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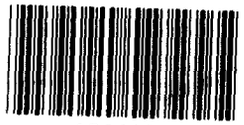
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STATEMENT OF
F. KEVIN BOLAND
SENIOR ASSOCIATE DIRECTOR
RESOURCES, COMMUNITY AND ECONOMIC
DEVELOPMENT DIVISION
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENT, ENERGY, AND
NATURAL RESOURCES
HOUSE COMMITTEE ON GOVERNMENTAL AFFAIRS

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Mr. Chairman, and Members of the Subcommittee:

We appreciate the opportunity to participate in this hearing on the proposed moratorium on further development of the Strategic Petroleum Reserve (SPR). As you know, during the last several years, we have been involved in reviewing many aspects of SPR development and the Department of Energy's (DOE's) management of this national resource. Our work is still continuing, with several reviews currently in progress. As appropriate, my testimony will draw on the experience and perspective gained from this effort, and specifically detail the most recent work completed in response to your February 25, 1985, letter to GAO.

Before discussing those results, I thought some background on the SPR would provide a useful perspective.

In 1975, the Congress authorized the development of a 1-billion-barrel reserve of petroleum products for use in the event of an oil supply disruption. The administration and the Congress eventually agreed that a 750-million-barrel reserve would be developed by 1990, deferring any decision on the remaining 250-million barrels until later.

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To achieve the 750-million-barrel goal, six storage sites were selected for development and oil fill. The Big Hill site, located in the Beaumont area, is the last of the six sites. As of February 25, 1985, nearly 460 million barrels of oil have been stored at the first five storage sites. The SPR remains the cornerstone of the administration's energy emergency preparedness program and the nation's major resource in the event of an oil supply disruption.

Since the start of the Big Hill development in 1983, a considerable amount of work has been done, including well drilling, surface construction, and equipment procurement. By the end of December, 1984, about $150 million, or 25 percent of the estimated cost of the site, had been spent, and DOE expects to spend an additional $25 million by the end of this September. At that time, DOE will have on site about $10 million worth of pipe and well casing and nearly $20 million worth of equipment such as pumps, motors, valves, and electrical, electronic, and telecommunication components.

Under the administration's proposed "indefinite moratorium" on SPR oil fill and development, DOE expects to defer the completion of storage facilities and oil fill at the SPR sites, including Big Hill, at the end of the fiscal year. You asked that we explore some of the issues related to stopping further site development at Big Hill.

Through site visits and discussions with DOE and contractor engineers and technicians familiar with all aspects of the SPR, we have been able to develop information on certain technical aspects

of site maintenance, storage, and cavern integrity during a shutdown, and the implications of an indefinite deferral. To the extent cost estimates for specific tasks were available, I have included them in the statement.

With this background in mind, Mr. Chairman, I will move into the results of our work.

POTENTIAL FOR ADEQUATE SITE MAINTENANCE

As I indicated earlier, by September 30, 1985, DOE will have nearly $10 million worth of piping and $20 million worth of equipment to place in standby condition and maintain over an indefinite period of time. Each of the specific components within these two broad categories of piping and equipment requires its own type and frequency of maintenance. DOE is aware of these maintenance requirements, and all are technically feasible.

For example, of the $10 million worth of piping, $3.4 million has been spent for on-site pipelines associated with the caverns, brine disposal ponds, and pump pads where most of the pumps are located. About one-half of this piping is underground. Since the buried pipelines are externally wrapped and will be cathodically protected from external corrosion, DOE's primary concern will be to ensure protection against internal corrosion. According to DOE engineers, this task is neither difficult nor very costly. It consists primarily of injecting chemical corrosion inhibitors into the pipelines.

The remaining $6.6 million of the $10 million was spent for well casing and pipeline stringers for the 14 caverns which will be created for oil storage space. The well casing and pipeline

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environment. Pumps, motors, and valves, however, either can be maintained in place with appropriate maintenance, or they can be dismantled and stored. Storage would require special care. For example, dismantled pumps and motors require storage in positions that place the least strain on bearings and shafts so that over time the bearings do not develop flat spots or the shafts do not become distorted. Also, smaller control units, such as those on motor-operated valves, do not have built-in heater units to keep the internal components dry and therefore, require special care to prevent deterioration leading to operational and maintenance problems.

DOE's decision either to maintain the site equipment in place or to dismantle and store it will be influenced by the availability of electric power to the site under standby conditions. The current contract for the stage I construction includes the electric substation designed to provide sufficient power for a fully operating site. If the installed equipment were to be left in place during standby, the substation would have to be energized in order to occasionally operate the electric motors, and supply power to heaters and air conditioning units. A 5-mile power line would also have to be built between the site and the raw water intake area. If the site equipment were to be dismantled and stored, engineers have indicated that the substation may not have to be energized and could be placed in a standby condition. Also, there would be no need for the additional power line.

