PRIORITY

PROCEDURE REQUEST/WORK ORDER

TITLE: Criticality Incident Contingency Plan

PROCEDURE No. C-20
Rev. 0

PURPOSE/JUSTIFICATION:

Provide procedure for potential Contingency if needed

ASSUMPTIONS/INITIAL CONDITIONS/CRITERIA:

See attached C-20.

DISTRIBUTION:

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REVIEW AND APPROVAL REQUIREMENTS / KNOWN REFERENCES

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ASSIGNED TO: Tech Support Procedures

4/12/79
0300
Rev. 0

FINAL CONTINGENCY PLAN C-20

EMERGENCY PLAN FOR CRITICALITY INCIDENT

Initial condition:

Natural circulation

RC pumps off - power available

Pressurizer solid

Pressure bleed and feed control by makeup pump and letdown system

Symptoms:

Criticality incident occurs in lower reactor vessel region or top of once through steam generator

Due to material (pellets)

Coming out of fuel pins

Indications:

Increase in RC pressure and increase in incore thermocouples Temperature.

Increased RC flow

Increased activity of primary sample

Incore/excore detector increase in flux

Prompt critical incident would cause fast expansion of reactor coolant volume and corresponding pressure rise that may lift safety and relief valve.

Action required:

Immediate:

Start reactor coolant pump 1A or another reactor coolant pump if 1A fails to start.

Reason for above: forced primary coolant flow should disperse geometry of the fuel pile and cause reaction to cease based upon geometric buckling needed for criticality.

If relief or safety valve has lifted, then start standby makeup pump and increase flow rate from operating makeup pump.

Reason for above: since relief valve has lifted the charging pumps may charge additional boron to further provide shutdown margin.

contd.

If relief valve has not lifted, then continue previous bleed and feed method of pressure control. Caution: starting of RC pump in solid water system will cause pressure fluctuation initially and subsequent gradual increase in pressure due to pump heat into system. Makeup pump charging rate should be reduced accordingly.

The secondary side heat removal system balance will be initially affected by the change in average temperature of the steam generator primary side, the heat balance should return to initial values plus a slight increase in total heat transferred per unit time.

Subsequent action:

Maintain forced convection primary coolant flow to avoid reforming of geometric buckling configuration.

Increase boron concentration in primary coolant to avoid recurrence.

Obtain primary coolant sample to verify increase in fission products.

If relief valve has lifted, determine gaseous concentrations in containment and take appropriate action to reduce, i.e., H_2 recombiner.

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