

BABCOCK & WILCOX COMPANY
GENERATION GROUP

DMACK, MANAGER, PLANT DESIGN

V, MANAGER, ECCS ANALYSIS (2138)

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Date

DECEMBER ACTIVITIES REPORT

JANUARY 2, 1979

This letter to cover one customer and one subject only.

Attached please find the December Activities Report for the ECCS Analysis Unit.

BMD/1c

cc: R.C. Jones
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ECCS ANALYSIS UNIT
ACTIVITIES REPORT

December 1978

Achievements

I Scheduled Activities

A. Loading Syndrome — A presentation on the results of Phase I was held with NRC on December 12th. The NRC seemed aware that loading problems were uncovered and was not concerned over this. Informally, they have received a copy of our Phase I report. The main topic of the meeting was on the procedures to be followed in Phase II (detailed calculations). Some specific concerns were raised but for ECCS the large issue was that no formal approval for the cavity pressure techniques exists. We will need to file something to obtain this approval in short order. Negotiations with licensing will go on in January and some filing occur by the first of February.

B. 205 Auxiliary Feedwater Level Control — An analysis has been performed for small breaks with a low (5 foot) steam generator level and an upgraded HPI flow. The results were quite acceptable with 13.5 feet of mixture in the core as compared to 9.5 but without any system changes. —

Some system change is necessary as 9.5 feet is unacceptable. Two changes are currently being discussed:

- 1) Increase level in generator to 20 to 40 feet.
- 2) Increase HPI flow.

These results demonstrate the viability of the second approach although cost has not yet been determined. A review of December's fiasco on the Toledo contract, reported in unscheduled activities of this report, points out the falacy of using a non-ECCS system to solve an ECCS problem. With these results ECCS highly recommends the upgraded HPI over the secondary level as the 205 fix. A full report on these results and extrapolation to other break sizes will be issued by 3/1/79. Even if costs were considerably higher for the HPI fix we believe it to be preferable.

C. Conn Yankee — Our model work is 75% complete and the key need date of 2/1/79 will be met. An approximation technique for upper head injection has been worked out by Technical Staff and will be evaluated in January. In all, it would appear that a final model will not be available until mid-1979 but that sufficient work has and will be performed by 3/1/79 to keep the customer happy.

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D. Small Break Standard Problem - The NRC has officially slipped the submittal date from 1/15/79 to 4/2/79 and ECCS has made corresponding changes in our schedules. Model completion has been scheduled for 2/15/79. This should allow one month for parameter studies prior to filing.

E. BBR LOCA Loads - A technique for reducing BBR hot leg break LOCA loading has been developed. It requires detailed noding inside the upper plenum of the reactor vessel. Convergence studies are being performed at this time to decide on the exact level of detail required but an overall reduction of 40% is reasonably assured. BBR representatives will meet with ECCS on January 8th to review the work so far and to set the final schedule and work content for the loads program.

1.2 Unscheduled Activities

A. Toledo Problem -- Just prior to Christmas vacation, the NRC inspector on site raised concerns about the acceptability of and operating procedure which required operator intervention to stop the auxiliary feed water filling of the generators. The NRC's main concern was that filling the generators past 3 feet would cool the primary system to the point where the pressurizer would drain and steam be introduced to the primary system. Several people were involved with late night work and the end result was a bounding calculation which though very conservative showed no problems with the predicted RCS void fraction for a loss of main feedwater accident with no proper operator action. Toledo suffered no operation restriction and the problem should be wrapped up in January.

It should be noted that the cause of overfill potential was the need to have more than 3 feet level in the event of a small break. This does not allow the setting of level according to a "best possible for normal operation" criteria. The use here of a non-ECCS system to solve an ECCS concern posed the additional problem for the non-LOCA. Although Toledo may be beyond fixing, I believe we should not allow such design practices to continue into other plants and we should seriously rethink our stop gap approach to ECCS design. If we wish to improve normal operation, there should be no connection or limitation on non-ECCS systems. These systems should be allowed to do the best possible job and, if necessary, ECCS modifications should be made to make up for deficiencies.

II. PROBLEMS

None

III. ADMINISTRATIVE

Ken Fitzgerald and Steve Kellogg will be reporting as Co-Op's in January.

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