

## DOCUMENT RESUME

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The Concorde Supersonic Aircraft Trial Entry into Dulles International Airport. September 7, 1977. 9 pp.

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: Transportation Systems and Policies (2400).

Contact: Community and Economic Development Div.

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Organization Concerned: Dulles International Airport; Department of Transportation; Environmental Protection Agency; Federal Aviation Administration; National Aeronautics and Space Administration.

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

The Concorde supersonic aircraft is noisier than any subsonic aircraft presently in commercial service. Permitting the introduction of the Concorde or any other aircraft type that cannot presently meet or cannot be modified to meet noise standards is counter to the thrust of the national noise abatement effort. The validity of community response surveys is questionable, and the results should not be used in the formulation of policy on the Concorde. Although Concorde operations accounted for less than one percent of the take-offs and landings at Dulles, they resulted in 1,387 complaints or 79% of the total noise complaints received. The greatest percentage of Concorde complaints concerned take-off. Complaints were also made about structural vibrations. Studies of low frequency noise vibrations during the Dulles test period showed that, although the vibrations generated by the Concorde were greater than those of subsonic aircraft, they did not result in structural damage. Although the Concorde is significantly noisier than subsonic aircraft, only about 21% of existing aircraft meet existing noise standards. (SW)

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UNITED STATES GENERAL ACCOUNTING OFFICE  
WASHINGTON, D.C. 20548

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STATEMENT OF  
HENRY ESCHWEGE, DIRECTOR  
COMMUNITY AND ECONOMIC DEVELOPMENT DIVISION

BEFORE THE  
SUBCOMMITTEE ON ENVIRONMENT, ENERGY, AND NATURAL RESOURCES  
HOUSE COMMITTEE ON GOVERNMENT OPERATIONS

ON

THE CONCORDE SUPERSONIC AIRCRAFT  
TRIAL ENTRY INTO DULLES INTERNATIONAL AIRPORT

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

WE ARE HERE TODAY AT YOUR INVITATION TO DISCUSS THE RESULTS OF OUR REVIEW OF STUDIES BEING MADE DURING THE TRIAL PERIOD OF CONCORDE FLIGHTS OPERATING AT DULLES AIRPORT. OUR REPORT ON THIS REVIEW, WHICH IS BEING PREPARED AT THE SUBCOMMITTEE'S REQUEST, HAS NOT BEEN FINALIZED. CONSEQUENTLY, THE RESPONSIBLE AGENCIES HAVE NOT BEEN GIVEN AN OPPORTUNITY TO COMMENT ON OUR TENTATIVE CONCLUSIONS. ALTHOUGH THE WORK WHICH WE WERE REQUESTED TO PERFORM WAS CONFINED TO THE NOISE ISSUE, DECISIONS AFFECTING THE CONCORDE ARE CONSIDERED ALSO TO HAVE IMPORTANT IMPLICATIONS FOR OUR ECONOMY AND INTERNATIONAL RELATIONS.

WITH ME TODAY ARE MESSRS. OLIVER W. KRUEGER, ASSISTANT DIRECTOR AND KEITH O. FULTZ, SUPERVISORY AUDITOR, OF OUR COMMUNITY AND ECONOMIC DEVELOPMENT DIVISION. WE ALSO HAVE

AVAILABLE OTHER REPRESENTATIVES OF OUR WASHINGTON AND NEW YORK STAFFS WHO PARTICIPATED IN THE REVIEW.

AIRCRAFT NOISE IS AND WILL CONTINUE TO BE A SERIOUS PROBLEM FOR SOME SIX TO SEVEN MILLION AMERICANS. THE CONCORDE SUPERSONIC AIRCRAFT IS NOISIER THAN ANY SUBSONIC AIRCRAFT PRESENTLY IN COMMERCIAL SERVICE. THE CURRENT PRODUCTION CONCORDE DOES NOT MEET PRESENT SUBSONIC NOISE STANDARDS, NOR CAN IT BE MODIFIED OR RETROFITTED TO REDUCE ITS NOISE LEVEL. MR. CHAIRMAN, IT SEEMS TO US THAT PERMITTING THE INTRODUCTION OF THE CONCORDE OR ANY OTHER AIRCRAFT TYPE THAT CANNOT PRESENTLY MEET OR CANNOT BE MODIFIED TO MEET NOISE STANDARDS IS COUNTER TO THE THRUST OF THE NATIONAL NOISE ABATEMENT EFFORT.

