UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of	)	
	)	
METROPOLITAN EDISON COMPANY	)	Docket No. 50-289 SP
	)	
(Three Mile Island Nuclear Station, Unit No. 1)	)	
	)	

AFFIDAVIT OF HENRY D. HUKILL, JR.

COMMONWEALTH OF PENNSYLVANIA	)	
	:	
COUNTY OF DAUPHIN	)	ss.

The undersigned, Henry D. Hukill, Jr., being duly sworn, deposes and says:

1. I am employed by GPU Nuclear Corporation as Vice President and Director of Three Mile Island, Unit No. 1 ("TMI-1"). I came to work for the GPU System in June of 1980 and assumed my present position as Vice President and Director of Unit No. 1 in September 1980. In my capacity as Vice President and Director, I am responsible to the President, GPU Nuclear Corporation, for safe, reliable, and efficient operation of TMI-1.

2. I received a B.S. from the United States Naval Academy in 1953. I served on active duty in the United States Navy for more than 22 years. My naval assignments were primarily involved with the

construction, maintenance, and operation of nuclear submarines and included 5 years in command of a nuclear powered missile submarine and almost 4 years as a Senior Naval Officer Assistant to the Director Division of Naval Reactors, Admiral Rickover. Following retirement from the U.S. Navy, in December 1975, I served as the Project Operations Manager, Clinch River Breeder Reactor Plant Project for Burns and Roe, Inc., and then worked for about 3 years as a Senior Civilian Special Assistant for engineering duty officer matters to the Commander, Naval Sea Systems Command.

3. The purpose of my affidavit is to state the readiness of TMI-1 to startup and complete the low power physics and power ascension testing necessary to bring the plant up to full 100% power operation. I also want to demonstrate that any delay in the authority to restart will result in an equivalent, day-for-day delay in achievement of full power operation.

4. Over the past six years since the TMI-2 accident, numerous changes and enhancements have been implemented in the GPU Nuclear organization and in the management philosophy for operating TMI-1 in a safe and reliable manner. Additionally, a large number of modifications have been made to the plant's systems and equipment. Because of the long period the plant has been shutdown, and the many changes made in personnel, training, procedures, and equipment, an extensive and comprehensive startup test program has been developed. This program far exceeds the normal refueling startup test program, both in depth and duration. The primary purposes of this extended restart test program are to validate the effectiveness of plant modifications, to thoroughly check out equipment

which has been shutdown for a considerable period, and to provide additional time to train operators and allow them to gain increased experience and competence in plant operations. This restart program has been carefully reviewed with, and approved by, the NRC Staff, which will monitor the quality of our operations and performance during the test program.

5. To the best of my knowledge, TMI-1 is ready from a material and operational standpoint to restart at this time. The plant's readiness for startup has been demonstrated during four previous hot functional tests; the latest of which was conducted in April of this year. There were no significant problems during this test, and the plant personnel successfully demonstrated their ability to operate the plant safely and efficiently. TMI-1 will commence final heatup and proceed into the startup sequence after the Commission lifts the immediate effectiveness of its July and August 1979 shutdown orders. The startup test program involves heating up the plant to hot shutdown conditions using non-nuclear heat and conducting prescribed tests and training at designated power levels, up to and including full power. Specific hold points have been established in the power escalation program for senior management review of results and performance prior to granting approval to proceed. In addition, it is my understanding that, at various stages in the power ascension program, the NRC Staff will review our results and performance before authorizing escalation to higher power levels.

6. The restart program is scheduled to take approximately 99 days to complete before the plant reaches sustained full power operation.

Attached hereto as exhibits are step-by-step, detailed sequence documents which depict the controlled and methodical plan we intend to follow from plant heatup till full-power operation. Although we anticipate that the program will take 99 days, it is important to note that the sequence documents do not have a time scale. We will perform the steps in a controlled manner ensuring each one is performed satisfactorily prior to beginning the next step without concern for how long it takes. The sequence documents relating to heatup identify the steps followed during the last plant heatup in April of this year; the program to be followed after restart authorization will be similar. The remaining sequence documents, covering the power escalation and testing program, depict the currently anticipated program; minor changes are likely. These sequence documents illustrate a number of important points about the startup process: (a) that the process consists of numerous steps, each of which must be completed before beginning the next step, (b) that the process is highly structured and controlled permitting power escalation only after all necessary prerequisites are completed successfully, (c) that GPU Nuclear has planned and scheduled the process in a careful and deliberate manner to best protect the public health and safety, and (d) that appropriate consideration has been given to both GPU Nuclear and NRC review and analysis of test results and personnel performance to further ensure the public health and safety.

7. The basic sequence and scheduled time durations for the test program are as follows:

(a) Final Heatup and Surveillance Testing: 5 days required to heatup the plant using non-nuclear heat to hot shutdown conditions. In addition, surveillances (required tests and inspection of equipment and systems) necessary prior to criticality will be conducted during this period.

(b) Zero and Low Power Physics Testing: Initial criticality, followed by 2 days of zero and low power physics testing to verify and measure parameters associated with the refueled core, such as temperature coefficients, rod worth measurements, and shutdown margin verification.

(c) 3% Power Testing: 3 days of testing for verification and training of operators in natural and forced primary coolant circulation. Emergency feedwater automatic initiation and steam generator water level controls will also be tested during this period.

(d) 15% Power Testing: 2 days of testing consisting of nuclear and thermal power calibrations, integrated control system ("ICS") tuning, and commencement of turbine generator initial testing and operation.

(e) 25% Power Testing: 2 days of testing to continue turbine operation, including overspeed trip testing and further ICS tuning.

(f) 40% Power Testing: 5 days for core power distribution measurements, including incore detector testing and power imbalance detector correlation. At the end of this power plateau, a verification of plant performance will be conducted by initiating a loss of main feedwater resulting in a turbine and reactor trip.

(g) 48% Power: A month for required operator training and plant performance monitoring, as specified in the license.

(h) 75% Power Testing: 5 days for core power distribution measurements, including incore detector testing. Additionally, turbine generator and ICS performance will be monitored and adjusted during this period.

(i) 75% Power: A month for required operator training and plant performance monitoring, as specified in the license.

(j) 100% Power Testing: 5 days of testing, including final verification of core physics parameters and final ICS tuning. This testing will be concluded by verification of plant response to a turbine/reactor trip at 100% power.

(k) Recovery to 100% Operation: 10 days set aside for corrective maintenance as required, management review of plant and operator performance during the test program, and recovery of the plant to full-power operation.

8. This schedule reflects our best current estimate of the time necessary to allow us to safely, carefully, and in a controlled manner complete the restart test program. The test program has been approved by the NRC Staff and must be conducted in the sequence described. No progress beyond final heatup and surveillance testing can be accomplished without a Commission order authorizing restart. Any delay in obtaining restart authorization will result in a day-for-day delay in achieving full-power operation.

9. One of the primary purposes of the restart test program is to verify satisfactory performance of equipment, systems and personnel which cannot be confirmed during hot shutdown testing. Correction of any problem encountered takes additional time and cannot be accomplished until after the test program is allowed to begin. Thus, irrespective of any delays encountered during the program, a delay in obtaining permission to restart will result in an equivalent delay in completion of the restart test program and return to full-power operation.

10. The TMI-1 operating staff is manned, equipped, and trained to safely and efficiently restart the plant, conduct the restart test program, and return the plant to normal full-power operation. The controlled, sequence nature of the test program, with its gradual escalation of power, further minimizes the risk to the public health and safety. Because TMI-1 has been shutdown for an extended period of time, the inventory of radioactive fission products that might be released in the event of an

accident is less than that of a reactor operating at full-power and steady-state conditions. Thus, the risk to the public from release of such materials at TMI-1 during the test program is substantially less than for a plant operating at full power. In addition, because TMI-1 has been shutdown for more than six years, the amount of decay heat which must be removed by emergency systems during any unanticipated event also is less than for reactors operating at full power for long periods of time. This reduction in decay heat places less stress on the emergency equipment, provides plant operators with a longer period of time to respond, and generally provides a greater margin of safety. All of these factors further minimize the risk to the public from the TMI-1 restart test program.

Henry D. Hukill, Jr.

