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BY THE COMPTROLLER GENERAL 110914

Report To The Congress

OF THE UNITED STATES

Interior Lacks Adequate Oversight Of Shut-In Or Flaring Natural Gas Wells On The Outer Continental Shelf

The Department of the Interior's methods allowing Outer Continental Shelf oil and gas wells to be shut-in (not producing) or to flare (burn off gas) are based primarily on operators' reports.

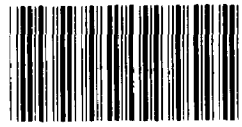
GAO reviewed and evaluated these methods as required by the OCS Lands Act Amendments of 1978. It concluded that Interior should improve its oversight role by

--verifying operator reports and the reasonableness of data supporting a shut-in,

--following up on operators' actions aimed at restoring a producible shut-in,

--following up on approved flarings to make sure they are conducted for only those periods and amounts permitted, and

--testing emergency flaring reports for possible excessive flaring.



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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This report, mandated by the Outer Continental Shelf Lands Act Amendments of 1978, describes the Department of the Interior's methodology used to allow Outer Continental Shelf wells to be shut-in or to flare natural gas and suggests ways to improve this Departmental function.

Copies of the report are being sent to the Secretary of the Interior; the Director, Office of Management and Budget; and the House and Senate committees and subcommittees having oversight and appropriation responsibilities for the matters discussed in this report.

Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

INTERIOR LACKS ADEQUATE OVERSIGHT OF SHUT-IN OR FLARING NATURAL GAS WELLS ON THE OUTER CONTINENTAL SHELF

D I G E S T

GAO found deficiencies in the Department of the Interior's methods used to allow Outer Continental Shelf (OCS) wells to be shut-in (not producing) or to flare (burn off natural gas), and in the completeness and accuracy of its first report to GAO.

These deficiencies which GAO found in its review, undertaken pursuant to the requirements of the Outer Continental Shelf Lands Act Amendments of 1978, included:

--Allowing wells to be shut-in based primarily on summary data reported by OCS operators without (1) verifying its reasonableness, (2) indicating the Secretary's intentions requiring production of shut-in wells or ordering the cessation of flaring natural gas, or (3) a followup program to assure timely restoration of production or the cessation of flaring operations. (See pp. 4 and 8.)

--Allowing the flaring of natural gas without a followup to make sure it is for only the specified periods and amounts and without verification of any emergency (short-term) flaring reports for excessive flaring. (See pp. 18 and 19.)

--Failure to identify shut-in well completions with future production potential. GAO found that 172 of 3,300 shut-in well completions categorized as "no future utility" had potential for future production and for the remainder (about 3,100) the Department should review for possible removal of useless structures or equipment. (See pp. 12 and 14.)

EMD-80-3

RECOMMENDATIONS

The Secretary of the Interior, in order to enhance OCS production and improve the methods used to allow OCS wells to be shut-in or to flare natural gas, should begin

--testing reports of shut-in well completions by OCS operators to assure the reasonableness of the data supporting the shut-in and its conformity with departmental objectives;

--testing approved long-term flarings to assure that the flaring conducted is for only those amounts and periods permitted by the statute and revised regulations;

--testing reports of short-term (emergency) flaring for excessive flaring; and

--implementing a followup program to verify that (1) the operator has initiated the corrective work needed to restore a shut-in well as and when planned, and (2) the approved flaring of natural gas ceased when scheduled or an extension, where justified, was issued.

The Secretary of the Interior should improve his report and make it a more useful document by including the following in future reports:

--A statement of the Department's method used to allow OCS wells to be shut-in and to flare natural gas.

--A listing, by separate category, of all wells, well completions, and wellbores with production potential and state whether production will be required by the Department and when the production can be expected.

--A listing of each well completion flaring natural gas under an approval and indicate whether the cessation of the flaring is ordered by the Department and when the cessation order will take effect.

--The date of last oil or gas production from a shut-in well.

--The estimated production rate before the well became shut-in.

--Whether the shut-in well is in a group of producing wells or within a group of nonproducing wells.

--A recap of the shut-in wells by the problem category with a further breakdown by primary shut-in reason.

--The date approved flaring began for wells flaring natural gas.

--The total amount of gas flared for those approved flarings listed in the report.

--The estimated date the approved flaring well will stop its flaring operations, or the expiration date of the approval.

The Secretary of the Interior should take the necessary action to remove, where feasible, the idle and useless structures and/or equipment from the OCS by

--reviewing the circumstances surrounding OCS wells shut-in and categorized as "no future utility" to determine which of these have idle or useless structures and/or equipment that can be removed from the OCS, and

--enforcing regulations pertaining to the plugging and abandonment of wells actually having no future utility.

AGENCY COMMENTS

The Department's comments on the findings and recommendations in this report are contained in two separate responses which have been incorporated in the text of this report where appropriate. (See apps. II and III.) The Department agreed with some of GAO's recommendations, specifically those that would improve the Department's report. The Department either disagreed with or misinterpreted other recommendations.

The Department did not directly respond to one of our recommendations. It concerned the need for test verification of operators' reports of shut-ins and flarings. The Department replied that if it had no significant disagreement with the type or timing of the operator's commitment for restoring a shut-in well, it will require the operator to perform his corrective operations. However, GAO notes that without any test verification of data, the Department has no basis for disagreeing with an operator. Also, without a followup program, the Department has no assurance that the operator's actions are timely or that shut-ins are restored.

Contents

ABBREVIATIONS

GAO	General Accounting Office
OCS	Outer Continental Shelf

CHAPTER 1

INTRODUCTION

OUR MANDATE

The Outer Continental Shelf (OCS) is one of the Nation's significant domestic sources for production of oil and natural gas. In 1978, the OCS produced about 300 million barrels of oil (about 9 percent of domestic production) and about 4.4 trillion cubic feet of gas (about 22 percent of domestic production). Increased demand for oil and gas and the decline in U.S. production of these resources are creating the need for more prudent Federal management of the OCS. Prudent management involves reducing or eliminating wells flaring (burning off) producible natural gas and expeditiously restoring producible shut-in (nonproducing) wells on the OCS.

The Department of the Interior regulates all operations conducted under an OCS lease by or on behalf of a lessee. The Department, through its U.S. Geological Survey, governs OCS operations and establishes OCS goals in order to achieve orderly and timely development while taking action to prevent waste and conserve natural resources.

The Outer Continental Shelf Lands Act Amendments (Public Law 95-372, Sept. 18, 1978) require that we review, evaluate, and report to the Congress on the methodology the Department of the Interior uses in allowing OCS wells to be shut-in or to flare natural gas. The OCS Lands Act (43 U.S.C. 1331, et seq.) was originally passed in 1953 by the Congress to enable the United States to develop and extract the natural resources on the OCS, particularly oil and natural gas. Concerns about OCS oil and gas resources and the need for their diligent development led to amendments to the act. The amendments, title VI, section 601, address the need for increased oversight of OCS wells that are shut-in or are flaring natural gas and require the Secretary of the Interior to submit to the Comptroller General a report which (1) lists all shut-in oil and gas wells and wells flaring natural gas on leases issued under the OCS Lands Act and (2) indicates the Secretary's intentions on whether to require production of shut-ins or order the cessation of flaring.

INTERIOR'S FIRST REPORT ON SHUT-IN AND FLARING WELLS

The Secretary of the Interior issued his first report on shut-in and flaring wells on March 19, 1979. The report

was prepared by the Geological Survey and consisted of separate segments dealing with (1) natural gas flaring and (2) shut-in wells. Each segment of the report contained a short narrative introduction followed by data listings excerpted from available internal reports.

As of December 31, 1978, there were about 11,400 oil and gas well completions in the Gulf of Mexico and in the Pacific OCS--about 6,300 were producing and 5,100 were shut-in. In addition, about 1,000 other wells were either not yet completed 1/ or were service wells.

The report only identified the shut-in well completions and individually listed 1,813 of them (1,071 oil and 742 gas) with probable future production and noted that another 3,300 shut-in well completions in the Gulf of Mexico had "no future utility." Wells in this latter category are presumably scheduled to be plugged and abandoned.

