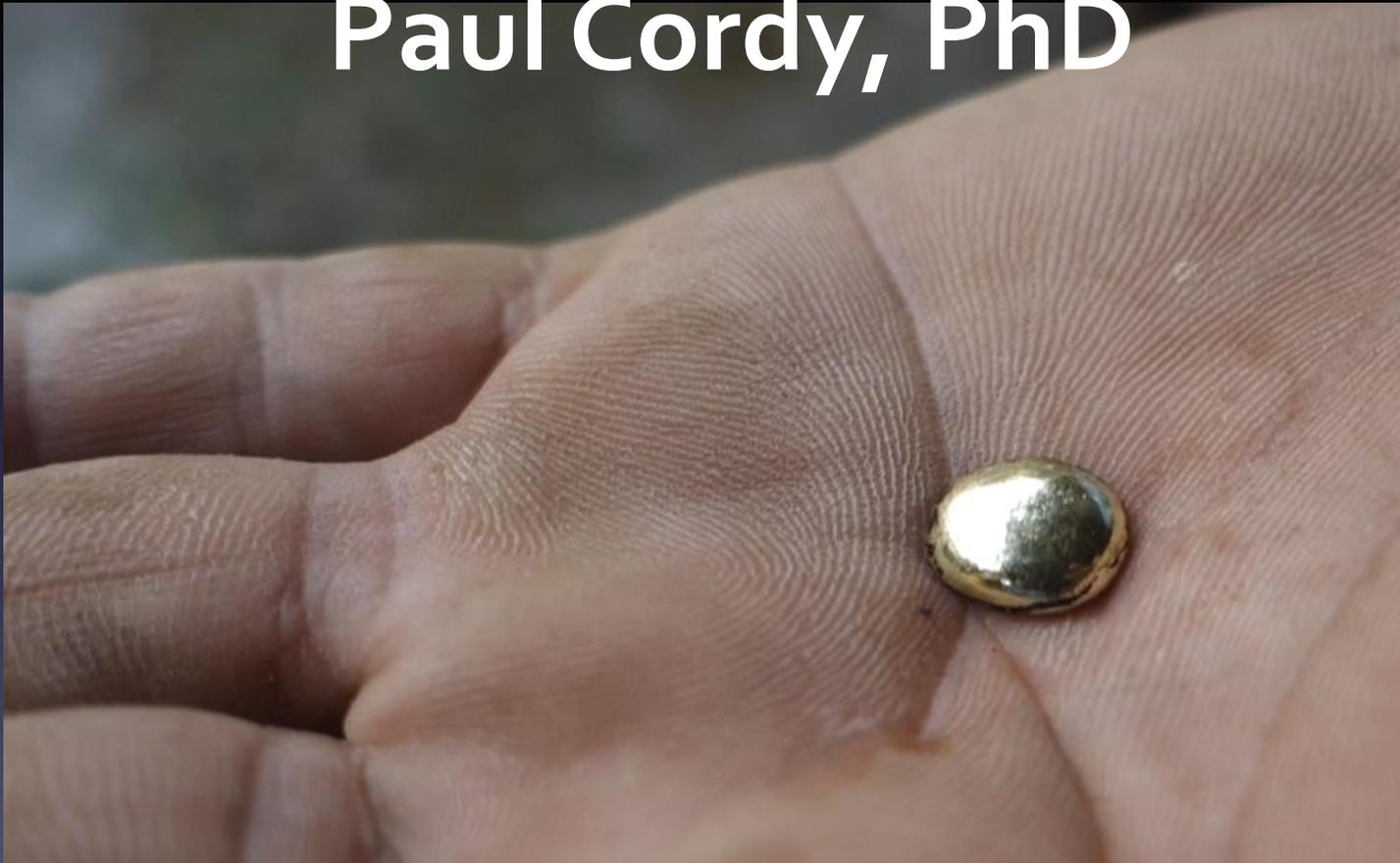
