

HEAP LEACH PAD RECLAMATION AT THE GOLDSTRIKE MINE, NEVADA – A UNIQUE CASE STUDY (INTERIM PROGRESS)¹

Steven R. Viert² and Ron A. Espell

Abstract. In recent years, closure and revegetation of heap leach facilities in Nevada has been subjected to a new set of technical challenges. One such challenge, in response to an old problem, has been to design a natural cover or cap that is capable of absorbing and holding (temporarily) the vast majority of meteoric water that contacts the surface thereby precluding infiltration into the spent ore. At the same time, this cap must be stable and capable of providing necessary life requisites for long-term perennial plant community health that in turn facilitates transpiration of absorbed moisture. Such a design has been affected at Barrick Goldstrike's AA Leach Pad. In 2000, approximately 250 acres of spent ore were reconfigured to mimic neighboring landforms, capped with an average of four feet of an alternate growth media from the active pit (excepting a small portion that was capped with topsoil), contoured with engineered drainages to preclude excessive erosion, and then reseeded in March, 2001. A seed mix developed from on-site research and containing 15 species was applied by broadcast techniques at a rate of 12.25 pounds PLS per acre, and then harrowed. Organic mulch was hydraulically applied at a rate of 4 tons per acre followed by 150 pounds per acre of PT-TAC tackifier. In an effort to help reduce wind erosion until the permanent mixture could establish, a cover crop of a sterile hybrid grass ("ReGreen") was applied with the seed mix at a rate of 2.8 pounds per acre. Soil moisture has been continuously monitored at two typical locations and both plant emergence and ground cover have been monitored during each of the last two growing seasons with over 300 (1ft²) quadrats and 90 point-intercept transects (9,000 intercepts) each year. Though it is still premature to declare success, the interim data suggest strongly that the program has exceeded expectations.

¹Paper was presented at the 2003 National Meeting of the American Society of Mining and Reclamation and The 9th Billings Land Reclamation Symposium, Billings MT, June 3-6, 2003. Published by ASMR, 3134 Montavesta Rd., Lexington, KY 40502.

²Steve Viert, Range/Wildlife Ecologist and Principle, Cedar Creeks Associates, Inc., Fort Collins, CO 80521. Ron Espell, Environmental Coordinator, Barrick Goldstrike Mines, Inc., Elko, NV 89803.