The report also noted that approximately 3,200 producing oil-well completions have, over a period of a year, all probably flared some associated gas. This gas is commonly referred to as oil-well or casinghead gas. The Survey also permits gas-well gas flaring (wells producing gas only) in certain circumstances. 2/

1/Well completions are wells that have been fully drilled with the platform or equipment in place and ready to produce, producing, or having already produced. Wells being drilled or fully drilled but awaiting platform or equipment installation are wells considered not yet complete.

2/Under the Survey's present procedures there are two categories of natural gas flaring--emergency or short-term, and long-term (extended) approved. Short-term flaring occurs usually as a result of equipment malfunction or during a test and accounts for about 95 percent of all oil-well gas flared. Long-term or extended approved flaring, on the other hand, is permitted by the Survey for periods not exceeding 1-year if OCS operators producing oil submit data indicating that (1) flaring will result in an ultimate greater total energy recovery or (2) positive action has been initiated to eliminate the flaring. The Survey's report listed 12 individual instances of approved long-term flaring.

SCOPE OF REVIEW

Our review and evaluation focused primarily on the methodology used by Interior in allowing OCS wells to be shut-in or to flare natural gas. In conducting the review we

- --interviewed officials at Survey headquarters in Reston, Virginia, and its regional office in Metairie, Louisiana;
- --reviewed pertinent records at Interior's headquarters and regional offices; and
- --examined applicable regulations, policies, procedures, and practices pertaining to OCS wells that are shut-in or are flaring natural gas.

In addition, during the course of this study we sent a letter of inquiry to the Secretary of the Interior on July 31, 1979. (See app. I.) In the letter we raised several questions concerning Interior's report on OCS wells that are shut-in and are flaring. The Department responded to our letter on September 13, 1979. (See app. II.) In addition, final comments on our report were received from the Department on October 15, 1979. (See app. III.) Both responses from the Department have been incorporated in this report.

CHAPTER 2

GEOLOGICAL SURVEY PRACTICES RELATED TO SHUT-INS SHOULD BE IMPROVED

The Geological Survey allows OCS wells to be shut-in (not producing) based primarily on summary data received from well operators. The data is submitted monthly to the Survey and accepted without adequate verification of its reasonableness, nor does the Survey have a followup program to assure that planned actions of the operators are carried out.

In addition, our analysis of the Survey's report on shut-in wells showed that the Survey needs to

--state whether it will required production of the shut-ins listed, as prescribed by law;

--list all the categories of wells with production potential; and

--include other data which would better describe shut-in OCS wells.

THE SURVEY ALLOWS SHUT-INS WITHOUT ADEQUATE TESTING OF OPERATOR DATA

The Survey is made aware of OCS lease activities primarily through various applications and reports submitted by lessees and OCS operators. For example, OCS operators must file applications (proposals) before drilling or deepening wells. In addition, the well operators report monthly to the Survey's Oil and Gas Supervisor on well completions that have become shut-in.

Interior stated that shut-in wells on the OCS are not allowed by the Department except on few occasions for conservation of resources, pollution prevention, and safety. A shut-in is usually caused by a mechanical or reservoir problem despite operator efforts to keep the well on production.

However, the data supplied by operators in reports is not adequately tested for accuracy, even though some of it warrants further clarification.

Reporting a shut-in well

The reason his well has been shut-in and the action required to restore production are provided by the operator in a "Monthly Report of Operations--Outer Continental Shelf," form 9-152, which is required by the Survey from the first month of drilling operations until the lease is terminated. This monthly report must be filed for each lease and is intended to accurately disclose all operations conducted for each well on the lease during the month. The report contains (1) the identification of each well, (2) the number of days each well produced, (3) the quantities of oil, gas, and water produced, (4) the total amount of gasoline and other lease products recovered, and (5) other required information.

When wells become shut-in for an entire month, operators indicate the reason for the shut-in, the type of corrective action required to restore the well to production, and an estimated date the corrective action will begin. Much of this information is submitted in general terms in codes supplied by the Survey.

For example, should a well become blocked with sand (a common OCS well problem) the OCS operator would indicate by alphabetical designation that the problem category was "wellbore" and the general reason within this category was "sanded-up." 1/ He would use a numerical designation to describe the action required to produce the well, restore it to producing status, or abandon it. The corrective action codes and their descriptions are:

1. Minor workover.

2. Major rig workover.

3. Opening master value.

4. Surface maintenance.

5. No future utility--to be abandoned.

1/Oil and gas reservoirs contain natural pressure which forces the resources through the well tubing to the surface. This natural pressure also forces sand into the well tubing. When this reservoir pressure forces too much sand into the well tubing it sometimes blocks the tubing, which causes the oil or gas production to cease. This occurrence is commonly referred to as sanded-up.

The operator report also includes a restoration date, usually the estimated date corrective action aimed at restoring a shut-in to producible status will begin. Other definitions could also represent a restoration date. These other definitions are important because they attempt to describe the conditions surrounding a shut-in and when restoration will most probably occur. These other definitions, however, can only be matched with a restoration date appearing in the Department's report by referring to the detail data. These definitions are:

--Each well listed refers to a completion in a single string of tubing producing from a reservoir. A wellbore may have two or more such strings, with only one string in a nonproducing status. Therefore, the date of restoration may be the estimated date that the producing string will cease production.

--A date of restoration may be the time when enough wells on a platform cease production so that shutting in the remaining producing wells on the platform is justified while workover operations are in progress. Most such shut-ins are timed to present the least interruption to continuous supply.

--The date of restoration might be the estimated depletion date of the oil portion of a reservoir, at which time the gas could be produced.

Some wells do not have an estimated restoration date (coded in report as 00/0) because the operator is still evaluating the well status. The missing dates will be submitted later when analysis and determination are completed by the operator. Survey officials said, however, it appears likely these wells will not have future utility.

The Survey upon receiving these reports inputs the data into a computer to generate various departmental reports including the shut-in well portion of the Survey's report submitted to the Comptroller General.

For some wells that are shut-in, the Survey has matched the reason reported by the operator with the reason contained in the operator's data at the platform. The Department commented

in its September 13, 1979, response that shut-in well listings are furnished to the Survey District offices so that inspection personnel may verify the well status during platform inspections. According to the Department, approximately 400 wells are verified each month in this manner. The results of these matchups, however, have only verified that the data received agree with the data on record at the platform. No further verifications or tests have been conducted, such as evaluating (1) the data supporting the reason for a shut-in or (2) the reasonableness of the plans for restoring a shut-in well.

The Survey's matching efforts were initiated in November 1978 using an August 1978 report of shut-in wells. The time between the August 1978 report and the initial check at the platform was more than 3 months. This after-the-fact matching had very limited value because it was not timely, nor was any supporting data verified for the reason causing a well to be shut-in.

Reasons for shut-ins need further clarification

We reviewed shut-in wells in one problem category (sanded-up) and found that the time to start corrective action for this problem ranged from 2 months to several years. Despite this wide range, the Survey did not request any clarification of data.

Of the 1,813 shut-in wells listed in the Survey's report, 260 (about 14 percent) were shut-in due to the sanded-up problem. We reviewed those shut-in wells in the Survey's report and noticed that the restoration dates given for shut-ins sanded-up and requiring minor work ranged from 2 months to 3 years and 7 months (Feb. 1979 to July 1982). Shut-in wells sanded-up and needing major work had restoration dates ranging from 2 months to 17 years (Feb. 1979 to Dec. 1995).

The apparent disparity in these times to begin corrective action for shut-in wells that were sanded-up and requiring minor or major work in order to restore the shut-in well should alert the Survey that additional detailed information was needed to determine the reasonableness of the problem supporting the shut-in, the corrective action planned, and what the restoration date represents.

NEED FOR INTERIOR'S STATEMENT REQUIRING PRODUCTION AND FOLLOWUP PROGRAM

The amendments require Interior to indicate whether production will be required for each shut-in well listed. However, Interior's report did not contain this information. Nor does the Department have a program to follow up on an operator's actions for restoring a shut-in to assure that they begin and are completed in a timely manner.