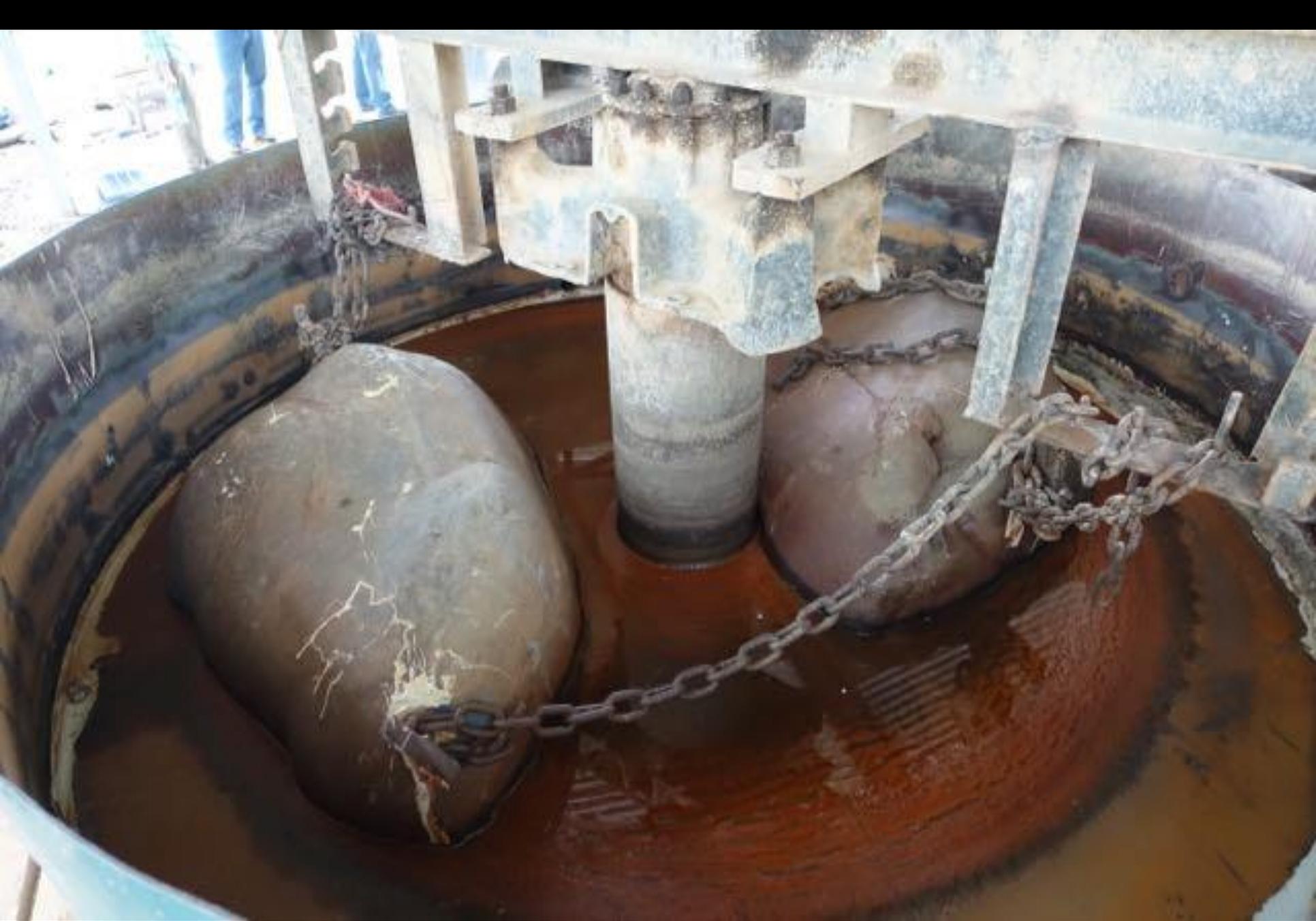


