRED, JUST CORRECT THE INPUT.

***** PROBLEM REPORT NUMBER 11 *****

REPORTED BY: ADI IRANI (GPU) 3/ 3/82
REPORTED TO: CRAIG PETERSON (EI) 3/ 3/82

METHOD OF REPORT: TELEPHONE CONVERSATION AND ERROR REPORT FORM

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: IBM

LISTING SUPPLIED: NO

DECK SUPPLIED: YES

DECK DESCRIPTION: THE PROBLEM WAS ENCOUNTERED WITH AN OYSTER CREEK
MODEL. A RETRAN MODEL FOR OYSTER CREEK IS IN
UDD:OP:RET:QA:DECKS:11

DESCRIPTION OF PROBLEM:

NO ERROR MESSAGE IS WRITTEN IF JUNCTION ENTHALPY IS OUT OF RANGE
OF CRITICAL FLOW CURVE FITS WHEN USING ITERATIVE NUMERICS. JOB IS
ABORTED WITH ERROR MESSAGE "IMPLICIT TIME STEP SIZE IS LESS THAN THE
MINIMUM SIZE".

DISPOSITION:

THE ERROR ENCOUNTERED DURING RUN WAS NOT CORRECTLY DIAGNOSED BY
RETRAN. MODIFICATION NEEDS TO BE MADE TO DETECT THE INPUT ERROR
AND WRITE THE CORRECT ERROR MESSAGE. THE PROBLEM WAS ENCOUNTERED
WITH THE HENRY FAUSKE CHOKING MODEL IN WHICH THE EXPRESSION IS VALID
FOR A MINIMUM JUNCTION ENTHALPY OF 170 BTU/LB.

THE CORRECTION IS IN MOD003A AS MODIFICATION NUMBER 106.

MODELING ALTERNATIVES:

USE THE ISOENTHALPIC EXPANSION CHOKING MODEL (JCHOKE=1) OR NO CHOKING
(JCHOKE=-1) FOR JUNCTIONS IN WHICH THE ENTHALPY IS LESS THAN 170
BTU/LB.

***** PROBLEM REPORT NUMBER 12 *****

REPORTED BY: JOE NASER (EPRI) 3/15/82
REPORTED TO: CRAIG PETERSON (EI) 3/15/82
REPORTED BY: GREGG SWINDLEHURST(DUKE) 5/14/82
REPORTED TO: JIM MCFADDEN (EI) 5/14/82
REPORTED BY: ADI IRANI (GPU) 6/01/82
REPORTED TO: JIM MCFADDEN (EI) 6/01/82

METHOD OF REPORT: TELEPHONE CONVERSATION (NASER)
LETTER DATED 5/14/82 (SWINDLEHURST)
CODE TROUBLE REPORT (IRANI)

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: UCCEL, CYBER 176 (NASER)
IBM (SWINDLEHURST, IRANI)

LISTING SUPPLIED: A LISTING WAS SUPPLIED BY SWINDLEHURST BUT NOT BY
NASER OR IRANI.

DECK SUPPLIED: A DECK WAS SUPPLIED FOR THE PROBLEM ENCOUNTERED BY NASER.
A DECK WAS PUNCHED FROM THE LISTING SUPPLIED BY SWINDLE-
HURST.
NO DECK WAS SUPPLIED BY GPU.

DECK DESCRIPTION: NASER ENCOUNTERED THE PROBLEM WITH A SHIPPINGPORT
PRESSURIZER DECK. THE DECK IS LOCATED IN RET:QA:12.2.
SWINDLEHURST ENCOUNTERED THE PROBLEM WITH THE DECK
STORED ON FILE IN RET:QA:12.1.

DESCRIPTION OF PROBLEM:

THE PROBLEM TERMINATED WITH AN ERROR IN SUBROUTINE JUNPRP WITH A MODE
2 ERROR. FURTHER IT WAS DETERMINED THE PROBLEM WAS CAUSED BY DIVIDING
BY A JUNCTION SPECIFIC VOLUME OF ZERO. THE FORTRAN STATEMENT IS
AVEDJ(I) = ONE/SPVJ(I). THE JUNCTION CAUSING THE PROBLEM IS A FILL
THAT IS TRIPPED OFF THE TIME STEP THE ERROR OCCURS.

DISPOSITION:

AN ERROR IN RETRAN WAS CONFIRMED. THE ERROR IS CORRECTED BY THE
REVISION OF THE TRIP LOGIC -- MODIFICATION NUMBER 112 IN MOD003A.

MODELING ALTERNATIVES:

WHEN A FILL JUNCTION FLOW STOPS (GOES TO ZERO) THE SPECIFIC VOLUME
OF THE JUNCTION FLUID IS SET TO ZERO. THE CODE USES THIS QUANTITY
TO COMPUTE THE JUNCTION FLUID DENSITY AND ENCOUNTERS THE ERROR.
ONE METHOD TO MODEL AROUND THE PROBLEM WOULD ALLOW A VERY SMALL
FLOW TO CONTINUE SO THE SPECIFIC VOLUME IS NOT SET TO ZERO.

***** PROBLEM REPORT NUMBER 13 *****

REPORTED BY: ADI IRANI (GPU) 3/22/82
REPORTED TO: CRAIG PETERSON (EI) 3/22/82

METHOD OF REPORT: TELEPHONE CONVERSATION AND ERROR REPORT FORM.

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: IBM

LISTING SUPPLIED: NO

DECK SUPPLIED: NO

DECK DESCRIPTION: THE PROBLEM WAS NOT IDENTIFIED BY A DECK.

DESCRIPTION OF PROBLEM:

THE LOCAL CONDITIONS HEAT TRANSFER MODEL CANNOT CORRECTLY MODEL
A ONCE THROUGH STEAM GENERATOR SINCE SUPER HEATED VAPOR CANNOT
EXIT FROM THE SINGLE VOLUME OF THE SECONDARY SIDE. NO INPUT DECK
IS REQUIRED.

DISPOSITION:

THIS IS NOT AN ERROR IT IS A LIMITATION OF THE MODEL AND IS STATED
AS SUCH IN THE THEORY MANUAL.

MODELING ALTERNATIVES:

DO NOT USE THE LOCAL CONDITIONS WITH A ONCE THROUGH STEAM GENERATOR.

***** PROBLEM REPORT NUMBER 14 *****

REPORTED BY: SAL RANATZA (MSS) 3/29/82
REPORTED TO: KENT RICHERT (EI) 3/29/82

METHOD OF REPORT: TELEPHONE CONVERSATION AND ERROR REPORT FORM.

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: IBM

LISTING SUPPLIED: NO

DECK SUPPLIED: YES

DECK DESCRIPTION: STANDARD PROBLEM 5 ON RETRAN TRANSMITTAL TAPE
IN RET: SAMPLE: SP5.

DESCRIPTION OF PROBLEM:

CRITICAL HEAT FLUX CALCULATED FOR RIGHT SIDE OF HEAT CONDUCTOR 2
WAS BASED ON VOLUME ENTHALPY INSTEAD OF JUNCTION ENTHALPY.

DISPOSITION:

AN ERROR WAS CONFIRMED BY KENT RICHERT AND WAS CHECKED AND REPORTED
BY MSS. IT IS INCLUDED IN MOD003 AS MODIFICATION 113.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 15 *****

REPORTED BY: KEN KEITH (TVA) 4/ 2/82
REPORTED TO: CRAIG PETERSON (EI) 4/ 2/82

METHOD OF REPORT: TELEPHONE CONVERSATION

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: CDC/NOS

LISTING SUPPLIED: NO

DECK SUPPLIED: NO

DECK DESCRIPTION: NO SPECIFIC DECK WAS SUPPLIED. HOWEVER THE DECK CONTAINED TWO NONEQUILIBRIUM VOLUMES. THE ERROR CAN BE REPRODUCED BY INCLUDING A SECOND NONEQUILIBRIUM VOLUME IN THE UCRW SAMPLE PROBLEM. THE UCRW SAMPLE PROBLEM IS IN RET:SAMPLE:UCRW.

DESCRIPTION OF PROBLEM:

WHEN TWO OR MORE NONEQUILIBRIUM VOLUMES ARE INCLUDED IN A MODEL, NONEQUILIBRIUM MINOR EDIT VARIABLES CANNOT BE OBTAINED FOR THE SECOND NONEQUILIBRIUM VOLUME. THE CODE COMPLAINS ABOUT THE REGION REQUEST FOR THE MINOR EDIT VARIABLE BEING OUT OF RANGE.

DISPOSITION:

THE ERROR WAS REPRODUCED WITH THE UCRW SAMPLE BY ADDING ANOTHER NONEQUILIBRIUM VOLUME AND REQUESTING MINOR EDIT VARIABLES FOR THAT VOLUME.

THE PROBLEM WAS CAUSED BY THE NUMBER OF NONEQUILIBRIUM VOLUMES INPUT NOT EQUALING THE INPUT QUANTITY NPRZR (ON CARD 01000Y). THE INPUT MANUAL DOES NOT STATE NPRZR MUST BE EQUAL TO THE NUMBER OF NONEQUILIBRIUM VOLUMES. THE CODE WAS MODIFIED TO ALLOW NPRZR = 1 TO BE ADEQUATE REGARDLESS OF THE NUMBER OF NONEQUILIBRIUM VOLUMES IN THE PARTICULAR RUN.

THIS PROBLEM IS RELATED TO PROBLEM REPORT NUMBER 26 AND IS CORRECTED BY MODIFICATION NUMBER 109 UNDER CORRECTION SET MOD003A.

MODELING ALTERNATIVES:

SET NPRZR (ON CARD 01000Y) EQUAL TO THE TOTAL NUMBER OF NONEQUILIBRIUM VOLUMES.

***** PROBLEM REPORT NUMBER 16 *****

REPORTED BY : TONY ROSCIOLI (PP&L) DATE: 04/06/82
REPORTED TO : MARK PAULSEN (EI) DATE: 04/06/82
REPORTED BY : BOB COX (APS) DATE: 05/18/82
REPORTED TO : MARK PAULSEN (EI) DATE: 05/18/82

METHOD OF REPORT : TELEPHONE CONVERSATION AND LETTERS

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO, THE DECKS ENCOUNTERING THIS ERROR ARE RETRAN
SAMPLE PROBLEMS USING THE SEPARATOR MODEL

DECK DESCRIPTION : ANY DECK USING A SEPARATOR MODEL AND THE SIMPLE
OVERLAY ON IBM WILL ENCOUNTER THIS ERROR.

DESCRIPTION OF PROBLEM:

IF THE SEPARATOR MODEL IS USED AND THE NONEQUILIBRIUM OPTION IS
NOT REQUESTED ON THE PROBLEM DIMENSION CARD, THE SIMPLE OVERLAY
OF THE IBM VERSION OF THE CODE WILL QUIT WITH AN INPUT ERROR.

DISPOSITION:

THE NONEQUILIBRIUM CODING MUST BE RESERVED BY A CALL TO RESOPT
IF THE SEPARATOR MODEL IS REQUESTED.

THE ERROR CORRECTION WAS MADE IN MODIFICATION 121 OF MOD003A.

MODELING ALTERNATIVES:

ASK FOR BOTH THE NONEQUILIBRIUM OPTION AND THE SEPARATOR MODEL ON
THE PROBLEM DIMENSION CARD IF THE SIMPLE OVERLAY IBM VERSION IS
USED.

***** PROBLEM REPORT NUMBER 17 *****

REPORTED BY: JOE ERB (EI) 4/12/82
REPORTED TO: CRAIG PETERSON (EI) 4/12/82

METHOD OF REPORT: TELEPHONE CONVERSATION

CODE VERSION: RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: CDC/NOSBE

LISTING SUPPLIED: YES

DECK SUPPLIED: NO

DECK DESCRIPTION: THE DECK IS A MODEL OF THE DAVIS BESSE PLANT.

DESCRIPTION OF PROBLEM:

THE PROBLEM FAILED WITH A MODE 4 ERROR IN SUBROUTINE EDATA4. THE INPUT PROCESSING INDICATED NO FATAL INPUT ERRORS. HOWEVER, THERE WAS A WARNING MESSAGE STATING THE NONEQUILIBRIUM VOLUME OPTION WAS REQUESTED ON THE PROBLEM DIMENSION CARD BUT NO VOLUME WAS FLAGGED A NON-EQUIL. VOLUME. THE PROBLEM WAS RUN FLAGGING A A VOLUME AS NONEQUILIBRIUM. AND THE PROBLEM TERMINATED NORMALLY. THE PROBLEM WAS ENCOUNTERED WITH A MODEL BEING DEVELOPED FOR THE DAVIS BESSE PLANT. THE DECK THAT ENCOUNTERED THE PROBLEM IS NOT AVAILABLE BUT THE ERROR CAN PROBABLY BE REPRODUCED BY CREATING THE SAME INPUT ERROR IN ONE OF THE SAMPLE PROBLEMS.

DISPOSITION:

THE CURRENT WARNING MESSAGE WAS CHANGED TO AN ERROR MESSAGE IN MODIFICATION 111 IN MOD003A.

MODELING ALTERNATIVES:

USE CORRECT INPUT.

***** PROBLEM REPORT NUMBER 20 *****

REPORTED BY : GREGG SWINDLEHURST(DUKE POWER) DATE: 05/14/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 05/14/82

METHOD OF REPORT : LETTER TO JIM MCFADDEN DATED 05/14/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : A PAGE SHOWING THE TIMING EDIT WAS SUPPLIED.

DECK SUPPLIED : NO.

DECK DESCRIPTION : NO DESCRIPTION WAS SUPPLIED.

DESCRIPTION OF PROBLEM:

THE ERROR AS DESCRIBED IS: "THE TIMING EDIT USING THE REGULAR NUMERICS OPTION DOES NOT CORRECTLY ACCOUNT FOR THE TOTAL NUMBER OF TIME STEPS IF ALL TIME STEPS ARE AT THE UPPER LIMIT."

DISPOSITION:

THERE IS NOT AN ERROR IN THE CODE, IT IS A MATTER OF INTERPRETATION OF THE TIMING EDIT. THERE ARE TWO TIME STEP CONTROL MECHANISMS THAT ARE NOT ACCOUNTED FOR IN THE TIMING EDIT PRIMARILY BECAUSE THEY ARE OF LITTLE IMPORTANCE. THE FIRST TIME STEP RETRAN TAKES WHEN USING STANDARD NUMERICS IS THE MINIMUM TIME STEP FROM THE FIRST TIME STEP SET. ALSO, RETRAN WILL NOT ALLOW THE TIME STEP SIZE TO INCREASE BY MORE THAN A FACTOR OF FIVE FROM THE PREVIOUS TIME STEP. BOTH OF THE ITEMS ABOVE ARE NOT INCLUDED IN THE ACCOUNTING OF WHAT CONTROLS THE TIME STEPS. THE INFORMATION EDITED IN THE TIME STEP CONTROL EDIT DEALS WITH THE TIME STEP CONTROL ALGORITHMS THE USER CAN INFLUENCE BY INPUT.

MODELING ALTERNATIVES:

NONE REQUIRED.

***** PROBLEM REPORT NUMBER 21 *****

REPORTED BY : SAL RANATZA (MSS) DATE: 05/13/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 05/13/82

METHOD OF REPORT : TELEPHONE AND OUTPUT FROM RUNS

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : THREE PLOT CASES WERE RUN. THE LISTINGS WERE
 PROVIDED WITH PLOTS FOR CASES 2 AND 3.

DESCRIPTION OF PROBLEM:

THREE PLOT CASES WHICH FAILED WERE MAILED:

1. WHEN TRYING TO READ STRANGER TAPES AND A RETRAN DATA TAPE,
THE CODE FAILED ON A 240 ERROR.
2. WHEN TRYING TO PLOT 2 FRAMES, EACH WITH TWO REGULAR CURVES AND
ONE COMBINATION CURVE, THE FIRST FRAME WAS PLOTTED ALRIGHT,
BUT THE SECOND FRAME ONLY HAD THE REGULAR CURVES WHILE THE
SECOND COMBINATION CURVE WAS PUT ON A THIRD FRAME.
3. THE X AXIS REQUESTED WAS FOR MINUTES WITH INCREMENTS OF
0.5 MIN/INCH. THE AXIS SCALE AND LABEL WERE CORRECT, BUT
THE DATA WERE PLOTTED AS IF THE SCALE WAS 1.0 MIN/INCH.

DISPOSITION:

THE REPORTED ERROR IN ITEM 1 HAS BEEN REVIEWED, BUT NO DEFICIENCIES
IN THE CODE CAN BE IDENTIFIED. IT IS CONSIDERED TO BE A SYSTEM
RELATED PROBLEM, AND NOT A CODE ERROR.

THE ERROR IN ITEM 2 RESULTS FROM AN INCORRECT INDEX IN SUBROUTINE
INPLOT WHICH STORES THE INFORMATION FOR COMBINATION CURVES. THE
ERROR HAS BEEN CORRECTED AND THE MODIFICATION IS INCLUDED IN THE
MOD003B UPDATE AS MODIFICATION 131.

THE ERROR IN ITEM 3 IS THE SAME AS DESCRIBED IN REPORT NUMBER 3,
AND IS CORRECTED IN THE ENVIRONMENTAL LIBRARIES AS MODIFICATION
NUMBER 2 IN BOTH MOD22-CDC, MOD26-IBM.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 22 *****

REPORTED BY : GREGG SWINDLEHURST(DUKE) DATE: 05/14/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 05/14/82

METHOD OF REPORT : LETTER TO JIM MCFADDEN DATED 5/14/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : A DECK WAS PUNCHED FROM THE LISTING SUPPLIED

DECK DESCRIPTION : THE DECK IS LOCATED ON A LOCAL FILE AS RET:QA:DECKS:22

DESCRIPTION OF PROBLEM:

ADDITIONAL MINOR AND MAJOR EDITS ARE PRINTED OCCASIONALLY WHEN
THE ITERATIVE NUMERICS OPTION WAS USED.

DISPOSITION:

THERE IS AN ERROR CAUSING THE ADDITIONAL EDITS. THE ERROR DOES NOT
EFFECT THE CALCULATION IN ANY MANNER. THE ERROR IS CAUSED BY
THE NORMAL TIME STEP SELECTED REACHING AN EDIT BOUNDARY AND SET-
TING THE EDIT FLAGS. WHEN THE TIME STEP IS TAKEN THE NUMERICS
DO NOT CONVERGE FORCING THE TIME STEP TO BE HALVED, HOWEVER,
THE EDIT FLAGS ARE NOT RESET WHICH FORCES AN EDIT AT AN INCOR-
RECT TIME.

THE ERROR IS CORRECTED IN MOD003A AS MODIFICATION NUMBER 110.

MODELING ALTERNATIVES:

THERE ARE NO MODELING ALTERNATIVES TO GET AROUND THE PROBLEM.

***** PROBLEM REPORT NUMBER 24 *****

REPORTED BY : GREGG SWINDLEHURST(DUKE) DATE: 05/14/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 05/14/82

METHOD OF REPORT : LETTER TO JIM MCFADDEN DATED 05/14/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES (INPUT ONLY)

DECK SUPPLIED : THE DATA DECK WAS PUNCHED FROM THE LISTING SUPPLIED.

DECK DESCRIPTION : THE DATA DECK IS LOCATED ON A LOCAL FILE AS
RET:QA:DECKS:24

DESCRIPTION OF PROBLEM:

THE ERROR DESCRIBED BY SWINDLEHURST IS "ON PAGE IV-60 OF VOLUME 3 (NP-1850), THE BOTTOM PARAGRAPH STATES, IF THE VOLUME CONTAINS SATURATED LIQUID... OR PRESSURE AND QUALITY MAY BE SUPPLIED," IS INCORRECT. WITH $X = 0.0$, AN ERROR RESULTS. WITH $X = 0.01$ THE CODE WORK CORRECTLY. THE STATEMENT IS NOT VALID FOR SATURATED LIQUID."

THE PROBLEM FAILED 5.0 SECONDS INTO THE TRANSIENT STATING "INPUT ERROR IN TIME DEPENDENT VOLUME. CHECK INPUT MANUAL FOR QUALITY CALCULATION."

DISPOSITION:

WHEN THE SATURATION LINE IS FOLLOWED ($X=0.0$) FOR TIME DEPENDENT VOLUMES, THERE IS A CHECK IN SUBROUTINE PBOUND TO MAKE SURE THE PRESSURE IS CONSISTENT WITH THE TEMPERATURE IN THE TIME DEPENDENT VOLUME TABLE. IF THE PRESSURE FROM THE TABLE IS NOT WITHIN 0.5 % OF THE SATURATION PRESSURE OBTAINED FROM A T-X STATE CALL, AN ERROR MESSAGE IS WRITTEN. CONSISTENCY IS GUARANTEED FOR EACH DATA POINT BY THE INPUT PROCESSING, HOWEVER, WHEN INTERPOLATING BETWEEN POINTS FOR BOTH PRESSURE AND TEMPERATURE, THE TWO QUANTITIES MAY NOT BE EXACTLY CONSISTENT. THE FEWER THE DATA POINTS, THE MORE ROOM THERE IS FOR A MISMATCH. RETRAN USES THE PRESSURE FROM THE T-X STATE CALL AND NOT THE PRESSURE INTERPOLATED FROM THE TABLE IF THE FLUID IS SATURATED. THE CONSISTENCY CHECK IN PBOUND SHOULD NOT BE A FATAL ERROR, AT MOST IT SHOULD ONLY BE A WARNING.

THE ERROR CONDITION WAS REMOVED IN CORRECTION SET MOD003A
MODIFICATION NUMBER 107.

MODELING ALTERNATIVES:

THE USER CAN AVOID THIS ERROR BY SUPPLYING MORE DATA POINTS WHEN THE STATE PROPERTIES VARY RAPIDLY. ANY DATA TABLE SUPPLIED TO RETRAN WHICH HAS VALUES THAT VARY RAPIDLY SHOULD BE DEFINED WITH ENOUGH POINTS TO PROPERLY DESCRIBE THE PHENOMENA. THE NUMBER OF POINTS REQUIRES JUDGEMENT ON THE PART OF THE USER. RETRAN SHOULD NOT TRY TO MAKE ANY DECISIONS ABOUT CONSISTENCY OF THE TABLE.

***** PROBLEM REPORT NUMBER 25 *****

REPORTED BY : GREGG SWINDLEHURST(DUKE) DATE: 05/14/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 05/14/82

METHOD OF REPORT : LETTER TO JIM MCFADDEN DATED 05/14/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : A DECK WAS PUNCHED FROM THE INPUT LISTING.

DECK DESCRIPTION : IT IS A TWO VOLUME MODEL OF AN ACCUMULATOR CONTAINING
AIR AND A VOLUME AT ATMOSPHERIC PRESSURE. THE LIQUID
IN THE ACCUMULATOR FLOWS INTO THE VOLUME AT ATMOS-
PHERIC PRESSURE. THE DECK IS ON A LOCAL FILE AS
CEP:DUKEPB10.

DESCRIPTION OF PROBLEM:

THE PRINTOUT SHOWS A PROBLEM WHERE AN ACCUMULATOR WITH AIR OVER-
WATER DISCHARGES INTO A TIME DEPENDENT ATMOSPHERIC RECEIVER VOLUME.
THE CALCULATION PROCEEDED CORRECTLY THROUGH 12.0 SECONDS. SHORTLY
AFTER 12.0 SECONDS THE ACCUMULATOR VOLUME TEMPERATURE DROPS RAPIDLY
FROM 64 TO 33 DEGREES THEN FAILS BECAUSE THE JUNCTION ENTHALPY
BECOMES LOWER THAN THE VALID RANGE FOR THE RETRAN STATE PROPERTY
FITS.

DISPOSITION:

THE PROBLEM ENCOUNTERED IS A MODEL LIMITATION AND NOT A CODE ERROR.
THE AIR AND WATER PHASES ARE ASSUMED TO BE AT EQUAL TEMPERATURES.
AS THE VOLUME DEPRESSURIZES, THE AIR COOLS DUE TO EXPANSION. SINCE
THE TWO PHASES HAVE TO BE AT EQUAL TEMPERATURE, ENERGY IS REMOVED
FROM THE WATER TO KEEP THE AIR TEMPERATURE UP. THE AIR MASS
REMAINS CONSTANT YET THE WATER MASS IS CONTINUALLY DECREASING.
WITH LESS MASS TO KEEP THE AIR TEMPERATURE UP. THERE IS LESS
AND LESS WATER MASS TO DRAW ENERGY FROM AS THE PROBLEM PROGRESSES.
THIS PROCESS DRIVES THE WATER TEMPERATURE DOWN UNTIL IT REACHES
33 DEGREES.

THE ACTUAL PHYSICAL PROCESS WOULD SEE A LARGE TEMPERATURE DIFFER-
ENTIAL BETWEEN THE AIR AND WATER DURING BLOWDOWN. HOWEVER, THIS
CAN NOT BE CURRENTLY MODELED WITH RETRAN.

MODELING ALTERNATIVES:

NONE AVAILABLE

***** PROBLEM REPORT NUMBER 26 *****

REPORTED BY : ROGER GORMAN (APS) DATE: 05/18/82
REPORTED TO : CRAIG PETERSON (EI) DATE: 05/18/82

METHOD OF REPORT : TELEPHONE CONVERSATION

CODE VERSION : RETRAN-02 MOD001

COMPUTER/OPERATING SYSTEM : CDC UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : THE RETRAN INPUT DECK IS A BALANCE OF PLANT MODEL.
THE DECK IS ON LOCAL FILE IN CEP:HOUSTON1

DESCRIPTION OF PROBLEM:

THE MODEL HAD 3 NONEQUILIBRIUM VOLUMES, ONE FOR EACH FLASH TANK VOLUME. EACH NONEQUILIBRIUM VOLUME USED THE BUBBLE VELOCITY FROM THE BUBBLE RISE DATA SET SUPPLIED (IPVBUB=1 ON CARD 05XXXY). RETRAN COMPUTED UNREASONABLE BUBBLE RISE PARAMETERS FOR THESE VOLUMES, THEN FAILED WITH AN ERROR MESSAGE FROM STEADY STATE INITIALIZATION COMPLAINING ABOUT ZERO BUBBLE VELOCITY.

DISPOSITION:

THE PROBLEM WAS CAUSED BECAUSE OF A DISCREPANCY BETWEEN THE INPUT MANUAL AND THE REQUIRED INPUT OF THE CODE. IF THE NONEQUILIBRIUM VOLUME IS USED THE INPUT MANUAL REQUIRES IPRZR (ON CARD 01000Y) TO BE GREATER THAN 0, BUT IT DOES NOT HAVE TO BE EQUAL TO THE NUMBER OF NONEQUILIBRIUM VOLUMES. THE CODE REQUIRES IT TO BE EQUAL TO THE NUMBER OF NONEQUILIBRIUM VOLUMES. THIS DISCREPANCY IS CAUSING THE ERROR. THE CODE WAS MODIFIED TO ALLOW NPRZR (ON CARD 01000Y) TO BE 1 REGARDLESS OF THE NUMBER OF NONEQUILIBRIUM VOLUMES IN THE MODEL. THIS WILL MAKE THE INPUT MANUAL CORRECT. THIS CODE CHANGE IS MODIFICATION NUMBER 109 UNDER CORRECTION SET MOD003A.

THIS PROBLEM IS RELATED TO PROBLEM REPORT NUMBER 15. THE SAME CORRECTION FIXES BOTH ERRORS.

MODELING ALTERNATIVES:

IN ALL CASES SET NPRZR (ON CARD 01000Y) TO THE NUMBER OF NONEQUILIBRIUM VOLUMES IN THE MODEL.

***** PROBLEM REPORT NUMBER 27 *****

REPORTED BY : ED WINKLER (INPO) DATE: 05/25/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 05/25/82

METHOD OF REPORT : TELEPHONE CALL

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC -- UCCEL

LISTING SUPPLIED : NO (ORIGINAL LISTING NO LONGER AVAILABLE)

DECK SUPPLIED : YES

DECK DESCRIPTION : THE DECK IS A MODEL OF GINNA NUCLEAR STATION.
THE DECK IS SAVED ON A LOCAL FILE AS UDD:OP:RET:
QA:DECKS:27.

DESCRIPTION OF PROBLEM:

WHEN THE FREE CONVECTION HEAT TRANSFER MAP IS CHOSEN THE RUN
STATES THAT THE TWO SIDED HEAT TRANSFER FAILS TO CONVERGE FOR
ABOUT FOUR CONDUCTORS. THIS IS A WARNING MESSAGE SO THE PROBLEM
DOES NOT FAIL.

THE CONDUCTORS THAT FAILED TO CONVERGE ALL HAD FORCED CONVECTION
TO LIQUID (IH TL=1) ON THE LEFT SIDE AND FREE CONVECTION TO LIQUID
ON THE RIGHT SIDE (IH TR=10).

DISPOSITION:

AN ERROR WAS CONFIRMED AND CORRECTED AS MODIFICATION 114 IN MOD003A.
THE ERROR CORRECTION WAS VERIFIED BY EXECUTING THE PROBLEM THAT
ENCOUNTERED THE ERROR ORIGINALLY.

MODELING ALTERNATIVES:

DO NOT USE THE FREE CONVECTION HEAT TRANSFER MAP OPTION IF THIS
PROBLEM IS ENCOUNTERED.

***** PROBLEM REPORT NUMBER 28 *****

REPORTED BY : CHING-LU LIN (EPRI) DATE: 06/15/82
REPORTED TO : CRAIG PETERSON (EI) DATE: 06/15/82

METHOD OF REPORT : TELEPHONE CONSERVATION
EPSC TROUBLE REPORT DATED 8/3/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC -- UCCEL

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : THE DECK WAS A PRAIRIE ISLAND STEAM LINE BREAK MODEL.
WE DO NOT HAVE A COPY OF THE DECK HOWEVER THE PROBLEM
CAN BE REPRODUCED WITH THE UCRW SAMPLE PROBLEM.

DESCRIPTION OF PROBLEM:

MINOR EDITS OF TEMPERATURE TRANSPORT MODEL MESH ENTHALPIES CAN NOT
NOT BE OBTAINED. THE CODE WILL NOT ACCEPT THE MINOR EDIT
PNEUMONIC (HXXX) AS A VALID MINOR EDIT VARIABLE. THE CODE WRITES
AN ERROR MESSAGE TERMINATING THE EXECUTION OF THE PROBLEM.

DISPOSITION:

THIS PROBLEM IS CAUSED BY AN ERROR IN THE INPUT MANUAL AND IS NOT
A CODE ERROR. TABLE IV.6-12, PAGE IV-25 OF THE USERS MANUAL CON-
TAINS AN ERROR. THE TEXT READS, "REGION NUMBER IS THE DESIRED
TRANSPORT VOLUME NUMBER. TRANSPORT VOLUMES ARE NUMBERED SEQUENT-
IALLY (BEGINNING AT 1) AS THEY ARE ENCOUNTERED WHILE PROCESSING
THE CONTROL VOLUME INPUT DATA." THE TEXT SHOULD READ, "THE REGION
NUMBER IS THE DESIRED CONTROL VOLUME NUMBER."

MODELING ALTERNATIVES:

THE REGION NUMBER SHOULD CORRESPOND TO THE CONTROL VOLUME
NUMBER.

***** PROBLEM REPORT NUMBER 29 *****

REPORTED BY : ADI IRANI (GPU) DATE: 6/01/82
REPORTED TO : CRAIG PETERSON (EI) DATE: 6/01/82

METHOD OF REPORT : TELEPHONE AND ERROR REPORT FORM.

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : TMI MODEL

DESCRIPTION OF PROBLEM:

AN ERROR NUMBER 207 FROM SUBROUTINE WAT9 WAS ENCOUNTERED DURING
PRESSURE SEARCH FOR NONEQUILIBRIUM VOLUME.

DISPOSITION:

AN ERROR WAS IDENTIFIED AND IS CORRECTED IN MODIFICATION 115 IN
MOD003A.

MODELING ALTERNATIVES:

RESTARTING WITH DIFFERENT TIME STEPS MAY GET AROUND THE PROBLEM.

***** PROBLEM REPORT NUMBER 30 *****

REPORTED BY : ADI IRANI (GPU) DATE: 06/01/82
REPORTED TO : CRAIG PETERSON (EI) DATE: 06/01/82

METHOD OF REPORT : TELEPHONE AND ERROR REPORT FORM

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : THE DECK WAS A TMI ACCIDENT MODEL. THE DECK IS
LOCATED IN CEP:TMIACC.

DESCRIPTION OF PROBLEM:

THE RETRAN RUN TERMINATES WITH THE MESSAGE -- FAILURE IN ENERGY -
HEAT FLUX DOES NOT CONVERGE FOR MODE 7 IN SUBROUTINE QDOT.

DISPOSITION:

AN ERROR WAS IDENTIFIED AND IS CORRECTED IN MODIFICATION 124 IN
MOD003A.

MODELING ALTERNATIVES:

RESTARTING WITH DIFFERENT TIME STEPS SEEMS TO GET AROUND THE
PROBLEM.

***** PROBLEM REPORT NUMBER 31 *****

REPORTED BY : FRANK WENGER (CPL) DATE: 06/09/82
REPORTED TO : CRAIG PETERSON (EI) DATE: 06/02/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 06/13/82

METHOD OF REPORT : TELEPHONE AND LETTER TO JIM MCFADDEN

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC AT UCCEL

LISTING SUPPLIED : NO (ORIGINAL LISTING NO LONGER AVAILABLE)

DECK SUPPLIED : YES

DECK DESCRIPTION : THE DECK WAS FOR A BWR SYSTEM. THE DECK IS LOCATED
IN UDD:OP:RET:QA:DECKS:31.

DESCRIPTION OF PROBLEM:

STAGNANT SEPARATED VOLUMES DO NOT INITIALIZE WITH THE CORRECT ENTHALPY IF AN ENTHALPY IS NOT INPUT TO THE VOLUME. THE CODE SHOULD INITIALIZE STAGNANT SEPARATED VOLUMES WITH ZERO VAPOR BELOW THE MIXTURE LEVEL YET, IT SEEMS TO BE FAIRLY ARBITRARY WHEN DETERMINING THE ENTHALPY.

DISPOSITION:

AN ERROR IN THE INITIALIZATION PATH WAS FOUND. THE MODIFICATION TO FIX THIS PROBLEM IS MODIFICATION NUMBER 116 IN MOD003A.

THE CORRECTION WAS CHECKED WITH THE DECK THAT ENCOUNTERED THE PROBLEM.

MODELING ALTERNATIVES:

DEFINE THE ENTHALPY FOR STAGNANT SEPARATED VOLUMES IN THE INPUT.

***** PROBLEM REPORT NUMBER 32 *****

REPORTED BY : ROBERT COX (APS) DATE: 06/11/82
REPORTED TO : ART MCCLURE (EI) DATE: 06/04/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 06/17/82
REPORTED BY : D.E. TICKLE (APS) DATE: 06/29/82
REPORTED TO : L.J. AGEE (EPRI) DATE: 06/29/82

METHOD OF REPORT : TELEPHONE AND LETTER DATED 6/11/82 -- (APS)

CODE VERSION : RETRAN-02 MOD002 (IBM LIBRARY)

COMPUTER/OPERATING SYSTEM : IBM 3081

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : THE PROBLEM WAS ENCOUNTERED BY APS WITH THE REEDIT
AND PLOT SAMPLE PROBLEMS TRANSMITTED WITH THE RETRAN
SOURCE.

DESCRIPTION OF PROBLEM:

OC1 AND OC4 ERRORS WERE OBTAINED WHEN TRYING TO EXECUTE THE PLOT
AND REEDIT SAMPLE PROBLEMS.

DISPOSITION:

A CORRECTION TO GETCOR IN THE ENVIRONMENTAL LIBRARY WAS SENT TO
APS FOR CHECKOUT. THE CHANGE WAS FOUND TO SATISFACTORILY CORRECT
THE PREVIOUSLY NOTED PROBLEMS. THE CORRECTIONS ARE IN THE IBM
LIBRARY UPDATE MOD26 AS MODIFICATION 3 AND A COMPANION UPDATE IN
THE MOD003A UPDATE AS MODIFICATION 129.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 33 *****

REPORTED BY : ADI IRANI (GPU) DATE: 06/01/82
AND MIKE BAYLOR (GPU) DATE: 06/01/82
REPORTED TO : ART MCCLURE (EI) DATE: 06/04/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 06/17/82

METHOD OF REPORT : TELEPHONE AND ERROR REPORT FORM DATED 6/1/82 -- (GPU)

CODE VERSION : RETRAN-02 MOD002 (IBM LIBRARY)

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : THE DECK WAS A REEDIT OF A TMI ACCIDENT ANALYSIS.

DESCRIPTION OF PROBLEM:

REEDITING WORKS IF THE REEDIT BEGINS WITH DATA RECORD 1 AND
EDITS EVERY DATA RECORD, BUT FAILS WHEN RECORDS ARE SKIPPED.

DISPOSITION:

A SIMILAR ERROR WAS ENCOUNTERED BY APS (SEE REPORT 32), WITH THE
EXCEPTION THAT THE APS PROBLEM HAD FURTHER COMPLICATIONS NOT
OBSERVED AT GPU. WHILE LOOKING AT THE APS PROBLEM AN ERROR WAS
CONFIRMED IN THE BUFIO PACKAGE (ENVIRONMENTAL LIB.) IN THE BUFSKIP
ENTRY POINT. THIS CORRECTION IS INCLUDED AS MODIFICATION 3 IN
IDENT MOD26 FOR THE IBM LIBRARY. ALTHOUGH THIS CORRECTION RESOLVED
THE PROBLEM AT APS AND A SIMILAR RECONSTRUCTED PROBLEM AT UCCEL, THE
CORRECTIONS DID NOT SOLVE GPU'S PROBLEM. THE VERSION OF THE BUFIO
ROUTINES USED AT GPU ARE SLIGHTLY DIFFERENT THAN THE STANDARD
VERSIONS OWING TO LOCAL MODIFICATIONS MADE BY GPU, BUT THE COR-
RECTIONS TO BUFSKIP APPEAR TO BE IMPLEMENTED CORRECTLY. THE PROB-
LEM THAT APPEARED WITHOUT THE CORRECTIONS WAS THAT A GIVEN DATA
RECORD COULD NOT BE FOUND. THE MODIFIED CODE ENDS WITH AN ABEND
OUT OF BUFIO, SO WE MIGHT HAVE A DIFFERENT PROBLEM. THIS REPORT
IS NOT RESOLVED AS OF 10/07/82.

MODELING ALTERNATIVES:

THE ORIGINAL PROBLEM COULD BE AVOIDED BY OBTAINING EDITS FROM
EVERY DATA RECORD BEGINNING AT DATA RECORD 1. THE MODIFIED CODE
MAY BE DISPLAYING A DIFFERENT PROBLEM AND EDITING EVERY RECORD
MIGHT NOT CORRECT THE PROBLEM.

***** PROBLEM REPORT NUMBER 34 *****

REPORTED BY : MIKE BAYLOR (GPU) DATE: 06/01/82
REPORTED TO : ART MCCLURE (EI) DATE: 06/01/82
REPORTED BY : DONALD KRUPP (CP&L) DATE: 07/30/82
REPORTED TO : EPSC AND EPRI DATE: 07/30/82

METHOD OF REPORT : TELEPHONE CONVERSATION AND ERROR REPORT FORM (GPU)
 ERROR REPORT FORM (CP&L)

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM (GPU)
 CDC AT UCCEL (CP&L)

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : THE DECK WAS A REEDIT DECK.

DESCRIPTION OF PROBLEM:

THE OPTION TO WRITE AN AUXILIARY DATA FILE TO FORTRAN UNIT 60
DOES NOT WORK IF NWRIT = -1 (WORD 5 ON CARD 010001). IF NWRIT = 1
THE OPTION WORKED FINE. (GPU)

WHEN WRITING TO FORTRAN UNIT TAPE 60 DURING A REEDIT, GARBAGE WILL
BE WRITTEN ON TAPE 60 IF THE OPTION TO NOT WRITE OUT MAJOR AND
MINOR EDITS (NWRIT < 0) IS USED. (CP&L)

DISPOSITION:

THE PROBLEM HAS BEEN DUPLICATED ON BOTH AN IBM AND A CDC SYSTEM,
AND THE CODE PROBLEM HAS BEEN IDENTIFIED. THE ERROR IS CORRECTED
BY MODIFICATION 130 IN THE MOD003A UPDATE.

MODELING ALTERNATIVES:

USE THE NWRIT = 1 OPTION.

***** PROBLEM REPORT NUMBER 35 *****

REPORTED BY : GREGG SWINDLEHURST (DUKE) DATE: 06/15/82
 JACKIE LEE (DUKE)
REPORTED TO : JIM MCFADDEN (EI) DATE: 06/21/82

METHOD OF REPORT : LETTER TO JIM MCFADDEN DATED 6/15/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : THE PROBLEM WAS REPRODUCED WITH THE DECK SENT BY
 DUKE.

DECK SUPPLIED : YES

DECK DESCRIPTION : THE DATA DECK THAT ENCOUNTERED THE PROBLEM IS
 LOCATED IN CEP:DUKEHTX.

DESCRIPTION OF PROBLEM:

THE HEAT TRANSFER NORMALIZATION FACTOR FOR STEADY-STATE INITIALIZA-
TION OF STEAM GENERATORS IS SUPPOSED TO BE CONSTANT FOR ALL
CONDUCTORS IN A STEAM GENERATOR FOR A GIVEN SIDE (LEFT OR RIGHT).
IN THE DESCRIBED RUN THE NORMALIZATION FACTOR IS NOT CONSTANT FOR
THE RIGHT SIDE OF ALL CONDUCTORS. ALSO THE LOCAL CONDITIONS WAS
UTILIZED.

DISPOSITION:

THE PROBLEM IS NOT A CODE ERROR BUT, A MISINTERPRETATION OF THE
CODE THEORY. THE HEAT TRANSFER AREA NORMALIZATION FACTOR FOR STEAM
GENERATORS IS CONSTANT FOR THE LEFT SIDE OF ALL CONDUCTORS BUT THE
NORMALIZATION FACTOR FOR THE RIGHT SIDE IS COMPUTED VIA A HEAT
BALANCE ON A CONDUCTOR BY CONDUCTOR BASIS AND CAN DIFFER FOR
CONDUCTORS BELONG TO THE SAME STEAM GENERATOR.

MODELING ALTERNATIVES:

NONE REQUIRED.

***** PROBLEM REPORT NUMBER 36 *****

REPORTED BY : Y. MATSUI (NIPPON EI) DATE: 06/10/81
REPORTED TO : M. PAULSEN (EI) DATE: 06/10/81

METHOD OF REPORT : TELEX J32827 FROM Y. MATSUI 5/06/82
 LETTER L-127 FROM Y. MATSUI 5/17/82
 CORRECTION HAND CARRIED TO USA BY W. CHOE 6/10/82

CODE VERSION : RETRAN-02 MOD002 (IBM LIBRARY)

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : THE DECKS ENCOUNTERING THE PROBLEM WERE BOTH RETRAN
 AND RESTART DECKS.

DESCRIPTION OF PROBLEM:

THE 6250 BPI TAPE DENSITY REQUEST MADE VIA THE GE DENSITY PARAMETER
ON THE DATA TAPE REQUEST CARDS WAS NOT WORKING. ANY TIME GE WAS
SPECIFIED A 1600 BPI TAPE WAS WRITTEN. THE PROBLEM COULD NOT BE
DUPLICATED AT UCCEL ON THE IBM VERSION.

DISPOSITION:

THE ERROR WAS THE RESULT OF AN ERROR IN THE IBM VERSION OF BUFOUT
IN THAT THE DEVICE CODE FOR A GE REQUEST WAS SET TO 0000 WHICH
RESULTS IN THE TAPE BEING WRITTEN AT THE FACILITY DEFAULT DENSITY
(1600 ON NEI SERVICE BUREAU AND 6250 AT UCCEL).

MATSUI SENT CORRECTION WHICH HAS BEEN IMPLEMENTED IN THE IBM
LIBRARY AS MODIFICATION 4 UNDER THE MOD26 IDENT.

MODELING ALTERNATIVES:

NO WAY TO 6250 BPI TAPES IF FACILITY DEFAULT IS NOT 6250 BPI

***** PROBLEM REPORT NUMBER 37 *****

REPORTED BY : JA MCCLURE (EI) DATE: 06/24/82
REPORTED TO : MP PAULSEN (EI) DATE: 06/24/82

METHOD OF REPORT : VERBAL

CODE VERSION : RETRAN-02 MOD002 (CDC LIBRARY)

COMPUTER/OPERATING SYSTEM : CDC SCOPE 3.4, NOS/BE AND NOS

LISTING SUPPLIED : NO (ORIGINAL LISTING NO LONGER AVAILABLE)

DECK SUPPLIED : NO

DECK DESCRIPTION : NONE

DESCRIPTION OF PROBLEM:

THE CDC DISK PROCESS FILE MANAGER IMPROPERLY TREATED RANDOM DISK FILES AS SEQUENTIAL FILES. THIS ERROR RESULTS IN THE INABILITY TO USE MULTIPLE FILES ON A GIVEN UNIT.

THE PROBLEM HAS NOT BEEN OBSERVED ON RETRAN SINCE CURRENT PROCESS FILE USE ON RETRAN IS LIMITED TO A SINGLE FILE PER UNIT.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED AND IS INCLUDED IN THE MOD23 CDC ENVIRONMENTAL LIBRARY A MODIFICATION 5.

MODELING ALTERNATIVES:

NOT APPLICABLE

***** PROBLEM REPORT NUMBER 38 *****

REPORTED BY : JA MCCLURE (EI) DATE: 06/24/82
REPORTED TO : MP PAULSEN (EI) DATE: 06/24/82

METHOD OF REPORT : VERBAL

CODE VERSION : RETRAN-02 MOD002 (IBM LIBRARY)

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : NONE

DESCRIPTION OF PROBLEM:

THE BACKWARD MOVE OPTION IN THE ENVIRONMENTAL LIBRARY SUBROUTINE
MOVE ONLY MOVES 1 WORD RATHER THAN THE NUMBER REQUESTED (SEE
PROBLEM REPORT 38).

DISPOSITION:

THE ERROR WAS CORRECTED IN MODIFICATION 5 TO UPDATE MOD27 TO THE
IBM RETRAN ENVIRONMENTAL LIBRARY.

MODELING ALTERNATIVES:

NONE NECESSARY

***** PROBLEM REPORT NUMBER 39 *****

REPORTED BY : JA MCCLURE (EI) DATE: 06/24/82
REPORTED TO : MP PAULSEN (EI) DATE: 06/24/82

METHOD OF REPORT : VERBAL

CODE VERSION : RETRAN-02 MOD002 (IBM LIBRARY)

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : NONE

DESCRIPTION OF PROBLEM:

CONTINUATION CARDS ARE NOT RECOGNIZED BY SUBROUTINE INP AND THE
CARD NUMBER SEARCH CAN RESULT IN IMPROPER ORDERING OF CARD NUMBERS.

DISPOSITION:

THE ERROR WAS CORRECTED IN MODIFICATION 6 TO UPDATE MOD27 TO THE
IBM RETRAN ENVIRONMENTAL LIBRARY.

MODELING ALTERNATIVES:

AVOID USING CONTINUATION CARDS

***** PROBLEM REPORT NUMBER 40 *****

REPORTED BY : JA MCCLURE (EI) DATE: 06/24/82
REPORTED TO : MP PAULSEN (EI) DATE: 06/24/82

METHOD OF REPORT : VERBAL

CODE VERSION : RETRAN-02 MOD002 (IBM LIBRARY)

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : NONE

DESCRIPTION OF PROBLEM:

A HARDWIRED FTB ADDRESS IN SUBROUTINE GETCOR CAN CAUSE AN ERROR
IF THE MAIN PROGRAM COMMON BLOCK IS REVISED.

DISPOSITION:

THE ERROR WAS CORRECTED IN MODIFICATION 3 TO UPDATE MOD26 TO THE
IBM RETRAN ENVIRONMENTAL LIBRARY.

MODELING ALTERNATIVES:

NONE NECESSARY

***** PROBLEM REPORT NUMBER 41 *****

REPORTED BY : KEN KEITH (TVA) DATE: 04/15/82
REPORTED TO : M. PAULSEN (EI) DATE: 04/15/82

METHOD OF REPORT : TELEPHONE AND LETTER REPORT (DATED 5/27/82)

CODE VERSION : RETRAN-02 MOD002 (CDC LIBRARY)

COMPUTER/OPERATING SYSTEM : CDC NOS 1.3

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : NOT APPLICABLE

DESCRIPTION OF PROBLEM:

THE RETRAN ENVIRONMENTAL LIBRARY WAS NOT OPERATIONAL ON THE NOS 1.3 OPERATING SYSTEM. THIS WAS A KNOWN PROBLEM AND WAS PARTIALLY ADDRESSED DURING THE PRERELEASE OF RETRAN-02 BY INCLUDING CONDITIONAL ASSEMBLY MODIFICATIONS FOR THE NOS 1.3 OPERATING SYSTEM. THESE MODIFICATIONS WERE NOT TESTED BY ANY PRERELEASE USERS AND CONSEQUENTLY, THE MODIFICATIONS WERE NOT OPERATIONAL.

DISPOSITION:

TVA MADE SEVERAL MODIFICATIONS AND EXTENSIONS TO THE NOS 1.3 LIBRARY (CONDITIONAL ASSEMBLY OPTION) TO MAKE IT OPERATIONAL. THESE MODIFICATIONS WERE SENT TO L.J. AGEE OF EPRI BY R.O. BARNETT - REF E72104.51 - RECEIVED 04/26/82.

THESE MODIFICATIONS WERE EXAMINED FOR COMPATABILITY WITH THE SCOPE 3.4 AND NOS/BE COND. ASSEMBLY OPTIONS. SEVERAL INCOMPATIBILITIES WERE FOUND AND MODIFICATIONS MADE. SEVERAL EXTENSIONS, PARTICULARLY IN THE TAPE DENSITY REQUEST OPTION WERE ALSO MADE. THE RESULTING MODIFICATIONS WERE TESTED ON THE NOS/BE OPERATING SYSTEM AT UCCEL AND NO PROBLEMS WERE ENCOUNTERED.

THE MODIFICATIONS WERE THEN TRANSMITTED TO KEN KEITH AT TVA WHO TESTED THEM ON THE NOS SYSTEM AND ALSO FOUND NO PROBLEMS. THIS SET OF UPDATES WAS THEN TRANSMITTED TO L.J. AGEE AT EPRI BY R.O. BARNETT - REF E72133.07 - RECEIVED 05/27/82.

THE MODIFICATIONS HAVE BEEN INCLUDED IN THE CDC LIBRARY AS MODIFICATION 3 IN THE MOD22 UPDATE.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 42 *****

REPORTED BY : FRANK WENGER (CPL) DATE: 06/23/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 06/23/82

METHOD OF REPORT : TELEPHONE

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC -- AT UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : THE DECK WAS A BWR MODEL, THE DECK IS LOCATED IN
UDD:OP:RET:QA:DECKS:42.

DESCRIPTION OF PROBLEM:

WHEN THE TWO REGION SEPARATOR MODEL IS USED IT DOES NOT COMPUTE THE SAME HEAD TERMS FOR JUNCTIONS CONNECTED TO THE SEPARATOR VOLUME AS DOES THE SAME CASE WHEN A STANDARD SEPARATED VOLUME IS USED FOR THE SEPARATOR. THE SEPARATOR VOLUME STATE CONDITIONS INITIALIZE THE SAME FOR BOTH CASES BUT THE JUNCTION HEAD TERMS ARE DIFFERENT FOR JUNCTIONS CONNECTED TO THE VOLUME.

DISPOSITION:

AN ERROR WAS IDENTIFIED FOR THE JUNCTION HEAD CALCULATION FOR THE TWO REGION SEPARATOR MODEL. THE ERROR CORRECTION IS MODIFICATION 117 IN CORRECTION SET MOD003A.

THE CORRECTION WAS CONFIRMED BY EXECUTING THE DECK THAT ENCOUNTERED THE ERROR.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 43 *****

REPORTED BY : DICK FARMAN (EI) DATE: 07/14/82
REPORTED TO : CRAIG PETERSON (EI) DATE: 07/14/82

METHOD OF REPORT : VERBAL

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC -- UCCEL

LISTING SUPPLIED : NO (ORIGINAL LISTING NO LONGER AVAILABLE)

DECK SUPPLIED : YES

DECK DESCRIPTION : THE DECK IS A BALANCE OF PLANT MODEL FOR MYSTIC7.
THE DECK IS AVAILABLE IN UDD:OP:RET:QA:DECKS:43

DESCRIPTION OF PROBLEM:

THE AVERAGE VOLUME FLOW CALCULATED THE FIRST ITERATION IN STEADY STATE INITIALIZATION IS A FACTOR OF TWO TOO LARGE. AFTER THE FIRST ITERATION IT IS COMPUTED CORRECTLY. THE ERROR IS OF NO CONSEQUENCE TO A LARGE MAJORITY OF PROBLEMS HOWEVER, IF IT CAUSES A PROBLEM IT WILL OCCUR IN THE FIRST STAGES OF THE INITIALIZATION PROCESS. THE MYSTIC7 DECK WOULD FAIL DUE TO BAD JUNCTION ENTHALPIES IN FROM HEATED VOLUMES BECAUSE AVERAGE VOLUME FLOW IS USED IN THE ENTHALPY TRANSPORT CALCULATION.

DISPOSITION:

AN ERROR WAS CONFIRMED AND IS ERROR CORRECTION 119 IN MOD003A. THE ERROR CORRECTION WAS CONFIRMED BY EXECUTING THE PROBLEM THAT ENCOUNTERED THE ERROR.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 44 *****

REPORTED BY : TONY ROSCIOLI (PPL) DATE: 07/27/82
REPORTED TO : MARK PAULSEN (EI) DATE: 07/27/82

METHOD OF REPORT : TROUBLE REPORT FORM

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM 3033

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : THIS PROBLEM WAS ENCOUNTERED WITH A HOT BUNDLE MODEL
DECK WHICH WAS USING BOUNDARY CONDITIONS PRODUCED
WITH A BWR INADVERTANT HPCI STARTUP TRANSIENT DECK.
THE DECKS WERE PROVIDED BY PPL AND ARE IN MPP:PPLHPCI
AND MPP:BUN.

DESCRIPTION OF PROBLEM:

THE HOT BUNDLE RUN, WHICH USES POWER AND UPPER AND LOWER PLENUM
BOUNDARY CONDITIONS FROM THE SYSTEM RUN, ABORTS AFTER A FLOW
INSTABILITY. IT APPEARS TO OCCUR WHEN A CORE VOLUME APPROACHES
SUBCOOLED CONDITIONS DURING AN INADVERTANT HPCI STARTUP TRANSIENT.

DISPOSITION:

THE PROBLEM WAS RUN AT EI AND REVIEWED BY C.E. PETERSON. THE
PROBLEM IS THE RESULT OF A MODEL LIMITATION IN THE CONDUCTION
SOLUTION, IN THAT ONLY ONE SPACE STEP SHOULD BE ALLOWED IN A
CONDUCTOR REGION USING THE GAP MODEL. THE DECK ENCOUNTERING THE
PROBLEM HAS TWO NODES IN THE GAP REGION.

SINCE THIS IS A MODEL LIMITATION, AN INPUT CHECK WILL BE ADDED TO
THE INPUT PROCESSING TO INSURE THERE IS ONLY ONE SPACE STEP IN
A MATERIAL REGION USING THE GAP MODEL. MORE THAN ONE SPACE
STEP WILL BE A FATAL INPUT ERROR AND THE APPROPRIATE DIAGNOSTIC
WILL BE WRITTEN. THE INPUT CHECK IS ADDED MODIFICATION NUMBER
122 IN IDENT MOD003A.

MODELING ALTERNATIVES:

USE ONLY ONE SPACE STEP IN THE GAP REGION OF A CONDUCTOR.

***** PROBLEM REPORT NUMBER 45 *****

REPORTED BY : DONALD KRUPP (CP&L) DATE: 07/30/82
REPORTED TO : EPSC, EPRI, AND EI DATE: 07/30/82

METHOD OF REPORT : TROUBLE REPORT FORM

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC AT UCCEL

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : HOT BUNDLE MODEL

DESCRIPTION OF PROBLEM:

WHEN USING PF = 0.96 ON THE FUEL REGION CONDUCTOR GEOMETRY DATA CARD (CARDS 17XXYY), THE RUN SEEMED TO INITIALIZE AS IF PF = 1.0, AND THEN USED PF = 0.96 FOR THE TRANSIENT. IF PF = 1.0 WAS USED, NO PROBLEM WAS ENCOUNTERED.

DISPOSITION:

AN INPUT DECK AND LISTING WERE REQUESTED, BUT NEVER RECEIVED. AN ATTEMPT WAS MADE TO REPRODUCE THE REPORTED PROBLEM USING THE UCRW SAMPLE PROBLEM. FROM THE RECREATION OF THE PROBLEM IT WAS DETERMINED THAT THE DIFFICULTY WAS AN INPUT ERROR NOT DETECTED BY THE CODE. LOGIC WAS ADDED TO SUBROUTINE INGEOM TO INSURE THAT THE PF TERMS SUM TO UNITY FOR POWERED CONDUCTORS, OR AN ERROR MESSAGE IS WRITTEN. THIS INPUT CHECK WAS INCLUDED IN THE MOD003D UPDATE AS MODIFICATION 235.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 46 *****

REPORTED BY : TALMAGE CLEMENT CP&L DATE: 8/2/82
REPORTED TO : EPSC DATE: 8/2/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/2/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : RESTART

DESCRIPTION OF PROBLEM:

PROBLEMS THAT HAVE AIR IN CONTROL VOLUMES WILL NOT RESTART
CORRECTLY. VOLUMES CONTAINING AIR RESTART WITH DIFFERENT PRES-
SURES AND TEMPERATURES AND ZERO AIR MASS.

DISPOSITION:

A CODE ERROR HAS BEEN IDENTIFIED. MODIFICATIONS TO CORRECT THE
PARTICULAR ERROR AND TO IMPROVE THE METHOD OF SPECIFYING THE
INITIAL THERMODYNAMIC STATE WITHIN A VOLUME WHICH INCLUDES AIR
HAVE BEEN DEVELOPED AND ARE INCLUDED IN THE MOD003B UPDATE AS
MODIFICATION 132.

THE ERROR INVOLVES AIR-WATER VOLUMES USING THE PRESSURE-ENTHALPY
INPUT OPTION.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 47 *****

REPORTED BY : TALMAGE CLEMENTS CP&L DATE: 8/2/82
REPORTED TO : EPSC DATE: 8/2/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/2/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : 2 LOOP MODEL

DESCRIPTION OF PROBLEM:

THE EPSC TROUBLE REPORT FORM DESCRIBES THE PROBLEM AS,
"FAILED TO INITIALIZE - NO ERROR MESSAGE THEN DUMP. PROBLEM
WAS INSUFFICIENT RFL. NEEDS AN ERROR STATEMENT ON OUTPUT.
SWITCHING OUTPUT TO TAPE USED ADDITIONAL INFORMATION NECESSARY TO
PUSH PAST RFL LIMIT."

DISPOSITION:

IF THE REQUESTED MAIN MEMORY IS NOT ADEQUATE TO EXECUTE THE
PROBLEM THE CODE SHOULD FAIL WITH A FTB ERROR 16 OR 47 WHICH
IS THE NORMAL TERMINATION METHOD. IT IS UNCLEAR FROM THE PROBLEM
DESCRIPTION IF THIS IS THE MODE OF FAILURE. REVIEWING THE CODE
DID NOT INDICATE THIS TO BE A CODE ERROR. THE RESOLUTION OF THE
TROUBLE REPORT IS THAT IT IS NOT A CODE ERROR.

MODELING ALTERNATIVES:

TALMAGE CLEMENTS WAS ABLE TO GET AROUND THE PROBLEM HE ENCOUNTERED
BY REQUESTING MORE MAIN MEMORY BEFORE EXECUTING RETRAN.

***** PROBLEM REPORT NUMBER 48 *****

REPORTED BY : TJERI SURJANTO SCS DATE: 7/26/82
REPORTED TO : JH MCFADDEN EI DATE: 7/26/82
 EPSC

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/26/82 AND LETTER TO
 J. H. MCFADDEN DATED 7/26/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM - SCS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : HATCH-2 EOC-1 105% POWER

DESCRIPTION OF PROBLEM:

WHEN A NEGATIVE FILL IS USED FOR END OF STEAM LINE NODE, RETRAN02/
MOD002 CALCULATES JUNCTION ENTHALPY APPROXIMATELY 50 BTU/LBM LESS
THAN VOLUME ENTHALPY WHERE THE JUNCTION RESIDED. NO PROBLEM EXISTS
WHEN SIMILAR CASE WAS RUN ON RETRAN01/MOD002. THE PROBLEM DOES NOT
SEEM TO EFFECT THE TRANSIENT CASE (LOAD REJECTION). CONSISTENT
JUNCTION ENTHALPY CAN BE OBTAINED BY USING JUNCTION FLOW AREA
EQUAL TO THE VOLUME FLOW AREA.

DISPOSITION:

THERE IS NOT A CODE ERROR. THE JUNCTION ENTHALPY FOR NORMAL
JUNCTIONS AND NEGATIVE FILLS IS COMPUTED FROM THE ENTHALPY OF
THE DONOR VOLUME ACCORDING TO THE CONSTITUTIVE RELATIONSHIP OF
EQUATION IX.3-2 IN THE RETRAN THEORY MANUAL. THE EQUATION
ACCOUNTS FOR DIFFERENCES IN KINETIC ENERGY BETWEEN THE VOLUME
AND THE JUNCTION. THE AREA IN THE DENOMINATOR OF THE KINETIC
ENERGY TERMS IS VOLUME FLOW AREA AND FULL OPEN JUNCTION FLOW AREA
FOR THE VOLUME AND JUNCTION RESPECTIVELY. IF THE JUNCTION FLOW
AREA IS SIGNIFICANTLY SMALLER THAN THE VOLUME AREA THE NET CHANGE
IN KINETIC ENERGY CAN BE FAIRLY LARGE RESULTING IN A LARGE DIFFER-
ENCE IN VOLUME AND JUNCTION THERMODYNAMIC ENTHALPY. THIS ACCOUNTS
FOR THE DIFFERENCE IN JUNCTION AND VOLUME ENTHALPY OBSERVED IN
THE ABOVE PROBLEM. IN THE ABOVE CASE A JUNCTION FLOW AREA OF
1.0 FT**2 WAS USED FOR THE NEGATIVE FILL.

THE REASON RETRAN-01 WAS DIFFERENT WAS BECAUSE VOLUME FLOW AREA
WAS USED FOR CALCULATING BOTH VOLUME AND JUNCTION KINETIC ENERGY.

MODELING ALTERNATIVES:

USE REPRESENTATIVE FLOW AREAS FOR ALL NEGATIVE FILL AND NORMAL
JUNCTIONS.

***** PROBLEM REPORT NUMBER 49 *****

REPORTED BY : CHING-LU LIN EPRI DATE: 8/19/82
REPORTED TO : EPSC DATE: 8/19/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/19/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC 176 - NOSBE

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : WESTINGHOUSE 2-LOOP MAIN STEAM LINE BREAK MODEL.

DESCRIPTION OF PROBLEM:

WHEN SPECIFYING LABEL ON THE X-AXIS WHILE USING PLOT PROGRAM,
"TIME-SEC" IS SHOWN AS "TIME-SECC)" ON THE PLOTS. APPARENTLY
IF THE LABEL SPECIFIED IS SHORTER THAN THE DEFAULT LABEL, THE
DEFAULT LABEL CHARACTERS WILL SHOW UP TO MAKE 10 SPACES LONG
LABEL.

DISPOSITION:

THE ERROR HAS BEEN IDENTIFIED AND HAS BEEN CORRECTED. THE ERROR
CORRECTION IS INCLUDED IN THE MOD003B UPDATE AS MODIFICATION
133.

MODELING ALTERNATIVES:

SPECIFY A X-AXIS LABEL LONGER THAN 10 CHARACTERS.

***** PROBLEM REPORT NUMBER 50 *****

REPORTED BY : RICH HENTZEN EI DATE: 8/14/82
REPORTED TO : EPSC DATE: 8/14/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/14/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC 176/NOSBE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SEMI-SCALE MODEL, STANDARD PROBLEM 6

DESCRIPTION OF PROBLEM:

ONCE THE PRESSURIZER VOLUME DRAINS IT SUPERHEATS RAPIDLY EVEN
THOUGH MASS IS STILL FLOWING FROM THE PRESSURIZER AND NO PRESSURI-
ZER HEATERS ARE ON. THERE IS NO REASON FOR SUPERHEATING THAT
OCCURS.

DISPOSITION:

THE PROBLEM HAS BEEN IDENTIFIED AND IT REQUIRES A CODE CORRECTION.
ONCE A NONEQUILIBRIUM VOLUME DRAINS (BECOMES A SINGLE VAPOR
REGION) THE CODE DOES NOT CHANGE THE ENERGY CONTENT OF THE VOLUME.
CONSEQUENTLY IF THE MASS INVENTORY DECREASES AS THE ABOVE DESCRIBED
PROBLEM DID, THE INTERNAL SPECIFIC ENERGY INCREASES PROPORTIONALLY
CAUSING IT TO SUPERHEAT. THIS ERROR WAS CORRECTED AS MODIFICATION
123 UNDER IDENT MOD003A.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 51 *****

REPORTED BY : CHING-LU LIN EPRI DATE: 8/03/82
REPORTED TO : EPSC DATE: 8/03/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/03/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC 176/NOSBE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : WESTINGHOUSE GENERIC 2-LOOP MAIN STEAM LINE BREAK
 MODEL

DESCRIPTION OF PROBLEM:

SIGN OF THE FLOW RATE AT A FILL JUNCTION IS REVERSED IF THE ANGLE
SPECIFIED FOR THAT JUNCTION IS BETWEEN 180 AND 360 DEGREES.
THE DECK IS LOCATED IN UDD:OP:RET:QA:DECKS:51.

DISPOSITION:

THIS IS A CODE ERROR WHICH HAS BEEN FIXED AND IS IN THE MOD003A
CORRECTION SET AS MODIFICATION 127.

MODELING ALTERNATIVES:

SPECIFY AN ANGLE BETWEEN 0 AND 180 DEGREES.

***** PROBLEM REPORT NUMBER 52 *****

REPORTED BY : KEN KEITH TVA DATE: 8/19/82
REPORTED TO : JIM MCFADDEN EI DATE: 8/19/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/19/82
 LETTER TO J.MCFADDEN DATED 9/3/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : NOS

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : BWR DECK MODELING STEAMLIN BREAK INSIDE CONTAINMENT.
 THE DECK IS RET:QA:DECKS:52.

DESCRIPTION OF PROBLEM:

ERROR OCCURS IN SUBROUTINE PRESUR RESULTING IN A TIME STEP <1.E-6.
ERROR OCCURS AT |11.7 SEC INTO THE TRANSIENT. PROBABLY RELATED
TO AIR IN CONTAINMENT VOLUME 990.

DISPOSITION:

THE CAUSE OF THE PROBLEM HAS BEEN IDENTIFIED AND IS CORRECTED IN
MODIFICATION 134 OF THE MOD003B UPDATE.

THE ERROR RESULTS FROM THE FACT THAT THE LIQUID AND VAPOR TEMPERATURE
FUNCTIONS DO NOT YIELD IDENTICAL TEMPERATURES AT THE SATURATION LINE.
THE MODIFICATION INVOLVES ACCEPTING AN AIR TEMPERATURE SLIGHTLY
DIFFERENT THAN THE WATER TEMPERATURE WHEN THE PRESSURE SOLUTION ITERATES
BETWEEN THE TWO CURVES. THIS SHOULD ONLY OCCUR FOR ONE OR TWO TIME STEPS
AND SHOULD HAVE NO SIGNIFICANT EFFECT ON THE COMPUTED RESULTS.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 53 *****

REPORTED BY : KEN KEITH TVA DATE: 8/19/82
REPORTED TO : JIM MCFADDEN EI DATE: 8/19/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/19/82
 LETTER TO J.MCFADDEN DATED 9/3/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : NOS

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : BWR DECK MODELING STUCK OPEN S/RV WITH NO FEEDWATER
 MSIV'S CLOSED AND REACTOR SCRAMMED. DECK (EI2)
 ROUTED TO EI VIA CDC, 8/16/82.

DESCRIPTION OF PROBLEM:

ERROR OCCURS IN SUBROUTINE JUNPRP AT 218.6 SEC TRANSIENT TIME.
CORRESPONDS TO MIXTURE LEVEL IN NONEQUILIBRIUM UPPER DOWNCOMER
VOLUME 160 DROPPING TO ZERO.

DISPOSITION:

NEITHER EI NOR TVA WERE ABLE TO REPRODUCE THIS REPORTED ERROR. WE
ARE NOT SURE IF THE REPORTED PROBLEM IS RELATED TO TROUBLE REPORT 50.
THE REPORT IS CONSIDERED TO BE RESOLVED.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 54 *****

REPORTED BY : KEN KEITH TVA DATE: 8/19/82
REPORTED TO : JIM MCFADDEN EI DATE: 8/19/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/19/82
 LETTER TO J.MCFADDEN DATED 9/3/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : NOS

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : BWR DECK MODELING 3 STUCK OPEN S/RV'S WITH NO FEED-
 WATER AND REACTOR SCRAMMED. THE DECK IS IN RET:QA:
 DECKS:54.

DESCRIPTION OF PROBLEM:

ACCELERATION PSI FOR JUNCTION 410 JUMPS TO |1.E6 AND FLOW CHOKES
AT 206.725 SEC INTO THE TRANSIENT. PRIOR TO THIS POINT FLOW
THROUGH 410 IS CONSTANT CONTROLLED BY A FILL.

DISPOSITION:

THIS PROBLEM IS THE SAME AS PROBLEM REPORT 11 WHICH WAS CORRECTED
BY MODIFICATION 106 IN MOD003A.

THE ERROR ENCOUNTERED DURING RUN WAS NOT CORRECTLY DIAGNOSED BY
RETRAN. THE MODIFICATION DETECTS THE ERROR AND CORRECTLY DIAGNOSES
THE PROBLEM. THE PROBLEM ENCOUNTERED IS A CODE LIMITATION. THE HENRY
FAUSKE AND MOODY CHOKING MODEL IS VALID FOR A MINIMUM JUNCTION
ENTHALPY OF 170 BTU/LB. IN THIS CASE THE JUNCTION THAT CHOKED
HAD AN ENTHALPY LESS THAN 170 BTU/LB.

MODELING ALTERNATIVES:

USE THE ISOENTHALPIC EXPANSION CHOKING MODEL (JCHOK=1) OR NO CHOKING
(JCHOK=-1) FOR JUNCTIONS IN WHICH THE ENTHALPY IS LESS THAN 170
BTU/LB. GENERALIZED RESTART CAN BE USED TO CHANGE CHOKING OPTIONS.

***** PROBLEM REPORT NUMBER 55 *****

REPORTED BY : WHEE CHOE (NIPPONEI) DATE: 09/06/82
REPORTED TO : J. MCFADDEN (EI) DATE: 09/06/82

METHOD OF REPORT : LISTING OF THE SUBROUTINE WITH THE ERROR CORRECTION
MADE BY NIPPONEI

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES (A LISTING OF THE CORRECTED SUBROUTINE)

DECK SUPPLIED : NO

DECK DESCRIPTION : DECK THAT ENCOUNTERED THE ERROR WAS NOT DESCRIBED

DESCRIPTION OF PROBLEM:

AN UNDEFINED VARIABLE WAS BEING USED IN THE METAL WATER REACTION
CALCULATION. THE CORRECTION SENT WAS TO SET THE INITIAL VALUE OF
THE UNDEFINED VARIABLE TO ZERO.

DISPOSITION:

THE MODIFICATION IS INCLUDED IN THE MOD003A CORRECTION SET AS
MODIFICATION 125.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 56 *****

REPORTED BY : KENT RICHERT (EI) DATE: 09/24/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 09/24/82

METHOD OF REPORT : VERBAL AND EPRI/EPSC TROUBLE REPORT FORM

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC -- UCCEL

LISTING SUPPLIED : YES - A FORTRAN LISTING OF THE MODIFIED SUBROUTINE

DECK SUPPLIED : NO

DECK DESCRIPTION : THE PROBLEM WAS NOT DISCOVERED BY EXECUTING A
PARTICULAR PROBLEM. THE PROBLEM WAS FOUND BY
EXAMINING THE CODING IN SUBROUTINE TEMP.

DESCRIPTION OF PROBLEM:

A CODING ERROR WAS IDENTIFIED IN SUBROUTINE TEMP. VARIABLE A(N)
ON LINE TEMP.164 SHOULD BE REPLACED BY AP(N+NN). THE ERROR WOULD
CAUSE A VERY MINOR DIFFERENCE IN CONDUCTOR NODE TEMPERATURE
CALCULATIONS, SINCE THE PREVIOUS TIME STEP VALUE IS USED INSTEAD
OF THE CURRENT TIME STEP VALUE FOR THIS TERM.

DISPOSITION:

THE CORRECTION IS INCLUDED IN THE MOD003A CORRECTION SET AS
MODIFICATION 126.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 57 *****

REPORTED BY : TIM HONAN (NUSCO) DATE: 09/21/82
REPORTED TO : CRAIG PETERSON (EI) DATE: 09/21/82

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 9/21/82
AND TELEPHONE CALL TO EI.

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : A RETRAN MODEL OF MILESTONE2. THE DECK IS IN
CEP:HONAN1.

DESCRIPTION OF PROBLEM:

THE ERROR MESSAGE WRITTEN BY RETRAN WAS NOT INDICATIVE OF THE
PROBLEM. THE PROBLEM WAS USING BUBBLE RISE MODEL IN THE STEAM
GENERATOR PRIMARY SIDE U-TUBE VOLUMES. ERROR MESSAGE READ
"ENTHALPY CANNOT BE COMPUTED FOR ZERO FLOW VOLUME WITH NO ENTHALPY
SUPPLIED CHECK VALVES AND TRIPS".

DISPOSITION:

THE PROBLEM IS A CODE ERROR AND IS FIXED AS MODIFICATION 128 IN
CORRECTION SET MOD003A. THE PROBLEM OCCURS WHEN ENTHALPIES
FOR ZERO FLOW VOLUMES ARE COMPUTED AND THE ZERO FLOW VOLUME
IS CONNECTED TO A BUBBLE RISE VOLUME. THIS PROBLEM ONLY
OCCURS DURING STEADY STATE INITIALIZATION.

MODELING ALTERNATIVES:

SPECIFY THE ENTHALPY IN THE ZERO FLOW VOLUME.

***** PROBLEM REPORT NUMBER 58 *****

REPORTED BY : TIM HONAN (NUSCO) DATE: 09/21/82
REPORTED TO : CRAIG PETERSON (EI) DATE: 09/21/82

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 9/21/82
AND TELEPHONE CALL TO EI.

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : A RETRAN MODEL OF MILESTONE2. THE DECK IS IN
RET:QA:DECKS:58

DESCRIPTION OF PROBLEM:

SATURATION PRESSURE WAS REQUESTED AS A MINOR EDIT, BUT AVERAGE
PRESSURE WAS OUTPUT.

DISPOSITION:

THE ERROR IN THE CODE IS THAT PSAT (SATURATION PRESSURE CORRES-
PONDING TO THE VOLUME TEMPERATURE), IS NOT COMPUTED, BUT IS
TAKEN TO BE THE SAME AS THE VOLUME PRESSURE. THE ERROR HAS BEEN
CORRECTED AS MODIFICATION NUMBER 135 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 59 *****

REPORTED BY : GREGG SWINDLEHURST (DUKE) DATE: 09/24/82
REPORTED TO : EPSC DATE: 09/24/82

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 9/24/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A B&W PLANT MODEL WITH TWO JUNCTIONS COMING FROM
A VOLUME WITH ENTHALPY TRANSPORT BEING USED.

DESCRIPTION OF PROBLEM:

IF MORE THAN ONE JUNCTION IS EXITING A HEATED VOLUME USING ENTHALPY
TRANSPORT, THE JUNCTION ENTHALPIES ARE INCORRECT. ALSO IDENTIFIED
BY YANKEE ATOMIC IN EPRI NP-2494-SR.

DISPOSITION:

THE REPORTED PROBLEM IS A MODEL LIMITATION AND NOT A CODE ERROR.
THE ENTHALPY TRANSPORT MODEL (VOLUME 1, P.III-97) ASSUMES THAT
THE VOLUME HAS ONE JUNCTION IN AND ONE JUNCTION OUT.

MODELING ALTERNATIVES:

IF MORE THAN TWO JUNCTIONS ARE ASSOCIATED WITH A VOLUME, THE
ENTHALPY TRANSPORT OPTION (IHQCOR ON THE JUNCTION CARDS) MAY BE
USED, BUT IN GENERAL IT SHOULD BE INPUT AS 0 FOR JUNCTIONS
NOT LOCATED AT THE BOTTOM OR TOP OF VOLUME. IF IT IS NOT INPUT
AS 0, THE RESULTS SHOULD BE CAREFULLY REVIEWED BY THE USER.

***** PROBLEM REPORT NUMBER 60 *****

REPORTED BY : GREGG SWINDLEHURST (DUKE) DATE: 09/24/82
REPORTED TO : EPSC DATE: 09/24/82

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 9/24/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : SELECTED PAGES OF THE OUTPUT WAS SUPPLIED

DECK SUPPLIED : NO

DECK DESCRIPTION : NONE

DESCRIPTION OF PROBLEM:

EDITORIAL CORRECTIONS:

- (1) DOCUMENTATION VOLUME 1 EQUATIONS IX.2-1, IX.2-2 AND VOLUME 3 A.3-1; THE SLIP TERMS APPEAR INCORRECT.
- (2) THE INDEX FOR TIME DEPENDENT VOLUMES DOES NOT SHOW ON THE RE-EDIT OF THE INPUT
- (3) ON MAJOR EDITS, THE LIQUID MASS EQUALS TOTAL MASS FOR A TIME DEPENDENT VOLUME ALTHOUGH THE VOLUME IS SUPERHEATED.

DISPOSITION:

- 1) THE CHANGE IN THE THEORY MANUAL HAS BEEN MARKED IN THE CORRECTION COPY.
- 2) THE OUTPUT EDIT HAS BEEN MODIFIED TO PRINT THE TDV INDEX.
- 3) THE ERROR IN THE THIRD ITEM IS THE SAME ERROR AS IN REPORT NO. 74. THE CODE ERRORS HAVE BEEN CORRECTED IN MODIFICATION 136 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE AVAILABLE AT THIS TIME.

