BABCOCK & WILCOX COMPANY GENERATION GROUP	File Term long cooling
LEE ROGERS	
D. M. BERSER	BOS 643-3
	File No. or Ref.
LONG-TERM COOLING PROGRAM	Date APRIL 3, 1979

ATTACHED PLEASE FIND ROY/BERSER MEMO WITH ATTACHMENTS OF:

ORGANIZATION CHART

4-PAGE PRE-REQUISITES FOR REACTOR COOLANT RECOVERY

CURVE OF MINIMUM PRESSURE OF REACTOR COOLANT PUMP OPERATION

18 DAY DECAY HEAT CURVE

450 DAY DECAY HEAT CURVE

D. M. BERSER 0326 4/3/79

DMB:DRD

ATTACHMENTS

POOR ORIGINAL

ALSO TRANSMIT TO GARY BROUGHTON, GPU TECHNICAL SUPPORT GROUP

ALSO TRANSMIT TO DICK WILSON, GPU OPS. CENTER

BY TELEPHONE NO. (717) 944-9070

REC'd 0515 4/3/79

134 002

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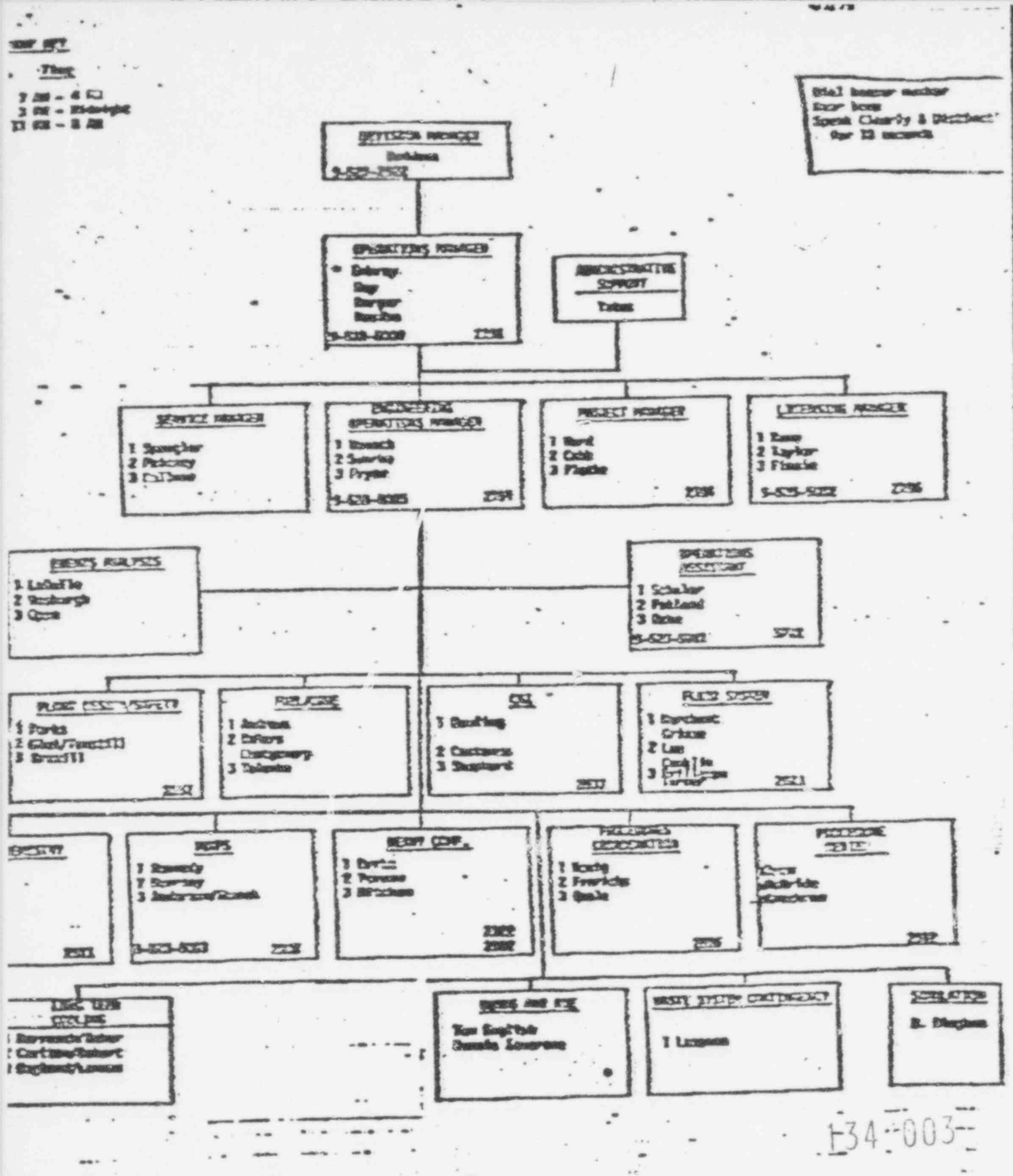


