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Testimony before the House Committee on Government Operations: Environment, Energy, and Natural Resources Subcommittee; by Henry Eschwege, Director, Community and Economic Development Div.

Issue Area: Water and Water Related Programs (2500).

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Congressional Relevance: House Committee on Government Operations: Environment, Energy, and Natural Resources Subcommittee.

Authority: National Dam Inspection Act of 1972 (P.L. 92-367).

GAO testified and reported previously on Federal aspects of dam building and on implementation of the National Dam Inspection Act of 1972. After failure of the Teton Dam, a comparative review was performed of procedures and practices used by the Bureau of Reclamation, the Corps of Engineers, the Tennessee Valley Authority, California, and private firms. It was found that the Bureau took unnecessary risks and placed too much reliance on design and that emergency plans were inadequate. The Corps of Engineers, unlike the Bureau, emphasized multiple defenses in its dams to prevent erosion from seepage, and used independent consultants more frequently. Actions taken by the Bureau and the Department of the Interior to correct some of the weaknesses were approved by GAO. Recommendations were made both to the Bureau and the Corps to correct procedural gaps and for improving emergency preparedness plans. In testimony on the National Dam Inspection Act of 1972, which is concerned largely with non-Federal dams, it was noted that progress in achieving the objectives of the act was slow. Approximately 5 years after enactment, the provision for inspection of all dams had not been carried out. A recent directive by the President, aimed at insuring dam safety, will develop data that should be considered by the Corps in developing a national dam safety program. (HTW)

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UNITED STATES GENERAL ACCOUNTING OFFICE
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STATEMENT OF
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UNITED STATES GENERAL ACCOUNTING OFFICE

BEFORE THE
ENVIRONMENT, ENERGY, AND NATURAL RESOURCES SUBCOMMITTEE
OF THE
COMMITTEE ON GOVERNMENT OPERATIONS, H. R.

ON

ACTIONS NEEDED TO INCREASE THE SAFETY OF DAMS

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

WE ARE HERE TODAY AT YOUR REQUEST TO DISCUSS ACTIONS NEEDED TO INCREASE THE SAFETY OF DAMS IN THE UNITED STATES. ON JUNE 3, 1977, WE REPORTED TO THIS SUBCOMMITTEE ON "ACTIONS NEEDED TO INCREASE THE SAFETY OF DAMS BUILT BY THE BUREAU OF RECLAMATION AND THE CORPS OF ENGINEERS" (CED-77-85). THIS REPORT ADDRESSES THE FEDERAL ASPECTS OF A NATIONAL DAM BUILDING PROGRAM. PREVIOUSLY WE HAD TESTIFIED BEFORE THIS SUBCOMMITTEE ON THE PROGRESS BEING MADE IN IMPLEMENTING THE NATIONAL DAM INSPECTION ACT OF 1972 (P.L. 92-367) WHICH LARGELY CONCERNS NON-FEDERAL DAMS. WE WILL BE DISCUSSING TODAY A NUMBER OF IMPORTANT MATTERS WHICH NEED TO BE CONSIDERED IN DEVELOPING AND IMPLEMENTING A SAFETY PROGRAM FOR BOTH FEDERAL AND NON-FEDERAL DAMS.

GAO'S JUNE 3, 1977, REPORT

OUR REPORT OF JUNE 3, 1977, RESULTED FROM A REVIEW MADE AT YOUR REQUEST AFTER THE FAILURE OF THE TETON DAM. WE MADE

A COMPARATIVE ANALYSIS OF THE PROCEDURES AND PRACTICES USED AT THE BUREAU'S TETON DAM AND THE CORPS' RIRIE DAM BOTH LOCATED IN EASTERN IDAHO. ALSO, WE COMPARED ASPECTS OF THESE PROCEDURES AND PRACTICES WITH THOSE USED ON 17 OTHER BUREAU AND CORPS DAMS LOCATED IN FIVE WESTERN STATES AND THOSE USED BY THE TENNESSEE VALLEY AUTHORITY, STATE OF CALIFORNIA, AND PRIVATE FIRMS.