REPORTED BY: GREGG SWINDLEHURST (DUKE) DATE: 09/24/82
REPORTED TO: EPSC DATE: 09/24/82

METHOD OF REPORT: EPSC TROUBLE REPORT FORM DATED 09/24/82

CODE VERSION: RETRAN-02 MOD002

COMPUTER/
OPERATING SYSTEM: IBM

LISTING SUPPLIED: SELECTED PAGES OF THE OUTPUT WAS SUPPLIED.

DECK SUPPLIED: NO

DECK DESCRIPTION: A HEAT EXCHANGER WITH A TIME DEPENDENT VOLUME
ON THE SHELL SIDE. TUBE AND SHELL FLUID
CONDITIONS ARE THE SAME AT TIME ZERO WITH NO
FLOW.

DESCRIPTION OF PROBLEM: ALTHOUGH DELTA T ACROSS THE CONDUCTOR IS ZERO,
THE INPUT HEAT TRANSFER AREA IS DECREASED BY A
FACTOR OF 10E-15. IF A NORMAL VOLUME (NOT
TDV) IS USED, THE PROBLEM IS SUCCESSFUL.

DISPOSITION: THE PROBLEM HAS NOT BEEN IDENTIFIED. SINCE
THE COMPLETE OUTPUT LISTING WAS NOT RECEIVED,
WE CANNOT REPRODUCE THE DECK. ATTEMPTS TO
REPRODUCE THE REPORTED ERROR WITH A SAMPLE
DECK WERE NOT SUCCESSFUL. SINCE THIS REPORTED
PROBLEM CAN BE OVERCOME BY CHANGING THE INPUT
AND IT HAS NOT BEEN REPORTED BY OTHER USERS,
WE ARE NO LONGER PURSUING THIS REPORT.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE AN INPUT
DECK AND OUTPUT FILE WAS NOT SUPPLIED THAT CORRESPONDED
TO THE ORIGINAL PROBLEM REPORT.

MODELING ALTERNATIVES: USE A NORMAL VOLUME INSTEAD OF A TIME DEPENDENT VOLUME.

***** PROBLEM REPORT NUMBER 62 *****

REPORTED BY : GREGG SWINDLEHURST (DUKE) DATE: 09/24/82
REPORTED TO : EPSC DATE: 09/24/82

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 9/24/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : SELECTED PAGES OF THE OUTPUT WAS SUPPLIED

DECK SUPPLIED : YES

DECK DESCRIPTION : A WESTINGHOUSE STEAM GENERATOR WITH THE SEPARATOR
MODEL.

DESCRIPTION OF PROBLEM:

A SEPARATOR HAS A HEIGHT OF 26.92 AND A MIXTURE LEVEL OF 26.91.
FOR SOME UNKNOWN REASON THE CODE INCREASES THE MIXTURE LEVEL TO
26.92. THE PROBLEM IS FATAL SINCE THE STEAM LINE EXITING THE
SEPARATOR IS THEN "BELOW THE MIXTURE LEVEL".

DISPOSITION:

THE PROBLEM HAS BEEN IDENTIFIED AND IS A CODE LIMITATION. THE NON-
EQUILIBRIUM MODEL HAS THREE CUT OFF POINTS AT WHICH IT TREATS THE
VOLUME AS AN EQUILIBRIUM VOLUME: 1) WHEN THE LIQUID REGION MASS
ZERO; 2) WHEN THE VAPOR REGION MASS EQUALS ZERO; AND 3) WHEN THE
INTERNAL ENERGY CONTENT OF EITHER REGION IS LESS THAN 0.005% OF THE
TOTAL VOLUME INTERNAL ENERGY.

FOR THIS PROBLEM THE THIRD CRITERIA IS MET WHERE THE VAPOR REGION
INTERNAL ENERGY IS 0.00445% OF THE TOTAL VOLUME SO THE CODE TREATS
IT AS A HOMOGENEOUS VOLUME SETTING THE MIXTURE LEVEL TO THE VOLUME
HEIGHT.

THIS PROBLEM WAS RUN WITH A MIXTURE LEVEL OF 26.90 AND IT
INITIALIZED WITHOUT CHANGING THE MIXTURE LEVEL.

MODELING ALTERNATIVES:

ADJUST THE MIXTURE LEVEL SLIGHTLY SO THE ENERGY CONTENT OF THE
VAPOR REGION IS GREATER THAN .005 % OF THE TOTAL VOLUME ENERGY.

***** PROBLEM REPORT NUMBER 63 *****

REPORTED BY : GREGG SWINDLEHURST (DUKE) DATE: 09/24/82
REPORTED TO : EPSC DATE: 09/24/82

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 9/24/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A RESTART OF A B&W PLANT MODEL TRANSIENT.

DESCRIPTION OF PROBLEM:

IF A RESTART DECK DOES NOT INCLUDE TIME STEP CARDS, THE CODE WILL NOT MAINTAIN THE LIMITS OF THE RESTARTED TAPE. SPECIFIED WERE TIME STEP LIMITS OF 0.01 TO 0.1 SECONDS. SUBSEQUENT RESTART TIME STEPS HAVE BEEN BE GREATER THAN 1.0 SECONDS AND LESS THAN 1.0E-7.

DISPOSITION:

THE PROBLEM IN THE OUTPUT FILED WITH THE ERROR REPORT DOES NOT MATCH THE ABOVE DESCRIPTION. THE PROBLEM APPEARS WHEN TIME STEP CARDS ARE USED THAT HAVE A TLAST CORRESPONDING TO THE RESTART TIME. THE PROBLEM IS THAT A MAJOR EDIT IS ALWAYS FORCED WHEN TIME STEP INTERVALS ARE CHANGED (TIME STEP CARDS CHANGED). THE ERROR CAN BE SIMULATED BY SETTING TLAST = TRESTART + 1.E-9, THUS FORCING A TIME STEP EQUAL TO 1.E-9 WHICH IS TOO SMALL FOR THE POINT KINETICS INTEGRATION. FOR THE PROBLEM REPORTED WHERE TLAST = TRESTART, TRESTART IS A COMPUTED PARAMETER AND MAY NOT BE IDENTICALLY EQUAL TO TLAST AS THE RESULT OF ROUND OFF. THE SMALL DIFFERENCE BETWEEN THE COMPUTED TIME AND THE INPUT VALUE LEADS TO A SMALL TIME STEP BEING TAKEN. THE REPORTED ERROR WAS ENCOUNTERED ON A IBM SYSTEM AND COULD NOT BE REPRODUCED DIRECTLY ON A CDC MACHINE, PRESUMABLY DUE TO THE DIFFERENT PRECISION AND ROUND OFF FOR FLOATING POINT WORDS ON THE TWO SYSTEMS. THE PROBLEM IS NOT A CODE ERROR, BUT IS A LIMITATION.

MODELING ALTERNATIVES:

THE PROBLEM MAY OR MAY NOT OCCUR IF TIME STEP CARDS SATISFYING THE ABOVE CONDITIONS ARE SUPPLIED, DEPENDING ON THE ROUND OFF THAT OCCURS IN COMPUTING T AT THE RESTART POINT. IF THE ERROR IS ENCOUNTERED, CHANGE TLAST TO SOME VALUE OTHER THAN TRESTART.

***** PROBLEM REPORT NUMBER 64 *****

REPORTED BY : GREGG SWINDLEHURST (DUKE) DATE: 09/24/82
REPORTED TO : EPSC DATE: 09/24/82

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 9/24/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : (LISTING OF DECK)

DECK DESCRIPTION : TWO THREE VOLUME PRESSURIZER MODELS RUN
SIMULTANEOUSLY

DESCRIPTION OF PROBLEM:

THE PROBLEM INCLUDES ONE VALVE DESCRIPTION CARD (110010) THAT IS
USED AT TWO JUNCTIONS (080031,080061). THE PROBLEM BOMBS IN
SUBROUTINE ADVFLO DURING INITIALIZATION. IF TWO VALVES ARE USED
THE PROBLEM IS SUCCESSFUL.

DISPOSITION:

THE PROBLEM IS ASSOCIATED WITH THE INPUT REQUIREMENTS FOR THE NON-
EQUILIBRIUM MODEL (SEE TROUBLE REPORT 26). THE ERROR WAS CORRECTED
BY MODIFICATION 109 IN THE MOD003A UPDATE.

MODELING ALTERNATIVES:

SET NPRZR (CARD 01000Y) EQUAL TO THE NUMBER OF NONEQUILIBRIUM VOLUMES
IN THE MODEL.

***** PROBLEM REPORT NUMBER 65 *****

REPORTED BY : MARK PAULSEN (EI) DATE: 9/27/82
REPORTED TO : JIM MCFADDEN (EI) DATE: 9/27/82

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 9/27/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : NOS/BE (UCC)

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : THE DECK IS A RESTART OF A HOT CHANNEL ANALYSIS WHERE
THE UPPER PLENUM STATE PROPERTIES AND POWER ARE
OBTAINED FROM A DATA TAPE. THE DECK IS ON FILE OP:
MPP:889:PPL:NOTCHANRST.

DESCRIPTION OF PROBLEM:

THE CODE FAILS BECAUSE IT CAN NOT FIND THE 01XXZY CARD IN THE
DATA DECK.

DISPOSITION:

THE ERROR HAS BEEN IDENTIFIED, AND THE CORRECTION IS INCLUDED IN
THE MOD003B UPDATE AS MODIFICATION 137.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 66 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 10/01/82
REPORTED TO : EPSC DATE: 10/12/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/1/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL WITH CONDENSATION HEAT TRANSFER.

DESCRIPTION OF PROBLEM:

SUBROUTINE QDOT CALLS FDXPD# TO EVALUATE AN ARITHMETIC EXPRESSION.
APPARENTLY RESULTS IN A NEGATIVE LOGARITHM. IDENTICAL PROBLEM
RUNS SUCCESSFULLY ON A CDC VERSION, THEREFORE IT IS APPARENTLY IBM
SPECIFIC.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED IN MODIFICATION 138 IN THE MOD003B
UPDATE.

MODELING ALTERNATIVES:

IF THIS ERROR OCCURS (ON AN IBM RUN), THE ERROR CORRECTION IS
REQUIRED.

***** PROBLEM REPORT NUMBER 67 *****

REPORTED BY : N. A. SMITH VEPKO DATE: 09/24/82
REPORTED TO : EPSC DATE: 10/03/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/24/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM 3033

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : NONE

DESCRIPTION OF PROBLEM:

FOLLOWING A RESTART, METAL WATER REACTION DOES NOT APPEAR TO
BE CALCULATING EVEN THOUGH THE CALCULATION IS REQUESTED ON THE
PROBLEM DIMENSION DATA CARD.

DISPOSITION:

THE OUTPUT FOR THE RUN SUBMITTED WITH THIS ERROR REPORT DID NOT
CALCULATE A METAL-WATER REACTION BECAUSE THE ADJACENT FLUID WAS
ALWAYS SINGLE PHASE LIQUID AND THE METAL-WATER REACTION WILL ONLY
OCCUR WHEN STEAM IS AVAILABLE.

WHILE REVIEWING THE CODING, AN ERROR IN THE METAL-WATER REACTION
WAS IDENTIFIED. THIS ERROR RESULTS BECAUSE THE INITIAL PIN RADIUS
USED IN THE CALCULATION IS NOT INITIALIZED. THE ERROR HAS BEEN
CORRECTED IN MODIFICATION 139 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 68 *****

REPORTED BY : JOHN WARD JR. PASNY DATE: 10/12/82
REPORTED TO : EPSC DATE: 10/15/82

METHOD OF REPORT : EPSC TROUBLE REPORT & LETTER DATED 10/12/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL NOS/BE L552

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SECONDARY SIDE W PWR MODEL. 100% LOAD REJECTION,
UTILIZING TURBINE-GENERATOR DEMAND TORQUE AND TURBINE
SPEED INTEGRATION MODEL.

DESCRIPTION OF PROBLEM:

TURBINE SPEED INTEGRATION MODEL DOES NOT PROPERLY PROPAGATE SRPM
WITH STANDARD RETRAN SOLUTION. OK WITH ITERATIVE SOLUTION. TWO
(NEARLY) IDENTICAL RUNS PROVIDED FOR COMPARISON. DIFFERENCE IS
EXPL ON CARD 010003 = -1/+1. SEE EDIT PRINTOUTS.

DISPOSITION:

THE CODE ERROR HAS BEEN CORRECTED IN MODIFICATION 140 IN THE
MOD003B UPDATE.

MODELING ALTERNATIVES:

USE ITERATIVE NUMERICS OPTION.

***** PROBLEM REPORT NUMBER 69 *****

REPORTED BY : N. FUJITA (YAEC) DATE: 10/18/82
REPORTED TO : EPSC DATE: 10/25/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/18/82
LETTER TO MS. SALLY HARTZELL DATED 10/20/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : A SIMPLE TEST MODEL. (FIGURES PROVIDED WITH EPSC
TROUBLE REPORT)

DESCRIPTION OF PROBLEM:

1) A LARGE CHANGE IN HEAT TRANSFER COEFFICIENTS WHEN HEAT TRANSFER
MODE CHANGED FROM MODE 1 TO MODE 10 (FIGURE PROVIDED WITH EPSC
TROUBLE REPORT), ALSO MODE 8 TO 14 (FIGURES PROVIDED WITH EPSC
TROUBLE REPORT). VERY SMALL VALUES OF HEAT TRANSFER COEFFICIENT
ARE CALCULATED FOR MODE 14. MORE DETAILED DISCUSSIONS ARE GIVEN IN
ATTACHMENT PROVIDED WITH TROUBLE REPORT.

DISPOSITION:

THIS REPORT PRESENTS INFORMATION REGARDING A MODEL LIMITATION OF
THE HEAT TRANSFER CORRELATIONS.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 70 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 10/27/82
REPORTED TO : EPSC DATE: 11/01/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/27/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : PWR PLANT MODEL. NOT FORWARDED WITH THE ERROR SINCE
IT IS A GENERIC ERROR.

DESCRIPTION OF PROBLEM:

THE MINIMUM TIME STEP LIMIT DOES NOT FUNCTION. WITH A MINIMUM OF
0.01, TIME STEPS LESS THAN 0.001 WERE SELECTED. THIS PREVENTS
USER CONTROL OF THE COST OF A RUN, AND HAS POTENTIALLY LARGE
ECONOMIC CONSIDERATIONS. (NON-ITERATIVE OPTION.)

DISPOSITION:

THE REPORTED PROBLEM IS NOT A CODE ERROR. THE DESCRIPTION OF THE
PROBLEM WAS DEDUCED BY USING THE MINOR EDIT "DTOLD", WHICH IS THE
LATEST TIME STEP SIZE. THE TIME STEP LOGIC IS SUCH THAT THE CODE
WILL HIT AN EVEN TIME BOUNDARY FOR EDITING. THUS, THE TIME STEP
SIZE IN CASES OF AN EDIT BOUNDARY WILL BE LESS THAN THE MINIMUM
SIZE. THIS WAS VERIFIED BY EXECUTING THE DECK FROM DUKE AND
EDITING TIME STEP SIZES WITH DEBUG STATEMENTS.

MODELING ALTERNATIVES:

DOES NOT APPLY.

***** PROBLEM REPORT NUMBER 71 *****

REPORTED BY : RICH HENTZEN EI DATE: 10/27/82
REPORTED TO : EPSC DATE: 11/01/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/27/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL NOS/BE L564 VI.6.00.3

LISTING SUPPLIED : YES

DECK SUPPLIED : YES, THE DECK IS IN RET:QA:DECKS:71

DECK DESCRIPTION : TWO VOLUMES WITH TWO SINGLE HEAT CONDUCTOR BETWEEN
 THEM, EACH VOLUME HAVING A POSITIVE AND A NEGATIVE
 FILL. STEADY-STATE INITIALIZATION.

DESCRIPTION OF PROBLEM:

PROBLEM WOULD NOT INITIALIZE. ERROR MESSAGE "ERROR, ENTHALPY
CANNOT BE COMPUTED FOR A ZERO FLOW VOLUME WITH NO ENTHALPY SUPPLIED
- CHECK VALVES AND TRIPS." THERE WERE NO VALVES AND THE FILLS WERE
ALL TRIPPED ON AT TIME = 0.0 S.

DISPOSITION:

AN ERROR IN SUBROUTINE EQSETS WAS IDENTIFIED WHICH INCORRECTLY
ELIMINATED SINGLE VOLUMES AS BEING "EQUATION SETS". THE ERROR
IS CORRECTED IN THE MOD003B UPDATE AS MODIFICATION 141.

MODELING ALTERNATIVES:

DO NOT RUN PROBLEMS WITHOUT NORMAL JUNCTIONS.

***** PROBLEM REPORT NUMBER 72 *****

REPORTED BY : RICH HENTZEN EI DATE: 10/27/82
REPORTED TO : EPSC DATE: 11/01/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/27/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL NOS/BE L564 VI.6.00.3

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : TWO VOLUMES WITH A SINGLE HEAT CONDUCTOR BETWEEN
 THEM, EACH VOLUME HAVING A POSITIVE AND A NEGATIVE
 FILL. STEADY-STATE INITIALIZATION WITH BOTH P AND H
 SUPPLIED. THE DECK IS IN RET:QA:DECKS:72

DESCRIPTION OF PROBLEM:

 FAILURE WITH FTB EXTENDED DUMP. ERROR MODE 2, "INFINITE VALVE
 IN PRSORK. NEAR LINE 391."

DISPOSITION:

 A CODE ERROR WAS IDENTIFIED IN SUBROUTINE PRSORK WHICH FAILED
 TO BYPASS CODING NOT APPLICABLE TO FILLS FOR FILL JUNCTIONS.
 THE ERROR IS CORRECTED IN THE MOD003B UPDATE AS MODIFICATION
 142.

MODELING ALTERNATIVES:

 INCLUDE NORMAL JUNCTIONS IN THE INPUT DECK.

***** PROBLEM REPORT NUMBER 73 *****

REPORTED BY : RICH HENTZEN EI DATE: 10/18/82
REPORTED TO : EPSC DATE: 11/01/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/18/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL NOS/BE L552 VI.5.14.4

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : HORIZONTAL STRAIGHT PIPE WITH TDV AT EACH END. 9
 VOLUMES IN PIPE. START WITH UPSTREAM TDV AND PIPE
 AT 1000 PSIA, DOWNSTREAM TDV = 995 PSIA NO INITIAL
 FLOW.

DESCRIPTION OF PROBLEM:

 USING FIXED SIZE FOR TIME STEPS, TLAST WAS SELECTED SUCH THAT
 THE LAST TIME STEP FOR THE TLAST MAJOR EDIT WAS SMALLER THAN THE
 OTHERS. THIS RESULTED IN A BLIP IN THE PRESSURE CALCULATED FOR
 THAT TIME STEP.

DISPOSITION:

 THE CAUSE OF THE BEHAVIOR IS DUE TO ERRORS IN THE MOMENTUM FLUX
 COEFFICIENTS. THE ERROR HAS BEEN CORRECTED IN THE MOD003B UPDATE
 AS MODIFICATION 143.

MODELING ALTERNATIVES:

 NONE.

***** PROBLEM REPORT NUMBER 74 *****

REPORTED BY : E. D. HUGHES EI DATE: 09/16/82
REPORTED TO : EPSC DATE: 11/01/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/16/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL NOS/BE L552 VI.5.14.3

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : SUPERHEATED VAPOR FILL INTO A 10 VOLUME HORIZONTAL
 STRAIGHT PIPE CONNECTED TO A DOWNSTREAM TIME
 DEPENDENT VOLUME.

DESCRIPTION OF PROBLEM:

 APPEARS TO BE AN EDITING PROBLEM FOR SUPERHEATED TDV'S. OUTPUT
 SHOWS CORRECT PRESSURE AND TEMPERATURE BUT QUALITY = 0., AND A
 LIQUID MASS (NOT A BUBBLE MASS).

DISPOSITION:

 THIS IS THE SAME ERROR AS IDENTIFIED IN REPORT NO. 60 (ITEM 3).
 THE ERROR HAS BEEN CORRECTED IN MODIFICATION 136 IN THE MOD003B
 UPDATE.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 75 *****

REPORTED BY : MARK PAULSEN EI DATE: 10/27/82
REPORTED TO : EPSC DATE: 11/04/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/27/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC-NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : STRAIGHT PIPE SECTION MODELED WITH 25 NORMAL VOLUMES
 AND A TIME DEPENDENT VOLUME ON EITHER END - RETDR -
 CONVERGE AND STABILITY R005B.

DESCRIPTION OF PROBLEM:

THE KINETIC ENERGY IN THE DONOR TIME DEPENDENT VOLUME IS IN ERROR
(VERY LARGE), WHICH RESULTS IN A JUNCTION ENTHALPY CALCULATION
ERROR OR FAILURE IN SUBROUTINE JUNPRP.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 144 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

USE LARGE FLOWA OR SET MVMIX = 3.

***** PROBLEM REPORT NUMBER 76 *****

REPORTED BY : M. P. PAULSEN EI DATE: 11/16/82
REPORTED TO : EPSC DATE: 11/16/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/16/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM-CDC

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A. ERRORS FOUND BY C. W. STEWART, BATTELLE PNL,
P. O. BOX 999 RICHLAND, WASHINGTON.

DESCRIPTION OF PROBLEM:

THERE IS ONE ERROR IN CONDHT FOR THE BRANCH TECH POS. CSB-1
CONDENSING HEAT TRANSFER COEFFICIENT. IF GASM.LE.BUBM THE
VARIABLE HU WILL BE UNDEFINED.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED AS MODIFICATION NUMBER 145 IN THE
MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 77 *****

REPORTED BY : M. P. PAULSEN EI DATE: 11/16/82
REPORTED TO : EPSC DATE: 11/16/82

METHOD OF REPORT : EPSC TROUBLE REPORTED DATED 11/16/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM-CDC

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A. ERROR WAS FOUND BY JOHN A. TRAPP, PRACTICAL
 ANALYSIS & COMPUTING, INC. 13932 W. 73RD PLACE,
 ARVADA, COLORADO 80005 (303) 423-0111.

DESCRIPTION OF PROBLEM:

THE DEFAULT SEPARATOR CARRYOVER CURVE TABLE LENGTH PARAMETERS
ARE NOT DEFINED PROPERLY IN SUBROUTINE SEPCOV. THE VALUES OF NX
AND NL SHOULD BE 8 AND 4, RESPECTIVELY. THEY ARE CURRENTLY
REVERSED.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED IN MODIFICATION 146 IN THE MOD003B
UPDATE.

MODELING ALTERNATIVES:

THE USER CAN SUPPLY CURVES AS INPUT.

***** PROBLEM REPORT NUMBER 78 *****

REPORTED BY : M. P. PAULSEN EI DATE: 11/16/82
REPORTED TO : EPSC DATE: 11/16/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/16/81

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM-CDC

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A. ERROR WAS FOUND BY JOHN A. TRAPP, PRACTICAL
 ANALYSIS & COMPUTING, INC. 13932 W. 73RD PLACE,
 ARVADA, COLORADO 80005 (303) 423-0111

DESCRIPTION OF PROBLEM:

EQUATION II.2-111 IN VOLUME I IS MISSING THE KINETIC ENERGY FLUX
TERM

$$1/2 X (1-X) P*A*VSLIP*(VLIQ**2 - VGAS**2).$$

THE TERM IS ALSO MISSING IN THE CODE. THE EFFECT OF THE ERROR
IS PROBABLY NEGLIGIBLE.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED AND IS INCLUDED IN MODIFICATION 168
IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 79 *****

REPORTED BY : GEORGE SAWTELLE EI DATE: 11/10/82
REPORTED TO : EPSC DATE: 11/10/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/10/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL/CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ZIMMER SYSTEM MODEL ON FILE GRS:ZIMMERERROR

DESCRIPTION OF PROBLEM:

CODE FAILED TO INITIALIZE WITH NONEQUILIBRIUM MODEL IN STEAM
FILLED VOLUME, I.E., SATURATED STEAM AND NO MIXTURE LEVEL.

DISPOSITION:

THE PROBLEM RESULTS FROM THE LOGIC ASSOCIATED WITH THE INPUT
FOR A VOLUME WITH SEPARATION. A ZERO MIXTURE LEVEL VALUE IS
USED AS A FLAG TO INDICATE THAT THE VOLUME IS SINGLE PHASE
LIQUID. SOME CHANGES IN LOGIC WERE MADE TO CORRECT THIS
PROBLEM. THE CHANGES ARE IN MODIFICATION 147 IN THE MOD003B
UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 80 *****

REPORTED BY : GEORGE SAWTELLE EI DATE: 11/10/82
REPORTED TO : EPSC DATE: 11/10/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/10/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL/CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ZIMMER SYSTEM MODEL INPUT IN FILE RET:QA:DECKS:80

DESCRIPTION OF PROBLEM:

CODE DID NOT PROVIDE DIAGNOSTIC FOR MISSING GENERAL DATA TABLE.
"VALVE" CARD REQUESTED TABLE FOR "IACVZ".

DISPOSITION:

THIS IS A USER INPUT ERROR. AN INPUT CHECK AND DIAGNOSTIC MESSAGE
WERE ADDED TO THE CODE IN MODIFICATION 148 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

USE CORRECT INPUT.

***** PROBLEM REPORT NUMBER 81 *****

REPORTED BY : ED WINKLER INPO DATE: 11/18/82
REPORTED TO : EPSC DATE: 11/18/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/18/82
 LETTER TO LANCE AGEE DATED 11/18/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : MODEL OF GINNA NUCLEAR PLANT. PRESSURIZER MODEL
 IN LOOP "B" STEAM LINE. DECK AND LISTING PROVIDED
 EARLIER.

DESCRIPTION OF PROBLEM:

MODEL DOES NOT INITIALIZE WITH THE PRESSURIZER MODEL IN THE
STEAM LINE. CANNOT HAVE A QUALITY OF EXACTLY 1.0 IN THE LIQUID
REGION.

DISPOSITION:

THIS IS THE SAME PROBLEM AS IN PROBLEM REPORT 79.
MODIFICATION 147 IN THE MOD003B UPDATE CORRECTS THIS PROBLEM.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 82 *****

REPORTED BY : ED WINKLER INPO DATE: 11/18/82
REPORTED TO : EPSC DATE: 11/18/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/18/82
 LETTER TO LANCE AGEE DATED 11/18/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL/CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : MODEL OF GINNA NUCLEAR PLANT. STACKED PRESSURIZER
 MODELS IN VOLUMES 19 AND 20 (SEE ATTACHMENT).
 LISTING AND DECK ALREADY GIVEN TO EI. THE DECK IS
 IN RET:QA:DECKS:82.

DESCRIPTION OF PROBLEM:

TWO AXIALLY STACKED VOLUMES BOTH USING THE PRESSURIZER MODEL, GAVE
IMPROPER RESULTS. THE CODE CALCULATED A FLOW RATE IN JUNCTION 20
WHICH CONNECTS VOLUMES 19 AND 20. HOWEVER, WITH MASS LEAVING
VOLUME 19, THE CODE DID NOT CHANGE THE MASS, PRESSURE OR TEMPERATURE
IN VOLUME 19, I.E., THE PRESSURE AND MASS IN VOLUME 19 STAYED
CONSTANT.

DISPOSITION:

THE PROBLEM WAS DETERMINED TO BE AN INPUT ERROR. HOWEVER, THE
CODE WAS MODIFIED TO DETECT THE FAILURE OF THE USER TO SPECIFY
A BUBBLE DATA SET FOR EACH VOLUME IN WHICH THE NONEQUILIBRIUM
PRESSURIZER MODEL IS SPECIFIED. THE MODIFICATION IS IN THE
MOD003B UPDATE AS MODIFICATION 149.

MODELING ALTERNATIVES:

DOES NOT APPLY

***** PROBLEM REPORT NUMBER 83 *****

REPORTED BY : CHET MOTLOCH EI DATE: 11/22/82
REPORTED TO : EPSC DATE: 11/22/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/22/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SAINT LUCIE 1, HOT ZERO POWER, MAIN STEAM LINE
 BREAK.

DESCRIPTION OF PROBLEM:

IN A SEPARATED SINGLE-VOLUME STEAM GENERATOR SECONDARY MODEL, BOTH THE PRESSURE AND ENTHALPY WERE INPUT. THE INPUT ENTHALPY WAS PHYSICALLY TOO LOW. DURING STEADY-STATE INITIALIZATION, RETRAN ADJUSTED BOTH THE INPUT PRESSURE AND ENTHALPY. THE INPUT PRESSURE SHOULD HAVE BEEN MAINTAINED CONSTANT, AND ONLY THE ENTHALPY ADJUSTED.

DISPOSITION:

THIS IS A MODEL LIMITATION. THE INPUT PRESSURE, ENTHALPY AND BUBBLE VELOCITY WERE NOT CONSISTENT, WHICH RESULTED IN BOTH THE PRESSURE AND ENTHALPY BEING ADJUSTED.

AN INPUT CHECK AND DIAGNOSTIC MESSAGES WERE ADDED IN SUBROUTINE STSTAT TO ALERT THE USER OF THIS CONDITION. THE CHANGES ARE IN MODIFICATION 174 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 84 *****

REPORTED BY : CHET MOTLOCH EI DATE: 11/22/82
REPORTED TO : EPSC DATE: 11/22/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/22/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

IN QDOT FOR MODE 15, CONDENSING HEAT TRANSFER, HYDRAULIC DIAMETER
IS ERRONEOUSLY USED IN THE CALCULATION OF HSHEAR AND HSTAG.
THE CORRECT FORMULATION SHOULD SIMPLY USE THE TUBE OUTSIDE DIAMETER
FOR CONDENSATION ON THE OUTSIDE OF HORIZONTAL TUBES.

DISPOSITION:

THE ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN MODIFICATION 150
IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 85 *****

REPORTED BY : CHET MOTLOCH EI DATE: 11/22/82
REPORTED TO : EPSC DATE: 11/22/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/22/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

IN HTRC FOR MODE 15, CONDENSING HEAT TRANSFER, THE CALCULATION OF THE NUMBER OF TUBES IS INCORRECT FOR SOME GEOMETRIES. THE IMPLIED INPUT FOR HYDRAULIC DIAMETER AND CHANNEL LENGTH CONFLICTS WITH OTHER RETRAN MODELS. TO GUARANTEE A CORRECT VALUE, "TUBES" SHOULD BE AN INPUT VARIABLE.

DISPOSITION:

THE INPUT REQUIREMENTS FOR CONDUCTORS HAS BEEN CHANGED SO THAT THE USER HAS TO SUPPLY THE NUMBER OF TUBES WHEN USING THE CONDENSING HEAT TRANSFER CORRELATION. THE CHANGES ARE INCLUDED IN THE MOD003C UPDATE AS MODIFICATION 179.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 86 *****

REPORTED BY : JAMES MCFADDEN EI DATE: 11/29/82
REPORTED TO : EPSC DATE: 11/29/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/29/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

A REVIEW OF THE CODING FOR THE PARTICLE SIZE SELECTION IN JSVEL INDICATES AN ERROR FOR LOW VOID FRACTION (BUBBLE FLOW) AND HIGH VOID FRACTION (DISPERSED DROPLET FLOW). THE CODE ERRORS ARE INDICATED ON THE LISTING FOR THE ERROR REPORT.

DISPOSITION:

THE ERROR IS IDENTIFIED AND CORRECTED AS MODIFICATION 151 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 87 *****

REPORTED BY : TIM HONAN NUSCO DATE: 12/03/82
REPORTED TO : EPSC DATE: 12/06/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/03/82

CODE VERSION : RETRAN-02 MOD001

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : 4 LOOP MODEL OF CONNECTICUT YANKEE, AN 1825 MWE
 WESTINGHOUSE PWR.

DESCRIPTION OF PROBLEM:

TEMPERATURE TRANSPORT OPTION WAS USED. WHEN MESH = 1 OR 2, THE
TEMPERATURE IN SOME NODES WOULD CHANGE BY ABOUT 150 DEGREES F IN
ABOUT 1/2 SECOND OF TRANSIENT TIME. ONE MINUTE OF CPU TIME (ABOUT
200 TIME STEPS COMPARED TO ABOUT 3 NORMALLY USED WAS USED FOR THESE
CASES). WHEN MESH >3, IT WORKS FINE.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED IN MODIFICATION 180 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

USE MORE THAN 2 MESH POINTS WITH THE TRANSPORT DELAY OPTION.

***** PROBLEM REPORT NUMBER 88 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 11/30/82
REPORTED TO : EPSC DATE: 12/07/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/30/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE FOUR VOLUME MODEL CONNECTED LINEARLY WITH
SINGLE JUNCTIONS, WITH A FILL AT EACH END. THE
ENTHALPY TRANSPORT DELAY MODEL IS USED.

DESCRIPTION OF PROBLEM:

A FLOW OSCILLATION IS STARTED USING THE FILL JUNCTIONS. FLOW
REVERSAL CAUSES ENTHALPY SPIKES TO BE CALCULATED AT THE JUNCTIONS.
THIS RESULT IS ANOMALOUS AND IS APPARENTLY CAUSED BY THE TRANSPORT
DELAY MODEL.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED IN MODIFICATION 180 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 89 *****

REPORTED BY : JOSEPH NASER EPRI DATE: 11/29/82
REPORTED TO : EPSC DATE: 12/02/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/29/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES (VIA UCCEL)

DECK SUPPLIED : YES (VIA UCCEL)

DECK DESCRIPTION : SIMPLE 2 VOLUME MODEL WHERE FIRST VOLUME IS GIVEN
SUPER CRITICAL CONDITIONS AND SECOND HAS ATMOSPHERIC
AND THE CRITICAL FLOW IS CALCULATED BETWEEN THEM.

DESCRIPTION OF PROBLEM:

1. CODE DOES NOT INITIALIZE PROPERLY IF GIVEN CONDITIONS ARE SUPER CRITICAL.
2. TIME DEPENDENT VOLUMES DO NOT WORK PROPERLY IF GIVEN CONDITIONS ARE SUPER CRITICAL.

IN BOTH CASES CODES CHOSE SUBCRITICAL PRESSURE INSTEAD.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND CORRECTED IN MODIFICATION 162 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 90 *****

REPORTED BY : CRAIG PETERSON EI DATE: 12/07/82
REPORTED TO : EPSC DATE: 12/07/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/7/82

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : CDC-NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : STEAM GENERATOR TUBE RUPTURE MODEL FOR PRAIRIE
ISLAND NSSS.

DESCRIPTION OF PROBLEM:

INDIRECT TRIPS TRIP ON WHEN THE END PROBLEM TRIP IS REACHED.
THEY WORK CORRECTLY WITH THE EXCEPTION OF THE TRIPPING AT THE
END TRIP SIGNAL.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED IN MODIFICATION 152 IN THE MOD003B
UPDATE.

MODELING ALTERNATIVES:

WHEN USING RESTART, DO NOT RESTART AT THE LAST DATA RECORD.

***** PROBLEM REPORT NUMBER 91 *****

REPORTED BY : CRAIG PETERSON EI DATE: 12/10/82
REPORTED TO : EPSC DATE: 12/10/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/10/82

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : CDC NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : STEAM LINE BREAK MODEL OF PRAIRIE ISLAND NSSF.

DESCRIPTION OF PROBLEM:

INPUT COMPLAINED ABOUT CP2 BEING OUT OF RANGE FOR A VARIABLE
DELAY DELAY CONTROL BLOCK, BUT THE PROBLEM ERROR FLAG WAS NOT SET.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED AND IS INCLUDED AS
MODIFICATION 153 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 92 *****

REPORTED BY : ED WINKLER INPO DATE: 12/06/82
REPORTED TO : EPSC DATE: 12/10/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/6/82
 LETTER TO LANCE AGEE DATED 12/6/82

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : MODEL OF GINNA. INPUT VOLUME PRESSURE AND ENTHALPY
 VALUES AND JUNCTION FLOW RATES. DID NOT USE STEADY-
 STATE INITIALIZATION. USED LOW FLOW HEAT TRANSFER
 CORRELATIONS.

DESCRIPTION OF PROBLEM:

 USING LOW FLOW HEAT TRANSFER CORRELATIONS, HEAT CONDUCTORS 132
 AND 133 DID NOT CONVERGE THE TWO-SURFACE SIMULTANEOUS HEAT TRANSFER
 BOUNDARY CONDITIONS AT TIME 0.0. ERROR MESSAGES ARE PRINTED IN THE
 OUTPUT.

DISPOSITION:

 THE ERROR IS CORRECTED IN MODIFICATION 197 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 93 *****

REPORTED BY : JAMES MCFADDEN EI DATE: 12/14/82
REPORTED TO : EPSC DATE: 12/14/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/14/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : N/A

LISTING SUPPLIED : YES (FORTRAN LISTING)

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

A REVIEW OF THE CODING FOR AGL IN JSVEL INDICATES THE CODING FOR THE DISPERSED REGIMES INTERPHASE AREA TERM IS DIFFERENT THAN GIVEN IN THE THEORY MANUAL. THE MODEL IN THE SUBROUTINE IS BASED ON A PRELIMINARY MODEL FROM UVUT. THE MODEL IN THE THEORY MANUAL IS MORE CURRENT. CHANGE THE CODING TO BE CONSISTENT WITH THE THEORY MANUAL.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED AS MODIFICATION 154 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 94 *****

REPORTED BY : CHET MOTLOCH EI DATE: 12/14/82
REPORTED TO : EPSC DATE: 12/14/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/14/82

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : CDC NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : REEDIT OF PRARIE ISLAND STEAM GENERATOR TUBE RUPTURE
 USING THREE (3) DATA TAPES. THE DECK IS IN RET:QA:
 DECKS:94.

DESCRIPTION OF PROBLEM:

 THE REEDIT MODULE WAS UNABLE TO READ THE THIRD DATA TAPE OF A
 THREE TAPE SET. THE RUN TERMINATED WITH A MODE 1 ERROR AFTER
 READING THE SECOND TAPE.

DISPOSITION:

 THE TAPE VOLUME COUNTER GETS OVERWRITTEN AFTER THE SECOND TAPE
 VOLUME IS READ. THIS PREVENTS THE THIRD TAPE FROM BEING MOUNTED.
 THIS ERROR IS CORRECTED AS MODIFICATION 155 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

 NONE.

***** PROBLEM REPORT NUMBER 95 *****

REPORTED BY : RICH HENTZEN EI DATE: 12/16/82
REPORTED TO : EPSC DATE: 12/16/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/16/82

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UCCEL NOS/BE L564

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (RDR:XPLOT)

DECK DESCRIPTION : PLOT JOB FOR 3 DATA SETS, LOOKING AT CONVERGENCE
 WITH CHANGE IN NODALIZATION.

DESCRIPTION OF PROBLEM:

TRIED TO PLOT 0.6 PSIA ON A SIX INCH VERTICAL SCALE. 997.45 TO
998.05 ONLY PRINTED OUT 4 SIGNIFICANT FIGURES. THEN TRIED 997.5
TO 998.1 AND OBTAINED 997.5 TO 998.7 (DOUBLED). THE LATER RUN
IS PROVIDED. ALSO, 3 VERTICAL AXES INSTEAD OF 1.

DISPOSITION:

THE ERROR HAS BEEN IDENTIFIED AND REQUIRES A CHANGE IN BOTH THE
IBM AND CDC ENVIRONMENTAL LIBRARIES. THE CORRECTION IS IN
MODIFICATION 6 OF THE MOD23 CDC LIBRARY AND IN MODIFICATION 8 OF
THE MOD27 IBM LIBRARY.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 96 *****

REPORTED BY : JAMES G. MILLER VEPCO DATE: 12/13/82
REPORTED TO : EPSC DATE: 12/16/82

METHOD OF REPORT : EPSC TROUBLE REPORTED DATED 12/13/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

FORTRAN WRITE STATEMENTS OCCASIONALLY PRINT UNACCEPTABLE PRINTER CONTROL CHARACTERS, (I.E., A CHARACTER OTHER THAN A BLANK, "0", "1", "-", OR "+". RESULT IS MICROFICHE ROUTINE TERMINATES UPON ENCOUNTERING AN UNRECOGNIZABLE CONTROL CHARACTER. ERRONEOUS CHARACTERS OCCUR WHEN SPACE-TIME KINETICS OPTION IS SELECTED OR WHEN POINT KINETICS OPTION IS SELECTED WITH NSHAP=1 ON THE 03XXX0 CARDS.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND CORRECTED IN MODIFICATION 156 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 97 *****

REPORTED BY : TIM HONAN NUSCO DATE: 12/16/82
REPORTED TO : EPSC DATE: 12/21/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/16/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES (CEP)

DECK DESCRIPTION : 4 LOOP CY MODEL SET FOR ROD DROP TRANSIENT.

DESCRIPTION OF PROBLEM:

MINOR EDIT VARIABLE FOR CPU TIME (CPUS) PRODUCE ZEROS WHEN THE
JOB IS WRITTEN TO TAPE. WHEN NOT WRITING TO TAPE, IT WORKS
PROPERLY.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION 157 OF THE
MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 98 *****

REPORTED BY : JOE NASER EPRI DATE: 12/09/82
REPORTED TO : EPSC DATE: 12/22/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/09/82

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (DIRECT FROM UCCEL)

DECK DESCRIPTION : PEACH BOTTOM STABILITY TEST ANALYSIS 35 VOL., 44 JUN.
 13 HEAT COND. POINT KINETICS.

DESCRIPTION OF PROBLEM:

WHEN USING DYNAMIC SLIP AND ITERATIVE NUMERICS, THE CODE DOES NOT MAINTAIN A STEADY-STATE DURING A NULL TRANSIENT. IF ALGEBRAIC SLIP IS USED, A GOOD NULL TRANSIENT IS MAINTAINED. THE SAME MAXIMUM TIME STEP WAS USED IN BOTH CASES AND THE DEFAULT CONVERGENCE CRITERIA WAS USED.

DISPOSITION:

THE REPORTED ERROR RESULTS IN PART FROM THE TIME STEP SIZE AND IN PART FROM THE INTERPOLATION FOR INTERPHASE AND WALL-TO-PHASE FRICTION IN THE DYNAMIC SLIP MODEL. THE QUALITY OF THE NULL TRANSIENT WAS IMPROVED BY REDUCING THE MAXIMUM TIME STEP SIZE, AND WAS FURTHER IMPROVED WHEN THE DECK WAS EXECUTED USING MOD003C AND THE MODIFICATION FOR THE INTERPOLATION SCHEME (MODIFICATION NO. 218). MODIFICATION NO. 218 IS INCLUDED IN THE MOD003D UPDATE.
THE COURANT LIMIT TIME STEP CONTROLLER WAS ADDED IN MODIFICATION 213, AND THIS CHANGE ALSO HELPS TO IMPROVE THE QUALITY OF THE NULL TTRANSIENT.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

REPORTED BY : JOE NASER EPRI DATE: 12/09/82
REPORTED TO : EPSC DATE: 12/22/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/09/82

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (DIRECT FROM UCCEL)

DECK DESCRIPTION : PEACH BOTTOM STABILITY TEST ANALYSIS 35 VOL., 44 JUN.,
13 HEAT COND. POINT KINETICS.

DESCRIPTION OF PROBLEM:

WHEN USING DYNAMIC SLIP AND ITERATIVE NUMERICS, LARGE PERTURBATIONS ARE INTRODUCED INTO THE POWER CALCULATION WHEN THE BOILING BOUNDARY CROSSES A JUNCTION.

DISPOSITION:

THE REPORTED ERROR HAS BEEN INVESTIGATED AND IS CONSIDERED TO BE THE RESULT OF A CODE LIMITATION IN RETRAN-02. MODIFICATION NUMBER 281 (SEE PROBLEM REPORT NO. 265) HELPS TO MINIMIZE THIS PROBLEM FOR SOME CONDITIONS BUT NOT ALL (SEE PROBLEM REPORT NO. 266). WE HAVE NOT BEEN ABLE TO IDENTIFY A SINGLE REASON FOR THE CODE TO PRODUCE THE REPORTED RESULT. IT APPEARS TO BE ASSOCIATED PRIMARILY WITH THE FIELD EQUATION SOLUTION METHOD IN RETRAN-02, WHICH IS AN EXPLICIT SCHEME. SIMILAR ANALYSES WITH A PRERELEASE VERSION OF THE RETRAN-03 CODE USING AN IMPLICIT SOLUTION METHOD FOR THE FIELD EQUATIONS PRODUCED ACCEPTABLE RESULTS. (SEE "EVALUATION OF RETRAN-03 AND ASSOCIATED CODES", C. LIN, J. A. NASER, I. TOMAI AND J. M. SORENSON, PRESENTED AT FOURTH INTERNATIONAL RETRAN MEETING, NOVEMBER, 1985)

MODELING ALTERNATIVES:

IN SOME CASES, ADDITIONAL NODING (ESPECIALLY IN THE REGION OF THE BOILING BOUNDARY) HAS HELPED TO LIMIT THE SIZE OF THE PERTURBATION, ALTHOUGH IT STILL CAN OCCUR.

***** PROBLEM REPORT NUMBER 100 *****

REPORTED BY : JOE NASER EPRI DATE: 12/09/82
REPORTED TO : EPSC DATE
: 12/22/82

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/09/82

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (DIRECT FROM UCCEL)

DECK DESCRIPTION : PEACH BOTTOM STABILITY TEST ANALYSIS 35 VOL., 44 JUN.,
13 HEAT COND. POINT KINETICS.

DESCRIPTION OF PROBLEM:

WHEN USING ALGEBRAIC SLIP, LARGE PERTURBATIONS ARE INTRODUCED INTO THE POWER CALCULATION WHEN THE BOILING BOUNDARY CROSSES A JUNCTION. SEE ATTACHED PLOTS OF IDENTICAL JOBS EXCEPT FOR A SLIGHT CHANGE IN INITIAL POWER DISTRIBUTION TO KEEP BOILING BOUNDARY WITHIN A SINGLE VOLUME.

DISPOSITION:

THE REPORTED ERROR HAS BEEN INVESTIGATED AND IS CONSIDERED TO BE THE RESULT OF A CODE LIMITATION IN RETRAN-02. MODIFICATION NUMBER 281 (SEE PROBLEM REPORT NO. 265) HELPS TO MINIMIZE THIS PROBLEM FOR SOME CONDITIONS BUT NOT ALL (SEE PROBLEM REPORT NO. 266). WE HAVE NOT BEEN ABLE TO IDENTIFY A SINGLE REASON FOR THE CODE TO PRODUCE THE REPORTED RESULT. IT APPEARS TO BE ASSOCIATED PRIMARILY WITH THE FIELD EQUATION SOLUTION METHOD IN RETRAN-02, WHICH IS AN EXPLICIT SCHEME. SIMILAR ANALYSES WITH A PRERELEASE VERSION OF THE RETRAN-03 CODE USING AN IMPLICIT SOLUTION METHOD FOR THE FIELD EQUATIONS PRODUCED ACCEPTABLE RESULTS. (SEE "EVALUATION OF RETRAN-03 AND ASSOCIATED CODES", C. LIN, J. A. NASER, I. TOMAI AND J. M. SORENSON, PRESENTED AT FOURTH INTERNATIONAL RETRAN MEETING, NOVEMBER, 1985)

MODELING ALTERNATIVES:

IN SOME CASES, ADDITIONAL NODING (ESPECIALLY IN THE REGION OF THE BOILING BOUNDARY) HAS HELPED TO LIMIT THE SIZE OF THE PERTURBATION, ALTHOUGH IT STILL CAN OCCUR.

***** PROBLEM REPORT NUMBER 101 *****

REPORTED BY : M. P. PAULSEN EI DATE: 01/03/83
REPORTED TO : EPSC DATE: 01/03/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/3/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC OR IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : ANY DECK WITH DATA (INDEPENDENT VARIABLE) NOT IN
ASCENDING ORDER IN SCRAM, VOID OR DOBBLER
REACTIVITY TABLE.

DESCRIPTION OF PROBLEM:

THE TABULAR DATA IS NOT CHECKED TO INSURE THAT THE INDEPENDENT
VARIABLES ARE INPUT IN ASCENDING ORDER. IF TWO SUCCESSIVE POINTS
ARE EQUAL THE CODE WILL FAIL WITH A DIVIDE CHECK.

DISPOSITION:

CODING WAS ADDED TO WRITE THE APPROPRIATE ERROR MESSAGE IF THE
INDEPENDENT VARIABLES IN TABLES FOR SCRAM, DOPPLER, AND VOID
REACTIVITY ARE NOT IN ASCENDING ORDER. THESE CHANGES ARE IN
MODIFICATION 158 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

THE USER CAN MANUALLY CHECK DATA FOR CONSISTENCY.

***** PROBLEM REPORT NUMBER 102 *****

REPORTED BY : M. P. PAULSEN EI DATE: 01/03/83
REPORTED TO : EPSC DATE: 01/03/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/3/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC OR IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A.

DESCRIPTION OF PROBLEM:

THE CALL TO INEDIT HAS A LITERAL 0 AS THE 3RD ARGUMENT. INEDIT
REDEFINES THE 3RD ARGUMENT. CURRENTLY THE ERROR IS BENIGN, BUT
COULD CAUSE PROBLEMS AT A LATER DATE.

DISPOSITION:

THE ERROR IS CORRECTED AS MODIFICATION 159 IN THE MOD003B
UPDATE.

MODELING ALTERNATIVES:

NONE REQUIRED.

***** PROBLEM REPORT NUMBER 103 *****

REPORTED BY : R. F. FARMAN EI DATE: 01/05/83
REPORTED TO : EPSC DATE: 01/05/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/5/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC OR IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A.

DESCRIPTION OF PROBLEM:

POSSIBLE AMBIGUITY IN SIGN CONVENTION ON INPUT VALVES OF TURBINE
TORQUE DISCOVERED WHILE REVIEWING ERROR REPORT #68.

DISPOSITION:

THERE IS NO CODE ERROR. THE CODING MERELY ALLOWS FOR THE GENERATOR
TORQUE (OR BOUNDARY CONDITION) TO BE POSITIVE OR NEGATIVE. NEG-
ATIVE VALUES WILL TEND TO RETARD ROTATION AS A GENERATOR LOAD
WOULD DO. A POSITIVE VALUE WOULD TEND TO INCREASE THE SHAFT RPM.
THIS CLARIFICATION WILL BE ADDED TO THE USERS MANUAL (VOLUME 3).

MODELING ALTERNATIVES:

NOT APPLICABLE

***** PROBLEM REPORT NUMBER 104 *****

REPORTED BY : JIM HARRISON EI DATE: 01/03/83
REPORTED TO : EPSC DATE: 01/07/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/3/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPEATING SYSTEM : NOS/BE

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A.

DESCRIPTION OF PROBLEM:

IN SUBROUTINE TRAN AT LINES 487-490 THE VARIABLE IFIRST WHICH IS
SET = TO 1 OUTSIDE THE DO 75 LOOP SHOULD BE SET EQUAL TO 2 OR
GREATER INSIDE THE DO 75 LOOP FOR PROPER FUNCTIONING OF SUBR DIFF
IN SUBR CONTRL.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION 161 IN THE
MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 105 *****

REPORTED BY : TIM HONAN NUSCO DATE: 01/06/83
REPORTED TO : EPSC DATE: 01/06/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/6/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : 4 LOOP MODEL OF CONNECTICUT YANKEE, A 1825 MWT WEST-
 INGHOUSE PWR.

DESCRIPTION OF PROBLEM:

 B&W-2 CRITICAL HEAT FLUX CORRELATION (USED FOR CALCULATION OF HEAT
 TRANSFER MODE AND THE MINOR EDIT VARIABLE) USES A VALUE OF QUALITY
 = 0 FOR SUBCOOLED CONDITIONS. THE CORRELATION REQUIRES A NEGATIVE
 VALUE WHEN SUBCOOLED. HENCE RETRAN CALCULATES A WRONG VALUE. THIS
 WAS VERIFIED WITH A HAND CALCULATION.

DISPOSITION:

 THE ERROR HAS BEEN CORRECTED IN MODIFICATION 175 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 106 *****

REPORTED BY : J. H. MCFADDEN EI DATE: 01/17/83
REPORTED TO : EPSC DATE: 01/17/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/19/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC/IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A. ERROR WAS FOUND BY J. A. TRAPP DURING THE
DESIGN REVIEW.

DESCRIPTION OF PROBLEM:

TWO CODING ERRORS IN JSVE ASSOCIATED WITH CALCULATING FRICTION
FOR INTERPOLATING BETWEEN BUBBLE AND ANNULAR FLOW. SEE CS&A-577-
82 FOR SPECIFIC CODE LINES.

DISPOSITION:

THIS ERROR HAS BEEN CORRECTED IN MODIFICATION 169 IN THE MOD003B
UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 107 *****

REPORTED BY : J. H. MCFADDEN EI DATE: 01/17/83
REPORTED TO : EPSC DATE: 01/17/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/19/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC/IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A. ERROR WAS FOUND BY C. W. STEWART DURING THE
DESIGN REVIEW.

DESCRIPTION OF PROBLEM:

A VARIABLE IN THE B&W CORRELATION IN PCHF HAS THE VALUE 0.834,
BUT SHOULD BE 0.8304.

DISPOSITION:

THIS ERROR IS CORRECTED IN MODIFICATION 163 IN THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 108 *****

REPORTED BY : G.C. GOSE EI DATE: 01/17/83
REPORTED TO : EPSC DATE: 01/17/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/22/82

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC/IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A. ANOMOLY WAS FOUND BY K. V. MOORE DURING THE
DESIGN REVIEW.

DESCRIPTION OF PROBLEM:

DATA BLOCK IN SUBROUTINE INRKEN CONTAINS ACTINIDE YIELDS THAT ARE
NOT CONSISTENT WITH QUOTED REFERENCE. THE VALUES 0.00226 AND
0.00217 SHOULD BE CHANGED TO 0.00228 AND 0.00219 RESPECTIVELY.

DISPOSITION:

THIS ERROR IS CORRECTED IN MODIFICATION 164 IN THE MOD003B UPDATE.
THE SECOND SET OF COEFFICIENTS IN THE ORIGINAL ERROR REPORT WERE
REVERSED. THE VALUE IN THE REFERENCE IS 0.00217 AND THE VALUE IN
THE CODE WAS 0.00219. BOTH COEFFICIENTS IN THE CODE WERE MODIFIED
TO 0.00228 AND 0.00217 TO MATCH THE REFERENCE.

MODELING ALTERNATIVES:

THE USER CAN SUPPLY VALUES USING INPUT DATA.

***** PROBLEM REPORT NUMBER 109 *****

REPORTED BY : G. SWINDLEHURST DUKE DATE: 01/17/83
REPORTED TO : EPSC DATE: 01/17/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/5/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL TO ILLUSTRATE THE APPARENT ERROR.

DESCRIPTION OF PROBLEM:

REACTIVITY IS ADDED TO A CORE CONDUCTOR UTILIZING A CONTROL SYSTEM. THE CORE POWER SPIKES BY A FACTOR OF 50 DURING THE FIRST STEP, ALTHOUGH THE ADDED REACTIVITY WAS NEGATIVE, I.E. SCRAM REACTIVITY. USING THE SAME REACTIVITY IN A SCRAM TABLE, THE ERROR DID NOT OCCUR.

DISPOSITION:

APPLICATION ERROR. THE KINETICS INTEGRATION SCHEME WILL NOT HANDLE A LARGE (-\$8) REACTIVITY INSERTION IN A SINGLE 0.1 SEC TIME STEP. NO PROBLEM IS OBSERVED IF 0.01 SEC TIME STEPS ARE TAKEN DURING THE TIME OF THE LARGE REACTIVITY INSERTION.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 110 *****

REPORTED BY : G. SWINDLEHURST DUKE DATE: 01/17/83
REPORTED TO : EPSC DATE: 01/17/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/5/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL TO ILLUSTRATE THE APPARENT ERROR.

DESCRIPTION OF PROBLEM:

THE DIFFERENTIAL PRESSURE TRIP DOES NOT WORK IF ONE OF THE REFER-
ENCED VOLUMES IS A NONEQUILIBRIUM VOLUME.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 165 IN THE MOD003B UPDATE.

THE ERROR IS IN THE DIFFERENTIAL PRESSURE OPTION AND IS NOT
RELATED TO ONE OF THE VOLUMES BEING A NOEQUILIBRIUM VOLUME.

MODELING ALTERNATIVES:

USE CONTROL SYSTEM TO COMPUTE DIFFERENTIAL PRESSURE.

***** PROBLEM REPORT NUMBER 111 *****

REPORTED BY : G. SWINDLEHURST DUKE DATE: 01/17/83
REPORTED TO : EPSC DATE: 01/17/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/12/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL TO ILLUSTRATE THE APPARENT ERROR.

DESCRIPTION OF PROBLEM:

CANNOT INITIALIZE A VOLUME WITH AIR ONLY, EITHER WITH A NORMAL
OR TIME-DEPENDENT VOLUME.

DISPOSITION:

THIS PROBLEM WAS DETERMINED TO BE A CODE LIMITATION.

MODELING ALTERNATIVES:

MOD003B WILL ALLOW NON TIME DEPENDENT VOLUMES WITH A FAIRLY
SMALL RELATIVE HUMIDITY TO BE INITIALIZED. HOWEVER, THE CASE
OF DRY AIR REMAINS A CODE LIMITATION. SEE MODIFICATION 132 FOR
AN EXPLANATION OF THE INPUT REQUIRED AND THE POTENTIAL DIFFI-
CULTIES WHICH MAY ARISE DURING A TRANSIENT AS THE VOLUME
APPROACHES ZERO RELATIVE HUMIDITY.

***** PROBLEM REPORT NUMBER 112 *****

REPORTED BY : G. SWINDLEHURST DUKE DATE: 01/17/83
REPORTED TO : EPSC DATE: 01/17/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/6/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL TO ILLUSTRATE THE APPARENT ERROR.

DESCRIPTION OF PROBLEM:

IF A FILL JUNCTION IS INITIATED AT TIME ZERO WITH THE FILL FLUX SPECIFIED IN GPM/FT², A DIVIDE CHECK OCCURS. THIS IS SIMILAR TO PROBLEM REPORT #12, BUT OCCURS IN A DIFFERENT CODING SEGMENT.

DISPOSITION:

THE PROBLEM IS THE RESULT OF A CODE LIMITATION ASSOCIATED WITH THE STEADY-STATE INITIALIZATION OPTION. THE CONTINUITY EQUATION MUST BE SATISFIED BEFORE THE OTHER BALANCE EQUATIONS ARE SOLVED. THE DENSITY FOR NEGATIVE FILLS, USING THE GPM/FT² OPTION TRIPPED ON AT TIME ZERO, IS REQUIRED TO COMPUTE THE MASS FLOW RATE FOR THE CONTINUITY EQUATION. THE DENSITY GENERALLY WILL NOT BE KNOWN UNTIL THE MOMENTUM EQUATION HAS BEEN SOLVED, THUS THE DENSITY IS UNDEFINED WHEN IT IS NEEDED TO COMPUTE THE MASS FLOW AND A DIVIDE CHECK OCCURS.

THE INPUT MANUAL HAS BEEN MODIFIED TO NOTE THE LIMITATION AND AN ERROR MESSAGE HAS BEEN ADDED TO THE CODE TO WARN THE USER OF THIS INPUT. THE ERROR MESSAGE WILL BE INCLUDED IN THE MOD003C UPDATE.

ALTHOUGH THE EFFECT IS SIMILAR TO THE PROBLEM REPORTED IN PROBLEM REPORT 12, THE CAUSES ARE DIFFERENT.

THE ERROR MESSAGE IS INCLUDED IN MODIFICATION 186 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

USE THE MASS FLUX FILL OPTION.

***** PROBLEM REPORT NUMBER 113 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 01/18/83
REPORTED TO : EPSC DATE: 01/21/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/18/83.

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : A B&W PLANT MODEL USING A TWO-SIDED HEAT CONDUCTOR
NOT SPECIFIED AS A STEAM GENERATOR. NO ENERGY TRANS-
FER AT TIME ZERO.

DESCRIPTION OF PROBLEM:

THE CODE CALCULATES A NEGATIVE HEAT TRANSFER AREA ADJUSTMENT FACTOR
FOR THE TWO-SIDED CONDUCTOR. WITH BOTH ADJACENT FLUID VOLUMES
SPECIFIED IDENTICALLY, THE FACTOR IS CALCULATED CORRECTLY, I.E.,
NEAR UNITY. THIS MAY BE A MODEL LIMITATION.

DISPOSITION:

THE REPORTED ERROR IS CAUSED BY AN ERROR WITH HEAT TRANSFER MODE
10. ALL THE CONDUCTORS WITH NEGATIVE AREAS BEING CALCULATED WERE
IN HEAT TRANSFER MODE 10 ON ONE SIDE. THE CAUSE OF THIS ERROR IS
THE SAME AS PROBLEM REPORT 27 AND IS CORRECTED BY MODIFICATION 114
IN THE MOD003A CORRECTION SET. THIS DECK WAS EXECUTED ON VERSION
MOD003A TO VERIFY IT WAS CORRECTED.

THIS ERROR IS ONLY ENCOUNTERED DURING STEADY STATE INITIALIZATION
AND DOES NOT APPLY TO THE TRANSIENT FORM OF THE HEAT TRANSFER
SOLUTION.

MODELING ALTERNATIVES:

DO NOT USE THE FREE CONVECTION HEAT TRANSFER MAP OPTION IF THIS
PROBLEM IS ENCOUNTERED.

***** PROBLEM REPORT NUMBER 114 *****

REPORTED BY : C. E. PETERSON EI DATE: 01/20/83
REPORTED TO : EPSC DATE: 01/20/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/20/83.

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PRAIRIE ISLAND S.G. TUBE RUPTURE MODEL.

DESCRIPTION OF PROBLEM:

THE INITIAL RUN TERMINATES ON END TRIP SIGNAL. WHEN RESTARTED
AT THE LAST DATA RECORD THE RESTART RUN WILL CONTINUE PAST THE
TIME SUPPLIED ON THE NEW END TRIP CARD.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND CORRECTED. IT WAS INTRODUCED
IN THE MOD003A UPDATE. THE CORRECTION IS INCLUDED IN THE MOD003C UPDATE
AS MODIFICATION 181.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 115 *****

REPORTED BY : C. E. PETERSON EI DATE: 01/20/83
REPORTED TO : EPSC DATE: 01/20/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/20/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC (UCC)

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (CEP:DIFFTRIP)

DECK DESCRIPTION : H.B. ROBINSON SMALL BREAK MODEL.

DESCRIPTION OF PROBLEM:

DIFFERENTIAL PRESSURE TRIP TRIPS ON INCORRECTLY (SEE TRIP ID'S
21 AND 22 ON OUTPUT LISTING).

DISPOSITION:

THE REPORTED ERROR IS THE SAME AS THE ERROR REPORTED IN PROBLEM
REPORT 110 AND IS CORRECTED IN MODIFICATION 165 IN THE MOD003B
UPDATE.

MODELING ALTERNATIVES:

USE THE CONTROL SYSTEM TO MONITOR THE DIFFERENTIAL PRESSURE AND
SET THE APPROPRIATE TRIP LOGIC FLAG.

***** PROBLEM REPORT NUMBER 117 *****

REPORTED BY : K. D. RICHERT EI DATE: 01/27/83
REPORTED TO : EPSC DATE: 01/27/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/27/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PLOTTER SAMPLE PROBLEM INCLUDED IN RETRAN-02 VOLUME
3 MANUAL. TTWOB WITH POINT KINETICS.

DESCRIPTION OF PROBLEM:

TABULAR DATA LISTING OF PLOT DATA REPEATS SOME POINTS AND LEAVES
OUT SOME POINTS AT THE END OF THE LIST.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED IN MODIFICATION 178 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 118 *****

REPORTED BY : R. F. FARMAN EI DATE: 01/28/83
REPORTED TO : EPSC DATE: 01/28/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/28/83.

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : SIMPLIFIED TURBINE MODEL.

DESCRIPTION OF PROBLEM:

1. TRANSIENT BLADE SPEED CORRECTION.
2. MOISTURE LOSS CORRECTION.
3. IMPROVE STAGE QUALITY CONVERGENCE.
4. SHAFT TORQUE VALUES CONVERTED TO CONVENTIONAL UNITS.
5. EXTRANEIOUS COMMENTS REMOVED.

ABOVE ITEMS IDENTIFIED AS A RESULT OF CORRECTIONS TO TROUBLE REPORT
NO. 68.

DISPOSITION:

THE ERRORS HAVE BEEN CORRECTED IN MODIFICATION 118 IN THE MOD003B
UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 119 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 02/01/83
REPORTED TO : EPSC DATE: 02/04/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/1/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM/CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A STEAM RELIEF AND CONDENSER MODEL.

DESCRIPTION OF PROBLEM:

JUNCTION PROPERTIES ARE NOT SUCCESSFULLY INITIALIZATION FOR A
CLOSED VALVE AT TIME ZERO. THE JUNCTION CONNECTS TWO SEPARATED
VOLUMES.

DISPOSITION:

THE REPORTED PROBLEM WAS NOT A CODE ERROR. THE JUNCTION PROPERTY
CALCULATION FAILED BECAUSE THE HEAD TERM WAS TOO LARGE, AND RESULTED
IN A NEGATIVE VALUE FOR PRESSURE.

MODELING ALTERNATIVES:

USER INPUT PROBLEM ASSOCIATED WITH MIXTURE LEVEL SPECIFICATION.

***** PROBLEM REPORT NUMBER 120 *****

REPORTED BY : GEORGE SAWTELLE EI DATE: 02/08/83
REPORTED TO : EPSC DATE: 02/08/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/8/83

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UNC CDC-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ZIMMER LOSS OF OFF-SITE POWER. SEE DIR:GRS FILE:
ZIMMERROZALOOPTDG FOR INPUT DECK.

DESCRIPTION OF PROBLEM:

UNDAMPED OSCILLATIONS OCCUR DURING NULL TRANSIENT WHEN ENTHALPY
TRANSPORT ACTIVATED IN CORE REGION.

DISPOSITION:

THE DESCRIPTION OF THE PROBLEM IS NOT ACCURATE. THE REPORTED
OSCILLATIONS ARE THE RESULT OF USING A TIME STEP SIZE LARGER THAN
THE COURANT LIMIT. WHEN THE TIME STEP SIZES WERE REDUCED, THE
OSCILLATIONS WERE NOT OBSERVED.

WHILE INVESTIGATING THIS PROBLEM IT APPEARED THAT THE USE OF THE
TEMPERATURE TRANSPORT DELAY MODEL RESULTED IN A SLIGHT DEVIATION
FROM THE INITIAL CONDITIONS WHEN THE NULL TRANSIENT WAS EXECUTED.
THE DECK WAS RUN WITH MODIFICATION 180 OF THE MOD003C UPDATE AND
HELD A GOOD NULL TRANSIENT.

MODELING ALTERNATIVES:

CHECK TIME STEP CONVERGENCE WHEN RUNNING ANY PROBLEMS.

REPORTED BY: JIM HARRISON (EI) DATE: 12/30/82
REPORTED TO: EPSC DATE: 02/15/83

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 12/30/82

CODE VERSION: RETRAN-02 MOD002

COMPUTER/
OPERATING SYSTEM: NOS/BE

LISTING SUPPLIED: YES

DECK SUPPLIED: YES

DECK DESCRIPTION: 2 LOOP B&W DECK SET UP FOR SS INTIALIZATION AT
LOW POWER.

DESCRIPTION OF PROBLEM: PWR POWER INITIALIZATION WORKS FINE/LOW POWER
INITIALIZATION PRODUCES NEGATIVE JUNCTION
ENTHALPIES CAN'T RESOLVE.

DISPOSITION: THE REPORTED ERROR HAS NOT BEEN IDENTIFIED, BUT IT IS
KNOWN THAT THE ABILTIY TO PERFORM LOW POWER STEADY-STATE
INITIALIZATIONS FOR ONCE THROUGH SG IS A CODE LIMINATION.

THE ADJUSTMENT PROCESS AND THE CORRESPONDING HEAT TRANSFER
AREA CHANGES ASSUME THAT THE STEAM GENERATOR REGIONS ALL
PARTICIPATE IN THE HEAT REMOVAL PROCESS AND THIS IS NOT A
CORRECT ASSUMPTION FOR LOW POWER CONDITIONS IN A OTSG. THIS
TROUBLE REPORT IS RESOLVED AS A CODE LIMITATION

MODELING ALTERNATIVES: NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 122 *****

REPORTED BY : JIM HARRISON EI DATE: 01/03/83
REPORTED TO : EPSC DATE: 02/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/3/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : B&W SINGLE LOOP W/CONTROL SYSTEM.

DESCRIPTION OF PROBLEM:

WHILE DEBUGGING WITHOUT BLOCKS ON THE CONTROLS W/A FIXED TIME
STEP AND A MAX CONTROL SYSTEM TIME STEP OF 0.025S TIME STEPS.
(PROBLEM DISCUSSED AND UNDERSTOOD WITH CRAIG PETERSON).

DISPOSITION:

THE CONTROL SYSTEM WOULD TAKE TWO TIME STEPS FOR EVERY THERMAL-HYDRAULIC
TIME STEP WHEN THE THERMAL HYDRAULIC TIME STEP AND THE MAXIMUM CONTROL
SYSTEM TIME STEP WERE EQUAL. THIS PROBLEM WILL ONLY OCCUR WHEN THESE
TWO TIME STEP SIZES ARE EXACTLY EQUAL. THE ERROR SHOULD NOT CAUSE ANY
COMPUTATIONAL PROBLEMS.

THE CORRECTION FOR THIS ERROR IS IN MODIFICATION 183 OF THE MOD003C
UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 123 *****

REPORTED BY : JAMES BOATWRIGHT TUS DATE: 02/10/83
REPORTED TO : EPSC DATE: 02/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/10/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL/CYBER

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : 2-LOOP HZP STEAM LINE BREAK FOR COMANCHE PEAK.

DESCRIPTION OF PROBLEM:

RHOIN (140000 CARD) WAS USED TO ADD INITIAL REACTIVITY AFTER
INITIALIZATION. NO EFFECTS WERE SEEN OTHER THAN ON EDITS. WHEN
GENERAL RESTART WAS USED, REACTIVITY WAS INSERTED INTO CORE AS
WOULD BE EXPECTED. THE PROBLEM WAS AVOIDED BY RESTARTING FROM
THE FIRST RECORD.

DISPOSITION:

THERE IS A MISUNDERSTANDING ABOUT THE USE OF RHOIN. EARLY VERSIONS
OF RELAP ALLOWED THE REACTOR CORE TO BE IN A SUBCRITICAL CONFIGURATION
INITIALLY, AND RHOIN INDICATED THE REACTIVITY BIAS. THE CURRENT
VERSION OF RETRAN ASSUMES THE CORE IS INITIALLY CRITICAL, AND THUS
RHOIN SHOULD BE RESTRICTED TO A VALUE OF ZERO.
A MODIFICATION TO TRAP NONZERO INPUT VALUES AND TO PREVENT EXECUTION
IS INCLUDED IN MODIFICATION NUMBER 211 OF THE MOD003D UPDATE.

MODELING ALTERNATIVES:

SUBCRITICAL SYSTEMS CANNOT BE MODELED USING THE CURRENT KINETICS
OPTIONS IN RETRAN. A BIAS IN THE REACTIVITY WHICH DELAYS POWER
RESPONSE MIGHT BE MODELED BY THE CONTROL SYSTEM.

***** PROBLEM REPORT NUMBER 125 *****

REPORTED BY : C. E. DODGE PP&L DATE: 02/02/83
REPORTED TO : EPSC DATE: 02/23/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/2/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : RETRAN PLOT JOB.

DESCRIPTION OF PROBLEM:

 A NEGATIVE 3 DIGIT 'COUT' PARAMETER APPEARS TO BE ACCEPTABLE
 TO 02XX0Y CARDS BUT UNACCEPTABLE TO 4XXYZS CARDS.

DISPOSITION:

 (THIS IS A DUPLICATION OF PROBLEM REPORT NO 124)

MODELING ALTERNATIVES:

 NONE REQUIRED

***** PROBLEM REPORT NUMBER 126 *****

REPORTED BY : N. FUJITA YAEC DATE: 02/18/83
REPORTED TO : EPSC DATE: 03/10/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/18/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC/NOS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : YANKEE ROWE CYC-16 MSLB (100% BREAK AT FULL POWER).
 THE MODEL CONSISTS OF THE ACTIVE SG SECONDARY SIDE
 AND A 2-NODE TUBE SIDE.

DESCRIPTION OF PROBLEM:

FOLLOWING AN RCP TRIP, RETRAN CALCULATES THE FLUID TEMPERATURE IN THE DOWNWARD U-TUBE NODE TO BE LOWER THAN THE SHELL SIDE TEMPERATURE. THIS PROBLEM WAS ELIMINATED BY REMOVING THE ENTHALPY TRANSPORT OPTION VIA A GENERALIZED RESTART. THE PROBLEM APPEARS TO BE LIMITED TO LOW FLOW PRIMARY CONDITIONS (BUT NOT REVERSED) WHILE SECONDARY SIDE HEAT TRANSFER RATES REMAIN HIGH. THE DYNAMIC SLIP OPTION WAS NOT USED.

DISPOSITION:

IT HAS BEEN DETERMINED THAT THE REPORTED PROBLEM REFLECTS A LIMITATION OF THE ENTHALPY TRANSPORT MODEL...IF THE DONOR-VOLUME-CENTER-TO-JUNCTION TRANSPORT TIME (TAU) VARIES TOO RAPIDLY, THEN ONE CAN EXPECT THE MODEL ESTIMATE OF THE ENTHALPY DIFFERENCE RESULTING FROM HEAT ENERGY GAIN OR LOSS BETWEEN THE TWO "POINTS" TO BE INACCURATE. (THE DEVELOPMENT OF EQ.III.3-67 OF VOL. 1 FOR ESTIMATING THE DIFFERENCE INCLUDES THE APPROXIMATION OF CONSTANT TRANSPORT TIME.) FOLLOWING THE REACTOR COOLANT PUMP TRIP IN THE SUBJECT PROBLEM, THE TRANSPORT TIME THROUGH (EACH OF THE TWO VOLUMES OF) THE STEAM GENERATOR PRIMARY SIDE VARIES CONSIDERABLY AND LEADS TO INACCURATE JUNCTION ENTHALPY ESTIMATES VIA THE ENTHALPY TRANSPORT MODEL EQUATIONS.

MODELING ALTERNATIVES:

FINER NODALIZATION AND SMALLER TIME STEPS WOULD GENERALLY PROVIDE MORE ACCURACY IN CONJUNCTION WITH THE ENTHALPY TRANSPORT MODEL. ALTERNATIVELY, USE OF THE MODEL MAY BE DISCONTINUED DURING A PERIOD OF LARGE TRANSPORT TIME VARIATION VIA GENERALIZED RESTART.

***** PROBLEM REPORT NUMBER 127 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 03/10/83
REPORTED TO : EPSC DATE: 03/14/83Y

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 03/10/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL WITH FOUR VOLUMES AND ONE TWO-SIDED
CONDUCTOR USED TO SIMULATE A CONDENSER.

DESCRIPTION OF PROBLEM:

THE VOLUME EXIT RATHER THAN VOLUME AVERAGE TEMPERATURE IS USED
FOR DETERMINING THE T FOR HEAT TRANSFER. THE EXIT TEMPERATURE
IS EDITED ON MAJOR EDITS.

DISPOSITION:

THE CODING HAS BEEN REVIEWED AND A HAND CALCULATION PERFORMED TO
VERIFY THAT THE CODE IS USING THE VOLUME AVERAGE TEMPERATURE IN
THE SOLUTION OF THE HEAT TRANSFER EQUATIONS.

MODELING ALTERNATIVES:

DOES NOT APPLY.

***** PROBLEM REPORT NUMBER 128 *****

REPORTED BY : GREGG SWINDELHURST DUKE DATE: 03/10/83
REPORTED TO : EPSC DATE: 03/21/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/10/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL WITH FOUR VOLUMES AND ONE TWO-SIDED
CONDUCTOR USED TO SIMULATE A CONDENSER.

DESCRIPTION OF PROBLEM:

FOR POSITIVE FILLS, THE JUNCTION ENTHALPY EDITED IS EXACTLY THE
FILL TABLE INPUT VALUE, THE KINETIC ENERGY COMPONENT IS NOT SUB-
TRACTED. FOR NEGATIVE FILLS, THE JUNCTION ENTHALPY EDITED DOES
NOT INCLUDE THE KINETIC ENERGY COMPONENT. THIS IS INCONSISTENT.

DISPOSITION:

THE REPORTED PROBLEM IS NOT A CODE ERROR. THE JUNCTION ENTHALPIES
EDITED ARE ALWAYS THERMODYNAMIC ENTHALPIES UNLESS SPECIFICLY NOTED,
E.G. FLOWING ENTHALPY. FOR POSITIVE FILLS, THE THERMODYNAMIC
ENTHALPY IS PART OF THE BOUNDARY CONDITION SPECIFICATION, WHILE
THE ENTHALPY IS COMPUTED FOR NEGATIVE FILLS ACCORDING TO THE EQUA-
TION USED FOR NORMAL JUNCTIONS (SEE VOL 1 SEC IV.2 AND EQ. III.3-54).
THE 5.111 BTU/LBM DIFFERENCE BETWEEN THE DONNOR VOLUME ENTHALPY AND
THE NEGATIVE FILL ENTHALPY IS CONSISTENT WITH EQ. III.3-54. THE
LARGE KINETIC ENERGY EFFECT (5.111 BTU/LBM) IS THE RESULT OF USING
AN ARTIFICIAL JUNCTION AREA OF 1.0 FT**2 TO SIMPLIFY THE SPECIFICATION
OF THE NEGATIVE FILL MASS FLUX.

MODELING ALTERNATIVES:

NONE REQUIRED

***** PROBLEM REPORT NUMBER 129 *****

REPORTED BY : CHET MOTLOCH EI DATE: 03/24/83
REPORTED TO : EPSC DATE: 03/24/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/24/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL/CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BWR JET PUMP WITH RECIRCULATION LOOP SUBSYSTEM MODEL.

DESCRIPTION OF PROBLEM:

THE MODEL WILL NOT HOLD A STEADY-STATE WHEN A MOTOR TORQUE VS SPEED CURVE IS USED WITH THE RECIRCULATION PUMP. MODELS WITH A SPEED VS TIME INPUT TABLE OR WITH NO PUMP MOTOR TORQUE DATA CARDS (097XXY) WORK FINE.

DISPOSITION:

THE MOTOR TORQUE WAS NOT BEING CALCULATED AFTER THE FIRST STEADY-STATE ITERATION. THIS RESULTED IN AN INBALANCE IN THE TORQUE EQUATION WHEN THE TRANSIENT SOLUTION WAS STARTED.
THE ERROR IN SUBROUTINE PUMPS WAS CORRECTED IN MODIFICATION 192 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 130 *****

REPORTED BY : G. R. SAWTELLE EI DATE: 03/30/83
REPORTED TO : EPSC DATE: 03/30/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/30/83

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : REDUCED NODALIZATION ZIMMER UNIT. IT IS LOCATED ON
DATA GENERAL DISK - GRS DIRECTORY - ZIMMERTRIPERROR.