WE BELIEVE THE PUBLIC OPINION SURVEYS CONDUCTED AT DULLES WILL NOT PROVIDE RELIABLE INFORMATION ON THE PUBLIC RESPONSE TO THE CONCORDE SUPERSONIC AIRCRAFT OPERATIONS BECAUSE OF PROBLEMS WITH THE SURVEY'S SAMPLING PLAN, QUESTIONNAIRE DESIGN AND APPLICATION, AND THE CODING AND PROCESSING OF THE QUESTIONNAIRE RESPONSES. BECAUSE OF THESE PROBLEMS, AND THE RESULTANT DIFFICULTY OF INTERPRETING THE RESULTS, WE QUESTION THE VALIDITY OF THE COMMUNITY RESPONSE SURVEYS AND WOULD NOT RECOMMEND USING THE RESULTS IN THE FORMULATION OF POLICY TOWARDS THE CONCORDE.

HOWEVER, WE BELIEVE THAT THE NUMBER OF VOLUNTARY CONCORDE COMPLAINTS RECEIVED DURING THE TRIAL PERIOD INDICATE A GENERAL NEGATIVE RESPONSE BY THE PUBLIC TO THIS AIRCRAFT. THE NUMBER

OF NOISE COMPLAINTS AT DULLES INCREASED SIGNIFICANTLY DURING THE CONCORDE TRIAL PERIOD.

THE LARGE NUMBER AND TYPE OF COMPLAINTS ABOUT CONCORDE NOISE IS QUITE SIGNIFICANT. ALTHOUGH CONCORDE OPERATIONS ACCOUNTED FOR LESS THAN ONE PERCENT OF THE TAKE-OFFS AND LANDINGS AT DULLES, IT RESULTED IN 1,387 COMPLAINTS OR 79 PERCENT OF THE TOTAL NOISE COMPLAINTS RECEIVED. OTHER STUDIES HAVE SHOWN THAT THE CONCORDE COMPLAINTS RESULTED FROM ACTUAL EXPOSURE TO THE CONCORDE RATHER THAN FROM OTHER, LESS DIRECT, INFLUENCES. THE GREATEST PERCENTAGE OF CONCORDE COMPLAINTS CONCERNED TAKE-OFF--WHICH IS CONSISTENT WITH THE CONCORDE NOISE CHARACTERISTICS. ALTHOUGH THE NUMBER OF CONCORDE OPERATIONS WERE MINIMAL, THE NUMBER OF COMPLAINTS DID NOT DECREASE AS THE TRIAL CONTINUED AND WERE SIGNIFICANT ENOUGH, IN OUR OPINION, TO INDICATE A NEGATIVE RESPONSE BY THE COMMUNITY.

SINCE THE INITIAL APPLICATION BY THE BRITISH AND FRENCH FOR CONCORDE OPERATING RIGHTS INTO THE UNITED STATES, MANY LEGAL AND ADMINISTRATIVE ACTIONS HAVE BEEN TAKEN. BOTH THE FEDERAL AVIATION ADMINISTRATION AND THE ENVIRONMENTAL PROTECTION AGENCY HAVE EITHER PROPOSED OR STATED THEIR INTENTIONS TO PROPOSE NOISE REGULATIONS FOR SUPERSONIC AIRCRAFT. THE SECRETARY OF TRANSPORTATION ESTABLISHED A 16-MONTH TRIAL PERIOD AT DULLES AND JOHN F. KENNEDY INTERNATIONAL AIRPORTS TO OBTAIN DATA NECESSARY FOR DETERMINING WHETHER OR NOT THE CONCORDE SHOULD BE PERMITTED TO OPERATE IN THE UNITED STATES ON A PERMANENT BASIS.

THE CONCORDE HAS BEEN LANDING AT DULLES--A GOVERNMENT OWNED AIRPORT--SINCE MAY 24, 1976. HOWEVER, THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY, THE OPERATOR OF JFK, BANNED THE CONCORDE FROM LANDING BECAUSE OF ITS HIGHER NOISE LEVELS AND LOW FREQUENCY VIBRATIONS. THE BRITISH AND FRENCH AIRLINES SUBSEQUENTLY FILED SUIT TO INVALIDATE THE BAN. ALTHOUGH THERE HAVE BEEN DECISIONS, SUBSEQUENT REVERSALS, AND LATER APPEALS, THE LEGAL ISSUES HAVE NOT YET BEEN RESOLVED.

