

# THE USE OF A MODIFIED SNOWCAT FOR STEEP SLOPE AND RIPARIAN REVEGETATION<sup>1</sup>

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**Abstract.** Few environmental factors challenge the budget of a reclamation project more than steep slopes. The cost of reducing the slope of a waste material often greatly exceeds the cost of amendments and capping materials. Great cost savings, and often environmental benefits, from reduction in disturbed and surface areas can be obtained when waste material slopes are left steep. The maximum stable slope angle and length depends on cover material texture and climate. In semiarid climates where intense thunderstorms are not common, coarse textured soils can maintain 2:1 (%50) slopes for lengths of several hundred feet. Models are available for predicting stability. If a project can realize savings and disturb less ground by steepening the design for waste material slopes, it becomes illogical to further reduce the slope for the sole purpose of working the slope with standard agricultural tillage and seeding tools. In the past, alternative seeding techniques such as hydroseeding, helicopter seeding or using bulldozers has been expensive. Currently, several types of tracked vehicles are available which can climb 2:1 slopes. To date, Arrowhead's modified Thiokol snowcat has been the best. The modifications include, heavier tracks, heavier undercarriage, extra cooling capacity, a broadcast spreader mounted on the front and an implement lift system mounted on the back with a harrow for seed incorporation. This machine can seed several 2:1 slope acres per hour at a fraction of the cost of hydroseeding. By incorporating the seed, it is a far better method than broadcasting alone. The snowcat generally runs up and down the slope seeding and harrowing at the same time. The large grouser bars on the tracks help eliminate vertical patterns up and down the slope even though the harrow drags behind the tracks. Arrowhead's snowcat has been successfully used for the last several years at many of Montana's open pit mines. It has lately found a valuable niche scarifying and seeding wetland projects where conventional equipment causes too much damage.

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