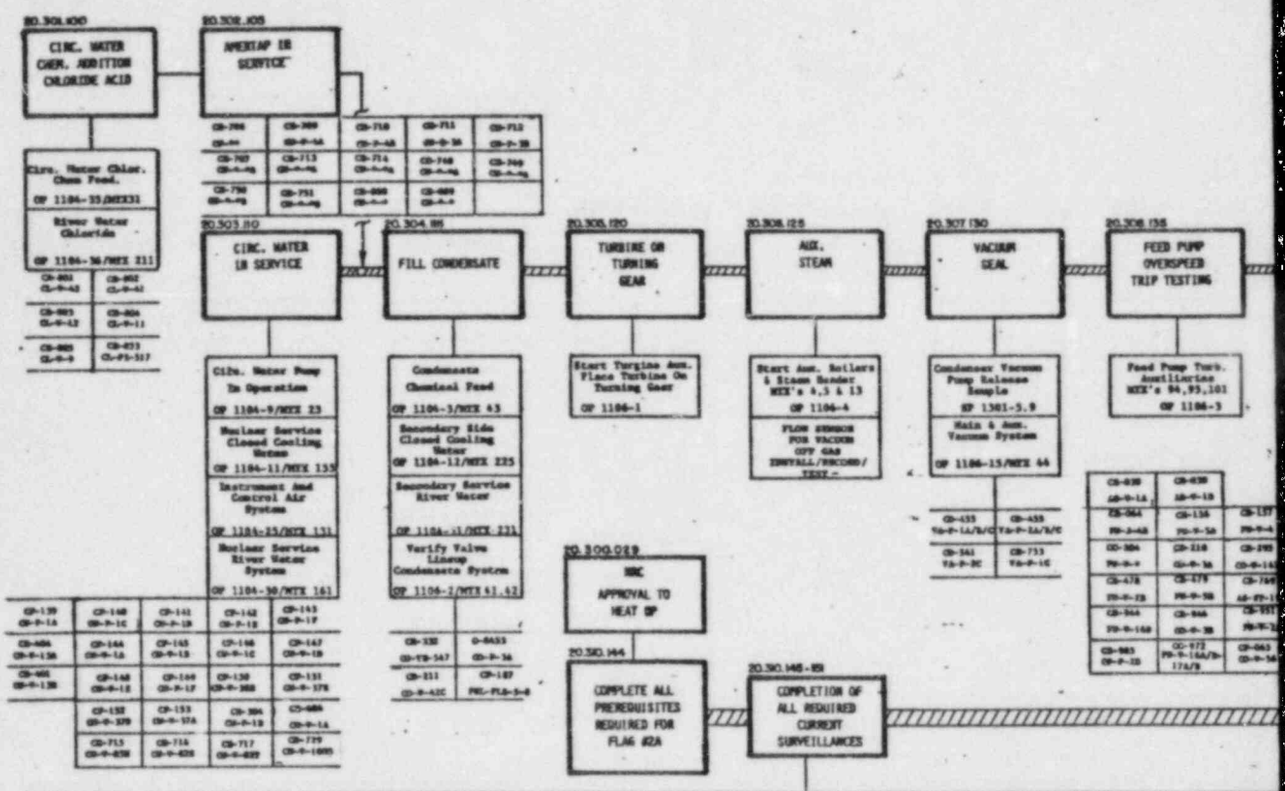
Henry D. Hukill, Jr.