MR. CHAIRMAN, AS YOU ARE AWARE, THE "INDEPENDENT PANEL TO REVIEW CAUSE OF TETON DAM FAILURE" AND THE "U.S. DEPARTMENT OF THE INTERIOR TETON DAM FAILURE REVIEW GROUP" ISSUED REPORTS IN DECEMBER 1976 AND APRIL 1977, RESPECTIVELY, WHICH REVEALED A NUMBER OF WEAKNESSES IN THE WAY TETON WAS DESIGNED. OUR REPORT GOES BEYOND THE FINDINGS OF THESE TWO REPORTS IN THAT WE EXAMINED THE SITE SELECTION, DESIGN, MONITORING, AND EMERGENCY PREPAREDNESS PROCESSES USED IN CONSTRUCTING DAMS. WE MADE RECOMMENDATIONS TO THE SECRETARIES OF THE INTERIOR AND DEFENSE AND THE CHAIRMAN OF THE FEDERAL COORDINATING COUNCIL FOR SCIENCE, ENGINEERING, AND TECHNOLOGY WHICH SHOULD ASSIST IN REDUCING THE RISK OF DAM FAILURES THROUGH IMPROVED POLICIES, PROCEDURES, AND PRACTICES.

WHAT WENT WRONG AT TETON DAM

MR. CHAIRMAN, WE FOUND THAT CIRCUMSTANCES LEADING TO THE TETON DAM COLLAPSE SHOWED THAT:

- THE BUREAU USED QUESTIONABLE PRACTICES OF DESIGN RELATING TO SAFETY,
- IT DID NOT USE AN INDEPENDENT REVIEW PROCESS TO CONFIRM ITS DECISIONS AS TO DESIGN,

--IT DID NOT ALWAYS CARRY OUT DURING CONSTRUCTION THE INTENT OF ITS DESIGNERS,
--THE BUREAU TOOK UNNECESSARY SAFETY RISKS AND RELIED TOO MUCH ON THE ADEQUACY OF ITS DESIGN INSTEAD OF KEEPING WATCH OVER, AND CONTROLLING, DAM SAFETY DURING RESERVOIR FILLING,
--IT DID NOT HEED A SEEMINGLY VALUABLE LESSON ABOUT CONTROLLING RESERVOIR FILLING WHICH IT IDENTIFIED WHEN ANOTHER DAM ALMOST FAILED ABOUT 10 YEARS EARLIER, AND
--IT DID NOT ESTABLISH AN EFFECTIVE EMERGENCY PREPAREDNESS PLAN FOR NOTIFYING PEOPLE DOWNSTREAM WHAT TO DO IN THE EVENT OF DAM FAILURE.

THE INDEPENDENT PANEL CONCLUDED THAT AN UNFORTUNATE CHOICE OF DESIGN TOGETHER WITH LESS THAN CONVENTIONAL PRECAUTIONS LED TO THE FAILURE OF TETON. FOR EXAMPLE, THE PANEL QUESTIONED THE COSTLY PROGRAM THE BUREAU USED TO ATTEMPT TO SEAL THE DAM'S LEAKY FOUNDATION WITH A CEMENT AND SAND MIXTURE CALLED GROUT. THE PANEL ALSO QUESTIONED WHY THERE WERE NOT OTHER MEANS DESIGNED INTO THE DAM, SUCH AS AN ADEQUATE DRAINAGE AND FILTER SYSTEM, TO PROTECT AGAINST EROSION CAUSED BY THE AMOUNT OF SEEPAGE THAT WOULD INEVITABLY OCCUR.

WE FOUND THAT THE CORPS, UNLIKE THE BUREAU AT TETON, EMPHASIZED MULTIPLE DEFENSES IN ITS DAMS TO PREVENT EROSION FROM SEEPAGE. INDEPENDENT CONSULTANTS WERE USED MORE FREQUENTLY BY THE CORPS AND OTHER FEDERAL AND STATE AGENCIES INVOLVED IN DAMBUILDING TO CONFIRM DESIGN ADEQUACY AND OTHER DECISIONS ON WHICH DESIGNS WERE BASED.