THE ISSUE OF SUPERSONIC AIRCRAFT NOISE REGULATIONS IS LIKEWISE NOT RESOLVED. WE UNDERSTAND THAT FAA HAS PREPARED A NOTICE OF PROPOSED RULEMAKING CONCERNING SUPERSONIC AIRCRAFT AND WILL ISSUE IT IN THE NEAR FUTURE. TO DATE WE HAVE NOT BEEN PROVIDED A COPY FOR OUR ANALYSIS.

THE SECRETARY OF TRANSPORTATION IN HIS DECISION PERMITTING A 16-MONTH TRIAL PERIOD FOR THE CONCORDE SAID THAT "THE UNIQUE CHARACTERISTICS OF CONCORDE NOISE AND THE PUBLICITY THAT HAS SURROUNDED ITS ADVENT MAY WELL AGGRAVATE THE COMMUNITY'S RESPONSE TO THIS SOURCE OF NOISE." THE SECRETARY ADDED THAT THE COMMUNITY REACTION TO CONCORDE NOISE WOULD BEST BE EVALUATED THROUGH A CONTROLLED DEMONSTRATION PERIOD AFTER THE INITIAL PUBLICITY HAS SUBSIDED. DOT, EPA, AND NASA WORKED WITH THE FAA IN THE DEVELOPMENT OF A MONITORING TEST PLAN. KEY ELEMENTS OF THE PLAN CONSISTED OF THE FOLLOWING:

- PUBLIC OPINION SURVEYS CONDUCTED BY A SERIES OF TELEPHONE INTERVIEWS WITH RESIDENTS IN THE DULLES AREA.
- MONITORING OF VOLUNTARY COMPLAINTS RECEIVED ABOUT

CONCORDE OPERATIONS.

- MONITORING AND RECORDING ACTUAL NOISE LEVELS AT DULLES AND SURROUNDING COMMUNITIES.
- RECORDING STRUCTURAL VIBRATION TO DETERMINE THE EFFECTS (IF ANY) OF LOW FREQUENCY NOISE FROM CONCORDE.
- ANALYSIS OF THE TYPE AND EXTENT OF MEDIA COVERAGE OF THE CONCORDE.

THE PUBLIC OPINION SURVEYS CONSISTED OF THREE SEPARATE TELEPHONE INTERVIEWS OF SELECTED RESIDENTS NEAR DULLES. THE INTERVIEWS WERE HELD AT THREE POINTS IN TIME, ONCE BEFORE THE START OF CONCORDE OPERATIONS, ONCE AFTER APPROXIMATELY 6 MONTHS OF EXPOSURE, AND AGAIN AFTER A YEAR OF OPERATION. THE FIRST SURVEY WAS TO BE USED AS BASELINE DATA FOR MEASURING THE EXTENT OF ANY CHANGE IN COMMUNITY ATTITUDES AS A RESULT OF CONCORDE OPERATIONS.

BASED ON OUR REVIEW, WE BELIEVE THE PUBLIC OPINION SURVEYS AT DULLES WILL NOT ACHIEVE THE ORIGINALLY INTENDED OBJECTIVES OF DETERMINING THE COMMUNITY AWARENESS OF CONCORDE NOISE AND WHETHER THESE ATTITUDES CHANGED AS A RESULT OF ACTUAL CONCORDE OPERATIONS. FOR THE SAKE OF BREVITY I WILL DISCUSS ONLY A FEW OF THE PROBLEMS WITH THE SURVEYS. FOR EXAMPLE, THE SAMPLING PLAN EXCLUDED ABOUT 18 PERCENT OF THE POPULATION IN THE AREA TO BE SURVEYED BECAUSE THEIR TELEPHONES, IF ANY, WERE NOT LISTED IN THE DIRECTORY. CERTAIN QUESTIONS WERE WORDED SUCH THAT IT IS DIFFICULT TO DETERMINE WHAT THE RESPONSES ACTUALLY MEAN. AND FINALLY, THE TELEPHONE INTERVIEWERS FOR THE FIRST

SURVEY WERE PROVIDED WITH A TWO AND ONE-HALF HOUR TRAINING SESSION, A BRIEF INSTRUCTION MANUAL, AND WERE NOT INSTRUCTED TO GUARANTEE THE CONFIDENTIALITY OF THE RESPONDENTS.

