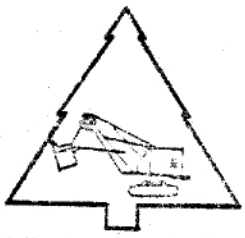
MEAD RUN

MINE DRAINAGE POLLUTION

ABATEMENT PROJECT

OPERATION SCARLIFT



COMMONWEALTH OF PENNSYLVANIA

MILTON J. SHAPP, GOVERNOR

DEPT. OF ENVIRONMENTAL RESOURCES

MAURICE K. GODDARD, SECRETARY

THE FINAL REPORT

REPORT ABSTRACT

Mead Run was selected for this mine drainage study because it is currently a marginal stream with the potential to become a game fishery along its lower reaches and become an asset to the condition of Little Toby Creek.

The specific purpose of this study is to determine the extent and severity of mine drainage in the Mead Run Watershed, conduct a detailed pollution source inventory, determine the impact of this pollution on Little Toby Creek, develop remedial measures for each pollution source, estimate the cost of abating the pollution and recommend an abatement plan for the watershed.

Mead Run is an 8.9 square mile watershed located in south central Elk County, Pennsylvania. The watershed has a total; relief of 737 feet. The stream courses are influenced by both anticlinal axis and basin direction. The coal measures within the watershed range vertically from the Clarion to the Freeport formation within the Allegheny group and the Alton formations in the Pottsville group. The watershed study was planned and executed in phases. All available information was gathered and reviewed in detail. Weir locations were selected and weirs constructed to monitor the watershed throughout the study.

Detailed field explorations were undertaken to locate, define and evaluate all pollution sources to clearly establish the criterion for abatement plans.

Analyses confirm that Mead Run is acid in its headwaters and marginal for 2 to 3 miles from its junction with Little Toby Creek. Several discharges have high concentrations of either iron, magnesium, manganese or sulphates and some discharges have a high calcium and/or sodium content. The average

pH in the upper stream is 4.36 with an average acid concentration of about 24.57 mg/l. The lower reaches of the stream has an average pH of 5.92 and an average alkaline concentration of 9.36 mg/l at its mouth.

The abatement plan is based on all findings gathered during the course of the study and is presented fully in this report. The plan includes priority ranking of the pollution sources, recommended implementation of abatement measures and the preparation of plans and specifications for approved pollution abatement projects.

INTRODUCTION

The Pennsylvania State Legislature mirrored the desires of the citizenry by stating its intentions in the 1965 Clean Streams Law; "...to reclaim and restore to a clean, unpolluted condition every stream in Pennsylvania that is presently polluted ..."

It was known that in order to accomplish this goal, abandoned mine drainage (the most serious source of pollution in Pennsylvania) would have to be abated. During, December 1967, the State Legislature enacted "The Land and Water Conservation and Reclamation Act" (Act 443) which authorized the establishment of an indebtedness of 5500 million for the conservation and reclamation of land and water resources. Of this total, 3150 million was allocated for the prevention, control and elimination of stream pollution from mine drainage. The Office of Resources Management under the Department of Environmental Resources initiated a project in July 1973 to, conduct an investigation of coal mine drainage pollution within the Mead Run Watershed in Elk County. This project is SL 132-6.

The investigation was directed by Mr. A. E. Molinski, District Engineer, Office of Resources Management. The Project Engineer in charge was Michael R. Ferko with assistance of the district office staff.

Mead Run is one of several tributaries to Little Toby Creek which in turn is a source of pollution to Toby Creek and the Clarion River. Mead Run currently is a marginal stream along the lower two to three miles and is acid through probably natural conditions in its headwaters. Down stream from its junction with Little Toby Creek there has been only a minimal amount of mining in the

past which degrades the water quality of Toby Creek and Little Toby Creek.

It was, therefore, obvious that a study of Mead Run should receive high priority, particularly in view of the near capabilities of Mead Run supporting a game fishery in its lower reaches.

As Little Toby Creek is heavily polluted, an improvement in Mead Run water quality may ultimately improve Little Toby Creek from its junction down stream to Toby Creek and approximately 26 miles to its junction with the Clarion River. Any successful abatement procedures on Mead Run or Toby Creek would tend to improve significantly the water quality of the Clarion River. This report is one step in meeting this challenging problem.

PURPOSE

The purpose of this study was to:

(1) Determine the extent and severity of mine drainage pollution of Mead Run and its tributaries.

(2) Conduct a pollution source inventory by locating and measuring the specific discharges associated with past and present mining.

(3) Determine- the impact of Mead Run on the quality of Little Toby Creek.

(4) Develop measures for each significant source of pollution which would control and/or eliminate the pollution.

(5) Rank the measures according to recommended priority.

(6) Develop and recommend an "abatement plan" for the watershed.