Sworn to and subscribed before me this 23rd day of May, 1985

Notary Public

My Commission Expires: June 17, 1985

APRIL 198



Ducey Emer River Water Pump Funct. Test SP 1300-3D	Spent Fuel Cooling Pump Funct. Test SP 1300-1E	RHRW Pump Funct. Test & Vlv. Operability Test SP 1300-1C A/B	Nuclear Service Closed Cooling Water Pump & Valve SP 1300-3J	KB Emerg. Cooling Pump Funct. Test SP 1300-3K A/B	Screen Wash Pump Funct. Test & Screen Wash Sys. SP 1300-3L A/B	Screen House Vent. Pump Funct. Test SP 1300-3M A/B	Chilled Water Pump (AB-P-3 A/B) Funct. Test SP 1/00-3N	Funct. Test Of Boric Acid Mix Pumps SP 1300-3P	Hydrostatic Test Per ISI SP 1300-4A	Eddy Exam Surv. SP
RHRW Pump Funct. Test & Vlv. Operability Test SP 1300-4C A/B	RSCCW Pump & Valve Funct. Test SP 1309-4E	Stat. Storage Batt.-Req'd. Interval Weekly SP 1301-4.8	Liquid Continuous Composites Release SP 1301-4.9	Liq. & Gas Eff. Mthly. Comm. Dose Contrib. SP 1301-4.11	Liquid Eff. Monthly Grab Sample SP 1301-4.13	Weekly Spent Fuel Pool Tritium Samp. SP 1301-4.15	EAST Temp. Channels SP 1301-5.1	Spent Fuel Pool SP 1301-5.7	Stat. Batts. Req'd. Interval Monthly SP 1301-5.8	Heat Condu Stor. SP
Monitoring Of Silt Buildup In River Wtr. Screenhouse SP 1301-4.7	Sampling Of Temp. Outdoor Radwaste Syst. SP 1301-4.8	Radioactive Source Leak Test SP 1301-7.2	Reactor Bldg. Annual Insp. SP 1301-8.1	Diesel Generator Annual Insp. SP 1301-8.2	R.B. Struct. Integrity Tendon Surv. Program SP 1301-9.1	House Pump Floor Intake Silt Accum. SP 1301-9.7	River Water Discharge Sampling SP 1301-9.10	Internal Vent Valves Inspect. & Exercise SP 1301-10.1	OP. of the Liq. Radwaste Treatment Sys. SP 1301-11.1	OP. o Radwast Sys SP
Operability Of Gas Radwaste Treatment Sys. SP 1301-11.3	Fire System Header/Hosels Insp. SP 1301-12.7	Hose Station Inspection SP 1301-12.2	Fire System Hose Station Inspection SP 1301-12.3	Fire Sys. Hose Station Pump. Test (Freq. 3 Yrs) SP 1301-12.4	Emergency Equipment Readiness SP 1301-13.1	Quarterly Calib. Radiation Monitoring Sys. SP 1302-3.1	Strong Motion Accelerometer SP 1302-3.2	FT-84 Channel Calib. SP 1302-3.3	Calib. of Gas. Effluent Flow Inst. SP 1302-3.4	FT- Ch Cal SP
FT-146 Channel Calib. SP 1302-3.4	Calib. of H2/O2 Recm Gas Analyzer SP 1302-3.7	Calibration Of Beckman H2/O2 Gas Analyzer SP 1302-3.8	R.C. Temp, Channels & Pzr. Temp Comparator SP 1302-5.1 & 5.3	RPS High & Low RC Pressure Channel Calib. SP 1302-5.2 & 5.3	RC Flow Flow SP 1302-5.4	Pump-Flow Comparator SP 1302-5.6	High R.B. Pressure Channel SP 1302-5.7	R.B. & L.P. Injection Analog Channels SP 1302-5.8	R.B. & PSIG Channels SP 1302-5.10	R.B. Pres Chan SP
Pzr. Temp. & Level Channels SP 1302-5.12	Control Rod Absolute & Relative Position Indication SP 1302-5.13	Core Flood Tanks Pzr. & Level Channels SP 1302-5.15	Makeup Tank Level Channels SP 1302-5.17	HI/LO Pzr. Inj. Sys. Flow Channels SP 1302-5.18	Borated Water Storage Tank Level Indicator SP 1302-5.19	EAST Level & Temp. Channel SP 1302-5.20	Reclaimed Boric Acid Mix Tank Level & Temp. Channel SP 1302-5.21	Containment Temperature SP 1302-5.22	Sodium Hydroxide Stor. Tank SP 1302-5.23	Boric Monit SP
R.B. Sump Level SP 1302-5.25	OTSG Level Channel Calibration SP 1302-5.26	Sodium Hydroxide Tank Level Ind. SP 1302-5.28	Hydrogen Detector Test SP 1302-5.29	Diesel Generator Prot. Relaying SP 1302-5.30	4160V 04E Bus Degraded Grid UV Relay Sys. Calib. SP 1302-5.31C	4160V D and E Bus Loss of Voltage Relay System Calib. SP 1302-5.31D	4160V ID Bus Loss of Voltage Degraded Grid Timer SP 1302-5.31C	4160V 1E Bus Loss of Voltage Degraded Grid Aux. Timer SP 1302-5.31D	CE/Calib. of MDCT Temp Loops Req'd. Instrv. 18 MO SP 1302-5.32	Rx Tr Loss SP
Calib. of Rem Tech (pzr Instr. SP 1301-6	Calibration Of RFW Flow Channel SP 1302-6.3	Calibration Saturation Margin Meter SP 1302-6.6	Calib. Of Accoustic Monitor On PORV SP 1302-6.13	Calib. of S/P Monitors On PORV & Code Safeties SP 1302-6.14	Calibration of PORV Setpoint SP 1302-6.16	Calib. of Instrv. Insp. Related Instr. SP 1302-14.1	High Range PNS Containment Monitor Calib. SP 1302-15	Calib. Of ICCM & HSCCM Level Channels SP 1302-16	EM-G 26 & G 27 Calibration SP 1302-17.1	R.B. Moni Calib 9 SP
Rx Protect System SP 1303-4.1	ICCM & HSCCM Level Channel Check SP 1303-4.12	R.B. Emergency Cooling & Inst. Sys. Analog SP 1303-4.13	Radiation Monitor Systems SP 1303-4.15	Emergency Power System SP 1303-4.16	High & Low Pressure Analog Chan. (Monthly) SP 1303-4.19	Channel Test of H2/O2 Hzrs Gas Analyzer SP 1303-4.20	Channel Test of H2/O2 Recbiner Gas Analyzer SP 1303-4.22	R.B. Hydrogen Monitor Funct. Test SP 1303-4.23	Control Room Emerg. Filter Sys. (OP. Test) SP 1303-5.5	Reactor Purge Train Test SP
Aux. & Fuel Handling Exhaust Air Treat. Fan SP 1303-5.8	Rx Bldg. Purge Air Treatment Filter SP 1303-5.9	RB Purge Filter Air Flow Test SP 1303-5.10	Rx Bldg. Purge Exhaust Sys. Air Distrib. SP 1303-5.11	Control Bldg. Emerg. Vent. System SP 1303-5.12	R.B. Integrated Leak Rate Test SP 1703-6.1	Hydrogen Purge Operating Test SP 1303-6.2	Instrumentation Ranges Channel SP 1303-7.1	Source Range Channel SP 1303-7.2	Rx Bldg. Spray Sys. Comp. Air Test SP 1303-8.4	Funct. of Syst Sensin SP
R.B. Purge System SP 1303-10.1	Refueling System Interlocks SP 1303-11.4	Spent Fuel Cool Sys. Funct. Tests Required SP 1303-11.6	R.B. Emerg. Cool Sys. SP 1303-11.9	RB Sys. Emerg. Leading Ion. & Pwr. Transm. Test SP 1303-11.10	Station Batt. (Load Test) SP 1303-11.11	Control Room Filtering Sys. Test SP 1303-11.13	R.B. Purge Exhaust SP 1303-11.14	Aux. & Fuel Handling Bldg. Filter Eff. Test SP 1303-11.15	Emerg Heat Removal Sys. Leak SP 1303-11.16	R.I. Isol SP
Rx Bldg. Local Leakage-Fluid Block Sys. SP 1303-11.23	RB Local Leakage Penetration Pressurization SP 1303-11.24	R.B. Local Leak Access Hatch Door Seals SP 1303-11.25	R.B. Isol. Valve Cycle Test Req'd. SP 1303-11.26	Waste (Liquid) Leak Check SP 1303-11.28	Waste Gas Leak Check SP 1303-11.29	Hydrogen Recombiner Leak Check SP 1303-11.31	RFW Flow Test From CST SP 1303-11.42	Hydrogen Recombiner Reactor Check SP 1303-11.44	Pzr. PORV Set Point Check SP 1303-11.45	Hydr Recom Pumps SP 1303
Unit 1 & 2 Inv. Verif. SP 1303-11.48	Rx Bldg. Spray Sys. Leakage Check SP 1303-11.50	Monthly Check Of PORV Accoustic Flow SP 1303-5.1	Pzr. Heaters Emerg. Power Funct. Test SP 1303-11.55	Vent of HP Pumps & HPI Lines SP 1303-12.3	CO2 Fire Prot. Sys. Test SP 1303-12.5	Fire Protect Instr. Funct. Test SP 1303-12.8A	Fire Protect Instr. Funct. Test SP 1303-12.8B	Fire Protect Instr. Funct. Test Cont. SP 1303-12.8C	Fire Protect Instr. Funct. Test Diesel Generators SP 1303-12.8D	Fire Protect Instr. Test SP
Fire Protect Instr. Funct. Test Aux & Fuel Handl. Bldg. SP 1303-12.8F	Fire Systems Detectors In RB SP 1303-12.8G	Fire Protect Instrum. Funct. Test SP 1303-12.8H	Fire Service Seal Inspect. SP 1303-12.9	Halon System Pres. & Weight Checks SP 1303-12.11A-D	Mod Comp Room Halon Weight Check SP 1303-12.12	Fire Sys.-Flush at 2" Drains-Deluge/Sprinkler System SP 1303-12.15	Fire Protect Instrum. Non-Supervised Circuit SP 1303-12.16	Fire Sys. Test Air Tunnel Deluge Funct. Test SP 1303-12.16	Fire Sys. Test Misc. Deluge Funct. Test SP 1303-12.17	Fire Protect Instr. Test SP
Fire Protect Instrum. Funct. Test SP 1303-13.15A	Fire Protect Computer Room Halon Funct. SP 1303-12.19B	Fire System Valve Lineup Verification 1303-M1	Specific Gravity Check Diesel Fire Pumps 1303-Q2	Fire Serv. Diesel Eng. Inspection 1303-R1	Inspection of Dikes 1303-S&I	Fire System Water Source Level Check 1303-M3	Fire System Diesel Battery Check 1303-M2	Meteorological Instrumentation Calibration 1303-S&I	Fire System Valve Cycling 1303-A3	Fire Heate Flush Tes
Fire Pump Portable Operation 1303-M1	Fire Pump Diesel Fuel 1303-Q3*	Fire Pump Start Circuit 1303-R3	Fire Pump Capacity Testing 1303-R2	Fire Hydrant Inspection 1303-S&I		A256-30480 THOR BREAKER TEST/IR CONJUNCTION WITH 1303-4.1				

