

GUEST COMMENTARY

Remote sensing could deliver cleaner air at

By Donald Stedman

Clean air is important to those of us living on the Front Range: breathing fresh Rocky Mountain air is one of the biggest benefits around.

It's so important that people seem to be willing to pay for better air quality. Currently, the state is attacking the problem through a mandated auto emissions testing program and the use of oxygenated fuel during four months of the year.

But if we could have the same level of pollution reduction at a lower cost to both state government and individual car owners, wouldn't everyone prefer that? Technology now exists to do just that. We could replace annual emissions tests for all, with more frequent roadside testing that would catch the very worst polluting cars but not require owners of new or well-tuned cars to submit to the expensive annual ritual.

In addition, cleaning up the worst 10 percent of the cars in the region by itself would be as effective in reducing the amount of air pollutants as requiring drivers of all cars to burn oxy-fuels four months a year.

major factor in the difference is the weather; more air stagnation episodes are occurring in Las Vegas and fewer in Denver.

Although the weather is the major cause of the dramatic variation in air quality from day to day and year to year, we have no control over the weather.

But, we can potentially have some control over the emission sources. For carbon monoxide, automobiles are the biggest source. Just over a year ago there was proposed legislation in the state Legislature to require the citizens of Teller County who drive into Colorado Springs to take the same annual emissions test that the eastern El Paso County residents undergo.

In an extraordinarily innovative approach, the then-environmental manager of the Colorado Springs Utilities, Ron Ostop, suggested that we should find out if the legislation would be beneficial before it was brought into law.

The University of Denver remote sensor for on-road carbon monoxide emissions was brought down and used in the Ute Pass Road area for local testing.

In a few days in January of 1989, with considerable help from the Department of Highways and the Department of Utilities, we measured 1,155 vehicles that had current state-mandated annual inspection stickers and 3,386 without.

The federal computer model which is used to justify the current legislation predicts a difference in harmful emissions of 30 percent between those that have passed the inspection and had stickers and those vehicles without stickers. This prediction increases to a 50 percent difference if all the El Paso County registered vehicles had been using the required oxygenated fuels and those in Teller County were not.

Despite those projections, we measured a difference of less than 3 percent between the two groups. In other words, the uninspected vehicles produced just 3 percent more pollutants than those that had passed inspection. We also showed that half the carbon monoxide pollution comes from less than 10 percent of the vehicles, cars we call gross polluters.

These gross polluters were not new cars (1988 and 1989) but were by no means all old.

Fully 75 percent of the oldest cars (1974 model year and older) had emissions measurements falling within the clean category. These results and the accuracy of our instrument have been confirmed by further tests in Denver, Illinois, California and with the EPA in Las Vegas.

At the time of the measurements the results were met with considerable scepticism by clean air officials, as exemplified by the Rocky Mountain News headline, "State pooh-poohs auto emissions study."

Now, our legislators in Washington are debating whether to require us to spend a great deal of money on a new Clean Air Act which is based on the fallacy that further tightening of new vehicle standards will be important.

The mayor of Denver proposed having all the 1974 and older vehicles take an emission test twice each year. That proposal was, fortunately, withdrawn. The citizens of the Pikes Peak region already are paying about \$1 million annually for oxygenated fuels. These costs arise from lost gas mileage and the increased cost of the fuel. Not included are the

costs of more frequent carburetor repairs and in-tank fuel pump replacements.

The state does not consider these costs in its estimates, although the increased service costs might be large. The citizens are paying an additional \$1 million for the annual emissions testing, not including the cost of the time and inconvenience of the owner.

The cost-effective alternative is to eliminate the annual test, eliminate the oxygenated fuels and, instead, spend the same dollars to clean up the dirty vehicles.

Such a program is feasible. For the purposes of calculation assume that there are 200,000 vehicles in the Pikes Peak region. Suppose that each vehicle owner pays \$10 for "air pollution insurance" with registration instead of the cost of annual testing and oxygenated fuels. Two mobile remote sensors would measure each vehicle an average of six times per year.

Vehicles which drive many miles in the local area will be measured more frequently. This is appropriate since the gross polluters among them are the vehicles which are most re-

At the University of Denver we have developed a mobile emissions sensor that subse-

quent testing has proven efficient in detecting the gross polluters among the cars that pass by. The House version of the Clean Air Act now before Congress contains a provision in-

structing cities that do not meet pollution standards to mix stationary emissions testing with on-road remote sensing.

