

American Manganese Artillery Peak Manganese Project, ARIZONA USA

THE RECOVERY OF MANGANESE FROM LOWER GRADE RESOURCES: PILOT PLANT PHOTOS

December 20, 2011



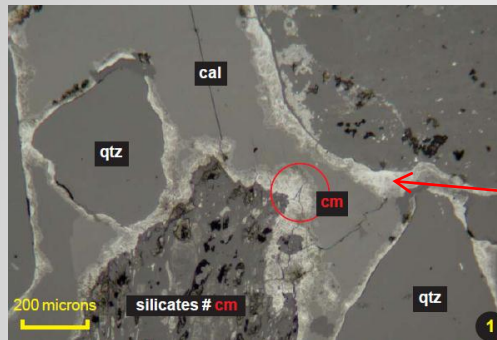
AMERICAN MANGANESE PILOT PLANT



AS-RECEIVED RESOURCE MATERIAL



CRUSHED RESOURCE MATERIAL



MICROGRAPH OF RESOURCE MATERIAL
Manganese "Cementing" Barren Material

AMERICAN MANGANESE PILOT PLANT



LEACHING TANKS

THICKENER / CCD CIRUCIT

PREGNANT LEACH SOLUTION

FEED SLURRY

AMERICAN MANGANESE PILOT PLANT



PRIMARY THICKENER

CCD 1

CCD 2

CCD 3

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SOLIDS BED IN THICKENER

AMERICAN MANGANESE PILOT PLANT

**TAILINGS UNDERFLOW
BEFORE FILTRATION**



FILTERED TAILINGS



AMERICAN MANGANESE PILOT PLANT

TREATMENT OF PREGNANT LEACH SOLUTION

Precipitation of MnCO_3 from PLS

PURIFICATION REACTOR

MnCO_3 PRECIPITATION
REACTOR



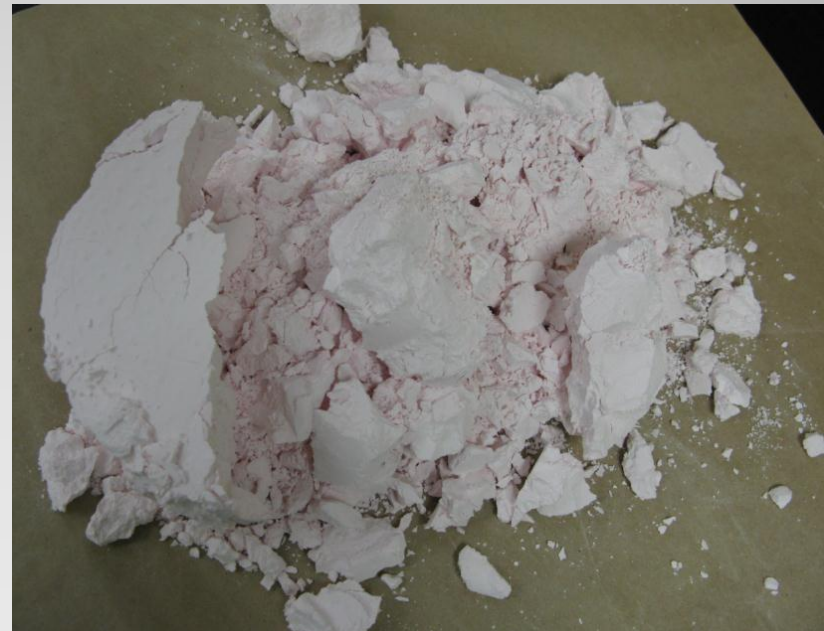
AMERICAN MANGANESE PILOT PLANT

TREATMENT OF PREGNANT LEACH SOLUTION

AMERICAN MANGANESE INC



IMPURITIES REMOVED



MnCO₃ Intermediate Product

AMERICAN MANGANESE PILOT PLANT

Nanofiltration



> 95 TO 97% Rejection of TDS To Produce Recycled Water

AMERICAN MANGANESE PILOT PLANT

ANHYDROUS SODIUM SULFATE BY-PRODUCT



AMERICAN MANGANESE PILOT PLANT

ELECTROLYTIC MANGANESE METAL



FOR FURTHER INFORMATION

THANK YOU

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