DESCRIPTION OF PROBLEM:

END OF PROBLEM TRIP IS NOT TERMINATING CODE EXECUTION CAUSING
UNDULY LARGE CHARGE/COST.

DISPOSITION:

THE PROBLEM REPORT IS MISLEADING IN THAT ONE OF THE END OF PROBLEM
TRIPS IN THE DECK WAS MONITORING A CONDUCTOR TEMPERATURE. THE TIME
STEP SELECTION PROCESS TRIES TO SELECT A TIME STEP SIZE TO MATCH THE
TIME A TRIP WOULD OCCUR. FOR ANY TRIP ON CONDUCTOR NODE TEMPERATURE,
A WRONG VALUE OF TEMPERATURE WAS USED FOR SELECTING THE TIME STEP
SIZE. THIS CAUSED THE CODE TO TAKE EXTREMELY SMALL TIME STEPS.
THE PROBLEM CAN BE RECOGNIZED BY REVIEWING THE TIME STEP SUMMARY
AND IDENTIFYING IF A PARTICULAR TRIP IS CONTROLLING THE TIME STEP.
THE ERROR IS CORRECTED IN MODIFICATION 190 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

DO NOT USE TRIPS THAT MONITOR CONDUCTOR NODE TEMPERATURE.

***** PROBLEM REPORT NUMBER 132 *****

REPORTED BY : J. H. MCFADDEN EI DATE: 03/30/83
REPORTED TO : EPSC DATE: 03/30/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/30/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL/CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SECONDARY SYSTEM SAMPLE PROBLEM WITH TRIP DELAYED FOR
NULL TRANSIENT. DECK FROM THE DESIGN REVIEW.

DESCRIPTION OF PROBLEM:

THE LOGIC TO PROVIDE A SMOOTH TRANSITION BETWEEN THE CONDENSING
HEAT TRANSFER AND SINGLE PHASE LIQUID CORRELATIONS FAILS TO
RESTRICT THE WALL TEMPERATURE CORRECTLY. THIS SLIGHT NUMERICAL
ERROR RESULTS IN A SLIGHT CHANGE IN HEAT TRANSFER DURING THE NULL
TRANSIENT.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED IN MODIFICATION 176 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 133 *****

REPORTED BY : SAL RANATZA MSS DATE: 03/31/83
REPORTED TO : EPSC DATE: 04/07/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/31/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM (3038)

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : NULL TRANSIENT FOR W-3 BASE CASE.

DESCRIPTION OF PROBLEM:

BAD NULL TRANSIENT FOR CASE WITH SLIP AND DELTA T = .2 SEC. FIVE
CASES WERE RUN. THE SLIP OPTION, NUMERICS AND DELTA T WERE NAMED.
THE CASES WITH SLIP AND DELTA T = .2 SEC. WAS BAD WITH BOTH STANDARD
AND ALTERNATE NUMERICS. THE OTHER CASES, INCLUDING SLIP WITH DELTA
T = .1 SEC. GIVE ACCEPTABLE ANSWERS.

DISPOSITION:

THE REPORTED ERROR IS BASICALLY A TIME STEP PROBLEM AS ACKNOWLEDGED IN
THE PROBLEM REPORT. THE TIME ZERO COURANT LIMIT FOR THIS DECK IS
APPROXIMATELY 0.11 SEC, THUS AN ANALYSIS WITH LARGER TIME STEPS WOULD
MOST LIKELY RESULT IN A NONSTABLE SOLUTION. THE INPUT FOR THIS TROUBLE
REPORT WAS USED IN THE CHECKOUT OF MODIFICATION NUMBER 213, THE COURANT
LIMIT CONTROLLER, IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

USE SMALLER VALUES OF TIME STEP SIZE.

***** PROBLEM REPORT NUMBER 134 *****

REPORTED BY : RICHARD GERLING CPCO DATE: 04/05/83
REPORTED TO : EPSC DATE: 04/14/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/5/83

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES (REEDIT RUN)

DECK SUPPLIED : NO

DECK DESCRIPTION : PALISADES RETRAN DECK. A LONG TRANSIENT WAS RESTART-
ED SEVERAL TIMES.

DESCRIPTION OF PROBLEM:

WHILE TRYING TO REEDIT THE ENTIRE TRANSIENT FROM THE LAST DATA TAPE AN ERROR WAS ENCOUNTERED. APPARENTLY, WHILE WRITING THE DATA TO THE LAST TAPE, THERE WASN'T ENOUGH SPACE ON THE TAPE FOR ALL THE DATA. A SECOND REEL WAS MOUNTED BUT THE FIRST WAS NOT RESERVED. WHEN REEDITING FROM THE FIRST DATA RECORD, THE LAST TAPE RESERVED DID NOT CONTAIN ALL THE DATA RECORDS, ONLY THOSE FROM THE SECOND REEL OF THE LAST VSN RESERVED CONSEQUENTLY, THE ERROR GIVEN WAS "ERROR, DATA RECORD 1 CAN NOT BE LOCATED".

DISPOSITION:

THE ERROR IS AN INSTALLATION ERROR ON CYBERNET FOR THE MOD22 CDC ENVIRONMENTAL LIBRARY AND IS NOT A GENERIC CODE PROBLEM. THE PROBLEM IS THAT ANYTIME A JOB WRITES RESTART DATA IN EXCESS OF THE CAPACITY OF A SINGLE REEL OF TAPE, ONLY THE FINAL REEL IS SAVED IN THE TAPE MANAGEMENT SYSTEM (TMS), DATA BASE. INSTRUCTIONS ARE GIVEN IN THE ENVIRONMENTAL LIBRARY COMDECK OPSY\$CA, FOR IMPLEMENTING THE NON-STANDARD TMS OPTION. SITES CHOOSING TO USE THE TMS OPTION MUST SUPPLY CODING TO ENTER TAPES INTO THE TMS DATA BASE. TO INSURE THAT A CONSCIOUS DECISION MUST BE MADE BY THE INSTALLER, THE LOCATION WHERE THE SITE SPECIFIC CODING MUST BE ADDED IS MARKED WITH AN ABEND INSTRUCTION AND FURTHER COMMENTS ABOUT THE INSTALLER'S RESPONSIBILITY TO ADD SITE SPECIFIC CODING. IF THE CODE IS EXECUTED WITHOUT CHANGING THE ABEND INSTRUCTION, THE CODE WILL ABORT WHEN THE RESTART TAPE IS REWOUND AT THE END OF A JOB OR WHEN THE END OF THE FIRST REEL IS REACHED, WHICHEVER OCCURS FIRST.

MODELING ALTERNATIVES:

THE BEST SOLUTION IS TO CORRECT THE INSTALLATION ERROR. IN THE INTERIM, USERS MIGHT TRY USING 6250 BPI TAPES IF THEY PRESENTLY ARE NOT, OR THEY MIGHT LIMIT THE DATA BEING WRITTEN TO TAPE TO AVOID FILLING THE FIRST REEL.

***** PROBLEM REPORT NUMBER 135 *****

REPORTED BY : RICHARD GERLING CPCO DATE: 04/05/83
REPORTED TO : EPSC DATE: 04/14/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/5/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : 2-VOLUME STEAM GENERATOR BLOWDOWN MODEL W/2 NON-
CONDUCTING HEAT EXCHANGERS.

DESCRIPTION OF PROBLEM:

WHILE USING TYPE 2 NON-CONDUCTING HEAT EXCHANGER, FORMAT ERROR WAS
ENCOUNTERED, SOURCE LISTING WAS CHECKED AND APPEARS TO HAVE IN-
CORRECT FORMAT STATEMENT.

DISPOSITION:

THE TROUBLE REPORT DID IDENTIFY AN EDIT PROBLEM.
UPDATES TO CORRECT THE ERROR ARE INCLUDED IN MODIFICATION 185 OF THE
MOD003C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 136 *****

REPORTED BY : GARRY GOSE EI DATE: 04/11/83
REPORTED TO : EPSC DATE: 04/25/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/11/83

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : MODIFIED UCRW SAMPLE PROBLEM. 12 VOL. CORE.

DESCRIPTION OF PROBLEM:

ARRAY ALEPH IN SUBROUTINE RODMOV IS INITIALIZED INCORRECTLY
FOR TOP ENTRY ROD BANKS. THE INITIALIZATION IS CORRECT FOR
BOTTOM ENTRY CASES.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED IN MODIFICATION 177 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 137 *****

REPORTED BY : C.R. ALBURY HL&P DATE: 05/24/83
REPORTED TO : EPSC DATE: 05/31/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/24/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM: CYBER 176/NOSBE AT UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE 2 VOLUME (PRESSURIZER AND SURGE LINE) 3 JUNCTION
(SURGE LINE INLET, OUTLET AND PRESSURIZER SPRAY). 2 FILL
JUNCTIONS AND ONE VALVE (PRESSURIZER SPRAY).

DESCRIPTION OF PROBLEM:

USING A SURGE LINE INLET MASS FLUX OF 1000 GPM/FT2 FATAL ERROR
"INDEFINITE VALUE IN POLATE NEAR LINE 58" OCCURS AT 10.12634 SECONDS
INTO THE TRANSIENT

DISPOSITION:

THE ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN MODIFICATION 223 OF
THE MOD003D UPDATE. (ALSO SEE PROBLEM REPORTS 152 AND 167.)

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 139 *****

REPORTED BY: ANDY OLSON (PHIL.EL.) DATE: 06/02/83
REPORTED TO: EPSC DATE: 06/06/83

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 06/02/83

CODE VERSION: RETRAN-02 MOD002

COMPUTER/
OPERATING SYSTEM: IBM

LISTING SUPPLIED: YES

DECK SUPPLIED: YES, BUT DID NOT CORRESPOND TO DECK IN LISTING
THE CORRECT INPUT DECK HAS BEEN REQUESTED FROM
PECO.

DECK DESCRIPTION: PWR PLANT MODEL WITHOUT STEAM LINES. STEAM
DOME VOLUME MODELED WITH RETRAN TIME DEPENDENT
BOUNDARY CONDITION OPTION ITERATIVE TIME-STEP
CONTROL USED.

DESCRIPTION OF PROBLEM: RETRAN WAS ALLOWED TO TAKE SUCCESSIVELY LARGER
TIME STEPS. WHEN A TIME STEP OF .025 SEC. WAS
REACHED, THE JOB FAILED. I AM NOT SURE IF
THIS IS A PROBLEM WITH RETRAN OR WITH THE
PARTICULAR TRANSIENT ANALYZED.

DISPOSITION: THE OUTPUT LISTING WAS REVIEWED IN AN ATTEMPT
TO IDENTIFY THE ERROR, BUT WITHOUT SUCCESS.
THE INPUT DECK WHICH ACTUALLY ENCOUNTERED THE
REPORTED PROBLEM WILL BE REQUIRED IN ORDER TO
RESOLVE THE TROUBLE REPORT.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE AN INPUT
DECK WAS NOT SUPPLIED THAT CORRESPONDED TO THE
ORIGINAL PROBLEM REPORT.

MODELING ALTERNATIVES: NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 140 *****

REPORTED BY: ANDY OLSON (PHIL.EL.) DATE: 06/02/83
REPORTED TO: EPSC DATE: 06/06/83

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 06/02/83

CODE VERSION: RETRAN-02 MOD002

COMPUTER/
OPERATING SYSTEM: IBM

LISTING SUPPLIED: YES

DECK SUPPLIED: YES, BUT DID NOT CORRESPOND TO DECK IN LISTING
THE CORRECT INPUT DECK HAS BEEN REQUESTED FROM
PECO.

DECK DESCRIPTION: BWR PLANT MODEL WITHOUT STEAM LINES. STEAM
DOME VOLUME MODELED WITH RETRAN TIME-DEPENDENT
BOUNDARY CONDITION OPTION. ITERATIVE TIME-
STEP CONTROL USED.

DESCRIPTION OF PROBLEM: SPURIOUS TRIPS ON HIGH LEVEL OCCURRED EVEN
THOUGH THE OUTPUT OF THE CONTROL BLOCK
CONTROLLING THE TRIP NEVER REACHED THE TRIP
VALUE AND WAS IN FACT RECEDING FROM THE TRIP
VALUE.

DISPOSITION: THE OUTPUT LISTING WAS REVIEWED IN AN ATTEMPT
TO IDENTIFY THE ERROR, BUT WITHOUT SUCCESS.
THE INPUT DECK WHICH ACTUALLY ENCOUNTERED THE
REPORTED PROBLEM WILL BE REQUIRED IN ORDER TO
RESOLVE THE TROUBLE REPORT.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE AN INPUT
DECK WAS NOT SUPPLIED THAT CORRESPONDED TO THE
ORIGINAL PROBLEM REPORT.

MODELING ALTERNATIVES: NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 141 *****

REPORTED BY : GREG RICE EI DATE: 05/29/83
REPORTED TO : EPSC DATE: 06/09/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/29/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : NOT APPLICABLE.

DESCRIPTION OF PROBLEM:

AN AUTO-RECALL ERROR OCCURS AT THE END OF CDC PLOT JOBS. THE ERROR IS
IN SUBROUTINE FRECOR AS NOTED IN THE ATTACHMENT. (LISTING OF FRECOR)

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION 4 OF THE MOD23
CDC ENVIRONMENTAL LIBRARY.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 142 *****

REPORTED BY : CHET MOTLOCH EI DATE: 06/07/83
REPORTED TO : EPSC DATE: 06/09/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/7/83

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PALISADES OPERATIONAL TRANSIENT MODE.

DESCRIPTION OF PROBLEM:

INPUT EDIT ERROR FOR NONCONDUCTING HEAT-EXCHANGER. (NOTE: MAJOR EDIT
IS O.K.)

INPUT LISTING	210100	-5	1000	300	7	0.0	0.0
	HTXQ	IDC	FLAG			VOL	
INPUT EDIT	1	-5	1000			49	

DISPOSITION:

UPDATES TO CORRECT THE EDIT ERROR ARE IN MODIFICATION 188 OF THE
MOD003C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 143 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 06/10/83
REPORTED TO : EPSC DATE: 06/13/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/10/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : RETRAN EDIT ERRORS ONLY.

DESCRIPTION OF PROBLEM:

THREE EDITORIAL ERRORS. ULOS CANNOT BE MINOR EDITED. TYPE 4 NON-
CONDUCTING HEAT EXCHANGER EDITS USE THE INTERNAL RETRAN IDENTIFIER,
RATHER THAN THE USER INPUT. VOLUME I EQUATION VI.6-10 IS DIMENSIONALLY
INCORRECT.

DISPOSITION:

THE ERROR ASSOCIATED WITH THE HEAT EXCHANGER EDITS IS CORRECTED IN
MODIFICATION 188 OF THE MOD003C UPDATE.
ULOS IS AN OBSOLETE VARIABLE. REFERENCE TO ULOS AS A MINOR EDIT
WILL BE DELETED FROM THE REVISED INPUT MANUAL.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 144 *****

REPORTED BY : D.BUCHEIT/J.HARRISON EI DATE: 06/07/83
REPORTED TO : EPSC DATE: 06/13/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/7/83

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (SENT ELECTRONICALLY TO SC=8P, DC=PU)

DECK DESCRIPTION : PWR LOFW ATWS. THE TWO LOOP MODEL WAS SETUP TO COASTDOWN
MAIN FEEDWATER WITH SCRAM TRIPS DEFEATED.

DESCRIPTION OF PROBLEM:

PRESSURIZER SPRAY JUNCTION (#24) GIVES ERONEOUS VALUES WHEN ITS FILL IS
TRIPPED ON. NO ERROR MESSAGE GIVEN IN JOB. ERROR MODE 2 SPECIFIED IN
DAYFILE.

DISPOSITION:

THE ERROR ACTUALLY STEMMED FROM A PROBLEM WITH NEGATIVE FILLS
WHICH REQUIRE CONVERSION TO LBM/SEC. UPDATES TO CORRECT THIS
ERROR ARE INCLUDED IN MODIFICATION 191 OF THE MOD003C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 145 *****

REPORTED BY : T. SURJANTO SCS DATE: 06/08/83
REPORTED TO : EPSC DATE: 06/14/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/8/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : MSIV CLOSURE

DESCRIPTION OF PROBLEM:

DURING MSIV CLOSURE, A CHOKING CONDITION SHOULD OCCUR IN THE MSIV
(VERIFIED BY A HAND CALCULATION), BUT IT DID NOT. THE SAME CASE
EXECUTED IN RETRAN01 MOD. 2, SHOW MSIV CHOKED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CHECKED BY COMPARING THE INERTIAL FLOW
SOLUTION VALUES WITH THE CHOKE FLOW VALUE FROM THE CHOKING FUNCTION
CURVE FITS. IT WAS DETERMINED THAT THE CODE WAS FUNCTIONING PROPERLY
AND NO ERROR WAS PRESENT. THE TRANSIENT RESPONSE COMPUTED BY MOD002
IS DIFFERENT THAN THAT COMPUTED USING MOD001 FOR THE MODEL FILED WITH
THE TROUBLE REPORT, BUT THE CHOKING MODEL IS NOT IN ERROR IN MOD002.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 146 *****

REPORTED BY : R. FARMAN EI DATE: 06/14/83
REPORTED TO : EPSC DATE: 06/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/14/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PLOT DECK.

DESCRIPTION OF PROBLEM:

 OVERWRITES FRAMES WHEN Y AXIS LABELS ARE REQUESTED.

DISPOSITION:

 THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION 212 IN THE
 MOD003D UPDATE.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 147 *****

REPORTED BY : CRAIG PETERSON EI DATE: 06/15/83
REPORTED TO : EPSC DATE: 06/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/15/83

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : RESTART OF PRAIRIE ISLAND TUBE RUPTURE ANALYSIS.

DESCRIPTION OF PROBLEM:

A TRIP CONTROLLING A VALVE WOULD NOT TRIP AND RESET CORRECTLY. TRIP 49
SHOULD TRIP AND RESET NUMEROUS TIMES. HOWEVER, THE TRIP WOULD TRIP,
RESET AND TRIP BUT NEVER RESET AGAIN. TRIP MONITORS PRESSURE.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION 195 IN THE
MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 148 *****

REPORTED BY : J.HARRISON EI DATE: 06/06/83
REPORTED TO : EPSC DATE: 06/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/6/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : MYSTIC 7 BALANCE OF PLANT DECK.

DESCRIPTION OF PROBLEM:

PROBLEM WHICH INTIALIZED PROPERLY ON MOD02 FAILED IN A VOLUME WHICH
INCLUDED AIR.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION 200 IN THE
MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 149 *****

REPORTED BY : RANATZA/BRODT MSS DATE: 06/09/83
REPORTED TO : EPSC DATE: 06/16/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/9/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM (3038)

LISTING SUPPLIED : YES (MICROFICHE)

DECK SUPPLIED : YES (VIA UCCEL PUNCH FILE)

DECK DESCRIPTION : TOTAL LOSS OF FEEDWATER TRANSIENT USING A 1-LOOP SIMPLIFIED
MODEL OF W-3.

DESCRIPTION OF PROBLEM:

E.G. TRANSFER CORRELATION SWITCHES FROM REGION 1 TO REGION 10 BASED ON
G=200,000 LBM/FT²-HR RATHER THAN REYNOLDS NUMBER OF 2,500.. SEE PAGE
III-68 OF RETRAN MANUAL, VOLUME 1. THE PROBLEM IS ILLUSTRATED ON MICRO-
FICHE FOR CONDUCTORS 3, 5 AND 7 AT 130-140 SECONDS. MODEL AND RECALCU-
LATION ATTACHED TO EI COPY.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION 224 IN THE
MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 150 *****

REPORTED BY : M. C. KEY (BG&E) DATE: 06/15/83
REPORTED TO : EPSC DATE: 06/30/83

METHOD OF REPORT : EPSC TROUBLE REPORT FORM

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO (DECK RECEIVED 11/11/83 MPP)
REQUESTED FROM M.C. KEY BY TELEPHONE 8/19/83 (MPP)
REQUESTED FROM M.C. KEY BY TELEPHONE 9/06/83 (MPP)
REQUESTED FROM M.C. KEY BY LETTER 9/13/83 (MPP)

DECK DESCRIPTION : CALVERT CLIFFS SMALL STEAM LINE BREAK FROM
HOT ZERO POWER

DESCRIPTION OF PROBLEM:

STEADY-STATE INITIALIZATION WILL NOT WORK WHEN THE MAJOR HEAT SOURCE IS PUMP HEAT. THE PROBLEM ABORTS ON AN ENTHALPY OUT OF RANGE ERROR AND EDITS THAT THE PUMP HEAT IS ZERO (OUTPUT 1). WHEN THE PUMP HEAT IS REDUCED BY MODELING A SINGLE PUMP, RATHER THAN THE ACTUAL TWO PUMPS IN EACH LOOP, AND THE HEAT FROM THE SECOND PUMP IS INPUT AT TIME ZERO AS CORE HEAT AND THERAFTER BY A CONTRL SYSTEM, THE INITIALIZATION IS ACHEIVED. (SEE OUTPUT 2) IT APPEARS THAT THE CODE IS CALCULATING ENTHALPIES ON EARLY ITERAATIONS WITHOUT CONSIDERING PUMP HEAT INPUT. THIS SHORTCOMING NECESSITATES NON STANDARD PUMP MODELING TO ACHIEVE STEADY-STATE INITIALIZATION FOR HOT ZERO POWER CONDITIONS. SINCE MANY LIMITING PTS TRANSIENTS ARE INITIATED FROM HOT ZERO POWER, THIS SHORTCOMING IS LIKELY TO BE ENCOUNTERED MORE FREQUENTLY DUE TO THE INCREASING INTEREST IN SIMULATING PTS OVERCOOLING TRANSIENTS.

DISPOSITION:

THE PROBLEM SHOULD BE CORRECTED BY MODIFICATION NUMBER 236 INCLUDED IN THE MOD003D UPDATE, BUT THIS CAN NOT BE DETERMINED WITHOUT EXECUTING THE DECK WHICH ENCOUNTERED THE ERROR.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 151 *****

REPORTED BY : RON GRIEBENOW EI DATE: 07/07/83
REPORTED TO : EPSC DATE: 07/07/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/7/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A TWO VOLUME SAMPLE PROBLEM WAS USED WHICH CONTAINED A TRIP
CONTROLLED VALVE AND FILL JUNCTION. TWO PROBLEMS WERE RUN
WITH DIFFERENT TRIP DATA.

DESCRIPTION OF PROBLEM:

- 1) TIME TRIPS WOULD NOT ACTUATE FOR 1-4 TIME STEPS AFTER THEY SHOULD
HAVE.
- 2) RESET TRIPS WOULD NOT DOMINATE IN CERTAIN CASES.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION 195 IN THE
MOD003C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 152 *****

REPORTED BY : A.IRANI/M.ALAMMAR GPU DATE: 06/30/83
REPORTED TO : EPSC DATE: 07/11/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/30/83

CODE VERSION : RETRAN-02 MOD003ACCFL

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : O.C. MODEL

DESCRIPTION OF PROBLEM:

DIVIDE CHECK, ERROR 209, APPEARS WHEN CLOSURE VALVE AREA TABLE IS CALLED DURING A TRIP RESET. THE IACV2 OPTION TABLE WAS USED IN A CLOSED VALVE TO OPEN UNDER TRIPCONTROL, ITCV <-2.

DISPOSITION:

THE ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN MODIFICATION 223 OF THE MOD003D UPDATE. (SEE PROBLEM REPORTS 137 AND 167.)

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 153 *****

REPORTED BY : A.IRANI GPU DATE: 07/06/83
REPORTED TO : EPSC DATE: 07/11/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/6/83

CODE VERSION : RETRAN-02 MOD003ACCFL

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : OYSTER CREEK MODEL.

DESCRIPTION OF PROBLEM:

AREA VS TIME TABLES WHICH DO NOT ALLOW EXTRAPOLATION RESULT IN ERRORS IN
POLATE DURING A TRANSIENT EVEN THOUGH THE TIME VARIABLE RANGES FROM 0 TO
10000 SECS. PROBLEM IS AVOIDED BY SPECIFYING EXTRAPOLATION ON ALL
TABLES.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. IT WAS INDIRECTLY
CORRECTED BY MODIFICATION NUMBER 195 OF THE MOD003C UPDATES.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 154 *****

REPORTED BY : E.V.MOORE CG&E DATE: 07/11/83
REPORTED TO : EPSC DATE: 07/13/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/11/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM-3083

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : DETAILED ZIMMER MODEL.

DESCRIPTION OF PROBLEM:

DIVIDE CHECK ERROR AFTER 25 SECONDS OF TRANSIENT. SEE LISTING.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 246 OF THE MOD003 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 155 *****

REPORTED BY : RON GRIEBENOW EI DATE: 07/13/83
REPORTED TO : EPSC DATE: 07/13/IY

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/13/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BLOWDOWN OF A PRESSURE VESSEL FILLED WITH SATURATED STEAM-
WATER BEING USED TO TEST THE RETRAN BUBBLE RISE MODEL.

DESCRIPTION OF PROBLEM:

WHEN W3 AND W4 ARE INPUT AS ZERO ON THE 06XXX1 CARD, THE CONTROL BLOCK
CODING IS ENTERED IN SUBROUTINE INBUBL AND THE PROBLEM FAILS WITHOUT AN
ERROR MESSAGE. THE PROBLEM SHOULD DEFAULT TO THE BUBBLE VELOCITY AND
GRADIENT SPECIFIED BY W1 AND W2 OF THE 06XXX1 CARD.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 196 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED

***** PROBLEM REPORT NUMBER 156 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 07/07/83
REPORTED TO : EPSC DATE: 07/13/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/7/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL TO ILLUSTRATE THE ERROR.

DESCRIPTION OF PROBLEM:

WHEN AN INITIALIZATION OF A VOLUME WITH SATURATED LIQUID IS ATTEMPTED WITH (P = 0.0, T > 0.0, X = -1.0), A STEAM TABLE FAILURE RESULTS. IF (P > 0.0, T = 0.0) IS USED, THE INITIALIZATION IS SUCCESSFUL. TABLE IV.9-1 IS WRONG.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 203 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 157 *****

REPORTED BY : G.GUTNER EPRI/NSAC DATE: 07/19/83
REPORTED TO : EPSC DATE: 07/26/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/19/83

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : MODIFIED DECK FROM NSAC REPORT #15.

DESCRIPTION OF PROBLEM:

WHEN A HEATER IS CONTROLLED BY 3 PARAMETERS: OFF IF PRESSURE IS TOO HIGH OR LEVEL IS TOO LOW AND ON WHEN PRESSURE IS TOO LOW - THE CONTROL SYSTEM OSCILLATED ON/OFF IF THE LEVEL IS LOW AND THE PRESSURE IS LOW - COINCIDENCE TRIPS WERE NOT USED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED BY MODIFICATION NUMBER 210 OF THE MOD003D UPDATE. (ALSO SEE PROBLEM REPORT 178.)

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 158 *****

REPORTED BY : M.ALAMMAR GPU DATE: 07/22/83
REPORTED TO : EPSC DATE: 07/28/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/22/83

CODE VERSION : RETRAN-02 MOD003ACCFL

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : O.C. MODEL

DESCRIPTION OF PROBLEM:

ERROR 207 ENCOUNTERED IN WAT7 AND WAT9, AND ERROR 209 IN VAPOR1 WHEN
USING NON-EQ. PRESSURIZER MODEL FOR THE UPPER DOWNCOMER AND SEPARATOR.
CHANGING TIME STEP SIZE DOES NOT HELP CODE, BOMBS 20 SEC INTO THE
TRANSIENT.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION 198 OF THE MOD003D
UPDATE. THE CORRECTION WAS VERIFIED BY GPU (SEE GPU LETTER SAPC # 164,
FROM M.A. ALAMMAR TO M.P. PAULSEN, DATED AUGUST 18, 1983)

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 159 *****

REPORTED BY : ADEL ALAPOUR SCS DATE: 07/26/83
REPORTED TO : EPSC DATE: 07/29/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/26/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : 1-D SCRAM MODEL EVALUATION DECK. SEE SAMPLE PROBLEM IN
 EPRI NP-1850-CCM VOL. 3 P. VIII-108 FOR A SIMILAR
 DESCRIPTION OF THE INPUT DECK.

DESCRIPTION OF PROBLEM:

IMMEDIATELY AFTER INITIALIZATION THE DIRECT MODERATOR HEATING FOR "SOME
CORE SECTIONS" ARE SET TO ZERO. THE SAME PROBLEM HAS BEEN OBSERVED IN
THE 1-D SAMPLE PROBLEM IN VOL. 3 OF RETRAN-02 MANUAL (EPRI NP-1850-CCM
VOL. 3 P. VIII-108). THIS PROBLEM DOES NOT APPEAR WHEN USING POINT
KINETICS (I.E., WITHOUT THE USE OF 1-D CROSS SECTIONS).

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 221 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 160 *****

REPORTED BY : DAVE DANIELS EI DATE: 07/19/83
REPORTED TO : EPSC DATE: 07/29/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/19/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : MVS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : DECO FERMI MODEL (USING RETRAN STEAM SEPARATOR MODEL)
 THE PROBLEM RUN WAS A TURBINE TRIP WITHOUT BYPASS, SIMILAR
 TO SAMPLE PROBLEM 5.

DESCRIPTION OF PROBLEM:

RETRAN ABENDS WITH A FORTRAN OVERFLOW ERROR IN THE PRESUR SUBROUTINE.
THIS PROBLEM SEEMS TO OCCUR WHEN THE MIXTURE LEVEL IN THE SEPARATOR
GOES TO ZERO.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 198 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 161 *****

REPORTED BY : MARK PAULSEN EI DATE: 08/02/83
REPORTED TO : EPSC DATE: 08/02/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/2/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : CDC-NOS/BEL6

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : DECK SUPPLIED WITH PR160

DESCRIPTION OF PROBLEM:

ONCE A NONEQUILIBRIUM SEPARATOR VOLUME DRAINS, I.E., MIXTURE LEVEL
GOES TO ZERO, THE LEVEL WILL REMAIN AT ZERO AND ANY FLUID FLOWING
INTO THE SEPARATOR IS DEPOSITED IN THE VAPOR REGION. THE NET RESULT
IS THAT NO SEPARATION OCCURS ONCE THE LEVEL GOES TO ZERO.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 199 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 162 *****

REPORTED BY : JAMES BOATWRIGHT TUS DATE: 08/04/83
REPORTED TO : EPSC DATE: 08/04/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/4/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ONE LOOP MODEL OF COMANCHE PEAK TO MODEL NATURAL
CIRCULATION.

DESCRIPTION OF PROBLEM:

A VALVE LIFTED ON HIGH PRESSURE, CLOSED ON LOW PRESSURE, LIFTED ON
HIGH PRESSURE AGAIN, BUT NEVER CLOSED. ANOTHER TRIP WITH THE SAME
I.D. EXISTED BUT ITS SETPOINT WAS NEVER REACHED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND CORRECTED BY MODIFICATION
195 IN THE MOD003C UPDATES.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 163 *****

REPORTED BY : M.P.PAULSEN EI DATE: 08/10/83
REPORTED TO : EPSC DATE: 08/10/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/10/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : CDC-NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : HORIZONTAL STRAIGHT PIPE FLOWING HIGH QUALITY FLUID.
 SEE DESIGN REVIEW EXECUTIVE SUMMARY REPORT TASK 3.3.6
 STAFF RESPONSE ACTION ITEM 5.

DESCRIPTION OF PROBLEM:

THE PROBLEM RUNS WHEN THE MOMENTUM FLUX TERMS ARE OMITTED FROM THE MODEL. THE PROBLEM WILL NOT RUN WITH DYNAMIC SLIP, INCLUDING THE MOMENTUM FLUX TERMS. THE FLOW WILL NOT ATTAIN A STEADY-STATE.

DISPOSITION:

THE PROBLEM APPEARS TO BE ASSOCIATED WITH THE BOUNDARY CONDITIONS USED IN THE MODEL. THE INLET IS TWO-PHASE BUT SLIP IS NOT ALLOWED AT THE FILL INLET JUNCTION. THE DOWNSTREAM BOUNDARY IS A TIME-DEPENDENT VOLUME. THE PROBLEM FILED WITH THE TROUBLE REPORT WAS USING A FIXED FLOW REGIME OF 7 (DISPERSED DROPLET). THE RESULTS FOR THIS CASE WERE DUPLICATED, I.E., A STEADY-STATE WAS NOT REACHED WHEN A TRANSIENT WAS RUN. WHEN THE SLIP MOMENTUM FLUX TERMS WERE WIRED OFF, A STEADY STATE WAS REACHED, BUT THE PRESSURE DISTRIBUTION HAD APHYSICAL RIPPLES. SEVERAL OTHER CASES WERE ALSO RUN THAT INCLUDED THE SLIP MOMENTUM FLUX TERMS. THESE CASES WERE FOR A FIXED FLOW REGIME OF 5 (ANNULAR) AND FREE FLOW REGIME SELECTION. ALL OF THESE CASES CONVERGED BUT HAD THE APHYSICAL PRESSURE RIPPLES.

AFTER SOME INVESTIGATION IT WAS DETERMINED THAT THE PRESSURE RIPPLES WERE RELATED TO THE IMPROPER BOUNDARY CONDITION SPECIFICATION FOR TWO-PHASE FILLS WHERE THE SLIP VELOCITY (OR SLIP RATIO) CANNOT BE SPECIFIED AND THE TWO PHASES ARE ASSUMED TO BE AT EQUAL VELOCITIES. A MOMENTUM FLUX DOMINATED PROBLEM (SCHROCK-GROSSMAN) SIMILAR TO THE ONE ENCOUNTERING THE ERROR WAS RUN. THIS PROBLEM HAD A SINGLE PHASE LIQUID INLET AND THUS NO PROBLEM WITH SPECIFYING THE PHASIC VELOCITIES AT THE BOUNDARY. THIS PROBLEM ALSO HAD A HIGH VOID FRACTION AT THE EXIT AND ALSO WAS RUN WITH SLIP AND ALL MOMENTUM FLUX TERMS. THE PROBLEM RAN TO A STEADY STATE AND HAD A REALISTIC PRESSURE GRADIENT.

BOTH THE DONOR CELL AND AVERAGING METHODS FOR COMPUTING THE CELL CENTERED SURFACE FLOWS WERE USED AND WERE FOUND TO PRODUCE COMPARABLE RESULTS.

THE PROBLEM IS CONSIDERED TO BE A MODEL LIMITATION IN THE BOUNDARY SPECIFICATIONS FOR TWO-PHASE FILLS WHERE MOMENTUM EFFECTS ARE SIGNIFICANT.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 164 *****

REPORTED BY : M.P.PAULSEN EI DATE: 08/10/83
REPORTED TO : EPSC DATE: 08/10/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/10/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : CDC/NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : 2 VOLUME TANK BLOWDOWN. SEE DESIGN REVIEW EXECUTIVE
 SUMMARY REPORT - TASK 3.3.8 STAFF RESPONSE ACTION
 ITEM 3.

DESCRIPTION OF PROBLEM:

THE RESULTS OF SEVERAL RUNS SEEM TO INDICATE A POTENTIAL ERROR IN THE
TREATMENT OF VERTICALLY DISTRIBUTED JUNCTIONS. THERE ALSO SEEMS TO BE
A PROBLEM WHEN THE TIME-STEP SIZE CHANGES. SOME ATYPICAL BEHAVIOR WAS
ALSO OBSERVED WITH THE ITERATIVE SOLUTION METHOD.

DISPOSITION:

THE REPORTED ERROR IS ASSOCIATED IN PART WITH MODEL LIMITATIONS IN
THE BUBBLE RISE MODEL. MODIFICATION 227 OF THE MOD003D UPDATE
EASES SOME OF THESE LIMITATIONS.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 166 *****

REPORTED BY : C.E.PETERSON EI DATE: 08/12/83
REPORTED TO : EPSC DATE: 08/12/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/12/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : UCCEL-CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PWR LOSS OF FEEDWATER MODEL. (DECK IN CEP:PRZR.COND)

DESCRIPTION OF PROBLEM:

CODE IS SELECTING MODE 10 HEAT TRANSFER IN INSTANCES WHEN IT SHOULD
SELECT MODE 15.

DISPOSITION:

THE ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN MODIFICATION 202
OF THE MOD003B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 167 *****

REPORTED BY : JAMES BOATWRIGHT TUS DATE: 08/04/83
REPORTED TO : EPSC DATE: 08/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/4/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ONE LOOP MODEL OF COMANCHE PEAK TO MODEL NATURAL
CIRCULATION.

DESCRIPTION OF PROBLEM:

THE CODE TERMINATED WITH A MODE 4 ERROR IN POLATE FOR A SECOND RUN
ALSO SENT. (SIGNED MPP 8/15/83) THIS TROUBLE REPORT CORRESPONDS TO THE
SECOND ERROR.

DISPOSITION:

THE ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN MODIFICATION 223 OF
THE MOD003D UPDATE. (ALSO SEE PROBLEM REPORTS 137 AND 152.)

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 168 *****

REPORTED BY : GARRY GOSE EI DATE: 08/08/83
REPORTED TO : EPSC DATE: 08/08/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/8/83

CODE VERSION : RETRAN-02 MOD003C (RASP3C)

COMPUTER/OPERATING SYSTEM : CDC NOS/BE-VI.6.05.6

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : GENERIC 4-LOOP PWR LOF TRANSIENT WITH 1-D KINETICS.
 THIS JOB WAS ROUTED TO EI FROM CHIN LU LIN (EPRI).
 PROBLEM WAS INTENDED TO BE A RASP DEMO PROBLEM.

DESCRIPTION OF PROBLEM:

THE DECK REQUESTED A METAL WATER CALCULATION BUT A ZERO INITIAL
CLADDING RADIUS WAS SUPPLIED. A MODE 2 ERROR OCCURED IN MH20R. WE
ARE ASSUMING IT IS DUE TO THE ZERO CLAD INPUT. AN ERROR MESSAGE
SHOULD BE INSERTED TO TRAP THIS.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 206 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 169 *****

REPORTED BY : M.P.PAULSEN EI DATE: 08/15/83
REPORTED TO : EPSC DATE: 08/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/15/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC - NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ANY JOB REQUESTING ECS.

DESCRIPTION OF PROBLEM:

ONCE SUBROUTINE FRECOR (CALLED BY SUBROUTINE REDUCE) IS CALLED,
THE ECS MEMORY SIZE GETS CONVERTED TO WORDS RATHER THAN 1000
OCTAL WORD BLOCKS.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 7 IN THE MOD24 UPDATE FOR THE
CDC ENVIRONMENTAL LIBRARY.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 170 *****

REPORTED BY : M.P.PAULSEN EI DATE: 08/15/83
REPORTED TO : EPSC DATE: 08/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/15/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC - NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SP1 SAMPLE PROBLEM.

DESCRIPTION OF PROBLEM:

THE FIELD LENGTH EDITED IN THE DAYFILE UPON NORMAL TERMINATION
IS THE INITIAL RFL VALUE RATHER THAN THE LENGTH THE JOB WAS RUN
AT.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 205 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 171 *****

REPORTED BY : M.P.PAULSEN EI DATE: 08/15/83
REPORTED TO : EPSC DATE: 08/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/15/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC - NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SP1 SAMPLE PROBLEM.

DESCRIPTION OF PROBLEM:

THE FTB EXTENDED DUMP PACKAGE DOES NOT GIVE THE RELOCATABLE FTB
FILE ID CROSS REFERENCE TABLE. AFTER EXAMINING THE ALLOCATED COMMON
AREA IN THE DUMP IT WAS FOUND THAT NOSELF IN THE FTB COMMON BLOCK IS
0 RATHER THAN 60, THE CORRECT VALUE.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 8 IN THE MOD24 UPDATE FOR THE
CDC ENVIRONMENTAL LIBRARY.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 172 *****

REPORTED BY : M.P.PAULSEN EI DATE: 08/15/83
REPORTED TO : EPSC DATE: 08/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/15/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC - NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SP1 STANDARD SAMPLE PROBLEM.

DESCRIPTION OF PROBLEM:

MEMORY REDUCTION NOT MADE DUE TO CORE FRACTURING. RESULT OF
OVERLY SIMPLISTIC LOGIC IN DETERMINING WHETHER OR NOT CORE IS
ACTUALLY FRACTURED.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 9 IN THE MOD24 UPDATE FOR THE
CDC ENVIRONMENTAL LIBRARY.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 173 *****

REPORTED BY : ROGER GORMAN HL&P DATE: 08/09/83
REPORTED TO : EPSC DATE: 08/16/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/9/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CYBER 176/NOSBE AT UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SG MODEL WITH DECREASE IN PRIMARY FLOW AND CORE POWER.

DESCRIPTION OF PROBLEM:

IN CALLING OUT MASS FLUX AS A CONDUCTOR MINOR EDIT, THE UNITS
PRESENTED AS A COLUMN HEADING IN THE OUTPUT DO NOT MATCH THE VALUES.
THE UNITS SHOULD REFERENCE TIME IN TERMS OF HOURS INSTEAD OF SECONDS.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 209 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 174 *****

REPORTED BY : D.A.TROTT EI DATE: 08/15/83
REPORTED TO : EPSC DATE: 08/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/15/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM :CDC & IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : RETRAN-02 TURBINE TRIP WITH 1-D KINETICS SAMPLE DECK.

DESCRIPTION OF PROBLEM:

 DEBUG OUTPUT IS PRINTED WHEN 1-D KINETICS OPTION IS EXECUTED.

DISPOSITION:

 THE ERROR IS CORRECTED IN MODIFICATION 204 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 175 *****

REPORTED BY : M.P.PAULSEN EI DATE: 08/17/83
REPORTED TO : EPSC DATE: 08/17/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/17/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC-NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : NSAC CRYSTAL RIVER LOWER PLENUM BREAK.

DESCRIPTION OF PROBLEM:

JUNCTION FLOWS IN THE VICINITY OF THE BREAK CHANGE BY 7 ORDERS
OF MAGNITUDE IN 1 TIME STEP AFTER THE BREAK OCCURS. THIS RESULTS
IN A NEGATIVE MASS FAILURE.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 207 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 176 *****

REPORTED BY : M.P.PAULSEN EI DATE: 08/15/83
REPORTED TO : EPSC DATE: 08/15/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/15/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC-NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : NOT APPLICABLE - OUTPUT LISTING IS FOR AFFECTED SUB-
ROUTINES WITH PROBLEMS NOTED ON LISTING.

DESCRIPTION OF PROBLEM:

THE OFF DIAGONAL MOMENTUM FLUX TERMS FOR THE STANDARD MOMENTUM EQUATION LINEARIZATION ARE INCLUDED IN THE ALGEBRAIC CHOKING EQUATION AND SHOULD NOT BE. THE DOWN STREAM OFF DIAGONAL PRESSURE LINEARIZATION TERMS ARE ALSO INADVERTANTLY INCLUDED. THE FANNING FRICTION IS TREATED AS A CONSTANT IN THE INERTIAL FLOW ESTIMATE USED TO DETERMINE IF CHOKING EXISTS. THE FANNING FRICTION SHOULD MORE APPROPRIATELY BE TREATED AS A WJ SQUARED TERM AND FACTORED INTO A SEMI-IMPLICIT INERTIAL FLOW ESTIMATE. THIS IS NOT REALLY A CODE ERROR, BUT ON THE OTHER HAND IS NOT TOTALLY CONSISTENT WITH THE TREATMENT OF THE FANNING FRICTION IN THE MATRIX SOLUTION.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 208 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 177 *****

REPORTED BY: ANDY OLSON (PECO) DATE: 08/15/83
REPORTED TO: EPSC DATE: 08/15/83

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 08/15/83

CODE VERSION: RETRAN-02 MOD002

COMPUTER/
OPERATING SYSTEM: IBM

LISTING SUPPLIED: YES

DECK SUPPLIED: THE DECK WAS SUPPLIED ON TAPE, BUT THE TAPE
COULD NOT BE READ. THE TAPE WAS RETURNED TO
PECO, AND THE DECK WAS AGAIN REQUESTED, BUT IT
HAS NOT YET BEEN SENT TO EI.

DECK DESCRIPTION: PEACH BOTTOM MIN. FLOW 100% ROD LINE DECK (60%
POWER, 40% CORE FLOW).

DESCRIPTION OF PROBLEM: PROBLEM RUNS FOR APPROXIMATELY 72 SECONDS THEN
FAILS ON AN OVERFLOW IN SUBROUTINE WAT-9.

DISPOSITION: THE REPORTED ERROR HAS NOT BEEN IDENTIFIED.
THE INPUT DECK IS NEEDED TO FURTHER
INVESTIGATE THE REPORTED PROBLEM.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE AN INPUT
DECK WAS NOT SUPPLIED THAT CORRESPONDED TO THE
ORIGINAL PROBLEM REPORT.

MODELING ALTERNATIVES: NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 178 *****

REPORTED BY : A.IRANI/R.ROGOW GPU DATE: 05/24/83
REPORTED TO : EPSC DATE: 06/01/83

METHOD OF REPORT : EPSC TROUBE REPORT DATED 5/24/83

CODE VERSION : RETRAN-02 MOD003ACCL

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : TMI-1 SG TUBE RUPTURE.

DESCRIPTION OF PROBLEM:

A TRIP THAT HAS BEEN RESET DOES NOT STAY RESET. ALSO RESULTS
IN VOLUMINOUS PRINTOUT, A PORTION OF WHICH IS ATTACHED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED BY
MODIFICATION NUMBER 210 OF THE MOD003D UPDATES. (ALSO SEE PROBLEM
REPORT 157.)

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 180 *****

REPORTED BY : M.P.PAULSEN EI DATE: 08/22/83
REPORTED TO : EPSC DATE: 08/22/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/22/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC-NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : LOFT TEST L9-30 DECK WITH THREE TRANSPORT DELAY VOLUMES.

DESCRIPTION OF PROBLEM:

 A MODE 1 ERROR OCCURS IN SUBROUTINE TRNSPT DURING STEADY-STATE
 INITIALIZATION.

DISPOSITION:

 THE ERROR IS CORRECTED IN MODIFICATION 216 IN THE MOD003D UPDATE.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 182 *****

REPORTED BY : J. KOBUSSEN (EIR) DATE: 08/24/83
REPORTED TO : J.H. MCFADDEN (EI) DATE: 08/24/83

METHOD OF REPORT : TELEX, WITH ERROR REPORT TO FOLLOW IN MAIL

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : THE REPORTED ERROR WAS IDENTIFIED BY REVIEWING THE
 CODING IN SUBROUTINE ADVFLO.

DESCRIPTION OF PROBLEM:

 SUBROUTINE FLXWG SHOULD BE CALLED WHEN INITIALIZING THE CODE
 FOR A RESTART PROBLEM. THIS CALL IS NOT MADE IN MOD002.

DISPOSITION:

 THE ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN MODIFICATION 228
 OF THE MOD003D UPDATE.

MODELING ALTERNATIVES:

 THERE IS NOT A WAY TO GET AROUND THIS ERROR.

***** PROBLEM REPORT NUMBER 183 *****

REPORTED BY : C. E. PETERSON (EI) DATE: 08/31/83
REPORTED TO : EPSC DATE: 08/31/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 08/31/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC CYBER AT UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : RESTART WITH AN EVERY TIME STEP EDIT CARD (030002). THE
BASE DECK IS A BWR ATWS MODEL. THE PROBLEM CAN BE
PRODUCED WITH ANY DECK RUN ON MOD003C.

DESCRIPTION OF PROBLEM:

WHEN THE IEVERY EDIT CARD (030002) IS SUPPLIED, EVERY TIME STEP EDITS
ARE NOT OBTAINED. IN ADDITION THE TIME STEP SELECTION DOES NOT WORK,
FORCING THE CODE TO TAKE THE MINIMUM TIME STEP. THIS PROBLEM WAS OBSERVE

D

WITH STANDARD NUMERICS.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 229 OF THE MOD003D UPDATE.
THE ERROR WILL ONLY BE ENCOUNTERED RUNNING ON A MOD003C ABSOLUTE.

MODELING ALTERNATIVES:

AN EVERY TIME STEP EDIT CAN STILL BE OBTAINED BY THE PROPER
SPECIFICATION ON THE TIME STEP CARDS.

***** PROBLEM REPORT NUMBER 184 *****

REPORTED BY : J. H. MCFADDEN (EI) DATE: 08/31/83
REPORTED TO : EPSC DATE: 08/31/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 08/31/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC CYBER AT UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : DOES NOT APPLY. THE ERROR WAS IDENTIFIED WHILE
REVIEWING THE CODING.

DESCRIPTION OF PROBLEM:

THE JUNCTION PROPERTY CALCULATION REQUIRES AN ESTIMATE OF FRICTIONAL
DP. WHEN THE FORM OF THE EQUATION FOR DP WAS CHANGED IN MODIFICATION
168 IN MOD003B. THE SIGN OF THE TERM WAS MADE POSITIVE INSTEAD OF NEGA-
TIVE. THIS SIGN ERROR RESULTS IN A SLIGHT ERROR IN THE CALCULATION OF
JUNCTION PRESSURE.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 230 OF THE MOD003D UPDATE.

MODELING ALTERNATIVES:

THERE IS NO WAY TO MODEL AROUND THIS PROBLEM.

***** PROBLEM REPORT NUMBER 185 *****

REPORTED BY : JIM MCFADDEN EI DATE: 09/02/83
REPORTED TO : EPSC DATE: 09/02/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/2/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : RESTART DECK FOR TLTA SMALL BREAK TEST (T2DAT3)

DESCRIPTION OF PROBLEM:

THE STANDARD TIME STEP COUNTER IS IN ERROR AS THE EDITS FOR NSTEP
ARE INCORRECT. PROBLEM IS INDICATED ON MAJOR EDIT FOR 10.0 SEC.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 232 OF THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 186 *****

REPORTED BY : J.A.KOBUSSEN EIR DATE: 09/01/83
REPORTED TO : EPSC DATE: 09/07/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/7/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM (360, 370, 3033) (-----)
: CDC (6600, 175, 176) (SCOPE, NOS, NOS/BE)

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : NA

DESCRIPTION OF PROBLEM:

INSPECTION OF THE RETRAN SOURCE HAS GIVEN THE IMPRESSION OF AN ERROR IN THE TORQUE CURVE DATA FOR THE BINGHAM PUMP BUILT IN THE SUBROUTINE PMPDTA: TO SATISFY THE CONTINUITY BETWEEN DATA SET 13 AND 15 (SEE TABLE VI-I, RETRAN MANUAL VOL. I), THE DATA PAIRS BNGHMT (57) & (58) AND BNGHMT (91) & (92) MUST BE IDENTICAL. IN THE CODE HOWEVER, THEY ARE DIFFERENT: (0.0) & (-0.72) AND (0.0) & (-0.92) RESPECTIVELY. THE RELAP-4 CODE HAS BUILT IN BINGHAM PUMP TORQUE DATA. INSPECTION OF THE SOURCE OF THIS CODE SUGGEST THAT BOTH DATA PAIRS, MENTIONED ABOVE MUST BE (0.0) & (-0.92).

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 233 OF THE MOD003D UPDATE.

MODELING ALTERNATIVES:

SUPPLY DATA TO OVER-RIDE ERRONEOUS TOURQUE DATA.

***** PROBLEM REPORT NUMBER 187 *****

REPORTED BY : RAM PYARE LILCO DATE: 08/31/83
REPORTED TO : EPSC DATE: 09/12/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/31/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (RECEIVED 9/29/83)

DECK DESCRIPTION : RETRAN MODEL FOR SHOREHAM WITH TWO-REGION SEPARATORS,
 DYNAMIC SLIP AND ITERATIVE SCHEME.

DESCRIPTION OF PROBLEM:

IT CAN NOT MAINTAIN A NULL TRANSIENT AS MASS EXCHANGE FROM LIQUID
REGION TO VAPOR REGION IS DIFFERENT FROM STEADY STATE VALUE. IT
APPEARS THAT THE EXPRESSION FOR MASS EXCHANGE DURING TRANSIENT IS
DIFFERENT FROM STEADY STATE EXPRESSION. WILL CORRECTION #117 SOLVE
THIS PROBLEM?

DISPOSITION:

THE ERROR IS IN THE JUNCTION ENTHALPY CALCULATION AND NOT IN THE
MASS EXCHANGE RATE. CORRECTION #117 WILL NOT CORRECT THE ERROR,
BUT MODIFICATION 199 IN MOD003D DOES.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 188 *****

REPORTED BY : ROGER GORMAN HL&P DATE: 09/12/83
REPORTED TO : EPSC DATE: 09/19/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/12/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CYBER 176/NOSBE AT UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SEVEN STACKED CASES SEPARATED BY SLASH CARDS - STEAM
GENERATOR MODEL WITH VARIOUS TRANSIENTS.

DESCRIPTION OF PROBLEM:

THE FIRST CASE PASSES INFORMATION TO THE SECOND CASE AND THE SECOND
CASE PASSES INFORMATION TO THE THIRD CASE, BUT THE FIRST CASE DOES
NOT PASS DATA TO THE THIRD CASE.

DISPOSITION:

THE RETRAN-02 MOD002 DESIGN REVIEW COMMITTEE PREVIOUSLY IDENTIFIED A
LIMITATION OF THE "STACKED CASE" FEATURE WHEN USED ON AN IBM SYSTEM.
THIS LIMITATION HAS NOT BEEN REMOVED IN RETRAN-02 MOD003. THE USER
INPUT MANUAL IS BEING REVISED TO REFLECT THIS LIMITATION.

MODELING ALTERNATIVES:

RUN SEPARATE JOBS INSTEAD OF STACKED CASES.

***** PROBLEM REPORT NUMBER 189 *****

REPORTED BY : ROGER GORMAN HL&P DATE: 09/12/83
REPORTED TO : EPSC DATE: 09/19/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/12/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : CYBER 176/NOSBE AT UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SEVEN STACKED CASES SEPARATED BY SLASH CARDS - STEAM
GENERATOR MODEL WITH VARIOUS TRANSIENTS.

DESCRIPTION OF PROBLEM:

CALLING FOR PRINTER PLOTS (A NEGATIVE VALUE FOR NEDI) INCURS FTB
ERROR #6 AND CORE DUMP AT THE END OF SECOND CASE. THIS OCCURS AT
THE POINT WHERE PRINTER PLOTS WOULD NORMALLY BE DRAWN.

DISPOSITION:

THE RETRAN-02 MOD002 DESIGN REVIEW COMMITTEE PREVIOUSLY IDENTIFIED A
LIMITATION OF THE "STACKED CASE" FEATURE WHEN USED ON AN IBM SYSTEM.
THIS LIMITATION HAS NOT BEEN REMOVED IN RETRAN-02 MOD003. THE USER
INPUT MANUAL IS BEING REVISED TO REFLECT THIS LIMITATION.

MODELING ALTERNATIVES:

RUN SEPARATE JOBS INSTEAD OF STACKED CASES.

***** PROBLEM REPORT NUMBER 190 *****

REPORTED BY : DENNIE HAMILTON MSS DATE: 09/14/83
REPORTED TO : EPSC DATE: 09/19/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/14/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM (3038)

LISTING SUPPLIED : YES (MICROFICHE)

DECK SUPPLIED : NO

DECK DESCRIPTION : TWO-LOOP MODEL OF WATERFORD-3 (NODALIZATION ATTACHED)

DESCRIPTION OF PROBLEM:

HEAT INPUT BY PRESSURIZER HEATERS (HEAT EXCHANGERS 2,3 AND 4 FOR THIS CASE) IS IN ERROR WHEN HEATERS ARE ENERGIZED, DE-ENERGIZED AND THEN RE-ENERGIZED. LINE PRINTER PLOT AND RETRAN-ANALYTIC SOLUTION COMPARISON FOR SIMILAR PROBLEM ARE ATTACHED.

DISPOSITION:

THE INPUT DECK FOR THIS PROBLEM REPORT WAS EXECUTED ON THE MOD003C AND THE MOD003D VERSIONS OF THE CODE. THE ERROR IS ASSOCIATED WITH AN INCORRECT TRIP BEHAVIOR IN MOD002, WHICH HAS BEEN REPORTED BY OTHER USERS (E.G. PROBLEM REPORT NO. 9 AND NO. 18). THIS PROBLEM WAS CORRECTED WHEN THE TRIP LOGIC WAS REVISED IN THE MOD003A (MODIFICATION 112) AND THE MOD003C (MODIFICATION 195) UPDATES.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 191 *****

REPORTED BY : MIKE BAKER CPCO DATE: 09/20/83
REPORTED TO : EPSC DATE: 09/20/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/20/83

CODE VERSION : RETRAN-02 MOD003A

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PALISADES PLANT MODEL W/FW HEATER MODELED WITH NON-
 CONDUCTING HTX OPTION.

DESCRIPTION OF PROBLEM:

APPARENTLY THE SSI ENTHALPY BIAS CALCULATION IS NEGLECTING TO INCLUDE
THE NONCONDUCTING HEAT EXCHANGER ENERGY IN THE ENERGY BALANCE BIAS
CALCULATION. THIS RESULTS IN ERRONEOUS BIAS OF FW FILL ENTHALPY.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND A CHANGE WAS MADE TO
SUBROUTINE JHOFF TO INCLUDE THE EFFECT ON THE ENTHALPY BIAS OF A
NONCONDUCTING HEAT EXCHANGER LOCATED IN THE FEEDWATER LINE.

THE ERROR IS CORRECTED IN MODIFICATION 258 IN THE MOD004A UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 192 *****

REPORTED BY : ADEL ALAPOUR SCS DATE: 09/19/83
REPORTED TO : EPSC DATE: 09/22/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/19/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : 1-D SCRAM MODEL EVALUATION DECK. THIS PROBLEM IS
 ENCOUNTERED WITH ANY DECK.

DESCRIPTION OF PROBLEM:

STACK CASES OPTION DOES NOT WORK ON IBM. REWIND PROBLEM ON UNIT 2.

DISPOSITION:

THE RETRAN-02 MOD002 DESIGN REVIEW COMMITTEE PREVIOUSLY IDENTIFIED A
LIMITATION OF THE "STACKED CASE" FEATURE WHEN USED ON AN IBM SYSTEM.
THIS LIMITATION HAS NOT BEEN REMOVED IN RETRAN-02 MOD003. THE USER
INPUT MANUAL IS BEING REVISED TO REFLECT THIS LIMITATION.

MODELING ALTERNATIVES:

RUN SEPARATE JOBS INSTEAD OF STACKED CASES.

***** PROBLEM REPORT NUMBER 193 *****

REPORTED BY : ADEL ALAPOUR SCS DATE: 09/19/83
REPORTED TO : EPSC DATE: 09/22/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/19/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : 1-D SCRAM MODEL EVALUATION DECK. THIS PROBLEM IS
 ENCOUNTERED WITH ANY DECK USING 1-D KINETIC OPTION.

DESCRIPTION OF PROBLEM:

THE VALUE OF NODAL CROSS SECTIONS AS REQUESTED BY MINOR EDIT IS NOT
PROPERLY EDITED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED WITH
MODIFICATION NUMBER 269 IN THE MOD004A UPDATE. THE ERROR WAS FOUND
TO BE IBM SPECIFIC AND WILL NOT OCCUR ON CDC. THE PROBLEM IS ONLY
WITH THE EDITING AND WILL NOT AFFECT THE CALCULATION.

MODELING ALTERNATIVES:

THE ERROR IS NOT FATAL HOWEVER, THE VALUES FOR NODAL CROSS
SECTIONS WILL NOT BE EDITED CORRECTLY ON IBM.

***** PROBLEM REPORT NUMBER 194 *****

REPORTED BY : J.A.KOBUSSEN EIR DATE: 03/28/83
REPORTED TO : EPSC DATE: 04/08/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/28/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : SCOPE 3.4

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : TWO VOLUMES TEST WITH INERTIAL VALVE.

DESCRIPTION OF PROBLEM:

 RESTART NOT POSSIBLE. VALVE WILL ALWAYS BE CONSIDERED AS CLOSE
 BY RESTART JOB.

DISPOSITION:

 THE ERROR IS CORRECTED IN MODIFICATION 239 OF THE MOD003D UPDATE.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 195 *****

REPORTED BY : M.P.PAULSEN EI DATE: 09/28/83
REPORTED TO : EPSC DATE: 09/28/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/28/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC - NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : TMI LOSS OF OFF SITE POWER DECK.

DESCRIPTION OF PROBLEM:

THE DECK WILL NOT INITIALIZE ON MOD003C, BUT WILL INITIALIZE ON
MOD003A.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 240 OF THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 196 *****

REPORTED BY : J.A.KOBUSSEN EIR DATE: 03/28/83
REPORTED TO : EPSC DATE: 04/08/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/28/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : SCOPE 3.4

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : TWO VOLUMES TEST WITH INERTIAL VALVE.

DESCRIPTION OF PROBLEM:

WHILE JOB WITH 1 TIME STEP CARD WORKS NORMALLY, ERROR MODE 2 IN
CHKV OCCURS, USING 3 TIME STEP CARDS.

DISPOSITION:

A BAD CALL TO POLATE WAS GENERATED WHEN TRYING TO RECREATE THE
REPORTED ERROR. THIS IS CORRECTED IN MOD239 OF THE MOD003D
UPDATE. THE ACTUAL REPORTED ERROR COULD NOT BE RECREATED.
SINCE THE REPORTED ERROR OCCURRED WITH THE CODE ON AN OPERATING
SYSTEM WHICH WE COULD NOT ACCESS, AND SINCE A REVIEW OF THE
CODING DID NOT INDICATE ANY ERRORS ASSOCIATED WITH THE NUMBER
OF TIME STEP CARDS SUPPLIED, THIS ERROR IS CONSIDERED TO
BE RESOLVED.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 197 *****

REPORTED BY : J.A.KOBUSSEN EIR DATE: 03/28/83
REPORTED TO : EPSC DATE: 04/08/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/28/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : SCOPE 3.4

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : TWO VOLUMES TEST WITH INERTIAL VALVE.

DESCRIPTION OF PROBLEM:

 REEDIT OPTION DOES NOT WORK.

DISPOSITION:

 THE REPORTED ERROR COULD NOT BE RECREATED. SINCE NO SIMILAR
 PROBLEMS HAVE BEEN REPORTED FOR THE REEDIT OPTION, AND SINCE
 THE REPORTED ERROR COULD NOT BE REPRODUCED, THIS PROBLEM IS
 CONSIDERED TO BE RESOLVED.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 198 *****

REPORTED BY : CHARLES ARNDT DE DATE: 09/23/83
REPORTED TO : EPSC DATE: 09/26/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/23/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM-AMDHAL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : MODEL OF BWR & BOP.

DESCRIPTION OF PROBLEM:

INACCURATE CONTROL BLOCK INTEGRATION WHEN USING ITERATIVE SOLUTION
OPTION.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 237 OF THE MOD003D UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 199 *****

REPORTED BY : M. P. PAULSEN EI DATE: 10/10/83
REPORTED TO : EPSC DATE: 10/10/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/10/83

CODE VERSION : RETRAN-02 MOD003D

COMPUTER/OPERATING SYSTEM : NOS/BE - CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : DECK FILED WITH PROBLEM REPORT #187.

DESCRIPTION OF PROBLEM:

MODIFICATIONS ADDED TO MOD003D TO ALLOW PUMPS TO BE INITIALLY OFF
AND THEN TRIPPED ON, INADVERTANTLY PREVENTED USE OF PUMP SPEED VS.
TIME FROM THE CONTROL SYSTEM.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 241 OF THE MOD003 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 200 *****

REPORTED BY : G. R. SAWTELLE EI DATE: 10/10/83
REPORTED TO : EPSC DATE: 10/10/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/10/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : CONTROL SYSTEM SAMPLE PROBLEM, 1 VOLUME - 2 JUNCTIONS,
USED FOR RETRAN TRAINING.

DESCRIPTION OF PROBLEM:

CONTROL SYSTEM SHOULD PROVIDE JUNCTION PROPERTIES. BECAUSE OF INPUT
ERROR, JUNCTION PROPERTIES WERE NOT DEFINED. RETRAN DID NOT PROVIDE A
DIAGNOSTIC STATEMENT.* A CORE DUMP AND DAYFILE WERE REQUIRED TO IDENTIFY
PROBLEM.

DISPOSITION:

THE USER PROVIDED AN INPUT VALUE OF 0.0 FOR AN INITIAL CONDITION
VALUE FOR A SUM BLOCK, WHEN A NON-ZERO VALUE SHOULD HAVE BEEN
INPUT IN ORDER FOR THE CONTROL SYSTEM TO BE CORRECTLY MODELED.
IT IS VERY DIFFICULT TO PROGRAM INPUT ERROR CHECKS FOR INPUT
ERRORS OF THIS NATURE, THUS NO CODE CHANGES ARE REQUIRED.

MODELING ALTERNATIVES:

CHECK INPUT DATA AND MAKE SURE IT IS CORRECT.

***** PROBLEM REPORT NUMBER 201 *****

REPORTED BY : G. R. SAWTELLE EI DATE: 10/10/83
REPORTED TO : EPSC DATE: 10/10/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/10/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SHIPPINGPORT PRESSURIZER, 1 VOLUME, 2 JUNCTION, RETRAN
TRAINING PROBLEM.

DESCRIPTION OF PROBLEM:

NO RETRAN DIAGNOSTIC. FAILURE IN JUNCTION PROPERTIES WHEN
"SPRAY" VALVE CLOSES ON RESET TRIP.

DISPOSITION:

THIS ERROR IS THE SAME AS WAS REPORTED IN TROUBLE REPORT 12, AND
IS CORRECTED BY MODIFICATION 112 IN THE MOD003A UPDATE.

MODELING ALTERNATIVES:

SEE TROUBLE REPORT 12.

***** PROBLEM REPORT NUMBER 202 *****

REPORTED BY : M. P. PAULSEN EI DATE: 10/12/83
REPORTED TO : EPSC DATE: 10/12/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/12/83

CODE VERSION : RETRAN-02 MOD003D

COMPUTER/OPERATING SYSTEM : CDC-NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : TTWOB STANDARD SAMPLE PROBLEM VERIFICATION PLOT
PROBLEM.

DESCRIPTION OF PROBLEM:

PROBLEM FAILED WHILE READING THE SECOND DATA TAPE. THE ERROR WAS AN FTB 27 ERROR RESULTING FROM A DEGENERATE CASE WHERE A DO LOOP LIMIT WAS ZERO AND A SINGLE PASS WAS MADE THROUGH THE LOOP, BUT SHOULD NOT. ERROR IN CDC LIBRARY SUBROUTINE REDUCE IN THE MOD24 VERSION.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 10 OF THE CDC LIBRARY UPDATE MOD25.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 203 *****

REPORTED BY : J. H. MCFADDEN EI DATE: 10/11/83
REPORTED TO : EPSC DATE: 10/11/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/11/83

CODE VERSION : RETRAN-02 MOD003D

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES (FILED WITH MOD003D SAMPLE PROBLEMS)

DECK SUPPLIED : YES

DECK DESCRIPTION : ATWS SAMPLE PROBLEM.

DESCRIPTION OF PROBLEM:

WHILE REVIEWING THE CHECKOUT RUNS FOR MOD003D, THE MOD003D RESULTS FOR A FEW VARIABLES DIFFERED FROM THE MOD002 RESULTS IN A WAY WHICH COULD NOT BE READILY EXPLAINED. A FORTRAN LISTING OF THE SUBROUTINE CHANGES IN MODIFICATION 238 WAS REVIEWED, AND AN ERROR IN LOGIC WAS IDENTIFIED FOR THE CASE WHERE THE MIXTURE LEVEL GOES TO ZERO IN SUBROUTINE LOCFLO.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION NUMBER 242 OF THE MOD003 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 204 *****

REPORTED BY : M. P. PAULSEN EI DATE: 10/12/83
REPORTED TO : EPSC DATE: 10/12/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/12/83

CODE VERSION : RETRAN-02 MOD003D

COMPUTER/OPERATING SYSTEM : IBM OS/VS2

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : UCRW SAMPLE PROBLEM RESTART INPUT DECK.

DESCRIPTION OF PROBLEM:

THE EODAD EXIT ADDRESS WAS REMOVED FROM THE DCB DEFINITION BLOCK
IN SUBROUTINE BUFOUT IN UPDATE MOD28 TO THE IBM LIBRARY. THE EODAD
EXIT IS NEEDED WHEN THE END OF THE TAPE IS ENCOUNTERED.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 13 OF THE IBM LIBRARY
UPDATE MOD29.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 205 *****

REPORTED BY : J. H. MCFADDEN EI DATE: 10/13/83
REPORTED TO : EPSC DATE: 10/13/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/13/83

CODE VERSION : RETRAN-02 MOD003D

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PLOT DECK WITH 4 TAPES; REQUESTING RIGHT AND LEFT
Y-AXIS.

DESCRIPTION OF PROBLEM:

ALL DEPENDENT AXIS LABELS ARE PRINTED ON THE LEFT HAND SIDE,
ALTHOUGH TWO WERE REQUESTED FOR THE RIGHT HAND SIDE.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 244 OF THE MOD003 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 206 *****

REPORTED BY : L. V. ELLIS EI DATE: 10/13/83
REPORTED TO : EPSC DATE: 10/13/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/13/83

CODE VERSION : RETRAN-02 MOD003D

COMPUTER/OPERATING SYSTEM : UCCEL-CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : TTWOB WITH 1-D KINETICS SAMPLE PROBLEM.

DESCRIPTION OF PROBLEM:

REVIEW OF THE TURBINE TRIP WITHOUT BYPASS/1-D KINETICS CHECKOUT
PROBLEM FOR MOD003D SHOWED A DISCREPANCY IN VOLUME 9 MIXTURE LEVEL
VARIATION WHEN COMPARED TO EARLIER CODE VERSIONS. REVIEW OF MODIFI-
CATION 227 LED TO DISCOVERY OF A LOGIC ERROR IN THE UPDATES TO
SUBROUTINE EXPINT.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION 247 OF THE MOD003 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 207 *****

REPORTED BY : MICHAEL KAI NEU DATE: 10/05/83
REPORTED TO : EPSC DATE: 10/17/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/5/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : IBM 370

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : FOUR LOOP MODEL OF CONNECTICUT YANKEE.

DESCRIPTION OF PROBLEM:

INPUT DECK INITIALIZES AND RUNS USING MOD2 HOWEVER STOPS ON
DIVIDE CHECK IN SUBROUTIN QDOT USING MOD3C IN TRANSIENT. CORRECTION
PROVIDED BY MR. CRAIG PETERSON, STOPS ON DIVIDE CHECK IN QDOT DURING
INITIALIZATION. PRIOR TO STOPPING, SEVERAL NONFATAL ERROR MESSAGES
ARE PRINTED "ERROR, NEGATIVE OR ZERO REDUCED TEMPERATURE OR DENSITY
IN THCON,VISC".

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION NUMBER 250 IN UPDATE MOD003.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 208 *****

REPORTED BY : J. G. REGISTER CEI DATE: 10/14/83
REPORTED TO : EPSC DATE: 10/18/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/14/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : IBM 3083 MVS 3.8

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PERRY I (BWR) TURBINE TRIP WITH BYPASS. FSAR
CALCULATION.

DESCRIPTION OF PROBLEM:

SAFETY/RELIEF VALVE ACTUATION ON HIGH PRESSURE TRIP. INPUT FOR
FJUNF WAS -1.0. (SEE ATTACHED SHEET) WHEN VALVE OPENED, FLOW WAS
NEGATIVE.

DISPOSITION:

IF FJUNF IS SUPPLIED AS -1.0 FOR A JUNCTION WITH A CLOSED VALVE
AT TIME ZERO, STEADY STATE INITIALIZATION CANNOT COMPUTE A LOSS
COEFFICIENT. CONSEQUENTLY, THE -1.0 VALUE REMAINED UNCHANGED
AND WAS USED ONCE THE VALVE OPENED.

AN INPUT CHECK TO DETECT THE PROBLEM AND AN ERROR MESSAGE WAS
ADDED IN MODIFICATION 273 OF THE MOD004A UPDATE.

MODELING ALTERNATIVES:

DOES NOT APPLY.

***** PROBLEM REPORT NUMBER 209 *****

REPORTED BY: CHET MOTLOCH (EI) DATE: 10/24/83
REPORTED TO: EPSC DATE: 10/24/83

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 10/24/83

CODE VERSION: RETRAN-02 MOD003B

COMPUTER/
OPERATING SYSTEM: IBM

LISTING SUPPLIED: YES

DECK SUPPLIED: YES, BUT IT WAS NOT THE CORRECT DECK.

DECK DESCRIPTION: PERRY I BWR WITH TWO RECIRC LOOPS.

DESCRIPTION OF PROBLEM: TWO IDENTICAL RECIRC PUMPS FAILED TO COAST
DOWN SYMMETRICALLY. THE INPUT FOR BOTH PUMPS
IS IDENTICAL. I HAVE VERIFIED THAT THE
HOMOLOGOUS CURVES ARE BEING UTILIZED
CORRECTLY. BOTH PUMPS TRIP AT 1.01 SECONDS.
AT THE FIRST TIME STEP AFTER THE TRIP THE
PUMPS COAST DOWN AT DIFFERENT RATES.

DISPOSITION: THE REPORTED ERROR HAS NOT BEEN IDENTIFIED.
THE INPUT DECK PROVIDED WAS NOT THE SAME DECK
AS ENCOUNTERED THE ERROR. THE CORRECT INPUT
DECK IS NEEDED TO RESOLVE THIS ERROR.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE AN INPUT
DECK WAS NOT SUPPLIED THAT CORRESPONDED TO THE
ORIGINAL PROBLEM REPORT.

MODELING ALTERNATIVES: NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 210 *****

REPORTED BY : R. F. FARMAN EI DATE: 10/26/83
REPORTED TO : EPSC DATE: 10/26/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/26/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : LOFT ATWS MODEL.

DESCRIPTION OF PROBLEM:

IF HEAT CONDUCTOR PARAMETER IMCR IS SET TO 12 (GE CHF + DOUGALL-ROHSENOW) THEN THE INTERPOLATION BETWEEN THOM AND SHROCK-GROSSMAN DOES NOT TAKE PLACE. THE HEAT TRANSFER COEFFICIENT STAYS IN THOM UNTIL ALPHA = 0.9 THEN SWITCHES TO SHROCK-GROSSMAN.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION NUMBER 251 IN UPDATE MOD003.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 211 *****

REPORTED BY : D. A. TROTT EI DATE: 10/31/83
REPORTED TO : EPSC DATE: 10/31/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/31/83

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A PLOTTING SAMPLE PROBLEM WHICH EXERCISES VARIOUS
 PLOTTING OPTIONS.

DESCRIPTION OF PROBLEM:

THE CODE PRINTS ERROR MESSAGES HAVING TO DO WITH THE INPUT ON
500000 AND 510000 CARDS WHEN DATA IS CONTINUED ON MORE THAN ONE
CARD.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED
BY MODIFICATION NUMBER 14 IN THE MOD30 UPDATE TO THE IBM
ENVIRONMENTAL LIBRARY.

MODELING ALTERNATIVES:

USE CONTINUATION CARDS RATHER THAN THE NEXT CARD SEQUENCE NUMBER.

***** PROBLEM REPORT NUMBER 212 *****

REPORTED BY : W.G. CHOE (EI) DATE: 11/01/83
REPORTED TO : EPSC DATE: 11/01/83

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 11/01/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ST. LUCIE UNIT DECK FOR ATWS ANALYSIS

DESCRIPTION OF PROBLEM:

HEAT TRANSFER MODE 16 CAN NOT BE COMPUTED DUE TO BAD NUMBERS FOR
CP AT THE NEIGHBORHOOD OF CRITICAL PRESSURE. THE COMPUTED VALUES
FOR CP FOR THESE CASES ARE THE ORDERS OF -10^{**4} .

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. THE PROBLEM IS CAUSED BY
THE SURFACE FITS FOR TEMPERATURE IN THE REGION NEAR THE CRITICAL POINT
WHERE CP IS INFINITE. MODIFICATION NUMBER 259 IN THE MOD004A UPDATE
PROVIDES A MEANS TO GET AROUND THIS PROBLEM.

MODELING ALTERNATIVES:

NONE IDENTIFIED

***** PROBLEM REPORT NUMBER 213 *****

REPORTED BY : W.G. CHOE (EI) DATE: 11/01/83
REPORTED TO : EPSC DATE: 11/01/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/01/83 FORM

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ST. LUCIE UNIT 2 DECK FOR ATWS ANALYSIS.

DESCRIPTION OF PROBLEM:

ABOVE CRITICAL PRESSURE REGION, THE CODE CHANGES THE PHASE (FROM LIQUID TO VAPOR) BASED ON ENTHALPY. THEREFORE, THE PRESSURIZER (NON-EQUILIBRIUM MODEL) LIQUID REGION'S VOID FRACTION BECOMES 1.0 AND THE DIVIDE CHECK (ERROR MODE 2) OCCURS.

DISPOSITION:

THE REPORTED PROBLEM HAS BEEN IDENTIFIED AND IS CORRECTED BY MODIFICATION NUMBER 260 OF THE MOD004A UPDATE.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 214 *****

REPORTED BY : KENT RICHERT (EI DATE: 11/02/83
REPORTED TO : EPSC DATE: 11/02/83

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 11/02/83

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : TROJAN LOFW ATWS MODEL

DESCRIPTION OF PROBLEM:

WHEN JVERTL=0 ON THE JUNCTION DESCRIPTION CARD, A DIVIDE BY ZERO
WILL OCCUR IN SUBROUTINE BUBB WHEN THE MIXTURE LEVEL IS ZERO.
THIS IS BECAUSE THE CALCULATION OF THE ESTIMATED NEW MIXTURE LEVEL
DIVIDES BY ZM INSTEAD OF ZVOL. THE DENOMINATOR IS CARDS MOD003D.81
AND 83 SHOULD BE CHANGED FROM ZM(I) TO ZVOL(I).

DISPOSITION:

THE ERROR HAS BEEN CORRECTED AS MODIFICATION NUMBER 252 IN UPDATE
MOD003.

MODELING ALTERNATIVES:

RESTART WITH JVERTL = 1 OR 2

***** PROBLEM REPORT NUMBER 215 *****

REPORTED BY : JOHN D. ATCHISON (EI) DATE: 11/03/83
REPORTED TO : EPSC DATE: 11/03/83

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 11/03/83

CODE VERSION : RETRAN-02 MOD003B

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : SAFETY RELIEF VALVE TEST CASE. THREE VALVES
 MODELLED WITH UPSTREAM AND DOWNSTREAM TIME DEPENDENT VOLUMES.