THE PRINCIPAL BUREAU DESIGNER SAID THAT HE INTENDED FOR OPEN CRACKS IN THE FOUNDATION OF TETON TO BE SEALED. YET OTHER BUREAU OFFICIALS SAID THAT THIS INTENT WAS NOT FULLY CARRIED OUT BECAUSE OF UNCLEAR INSTRUCTIONS, DRAWINGS, AND SPECIFICATIONS AND MISUNDERSTANDINGS BY PROJECT STAFF. ANOTHER FACTOR WAS THAT DESIGNERS MADE ONLY A FEW VISITS TO THE DAMSITE. NONE WERE MADE WHEN THE CRACKS WERE TO BE FILLED. THE CONSTRUCTION ENGINEERS AT THE SITE SAID THE DESIGNERS DID NOT PROVIDE ADEQUATE DIRECTION OR GUIDANCE ON THE TREATMENT OF OPEN CRACKS. THE POSSIBLE CONSEQUENCE OF THE INADEQUATE TREATMENT OF CERTAIN CRACKS WAS ADDRESSED BY THE PANEL, WHICH SAID THAT THIS INADEQUACY WAS A CONTRIBUTING FACTOR IN THE FAILURE OF TETON DAM.

SEVERAL KEY MONITORING AND CONTROLLING MEASURES WERE NEITHER AVAILABLE NOR USED WHEN TETON FAILED. FOR EXAMPLE:

- BUREAU DESIGNERS DID NOT INTEND TO INSTALL APPROPRIATE SEEPAGE DETECTING INSTRUMENTS AT THE TETON DAM BECAUSE THEY WERE CONFIDENT THAT TETON WAS ADEQUATELY DESIGNED TO PROTECT AGAINST EROSION SEEPAGE.
- PERTINENT INFORMATION AVAILABLE TO THE BUREAU AT THE DAMSITE DURING THE WEEKS PRECEDING THE FAILURE, WHICH COULD HAVE GIVEN A CLUE AS TO THE SEEPAGE CONDITIONS AFFECTING THE DAM, WAS SENT ROUTINELY FROM THE PROJECT TO THE DESIGNERS. IT ARRIVED THE DAY AFTER THE FAILURE.
- VISUAL OBSERVATIONS AT THE DAM WERE NOT MADE ON A 24-HOUR BASIS DURING THE CRITICAL RESERVOIR FILLING STAGE; CONSEQUENTLY, EVIDENCE OF EROSION FROM THE LEAK IN THE TETON

DAM COULD NOT BE OBSERVED AND REMEDIAL ACTIONS BEGUN UNTIL AFTER THE PROJECT STAFF ARRIVED AT THE DAMSITE ABOUT 5 HOURS BEFORE THE FAILURE.

--WHEN THIS EVIDENCE WAS DISCOVERED, THE BUREAU'S STAFF AT TETON COULD NOT IMMEDIATELY OPEN THE MAIN RIVER OUTLET DRAIN BECAUSE A CONTRACTOR WAS BEHIND SCHEDULE IN COMPLETING WORK ON THIS STRUCTURE.

--BUREAU DESIGNERS INTENDED TO FILL THE TETON DAM RESERVOIR SLOWLY TO OBSERVE THE BEHAVIOR OF THE DAM AND ALLOW THEM TO TAKE REMEDIAL ACTIONS IF PROBLEMS DEVELOPED. ACTUALLY DEVIATIONS OF UP TO 4 TIMES MORE THAN THE FILLING RATE ORIGINALLY APPROVED WERE PERMITTED BY THE BUREAU, APPARENTLY TO AVOID THE POSSIBILITY OF INCURRING CONTRACTOR CLAIMS.

