

# sherritt technologies

AU  
CASE STUDY

## Refractory Gold Pressure Oxidation Technology at Porgera, PNG

Sherritt's Pressure Oxidation technology was chosen by the Porgera Joint Venture to treat refractory pyrite gold concentrate produced at their mine located in the Enga Province of Papua New Guinea.

The pressure oxidation section, commissioned in August, 1991, utilized three autoclaves, each with seven agitators. A fourth autoclave was added in 1993, as part of an expansion program. The present nominal capacity is 1,500 t/d of concentrate.

Sherritt conducted batch and continuous miniplant test programs on the Porgera concentrates at Sherritt's Research Centre in Fort Saskatchewan, Alberta, and provided the process engineering design.

Fluor Daniel Wright provided the detail design for the autoclave section with technical assistance from Sherritt. Placer Dome

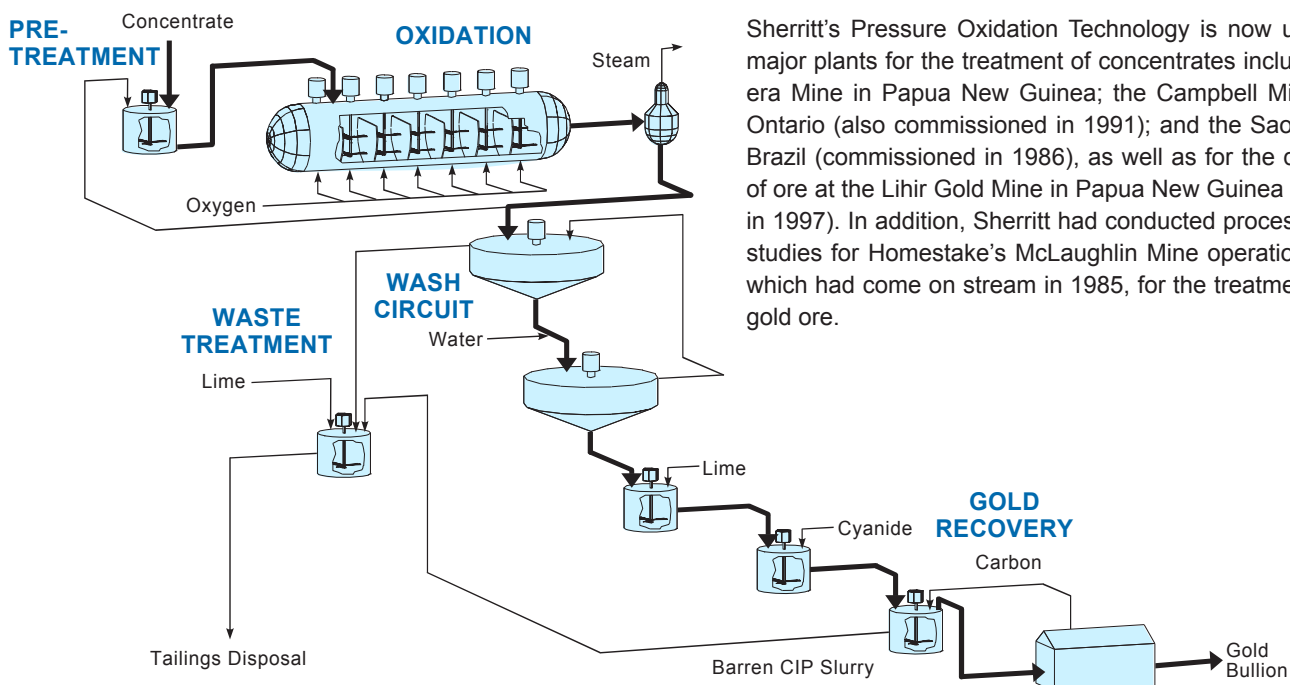
Technical Services had the overall project management and construction management responsibilities. Sherritt provided a commissioning team to assist with the plant startup.

The Porgera pressure oxidation plant uses the following process steps:

- Pretreatment of concentrate with recycled slurry
- Oxidation of sulphides in autoclaves
- Flashing of autoclave discharge slurry
- Washing of oxidation residue to remove acid and cyanicides
- Neutralization with lime and disposal of waste products

Gold is recovered by a conventional cyanidation process.

Sherritt's Pressure Oxidation Technology is now utilized at three major plants for the treatment of concentrates including: the Porgera Mine in Papua New Guinea; the Campbell Mine in Northern Ontario (also commissioned in 1991); and the Sao Bento Mine in Brazil (commissioned in 1986), as well as for the direct treatment of ore at the Lihir Gold Mine in Papua New Guinea (commissioned in 1997). In addition, Sherritt had conducted process development studies for Homestake's McLaughlin Mine operation in California, which had come on stream in 1985, for the treatment of refractory gold ore.



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