DESCRIPTION OF PROBLEM:

 INCONSISTENT ACTIVATION OF HIGH PRESSURE TRIPS TO OPEN VALVES.
 HIGH PRESSURE TRIP SETPOINT EXACTLY EQUAL TO VOL. PRESSURE WILL
 NOT ALWAYS TRIP.

DISPOSITION:

 THE REPORTED PROBLEM WAS CORRECTED IN AN UPDATE FOR MOD003. THE
 INPUT DECK WHICH ENCOUNTERED THIS ERROR WAS EXECUTED ON MOD003
 TO DEMONSTRATE THIS. THE SPECIFIC MODIFICATION HAS NOT BEEN IDENTIFIED.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 216 *****

REPORTED BY : MARK P. PAULSEN (EI) DATE: 11/11/83
REPORTED TO : EPSC DATE: 11/11/83

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 11/11/83

CODE VERSION : PRELIMINARY VERSION OF RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CDC 176 NOS/BE 1.6

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : RASP GENERIC 4 LOOP PWR SAMPLE PROBLEM

DESCRIPTION OF PROBLEM:

WHEN USING THE WILSON BUBBLE RISE VELOCITY OPTION IN THE PRESSUR-
IZER, A ZERO BUBBLE RISE VELOCITY IS COMPUTED. SUBROUTINE STATPH
CONTAINS AN OUT DATED CONSISTENCY CHECK THAT SETS THE ERROR FLAG
IF A ZERO VELOCITY IS ENCOUNTERED AND THE MIXTURE LEVEL IS > 0
BUT < ZVOL.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION NUMBER 253 IN UPDATE MOD003.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 217 *****

REPORTED BY : M.P. PAULSEN (EI) DATE: 11/11/83
REPORTED TO : EPSC DATE: 11/11/83

METHOD OF REPORT : EPSC TROUBLE REPORT FORM DATED 11/11/83

CODE VERSION : PRELIMINARY VERSION OF RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CDC 176 NOS/BE 1.6

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : REEDIT DECK REQUESTING A REEDIT OF THE DATA RESIDING
ON 2 TAPES WITH DIFFERING LABELS.

DESCRIPTION OF PROBLEM:

A CODING ERROR IN SUBROUTINE EDITRE PREVENTS THE 2ND TAPE SPECIFIED
ON CARDS 010230 AND 010231 FROM BEING MOUNTED.

DISPOSITION:

THE ERROR IS CORRECTED IN MODIFICATION NUMBER 256 IN UPDATE MOD003.

MODELING ALTERNATIVES:

REEDIT EACH TAPE USING A SEPARATE JOB.

***** PROBLEM REPORT NUMBER 218 *****

REPORTED BY : J.H. MCFADDEN (EI) DATE: 11/11/83
REPORTED TO : EPSC DATE: 11/11/83

METHOD OF REPORT : EPSC TROUBLE REPORT

CODE VERSION : RETRAN-02 MOD003C

COMPUTER/OPERATING SYSTEM : CDC CYBER 176, NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A RESTART DECK FOR A PB ATWS ANALYSIS, USING
 ONE-DIMENSIONAL KINETICS.

DESCRIPTION OF PROBLEM:

THERE ARE TWO ERRORS IN THE PROFILE FIT MODEL. THE FIRST IS ASSOCIATED WITH THE CASE WHERE THE FIRST HEATED SECTION IS TWO PHASE, IN THAT THE LOGIC DOES NOT RECOGNIZE THE TWO PHASE CONDITION AND THE CODE COMPUTES A DEPARTURE POINT AND QUALITY EVEN THOUGH NONE EXISTS. THE SECOND ERROR IS THAT AFTER THE SMOOTHING FUNCTION INDICATES BULK BOILING, THE CALCULATION FOR NEUTRON VOID USES FLOWING QUALITY INSTEAD OF THE THERMODYNAMIC QUALITY.

DISPOSITION:

THE ERRORS WERE CORRECTED IN MODIFICATION 254 OF THE MOD003 UPDATE.

MODELING ALTERNATIVES:

THERE IS NO WAY TO MODEL AROUND EITHER ERROR AND STILL USE THE PROFILE FIT. THE FIRST ERROR DOES NOT CHANGE THE RESULTS AS LONG AS THE INLET IS SINGLE PHASE. THE SECOND ERROR RESULTS IN A SLIGHT ERROR IN THE NEUTRON VOID AFTER BULK BOILING.

***** PROBLEM REPORT NUMBER 219 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 11/14/83
REPORTED TO : EPSC DATE: 11/17/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/14/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE LOOP MODEL WITH A REACTOR COOLANT PUMP.

DESCRIPTION OF PROBLEM:

THE POWER-TO-H2O MODEL IN THE BUILT-IN REACTOR COOLANT PUMP MODEL
CAN RESULT IN ENERGY REMOVAL FROM THE FLUID VOLUME WHEN THE NORMAL-
IZED PUMP TORQUE GOES NEGATIVE.

DISPOSITION:

THE REPORTED CONDITION IS NOT AN ERROR. THE FACTS ARE CONSISTENT
WITH THE PUMP MODEL DEFINITIONS. WHEN THE TORQUE IS NEGATIVE,
THE PUMP IMPEDES THE FLOW OF THE FLUID AND THUS ENERGY IS REMOVED
FROM THE FLUID.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 220 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 12/02/83
REPORTED TO : EPSC DATE: 12/08/83

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/2/83

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL INCLUDING A SEPARATED VOLUME.

DESCRIPTION OF PROBLEM:

THE JUNCTION ENTHALPY EXITING A SEPARATED VOLUME DOES NOT ACCOUNT FOR THE KINETIC ENERGY OF THE FLUID.

DISPOSITION:

THE JUNCTION ENTHALPY FOR A JUNCTION EXITING A SEPARATED VOLUME DEPENDS ON THE VOLUME AVERAGE ENTHALPY AND THE QUALITY OF THE FLUID AT THE JUNCTION. IF THE JUNCTION IS TOTALLY ABOVE THE MIXTURE LEVEL, THE CODE SETS THE JUNCTION ENTHALPY EQUAL TO THE VAPOR SATURATION ENTHALPY FOR THE PRESSURE OF THE VOLUME. THERE IS A DISCREPANCY BETWEEN THE THEORY MANUAL AND THE CODING FOR THIS SITUATION. THIS IS BASICALLY A LIMITATION ASSOCIATED WITH IMPLEMENTATION OF THE BUBBLE RISE MODEL. SINCE THE KINETIC ENERGY TERM IS GENERALLY A VERY SMALL PART (LESS THAN .001 BTU/LBM) OF THE TOTAL ENERGY, THIS LIMITATION IS CONSIDERED TO BE INSIGNIFICANT.

MODELING ALTERNATIVES:

NONE REQUIRED.

***** PROBLEM REPORT NUMBER 223 *****

REPORTED BY : D. DIEKER IPC DATE: 01/25/84
REPORTED TO : EPSC DATE: 02/09/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/25/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM MVS

LISTING SUPPLIED : NO

DECK SUPPLIED : STATES YES BUT DID NOT RECEIVE

DECK DESCRIPTION : ALL SAMPLE PROBLEMS.

DESCRIPTION OF PROBLEM:

ERROR #208, EXPONENT UNDERFLOW. THIS ERROR, REGARDLESS OF WHETHER IT AFFECTS RESULTS, LIMITS CREDIBILITY OF THE RETRAN CODE. THIS ERROR WAS NOT IN RETRAN-02 MOD002.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED IN STANDARD PROBLEM ONE (SEE TROUBLE REPORT 229). A CORRECTION FOR ONE SOURCE OF THIS UNDERFLOW ERROR MESSAGE HAS BEEN MADE IN MODIFICATION 262 OF THE MOD004A UPDATE. THE OTHER MESSAGES ARE THE RESULT OF NUMERICAL ROUND OFF AND THE FACT THAT VERY SMALL NUMBERS ARE NOT SET IDENTICALLY TO ZERO. SEE EI LETTERS SCG-174-84 AND SCG-384-84. AND ALSO THE "DISPOSITION" FOR TROUBLE REPORT NUMBER 229. THE PROBLEM WAS ALSO DISCUSSED IN THE NOTES OF THE USER GROUP MEETING HELD AT COMMONWEALTH EDISON IN AUGUST 1984.

THIS CODE CHANGE RESULTED IN A CODE FAILURE IF THE INPUT DECK HAS NO SEPARATED VOLUMES (SEE PROBLEM REPORT NUMBER 267). THIS SUBSEQUENT ERROR WAS CORRECTED BY MODIFICATION NUMBER 267 WHICH WAS ADDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 224 *****

REPORTED BY : R. GRIEBENOW EI DATE: 03/01/84
REPORTED TO : EI/EPSC DATE: 03/01/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/1/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CYBER 176

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : TWO VOLUME "STEAM SEPARATOR TEST OF BUBBLE RISE".
 A FILL JUNCTION INJECTING SUBCOOLED LIQUID INTO THE
 BOTTOM OF A NONEQUILIBRIUM VOLUME WHICH IS CONNECTED
 AT THE TOP TO A LARGE VOLUME.

DESCRIPTION OF PROBLEM:

 CHANGING THE BUBBLE RISE VOLUME FROM A HEM VOLUME TO A NONEQUILIBRIUM
 VOLUME PRODUCES A MODE 6 ERROR IN SUBROUTINE EXPINT.

DISPOSITION:

 THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN
 MODIFICATION 257 OF THE MOD004A UPDATE.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 225 *****

REPORTED BY : JACK TESSIER ANL DATE: 03/02/84
REPORTED TO : EPSC DATE: 03/08/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/8/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM 3033/MVS

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : SAMPLE PROBLEM - FILE 21 ON TRANSMITTAL TAPE - TURBINE
TRIP W/O BYPASS - POINT KINETICS.

DESCRIPTION OF PROBLEM:

FIRST FRAME OF PLOTTED RESULTS DOES NOT SHOW Y-AXIS SCALE OR LABEL.
ALSO, DEFAULT LABELS HAVE SEPARATED WORDING.

DISPOSITION:

THE REPORTED ERROR DOES NOT OCCUR ON THE E.I. VERSION OF RETRAN02MOD3.
WE ALSO HAVE REVIEWED THE ERROR CORRECTIONS SUBMITTED BY COMMONWEALTH
EDISON (SEE T.R. NO. 297), BUT IT DOES NOT APPEAR THAT THESE WILL
CHANGE THE SITUATION REPORTED ABOVE. SINCE OTHER USERS HAVE NOT
REPORTED THIS PROBLEM, WE DO NOT CONSIDER IT TO BE A CODE ERROR.

IT MAY BE A PROBLEM WITH THE ANL PLOTTING PACKAGE OR IT MAY BE SOME
OTHER PROBLEM WHICH IS SPECIFIC TO THEIR SYSTEM.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 226 *****

REPORTED BY : JACK TESSIER ANL DATE: 01/24/84
REPORTED TO : EPSC DATE: 03/12/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/12/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM 3033/MVS

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : GINNA SGTR.

DESCRIPTION OF PROBLEM:

 WHEN BYPASSING STEADY-STATE INITIALIZATION OPTION, THE WILSON
 BUBBLE RISE MODEL YIELDS ZERO VELOCITY AFTER T=0.

DISPOSITION:

 THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN
 MODIFICATION 264 OF THE MOD004A UPDATE. THIS ERROR ONLY OCCURS
 WHEN THE STEADY-STATE INITIALIZATION OPTION IS NOT USED.

 SINCE NO DECK WAS RECEIVED, A DECK WHICH WAS THOUGHT TO PRODUCE
 THE SAME ERROR WAS GENERATED AND USED FOR CHECKOUT.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 227 *****

REPORTED BY : JACK TESSIER ANL DATE: 03/07/84
REPORTED TO : EPSC DATE: 03/12/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/7/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM 3033/MVS

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : TWO VOLUMES CONNECTED BY VALVE.

DESCRIPTION OF PROBLEM:

VALVE OPERATES PROPERLY IN INITIAL RUN - ON RESTART, FAILS IN
SUBROUTINE POLATE DURING INVERSE INTERPOLATION IF VALVE CLOSURE
TABLE DOES NOT CONTAIN AN AREA MATCH WITHIN NO. OF POINTS
STIPULATED IN INITIAL DECK.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN
MODIFICATION 261 OF THE MOD004A UPDATE.

MODELING ALTERNATIVES:

THE ERROR CAN BE CIRCUMVENTED BY SUPPLYING THE SAME NUMBER OF
POINTS ON THE VALVE CLOSURE TABLE AS THE OPENING TABLE AT
RESTART.

***** PROBLEM REPORT NUMBER 229 *****

REPORTED BY : ROBERT W. TSAI COM.ED. DATE: 02/28/84
REPORTED TO : EPSC DATE: 03/16/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/28/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM 3081/3033

LISTING SUPPLIED : YES (MICROFICHE, FOR STANDARD PROBLEM ONE ONLY)

DECK SUPPLIED : STATES YES BUT DID NOT RECEIVE

DECK DESCRIPTION : DISTRIBUTED SAMPLE PROBLEMS.

DESCRIPTION OF PROBLEM:

FORTRAN ERROR 208 (UNDERFLOW) OCCURS (BOTH ON EPSC SUPPLIED SAMPLE PROBLEM OUTPUT AND CECO GENERATED SAMPLE PROBLEM OUTPUT). THIS IS NOT DOCUMENTED IN DISTRIBUTION LITERATURE.

DISPOSITION:

ONE SOURCE OF THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED BY MODIFICATION 262 IN THE MOD004A UPDATE. THE CORRECTION DOES NOT EFFECT THE CALCULATED OUTPUT, SINCE IT MERELY DELETES SEVERAL CALCULATIONS WHOSE RESULTS ARE NEVER USED.

UNDERFLOW ERRORS OCCUR ON BOTH CDC (NO. 115) AND IBM (NO. IHO208I). THESE ARE DIAGNOSTIC MESSAGES AS DESCRIBED IN THE SYSTEM MANUALS AND GENERALLY ARE NOT AN INDICATION OF A CODING ERROR. THE CORRECTION IN MODIFICATION 262 WILL NOT ELIMINATE ALL 208 ERRORS, SINCE THEY CAN OCCUR ANYTIME FLOATING POINT ARITHMETIC IS PERFORMED AND THE RESULT IS A VERY SMALL NUMBER. THIS IS TRUE WHEN THE RESULT IS AT THE LOWER LIMIT OF THE MACHINE'S CAPABILITY TO REPRESENT THE SMALL NUMBER WITH A 7 BIT EXPONENT.

UNDERFLOW ERRORS OFTEN OCCUR IN SYSTEM SUPPLIED ROUTINES AS WELL AS RETRAN ROUTINES. IT IS NOT PRACTICAL TO TEST EACH ARITHMETIC OPERATION IN THE CODE TO PREVENT THEM. THE STANDARD TREATMENT FOR UNDERFLOW ERRORS, AUTOMATICALLY PERFORMED BY THE OPERATING SYSTEM, IS TO SET THE RESULT TO ZERO, WHICH IS THE CORRECT ANSWER. THE OCCURENCE OF UNDERFLOW ERRORS IS NOT SURPRISING AND DOES NOT DETRIMENTALLY AFFECT THE CALCULATED RESULTS.

SEE EI LETTERS SCG-174-84 AND SCG-384-84. THE PROBLEM WAS ALSO DISCUSSED IN THE NOTES OF THE USER GROUP MEETING HELD AT COMMONWEALTH EDISON IN AUGUST 1984.

MODELING ALTERNATIVES:

NONE REQUIRED.

***** PROBLEM REPORT NUMBER 230 *****

REPORTED BY : ROBERT W. TSAI COM.ED. DATE: 02/28/84
REPORTED TO : EPSC DATE: 03/16/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/28/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM 3081/3033

LISTING SUPPLIED : YES (MICROFICHE)

DECK SUPPLIED : STATES YES BUT DID NOT RECEIVE

DECK DESCRIPTION : SAMPLE PROBLEM NO. 1 FROM THE DISTRIBUTED TAPE
(EDWARDS PIPE PROBLEM).

DESCRIPTION OF PROBLEM:

USE OF TIME STEP PARAMETER "DTMAX" OF 0.002 SECONDS RESULTS IN
FORTRAN ERROR 209 (DIVIDE CHECK). THIS TIME STEP IS SLIGHTLY
LESS THAN THAT CALCULATED BY THE CODE IN DISTRIBUTED PROBLEM.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED, AND CORRECTED. THE ERROR
IS IN SUBROUTINE IMPSTP, AND RESULTS FROM A VARIABLE (DELTAP) THAT
IS CALCULATED TO BE EXACTLY ZERO. THE CODE NORMALLY FOLLOWS A DIFFERENT
LOGIC PATH IN IMPSTP FOR THE FIRST TIME STEP, AND THUS HAS NOT
ENCOUNTERED THIS PROBLEM BEFORE. THE CORRECTION INVOLVES HALVING THE
TIME-STEP SIZE WHEN DELTAP OR DELTAH ARE COMPUTED TO BE ZERO, RATHER
THAN USING THEM TO COMPUTE A TIME-STEP SIZE. THE MODIFICATIONS ARE IN
SUBROUTINE IMPSTP.

THIS PROBLEM COULD NOT BE REPRODUCED ON CDC, BUT THE POTENTIAL OF
ENCOUNTERING THE PROBLEM IS PRESENT.

THIS CORRECTION (MODIFICATION NUMBER 303) IS INCLUDED IN THE
MOD004C UPDATE.

WHILE CORRECTING THIS ERROR AND THE ERROR REPORT IN TROUBLE REPORT
NUMBER 248 IT WAS DISCOVERED THAT THE CALL TO IMPSTP FROM SUBROUTINE
INRTRN WAS MADE WITH ONE TOO FEW ARGUMENTS. THIS ERROR WAS ALSO
CORRECTED, BUT IS INCLUDED WITH MODIFICATION 305.

MODELING ALTERNATIVES:

CHANGE THE TIME STEP SIZE.

***** PROBLEM REPORT NUMBER 231 *****

REPORTED BY : ROBERT W. TSAI COM.ED. DATE: 02/28/84
REPORTED TO : EPSC DATE: 03/16/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/28/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM 3081/3033

LISTING SUPPLIED : YES (MICROFICHE)

DECK SUPPLIED : STATES YES BUT DID NOT RECEIVE

DECK DESCRIPTION : DETAILED CORE MODEL BOUNDED BY TIME DEPENDENT VOLUMES.

DESCRIPTION OF PROBLEM:

WHEN PRINTING THE CONDUCTOR NODAL TEMPERATURE, MINOR EDIT HEADING IS
WRITTEN AS PUMP. THE TEMPERATURE VALUES APPEAR TO BE CORRECT.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED BY
MODIFICATION NUMBER 265 IN THE MOD004A UPDATE. NO DECK WAS
RECEIVED. A DECK WHICH WAS THOUGHT TO PRODUCE THE SAME ERROR
WAS GENERATED AND USED FOR CHECKOUT.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 232 *****

REPORTED BY : ROBERT W. TSAI COM.ED. DATE: 02/28/84
REPORTED TO : EPSC DATE: 03/16/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/28/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM 3081/3033

LISTING SUPPLIED : YES (MICROFICHE)

DECK SUPPLIED : STATES YES BUT DID NOT RECEIVE

DECK DESCRIPTION : ANY MULTIPLE CASE PROBLEMS.

DESCRIPTION OF PROBLEM:

WHEN RUNNING MULTIPLE CASES, DIAGNOSTIC MESSAGE "REWIND ERROR ON
UNIT 2, NEXT CASE OR PLTAPE MAY NOT BE ABLE TO RETRIEVE INPUT
DATA, IOK=1" IS RECEIVED. THE SECOND CASE APPEARS TO BE RUNNING
CORRECTLY.

DISPOSITION:

THE MULTIPLE CASE OPTION DOES NOT WORK FOR SOME SYSTEMS, AND THE
USER'S MANUAL (REVISION 2) WAS MODIFIED TO ACKNOWLEDGE THIS
LIMITATION.

MODELING ALTERNATIVES:

RUN SEPARATE JOBS

***** PROBLEM REPORT NUMBER 233 *****

REPORTED BY : C. G. MOTLOCH EI DATE: 03/21/84
REPORTED TO : EPSC DATE: 03/21/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/21/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PWR BORON CONCENTRATION MODEL.

DESCRIPTION OF PROBLEM:

CODE DOES NOT HAVE A DIAGNOSTIC TO DETECT ERRONEOUS INPUT ID
(CP1) FOR FOR DELAY (DLY) CONTROL BLOCK. SEE CARD 703227 OF
INPUT LISTING.

DISPOSITION:

MODIFICATION NUMBER 276 INCLUDES A DIAGNOSTIC AND ERROR MESSAGE.
THIS MODIFICATION IS INCLUDED IN THE RETRAN-02 MOD004A UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 234 *****

REPORTED BY : W. C. BECK EI DATE: 04/03/84
REPORTED TO : EPSC DATE: 04/06/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/384

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : 370/MVS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : FERMI (BWR) VESSEL & STEAMLIN MODEL S/ CONTROL SYSTEM
FOR TURBINE TRIP W/ BYPASS. NONEQUILIBRIUM SEPARATOR
MODEL IS USED W/ BUILT-IN CURVES. NO SLIP. ITERATIVE
NUMERICS.

DESCRIPTION OF PROBLEM:

AT |0.3 SEC. SEP. STEAM FLOW (JUNE 11) DECREASES RAPIDLY WHILE ACC.
PRES. HAS LARGE POSITIVE VALUES. THE CAUSES SEP. VOLUME PRES. TO
INCREASE RAPIDLY TO VALUES MUCH LARGER THAN THE DOWN & UPPER PLENUM.

DISPOSITION:

THE REPORTED ERROR WAS ACTUALLY A USER INPUT ERROR. THIS WAS
ACKNOWLEDGED IN A LETTER DATED MARCH 7, 1985.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 235 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 04/04/84
REPORTED TO : EPSC DATE: 04/09/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/4/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL TO TEST CONTROL SYSTEMS.

DESCRIPTION OF PROBLEM:

DURING INITIALIZATION A DIVIDE BY ZERO FROM SUBROUTINE EDATA3
OCCURS.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AS AN INPUT ERROR. THE
POINT KINETICS OPTION WAS REQUESTED ON THE PROBLEM DIMENSION CARD
HOWEVER, THERE WERE NO CORE CONDUCTORS MODELED. THIS OPTION
CHOICE IS NOT COMPATIBLE.

AN ERROR MESSAGE WAS ADDED TO DETECT THE INPUT PROBLEM IN
MODIFICATION 267 OF THE MOD004A UPDATE.

MODELING ALTERNATIVES:

DOES NOT APPLY.

***** PROBLEM REPORT NUMBER 236 *****

REPORTED BY : SAL RANATZA MSS DATE: 04/04/84
REPORTED TO : EPSC DATE: 04/10/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/4/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM (3038)

LISTING SUPPLIED : YES (4 CASES)

DECK SUPPLIED : NO (AVAILABLE VIA UCCEL)

DECK DESCRIPTION : ANO-2 LOOP MODEL USING TIME DEPENDENT VOLUME INPUT.

DESCRIPTION OF PROBLEM:

DECK DOES NOT GET A CONVERGED SS WHEN THE FULL TRANSIENT DATA FOR THE TIME DEPENDENT VOLUMES IS INPUT. PROBLEM DOES NOT DEPEND ON LENGTH OF TRANSIENT DATA BUT RATHER ON THE ACTUAL VALUES INPUT, E.G., IN CASES PROVIDED, CASE 3 HAS A CONVERGED SS BUT CASE 4 DOES NOT. CASE 4 DIFFERS FROM CASE 3 ONLY IN PRESSURE INPUT FOR DATA POINT 813 WITH THE PRESSURE BEING CHANGED FROM 850.708 TO 849.976.

DISPOSITION:

THE PROBLEM RESULTS FROM A CODE LIMITATION HAVING TO DO WITH SLIGHT NUMERICAL INCONSISTENCIES IN THE ANALYTICAL APPROXIMATIONS OF THE THERMODYNAMIC PROPERTIES OF WATER. THIS PROBLEM CAN BE ENCOUNTERED WITH ANY VOLUME, NOT ONLY TIME DEPENDENT ONES.

THE CODE WAS MODIFIED TO INCLUDE THE PRINTING OF A MESSAGE WHEN THE REPORTED ERROR OCCURS. THIS MESSAGE IS IN MODIFICATION 271 OF THE MOD004A UPDATE.

MODELING ALTERNATIVES:

THE PARTICULAR PROBLEM COULD BE OVERCOME BY THE ARTIFICE OF ADDING ANOTHER DATA POINT TO THE FIRST TDV TABLE AND ASSIGNING THE PRESSURE COORDINATE OF THE POINT A VALUE GREATER THAN 950 PSI.

***** PROBLEM REPORT NUMBER 237 *****

REPORTED BY : SAL RANATZA MSS DATE: 04/04/84
REPORTED TO : EPSC DATE: 04/10/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/4/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM (3038)

LISTING SUPPLIED : YES (MICROFICHE)

DECK SUPPLIED : NO

DECK DESCRIPTION : ANO-2 LOOP MODEL USING CONTROL BLOCK BUBBLE PARAMETERS
 FOR A NONEQUILIBRIUM SURGE LINE.

DESCRIPTION OF PROBLEM:

JOB ABORTS FROM ERROR FOUND BY INBUBL WITH MESSAGE "INITIAL OUTPUT
OF CONTROL BLOCK IS NEGATIVE". ERROR MESSAGE MISLEADING. JOB
REALLY ABORTS BECAUSE THE CONTROL BLOCK FOR VBUB IS INITIALIZED AT
ZERO, WHICH IS NOT ALLOWED (ALTHOUGH IT SHOULD BE). THE ABORT IS
BYPASSED BY INITIALIZING THE CONTROL BLOCK AT 1.E-5.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. AN INPUT CHECK FOR VBUB LESS
THAN OR EQUAL TO ZERO WAS CHANGED TO WRITE THE ERROR MESSAGE ONLY IF
VBUB IS LESS THAN ZERO. THIS CORRECTION (MODIFICATION NO. 284) IS
INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

INITIALIZE THE CONTROL BLOCK WITH A SMALL VALUE AS NOTED ABOVE.

***** PROBLEM REPORT NUMBER 238 *****

REPORTED BY : SAL RANATZA MSS DATE: 04/04/84
REPORTED TO : EPSC DATE: 04/10/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/4/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM (3038)

LISTING SUPPLIED : YES (MICROFICHE)

DECK SUPPLIED : NO

DECK DESCRIPTION : RESTART DECK.

DESCRIPTION OF PROBLEM:

FTB 14 ERROR - A SPACE ALLOTMENT PROBLEM CORRECTED BY CHANGES IN
SUBROUTINE INPUT PROVIDED BY EI - SEE ATTACHMENT, FTB ERROR
CORRECTED BY SETTING PARAMETER FTBD1=90.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. A PRELIMINARY CORRECTION
WAS MADE AND SENT TO EPRI (REFERENCE: EI LETTER SCG-301-84).
THIS CORRECTION (MODIFICATION NUMBER 263) IS INCLUDED IN THE
MOD004A UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 239 *****

REPORTED BY : G. L. PICKARD APS DATE: 04/13/84
REPORTED TO : EPSC DATE: 04/23/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM 3084 MVS/XA

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : UNCONTROLLED ROD WITHDRAWAL - RETRAN SAMPLE PROBLEM.

DESCRIPTION OF PROBLEM:

DIFFERENCE IN FORWARD AND REVERSE LOSS COEFFICIENT VALUES FROM
OUTPUT PROVIDED ON TAPE (VALUE = 10^{-5} MAGNITUDE) AND OF OUTPUT
FROM APS RUN FROM COMPILED SOURCE (VALUE = 100). CONTACT DR. MARK
PAULSEN OF ENERGY INC. (208) 529-1000 FOR A COMPLETE DESCRIPTION
OF THE PROBLEM.

DISPOSITION:

THE REPORTED ERROR IS AN EDITTING PROBLEM AT TIME ZERO. THE VALUE
OF THE LOSS COEFFICIENT USED IN THE MOMENTUM EQUATION IS CORRECT.

A CORRECTION FOR THIS EDIT PROBLEM HAS BEEN MADE IN MODIFICATION
NUMBER 268 OF THE MOD004A UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 240 *****

REPORTED BY : N. A. SMITH VEPCO DATE: 04/06/84
REPORTED TO : EPSC DATE: 04/23/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/6/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM-MVS-XA

LISTING SUPPLIED : NO

DECK SUPPLIED : STATES YES BUT DID NOT RECEIVE

DECK DESCRIPTION : EPSC - PROVIDED SAMPLE PROBLEMS - SEE ATTACHMENT.

DESCRIPTION OF PROBLEM:

DIFFERENCES BETWEEN BASE AND RESTART CASES IN JUNCTION PROPERTIES.
FOR OTHER CASES, RESTART GAVE DIFFERENT TIME STEP FOR SAME ELAPSED
TIME. SEE ATTACHMENT FOR DETAILS.

DISPOSITION:

THE REPORTED PROBLEMS ARE NOT CODE ERRORS. THE 208 ERRORS NOTED FOR
STANDARD PROBLEM 4 ARE DISCUSSED IN TROUBLE REPORT NO. 229. THE OTHER
THREE CASES (UCRW, TTWOB, AND THE ATWS SAMPLE PROBLEMS) ALL USE
ITERATIVE NUMERICS. IT IS QUITE LIKELY THAT RESTART PROBLEMS WHICH
USE THE ITERATIVE SOLUTION METHOD WILL NOT PRODUCE THE EXACT RESULTS
AS THE BASE CASE BECAUSE THE ITERATIVE TIME STEP CONTROLLER REQUIRES
INFORMATION FROM THE PREVIOUS 3 TIME STEPS TO CALCULATE THE VALUE FOR
THE NEXT TIME STEP. THUS THE FIRST THREE TIME STEP CALCULATIONS FOR
BOTH BASE AND RESTART CASES USING ITERATIVE ARE MADE WITH FIXED TIME
STEP VALUES. AFTER THESE THREE, THE TIME STEP SIZE IS DETERMINED BY THE
TIME STEP CONTROLLER.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 241 *****

REPORTED BY : BOB JARVIS HL&P DATE: 04/25/84
REPORTED TO : EPSC DATE: 04/30/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/25/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : UCCEL NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : DECK CREATES NEUTRAL PICTURE FILE FROM RETRAN OUTPUT
 TAPE FOR PLOTTING. THE OUTPUTS OF 3 CONTROL BLOCKS ARE
 PLOTTED ON ONE FRAME, AND THE OUTPUTS OF 2 OTHER CONTROL
 BLOCKS ARE PLOTTED ON ANOTHER FRAME, ALONG WITH A COMBINED
 PLOT OF THE SAME 2 CURVES.

DESCRIPTION OF PROBLEM:

DUMPS WITH AN ERROR NUMBER 16 FROM THE FTB PACKAGE WHEN TRYING TO
PLOT FULL 50 SEC. OF DATA FROM TAPE. FAILS TO ACHIEVE FIELD LENGTH
REDUCTION. A PLOT CAN BE OBTAINED, HOWEVER, IF ONLY 25 SECONDS
ARE PLOTTED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED IN MODIFICATION NUMBER 11
TO THE CDC ENVIRONMENTAL LIBRARY AND IS INCLUDED IN THE MOD26 UPDATE
TO THE LIBRARY.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 242 *****

REPORTED BY : A. IRANI GPU DATE: 05/01/84
REPORTED TO : EPSC DATE: 05/07/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/1/84

CODE VERSION : RETRAN-02 3ACCFL

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES (PARTIAL)

DECK SUPPLIED : NO

DECK DESCRIPTION : OC MODEL

DESCRIPTION OF PROBLEM:

RECEIVED EXCESSIVE OUTPUT (110 PAGES) OF MESSAGE "***** PROFILE
FIT SOLUTION DID NOT CONVERGE AT -----". THIS EDIT PROBLEM
HAS NOT BEEN FIXED IN MOD003.

DISPOSITION:

THE MESSAGE IS PRINTED AS A WARNING WHENEVER THE PROFILE FIT SOLUTION
DOES NOT CONVERGE. IT IS NOT AN EDIT PROBLEM.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 243 *****

REPORTED BY : S. W. SORRELL KG&E DATE: 05/24/84
REPORTED TO : EPSC DATE: 05/29/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/24/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CYBER

LISTING SUPPLIED : YES (PARTIAL)

DECK SUPPLIED : STATES YES BUT DID NOT RECEIVE

DECK DESCRIPTION : THE JOB WAS A REGULAR RESTART AND IS ATTACHED (THIS
 RESTART JOB WAS THE 4TH RESTART IN MY ANALYSIS - I
 DIDN'T HAVE THIS PROBLEM ON PREVIOUS RESTARTS.

DESCRIPTION OF PROBLEM:

AS INDICATED ON THE ATTACHED FIGURES, THE PLOTTING PACKAGE PRODUCED
TWO CURVES WHEN IT SHOULD'VE PRODUCED ONLY ONE.

DISPOSITION:

THE REPORTED ERROR IS THE RESULT OF MISINTERPRETING THE PRINTER PLOTS.
THERE ACTUALLY IS ONE CURVE PLOTTED, BUT THE SCALE SELECTED MAKES THE
PLOT LOOK LIKE THERE ARE TWO CURVES. THIS WAS CONFIRMED BY REEDITING
THE DATA TAPE AND PLOTTING OVER A LARGER RANGE OF NUMBERS.
(REFERENCE: KG&E LETTER KSLO 84-161, JUNE 1, 1984).

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 244 *****

REPORTED BY : C. S. BRENNAN PSE&G DATE: 05/24/84
REPORTED TO : EPSC DATE: 05/31/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/24/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CDC/NOS 2.0

LISTING SUPPLIED : YES

DECK SUPPLIED : STATES YES BUT DID NOT RECEIVE

DECK DESCRIPTION : INPUT DECKS ARE THE SAMPLE PROBLEMS AS DISTRIBUTED
WITH THE RETRAN-02 MOD03 TAPE.

DESCRIPTION OF PROBLEM:

SAMPLE PROBLEMS ASKING FOR PRINTER PLOTS WILL ENTER SEGMENT PRNPLT AFTER NORMAL TRANSIENT RUN, GENERATE NORMAL PLOTS, ENTER SEGMENT INPUT, AND TRY TO REOPEN FTB FILE 1 WITH NO STACKED CASES SPECIFIED. SUBSEQUENT SYSTEM ERROR OCCURS, ALONG WITH ERROR NUMBER 11 FROM THE FTB PACKAGE AND ASSORTED DUMPS. SAMPLE PROBLEMS WHICH DO NOT ASK FOR PRINTER PLOTS EXIT FROM SEGMENT INPUT NORMALLY WHEN NO SUBSEQUENT CASE IS FOUND.

AS A CONTROLLED TEST, 8-VOLUME PROBLEM WAS RUN AS IT APPEARED ON THE TAPE. SINCE THE RUN DID NOT REQUEST PRINTER PLOTS, TERMINATION WAS NORMAL FOLLOWING COMPLETION OF THE TRANSIENT.

WHEN THE VARIABLE NEDI ON CARD 010001 WAS CHANGED FROM 4 TO -4, REQUESTING PRINTER PLOTS, THE SAME TRANSIENT CALCULATION WAS PERFORMED, BUT SYSTEM ERROR OCCURS AFTER SEGMENT INPUT IS REENTERED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. THE ERROR RESULTS FROM AN ATTEMPT TO READ A SECOND INPUT DECK. A MODIFICATION TO KEEP THE CODE FROM REENTERING SEGMENT INPUT WAS SENT TO PSE&G FOR CHECKOUT USING AN NOS SYSTEM. PSE&G NOTIFIED EI (LETTER DATED FEBRUARY 3, 1986) THAT THE MODIFICATION CORRECTS THE REPORTED PROBLEM.

THE CHANGE IS IN MODIFICATION NUMBER 310 AND HAS BE INCLUDED IN THE MOD004C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 245 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 05/28/84
REPORTED TO : ESPC DATE: 06/05/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/28/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL TO ILLUSTRATE THE APPARENT ERROR.

DESCRIPTION OF PROBLEM:

THE MODEL WILL NOT INITIALIZE WITH THE COMBINED HEAT TRANSFER
MAP. AN ERROR IN FDXPD# AND DLOG OCCURS. INITIALIZATION WITH
FORCED HEAT TRANSFER ONLY IS SUCCESSFUL.

DISPOSITION:

THE ERROR HAS BEEN IDENTIFIED AND IS CORRECTED BY MODIFICATION
NUMBER 272 OF THE MOD004A UPDATE.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 246 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 05/28/84
REPORTED TO : EPSC DATE: 06/05/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/28/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL TO ILLUSTRATE THE APPARENT ERROR FIRST
IDENTIFIED IN THE OCONEE PLANT MODEL.

DESCRIPTION OF PROBLEM:

THE PRESSURE DROP ACROSS THE STEAM GENERATOR STEAM OUTLET NOZZLE
DECREASED BY APPROXIMATELY 50% WITH MOD003 COMPARED TO MOD002.
NO DIFFERENCES IN THE INPUT DECK HAVE BEEN IDENTIFIED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AS AN INPUT PROBLEM. IN
RETRAN-02 MOD003 AN ANGLE OF 180 DEGREES MUST BE SUPPLIED FOR
NEGATIVE FILLS IN ORDER TO COMPUTE MOMENTUM FLUX CORRECTLY.
THIS IS AN INPUT CHANGE BETWEEN MOD002 AND MOD003. WHEN 180
DEGREES IS SUPPLIED THE MOD003 RESULTS MATCH THE MOD002 RESULTS.

MODELING ALTERNATIVES:

DOES NOT APPLY.

***** PROBLEM REPORT NUMBER 247 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 06/07/84
REPORTED TO : EPSC DATE: 06/11/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/7/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE STEAM GENERATOR MODEL.

DESCRIPTION OF PROBLEM:

THE EDIT LABEL FOR A MINOR EDIT OF A CONDUCTOR NODE TEMPERATURE
IS INCORRECT. TXXX Y RESULTS IN THE LABEL "PUMP Y TEMP NODE XXX".

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED BY
MODIFICATION NUMBER 265 IN THE MOD004A UPDATE.
THIS IS THE SAME PROBLEM AS REPORTED IN TROUBLE REPORT NO. 231.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 248 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 06/07/84
REPORTED TO : EPSC DATE: 06/11/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/7/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE STEAM GENERATOR MODEL.

DESCRIPTION OF PROBLEM:

A RUN THAT EXECUTES IN 2 CPU SECONDS WITH STANDARD NUMERICS GETS INTO AN INFINITE LOOP WITH ITERATIVE NUMERICS AND EVENTUALLY EXCEEDS GLOBAL CPU TIME LIMIT.

DISPOSITION:

THE ERROR IS IN THE ITERATIVE TIME-STEP CONTROL SUBROUTINE IMPSTP WHERE A CONTROLLING VOLUME OR JUNCTION POINTER IS NOT VALID WHEN NO VOLUME OR JUNCTION CONTROLS ARE ACTIVE. THE ERROR IS PROBLEM DEPENDENT AND CAN NOT BE DUPLICATED ON CDC MACHINES. CORRECTIONS WERE ADDED TO SUBROUTINE IMPSTP TO ELIMINATE THE ERROR.

WHILE CORRECTING THIS ERROR AND THE ERROR REPORT IN TROUBLE REPORT NUMBER 230 IT WAS DISCOVERED THAT THE CALL TO IMPSTP FROM SUBROUTINE INRTRN WAS MADE WITH ONE TOO FEW ARGUMENTS. THIS ERROR WAS ALSO CORRECTED WITH THE ONE REPORTED HERE.

THESE CORRECTIONS (MODIFICATION NUMBER 305) HAVE BEEN INCLUDED IN THE MOD004C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 249 *****

REPORTED BY : ANDY OLSON PECO DATE: 05/31/84
REPORTED TO : EPSC DATE: 06/11/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/31/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : P.B. MODEL, 24-NODE CORE REGION AT RELOAD ANALYSIS
 CONDITIONS (104.5% POWER, 105% STEAM FLOW, 100% CORE
 FLOW).

DESCRIPTION OF PROBLEM:

 STEADY-STATE INITIALIZATION WITH DYNAMIC SLIP OPTION PRODUCED
 AN INCONSISTENT VOID DISTRIBUTION (NON-UNIFORM) IN THE CORE
 REGION. THIS SAME ERROR WAS ENCOUNTERED WITH MOD002.

DISPOSITION:

 THE REPORTED ERROR HAS BEEN INVESTIGATED AND IS ACTUALLY THE RESULT
 OF A LIMITATION IN THE CONSTITUTIVE EQUATIONS FOR THE DYNAMIC SLIP
 EQUATION. ALTHOUGH THE INTERPOLATION SCHEME FOR THE TRANSITION FLOW
 REGIMES WAS REVISED IN MOD003 (MODIFICATION NO. 218), THE MODEL STILL
 CAN PRODUCE THE RESULT DESCRIBED IN THIS TROUBLE REPORT FOR CERTAIN
 CONDITIONS.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 250 *****

REPORTED BY : ANDY OLSON PECO DATE: 05/31/84
REPORTED TO : EPSC DATE: 06/11/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/31/84

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : P.B. MODEL, 24-NODE CORE REGION, AT RELOAD ANALYSIS
 CONDITIONS (104.5% POWER, 105% STEAM FLOW, 100% CORE
 FLOW).

DESCRIPTION OF PROBLEM:

 STEADY-STATE INITIALIZATION WITH DYNAMIC SLIP OPTION PRODUCED AN
 INCONSISTENT VOID DISTRIBUTION (NON-UNIFORM) IN THE CORE REGION.

DISPOSITION:

 THE REPORTED ERROR HAS BEEN INVESTIGATED AND IS ACTUALLY THE RESULT
 OF A LIMITATION IN THE CONSTITUTIVE EQUATIONS FOR THE DYNAMIC SLIP
 EQUATION. THIS IS NOT CONSIDERED A CODE ERROR.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 251 *****

REPORTED BY : ANDY OLSON PECO DATE: 05/31/84
REPORTED TO : EPSC DATE: 06/11/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/31/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : P.B. MODEL, 24-NODE CORE REGION, AT RELOAD ANALYSIS
 CONDITIONS (104.5% POWER, 105% STEAM FLOW, 100% CORE
 FLOW).

DESCRIPTION OF PROBLEM:

 STEADY-STATE INITIALIZATION WITH ALGEBRAIC SLIP OPTION WOULD NOT
 INITIALIZE (SAME DECK WILL INITIALIZE USING RETRAN-02 MOD002).
 FAILED TO CONVERGE ON SLIP VELOCITY AND ENTHALPY.

DISPOSITION:

 THE PROBLEM IS ASSOCIATED IN PART WITH A MOD003 CODE CHANGE IN
 SUBROUTINE HAVG. A TEMPORARY CORRECTION WAS MADE AVAILABLE FOR
 USE WITH THIS SUBROUTINE. SUBSEQUENT INVESTIGATIONS INDICATED
 THE PROBLEM REPORTED COULD BE INITIALIZED IF THE RELAXATION
 PROCEDURE USED FOR INITIALIZATION OF THE DYNAMIC SLIP EQUATION
 WAS ALSO APPLIED TO THE ALGEBRAIC SLIP MODEL. THIS LATTER
 CORRECTION IS INCLUDED IN THE MOD004A UPDATE AS MODIFICATION
 NUMBER 282.

MODELING ALTERNATIVES:

 TRY ADDITIONAL ITERATIONS.

***** PROBLEM REPORT NUMBER 252 *****

REPORTED BY : HUGH D. FULCHER EI DATE: 06/20/84
REPORTED TO : EPSC DATE: 06/25/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/20/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : NIAGARA MOHAWK TURBINE TRIP RETRAN MODEL.

DESCRIPTION OF PROBLEM:

AT 24 TIME STEPS WE GOT A DUMP INDICATING A ZERO VALUE OF DELTA H
USED IN THE DENOMINATOR FOR CALCULATING A DERIVATIVE FOR THE ITERATIVE
PROCESS FOR VOLUME 64. IT IS NOT UNDERSTOOD HOW THIS ZERO OCCURS.
CRAIG PETERSON HAS BOTH INPUT AND OUTPUT DECKS.

DISPOSITION:

THE PROBLEM WAS CAUSED BY A DIVIDE BY ZERO IN THE SATURATION
LINE CROSSING LOGIC FOR THE ITERATIVE TIME STEP CONTROL. THIS
PROBLEM OCCURRED IN SUBROUTINE IMPSTP.

THE REPORTED ERROR IS CORRECTED IN THE MOD004A UPDATE BY
MODIFICATION 270.

MODELING ALTERNATIVES:

IN THIS INSTANCE, A VOLUME WAS ISOLATED BY CLOSING VALVES AT
THE INLET AND OUTLET JUNCTION AT THE SAME TIME. THE PROBLEM
COULD BE AVOIDED BY CLOSING THESE VALVES AT DIFFERENT TIMES.

***** PROBLEM REPORT NUMBER 253 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 06/??/84
REPORTED TO : EPSC DATE: 06/25/84

METHOD OF REPORT : EPSC TROUBLE REPORT

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A RESTART OF A SIMPLE HEAT CONDUCTOR PROBLEM.

DESCRIPTION OF PROBLEM:

THE RESTART FAILED WITH A MESSAGE THAT ILLEGAL CONTROL BLOCK INPUTS WERE BEING USED. WHEN ADDITIONAL DUMMY CONTROL BLOCKS WERE ADDED, THE RESTART WAS SUCCESSFUL.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. THE PROBLEM IS ASSOCIATED WITH AN INCORRECT INPUT CHECK IN SUBROUTINE INCNT1. FOR IBM RESTART JOBS ON LOAD MODULES USING SEMI-MODULARIZATION MEMORY MANAGEMENT, SOME FTB INDICES

S

MIGHT HAVE VALUES LESS THAN THE VALUE IN THE INPUT CHECK STATEMENT. THIS PRODUCES AN ERRONEOUS ERROR MESSAGE. CHANGING THE PROBLEM CONFIGURATION CAN ELIMINATE THIS ERROR WHICH IS WHY THE RESTART WORKED WITH THE ADDED CONTROL BLOCKS.

THE CODE CHANGE IN MODIFICATION NO. 276 OF MOD004A UPDATE CORRECTS THIS ERROR AS WELL AS THE ONE FROM TROUBLE REPORT NO. 233.

MODELING ALTERNATIVES:

ADD DUMMY CONTROL BLOCKS AS NOTED ABOVE.

***** PROBLEM REPORT NUMBER 254 *****

REPORTED BY : B. GRIEBENOW EI DATE: 07/17/84
REPORTED TO : EPSC DATE: 07/19/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/17/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM (OS/VS)

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : COMBINATION PLOTTING DECK.

DESCRIPTION OF PROBLEM:

DIES ON AN OC4 ERROR ONLY ON COMBINATION PLOTS.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED IN MODIFICATION 274 OF THE MOD004A
UPDATE. THE PROBLEM WAS CAUSED BY THE CODE SHIFTING A RELOCATBLE
FTB FILE TO ANOTHER LOCATION IN MEMORY WITHOUT STORING THE NEW
ADDRESS. THIS ERROR WILL NOT OCCUR WITH ALL COMBINATION
PLOTS BECAUSE THE FILE IS NOT SHIFTED IN ALL CASES.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 255 *****

REPORTED BY : MARK. D. WALZ TVA DATE: 06/13/84
REPORTED TO : EPSC DATE: 07/20/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/13/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BWR PLANT MODEL WITH STEAMLINES (BROWNS FERRY).

DESCRIPTION OF PROBLEM:

CODE WILL NOT CONVERGE TO STEADY-STATE. ASSUME THIS IS A CONTINUATION
OF TROUBLE REPORT 100 - MOD002. HOWEVER THE PROBLEM IS OCCURRING
DURING STEADY-STATE INITIALIZATION. TROUBLE REPORT 100 DEALT WITH
LARGE POWER PERTURBATIONS WHEN BOILING BOUNDARY CROSSES A JUNCTION
WHEN USING ALGEBRAIC SLIP.

DISPOSITION:

THIS SEEMS TO BE THE SAME PROBLEM AS REPORTED IN TR 251.
THE DECK WHICH WAS RECEIVED WITH THE TROUBLE REPORT WAS EXECUTED
WITH MODIFICATION 282 OF THE MOD004A UPDATE AND INITIALIZED
SUCCESSFULLY.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 256 *****

REPORTED BY : G. R. SAWTELLE EI DATE: 07/30/84
REPORTED TO : EPSC DATE: 08/01/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/30/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SEQUOYAH PWR MODEL FOR LOFW - INPUT DECK ON PRIME
SCG>RET>SEQUOYAH

DESCRIPTION OF PROBLEM:

"HEAT FLUX DOES NOT CONVERGE FOR MODE 11 IN SUBROUTINE QDOT"
AT 600+ SECONDS INTO TRANSIENT.

DISPOSITION:

THE REPORTED PROBLEM IS THE RESULT OF A MODIFICATION (NO. 197) MADE TO THE MOD002 VERSION. IN MODIFICATION NUMBER 197, THE CONVERGENCE CRITERIA FOR HEAT TRANSFER MODE 11 WAS REDUCED FROM 0.1 TO 0.001 AND THE CRITERIA FOR MODE 10 WAS CHANGED FROM 1.0 TO 0.001. THESE ARE OVERLY RESTRICTIVE CRITERIA, AND NEITHER OF THESE CHANGES WERE DIRECTLY RELATED TO THE ERROR CORRECTED BY MOD. 197.

THE CONVERGENCE CRITERIA WERE RESTORED TO THE MOD002 VALUES. THIS CHANGE IS MADE IN MODIFICATION NO. 310 AND HAS BEEN INCLUDED IN THE MOD004C UPDATE.

MODELING ALTERNATIVES:

USE THE STANDARD HEAT TRANSFER MAP (CAN SWITCH USING GENERALIZED RESTART).

***** PROBLEM REPORT NUMBER 257 *****

REPORTED BY : MARK D. WALZ TVA DATE: 07/30/84
REPORTED TO : EPSC DATE: 08/08/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/30/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : NA

DESCRIPTION OF PROBLEM:

OUTPUT FILE FT06 CAN ONLY BE ASSIGNED TO A SYSOUT (A, B, T, ETC.)
FILE WHEN RUNNING A RESTART CASE. NEITHER A TEMPORARY OR PERMANENT
FILE CAN BE USED FOR FT06. GET AN "ERROR 14 FROM FTB PACKAGE"
MESSAGE.

DISPOSITION:

THE REPORTED ERROR IS THE SAME AS THE ONE REPORTED IN TROUBLE REPORT
NO. 238. THIS ERROR IS CORRECTED BY MODIFICATION NO. 263 OF THE
MOD004A UPDATE. THE CORRECTION WAS ALSO VERIFIED BY TVA IN A LETTER
(M. D. WALZ TO J. H. MCFADDEN) DATED JUNE 10, 1985.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 258 *****

REPORTED BY : MARK D. WALZ TVA DATE: 07/30/84
REPORTED TO : EPSC DATE: 08/08/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/30/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : BROWNS FERRY HOT CHANNEL DECK, CORE VOLUMES, UPPER
 AND LOWER PLENUM VOLUMES ARE MODELED.

DESCRIPTION OF PROBLEM:

HOT CHANNEL RUNS CANNOT ACCESS A RESTART OUTPUT TAPE FOR BOUNDARY
CONDITIONS. ERROR MESSAGE INDICATES "DATA RECORD 2 CANNOT BE REACHED".
HOWEVER A RUN THAT REEDITIS THE TAPE DOES RUN AND IT FINDS RECORD #2.
PROBLEM MUST BE IN USING THE TAPE FOR BOUNDARY CONDITIONS.

DISPOSITION:

AN ERROR ASSOCIATED WITH REEDITING TAPES FROM A RESTART JOB IS
REPORTED IN TROUBLE REPORT NO. 264. THIS ERROR (264) OCCURS FOR
RESTART TAPES ON IBM SINCE CPYPLT REFORMS THE RECORDS DURING A
COPY OPERATION. BUFSKP KEYS ON A SEGMENT LENGTH OF 3 WORDS TO
IDENTIFY THE BEGINNING OF A NEW RECORD WHICH IS NO LONGER THE
CASE ON RESTART TAPES AFTER THE FIRST. THIS ERROR CORRECTION
WILL ALSO CORRECT THE ERROR REPORTED HERE FOR RESTART TAPES
USED FOR TIME DEPENDENT BOUNDARY CONDITIONS.

THE UPDATE FOR MODIFICATION 15 IN THE MOD30 VERSION OF THE IBM
ENVIRONMENTAL LIBRARY WAS SENT TO TVA FOR CHECKOUT AND HAS BEEN
VERIFIED (TVA LETTER DATED MARCH 25, 1986) TO CORRECT THE
REPORTED PROBLEM.

THIS CORRECTION WAS ALSO REQUESTED BY THE UKAEA WHO EXPERIENCED
THE SAME PROBLEM. THE CORRECTION WAS VERIFIED BY UKAEA IN A TELEX
(GAVIN WARD TO J. H. MCFADDEN) DATED NOVEMBER 19, 1985.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 259 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 08/20/84
REPORTED TO : EPSC DATE: 08/24/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/20/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE MODEL OF A PIPING RUN WITH A DYNAMICALLY
MODELED PUMP. THE PUMP CHARACTERISTICS WERE INPUT
BY THE USER.

DESCRIPTION OF PROBLEM:

PRESSURE AND MASS FLOW OSCILLATIONS OCCUR AT THE PUMP DISCHARGE
WHEN A DOWNSTREAM VALVE IS SLOWLY OPENED AND FLOW INCREASES. A
SURGE TANK ADDED AT THE PUMP DISCHARGE TO SMOOTH THE PRESSURE
RESPONSE DID NOT HELP.

DISPOSITION:

THE PROBLEM RESULTS FROM INAPPROPRIATE TIME STEP SELECTION BY THE
AUTOMATIC TIME STEP SELECTION PROCEDURE. REDUCTION OF THE MAXIMUM
TIME STEP SIZE GIVEN IN THE SUPPLIED DECK FROM 0.025 SECONDS TO
0.001 SECONDS ELIMINATES THE DESCRIBED OSCILLATIONS.

MODELING ALTERNATIVES:

SEE ABOVE.

***** PROBLEM REPORT NUMBER 260 *****

REPORTED BY : TJERI SURJANTO SCS DATE: 08/21/84
REPORTED TO : EPSC DATE: 08/24/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/21/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : HATCH MODEL (BWR) 2 RECIRCULATION LINE 5 USING RETRAN PUMP
CURVES. PUMP MOTOR TORQUE IS CONTROLLED BY CONTROL SYSTEM.

DESCRIPTION OF PROBLEM:

WHEN TRIP OCCURRED, PUMP #1 SPEED IS NOT SYMMETRICAL TO PUMP #2. FOR
MOD2, THE PROBLEM CAN BE ELIMINATED BY EITHER USING THE SAME TRIP
NUMBER OR THE SAME CONTROL BLOCK NUMBER. HOWEVER, THIS SOLUTION
DOES NOT WORK FOR MOD3. MINOR EDIT ON PUMP MOTOR TORQUE, FRICTION
SHOW BOTH PUMP HAVE THE SAME VALUE. THE PROBLEM MAY COME FROM THE
DENSITY USED FOR ONE OF THE PUMPS FOR PUMP SPEED CALCULATION.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. THE DECK ENCOUNTERING THE
ERROR WAS EXECUTED USING THE MOD004A VERSION OF THE CODE AND THE
CALCULATED PUMP SPEEDS WERE THE SAME. MODIFICATION NUMBER 281 WAS
THEN USED TO UPDATE MOD003, AND RESULTS IDENTICAL TO THOSE FOR MOD004A
WERE OBTAINED.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 261 *****

REPORTED BY : CHET MOTLOCH EI DATE: 09/06/84
REPORTED TO : EPSC DATE: 09/06/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/6/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PERRY BWR-6 BASE CASE MODEL.

DESCRIPTION OF PROBLEM:

 THE CODE FAILS TO EXECUTE WHEN CONTINUATION CARDS ARE USED TO
 EXTEND THE INPUT LIST OF MINOR EDITS.

DISPOSITION:

 THE REPORTED ERROR IS ASSOCIATED WITH USER INPUT AND IS NOT A
 CODE ERROR.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 262 *****

REPORTED BY : J. BOATWRIGHT TUGCO DATE: 09/19/84
REPORTED TO : EPSC DATE: 09/24/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/19/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (RECEIVED 9/28)

DECK DESCRIPTION : 3-LOOP MODEL OF COMANCHE PEAK, W PWR WITH STEAM LINES
AND HEADER DOWNSTREAM OF MAIN STEAM ISOLATION VALVES.

DESCRIPTION OF PROBLEM:

AFTER TURBINE STOP AND MAIN STEAM ISOLATION VALVES CLOSED, THE FLOW
IN BETWEEN THE TWO VALVES BECAME NEARLY ZERO. AT 2 JUNCTIONS CON-
NECTING MAIN STEAM LINES TO STEAM HEADER, THE FLOW WAS CALCULATED
TO BE |10-294 WHICH RESULTED IN AN UNDERFLOW ERROR. THE JUNCTIONS
IN THE DECK ARE #332 & 333.

DISPOSITION:

THE REPORTED ERROR IS ASSOCIATED WITH NUMERICAL ROUND OFF, AND IS
SIMILAR TO THE ERROR REPORTED IN T.R. NO. 277.

THE MODIFICATION TO CORRECT THIS ERROR WAS MADE IN SUBROUTINE UPDATE.
THE CHANGE INVOLVES CHECKING ON THE ABSOLUTE VALUE OF THE JUNCTION
FLOW RATE, AND SETTING THE FLOW RATE TO ZERO IF THE ABSOLUTE VALUE
IS LESS THAN 1.0E-60.

SUBROUTINE FILL WAS MODIFIED IN THE SAME WAY TO AVOID SIMILAR
PROBLEMS FOR FILL JUNCTION FLOW RATES.

THIS CORRECTION (MODIFICATION NO. 306) IS INCLUDED IN THE
MOD004C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 263 *****

REPORTED BY : J. BOATWRIGHT TUGCO DATE: 09/19/84
REPORTED TO : EPSC DATE: 09/24/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/19/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (RECEIVED 9/28)

DECK DESCRIPTION : 3-LOOP MODEL OF COMANCHE PEAK, W PWR MINOR EDITS
@ 1 SEC INTERVALS, MAJOR EDITS @ 5 SEC INTERVALS.
- WRITING TO "GE" TAPE.

DESCRIPTION OF PROBLEM:

AFTER THE FIRST MINOR EDIT SUMMARY, RECORDS ARE NOT BEING WRITTEN TO TAPE AND, IN SOME CASES, NOT PRINTED. THIS PROBLEM RESULTS IN THE LOSS OF DATA AND SEVERAL THOUSAND DOLLARS IN COMPUTING TIME. THIS HAS ONLY SHOWN UP ON RUNS OF OVER 50 SECONDS TRANSIENT TIME.

DISPOSITION:

THE REPORTED ERROR WAS INVESTIGATED AND NO CODE ERRORS WERE IDENTIFIED. FURTHER DISCUSSIONS WITH A REPRESENTATIVE OF THE SERVICE BUREAU LED TO THE CONCLUSION THAT THE REPORTED ERROR IS THE RESULT OF AN INSTALLATION ERROR FOR THE PARTICULAR ABSOLUTE USED TO EXECUTE THE DECK.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 264 *****

REPORTED BY : BILL BECK EI DATE: 09/17/84
REPORTED TO : EPSC DATE: 09/25/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/17/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : MVS-XA

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : 2-LOOP PWR-41 VOLS., 64 JUNCS., 16 HEAT CONDS.

DESCRIPTION OF PROBLEM:

REEDIT OF A DATA TAPE CREATED DURING A RESTART JOB WILL ONLY EXECUTE WITH A MINOR EDIT FREQ. OF 1. ANY OTHER VALUE OF NMIN PRODUCES ERROR "UNABLE TO REACH DATA RECORD 'NMIN + 1'."

DISPOSITION:

THE REPORTED ERROR OCCURS FOR RESTART TAPES ON IBM SINCE CPYPLT REFORMATS THE RECORDS DURING A COPY OPERATION. BUFSKP KEYS ON A SEGMENT LENGTH OF 3 WORDS TO IDENTIFY THE BEGINNING OF A NEW RECORD WHICH IS NO LONGER THE CASE ON RESTART TAPES AFTER THE FIRST. THIS ERROR ALSO OCCURS IF RESTART TAPES ARE USED FOR TIME DEPENDENT BOUNDARY CONDITIONS.

THE ERROR IS CORRECTED BY MODIFICATION NUMBER 15 FOR THE MOD30 VERSION OF THE IBM LIBRARY.

THE PROBLEM WAS CORRECTED BY DELETING THE TEST FOR A 3 WORD RECORD AT THE BEGINNING OF A RECORD AND TESTING ON THE KEYWORD "DATA REC". THIS CHANGE WAS MADE IN THE IBM ENVIRONMENTAL LIBRARY. OLD RESTART TAPES CAN BE REEDITED WITH THIS FIX.

MODELING ALTERNATIVES:

REEDIT EVERY DATA RECORD STARTING WITH RECORD NO. 1.

***** PROBLEM REPORT NUMBER 265 *****

REPORTED BY : J. M. SORENSEN S.LEVY DATE: 09/20/84
REPORTED TO : EPSC DATE: 10/01/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/20/84

CODE VERSION : RETRAN-02 MOD003 (RASP PRERELEASE)

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SINGLE CHANNEL BWR CORE MODEL WITH TIME DEPENDENT
VOLUME UPPER AND LOWER PLENUM FOR CONTROL OF BOUNDARY
CONDITIONS. USED FOR BWR CHANNEL HYDRODYNAMIC STABILITY
ANALYSIS.

DESCRIPTION OF PROBLEM:

THERE IS A LOCAL FLOW AND PRESSURE PERTURBATION WHEN THE BOILING
BOUNDARY MOVES BETWEEN ADJACENT VOLUMES. THIS PERTURBATION DISTURBS
THE CORE EXIT FLOW SUFFICIENTLY TO PRODUCE ERRORS IN CALCULATING
CHANNEL STABILITY RESPONSE.

DISPOSITION:

THE CAUSE OF THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED
WITH MODIFICATION NO. 281 OF THE MOD004A UPDATE. THE ERROR IS
ASSOCIATED WITH THE SATURATION LINE CROSSING FOR THE ITERATIVE
NUMERICS. ALSO SEE DISCUSSION FOR PROBLEM REPORT NO. 266.

MODELING ALTERNATIVES:

THE STANDARD NUMERICS OPTION MAY ALLOW THE USER TO GET
AROUND THIS ERROR.

***** PROBLEM REPORT NUMBER 266 *****

REPORTED BY : J. M. SORENSEN S.LEVY DATE: 09/26/84
REPORTED TO : EPSC DATE: 10/01/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/26/84

CODE VERSION : RETRAN-02 MOD003 (RASP PRERELEASE)

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BWR VESSEL MODEL WITH TIME DEPENDENT VOLUME FOR
STEAM DOME. USED FOR BWR CORE REACTIVITY STABILITY
ANALYSIS.

DESCRIPTION OF PROBLEM:

SEE ATTACHED LETTER "APPARENT RETRAN ANOMOLY" DATED SEPT. 26, 1984.

DISPOSITION:

THE REPORTED ERROR HAS BEEN INVESTIGATED AND IS CONSIDERED TO BE THE
RESULT OF A CODE LIMITATION IN RETRAN-02. MODIFICATION NUMBER 281
(SEE PROBLEM REPORT NO. 265) HELPS TO MINIMIZE THIS PROBLEM FOR SOME
CONDITIONS BUT NOT ALL (SEE PROBLEM REPORT NO. 266). WE HAVE NOT BEEN
ABLE TO IDENTIFY A SINGLE REASON FOR THE CODE TO PRODUCE THE REPORTED
RESULT. IT APPEARS TO BE ASSOCIATED PRIMARILY WITH THE FIELD EQUATION
SOLUTION METHOD IN RETRAN-02, WHICH IS AN EXPLICIT SCHEME. SIMILAR
ANALYSES WITH A PRERELEASE VERSION OF THE RETRAN-03 CODE USING AN
IMPLICIT SOLUTION METHOD FOR THE FIELD EQUATIONS PRODUCED ACCEPTABLE
RESULTS. (SEE "EVALUATION OF RETRAN-03 AND ASSOCIATED CODES",
C. LIN, J. A. NASER, I. TOMAI AND J. M. SORENSON, PRESENTED AT FOURTH
INTERNATIONAL RETRAN MEETING, NOVEMBER, 1985)

MODELING ALTERNATIVES:

IN SOME CASES, ADDITIONAL NODING (ESPECIALLY IN THE REGION OF THE BOILING
BOUNDARY) HAS HELPED TO LIMIT THE SIZE OF THE PERTURBATION, ALTHOUGH IT
STILL IS PRESENT.

***** PROBLEM REPORT NUMBER 267 *****

REPORTED BY : JAMES BOATWRIGHT TUGCO DATE: 10/18/84
REPORTED TO : EPSC DATE: 10/22/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/18/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CYBER @UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : 2-LOOP MODEL OF COMANCHE PEAK - 4-LOOP WESTINGHOUSE
PWR.

DESCRIPTION OF PROBLEM:

A CONTROL BLOCK "FNG" REFERENCED A NON-EXISTENT TABLE. NO INPUT CHECKS
REPORTED THIS INPUT ERROR.

DISPOSITION:

AN INPUT CHECK AND ERROR MESSAGE HAVE BEEN ADDED. THIS CORRECTION
(MODIFICATION NO. 285) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 268 *****

REPORTED BY : G. R. SAWTELLE EI DATE: 10/24/84
REPORTED TO : EPSC DATE: 10/24/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/24/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : UCCEL-CDC-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : N PLANT PRIMARY LOOP WITH SINGLE LOOP S.G.

DESCRIPTION OF PROBLEM:

CODE FAILS TO HOLD A NULL TRANSIENT - SAME MODEL HOLDS NULL WITH
MOD002, NONEQUILIBRIUM MODEL IS SOURCE OF PROBLEM.

DISPOSITION:

THE REPORTED ERROR IS ASSOCIATED IN PART WITH A CODE ERROR IN MOD003
AND IN PART WITH AN INPUT ERROR. THE INPUT FOR THE PUMP MODEL IN
THIS DECK WAS NOT CORRECT. THE INPUT MODEL USES AN OPTION TO TRIP
A PUMP ON AND/OFF WHICH WAS ADDED IN THE MOD003 CODE, SO THE SAME
MODEL DID NOT RUN A NULL TRANSIENT WITH MOD002.

WHILE INVESTIGATING THIS TROUBLE REPORT, THE DECK WAS EXECUTED
WITH MODIFICATION 280 IN MOD004A (SEE TROUBLE REPORT 275). THIS
CODE CORRECTION IMPROVED THE RESULTS OF THE NULL TRANSIENT, BUT
THEY WERE NOT DEEMED TO BE TRULY A NULL TRANSIENT. THE INPUT PROBLEM
IDENTIFIED ABOVE WAS THEN FOUND, AND AFTER IT WAS CORRECTED, THE
DECK HELD A NULL TRANSIENT ON MOD004A.

THIS MODIFICATION WAS FURTHER CHANGED (MODIFICATION NO. 289) TO CORRECT
THE ERROR REPORTED IN PROBLEM REPORT NO. 283.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 269 *****

REPORTED BY : P. J. JENSEN EI DATE: 12/05/84
REPORTED TO : EPSC/EI DATE: 12/05/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/5/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CYBER/UCC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : FIST NULL TRANSIENT.

DESCRIPTION OF PROBLEM:

TRIPS RESET AT PROBLEM TERMINATION ARE ERRONEOUSLY RE-TRIPPED
UPON RESTART.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN
MODIFICATION NUMBER 278 OF THE MOD004A UPDATE.

THE PROBLEM RESULTS FROM FAILURE TO SAVE RESET PARAMETERS ON TAPE
FOR USE DURING RESTART. AS A RESULT, RESETS ARE NOT RECOGNIZED
ON RESTART RESULTING IN THE RE-TRIP FOLLOWED BY RESET.

MODELING ALTERNATIVES:

PROBLEM SPECIFIC MODELING ALTERNATIVES HAVE BEEN IDENTIFIED.
AN EXAMPLE IS TO SET FILL FLUXES TO ZERO USING GENERALIZED
RESTART RESULTING IN NO FILL FLOW WHEN THE RE-TRIP OCCURS.

***** PROBLEM REPORT NUMBER 270 *****

REPORTED BY : G.B.SWINDLEHURST DUKE DATE: 12/14/84
REPORTED TO : EPSC DATE: 12/18/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/14/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A ONE VOLUME PRESSURIZER MODEL WITH LOCAL CONDITIONS
HEAT TRANSFER CONNECTED TO A CONTAINMENT VOLUME.

DESCRIPTION OF PROBLEM:

THE MODEL WOULD NOT INITIALIZE UNLESS A DUMMY CONDUCTOR IS ADDED TO
THE CONTAINMENT VOLUME.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN MODIFICATION
NO. 287 IN THE MOD004B UPDATE. THE ERROR WAS IBM SPECIFIC AND IS
ASSOCIATED WITH FAILURE TO INITIALIZE AN INDEX IN SUBROUTINE INSLAB
WHICH IS USED FOR CHECKING INPUT.

MODELING ALTERNATIVES:

ADD A CONDUCTOR WHICH IS NOT PART OF THE CONDUCTOR STACK (SUCH AS
NOTED ABOVE).

***** PROBLEM REPORT NUMBER 271 *****

REPORTED BY : BARBARA THIGPEN UNION DATE: 12/11/84
REPORTED TO : EPSC DATE: 12/31/84

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/11/84

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : OS/VS

LISTING SUPPLIED : YES

DECK SUPPLIED : NO DECK RECEIVED

DECK DESCRIPTION : TRIED TO RUN 1-D KINETICS SAMPLE PROBLEM USING INPUT
FROM TAPE (FILE 21) AND DISK FILE (TAPE FILE 26) OF
CROSS SECTION DATA.

DESCRIPTION OF PROBLEM:

END OF RECORD ERROR ON UNIT 40. WE ARE CURRENTLY USING THE LOAD
MODULE FROM THE TAPE TO MAKE SAMPLE RUNS.

DISPOSITION:

THE REPORTED ERROR HAS NOT BEEN IDENTIFIED. WE HAVE TRIED TO
REPRODUCE THE REPORTED PROBLEM BY UNLOADING THE CROSS-SECTION
FILE IN THE SAME MANNER AS WAS DONE AT UNION ELECTRIC AND
WERE NOT ABLE TO GET THE END OF RECORD MESSAGE. OTHER UTILITIES
HAVE NOT ENCOUNTERED THIS PROBLEM. THIS REPORT IS CONSIDERED TO
BE RESOLVED AS "NOT A CODE ERROR".

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 272 *****

REPORTED BY: MARK MILLER (TVA) DATE: 01/03/85
REPORTED TO: EPSC DATE: 12/20/84

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 12/20/84

CODE VERSION: RETRAN-02 MOD003

COMPUTER/
OPERATING SYSTEM: NOS

LISTING SUPPLIED: YES (TAPE WAS BAD; SEE DISPOSITION).

DECK SUPPLIED: YES (TAPE WAS BAD; SEE DISPOSITION).

DECK DESCRIPTION: TWO-LOOP WESTINGHOUSE PWR MODEL CONSTRUCTED
FOR THE ANALYSIS OF SMALL BREAK
LOSS-OF-COOLANT ACCIDENTS. REFER TO ATTACHED
INPUT DECK AND NODAL DIAGRAM.

DESCRIPTION OF PROBLEM: PROBLEMS OCCUR IN THE DETERMINATION OF BREAK
JUNCTION PROPERTIES 432 SECONDS INTO THE
TRANSIENT. THE JOB, UPON FAILING INITIALLY,
WAS BACKED UP IN TIME AND RESTARTED TWICE WITH
SUCCESSIVELY SMALLER TIME STEPS IN USE. JOB
CONTINUES TO FAIL, RESULTING IN EITHER
EXCESSIVE BREAK ENTHALPY OR NEGATIVE BREAK
FLOW (FAILURE IN JUNPRP AND ADVFLO
SUBROUTINES, RESPECTIVELY.

DISPOSITION: THE OUTPUT LISTING AND INPUT DECK WERE
SUPPLIED ON A COMPUTER TAPE. WE HAVE NOT BEEN
ABLE TO READ THIS TAPE. OTHER PEOPLE HAVE
INDICATED SIMILAR EXPERIENCE WITH THE INITIAL
FAILURE, BUT HAVE BEEN ABLE TO WORK AROUND THE
PROBLEM BY RESTARTING WITH SMALLER TIME STEPS.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE IT WAS NOT
POSSIBLE TO RETRIEVE THE CORRECT TROUBLE REPORT
INFORMATION.

MODELING ALTERNATIVES: NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 273 *****

REPORTED BY : WHEE CHOE NEI DATE: 02/01/85
REPORTED TO : ENERGY INCORPORATED DATE: 02/01/85

METHOD OF REPORT : TELEX DATED 2/1/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : NO

DESCRIPTION OF PROBLEM:

THE HOT CHANNEL CALCULATION IS ABORTED DUE TO A DIVIDE CHECK
(DIVIDED BY ZERO) IN PBOUND WHEN PRESSURE IN THE VOLUME, WHICH IS
RETRIEVED FROM THE TAPE GENERATED BY THE SYSTEM CALCULATION, IS
ABOVE CRITICAL PRESSURE. (SEE ATTACHED TELEX)

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND THE CORRECTION PROVIDED
WITH THE TROUBLE REPORT IS AN ACCEPTABLE MODIFICATION FOR THE ERROR.
THIS CORRECTION (MODIFICATION NO. 283) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 274 *****

REPORTED BY : M. P. PAULSEN EI DATE: 02/26/85
REPORTED TO : ENERGY INCORPORATED DATE: 02/26/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/26/85

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : CDC NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : REEDIT FROM MULTIPLE DATA TAPES.

DESCRIPTION OF PROBLEM:

JOB FAILS WITH A BUFREQ ERROR ON UNIT 13 WHILE TRYING TO MOUNT SECOND
TAPE.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED WITH
MODIFICATION NO. 279 IN THE MOD004A UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 275 *****

REPORTED BY : M. P. PAULSEN EI DATE: 02/27/85
REPORTED TO : ENERGY INCORPORATED DATE: 02/27/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/27/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CDC NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : NO PROBLEM WAS RUN - VISUAL INSPECTION OF CODE RESULTED
IN LOCATING AN ERROR.

DESCRIPTION OF PROBLEM:

THE PRESSURIZER AND SEPARATOR FLASHING AND CONDENSING MASS TRANSFER
RATES ARE ERRONEOUSLY LIMITED TO A MAXIMUM VALUE THAT HAS UNITS OF
MASS. THE ERROR OCCURS WHEN VERY LITTLE VAPOR EXISTS IN LIQUID
REGION OR VERY LITTLE LIQUID EXISTS IN THE VAPOR REGION.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED WITH
MODIFICATION NO. 280 IN THE MOD004A UPDATE. THIS MODIFICATION WAS
FURTHER CHANGED (MODIFICATION NO. 289) TO CORRECT THE ERROR REPORTED
IN PROBLEM REPORT NO. 283.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 276 *****

REPORTED BY : M. A. FELTUS NYPA DATE: 02/25/85
REPORTED TO : EPSC DATE: 02/27/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/25/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CDC UCCEL

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (CATALOGED AT UCCEL, BUT WE WERE NOT ABLE TO RETRIEVE)

DECK DESCRIPTION : MOD 3 BENCHMARK RUN OF LOSS OF FEEDWATER ATWS FOR IP3
 TO COMPARE RESULTS WITH MOD 2 RUNS, ALSO PROVIDED. MOD 3
 RUNS USE INPUT CHANGES REQUIRED TO MAKE MOD 2 DECKS RUN ON
 MOD 3, EI LETTER SCG-705-83, J. MCFADDEN.

DESCRIPTION OF PROBLEM:

WITHOUT MODEL CHANGES, MOD 3 DECK RUN RESULTS GIVE LARGER PRESSURE PEAKS
THAN MOD 2 RUN; USING LOCAL CONDITIONS HEAT TRANSFER, OPTION. LISTING
INPUT DECK, RESTART FILES AVAILABLE ON UCCEL ALSO.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. A COUPLE OF INPUT ERRORS
WERE IDENTIFIED IN THE LISTING OF THE INPUT DECK FOR THIS TROUBLE REPORT,
AND REPORTED TO NYPA. THE RESULTS OF THE ANALYSIS FOR THE CORRECTED
INPUT DECK WERE ACCEPTABLE AND DOCUMENTED IN A LETTER DATED APRIL 17,
1985.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 277 *****

REPORTED BY : A. IRANI/E. MOZIAS GPU DATE: 03/04/85
REPORTED TO : EPSC DATE: 03/11/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/4/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES (PARTIAL-1 PAGE)

DECK SUPPLIED : NO (BUT HAS BEEN REQUESTED)

DECK DESCRIPTION : OYSTER CREEK MODEL

DESCRIPTION OF PROBLEM:

ERROR IN IMPSTP DURING LOW FLOWS PROBLEM CORRECTED BY USING UPDATE:
IMPS1811 IF (ABS(WP(J)).LE.1E-10) WP(J) = 0.

DISPOSITION:

THE REPORTED ERROR IS RELATED TO THE PROBLEM REPORTED IN T. R. 262
AND IS ASSOCIATED WITH NUMERICAL ROUNDOFF. THE MODIFICATION,
DESCRIBED BELOW, IS SLIGHTLY DIFFERENT THAN THE ONE INDICATED ABOVE.

THE MODIFICATION TO CORRECT THIS ERROR WAS MADE IN SUBROUTINE UPDATE.
THE CHANGE INVOLVES CHECKING ON THE ABSOLUTE VALUE OF THE JUNCTION
FLOW RATE, AND SETTING THE FLOW RATE TO ZERO IF THE ABSOLUTE VALUE
IS LESS THAN 1.0E-60.

SUBROUTINE FILL WAS MODIFIED IN THE SAME WAY TO AVOID SIMILAR
PROBLEMS FOR FILL JUNCTION FLOW RATES.

THIS CORRECTION (MODIFICATION NO. 30) IS INCLUDED IN THE
MOD004C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 278 *****

REPORTED BY : C. R. LEHMANN PP&L DATE: 03/18/85
REPORTED TO : EPSC DATE: 03/25/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/18/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : BWR HOT BUNDLE MODEL USING UPPER AND LOWER PLENUMS
INPUT AS TIME DEPENDENT VOLUMES FROM PREVIOUS SYSTEM
TRANSIENT.