MR. CHAIRMAN, IT IS NOT KNOWN WHETHER THE LEAK AT TETON WOULD HAVE DEVELOPED AS QUICKLY AS IT DID, OR WHETHER THE FAILURE COULD HAVE BEEN PREVENTED, IF THE RESERVOIR WOULD HAVE BEEN FILLED SLOWLY AND THE MAIN RIVER OUTLET DRAIN HAD BEEN AVAILABLE, AS PLANNED, TO RELEASE WATER. WHAT IS EVIDENT IS THAT THE BUREAU TOOK UNNECESSARY RISKS AND PLACED TOO MUCH RELIANCE ON THE ADEQUACY OF ITS DESIGN. NO INSTRUMENTATION WAS AVAILABLE TO DETERMINE WHETHER THE LEAKY FOUNDATION ROCK HAD BEEN SEALED OR WHETHER POTENTIALLY DANGEROUS CRACKS WERE DEVELOPING. NO ADEQUATE MEANS HAD BEEN DEVELOPED TO QUICKLY RECOGNIZE CONDITIONS THAT COULD ADVERSELY AFFECT DAM SAFETY. THERE WERE NO MEANS TO OPEN THE MAIN RIVER OUTLET DRAIN IMMEDIATELY IN THE EVENT OF AN EMERGENCY.

RECOMMENDATIONS AND ACTIONS

DURING THE COURSE OF OUR REVIEW, THE BUREAU ANNOUNCED THAT A REVIEW OF ITS DESIGN FOR ALL STORAGE DAMS WOULD BE MADE BY INDEPENDENT CONSULTANTS. IN ADDITION, THE DEPARTMENT OF THE INTERIOR ASKED FOR BIDS FROM CONSULTING FIRMS TO STUDY WHETHER THE BUREAU'S INTERNAL REVIEW SYSTEM AND ITS TECHNICAL PROCEDURES USED IN PLANNING, DESIGNING, AND CONSTRUCTING DAMS FOLLOW REASONABLE SAFETY STANDARDS WITHIN THE LIMITS OF EXISTING TECHNOLOGY. WE FULLY SUPPORT THE ACTIONS ANNOUNCED BY THE BUREAU AND THE DEPARTMENT AND WE MADE A SERIES OF RECOMMENDATIONS TO THE SECRETARY OF THE INTERIOR TO STRENGTHEN DESIGN AND DESIGN REVIEW PROCEDURES.

WE ALSO RECOMMENDED THAT THE CORPS REVISE ITS PROCEDURES AND PRACTICES TO MAKE SURE THAT THE DESIGNS FOR ALL STORAGE DAMS, WHERE THERE IS OR COULD BE A POTENTIAL HAZARD TO PUBLIC SAFETY, BE REVIEWED BY INDEPENDENT CONSULTANTS SINCE WE FOUND THAT THIS WAS NOT ALWAYS DONE.

ALTHOUGH THE CORPS' PRACTICES WERE FOUND TO BE BETTER THAN THOSE USED BY THE BUREAU AT TETON, BOTH THE CORPS AND THE BUREAU HAVE PROCEDURAL GAPS WHICH COULD SERIOUSLY REDUCE THEIR CAPABILITIES TO DETECT AND RECTIFY PROBLEMS THAT DEVELOP IN A DAM DURING INITIAL RESERVOIR FILLING. THEREFORE, A NUMBER OF OUR RECOMMENDATIONS ARE DIRECTED AT BOTH THE BUREAU AND THE CORPS ON MATTERS SUCH AS REQUIREMENTS FOR THE AMOUNT AND USE OF INSTRUMENTATION FOR MONITORING CHANGING CONDITIONS INSIDE THE DAM AND THE ABUTMENTS AND APPROPRIATE RESERVOIR FILLING CRITERIA.

OUR REPORT ALSO DISCUSSES THE NEED FOR IMPROVED EMERGENCY PREPAREDNESS PLANS AND PROCEDURES. WE FOUND THAT CONFUSION BETWEEN THE BUREAU'S PROJECT STAFF AND LOCAL OFFICIALS EXISTED WHEN THE TETON DAM COLLAPSED. THESE INDIVIDUALS WERE ALMOST TOTALLY UNPREPARED FOR THE POSSIBILITY OF A DAM FAILURE. WE BELIEVE THAT OUR RECOMMENDATIONS FOR IMPROVING EMERGENCY PREPAREDNESS PLANS AND PROCEDURES SHOULD BE APPLIED TO THE CORPS AS WELL AS THE BUREAU BECAUSE WE WERE ADVISED THAT THERE ARE NO WRITTEN CORPS PROCEDURES IN THIS REGARD.

