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**SME**  
**Mining Engineering**  
**Handbook**

*In Two Volumes*

Volume 1

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the mining engineer is to extract the minerals presently needed in the most efficient way for the greater well-being of society.

### 1.6—CONSERVATION IN MINING

Mineral deposits are a wasting asset. The minerals are irreplaceable, so that as the deposit is mined it decreases in value. The miner, unlike the manufacturer or the farmer, must discover new sources of raw materials to remain in business.

The prudent miner conserves his ore by planning mining in such a way as to maximize his profit from it over the life of the deposit. In mining, it is essential to view the financial outcome on the basis of the full life of the operation as nearly as this can be anticipated, which is not necessarily the case in other businesses. The economics of mining are influenced by efficient extraction. This usually means taking out ore of lower metal content to the greatest extent possible along with better grade ore.

Mineral conservation is achieved through several different approaches. The foregoing refers to the economic approach, which is an important technique. A second technique is competent geologic analysis to map the deposit and locate new ore. This is done so successfully that many mines are able to replace the ore mined year after year by the discovery of new reserves.

Technical research has played a tremendous role for generations in conserving minerals. New methods and new machines make it possible to extract ores of lower and lower grade. It is well known that the waste piles of old mines and metallurgical facilities are reworked to remove metals that formerly could not be recovered. Mining techniques, such as improved roof support, permit the reduction in size of pillars composed of ore so that more complete extraction is possible. The use of leach solutions at mines permits recovering metal from material which is too low grade to process in any other way. Metal is also extracted from natural mine drainage water.

Technology has increased conservation of minerals by enabling such minute metal values as molybdenum and rhenium to be recovered from copper ores. There are many other examples of byproducts, scarce in volume, being taken from ores.

The provident miner attempts to utilize as much of the material he extracts as he can. Rock refuse may be prepared for construction use, and mill sand often is returned to an underground mine to prevent caving. Even the opening may be used subsequently for storage of gas or other materials.

Less spectacular as an aid to conservation but of extreme importance is the day-to-day good operation of a mine as a result of experienced supervision, a stable work force and the avoidance of work interruptions.

### 1.7—ENVIRONMENTAL INFLUENCES AND MINING

It is not usually possible to extract minerals from the earth without changing the natural environment in some way (see Sec. 8). A mine requires access roads, power and water. An opening in the ground must be made. Usually, in the case of underground mines, the surface disturbance is small compared to open-pit mines. Mine site acreage must be devoted to processing facilities, shops, offices, changehouse and storage facilities. The waste materials from processing operations must be disposed of. These may be solid, liquid or gaseous. In addition, there is the atmosphere in the mine and other facilities that must be controlled to safeguard the workers' health.

Environmental controls have been applied to operations for decades. These include land restoration, water purification, dust suppression and diffusion of noxious gases. The techniques for these controls have been developed over a long period of time and, as the technology improves, the adverse effects of mining on the environment will continue to be reduced. At the present time, environmental legislation being proposed and enacted poses a problem to mine operators of a greater

### FUTURE OF MINING

or lesser magnitude depending on problems are the availability of pollution control, the time factor of the additional cost.

Since the demand for minerals because of population but also in and underdeveloped areas, it will with the extractive industries. Part required in environmental control measures. In the controversy over utilization there is the plausible solution of practice, minerals are extracted in followed by restoration for other uses and phosphate mining where the urban use, recreation, timber or grazing

### 1.8—FUTURE OF MINING

Dependence of man on his minerals indefinitely. Requirements of technology upon the mineral industry to produce. This demand will be met by greater better understanding of the genesis of locating the presence of mineral in technology will make ore out of non-mental impairments.

The technology of the exploration metallurgist is benefiting the work. For example, great benefits to other environments in environment made by mining of air conditioning.

The mining community at the same in other fields. This cross-pollination and in industry. A substantial amount

The arts and sciences of the rapidly in this period but assured on earth.

Submit 3 Copies  
to Appropriate  
District Office

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-103  
Revised 1-1-89

SF.

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

OIL CONSERVATION DIVISION

P.O. Box 2088

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

Santa Fe, New Mexico 87504

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

FEB - 7 1992

WELL API NO. 30-015-26894

5. Indicate Type of Lease  
STATE  FEE

6. State Oil & Gas Lease No. LH-1523

O. C. D.

SUNDRY NOTICES AND REPORTS ON WELLS  
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A  
DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT"  
(FORM C-101) FOR SUCH PROPOSALS.)



1. Type of Well:  
OIL WELL  GAS WELL  OTHER

7. Lease Name or Unit Agreement Name  
State 2

2. Name of Operator  
Pogo Producing Company

8. Well No. No. 1

3. Address of Operator  
P.O. Box 10340, Midland, TX 79702 (915) 682-6822

9. Pool name or Wildcat  
Undesignated Delaware

4. Well Location  
Unit Letter P : 330' Feet From The South Line and 330' Feet From The East Line  
Section 2 Township 22-S Range 31-E NMPM Eddy County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>		CASING TEST AND CEMENT JOB <input type="checkbox"/>	
OTHER: <input type="checkbox"/>		OTHER: Drilling into a shallow high pressure zone. <input type="checkbox"/>	

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

This Sundry Report is in reference to drilling into a high pressure zone at a depth of 1557'. Blow out preventers were closed immediately to control the abnormal pressure. Shut in pressure reached 500 psig. The pressure was released to the pit area through chokes in 5 1/4 hrs. The well bore was loaded with 250 BBL 10. PPG brine water and drilling operations were resumed.

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
Case No. \_\_\_\_\_ Exhibit No. 41  
Submitted by \_\_\_\_\_  
Hearing Date \_\_\_\_\_

I hereby certify that the information above is true and complete to the best of my knowledge and belief.  
SIGNATURE Richard L. Wright TITLE Division Operations Supvr. DATE 02-02-92  
TYPE OR PRINT NAME \_\_\_\_\_ TELEPHONE NO. \_\_\_\_\_

(This space for State Use)  
APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_