The Survey's report indicates restoration dates for most (about 7 percent of the wells listed had no dates 1/) shut-ins ranging from 1979 to 1997. These dates appear in the Survey's report without any specific explanation and could be assumed to represent one of the descriptions previously mentioned. However, there is no sure way of making a correlation between an assumed description with a restoration date.

In explanation, Survey officials said that only the operators are in a position to determine when production will begin. Survey officials also said that the restoration date indicates that the operator intends to begin restoring production on a date certain. As a result of this operator commitment, the Survey decided not to indicate when production will be required.

Interior stated, in its letter dated September 13, 1979, that the current procedure regarding the restoration of a shut-in well is to require the operator to furnish his best estimate of when corrective operations will begin in an attempt to restore the shut-in to production. Then, if Interior has no significant reason to disagree with the type or timing of the commitment planned by the operator, Interior will require the operator to perform timely his intended corrective operations. Finally, Interior requires, after the operator successfully completes the corrective operations, that the well be placed on production.

1/According to one Survey official, the shut-in wells with no restoration dates appear to have been received since the Department's report was issued, based on a cursory review of a May 1979 printout, with the December 1978 printout used to prepare the report. This cursory review, the official told us, was done only to see if the restoration dates have been received since the initial reporting.

However, without test verifications of operator data, Interior has no real basis for disagreeing with the operators. In addition, without a followup on corrective operations intended by the operator, the Department cannot be assured that the corrective actions are timely or that a shut-in well is placed back on production.

Although some of the restoration dates in the report ranged from February 1979 to August 1979, the Survey has not to date followed up to see if operators have begun the work. However, the Survey does plan to monitor OCS well operator activity. In this effort, a computer program has been set up to list, on a quarterly basis, all the restoration dates that have passed. The Survey intends to use these printouts to assess whether the action planned was started when scheduled. The Survey also intends to assign a full-time employee to this task. However, this verification process is not yet in place and may be limited in its value unless more is done than just assessing whether the action planned was started when scheduled.

THE SURVEY REPORT DID NOT LIST ALL POTENTIAL PRODUCTION SITUATIONS

The amendments require Interior to list all shut-in oil and gas wells on the OCS. However, the report did not list the wells categorized as (1) having no future utility and (2) other kinds of wells. This limitation fails to recognize the other situations in which production potential may exist, such as wellbores that have future utility for new well completions or recompletions. 1/ The distinction between a wellbore and a well completion is that the latter produces a reservoir and is within the wellbore, which is the service hole made by the drill bit.

Well completions with production potential not listed

The Survey reported that 3,300 shut-in well completions in the Gulf of Mexico were categorized as having no future

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1/On the Gulf of Mexico OCS wells frequently pass through two or more reservoirs at different depths. The deepest reservoirs are usually the first reservoirs to be produced. After depletion of those reservoirs, the same production tubing can be used to produce reservoirs at the shallower depths. This practice, the changeover, is referred to as a recompletion.

utility. A review of these wells disclosed that 172 were in wellbores scheduled for recompletion work to obtain further production. These 172 shut-ins were within wellbores that have passed through several reservoirs but have produced only the deeper reservoirs. Shutting in the deeper well completions (due to depletion of the deeper reservoirs) left untapped the shallower, commercially producible reservoirs. The Survey only reported the well completions and overlooked the future utility and production potential in the wellbores where shallower reservoirs exist. (See fig. 1.) Because these 172 "no future utility" wells fit the description of well completions within wellbores that have future utility, they should be included, under a separate category, in the Survey's report to reflect more accurately the shut-in production potential from the OCS.

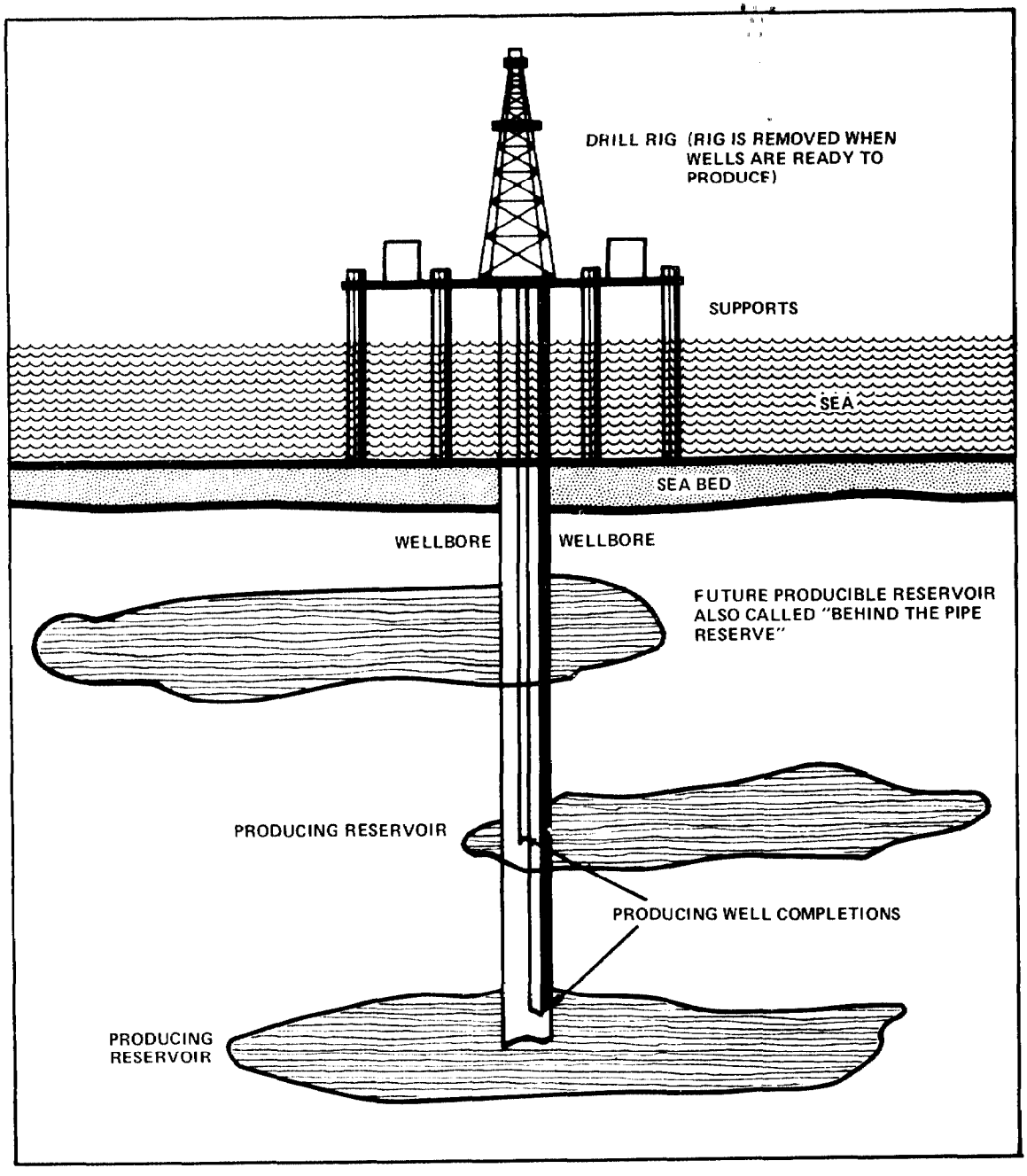

Figure 1. This wellbore has future utility because it has passed through several reservoirs producing only the deeper reservoirs first. In addition, the producing well completions, upon depletion, may have recompletion potential to tap the future producible reservoir.

Interior commented on differentiating potential production from wells and future utility of wellbores (also called boreholes) in its letter of September 13, 1979:

> "We have purposely attempted to exclude wellbore statistics from the current shut-in completion report. Past experience with other reports that have incorporated both well-completion and wellbore statistics have resulted in a considerable amount of confusion."

In addition, Interior stated that wellbore statistics, if required, should be submitted in a separate report. However, the Department believes that reporting possible new well completions in wellbores with future utility goes beyond the shut-in reporting requirements of the OCS Lands Act Amendments of 1978.