E34-003

POOR ORIGINAL

I. PRE-REQUISITES TO ESTABLISHING ULTIMATE REACTOR COOLANT SYSTEM CONDITIONS FOR LONG TERM RECOVERY

1. Degas the reactor. This must be done while we still have reactor coolant pumps.

   Do this by increasing pressurizer level to at least 300" and maintain the small bleed on the top of the pressurizer open to continue degassing.

   Also, Continue to degas through the make-up tank.

2. When sample sink is available, verify total gas in Reactor Coolant System by normal analysis.

3. The reactor shall at all times be in condition to go immediately to natural circulation assuming failure of the A1 Reactor Coolant Pump and inability to start any other Reactor Coolant Pump.

   This means:

   A. Steam Generator water level in A & B generators must be at 95% of operate range.

   B. Auxiliary Feed nozzle on both generators must be capable of being fed.

   C. Sufficient aux. feed water must be available via the emergency feed nozzles to raise steam generator secondary water to within 10' of the bottom of the upper tube sheet to promote natural circulation start.

134 004

POOR ORIGINAL

II. GROUND RULES FOR FINAL CONDITION OF TMI-2 REACTOR

1. Because of high activity levels in the Reactor Coolant, the decay heat system must not, repeat, must not be used in the recirculating mode.

2. The reactor must be brought to a condition which has minimum reliance on mechanical equipment and instrumentation inside the reactor building. The reason for this is that radiation damage is occurring to reactor coolant pumps and instrumentation which may ultimately make them inoperable.

3. The final condition of the reactor must be capable of being sustained for hundreds of days while Reactor Building clean-up proceeds with the objective of ultimately gaining access to the reactor coolant system.

4. The ultimate condition of the reactor must be achievable from its present condition through an orderly and deliberate series of maneuvers involving the least complicated sequence possible.

POOR ORIGINAL

134 005

III. ULTIMATE CONDITION OF REACTOR

GROUND RULES

1. Reactor Coolant Pumps assumed
2. All Reactor Building instrumentation assumed inoperative through progressive failures due to radiation degradation.
3. Make-up to RC System by a centrifugal pump capable of about 500 PSI head through continuous operation to maintain pressure on the system via existing make-up or other lines. This may be a new pump (with back-up) installed for this purpose.
4. Reactor Pressure read or inferred from discharge pressure of the above described pump.
5. Rate of make-up determined by flow meter in discharge of above pump down stream of a recirc line. Recirc line needed to allow dead head operation.

   Steam Generators are solid with continuous recirculation from auxiliary feed system from coldest source of acceptable waters on the site. (Put ice in condensate storage tank?)
6. Temperatures in Steam Generator determined by overflow water in secondary system.
7. Core temperature monitored by present incore detectors which are assumed to survive.
8. MFI pumps assumed available to take water from BWST and cool reactor through electromagnetic relief valve if core temperatures increase to unacceptable levels.
9. It is assumed under the above conditions that natural circulation is taking place.

134 006

POOR ORIGINAL

IV. ULTIMATE BUILDING CLEAN-UP TO GAIN ACCESS TO REACTOR FOR RECOVERY

1. This is assuming natural circulating as described in Ultimate Condition of Reactor.

2. Modification will be made to the recirculating line from the Reactor Building sump to extract in a controlled manner the 268,000 gallons of highly contaminated water now in the Reactor Building.

   It is assumed that portable materials will have to be brought to the site to process this highly contaminated water, and ship it for storage or burial.