ON APRIL 23, 1977, THE PRESIDENT ISSUED A MEMORANDUM DIRECTING THE HEAD OF EACH FEDERAL AGENCY THAT HAS A ROLE AFFECTING THE SAFETY OF DAMS TO IMMEDIATELY UNDERTAKE A THOROUGH REVIEW OF ITS PRACTICES. THESE REVIEWS WILL BE USED TO COORDINATE DAM SAFETY PROGRAMS AND DEVELOP PROPOSED FEDERAL DAM SAFETY GUIDELINES. WE RECOMMENDED THAT ACTIONS TAKEN OR PLANNED BY THE BUREAU AND THE CORPS ON OUR RECOMMENDATIONS BE SPECIFICALLY ADDRESSED IN THE REPORTS ON THE REVIEWS PERFORMED IN ACCORDANCE WITH THE APRIL 23, 1977, MEMORANDUM; AND THAT THE APPLICABILITY OF OUR RECOMMENDATIONS TO FEDERAL AGENCIES, IN ADDITION TO THE BUREAU AND THE CORPS, BE EVALUATED IN DEVELOPING THE PROPOSED FEDERAL DAM SAFETY GUIDELINES.

NATIONAL DAM INSPECTION ACT OF 1972

NOW I WANT TO BRIEFLY RETURN TO THE SUBJECT OF OUR MARCH 15 TESTIMONY BEFORE THIS SUBCOMMITTEE WHEN WE DISCUSSED THE PROGRESS BEING MADE IN IMPLEMENTING THE NATIONAL DAM INSPECTION ACT OF 1972 (P.L. 92-367). THIS ACT IS CONCERNED

LARGELY WITH NON-FEDERAL DAMS. THE SUBSTANCE OF OUR TESTIMONY WAS THAT PROGRESS IN ACHIEVING THE IMPORTANT OBJECTIVES OF THE 1972 ACT HAS BEEN SLOW AND UNCERTAIN.

THE 1972 ACT DIRECTED THE SECRETARY OF THE ARMY, ACTING THROUGH THE CORPS OF ENGINEERS, TO INSPECT ALL DAMS IN THE UNITED STATES EXCEPT (1) DAMS UNDER THE JURISDICTION OF THE BUREAU OF RECLAMATION, THE TENNESSEE VALLEY AUTHORITY, AND THE INTERNATIONAL BOUNDARY AND WATER COMMISSION, (2) DAMS CONSTRUCTED PURSUANT TO LICENSES ISSUED UNDER THE AUTHORITY OF THE FEDERAL POWER ACT, (3) DAMS WHICH HAD BEEN INSPECTED BY A STATE AGENCY WITHIN THE 12-MONTH PERIOD IMMEDIATELY PRECEDING THE ENACTMENT OF THE LAW AND FOR WHICH THE GOVERNOR OF THE RESPECTIVE STATE REQUESTED EXCLUSION, AND (4) DAMS WHICH THE SECRETARY OF THE ARMY DETERMINED DO NOT POSE ANY THREAT TO HUMAN LIFE AND PROPERTY. THE SECRETARY WAS ALSO REQUIRED TO REPORT ANY POTENTIALLY DANGEROUS CONDITIONS TO THE CONCERNED STATE GOVERNORS AND, UPON REQUEST, TO PROVIDE TECHNICAL ADVICE RELATED TO THE REMEDIAL MEASURES NECESSARY TO RECTIFY OR ELIMINATE ANY DANGEROUS CONDITIONS.