# Control de processos

Paul Cordy, PhD

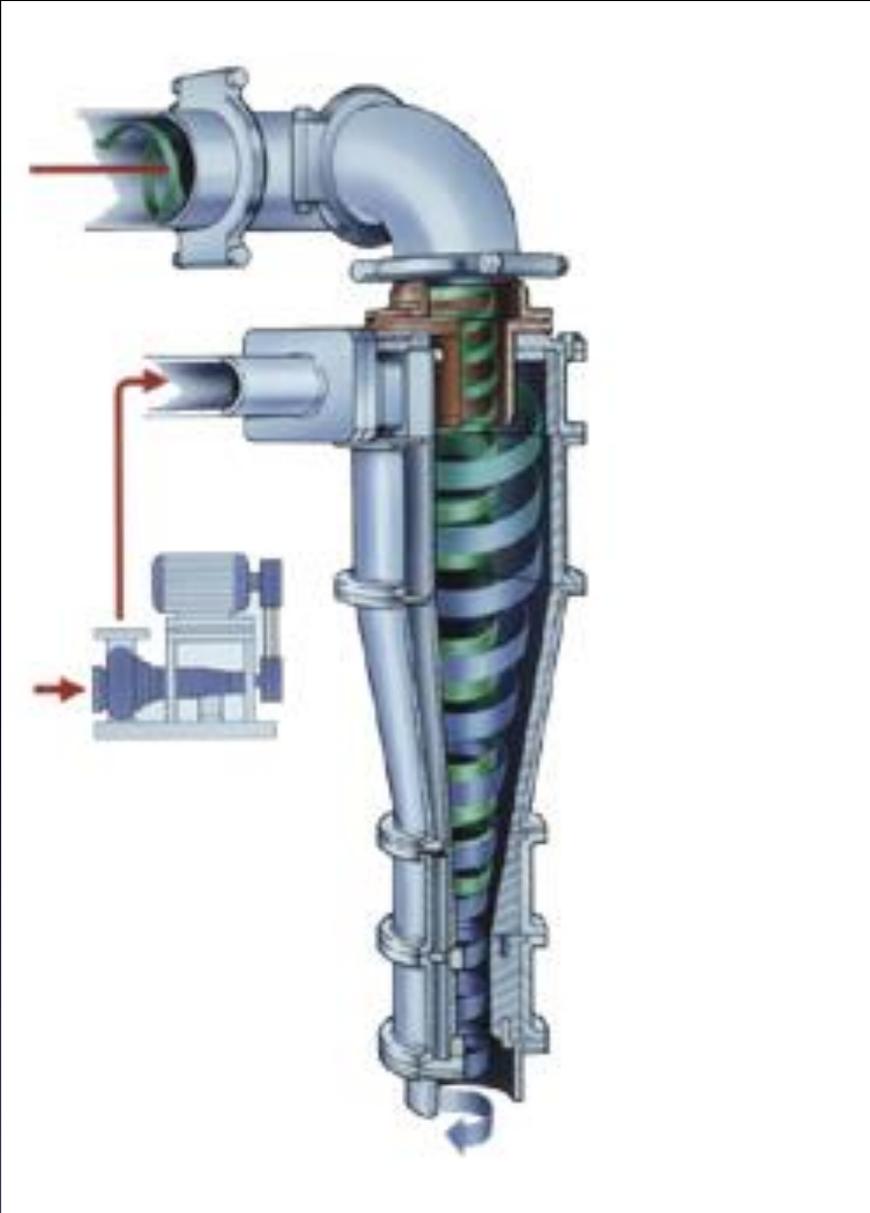












# Análisis

Optimización para el mineral