While we agree that there could be confusion over incorporating both well completions and wellbore statistics in one report, separation by category along with proper explanations and descriptions should prevent such confusion. We disagree with the Department that including wellbores with future utility and consequently future production from new well completions or recompletions goes beyond the reporting requirements of the amendments. The amendments call for the listing of all shut-in wells rather that the listing of just well-completions with potential production.

Regulations to remove idle and useless equipment from the OCS should be enforced

Although we found some instances for possible future production in the "no future utility" category of wells, many still remain on the OCS. Interior has several regulations requiring the removal of idle and useless structures and/or equipment. Since all but about 200 of the 3,300 wells (25 percent of the total well completions on the OCS) in the "no future utility" category do not expect future production, the Survey should, where feasible, enforce these removal regulations.

Operators with wells in the "no future utility" category usually prefer to accumulate several of them on a single platform before plugging and abandoning them. This practice is intended to minimize costs and production down time since a rig is needed and usually operates from a platform.

Survey could only tell us that many of these wells, the number of which has not been ascertained, have been in this category since 1974 or earlier. The fact that about one-fourth of all well completions on the Gulf of Mexico OCS have been in the "no future utility" category for years and that no future production is expected to take place calls for the plugging and abandonment actions to remove the idle equipment.

The following regulations apply to OCS wells with no future utility:

--30 C.F.R. 250.15, drilling and abandonment of wells. "The supervisor shall * * * require plugging and abandonment * * * of any well no longer used or useful * * *."

--30 C.F.R. 250.44, well abandonment. "The lessee shall promptly plug and abandon any well on the leased land that is not used or useful * * *."

--43 C.F.R. 3307.3-4, diligence; compliance with regulations. "The lessee shall * * * remove all structures when no longer required for operations under the lease to sufficient depth beneath the surface of the waters to prevent them from being a hazard to navigation and the fishing industry * * *." 1/

These regulations clearly require expeditious removal of structures and/or equipment no longer needed on the OCS. The Survey should determine which "no future utility" wells are subject to its regulations and enforce removal of structures and equipment no longer needed.

Interior stated that the plugging and abandonment of "no future utility" wells may be valid for some single-well situations. However, most wells are located on a production platform in close proximity to other producing wells. Requiring

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1/This latter regulation was eliminated June 29, 1979, in a general revision of 43 C.F.R. Part 3300 by the Bureau of Land Management, Department of the Interior, see 44 Federal Register 38268.

the plugging and abandonment of "no future utility" wells on production platforms would, according to the Department, adversely affect (1) economic operating procedures, since shut down of production facilities and/or producing wells would be required, (2) oil or gas production while plugging and abandonment operations are underway, and (3) possible future use of a "no future utility" well for disposal or injection purposes.

In addition, Interior stated that it is contemplating changing the regulations to allow postponement of plugging and abandoment until they are appropriate from a safety, production, and economic standpoint.

We agree that safety, production, and economics should be taken into consideration. In line with this, we are recommending that Interior determine how many "no future utility" wells are either single wells or in a group of all "no future utility" wells, and then enforce the removal regulations when doing so does not jeopardize safety or production. (See ch. 4.)

While it appears that Interior misunderstood our intentions concerning the removal of "no future utility" wells from the OCS, the Survey agreed that these wells should at least be reviewed for their possible removal since this function has not been done except for those wells on platforms that have been reviewed by Regional personnel during routine platform inspections.

Other wells with potential production not listed

Other OCS wells were at the time of our review being drilled, or had been fully drilled and were awaiting final installation of structures or equipment before production. These wells were not in Interior's report. A concern of the Congress in requiring the Department report on shut-in wells was the loss of available supplies due to withholding production. Although these not yet complete wells may not be technically shut-in, recognition of their status over time in these Departmental annual reports would provide useful information pertinent to the congressional concern.

The Survey noted in internal reports that about 1,000 wells were categorized as "other kinds of wells." We reviewed these wells and found that 473 of them will be producing when

they become completions. They were drilled but were not yet in production, awaiting installation of platforms or other equipment. The Survey had no anticipated production date nor a detailed reason for their incomplete status.

The primary reason these wells were not being listed was that the Survey believes only well completions fall under the reporting requirements of the amendments. However, this information would be useful and pertinent in addressing the congressional concerns and Interior is not restricted by the amendments to listing only well completions. Therefore, wells near completion should also be included. The Survey also needs to follow up on these wells and obtain an anticipated production date for these wells so that orderly and timely production from the OCS can be gauged.

In addition, Interior stated that it purposely excluded other well statistics in order to keep its report as uncomplicated as possible. However, we believe their inclusion would better inform the readers and users of Interior's report. The Department did not directly respond to the matter of obtaining anticipated production dates for other kinds of wells.

OTHER DATA NEEDED ON SHUT-IN OCS WELLS

The Department's report on shut-in OCS wells could be improved by more thoroughly describing the status and future expectations of those wells. Better data of this kind might alert the Survey that additional detailed information is needed. The data which would allow this includes:

--The date of last oil or gas production from a shut-in well. This information would indicate how long the well has been shut-in.

--The estimated production rate before shut-in. This information would indicate the amount of resource expected to become available when production is restored. It would also indicate that some shut-ins may not be restored because of the low (uneconomic) amount of resource expected.

--An indication of whether the shut-in is in a group of producing wells or within a group of nonproducing wells. This data would help determine whether or not the well has possible future production potential. However, some shut-in wells in a group of producing wells might not be restored because of a reservoir problem, but a shut-in in a group of nonproducing wells generally has the potential to become producible. These exceptions of course should be noted in the report.

--A recap of the shut-in wells by problem category, with a further breakdown of the problem category by the primary shut-in reason. This information would identify the most prevalent shut-in problem and the most prevalent reason.

Interior stated that its objective was to keep its report as uncomplicated as possible, but that all of this additional data could be added.

We believe this data should be included and used not only as an indication of whether the well can be expected to produce, but also as information needed for its monitoring program.

CHAPTER 3

REVIEW AND REPORTINGS OF OCS WELLS

FLARING NEED TO BE IMPROVED

The Geological Survey allows OCS wells to flare natural gas without following up on its approvals for long-term (extended) flaring or reviewing on a test basis the emergency flarings reported by OCS well operators in their monthly reports. Flaring gas on the OCS is permitted by Interior Department regulations and orders. However, the Survey has not tested any

--approvals to assure that the flaring is limited to permitted periods and amounts, nor any

--emergency flaring reportings to check for possible excessive flaring.

Natural gas flaring means burning or otherwise releasing the gas into the atmosphere. Historically, the bulk of natural gas flared has been that produced in conjunction with oil. This natural gas produced in conjunction with oil, known as casinghead gas, was a low-value by-product of oil production and was flared unless it could be readily sold. This was especially true on the OCS where the cost of installing the necessary pipelines greatly inhibited the marketability of casinghead gas.

Since the middle of the 1960s the demand for casinghead gas has increased and its market value has risen in relation to the value of oil.

This change in the status of casinghead gas created the need for the Interior Department to initiate steps to better control the flaring of casinghead gas on the OCS.

REGULATION OF OCS FLARING

In 1974 and 1975, the Survey issued OCS orders and guidelines to control casinghead gas flaring on the Gulf of Mexico OCS. At that time casinghead gas was being flared at an annual rate of 42 billion cubic feet per year (12 percent of casinghead gas production). Since that time flaring has dropped to levels now approximating 15 billion cubic feet (4 percent of casinghead gas production).

Survey OCS orders provide for two general categories of casinghead gas flaring--approved long-term (extended) flaring and emergency or short-term flaring. Long-term flaring requires an approval by the Survey's Oil and Gas Supervisor, who allows flaring for periods of up to 1 year. This flaring can be approved provided (1) positive action has been initiated to eliminate the flaring or (2) flaring will result in an ultimate greater total energy recovery. These standards are set forth in item 10(D) of the Survey's OCS Order No 11.