DESCRIPTION OF PROBLEM:

A RETRAN HOT BUNDLE MODEL WAS USED. THE MODEL IS "DRIVEN" BY UPPER AND LOWER PLENUM TIME DEPENDENT VOLUMES (TDV). THE TDV CONDITIONS WERE TAKEN FROM A PREVIOUSLY RUN SYSTEM MODEL COMPUTATION. THE ARRANGEMENT SPECIFIED ON THE 05XXX1 CARDS IS SHOWN BELOW.

	VOLUME NUMBER (SYSTEM MODEL)	VOLUME NUMBER (HOT BUNDLE MODEL)
UPPER PLENUM TDV	80	700
LOWER PLENUM TDV	160	500

THIS ARRANGEMENT WAS INCORRECTLY INTERPRETED BY RETRAN. THE CONDITIONS FOR VOLUME 80 (SYSTEM MODEL) WERE USED FOR VOLUME 500 (HOT BUNDLE MODEL). SIMILARLY, CONDITIONS FOR VOLUME 160 WERE USED FOR VOLUME 700. APPARENTLY, IT USED THE VOLUMES IN NUMERICAL ORDER, REGARDLESS OF WHAT WAS SPECIFIED ON THE 05XXX1 CARDS. WHEN VOLUME 700 WAS RENUMBERED AS VOLUME 499, THE CORRECT CONDITIONS WERE USED FOR RETRAN FOR THE TDVS (HOT BUNDLE MODEL).

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND CORRECTED. THE PROBLEM IS ASSOCIATED WITH THE VOLUME NUMBER SEQUENCE BEING REVERSED IN THE HOT BUNDLE MODEL WHEN COMPARED TO THE NUMBER SEQUENCE FOR THE SYSTEM MODEL VOLUMES. THIS CORRECTION (MODIFICATION NO. 286) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

USE THE SAME VOLUME NUMBER SEQUENCE FOR TDV DATA AS IS USED IN THE INITIAL PROBLEM.

***** PROBLEM REPORT NUMBER 279 *****

REPORTED BY : T. SUGIYAMA NEI DATE: 04/02/85
REPORTED TO : EPSC DATE: 04/09/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/2/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM (HITAC-8690 SAME AS IBM)

LISTING SUPPLIED : COPY OF ABORTED OUTPUT LIST

DECK SUPPLIED : NO

DECK DESCRIPTION : TTWOB (1-D KINETICS) SAMPLE PROBLEM IN RETRAN02/MOD3
 INSTALLATION TAPE. (CHANGED ONLY ITEM KUDYS FROM 2
 TO 1 ON CARD NO. 300001).

DESCRIPTION OF PROBLEM:

OVERFLOW ERROR OCCURS IN SUBROUTINE STEPIT AFTER 1ST (AT 0 SEC)
MAJOR EDIT, WHEN WE TRIED TO EXECUTE 1-D KINETICS SAMPLE PROBLEM
USING SHAPE FUNCTION TIME DERIVATIVE OPTION KUDYS=1 ON CARD
300001. WE CHANGED ONLY KUDYS FROM 2 TO 1. NO PROBLEM OCCURRED
IN CASE OF KUDYS=1.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND CORRECTED. THE ERROR RESULTS
FROM NOT RESTORING A TEMPORARY STORAGE AREA WHEN THE KUDYS = 1 OPTION IS
USED. THIS CORRECTION (MODIFICATION NO. 293) IS INCLUDED IN THE MOD004B
UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 280 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 04/15/85
REPORTED TO : EPSC DATE: 04/18/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/15/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE PRESSURIZER MODEL USING HEAT CONDUCTORS AND
THE LOCAL CONDITIONS OPTION.

DESCRIPTION OF PROBLEM:

NO MASS TRANSFER ACCOMPANIES CONDENSATION ON THE HEAT CONDUCTORS.
THIS IS INDICATED BY CONSTANT VAPOR REGION MASS.

DISPOSITION:

THE TROUBLE REPORT HAS BEEN INVESTIGATED AND THERE IS A CODE ERROR.
A MASS TRANSFER TERM WAS ADDED FOR VAPOR CONDENSED ON THE WALL
OF A NONEQUILIBRIUM PRESSURIZER VOLUME ABOVE THE MIXTURE LEVEL.
THE MASS TRANSFER IS COMPUTED ONLY FOR MODE 15 HEAT TRANSFER
(CONDENSATION).

A DESCRIPTION OF THE MASS TRANSFER TERM MUST BE ADDED TO THE
THEORY MANUAL.

WHILE CORRECTING THE ABOVE ERROR, IT WAS DISCOVERED THAT AN
INCONSISTENCY EXISTED BETWEEN THE DOCUMENTED INTERREGION HEAT
TRANSFER MODEL AND THE CODED MODEL. THE CODED MODEL WAS CHANGED
TO BE CONSISTENT WITH THE DOCUMENTED MODEL.

THIS CORRECTION (MODIFICATION NO. 307) IS INCLUDED IN THE
MOD004C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 281 *****

REPORTED BY : GREGG SWINDLEHURST DUKE DATE: 04/15/85
REPORTED TO : EPSC DATE: 04/18/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/15/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A SIMPLE PRESSURIZER MODEL USING HEAT CONDUCTORS AND
THE LOCAL CONDITIONS OPTION.

DESCRIPTION OF PROBLEM:

THE HEAT TRANSFER RATE DUE TO CONDENSATION OF STEAM ON A HEAT
CONDUCTOR APPEARS TO BE COMPUTED INCORRECTLY. A HAND CALCULATION
BASED ON EDIT DATA GIVES A SIGNIFICANTLY DIFFERENT RESULT.

DISPOSITION:

THE REPORTED ERROR IS NOT A CODE ERROR. THE HAND CALCULATION NOTED
ABOVE AND IN THE INPUT DECK, USED THE DIFFERENCE BETWEEN THE WALL
TEMPERATURE AND THE VAPOR REGION BULK TEMPERATURE TO COMPUTE THE
HEAT FLUX. THE CORRECT DELTA-T FOR CONDENSATION IS THE DIFFERENCE
BETWEEN THE WALL TEMPERATURE AND THE SATURATION TEMPERATURE, WHICH
PRODUCES A HEAT TRANSFER RATE EQUAL TO THE EDITTED VALUE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 282 *****

REPORTED BY : SAM WOOD UNC DATE: 04/17/85
REPORTED TO : EPSC DATE: 04/29/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/17/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CDC 7600

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : CARD IMAGE FILE ON INEL CDC 7600.

DESCRIPTION OF PROBLEM:

CODE OBTAINING INCORRECT STATE PROPERTIES FROM BOUNDARY VALUE
TAPE.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. THE ERROR RESULTS
FROM AN INCONSISTENT SET OF INPUT INFORMATION FOR TIME DEPENDENT
VOLUME DATA FROM TAPE FOR THE SINGLE PHASE VAPOR SITUATION IN
A VOLUME WITH A BUBBLE RISE MODEL. THE VOLUME DESIGNATED AS A
TIME DEPENDENT VOLUME IN THE HOT CHANNEL CASE WAS A BUBBLE RISE
VOLUME IN THE INITIAL RUN. THE CODE LOGIC FOR DETERMINING
STATE CONDITIONS IN A TIME DEPENDENT VOLUME USES THE VOLUME
MIXTURE LEVEL. IN THE INITIAL RUN, THE BUBBLE RISE VOLUME BECAME
SINGLE PHASE WITH THE MIXTURE LEVEL SET TO ZERO. THIS INFORMATION
WAS WRITTEN TO THE RESTART TAPE AND SUBSEQUENTLY USED IN THE HOT
CHANNEL RUN.

THIS CORRECTION (MODIFICATION NO. 292) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 283 *****

REPORTED BY : T. ROSCIOLI PP&L DATE: 05/07/85
REPORTED TO : EPSC DATE: 05/17/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/7/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BWR/4 INPUT DECK, SEE ATTACHED NODING DIAGRAM.

DESCRIPTION OF PROBLEM:

WITH ZERO FLOW IN NONEQUILIBRIUM VOLUME 130, THE PROBLEM INITIALIZES IN 47 ITERATIONS, BUT THE PRESSURE IN VOLUME 130 INCREASES 40 PSI IN ONE TIME STEP (0.001 SECOND) WHILE TRYING TO RUN A NULL TRANSIENT. WITH THE NONEQUILIBRIUM VOLUME OPTION OFF, THE PROBLEM IS ELIMINATED. NOTE THAT VOLUME 130 INITIALIZES WITH 1.92 LBM OF BUBBLES IN THE LIQUID REGION EVEN IF THE QUALITY INPUT ON THE 051301 CARD IS INPUT AT 0.0 OR -1.0. TVA SAID THAT RETRAN02 MOD002 INITIALIZES WITH NO BUBBLE MASS IN THE LIQUID REGION AND, HENCE, DOES NOT CAUSE A PRESSURE TRANSIENT. IT APPEARS THAT IN ONE TIME STEP THIS BUBBLE MASS IS TRANSFERRED TO THE STEAM REGION WHICH SUPERHEATS THE STEAM REGION AND PRESSURIZES THE VOLUME.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND CORRECTED. THE PROBLEM IS ASSOCIATED WITH THE LARGE VALUE OF VBUB (1X10(6)) AND THE TRANSPORT OF KINETIC ENERGY BETWEEN THE LIQUID AND VAPOR REGIONS. THE MOD003 CODE INCLUDES THIS TERM IN THE TOTAL REGION ENERGY CALCULATIONS WHICH IS INAPPROPRIATE FOR THIS TYPE OF APPLICATION OF THE BUBBLE RISE MODEL.

THIS CORRECTION (MODIFICATION NO. 289) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

USE A SMALL BUBBLE VELOCITY.

***** PROBLEM REPORT NUMBER 284 *****

REPORTED BY : JIM MCFADDEN EI DATE: 05/22/85
REPORTED TO : EI/EPSC DATE: 05/24/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/22/85

CODE VERSION : RETRAN-02 MOD004A

COMPUTER/OPERATING SYSTEM : IBM 370

LISTING SUPPLIED : YES (PARTIAL)

DECK SUPPLIED : NO

DECK DESCRIPTION : DOES NOT APPLY (ERROR DETECTED BY SYSTEM AND IDENTIFIED
FROM FORTRAN LISTING OF EDATA3).

DESCRIPTION OF PROBLEM:

WHILE MAKING THE MOD004A UPDATE, AN OC6 ERROR WAS ENCOUNTERED
ON IBM. THE CAUSE OF THE ERROR WAS A DIMENSION STATEMENT OF THE
WRONG LENGTH.

DISPOSITION:

THE ERROR HAS BEEN CORRECTED. THIS SAME CORRECTION WAS TEMPORARILY ADDED
TO THE MOD004A IBM VERSION SO THAT CHECKOUT OF THE MOD004A UPDATE COULD
BE COMPLETED.

THIS CORRECTION (MODIFICATION NO. 288) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 285 *****

REPORTED BY : P. J. JENSEN EI DATE: 06/03/85
REPORTED TO : EI/EPSC DATE: 06/03/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/3/85

CODE VERSION : RETRAN-02 MOD004A

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : FOUR VOLUME PROBLEM WITH FLOW FROM EACH OF 3 VOLUMES
DIRECTLY TO THE FOURTH VOLUME FOR SV FLOW VERIFICATION.

DESCRIPTION OF PROBLEM:

PROBLEM STOPS IMMEDIATELY FOLLOWING INITIALIZATION WITH NO ERROR
MESSAGE GIVEN AND FOR NO OBVIOUS REASON.

DISPOSITION:

THE REPORTED ERROR IS CAUSED BY AN INCORRECT LOOP INDEX IN SUBROUTINE
EXPINT. THE ERROR OCCURS WHEN NO SEPARATED VOLUMES ARE SUPPLIED IN
THE INPUT MODEL AND IS ASSOCIATED WITH MODIFICATION 262 WHICH WAS ADDED
TO RETRAN-02 MOD004A.

THIS CORRECTION (MODIFICATION NO. 290) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

USE AT LEAST ONE SEPARATED VOLUME.

***** PROBLEM REPORT NUMBER 286 *****

REPORTED BY : P. J. JENSEN EI DATE: 06/05/85
REPORTED TO : EI/EPSC DATE: 06/05/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/5/85

CODE VERSION : RETRAN-02 MOD004A

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : TWO VOLUME PROBLEM WITH TWO VALVES CONNECTING THE
 VOLUMES. THE VALVES ARE CLOSED INITIALLY, THEN OPEN
 FOR BLOWDOWN.

DESCRIPTION OF PROBLEM:

 THE CODE BELIEVES A LOSS COEFFICIENT FOR ONE OF THE CLOSED VALVES
 HAS BEEN LEFT UNSPECIFIED ALTHOUGH NONE HAS BEEN LEFT UNSPECIFIED.

DISPOSITION:

 THE REPORTED ERROR RESULTS FROM SETTING INAPPROPRIATE FORM LOSS
 FLAGS (USED FOR STEADY STATE INITIALIZATION) IN SUBROUTINE INITLZ.

 THIS CORRECTION (MODIFICATION NO. 291) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

 AVOID CONTROL SYSTEM OPERATED LOSS COEFFICIENTS AS WELL AS LOSS
 COEFFICIENTS EQUAL TO 0.0 ON JUNCTIONS CONNECTING VOLUMES WHERE
 THE PRESSURE IS SPECIFIED.

***** PROBLEM REPORT NUMBER 287 *****

REPORTED BY : A. OLSON PECO DATE: 05/31/85
REPORTED TO : EPSC DATE: 06/05/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/31/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PEACH BOTTOM RELOAD CONDITIONS DECK WITH 1-D KINETICS.

DESCRIPTION OF PROBLEM:

STEADY-STATE POWER DISTRIBUTION SHIFTS STRONGLY WHEN VERY SMALL
(1.E-4) TIME STEPS ARE USED DURING A NULL TRANSIENT.

DISPOSITION:

THE SOURCE OF THE REPORTED ERROR HAS BEEN IDENTIFIED. SINCE THE ERROR
REQUIRES A 1-D CROSS-SECTION FILE, EI USED A SMALLER DECK AND CROSS-
SECTION FILE (THE TTXQ1 SAMPLE PROBLEM) TO REPRODUCE THE ERROR.

A NULL TRANSIENT WAS EXECUTED (ITERATIVE NUMERICS) WITH THIS DECK USING
TIME STEP SIZES RANGING FROM 10 MSECS TO .1 MSECS. AS THE TIME STEP
SIZE WAS DECREASED, THE AMPLITUDE FUNCTION EXHIBITED A SMALL OSCILLATION,
STARTING AT 1.0000 AND DECREASING TO 0.998 BEFORE RETURNING TO 1.0000
AFTER ABOUT 10 TIME STEPS. A CORRESPONDING REDISTRIBUTION OF THE VALUES
OF QFRAC WAS OBSERVED DURING THIS OSCILLATION.

THE PROBLEM IS CAUSED BY THE FORM OF THE TIME-DEPENDENT SHAPE FUNCTION
EQUATION. THE RIGHT HAND SIDE CONTAINS A $1/V*DT$ TERM WHICH CAN BE
DOMINANT FOR THE THERMAL GROUP AND SMALL-TIME STEPS WHEN A NULL TRANSIENT
(ZERO PRODUCTION AND REMOVAL) IS EXECUTED. THE NUMERICAL SOLUTION METHOD
CONVERGES VERY SLOWLY FOR THIS SITUATION AND MAY NOT CONVERGE WITHIN THE
PERMITTED NUMBER OF ITERATIONS. THIS WAS VERIFIED BY EXECUTING TTQX1
WITH THIS TERM SET TO ZERO, WHICH IS A TRUE QUASISTATIC SOLUTION
(NO TIME DERIVATIVES). THIS RUN HELD A NULL TRANSIENT.

THE REPORTED ERROR IS CONSIDERED TO BE A MODEL LIMITATION. WHEN TRAN-
SIENTS ARE ANALYZED, THE PRODUCTION AND REMOVAL TERMS WILL BE LARGER
THAN FOR THE NULL TRANSIENT SITUATION, AND THE SOLUTION METHOD SHOULD
NOT LIMIT THE CONVERGENCE OR PRODUCE AN INACCURATE RESULT.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 288 *****

REPORTED BY : M. D. WALZ TVA DATE: 06/06/85
REPORTED TO : EPSC DATE: 06/20/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/6/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : BROWNS FERRY NUCLEAR PLANT SYSTEM MODEL.

DESCRIPTION OF PROBLEM:

THE DECK INITIALIZES WITH THE INITIALIZATION OPTION BUT THE CARRY-UNDER IS INCORRECT (0.0027 VS. 0.0019) FOR THE SEPARATOR. WHEN A NULL TRANSIENT IS EXECUTED THE STATE BECOMES PERTURBED AND APPEARS TO BE APPROACHING A NEW (BUT DIFFERENT) STEADY-STATE. APPARENTLY THE PROBLEM IS DUE TO USING SLIP AT THE SEPARATOR OUTLET JUNCTION. WHEN SLIP IS NEGLECTED, THE NULL TRANSIENT HOLDS A STEADY-STATE.

DISPOSITION:

THE THEORY MANUAL STATES THAT THE PHASE VELOCITIES AT SEPARATOR EXIT JUNCTIONS ARE ASSUMED EQUAL. THIS MEANS THAT SLIP IS NEGLECTED AT THESE JUNCTIONS AND SHOULD NOT BE INCLUDED IN THE CALCULATION. SUBROUTINE INSEP WAS MODIFIED TO CHECK ON THE SLIP FLAG FOR EXIT JUNCTIONS. IF SLIP IS TURNED ON FOR THESE JUNCTIONS, A WARNING MESSAGE IS WRITTEN AND SLIP IS TURNED OFF.

THIS CHANGE IS IN MODIFICATION NUMBER 308 AND HAS BEEN INCLUDED IN THE MOD004C UPDATE.

MODELING ALTERNATIVES:

IFRJ, WORD-17 ON THE JUNCTION CARDS, SHOULD BE SET TO -99 IF SLIP IS SPECIFIED ON THE PROBLEM DIMENSIONS CARD.

***** PROBLEM REPORT NUMBER 289 *****

REPORTED BY : M. D. WALZ TVA DATE: 06/06/85
REPORTED TO : EPSC DATE: 06/20/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/6/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : BROWNS FERRY NUCLEAR PLANT SYSTEM AND HOT CHANNEL
 MODELS.

DESCRIPTION OF PROBLEM:

RETRAN IS UNABLE TO USE A RESTART TAPE FOR BOUNDARY CONDITION INPUT TO A NEW RETRAN RUN. THIS WAS A PROBLEM WITH MOD002 ALSO. (ADDED INFORMATION FROM TELEPHONE CONVERSATION; JUNE 21: THE PROBLEM OCCURS ONLY WHEN A DATA TAPE FROM A RESTART RUN IS USED FOR THE TDV INPUT. IF THE DATA TAPE IS FROM AN INITIAL RETRAN RUN, THE PROBLEM DOES NOT RESULT.)

DISPOSITION:

THE REPORTED ERROR HAS NOT BEEN RESOLVED, BUT IS THOUGHT TO BE THE SAME ONE AS WAS REPORTED IN TROUBLE REPORT 258. THE UKAEA USED MODIFICATION 15 FOR THE IBM ENVIRONMENTAL LIBRARY AND THIS CORRECTED THE SAME PROBLEM THEY WERE ENCOUNTERING. THIS MODIFICATION (NO. 15 - IBM ENVIRONMENTAL LIBRARY) WAS SENT TO TVA FOR CHECKOUT AND HAS BEEN VERIFIED (TVA LETTER DATED MARCH 25, 1986) TO CORRECT THE REPORTED PROBLEM. SEE DISCUSSION FOR TROUBLE REPORT 258 ALSO.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 290 *****

REPORTED BY : WALDMAN/ROBINSON PENNST DATE: 05/15/85
REPORTED TO : EPSC DATE: 08/12/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/15/85

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SUSQUEHANNA NSSS MODEL (SSES).

DESCRIPTION OF PROBLEM:

THE STEAM SEPARATOR VOLUME FILLS (ALSO MAY EMPTY) WITH LIQUID UNDER TRANSIENT CONDITIONS WHEN THE STEAM SEPARATOR MODEL IS USED. THIS GIVES ANOMALOUS RESULTS AND CAUSES THE PROGRAM TO CRASH ONCE THE VOLUME FILLS. THE MODEL WILL MAINTAIN A NULL TRANSIENT.

DISPOSITION:

THE REPORTED ERROR WAS CORRECTED IN THE MOD003 UPDATE. THIS WAS VERIFIED BY EXECUTING THE INPUT DECK FOR THIS TROUBLE REPORT WITH THE MOD003 VERSION OF THE CODE. THE SPECIFIC MODIFICATION WHICH CORRECTED THE REPORTED ERROR WAS NOT IDENTIFIED.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 291 *****

REPORTED BY : J. WALDMAN PENN.STATE DATE: 05/15/85
REPORTED TO : EPSC DATE: 08/12/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/15/85

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SUSQUEHANNA NSSS MODEL (SSES).

DESCRIPTION OF PROBLEM:

THE PROGRAM PRINTS WARNING MESSAGES OF CARRYUNDER AND CARRYOVER
DATA EXTRAPOLATION EVEN WHEN THE PARAMETERS ARE WITHIN THE RANGE
OF THE DEFAULT DATA.

DISPOSITION:

THE REPORTED ERROR IS A MOD002 ERROR AND DOES NOT APPEAR WHEN
THE DECK IS EXECUTED WITH MOD003. THE SPECIFIC MODIFICATION
FOR MOD003 WHICH CORRECTED THIS ERROR HAS NOT BEEN IDENTIFIED.

MODELING ALTERNATIVES:

IGNORE THE WARNING MESSAGE IF USING THE MOD002 VERSION.

***** PROBLEM REPORT NUMBER 292 *****

REPORTED BY : J. WALDMAN PENN.STATE DATE: 05/15/85
REPORTED TO : EPSC DATE: 08/12/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/15/85

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SUSQUEHANNA NSSS MODEL (SSES).

DESCRIPTION OF PROBLEM:

THE PROGRAM CRASHES WHEN THE CONTROL BLOCK OPTION OF THE STEAM SEPARATOR MODEL IS INVOLVED. THE CONTROL BLOCK OPTION IS SUPPOSED TO ALLOW THE USER TO CALCULATE NORMALIZATION FACTORS WITH CONTROL BLOCKS.

DISPOSITION:

THE ERROR WAS DUE TO AN INCORRECT INDEX FOR THE CONTROL BLOCK ID. IN SUBROUTINE INSEP THE CHECK ON THE BLOCK ID WAS INCREMENTED BY FILSIZ(53), BUT SHOULD HAVE BEEN INCREMENTED BY SETSIZ(53).

THIS CORRECTION (MODIFICATION NO. 294) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

THE ONLY WAY TO MODEL AROUND THE ERROR IS TO NOT USE THE CONTROL BLOCK OPTION.

***** PROBLEM REPORT NUMBER 293 *****

REPORTED BY : J. WALDMAN PENN.STATE DATE: 05/15/85
REPORTED TO : EPSC DATE: 08/12/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/15/85

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SUSQUEHANNA NSSS MODEL (SSES)

DESCRIPTION OF PROBLEM:

THE STEAM SEPARATOR MODEL'S INITIAL CARRYUNDER AND DESIGN CARRYUNDER ARE UNEQUAL AT INITIALIZATION WHEN THE NORMALIZATION FACTORS ARE EQUAL TO ONE. THIS OCCURS BOTH AT RATED CONDITIONS AND WHEN INPUTTING A VALUE OF ONE FOR THE NORMALIZATION TABLES.

DISPOSITION:

THE SEPARATOR EDIT FOR CARRYUNDER DID NOT PRINT OUT THE CORRECT PARAMETER FOR DESIGN CARRYUNDER. THE RECIRCULATION JUNCTION QUALITY WAS PRINTED RATHER THAN THE SEPARATOR LIQUID REGION QUALITY.

THIS CORRECTION (MODIFICATION NO. 295) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

NONE NEEDED SINCE IT IS AN EDIT ERROR.

***** PROBLEM REPORT NUMBER 294 *****

REPORTED BY : J. WALDMAN PENN.STATE DATE: 05/15/85
REPORTED TO : EPSC DATE: 08/12/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/15/85

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : SUSQUEHANNA NSSS MODEL (SSES).

DESCRIPTION OF PROBLEM:

THE VARIABLE ZL SHOULD REPLACE THE VARIABLE ZM IN CALCULATING
THE LIQUID LEVEL NORMALIZATION VALUE FOR THE STEAM SEPARATOR MODEL.
THE LEVEL REFERENCED BY GE IN EXPERIMENTS ON STEAM SEPARATOR CARRY-
UNDER AND CARRYOVER WAS A COLLAPSED LIQUID LEVEL AND NOT A MIXTURE
LEVEL.

DISPOSITION:

THE REPORTED ERROR IS NOT A CODE ERROR BUT RATHER IS A LIMITATION
OF THE SEPARATOR MODEL.

MODELING ALTERNATIVES:

NONE REQUIRED.

***** PROBLEM REPORT NUMBER 295 *****

REPORTED BY : S. R. KINNERSLY UKAEA DATE: 09/03/85
REPORTED TO : J. H. MCFADDEN EI DATE: 09/10/85

METHOD OF REPORT : LETTER/EPSC TROUBLE REPORT DATED 9/3/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES (REC'D FROM JHM)

DECK SUPPLIED : NO

DECK DESCRIPTION : NOT APPLICABLE; A FORTRAN ERROR WAS IDENTIFIED
IN THE SOURCE CODING.

DESCRIPTION OF PROBLEM:

SYMPTOMS ARE THE OCCASIONAL INCORRECT CALCULATION OF VAPOR IN THE LIQUID REGION OF A PRESSURIZER VOLUME AT STEADY-STATE. THE CAUSE IS THE USE OF VARIABLES LIQMAS AND LIQVOL IN SUBROUTINE HAVG. THESE ARE INTEGERS WHEREAS THEY SHOULD BE REALS. DECLARING THEM AS REAL VARIABLES CORRECTS THE ERROR.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED BY THE UKAEA AND THE CORRECTION HAS BEEN VERIFIED AND ASSIGNED MODIFICATION NUMBER 296.

THIS CORRECTION (MODIFICATION NO. 296) IS INCLUDED IN THE MOD004B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 296 *****

REPORTED BY : J. A. MCCLURE EI DATE: 09/13/85
REPORTED TO : EI DATE: 09/16/85

METHOD OF REPORT : EPSC TROUBLE REPORT 9/13/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : NOS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : N-REACTOR MODEL FROM UNC RICHLAND, WASH.

DESCRIPTION OF PROBLEM:

LAST TAPE DEFINED FOR NEW RESTART DATA SET IS USED AGAIN REPEATEDLY
IF MORE REELS ARE NEEDED THAN DEFINED. SCRATCH TAPE SHOULD HAVE
BEEN REQUESTED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. THE PROGRAM REQUESTS
SCRATCH TAPES WHENEVER THE NUMBER OF PLOT TAPE RECORDS EXCEED
THE CAPACITY OF TAPE VOLUMES DESCRIBED FOR THE DATASET.
SCRATCH TAPE REQUESTS ARE IDENTIFIED BY SETTING THE TAPE VSN
TO ZERO OR BLANKS. THE ERROR OCCURRED BECAUSE THE VSN WAS NOT
RESET AFTER ALL SPECIFIED VOLUMES WERE USED. THIS CAUSED THE
LAST VOLUME TO BE REMOUNTED AND OVERWRITTEN.

THIS CORRECTION (MODIFICATION NO. 297) IS INCLUDED IN THE MOD004B
UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 297 *****

REPORTED BY : A. W. LAM COM.ED DATE: 08/20/85
REPORTED TO : EPSC DATE: 09/19/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/20/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM 3081/XA

LISTING SUPPLIED : YES

DECK SUPPLIED : YES (MICROFICHE)

DECK DESCRIPTION : USE A TAPE GENERATED BY EXECUTING SAMPLE PROBLEM 6
(TURBINE TRIP WITHOUT BYPASS WITH POINT KINETICS) TO
PRODUCE PLOTS.

DESCRIPTION OF PROBLEM:

THE PLOTTER OPTION CANNOT PRODUCE THE FOLLOWING GRAPHS CORRECTLY:

1. ONE OR MORE Y AXIS ON THE RIGHT SIDE OF THE GRAPH AND,
2. THE FIRST Y AXIS ON THE RIGHT SIDE OF THE GRAPH WHEN THERE ARE MORE THAN 1 Y AXIS ON THE SAME GRAPH. ALSO, IF THE DIVISION OF THE AXIS (X OR Y) IS 0.8 (OR TO A SMALLER POWER), IT IS ROUNDED TO ONE LESS DIGIT.

DISPOSITION:

THE INFORMATION SUBMITTED WITH THE TROUBLE REPORT INCLUDED CODE MODIFICATIONS WHICH HAVE BEEN IMPLEMENTED BY COMMONWEALTH EDISON TO CORRECT THE REPORTED ERROR. THESE MODIFICATIONS HAVE BEEN REVIEWED BY EI AND ARE BEING INCORPORATED IN RETRAN.

THE MODIFICATIONS ARE FOR SUBROUTINES XPLOTA AND PLOTMC IN THE ENVIRONMENTAL LIBRARIES. THE CDC CHANGE (MODIFICATION NO. 12) IS INCLUDED IN THE MOD27 LIBRARY UPDATE. THE IBM CHANGE (MODIFICATION NO. 16) IS INCLUDED IN THE MOD31 IBM LIBRARY UPDATE.

MODELING ALTERNATIVES:

THE AXIS LOCATION ERRORS CAN BE OVERCOME BY PLACING ALL Y-AXES ON THE LEFT SIDE OF THE PLOT. THESE ERRORS DO NOT ALWAYS OCCUR. THE SCALING ERROR CAN BE OVERCOME BY USING A LARGER INCREMENT.

***** PROBLEM REPORT NUMBER 298 *****

REPORTED BY : PROF. CORRADINI U. WIS. DATE: NOT DATED
REPORTED TO : EPSC DATE: 09/24/85

METHOD OF REPORT : EPSC TROUBLE REPORT RECEIVED 9/24/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : KEWAUNEE SYSTEM MODEL FOR STEAM GENERATOR TUBE RUPTURE

DESCRIPTION OF PROBLEM:

THERE SEEMS TO BE A PROBLEM WITH THE BUBBLE RISE MODEL, IT
APPROACHES LARGE VALUE (1.E+7 F/SEC) IN SMALL TIME STEP CAUSING
CALCULATION FAILURE.

DISPOSITION:

THE CAUSE OF THE REPORTED ERROR HAS BEEN IDENTIFIED. THE ERROR IS
ASSOCIATED WITH THE BUBBLE VELOCITY IN A NONEQUILIBRIUM VOLUME.
THIS ERROR DOES NOT EXIST IN THE MOD004C VERSION OF THE CODE. THE
SPECIFIC CODE MODIFICATIONS WHICH CORRECTED THE ERROR HAVE BEEN
IDENTIFIED AS NO. 264 (MOD004A) AND NO. 289 (MOD004B).

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 299 *****

REPORTED BY : BRUCE CHING CE DATE: 09/24/85
REPORTED TO : EPSC DATE: 10/11/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/24/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : UCCEL

LISTING SUPPLIED : YES (CEP)

DECK SUPPLIED : YES

DECK DESCRIPTION : SAN ONOFRE STEAM LINE BREAK FROM 100% POWER (INSIDE
 CONTAINMENT).

DESCRIPTION OF PROBLEM:

FAILURE TO INITIALIZE WHEN THE CONDENSING HEAT TRANSFER CORRELATION
(UCHIDA-TAGAMI) ON CARDS 15000X (MODE = 1) IS ACTIVATED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS ASSOCIATED WITH THE CODING
FOR THE UCHIDA CORRELATION. THE CODE LOGIC IS WRONG FOR CASES WHERE
THE GAS MASS IS NOT GREATER THAN THE BUBBLE MASS.

WHILE INVESTIGATING THIS ERROR, IT WAS NOTED THAT THE CONDUCTOR EDIT
WAS NOT CORRECT. THE INPUT FOR THE PROBLEM HAD TWO SPECIFIED HEAT
TRANSFER CORRELATIONS, BUT ONLY ONE FLAG (THE CONDENSING HEAT TRANSFER)
WAS USED IN THE EDIT. THE CODE WAS CHECKED TO VERIFY THAT THE CALCU-
LATIONS WERE BEING PERFORMED PROPERLY. THE ERROR WAS ASSOCIATED WITH
THE EDIT.

THE CORRECTIONS FOR BOTH THE REPORTED ERROR AND THE EDITING ERROR ARE
COMBINED IN ONE MODIFICATION (MODIFICATION NO. 301) WHICH IS INCLUDED
IN THE MOD004C UPDATE.

ONE ADDITIONAL ITEM WAS NOTED WHILE INVESTIGATING THIS ERROR. THE
VOLUME USING THE UCHIDA CORRELATION WAS A HOMOGENEOUS WATER-AIR VOLUME
(ZM = 0.0 INPUT) AND WAS NOT A SEPARATED VOLUME. THIS IS AN ALLOWABLE
INPUT FROM A CODE VIEWPOINT, BUT MAY NOT BE BEST FROM MODELING
CONSIDERATIONS. THE UCHIDA CORRELATION WAS DEVELOPED FOR CONDENSING
IN A LARGE VOLUME (SUCH AS A CONTAINMENT). FOR THIS SITUATION, IT
IS BETTER TO USE A SEPARATED VOLUME, WITH THE REGION ABOVE THE LEVEL
COMPOSED OF A STEAM-AIR MIXTURE. A NOTE WILL BE ADDED TO THE INPUT
DISCUSSION FOR THE SPECIFIED HEAT TRANSFER COEFFICIENT (15000X) CARDS
SUGGESTING THIS INPUT COMBINATION.

MODELING ALTERNATIVES:

USE A BUBBLE RISE MODEL FOR ANY VOLUME CONTAINING AIR.

***** PROBLEM REPORT NUMBER 300 *****

REPORTED BY : F. WENGER CP&L DATE: 11/00/85
REPORTED TO : EPSC DATE: 11/06/85

METHOD OF REPORT : EPSC TROUBLE REPORT RECEIVED 11/06/85

CODE VERSION : RETRAN-02 MOD002

COMPUTER/OPERATING SYSTEM : NOS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BRUNSWICK DECK

DESCRIPTION OF PROBLEM:

MODE ERROR ON FIRST TIME STEP.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS THE RESULT OF AN INPUT ERROR THAT IS NOT DETECTED. A POSITIVE PUMP SPEED WAS INPUT WITH A PUMP TORQUE OF ZERO. AN ERROR CHECK AND MESSAGE WERE ADDED TO PRINT THE ERROR AND TO ABORT THE JOB IS THIS OCCURS.

THIS CODING (MODIFICATION NO. 302) IS INCLUDED IN THE MOD004C UPDATE.

MODELING ALTERNATIVES:

DO NOT INPUT A PUMP TORQUE OF ZERO IF THE PUMP SPEED IS NOT ZERO.

***** PROBLEM REPORT NUMBER 301 *****

REPORTED BY : S. NESBIT DUKE DATE: 11/18/85
REPORTED TO : EPSC DATE: 11/22/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/18/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : B&W PLANT MODEL.

DESCRIPTION OF PROBLEM:

AN INITIALIZATION WITH ONE OF FOUR REACTOR COOLANT PUMPS IDLE
AND WITH REVERSE FLOW THROUGH THE IDLE PUMP RESULTS IN POSITIVE
PUMP DELTA P AND PUMP TORQUE.

DISPOSITION:

NOT A CODE ERROR. REVERSE FLOW THROUGH A STOPPED PUMP SHOULD
RESULT IN POSITIVE PUMP HEAD AND PUMP TORQUE. THESE RESULTS
ARE CONSISTENT WITH THE PUMP CHARACTERISTIC CURVES.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

REPORTED BY : S. NESBIT DATE: 11/18/85
REPORTED TO : EPSC DATE: 11/22/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/18/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : A B&W PLANT MODEL.

DESCRIPTION OF PROBLEM:

RETRAN SELECTS AN INCORRECT CONTROL BLOCK ID TO DETERMINE THE REVERSE LOSS COEFFICIENT OF A JUNCTION FOR WHICH A CONTROL SYSTEM SPECIFIES THE LOSS COEFFICIENTS. CONTROL BLOCK 30 IS SPECIFIED BUT BLOCK 29 IS USED.

DISPOSITION:

THE REPORTED PROBLEM IS AN INPUT ERROR. ACCORDING TO THE USER'S MANUAL, JUNCTION LOSS COEFFICIENTS CAN BE DEFINED BY CONTROL BLOCKS, BUT IN THIS PROBLEM A CONTROL INPUT WAS USED. THE CODE COULD HAVE BEEN MODIFIED TO WRITE AN ERROR MESSAGE OR TO ALLOW THE USE OF CONTROL INPUTS TO SPECIFY LOSS COEFFICIENTS. THE MODIFICATION CHOSEN WILL ALLOW THE USE OF CONTROL INPUTS FOR LOSS COEFFICIENT SPECIFICATION.

THE CODE CHANGE IS PROVIDED IN MODIFICATION NO. 299 AND HAS BEEN INCLUDED IN THE MOD004C UPDATE. THIS MODIFICATION WILL ALSO REQUIRE A CHANGE FOR THE USER MANUAL.

MODELING ALTERNATIVES:

DO NOT USE CONTROL INPUTS TO SPECIFY JUNCTION LOSS COEFFICIENTS.

***** PROBLEM REPORT NUMBER 303 *****

REPORTED BY : S. NESBIT DUKE DATE: 11/18/85
REPORTED TO : EPSC DATE: 11/22/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/18/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : B&W REACTOR VESSEL MODEL.

DESCRIPTION OF PROBLEM:

THE REACTOR VESSEL INTERNALS VENT VALVE IS MODELED AS A VALVE
JUNCTION CONTROLLED BY A CONTROL SYSTEM. THE JUNCTION ENTHALPY
USED BY RETRAN IS THE RECEIVER RATHER THAN THE DONOR VOLUME
ENTHALPY.

DISPOSITION:

THE PRESSURE DIFFERENCE BETWEEN 2 ADJACENT VOLUMES CONNECTED WITH A
CLOSED VALVE IS USED TO DETERMINE THE DONOR VOLUME FOR THE JUNCTION
ENTHALPY CALCULATION. THE PRESSURE DIFFERENCE NEGLECTS THE ELEVATION
EFFECTS, WHICH CAN CAUSE THE WRONG DONOR TO BE SELECTED. THE ERROR
HAS BEEN CORRECTED AND IS INCLUDED AS MODIFICATION NUMBER 298 IN
THE MOD004C UPDATE.

MODELING ALTERNATIVES:

ERROR OCCURS ONLY DURING THE FIRST TIME STEP AND THE CONSEQUENCES OF
USING THE WRONG ENTHALPY CAN BE MINIMIZED BY FORCING A SMALL TIME-
STEP SIZE TO BE USED.

***** PROBLEM REPORT NUMBER 304 *****

REPORTED BY : D.E.TICKLE/H.FULCHER APS DATE: 10/31/85
REPORTED TO : EPSC DATE: 11/22/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/31/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : CONSERVATIVE ANALYSIS - MAIN STEAM LINE BREAK - 4 LOOP
MODEL WITH MAIN STEAM ISOLATION VALVE THAT FAILED IN
THE OPEN POSITION.

DESCRIPTION OF PROBLEM:

IN SUBROUTINE TEMP WHICH SOLVES THE ONE-DIMENSIONAL TRANSIENT HEAT CONDUCTION EQUATION THERE WAS A PROBLEM WITH THE CONVERGENCE OF THE HEAT FLUX SOLUTION. CDC HAS SUGGESTED THAT THE QUANTITIES COMPARED TO THE EPSILON FOR THE CONVERGENCE TEST SHOULD BE DIVIDED BY THE HEAT FLUX. THE SUGGESTED SOLUTION IS GIVEN ON FICHE "NON-CONVERGENCE PROBLEM" WHICH IS ATTACHED. IT IS REQUESTED THAT ENERGY INCORPORATED VERIFY THAT THE GIVEN CORRECTION IS VALID. THE CORRECTION INVOLVES ADDING THE FOLLOWING TWO STATEMENTS TO THE TEMP PROGRAM AFTER SEQUENCE NUMBER TEMP1175: $CVL = CVL/FLUXL$ $CVR = CVR/FLUXR$.

DISPOSITION:

WE HAVE REVIEWED THE PROPOSED CORRECTION SUBMITTED WITH THIS TROUBLE REPORT. THE SUGGESTED MODIFICATION BASICALLY USES A NORMALIZED VALUE OF FLUX FOR THE CONVERGENCE ALGORITHM AS OPPOSED TO A DIRECT (NOT NORMALIZED) VALUE CURRENTLY IN THE CODE. A CHANGE SUCH AS THIS ALSO REQUIRES A CORRESPONDING MODIFICATION OF THE CONVERGENCE CRITERIA. CHANGES SUCH AS THESE CAN NOT BE MADE WITHOUT SUFFICIENT EVALUATION TO DETERMINE THE APPROPRIATE VALUE OF THE CONVERGENCE CRITERIA AND THE EFFECT OF THE CHANGE FOR A VARIETY OF TRANSIENTS.

THE "... FAILED TO CONVERGE..." MESSAGE HAS BEEN EXTENDED TO PROVIDE ADDITIONAL INFORMATION. THIS INFORMATION WILL ALLOW USERS TO EVALUATE THEIR SPECIFIC SITUATION (E.G. HOW CLOSE THE SOLUTION IS TO CONVERGING). THESE CHANGES ARE MADE IN MODIFICATION NUMBER 311 AND HAS BEEN INCLUDED IN THE MOD004C UPDATE.

MODELING ALTERNATIVES:

REVIEW THE OUTPUT TO SEE IF THE RESULTS ARE WRONG. IF THIS APPEARS TO BE THE CASE, THE RUN CAN BE RESTARTED WITH EITHER A CHANGE IN THE TIME STEP CARDS OR BY USING A DIFFERENT HEAT TRANSFER MAP.

***** PROBLEM REPORT NUMBER 305 *****

REPORTED BY : GARRY GOSE EI DATE: 12/09/85
REPORTED TO : ENERGY INCORPORATED DATE: 12/09/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/9/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CDC/NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PB2ATWS 100% POWER

DESCRIPTION OF PROBLEM:

SUBROUTINE STEPIT. LINE 727 (CDC VERSION) VARIABLE "X1" IS USED BEFORE
DEFINED. A MODE 2 WILL OCCUR. SEEMS TO BE A FUNCTION OF TIME STEP SIZE.
LARGE RETRAN TIME STEPS WILL SHOW THE STRANGE BEHAVIOR.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED, AND RESULTS FROM THE USE OF "X1"
AS THE VARIABLE NAME INSTEAD OF "XI".

THE CORRECTION (MODIFICATION NO. 302) IS INCLUDED IN THE MOD004C
UPDATE.

MODELING ALTERNATIVES:

PROBLEM OCCURS IF LARGE TIME STEPS ARE USED. LIMITING THE TIME STEP TO
VALUES WHERE $LAMBDA(I) * \Delta T$ IS LESS THAN ONE WILL AVOID THE ERROR,
WHERE THE LAMBDA'S ARE THE DELAYED NEUTRON PRECURSOR DECAY CONSTANTS.

***** PROBLEM REPORT NUMBER 306 *****

REPORTED BY : GEORGE SAWTELLE EI DATE: 12/17/85
REPORTED TO : ENERGY INCORPORATED DATE: 12/17/85

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/17/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : UCCEL-CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : RIVER BEND - BWR - BASE DECK

DESCRIPTION OF PROBLEM:

WHEN ATTEMPTING TO INITIALIZE WITH "NO SLIP" (ISFLAG=0) AND A
REQUEST TO STEADY-STATE DEBUG OUTPUT (JSST=-45), A CODE ERROR WAS
ENCOUNTERED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS CORRECTED IN MODIFICATION
NO. 300 AND HAS BEEN ADDED TO THE MOD004C UPDATE. THE ERROR RESULTS
FROM ATTEMPTING TO OUTPUT A LOCAL VARIABLE BEFORE IT IS FIRST DEFINED.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 307 *****

REPORTED BY : J. BOATWRIGHT TUGCO DATE: 12/18/85
REPORTED TO : EPSC DATE: 01/06/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/18/85

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CYBER UCCEL-MEA

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : TWO-LOOP BEST-ESTIMATE MODEL OF WESTINGHOUSE FOUR-LOOP
COMANCHE PEAK 1 - LOSS OF FLOW - W/DETAILED S/G'S, &
DYNAMIC SLIP, ALTHOUGH BOTH HEM AND ALGEBRAIC SLIP
PRODUCED SIMILAR RESULTS.

DESCRIPTION OF PROBLEM:

DURING SIMULTANEOUS LOSS OF FLOW TRANSIENTS, PRIMARY FLOW COASTDOWN
IS ASYMMETRIC. ALL OBVIOUS SOURCES OF THE ASYMMETRY HAVE EITHER BEEN
DELETED OR SWITCHED TO THE OTHER LOOP.

DISPOSITION:

THE REPORTED ERROR HAS BEEN INVESTIGATED AND IS A LIMITATION OF THE
CODE. THE INPUT DECK IS A TWO-LOOP REPRESENTATION OF A FOUR-LOOP
PLANT, WITH ONE LOOP IN THE RETRAN MODEL REPRESENTING THREE OF THE
PLANT LOOPS. THE LOOP FLOW AND VOLUME FLOW AREA OF THIS LUMPED LOOP
IS THREE TIMES THAT OF THE SINGLE LOOP. BOTH LOOPS ARE CONNECTED
TO COMMON VOLUMES AT THE REACTOR VESSEL, AND THE ASYMMETRIC RESPONSE
IS PRIMARILY THE RESULT OF THE WAY RETRAN COMPUTES THE MOMENTUM FLUX
AND FRICTION TERMS FOR THIS SITUATION.

IN THIS REPORTED CASE, THE MOMENTUM FLUX TERM CONTRIBUTES MORE TO THE
ASYMMETRIC FLOWS THAN DOES THE FRICTION TERM. SYMMETRY IN THE
COMPUTED RESULTS COULD BE OBTAINED BY CHANGING THE FORM OF THESE
TERMS FOR THIS TRANSIENT, BUT THIS WILL ONLY RESULT IN LIMITATIONS
FOR OTHER CASES. THERE IS A WAY TO OBTAIN NEARLY SYMMETRIC FLOWS
THROUGH INPUT (SEE MODELING ALTERNATIVES), AND THUS THIS REPORTED
PROBLEM IS CONSIDERED TO BE A CODE LIMITATION RATHER THAN AN ERROR.

ADDITIONAL INFORMATION ON THIS ERROR REPORT CAN BE OBTAINED FROM
EPSC OR EI.

MODELING ALTERNATIVES:

FOR THE SITUATION WITH THIS INPUT DECK, THE LARGE VOLUME (UPPER
AND LOWER PLENA) FRICTION AND FLUX TERMS CAN BE EFFECTIVELY
ELIMINATED BY SETTING THE VOLUME FLOW AREAS TO A LARGE NUMBER
(E.G. 1.E+6). WITH THIS APPROACH, THE FRICTION AND FLUX TERMS
ARE MAINTAINED FOR THE PIPING.

***** PROBLEM REPORT NUMBER 308 *****

REPORTED BY : J. WESTACOTT EI DATE: 03/27/86
REPORTED TO : EI/EPSC REPORT DATE: 03/27/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/27/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : UCCEL/CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ORIGINAL PROBLEM OCCURRED WITH FARLEY MODEL MODELING
A FEEDWATER LINE BREAK. HOWEVER, THE DECK SUPPLIED
WITH THE TROUBLE REPORT IS A DRIVER FOR THE CHOKED FLOW
CORRELATION TO ILLUSTRATE THE PROBLEM.

DESCRIPTION OF PROBLEM:

THE CHOKED FLOW VALUE FOR THE ISOENTHALPIC INCREASES DISCONTINUOUSLY
WHEN CROSSING THE SATURATION LINE FROM SUBCOOLED TO TWO-PHASE.
ENCLOSED ARE A PORTION OF THE FEEDWATER LINE BREAK TRANSIENT OUTPUT
WITH EVERY TIME STEP DEBUGS SHOWING THE PROBLEM AND THE OUTPUT OF A
DRIVER FOR THE CHOKED FLOW MODEL ALSO ILLUSTRATING THE PROBLEM. THE
ORIGINAL TRANSIENT IS FAIRLY EXPENSIVE TO RUN TO THE POINT THE PROBLEM
OCCURS. THE SIMPLE DRIVER ILLUSTRATES THE SAME PROBLEM AND IS MUCH
LESS EXPENSIVE. CONSEQUENTLY, IT IS THE ONLY DECK SUPPLIED. THIS
DECK IS IN CEP>CHOKE.

DISPOSITION:

THE CHOKED FLOW MODELS USE POLYNOMIALS FIT TO OBTAIN THE CRITICAL
MASS FLUX AS A FUNCTION OF UPSTREAM PRESSURE AND ENTHALPY. DIFFERENT
POLYNOMIALS ARE USED IN THE SUBCOOLED AND TWO PHASE REGIONS. THE
ISOENTHALPIC EXPANSION MODEL IS NOT SMOOTHED AT THIS TRANSITION AND,
DEPENDING ON THE PRESSURE WHERE THE TRANSITION IS MADE, THE TWO
CURVES MAY NOT MATCH AND THE TRANSITION MAY BE DISCONTINUOUS. THE
DISCONTINUITY IS THE GREATEST (APPROXIMATELY 10 PERCENT) IN THE
900 PSI RANGE.

SUBROUTINE CHOKEM WAS MODIFIED TO SMOOTH THE ISOENTHALPIC EXPANSION
POLYNOMIALS FOR THE SUBCOOLED AND SATURATED REGIONS. THIS WAS DONE
ONLY FOR THE POLYNOMIALS VALID IN THE RANGE OF 100 TO 2800 PSIA.
THIS CHANGE IN IN MODIFICATION NO. 308 WHICH WILL BE INCLUDED IN THE
MOD004 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 309 *****

REPORTED BY : S. WOOD UNC DATE: 03/30/86
REPORTED TO : R. FARMAN EI DATE: 04/02/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/30/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : WILL BE SENDING

DECK DESCRIPTION : MODEL OF THE N REACTOR.

DESCRIPTION OF PROBLEM:

AVERAGE METAL TEMPERATURE VALUE IN THE MAJOR EDIT NOT CONSISTENT
WITH CONDUCTOR NODAL TEMPERATURES.

DISPOSITION:

THE N REACTOR FUEL ELEMENTS ARE CONCENTRIC CYLINDRICAL SHELLS, AND
ARE NOT SOLID RODS. THE REPORTED ERROR APPEARS TO APPLY ONLY FOR
SOLID CYLINDRICAL GEOMETRY, AND THUS WOULD NOT AFFECT PWR AND BWR
FUEL. WE WILL INVESTIGATE OTHER GEOMETRIES PRIOR TO CORRECTING THE
ALGORITHM FOR GENERAL APPLICABILITY.

THE AVERAGE METAL TEMPERATURE CALCULATION ASSUMES THE FUEL ROD IS
SOLID CYLINDRICAL GEOMETRY WITH THE FUEL AS THE FIRST REGION. THE
AVERAGE METAL TEMPERATURE IS BASED ON A VOLUME WEIGHTED AVERAGE OF
THE NODEL TEMPERATURES IN THE FIRST REGION ONLY. THIS VALUE IS USED
FOR DOPPLER FEEDBACK IN THE KINETICS MODEL. THE CALCULATION IS NOT
CORRECT FOR SLAB GEOMETRY, WHEN THE HEATED REGION IS NOT THE FIRST
REGION OR IF THERE IS MORE THAN ONE HEATED REGION.

THE MODEL WAS GENERALIZED TO BE APPLICABLE TO SLAB GEOMETRY AND
CYLINDRICAL GEOMETRY FOR OTHER THAN SOLID RODS. IN ADDITION,
MORE THAN ONE HEATED REGION CAN EXIST IN THE CONDUCTOR AND THE
REVISED MODEL WILL INCLUDE BOTH REGIONS IN THE AVERAGE METAL
TEMPERATURE CALCULATION. THE CHANGES ARE INCLUDED IN MODIFICATION
NO. 316 WHICH WILL BE IN THE MOD004 UPDATE.

MODELING ALTERNATIVES:

THERE ARE NO MODELING ALTERNATIVES IF THIS PROBLEM IS ENCOUNTERED.

***** PROBLEM REPORT NUMBER 310 *****

REPORTED BY : K. R. KATMA EI DATE: 05/23/86
REPORTED TO : EPSC/EI DATE: 05/28/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/23/86

CODE VERSION : RETRAN-02 MOD004D

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : RETRAN-02 MOD004C SOURCE.

DESCRIPTION OF PROBLEM:

VARIABLES IN FUNCTION STATEMENT ARGUMENT LIST CANNOT BE NAMED THE
SAME AS VARIABLES IN COMMON OR SUBROUTINE ARGUMENT LIST. CAUSES LEVEL
12 COMPILER ERROR ON IBM FORTVS (FORTRAN 77).

DISPOSITION:

THE REPORTED ERROR IS AS DESCRIBED ABOVE. IT IS ACCEPTED CODING
FOR OTHER COMPILERS, BUT SHOULD BE DETECTED AS AN ERROR.

THE CODING FOR THESE FUNCTION STATEMENTS WAS MODIFIED FOR THE
MOD004D CODE ON IBM SO THE VARIABLES HAD A NAME DIFFERENT FROM
ANY COMMON VARIABLES IN THE ROUTINES. THIS ERROR IS CORRECTED
BY MODIFICATION NO. 317 IN THE MOD004 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 311 *****

REPORTED BY : S. WOOD UNC DATE: 07/03/86
REPORTED TO : G. R. SAWTELLE EI DATE: 07/07/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/3/86 (BY G. R. SAWTELLE)

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : NOS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : N-PLANT CROSSOVER PIPE BREAK.

DESCRIPTION OF PROBLEM:

THE CODE FAILED ON A JUNCTION PROPERTY CALCULATION. THE JUNCTION WAS ONE OF THREE AT THE VOLUME OUTLET WITH TEMPERATURE TRANSPORT DELAY ACTIVATED.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. THE CASE INVOLVES A VOLUME WITH A SINGLE INLET JUNCTION AND THREE OUTLET JUNCTIONS. THE MODEL WILL FUNCTION CORRECTLY FOR THIS SITUATION IF THE FLOW DOES NOT REVERSE AT ANY OF THE OUTLET JUNCTIONS. THE CODE IS NOT DESIGNED TO HANDLE THE SITUATION WHERE MULTIPLE JUNCTIONS ARE USED AT EITHER THE INLET OR OUTLET AND FLOW REVERSALS OCCUR IN SOME OF THE JUNCTIONS. THE THEORY MANUAL AND USER MANUAL WILL BE MODIFIED TO ALERT USERS TO THIS LIMITATION.

MODELING ALTERNATIVES:

USE THE TEMPERATURE TRANSPORT MODEL FOR VOLUMES WITH A SINGLE JUNCTION AT THE VOLUME INLET AND THE VOLUME OUTLET.

***** PROBLEM REPORT NUMBER 312 *****

REPORTED BY : J. H. MCFADDEN EI DATE: 07/27/86
REPORTED TO : EPSC/EI DATE: 07/27/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/27/86

CODE VERSION : RETRAN-02 MOD004D

COMPUTER/OPERATING SYSTEM : CDC/IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : UCRW SAMPLE PROBLEM

DESCRIPTION OF PROBLEM:

THE NEW EDIT OF CONTROL SYSTEM INFORMATION (MODIFICATION NO. 312)
HAS AN ERROR IN THE "SIGNAL REGION" EDIT ON IBM SYSTEMS. THE LINE
COUNTER TO SEPARATE SECTIONS OF THE EDIT IS IN ERROR.

DISPOSITION:

THE PROBLEM WITH THE "SIGNAL REGION" EDIT IS THE RESULT OF AN
INCORRECT DEFINITION IN THE EDIT. THE LINE-COUNTER ERROR RESULTS
FROM THE FAILURE TO INITIALIZE A VARIABLE IN THE EDIT ROUTINE.
THE ERRORS ARE ASSOCIATED ONLY WITH THE EDIT AND NOT WITH THE
CODE CALCULATIONS. THIS ERROR IS CORRECTED BY MODIFICATION NO. 318
IN THE MOD004 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 313 *****

REPORTED BY : G. C. GOSE EI DATE: 07/27/86
REPORTED TO : EPSC/EI DATE: 07/27/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/27/86

CODE VERSION : RETRAN-02 MOD004D

COMPUTER/OPERATING SYSTEM : CDC/IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : NONE SUPPLIED

DESCRIPTION OF PROBLEM:

THERE WERE SEVERAL MINOR CODE ERRORS IDENTIFIED IN THE DESIGN REVIEW OF THE REVISED CONTROL ROD MODEL. THIS MODEL WAS MODIFIED AND INCLUDED IN THE MOD004D UPDATE. CORRECT THOSE ERRORS WHICH ARE IN MOD004D.

DISPOSITION:

THE ERRORS WERE ASSOCIATED WITH INPUT CHECKING, OUTPUT EDITS, AND SOME COMMENT CARDS. THESE ERRORS WERE CORRECTED IN MODIFICATION NO. 319 WHICH IS INCLUDED IN THE MOD004 UPDATE.

MODELING ALTERNATIVES:

DOES NOT APPLY.

***** PROBLEM REPORT NUMBER 314 *****

REPORTED BY : BRAD GRIEBENOW EI DATE: 08/05/86
REPORTED TO : EPSC/EI DATE: 08/05/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/05/86

CODE VERSION : RETRAN-02 MOD004D

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PLOT JOBS FOR RETRAN SAMPLE PROBLEM ONE. ALL PLOT
JOBS EXECUTED ON CDC SHOWED THE ERROR. THE IBM
JOBS ARE ALRIGHT.

DESCRIPTION OF PROBLEM:

PLOT DEBUG STATEMENTS ARE WRITTEN DURING RETRAN PLOT JOBS ON
MOD004D EVEN IF DEBUGS ARE NOT REQUESTED.

DISPOSITION:

THE ERROR IS ASSOCIATED WITH AN ERROR IN A COMMON BLOCK LIST WHICH
WAS CHANGED FOR THE F77 CONVERSION (MODIFICATION NO. 314).
THIS ERROR IS CORRECTED BY MODIFICATION NO. 321 WHICH IS IN THE
MOD004 UPDATE.

MODELING ALTERNATIVES:

DOES NOT APPLY.

***** PROBLEM REPORT NUMBER 315 *****

REPORTED BY : M. GARRETT TVA DATE: 09/10/86
REPORTED TO : EPSC/EI DATE: 09/15/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/10/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES (FLOPPY DISK F16C.TXT)

DECK DESCRIPTION : PWR MODEL - STEAM GENERATOR (SG) SECONDARY SIDE IS
 REPRESENTED BY A SINGLE VOLUME (#561). SEPARATOR MODEL
 IS USED FOR THE SG VOLUME (SEE ATTACHED DIAGRAM).

DESCRIPTION OF PROBLEM:

DECK INITIALIZED O.K. WHEN NONEQUILIBRIUM SEPARATOR MODEL WAS USED.
WHEN EQUILIBRIUM SEPARATOR IS USED (INEQ = 0 FOR VOL #561), DECK
FAILS TO INITIALIZE. SG INITIALIZES O.K. BUT ERROR OCCURS IN
PRESSURIZER (#310) INITIALIZATION.

DISPOSITION:

THE REPORTED PROBLEM IS A CODE ERROR. THE SEPARATOR MODEL USES THE
NON-EQUILIBRIUM FILE, FILE 51, WHETHER THE SEPARATOR IS MODELED AS
AN EQUILIBRIUM MODEL OR AS A NON-EQUILIBRIUM MODEL. SUBROUTINE INVOL
WAS MODIFIED TO RESERVE SPACE IN FILE 51 FOR THE NUMBER OF VOLUMES
WITH NON-ZERO INEQ ENTRIES PLUS THE NUMBER OF SEPARATORS INPUT IN
THE PROBLEM DIMENSION CARD.

THIS CORRECTION IS IN MODIFICATION NO. 326 WHICH WAS INCLUDED IN
THE MOD005A CODE VERSION.

MODELING ALTERNATIVES:

USE NON-EQUILIBRIUM SEPARATOR MODELS.

REPORTED BY: B. GERLING (DUKE) DATE: 09/12/86
REPORTED TO: EPSC (EI) DATE: 09/18/86

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 09/12/86

CODE VERSION: RETRAN-02 MOD003

COMPUTER/
OPERATING SYSTEM: IBM

LISTING SUPPLIED: YES

DECK SUPPLIED: YES

DECK DESCRIPTION: OCONEE SINGLE LOOP PRIMARY, SINGLE OTSG SHELL
VOLUME. USING DYNAMIC SLIP IN PRIMARY LOCAL
CONDITIONS H.T. IN OTSG, COMBINED H.T. MAP ON
RESTART.

DESCRIPTION OF PROBLEM: A JUNCTION PROPERTIES ERROR IS ENCOUNTERED IN
THE COLD LEG TO PZR SPRAY LINE JUNCTION. THE
TRANSIENT BEING RUN IS AN EXTENDED LOSS OF
FEEDWATER W/O FORCED CIRCULATION. THE ERROR
OCCURS OUT IN TIME WHEN THE RCS IS HEAVILY
VOIDED. THE PRESSURIZER SPRAY IS DEFEATED,
THERE IS NO FLOW IN THE JUNCTION AND IT
CONTAINS A CLOSED VALVE.

DISPOSITION: THE PROBLEM WAS RESTARTED FROM THE ORIGINAL
RESTART TAPE SUPPLIED BY DUKE. THE JUNCTION
PROPERTY ERROR WAS NOT ENCOUNTERED IN THE
RESTART JOB. IT WAS NOTED THAT THE JUNCTION
PROPERTIES ERROR IN THE ORIGINAL RUN WAS FOR A
CLOSED VALVE. THE CAUSE OF THE ERROR HAS NOT
BEEN IDENTIFIED AS WE HAVE NOT BEEN ABLE TO
REPRODUCE IT DURING A RESTART OF THE ORIGINAL
RUN.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE AN INPUT
DECK WAS NOT SUPPLIED THAT CORRESPONDED TO THE
ORIGINAL PROBLEM REPORT AND IT WAS NOT POSSIBLE TO
REPRODUCE THE ERROR USING AN ALTERNATIVE METHOD.

MODELING ALTERNATIVES: NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 318 *****

REPORTED BY : H.J. LEE DUKE DATE: 9/24/86
REPORTED TO : EPSC/EI DATE: 10/06/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/06/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A PWR INITIALIZATION CONTAINING SEPARATED VOLUMES WITH
 BUBBLE RISE MODELS.

DESCRIPTION OF PROBLEM:

WHEN THE BUBBLE RISE PARAMETERS ARE INPUT VIA A CONTROL SYSTEM, THE
STEADY-STATE INITIALIZATION USES THE INPUT VALUES RATHER THAN
ADJUSTING TO OBTAIN A CONVERGED SOLUTION. THIS IS CONTRARY TO A
STATEMENT ON PAGE IV-58 OF VOLUME 3.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CONFIRMED AS A CODE ERROR. MODIFICATION
NUMBER 322 WILL ALLOW ADJUSTMENT OF THE CONTROLLED BUBBLE RISE
PARAMETERS TO BE TO OBTAIN A STEADY-STATE SOLUTION. THIS MODIFICATION
WAS INCLUDED IN THE MOD005A UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED

***** PROBLEM REPORT NUMBER 319 *****

REPORTED BY : TODD JOKERST UECO DATE: 09/26/86
REPORTED TO : EPSC/EI DATE: 10/06/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/26/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ORIGINAL PROBLEM OCCURED USING A SGTR MODEL. HOWEVER,
THE DECK SUPPLIED WITH THE TROUBLE REPORT EXEMPLIFIES
THE PROBLEM.

DESCRIPTION OF PROBLEM:

COLD WATER (DENSE) IS ALLOWED TO REMAIN ABOVE HOT WATER (LESS DENSE).
THIS PROBLEM IS OF PARTICULAR CONCERN WHEN MODELING PNR PRESSURIZER
AND SURGE LINE VOLUMES. TEMPERATURE INVERSION AFFECTS ACCURATE
PRESSURE ESTIMATION.

DISPOSITION:

THE REPORTED ERROR IS THE RESULT OF A CODE LIMITATION AND IS NOT A CODE
ERROR. CONDUCTION BETWEEN FLUID VOLUMES IS NOT INCLUDED IN THE RETRAN
BALANCE EQUATIONS. FLOW BETWEEN THE 2 VOLUMES CEASES ONCE THE PRESSURE
RE-ADJUSTS TO ACCOUNT FOR THE GRAVITY HEAD DUE TO THE DENSITY DIFFERENCES.
A DETAILED EVALUATION OF THE PROBLEM IS FILED WITH THE ORIGINAL TROUBLE
REPORT. NO MANUAL CHANGES ARE REQUIRED.

MODELING ALTERNATIVES:

A NON-CONDUCTING HEAT EXCHANGER USING THE CONTROL SYSTEM CAN BE USED TO
SIMULATE THE ENERGY EXCHANGE DUE TO TEMPERATURE DIFFERENCES BETWEEN THE
2 VOLUMES. THIS WILL DRIVE THE 2 VOLUMES TO THERMAL EQUILIBRIUM.

***** PROBLEM REPORT NUMBER 320 *****

REPORTED BY : MO ABDOLRAHIM YANKEE DATE: 10/06/86
REPORTED TO : EPSC/EI DATE: 10/10/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/06/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : MAIN STEAM LINE BREAK.

DESCRIPTION OF PROBLEM:

THREE TAPES ARE RESERVED IN ADVANCE BEFORE CREATION RUN. THE VSN AND DENSITY ARE DEFINED IN INPUT FILE (CARD NO. 010141). THE CREATION RUN EXECUTED TO A SUCCESSFUL COMPLETION, AND STORED DATA ONTO THE TAPES. THE TEST RUN THAT READS THE DATA FROM THE TAPES DID NOT EXECUTE TO A SUCCESSFUL COMPLETION, AND ONLY READ THE FIRST TAPE.

DISPOSITION:

A CAUSE OF THE REPORTED ERROR HAS BEEN TENTATIVELY IDENTIFIED. MODIFICATION NO. 266 HAD BEEN SENT TO YAEC TO SEE IF IT WOULD CORRECT THE ERROR. THIS MODIFICATION WAS ASSOCIATED WITH PLOTTING FROM MULTIPLE TAPES. AFTER INSTALLATION AND CHECKING ON THE NOS SYSTEM AND SUBSEQUENT DISCUSSIONS WITH YAEC, IT WAS DETERMINED THAT THIS MODIFICATION WOULD NOT FIX THEIR ERROR WHICH OCCURRED IN A REEDIT JOB. MODIFICATION NO. 279 CORRECTS A MOD003 ERROR FOR REEDITING MULTIPLE TAPES. THIS CORRECTION HAS BEEN SENT TO YAEC FOR CHECKOUT. THEY HAVE VERBALLY CONFIRMED THAT THIS CORRECTS THEIR REPORTED ERROR ALSO.

MODELING ALTERNATIVES:

NONE IDENTIFIED

***** PROBLEM REPORT NUMBER 321 *****

REPORTED BY : G. R. SAWTELLE EI DATE: 11/03/86
REPORTED TO : EPSC/EI DATE: 11/04/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/03/86

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : PCC CYBER NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BIG ROCK POINT - NULL TRANSIENT
FILED IN GRS>CPCO>BRP

DESCRIPTION OF PROBLEM:

FAILURE BY NEGATIVE ARGUMENT IN SQRT DURING STEADY-STATE
INITIALIZATION. NO RETRAN DIAGNOSTIC - ONLY A CORE DUMP.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND A CORRECTION IS AVAILABLE.
THE ERROR RESULTS FROM A NUMERICAL ROUNDOFF PROBLEM INTRODUCED IN
MODIFICATION NO. 316 OF THE MOD004 UPDATE. IN THIS CASE, A VALUE IS
COMPUTED WHICH IS SLIGHTLY LESS THAN ZERO, AND IS NOT SUBSEQUENTLY SET
TO ZERO WHICH IS THE APPROPRIATE VALUE.

THE ERROR IS CORRECTED IN MODIFICATION NO. 323 WHICH WAS
ADDED TO THE MOD005A UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 322 *****

REPORTED BY : G. SAWTELLE EI DATE: 11/6/86
REPORTED TO : EPSC/EI DATE: 11/14/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/3/86

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : PCC CYBER NOS/BE

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : BIG ROCK POINT - ATWS
 FILED IN QA>DECKS>PR322

DESCRIPTION OF PROBLEM:

INPUT FAILED WITH ONLY A CORE DUMP - NO DIAGNOSTICS. CODE APPEARS
TO HAVE FAILED IN DNB SUBROUTINE.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CONFIRMED AS A CODE ERROR. THE ORIGINAL
CODING IN SUBROUTINE DNB WAS NOT ABLE TO DETERMINE WHICH JUNCTION
WAS THE CORE OUTLET JUNCTION. MODIFICATION NUMBER 330 WILL CORRECT
THE REPORTED ERROR AND WAS ADDED TO THE MOD005A UPDATE.

MODELING ALTERNATIVES:

INPUT AN ENTHALPY TRANSPORT FLAG OF IHQCOR=1 FOR THE CORE OUTLET
JUNCTION AND IHQCOR=2 FOR THE CORE INLET JUNCTION WHEN USING
THE AUXILARY DNB CALCULATION MODEL.

***** PROBLEM REPORT NUMBER 323 *****

REPORTED BY : CLEON E. DODGE PP&L DATE: 11/25/86
REPORTED TO : EI/EPSC DATE: 11/24/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/25/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

PP&L PERFORMED MODEL COMPARISONS BETWEEN SIMULATE-E AND RETRAN USING THE EPRI VOID/ALGEBRAIC SLIP AND BAROCZY TWO PHASE MULTIPLIER OPTIONS. IN THESE COMPARISONS, THE TWO PHASE FRICTION PRESSURE DROP PREDICTED BY SIMULATE WAS CONSISTENTLY LARGER THAN THAT FOR RETRAN AT TYPICAL BWR OPERATING CONDITIONS. THE SINGLE PHASE LIQUID COMPARISONS WERE IN GOOD AGREEMENT. THE DOCUMENTATION SUBMITTED WITH THE TROUBLE REPORT ATTRIBUTED THE TWO-PHASE VALUE DIFFERENCES TO THE USE OF THE FLOWING QUALITY IN THE SIMULATE CALCULATION AS OPPOSED TO THE THERMODYNAMIC QUALITY IN THE RETRAN CALCULATION.

DISPOSITION:

THE REPORTED DIFFERENCES IN THE TWO CODES APPEARS TO ARISE FROM DIFFERENT INTERPRETATIONS OF THE BAROCZY WORK. THE MULTIPLIER IN RETRAN WAS ADAPTED FROM THE MODEL IN RELAP4 AND IS BASED ON STATIC QUALITY. THERE ARE NO PLANS TO CHANGE THE MODEL AS APPLIED IN RETRAN-02.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 324 *****

REPORTED BY : GEORGE SAWTELLE EI DATE: 11/25/86
REPORTED TO : EI/EPSC DATE: 11/25/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/25/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : DETROIT EDISON IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : FERMI-2 RETRAN MODEL WITH CONTROL SYSTEM DEFINED
 PUMP SPEED.
 FILED IN QA>DECKS>FERMI2.PUMP

DESCRIPTION OF PROBLEM:

THE PUMP IS INITIALIZED AT 0.28 TIMES RATED SPEED. THE INITIAL CONTROL BLOCK OUTPUT (MINOR EDIT) INDICATES A VALUE OF 0.28X0.28 RATED SPEED. THE OUTPUT IS CORRECTED BY THE 2ND TIME STEP.

DISPOSITION:

THE REPORTED PROBLEM IS NOT A CODE ERROR. THE CONTROL BLOCK OUTPUT IS OBTAINED BY $0.28 * (CNTL(-11) + CNTL(-16))$. THE INITIAL OUTPUT FOR CNTL(-16) IS CALCULATED TO BE 0.28 TIMES THE RATED SPEED AT TIME ZERO, BUT THEN IS SET TO ZERO. THE OUTPUT FOR CNTL(-11) IS INITIALLY ZERO, BUT AFTER TIME ZERO IT HAS A VALUE OF THE RATED SPEED. THE CONTROL SYSTEM WAS CALCULATING PROPER VALUES BASED ON THE CONTROL SYSTEM INPUT. THE TIME ZERO VALUE FOR THE CONTROL BLOCK WAS NOT THE VALUE DESIRED BECAUSE OF IMPROPER TIME ZERO SPECIFICATION.

MODELING ALTERNATIVES:

SPECIFY THE CONTROL SYSTEM INPUT TO GIVE THE DESIRED TIME ZERO VALUE.

***** PROBLEM REPORT NUMBER 325 *****

REPORTED BY : GAVIN WARD UKAEA DATE: 11/26/86
REPORTED TO : EPSC/EI DATE: 11/26/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/26/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION :

DESCRIPTION OF PROBLEM:

FOR THE CONDITION OF LOCAL CONDITIONS HEAT TRANSFER ON THE LEFT
SIDE OF THE CONDUCTOR STACK, THE SECTION OF CODING CORRESPONDING
TO THE STACK ON THE LEFT SIDE IS PASSED. (SEE ATTACHED NOTES)

DISPOSITION:

THE NOTES SUBMITTED WITH THE TROUBLE REPORT IDENTIFIED THE CODING
IN QUESTION AND SUGGESTED A CHANGE IN SUBROUTINE LOCFLX. THIS CHANGE
HAS BEEN REVIEWED BY EI AND IS AN APPROPRIATE CORRECTION FOR THE
ERROR. THE CORRECTION IS IN MODIFICATION NO. 324 WHICH WAS
ADDED TO THE MOD005A UPDATE.

MODELING ALTERNATIVES:

DO NOT USE THE LOCAL CONDITIONS MODEL FOR THE LEFT SIDE OF A
CONDUCTOR.

***** PROBLEM REPORT NUMBER 326 *****

REPORTED BY : GAVIN WARD UKAEA DATE: 11/26/86
REPORTED TO : EPSC/EI DATE: 11/26/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/26/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION :

DESCRIPTION OF PROBLEM:

THE WRONG VARIABLE IS USED IN AN "IF" TEST IN SUBROUTINE PRZEMT -
IVSROL SHOULD BE USED INSTEAD OF IVSR AND IVSLOL SHOULD BE USED
INSTEAD OF IVSL. (SEE ATTACHED NOTES)

DISPOSITION:

THE NOTES SUBMITTED WITH THE TROUBLE REPORT IDENTIFIED THE CODING
IN QUESTION AND SUGGESTED A CHANGE IN SUBROUTINE PRZEMT. THIS CHANGE
HAS BEEN REVIEWED BY EI AND IS AN APPROPRIATE CORRECTION FOR THE
ERROR. THE CORRECTION IS IN MODIFICATION NO. 325 WHICH WAS
ADDED TO THE MOD005A UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 327 *****

REPORTED BY : S. P. NESBIT DUKE DATE: 12/9/86
REPORTED TO : EPSC/EI DATE: 12/15/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/9/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A NON-EQUILIBRIUM VOLUME CONDENSER MODEL.

DESCRIPTION OF PROBLEM:

IT APPEARS THAT THE HEAT TRANSFER COEFFICIENT AT THE SURFACE
OF A CONDUCTOR IN A NON-EQUILIBRIUM VOLUME IS A FUNCTION OF THE
VOLUME (FT**3) OF THE CONDUCTOR. THIS SITUATION IS NOT DISCUSSED
IN THE DOCUMENTATION.

DISPOSITION:

THE REPORTED PROBLEM HAS BEEN REVIEWED AND THE DESCRIPTION IS CORRECT.
THE CONDUCTOR LENGTH (VARIABLE SLEN) IS COMPUTED FROM THE INPUT
CONDUCTOR VOLUME AND SURFACE AREA. THE USER MANUAL WILL BE REVISED TO
DESCRIBE THE CALCULATION OF CONDUCTOR LENGTH USED IN THE LOCAL CONDITIONS
MODEL.

MODELING ALTERNATIVES:

NOT APPLICABLE.

***** PROBLEM REPORT NUMBER 328 *****

REPORTED BY : S. P. NESBIT DUKE DATE: 12/9/86
REPORTED TO : EPSC/EI DATE: 12/15/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/9/86

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A NON-EQUILIBRIUM VOLUME CONDENSER MODEL.

DESCRIPTION OF PROBLEM:

MODEL WILL NOT EXECUTE WITH FOUR ONE-SIDED CONDUCTORS IN A
NON-EQUILIBRIUM VOLUME. WHEN A FIFTH CONDUCTOR WAS ARBITRARILY
ADDED TO ANOTHER VOLUME IN THE MODEL, THE MODEL EXECUTED.

DISPOSITION:

THE REPORTED ERROR WAS FOUND TO BE THE SAME AS THE ERROR REPORTED
IN PROBLEM REPORT NUMBER 270. THIS PROBLEM WAS CORRECTED IN MOD004B
BY MODIFICATION NO. 287. THE SUPPLIED INPUT DECK WAS SUCCESSFULLY
RUN ON MOD004.

MODELING ALTERNATIVES:

ADD A CONDUCTOR WHICH IS NOT PART OF THE CONDUCTOR STACK (SUCH AS
NOTED ABOVE).

***** PROBLEM REPORT NUMBER 329 *****

REPORTED BY : CRIS SCHAMP PCC DATE: 12/4/86
REPORTED TO : EI/EPSC DATE: 12/22/86

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/4/86

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : NOS/855

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION :

DESCRIPTION OF PROBLEM:

MINOR EDIT FOR "AVDJ" IN MINOR EDIT REQUEST ON CARD 020002 SHOWS
CODE PICKING UP "GAS VELOCITY".

DISPOSITION:

THE REPORTED ERROR WAS ENCOUNTERED WHEN PCC INSTALLED RETRAN-02
MOD004 UNDER THE NOS SYSTEM. AS PER NOS/BE PROCEDURES FOR THE
MOD003 INSTALLATION, THEY COMPILED SUBROUTINE EDATA1 USING OPT=1.
THIS PROCEDURE WAS CHANGED WHEN GOING TO THE FTN5 COMPILER WITH
MOD004 SO THAT ALL ROUTINES ARE COMPILED WITH OPT=2. UPON
RECOMPILING SUBROUTINE EDATA1 USING OPT=2, CORRECT RESULTS WERE
OBTAINED.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 330 *****

REPORTED BY : ANNIE WONG COM. ED. DATE: 1/2/87
REPORTED TO : EPSC/EI DATE: 1/23/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/2/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM 3090

LISTING SUPPLIED : YES (ON FLOPPY)

DECK SUPPLIED : YES (ON FICHE)

DECK DESCRIPTION : MODIFIED RETRAN SAMPLE PROBLEM 9 TO USE A TOTAL OF
300 (301) MESH INTERVALS IN THE NEUTRONIC REGIONS.