Seguimiento de eficiencia

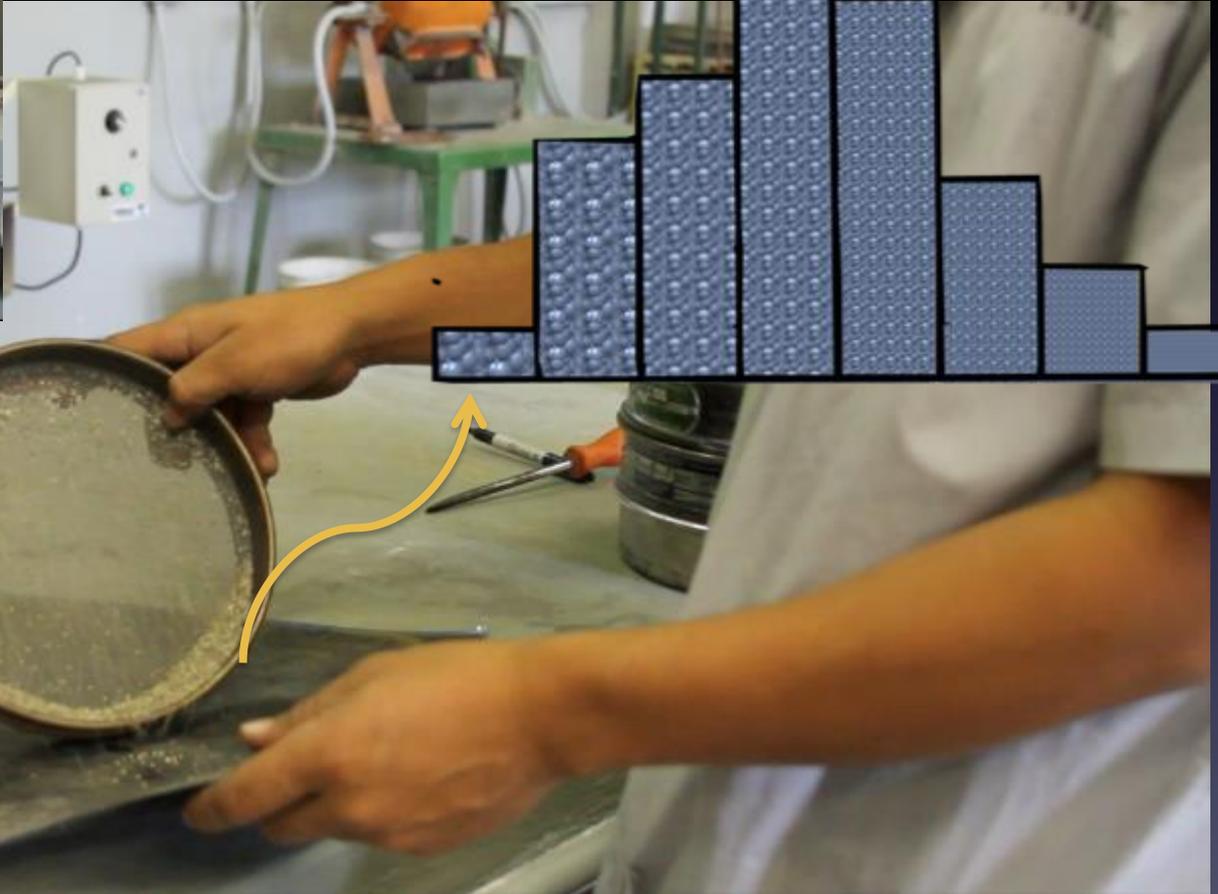
planificación

Tamaño de oro

Perdidas en colas

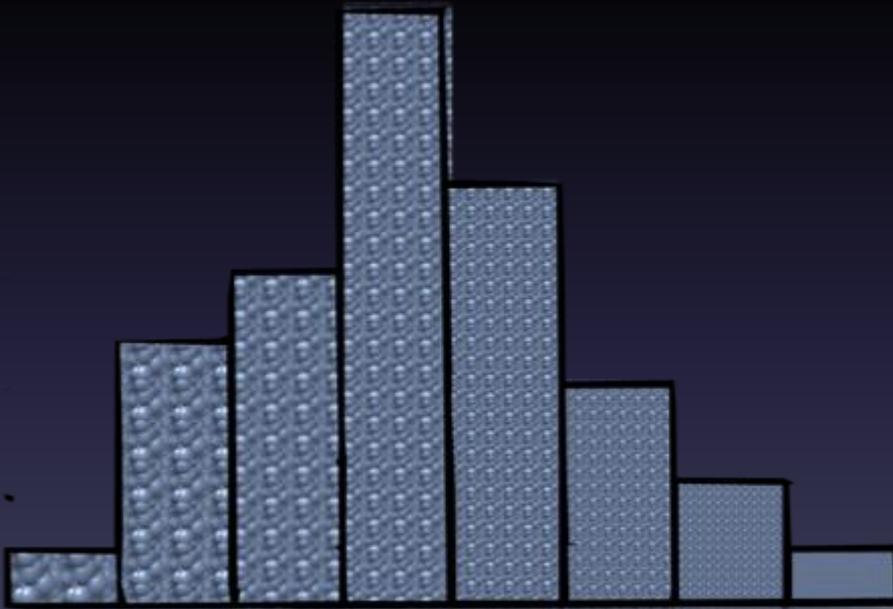
