MIKE THOMPSON
1ST DISTRICT, CALIFORNIA

COMMITTEES:
AGRICULTURE
BUDGET
TRANSPORTATION AND INFRASTRUCTURE

CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515

DISTRICT OFFICES:
1040 MAIN STREET, SUITE 101
NAPA, CA 94559
(707) 226-9898

317 THIRD STREET, SUITE 1
EUREKA, CA 95501
(707) 269-9595

POST OFFICE BOX 2208
FORT BRAGG, CA 95437
(707) 962-0933

712 MAIN STREET, SUITE 1
WOODLAND, CA 95695
(530) 662-5272

CAPITOL OFFICE
119 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-3311

WEB http://www.house.gov/mthompson/

October 9, 2003

Ms. Rosalind Ruth Peterson
PO Box 499
Redwood Valley, California 95470

Dear Ms. Peterson:

You were one of several people who had contacted me regarding the number of contrails lingering in the skies over Mendocino and Lake Counties. Many of you were concerned that these phenomena may be caused by government testing of biological or chemical agents or by weather modification experiments conducted by the government.

I asked for your patience while I contacted government, academic, health care and industry experts in an effort to determine why contrails seemed to be more prevalent on the North Coast now than they were several years ago and what impact, if any, these contrails could have on our environment. I thank you for your patience and I would like to now share my findings with you.

Contrails:

Condensation trails, or contrails, are produced by aircraft engine exhaust. Contrails are mostly water, but also may contain carbon dioxide, nitrogen oxides, hydrocarbons, carbon monoxide, sulfur gases, soot and metal particles that are emitted by the aircraft.

There must be suitable weather conditions immediately behind a jet engine for a contrail to form: high humidity and cool air. The high humidity will cause water in the engine exhaust to condense on either the exhaust gases or other particles already existing in the atmosphere. If the air temperature is cold enough, these water droplets will freeze and form the ice particles that become a contrail.

If humidity is on the low side, the contrail will be short lived. If the humidity is high, the contrail will persist as the newly formed ice particles absorb water from the surrounding atmosphere. These persistent contrails can be quite large and can last for hours. Air turbulence can cause them to spread and disperse so that they resemble cirrus clouds or take on unusually shapes. Numerous airplanes passing through an area on established flight paths can all produce contrails that criss-cross one another in the typical and sometimes alarming checkerboard pattern. This all, in turn, can turn the sky hazy, a feature many of you have commented on.

These contrails, consisting as they do of ice particles, can also reflect light in the sky, causing some of the unusually colorations in some of the photos that have been sent to me.

Contrails can only develop between 25,000 and 30,000 feet and will completely evaporate before reaching ground level.

Contrails do contribute to both warming and cooling changes in the earth's temperature. Jet fuel produces greenhouses gases in engine exhaust that, taken together with other greenhouse gases, contributes to warming the lower atmosphere and the earth's surface. On the other hand, contrails have a higher density of ice crystals than natural cirrus clouds and persistent contrails can, therefore, decrease the amount of solar radiation reaching the earth's surface, thus making it cooler.