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This work was accomplished in cooperation with the U. S. Department of Transportation, Federal Highway Administration.

16. ABSTRACT

The effectiveness of a truck-mounted ionized, water-surfactant fog dispersal technique was evaluated under controlled conditions. The amount of time required for an untreated fog in a chamber to attain a reference visibility (450 feet as estimated by a human observer) was compared to the time required for a treated fog to reach the same reference visibility.

The time required to reach 450 feet in the untreated fog was not significantly different than the time required to reach 450 feet with any of the contractor's applications of dispersal treatment. Based on these data, it was concluded that the fog dispersal technique used by the Contractor did not demonstrate effectiveness in dispersing fog in a controlled environment.

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STATE OF CALIFORNIA—BUSINESS AND TRANSPORTATION AGENCY

RONALD REAGAN, Governor

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
TRANSPORTATION LABORATORY
5900 FOLSOM BLVD., SACRAMENTO 95819

July 1973

TL 657128
FHWA B-4-4

Mr. R. J. Datel
State Highway Engineer

Dear Sir:

Submitted herewith is a final research project report titled:

EVALUATION OF A METHOD OF

FOG DISPERSAL BY IONIZATION

By

Gerald R. Bemis, P.E. and Kenneth O. Pinkerman
Co-Investigators

Earl C. Shirley, P.E.
Principal Investigator

Under the Supervision of
John B. Skog, P.E.

Very truly yours,

JOHN L. BEATON
Laboratory Director

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ACKNOWLEDGMENT

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The contents of this report reflect the views of the Transportation Laboratory which is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

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NOTATION AND DEFINITIONS

Natural Decay - The time required for the visibility in the fog chamber to improve from 80 feet to 450 feet when observed by a human observer.

Treaded Decay - The time required for the visibility in the fog chamber to improve from the initial visibility (40, 80, 160, or 320 feet) to 450 feet when observed by a human observer, when one of the four types of treatment is used.

Counts - The number of electrical pulses activating the valves which inject fog into the chamber. Measured during the 3 minute conditioning period.

A - A statistically derived factor which related counts to decay (both natural and treated).

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INTRODUCTION

Fog has been a persistent problem for automotive and airborne traffic for many years. It can be a particularly serious hazard in many places in the State of California, especially where discrete pockets of very dense "radiation" fog form in the Central Valley. As a result, considerable thought and effort has been given to ideas and devices designed to improve traffic safety.

Over the past years the Division of Highways has met with various companies interested in providing solutions to the fog-related accident problem. One such meeting led to a contract between the Division of Highways Maintenance Branch and World Weather, Incorporated, of Sacramento during February and March of 1972. World Weather operated fog dispersal equipment mounted on a truck in an effort to improve visibility within the highway corridor. The results of this study were inconclusive (1) but it was recommended that further attempts be made to explore the feasibility of this technique under controlled conditions. This report describes research undertaken by the Transportation Laboratory in monitoring a fog dispersal operation conducted by World Weather, Incorporated, at the National Aeronautics and Space Agency (NASA) fog chamber in Richmond, California, during January of 1973.

CONCLUSIONS

The ability to disperse fog was not demonstrated by the contractor during this period of study.

EXPERIMENTAL TECHNIQUE

Fog Chamber

In an effort to obtain a controlled environment, arrangements were made to use the NASA fog chamber at Richmond, California. This facility is approximately 1000 feet long and 33 feet wide, with the roof height varying from about 15 feet to 27 feet in

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