During the final preparation of this report our Office of General Counsel questioned the consistency of the Survey's OCS Order No. 11 with subsection 5(i) of the Outer Continental Shelf Lands Act, as amended in 1978, 43 U.S.C.A. 1334(i). Specifically, item 10(D) of the Survey's OCS Order appears to permit flaring in situations not authorized by the statute. Survey officials when asked about this matter stated that they did not perceive any violation of the statute when permitting natural gas flaring under item 10(D) of OCS Order No. 11. However, we plan to consider this matter further and, if warranted, report on our findings.

Emergency or short-term flaring guidelines allow the intermittent flaring of casinghead gas for periods of up to a total of 144 hours per month (equal to 20 percent of the total hours in a 30-day month) without special notification to the Survey. If the flaring is continuous for over 24 hours, the OCS well operator must report the flaring to the Survey, but needs no approval at that time. However, when the emergency flaring is continuous for over 72 hours or exceeds the 144-hour limit, the OCS well operator must notify the Survey and obtain approval to continue the flaring.

These categories of flaring are more often used to flare casinghead gas. This is especially true for long-term flaring since flaring of gas well gas, found in wells producing only natural gas, is restricted except in emergencies and for special well testing. Therefore, gas flared is usually the gas liberated from the oil at the field separation and/or storage facilities.

LONG-TERM FLARINGS NEED APPROVALS UPDATED

Our review of Interior's report listing 12 instances of approved flaring revealed eight approvals which had problems. These problems included:

--four instances in which flaring continued beyond the expiration date of the flaring approvals and

--three instances in which approval letters were issued 2 to 3 years ago for an unlimited time rather than for the maximum 1-year period specified in Survey OCS orders.

In addition, one of the approvals could not be found in the Survey's files because the approvals were not in a single location and no control of the approvals was maintained.

Survey officials were unable to explain why the approvals for unlimited time periods were issued. They said that they would take the necessary actions to update flaring approvals by issuing extensions, where justified, and begin establishing a better filing system for gas flaring approvals in order to be in a better position to follow up on those approvals.

EMERGENCY FLARING REPORTS NEED TO BE TESTED

The Survey allows OCS well completions to flare natural gas in an emergency, based on operator reports and without any test verification for excessive flaring.

Emergency flaring accounts for about 95 percent of the total natural gas flared on the OCS. Most of this flaring is reported to the Survey by the operators submitting their monthly reports. We examined emergency flaring statistics for 1978 and found that 12 leases have flared high levels of gas on a regular basis. This accounted for about 45 percent of the total casinghead gas flared during 1978.

Survey officials stated, when questioned about these emergency flaring situations, that they had not reviewed any of the flaring reports in depth and were therefore unfamiliar with the specific circumstances surrounding them. One Survey official stated that the gas flaring, now approximating 4 percent of casinghead gas production, is probably as low as possible without adversely affecting oil production. For this reason, the official stated, the Survey does not spend too much time reviewing in detail the emergency gas flarings reported. However, because some of these emergency flaring situations appear to warrant further review and clarification, a Survey official indicated that they would begin a review.

Allowing emergency flaring of high levels of gas on a regular basis without any review permits OCS well operators to possibly waste natural gas that could otherwise be commercially produced. However, these determinations cannot be made without subjecting the operator reports to a review. This review could also alert the Survey that possible additional information surrounding the emergency flaring is warranted.

OTHER DATA NEEDED FOR OCS WELLS FLARING NATURAL GAS

Interior's current report on wells flaring natural gas contains useful information. However, the report could be improved, and could aid in monitoring natural gas flaring on the OCS by better describing the conditions and circumstances surrounding the status of wells that are flaring. The information that would provide this includes:

--The date approved flaring began. This information would provide the length of time a well has been in a flaring status.

--The total amount of gas flared for those approved flarings listed in the report. This information would not only indicate the amount of gas flared, but could also indicate any significant change in that amount and thus help to monitor flaring conditions and assure only approved or reasonable amounts are flared.

--The estimated date the approved flaring will stop or the expiration date of the approval. This information would indicate when the flaring will stop and assure either that flaring does cease or that an extension, where justified, is approved.

Interior commented on the inclusion of this additional data by stating that it can include the additional data requested, except for the estimated date approved flaring will stop. The Department said that, for those flarings

approved based on economics, 1/ the date flaring will stop is unknown but the Department reviews each case annually.

We agree that it would be difficult to provide a stopping date. However, we disagree that Interior reviews these cases annually, as evidenced by our findings--7 of 12 instances of reported flarings continued for more than the 1-year maximum without approval. We believe that this is an indication that the Department does not review the approvals annually.

1/Wells producing oil are, in some cases, allowed to flare natural gas provided economic data indicates that rejection of an application to flare gas will result in an ultimate greater loss or equivalent in the oil production. These oil wells must flare gas in order to obtain or maintain production.

CHAPTER 4

CONCLUSIONS, RECOMMENDATIONS, AND AGENCY COMMENTS

CONCLUSIONS

Prudent Federal management of the OCS should involve the expeditious restoration of producible shut-in wells and the reduction or elimination of wells flaring producible natural gas.

In a prior report 1/ on natural gas production on Federal lands, we noted that the Government has no regulations for the diligent development and production of natural gas from Federal lands. This responsibility is now the Department of Energy's. We also noted that Interior, when it had these responsibilities, had not defined diligence or regulated the level of development or production. We concluded that Interior had a "hands off" policy of letting the lessee determine how the lease was to be explored and developed. This review indicates that an Interior "hands off" policy is also prevalant in relation to shut-in and flaring wells.

Interior's methodology of allowing OCS oil and gas wells to be shut-in or to flare natural gas is based primarily on the data submitted by OCS well operators without (1) adequate testing of the data when received or (2) a program to follow up on the efforts operators take toward restoring producible shut-in wells or the cessation of flaring operations.

We also found that the Department:

--Accepts and uses operators' restoration dates in lieu of stating its intentions regarding requiring production of a shut-in, without any verification of the data submitted by the operator for its reasonableness.

--Considers the potential production from wellbores, recompletions, and wells not yet complete beyond the shut-in reporting requirements of the OCS Amendments,

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1/"Policy Needed To Guide Natural Gas Regulation On Federal Lands," EMD-78-86, June 15, 1979.

even through they are included in internal shut-in reports and future production is expected.

--Has not considered enforcing the removal of the idle and useless structures and equipment of shut-ins categorized as "no future utility," even though 25 percent of the total wells on the OCS are in this category.

--Could improve its reporting on shut-in and flaring wells by including additional data which would better describe the conditions and circumstances surrounding those OCS wells.

While it is true that OCS well operators are in the best position to determine when production will begin from a shut-in well or when the flaring of natural gas will stop, the Department needs to review on a test basis the data from the operators to assure that it is reasonable and acceptable. In addition, a program to follow up on the planned corrective actions of operators--whether it be restoring a shut-in well or stopping the flaring of gas--needs to be incorporated in Interior's OCS program.

While Interior has plans to implement some limited monitoring procedures for shut-in wells that may be beneficial, no test verifications upon receiving the operator data are planned for OCS wells either shut-in or flaring natural gas.

RECOMMENDATIONS

We recommend that the Secretary of the Interior, in order to enhance OCS production and improve the methods used to allow OCS wells to be shut-in or to flare natural gas, direct the U.S. Geological Survey to begin testing

--reportings of shut-in well completions by OCS operators to assure (1) that the reported problems exist and (2) that the corrective action planned is reasonable and timely;

--approved long-term (extended) flaring to assure that the flaring conducted is for only those amounts and periods permitted by the statute and revised regulations; and

--reportings of emergency flaring for excessive flaring.

In addition, a followup program should be implemented to (1) verify that the operator starts and completes the corrective work needed to restore a shut-in well as and when planned, (2) verify that the approved flaring of natural gas ceased when scheduled or an extension, where justified, is issued, and (3) obtain an anticipated production date for the wells in the "other kinds of wells" category expecting production.

