
Modeling of Geotechnical Parameters for Mine Planning Purposes at the Stillwater Pt - Pd Mine, Nye, Montana.

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At the Stillwater Mine, geotechnical parameters determining rockmass quality are estimated using inverse distance modeling. Plots produced for mine-planning purposes are constructed in both block and contour format. Unconfined compressive strength, block size, friction angle, stress reduction factor and rockmass quality are displayed in this manner. Production and exploration core drilling is logged for RQD, joint set number (Jn), joint roughness number (Jr), joint alteration number (Ja), and point load index. The point load index is converted to a UCS value by the use of a correlation curve. Drill runs are flagged in relative stratigraphic assemblages as footwall below the zone of interest, zone of interest and hanging wall above the zone of interest. These flagged zones are then length weight composited. Subsequent modeling of the composite intervals using an inverse distance algorithm with a weighting exponent of one produces output displayed as posted cell values and contour plots in longitudinal section on the plane of the ore zone. Use of this data allows more optimal planning of

mining methods, planning of ancillary excavations and prediction of potential ground conditions within a given stoping block. Optimization of the estimation technique and validation of results are currently ongoing.

References

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