Pruebas de liberación

# Analysis

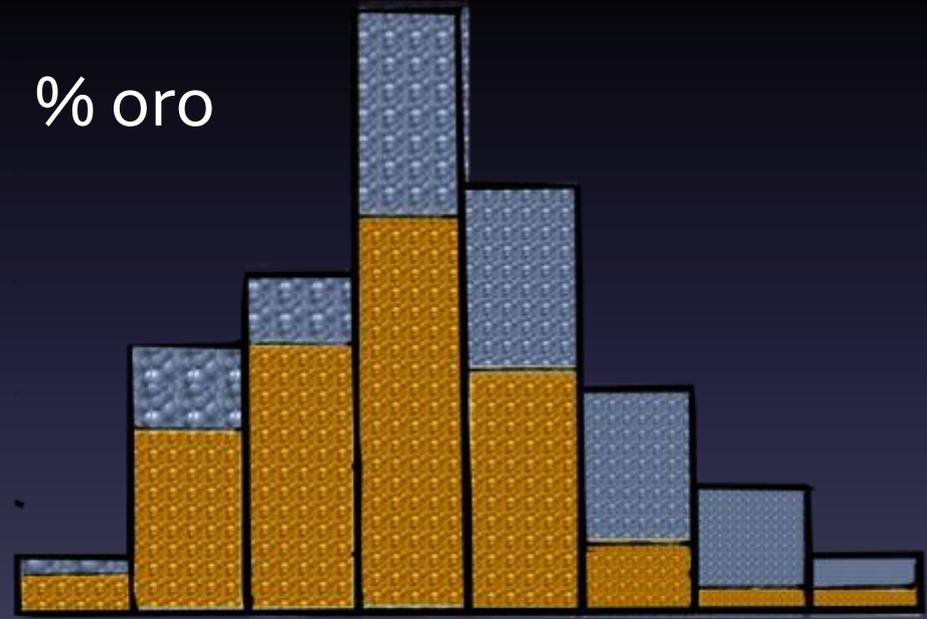


# Distribucion de oro

% material

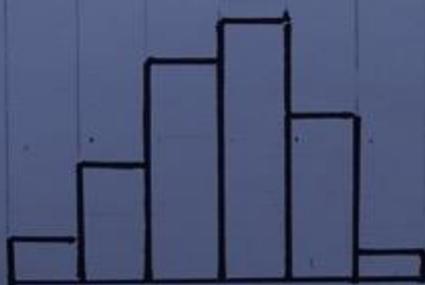
