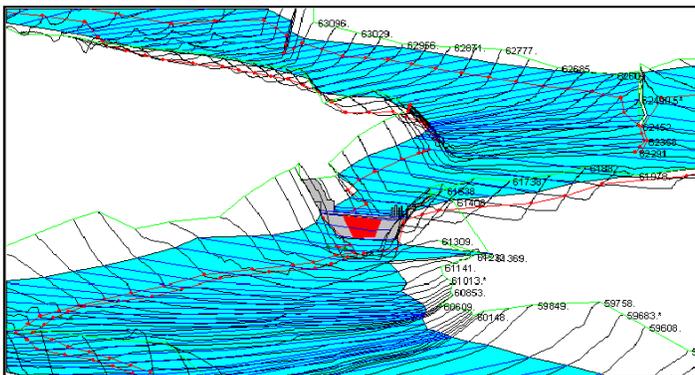


TITLE AND LOCATION (CITY AND STATE) <b>CERRO VANGUARDIA DAM BREAK SIMULATION SANTA CRUZ, ARGENTINA</b>		YEAR COMPLETED	
		PROFESSIONAL SVCS: <b>2007 – 2008</b>	CONSTRUCTION (IF APPLICABLE) <b>N/A</b>
PROJECT OWNER'S INFORMATION			
PROJECT OWNER <b>Cerro Vanguardia, S.A.</b>	POINT OF CONTACT NAME <b>Leonardo Pierrard</b>	POINT OF CONTACT TELEPHONE NUMBER <b>+54 (02962) 496086</b>	

**RIZZO Associates** developed mathematical models oriented towards solutions for a variety of mining project-specific problems. Since most Tailings Storage Facilities (TSFs) generated by mining activities cannot be reprocessed or re-used in the productive process, storing them is the only feasible option for them to be managed. The model developed was intended to assess potential impacts downstream, as caused by possible failures in Cerro Vanguardia's TSF.



The computer model BOSS DAMBRK, developed by the National Weather Service, was used for the simulation of the Tailings Dam failures and the relevant downstream flood wave routing. BOSS DAMBRK is a hydrodynamic and one-dimensional flood wave routing calculation software. Several sensitive sections of the tailings dam were assessed for this specific Project in order to determine the most critical failure, as well as its parameters (crack width, depth and failure time). BOSS DAMBRK accounted for bridge and dam failures, storage effects, floodplain overbank flows, and flood wave attenuation.



The basin contributing run-offs into the reservoir was the pond itself, in addition to several small upstream drainage basins. It was deemed advisable to use a discharge associated with the Probable Maximum Precipitation (PMP) for a 100-year return period affecting the drainage basin surrounding the reservoir. The BOSS DAMBRK model allowed RIZZO to identify initial dam conditions, probable flood maps, and flood hydrograph estimation, making it possible to

readily assess possible failure scenarios. RIZZO also used BOSS DAMBRK to elaborate a flooding model downstream of the TSF. Flood maps with contours every one meter were elaborated on, and potentially impacted structures and terrains were identified.

This model provided Cerro Vanguardia, S.A. with a comprehensive tool for various possible scenarios downstream of the Dam, in connection with critical cross-sections, points of special interest, sensitive areas, and the whole area extension that would likely be impacted by possible dam failures