In order for Interior's report to be a more useful document, both within the Department and for use in future reviews and evaluations conducted by the Comptroller General for the Congress, we recommend that the Secretary of the Interior direct the Geological Survey to include in its future reports

--a statement of the Department's methodology used to allow OCS wells to be shut-in and to flare natural gas;

--a listing, by separate category, of all wells, well completions, and wellbores with potential production and state whether production will be required by the Department and when the production can be expected;

--a listing of each well completion flaring natural gas under an approval and indicate whether the cessation of the flaring has been ordered by the Department and when the cessation order will take effect;

--the date of last oil or gas production from a shut-in well;

--the estimated production rate before the well became shut-in;

--whether the shut-in well is in a group of producing wells or within a group of nonproducing wells;

--a recap of the shut-in wells by the problem category, with a further breakdown of the problem category by the primary shut-in reason;

--the date approved flaring began for wells flaring natural gas;

--the total amount of gas flared for those approved flarings listed in the report; and

--the estimated date the approved flaring well will stop its flaring operations or the expiration date of the approval.

In order to remove idle and useless structures and/or equipment from the OCS, we recommend that the Secretary of the Interior direct the U.S. Geological Survey to

--review the circumstances of OCS wells that are shut-in and categorized as "no future utility" to determine which of these have idle or useless structures and/or equipment that can be removed from the OCS; and

--enforce, where feasible, regulations pertaining to the plugging and abandonment of wells actually having no future utility.

AGENCY COMMENTS

Interior comments on the findings and recommendations in this report are contained in two separate responses (See app. II and III.) The Department agreed with some of our recommendations, specifically for those that would improve the Department's report. The Department either disagreed with or misinterpreted other recommendations. All of the Department's responses and our rebuttals are incorporated in the text of this report where appropriate.

The Department did not directly respond to one of our recommendations. It concerned the need for test verification of operators' reportings of shut-ins and flarings. The Department replied that if it had no significant disagreement with the type or timing of the operator's commitment for restoring a shut-in well, it would require the operator to perform his corrective operations. However, we note

that the Department has no basis for disagreeing with an operator unless it conducts test verifications of operator data. Also, without a followup program, the Department has no assurance that the operators' actions are timely or that shut-ins are restored.

APPENDIX I

B-178205

The Honorable Cecil D. Andrus
The Secretary of the Interior

JUL 31 1979

Dear Mr. Secretary:

The Outer Continental Shelf (OCS) Lands Act Amendments of 1978 (43 U.S.C. 1331) requires the Secretary of the Interior to submit to the Comptroller General a report which (1) lists all shut-in oil and gas wells and wells flaring natural gas on leases issued under the OCS Lands Act and (2) indicates the Secretary's intentions on whether to require production or order cessation of flaring. Within 6 months after receipt of the report, the Comptroller General must review and evaluate the methodology used by the Secretary in allowing the wells to be shut-in or to flare natural gas and submit his findings and recommendations to the Congress.

We received the Department's report on March 19, 1979. In our initial review of the report we noted the following problems:

--The methodology used by the Department in allowing wells to be flared or shut-in was not stated.

--3,300 of the 6,127 shut-in wells on December 31, 1978 were categorized as having "no future utility." This category does not consider differentiating between a well and a wellbore or borehole. Several wells could be in one wellbore and although the wells become useless (no future utility) the wellbore may have future utility for new wells.

--The report lists a "restoration date" for most (about seven percent of the wells have no dates listed) wells that ranges from 1979 to 1997. There is no uniform definition of what these dates represent and there is no indication of whether the Secretary intends to require production or order flaring stopped.

--The report could be improved by including readily available information which better describes the conditions and status of the wells.

As part of our ongoing review of the report, we are obtaining from the U.S. Geological Survey information of the type we note was lacking in the report. However, the gathering of this information is consuming a portion of the short timeframe we have in which to complete and submit our evaluation to the Congress.

The following is a detailed discussion of the problems noted in the report. In one instance, we ask for a written reply to the question raised as soon as possible; in other instances, we note the problems so that future reports of this type may be more meaningful and useful both to the Department in administering the OCS program and to the General Accounting Office (GAO) in evaluating the report.

NEED FOR STATEMENT OF METHODOLOGY USED IN ALLOWING SHUT-INS AND FLARING

The Act requires GAO to review and evaluate the methodology used by the Secretary in allowing the wells to be shut-in or flare natural gas. The Department's March 1979 report gives explanations for some of the data but does not completely state the Department's methodology used to allow OCS wells to be shut-in or flare natural gas. We plan to discuss with Survey officials the methodology used in allowing wells to be shut-in or to flare natural gas. However, since an evaluation of your methodology is the principal objective of our review, we do not want to make any wrong assumptions and thus misrepresent the Department's methodology in our report to the Congress. Therefore, we request that you furnish us with a written explanation of the Department's methodology for allowing wells to be shut-in or to flare natural gas.

NEED TO DIFFERENTIATE BETWEEN POTENTIAL PRODUCTION FROM WELLS AND FUTURE UTILITY OF WELLBORES

Over half of the reported shut-in well completions were categorized as having "no future utility." This category does not mention the fact that wells are within wellbores and although the wells do become useless (no future utility)

the wellbore may have future utility, especially when producible reservoirs exist at different horizons (potential well completions in the same wellbore).

The report lists individually 1,813 shut-in wells (1,071 oil and 742 gas) with probable future production. The report also notes that there are 3,300 shut-in wells categorized as having "no future utility." Wells in this category are those intended to be plugged and abandoned as opposed to being reworked or subject to secondary recovery. Survey, however, did not recognize the difference between a well completion in a producing reservoir and a wellbore (service hole made by the drill bit). This difference should be made because most people believe a well is a hole drilled in the earth for the purpose of producing oil or natural gas. Technically there is a difference, but because there is such a close relationship between a well and a wellbore, the report should note that although the well has no future utility the wellbore (where feasible) has future utility. This information would more clearly indicate what production can be expected from the OCS.

A closer review of the 3,300 shut-in wells categorized as "no future utility" revealed that 167 of them are scheduled to be reworked in order to obtain production. These wells should have been listed individually. A more detailed discussion of these 167 wells will be presented at a later time when our audit work is completed.

NEED TO INDICATE THAT PRODUCTION WILL BEGIN OR FLARING WILL BE STOPPED

The Act requires the Department to indicate whether production will be required or order flaring stopped. However, the Department's report does not contain this information, but instead indicates "restoration dates" for shut-ins ranging from 1979 to 1997 for which there is no uniform definition. The restoration date, according to Survey, was submitted by the operators and usually represents the date to expect corrective action to begin (bring shut-ins into productive operations). However, it may also represent the date the well is expected to be depleted of resources. Also, for seven percent of the shut-in wells listed (130 of 1,813) no restoration date was given.

In reviewing the report it is impossible to determine whether the "restoration date" represents the expected

date to begin corrective action or the resource depletion date. This distinction can be made only by referring to the detail data available at Survey.

Survey officials told us that only the operators are in the position to determine when production will begin or to advise when flaring on wells should stop. Survey officials also said the "restoration date" indicates that the operator intends to begin restoring production or stop flaring on a date certain. As a result of this operator commitment, Survey decided not to indicate in its report when production would be required or flaring ordered to be stopped.

GAO believes that accepting an operator's data (intention to begin restoring production or stop flaring on a specified date) may be an acceptable practice, however, the act requires the Department to indicate whether it will require production or order cessation of flaring. Using a date cannot replace this legislative requirement. Future reports should include specific intentions of the Department as to whether they will require production from shut-in wells or order cessation of flaring of other wells. In addition, proper definitions should be specified for the restoration date accompanying a shut-in if continued use is planned.

NEED FOR ADDITIONAL INFORMATION TO BE INCLUDED IN FUTURE REPORTS ON OCS WELLS SHUT-IN AND FLARING

The Department's current report on OCS wells shut-in or flaring contains some very useful information, but does not contain the following readily available information which could improve the report by better describing the conditions and circumstances surrounding the status of OCS wells.

(1) The date approved flaring began. This information would provide the length of time the well has been in a flaring status.

(2) The amount of gas flared monthly and totally to date. This information would not only indicate the amount of gas flared but could also indicate any significant change in that amount and thus help to monitor flaring well conditions and assure only approved amounts are flared.