THE COMPLAINT MONITORING PHASE ALLOWED THE PUBLIC TO EXPRESS ITS VIEWS ABOUT THE CONCORDE OPERATIONS AT ITS CONVENIENCE. AN EXISTING TELEPHONE NUMBER AT DULLES, THE "SOUND COMPLAINT CENTER", WAS PUBLICIZED AS THE NUMBER TO CALL TO VOICE COMPLAINTS ABOUT THE CONCORDE OPERATIONS. TO MAINTAIN CONTINUITY BY USING A KNOWN TELEPHONE NUMBER. AND TO PROVIDE ASSURANCES THAT COMPLAINTS WERE BEING COLLECTED IMPARTIALLY, A PRIVATE CONTRACTOR WAS HIRED TO ANSWER THE TELEPHONE AND RECORD THE COMPLAINTS.

THE NUMBER OF NOISE COMPLAINTS RECEIVED AT DULLES INCREASED SIGNIFICANTLY DURING THE CONCORDE TRIAL PERIOD. FROM A THREE-YEAR TOTAL OF 77 COMPLAINTS RECEIVED PRIOR TO THE TRIAL PERIOD, A TOTAL OF 1,762 WERE RECEIVED DURING THE FIRST 12 MONTHS OF CONCORDE OPERATIONS. OF THESE, 1,387 OR 79 PERCENT WERE CONCORDE COMPLAINTS. THIS IS EVEN MORE SIGNIFICANT CONSIDERING THAT THE CONCORDE ACCOUNTED FOR LESS THAN ONE PERCENT OF THE TOTAL TOWER OPERATIONS AT DULLES.

THE COMPLAINTS WERE RECORDED BY THE CONTRACTOR, ANALYZED, AND INCLUDED IN THE MONTHLY MONITORING REPORTS PREPARED BY FAA FOR PUBLIC RELEASE. WE RANDOMLY SELECTED FOUR MONTHS OF FAA COMPLAINT DATA FOR DETAILED ANALYSIS. BASED ON THIS ANALYSIS WE BELIEVE THE COMPLAINTS HAVE BEEN ACCURATELY RECORDED AND

CATEGORIZED, AND THAT THE COMPLAINT DATA IN THE MONTHLY REPORTS IS RELIABLE.

AN ANALYSIS OF THE CONCORDE COMPLAINTS SHOWED THAT THE GREAT MAJORITY (77 PERCENT) CONCERNED DEPARTURE NOISE, VERSUS APPROACH NOISE (23 PERCENT). SINCE THE CONCORDE IS CONSIDERABLY LOUDER ON TAKE-OFF THAN CONVENTIONAL SUBSONIC JET AIRCRAFT, THIS IS CONSISTENT WITH ITS NOISE CHARACTERISTICS.

ALTHOUGH THERE WAS A TOTAL OF 1,387 SEPARATE COMPLAINTS ABOUT CONCORDE NOISE, MANY INDIVIDUALS COMPLAINED ABOUT MORE THAN ONE ADVERSE EFFECT. THE AGGREGATE NUMBER OF COMPLAINTS WERE 2,038. OF THIS TOTAL, 56 PERCENT OF THE COMPLAINTS CONCERNED EXCESSIVE NOISE AND 23 PERCENT CONCERNED STRUCTURAL VIBRATIONS.

THE MEDIA CONTENT ANALYSIS WAS DESIGNED TO MONITOR THE QUANTITY AND CHARACTERISTICS OF MASS MEDIA INFORMATION AVAILABLE TO THE PUBLIC CONCERNING THE CONCORDE TRIAL PERIOD. FAA BELIEVED THIS ANALYSIS COULD BE USED AS AN INDIRECT ASSESSMENT OF PUBLIC REACTION TO THE CONCORDE TRIAL PERIOD. SIXTEEN NATIONAL AND LOCAL MEDIA OUTLETS WERE SELECTED FOR MONITORING CONCORDE ARTICLES PUBLISHED OR BROADCAST. THE MEDIA OUTLETS WERE FOUR MAJOR NEWSPAPERS, THREE NATIONAL TELEVISION NETWORK NEWS PROGRAMS, TWO LOCAL TELEVISION NEWS PROGRAMS, AND SEVEN MAGAZINES. BASED ON ITS ANALYSIS OF THE MEDIA DATA, THE CONTRACTOR CONCLUDED THAT THE CONCORDE IS PERCEIVED AS A LOCAL AS WELL AS A NATIONAL ISSUE. IN ADDITION, THE ANALYSIS OF THE 16 MEDIA OUTLETS SHOWED THAT THE COVERAGE OF THE CONCORDE DURING THE TRIAL PERIOD WAS

GENERALLY MORE NEGATIVE THAN POSITIVE. THE CONTRACTOR ALSO CONCLUDED THAT THE VOLUNTARY CITIZENS' COMPLAINTS ABOUT CONCORDE LARGELY RESULTED FROM ACTUAL EXPOSURE TO THE CONCORDE AND WERE NOT UNDULY INFLUENCED BY NEWSPAPERS, MAGAZINES OR NEWS STORIES.

