

FEDERAL OIL SHALE PROGRAM

since in the oil shale application it is our intent to design the experiment (Project Bronco) so as to minimize the probability of getting radioactivity into the overlying aquifers. It will be necessary, of course, to determine the competency of the rock between the shot point and the aquifer, and to understand the local hydrology. Our only similar experience was in our Gnome experiment in December, 1961. Gnome was a 3-kiloton nuclear explosive detonated in a salt formation 1,200 feet beneath the earth's surface, about 25 miles southeast of Carlsbad, New Mexico. The groundwater above the salt formation was high in salt content, but no radioactivity was detected in the groundwater following the shot (either from neutron activation or leakage from the cavity) because of the surrounding competent medium.

With regard to water contamination, it is perhaps useful to note the Atomic Energy Commission's experience with groundwater at our Nevada Test Site (NTS) where hundreds of underground nuclear explosions have been detonated. The NTS groundwater provides the water supply for approximately 7,000 AEC and contractor personnel who daily live and/or work at the Site. Water use includes drinking, cooking, washing, and all normal pursuits for which water is necessary. Radiation levels of the water are low enough so that contamination is not a problem.

Finally, with regard to another question of Senator Allott as to the extent the Department of Interior controls the non-nuclear portion of the Gasbuggy project, I am enclosing a copy of a letter to the AEC dated December 1, 1966 from the Secretary of the Interior.

Thank you for the opportunity of providing this further information for the record.

Sincerely,

RICHARD HAMBURGER,
JOHN S. KELLY,

Director, Division of Peaceful Nuclear Explosives.

[Enclosure]

DEPARTMENT OF THE INTERIOR,
Washington, D.C., December 1, 1966.

Dr. GLENN T. SEABORG,
Chairman, U.S. Atomic Energy Commission,
Washington, D.C.

DEAR DR. GLENN SEABORG: Field work will begin soon on Project Gasbuggy, a joint Government-industry experiment to determine the feasibility of using nuclear explosives to stimulate production of natural gas from a reservoir of low productivity in the San Juan Basin, which has been approved by the Congress. Therefore, it is appropriate to clearly define the roles of the Department of the Interior in relationship to the Atomic Energy Commission.

As you know, there has been an active cooperative effort over a period of many years between the Atomic Energy Commission and agencies of the Department of the Interior, especially the Bureau of Mines and the Geological Survey. This cooperation has been especially active during the past few years in Plowshare applications research. Because of this, in July 1964 the Bureau of Mines was designated as the coordinating agency within the Department and was given the responsibility to conduct liaison with organizations outside the Department on all matters pertaining to Plowshare projects involving hydrocarbon production or storage. The proposed Gasbuggy experiment certainly will concern the Bureau of Mines, the Geological Survey, the Bureau of Land Management, the Bureau of Indian Affairs, and the Office of the Solicitor. Perhaps other Departmental agencies also will be affected.

We visualize the respective roles of the various Departmental agencies in the proposed experiment as follows:

The Bureau of Mines will continue to coordinate work within the Department and to conduct liaison with agencies and organizations outside the Department. In addition, the Bureau's technical personnel will participate actively in pre-shot and post-shot natural gas reservoir evaluations.

The Geological Survey will continue to provide geologic and ground-water hydrologic services and, with the Bureau of Land Management, assist in matters pertaining to use of Federal lands for the experiment. The Office of the Solici-