Under its contract with DOE, the utility company supplying the power can assess annual demand charges regardless of how

little power is actually used to maintain the site. On the other hand, DOE would have to pay a penalty of up to $1.4 million if it terminates the contract before May 1, 1985. Also, DOE would not have access to power needed to adequately maintain the site equipment. DOE is currently discussing the power issue with its supplier to work out the most cost-effective way of meeting its power needs.

ADEQUACY OF STORAGE FACILITIES

In contrast to the development of the other SPR sites, a warehouse was constructed in the first stage of the Big Hill site development. Consequently, on-site storage space is already available for critical items of equipment requiring covered storage (such as the electronic controls), and for less critical items such as pumps, motors, and valves. However, if DOE decides to dismantle and store many of the items that need a controlled environment, additional air conditioning and heating capability may be required to adequately protect the equipment. The Big Hill warehouse as designed has only a small office and laboratory area that is temperature-controlled.

In addition to on-site warehouse storage at Big Hill, some of the equipment could be stored off-site, at least in the short term. For example, DOE has arranged with the supplier of the highly complex Distributive Load Center unit to store it until October 1, 1985, rather than deliver it to the Big Hill site on April 1 as scheduled. Also, DOE has modified its contract with a pump manufacturer to include a storage fee for holding 10 raw water injection and brine disposal pumps for up to 2 years rather

than deliver them to the site as scheduled. DOE told us that, if needed, commercial facilities are available that offer storage space that is temperature controlled.

PRESERVATION OF CAVERN WELLS AND PIPING

A normal characteristic of salt dome wells is the potential for the lower end of the wells to slowly close over time. This results from the pressure exerted by the soil and salt mass above the bottom of the well. A current concern of those responsible for cavern development at Big Hill is that unless precautionary measures are taken, the salt structure could close in around the free-hanging strings of pipe that are closest to the bottom of the wells and bind them to the point where they could not be pulled out. To properly leach the caverns, these strings of pipe must be free to be pulled up as the leaching progresses. As a result of observations and tests at other SPR sites, cavern specialists currently believe that "cavern creep," as it is called, would not become a problem at Big Hill for at least 5 years. A more definitive estimate of the likely time period is expected to result from measurements of well diameters that will be taken in October 1985 and analyzed by the Sandia Laboratory.

Two potential solutions to the problem are available to DOE. One is to remove the affected strings of pipe from the wells. If this were done, however, the pipe would either have to be discarded, since it would rapidly corrode if simply stored on site, or be taken off-site and thoroughly cleaned and treated to counteract the effects of being exposed to the brine solution. A second solution is to pump fresh water down the wells and leach

out a larger space around the strings of pipe to lengthen the time before the wells would close. Because raw water and brine disposal pipelines have not yet been provided, DOE would have to truck in the water needed and find some way to dispose of the brine solution formed.

PROBLEMS POSED BY AN INDEFINITE DEFERRAL

If Big Hill is to be placed on standby on September 30, 1985, decisions on how best to implement this are time-critical. The indefinite nature of the proposed deferral complicates the decision-making process. In this regard, two near-term decisions DOE must make are whether to continue or cancel the power contract and whether it would be cost-effective to dismantle the just-installed equipment and arrange storage or to maintain it in place. These decisions will have considerable influence on the cost and type of storage and maintenance programs selected.

Equipment warranty expirations are another potential problem. While warranties vary by manufacturer, SPR-type equipment usually carries a 1-year warranty. The starting point for the warranty period may differ, in some cases starting at the date of delivery and in other cases the date of installation. At this time, it is unclear what conditions and delays the manufacturers would deem acceptable for warranty purpose.

Another decision that DOE will face is the appropriate action to take on construction permits for the pipelines. While these are all currently in hand, they generally have time limitations of 2 or 3 years for performance. Extensions or new permits would have to be obtained to cover the actual facility development

period. According to the Corps of Engineers official responsible for obtaining the original permits, this requirement could result in lengthy delays.

To sum up Mr. Chairman:

--Within certain constraints, the task of placing the Big Hill site in a standby condition for a future restart is technically feasible. Short- and long-term maintenance is possible under a fully implemented, well-planned program. Adequate storage space could be made available, either on-site or through commercial sources, and the methodology for preserving the integrity of the cavern wells is available if needed.

--The total cost of placing Big Hill in standby is uncertain and would depend on which storage and maintenance options were exercised over an unknown period of time.

--Under the administration's indefinite moritorium policy, it is ditficult to envision how decisions on storage and maintenance of equipment at Big Hill can be made with assurance that the actions decided on will be cost-effective. This is particularly true of time-critical, interrelated decisions on such issues as the electric power contract, installation of site equipment under the current contract, and the appropriate method of maintaining the equipment.

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Mr. Chairman, this concludes my prepared statement. I will be happy to respond to any questions.

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