THE LAW FURTHER REQUIRED THE SECRETARY TO REPORT TO THE CONGRESS BY JULY 1, 1974, ON HIS ACTIVITIES UNDER THE LAW. THE REPORT WAS TO INCLUDE (1) AN INVENTORY OF ALL DAMS LOCATED IN THE UNITED STATES, (2) A REVIEW OF EACH INSPECTION MADE, AND (3) RECOMMENDATIONS FOR A COMPREHENSIVE NATIONAL PROGRAM FOR THE INSPECTION AND REGULATION OF DAMS FOR SAFETY

PURPOSES, INDICATING THE RESPONSIBILITIES WHICH SHOULD BE ASSUMED BY FEDERAL, STATE, AND LOCAL GOVERNMENTS AND BY PUBLIC AND PRIVATE INTERESTS.

AT THE TIME OF OUR EARLIER TESTIMONY, WE HAD NOT YET COMPLETED OUR WORK. WE HAVE NOW FINALIZED OUR CONCLUSIONS AND RECOMMENDATIONS AND WILL BE ISSUING OUR REPORT TO THE CONGRESS IN THE NEAR FUTURE.

WE BELIEVE THAT THE NEED FOR AN EFFECTIVE NATIONWIDE DAM SAFETY PROGRAM HAS BEEN DEMONSTRATED REPEATEDLY OVER THE YEARS BY A SERIES OF DISASTERS. THE NATIONAL DAM INSPECTION PROGRAM OF 1972 WAS AN ATTEMPT TO DEAL WITH THIS PROBLEM ON A NATIONAL SCALE, BUT THE LAW HAS NEVER BEEN FULLY IMPLEMENTED.

APPROXIMATELY FIVE YEARS AFTER ENACTMENT OF P.L. 92-367, THE FUNDAMENTAL PROVISION OF THE LAW, INSPECTION OF ALL DAMS, HAS NOT BEEN CARRIED OUT; AN INVENTORY OF DAMS HAS BEEN PREPARED BUT HAS NOT BEEN VERIFIED; AND THE NATIONAL PROGRAM FOR DAM SAFETY PROPOSED BY THE SECRETARY OF THE ARMY IS LACKING IN SCOPE, DEPTH, AND ALTERNATIVES.

WE BELIEVE THAT THE DAM INSPECTIONS ARE ESSENTIAL TO PROTECT HUMAN LIFE AND PROPERTY BY IDENTIFYING UNSAFE DAM STRUCTURES AND DETERMINING REMEDIAL MEASURES NECESSARY TO MAKE THE DAMS SAFE. IT IS NOT ESSENTIAL TO INSPECT ALL DAMS BEFORE A NATIONAL DAM SAFETY PROGRAM IS DESIGNED, BUT INITIAL INSPECTION OF A STATISTICAL SAMPLE OF DAMS BY THE CORPS WOULD BE DESIRABLE BEFORE THE PROGRAM IS APPROVED. A SAMPLE OF INSPECTIONS CAN PROVIDE THE CORPS WITH INFORMATION NECESSARY

TO MAKE REALISTIC ESTIMATES OF THE SCOPE, NATURE, AND COST OF A NATIONAL DAM SAFETY PROGRAM. IN MAKING THIS POINT, WE RECOGNIZE THAT THERE WILL BE COSTS ASSOCIATED WITH IMPLEMENTING A GOOD DAM SAFETY PROGRAM, BUT IT CAN PREVENT THE LOSS OF LIFE AND PROPERTY DAMAGE AND THE LARGE RELIEF COSTS WHICH THE GOVERNMENT OTHERWISE WOULD HAVE TO PROVIDE IF A DISASTER OCCURS.

ALTHOUGH THE CORPS PREPARED AN INVENTORY OF DAMS AS CALLED FOR BY THE LAW, THE INVENTORY IS BASED ON DATA COLLECTED USING INADEQUATE DEFINITIONS AND PROCEDURES, AND MOST OF THE DATA WAS NOT VERIFIED. THE CORPS SHOULD ENSURE THE REASONABLE ACCURACY OF THE INVENTORY BEFORE THE CONGRESS IS ASKED TO DECIDE ON A NATIONAL DAM SAFETY PROGRAM. WE ALSO BELIEVE THAT THE BEST METHOD FOR VERIFYING THE INVENTORY DATA WOULD BE TO REQUIRE THE CORPS TO ENSURE THAT VISITS ARE MADE TO EACH DAMSITE.

