CPCo Ex 24 id (3/27/81) Kane

Feb. 7, 1981

Tony Cappucci, Midland Staff Reviewer for MEB:

SUBJECT: Jan. 20, 1981 Meeting with Consumers Concerning the Settlement of Cat. I Underground Piping

I would like to correct a statement in your Feb. 6, 1981 handwritten note to Darl Hood on the above subject.

I do not have the opinion at this time that more borings will be needed to resolve the concern as to the adequacy of the profiling which has been completed at Midland on buried Category I Piping.

My suggestion at the Jan. 20, 1981 meeting was that Bechtel should demonstrate the basis for their position that similar foundation conditions do exist along the alignments of profiled and non-profiled pipes. One way for this to be demonstrated would be to develop sectional views that would reflect soil and foundation conditions along the alignment of pipes which have been profiled and to compare these sectional views with a representative number of sections along the alignment of pipes which have not been profiled. The information required to develop the soils and foundation conditions on the sectional views would come from the borings which have already been completed. If there is a need for additional borings this would become evident when developing the sectional views.

J. Kane, HGEB, GES

FEB. 6, 1981

DARL HOOD, MIDLAND HZPM:

RE: JAN 20, 1981 MEETING WITH CONSUMERS CONCERNING THE SETTLEMENT OF CATEGORY I UNDERGROUND PIPING

AFTER SOME DISCUSSION WITH ETEC WE HAVE CONCLUDED THERE ARE THREE PRIMARY ISSUES WHICH MUST BE RESOLVED IN ORDER TO APPROVE THE ANALYSIS OF THE SEISMIC CAT I PIPING IN THIS FILL AREA. A DESCRIPTION OF EACH IS GIVEN BELOW.

(1) MIDLAND (BECHTEL) HAS SELECTED CERTAIN LINES (PIPING) LOCATED IN THE EAMOOM FILL TO BE PROFILED. THEIR CRITERIA FOR SELECTION OF THESE PIPES WAS THAT (1) WHERE PIPING WAS IN THE SAME PROXIMITY, OR IN THE SAME TRENCH AND/OR PARALLEL ONLY ONE PIPE WAS PROFILED. THIS IS BASED ON THE FILL IN THE "SAME PROXIMITY" AREA AS BEING HOMOGENEOUS. THE "SAME PROXIMITY" APPEARS TO MEAN 10' to 20'. (2) THAT THE SERVICE WATER LINE VARIES IN SIZE FROM 8" TO 26" AND RUNS THROUGHOUT THE FILL, THEREFORE IT IS REPRESENTATIVE OF OTHER PIPING IN THE FILL.

AT THE 1-20-81 MEETING WE REQUESTED DRAWINGS SHOWING ALL THE PIPING IN THE FILL ALONG WITH MORE DEFINATIVE DATA WHICH WOULD DEMONSTRATE THE HOMOGENEITY OF THE FILL IN THE "SAME PROXIMITY AREA". *T. KANE IS OF THE OPINION THAT THIS WILL REQUIRE MORE BORINGS. OUR CONCLUSION IS THAT CONSUMERS SHOULD EITHER DEMONSTRATE

* Please see attached correction

THE HOMOGENEITY OF THE SOIL PER OUR ~~GEOSCIENCES BRANCH~~ Geotechnical Engineering OR PROFILE ALL THE CATEGORY I PIPING IN THE FILL.

(2) THERE IS DISAGREEMENT AS TO THE TREATMENT OF THE PROFILE DATA FOR THE PIPING STRESS ANALYSIS. BECHTEL CHOSE DATA POINTS AND INPUTED THESE DATA POINTS AS DEFLECTIONS INTO ME-101. ME-101 CALCULATED THE STRESSES AND PLOTTED THE PIPE PROFILE. THE COMPUTER PROFILE WAS THEN COMPARED TO THE PROFILE OF THE RAW DATA; IF THE CURVES PRODUCED WERE OF APPROXIMATELY THE SAME SHAPE AND DID NOT DEVIATE MORE THAN ± 0.250 INCHES, THE ANALYSIS WAS CONSIDERED ACCURATE. THE ± 0.250 INCH ERROR BAND IS THE ACCURACY ERROR OF THE NOLD AQUADUCER PROFILE GAGE. THIS CURVE FITTING METHOD APPEARS TO SATISFY STANDARD STATISTICAL PROCEDURES BUT FAILS TO ACCOUNT FOR THE SENSITIVITY OF THE STRESS LEVELS ACROSS THIS ERROR BAND. (IE: FOR A LINEAR ANALYSIS AT A PARTICULAR IT COULD VARY BY A FACTOR OF TEN ~ 23.2 VS. 212 KSI). ETEC'S POSITION IS THAT CONSUMER USE ALL DATA POINTS WITHOUT APPLYING THE 0.250" ERROR BAND. IN MY OPINION, THERE ARE TWO POSSIBLE ALTERNATE APPROACHES (A) SELECT ~~AND~~ CERTAIN DATA POINTS AND NORMALIZE THE POINTS WITH A CONSERVATIVE BIAS SO AS TO OBTAIN THE MAXIMUM SLOPE OR, (B) USE ALL DATA POINTS AND APPLY THE 0.250 INCH BIAS. THIS MATTER STILL REQUIRES DISCUSSION BETWEEN ETEC AND THE MOB.

(3) IN LIEU OF DIGGING UP THE PIPING AFTER PERFORMING AN UNFAVORABLE LINEAR ELASTIC ANALYSIS, CONSUMERS ~~HAS~~ INDICATED THAT ANOTHER APPROACH MIGHT BE TO PERFORM AN ELASTIC-PLASTIC OR PLASTIC ANALYSIS USING AN UPPER BOUND

STRAIN LIMIT AS PART OF AN ACCEPTANCE CRITERIA. THEY ASKED THE MEB TO DEFINE THE ACCEPTANCE CRITERIA SO THAT WE CAN MAKE AN EVALUATION OF THIS APPROACH WE WILL REQUIRE AS A MINIMUM: A REPORT OUTLING THE ANALYSIS METHODOLOGY WITH A SUMMARY OF RESULTS; A PRESENTATION OF THE MARGIN TO THE ALLOWABLE FOR SETTLEMENT ONLY AND THE SAME FOR THE MARGIN TO FAILURE CONSIDERING ALL PRIMARY AND SECONDARY STRESSES.

ANY QUESTIONS, PLEASE CALL
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