TP 800/3 HANGER INSPECTION THROUGH-OUT HOT FUNCTIONAL TEST PROGRAM

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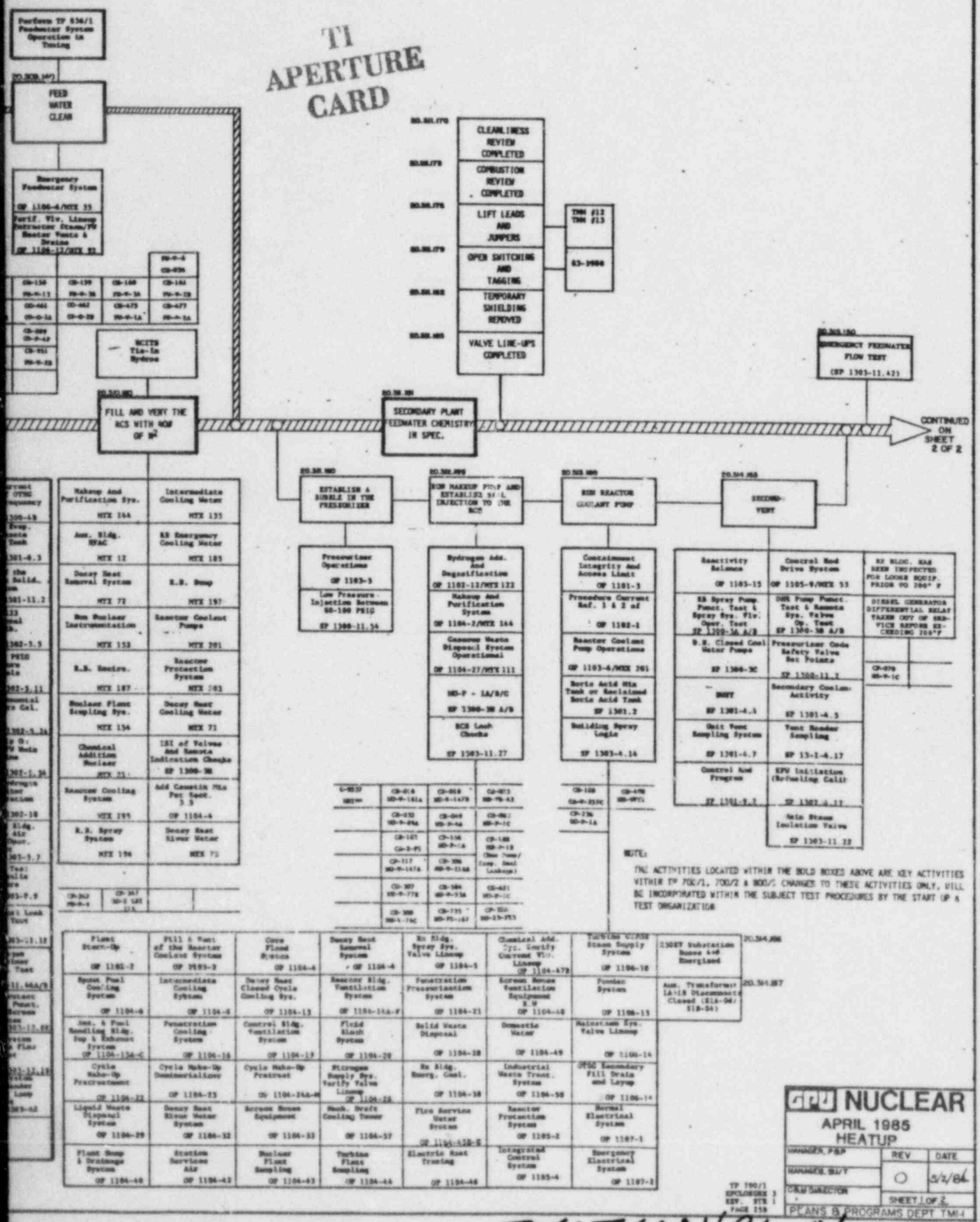

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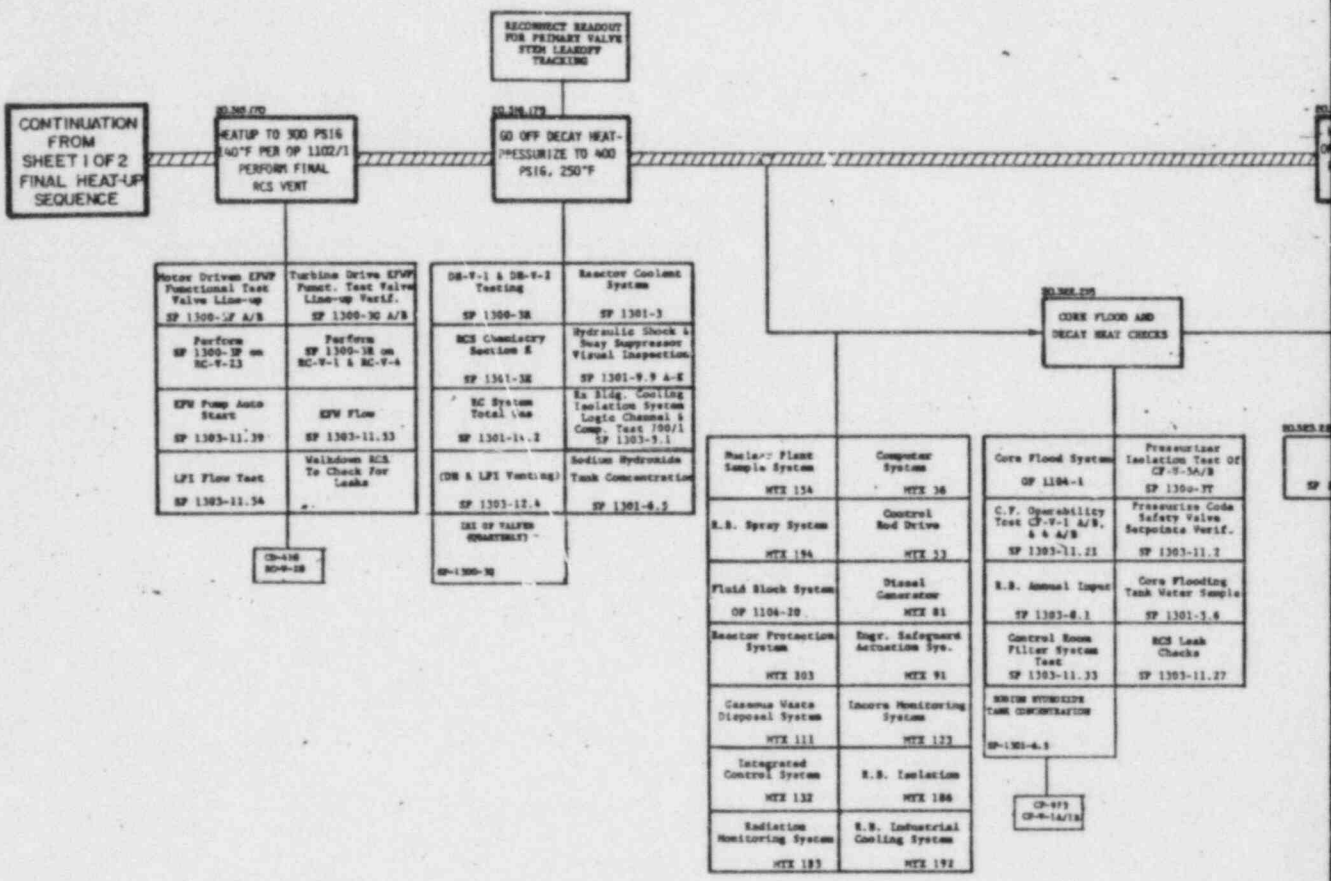

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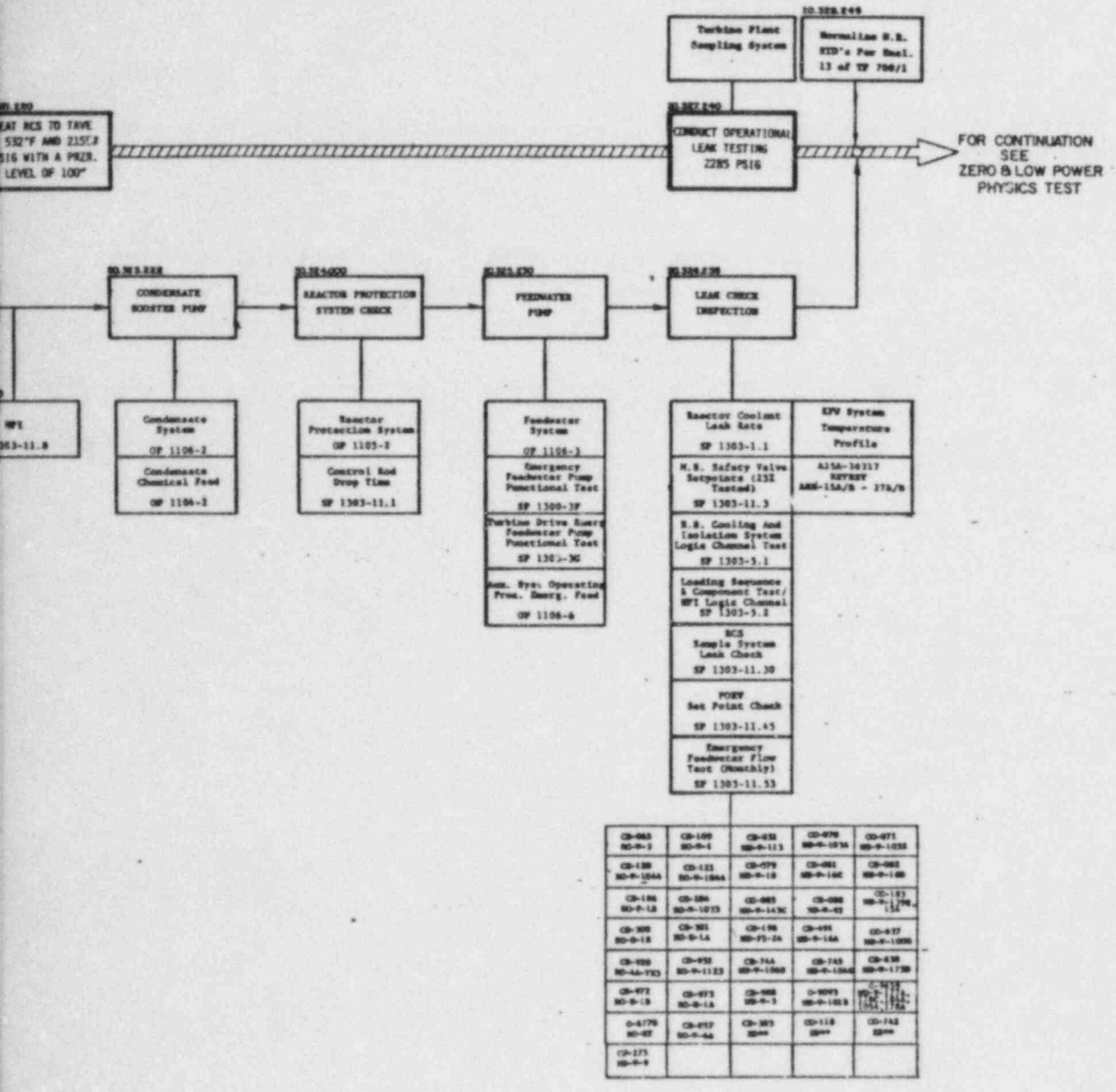