DESCRIPTION OF PROBLEM:

THE UPPER LIMIT ON THE TOTAL NUMBER OF MESH INTERVALS USED IN
THE NEUTRONIC REGIONS IS 300. WHEN 301 INTERVALS ARE USED, THE
CODE ABENDS WITH AN OC4 ERROR. THIS LIMIT WAS NOT STATED IN THE
MANUALS.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CONFIRMED. THE MANUALS (THEORY AND USER)
WILL BE MODIFIED TO NOTE THE 300 REGION LIMIT.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 331 *****

REPORTED BY : STEVE THOMASSON CP&L DATE: 1/23/87
REPORTED TO : EPSC/EI DATE: 1/29/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/23/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BWR-4 SYSTEM MODEL AND 8X8 HOT BUNDLE MODEL.

DESCRIPTION OF PROBLEM:

RETRAN RUN FAILED DURING STEADY-STATE INITIALIZATION DUE TO A
MODE 2 ERROR IN SUBROUTINE TAVE. EI PROVIDED CODING CHANGES TO
SUBROUTINE TAVE WHICH SOLVED THE PROBLEM.

DISPOSITION:

THE CORRECTION FOR THE REPORTED ERROR HAS BEEN CHECKED BY CP&L
IN THEIR CODE. THE ERROR RESULTS FROM A BAD INDEX WHICH CAUSES
A "DO LOOP" TO BE ENTERED ONE EXTRA TIME. THIS MODIFICATION,
NO. 332, WAS INCLUDED IN THE MOD005A CODE UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 332 *****

REPORTED BY : JIM MCFADDEN EI DATE: 2/27/87
REPORTED TO : EPSC/EI DATE: 2/27/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/27/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SINGLE-VOLUME MODEL OF IFA TEST SECTION WITH A
STACK OF CONDUCTORS.

DESCRIPTION OF PROBLEM:

THE METAL-WATER REACTION OPTION WAS REQUESTED AND THE HEAT
GENERATION RATE SHOULD BE NONZERO FOR ALL THE CONDUCTORS. THIS
IS TRUE ONLY FOR THE FIRST CONDUCTOR. THIS ERROR WAS INITIALLY
REPORTED FOR A RETRAN-03 PRERELEASE DECK. THE ERROR APPEARS TO
HAVE BEEN IN ALL OTHER VERSIONS OF RETRAN-02.

DISPOSITION:

AN INDEX WAS BEING SET INCORRECTLY IN SUBROUTINE INHEAT. THIS
INDEX WAS CORRECTED IN MODIFICATION NUMBER 327 WHICH WAS
INCORPORATED IN RETRAN-02 MOD005A.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 333 *****

REPORTED BY : GEORGE SAWTELLE EI DATE: 3/6/87
REPORTED TO : EPSC/EI DATE: 3/9/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/6/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : PCC CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : 8 VOLUME SEPARATOR MODEL WITH CONSTANT PRESSURE
BOUNDARIES - TIME DEPENDENT VOLUMES. SEE ATTACH
DIAGRAM.

DESCRIPTION OF PROBLEM:

FUNCTIONAL SEPARATOR WILL NOT HOLD NULL TRANSIENT.

DISPOSITION:

THE REPORTED PROBLEM INVOLVES AN ERROR IN THE BUBBLE MASS INTEGRATION FOR A NORMAL BUBBLE-RISE VOLUME WHICH HAS AN INLET JUNCTION THAT IS CONNECTED TO A TWO-REGION SEPARATOR VOLUME. THE ENERGY CONVECTED INTO THE BUBBLE-RISE VOLUME AT THAT JUNCTION WAS NOT BEING COMPUTED CORRECTLY. THE ERROR WILL ONLY BE ENCOUNTERED FOR THE NODING MODEL DESCRIBED ABOVE.

SUBROUTINE EXPIN2 WAS MODIFIED TO CORRECT THE ERROR. THE CORRECTION IS IN MODIFICATION NO. 337 WHICH WILL BE INCLUDED IN THE MOD005B UPDATE.

MODELING ALTERNATIVES:

MODIFY THE INPUT MODEL TO EITHER CONNECT AN HEM VOLUME TO THE SEPARATOR, OR USE A BUBBLE RISE MODEL FOR THE SEPARATOR REGION.

REPORTED BY: CLEON DODGE (PP&L) DATE: 02/25/87
REPORTED TO: EPSC (EI) DATE: 03/09/87

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 02/25/87

CODE VERSION: RETRAN-02 MOD004

COMPUTER/
OPERATING SYSTEM: IBM

LISTING SUPPLIED: YES

DECK SUPPLIED: YES

DECK DESCRIPTION: BWR SYSTEM, SINGLE CHANNEL AND CPR PREDICTION.

DESCRIPTION OF PROBLEM: PROBLEM APPEARS TO BE A RECURRENCE OF TROUBLE REPORT #278. SINGLE CHANNEL MODEL FAILS WHEN UPPER PLENUM TDV (VOL 499) IS LESS THAN LOWER PLENUM TDV (VOL 500). FAILED AND SUCCESSFUL RUNS ARE INCLUDED.

DISPOSITION: THE DECK WHICH ENCOUNTERED THE REPORT ERROR HAS BEEN SUCCESSFULLY RUN ON BOTH THE CDC AND IBM MAINFRAMES. THE ERROR HAS NOT BEEN ENCOUNTERED. WE ARE AWAITING FURTHER EVALUATION OF THE PROBLEM BY PP&L.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE OUTSTANDING TROUBLE REPORT LIST SINCE THE ORIGINAL PROBLEM REPORT BEHAVIOR COULD NOT BE REPRODUCED.

MODELING ALTERNATIVES: NUMBER THE RESTART TIME DEPENDENT VOLUMES THE SAME ORDER AS IN THE BOUNDARY CONDITIONS DECK. (VOLUME WITH THE SMALLER NUMBER IN THE ORIGINAL DECK ALSO HAVING THE SMALLER NUMBER IN THE RESTART DECK).

***** PROBLEM REPORT NUMBER 335 *****

REPORTED BY : CLEON DODGE PP&L DATE: 2/25/87
REPORTED TO : EPSC/EI DATE: 3/9/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/25/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES (OF CODING CHANGE)

DECK SUPPLIED : NO

DECK DESCRIPTION : BWR 4 REACTOR RECIRCULATION DETAILED MODEL WITH 10
 10 JET PUMPS.

DESCRIPTION OF PROBLEM:

THE STEADY STATE OPTION IS USED TO INITIALIZE AN IDLE RECIRC LOOP
STARTUP. A DIVISION BY ZERO OCCURS IN SUBROUTINE MIXFLO AT LINE
MIXF0625 BECAUSE BOTH VOLUME AND JUNCTION FLOWS ARE ZERO.

DISPOSITION:

THE CODE CHANGE PROVIDED WITH THE PROBLEM DESCRIPTION WAS REVIEWED, AND
WAS MODIFIED SLIGHTLY FOR INCORPORATION IN THE CODE. THIS ADDITION,
WHICH PROVIDES A CHECK TO PREVENT A ZERO DIVIDE, IS INCLUDED AS
MODIFICATION 329 AND WAS ADDED TO THE MOD005A VERSION OF THE CODE.

MODELING ALTERNATIVES:

DO NOT USE MOMENTUM MIXING WHEN THE MIXING JUNCTIONS BOTH HAVE
ZERO FLOW.

***** PROBLEM REPORT NUMBER 336 *****

REPORTED BY : CLEON DODGE PP&L DATE: 2/25/87
REPORTED TO : EPSC/EI DATE: 3/9/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/25/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : RETRAN 02 MOD004 SAMPLE PROBLEM 6 MODIFIED TO ACCEPT
EXTERNAL STEAM SEPARATOR TABLES.

DESCRIPTION OF PROBLEM:

STANDARD PROBLEM 6, WHEN MODIFIED TO ACCEPT 12XXYY TABLES FOR
STEAM SEPARATOR INPUT, INITIALIZES IN 50 ITERATIONS WITH THE IC02
PARAMETER EVALUATED AT 1.0. WHEN IC02 IS REDUCED TO 0.99 CONVERGENCE
IS NOT ACHIEVED IN 125 INTERACTIONS. IN ADDITION, THERE IS AN
INCONSISTENCY BETWEEN THE IC02 PARAMETER IF CONTROL BLOCKS ARE USED
(SEE PG. IV-126 OF USER MANUAL) WITH THE THEORY MANUAL (SEE PG. VI-40).
THE VALUE OF IC02 CONTROL BLOCK SHOULD BE F (Z) NOT (1-CO).

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED. THE CARRYOVER NORMALIZATION
FORMULA, AS IMPLEMENTED IN SUBROUTINES BUBINT AND AND INSEP WAS
MODIFIED. IN EACH CASE, THE COMPUTATION OF THE DESIGN CARRYOVER
PARAMETER, COVD, WAS MODIFIED TO BE CONSISTENT WITH THE FORMULA GIVEN
BY EQUATION IX.3-17G IN SECTION IX (PAGE IX-26C) OF THE RETRAN THEORY
MANUAL. THE PARAMETER COVD IS USED TO SCALE THE NORMALIZED CARRYOVER
PERFORMANCE CURVES TO YIELD THE INITIAL CARRYOVER VALUE AT THE GIVEN
STEADY-STATE CONDITIONS. THE CHANGES ARE IN MODIFICATION NO. 333 IN
THE MOD005A UPDATE.

THE INPUT AND THEORY MANUAL HAVE BEEN CHANGED TO FURTHER CLARIFY
THE USE OF THE SEPARATOR PERFORMANCE CURVES. THESE CURVES USE
AS THE INDEPENDENT VARIABLES, NORMALIZED INLET QUALITY AND
NORMALIZED MIXTURE LEVEL. ALL NORMALIZATIONS ARE PERFORMED USING
THE DESIGN VALUES. THE DEPENDENT VARIABLE FOR THE CARRYOVER CURVES
IS NORMALIZED (1.0 - COV). THE NORMALIZATION IS DEFINED MORE CLEARLY
IN THE INPUT MANUAL BOTH IN DESCRIPTION OF THE IC0 AND IC02 TABLES
AND DEFINITION OF THESE PARAMETERS FOR THE CONTROL SYSTEM OUTPUT.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 337 *****

REPORTED BY : JASON CHAO EPRI DATE: 3/16/87
REPORTED TO : EPSC/EI DATE: 3/20/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/16/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : PCC CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A CE PLANT WITH DIGITAL CONTROLS.

DESCRIPTION OF PROBLEM:

DURING THE SIMULATION OF A LOSS OF FEEDWATER ATWS, THE CODE STOPPED AT 717 F, 3476 PSIA. THE SPECIFIC HEAT CALCULATED BY THE PROPERTY ROUTINE GIVES A NEGATIVE VALUE, WHICH IN TURN MAKES PRANDTL'S NUMBER NEGATIVE. THIS STOPPED THE CALCULATION FOR HEAT TRANSFER COEFFICIENT.

DISPOSITION:

THE REPORTED ERROR HAS PREVIOUSLY BEEN FIXED BY MODIFICATION NO. 259 WHICH WAS INCLUDED IN THE MOD004A UPDATE. THE PROBLEM WAS NOT ENCOUNTERED WHEN THE DECK WAS RUN ON RETRAN-02 MOD004.

MODELING ALTERNATIVES:

USE THE MOD004 CODE VERSION.

***** PROBLEM REPORT NUMBER 338 *****

REPORTED BY : JAMES BOATWRIGHT TU DATE: 3/24/87
REPORTED TO : EPSE/EI DATE: 3/30/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED ID/IM/IY

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : CYBER(PCC)

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ANY CONTROL SYSTEM WITH A "DIV" CONTROL BLOCK WILL
REPRODUCE THE ERROR.

DESCRIPTION OF PROBLEM:

WHILE USING THE CONTROL BLOCK INITIALIZATION ROUTINE TO SUPPLY
CONTROL BLOCK INITIAL CONDITIONS, A DIVISION BY ZERO ERROR WAS
ENCOUNTERED WHICH IDENTIFIED THE 193RD CONTROL BLOCK AS THE
SOURCE, RATHER THAN CONTROL BLOCK WITH ID = -840.

DISPOSITION:

THE ERROR MESSAGE FOR DIVISION BY ZERO WAS PRINTING THE CONTROL
BLOCK SEQUENCE NUMBER RATHER THAN THE ID OF THE BLOCK. THIS WAS
CHANGED TO PRINT OUT THE BLOCK ID. THE CORRECTION IS GIVEN IN
MODIFICATION 328 WHICH WAS ADDED IN THE MOD005A UPDATE.
(NOTE: THE CONTROL BLOCK ID'S WHICH WERE CAUSING THE ZERO DIVIDE
WERE ACTUALLY ID=-811 AND ID=-814, NOT ID=-840 AS IDENTIFIED IN
THE ERROR DESCRIPTION.)

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 339 *****

REPORTED BY : C. E. DODGE PP&L DATE: 4/10/87
REPORTED TO : EPSC/EI DATE: 4/2/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/1/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : NOT APPLICABLE.

DESCRIPTION OF PROBLEM:

SLIP VELOCITY TERMS (V SL) HAVE BEEN OMITTED FROM THE FUNCTIONAL SEPARATOR MODEL INTERPHASE MASS TRANSFER EQUATIONS IN THE THEORY MANUAL EQUATIONS VI.3-11. HOWEVER, THESE TERMS HAVE BEEN INCLUDED IN THE HKIN (JI) AND SLPCNV(JI) TERMS IN SUBROUTINE SLIP AND ARE THEN PASSED TO SEPEMT. IN VIEW OF THE COMMENTS AT THE TOP OF PAGE VI-43F, AND THE ACTUAL CODING THE ADDITIONAL SLIP TERMS MUST BE INCLUDED IN THE THEORY MANUAL.

DISPOSITION:

THIS TROUBLE REPORT HAS IDENTIFIED AN ERROR IN THE MANUAL. THE SLIP CONTRIBUTION TO THE SEPARATOR INLET JUNCTION KINETIC ENERGY TERM IS WRITTEN CORRECTLY IN EQ. VI.3-9, BUT IS NOT INCLUDED IN THE SUBSEQUENT DERIVATION OF EQ. VI.3-11 AND VI.3-12 AS PRINTED IN THE THEORY MANUAL. THE SLIP CONTRIBUTION FOR THE CARRYOVER AND CARRYUNDER JUNCTIONS IS ZERO AS NOTED IN EQ. VI.3-11F. THE CODING FOR THESE TERMS IS CORRECT.

MODELING ALTERNATIVES:

NONE REQUIRED SINCE THE ERROR IS ASSOCIATED WITH THE DOCUMENTATION.

***** PROBLEM REPORT NUMBER 340 *****

REPORTED BY : G. SAWTELLE EI/UNC DATE: 4/27/87
REPORTED TO : EPSC/EI DATE: 4/27/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/27/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : EG&G CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : N-PLANT ... W SINGLE LOOP S.G. "<RETRAN>QA>N-PLANT.ERROR".

DESCRIPTION OF PROBLEM:

DIAGNOSTIC ERROR IS MISLEADING AND DOES NOT CORRECTLY IDENTIFY USER
INPUT ERROR FOR CONTROL SYSTEM.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AS A CODE ERROR. THE ERROR
MESSAGE PRINTED OUT THE NEW TRIP ID RATHER THAN THE INPUT VALUE.
MODIFICATION NUMBER 331 CHANGES THE ERROR MESSAGE TO PRINT OUT
THE TRIP NUMBER. MODIFICATION 331 WAS ADDED TO THE MOD005A
UPDATE.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 341 *****

REPORTED BY : JAMES BOATWRIGHT TU DATE: 5/12/87
REPORTED TO : EPSC/EI DATE: 5/18/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/12/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : PCC/CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A STEAM GENERATOR TUBE RUPTURE TRANSIENT.

DESCRIPTION OF PROBLEM:

WHEN USING RESTART AND SUBSTITUTING TRIP CARDS TO TRIP ON TIME
AND RESET AN ANOTHER PARAMETER, THE CARDS CONTINUOUSLY TRIP AND
RESET AFTER THE RESET CONDITION IS SATISFIED.

DISPOSITION:

THE REPORTED PROBLEM CAN OCCUR EITHER DURING A NORMAL RUN OR A RESTART
CASE. IF A TRIP ON TIME IS RESET, THEN THE NEXT TIME STEP SUBROUTINE
TRIP DETERMINES THAT THE TIME SETPT HAS BEEN REACHED AND THE TRIP IS
ALLOWED TO OCCUR AGAIN. TO CORRECT THIS PROBLEM, SUBROUTINE TRIP WAS
MODIFIED TO SET THE TRIP SET-POINT TO 1.E+6 AFTER A RESET OCCURS.
THIS CHANGE WILL BE INCLUDED IN THE MOD005B UPDATE AS MODIFICATION
NO. 334.

MODELING ALTERNATIVES:

NONE.

REPORTED BY: JAMES R. WEBB (APS) DATE: 05/11/87
REPORTED TO: EPSC (EI) DATE: 05/20/87

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 05/11/87

CODE VERSION: RETRAN-02 MOD003

COMPUTER/
OPERATING SYSTEM: MVS/XA

LISTING SUPPLIED: YES (PARTIAL)

DECK SUPPLIED: YES

DECK DESCRIPTION: SINGLE-LOOP MODEL OF PALO VERDE REACTOR WHICH
INCLUDES ALL MAJOR PLANT CONTROL SYSTEMS.

DESCRIPTION OF PROBLEM: CONTROL BLOCK OUTPUT ASYMPTOTICALLY APPROACHES
ZERO UNTIL MACHINE ACCURACY LIMIT REACHED.
THE BLOCK THEN ASSUMES A LARGE VALUE WITHOUT
FLAGGING UNDERFLOW AND IGNORES OUTPUT LIMITS
PLACED ON BLOCK.

(A SUBSEQUENT TELEPHONE CONVERSATION FROM APS
REGARDING THIS ERROR INDICATED THE CODE HAD
BEEN MODIFIED TO SUPPRESS THE WARNING MESSAGE
FOR UNDERFLOW CALCULATIONS (NO. 208) ON IBM
SYSTEMS. THIS CHANGE MAY BE THE CAUSE OF THE
REPORTED CODE PROBLEM.)

DISPOSITION: WE HAVE NOT BEEN ABLE TO REPRODUCE THE
REPORTED ERROR ON EITHER AN IBM SYSTEM OR A
CDC SYSTEM WITH THE DECK RECEIVED FOR THE
TROUBLE REPORT. THE EDITED VALUES FOR THE
CONTROL BLOCK OUTPUTS IN QUESTION DO NOT
PRODUCE THE SAME RESULT AS INDICATED IN THE
TROUBLE REPORT.

SINCE WE CANNOT REPRODUCE THE REPORTED ERROR
AND OTHER USERS HAVE NOT REPORTED ANY SIMILAR
PROBLEM, WE WILL NOT CONTINUE TO INVESTIGATE
THIS PROBLEM UNLESS NEW INFORMATION IS
PROVIDED.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE THE TROUBLE
REPORT BEHAVIOR CANNOT BE REPRODUCED.

MODELING ALTERNATIVES: NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 343 *****

REPORTED BY : S. NEWBON UKAEA DATE: 6/1/87
REPORTED TO : EPSC/EI DATE: 6/24/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/1/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES (PLOTS DEMONSTRATING THE ERROR)

DECK SUPPLIED : NO

DECK DESCRIPTION : FIVE VOLUME SAMPLE PROBLEM 2 FROM THE BASIC RETRAN
WORKSHOP, WITH ALGEBRAIC SLIP SPECIFIED (PROBLEM
SIMILAR WITH DYNAMIC SLIP).

DESCRIPTION OF PROBLEM:

WHEN THE "FROM-TO" VOLUME ORIENTATION OF THE JUNCTIONS IS REVERSED
(I.E., OPPOSITE TO THE FLOW DIRECTION) ANOMOLOUS RESULTS OCCUR.
THE VOID FRACTION AT EACH JUNCTION IS LOWER THAN AT BOTH ADJACENT
VOLUMES, NOISE ON SLIP OCCURS, FLOW DIFFERS FROM ORIGINAL.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND IS IN THE PROCESS OF
BEING CORRECTED AND HAVING THE ERROR CORRECTION VERIFIED. THE
PROBLEM IS ASSOCIATED WITH AN ERROR IN THE CALCULATION OF VOLUME
FLOW RATE AND VOLUME SLIP VELOCITY VALUES IN SUBROUTINE POSTW.
THE CORRECTION FOR THIS ERROR HAS BEEN ASSIGNED MODIFICATION
NO. 343, WHICH WILL BE INCLUDED IN THE MOD005C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 344 *****

REPORTED BY : S. NEWBON UKAEA DATE: 6/1/87
REPORTED TO : EPSC/EI DATE: 6/24/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/1/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES (LIST OF THE REFERENCED FORTRAN CODE)

DECK SUPPLIED : NO

DECK DESCRIPTION : FIVE VOLUME SAMPLE PROBLEM 2 FROM THE BASIC RETRAN
WORKSHOP, WITH ALGEBRAIC SLIP SPECIFIED.

DESCRIPTION OF PROBLEM:

IN THE CALCULATION OF THE JUNCTION PRESSURE (SUBROUTINE JUMP)
THE SIGN OF THE DP TERM IS REVERSED WHEN THE "FROM-TO" ORIENTATION
OF THE JUNCTION IS REVERSED. THE CALCULATION IS, HOWEVER, BASED
ON UPSTREAM (IN TERMS OF FLOW) QUANTITIES, HENCE THE SIGN SHOULD BE
UNCHANGED (SEE ATTACHED CODING).

DISPOSITION:

THE ERROR IS CORRECTLY DESCRIBED ABOVE. THE CORRECTION FOR THE
ERROR IS IN MODIFICATION NO. 338 WHICH WILL BE INCLUDED IN THE
MOD005B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 345 *****

REPORTED BY : S. NEWBON UKAEA DATE: 6/1/87
REPORTED TO : EPSC/EI DATE: 6/24/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/1/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES (PLOTS SHOWING THE TEMPERATURES)

DECK SUPPLIED : YES

DECK DESCRIPTION : LOFT DECK FOR EXPT LP-FW-1 TO RUN ON UK VERSION
OF RETRAN

DESCRIPTION OF PROBLEM:

DURING A PRESSURIZER INSURGE THE CODE PREDICTS A SUBCOOLED
VAPOUR REGION IN THE NON-EQUILIBRIUM PRESSURIZER VOLUME, WHEN
CONDITIONS FIRST DEPART FROM SATURATED LIQUID/VAPOUR.

DISPOSITION:

THE CAUSE OF THE REPORTED ERROR HAS BEEN IDENTIFIED. THE LIQUID AND
VAPOR PHASE TEMPERATURES ARE CALCULATED FROM TWO DIFFERENT CURVE FIT
EQUATIONS. THE SATURATION TEMPERATURE IS CALCULATED FROM THE LIQUID
PHASE TEMPERATURE EQUATION USING A SATURATED ENTHALPY VALUE FOR THE
FLUID PRESSURE. THE REPORTED DIFFERENCE BETWEEN THE VAPOR TEMPERATURE
AND THE SATURATED TEMPERATURE IS THE RESULT OF USING THESE SEPARATE
CURVES TO COMPUTE THE TEMPERATURES.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 346 *****

REPORTED BY : S. NEWBON UKAEA DATE: 6/1/87
REPORTED TO : EPSC/EI DATE: 6/24/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/1/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : LOFT DECK FOR EXPT LP-FW-1 TO RUN ON UK VERSION
OF RETRAN

DESCRIPTION OF PROBLEM:

FOR CONDENSATION HEAT TRANSFER, THE HEAT FLUX APPEARS TO BE
DETERMINED BY THE SATURATION RATHER THAN VAPOUR TEMPERATURE,
I.E., $Q'' = H(T_{SAT} - T_{WALL})$. SHOULD TVAP BE USED RATHER THAN
TSAT? (CODE INCLUDES CORRECTION TO ERROR REPORTED AS 326.)

DISPOSITION:

THE REPORTED ERROR IS SIMILAR TO THAT REPORTED IN TROUBLE REPORT
NO. 281. THE CORRECT DELTA-T FOR CONDENSATION IS THE DIFFERENCE
BETWEEN THE WALL TEMPERATURE AND THE SATURATION TEMPERATURE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 347 *****

REPORTED BY : S. NEWBON UKAEA DATE: 6/1/87
REPORTED TO : EPSC/EI DATE: 6/24/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/1/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : LOBI BT-00 (LOSS OF FEEDWATER) EXPT.

DESCRIPTION OF PROBLEM:

USING THE LOCAL CONDITIONS HEAT TRANSFER MODEL WITH THE PRESSURIZER, THE HEAT TRANSFER IS SUDDENLY INCREASED WHEN THE MIXTURE LEVEL RISES ABOVE THE MID-POINT OF THE CONDUCTOR INSTEAD OF BEING CALCULATED PROPORTIONATELY W.R.T. MIXTURE LEVEL. (CODE INCLUDES CORRECTIONS TO ERRORS REPORTED AS 325 AND 326.)

DISPOSITION:

THE REPORTED PROBLEM HAS BEEN IDENTIFIED AS AN ERROR IN IMPLEMENTING THE LOCAL CONDITIONS MODEL FOR USE WITH THE PRESSURIZER. THE CODE CORRECTION IS IN MODIFICATION NO. 340 WHICH WILL BE INCLUDED IN THE MOD005B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 348 *****

REPORTED BY : S. NEWBON UKAEA DATE: 6/18/87
REPORTED TO : EPSC/EI DATE: 7/9/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/18/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : NONE REQUIRED.

DESCRIPTION OF PROBLEM:

THE MODIFICATION ADDING A MASS TRANSFER TERM FOR VAPOR
CONDENSED ON THE WALL OF A NONEQUILIBRIUM PRESSURIZER MODEL.
MODIFICATION 307 DOES NOT ALLOW FOR THE RESIDUAL ENERGY OF THE
CONDENSED MASS LEAVING THE VAPOR REGION AND BEING DEPOSITED IN
THE LIQUID REGION.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED AND WILL BE INCLUDED IN THE
MOD005B UPDATE AS MODIFICATION 336. THE RESIDUAL ENERGY OF THE
CONDENSED MASS WAS REMOVED FROM THE VAPOR REGION ENERGY AND ADDED
TO THE LIQUID REGION ENERGY. THIS TERM WAS ALSO MISSING FROM THE
DOCUMENTATION OF THE MODEL IN THE VOLUME 1 THEORY MANUAL. THE
MANUAL WAS MODIFIED TO INCLUDE THE TERM.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 349 *****

REPORTED BY : S. NEWBON UKAEA DATE: 6/18/87
REPORTED TO : EPSC/EI DATE: 7/9/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/18/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION :

DESCRIPTION OF PROBLEM:

INCREASING THE INTERREGION HTC IN THE PRESSURIZER CAUSES AN INCREASE IN VAPOR REGION TEMPERATURE. THE CHANGE IN THE CODED MODEL FOR INTERREGION HEAT TRANSFER (IN CONJUNCTION WITH MOD 307) MEANS THAT THE MODEL NO LONGER ACCOUNTS FOR ENERGY CONTAINED IN THE MASS TRANSFERRED BUT REMOVES THE ENERGY DUE TO HEAT TRANSFER BETWEEN THE REGIONS TWICE. THE ORIGINAL MODEL APPEARS TO HAVE BEEN CORRECTLY CODED IN AGREEMENT WITH THE DOCUMENTED MODEL.

DISPOSITION:

THE REPORTED ERROR HAS BEEN CORRECTED AND WILL BE INCLUDED IN THE MOD005B UPDATE AS MODIFICATION 335. THIS CORRECTION WILL REQUIRE A CHANGE TO THE VOLUME 1 THEORY SECTION WHICH SHOWS THE SATURATED LIQUID ENTHALPY BEING USED RATHER THAN THE ACTUAL LIQUID REGION ENTHALPY.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 350 *****

REPORTED BY : JAMES WEBB ANPP DATE: 6/30/87
REPORTED TO : EPSC/EI DATE: 7/20/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/30/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : MVS/XA

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PALO VERDE MODEL TURBINE TRIP

DESCRIPTION OF PROBLEM:

 RUN ABORTS ON OVERFLOW IN SUBROUTINE IMPSTP (ISN 250) ROUGHLY
 20 SECONDS AFTER TURBINE TRIP

DISPOSITION:

 THE DECK SUBMITTED WITH THE TROUBLE REPORT WAS EXECUTED ON THE
 MOD004 VERSION (IBM) OF THE CODE AND EXECUTED SUCCESSFULLY. WE HAVE
 NOT YET IDENTIFIED THE SPECIFIC MODIFICATION WHICH CORRECTED AN ERROR
 IN MOD003 SIMILAR TO THE ONE NOTED HERE. THAT INFORMATION WILL BE
 SUPPLIED WHEN THE MODIFICATION IS DETERMINED.

MODELING ALTERNATIVES:

 USE MOD004.

***** PROBLEM REPORT NUMBER 351 *****

REPORTED BY : JOHN LAI PSE&G DATE: 10/2/87
REPORTED TO : EPSC/EI DATE: 10/9/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/2/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CYBER 840A NOS2.5.2

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A 18-REGION CORE MODEL TO SIMULATE THE REACTOR CORE,
 WITH POSITIVE FILL FROM INLET AND TDV ON OUTLET,
 TESTING 1-D KINETICS.

DESCRIPTION OF PROBLEM:

THE PROGRAM STOPS AT SUBROUTINE XSEC WHICH IS CALLED BY CXGEN.
MODE4 ERROR WAS FOUND. WE HAVE CHECKED THE TAPE 40 USING
ANOTHER DECK. NO PROBLEMS WERE FOUND FOR THAT DECK. SO TAPE 40
IS GOOD.

DISPOSITION:

THE OUTPUT SUBMITTED WITH THE TROUBLE REPORT WAS REVIEWED. IT APPEARS
THAT THE USER WAS TRYING TO USE THE OPTION TO PERTURB THE CROSS-SECTIONS
AND HAD AN INPUT ERROR. WE REQUESTED THEY CORRECT THE INPUT ERROR AND
RUN THE PROBLEM AGAIN.

A FOLLOW-UP CONVERSATION WITH PSE&G INDICATED THAT THE CROSS-SECTION
FILE, TAPE40, DID NOT CONTAIN REFLECTOR DATA. THIS COULD CAUSE THE
PROBLEM. THEY HAVE GENERATED ANOTHER INPUT FILE WHICH INCLUDES
REFLECTOR DATA AND IT APPEARS TO WORK CORRECTLY. WE CONSIDER THIS
TROUBLE REPORT TO BE THE RESULT OF AN INPUT ERROR.

MODELING ALTERNATIVES:

USE CORRECT INPUT.

***** PROBLEM REPORT NUMBER 352 *****

REPORTED BY : M. P. PAULSEN EI DATE: 10/13/87
REPORTED TO : EPSC/EI DATE: 10/13/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/13/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM - MVS

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : NOT NEEDED.

DESCRIPTION OF PROBLEM:

IF THE CODE IS INSTALLED FROM SOURCE BY DIRECTLY LINKING THE
OBJECT CODE FOR THE ASSEMBLY LANGUAGE ENVIRONMENTAL LIBRARY
ROUTINES, FIOCS# WILL APPEAR AS AN UNRESOLVED EXTERNAL REFERENCE.
FIOCS# IS CALLED FROM INFILQ WHICH IS NO LONGER USED BUT WAS
INADVERTANTLY LEFT IN THE ENVIRONMENTAL LIBRARY SOURCE.

DISPOSITION:

INFILQ WILL BE DELETED FROM THE IBM LIBRARY IN THE MOD33 LIBRARY UPDATE.
THIS CHANGE WILL BE INCLUDED AS MODIFICATION 18.

MODELING ALTERNATIVES:

NONE REQUIRED, SINCE CODE EXECUTION IS NOT AFFECTED.

***** PROBLEM REPORT NUMBER 353 *****

REPORTED BY : M. A. ZIMMERMANN EIR DATE: 10/12/87
REPORTED TO : EPSC/EI DATE: 10/19/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/12/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : NOS-2

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : CORE CHANNEL OF SMALL HEATING REACTOR USING 1-D KINETICS
 OPTION.

DESCRIPTION OF PROBLEM:

Negative thermal bucklings are not accepted by the code; it sets them to zero. This eliminates the effect of the radial reflector in the thermal group. This may be acceptable for large power reactors, but it is not appropriate for small heating reactors with correspondingly high leakages.

DISPOSITION:

The one-dimensional kinetics model does restrict the user to positive values of buckling as noted in the problem description. This limitation was one decision made when the one-dimensional kinetics model was implemented in RETRAN-02.

MODELING ALTERNATIVES:

None available that will allow negative buckling values.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 354
PAGE 1 OF 1

REPORTED BY: Andy Olson (PECO)

DATE: 11/20/87

REPORTED TO: EPSC (EI)

DATE: 11/25/87

PROGRAM VERSION: RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM: IBM

LISTING SUPPLIED: Yes

FILE NAME: Originally sent to Energy Inc. / not provided to CSA

INPUT FILE SUPPLIED: Yes

FILE NAME: Originally sent to Energy Inc. / not provided to CSA

INPUT MODEL DESCRIPTION: Peach Bottom BWR model.

DESCRIPTION OF PROBLEM: When a core node changes flow regime from mode 2 to mode 1 (two phase to single phase), the right surface heat flux edit (PHIR) may go through a small step change. If a control input card is used to monitor the PHIR edit, the output of the control block will go through a large step change at the same time.

DISPOSITION:

Type of Error:

<u> </u>	Not an Error
<u> </u>	Insignificant
<u> X </u>	Significant

REASON FOR DETERMINATION

Trouble Report 354 was filed for RETRAN-02 MOD004.0 on an IBM mainframe computer using MVS on 11/20/87. It describes an observation in a BWR4 core region where a small step change occurs in a core conductor right side heat flux when the associated core control volume changes phase from two phase to single phase. When a control system block is used to monitor PHIR, the control block output goes through a large step change.

The original trouble report information for Trouble Report 354 was sent to Energy Incorporated when they provided maintenance for RETRAN-02. CSA did not receive the original input file when the maintenance project was transferred. Effort to reproduce the reported problem with a similar deck has been unsuccessful. In nearly 20 years of RETRAN-02 use, nothing similar has been reported. Furthermore, the trouble report was filed against a RETRAN-02 code version that is obsolete and is no longer maintained.

For the reasons cited above, Trouble Report 354 will be closed in the active RETRAN-02 trouble report log.

MODIFICATION NUMBER: None – see Disposition above

MODELING ALTERNATIVES: None identified.

10CFR PART 21 EVALUATION: Reportable Defect: x No Yes Indeterminate
Initials: mpp Date: 03/27/07 (updated)

REASON FOR DETERMINATION:

Problem not reproduced and never reported by others. Don't know of any licensing calculations where this occurs.

***** PROBLEM REPORT NUMBER 355 *****

REPORTED BY : ANDY OLSON PECO DATE: 11/20/87
REPORTED TO : EPSC/EI DATE: 11/25/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/20/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PEACH BOTTOM BWR MODEL.

DESCRIPTION OF PROBLEM:

A TRIP CARD SET TO TRIP ON CONTROL BLOCK HIGH OUTPUT WOULD NOT TRIP AT TIME ZERO EVEN THOUGH THE CONTROL BLOCK OUTPUT WAS ABOVE THE TRIP SETPOINT. THE TRIP OCCURS AT THE FIRST TIME STEP INSTEAD.

DISPOSITION:

THE REPORTED PROBLEM IS NOT A CODE ERROR. ONLY TRIPS ACTIVATED ON ELAPSED TIME ARE CONSIDERED IN THE STEADY-STATE INITIALIZATION PROCESS. THUS A TRIP SUCH AS THE ONE NOTED IN THIS REPORT IS NOT CONSIDERED UNTIL THE TRANSIENT CALCULATION IS INITIATED. SEE SECTION IX.5.4 (P. IX-37) OF THE THEORY MANUAL AND SECTION IV.8.0 (P. IV-42) OF THE USER MANUAL FOR FURTHER INFORMATION.

MODELING ALTERNATIVES:

TO ACTIVATE A TRIP AT TIME ZERO, USE A TIME TRIP.

***** PROBLEM REPORT NUMBER 356 *****

REPORTED BY : ANDY OLSON PECO DATE: 11/20/87
REPORTED TO : EPSC/EI DATE: 11/25/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/20/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PEACH BOTTOM BWR MODEL, WITH NON-EQUILIBRIUM SEPARATOR.

DESCRIPTION OF PROBLEM:

THE JUNCTION QUALITY OF THE SEPARATOR LIQUID EXIT DOES NOT MATCH
THE SEPARATOR CARRYUNDER FRACTION AT TIME ZERO.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AND RESOLVED. CARRYUNDER
IS COMPUTED AS PART OF THE SEPARATOR MODEL, WHILE THE EDITTED VALUE
OF JUNCTION QUALITY IS COMPUTED FROM THE EQUATION OF STATE. THE
SEPARATOR MODEL USES THE CARRYUNDER, NOT THE JUNCTION QUALITY. THUS
THE PROBLEM IS ONLY ASSOCIATED WITH THE EDIT AND DOES NOT AFFECT
THE COMPUTED RESULTS. THIS TROUBLE REPORT WILL BE RESOLVED BY AN
ADDITION TO THE THEORY MANUAL AND ONE TO THE USER MANUAL TO EXPLAIN
THIS SITUATION.

MODELING ALTERNATIVES:

NONE REQUIRED.

***** PROBLEM REPORT NUMBER 357 *****

REPORTED BY : J. H. MCFADDEN EI DATE: 11/20/87
REPORTED TO : EPSC/EI DATE: 11/25/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/20/87

CODE VERSION : RETRAN-02 MOD005A

COMPUTER/OPERATING SYSTEM : ---

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ATWS SAMPLE PROBLEM.

DESCRIPTION OF PROBLEM:

MODIFICATION NO. 332 OF THE MOD005A UPDATE CORRECTED AN ERROR IN SUBROUTINE TAVE. PART OF THIS MODIFICATION ALSO INVOLVED CHANGING SOME CODING TO MAKE THE COMPUTATION MORE EFFICIENT. FOR SOME CONDITIONS, THIS LATTER CHANGE PRODUCED SLIGHTLY DIFFERENT VALUES DUE TO ROUND OFF THAN IN MOD004 AND THIS AFFECTED THE BEHAVIOR OF ONE TRIP IN THIS SAMPLE PROBLEM. THE CODING IN TAVE WILL BE REVISED SO ONLY THE ERROR CORRECTION IS INCLUDED IN MOD005B.

DISPOSITION:

THE REPORTED ERROR HAS BEEN IDENTIFIED AS NOTED ABOVE. THE MODIFICATION (NO. 339) WILL BE MADE IN THE MOD005B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 358 *****

REPORTED BY : S. NEWBON/UKAEA DATE: 10/12/87
REPORTED TO : EPSC/EI DATE: 12/21/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/12/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : CRAY

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : LOBI B PRE TEST PREDICTION OF STEAM LINE BREAK
 TEST BT-12. INPUT DECK PREVIOUSLY SENT - NEEDS
 TO BE SET UP FOR BT-12.

DESCRIPTION OF PROBLEM:

CODE FAILURE DUE TO ZERO VALUE RETURNED BY CHOKEM CAUSING TIMESTEP
TO BE REPEATEDLY HALVED. PROBLEM STEMS FROM USE OF MOODY MODEL
WHEN VOID FRACTION REACHES UNITY. FAILURE CAN BE CIRCUMVENTED BY
DIFFERENT CHOKED FLOW MODEL.

DISPOSITION:

THE PROBLEM IS A CODE LIMITATION, RESULTING FROM THE USER OF THE
MOODY MODEL FOR A SUPERHEATED VAPOR REGION. THE MOODY MODEL IS
ONLY APPLICABLE IN THE TWO-PHASE REGION AND AT THE SATURATION
CURVE BOUNDARIES (X=0.0 AND X=1.0). SEE FIG. IV.3-4 IN VOLUME 1,
REVISION 3.

MODELING ALTERNATIVES:

USE A CHOKING MODEL THAT IS VALID FOR VAPOR CONDITIONS. THE CHOKING
MODEL SELECTION CAN BE CHANGED AT RESTART USING THE GENERALIZED
RESTART OPTION.

***** PROBLEM REPORT NUMBER 359 *****

REPORTED BY : S. NEWBON/UKAEA DATE: 10/12/87
REPORTED TO : EPSC/EI DATE: 12/21/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/12/87

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : LOBI - ANALYSIS OF EXPERIMENT A2-90 (LOSS OF AU POWER)

DESCRIPTION OF PROBLEM:

THE PROBLEM OCCURRED WITH LOCAL CONDITIONS HEAT TRANSFER IN A PRESSURIZER VOLUME. WHEN THE PRESSURIZER WENT WATER SOLID THE TOP CONDUCTOR IN THE STACK OF 3 CONDUCTORS BEGAN TO LOSE HEAT RAPIDLY TO THE LIQUID IN THE PRESSURIZER.

DISPOSITION:

THE REPORTED PROBLEM HAS BEEN IDENTIFIED. THE GEOMETRY OF THE SYSTEM WAS NOT CONSISTENT; THE TOP OF THE CONDUCTOR AND THE TOP OF THE PRESSURIZER VOLUME WERE NOT THE SAME. A CHECK WAS PUT INTO SUBROUTINE INSLAB TO MAKE CERTAIN THE CONDUCTOR WAS WITHIN THE VOLUME OF THE LOCAL CONDITIONS MODEL. THIS CHANGE IS INCLUDED IN MODIFICATION NO. 341 WHICH WILL BE INCLUDED IN THE MOD005B UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 360 *****

REPORTED BY : S. NEWBON/UKAEA DATE: 10/12/87
REPORTED TO : EPSC/EI DATE: 12/21/87

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/12/87

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : 1 VOLUME PRESSURIZER MODEL WITH 2 FILL JUNCTIONS (0
ORDINARY JUNCTIONS)

DESCRIPTION OF PROBLEM:

THE CHANGE TO FORTRAN 77 MEANS A NUMBER OF DO LOOPS IN SUBROUTINE
CHAIN ARE NOT EXECUTED. THIS CAUSES AN ARGUMENT OF ZERO TO BE
PASSED TO SUBROUTINE SHIFT AT INJUN0558 AND THE CASE FAILS.

DISPOSITION:

THE PROBLEM IS CORRECTLY STATED ABOVE, AND ONLY OCCURS IF THERE IS
NOT A NORMAL JUNCTION IN THE MODEL. THE CODE EXECUTES SUCCESSFULLY
ON CDC. SUBROUTINE INJUN HAS BEEN MODIFIED TO CORRECT THE PROBLEM,
AND THE UPDATE WILL BE INCLUDED AS MODIFICATION NO. 342 WHICH WILL
BE IN THE MOD005C UPDATE.

MODELING ALTERNATIVES:

INCLUDE A NORMAL JUNCTION IN THE MODEL. IT CAN BE A JUNCTION
WITH A CLOSED VALVE.

***** PROBLEM REPORT NUMBER 361 *****

REPORTED BY : W. J. BOATWRIGHT/TU DATE: 2/25/88
REPORTED TO : EPSC/EI DATE: 3/1/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/25/88

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : PCC CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : STAND-ALONE NON-EQUILIBRIUM SEPARATOR MODEL - SIMULATING
W SWIRL-NAME SEPARATOR.

DESCRIPTION OF PROBLEM:

ERROR MESSAGE GIVES ABSOLUTE MEMORY ADDRESS RATHER THAN ACTUAL
JUNCTION NUMBER.

DISPOSITION:

THE ERROR IS CORRECTLY IDENTIFIED IN THE DESCRIPTION OF THE PROBLEM.
WHILE INVESTIGATING THE REPORTED PROBLEM, THE SAME ERROR WAS NOTED IN
SEVERAL OTHER "WRITE" STATEMENTS IN THE ROUTINE. THESE ERRORS ARE
CORRECTED IN MODIFICATION NO. 344 WHICH WILL BE INCLUDED IN THE
MOD005C UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 362 *****

REPORTED BY : ANTONIO F. DIAS/PSE&G DATE: 3/29/88
REPORTED TO : EPSC/EI DATE: 4/4/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/29/88

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : THE INPUT DATA (PROVIDED AS FILE IMPDCK ON THE DISKETTE ATTACHED TO THIS REPORT) DESCRIBES A 1-D RETRAN CALCULATION FOR AN IMAGINARY (AND VERY SIMPLE) REACTOR WHERE THE INSERTION OF A CONTROL ROD ONLY CAUSES ZA TO VARY. ALSO, NO FEEDBACK EFFECT IS CONSIDERED. THE CORRESPONDING FILE TAPE40 IS ALSO BEING SENT ON THE DISKETTE, UNDER THIS SAME NAME.

DESCRIPTION OF PROBLEM:

POSSIBLE ERROR IN SUBROUTINE RODMOV. Y-FUNCTION INFORMATION MAY BE HANDLED IN THE WRONG ORDER.

DISPOSITION:

ADDITIONAL INVESTIGATION INTO THIS PROBLEM INDICATED THAT THE Y-FUNCTION WAS PLACED ON THE FILE, TAPE40, IN A DIFFERENT ORDER THAN THAT EXPECTED BY RETRAN. THUS THE PROBLEM WAS FOUND TO BE AN INTERFACE PROGRAM PROBLEM RATHER THAN A RETRAN-02 INPUT PROBLEM.

MODELING ALTERNATIVES:

SPECIFY TAPE40 DATA IN CORRECT ORDER.

***** PROBLEM REPORT NUMBER 363 *****

REPORTED BY : MARK P. PAULSEN/EI DATE: 5/5/88
REPORTED TO : EPSC/EI DATE: 5/5/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/5/88

CODE VERSION : RETRAN-02 MOD005B

COMPUTER/OPERATING SYSTEM : IBM-MVS

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : NOT APPLICABLE.

DESCRIPTION OF PROBLEM:

THE VS 2.1 COMPILER FLAGS SCALE FACTOR FORMAT SPECIFICATIONS (KP)
WITH A WARNING IF IT IS NOT DELIMITED BY A COMMON, SLASH, OR COLON.
CDC COMPILERS AND PREVIOUS IBM COMPILERS DO NOT REQUIRE DELIMITERS,
E.G., 1PE15.7 WAS ACCEPTABLE.

DISPOSITION:

THE ERROR IS CORRECTLY IDENTIFIED IN THE DESCRIPTION OF THE PROBLEM.
CORRECTIONS TO THE FORMAT STATEMENTS WERE MADE BY ADDING A ', '
TO THE STATEMENTS. THE CORRECTIONS ARE IDENTIFIED AS MODIFICATION NO.
345 WHICH WILL BE INCLUDED IN THE MOD005C UPDATE. ADDITIONAL
CORRECTIONS IDENTIFIED AS MODIFICATION NO. 353 WILL BE INCLUDED IN
THE MOD005.0 UPDATE.

MODELING ALTERNATIVES:

N/A

***** PROBLEM REPORT NUMBER 364 *****

REPORTED BY : JOHN SCHROEDER/EI DATE: 5/27/88
REPORTED TO : EPSC/EI DATE: 5/31/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/27/88

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PALISADES SINGLE-LOOP MODEL

DESCRIPTION OF PROBLEM:

PROGRAM FAILS WITH A MODE 2 ERROR AS A RESULT OF SPECIFYING
MULTIPLE PUMP CONNECTIONS ON THE SAME VOLUME. AN ERROR MESSAGE
DESCRIBING THE PROBLEM IS INCOMPLETELY WRITTEN OUT (SEE PAGE 19
OF LISTING.

DISPOSITION:

THE REPORTED ERROR IS ASSOCIATED WITH THE "WRITE" STATEMENT FOR
THE INPUT ERROR. THE INPUT ERROR WAS BEING DETECTED CORRECTLY,
BUT THE DIAGNOSTIC WAS NOT RIGHT. THE MODIFICATION INVOLVED
REVISING THE ERROR MESSAGE AND THE WRITE STATEMENT.

THE CHANGE IS INCLUDED IN MODIFICATION NO. 349 WHICH WILL BE
INCLUDED IN THE MOD005C UPDATE.

MODELING ALTERNATIVES:

AVOID ASSIGNING MULTIPLE PUMPS TO A SINGLE CONTROL VOLUME.

***** PROBLEM REPORT NUMBER 365 *****

REPORTED BY : DEAN THROCKMORTON/TU DATE: 5/27/88
REPORTED TO : EPSC/EI DATE: 6/6/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 5/27/88

CODE VERSION : RETRAN-02 MOD003

COMPUTER/OPERATING SYSTEM : PCC/CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : STAND-ALONE S/G (D-4) MODEL

DESCRIPTION OF PROBLEM:

NO ERROR MESSAGE IS PROVIDED WHEN USING A NON-EXISTENT TRIP
ID IN THE TRIP CONTROL CARDS FOR IX1 OR IX2 (SEE CARDS 041420,
041430, AND 041440 OF ATTACHED OUTPUT).

DISPOSITION:

THE REPORTED ERROR WAS ASSOCIATED WITH INPUT PROCESSING OF
INDIRECT AND COINCIDENCE TRIPS. THE MODIFICATION INVOLVED
ADDING A CHECK TO VERIFY THAT THE TRIP ID IX1 AND/OR IX2 EXISTS.
AN EXISTING ERROR MESSAGE WAS USED.

THE CHANGE IS INCLUDED IN MODIFICATION NO. 350 WHICH WILL BE
INCLUDED IN THE MOD005.0 UPDATE.

MODELING ALTERNATIVES:

USE EXISTING TRIP IDS FOR IX1 AND IX2 FOR INDIRECT AND
COINCIDENCE TRIPS.

REPORTED BY: A. IRANI (GPU NUCLEAR) DATE: 06/02/88
REPORTED TO: EPSC (EI) DATE: 06/07/88

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 06/02/88

CODE VERSION: RETRAN-02 MOD004

COMPUTER/
OPERATING SYSTEM: IBM

LISTING SUPPLIED: YES

DECK SUPPLIED: NO

DECK DESCRIPTION: OYSTER CREEK

DESCRIPTION OF PROBLEM: MIXL VOL 108 BECOMES MUCH SMALLER THAN LIQL
VOL 108.

DISPOSITION: INITIAL INVESTIGATION OF THE OUTPUT INDICATES
THAT THE TWO REGION VOLUME IS UNDERGOING AN
OUTSURGE IN WHICH THE INTERFACE IS DECREASING.
ADDITIONAL STUDIES WILL BE MADE WHEN THE INPUT
DECK IS RECEIVED.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE AN INPUT
DECK WAS NOT SUPPLIED THAT CORRESPONDED TO THE
ORIGINAL PROBLEM REPORT.

MODELING ALTERNATIVES: NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 367 *****

REPORTED BY : JOHN WESTACOTT/EI DATE: 7/15/88
REPORTED TO : EPSC/EI DATE: 7/18/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/15/88

CODE VERSION : RETRAN-02 MOD005C

COMPUTER/OPERATING SYSTEM : CDC

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : SIMPLE CORE - 1 CONTROL VOLUME 2 FILL BOUNDARY JUNCTIONS,
POINT KINETICS WITH FIVE POWER HISTORY DATA SETS. DECAY
HEAT, 1979 ANS WITH 3 ISOTOPES.

DESCRIPTION OF PROBLEM:

INPUT REFLECTION SHOWS THAT DEFAULT POWER FRACTIONS FOR HISTORY DATA IS
BEING TAKEN FROM THE PREVIOUS HISTORY SET INSTEAD OF INTERNAL DEFAULT
DATA.

DISPOSITION:

REVIEW OF SUBROUTINE RKENP SHOWED THAT NOT ONLY WERE THE DEFAULT
VALUES BEING USED INCORRECTLY, BUT THAT THE LAST SET OF HISTORY
POWER FRACTIONS WERE BEING USED FOR EACH HISTORY CALCULATION.
SUBROUTINE RKENP WAS MODIFIED TO INSURE THAT THE DEFAULT POWER
FRACTIONS ARE USED TO NORMALIZE THE DECAY POWER WHEN DATA ISN'T
SUPPLIED AND THAT THE CORRECT NORMALIZATION OCCURES FOR EACH
PRECURSOR CONCENTRATION CALCULATION.

THE CHANGE IS INCLUDED IN MODIFICATION NO. 351 WHICH WILL BE
INCLUDED IN THE MOD005.0 UPDATE.

MODELING ALTERNATIVES:

USE EQUILIBRIUM CONDITIONS (NO POWER HISTORY CARDS ARE SUPPLIED)

***** PROBLEM REPORT NUMBER 368 *****

REPORTED BY : GARRY GOSE/EI DATE: 7/15/88
REPORTED TO : EPSC/EI DATE: 7/18/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/15/88

CODE VERSION : RETRAN-02 MOD005C

COMPUTER/OPERATING SYSTEM : IBM VS 2.1

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : RETRAN SAMPLE PROBLEMS INVOLVING POINT KINETICS

DESCRIPTION OF PROBLEM:

ALL POINT KINETICS DECKS DISPLAYED ANOMOLOUS POWER BEHAVIOR ON THE IBM VERSION. ADDITIONAL INVESTIGATION INDICATED THAT A CODING PROBLEM IN SUBROUTINE INRKEN IS THE CAUSE.

DISPOSITION:

VARIABLE KKMUL IN SUBROUTINE INRKEN WAS NOT INITIALIZED IF THE DEFAULT ANS MULTIPLIER WAS USED. THE MODIFICATION INVOLVED ADDING AND INITIALIZATION OF KKMUL.

THE CHANGE IS INCLUDED IN MODIFICATION NO. 352 WHICH WILL BE INCLUDED IN THE MOD005.0 UPDATE.

MODELING ALTERNATIVES:

SET KMUL TO 1.0 ON THE 14000X CARD.

***** PROBLEM REPORT NUMBER 370 *****

REPORTED BY : JOHN WESTACOTT/EI DATE: 7/19/88
REPORTED TO : EPSC/EI DATE: 7/20/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/19/88

CODE VERSION : RETRAN-02 MOD005C

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : SIMPLE CORE; ONE CONTROL VOLUME, TWO FILL
 JUNCTION BOUNDARY CONDITIONS, POINT KINETICS

DESCRIPTION OF PROBLEM:

 DECAY HEAT CONCENTRATIONS MINOR EDITS ARE NOT BEING READ
 CORRECTLY. TRANSIENT RESULTS SHOW CORRECT DECAY HEAT
 BUT CONCENTRATION EDITS FOR GROUPS 1 & 2 ARE EQUAL AND
 GROUP 7 IS 2 OR 3 ORDERS OF MAGNITUDE TOO LARGE.

DISPOSITION:

 THE PROBLEM WAS DUE TO DIFFERING WORK LENGHRS BETWEEN THE
 IBM AND CDC MACHINES. SUBROUTINE EDATA3 AND EDATA5 WERE
 MODIFIED TO ACCOUNT FOR THIS.

 THE CHANGE IS INCLUDED IN MODIFICATION NO. 355 WHICH WILL BE
 INCLUDED IN THE MOD005.0 UPDATE.

MODELING ALTERNATIVES:

 NONE IDENTIFIED.

DECEMBER 31, 1995

***** PROBLEM REPORT NUMBER 371 *****

REPORTED BY : JERRY K. BARRETT/EI DATE: 8/1/88
REPORTED TO : EPSC/EI DATE: 8/3/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/1/88

CODE VERSION : RETRAN-02 MOD005

COMPUTER/OPERATING SYSTEM : CYBER

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : WASHINGTON PUBLIC POWER WNP-2 MSIV ATWS DECK
(JKB>WPS>MSIV> SLCS.MOD5)

DESCRIPTION OF PROBLEM:

FAILS IN THE HEADC SUBROUTINE. IDV-500 X=1.0 SEEMS TO CAUSE ZM TO BE
SET TO 0.0. IF X=0.98 THEN EVERYTHINGS SEEMS TO BE ALRIGHT.

DISPOSITION:

A PRELIMINARY CORRECTION HAS BEEN DEVELOPED WHICH MODIFIES LOGIC
IN SUBROUTINE HEADC. THE CORRECTION CAUSES HEADC TO CHECK TO SEE
IF THE VOLUME MIXTURE LEVEL (VARIABLE ZM) IS ZERO WHILE THE VOLUME
IS TWO-PHASE. IF ZM IS ZERO, THEN A PRESSURE HEAD IS CALCULATED
THAT IS MORE REPRESENTATIVE OF A SINGLE PHASE CONDITION. THIS
AVOIDS THE USE OF $ZM = 0$ IN THE DENOMINATOR OF THE HEAD CALCULATION.

THIS CORRECTION WILL BE INCLUDED IN THE RETRAN-02 MOD005.1 UPDATE.

MODELING ALTERNATIVES:

IN THIS CASE, SPECIFICATION OF MIXTURE QUALITY OF SLIGHTLY LESS
THAN 1.0 WILL FORCE SUBROUTINE PBOUND (THE ROUTINE RESPONSIBLE FOR
DIRECTING THE COMPUTATION OF EQUATION OF STATE PROPERTIES FOR
BOUNDARY VOLUMES) TO CALCULATE A VERY SMALL MIXTURE LEVEL. THIS
WILL ALLOW THE HEAD CALCULATION IN SUBROUTINE HEADC TO SURVIVE
WHEN THE VALUE OF ZM IS USED IN THE DENOMINATOR OF THE
"WEIGHTED" HEAD CALCULATION.

***** PROBLEM REPORT NUMBER 372 *****

REPORTED BY : MARTIN ZIMMERMANN/PSI DATE: 7/26/88

REPORTED TO : EPSC/EI DATE: 8/4/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/26/88

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : NOS2

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : DISTRICT HEATING REACTOR DECK. PRIMARY SYSTEM AND POOL.
POINT KINETICS FOR CORE, NONCONDUCTING HEAT EXCHANGER FOR
HEAT TRANSFER.

DESCRIPTION OF PROBLEM:

RETRAN03 CARRIED OUT WITH RETRAN02. NUMERICS PRODUCTS RESULTS APPARENTLY
INDEPENDENT OF SELECTED TIME-STEP SIZE. HOWEVER A STRONG TIME-STEP SIZE
DEPENDENCE IS FOUND FOR RETRAN02 SOLUTIONS OF THE SAME TRANSIENT CALCULATIO
THIS IS PROBABLY DUE TO THE UNPHYSICAL BEHAVIOUR OF RETRAN02 WHEN
CALCULATING ACCELERATION PRESSURES.

DISPOSITION:

NONE IDENTIFIED.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 373 *****

REPORTED BY : JOHN SORENSEN/S. LEVY DATE: 8/5/88
REPORTED TO : EPSC/EI DATE: 8/9/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/5/88

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : OYSTER CREEK TURGINE TRIP ANALYSIS. (MODEL SCHEMATIC IS ATTACHED.)

DESCRIPTION OF PROBLEM:

NON-EQUILIBRIUM VOLUME PRESSURE TAKES LARGE STEP AT THE POINT WHERE THE THERMO-DYNAMIC STATE CHANGES IN THE LIQUID REGION. SEE MARKED OUTPUT ON PAGES 58 AND 63 OF OUTPUT LISTING. CALCULATING ACCELERATION PRESSURES.

DISPOSITION:

THE PRESSURE IN NON-EQUILIBRIUM VOLUMES IS DETERMINED IN SUBROUTINE PRZR USING A NEWTON-RAPHSON ITERATION WHERE CONVERGENCE IS A FUNCTION OF THE CHANGE IN LIQUID VOLUME. THE RELATIVE VALUE OF THE INTERNAL ENERGY IN EACH REGION IS ADJUSTED TO ACHEIVE CONVERGENCE. IN THIS PROBLEM, FOR THE TIME STEP STRUCTURE GIVEN, THE ITERATIVE PRESSURE SOLUTION CONVERGED ON A HIGER PRESSURE RESULTING IN A PRESSURE INCREASE IN THE NON-EQUILIBRIUM VOLUME. ADDITIONAL STUDIES IN WHICH THE ITERATIVE LOOP WAS FORCED THROUGH MORE ITERATIONS USING A SMALLER INCREMENTAL INTERNAL ENERGY DURING THE SEARCH RESULTED IN A SMOOTH PRESSURE CONVERGENCE WITHOUT ANY STEP CHANGES. ADDITIONALLY, RESTARTS WITH TIME STEPS THAT WERE SMALLER THAN THE ORIGINAL DECK (REDUCED TO 0.002 SECS) RESULTED IN A SMOOTHER PRESSURE BEHAVIOR AS THE THE LIQUID REGION CHANGES PHASE.

THIS PROBLEM HAS BEEN DETERMINED TO BE CAUSED BY LIMITATIONS IN THE RETRAN-02 MODEL. NO CODE CORRECTIONS WILL BE MADE.

MODELING ALTERNATIVES:

RESTART THE PROBLEM USING SMALLER TIME STEPS DURING THE PHASE CHANGE.

***** PROBLEM REPORT NUMBER 374 *****

REPORTED BY : ANDY OLSON/PECO DATE: 7/29/88
REPORTED TO : EPSC/EI DATE: 8/11/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/29/88

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : FUEL PIN TEST DECK

DESCRIPTION OF PROBLEM:

USING 10 REGIONS TO DESCRIBE THE FUEL PELLETT INSTEAD OF 1 REGION
RESULTS IN A DIFFERNT TAVG AS REPORTED ON THE MAJOR EDIT. THE NODAL
TEMPERATURES ALONG THE CONDUCTOR ARE UNCHANGED.

DISPOSITION:

THE PROBLEM HAS BEEN DETERMINED TO BE CAUSED BY MODEL LIMITATIONS IN
THE RETRAN-02 CODE. NO CODE CHANGES WILL BE MADE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 375 *****

REPORTED BY : ANDY OLSON/PECO DATE: 7/29/88
REPORTED TO : EPSC/EI DATE: 8/11/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/29/88

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PEACH BOTTOM SYSTEM MODEL

DESCRIPTION OF PROBLEM:

THE NON-EQUILIBRIUM SEPARATOR MODEL VOLUME MIXTURE LEVEL DROPPED TO ZERO DURING A LOSS OF FEEDWATER FLOW EVENT. THE EVENT RESULTS IN A REACTOR SCRAM, RECIRCULATION PUMP TRIP, AND REACTOR ISOLATION.

DISPOSITION:

THE BEHAVIOR HAS BEEN DETERMINED TO BE A LIMITATION OF THE CURRENT RETRAN-02 SEPARATOR MODEL. THE MODEL WAS NOT DEVELOPED TO MAINTAIN A CONSTANT LIQUID INVENTORY. THE LEVEL IN THE SEPARATOR VOLUME IS DETERMINED BY INTEGRATING THE MASS AND ENERGY EQUATIONS FOR EACH REGION OVER THE CURRENT TIME STEP, TAKING INTO ACCOUNT THE JUNCTION FLOW IN AND OUT AND THE MASS EXCHANGE BETWEEN THE REGIONS. FOR THE GEOMETRIC CONFIGURATION GIVEN IN THE INPUT DECK, AND THE TYPE OF TRANSIENT OBSERVED, THE MODEL APPEARS TO BEHAVE AS IT WAS DESIGNED.

MODELING ALTERNATIVES:

IF A GIVEN LEVEL IS DESIRED, SOME REORIENTATION OF THE RECIRCULATION JUNCTION ELEVATION ABOVE THE BOTTOM OF THE SEPARATOR MAY BE DESIRED. IN ADDITION, ORIENTING THE RECIRCULATION JUNCTION VERTICALLY, (JVERTL = 1) MAY ELIMINATE NUMERICAL PROBLEMS IN THE ORIGINAL RUN WHEN THE LEVEL DROPPED TO ZERO.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

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REPORTED BY: Mark Waltz (TVA)

DATE: 10/14/88

REPORTED TO: EPSC (EI)

DATE: 10/14/88

PROGRAM VERSION: RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM: IBM

LISTING SUPPLIED: Yes

FILE NAME: (original not available – mpp 3/27/07)

INPUT FILE SUPPLIED: Yes

FILE NAME: pr376 & pr376.xec

INPUT MODEL DESCRIPTION: Browns Ferry system model with one-dimensional kinetics.

DESCRIPTION OF PROBLEM: Deck was modified to perform MSIV ATWS evaluation. No scram signal was allowed and edits of control rod position verified that no rod motion had occurred. Kinetics rod worth minor edits indicated that rod was present at 35 and 45 seconds and appeared to be oscillating.

DISPOSITION:

Type of Error:

<input type="checkbox"/>	Not an Error
<input type="checkbox"/>	Insignificant
<input checked="" type="checkbox"/>	Significant

REASON FOR DETERMINATION

Trouble Report 376 was filed for RETRAN-02 MOD004.0 on an IBM mainframe using MVS on 10/14/1988. It describes a problem in a BWR model using one-dimensional kinetics. During an MSIV ATWS analysis, no scram signal was issued, and RETRAN-02 edits indicate that no control rod motion occurred. However, an edit of the one-dimensional kinetics rod worth showed kinetics reactivity at 35 and 45 seconds with an oscillating pattern.

The trouble report was filed on RETRAN-02 MOD004.0 on an IBM mainframe using MVS. The date of the trouble report is 10/14/1988.

Attempts to reproduce the code error with RETRAN-02 MOD005.2 resulted in input failures in reading the cross section file. Even though the one-dimensional kinetics cross section file is ASCII format, there are conversion issues for cross sections files that were generated on the IBM mainframe.

The control rod model option that is used in the input file is the obsolete "y" function model that has been replaced by the more robust and accurate multi-state control rod model in later RETRAN-02 code versions and in RETRAN-3D. The "y" function model is considered an obsolete and unsupported model. The "y" function model has been removed from RETRAN-3D. The "y" function model is not used by any current members of the RETRAN maintenance group. No current cross section generation scheme can generate data for the "y" function model.

For the reasons cited above, Trouble Report 376 will be closed in the active RETRAN-02 trouble report log.



SOFTWARE TROUBLE REPORT

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COMPUTER SIMULATION & ANALYSIS, INC.

MODIFICATION NUMBER: None – see Disposition above

MODELING ALTERNATIVES: None identified.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: mpp Date: 03/27/07 (updated)

REASON FOR DETERMINATION:

Problem not reproduced and never reported by others. Don't know of any licensing calculations where this occurs. Obsolete modeling option.

***** PROBLEM REPORT NUMBER 377 *****

REPORTED BY : LYNNE SAUL/EI DATE: 10/24/88
REPORTED TO : EPSC/EI DATE: 10/24/88

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/24/88

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : CDC NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : RETRAN-02 MOD005.0 TTWOB SAMPLE PROBLEM

DESCRIPTION OF PROBLEM:

WORK ON THE USER EXTENDED MEMORY VERSION OF RETRAN INDICATED A POTENTIAL LOGIC EERROR IN SUBROUTINE DNBM. CORE INLET AND OUTLET VOLUME NUMBERS ARE NOT CHECKED BEFORE A VOLUME INDEX IS COMPUTED. A MODE 4 ERROR MAY RESULT, DEPENDING UPON THE PROBLEM.

DISPOSITION:

A PRELIMINARY UPDATR TO PERFORM LOGIC CHECKING ON INLET AND OUTLET CORE VOLUME NUMBERS HAS BEEN DEVELOPED. THIS CORRECTION WILL BE ADDED TO THE MOD005.1 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 378 *****

REPORTED BY : JAMES BOATWRIGHT DATE: 01/11/89
REPORTED TO : EPSC/EI DATE: 01/17/89

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 01/11/89

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : CDC NOS/BE

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A.

DESCRIPTION OF PROBLEM:

THE USER'S MANUAL DESCRIPTION FOR CARDS 146010 AND 14700X (1979 DECAY
HEAT OPTION) DEFINES U-238 AND PU-239 POWER FRACTIONS AS FRC(2) AND
FRC(3), RESPECTIVELY. THE CODE USES THESE VALUES IN REVERSE ORDER,
HOWEVER; FRC(2) IS THE PU-239 FRACTION AND FRC(3) IS THE U-238 FRACTION.

DISPOSITION:

A CORRECTION WILL BE MADE IN THE INPUT MANUAL, VOLUME 3, TO BRING IT
INTO CONFORMANCE WITH THE CODE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 379 *****

REPORTED BY : SAL RANATZA DATE: 01/23/89
REPORTED TO : EPSC/EI DATE: 01/24/89

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 01/23/89

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : IBM MVS

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A.

DESCRIPTION OF PROBLEM:

THE 1-D KINETICS CASE RUNS WITH NODEL=4 ON THE KINETICS DIMENSION CARD 30001 USING THE Y-FUNCTION ROD MODEL. USING NODEL=5 AND 3 CONTROL STATES RESULTS IN AN OUT-OF-RANGE ERROR FOR THE NUMBER OF CONTROL STATES. INPUTTING A VALUE OF 2 FOR THE NUMBER OF CONTROL STATES AVOIDS THE OUT-OF-RANGE ERROR BUT CAUSES AN ERROR READINF THE CROSS SECTION FILE.

DISPOSITION:

THE PROBLEM IS CAUSED BY A CODE ERROR IN DECK INQ1. DATA STATEMENTS SPECIFYING THE MIN AND MAX RANGE OF VALUES FOR CARD 3000Y LIMIT THE NUMBER OF CONTROL STATES TO TWO. A PRELIMINARY CORRECTION HAS BEEN DEVELOPED. THIS CORRECTION WILL BE ADDED TO THE MOD005.1 UPDATE.

MODELING ALTERNATIVES:

THE CODE WILL EXECUTE WITH TWO CONTROL STATES SPECIFIED. IN SOME CASES IT MAY BE POSSIBLE TO SUPPLY A SECOND IDENTICAL CROSS SECTION SET TO BYPASS THE ERROR.

***** PROBLEM REPORT NUMBER 380 *****

REPORTED BY : GARY PRATT DATE: 12/13/88
REPORTED TO : EPSC/EI DATE: 02/03/89

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/13/88

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : IBM VM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : N.A.

DESCRIPTION OF PROBLEM:

THE ENVIRONMENTAL LIBRARY SUBROUTINE, GETCOR, RETURNS A BLKSIZE OF ZERO FOR DEVICE FTB15F01. A SUBSEQUENT I/O OPERATION RESULTS IN NO DATA TRANSFERRED AND TERMINATION OF THE RUN.

DISPOSITION:

THIS PROBLEM IS DUE TO A MODEL LIMITATION IN THE MVS VERSION OF THE CODE. THE RETRAN-02 CODE HAS NOT BEEN COMPILED AND TESTED FOR THE VM OPERATING SYSTEM.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 382 *****

REPORTED BY : FRANCIS YUNG DATE: 03/06/89
REPORTED TO : EPSC/EI DATE: 03/06/89

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 03/06/89

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : CDC NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : WPPSS MODEL OF PEACH BOTTOM TT1 TEST

DESCRIPTION OF PROBLEM:

THE REACTIVITY EDITS GAVE INCORRECT VALUES AFTER THE TIME OF SCRAM
WHEN RUNNING THE 1-D KINETICS MODEL.

DISPOSITION:

INCORRECT VALUES WERE BEING CALCULATED FOR CERTAIN CROSS SECTIONS AFTER
THE RODS BEGAN MOVING. A PRELIMINARY CORRECTION HAS BEEN IDENTIFIED NAD
THE UPDATE WILL BE INCLUDED IN THE MOD005.1 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

REPORTED BY : C.E. DODGE DATE: 03/12/89
REPORTED TO : EPSC/EI DATE: 04/04/89

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 03/12/89

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM/MVS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PP&L BWR LICENSING METHODS SYSTEM MODEL

DESCRIPTION OF PROBLEM:

THE TWO METHODS OF SPECIFYING A JUNCTION LOSS COEFFICIENT DO NOT RESULT IN THE SAME STEADY STATE ACCELERATION PRESSURE LOSS WHEN THE MOMENTUM MIXING OPTION (MVMIX=2) IS SELECTED.

DISPOSITION:

A PRELIMINARY CORRECTION HAS BEEN DEVELOPED FOR SUBROUTINE MIXFLO. JUNCTIONS WHICH USE THE MOMENTUM MIXING OPTION (JET PUMP MODEL) AND THE OPTIONS TO OBTAIN JUNCTION LOSS COEFFICIENTS THROUGH JCALCI = 1, 3 OR 1000 ARE TREATED DIFFERENTLY IN THE JET PUMP MODEL LOGIC THAN ARE NORMAL JUNCTIONS IN WHICH LOSS COEFFICIENTS ARE INPUT ON THE JUNCTION CARD. THE RESOLUTION OF THIS PROBLEM IS THAT ALL JUNCTIONS SHOULD BE TREATED THE SAME REGARDLESS OF THE METHOD OF DEFINING THE LOSS COEFFICIENT. THE MODEL WAS MODIFIED ACCORDINGLY. THE EXISTING CODING FOR JUNCTIONS IN WHICH THE LOSS COEFFICIENT WAS INPUT ON THE JUNCTION CARD IS CORRECT.

THIS CORRECTION WILL BE INCLUDED IN THE MOD005.1 UPDATE.

MODELING ALTERNATIVES:

THIS PROBLEM WILL BE ENCOUNTERED ONLY IF A JUNCTION USES THE MOMENTUM MIXING OPTION (MVMIX = 1 OR 2) AND THE LOSS COEFFICIENT IS DEFINED THROUGH ONE OF THE JCALCI OPTIONS (JCALCI 1, 3 OR 1000). IF THIS INPUT COMBINATION EXISTS IN AN INPUT MODEL, IT CAN BE RECOGNIZED BECAUSE THE STEADY STATE INITIALIZATION WILL NOT CONVERGE DUE TO AN ACCELERATION PRESSURE AT THE JUNCTION IN QUESTION.

THE ERROR CAN BE MODELED AROUND BY NOT USING THE JCALCI OPTION FOR OBTAINING JUNCTION LOSS COEFFICIENTS AND THE JET MODEL TOGETHER AT THE SAME JUNCTION.

REPORTED BY : C.E. DODGE DATE: 03/12/89
REPORTED TO : EPSC/EI DATE: 04/04/89

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 03/12/89

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM/MVS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PP&L BWR LICENSING METHODS SYSTEM MODEL

DESCRIPTION OF PROBLEM:

THE STEADY STATE FRICTIONAL PRESSURE LOSS ACROSS A PARTIALLY OPENED VALVE WHOSE LOSS COEFFICIENT IS GOVERNED BY A CONTROLLER OR GENERALIZED DATA TABLE DOES NOT AGREE WITH THE PRESSURE DROP CALCULATED BY DEFINING IDENTICAL AREA AND LOSS COEFFICIENTS ON THE JUNCTION CARD.

DISPOSITION:

A CORRECTION HAS BEEN DEVELOPED WHICH AFFECTS SUBROUTINES ADVFLO, FRICTN, INITLZ, JVEDIT AND PRSORK. IT WAS DETERMINED THAT STEADY-STATE INITIALIZATION INCORRECTLY COMPUTES THE FRICTIONAL PRESSURE DROP IN THE SPECIAL CASE WHEN A JUNCTION CONTAINS A VALVE PARTIALLY OPEN AT TIME = 0.0 AND THE JUNCTION LOSS COEFFICIENT IS COMPUTED THROUGH ONE OF THE JCALCI OPTIONS (JCALCI = 1, 3, OR 1000). THE PRESSURE DROP IS INCORRECT BY THE RATIO OF:

(THE FULL OPEN AREA/INITIAL AREA)**2.

THIS CORRECTION WILL BE INCLUDED IN THE MOD005.1 UPDATE.

MODELING ALTERNATIVES:

FOR JUNCTIONS CONTAINING VALVES THAT ARE PARTIALLY OPEN AT TIME = 0.0, THE JUNCTION LOSS COEFFICIENT SHOULD BE INPUT ON THE JUNCTION CARD RATHER THAN DEFINED BY ONE OF THE JCALCI OPTIONS (JCALCI = 1, 3 OR 1000).

***** PROBLEM REPORT NUMBER 385 *****

REPORTED BY : K.C. PARRISH DATE: 04/06/89
REPORTED TO : EPSC/EI DATE: 04/20/89

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 04/06/89

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM/MVS-XA

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : REEDIT DECK FOR PVNGS LOSS-OF-SHUTDOWN COOLING

DESCRIPTION OF PROBLEM:

REEDIT OUTPUT SHOWS A ZERO VALUE FOR THE "POWER-TO-H2O" IN BOTH MAJOR
AND MINOR EDITS WHEN VALUE IS NOT ZERO. THE PROBLEM DOES NOT OCCUR IN
RESTART CASES.

DISPOSITION:

A CORRECTION HAS BEEN DEVELOPED FOR SUBROUTINE EDIT THAT
CORRECTS THE ERROR. THIS CORRECTION WILL BE ADDED TO THE MOD005.1
UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 386 *****

REPORTED BY : K.C. PARRISH DATE: 04/06/89
REPORTED TO : EPSC/EI DATE: 04/20/89

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 04/06/89

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM/MVS-XA

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : REEDIT DECK FOR PVNGS LOSS-OF-SHUTDOWN COOLING

DESCRIPTION OF PROBLEM:

BOILING OCCURS IN VOLUMES INITIALIZED WITH BOTH AIR AND WATER BELOW THE SATURATION TEMPERATURE FOR PRESSURES RANGING BETWEEN 14.7 AND 22 PSIA. THE MODEL CAN NOT BE INITIALIZED.

DISPOSITION:

INVESTIGATION INTO THE PROBLEM INDICATED THAT A CONDITION OF AIR ABOVE SUBCOOLED WATER IN A CONTROL VOLUME WAS SPECIFIED. THIS CONDITION IS NOT ALLOWED IN RETRAN-02. THAT IS WHEN AIR IS PRESENT IN A CONTROL VOLUME, THE WATER MUST EITHER BE TWO-PHASE OR SUPER HEATED.

THE TROUBLE REPORT WILL BE RESOLVED AS A MODEL LIMITATION.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 387 *****

REPORTED BY : E. M. MULLEN DATE: 04/21/89
REPORTED TO : EPSC/EI DATE: 04/28/89

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 04/21/89

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : CYBER NOS/BE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : INPUT DECK USING 1979 DECAY HEAT, 3 ISOTOPES
INFINITE OPERATING HISTORY AND 192 MEV/FISSION
SPECIFIED ON CARD 146010)

DESCRIPTION OF PROBLEM:

THE PROBLEM WILL NOT HOLD A NULL TRANSIENT IF A DECAY HEAT
VALUE OF 192 MEV/FISSION IS SPECIFIED. THE POWER BEGINS TO
DECREASE AFTER T=0. IF THE VALUE IS CHANGED TO 200 MEV/FISSION
THE POWER DOES NOT DECREASE AND A NULL TRANSIENT IS POSSIBLE.

