

## MEMORANDUM

TO: R. L. Haffner cc. D. W. Philip FROM: W. Krats  
SUBJECT: ENGINEERING DEPARTMENT GENERAL COMMENTS DATE: November 8, 1973

General:

It is a basic responsibility of the Engineering Department to maintain the necessary information from which to produce long and short term plans to maintain an effective mining operation to exhaustion. It is the responsibility of both Engineering and Mine Operations to work very closely together in an effort to optimize on equipment utilization and the primary purpose of existing, which is to supply the mill with a sufficient quantity of feed at an optimum grade.

Estimates and Plans:

- (1) Ultimate Pit to mine all economic material - To be maintained and revised as conditions and abilities dictate.
- (2) Incremental plans to exhaustion in sufficient detail to be able to project grade and all material movement accurately enough that realistic long term plans can be made.
- (3) In association with the plans, sufficient diamond drilling must take place to maintain an acceptable level of information from which to produce these estimates and plans.
- (4) Waste Dump plans must be considered part of the ultimate pit plan and developed for total volume, optimum haulage and stability.
- (5) 5 Year Plans -Up-dated annually to suit all pertinent circumstances.
- (6) 1 Year Plan -Produced annually for the Profit Plan by September.  
-Revised to actual banks in January of the pertinent year.  
-Estimated on a quarterly basis for projecting mill feed grade.
- (7) 4 Month Plans -Four overlapping by one month 4 month plans are produced each year for the short term control of the mining operation.

- (8) Check Estimates -These are a comparison of diamond drill hole projected tons and grade, compared to the actual achieved from the same volume.  
-These comparisons form the basis for adjusting D.D.H. projections on estimates from the future, and therefore must be closely evaluated before adjustments are applied.
- (9) Reserve Estimates -A revised reserve is complete on Zones 1 and 3, and a calculation of Zone 2 is currently underway using all available data. The most accurate numbers possible from present information should be available by early 1974.  
-Two tables should be maintained regarding remaining reserves:
- (1) An actual remaining mineable reserve based on the best information available. This data should be for internal use within the Company.
  - (2) A reserve depleting the original estimated, published reserve, depleted annually by the actual consumption of ore.
- Publication of any figures in these areas should be at the discretion of senior management.  
-These reserve calculations should be annually updated based on the latest data available.

Associated Projects:

(1) Mine Slope Stability:

A project is presently underway to evaluate a problem area on the east side of the pit. This project is set up to produce its first conclusions in November/73 and will continue from there.

A continuing project in this area could be an evaluation of our present 45° slope and the 40 ft. bench height to try and determine are there more desirable parameters with which to design the open pit.

(2) Waste Dump Stability:

The present waste dumps on 4205 and 4100 elevations are being built to a significant height, of questionable material, and over an area of swampy wet material. An uncontrolled method or approach to building a waste dump over this area could create serious problems in the future.

(3) Electronic Data Processing:

A low speed terminal is in the process of being installed in the near future. This will make available the capabilities of the C.S.C. computer to virtually all groups at Anvil.

Several areas have the ability to be adapted to Electronic Data Processing. Evaluations will have to be made to determine which areas can make Anvil's Engineering Department more effective through this means.

(4) Equipment and Methods Studies:

The operation and application of drills, shovels and trucks particularly should be studied in detail to collect fundamental data which is required to make factual decisions on improving the operation in these areas.

Blasting should continue to get top priority treatment on a continuous basis in the area of data gathering and blast evaluating, to assure that our methods are accurately and realistically being assessed.

Personnel:

The department should be staffed with the most effective type of personnel available. Care should be taken to hire people who fit into the group at a desirable level and have the ability to expand their scope of activities and to move into new capacities as required in the event that vacancies exist or are created. An effort should be made to allow the technician level of individuals to have somewhere to go, such as first line supervision or some other department to give a meaningful means of improving themselves and still being an asset to Anvil. It is emphatically suggested that no one below the technician level be employed in the Department except on a temporary assignment if required. As can be assessed from the projects mentioned, there is a great deal of meaningful work to be done by the Engineering Department. Every effort must be made to keep the Department staffed with an adequate quantity of progressive, promotable people that can carry the activities forward at a desirable rate.