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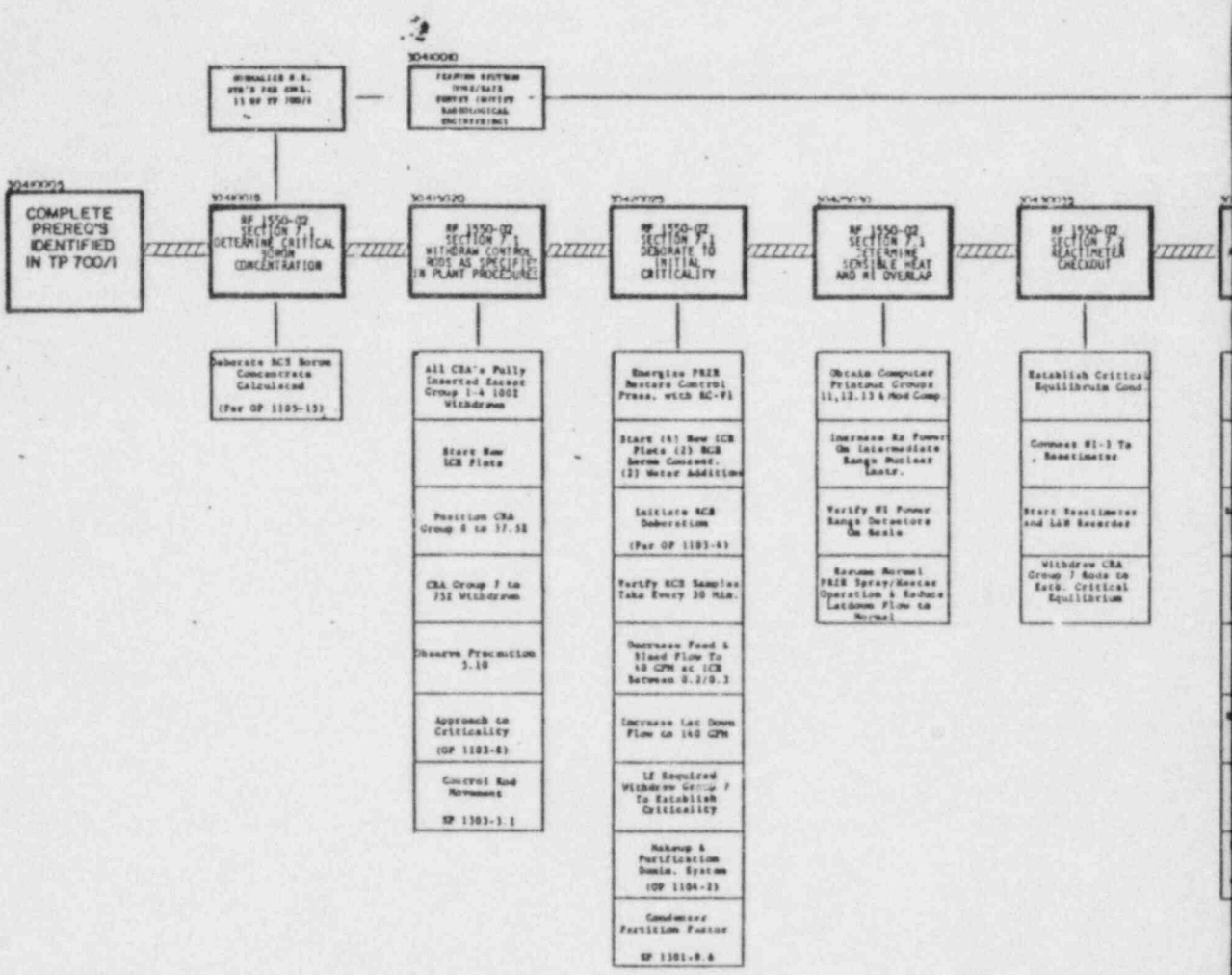

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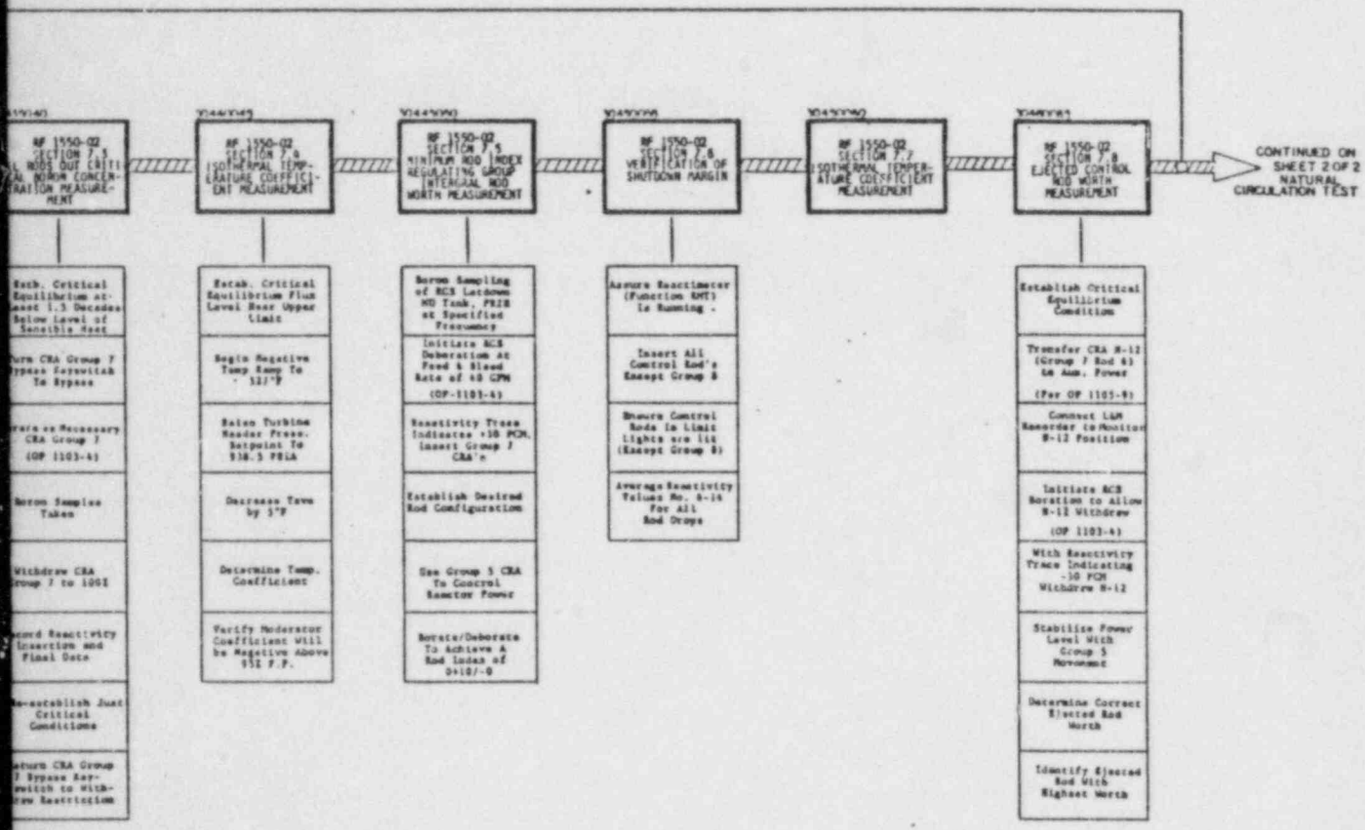