(3) The estimated date the approved flaring will stop. This information will indicate when the flaring will stop and should include whether or not it is ordered by the Secretary.

(4) The date of last oil or gas production from a shut-in well. This information would indicate how long the well has been shut-in.

(5) The estimated production before shut-in. This information would indicate the amount of resource expected to become available when production is restored. It would also indicate that some shut-ins may not be restored because of the low (uneconomic) amount of resource expected.

(6) Indicate whether the shut-in is in a group of producing wells or within a group of non-producing wells. This data will help determine whether or not the well has possible future production potential. However, some shut-in wells in a group of producing wells might not be restored because of a reservoir problem. On the other hand, a shut-in in a group of non-producing wells might become producible if the price of oil increases. These exceptions of course should be noted in the report.

(7) A recap of the shut-in wells by "Problem" category with a further breakdown of the "Problem" category by the "Primary Shut-in Reason." This information would identify the most prevalent shut-in problem and the most prevalent reason. By isolating the most recurring shut-in problem and reason the Department might be able to assist with a remedy.

In addition to our specific problems noted with the current report, future reports should be more than just a reproduction of computer program print-out pages which exclude necessary explanations to make it a useful document. Future reports of this type, which we are required to review, should be more conscientiously prepared to allow us to fully carry out our responsibilities to comment on OCS wells shut-in or flaring.

We are bringing these matters to your attention now to aid your plans for future reports. We plan to make specific recommendations later, concerning these and other problems, in our report to the Congress.

APPENDIX I

If you or your staff have any questions concerning this matter please contact Mr. Dave Cahalen on 634-5635 or Mr. Harry Wolfe on 254-6937.

Sincerely yours,

J. Dexter Peach

J. Dexter Peach
Director

APPENDIX II

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

SEP 13 1979

Mr. J. Dexter Peach
Director
Energy and Minerals Division
General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

Your letter of July 31, 1979, provided us with an initial review of the report, entitled "Gas Flaring and Shut-In Wells on the Outer Continental Shelf (OCS)," which we submitted pursuant to Section 601 of the OCS Lands Act Amendments of 1978.

Enclosed is our response to your critique as indicated in our letter of August 21. Please advise if we may furnish additional information.

Sincerely yours,

Joan M. Davenport
Assistant Secretary of the Interior

Enclosure

APPENDIX II

Comments on the General Accounting Office's (GAO) Review of the Report "Gas Flaring and Shut-in Wells on the Outer Continental Shelf (OCS)"

Section 601 of the Outer Continental Shelf Lands Act Amendments of 1978 requires that the Secretary of the Interior submit a report to the Comptroller General which lists all shut-in oil and gas wells and wells flaring natural gas on leases issued under the OCS Lands Act, and indicate why each well is shut-in or flaring natural gas and whether the Secretary intends to require production on such shut-in well or order cessation of flaring. Section 601 also requires that the Comptroller General, within 6 months after receipt of the report, review and evaluate the methodology used by the Secretary in allowing the wells to be shut-in or to flare natural gas and submit his findings and recommendations to the Congress.

The GAO has indicated that they received the report on March 19, 1979, and had noted several "problems" during the course of an ongoing review, which we understand has been rather intensive. Although GAO requested a response to only one item (the one relating to methodology), we have also addressed some of the other items discussed.

The following "problems" were noted by GAO:

1. The need for a statement of methodology used in allowing shut-ins and flaring.

2. The need to differentiate between potential production from wells and future utility of boreholes.

3. The need to indicate that production will begin or flaring will be stopped.

4. The need for additional information to be included in future reports on OCS wells shut-in and flaring.

Methodology for Shut-in Wells

The phrase "methodology used by the Secretary in allowing wells to be shut-in" implies a state-of-being that is simply not descriptive of the typical shut-in well scenario on the OCS. In reality, the Secretary "allows," or on occasion directs, a well to be shut-in on relatively few occasions and for only a few specific reasons - conservation of mineral resources, pollution prevention, and safety. In most other instances, wells are shut-in only after they are no longer able to produce; that is, they quit producing in spite of efforts to keep them on production. The well completions that are "allowed" or directed to be shut-in can be produced, and the operators of such wells will be required to produce them once the cause for shut-in is removed.

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For those well completions that are shut-in because they are no longer able to produce, the operator analyzes all available information - production history, geologic structure, completion location relative to hydrocarbon content, pressure data, etc. - to determine whether there are sufficient hydrocarbons available to be produced from the same completion to justify an attempt to restore it to production or if it can be utilized as an injection (service) well. Additional studies and previous experiences are utilized to determine which type of workover or other remedial operation offers the best opportunity to restore production. Finally, after determining the availability of workover equipment and reviewing other wells on the platform that may require workover operations, the operator makes his best estimate of the time the workover or other remedial operations could commence in an attempt to restore the well completion to production.

Shut-in data in the Gulf of Mexico Region is maintained in computer files based on operator-furnished data which is submitted monthly. This data is compiled and checked by USGS personnel. Shut-in well listings are furnished to each of the five District offices so that inspection personnel may verify the well status during the platform inspection process. Approximately 400 wells are verified in this manner each month.

Current procedure, therefore, is to require that the operator furnish his best estimate of when he will commence operations in an attempt to produce the well. If there is no significant reason to disagree with the type or timing of the operation, we will require that the operator timely perform such operations. If the remedial operations are successful, it follows, of course, that we will require that the well be placed on production.

The cyclic process in which some completions go off production and others come on production is a dynamic one. During December 1978, for example, which was the reporting month included within the report, 191 previously shut-in completions came on production and 155 previously producing completions went off production.

Methodology for Allowing the Flaring of Gas

Procedures for the flaring of gas in OCS areas are specifically set forth in regulations and Orders. The procedures provide for gas flaring in small volumes or on a temporary basis without prior approval (1) for safety reasons during temporary emergency situations, such as compressor or other equipment failure, or the relief of abnormal system pressure (not to exceed 72 hours) and (2) during the unloading or the cleaning up of a well during drillstem or other well evaluation tests not exceeding a period of 24 hours. The flaring of gas-well gas is strictly forbidden except for short-term (24 hours or less) drillstem, cleanup, or other evaluation tests. The flaring of oil-well gas may be approved for periods up to 1 year only after the operator has initiated positive action to eliminate the flaring or has submitted an engineering and economic evaluation showing that the project

would be uneconomical if gas-gathering facilities were required to be installed. Applications requesting long-term flaring must provide for the specific action being taken to eliminate flaring or provide geologic, engineering, and economic data supporting the conclusion that, in the absence of flaring, the oil production that would be shut-in as a consequence would result in greater loss in total equivalent energy than that realized if flaring were allowed.

Differentiating Potential Production from Wells and Future Utility of Wellbores

We have purposely attempted to exclude wellbore statistics from the current shut-in well completion report. Past experience with other reports that have incorporated both well-completion and wellbore statistics has resulted in a considerable amount of confusion. As a matter of fact, in the narrative that accompanied the shut-in report, the first item that we addressed was the establishment of a definition of a shut-in well. In this narrative, we defined a shut-in well as "a completion with zero production for a reporting month which is capable of either producing or being restored to a producing status." The process of perforating another hydrocarbon-bearing zone within the same wellbore is actually a process of creating a discrete new completion rather than a process of restoring an existing completion. To illustrate the problem of incorporating wellbore statistics within the same report, assume that there are two shut-in completions in the same wellbore. This situation would be reflected by two separate entries in the current shut-in report. To which of these completions would a restorative action be credited as a result of recompleting in another zone further up the wellbore? Our position is that this situation represents two shut-in completions with no future utility and one new completion with production potential.

If wellbore statistics are required, they should be submitted in a separate report. However, we believe the reporting of possible completions "behind the pipe" goes beyond the shut-in reporting requirements of the OCS Lands Act Amendments of 1978.