THE CORPS' RECOMMENDATIONS TO THE CONGRESS FOR A COMPREHENSIVE NATIONAL DAM SAFETY PROGRAM PLACE PRIMARY EMPHASIS ON VOLUNTARY PARTICIPATION BY THE STATES, EVEN THOUGH THE CORPS WAS ADVISED BY MANY STATES THAT THEY CANNOT CARRY OUT SUCH A PROGRAM WITHOUT FEDERAL FUNDING. THE CORPS DID NOT OBTAIN SUFFICIENT INFORMATION REGARDING COST OF INSPECTIONS, COST OF REMEDIAL ACTIONS NEEDED, AND ADEQUACY OF NON-FEDERAL FUNDING SOURCES TO JUSTIFY A CONCLUSION AS TO WHETHER OR NOT A NATIONAL DAM SAFETY PROGRAM CAN BE EFFECTIVELY IMPLEMENTED ON A VOLUNTARY BASIS WITHOUT FEDERAL FINANCIAL ASSISTANCE. WE BELIEVE THAT THE CORPS HAS DESIGNED ONLY AN INSPECTION

PROGRAM WITHOUT CONSIDERING THE BROADER ASPECTS OF DAM SAFETY SUCH AS WARNING SYSTEMS AND PUBLIC EDUCATION.

WE WILL BE RECOMMENDING A SERIES OF MEASURES TO CORRECT THESE SHORTCOMINGS.

IN COMMENTING ON OUR DRAFT REPORT CORPS OFFICIALS DID NOT OBJECT TO ITS GENERAL MESSAGE. THEY POINTED OUT, HOWEVER, THAT THEY WOULD NEED ADDITIONAL APPROPRIATIONS TO IMPLEMENT OUR RECOMMENDATIONS . . . SUPPLEMENTING ITS REPORT TO CONGRESS.

IT IS NOT CLEAR AS YET, MR. CHAIRMAN, THE EXTENT TO WHICH THE PRESIDENT'S RECENT ACTIONS WITH REGARD TO ENSURING THE SAFETY OF DAMS OVER WHICH THE FEDERAL GOVERNMENT HAS JURISDICTION MAY IMPACT ON NON-FEDERAL DAMS. SINCE THE OBJECTIVE OF THE PRESIDENT'S DIRECTIVE IS TO IMPROVE THE EFFECTIVENESS OF THE GOVERNMENT-WIDE DAM SAFETY EFFORT, WE BELIEVE THAT DATA DEVELOPED IN CARRYING OUT THE PRESIDENT'S DIRECTIVE SHOULD BE CONSIDERED BY THE CORPS IN DEVELOPING A NATIONAL DAM SAFETY PROGRAM.

BEFORE CONCLUDING MY STATEMENT, MR CHAIRMAN, I WOULD LIKE TO MENTION THAT WE ARE ALSO IN THE PROCESS OF COMPLETING A REPORT ON THE PROBLEMS OF ENSURING THE SAFETY OF MINE WASTE IMPOUNDMENTS. MINE WASTE IMPOUNDMENTS ARE, IN EFFECT, EARTHEN DAMS WHICH ARE CREATED IN THE DISPOSING OF COAL OR OTHER MINERAL WASTE MATERIAL. THE BUFFALO CREEK DISASTER OF 1972 IN WEST VIRGINIA INVOLVED SUCH AN IMPOUNDMENT. THIS REPORT IS BEING PREPARED FOR THE CHAIRMAN OF THE HOUSE SUBCOMMITTEE ON ENERGY AND POWER, COMMITTEE ON INTERSTATE AND FOREIGN

COMMERCE, AND WE HOPE TO ISSUE IT AS THE CHAIRMAN OF THAT
SUBCOMMITTEE WITHIN THE NEXT FEW DAYS.

AT THIS POINT, MR. CHAIRMAN, WE WOULD BE HAPPY TO RESPOND
TO ANY QUESTIONS YOU OR OTHER MEMBERS OF THE SUBCOMMITTEE MAY
HAVE.