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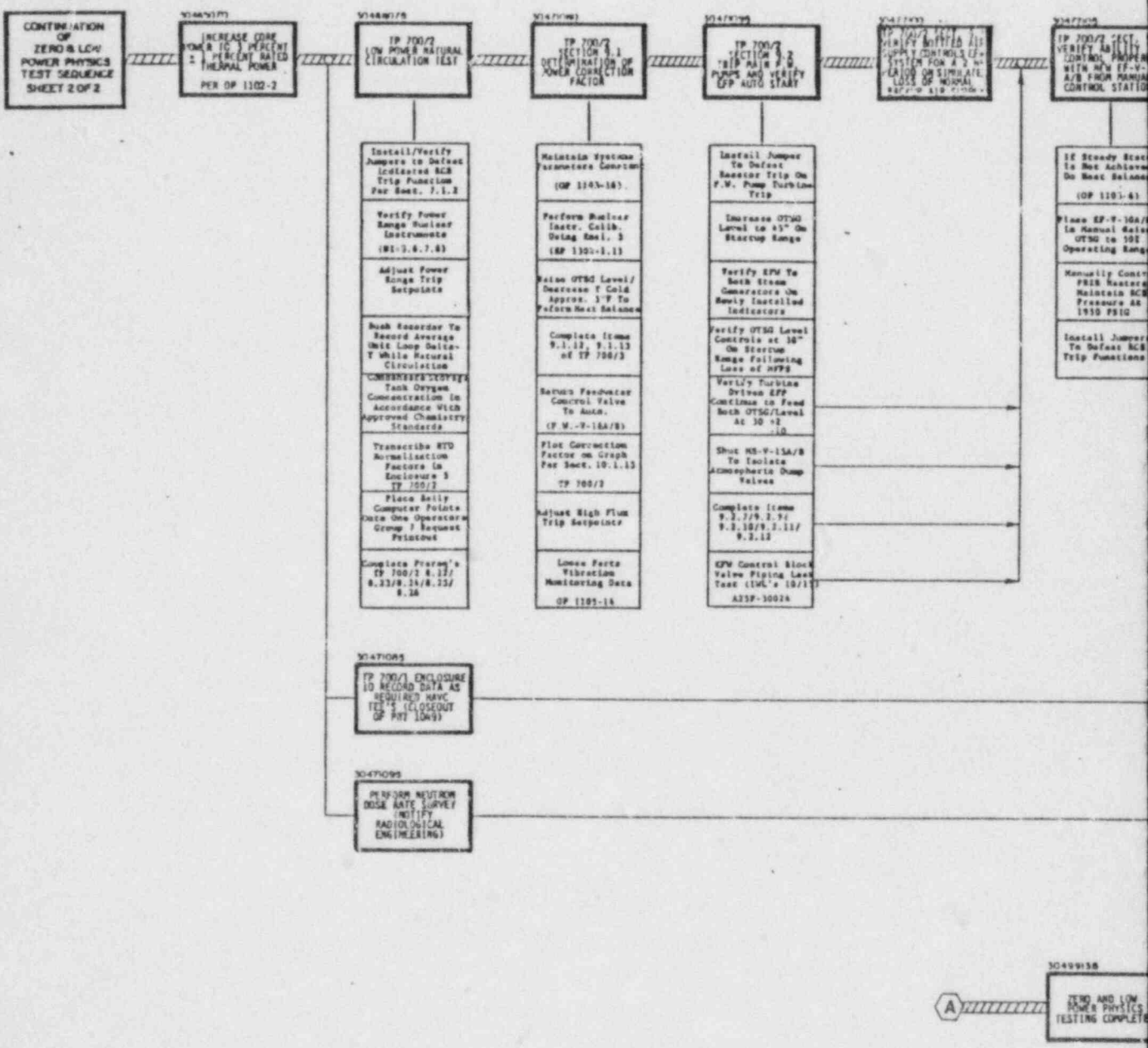

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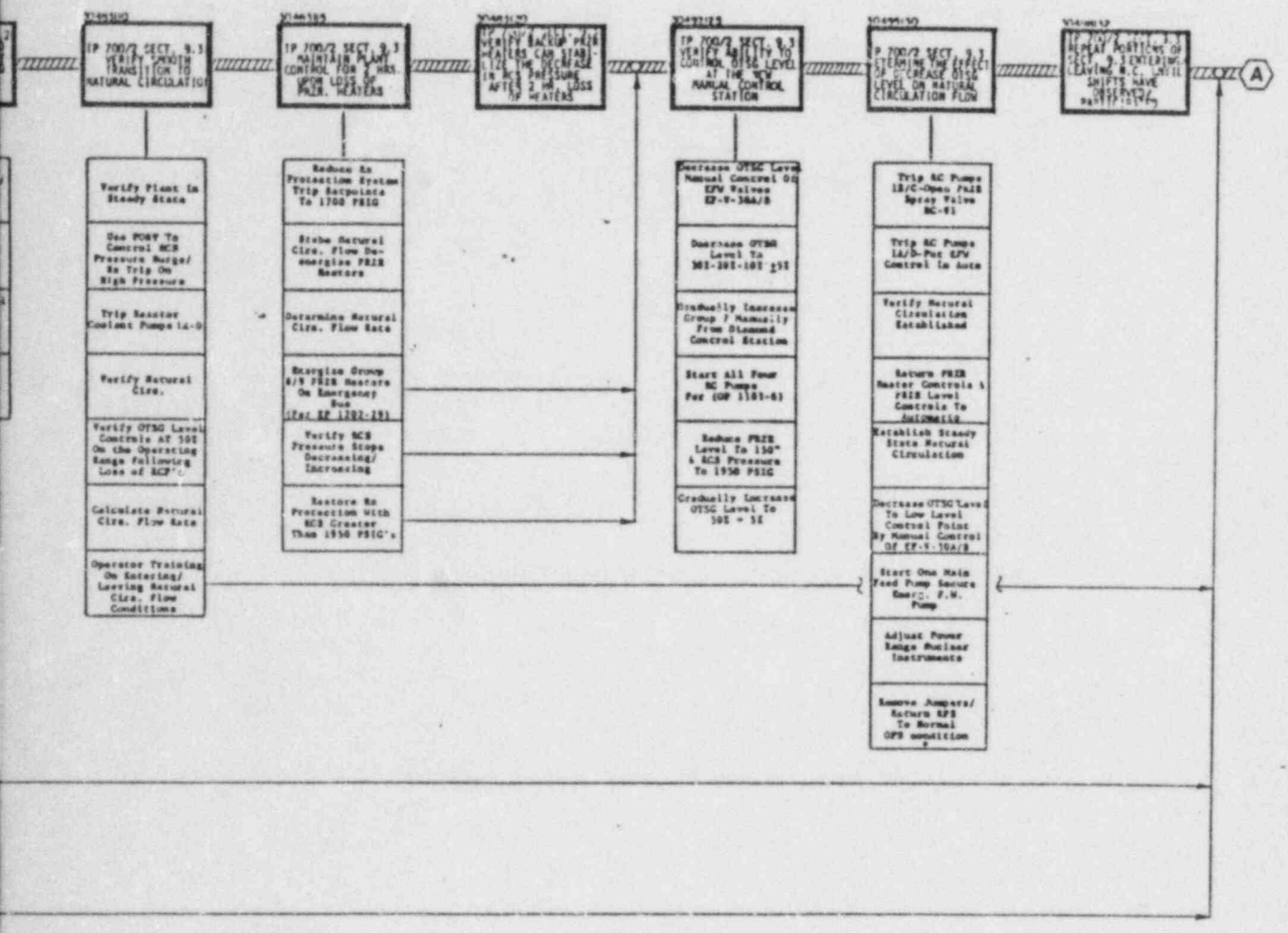