Need to Indicate that Production Will Begin or Flaring Will Be Stopped

In the narrative submitted with the shut-in well listing, we stated that "an indicated restoration date in the right-hand column of this listing constitutes an affirmative response to the query 'will production be required?' More properly, this query should be 'will corrective action be required?' since the requirement of production infers that all corrective actions will be successful which, of course, is unlikely." The problem is that, in most cases, an intermediate step is required before a reasonable response can be made to this question. This intermediate step, in most instances, involves the process of performing remedial work on the well, the end result of which is unpredictable to the extent that a definite "yes" or "no" cannot be supplied in advance at a reasonable confidence level.

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The restoration date indicated is the estimated date at which the operator intends to commence operations necessary to attempt to place the well on production. These operations could vary in scope from performing a major workover to merely opening a valve. The 130 well completions that did not have an indicated restoration date are those that had not been evaluated by the operator by the time the shut-in report was prepared.

On those wells dependent on a corrective action other than "opening a surface valve," the well will not be required to produce prior to the completion of such action. Once the required corrective action is undertaken and if the corrective action is successful, the well will be required to be produced. On those wells where the corrective action is "opening a surface valve," the wells will be required to produce. This does not necessarily involve the requirement of immediate production, however. A gas cap well, for example, with a corrective action of "opening a surface valve" will be required to produce but not until the liquid hydrocarbon portion of the reservoir has been depleted. This might involve a shut-in period of 15 or 20 years for this particular completion. As concerns flaring, all extended flaring must be approved by the USGS Supervisor. The requirements for obtaining this approval are contained within the previous statement regarding methodology. All wells on the flaring list have been approved for extended flaring; so, cessation of flaring from these wells will not be ordered. Since a positive approval action must be obtained prior to flaring, it follows that those wells not approved for flaring do not appear on the flaring list. The longest period for which any flare is approved is for 1 year. At the end of that time, a review is made before continued flaring is allowed.

Need for Additional Information to be Included in Future Reports on OCS Wells Shut-In and Flaring

1. The date approved flaring began. The date approved flaring commenced for long-term flaring is available in our files, and we have no objection to furnishing such information on future reports.

2. The amount of gas flared monthly and totally to date. Our annual report listed the volume of approved gas flared and the volume of emergency gas flared during November 1978. We also indicated that this was a representative month as concerns flare volumes. Flare volumes are available on a lease basis, but not on a well basis, and have been recorded and monitored by U.S. Geological Survey personnel for some time.

   Future reports could include monthly flare volumes for an entire year; however, these volumes may not have any relation to the leases and wells listed in the flaring report since this data is "point-of-time" information that changes over a period of time.

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3. The estimated date the approved flaring will stop. Under certain circumstances, the estimated date that gas flaring will stop can be obtained. These instances are where steps have been initiated to eliminate the flaring. In cases where flaring has been approved based on economics, it would be difficult to provide an estimate as to when flaring might cease; however, these cases are reviewed annually.

4. The date of last production from a shut-in well. The month of last production is available and can be added to future reports.

5. The estimated production before shut-in. The volume produced prior to shut-in can be obtained from monthly production records, and such information can be added to the shut-in well report. We doubt, however, that such information would provide a good indication in most cases where reworking is necessary as to the amount of resources expected to become available when production is restored. Before any correlations could be established, numerous factors would have to be considered, such as (1) how long the completion has been shut-in, (2) the number of other producers in the reservoir, (3) why the completion was shut-in, (4) the amount of water production, (5) condition of the borehole (bad cement job, packer leak, etc.), (6) reservoir characteristics (reservoir pressure, gas-oil ratio, structural position, etc.), (7) pipeline pressure, as well as other factors.

6. Indicate whether the shut-in is in a group of producing wells or within a group of nonproducing wells. Grouping by reservoirs may be useful when applied to areas where large reservoirs are commonplace. In the Gulf of Mexico, however, reservoirs are relatively small, containing an average of less than two completions per reservoir. Wells could also be grouped by platforms to indicate the status of wells located on the same platform. One of the objectives in establishing the current shut-in report, however, was to keep it as uncomplicated as possible, consistent with the goals of establishing why a completion was shut-in; could it be restored to production; and, if so, how and when.

7. A recap of the shut-in by problem category with a further breakdown of the "problem" category by the "Primary Shut-in Reason." We agree that this information would aid in identifying the most prevalent shut-in problems. Also, it would not pose any difficulty for us in providing such a breakdown, and we propose to include a recap in future reports.

In conclusion, it was stated that "future reports should be more than just a reproduction of computer program printout pages which exclude necessary explanations to make it a useful document." We did include, with the computer printout, a six-page narrative of which three pages were dedicated to the explanation of selected columns on the computer listing. We agree, however, that the summary data discussed in item 7 would enhance the report's usefulness.

APPENDIX III

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

October 15, 1979

Mr. John W. Sprague
Associate Director
Energy and Minerals Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Sprague:

Thank you for your letter of October 2 inviting our oral comments on your draft GAO report concerning Interior's oversight of Outer Continental Shelf shut-in wells and gas flaring. We welcome this opportunity to furnish further comments. Of course, we still stand behind our comments of September 13, 1979.

Attached are our comments on the plugging and abandonment of shut-in wells and the flaring of gas.

Sincerely,

Assistant Secretary
of the Interior

Attachment

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Page xi - "The Secretary of the Interior should take the necessary action to remove, where feasible, the idle and useless structures and/or equipment from the OCS by directing the U.S. Geological Survey to

-- review the circumstances surrounding OCS wells shut-in and categorized as 'no future utility' to determine which of these have idle or useless structures and/or equipment that can be removed from the OCS, and
-- enforce regulations pertaining to the plugging and abandonment of wells actually having no future utility."

Response:

Plugging and abandonment at the time a well becomes useless may be valid for satellite wells located on single-well caissons. In most instances, however, wells are located on a production platform in close proximity, within several feet of each other. These wells are drilled through drilling slots that are built into the platform at construction time. Once all of the drilling slots have been utilized, no additional boreholes may be drilled. In many instances piping from the wells is manifolded so that common heating, separation, dehydration, and metering facilities may be utilized. When one well stops producing, the remaining producing wells continue to utilize the equipment. There is no advantage in requiring immediate P&A operations on these wellbores, but there are several disadvantages which include (1) shutting off production from the entire platform while P&A operations are underway, (2) removing the slot P&A'ed from future use including possible use as a disposal or injection well, and (3) imposing uneconomic operating procedures upon operators that offer no benefits from either an environmental or conservation standpoint.

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When all wells on the platform become unproducible, all wells must be plugged at appropriate intervals with cement plugs; piling and casing must be removed at least 15 feet below the Gulf floor (for Gulf of Mexico); the platform must be removed; and the location must be dragged to clear the site of any obstruction.

We are contemplating a change in the regulations requiring plugging and abandonment of well bores immediately upon becoming useless that would allow for postponement of P&A operations until such time as they are appropriate from a safety, production and economic standpoint.

Page 27 - "We believe that better control could be maintained over gas flaring if flaring were on a well basis rather than a lease basis."

Response:

Casinghead gas is released from oil at separation facilities, from which it flows into a common low-pressure gas system, which, in some cases, is flared. This gas is not metered on a per-well basis, consequently individual well casinghead gas volumes are not directly available due to the physical configuration of the production system and not because of lack of recordkeeping. An examination of the approved flaring volume reported showed a total of 72,630 Mcf for 26 wells for the month of November 1978. This represents an average of 93 Mcf/day per well. To illustrate the significance (or insignificance) of this volume, the average gas well in the Gulf of Mexico produces in excess of 4000 Mcf/day.

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The total volume flared from all 26 wells reported is a little more than half of what one average gas well produces in the Gulf of Mexico. We believe, therefore, that attempts to allocate gas back on a per-well basis would serve no useful purpose presupposing it could be allocated.

GAO NOTE: As a result of the Department's comments we have modified two recommendations concerning the reporting of flaring of natural gas. Originally we recommended

-- the amount of gas flared for those wells listed in the flaring portion of the report by month and totally to date; and

-- the estimated date the approved flaring well will stop its flaring operations.

They now appear in the report stating

-- the total amount of gas flared for those approved flarings listed in the report; and

-- the estimated date the approved flaring well will stop its flaring operations or the expiration date of the approval.

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