DISPOSITION:

ADDITIONAL INVESTIGATION INTO THE PROBLEM REVEALED THAT AN INPUT
INITIAL CONDITION ON A CONTROL SYSTEM CONTROL BLOCK WAS NOT
EXACT FOR THE 192 MEV CASE. THE PROBLEM WILL BE RESOLVED AS AN
INPUT ERROR.

MODELING ALTERNATIVES:

NONE.

REPORTED BY : BUD GERLING DATE: 05/03/89
REPORTED TO : EPSC/EI DATE: 05/08/89

METHOD OF REPORT : EPSC TROUBLE REPORT DATED 05/03/89

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : IBM VM8

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : PALISADES NUCLEAR PLANT - 2PCS LOOPS, 4 COLD LEG
MODEL. DETAILED STEAM GENERATOR SECONDARY AND
MAIN STEAM LINES

DESCRIPTION OF PROBLEM:

STEAM GENERATOR USING NON-EQUILIBRIUM VOLUME FOR STEAM DOME
ALLOWS WATER CARRYOVER INTO THE STEAM LINES AFTER A TURBINE
TRIP. THIS BEHAVIOR WAS NOT OBSERVED IN RETRAN-02 MOD003.

DISPOSITION:

INVESTIGATION INTO THE BEHAVIOR OF THE RETRAN-02 MOD005.0
CODE DID NOT INDICATE A CODE ERROR. IT WAS DETERMINED THAT
DIFFERENCE BETWEEN MOD005.0 AND MOD003 RUNS WAS DUE TO DIFFERENCES
IN THE BEHAVIOR OF THE JUNCTION MIXTURE LEVEL. IN THE RETRAN-02
MOD003 CASE, THE MIXTURE LEVEL DID NOT DROP BELOW JUNCTIONS 540
AND 640 (WHICH REPRESENT THE JUNCTIONS BETWEEN THE RISER AND
STEAM DOME. THE MIXTURE LEVEL DID DROP BELOW THE JUNCTIONS
IN THE MOD005.0 CASE. WHEN THE MIXTURE LEVEL DROPS BELOW
THESE JUNCTIONS, THE JUNCTION FLOW BECOMES A SOURCE FOR THE VAPOR
REGION, CARRYING BOTH LIQUID AND VAPOR INTO THE REGION. THIS
BEHAVIOR CAUSES LIQUID TO BE CARRIED INTO THE STEAMLINE SINCE
LIQUID IS ENTRAINED IN THE "VAPOR" REGION OF THE NON-EQUILIBRIUM
VOLUME.

THIS LIQUID WILL ACCUMULATE IN THE VAPOR REGION UNLESS REMOVED BY
JUNCTION MASS FLOW OUT OF THE REGION AND/OR THROUGH THE "RAIN OUT"
MODEL PROVIDED AS AN INPUT OPTION.

THE KEY DIFFERENCE BETWEEN THE MOD003 AND MOD005 RUN IS THIS
MIXTURE LEVEL BEHAVIOR. FOR SOME REASON, THE MIXTURE LEVEL
IN THE MOD003 CASE SIGNIFICANTLY INCREASED EARLY IN THE CALCULATION
WHILE THE MOD005.0 RUN GRADUALLY DECREASED. EXAMINATION OF
MOD005.0 CASE LED TO THE CONCLUSION THAT THE MOD005.0 BEHAVIOR
WAS MORE PHYSICAL. BOTH RUNS APPEAR TO HAVE INITIALIZED TO THE
SAME STATE, I.E., SAME VBUB, QUALITY, ETC. THERE IS NO CURRENT
EXPLANATION OF THE RETRAN-02 MOD003 BEHAVIOUR. A TEST CASE
USING RETRAN-02 MOD004 WAS ALSO EXECUTED THAT RESULTED IN
BEHAVIOUR SIMILAR TO RETRAN-02 MOD005.0.

IN SUMMARY, THE DIFFERENCES BETWEEN MOD003 AND MOD005.0 ARE
PROBABLY DUE TO AN ERROR CORRECTION MADE IN THE MOD004 UPDATE.
THERE WERE SEVERAL ERROR CORRECTIONS RELATED TO THE BUBBLE RISE
AND THE NON-EQUILIBRIUM VOLUME MODELS IN THE MOD004 UPDATE. SINCE
THE MOD004 AND MOD005.0 BEHAVIOR APPEARED TO BE MORE REALISTIC,

THE PROBLEM IS NOT ATTRIBUTED TO A CODE ERROR. NO CODE CORRECTION IS REQUIRED.

MODELING ALTERNATIVES:

A BUBBLE RISE VOLUME WAS USED TO MAKE RETRAN-02 REPRODUCE THE RETRAN-02 MOD003 RESULTS

REPORTED BY : GUY SPIKES/ENTERGY SER. DATE: 02/22/90
REPORTED TO : EPSC/CSA DATE: 02/27/90
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 02/22/90

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : IBM 3090 MVS/XA

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SINGLE LOOP BWR/6 (GRAND GULF NUCLEAR STATION)
MODEL WITH ONE-DIMENSIONAL KINETICS, NO SLIP
OPTION, AND DEFAULT VOID FIT COEFFICIENTS.

DESCRIPTION OF PROBLEM:

DISCONTINUITIES IN CORE POWER VOIDS, COLLAPSED LEVEL, AND
FLOW OBSERVED WHEN STEADILY DECREASING OR INCREASING CORE
FLOW. NO OTHER CHANGES (I.E., HEAT TRANSFER REGIMES OR
CROSS SECTIONS) ARE NOTED. THE CODE RECOVERS FROM THESE
DISCONTINUITIES OVER A LIMITED NUMBER OF TIME STEPS AND
RESUMES TRENDS OBSERVED PRIOR TO THE DISCONTINUITIES
(SEE ATTACHED PLOTS).

DISPOSITION:

FURTHER INVESTIGATION INDICATED THAT BEHAVIOR WAS DUE
TO INPUT SELECTION.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 390 *****

REPORTED BY : EVELYN MULLEN/TU ELEC. DATE: 04/02/90
REPORTED TO : EPSC/CSA DATE: 04/02/90
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 03/27/90

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : NOS 2

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : ONE LOOP MODEL SET UP FOR A LOSS OF NORMAL FEEDWATER
 EVENT. ASKS FOR A TAPE TO BE GENERATED.

DESCRIPTION OF PROBLEM:

AN FTB DUMP OCCURS AT THE FIRST TIME STEP WITH NO SPECIFIC
ERROR MESSAGE. IF CARD 010001 PARAMETER COMP IS CHANGED
TO 0 AND CARDS 010140 AND 010141 ARE DELETED, THE CALCULATION
WILL RUN WITHOUT ANY ERRORS.

DISPOSITION:

SUBROUTINE GENTRN WAS MODIFIED TO CORRECT AN INDEX
DEFINITION IF FILL FLOWS WERE NEGATIVE.

THIS CORRECTION WILL BE INCLUDED IN THE MOD005.1 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 391 *****

REPORTED BY : JOHN MCCLURE/CSA DATE: 04/02/90
REPORTED TO : EPSC/CSA DATE: 04/02/90
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 04/02/90

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : CYBER 990 - NOS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : 1-D KINETICS MODEL WITH THE ROD POSITION
 INITIALIZED AT A NON-ZERO VALUE.

DESCRIPTION OF PROBLEM:

ROD REACTIVITY EDIT AT THE TIME=0.00 MAJOR EDIT IS NON-ZERO
ALTHOUGH THE TOTAL REACTIVITY IS ZERO. POINT KINETICS
COMPONENT REACTIVITY EDITS ARE ALSO NON-ZERO AT TIME=0.0.

DISPOSITION:

A PRELIMINARY CORRECTION HAS BEEN MADE TO SUBROUTINE CXGENI
TO WRITE A NOTIFICATION MESSAGE TO THE OUTPUT FILE WHEN A NON-ZERO
INITIAL ROD POSITION IS SPECIFIED.

SUBROUTINE DEL1 WAS MODIFIED TO DELAY THE DEFINITION OF INITIAL
REACTIVITY VALUES UNTIL AFTER STEADY STATE INITIALIZATION.

THIS CORRECTION WILL BE ADDED TO THE MOD005.1 UPDATE

MODELING ALTERNATIVES:

NONE FOR NON-ZERO INITIAL ROD POSITIONS

REPORTED BY : T. M. GEORGE/DUKE PWR DATE: 04/09/90
REPORTED TO : EPSC/CSA DATE: 04/09/90
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 04/02/90

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : FULL SYSTEM PWR, ITERATIVE NUMERICS. MAIN STEAM
SAFETY VALVE (SMSV) AREAS DEFINED BY CONTROL
SYSTEM, 702303 THROUGH 703317.

DESCRIPTION OF PROBLEM:

CONTROL SYSTEM USES AJNU & MAX CARDS TO HOLD VALVES OPEN.
DETAIL EDIT OPTION SHOWS AJNT OUTPUT NOT CONSISTANT WITH
CONTROL SYSTEM OUTPUT FROM PREVIOUS TIME STEP, ALLOWING
VALVE TO CLOSE PREMATURELY. DETAIL EDIT ALSO DOES NOT
SHOW MINOR EDIT FOR ALL TRIP TIMES.

DISPOSITION:

THERE ARE TWO PARTS TWO THE RESOLUTION OF THIS REPORT.

- 1) THE PROBLEM WITH THE CONTROL SYSTEM WAS CORRECTED WITH
AN INPUT CHANGE.
- 2) THE EDIT PROBLEM WAS AN ERROR IN THE CODE THAT REQUIRED A CORRECTION TO
SUBROUTINE TRAN.

THE DETAILED EDIT IS NOT WRITTEN WHEN THE TIME STEP IS HALVED.
IT IS STRICTLY AN EDITING PROBLEM AND THE ERROR DOES NOT
INFLUENCE THE CALCULATED RESULTS.

THIS CORRECTION WILL BE INCLUDED IN THE MOD005.1 UPDATE.

MODELING ALTERNATIVES:

NONE

***** PROBLEM REPORT NUMBER 393 *****

REPORTED BY : JACKY LEE/DUKE PWR DATE: 04/23/90
REPORTED TO : EPSC/CSA DATE: 04/23/90
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 04/14/90

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : PWR PRESSURIZER MODEL WITH NON-EQUILIBRIUM VOLUME
 USING LOCAL CONDITIONS HEAT TRANSFER AND THE
 COMBINED HEAT TRANSFER MPA.

DESCRIPTION OF PROBLEM:

DURING AN OUTSURGE THE HEAT TRANSFER COEFFICIENT INCREASES
BY A FACTOR OF 104 AND LOCAL QUALITY DROPS BY 0.2%.
APPARENTLY THIS IS CAUSED BY A SWITCH FROM FREE CONVECTION
TO VAPOR (MODE 14) TO FREE CONVECTION NUCLEATE BOILING
(MODE 11) WHEN LOCAL QUALITY DECREASES BELOW 0.999. THIS
SWITCHING IS NOT COVERED IN THE MANUALS.

DISPOSITION:

THE RETRAN THEORY MANUAL (VOLUME 1) WILL BE MODIFIED TO REFLECT
THE FACT THAT TRANSITION FROM TWO-PHASE HEAT TRANSFER CORRELATIONS
TO A SINGLE PHASE VAPOR HEAT TRANSFER CORRELATIONS OCCUR WHEN THE
VOLUME QUALITY EXCEEDS 0.999. THIS TRANSITION TAKES PLACE IN BOTH
THE FORCED AND FREE CONVECTION CORRELATION SETS.

MODELING ALTERNATIVES:

NONE REQUIRED.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

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PAGE 1 OF 1

REPORTED BY: Gregg Swindlehurst (Duke)

DATE: 04/26/90

REPORTED TO: EPSC (CSA)

DATE: 04/26/90

PROGRAM VERSION: RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM: IBM

LISTING SUPPLIED: Yes **FILE NAME:** (no longer available – mpp 3/27/07)

INPUT FILE SUPPLIED: Yes **FILE NAME:** pr394

INPUT MODEL DESCRIPTION: A Two-loop W plant model (McGuire) for analyzing a feedwater line break with no auxiliary feedwater and no safety injection.

DESCRIPTION OF PROBLEM: Anomalous two-sided heat conductor behavior results in energy lost from the problem. The model will not heat up due to decay heat even though there is no heat sink.

The deck runs successfully on MOD005.2.

DISPOSITION: Type of Error:
 Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

No specific modification was identified that resolved the problem, but it runs successfully on MOD005.2.

MODIFICATION NUMBER: No modification identified.

MODELING ALTERNATIVES: None identified.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: mpp Date: 3/27/07 (updated)

REASON FOR DETERMINATION:

Not an Error with MOD005.2 – latest supported code version.

REPORTED BY : TIM NIGGEL/DUKE DATE: 07/23/90
REPORTED TO : EPSC/CSA DATE: 07/31/90
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 07/23/90

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : THREE-LOOP PWR BASE MODEL MODIFIED TO SIMULATE
FWLB. BREAK JUNCTION MODELED ON THE 100-LOOP AT THE
LOCATION OF THE BASE MODEL JUNCTION #152.

DESCRIPTION OF PROBLEM:

FAULTED LOOP PRIMARY-SIDE HEAT TRANSFER THROUGH S/G TUBES
UNDERGOES A STEP INCREASE OF NEARLY 1000X WITHOUT A CHANGE
IN HEAT TRANSFER MODE OR COEFFICIENT.

DISPOSITION:

INVESTIGATION INDICATED THAT THE CODE IS CALCULATING THE HEAT
TRANSFER VALUES CORRECTLY. THE CONDITION IS CAUSED BY INJECTION OF
COLD WATER INTO A SUPER-HEATED VOLUME. THIS CAUSES THE VOLUME AVERAGE
TEMPERATURES TO DECREASE AS THE VOLUME CHANGES FROM SUPER HEATED TO
SATURATED CONDITIONS. THE VOLUME IS A TEMPERATURE BOUNDARY
FOR GIVEN HEAT CONDUCTOR, AS THE TEMPERATURE DECREASE, THE HEAT
TRANSFER IN THE CONDUCTOR IS INCREASED.

IN GENERAL, THE HOMOGENEOUS EQUILIBRIUM ASSUMPTION IN RETRAN-02 DOES
NOT ALLOW AN ACCURATE ACCOUNTING FOR THE PHYSICS OF INJECTING COLD
WATER INTO A SUPER-HEATED VOLUME. A NON-EQUILIBRIUM APPROACH IS
REQUIRED TO ALLOW THE LIQUID AND VAPOR PHASES TO EXIST AT TWO
DIFFERENT TEMPERATURES.

THUS, WHILE THE CODE IS CALCULATING THE HEAT TRANSFER RATES CORRECTLY
AND THERE DOES NOT TO BE A CODE ERROR, THE RESULTS MAY BE NON-PHYSICAL
DUE TO THE LIMITATION OF THE RETRAN-02 HEM ASSUMTION.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

REPORTED BY : J.A. MCCLURE/CSA DATE: 10/05/90
REPORTED TO : EPSC/CSA DATE: 10/05/90
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/05/90

CODE VERSION : RETRAN-02 MOD004.0

COMPUTER/OPERATING SYSTEM : CRAY

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : EPSC TRANSMITTAL PACKAGE SAMPLE PROBLEMS

DESCRIPTION OF PROBLEM:

VISUAL INSPECTION OF WATI SUBROUTINE AND UNIT COMDECK
INDICATED A SLIGHT DIFFERENCE IN CONVERSION FACTOR
(FPBTU).

WATI VALUE = 778.169226
UNIT VALUE = 778.16926 (CORRECT)

DISPOSITION:

WHEN THE VALUE OF FPBTU WATI WAS MODIFIED TO BE CONSISTENT
WITH THE THE VALUE IN THE UNIT COMDECK, A DIFFERENCE IN
CALCULATED RESULTS WAS OBSERVED BY EXECUTING THE TEN SAMPLE
PROBLEMS. A PRELIMINARY REVIEW OF THE PWR LOSS OF FEEDWATER
ATWS SAMPLE PROBLEM, WHICH TENDS TO BE QUITE SENSITIVE TO
CHANGES, INDICATED AN INCREASE IN PEAK PRESSURIZER PRESSURE
(VOLUME 34) AT 109 SECONDS OF ABOUT 14 PSIA OUT OF ABOUT 3600
PSIA. THIS IS ABOUT .4 PERCENT DIFFERENCE.

THE OTHER SAMPLE PROBLEM RESULTS TEND TO SHOW SMALLER DIFFERNCES.

A CORRECTION WILL BE INCLUDED IN THE MOD005.1 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

REPORTED BY : GEORGE ARPA/FPL DATE: 10/25/90
REPORTED TO : EPSC/CSA DATE: 10/29/90
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/29/90

CODE VERSION : RETRAN-02 MOD003/MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : RETRAN-02 SAMPLE PROBLEM. UNCONTROLLED ROD
WITHDRAWAL DECK.

DESCRIPTION OF PROBLEM:

IF THE "NON-EQUILIBRIUM" AND "LOCAL CONDITIONS HEAT TRANSFER" MODELS ARE ACTIVE AND USED IN SEQUENTIALLY NUMBERED VOLUMES, THEN THE CORRESPONDING VOLUME PRESSURE INCREASES IN A NON-PHYSICAL MANNER. THE PROBLEM DOES NOT OCCUR IF THE NUMBERING IS NOT SEQUENTIAL. THIS HAS BEEN DEMONSTRATED BY EXECUTING THE UCRW SAMPLE PROBLEM WITH A RESEQUENCED VOLUME NUMBER STRUCTURE. THAT IS, IF VOLUME 19 (THE PRESSURIZER) IS CHANGED TO VOLUME 19, AND PRESSURIZER INLET BECOMES VOLUME 18.

DISPOSITION:

THE TROUBLE REPORT WAS INVESTIGATED BY CHANGING THE UCRW SAMPLE PROBLEM INPUT DECK AS DESCRIBED AND EXECUTING ON RETRAN02 MOD005.0. THE PROBLEM COULD NOT BE REPRODUCED USING MOD005.0, BUT COULD BE REPRODUCED ON RETRAN-02 MOD004. IT WAS CONCLUDED THAT THE ERROR HAS BEEN ELIMINATED IN UPDATING FROM RETRAN02 MOD004 TO RETRAN02 MOD005.0. THE EXACT UPDATE WAS NOT LOCATED, BUT THERE ARE SEVERAL CANDIDATES.

THESE ARE:	MOD	TR	DESCRIPTION
	324	325	LOCAL COND ON LEFT SIDE OF STACK
	325	326	LOCAL COND MODEL IN NONEQ VOLUME
	340	347	LOCAL CONDITION WITH PRESSURIZER
	341	349	LOCAL CONDITION INPUT CHECK ADDED

SINCE THE PROBLEM CANNOT BE REPRODUCED ON RETRAN-02 MOD005.0, NO MODIFICIATION SEEMS REQUIRED.

MODELING ALTERNATIVES:

USE SEQUENTIAL NUMBERING.

REPORTED BY : JAMES G. MILLER/VEPCO DATE: 11/21/90
REPORTED TO : EPSC/CSA DATE: 11/30/90
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/21/90

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : IBM/ MVS/XA 2.2.3

LISTING SUPPLIED : YES-MICROFICHE

DECK SUPPLIED : NO

DECK DESCRIPTION : REACTOR TRIP FROM FULL POWER. NORTH ANNA SINGLE LOOP
MODEL

DESCRIPTION OF PROBLEM:

DIFFERENCES IN HEAT TRANSFER MODE SELECTION BETWEEN
RETRAN-02 MOD003 AND RETRAN-02 MOD005.0. INITIAL
HEAT TRANSFER MODE IN CONDUCTOR NUMBER 4 IS
NUCLEATE BOILING (MODE = 2) USING RETRAN02 MOD003,
AND TRANSITION BOILING (MODE = 7) USING RETRAN02
MOD005.0. RETRAN02 MOD005.0 SWITCHES BACK TO MODE 2
AT 2.3 SECONDS INTO TRANSIENT.

DISPOSITION:

INVESTIGATION OF THE OUTPUT INDICATED THAT THE MASS FLUX IN
THE VOLUME ASSOCIATED WITH CONDUCTOR NUMBER 4 IS 0.0 IN THE
RETRAN02 MOD005.0 CASE. THE FEEDWATER INLET JUNCTION TO THE
STEAM GENERATOR JUNCTION USED AND ANGLE OF 180 DEGREES. WHEN
THIS WAS CHANGED FROM 180 TO 0 DEGREES, THEN THE RETRAN02 MOD005.0
CASE WAS IDENTICAL TO THE RETRAN03 CASE. IT IS NOT KNOWN WHY
RETRAN02 MOD003 VERSION INTERPRETS THE INLET JUNCTION ANGLE
DIFFERENTLY THAT RETRAN02 MOD005.0. INVESTIGATION INTO THIS IS
UNDERWAY.

THIS TROUBLE REPORT WILL BE RESOLVED AS NOT A CODE ERROR.

MODELING ALTERNATIVES:

MODIFY FEEDWATER INLET JUNCTION ANGLES TO 0.0 DEGREES.

***** PROBLEM REPORT NUMBER 399 *****

REPORTED BY : JAMES G. MILLER/VEPCO DATE: 11/27/90
REPORTED TO : EPSC/CSA DATE: 12/03/90
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/03/90

CODE VERSION : RETRAN-02 MOD005.0

COMPUTER/OPERATING SYSTEM : IBM/ MVS/XA 2.2.3

LISTING SUPPLIED : YES-MICROFICHE

DECK SUPPLIED : YES

DECK DESCRIPTION : REACTOR TRIP FROM FULL POWER. NORTH ANNA SINGLE LOOP
MODEL

DESCRIPTION OF PROBLEM:

ORDER OF U-238 AND PU-234 DECAY HEAT FRACTIONS ON 1979 ANS DECAY
HEAT MODEL CARDS 146010 AND 14700X IS REVERSED IN OUTPUT EDIT;
E.G., VALUE ASSIGNED TO FRC(2), U-238 INPUT, IS EDITED IN OUTPUT
AS PU-239. ALSO, NO INSTRUCTIONS PROVIDED ON ORDER OF POWER
HISTORY INTERVAL INPUT, 14700X CARDS.

DISPOSITION:

A CORRECTION WILL BE MADE IN THE INPUT MANUAL, VOLUME 3, TO
BRING IT INTO CONFORMANCE WITH THE CODE. SEE PROB REPORT 378.

NONE IDENTIFIED

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 400 *****

REPORTED BY : A. IRANI/GPU DATE: 1/3/91
REPORTED TO : EPSC/CSA DATE: 1/7/91
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/3/91

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : TMI-1 TWO LOOP MODEL WITH ONE PUMP IN EACH LOOP
OPERATING.

DESCRIPTION OF PROBLEM:

WITH ONE PUMP OPERATING IN EACH LOOP AND REVERSE FLOW IN OTHER
LOOP, RETRAN STEADY-STATE WILL NOT INITIALIZE WITH A SPECIFIED
FORWARD LOSS COEFFICIENT IN LOOP WITH REVERSE FLOW.

DISPOSITION:

INVESTIGATION INDICATED A CODE DEFFICIENCY FOR THE STATED
CONDITIONS. SUBROUTINE INITLZ WILL REQUIRE ADDITIONAL CODING TO
SET THE PROPER CALCULATION FLAGS FOR STEADY-STATE.

THIS UPDATE WILL BE ADDED TO THE MOD005.1 UPDATE

MODELING ALTERNATIVES:

NONE IDENTIFIED.

REPORTED BY : C. PETERSON/CSA DATE: 4/9/91
REPORTED TO : EPSC/CSA DATE: 4/16/91
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/9/91

CODE VERSION : RETRAN-02 MOD005

COMPUTER/OPERATING SYSTEM : CDC NOS & NOSBE

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BWR MODEL - LOAD REJECTION TRANSIENT

DESCRIPTION OF PROBLEM:

ASYMMETRIC RECIRCULATION LOOP (2 LOOPS MODELED) RESPONSE COMPUTED WITH MOD004 AND MOD005. THE LOOP RESPONSE USING RETRAN-02 MOD005.UEM WAS SYMMETRIC. THE LOOP RESPONSE SHOULD BE SYMETRIC. A REVIEW OF THE MOD005.UEM MODIFICATION SET DID NOT REVEAL ANYTHING THAT MIGHT HAVE CORRECTED THE ERROR.

DISPOSITION:

SUBROUTINE RESET CONTAINED AN INDEX ERROR THAT MAY CAUSE ONLY THE FIRST PUMP SPEED TO BE RESET DDURING ITERATIVE NUMERICS. A POTENTIAL CORRECTION (MODIFICATION 369) HAS BEEN MADE AND IS UNDER VERIFICATION.

THE ERROR WILL ONLY BE ENCOUNTERED IF:

- ITERATIVE NUMERICS (INEXPL =1 ON CARD 01000Y) IS USED.
- THE PUMP SPEED IS CHANGING BECAUSE IT HAS BEEN TRIPPED (ON OR OFF) USING THE PUMP MOTOR TORQUE OPTION.
- A TIME ADVANCEMENT MUST BE REPEATED WITH A SMALLER TIME STEP AS THE RESULT OF THE SOLUTION FAILING TO CONVERGE.

THESE THREE CONDITIONS MUST BE PRESENT BEFORE THE ERROR CAN BE ENCOUNTERED. THE ERROR GENERALLY WILL PRODUCE CHANGES IN THE PUMP SPEED MORE QUICKLY (E.G. FASTER COASTDOWN) THAN WOULD OCCUR WITHOUT THE ERROR.

MODELING ALTERNATIVES:

DON'T USE ITERATIVE NUMERICS

REPORTED BY : C. PETERSON/CSA DATE: 6/27/91
REPORTED TO : EPSC/CSA DATE: 6/27/91
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/27/91

CODE VERSION : RETRAN-02 MOD005

COMPUTER/OPERATING SYSTEM : IBM PC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : MODEL OF AN EXPERIMENTAL IN-PILE TUBE FROM THE
ADVANCED TEST REACTOR (ATR)

DESCRIPTION OF PROBLEM:

A DISCONTINUOUS CHANGE IN VOLUME FLUID TEMPERATURE DISTRIBUTION UP A HEATED CHANNEL WAS OBSERVED. THE TEMPERATURE ANOMOLY OCCURS WHEN THE FLUID STATE CHANGES FROM SUBCOOLED AT A PRESSURE ABOVE CRITICAL PRESSURE TO TWO PHASE BELOW CRITICAL PRESSURE (CROSSES THE SATURATION LINE FROM ABOVE CRITICAL PRESSURE).

DISPOSITION:

PRELIMINARY INVESTIGATION OF THE PROBLEM INDICATES THAT THE EQUATIONS FOR FLUID PROPERTIES IN SUBCOOLED REGION ABOVE THE CRITICAL PRESSURE ARE NOT SMOOTHED INTO THE VALUES GENERATED BY THE EQUATIONS IN THE TWO-PHASE REGION AS THE SATURATION LINE IS CROSSED. THE MAGNITUDE OF THE DISCONTINUITY IS NOT SIGNIFICANT UNTIL ENTHALPIES NEAR HCRT ARE REACHED. THIS IS DUE TO THE FACT THAT THERE ARE EQUATIONS FOR EACH REGION AND NO SMOOTHING OR FITTING IS APPLIED.

AS STATED ABOVE, THE DIFFERENCE IN TEMPERATURES IS A FUNCTION OF THE ENTHALPY AND APPEARS TO MOST PRONOUNCED NEAR CRITICAL SPECIFIC ENTHALPY VALUES.

THE DISCONTINUOUS TEMPERATURE BEHAVIOR SEEN WITH TROUBLE REPORT 402 WAS SMOOTHED WITH A CORRECTION THAT LOWERED THE CRITICAL PRESSURE BOUNDARY AT ENTHALPIES ABOVE 800 BTU/LBM. THIS REMOVED THE ORIGINAL DISCONTINUITIES AND RESULTED IN TEMPERATURES CONSISTENT WITH ASME VALUES. WHILE THIS CORRECTION DID REMOVE THE ANOMOLOUS BEHAVIOR, THIS CORRECTION WAS VALID ONLY FOR THE CONDITIONS SEEN IN THE DECK GIVEN IN TROUBLE REPORT 402.

A MORE GENERAL AND ROBUST CORRECTION TO SMOOTH TRANSITIONS BETWEEN THE VARIOUS BOUNDARIES IS REQUIRED TO EXTEND THE ABOVE APPROACH. THIS WOULD REQUIRE MAPPING THE BOUNDARIES AND GENERATING SMOOTHING ALGORITHMS FOR LINES OF CONSTANT PRESSURE AND ENTHALPY AS WELL AS A SIGNIFICANT VERIFICATION EFFORT TO DEMONSTRATE CONSISTENCY WITH ASME VALUES. THE BEHAVIOR SHOWN BY TROUBLE REPORT 402 IS DUE TO THE PARTICULAR IMPLEMENTATION OF THE STATE PROPERTIES CURVE FITS AND WILL BE RESOLVED AS A MODEL LIMITATION.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

REPORTED BY : T. W. OLIPHANT/GSU DATE: 6/26/91
REPORTED TO : EPSC/CSA DATE: 7/1/91
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/26/91

CODE VERSION : RETRAN-02 MOD004

COMPUTER/OPERATING SYSTEM : MVS/ESA

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : THE INPUT DECK IS FOR RIVER BEND STATION, WITH
OVERLAYS TO CONFIGURE THE BEST ESTIMATE INPUTS
FOR DESIGN BASIS ANALYSIS OF A LOAD REJECTION
WITHOUT BYPASS AT END OF CYCLE 3 CONDITIONS.

DESCRIPTION OF PROBLEM:

A CASE WAS EXECUTED (NULL1.OUT) ONE OF THE CONTROL VARIABLES USED
TO GENERATE THE APRM (BLOCK IDS -3 AND -836) RESPONSES SHOW A
"SPIKE" WHICH IS NOT THE RESULT OF ANY INPUTS. IN FACT THE
CONTROL INPUT UPON WHICH THESE SIGNALS ARE BASED PNRM DOES NOT
REFLECT THE "SPIKE". A SUBSEQUENT RUN (NULL2.OUT) WAS PERFORMED
WHICH SET THE MINOR EDIT FREQUENCY TO 1 EDIT PER TIME STEP, AND
THERE WAS NO EVIDENCE OF THE SPIKE.

DISPOSITION:

THE PROBLEM WAS INVESTIGATED BY MODIFYING THE CODE SO THAT MORE
DETAILED MINOR EDITS COULD BE OBTAINED WITHOUT AFFECTING THE
ORIGINAL ONE-DIMENSIONAL KINETICS SHAPE UPDATE PARAMETER "NSHAP".

THIS WAS DONE TO PRESERVE THE ORIGINAL ONE-DIMENSIONAL SHAPE UPDATE
FREQUENCY. THE ADDITIONAL MINOR EDITS REVEALED THAT A POWER "SPIKE"
(PNRM) IS IN FACT COMPUTED IN THE PROBLEM. THE PNRM BEHAVIOR COULD
NOT BE RESOLVED WITH THE ORIGINAL MINOR EDIT FREQUENCY. THE EFFECT
OF THE SPIKE COULD HOWEVER BE SEEN IN THE CONTROL SYSTEM.

THE SECOND CASE, IN WHICH THE MINOR EDIT FREQUENCY WAS INCREASED
CAUSED AN INCREASE IN SHAPE FUNCTION UPDATE FREQUENCY (THE DEFAULT
SHAPE UPDATE FREQUENCY IS EVERY NSHAP PLUS EVERY MINOR EDIT). THE
INCREASED SHAPE FUNCTION UPDATE FREQUENCY EVIDENTLY REMOVED THE
POWER SPIKE.

IN GENERAL THE CONTROL SYSTEM RESPONSE SEEN WITH NSHAP = 10
IS CAUSED BY A IN INPUT POWER SIGNAL, BUT MODIFICATION OF THE
EDIT FREQUENCY CAUSED A DIFFERENT NSHAP TO BE SELECTED.

MODELING ALTERNATIVES:

NONE.

***** PROBLEM REPORT NUMBER 404 *****

REPORTED BY : C. PETERSON/CSA DATE: 7/15/91
REPORTED TO : EPSC/CSA DATE: 7/15/91
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/15/91

CODE VERSION : RETRAN-02 MOD0050B

COMPUTER/OPERATING SYSTEM : IBM PC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ATR LOOP MODEL.

DESCRIPTION OF PROBLEM:

REPEATED MESSAGE ABOUT TWO-SURFACE HEAT-TRANSFER FAILED TO
CNVERGE (TOO MANY SHOULD BE REDUCED) AND FOR THE CONDUCTORS
WHICH FAILED TO CONVERGE, THE CONDUCTOR NODE TEMPERATURES
WERE NOT CHANGED FROM THE INITIAL GUESS (SEE MINOR EDITS OF
NODE TEMPERATURES).

DISPOSITION:

A MODIFICATION HAS BEEN IDENTIFIED THAT REDUCE THE NUMBER OF
ERROR MESSAGES. IN REVIEWING THE CODING IN TEMZ IT WAS OBSERVED
THAT THE INNER NODE TEMPERATURES WERE NOT UPDATED DURING THE
ITERATION UNLESS THE SOLUTION CONVERGED. SUBROUTINE TEMZ WAS
MODIFIED SO THAT THE NODE TEMPERATURES ARE ADJUSTED IN EACH
HEAT CONDUCTION ITERATION. THIS SHOULD IMPROVE PERFORMANCE.
AND REDUCE MANY OF THE ERROR MESSAGES.

IN ADDITION, THE ERROR MESSAGE LOGIC WAS MODIFIED TO INDICATE
HOW THE ITERATIONS FAILED AND SIMPLY PRINTS THE RESULTS FROM THE
LAST TWO NON-CONVERGING ITERATIONS.

THIS MODIFICATATION HAS BEEN ASSIGNED NUMBER 372 AND WILL BE ADDED
TO THE CODE IN THE MOD005.1 UPDATE.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 405 *****

REPORTED BY : E. HENSHAW/DUKE POWER DATE: 9/19/91
REPORTED TO : EPSC/CSA DATE: 9/26/91
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 9/19/91

CODE VERSION : RETRAN-02 MOD005

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SIMPLE CORE MODEL. DECK PROVIDED ON DISKETTE.

DESCRIPTION OF PROBLEM:

DECK WILL NOT INITIALIZE WHEN NONCONDUCTING HEAT EXCHANGERS
HAVE GREATER THAN 48 DATA POINTS.

DISPOSITION:

A MODIFICATION TO SUBROUTINE INHTXQ WAS MADE TO ACCOMMODATE
100 DATA PAIRS AND 4 CONTROL VARIABLES. THE MODIFICATION HAS
BEEN ASSIGNED NUMBER 373 AND WILL BE ADDED IN THE MOD005.1 UPDATE.
NONE IDENTIFIED.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

REPORTED BY : G. C. GOSE/CSA DATE: 11/11/91
REPORTED TO : EPSC/CSA DATE: 11/11/91
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/11/91

CODE VERSION : RETRAN-02 MOD005

COMPUTER/OPERATING SYSTEM : RS/6000 AIX

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

SEVERAL CORRECTIONS AND MODIFICATIONS TO THE RETRAN-02 MOD005.0 SOURCE CODE WERE REQUIRED DURING THE CONVERSION EFFORT TO AN ALL FORTRAN 77 ENVIRONMENTAL LIBRARY AND A MORE TRANSPORTABLE RETRAN-02 SOURCE.

THE CORRECTIONS WERE REQUIRED TO ELIMINATE DEAD CODE, UNDEFINED VARIABLES OR REARRANGE ORDER OF VARIABLE DECLARATION. IN SOME CASES, CODING WAS CHANGED THAT MAY INTEREST USERS OF RETRAN-02 MAINFRAME VERSIONS. THE MODIFIED CODING DOES NOT AFFECT RESULTS FROM THE SAMPLE PROBLEMS. A DETAILED DESCRIPTION OF THE MODIFICATIONS ARE GIVEN BELOW.

COMDECK ID46

ADD THE REAL DECLARATION OF LREM TO THE COMDECK STRUCTURE RATHER THAN RELY UPON THE CALLING SUBROUTINE TO PERFORM THIS FUNCTION.

SUBROUTINE BOUND1

DEFINE THE LOCAL VARIABLE ZERO IN A DATA DECLARATION.
USE THE PARAMETER ZERO RATHER THAN LITERAL 0.0
REPLACE PARAMETER REL WITH RES.

SUBROUTINE BOUND

DEFINE THE LOCAL VARIABLE ZERO IN A DATA DECLARATION.
USE THE PARAMETER ZERO RATHER THAN LITERAL 0.0

SUBROUTINE CARDBC

DEFINE THE LOCAL VARIABLE 'ONE' IN A DATA DECLARATION.

SUBROUTINE DEFINE

ELIMINATE UNUSED CODE. CODING EXISTED FROM THE ORIGINAL QX1 CODE AND WAS FOR A NON-EXISTENT GEOMETRY.

SUBROUTINE DEFIN1

ELIMINATE UNUSED/DEAD CODE. CODING EXISTED FROM THE ORIGINAL QX1 CODE AND WAS FOR A NON-EXISTENT GEOMETRY. THIS CHANGE ELIMINATES COMPILER WARNING MESSAGES.

SUBROUTINE DNBM

INDEX DEFINITION FOR FILL JUNCTIONS IN A DO LOOP THROUGH JUNCTIONS WAS RECONSTRUCTED. THIS PROBLEM WAS DISCOVERED DURING THE CONVERSION TO RETRAN02 MOD5UEM AND CONSEQUENTLY EXISTS IN THE CURRENT CONVERSION UPDATES. THE CORRECTION FOR THIS ROUTINE WAS ALSO FILED AS TROUBLE REPORT NUMBER 377 FOR THE BENEFIT OF RETRAN-02 USERS. SEPARATE MODIFICATION (NUMBER 356) HAS BEEN CONSTRUCTED FOR THIS CORRECTION TO ENSURE THAT ALL RETRAN-02 USERS/VERSIONS ARE NOTIFIED. THUS, THERE WILL BE AN OVERLAPPING UPDATE WHEN THE RETRAN-02 MOD005.1 VERSION IS MADE WHICH WILL BE RESOLVED AT IMPLEMENTATION TIME.

SUBROUTINES EDINIT

CHANGE EDIT LENGTH TO HANDLE THE CASE WHERE MORE MINOR EDIT DATA SPECIFIED ON THE MINOR EDIT CARD THAN SPECIFIED ON PROBLEM DIMENSION CARD. THIS WAS DISCOVERED DURING EARLY TESTING OF THE PC AND R/S 6000 RETRAN VERSION AND THE ERROR MAY EXIST IN ALL RETRAN-02 VERSIONS.

SUBROUTINE IMPSTP

DEFINE 'ZERO' AND 'SMALL' IN DATA DECLARATION USING EXPONENTIAL FORMAT

SUBROUTINE INCNT1

USE NINT TO CONVERT 'CP2' FOR CORRECT WORD/MODE STRUCTURE IN 'IF' TEST. THIS WAS A MACHINE SPECIFIC PROBLEM. MOST MAINFRAME VERSIONS DID NOT INDICATE ERRORS. THE MODIFICATION WAS MADE TO A MORE GENERIC USAGE.

SUBROUTINES INQ11/INQX1

DEFINE 'ZERO' IN DATA DECLARATION.

SUBROUTINES TURBINE AND TURBO.

REMOVE REAL DECLARATION OF LREM

DISPOSITION:

THE MODIFICATION WILL BE INCLUDED IN RETRAN-02 MOD0050G WHICH WILL BE THE FIRST VERSION OF AN IBM R/S 6000 VERSION OF RETRAN02. THIS VERSION IS STILL CONSIDERED A MOD005.0 LEVEL CODE AND DOES NOT CONTAIN ANY ERROR CORRECTIONS FOR PREVIOUS TROUBLE REPORTS. RETRAN02 MOD0050G WAS NOT RELEASED BUT SERVED AS AN INTERIM WORKING VERSION.

RETRAN-02 MOD005.1 WILL BE RELEASE AND IS BASED ON THE R/S 6000 VERSION OF RETRAN-02.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

REPORTED BY : J. G. SHATFORD/CSA DATE: 3/26/92
REPORTED TO : EPSC/CSA DATE: 3/26/92
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/25/92

CODE VERSION : RETRAN-02 MOD0050G

COMPUTER/OPERATING SYSTEM : RS/6000 AIX

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

SEVERAL MODIFICATIONS TO THE RETRAN-02 MOD0050G SOURCE CODE WERE ANTICIPATED OR REQUIRED TO PORT THE CODE TO DIFFERENT COMPUTER PLATFORMS. THESE MODIFICATIONS WILL SERVE TO MAKE THE RETRAN-02 SOURCE MORE "GENERIC" AND WILL AID FUTURE ATTEMPTS TO PORT THE CODE TO OTHER PLATFORMS. MOST OF THE CHANGES EFFECT THE "WORK STATION" UPDATES INCLUDED IN THE MOD0050G UPDATE.

THESE UPDATES WERE INCLUDED TO CONSTRUCT CODE VERSION RETRAN-02 MOD0050H WHICH IS AN INTERIM WORKING VERSION AND NOT RELEASED. MOD0050H IS USED AS THE INPUT SOURCE FOR THE MOD005.1 UPDATE.

THE FOLLOWING CHANGES MAKE RETRAN-02 MORE "GENERIC":

INEDIT

SUBROUTINE BUFOUT HAS A DUMMY ARGUMENT, IVSN, WHICH IS DECLARED REAL. IN THE CALL TO BUFOUT FROM INEDIT THE INTEGER DUMMY ARGUMENT IPRU IS PASSED. TO AVOID ALIGNMENT CONFLICTS ON SOME PLATFORMS IPRU WAS DECLARED REAL. SINCE IPRU IS A DUMMY ARGUMENT, THIS MODIFICATION DOES NOT EFFECT ANY CALCULATIONS.

INQX1, INQ11

SUBROUTINE INANS HAS A DUMMY ARGUMENT, ANSTYP, WHICH IS DECLARED CHARACTER*8. IN THE CALLS TO INANS FROM INQX1 AND INQ11 THE REAL DUMMY ARGUMENT ANSTYP IS PASSED. TO AVOID ALIGNMENT CONFLICTS ON SOME PLATFORMS ANSTYP WAS DECLARED CHARACTER*8 IN EACH OF THESE ROUTINES. SINCE ANSTYP IS A DUMMY ARGUMENT, THIS MODIFICATION DOES NOT EFFECT ANY CALCULATIONS.

INSLAB

IN SUBROUTINE INSLAB THE LOWER ELEVATION OF THE BOTTOM CONDUCTOR IN A STACKED CONDUCTOR SET IS CALCULATED. THE LOWER END OF THE CONDUCTOR SHOULD ALIGN WITH THE BOTTOM OF THE ASSOCIATED VOLUME, AND THEREFORE, THIS CALCULATED ELEVATION SHOULD BE ZERO. IN SOME CASES ON THE IBM MAINFRAME, THIS VALUE IS NOT EXACTLY ZERO AND THE MIXTURE LEVEL IN THE VOLUME, WHICH IS ZERO, DROPS BELOW THE BOTTOM CONDUCTOR AND ALTERS LOCAL CONDITIONS MODEL

CALCULATIONS. NOW IF THE CALCULATED ELEVATION IS A VERY SMALL POSITIVE NUMBER BUT NOT EXACTLY ZERO, IT IS SET TO ZERO; OTHERWISE AN ERROR MESSAGE IS WRITTEN AND THE USER MUST ADJUST THE INPUT VALUE.

TIMINT

CPUTIM IS AN ENTRY POINT IN SUBROUTINE TIMINT. THE ARGUMENT TO CPUTIM IS NUMBER, AN INTEGER, BUT ALL OF THE CALLS TO CPUTIM PASS A REAL ARGUMENT. ENTRY CPUTIM WAS CHANGED SO THAT ITS ARGUMENT IS CPTIM, A REAL, AND THE VALUE RETURNED BY CPUTIM IS TREATED AS A REAL VALUE.

THE FOLLOWING ARE ADDITIONAL "WORK STATION" UPDATES TO RETRAN-02:

RMAIN

COMMENTS TO DESCRIBE FILE 80 WERE ADDED. (FILE 80 WAS ADDED TO THE CODE IN THE MOD0050G UPDATE)

INPUT, STSTAT

THE PARAMETER NSCRN DEFINES THE FORTRAN UNIT TO WHICH SCREEN MESSAGES ARE WRITTEN. THE PARAMETER DECLARATION OF NSCRN WAS MOVED INTO COMDECK ID80 TO LIMIT THE MODIFICATION NEEDED TO SELECT A DIFFERENT VALUE FOR NSCRN. THE LOCAL DECLARATION OF NSCRN WAS REPLACED IN THESE ROUTINES BY A CALL TO COMDECK ID80. THIS MODIFICATION DOES NOT EFFECT ANY CALCULATIONS.

INRSTR

CALLS TO INP10 REMOVE CARD INFORMATION OVER A SPECIFIED RANGE FROM THE INPUT TABLE. PREVIOUSLY, THE CALL TO INP10 FROM INRSTR REMOVED CARDS NUMBERED 000010 TO 010004. IN MOD0050G, CARD 000050 WAS DEFINED AS THE RTG FILE EDIT FREQUENCY DATA CARD AND THIS INFORMATION IS NEEDED FOR RESTART RUNS. THE CALL TO INP10 WAS REPLACED WITH TWO CALLS TO REMOVE CARD 000010 AND CARDS 010001 TO 010004.

THIS MODIFICATIONS WILL ONLY EFFECT THE RTG FILE EDIT FREQUENCY DURING A RESTART; NO CALCULATIONS ARE EFFECTED.

INTSTP

DURING INPUT PROCESSING, INTSTP EDITS THE TIME STEP CONTROL DATA TO THE OUTPUT LISTING. THE FORMAT STATEMENTS IN INTSTP HAVE BEEN MODIFIED TO ALLOW FOR A LARGER VALUE OF 'TIME STEPS PER MINOR EDIT'; THE INTEGER EDIT DESCRIPTOR WAS CHANGED FROM I3 TO I5, AND THE LABEL INFORMATION WAS SHIFTED TO MAINTAIN ALIGNMENT. THIS MODIFICATION WILL NOT EFFECT ANY CALCULATIONS.

RTGFIL

THE PARAMETER NSCRN DEFINES THE FORTRAN UNIT TO WHICH SCREEN MESSAGES ARE WRITTEN. A CALL TO COMDECK ID80 WAS ADDED TO THIS ROUTINE SO THAT NSCRN IS DEFINED IF SCREEN MESSAGES ARE ACTIVE. THE RTG FILE FORMAT IS NOW THE SAME ON ALL PLATFORMS. THE CODING AND SLIB SWITCHES

NEEDED TO GENERATE THE PC SPECIFIC RTG FILE FORMAT HAVE BEEN REMOVED. THIS MODIFICATION DOES NOT EFFECT ANY CALCULATIONS.

SMALLR

THE PARAMETER NSCRN DEFINES THE FORTRAN UNIT TO WHICH SCREEN MESSAGES ARE WRITTEN. A CALL TO COMDECK ID80 WAS ADDED TO THIS ROUTINE SO THAT NSCRN IS DEFINED IF SCREEN MESSAGES ARE ACTIVE. SOME EXTRANEIOUS VARIABLES, SMLR AND ZERO, HAVE BEEN REMOVED. THIS MODIFICATION DOES NOT EFFECT ANY CALCULATIONS.

TRAN

SUBROUTINE TRAN CALLS COMDECK ID80 IF SLIB SWITCH WRKSTA IS SET AND SWITCH NORTG IS NOT. THE DEPENDENCE ON SWITCH NORTG WAS REMOVED SINCE ID80 IS NOW NEEDED IF SCREEN MESSAGES ARE TO BE WRITTEN. (COMDECK ID80 CONTAINS FILE 80, THE RTG FILE EDIT FREQUENCY DATA, AND THE PARAMETER DECLARATION FOR NSCRN, THE SCREEN MESSAGE UNIT) THE SCREEN MESSAGE FORMAT IN TRAN WAS ALTERED TO ALLOW FOR A WIDER RANGE IN TIME STEP SIZE; THE EDIT DESCRIPTOR WAS CHANGED FROM F6.4 TO G10.5. THESE MODIFICATIONS DO NOT EFFECT ANY CALCULATIONS.

DISPOSITION:

NONE IDENTIFIED.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER E001 *****

REPORTED BY : J. G. SHATFORD/CSA DATE: 3/26/92
REPORTED TO : EPSC/CSA DATE: 2/25/92
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 2/25/92

CODE VERSION : RETRAN ENVIRONMENTAL LIBRARY MD1

COMPUTER/OPERATING SYSTEM : RS/6000 AIX

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

RETRAN02 PRE-RELEASE MOD0050G WAS THE FIRST RETRAN-02 CODE TO USE THE 'ALL FORTRAN' (NON-MACHINE LANGUAGE) ENVIRONMENTAL LIBRARY. THAT LIBRARY WAS DESIGNATED MD1 AND IS THE IDENTICAL LIBRARY USED BY RETRAN03.

THE ENVIRONMENTAL LIBRARY CONTAINS ROUTINES THAT ALLOW TH RETRAN CODES TO FUNCTION WITH THE RUN TIME GRAPHICS SOFTWARE 'PEGASYS'.

SEVERAL MODIFICATIONS WERE MADE TO LIBRARY MD1 TO AID IN MAKING THE CODE MORE COMPATIBLE WITH ADDITIONAL COMPUTER PLATFORMS. THE MODIFICATIONS DO NOT AFFECT ANY CALCULATIONS BUT MAKE THE LIBRARY SOURCE MORE 'GENERIC' FOR FUTURE INSTALLATIONS.

THE NEW LIBRARY (MD2) WILL BE USED WITH THE RELEASED RETRAN-02 VERSION RETRAN02 MOD005.1

A BRIEF DESCRIPTION OF THE CHANGES ARE:

MASKF - CODING TO INITILAZE HEX CONSTANTS 'HXZERO' AND 'MASK' WAS MADE MORE PLATFORM INDEPENDENT. NO CALCULATED RESULTS ARE AFFECTED

REMARK - WORKSTATION SCREEN MESSAGE LOGIC WAS GENERALIZED. (NO SCREEN MESSAGES ARE ALLOWED ON IBM MAINFRAMES)



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

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REPORTED BY: E. Burchfield (Duke)

DATE: 05/15/92

REPORTED TO: EPSC (CSA)

DATE: 05/22/92

PROGRAM VERSION: RETRAN-02 MOD005

COMPUTER/OPERATING SYSTEM: IBM

LISTING SUPPLIED: Yes

FILE NAME: (no longer available – mpp 3/27/07)

INPUT FILE SUPPLIED: Yes

FILE NAME: pr408

INPUT MODEL DESCRIPTION: Oconee Nuclear Station one loop base deck (one OTSG, one hot leg, one cold leg).

DESCRIPTION OF PROBLEM: Anomalous OTSG heat transfer predictions were seen in the RETRAN-02 MOD005 simulation of steam generator overflow transients for Oconee Nuclear Station. The Oconee RETRAN one loop base deck (one OTSG) model was used for this work. A nodalization diagram is attached. The OTSG model consists of 11 secondary side HEM volumes, 10 primary side hem volumes, a bubble rise volume for the OTSG downcomer, and a bubble rise volume for the steam line. Two cases were simulated. The first case assumed that main feedwater failed to run back following reactor trip and filled the steam generators at a constant flow rate of 50% full power feedwater flow. The second case assumed an overflow from hot zero power with a constant flow rate of 20% full power flow.

Both of these cases resulted in significant primary-to-secondary heat transfer in the lower volumes of the steam generator. However, the upper 5 or 6 volumes of the steam generator predicted secondary-to-primary heat transfer, which appears to be non-physical. The hot zero power overall transient was simulated for 25 minutes and the post-trip overflow transient was simulated for 20 minutes. In both cases, the tube region volumes and steam line volume go water-solid. Thus, for most of each transient, single phase heat transfer is occurring. Initially, the heat transfer for all 11 tube region volumes is in the correct direction. However, after the volume containing the aspirator junction goes single phase, reverse heat transfer occurs in the upper 5 to 6 volumes of the steam generator. This reverse heat transfer continues for the remainder of the simulation.

The attached input deck is for the overflow case from hot full power. The output listing is for a restart case of the overflow from hot full power with enthalpy transport turned off in the OTSG.

Note that the problem is still present. Plots of the primary-to-secondary temperature difference for the overflow case from hot full power with enthalpy transport on are also attached.

DISPOSITION:

Type of Error:
 Not an Error
 Insignificant
 Significant



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

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REASON FOR DETERMINATION

Trouble Report 408 was filed for RETRAN-02 MOD005.0 using an IBM system on 05/15/1992. It describes anomalous OTSG heat transfer behavior for RETRAN-02 MOD005.0 simulations of steam generator overfill transients for Oconee Nuclear Station. The upper 5 or 6 volumes of the steam generator predicted secondary-to-primary heat transfer which appears to be non-physical.

CSA engaged in a significant effort to identify a code error related to this trouble report. While the original behavior was reproduced at CSA, no clear code error was identified. A letter (REF: CSA-335-95, 12/14/95) was sent to Duke Energy that summarized the investigation. The conclusion from this study was that CSA did not identify a code problem. The transient results in a complex heat transfer behavior between the primary and secondary sides of the OTSG. As the transient forcing functions begin to settle, the aspirator flow effectively cuts the heat removal capability of the OTSG in half. The letter indicated that the trouble report will be resolved as not a code error.

For the reasons cited above, Trouble Report 408 will be indicated as "Not an Error" in the active RETRAN-02 trouble report log.

MODIFICATION NUMBER: None – see Disposition above

MODELING ALTERNATIVES: None identified.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: mpp Date: 03/27/07 (updated)

REASON FOR DETERMINATION:

Not an Error

***** PROBLEM REPORT NUMBER 409 *****

REPORTED BY : CHRISTY RAY/DUKE DATE: 7/1/92
REPORTED TO : EPSC/CSA DATE: 7/7/92
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/1/92

CODE VERSION : RETRAN-02 MOD005

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : TWO VOLUMES (ONE IS TIME-DEPENDENT) CONNECTED
BY A JUNCTION. A FILL JUNCTION IS USED TO
SIMULATE INJECTION OF BORATED WATER INTO THE
NON-TIME-DEPENDENT VOLUME. USES GENERAL
TRANSPORT MODEL WITH STANDARD RETRAN NUMERICAL
SOLUTION TECHNIQUE.

DESCRIPTION OF PROBLEM:

BORON CONCENTRATION SHOULD BE INCREASING IN THE NON-TIME-DEPENDENT
VOLUME. HOWEVER, RETRAN PREDICTS A DECREASING BORON CONCENTRATION.
THIS NON-PHYSICAL RESULT IS MOST LIKELY DUE TO THE USE OF THE GENERAL
TRANSPORT MODEL IN CONJUNCTION WITH THE STANDARD RETRAN SOLUTION
TECHNIQUE. USE OF THE ITERATIVE SOLUTION TECHNIQUE GIVES REALISTIC
RESULTS.

DISPOSITION:

FURTHER INVESTIGATION INDICATED A PROBLEM IN THE LOGIC USING THE STANDARD
STANDARD SOLUTION METHOD. SOME CONCENTRATION VARIABLES WERE INCORRECTLY
RESET. A CORRECTION FOR THE ERROR HAS BEEN DEVELOPED AND WILL BE ADDED TO
RETRAN02 MOD005.2 AS MODIFICATION 376.

MODELING ALTERNATIVES:

USE THE ITERATIVE SOLUTION METHOD FOR THE GENERALIZED
TRANSPORT MODEL.

***** PROBLEM REPORT NUMBER 410 *****

REPORTED BY : MAHMOUD MASSOUD/BG&E DATE: 7/10/92
REPORTED TO : EPSC/CSA DATE: 7/17/92
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/10/92

CODE VERSION : RETRAN-02

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : STANDALONE PRESSURIZER MODEL, CALCULATING
PRESSURE VERSUS TIME FOR A SPECIFIED INSURGE.

DESCRIPTION OF PROBLEM:

DURING THE INSURGE, CONDENSATION FROM THE VAPOR SPACE WAS NOTED.
THE RATE OF CONDENSATION DEPENDS ON THE USER SPECIFIED HEAT TRANSFER
COEFFICIENT (VLHTC) AT THE INTERFACE. HOWEVER, WITH A SPECIFIED
VLHTC=0.0, THE CONDENSATION WAS STILL CALCULATED BY THE CODE EVEN
THOUGH IT SHOULD HAVE BEEN ZERO.

DISPOSITION:

NONE IDENTIFIED.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 411 *****

REPORTED BY : MARK PAULSEN CSA DATE: 8/24/92
REPORTED TO : EPSC/CSA DATE: 2/24/92
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 8/24/92

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : IBM UNIX/DEC VMS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : GENERALIZED PLOT SAMPLE PROBLEM THREE

DESCRIPTION OF PROBLEM:

DURING THE PRELIMINARY WORK TO CONVERT RETRAN02 MOD005.1 TO A DEC VMS PLATFORM, IT WAS OBSERVED THAT A GENERALIZED PLOT PROBLEM DID NOT FUNCTION CORRECTLY. THE ERROR WAS REPRODUCED ON AN IBM 320 WORKSTATION OPERATING UNDER AIX 3.2. THE PROBLEM WAS TRACED TO SUBROUTINE PLOTR. A DATA NAME WAS NOT IN THE DATA SET AND PLOTR COULD NOT FIND THE REQUESTED PLOT PARAMETERS.

DISPOSITION:

A CORRECTION HAS BEEN DEVELOPED AND WILL BE PLACED IN RETRAN-02 MOD005.2 AS MODIFICATION 377.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 412 *****

REPORTED BY : J.E. BURCHFIELD/DUKE DATE: 7/1/92
REPORTED TO : EPSC/CSA DATE: 7/7/92
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/1/92

CODE VERSION : RETRAN-02 MOD005

COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : OCONEE NUCLEAR STATION TWO LOOP MODEL FOR STEAM
LINE BREAK ANALYSIS.

DESCRIPTION OF PROBLEM:

THE GENERAL TRANSPORT MODEL IS USED TO SIMULATE BORON INJECTION, BUT IN SOME CASES THE RUNS ABORT AT THE TIME THE BORON INJECTION INITIATES. ERROR MESSAGES "ERROR GAUSS SIDELL DID NOT CONVERGE IN GENTRAN" AND "FAILURE IN POWRT", ARE GIVEN.

DISPOSITION:

A PRELIMINARY INVESTIGATION INDICATES A LIMITATION WITH THE THE NUMBER OF GAUSE SIEDELL ITERATIONS IN THE TRANSPORT MODEL. FOR LARGE PROBLEMS, THE BUILT-IN LIMIT OF 10 ITERATIONS MAY NOT BE SUFFICIENT TO CONVERGE THE PROBLEM. A MODIFICATION TO WHICH ALLOWED A MAXIMUM OF 30 ITERATIONS WAS INSTALLED AND DUKE CASE CONVERGED IN 21 PASSES.

THE "FAILURE IN POWRT" MESSAGE WAS CAUSED BE THE FAILURE IN THE GENTRAN SUBROUTINE. THIS IS A MISLEADING ERROR MESSAGE AND A CORRECTION WILL BE MADE TO THE LOGIC IN RETRAN-02 MOD005.2. THIS WILL APPEAR AS MODIFICATION 378.

MODELING ALTERNATIVES:

NONE.

REPORTED BY: LARRY KLASMIER (CECO) DATE: 12/07/92
REPORTED TO: EPSC (CSA) DATE: 12/15/92

METHOD OF REPORT: EPSC TROUBLE REPORT DATED 12/07/92

CODE VERSION: RETRAN-02 MOD003

COMPUTER/
OPERATING SYSTEM: IBM-MVS (3090)

LISTING SUPPLIED: NO

DECK SUPPLIED: NO

DECK DESCRIPTION: N/A SEE ATTACHED DESCRIPTION.

DESCRIPTION OF PROBLEM: WHEN WRITING A RESTART/RE-EDIT TAPE, THE VSN
NUMBER REPORT IN THE RETRAN OUTPUT IS NOT
NECESSARILY THE VSN TAPE NUMBER WRITTEN TO.

THIS PROBLEM IS SPORADIC (IT HAS HAPPENED MORE
THAN ONCE) AND CAN NOT BE REPRODUCED
(RE-RUNNING A DECK THAT PRODUCED THE PROBLEM
DOES NOT NECESSARILY REPRODUCE THE PROBLEM).
NOTE THAT WE DO NOT SPECIFY THE VSN NUMBER IN
THE JOB INPUT, BUT ALLOW THE SYSTEM TO
DETERMINE THE VSN TO BE WRITTEN TO. ALSO
NOTE, THAT WE HAVE A LINE IN OUR JCL PROCEDURE
WHICH CHECKS WHICH VSN WAS WRITTEN TO AFTER
THE RETRAN JOB HAS COMPLETED.

WE ARE UNCERTAIN IF THIS IS GENERIC PROBLEM ON
THE IBM MVS SYSTEM OR IF IT IS UNIQUE TO
COMMONWEALTH EDISON.

DISPOSITION: THE ERROR CANNOT BE REPRODUCED USING RETRANO2
MOD005.1. THE CODE VERSION AND MVS OPERATING
SYSTEM LEVEL IS NOT A COMBINATION THAT IS
AVAILABLE AT THIS TIME.

THIS TROUBLE REPORT HAS BEEN REMOVED FROM THE
OUTSTANDING TROUBLE REPORT LIST SINCE AN INPUT
DECK WAS NOT SUPPLIED THAT CORRESPONDED TO THE
ORIGINAL PROBLEM REPORT NOR CAN THE TROUBLE REPORT
BEHAVIOR BE REPRODUCED.

MODELING ALTERNATIVES: NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 414 *****

REPORTED BY : LARRY KLASMIER/CECO DATE: 1/13/93
REPORTED TO : EPSC/CSA DATE: 1/25/93
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 1/13/93

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : MVS

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

COMMONWEALTH EDISON HAS BEEN EXPERIENCING A PROBLEM WITH RETRAN-02 MOD005.1 ON THE IBM MAINFRAME. WHEN A JOBSTEP RAN OUT OF TIME, IT ABENDED ON A SYSTEM CODE=0322. PREVIOUS VERSIONS OF RETRAN-02 WERE ABLE TO MONITOR CPU TIME AND GRACEFULLY WRAP UP A RETRAN JOB (I.E., PRINT MINOR EDITS AND RESTART FILE) BEFORE THE CPU TIME LIMIT WAS REACHED. CECO INVESTIGATED THE PROBLEM AND FOUND THAT RETRAN VERSIONS PRECEEDING MOD005.1 CONTAINED AN ASSEMBLER CSECT NAMED TIMSET WITH SEVERAL ENTRY POINTS, INCLUDING ONE NAMED NOTIM. NOTIM DETERMINES IF A JOBSTEP IS NEARING ITS ALLOTTED TIME LIMIT. THE MOD005.1 CONTAINS A FORTRAN ROUTINE NAMED TIMSET WITH SIMILAR ENTRY POINTS EXCEPT FOR NOTIM. MOD005.1 CONTAINS A SEPARATE FORTRAN ROUTINE NAME NOTIM, HOWEVER THIS IS A DUMMY ROUTINE.

CECO ALSO INVESTIGATED RETRAN-03 MOD000, TO SEE IF NOTIM EXISTED. AGAIN, IT WAS FOUND THAT NOTIM WAS A DUMMY FORTRAN ROUTINE. THE RETRAN-03 MOD000 PROGRAMMER'S MANUAL, STATES THAT NOTIM IS NO LONGER FUNCTIONAL.

DISPOSITION:

THE CONVERSION OF THE CODES TO USE FORTRAN ENVIRONMENTAL LIBRARIES RESULTED IN THE REMOVAL OF ALL ASSEMBLY LANGUAGE ROUTINES. SOME INTERFACE WITH SYSTEM FUNCTIONS WERE AFFECTED. THERE IS NOT YET A FORTRAN EQUIVALENT TO NOTIME THAT IS COMPATIBLE WITH ALL PLATFORMS.

MODELING ALTERNATIVES:

PROBLEM TERMINATION MIGHT BE MONITORED AND CONTROLLED WITH THE RETRAN CONTROL SYSTEM. ACCUMULATED CPU TIME IS A SYSTEM PARAMETER AVAILABLE TO THE USER.

***** PROBLEM REPORT NUMBER 415 *****

REPORTED BY : JOHN J. GEOSITS/PP&L DATE: 3/8/93
REPORTED TO : EPSC/CSA DATE: 3/15/93
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/8/93

CODE VERSION : RETRAN-02 MOD004
COMPUTER/OPERATING SYSTEM : IBM

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BWR REACTOR CORE MODEL WHICH USES ONE-DIMENSIONAL
KINETICS (KUDYS=2)

DESCRIPTION OF PROBLEM:

WHEN A STEADY STATE RUN IS EXECUTED THE SYSTEM POWER DECREASES AFTER
THE FIRST TIME STEP AND THEN APPROACHES THE INITIAL CORE POWER AFTER
SEVERAL TIMESTEPS.

DISPOSITION:

A SUGGESTED CORRECTION SUPPLIED BY PP&L IS UNDER EVALUATION. RESOLUTION
OF THIS TROUBLE REPORT WILL PROBABLY RESOLVE TROUBLE REPORT 287. WHEN
THE CORRECTION IS VERIFIED THE MODIFICATION WILL BE PLACED IN RETRAN02
MOD005.2 AS MODIFICATION 379.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 416 *****

REPORTED BY : LARRY KLASMIER/CECO DATE: 3/24/93
REPORTED TO : EPSC/CSA DATE: 3/30/93
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 3/24/93

CODE VERSION : RETRAN-02 MOD005.1
COMPUTER/OPERATING SYSTEM : IBM RS/6000

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

IF THE TERMINATOR CARD (.) IS OMITTED, RETRAN WILL KEEP PRINTING THE
LAST LINE OF THE INPUT FILE TO THE OUTPUT FILE UNTIL THE USER'S DISK
SPACE LIMIT IS EXCEEDED. THIS CAUSES RETRAN TO CRASH.

DISPOSITION:

THE PROBLEM IS CAUSED BY THE RETRAN INP PROCESSING ROUTINES TO ISSUE
REPEATED ERROR MESSAGES UNTILL THE OUTPUT FILE SIZE EXCEEDS THE LOCAL
FILE SYSTEM ALLOCATION. A CORRECTION WILL BE MADE TO THE ENVIRONMENTAL
LIBRARY WHICH WILL BE TRANSMITTED WITH RETRAN-02 MOD005.2.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 417 *****

REPORTED BY : CHRIS BRENNAN/PSE&G DATE: 4/30/93
REPORTED TO : EPSC/CSA DATE: 5/7/93
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 4/30/93

CODE VERSION : RETRAN-02 MOD005.1
COMPUTER/OPERATING SYSTEM : UNIX

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : Y.INP-BWR/4 SINGLE RECIRC LOOP MODEL, USING NODEL=4
 KINETICS (Y-FUNCTION MODEL). A .05 SECOND NULL
 TRANSIENT IS EXECUTED. A SHORT TRANSIENT IS EXECUTED
 TO LIMIT THE AMOUNT OF OUTPUT (IEVERY=1 ON 030002
 CARD). NORMALIZED POWER AND RESIDUAL REACTIVITY
 REMAIN CONSTANT (AT 1.000000 AND 0.000000 RESPECTIVELY).

DESCRIPTION OF PROBLEM:

THE TROUBLE ENCOUNTERED IS THE MULTI-CONTROL STATE (MCS) CONTROL ROD
MODEL. WHEN NODEL=4 (Y-FUNCTION MODEL) IS SELECTED, A NUL TRANSIENT
WILL HOLD PNRM=1.0 AND RSRE $\sim -1e-4$ AT THE FIRST TIME STEP. AS A
RESULT, PNRM WILL INSTANTLY DROP TO ABOUT 0.96, THEN GRADUALLY
INCREASE TOWARDS 0.99.

DISPOSITION:

PRELIMINARY INVESTIGATION INDICATES THAT THE BEHAVIOR IN THIS CASE
WAS DUE TO INPUT PROBLEMS. HOWEVER, THIS DECK WILL BE USED AS PART OF
THE VERIFICATION FOR TROUBLE REPORT 415.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 418 *****

REPORTED BY : ED BURCHFIELD/DUKE DATE: 6/30/93
REPORTED TO : EPSC/CSA DATE: 7/6/93
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 6/30/93

CODE VERSION : RETRAN-02 MOD005.1
COMPUTER/OPERATING SYSTEM : RISC

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION : OCONEE NUCLEAR STATION TWO LOOP STEAMLINE BREAK MODEL
 (2 OTSGS, 2 HOT LEGS, 4 COLD LEGS, SPLIT RV MODEL,
 MFW/CONDENSATE SYSTEM).

DESCRIPTION OF PROBLEM:

FOR NONEQUILIBRIUM VOLUME 10 MINOR EDIT GASM PLUS MINOR EDIT LIQM
DOES NOT EQUAL MINOR EDIT FMAS AT ALL TIMES DURING THE SIMULATION.
ERROR OCCURS WHEN MIXTURE LEVEL DROPS BELOW A JUNCTION ELEVATION.

DISPOSITION:

A CORRECTION HAS BEEN IDENTIFIED AND IT WILL BE ADDED TO
RETRAN02 MOD005.2 AS MODIFICATION 381.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 419 *****

REPORTED BY : LARRY KLASMIER/CECO DATE: 7/12/93
REPORTED TO : EPSC/CSA DATE: 7/19/93
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 7/12/93

CODE VERSION : RETRAN-02 MOD005.1
COMPUTER/OPERATING SYSTEM : RISC

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : NOT IMPORTANT

DESCRIPTION OF PROBLEM:

RETRAN JOBS TERMINATE DIFFERENTLY ON DIFFERENT PLATFORMS WHEN ERRORS ARE ENCOUNTERED (I.E., RETRAN ERROR MESSAGES THAT ARE PRINTED AT THE END OF A JOB ON THE IBM MAINFRAME ARE NOT NECESSARILY PRINTED ON THE RS-6000). THIS MAKES DEBUGGING INPUT DECKS VERY DIFFICULT ON THE RS-6000.

DISPOSITION:

A PRELIMINARY INVESTIGATION OF THIS PROBLEM INDICATED THAT A CALL 'EXIT' WAS MADE IF AN ERROR CONDITION WAS FOUND WHEN PROCESSING THE KINETICS CROSS SECTION FILE. ON PREVIOUS MAINFRAME PLATFORMS, THIS METHOD OF CONTROLLED TERMINATION WAS ALLOWED AND WAS, IN FACT, REQUIRED ON SOME MVS SYSTEMS. THE CASE IS NOT TRUE ON MOST WORKSTATION PLATFORMS. A CALL EXIT MAY INTERRUPT THE NORMAL PROCESSING OF ERROR MESSAGES.

IT APPEARS THAT ONLY ERROR MESSAGES INVOLVING CROSS SECTION READING FILE READING BEHAVE THIS WAY. A CORRECTION FOR THIS PROBLEM HAS BEEN DEVELOPED AND WILL BE PART OF THE MOD005.2 UPDATE AS MODIFICATION 380.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 420 *****

REPORTED BY : VIRQILIO ESQUILO/YAEC DATE: 11/29/93
REPORTED TO : EPSC/CSA DATE: 12/03/93
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/29/93

CODE VERSION : RETRAN-02 MOD005.1
COMPUTER/OPERATING SYSTEM : HP-UX VERSION 8.07

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : A RETRAN MODEL FOR THE MAIN YANKEE ATOMIC POWER
STATION CONTAINING DETAILED FEEDWATER TRAIN AND
MULTI-NODE STEAM GENERATOR MODELS

DESCRIPTION OF PROBLEM:

THE PROBLEM IS THAT A JUNCTION INPUT FOR THE CONTRACTION
COEFFICIENT AT CRITICAL FLOW (CONCO) IS AFFECTING THE INITIAL
(TIME/ZERO) LIQUID MASS IN THE STEAM GENERATOR DOMES (NODES 100
AND 200). JUNCTIONS 155 AND 255 ARE VALVED FEEDWATER FILL
JUNCTIONS ONLY USED FOR INITIALIZING THE STEAM GENERATOR
SECONDARY SIDES. AFTER TIME ZERO, THEY ARE CLOSED. WHEN CONCO
FOR THESE JUNCTIONS IS 0.0 (INTERPRETED AS 1.0 ACCORDING TO THE
MANUAL), THE INITIAL NODEL LIQUID MASSES ARE GREATER THAN
THE DESIRED VALUE BY APPROXIMATELY 21000 LBM IN NODE 100, AND
42000 LBM IN NODE 200. HOWEVER, WHEN CONCO IS SET TO 1.0, THE
LIQUID MASSES ARE THE DESIRED VALUES.

DISPOSITION:

AN INVESTIGATION SHOWED THAT FOR THOSE JUNCTIONS THAT
ARE USED AS BIAS JUNCTIONS, THE VALUE OF CONCO IS (INCORRECTLY)
ADDED TO THE FILL ENTHALPY. IN THIS CASE THE FILL ENTHALPY IS
INCREASED BY 1 BTU/LBM. A CORRECTION HAS BEEN DEVELOPED FOR
MOD005.2 AND WILL BE ADDED AS MODIFICATION 389.

MODELING ALTERNATIVES:

NONE IDENTIFIED. IN THIS CASE IF CONCO WERE SET TO 0.0 AND THE
BIAS ENTHALPY WERE ELEVATED BY THE SAME 1 BTU/LBM THEN THE
DESIRED LIQUID MASSES WOULD BE CALCULATED.

***** PROBLEM REPORT NUMBER 421 *****

REPORTED BY : CRAIG PETERSON/CSA DATE: 12/07/93
REPORTED TO : EPSC/CSA DATE: 12/07/93
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/07/93

CODE VERSION : RETRAN-02 MOD005.1 AND RETRAN03
COMPUTER/OPERATING SYSTEM : ALL PLATFORMS

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : ANY WESTINGHOUSE PLANT MODELED WITH A STEAM
GENERATOR PREHEATER (D4 AND D5 STEAM GENERATORS)

DESCRIPTION OF PROBLEM:

STEAM GENERATORS WITH PREHEATERS HAVE A SPLIT FEEDWATER FLOW WITH 80-90% GOING TO THE PREHEATER AND THE REMAINDER GOING TO THE BOILING REGION. CURRENTLY RETRAN CANNOT HANDLE TWO FEEDWATER JUNCTIONS TO A SINGLE STEAM GENERATOR. (ENTHALPY BIAS LOGIC). THE USER CAN INITIALIZE WITH A DUMMY FEEDWATER JUNCTION AND ONE OR TWO ITERATIONS BY CHANGING THE FEEDWATER CONDITIONS. A CHANGE TO ALLOW TWO FEEDWATER JUNCTIONS FOR THE OVERALL STEADY-STATE ENERGY BALANCE WOULD BE HELPFULL.

DISPOSITION:

MODEL LIMITATION

MODELING ALTERNATIVES:

SEE DESCRIPTION FOR ALTERNATIVE.

***** PROBLEM REPORT NUMBER 422 *****

REPORTED BY : CRAIG PETERSON/CSA DATE: 12/07/93
REPORTED TO : EPSC/CSA DATE: 12/07/93
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/07/93

CODE VERSION : RETRAN-02 MOD005.1
COMPUTER/OPERATING SYSTEM : AIX

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : TWO LOOP PWR MODEL (3 LOOPS/LUMPED SINGLE LOOP)

DESCRIPTION OF PROBLEM:

SEVERAL CONDUCTORS IN A U-TUBE STEAM GENERATOR EXCEED CHF ON THE SECONDARY SIDE EARLY IN A LONFW TRANSIENT. THE CHF VALUE IS TOO LOW AND IS A POSSIBLE, NON-PHYSICAL LIMITATION ASSOCIATED WITH THE CHF CORRELATION. THE FORCED CONVECTION HEAT TRANSFER CORRELATION MAP WAS USED (IHTMAP = 0).

DISPOSITION:

A PRELIMINARY INVESTIGATION CONCLUDES THAT APPLICATION OF THE CHF CORRELATION FOR NON-POWERED CONDUCTORS MAY NOT BE APPROPRIATE. TESTS ARE UNDERWAY TO MODIFY THE HEAT TRANSFER SELECTION LOGIC FOR NON-POWERED CONDUCTORS.

A CORRECTION HAS BEEN DEVELOPED FOR IMPLEMENTATION INTO MOD005.2 AND IT WILL APPEAR AS MODIFICATION 382.

MODELING ALTERNATIVES:

THE MODELING ALTERNATIVE SUGGESTED IN THE JANUARY 1994 REVISION WAS INCORRECT. IN THAT REPORT IT WAS SUGGESTED THAT IHTMAP=0 SHOULD BE USED. THIS IS NOT CORRECT. THE CORRECT SUGGESTION IS TO USE THE COMBINATION HEAT TRANSFER MAP (IHTMAP=1) SO THAT A DIFFERENT CHF CORRELATION IS USED. HOWEVER THE USER IS CAUTIONED THAT CHANGING TO IHTMAP=1 MAY AFFECT THE STEADY-STATE INITIALIZATION CONDUCTOR AREA ADJUSTMENT, AFFECTING THE TRANSIENT RESULTS. THE OTHER POSSIBILITY IS TO REDUCE THE CONDUCTOR LENGTH TO THE POINT THAT CHF IS NOT PREDICTED. HOWEVER THIS ALTERNATIVE MAY AFFECT THE RESULTS FROM THE LOCAL CONDITIONS MODEL AS WELL.

***** PROBLEM REPORT NUMBER 423 *****

REPORTED BY : GREGG SWINDLEHURST/DUKE DATE: 12/31/93
REPORTED TO : EPSC/CSA DATE: 01/10/94
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/31/93

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : RISC

LISTING SUPPLIED : YES

DECK SUPPLIED : NO

DECK DESCRIPTION : A B&W PLANT TWO-LOOP STEAM LINE BREAK MODEL.

DESCRIPTION OF PROBLEM:

JOB ABORTS DUE TO ENTHALPY TRANSPORT ERROR IN THE STEAM
GENERATOR AS INDICATED BY ENTHALPY CORRESPONDING TO ICE.
WITH ENTHALPY TRANSPORT TURNED OFF THE ABORT IS AVOIDED.

DISPOSITION:

A CORRECTION HAS BEEN DEVELOPED FOR IMPLEMENTATION INTO
MOD005.2 AND IT WILL BE ADDED AS MODIFICATION 390.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 425 *****

REPORTED BY : DAVID L. JOHNSON/CSA DATE: 06/07/94
REPORTED TO : EPSC/CSA DATE: 06/07/94
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 06/07/94

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : UNIX

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : FERRELL-MCGEE CONTRACTION MODEL #7D-4.