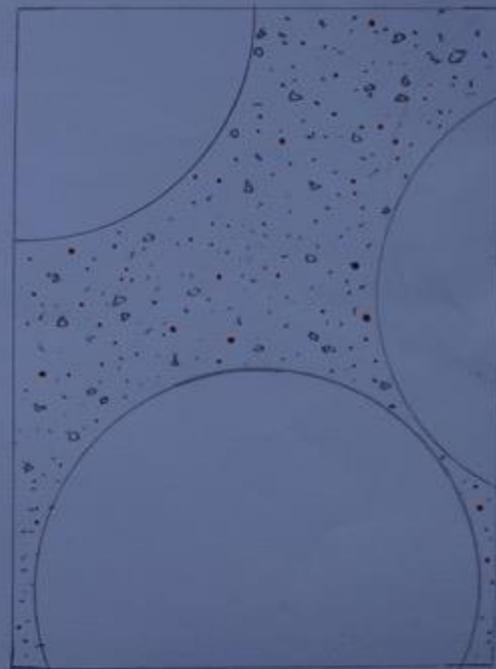
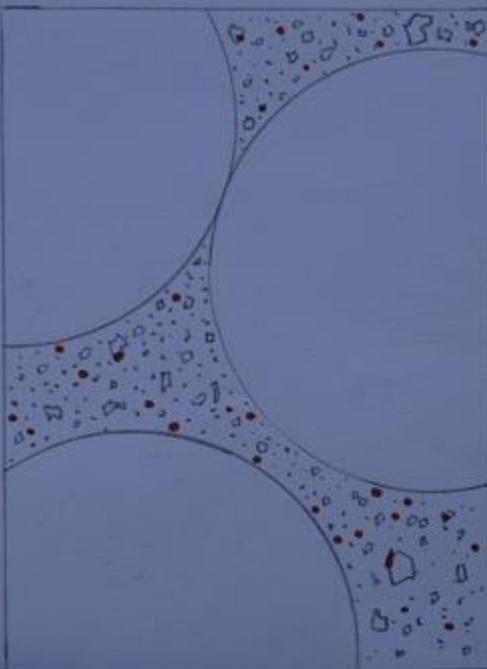
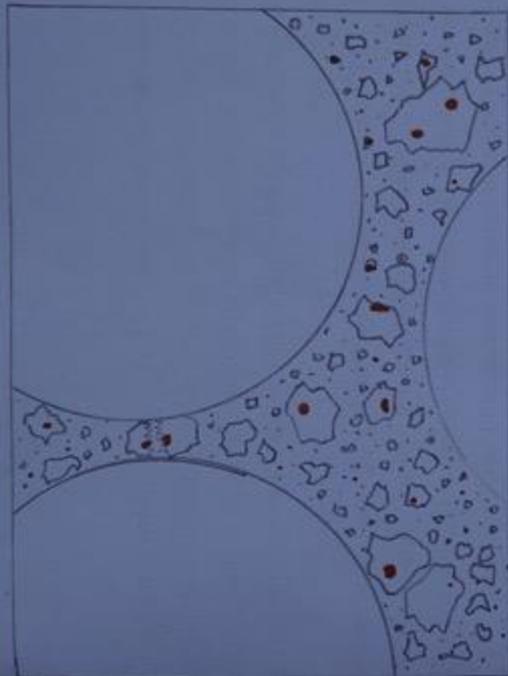