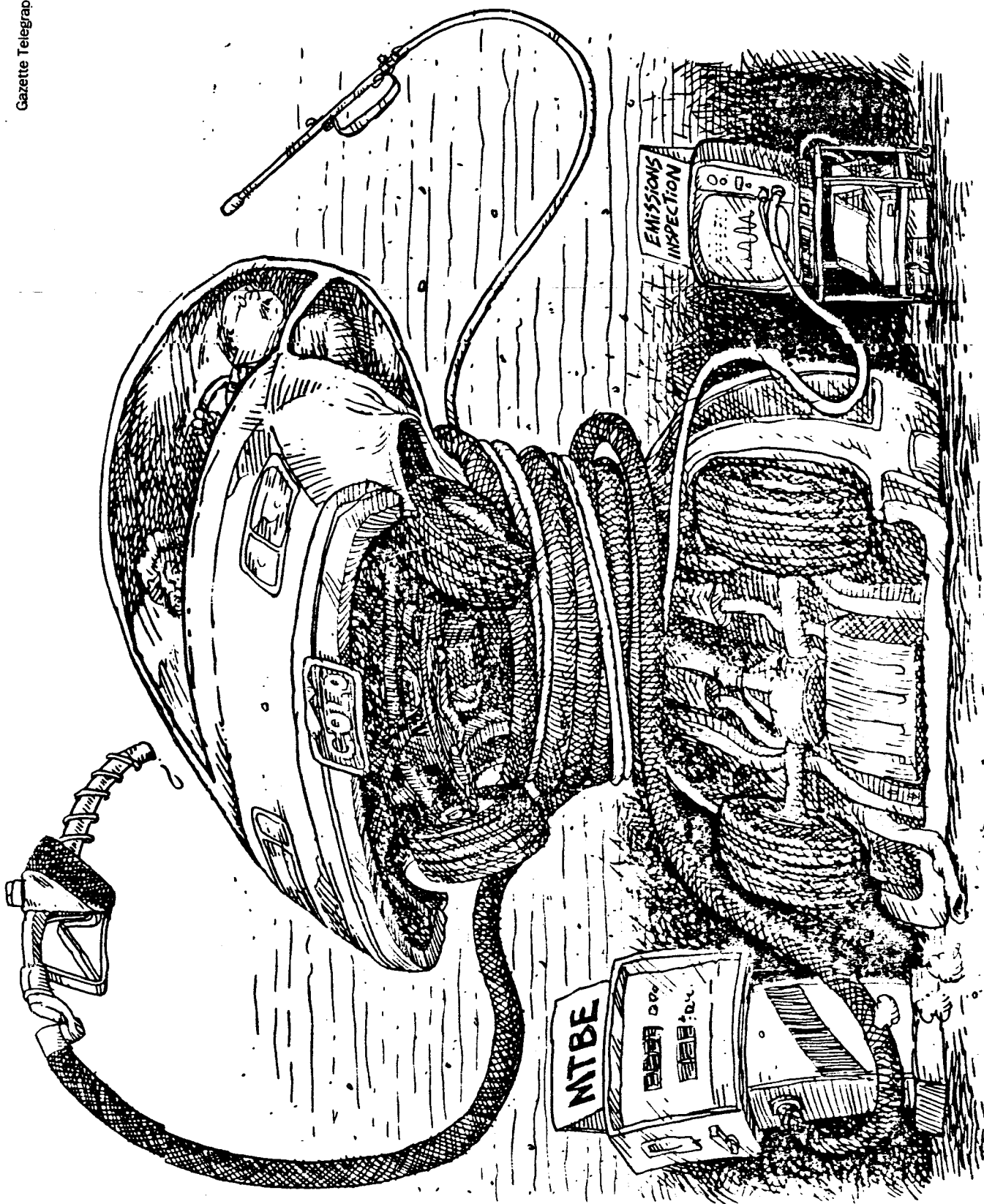
In Colorado Springs, the official response wasn't as positive, to say the least. In early January the chairman of the local Clean Air Task Force subcommittee suggested that I should visit Colorado Springs to discuss my ideas about how the area could achieve cleaner air and yet eliminate oxygenated fuels and annual automobile testing.

A few days before the meeting, the invitation was withdrawn by others on the committee. Colorado Springs residents might be interested in the data I would have presented to the committee.

The Pikes Peak area has two sensors for carbon monoxide. One is at Uintah and I-25, the second on South Tejon. For the last several years the readings from these two sensors have hovered around the federal standard; sometimes both above, sometimes both below.

The statistical readings place Colorado Springs between Denver, where the number of violations has been going down, and Las Vegas, Nev., where the number of violations has been going rapidly up. All three areas have annual emission tests, oxygenated fuels, and an

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responsible for the local pollution. Remote sensing costs 50 cents per test; 1.2 million tests would cost \$600,000. Issuing citations to the dirtiest 10 percent might cost \$2 per citation or \$40,000 total.

Setting up a municipal centralized testing station with full testing capability including a dynamometer might cost as much as \$360,000. Despite these set-up charges, approximately \$1 million would remain annually.

That remaining money could be spent to clean the dirty cars by giving their owner citations for gross polluting vehicles reading:

"Your vehicle (... make, model, license plate number, etc. ...) was measured twice emitting high concentrations of carbon monoxide. You have an opportunity to contribute to clean air and to improve your gas mileage substantially. Enclosed is a voucher for \$50, redeemable during the next 30 days, good for half the cost of parts or service related to automobile emissions; redeemable only at the service station of your choice, and redeemable only if you have not tampered with your emissions system. Current state law mandates that vehicles which have been tampered with must be repaired at the owner's expense."

Our scenario includes allowing the vehicle owner 30 days to comply. If the screening again finds the car to be a gross polluter after the 30-day period, the owner will be required to submit it to the municipal centralized test station where the problems with the car will be diagnosed. The owner will be required to rectify the problems and return for a re-test or remove the vehicle from service.

There are other possible ways to develop similar programs. We believe that such concepts allow for reasonable flexibility on the part of the owner, with a strong incentive to service all vehicles to avoid being gross polluters when driving on the road.

We have made the technology available for such programs to be imagined. It is up to innovative citizen groups and legislators to develop the best implementation.

One of the attractive aspects of any remote sensing program is that the remote sensing data itself can be used to determine, on an annual basis, whether the programs are actually working.

It is one thing to hear our proposals and reject them. It's another to decide on such an expensive program that affects so many without any consideration of the research done at the University of Denver. Citizens who agree should contact members of the task force.

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