DESCRIPTION OF PROBLEM:

WHEN DYNAMIC SLIP IS USED WITH NO WALL OR JUNCTION FRICTION, A
DIVISION BY ZERO ERROR OCCURS.

DISPOSITION:

A PRELIMINARY CORRECTION HAS BEEN DEVELOPED. WHEN VERIFIED,
IT WILL BE ADDED TO MOD005.2 AS MODIFICATION 384.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 426 *****

REPORTED BY : MARK P. PAULSEN/CSA DATE: 10/06/94
REPORTED TO : EPSC/CSA DATE: 10/06/94
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/06/94

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : HPUX

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : STEAM LINE BREAK MODEL.

DESCRIPTION OF PROBLEM:

INITIAL COMPARISONS OF THE SLB ANALYSIS USING RETRAN-02 AND
RETRAN-03 SHOWED DIFFERENCES. AN INVESTIGATION INTO THE CAUSE
OF THE DIFFERENCE IDENTIFIED A POTENTIAL PROBLEM IN THE SMOOTHING
LOGIC BETWEEN MODES 11 AND 14 (HEAT TRANSFER), FOR THE COMBINED
HEAT TRANSFER MAP.

DISPOSITION:

A CODE UPDATE HAS BEEN DEVELOPED TO HELP SMOOTH THE TRANSITION
BETWEEN THESE FLOW REGIMES. A CORRECTION HAS BEEN DEVELOPED FOR IMPLEMENTATION INTO
MOD005.2 AND WILL BE ADDED AS MODIFICATION 386

MODELING ALTERNATIVES:

USE OF THE FORCED CONVECTION HEAT TRANSFER MAP MINIMIZED SOME OF
THE OBSERVED DIFFERENCES. IF THE COMBINED MAP IS DESIRED, THERE
MAY BE NO MODELING ALTERNATIVE.

***** PROBLEM REPORT NUMBER 427 *****

REPORTED BY : JOHN SHATFORD/CSA DATE: 10/30/94
REPORTED TO : EPSC/CSA DATE: 10/30/94
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/30/94

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : IBM RS/6000

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : SINGLE VOLUME LIQUID LEVEL TEST WITH TRIP ON HIGH
 LEVEL, RESET ON LOW LEVEL.

DESCRIPTION OF PROBLEM:

TRIP RESET CONDITION MET WHILE TRIP DELAY IS STILL PENDING
CODE STILL SHOWS TRIP AT END OF DELAY, THEN RESET AT NEXT TIME
STEP (TROUBLE REPORTED THROUGH PHONE CONVERSATION WITH BEN GITNICK
OF SCIENTECH - SEE ATTACHED INFORMATION)

DISPOSITION:

A CORRECTION HAS BEEN DEVELOPED FOR MOD005.2 AND WILL BE ADDED
AS MODIFICATION 387.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 428 *****

REPORTED BY : CRAIG PETERSON/CSA DATE: 10/27/94
REPORTED TO : EPSC/CSA DATE: 10/27/94
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 10/27/94

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM :

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : THE INPUT DECK IS A MODEL OF THE ATR 1CW MUCH LOOP.
THE MODEL CONSISTS OF TWO CONCENTRIC PIPES. FLOW ENTERS THE INNER PIPE AT THE BOTTOM, EXITS THE TOP AND THEN IS DIRECTED DOWNWARD THROUGH THE OUTER ANNULUS. THE PIPE WALLS ARE LOCATED CLOSE TO THE REACTOR FUEL AND IF THE REACTOR IS POWERED, GAMMA HEATING OF THE PIPE WALLS OCCUR. THE CONDUCTOR WALLS ARE MODELED WITH HEAT CONDUCTORS WITH A PORTION OF THOSE CONDUCTORS (THE ONES ADJACENT TO THE REACTOR CORE) MODELED WITH CORE SECTIONS FOR GAMMA HEATING.

FOR THE DOWNFLOW ANNULUS, THE MODEL CONSISTS OF FOUR PARALLEL CHANNELS IN ORDER TO REPRESENT THE DIFFERENT GAMMA HEATING RATES FOR THE SECTION OF THE PIPE FACING THE REACTOR FUEL.

DESCRIPTION OF PROBLEM:

THE PROBLEM OCCURS FOR THE CASES IN WHICH THE REACTOR POWER IS ASSUMED TO BE ZERO. IN THESE CASES, NO GAMMA HEATING IS ASSUMED THEREFORE, THE FLUID CONDITIONS IN ALL FOUR DOWNFLOW CHANNELS SHOULD BE SYMMETRIC. FOR THIS INPUT MODEL, THE OUTLET ENTHALPY IN ONE CHANNEL (JUNCTION 512) IS APPROXIMATELY 4 BTU/LB DIFFERENT THAN THE OUTLET OF THE OTHER CHANNELS (JUNCTIONS 612, 712, AND 812). IT SHOULD BE NOTED THAT EVEN THOUGH THESE ARE ZERO POWER CASES, FOR CONVENIENCE, A POWER OF 1 WATT WAS SUPPLIED ON THE POWER CARD (010005) TO MINIMIZE THE DECK CHANGES TO RUN THESE CASES. 1 WATT IS A NEGLIGIBLE AMOUNT OF POWER AND SHOULD NOT PRODUCE THE OBSERVED DIFFERENCE IN THE CHANNEL OUTLET ENTHALPIES.

DISPOSITION:

THE PROBLEM IS LIMITED TO CASES OF TWO-SIDED, POWERED CORE CONDUCTORS AT EXTREMELY LOW POWERS. IN THIS SITUATION THE STEADY-STATE AREA ADJUSTMENT MAY NOT PROPERLY ACCOUNT FOR HEAT TRANSFER THROUGH THE POWERED CONDUCTOR DUE TO ADJACENT VOLUME FLUID TEMPERATURE DIFFERENCES. IN THE MORE 'NORMAL' SITUATION IN WHICH THE POWERED CONDUCTOR INTERNAL HEAT GENERATION RESULTS IN HEAT TRANSFER TO BOTH LEFT AND RIGHT HAND ADJACENT FLUID VOLUMES, THE PROBLEM DOES NOT EXIST.

A CORRECTION HAS BEEN DEVELOPED FOR MOD005.2 AND IT WILL BE ADDED AS MODIFICATION 388.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

REPORTED BY : JOHN J. GEOSITS/PP&L DATE: 12/12/94
REPORTED TO : EPSC/CSA DATE: 12/21/94
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/12/94

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : HP 9000

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : THE MODEL HAS FIVE VOLUMES AND FOUR JUNCTIONS.
TWO TIME DEPENDENT VOLUMES DRIVE A 3 VOLUME BWR
FUEL ASSEMBLY. THE ASSEMBLY HAS FIXED ENERGY
INPUT. SEE ATTACHED NODING DIAGRAM.

DESCRIPTION OF PROBLEM:

THE PROBLEM FAILS TO CONVERGE ON SLIP VELOCITY AT THE JUNCTION WHERE BOILING IN THE ASSEMBLY STARTS. THE VOLUME BEFORE THE JUNCTION IS SUBCOOLED. THE ENERGY AND MOMENTUM EQUATIONS ALSO FAIL TO CONVERGE FOR THE DOWNSTREAM JUNCTIONS. THE PROBLEM SOLUTION APPEARS TO BE OSCILLATING BETWEEN BUBBLY AND SUBCOOLED CONDITIONS AT THE PROBLEM JUNCTION AND THEREFORE THE PROBLEM NEVER CONVERGES EVENT AT 300 ITERATIONS (TYPICAL CONVERGENCE FOR THIS PROBLEM SHOULD BE 5 ITERATIONS).

DISPOSITION:

THE PROBLEM APPEARS WHEN THE ALGEBRAIC SLIP OPTION IS USED, AND THE 'BOILING' OR TWO-PHASE BOUNDARY IS AT THE JUNCTION. IN THESE CASES THE ALGEBRAIC SLIP MODEL (AT VERY LOW VOID FRACTIONS) CAN PREDICT A POSITIVE SLIP VELOCITY. A LIMITATION IN THE SLIP CORRECTION TO THE ENERGY EQUATION APPEARS IN THIS SITUATION (A NEWTON-RAPHSON ITERATIVE SCHEME). IN SOME CASES, IT DOES NOT CONVERGE WHEN THE SLIP VELOCITY IS POSITIVE. A CANDIDATE CORRECTION TO THE ITERATIVE STRATEGY USES AN HEM BASED DERIVATIVE DURING THE ITERATION. NOTE THAT THE CORRECTION DOES NOT ELIMINATE THE SLIP EFFECTS AT THE JUNCTION, RATHER, THE HEM BASED DERIVATIVE IS USED TO ELIMINATE OSCILLATION PROBLEMS. THE CONVERGED SOLUTION STILL INCLUDES THE EFFECT OF SLIP IN THE CONVECTION COMPONENT OF THE ENERGY EQUATION.

A CORRECTION HAS BEEN DEVELOPED FOR MOD005.2 AND IT WILL BE ADDED AS MODIFICATION 385.

MODELING ALTERNATIVES:

SINCE THE PROBLEM ONLY OCCURS IN A VERY LIMITED SET OF CIRCUMSTANCES (TWO-PHASE BOUNDARY AT JUNCTION BETWEEN VOLUMES) AND THE VOID FRACTION IS VERY SMALL. A USER MIGHT CONSIDER THE ALTERNATIVE OF ELIMINATING SLIP FROM THE JUNCTION (-99 OPTION ON JUNCTION CARD). IF THE BOILING BOUNDARY WERE TO MOVE SIGNIFICANTLY DURING A TRANSIENT THIS MAY NOT BE PRACTICAL.

IN SOME SITUATIONS A MOVE TO THE DYNAMIC SLIP OPTION MIGHT BE POSSIBLE. DYNAMIC SLIP DOES CONVERGE IN THESE CASES.

***** PROBLEM REPORT NUMBER 430 *****

REPORTED BY : CRAIG E. PETERSON/CSA DATE: 06/02/95
REPORTED TO : EPSC/CSA DATE: 06/02/95
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 06/02/95

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : HP WORKSTATION

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION : BWR MODEL WITH 1-D KINETICS.

DESCRIPTION OF PROBLEM:

A PROBLEM WITH DIRECT MODERATOR HEATING MAY BE ENCOUNTERED IF THE DIRECT MODERATOR HEATING FRACTION IS LARGE AND THIS DIRECT MODERATOR HEATING FRACTION IS MULTIPLIED BY A DENSITY RATIO OF THE TIME T FLUID DENSITY OVER THE INITIAL FLUID DENSITY (THE DEFAULT OPTION). IN A SITUATION WHERE THE CORE FLUID DENSITY INCREASES SIGNIFICANTLY (SUCH AS AFTER A REACTOR TRIP), THE DENSITY RATIO MAY BECOME LARGE ENOUGH THAT THE DIRECT MODERATOR HEATING FRACTION CAN BECOME LARGER THAN THE DESIGNATED POWER FRACTION FOR THAT CORE CONDUCTOR. THIS PROBLEM IF ENCOUNTERED CAN BE RECOGNIZED BY NEGATIVE "COND. HEATING RATE" VALUES WRITTEN OUT ON THE PORTION OF THE MAJOR EDIT FOR CORE CONDUCTORS.

THE PROBLEM CAN BE AVOIDED IF THE USER FIXES THE DIRECT MODERATOR HEAT WEIGHTING FACTORS (THE DENSITY RATIO MULTIPLIER) ON INPUT DATA FIELDS 1450XX.

DISPOSITION:

A CORRECTION HAS BEEN DEVELOPED FOR MOD005.2 AND IT WILL BE ADDED AS MODIFICATION 391.

NONE IDENTIFIED.

MODELING ALTERNATIVES:

NONE IDENTIFIED.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

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REPORTED BY: Adi Irani (GPU)

DATE: 07/29/05

REPORTED TO: EPSC (CSA)

DATE: 07/26/95

PROGRAM VERSION: RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM: IBM RS/6000

LISTING SUPPLIED: Yes **FILE NAME:** pr431.org.out

INPUT FILE SUPPLIED: Yes **FILE NAME:** pr431.org.inp

INPUT MODEL DESCRIPTION: TM1 two loop model.

DESCRIPTION OF PROBLEM: Failure in JN properties. Failure occurs for a neg. fill junction in which the flow is zero and which has a valve that is closed.

DISPOSITION: Type of Error:
 Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

Abnormal termination during the transient.

The problem is caused by the slip convection term for the negative fill not set to zero. After the valve at the fill junction has closed and the flow has stopped.

MODIFICATION NUMBER: mod_406

MODELING ALTERNATIVES: In order for this error to occur, the following conditions must be present: 1) a negative fill, 2) a slip condition must exist at the fill, and 3) a valve must be closed to terminate the fill flow.

Alternatives are no slip on the fill or don't use the valve, just use the fill table to cut the flow off.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: GCG Date: 06/19/00

REASON FOR DETERMINATION:

Benign error.

***** PROBLEM REPORT NUMBER 432 *****

REPORTED BY : JOHN J. GVEOSITS/PP&L DATE: 11/2/95
REPORTED TO : EPSC/CSA DATE: 11/2/95
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/2/95

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : HP 9000

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : NONE

DESCRIPTION OF PROBLEM:

THE CODING IN SUBROUTINE XSEC1 ALLOWS NEGATIVE BUCKLING VALUES TO BE USED BEFORE CONTROL ROD MOTION BUT DOES NOT ALLOW NEGATIVE BUCKLING VALUES ONCE THE CONTROL RODS ARE MOVED. THIS CAUSES A STEP INCREASE IN THE FAST REMOVAL CROSS SECTION WHEN CONTROL RODS MOVED. THIS RESULTS IN A NONCONSERVATIVE CALCULATION OF REACTOR POWER DURING A PRESSURIZATION TRANSIENT. AT A MINIMUM, WARNINGS SHOULD BE ADDED TO NOTIFY THE USER IF LIMITS ARE APPLIED.

DISPOSITION:

IN GENERAL, UNLESS THE USER SUPPLIES LIMITS ON THE CROSS SECTION FILE, THE INTENT OF THE RETRAN CROSS SECTION MODEL IS TO LIMIT THE CROSS SECTION VALUES TO POSITIVE NUMBERS SMALLER THAN 1.0E10. THIS LOGIC HAS BEEN ADEQUATE UNTILL THE DEVELOPMENT OF MODELS THAT GENERATE NEGATIVE BUCKLING. IN SOME CASES THE CODE WILL TERMINATE IF NON-PHYSICAL CROSS SECTIONS SUCH AS NEGATIVE DIFFUSION COEFFICIENTS ARE COMPUTED. HOWEVER, SINCE BUCKLING IS ADDED TO THE ABSORPTION TERMS, A NEGATIVE BUCKLING WILL NOT TERMINATE THE CODE.

THE CODE ERROR IS TWO-FOLD. FIRST, THE CROSS SECTION LIMIT LOGIC HAS NOT BEEN CONSISTENTLY APPLIED AND LIMIT CHECKING ONLY OCCURS AFTER ROD MOTION IS DETECTED. IN THE PROBLEM REPORTED ABOVE, NEGATIVE BUCKLING WAS COMPUTED AND USED UNTIL ROD MOTION OCCURRED. THEN, THE DEFAULT LOWER LIMIT WAS APPLIED (0.0) AND NEGATIVE BUCKLING WAS CUT OFF.

THE CODE WILL BE MODIFIED SO THAT THE LIMITS CHECKING WILL ALWAYS TAKE PLACE. THE SECOND PART OF THE ERROR CORRECTION IS TO NOTIFY THE USER THAT CROSS SECTION LIMITS HAVE BEEN REACHED. THE CODE WILL BE MODIFIED TO ISSUE A MESSAGE.

A CORRECTION HAS BEEN DEVELOPED FOR MOD005.2 AND IT WILL BE ADDED AS MODIFICATION 392. THE MODIFICATION WILL INCLUDE MESSAGES ABOUT THE CROSS SECTION LIMITS BEING APPLIED.

MODELING ALTERNATIVES:

THE CROSS SECTION FILE CAN (ON USER OPTION) CONTAIN CROSS SECTION LIMITS THAT MAY ALLOW NEGATIVE VALUES TO BE USED.

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 433 *****

REPORTED BY : DAVID L. JOHNSON/CSA DATE: 11/16/95
REPORTED TO : EPSC/CSA DATE: 11/16/95
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/16/95

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : UNIX

LISTING SUPPLIED : YES

DECK SUPPLIED : YES

DECK DESCRIPTION :

FILL LOG IS A 4 VOLUME 4 JUNCTION DECK MADE TO SHOW THE FILL
PRESSURE ERROR. IT CONTAINS 1 FILL AND 1 TIME DEPENDENT VOLUME.

DESCRIPTION OF PROBLEM:

THE POSITIVE FLOW FILL DOES NOT ALLOW AN INPUT PRESSURE ABOVE
PCRITICAL (3208 PSIA). A FIX FOR THIS PROBLEM IS INCLUDED AS
FILE FILLIFIX.

DISPOSITION:

A CORRECTION HAS BEEN DEVELOPED FOR MOD005.2 AND IT WILL BE ADDED
AS MODIFICATION 393.

MODELING ALTERNATIVES:

TIME DEPENDENT VOLUME BOUNDARY PRESSURES CAN BE SET TO EXCEED THE
CRITICAL PRESSURE IF A PRESSURE BOUNDARY IS REQUIRED.

***** PROBLEM REPORT NUMBER 434 *****

REPORTED BY : DAVID L. JOHNSON/CSA DATE: 11/16/95
REPORTED TO : EPSC/CSA DATE: 11/16/95
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/16/95

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : UNIX

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION :

KEPCO YGN TURBINE TRIP MODIFIED. THIS DECK IS A PWR CONTAINING
3 STEAM GENERATORS. THE SECONDARY SIDE OF THE STEAM GENERATORS
ARE A SINGLE VOLUME CONTAINING THE HEAT CONDUCTORS AND HAVING
MULTIPLE INLET FILLS.

DESCRIPTION OF PROBLEM:

THE CRITICAL HEAT FLUX (CHF) IS CURRENTLY BEING CALCULATED FROM
THE MAIN FILL INLET ENTHALPY. IF ANOTHER FILL IS TRIPPED ON DURING
A TRANSIENT, THE ENTHALPY FROM THIS FILL IS NOT ADDED TO THE CHF
CALCULATION AS IT SHOULD BE.

DISPOSITION:

A CORRECTION HAS BEEN DEVELOPED FOR MOD005.2 AND IT WILL BE ADDED AS
MODIFICATION 394.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER 435 *****

REPORTED BY : JOHN G. SHATFORD/CSA DATE: 11/18/95
REPORTED TO : EPSC/CSA DATE: 11/18/95
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 11/18/95

CODE VERSION : RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM : RS/6000 AIX

LISTING SUPPLIED : NO

DECK SUPPLIED : YES

DECK DESCRIPTION :

ATR SIPT LOOP MODEL FOR BREAK ANALYSIS.

DESCRIPTION OF PROBLEM:

RETRAN-02 DID NOT REPORT AN ERROR WHEN TOO FEW SPECIFIED HEAT TRANSFER
COEF. CARDS (15000X) WERE SUPPLIED. ALSO, RETRAN-02 REQUIRES 15 INPUT
ITEMS ON CONDUCTOR DATA CARDS (15XXXX) ALTHOUGH THE INPUT MANUAL STATES
THAT ONLY 9 ARE REQUIRED.

DISPOSITION:

A CORRECTION HAS BEEN DEVELOPED FOR MOD005.2 AND IT WILL BE ADDED
AS MODIFICATION 395.

MODELING ALTERNATIVES:

NONE IDENTIFIED.

***** PROBLEM REPORT NUMBER E002 *****

REPORTED BY : J. G. SHATFORD/CSA DATE: 8/03/93
REPORTED TO : EPSC/CSA DATE: 12/31/95
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/31/95

CODE VERSION : RETRAN ENVIRONMENTAL LIBRARY MD2

COMPUTER/OPERATING SYSTEM : RS/6000 AIX

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

THE ENVIRONMENTAL LIBRARY (MD2) RELEASED WITH RETRAN02 MOD005.1
WAS TESTED AND QUALIFIED FOR USE ON THE IBM MAINFRAME MVS, IBM AIX
AND PC BASED PLATFORMS.

MODIFICATIONS WERE REQUIRED TO THE ENVIRONMENTAL LIBRARY MD2 TO SUPPORT
THE BY TARGET PLAFORMS FOR BOTH RETRAN-02 AND RETRAN-03.

THIS UPDATE CREATES VERSION, MD3, IS AN INTERIM PROGRAM LIBRARY WHICH WILL
NOT BE RELEASED WITH ANY RETRAN-02 CODE.

MODIFICATION DESCRIPTION

SLIB77 SWITCHES "PC" AND "RS6000" WERE RENAMED "DOS" AND "UNIX".
SLIB77 SWITCHES "-NORTG" AND "-NOSCRN" WERE REPLACED "RTG" AND
"SCREEN", RESPECTIVELY; AND SWITCH "WRKSTA" WAS ELIMNATED.

THIS UPDATE ADDS FOUR SLIB77 SWITCHES TO THE ENVIRONMENTAL LIBRARY.

NSCRN7 - this switch adds the option of using logical unit 7
for screen messages. (hp fix)

POSTFX - this switch adds a post-fix underscore to routine
names accessed through C routines. (sun fix)

STDC - this switch provides a toggle between ANSI standard C
and non-ANSI C

VMS - this switch is for code specific to the DEC VMS platform

NSCRN7 WAS ADDED TO DECK REMARK.

POSTFX WAS ADDED TO DECKS DATE8, LOCF, SECOND, SFILIO,
SIGNAL & TIME8

STDC WAS ADDED TO SFILIO & SIGNAL

VMS WAS ADDED TO DECKS DATE8, LOCF, MASKF, SECOND, SFILIO,
SIGNAL & TIME8

DATE8 WAS APPENDED WITH CODE SPECIFIC TO THE DEC VMS PLATFORM.

DSR WAS MODIFIED TO CORRECTLY INITIALIZE VARIABLES HXZERO, MASK.

ENVID WAS MODIFIED TO ECHO WHICH SLIB SWITCHES HAVE BEEN SET AND

THE OLD SWITCH LOGIC TO DETERMINE WHICH MACHINE PLATFORM IS TARGETTED WAS REMOVED.
ENVID WAS UPDATED TO REFLECT NEW MOD.

FLOATR WAS PURGED.

LOCF WAS MODIFIED TO ADD CODE SPECIFIC TO THE DEC VMS PLATFORM.

MASKF WAS MODIFIED TO ADD CODE SPECIFIC TO THE DEC VMS PLATFORM.

PDUMP WAS MODIFIED TO DUMP MEMORY CONTENTS IN 5 COLUMNS RATHER THAN 2 COLUMNS. THE INTEGER AND REAL MODE FORMATS WERE ADJUSTED.

SECOND WAS APPENDED WITH CODE SPECIFIC TO THE DEC VMS PLATFORM.

SFILIO WAS MODIFIED TO ADD CODE SPECIFIC TO THE DEC VMS PLATFORM.

SIGNAL WAS MODIFIED TO ADD CODE SPECIFIC TO THE DEC VMS PLATFORM.

TIME8 WAS APPENDED WITH CODE SPECIFIC TO THE DEC VMS PLATFORM.

DSR WAS MODIFIED TO CORRECTLY INITIALIZE VARIABLES HXZERO, MASK.

ENVID WAS UPDATED TO REFLECT NEW MOD.

INP WAS MODIFIED TO CORRECTLY HANDLE A MISSING "(.)END" CARD.
ALSO, LOGIC WAS ADDED TO HANDLE A CONTINUATION LINE THAT CONTAINS ONLY A COMMENT ("*").

PLOT, PLOTS AND SYMBOL WERE MODIFIED TO REMOVE WRITE STATEMENTS.
(THESE ROUTINE ARE SUPPOSED TO BE DUMMY ROUTINES)

REMARK WAS MODIFIED TO CORRECT THE SLIB "IF/ENDIF" LOGIC TO PREVENT SCREEN MESSAGE WRITES.
ALSO, AN EXTRANEIOUS RETURN STATEMENT WAS REMOVED.

XPLOTA WAS MODIFIED TO REMOVE LITERAL CONSTANTS FROM ARGUMENT LISTS.

NOTE:

THIS UPDATE DECK USES THE SLIB 'IF/ENDIF' LOGIC TO PERFORM A PLATFORM SPECIFIC CASE. TO SELECT A PARTICULAR SWITCH, SUPPLY A *DEFINE SWITCH TO DEFINE THE SWITCH. THE (-) IS THE SLIB *IF CONVENTION MEANING 'NOT' DEFINED. THE FOLLOWING SWITCH STRUCTURE IS USED. BY DEFAULT NONE OF THE SWITCHES ARE DEFINED.

MACHINE ARCHITECTURE SWITCHES	TO SELECT
32BIT	IBM MAINFRAME, PC AND RS6000
-32BIT	CDC, CRAY
64BIT	CDC(NOS/VE), CRAY
-64BIT	CDC(NOS/NOSBE)
STAR8	DOUBLE PRECISION (REAL*8)
-STAR8	SINGLE PRECISION
BOY	BYTE ORDER YIELD (IBM & RS6000)
-BOY	BYTE ORDER YIELD (PC & DEC)

PLATFORM SWITCHES

TO SELECT (ONLY ONE)

CDC	CDC MAINFRAME
IBM	IBM MAINFRAME
DOS	DOS BASED MICROPROCESSORS
UNIX	UNIX BASED MACHINES
VMS	DEC VMS MACHINES

LANGUAGE SPECIFIC SWITCHES

TO SELECT

IBMASM	IBM ASSEMBLER (MAINFRAME)
CYBIL	NOS/VE SYS DEVELOPMENT LANGUAGE
POSTFX	C SUPPORT: WHERE ROUTINE NAMES REQUIRE POST-FIXED UNDERSCORE
STDC	C SUPPORT: TOGGLE BETWEEN ANSI C AND NON-ANSI STANDARD C

OPTION SPECIFIC SWITCHES

TO SELECT

RTG	RUN TIME GRAPHICS OPTION
SCREEN	INFORMATIVE SCREEN MESSAGES
NSCRN7	SCREEN WRITES TO UNIT 7 (DEFAULT IS 0)

***** PROBLEM REPORT NUMBER E003 *****

REPORTED BY : J. G. SHATFORD/CSA DATE: 07/25/95
REPORTED TO : EPSC/CSA DATE: 12/31/95
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/31/95

CODE VERSION : RETRAN ENVIRONMENTAL LIBRARY MD3

COMPUTER/OPERATING SYSTEM : RS/6000 AIX

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

THE ENVIRONMENTAL LIBRARY (MD3) DOES NOT CONTAIN ALL THE FEATURES REQUIRED TO ADEQUATELY SUPPORT THE RETRAN02 AND RETRAN03 CODES. IN GENERAL, CODING REQUIRED BY THE RETRAN03 MULTIDIMENTIONAL KINETICS WILL BE ADDED TO THE ENVIRONMENTAL LIBRARY. THIS UPDATE IS CONSISTENT WITH THE CONCEPT OF A COMMON ENVIRONMENTAL LIBRARY FOR RETRAN-02 AND RETRAN-03.

THIS MODIFICATION REACTIVATES PROCESS FILES FOR FTB. NON-ACTIVE CODING IN THE EXISTING ROUTINES IN VERSION MD3 WERE REACTIVATED AND ROUTINES WHICH HAD BEEN PURGED FROM THE ENVIRONMENTAL LIBRARY IN PREVIOUS MODS WERE ADDED. SEVERAL ADDITIONAL ROUTINES NEEDED FOR NEW RETRAN OPTIONS WERE ADDED TO THE ENVIRONMENTAL LIBRARY.

THIS MODIFICATION WIL CREATE ENVIRONEMENTAL LIBARARY VERSION MD4. THIS IS AN INTERIM VERSION AND WAS NOT RELEASED WITH ANY FORMAL RETRAN-02 CODE VERSION.

THE FOLLOWING COMDECKS WERE ADDED:

FTBX - ADDS VARIABLES FOR PROCESS FILES TO FTB COMMON

THE FOLLOWING COMDECK MODIFICATIONS WERE MADE:

NONE

THE FOLLOWING SUBROUTINES WERE ADDED:

CMNDLN - ACCESS COMMAND LINE ARGUMENTS
FTBCLS - CLOSE PROCES FILE
FTBDAF - OPEN DISK FILE FOR FTB TO DISK
FTBRD - READ DISK FILE FOR FTB TO DISK
FTBWRT - WRITE DISK FILE FOR FTB TO DISK
CPYFIL - COPY PROCES FILES
GET - ACCESS RANDOM ACCESS PROCES FILE
IDGET - PROCES FILE ID

INPSHF - PROCES FILE ID
INXGET - PROCES FILE INDEX
ISFOPN - CHECK FOR OPEN
ISFPRC - CHECK FOR EXIST
LIFOPN - CHECK FOR SIZE TO OPEN
MXSETS - PROCES FILE TEST
NFSETS - PROCES FILE TEST
NFSIZE - PROCES FILE TEST
NFUNIT - PROCES FILE TEST
FTBOPN - OPEN PROCES FILE
PACK - PACK MULTIPLE INTEGERS IN SINGLE WORD
PROC4 - ACCESS MULTIPLE PROCES FILES
PROCES - ACCESS PROCES FILE
REALID - FUNCTION RETURNS THE NEXT AVAILABLE FTB ID AS REAL
TRNCAT - TRUNCATE PROCES FILE
SQOZ - REAL*8 TO REAL*4 CONVERT
UNPACK - UNPACK MULTIPLE INTEGERS FROM PACKED WORD
UNSQOZ - REAL*4 TO REAL*8 CONVERT

THE FOLLOWING CODE MODIFICATIONS WERE MADE:

BUFOUT - CHANGES TO MAKE FILE ID INTEGER
DELETE - CHANGES TO MAKE FILE ID INTEGER
DMPLST - CHANGES TO MAKE FILE ID INTEGER
DMPFIL - CHANGES TO MAKE FILE ID INTEGER
DSCRIB - CHANGES TO MAKE FILE ID INTEGER
ENVID - UPDATE VERSION AND DATE FOR LIBRARY
ERROR - EDIT CURRENT FILE ID WHEN ERROR CALLED
IDFIND - CHANGES TO MAKE FILE ID INTEGER
INITAL - ALLOW DISK FILES IN FTB
ISFDES - CHANGES TO MAKE FILE ID INTEGER
LCONTG - ALLOW DISK FILES IN FTB
LOCATE - FIX ERROR ON LINK TABLE EXPANSION
NEXTID - CHANGES TO MAKE FILE ID INTEGER
RESERV - CHANGES TO MAKE FILE ID INTEGER
SHIFT - CHANGES TO MAKE FILE ID INTEGER

***** PROBLEM REPORT NUMBER E004 *****

REPORTED BY : J. G. SHATFORD/CSA DATE: 12/31/95
REPORTED TO : EPSC/CSA DATE: 12/31/95
METHOD OF REPORT : EPSC TROUBLE REPORT DATED 12/31/95

CODE VERSION : RETRAN ENVIRONMENTAL LIBRARY MD4

COMPUTER/OPERATING SYSTEM : RS/6000 AIX

LISTING SUPPLIED : NO

DECK SUPPLIED : NO

DECK DESCRIPTION : N/A

DESCRIPTION OF PROBLEM:

THE ENVIRONMENTAL LIBRARY MD4 HAS ERRORS WHICH WERE DETECTED WHILE PORTING THE RETRAN CODES TO NEW PLATFORMS.

MODIFICATION DESCRIPTION:

THIS MODIFICATION FIXES ERRORS IN THE ENVIRONMENTAL LIBRARY MD4 WHICH WERE DETECTED WHILE PORTING THE RETRAN CODES TO NEW PLATFORMS. THE SLIB77 SWITCHES FOR SELECTING VARIOUS CODE OPTIONS WERE REORGANIZED FOR CLARITY.

ALSO, THE DECKS WERE REORGANIZED TO RESIDE IN THE LIBRARY IN ALPHABETICAL ORDER AND EXTRANEIOUS DECKS WERE PURGED.

THIS MODIFICATION WILL CREATE ENVIRONMENTAL LIBRARY MD5 WHICH WILL BE INCLUDED AS A TRANSMITTAL VERSION FOR RETRAN-02 MOD005.2

THE FOLLOWING COMDECKS WERE PURGED:

FTBX - (VARIABLES FOR PROCESS FILES MOVED TO FTB COMDECK)

THE FOLLOWING COMDECK MODIFICATIONS WERE MADE:

FTB - ADDS VARIABLES FOR PROCESS FILES TO FTB COMMON
MCOM - FIX SLIB77 SWITCHING LOGIC
NBIT - FIX SLIB77 SWITCHING LOGIC

THE FOLLOWING SUBROUTINES WERE PURGED:

CMNDLN - NOT USED
REALID - NOT USED
SFILIO - OLD RTG FORMAT
SIGWRT - OLD RTG FORMAT
SIGNAL - OLD RTG FORMAT
SQOZ - NOT USED
UNSQOZ - NOT USED

THE FOLLOWING CODE MODIFICATIONS WERE MADE:

- AXIS - ADD "D0" TO ALL LITERALS
- BUFOUT - INTEGER ID FIX
- DAND - FIX SLIB77 SWITCH LOGIC
- DATE8 - FIX SLIB77 SWITCH LOGIC
- DMPFIL - FIX SLIB77 SWITCH LOGIC
- FIX FORMAT FOR INTEGER ID
- DMPLST - FIX SLIB77 SWITCH LOGIC
- FIX FORMAT FOR INTEGER ID
- DNOT - FIX SLIB77 SWITCH LOGIC
- DOR - FIX SLIB77 SWITCH LOGIC
- DSCRIB - FIX SLIB77 SWITCH LOGIC
- DSL - FIX SLIB77 SWITCH LOGIC
- DSR - FIX SLIB77 SWITCH LOGIC
- DSRL - FIX SLIB77 SWITCH LOGIC
- ENVID - MODIFIY DATE AND VERSION
- MODIFIY INPUT EDIT TO REFLECT ALL SWITCHES, SET OR NOT
- ERRMOD - FIX SLIB77 SWITCH LOGIC
- ERROR - FIX SLIB77 SWITCH LOGIC
- FTBCLS - FIX SLIB77 SWITCH LOGIC
- FTBDAF - FIX SLIB77 SWITCH LOGIC
- FTBOPN - FIX SLIB77 SWITCH LOGIC
- FTBRD - FIX SLIB77 SWITCH LOGIC
- FTBWRT - FIX SLIB77 SWITCH LOGIC
- FORTER - FIX SLIB77 SWITCH LOGIC
- INITAL - FIX FOR INTEGER ID
- LAXIS - ADD "D0" TO ALL LITERALS
- LCONTG - FIX SLIB77 SWITCH LOGIC
- LIFOPN - FIX SLIB77 SWITCH LOGIC
- MASKF - FIX SLIB77 SWITCH LOGIC
- MINV - ADD "D0" TO ALL LITERALS
- NEXTID - FIX FOR INTEGER ID
- NORMAL - ADD "D0" TO ALL LITERALS
- NUMBER - ADD "D0" TO ALL LITERALS
- PLOTMC - ADD "D0" TO ALL LITERALS
- MXSETS - FIX SLIB77 SWITCH LOGIC
- PACK - FIX SLIB77 SWITCH LOGIC
- PROCES - FIX SLIB77 SWITCH LOGIC
- TIME8 - FIX SLIB77 SWITCH LOGIC
- TIMSET - ADD "D0" TO ALL LITERALS
- TRNCAT - FIX SLIB77 SWITCH LOGIC
- UNPACK - FIX SLIB77 SWITCH LOGIC
- XPLOT - ADD "D0" TO ALL LITERALS
- XPLOTA - ADD "D0" TO ALL LITERALS

NOTE: THE SLIB77 SWITCH "RTG" WAS REMOVED FROM THE MD5 LIBRARY



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REPORTED BY: David L. Johnson (CSA)

DATE: 06/25/96

REPORTED TO: EPSC (CSA)

DATE: 06/25/96

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: Unix

LISTING SUPPLIED: Yes

FILE NAME: pr436.out.org

INPUT FILE SUPPLIED: Yes

FILE NAME: pr436.inp

INPUT MODEL DESCRIPTION: Bennett round tube heat transfer model.

DESCRIPTION OF PROBLEM: During the verification and validation effort for RETRAN-3d, the Bennett heated round tube results indicated a potential limitation in the Groeneveld pre-CHF heat transfer model.

In subroutine QDOT, the number Prandtl is discontinuous for wall temperatures exceeding 1500 degrees f. In the Bennett problem, this resulted in conduction solution converge warning messages to be printed during steady-state initialization.

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

The unmodified code will produce warning messages regarding the non-converging behavior of the conduction solution for the conductors in post-CHF heat transfer.

Users should be aware of this when reviewing the output of an analysis.

However, the code will not fail during steady-state and a transient can be executed.

A preliminary correction has been developed for subroutines HTRC and QDOT based on the changes made to RETRAN-3D. The original coding set the Prandtl number to a constant if the wall temperature was greater than 1500 deg f since 1500 deg f represents an upper limit for the water properties. This value was not consistent with the computed value at 1500 deg f, introducing a non-smooth transition in the Prandtl number.

A preliminary correction will compute the Prandtl number based on properties evaluated at 1500 deg f as the upper limit.

MODIFICATION NUMBER: mod_405

MODELING ALTERNATIVES: None. (Has the potential for affecting only post-CHF heat transfer)

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: GCG Date: 06/19/00

REASON FOR DETERMINATION:

Warning messages are produced in this situation during steady-state initialization.



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COMPUTER SIMULATION & ANALYSIS, INC.

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REPORTED BY: Gary Jarka (Consumers)

DATE: 07/25/96

REPORTED TO: EPSC (CSA)

DATE: 07/25/96

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: IBM-AIX

LISTING SUPPLIED: Yes **FILE NAME:** pr438.out

INPUT FILE SUPPLIED: Yes **FILE NAME:** pr438.inp

INPUT MODEL DESCRIPTION: Consumers Power Appendix R aux. feed trip @ top of dryers deck run for 10 second and generates a restart tape with subsequent restart input deck run to 20 seconds.

DESCRIPTION OF PROBLEM: The input deck and subsequent restart deck encounters a junction property error. The initial input deck runs, but the restart deck fails.

DISPOSITION:

Type of Error:

- Not an Error
- Insignificant
- Significant

REASON FOR DETERMINATION

Abnormal code termination.

In interim correction has been identified. Information containing the pipe transport delay time is not preserved for restart. A correction was tested that eliminates the problem.

MODIFICATION NUMBER: mod_407

MODELING ALTERNATIVES: None identified.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: GCG Date: 06/19/00

REASON FOR DETERMINATION:

Benign error.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

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REPORTED BY: Garry Gose (CSA)

DATE: 10/25/96

REPORTED TO: EPSC (CSA)

DATE: 10/25/96

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: IBM-AIX

LISTING SUPPLIED: Yes

FILE NAME: ansprob

INPUT FILE SUPPLIED: Yes

FILE NAME: ansprob.out

INPUT MODEL DESCRIPTION: Simple decay heat sample problem deck. A scram insertion followed by a long term decay transient.

DESCRIPTION OF PROBLEM: If the actinide breeding ratio is not supplied on Record 140000 the code defaults to a value of 0.0. This is not what is discussed in the RETRAN input manual.

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

The user should be able to rely on the default values of the code.

Under investigation. A code change to force the code to use 1.0 in the default case is the desired correction.

MODIFICATION NUMBER: mod_408

MODELING ALTERNATIVES: Users should specify a non-zero UDUF.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: GCG Date: 06/20/00

REASON FOR DETERMINATION:

It is not possible to determine the impact effect of this trouble report on analysis results in a generic way.



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COMPUTER SIMULATION & ANALYSIS, INC.

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REPORTED BY: Steve Love (Westinghouse)

DATE: 10/25/96

REPORTED TO: EPSC (CSA)

DATE: 10/25/96

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: HPUX

LISTING SUPPLIED: No

FILE NAME: tr440.inp.out (reproduced)

INPUT FILE SUPPLIED: Yes

FILE NAME: tr440.inp

INPUT MODEL DESCRIPTION: Simple two volume test deck with valve closure to illustrate the problem.

DESCRIPTION OF PROBLEM: When a system turbine trip calculation is exercised, error messages relating to junction property evaluation are observed. Review of the information; indicates a potential problem in the calculation of the kinetic energy at junctions that have time-dependent flow areas.

DISPOSITION:

Type of Error:

 Not an Error
 X Insignificant
 Significant

REASON FOR DETERMINATION

Error caused abnormal code termination.

MODIFICATION NUMBER: mod_414

MODELING ALTERNATIVES: None identified.

10CFR PART 21 EVALUATION: Reportable Defect: X No Yes Indeterminate
Initials: GCG Date: 06/19/00

REASON FOR DETERMINATION:

Benign error.



SOFTWARE TROUBLE REPORT

NO. 441
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COMPUTER SIMULATION & ANALYSIS, INC.

REPORTED BY: John Geosits (PP&L)

DATE: 02/05/97

REPORTED TO: EPSC (CSA)

DATE: 02/05/97

PROGRAM VERSION: RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM: HP 9000

LISTING SUPPLIED: Yes FILE NAME: pr441.org.out

INPUT FILE SUPPLIED: Yes FILE NAME: pr441.org.inp

INPUT MODEL DESCRIPTION: None.

DESCRIPTION OF PROBLEM: A BWR slow recirculation flow increase has been run that shows anomalous power behavior. The flow increase and the rate of flow increase is continuous. However, the reactivity increase is discontinuous at approximately 183 seconds into the event. This causes a discontinuity in the rate of power increase. The new rate of increase appears to be 20 to 30% greater than expected after the discontinuity in reactivity occurs.

DISPOSITION: Type of Error:
 Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

Not an Error.

A preliminary investigation shows at about 183.5 seconds into the transient, a parameter in the drift flux model reaches a limit. The limit causes a slip velocity change and effects the neutronic void and the resultant regional reactivity via cross section effects.

The RETRAN theory manual (page VII-30 Rev 2) discusses a threshold for a parameter 'kappal' following equation VII-2-27. Kappa1 is a minimum of either 0.8 or computed from a function that is dependent upon the Reynolds number. In the current situation, the function exceeds the value of 0.8 and the code limits the value to 0.8 (a value recommended for cylinders and bundles).

The limit can be changed by the user. This parameter is defined on input record 061011 page iv-59 of the RETRAN input manual), as kappa1. A test value of .99 was used to avoid the threshold and the reported problem was eliminated.

MODIFICATION NUMBER: N/A

MODELING ALTERNATIVES: The user may adjust the profile fit model parameter KAPP1 to avoid the threshold.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: GCG Date: 06/19/00

REASON FOR DETERMINATION:

Not an error.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 442
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REPORTED BY: Robert Huynh (Duke)

DATE: 08/18/97

REPORTED TO: EPSC (CSA)

DATE: 08/18/97

PROGRAM VERSION: RETRAN-02 MOD005

COMPUTER/OPERATING SYSTEM: IBM RISC System/6000

LISTING SUPPLIED: No **FILE NAME:** pr442.out

INPUT FILE SUPPLIED: Yes E-Mail **FILE NAME:** pr442.inp

INPUT MODEL DESCRIPTION: Catawba Unit 2 loss of normal feedwater transient.

DESCRIPTION OF PROBLEM: The calculation failed with a time step reduced below the allowed minimum because of a "failure in pressure". No diagnostics are printed regarding the volume causing the problem and there are no identifiable problems in the final major edit. It would be helpful if more diagnostic information could be printed to help the analyst diagnose and correct the problem. Some preliminary investigation has been done.

DISPOSITION:
Type of Error:
 Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

Trouble Report 442 was filed on RETRAN-02 MOD005.0 using an IBM RISC/6000 system on 08/18/1997. It describes a RETRAN-02 calculation failure with a time step reduced below the minimum because of a "failure in pressure". No diagnostics are printed regarding the volume causing the problem and there are no identifiable problems in the final major edit. It would be helpful if more diagnostic information could be printed to help diagnose the analyst diagnose and correct the problem.

The problem report behavior was reproduced at CSA with the most recent version of RETRAN-02 (RETRAN-02 MOD005.2). The code fails with an EOS failure at 93.9 seconds into the transient with an implicit TS size less than 1.0E-7 which will cause a code failure.

The trouble report was not filed because of the problem failure; instead, it addresses the issue of insufficient information for identifying the failure location. In RETRAN-02 when a pressure search failure occurs, no information printed regarding the volume number causing the problem. This can be frustrating for users and requires several additional diagnostic runs to locate the problem. However, this is a known limitation in RETRAN-02.

Recent development in RETRAN-3D addresses this limitation. However, there are no plans to remove this limitation in RETRAN-02.

Trouble Report 442 will be resolved in the active RETRAN-02 trouble report log as a code limitation.

MODIFICATION NUMBER: Not an error

MODELING ALTERNATIVES: When the containment volume is initialized with a quality of .99, the code will execute.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: mpp Date: 03/27/07

REASON FOR DETERMINATION:

Not an error.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 443
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REPORTED BY: Mark Paulsen (CSA)

DATE: 09/01/97

REPORTED TO: EPSC (CSA)

DATE: 09/01/97

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM:

LISTING SUPPLIED: No

FILE NAME:

INPUT FILE SUPPLIED: No

FILE NAME:

INPUT MODEL DESCRIPTION: No model was supplied with the reported error, but a simple Shippingport pressurizer test case was used to evaluate the error.

DESCRIPTION OF PROBLEM: While reviewing the RETRAN-3D pressurizer model and its performance relative to RETRAN-02, an error was discovered in the formulation of the liquid region work term. This error also exists in RETRAN-02.

In equations VIII.5-29 and VIII.5-30 (EPRI-1850-CCM, Vol. 1 Rev. 6) the partial derivatives for the liquid region volume with respect to vapor and liquid energy are transposed incorrectly. The coding in the subroutine PRZR is also incorrect.

DISPOSITION:

Type of Error:

- Not an Error
- Insignificant
- Significant

REASON FOR DETERMINATION

Calculated results will change.

A correction that parallels that developed for RETRAN-3D has been implemented for subroutine PRZR. The test case involving the Shippingport pressurizer response showed no significant differences. However, the response of this case does not involve a significant work term effect. Additional studies are underway to quantify the effect of this error.

MODIFICATION NUMBER: mod_411

MODELING ALTERNATIVES: None.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: JGS Date: 06/19/00

REASON FOR DETERMINATION:

It is impossible to predict the effect of this error on calculations in general, though test cases indicate the differences are negligible.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 444
PAGE 1 OF 1

REPORTED BY: Randall Jacobs (Com Ed)

DATE: 02/02/98

REPORTED TO: EPSC (CSA)

DATE: 02/02/98

PROGRAM VERSION: RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM: HP-735/HP-UX 9.01

LISTING SUPPLIED: No

FILE NAME:

INPUT FILE SUPPLIED: No

FILE NAME:

INPUT MODEL DESCRIPTION: LaSalle RETRAN system model - feedwater controller failure (FWCF) analysis.

DESCRIPTION OF PROBLEM: While running a feedwater controller failure (FWCF) analysis with the LaSalle RETRAN system model, some anomalous behavior was observed during the overcooling phase of the FWCF. The results of this analysis show some apparent non-physical behavior at around 8 seconds in the transient for the reactivity and reactor power. At approximately 8 seconds the power undergoes an unexplained oscillation. A closer look at all of the edits shows that void fraction in one of the core nodes (Volume 410) takes a step change at the time of the oscillation. Also the slip velocity ($v_{l1} - v_g$) is positive for the junction entering volume 410. Note: a positive slip indicates liquid moving up the channel faster than the gas phase. The slip appears to go positive as the void fraction approaches very low values. The slip model employed in the BWR model is the algebraic slip model. This apparent non-physical behavior for the slip model seems to be causing the step change in the void fraction, which leads to the oscillation in reactor power.

As a test, the analysis was rerun with the slip option set to 0 for no slip. This change eliminated the anomalous behavior and the key transient results were very similar. Although the no slip case seemed to yield reasonable results for this case, using this option would have to be justified on a case by case basis. This may require benchmarking to plant data or other tests if available. However, for BWR analyses all benchmarks and validations were performed with the algebraic slip model and the topical report states that algebraic slip will be used. A trouble report to EPRI should be considered for this problem (this trouble report).

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

Calculated results will change.

MODIFICATION NUMBER:

Modification mod_412 is available and is one solution for eliminating the reported behavior. However, the reported behavior is due to a positive slip velocity being computed for small values of void fraction near the boiling boundary. Authors of the Z-L correlation indicate that the slip velocity should be positive for small values of void fraction. For this reason, the reported problem is being classified as a model limitation.

MODELING ALTERNATIVES:

None identified.

10CFR PART 21 EVALUATION:

Reportable Defect: No Yes Indeterminate
Initials: JGS Date: 06/19/00

REASON FOR DETERMINATION:

It is impossible to predict the impact of this error on calculated results (though description above implies the effect is minor).



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 445
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REPORTED BY: Steve Love (Westinghouse)

DATE: 07/31/98

REPORTED TO: EPSC (CSA)

DATE: 07/31/98

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: HP 735 Unix Vers. 9.01 & HP C160 & C180 Unix Vers. 10.20

LISTING SUPPLIED: No

FILE NAME:

INPUT FILE SUPPLIED: Yes

FILE NAME: sutest3.mod

INPUT MODEL DESCRIPTION: 2 node, 1 junction. Borated accumulator blowdown to a time-dependent volume.

DESCRIPTION OF PROBLEM: The behavior of the general transport system in some large analysis models was noted to be inconsistent with expected behavior. The sample deck illustrates that the impurity (e.g., boron) concentration of an accumulator varies significantly during blowdown. The expected behavior would be to have a constant boron concentration in the accumulator during blowdown.

Changes in boron concentration were noted when flow rate or time-step size changes significantly, and the potential exists when the implicit convergence criteria are not satisfied.

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

Investigation into this behavior showed that the changes in concentration reflect the explicit nature of the generalized transport model. A more implicit formulation is achieved by moving the generalized transport calculation to after the material properties have been updated to new timestep values (as is the case in RETRAN-3D).

Also, for cases with extreme conditions such as exhibited in this report, the transport medium mass ratio (mm previous/ mm current) may be far from 1.0. a correction to include this term was added to the modification.

Investigation into the iterative numerics logic resulted in a modification that will prevent the incorrect advancement of the impurity concentration during the iterative solution.

In reviewing the information for this trouble report it was noted that Eq. VII.2-34 in the general transport model description in the RETRAN-02 theory manual is incorrect; terms subscripted with "k+1" should be "k-1".

MODIFICATION NUMBER: mod_409

MODELING ALTERNATIVES: For this particular input deck, a smaller time step or allowing the code to predict choked flow would provide more physically correct behavior.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: JGS Date: 06/21/00

REASON FOR DETERMINATION: It is not possible to assess the impact of this correction upon users.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

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REPORTED BY: Garry Gose (CSA)

DATE: 08/31/98

REPORTED TO: EPSC (CSA)

DATE: 08/31/98

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: HP 735 Unix Version 9.01 & HP C160 & C180 Unix Version 10.20

LISTING SUPPLIED: No

FILE NAME:

INPUT FILE SUPPLIED: No

FILE NAME:

INPUT MODEL DESCRIPTION: N/A

DESCRIPTION OF PROBLEM: The documentation of the calculation of the junction kinetic energy in the bubble rise volume is not correct in the RETRAN-02 theory manual. The description of the enthalpy associated with phase separation given by Equation III.3-55 is not correct. The more appropriate expression for a bubble rise volume should indicate that the junction enthalpy is the vapor phase saturated enthalpy, if the mixture level is below the junction elevation.

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

Does not effect calculated results.

A modification to the theory manual will be made to accurately indicate what is done in the code. In general the exit junction enthalpy depends upon the location of the mixture level. For those situations where the mixture level is below the junction elevation the junction enthalpy is simply the 'from' volume vapor phase saturated enthalpy.

MODIFICATION NUMBER: N/A

MODELING ALTERNATIVES: N/A

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: JGS Date: 06/19/00

REASON FOR DETERMINATION:

Minor error.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 447
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REPORTED BY: John Geosits (PP&L)

DATE: 09/15/98

REPORTED TO: EPSC (CSA)

DATE: 09/15/98

PROGRAM VERSION: RETRAN-02 MOD005.1

COMPUTER/OPERATING SYSTEM: HP 735 HP-UX

LISTING SUPPLIED: No

FILE NAME:

INPUT FILE SUPPLIED: No

FILE NAME:

INPUT MODEL DESCRIPTION: BWR system model - 25 node core.

DESCRIPTION OF PROBLEM: Smoothing algorithm in subroutine SVOID does not use correct equilibrium quality (XE). To compensate, a "smoothing" term is used (XGAMMA). This smoothing term creates some non-smooth results when steady state (SS) pressure perturbation are performed. It appears that the current algorithm adding option to use the actual equilibrium quality (WGV/WVBAR). Using correct quality negates the need for the smoothing term XGAMMA (i.e., can set XGAMMA to 1.0).

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

Not an error.

Model choice.

MODIFICATION NUMBER: N/A. A new code option may be provided to implement the alternate smoothing option in the next code version as directed by the RETRAN Steering Committee.

MODELING ALTERNATIVES: N/A

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: GCG Date: 06/19/00

REASON FOR DETERMINATION:

Not an error.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 448
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REPORTED BY: Garry Gose (CSA)

DATE: 04/30/99

REPORTED TO: EPSC (CSA)

DATE: 04/30/99

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: All

LISTING SUPPLIED: No

FILE NAME:

INPUT FILE SUPPLIED: N/A

FILE NAME:

INPUT MODEL DESCRIPTION: N/A

DESCRIPTION OF PROBLEM: User's Manual is not correct for the specification of decay heat isotope fractions. On page IV-96a, on Input Record 146010, Word 3 and Word 4 should be transposed. That is, word 3 should be fraction due to PU-239, and Word 4 should be U-238. This is consistent with the code and with the order given on 14700X.

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

There is a possibility for calculated values to change.

User's Manual modification will be made to correctly indicate how the code expects the data. The code does print the values that will be used for the model.

A modification to the user's manual will be made to correct the wording.

MODIFICATION NUMBER: None identified.

MODELING ALTERNATIVES: None identified.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: GCG Date: 06/20/00

REASON FOR DETERMINATION:

There is no way to predict the impact of this error on calculated results in general.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 449
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REPORTED BY: John Shatford (CSA)

DATE: 08/19/99

REPORTED TO: EPSC (CSA)

DATE: 08/19/99

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: HPUX

LISTING SUPPLIED: Yes **FILE NAME:** tr_449.out
tr_449b.out

INPUT FILE SUPPLIED: Yes **FILE NAME:** tr_449.inp

INPUT MODEL DESCRIPTION: Loss of feedwater transient.

DESCRIPTION OF PROBLEM: When initializing the LOFW deck in steady-state, the location of the EFW fill junctions has a significant impact on SG mass. This behavior is strange since EFW is not initiated until well into the transient.

DISPOSITION: Type of Error:
 X Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

Not an error.

The impact of zero flow fill junctions on the steady-state solution is connected to the enthalpy transport model. The enthalpy transport model appears to cause erroneous results when multiple junctions are tied to a single volume (i.e., more than one inlet junction and one outlet junction).

I is noted that this is the type of situation that is pointed out in the RETRAN TER in which the use of a multijunction volume and enthalpy transport is not recommended.

Therefore this problem will be resolved as a model limitation.

MODIFICATION NUMBER: None identified.

MODELING ALTERNATIVES: Do not use enthalpy transport model in multiple junction volumes.

10CFR PART 21 EVALUATION: Reportable Defect: X No Yes Indeterminate
Initials: JGS Date: 06/19/00

REASON FOR DETERMINATION:

Not an error.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 450
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REPORTED BY: Mark Paulsen (CSA)

DATE: 10/15/99

REPORTED TO: EPSC (CSA)

DATE: 10/15/99

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: All

LISTING SUPPLIED: No

FILE NAME:

INPUT FILE SUPPLIED: No

FILE NAME:

INPUT MODEL DESCRIPTION: Any model using the vector momentum option that contains angle other than 0, 90, 180, and 270 degrees.

DESCRIPTION OF PROBLEM: The vector momentum option contains an error for models using junction angles that are not 0, 90, 180, or 270 degrees. Use of any of the above angles in any combination will not encounter the error.

This error applies to all versions of RETRAN-02 prior to and including MOD005.2 and RETRAN-3D MOD003 and prior versions.

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

Calculated results will change.

Code will be changed to not allow junctions angles other than 0, 90, 180, 270 degrees.

MODIFICATION NUMBER: mod_410

MODELING ALTERNATIVES: Review the model for angles other than those noted above. If an intermediate angle is encountered, convert it to the nearest angle that will produce correct results and do a sensitivity study to determine the impact of the error on the result.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: JGS Date: 06/19/00

REASON FOR DETERMINATION:

The impact of this error on calculated results is impossible to determine.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 451
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REPORTED BY: Jeff Abbott (Duke)

DATE: 08/17/00

REPORTED TO: EPSC (CSA)

DATE: 08/17/00

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: All

LISTING SUPPLIED: Yes

FILE NAME: rvheadht.out

INPUT FILE SUPPLIED: Yes

FILE NAME: rvheadht

INPUT MODEL DESCRIPTION: Oconee FWLB

DESCRIPTION OF PROBLEM: At 900 seconds, the vessel heat (Volume 10) is all vapor yet the heat transfer mode for Conductor 23, the metal mass in Volume 10, indicates forced convection to liquid.

An investigation revealed that the problem is related to low flow selection logic for condensation heat transfer. In RETRAN-02, condensation is only allowed for low flow conditions. There are two tests for low flow: for single phase flow, the test is on Reynolds number less than 2500 and for two phase flow the test is on mass flux less than 200,000. In this case, some condensation occurs while the head is two phase but, when the vessel head goes single phase according to void fraction, the low flow condition is not met and condensation is no longer allowed. The error is that forced convection to liquid not vapor is selected. This is not correct.

The preliminary investigation suggests that rather than switch to forced convection to vapor, the code should continue to allow condensation so long as the conditions for condensation are present, independent of flow.

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

If TWALL is less than TSAT and the combined heat transfer map is selected, condensation heat transfer will occur where previously forced convection to liquid was used.

MODIFICATION NUMBER: mod_413

MODELING ALTERNATIVES: The vessel head should be modeled as a non-equilibrium volume with stacked conductors and local conditions heat transfer. For this case the code seems to correctly switch from low flow forced convection collier below the mixture level and condensation above.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: JGS Date: 08/17/00

REASON FOR DETERMINATION:

The impact of this error on calculated results is impossible to determine.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 452
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REPORTED BY: Jeff Abbott (Duke)

DATE: 11/27/01

REPORTED TO: CSA

DATE: 11/27/01

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: All

LISTING SUPPLIED: No FILE NAME:

INPUT FILE SUPPLIED: No FILE NAME:

INPUT MODEL DESCRIPTION: N/A

DESCRIPTION OF PROBLEM: There are two problems, both relating to the RETRAN-02 User's Manual. First, the definition for the Dittus Boelter heat transfer modes (1 and 8) given in Appendix A, Page A-17 is not accurate. The definition for Mode 1 should say single phase liquid instead of subcooled liquid. Mode 8 should say single phase vapor instead of superheated vapor.

Second, there is no description for the control system minor edit variable, "TSIG". Table IV.6-13 on page IV-26 should be changed to include a description for TSIG. TSIG is the value (in problem time) that a trip setpoint has been reached. The region number for this minor edit variable is the trip id.

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

No calculated results are affected.

MODIFICATION NUMBER: N/A

MODELING ALTERNATIVES: N/A

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: GCG Date: 11/27/01

REASON FOR DETERMINATION:

Calculated results are not affected.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 453
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REPORTED BY: John Shatford (CSA)

DATE: 12/20/02

REPORTED TO: CSA

DATE: 12/20/02

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: All

LISTING SUPPLIED: No

FILE NAME:

INPUT FILE SUPPLIED: Yes

FILE NAME: sgtr

INPUT MODEL DESCRIPTION: SG tube rupture for dose calculation.

DESCRIPTION OF PROBLEM: While evaluating the compiler upgrade on a Sun platform, this case showed a floating point exception (divide by zero.) The transient finishes without a code failure, and the results appear reasonable, but the code reports that a single divide by zero has occurred.

During the course of a long transient, the mixture level in the pressurizer has dropped to almost zero. Gradually, all of the vapor below the mixture level has moved up into the vapor region. As the mixture region transitions from slightly two-phase to single phase liquid, an inconsistency in the state selection prevents the code from converging on either condition. Then, because a test for small relative volume doesn't trap negative values, the code incorrectly predicts single phase vapor in the mixture region. Ultimately, a "divide by zero" error results from incorrectly defined state properties.

DISPOSITION:

Type of Error:

Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

The code incorrectly predicts single phase vapor as the state below the mixture level in the pressurizer.

MODIFICATION NUMBER:

mod_415 The error correction and verification activities are summarized on the associated modification form.

MODELING ALTERNATIVES:

None.

10CFR PART 21 EVALUATION:

Reportable Defect: No Yes Indeterminate
Initials: JGS Date: 12/20/02

REASON FOR DETERMINATION:

It is impossible to determine the generic impact of this error on calculated results.

In this case, the code produces incorrectly calculated values for a single time step which are subsequently corrected during the next timestep. This, coupled with the observation that the occurrence of the given conditions are very infrequent, leads to the conclusion that the impact of this error should be negligible.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 454
PAGE 1 OF 1

REPORTED BY: D. S. Love (Westinghouse)

DATE: 01/08/04

REPORTED TO: CSA

DATE: 01/08/04

PROGRAM VERSION: RETRAN-02 MOD005.2

COMPUTER/OPERATING SYSTEM: PC Version (reproduced on)

LISTING SUPPLIED: No **FILE NAME:**
(reproduced)

INPUT FILE SUPPLIED: Yes **FILE NAME:** feeding

INPUT MODEL DESCRIPTION: The model is for a single feeding SG with four bundle volumes. Enthalpy transport is used in the heated volumes on both the primary and secondary sides.

DESCRIPTION OF PROBLEM: The enthalpy exiting the first bundle volume is superheated excessively. As a result, the secondary side volume above the first transfers heat from the secondary to the primary. (see dslove_email.txt)

DISPOSITION: Type of Error:
 Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

The reported problem is due to a limitation with the enthalpy transport model where the enthalpy transport source term is assumed to be known and independent of the exit junction enthalpy. For some situations in a steam generator, neglecting the coupling leads to exit junction enthalpies with excessive superheat.

MODIFICATION NUMBER: None currently.

MODELING ALTERNATIVES: More nodes might reduce the superheating, but it would increase the runtime.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: MPP Date: 01/08/04

REASON FOR DETERMINATION:

I don't know of any analyses that contain the reported error that have been included in a submittal.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

NO. 455
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REPORTED BY: William Beck (Dominion)

DATE: 10/15/07

REPORTED TO: J.G.Shatford (CSA)

DATE: 10/15/07

PROGRAM VERSION: RETRAN-02 MOD005.2 (reproduced on MOD005.2.1)

COMPUTER/OPERATING SYSTEM: UNIX (reproduced on PC Version)

LISTING SUPPLIED: Yes **FILE NAME:** mssv-5hdr-to_csa.out

INPUT FILE SUPPLIED: Yes **FILE NAME:** mssv-5hdr-to_csa.inp

INPUT MODEL DESCRIPTION: The model is a simple 5 volume steamline for testing MSSVs. A control system is used to model the MSSV response.

DESCRIPTION OF PROBLEM: The COUT minor edit does not match the PRES minor edit for the volume pressure monitored by the control input. (Note the COUT value is known to be one timestep behind the monitored parameter when the minor edits are printed. This difference has been accounted for.)

DISPOSITION:
Type of Error:
 Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION
This is a model limitation.

The reported differences are due to a limitation with the numerical solution scheme in RETRAN-02. Because of the explicit nature of RETRAN-02 numerical solution different parameters are determined at various stages of the solution scheme. When the control systems are evaluated, the current value for control inputs is used. It is possible that some of these parameters will change as the solution scheme progresses so that the minor edit for a parameter is different than the control input value which was used to evaluate the control system solution. If the solution is converged these differences are negligible. For a model where the system conditions are highly sensitive to control system values these differences can be exaggerated. In such cases getting a converged solution is essential and performing a timestep sensitivity study is necessary.

MODIFICATION NUMBER: None (Model limitation)

MODELING ALTERNATIVES: Reducing the timestep size should reduce the differences.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: JGS Date: 10/15/07

REASON FOR DETERMINATION:
This is a model limitation.



SOFTWARE TROUBLE REPORT

COMPUTER SIMULATION & ANALYSIS, INC.

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REPORTED BY: Mike Howard (CSA)/Yuki Fujita (WEC)

DATE: 06/25/08

REPORTED TO: Mark P. Paulsen (CSA)

DATE: 06/25/08

PROGRAM VERSION: RETRAN-02 MOD005.2.1

COMPUTER/OPERATING SYSTEM: Windows XP

LISTING SUPPLIED: Yes-(recreated) **FILE NAME:** EPU_SL2_LONF.OUT

INPUT FILE SUPPLIED: Yes **FILE NAME:** EPU_SL2_LONF.inp

INPUT MODEL DESCRIPTION: The model is an IGOR (W pre-processor) generated input deck for the St. Lucie plant, followed by an Replacement Steam Generator adders, Main Steamline renodalization addres, Main Steam Safety Valve adders, 10% SG tube plugging adders, SS init adders, and the event specific adders.

DESCRIPTION OF PROBLEM: A bad junction enthalpy causes the code to fail in the critical flow model. It can be moved from Junction enthalpy, to pressure to critical flow issues, but we cannot see why there is a failure related to flow out of the Main Steam Safety Valves (always only off of one steam line, but it can switch between steamlines). The error(s) typically occur around 73 seconds.

DISPOSITION: Type of Error:
 Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

The error causes the code to fail. Additionally, the error is caused by a bad kinetic junction enthalpy that occurs as the safety valves are closing. The bad kinetic enthalpy is typically a single occurrence during the time step before the valve closes and will not have a significant affect on the results if the code does not fail with an error.

MODIFICATION NUMBER: The error is corrected by modification mod_414 that was developed to correct the error reported in trouble report tr_440. See the EPU_SL2_LONF_mod_414.OUT output file that ran the transient for 300 seconds. Also see the Excel plots.

MODELING ALTERNATIVES: Revise the valve closure characteristics or time step selection.

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: mpp Date: 06/26/08

REASON FOR DETERMINATION:

The error generally causes the code to fail. If the code doesn't fail, the results would not be significantly affected as discussed in Disposition above.



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REPORTED BY: Yuki Fujita (WEC) **DATE:** 06/27/08

REPORTED TO: Mark P. Paulsen (CSA) **DATE:** 06/27/08

PROGRAM VERSION: RETRAN-02W V2.0.0 & RETRAN-02 MOD005.2.1

COMPUTER/OPERATING SYSTEM: HPUX

LISTING SUPPLIED: Yes-recreated **FILE NAME:** RET_Trans_delay.out

INPUT FILE SUPPLIED: Yes **FILE NAME:** RET_Trans_delay.inp

INPUT MODEL DESCRIPTION: The model is an IGOR (W pre-processor) generated input deck for the St. Lucie plant, followed by an Replacement Steam Generator adders, Main Steamline renodalization addres, Main Steam Safety Valve adders, 10% SG tube plugging adders, SS init adders, and the event specific adders.

DESCRIPTION OF PROBLEM: The junction enthalpy exiting hot leg volumes 101, 102, 103 demonstrate a peculiar (but small) change in the junction enthalpies when the temperature transport delay model is active (See additional discussion and illustration in Hot Leg_Steady_state.doc).

DISPOSITION: Type of Error:
 Not an Error
 Insignificant
 Significant

REASON FOR DETERMINATION

There is no apparent physical reason for the change in the junction enthalpies other than a code error.

MODIFICATION NUMBER: The reported problem is corrected by modification mod_417.

MODELING ALTERNATIVES: None

10CFR PART 21 EVALUATION: Reportable Defect: No Yes Indeterminate
Initials: mpp Date: 07/14/08

REASON FOR DETERMINATION:

The change in junction enthalpy is only about 2.0e-2 Btu/lbm, which would have an insignificant affect on the results of an analysis. Steve Love of Westinghouse made the same assessment as indicated in Yuki Fujita's email "Temperature Transport Delay Option in RETRAN.htm".



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REPORTED BY: Mark P. Paulsen (CSA)

DATE: 02/02/11

REPORTED TO: Mark P. Paulsen (CSA)

DATE: 02/02/11

PROGRAM VERSION: MOD005.2

COMPUTER/OPERATING SYSTEM: All

LISTING SUPPLIED: No

FILE NAME:

INPUT FILE SUPPLIED: No

FILE NAME:

INPUT MODEL DESCRIPTION:

Models using 1-D kinetics and decay heat can encounter the error.

DESCRIPTION OF PROBLEM:

This error was originally identified by trouble report tr_341 for RETRAN- 3D and was originally thought to be a problem related to the solution of the 3-D kinetics model equations. It was later determined that the error was related to the decay heat model when used with 3-D kinetics. The RETRAN-3D error was corrected by modification mod_368.

A subsequent review of the RETRAN-02 coding confirmed that the same error is present in RETRAN-02 when the 1-D kinetics model also uses the decay heat model. Copies of subroutine QX1DLY from RETRAN-02 and RETRAN-3D (MOD004.4) are included. A review of the prompt power calculation from the RETRAN-3D and RETRAN-02 source code for subroutine QX1DLY confirms that both use the same erroneous normalization.

RETRAN-3D

```
PROMPP(ID7) = EGAM(I72)*AMP                                QX1DLY    178
```

RETRAN-02

```
PROMPP(ID7) = EGAM(I72)*AMP                                QX1DLY    167
```

The error is in the calculation of the decay power and re-normalization of the prompt power. The prompt power is calculated as $(1.0 - \text{Decay Power})$. Therefore, for transients when decay power goes greater than 1.0 (fission power $\gg 1.0$), the prompt power becomes negative, which causes the code to fail.

The error will only occur when 1-D kinetics is use with the decay heat model. 1-D kinetics is typically only used for BWR analyses.



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DISPOSITION:

Type of Error:
 Not an Error
 Insignificant
 X Significant

REASON FOR DETERMINATION

The error can affect both the fission and decay heat power for transients where the power increases several orders of magnitude over a short period of time (e.g. a rod ejection or rod drop). For short term power increases less than an order of magnitude. The error is relatively small.

MODIFICATION NUMBER OR RESOLUTION:

Corrected by mod_419.

MODELING ALTERNATIVES:

Don't use the decay heat model. This is usually conservative.

10CFR PART 21 EVALUATION:

Reportable Defect: X No Yes Indeterminate
Initials: mpp Date 3/15/10

REASON FOR DETERMINATION:

1-D kinetics is not use for PWR applications so the error will not be encountered. The only concern is for BWR users that may be using 1-D kinetics and decay heat. The impact of the error is given evaluated below.

Typical BWR applications where 1-D kinetics and decay heat might be used are turbine trip scenarios where the power increase is generally less than a factor of 10. A number of test cases were run when evaluating the error (tr_341) for RETRAN-3D (mod_368). The ttqx1 and bwr sample problems were run with the error and after the correction. A BWR rod drop model was also run (modified PECO PBTT deck). The results are shown below.

Test Case	Pnorm w/ error	Pnorm w/ fix	% Error	Tavg w/ error	Tavg w/ fix	% Error
ttqx1	5.599	5.618	0.33	1512.2	1512.6	0.026
bwr	1.418	1.422	0.31	1004.7	1004.9	0.019
Rod drop	1230.	1412.2	14.8	3368.8	3502.7	3.97



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The ttqx1 results are for a typical BWR turbine trip without bypass and show that for a peak power of ~5.6, the error in peak power is -0.33%, but the error in average metal temperature is only in error by -0.026% which is < 0.5 F. This indicates the error in the integrated area under the power peak is less than the error in the peak value by approximately a factor of 10.

The bwr transient is similar to a loss of feedwater heater scenario where the inlet temperature decreases by 40 F in 1 second. The resulting power increase is much slower than that for the turbine trip and a new equilibrium power is reached quickly. After 4 seconds of transient the peak power differs by -0.31% and the average metal temperature by -0.19%, again a factor of 10 lower than the power error. This correspond to a temperature difference of -0.2 F.

The rod drop is a much more sever transient and one not typically done using RETRAN-02 and 1-D kinetics. The power rise is rapid, but quickly turns around and drops due to Doppler feedback. The example result given above indicates that for a power increase of 1.4×10^3 , the power will be under predicted by ~15%, which gives an under prediction in average metal temperature of ~4%, or 134 F.

In practice, typical BWR transients where RETRAN-02 may be used with 1-D kinetics, power increases will be less than a factor of 20, which would give an average temperature increase that is low by less than 0.1% or 1 F (using a multiplier of 4 on the ttqx1 results). These estimates are higher by a factor of 2 than those obtained by interpolating the bwr and rod drop results. These results indicate that the error should not have a significant effect on the evaluation of safety margins for BWR transient scenarios.



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REPORTED BY: John Lautzenheiser (Dominion)

DATE: 10/12/10

REPORTED TO: Mark Paulsen (CSA)

DATE: 10/12/10

PROGRAM VERSION: RETRAN-02 MOD005.2.1

COMPUTER/OPERATING SYSTEM: PC and Linux

LISTING SUPPLIED: Yes

FILE NAME: if.shPxCSA_pc.tape60, if.shPxCSA_Inx.tape60

INPUT FILE SUPPLIED: Yes

FILE NAME: if.shPxCSA

INPUT MODEL DESCRIPTION:

Kewaunee loss of normal feedwater accident.

DESCRIPTION OF PROBLEM:

The original problem showed that RETRAN results differed when run on the Unix platform vs. the Linux platform. CSA ran the original deck on the PC and compared them with the results from the Linux, differences of up to ~100 ft³ in the pressurizer mixture volume appeared between these two platforms.

DISPOSITION:

DETERMINATION BY: John Westacott (CSA)

CLOSURE/DISCOVERY DATE: 10/19/10

Not a Deviation (Error)

Type of Deviation

Insignificant

Significant

REASON FOR DETERMINATION

The differences appear to be caused by a hyper-sensitive MSSV control system that is not fully converged. When this complex control system is replaced with a simple, converged control system, there appears to be no differences between the two platforms. This reported problem does not appear to be a code error.



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MODIFICATION NUMBER OR RESOLUTION:

When the MSSV is fully converged, the differences appear to disappear. The problem also appears to be resolved when the two executables are compiled with -O1 optimization.

MODELING ALTERNATIVES:

Changes need to be made to the MSSV controller.

10CFR PART 21 EVALUATION:

Reportable Defect: No Yes Indeterminate
Initials: mpp Determination Date: 10/20/10

REASON FOR DETERMINATION:

Not an Error.



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REPORTED BY: : Chad King (CSA)

DATE: 12/20/2011

REPORTED TO: Mark Paulsen (CSA)

DATE: 12/20/2011

PROGRAM VERSION: RETRAN-02 MOD005.2.1

COMPUTER/OPERATING SYSTEM: Windows 7

LISTING SUPPLIED: Yes

FILE NAME: slbR02.out

INPUT FILE SUPPLIED: No

FILE NAME: slbR02.inp

INPUT MODEL DESCRIPTION:

MNSCNS Steam Line Break (converted from RETRAN-02 MOD005.2.1 to RETRAN-3D MOD004.6.441).

DESCRIPTION OF PROBLEM:

The pressurizer level starts at 16% and drops to 0% in about 12 seconds. The heat transfer mode for the entire stack starts and stays at mode 11 (free convection nucleate boiling) even after the pressurizer level drops to 0 and the quality is near 1.

DISPOSITION:

DETERMINATION BY: Mark P. Paulsen (CSA)

CLOSURE/DISCOVERY DATE: 12/22/11

Not a Deviation (Error)

REASON FOR DETERMINATION

NA

Type of Deviation

Insignificant

Significant

REASON FOR DETERMINATION

When the pressurizer drains, the heat transfer to the vapor region from the vessel wall will be too large. This will tend to increase the system pressure as a result of the vapor region heating. This will affect the system pressurization/depressurization after the pressurizer drains.



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MODIFICATION NUMBER OR RESOLUTION:

The error is corrected by modification mod_418 for RETRAN-02. The error does not occur for RETRAN-3D.

MODELING ALTERNATIVES:

The error that prevents the liquid region from being re-established might be avoided by taking large time steps during the period when the surge line flow reverses and flow is into the pressurizer. Smaller time steps exacerbates the problem.

10CFR PART 21 EVALUATION:

Reportable Defect: No Yes Indeterminate
Initials: mpp Determination Date: 12/22/11

REASON FOR DETERMINATION:

The affect on the system pressure will increase the pressure whether the system is pressurizing or depressurizing. This will reduce the high pressure injection flow rates, which is conservative. For the problem where the error was originally observed, there is no significant affect on the loop temperatures.

There is no affect if wall heat conductors are not included in the pressurizer model, which would include a large fraction of licensing models.

Reportable Defect: No Yes Indeterminate
Initials: mpp Determination Date: 01/23/12

REASON FOR DETERMINATION: (re-evaluated)

While developing a correction for the deviation, it was discovered that the problems observed with the heat transfer were actually caused by the fact that the liquid region in the pressurizer was not being re-established after the pressurizer drained and the flow subsequently reversed. As a result, all in-surged fluid was deposited in the vapor region making it two-phase, which caused the erroneous heat transfer.

Since the liquid region may not be re-established under the conditions noted, the pressurizer pressure may be determined using the HEM pressure search (single vapor region). If there is an in-surge with a significant mass increase (should be a level recovery) in the vapor region, the pressure may be significantly under estimated due to use of the HEM pressure search. This may be true for pressurizer models with or without vessel wall heat conductors, although the presence of heat conductors may lead to a pressure increase due to flashing resulting from vessel wall heating of the vapor region.



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RETRAN-02 users should evaluate the affect of this error for analyses where the pressurizer empties and then has an in-surge, which increases the mass inventory in the pressurizer. If the vapor region mass inventory increases, but the mixture level (or liquid region volume) remains at zero, the reported error is being encountered. Modification mod_418 corrects the error and can be used to determine the affect the error has on the particular analysis.

An approximation for the affect the error may have on the pressure can be obtained by treating all liquid in the pressurizer as if it were in the liquid region. This can be used to estimate the liquid level versus time. Assume that the pressurizer is full of saturated steam when the pressurizer drains and this steam will be compressed during the in-surge. Further assume that the liquid is incompressible. This will allow the vapor volume versus time to be computed. The pressure can then be approximated using the time dependent vapor volume and the ideal gas law assuming an isentropic expansion.

The pressures estimated using the procedure given above will over estimate the pressure because the fact that the pressure would be increasing would reduce the in-surge and associated vapor volume change.