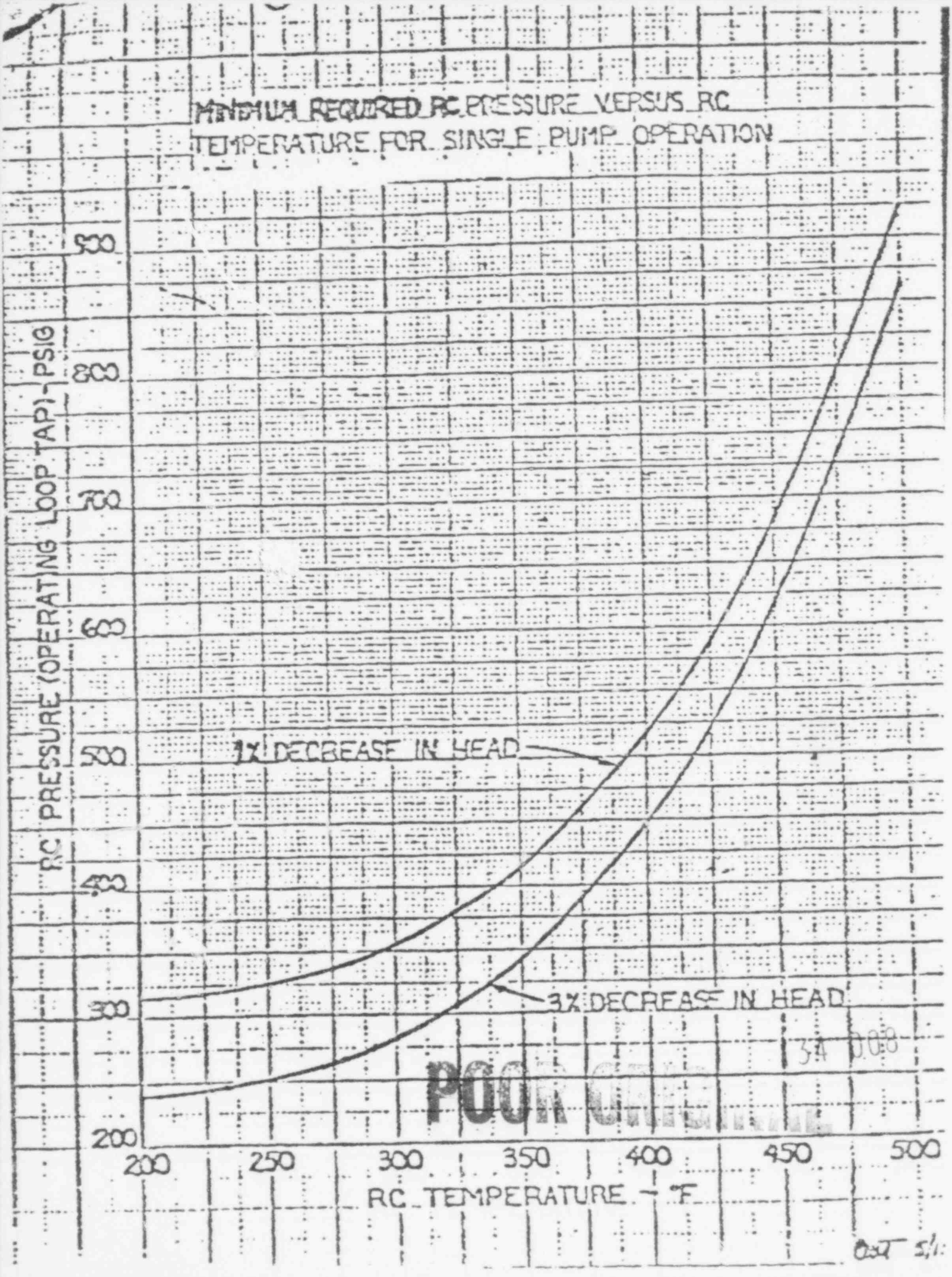
3. The Reactor Building spray system should be considered for water washing the building to further decrease contamination while the activity described in (2) above for processing water is going on.

4. Use existing piping, make modifications as necessary to extract water from the Reactor Coolant System for disposal or purification to reduce coolant activity and building radiation levels.

5. Further actions as they are found to be necessary.

POOR ORIGINAL

134 007


MINIMUM REQUIRED RC PRESSURE VERSUS RC
TEMPERATURE FOR SINGLE PUMP OPERATION
RC PRESSURE (OPERATING LOOP TAP)-PSIG
RC TEMPERATURE - °F
1% DECREASE IN HEAD
3% DECREASE IN HEAD
200
300
400
500
600
700
800
900
200
250
300
350
400
450
500