% oro



Tamaños de los granos

# Liberación adentro del molino



# Distribucion de oro

% material

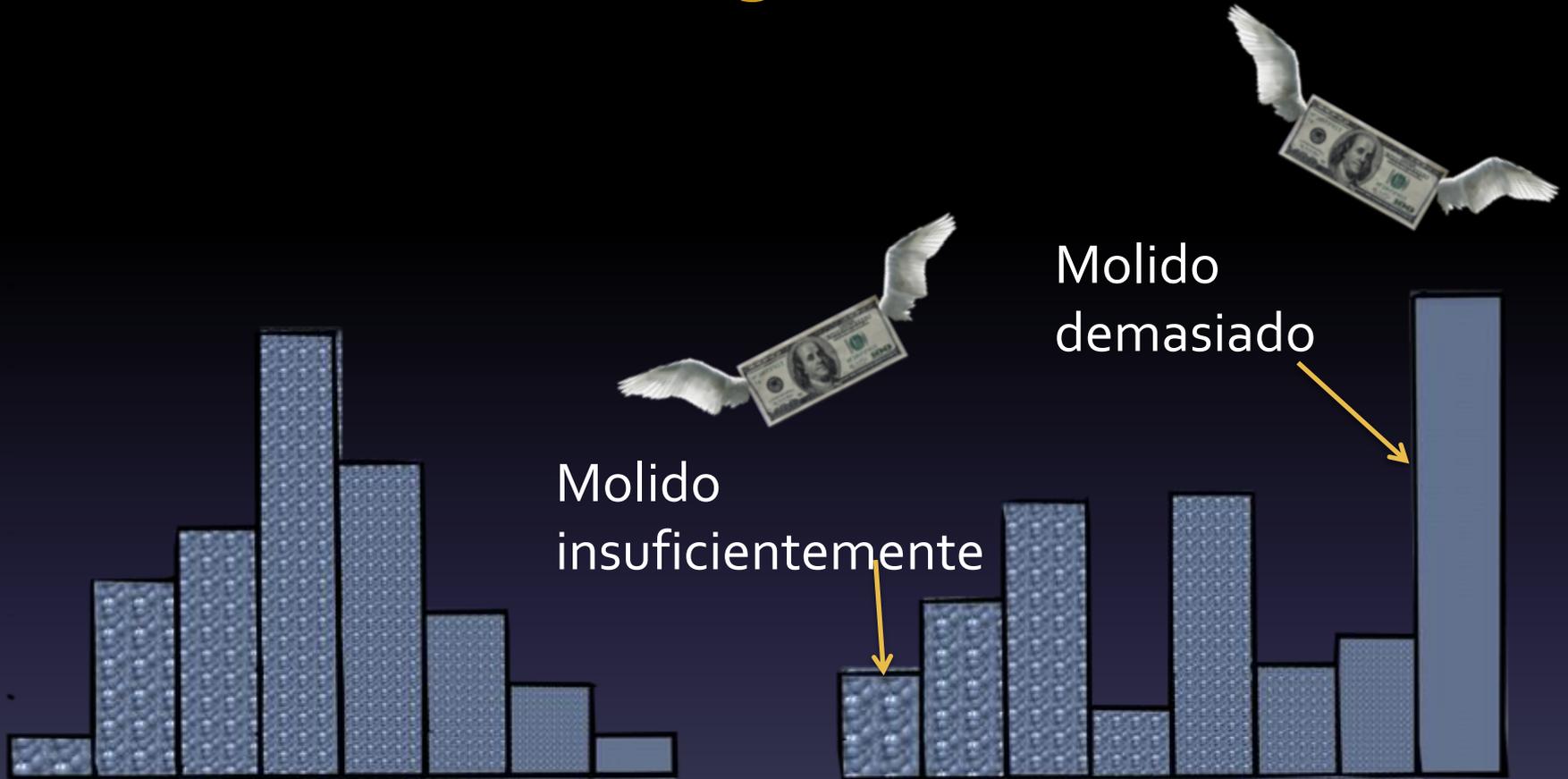


Oro no liberado

Oro demasiado fino para recuperar

% gold

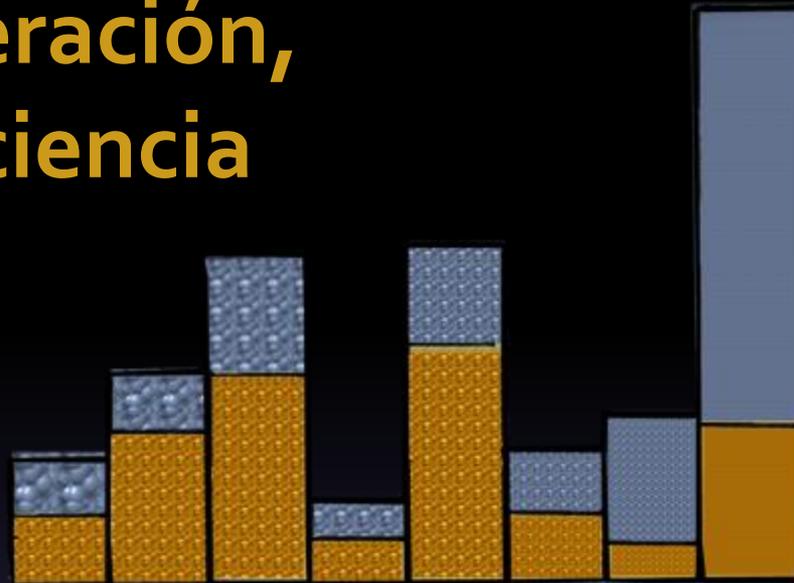
# Distribución de granos en las colas



Colas de molienda eficiente

