

GRUM PCMINE G8705 ROCK-TYPE MODEL

1.) INTRODUCTION

The Grum G8705 model was enlarged from the G8606 model to incorporate additional reserves from the Champ zone. The Champ zone corresponds to geological cross-sections 52W-60W; geology for these sections was interpreted and added to the model. The geology for sections 62W-86W was transferred from the G8606 model. Overburden and air were incorporated into the G8705 model from the surface elevation grids corresponding to the overburden-bedrock interface and the surface topography, respectively. Details for these various stages are described further in the next sections.

2.) GEOLOGICAL SECTIONS 52W-60W (MODEL ROWS 72-91)

Geology was interpreted for cross-sections 52W, 54W, 56W, 58W, and 60W. These sections were digitized as polygons. Overburden was not digitized.

The geology for each of these sections corresponds to four rows in the G8705 model. Because of the overall northwest plunge of the deposit, however, the ore polygons for the external rows for each section (rows 1 and 4) actually occur one bench lower (northwest) or higher (southeast) than the digitized polygons. This elevation difference was incorporated into the model by downloading the digitized polygons to an ASCII file and running program POLYVERT.FOR. POLYVERT reads the ASCII file of polygons and creates two additional files, one with elevations for the polygons lowered by 4.5 metres and one with polygon elevations raised 4.5 metres. These new polygons were then loaded into the G8705 model.

Rock types for geological cross sections 52W-60W were then interpolated into the G8705 model from the polygons. All model rows were printed and compared to the original sections. The few required changes were completed manually. Table 1 delineates the pertinent information used in the Champ zone rock type model interpolation.

TABLE 1. Polygon data for Cross-Sections 52W-60W

Model Row	Polygon Code	Elevation Difference	Cross-Section
72	60WA	-4.5	60W
73	60WB	0	60W
74	60WB	0	60W
75	60WC	+4.5	60W
76	58WA	-4.5	58W
77	58WB	0	58W
78	58WB	0	58W
79	58WC	+4.5	58W
80	56WA	-4.5	56W
81	56WB	0	56W
82	56WB	0	56W
83	56WC	+4.5	56W
84	54WA	-4.5	54W
85	54WB	0	54W
86	54WB	0	54W
87	54WC	+4.5	54W
88	52WA	-4.5	52W
89	52WB	0	52W
90	52WB	0	52W
91	52WC	+4.5	52W

3.) GEOLOGICAL SECTIONS 62W-86W (MODEL ROWS 6-71)

Rock types for G8705 rows 6-71 were transferred directly from the G8606 rock-type model. This transfer was completed using a variant of the program CONMOD.FOR written by Kevin Atherton. Rock codes 11 (overburden) and 12 (air) were not transferred from the G8606 model to the G8705 model. Instead, G8705 blocks for these areas were defined as consisting of rock type 10 (waste phyllite).

Blocks in all remaining rows in the G8705 model (rows 1-5 and 92-110) were initialized to rock unit 10 (waste phyllite).

4.) OVERBURDEN (ROCK-TYPE 11)

Rock type 11 (overburden) was not transferred from the G8606 model because the overburden data in this model contained known errors. Instead overburden was loaded to the G8705 model from the G8705 overburden/bedrock surface elevation grid. This transfer was completed using program RKSURF.FOR.

RKSURF was written to modify the rock-type model using a specified surface elevation grid as the template for the changes. It operates on a bench-by-bench basis. Each block in the bench is compared to the elevation for that block in the specified surface elevation grid. If the bench mid-point elevation is higher than the surface grid elevation, the rock code for that block is modified to a user-specified value. Otherwise the rock code for that block remains unchanged.

RKSURF was run on the G8705 model using the overburden/bedrock surface elevation grid as the guideline. All model blocks with centre points at elevations higher than this grid were modified so that the new rock type code for those blocks was unit 11 (overburden).

5.) AIR (ROCK-TYPE 12)

As with rock-type 11, rock-type 12 (air) was not transferred from the G8606 model to the G8705 model. Air was entered into the rock-type model using Program RKSURF.FOR with the topographic surface elevation grid. All model blocks with toe elevations higher than this grid elevation were modified so that the new rock type code for those blocks was unit 12 (air). Note that by specifying toe elevations, only those blocks entirely above the topographic surface were reclassified as air. If the block was only partially above topography, it's rock-type code was not modified.