FOR CONTINUATION SEE POWER ESCALATION TESTING (TP800/1)

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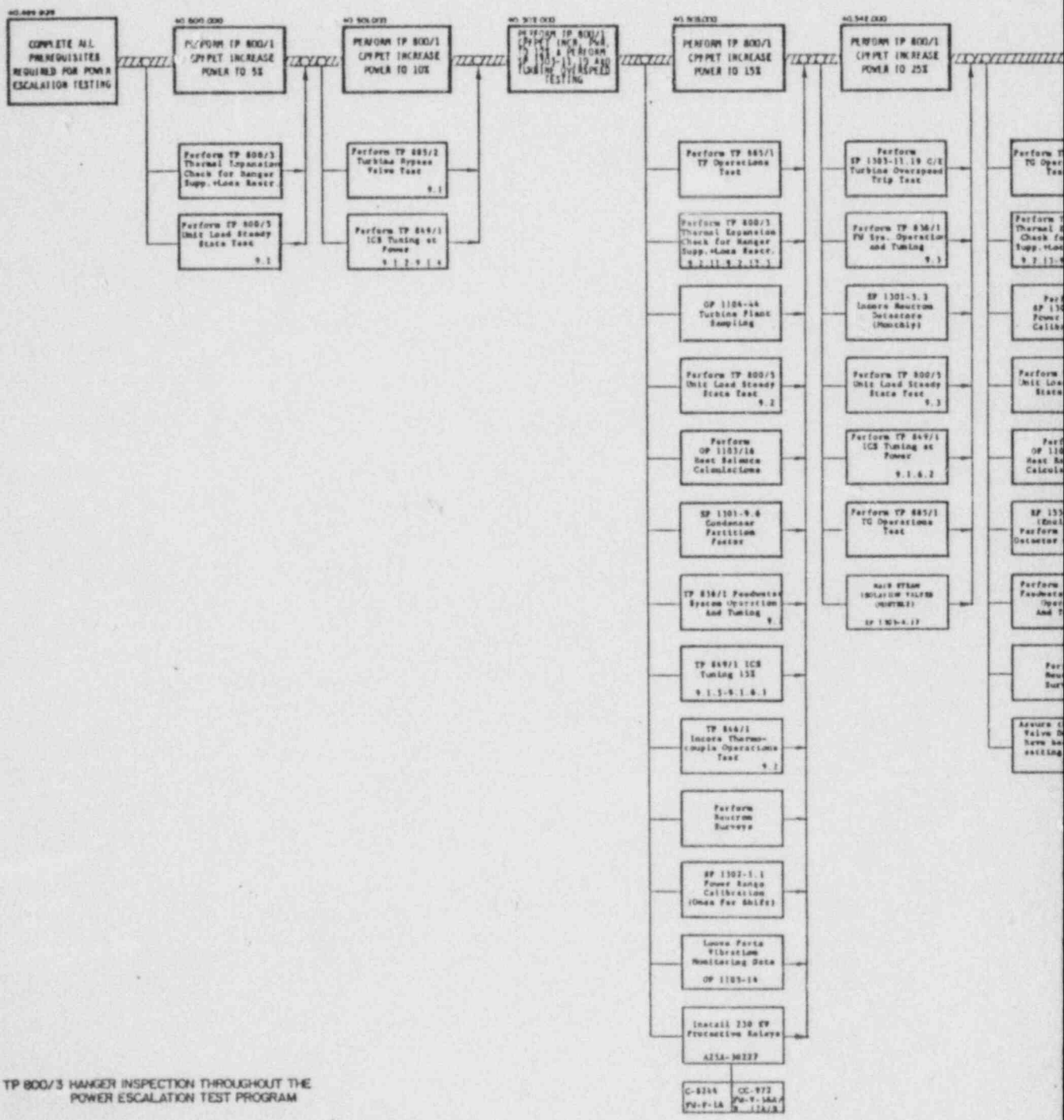
POWER ESCALATION



* TP 800/3 HANGER INSPECTION THROUGHOUT THE POWER ESCALATION TEST PROGRAM

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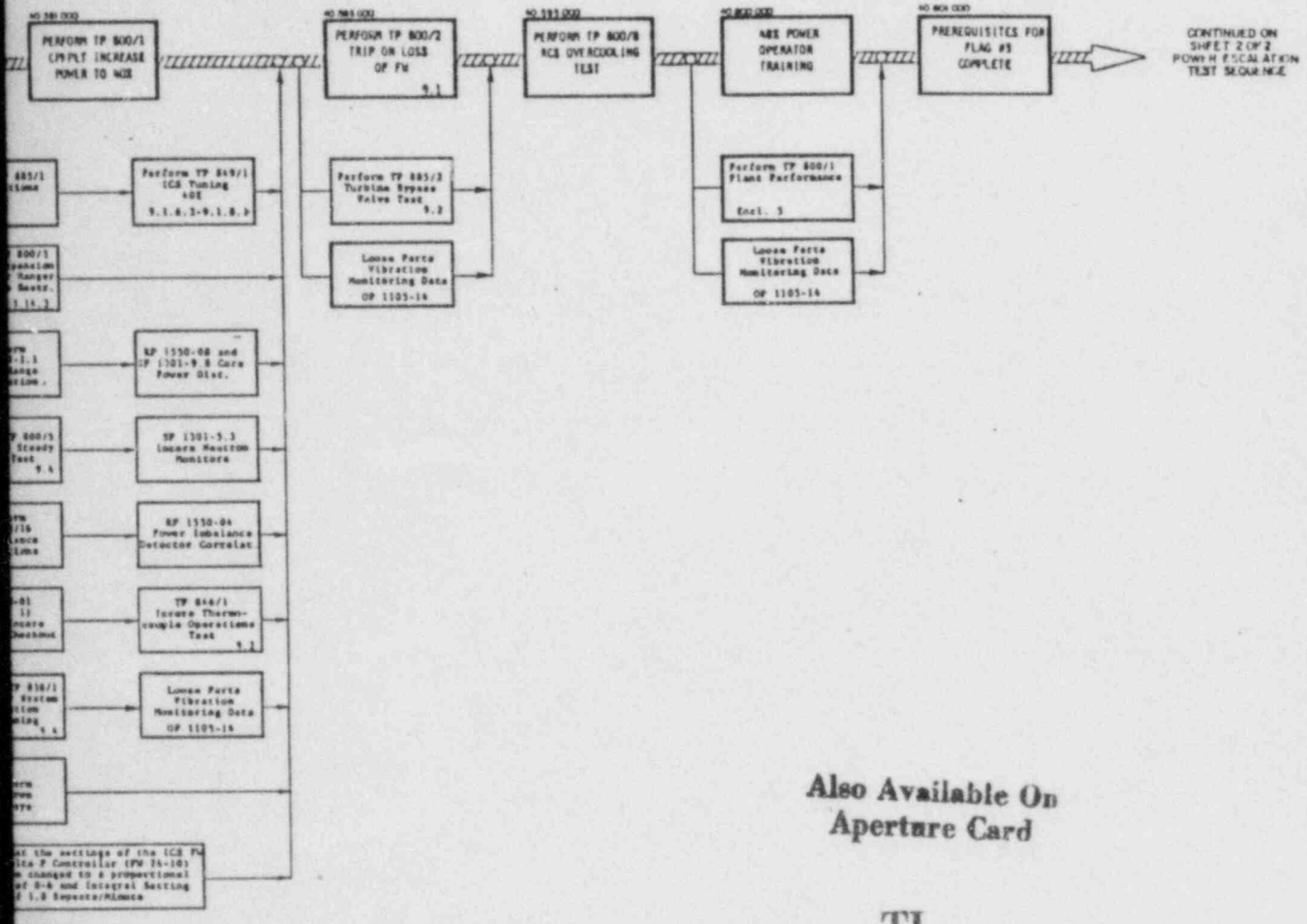