THE PHYSICAL NOISE MONITORING SYSTEM AT DULLES CONSISTED OF BOTH MOBILE AND FIXED MONITORS. AFTER A YEAR OF CONCORDE OPERATIONS, THE NOISE LEVELS RECORDED DURING THE TRIAL PERIOD CLOSELY APPROXIMATED THOSE IN THE SEPTEMBER 1975 ENVIRONMENTAL IMPACT STATEMENT. AT THAT TIME IT WAS ESTIMATED THE PERCEIVED LOUDNESS OR NOISINESS OF THE CONCORDE UNDER THE TAKE-OFF FLIGHT PATH WOULD BE DOUBLE THAT OF A BOEING 707, FOUR TIMES THE NOISINESS OF A BOEING 747, AND EIGHT TIMES AS LOUD AS A MCDONNELL DOUGLAS DC-10.

IT IS APPARENT FROM THE RECORDED NOISE LEVELS THAT THE CONCORDE IS SIGNIFICANTLY NOISIER ON TAKE-OFF WHEN COMPARED WITH THE NOISE OF CONVENTIONAL SUBSONIC AIRCRAFT. THE DIFFERENCE IN ARRIVAL NOISE LEVELS FOR ALL THE AIRCRAFT, HOWEVER, IS NOT AS SIGNIFICANT.

ALTHOUGH THE CONCORDE IS SIGNIFICANTLY NOISIER THAN SUBSONIC AIRCRAFT, IT SHOULD BE NOTED THAT ONLY ABOUT 21 PERCENT OF EXISTING SUBSONIC AIRCRAFT MEET EXISTING NOISE STANDARDS.

STUDIES ON LOW FREQUENCY NOISE VIBRATIONS DURING THE DULLES TEST PERIOD WERE CONDUCTED BY NASA AT SULLY PLANTATION NEAR DULLES AND AT SELECTED RESIDENCES IN MARYLAND. IN A

DRAFT REPORT SUMMARIZING THE RESULTS OF THESE STUDIES, NASA CONCLUDED THAT ALTHOUGH LOW FREQUENCY NOISE VIBRATIONS GENERATED BY THE CONCORDE WERE GREATER THAN THOSE OF SUBSONIC AIRCRAFT THEY WILL NOT RESULT IN STRUCTURAL DAMAGE.

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ON AUGUST 4, 1977, THE COMPTROLLER GENERAL WAS ASKED BY SEVERAL MEMBERS OF CONGRESS, INCLUDING YOU, MR. CHAIRMAN, TO COORDINATE AND MONITOR EFFORTS AMONG NASA, DOT, AND EPA IN THEIR ATTEMPTS TO DEVELOP A STANDARD FOR THE LOW-FREQUENCY VIBRATION AND RATTLE EFFECT OF THE CONCORDE.

IN A MEETING CONVENED BY GAO ON AUGUST 16, 1977, BETWEEN REPRESENTATIVES OF THESE AGENCIES AND THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY, EACH AGENCY AGREED TO REVIEW THE LOW-FREQUENCY NOISE STUDIES PREPARED BY THE PORT AUTHORITY'S CONSULTANT AND TO OFFICIALLY REPLY TO US BY SEPTEMBER 16, 1977. THE INVOLVED AGENCIES AGREED TO DECIDE WHAT EACH COULD USEFULLY DO IN THE DEVELOPMENT OF A LOW-FREQUENCY VIBRATION INDEX, PROVIDED IT IS DETERMINED THAT SUCH AN INDEX IS NEEDED. WE WILL KEEP THE SUBCOMMITTEE APPRISED OF THESE EFFORTS.

MR. CHAIRMAN, THIS CONCLUDES MY PREPARED STATEMENT. WE SHALL BE GLAD TO RESPOND TO ANY QUESTIONS YOU OR MEMBERS OF THE SUBCOMMITTEE MAY HAVE.