NEW WORLD

AEC Plans Peaceful Explosion but Raises Anger

by our Washington Correspondent

The Atomic Energy Commission has announced that it will soon set off an underground nuclear explosion in a remote area of Colorado in an attempt to free natural gas trapped in a deep layer of sandstone. The blast is part of a programme to test the feasibility of using nuclear explosives to extract natural gas from deposits which cannot be worked economically by conventional means. But, in addition to several million cubic feet of slightly radioactive gas, the explosion is likely to bring to the surface a good deal of bitter controversy.

If all goes according to the Commission's plan, three nuclear explosives, each producing a yield of 30 kilotons, will be placed in a vertical line, about 450 feet apart, in the gas-bearing sandstone. They will be fired simultaneously, and the blasts are expected to produce cavities which will join to form a huge cylindrical cavern some 150 feet across and 1,300 feet high, filled with broken rock. The blasts will also smash the surrounding sandstone, releasing natural gas which will then flow into the cavern. The idea is to keep the gas sealed in the cavern for several months to allow short lived radioisotopes to decay. Some of it will then be brought to the surface, its radioactivity will be measured and it will be burned.

Called Rio Blanco, after the Colorado county in which it will take place, the test will be the third and the largest in the AEC's gas stimulation project, which is all that now remains of the Plowshare programme—a venture conducted jointly by the AEC and industry which is designed to find peaceful uses for nuclear weapons technology. The project may eventually lead to commercial production of natural gas by nuclear blasts, but at this stage it is entirely experimental.

The justification for going ahead with Rio Blanco, according to the AEC, is that all-embracing catchphrase "the energy crisis". Because natural gas contains very few pollutants, it is becoming more and more desirable for a variety of uses, but there is estimated to be only about 12 years' supply in workable deposits in the United States. In a deep layer of sandstone underlying the Rocky Mountain area, however, there is reckoned to be at least another ten years' supply but because the sandstone is relatively impermeable, just sinking a well will not release enough gas to make the effort worth while. Hence this attempt to make the sandstone more porous by smashing it up with nuclear explosives.

The Rio Blanco shot itself will be fired off sometime after March 31, in a sparsely populated region of Colorado called the Piceance Creek Basin. Although the AEC is at pains to point out that the test does not imply that there will definitely be further explosions in the area, if Rio Blanco is judged a complete success—the gas yield, radioactivity and structural damage caused by the seismic shock will all be taken into consideration—it would be followed by four or six more tests a couple of years later. The third and final testing stage would be a pilot programme

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AUTO EXHAUSTS

Standards in Doubt

by our Washington Correspondent

A COMMITTEE of the National Academy of Sciences reported last week that automobile manufacturers should be capable of producing automobiles by 1975 which meet the stiff emission control standards specified by the Clean Air Act. But its conclusion also carried some severe qualifications, and the committee is much more equivocal about the manufacturers' ability to produce cars which meet the even stiffer requirements for 1976 models. The Clean Air Act specifies that 1975 model cars must emit 90% less carbon monoxide and hydrocarbons than 1970 models and that by 1976, emission of oxides of nitrogen should also be cut by 90% when compared with 1971 models.

The NAS committee reported that four types of engine seem likely to meet the 1975 standards — conventional engines equipped with catalytic converters, the Wankel engine equipped with an exhaust thermal reactor, the diesel engine and the new carburetted stratified charge engine which is being developed chiefly in Japan. But the committee also believes that there must be provision in the act for one change of catalytic converter in the 50,000 durability testing and that for all the engines, emissions must be averaged during the tests. If these qualifications are allowed, the committee believes that the technology is available to meet the 1975 standards.

As far as the 1976 standards are concerned, however, the committee reports that although five different systems have been tested successfully at low mileage, all have failed after a few thousand miles, and there is considerable doubt about the manufacturers' ability to mass produce engines to satisfy the demand. The most promising engine to meet the 1976 standard seems to be the dual-carburetted stratified charge engine, which now seems to be cheaper, more dependable and more economical to run, but it is unlikely to be as readily available as conventional engines with a dual catalyst system. These conclusions have led the committee to warn that the American automobile industry seems to be putting most of its eggs into one basket by concentrating on catalytic converters, but the stratified charge system seems the best bet in the long run.

In a letter transmitting the report to Congress and to the Administrator of the Environmental Protection Agency, Dr Philip Handler, president of the National Academy of Sciences, points out that the cost of catalytic converters, combined with the extra costs associated with loss of mileage per gallon because of the emission controls, add up to a total annual expenditure for emissions control of about $2,700 million. This cost, he suggests, should be carefully weighed against the benefits, and its effect on such factors as GNP, balance of payments and so on should be carefully studied. In particular, he suggests that attention should be paid to the possibility of enforcing the emissions standards only in those areas "where air quality is known to be adversely affected by automotive emissions", and reserving national implementation until more reliable and less expensive emission control devices are available.

Automobile manufacturers have always maintained that emission control technology will not be available in 1975 to meet the standards imposed by the Clean Air Act, and they requested one year's delay in implementation of the controls. After a lengthy public hearing, however, Mr William D. Ruckelshaus, Administrator of the Environmental Protection Agency, denied their request. But a few days before the NAS committee published its report, a federal appeals court directed him to reopen the hearings.