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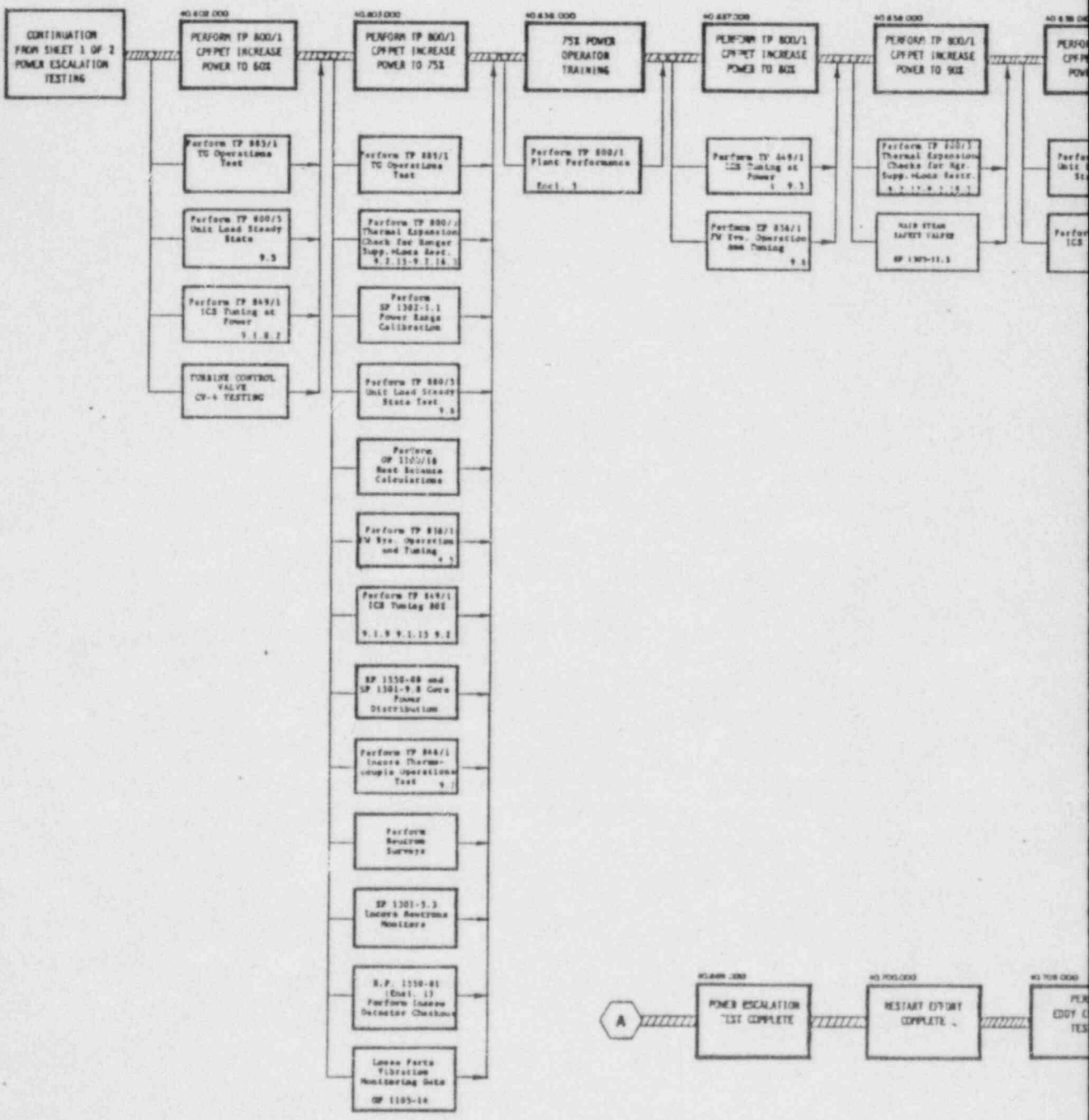
POWER ESCALATION



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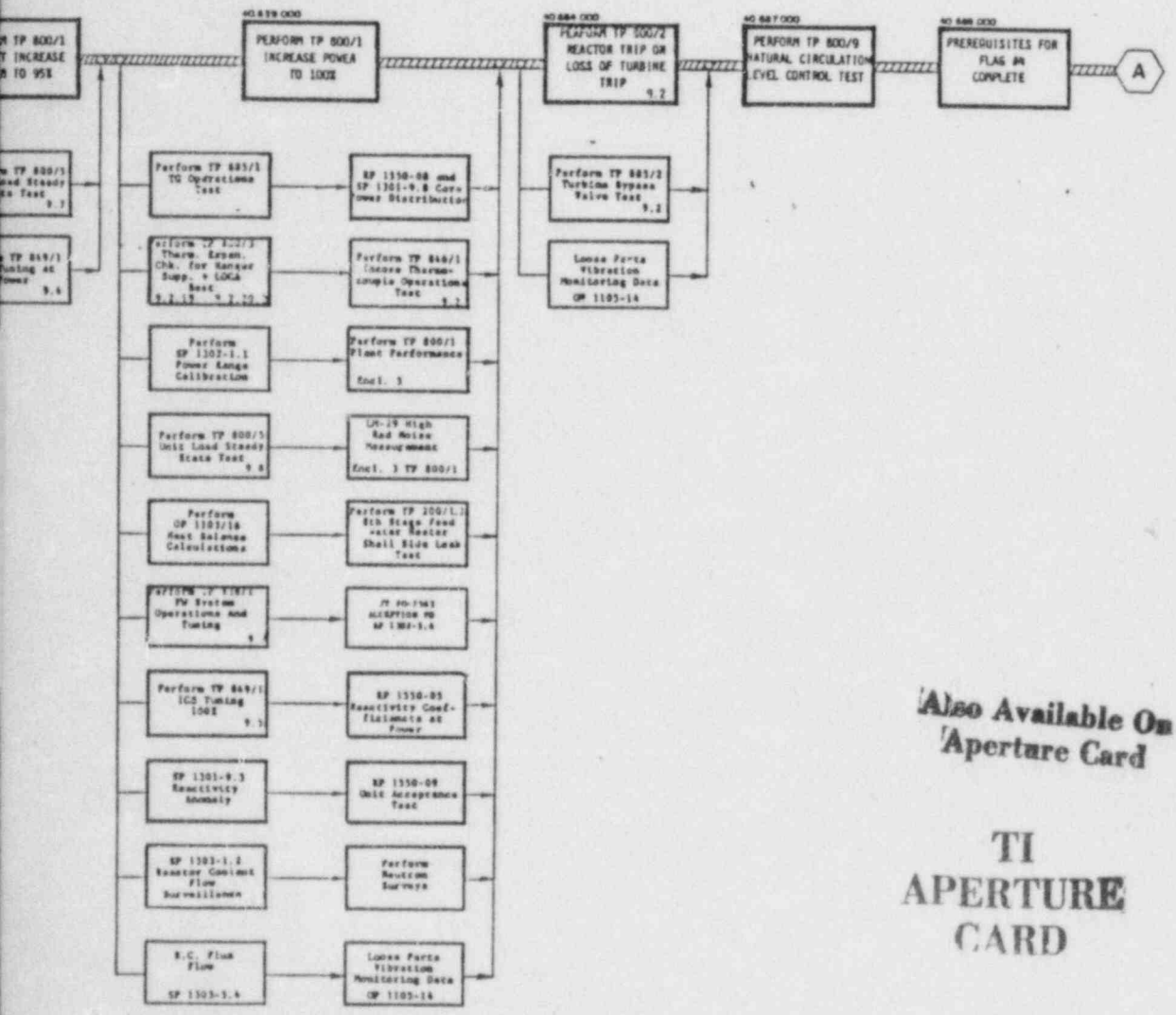

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POWER ESCALATION TEST SEQUENCE

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