Verdadera distribución de granos en el caso Boliviano

**Pobre liberación,  
poca eficiencia**



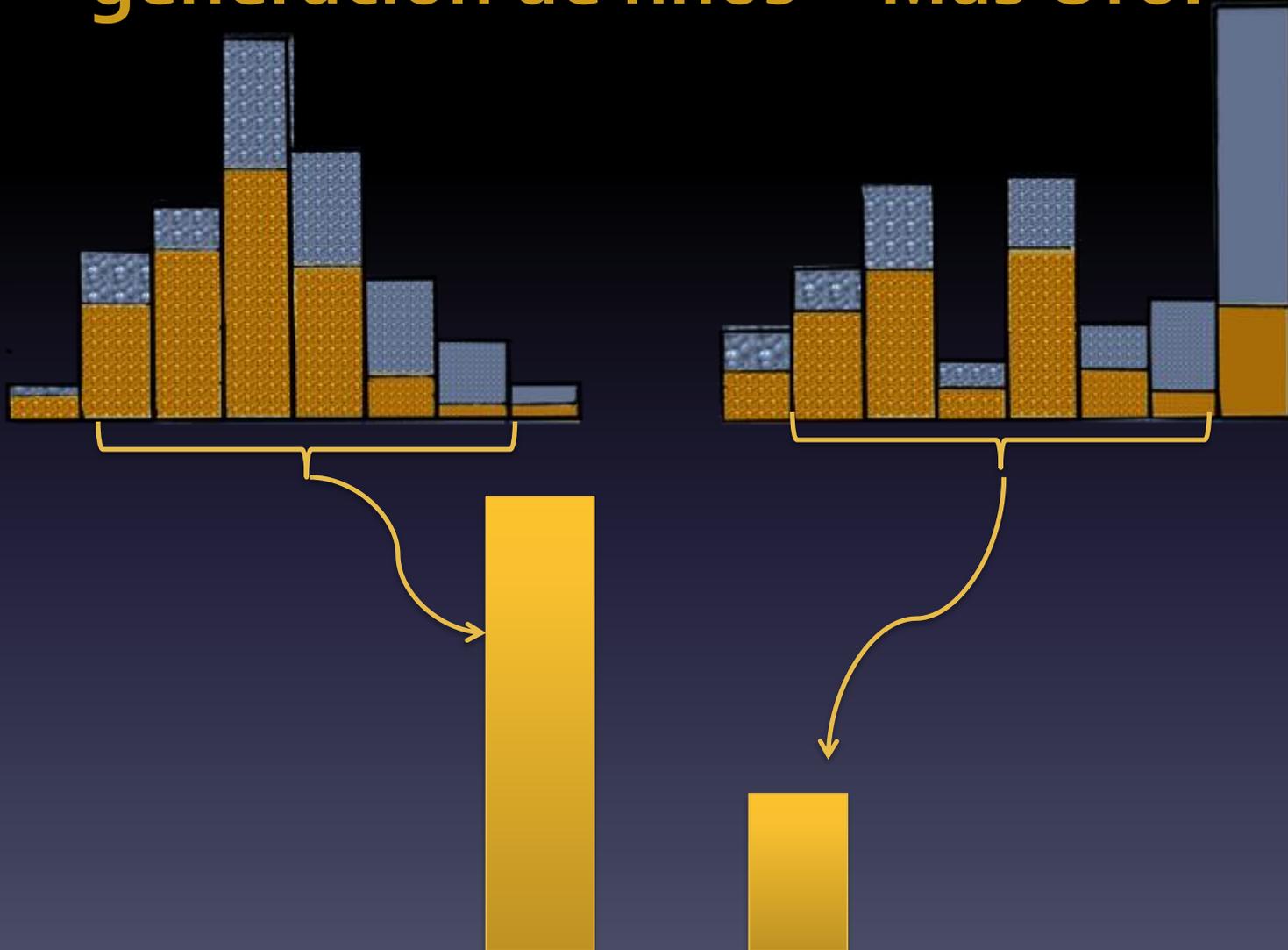


# Chancador y control de tamaños





**Mejor molienda, mayor liberación, poca  
generacion de finos = Más Oro!**



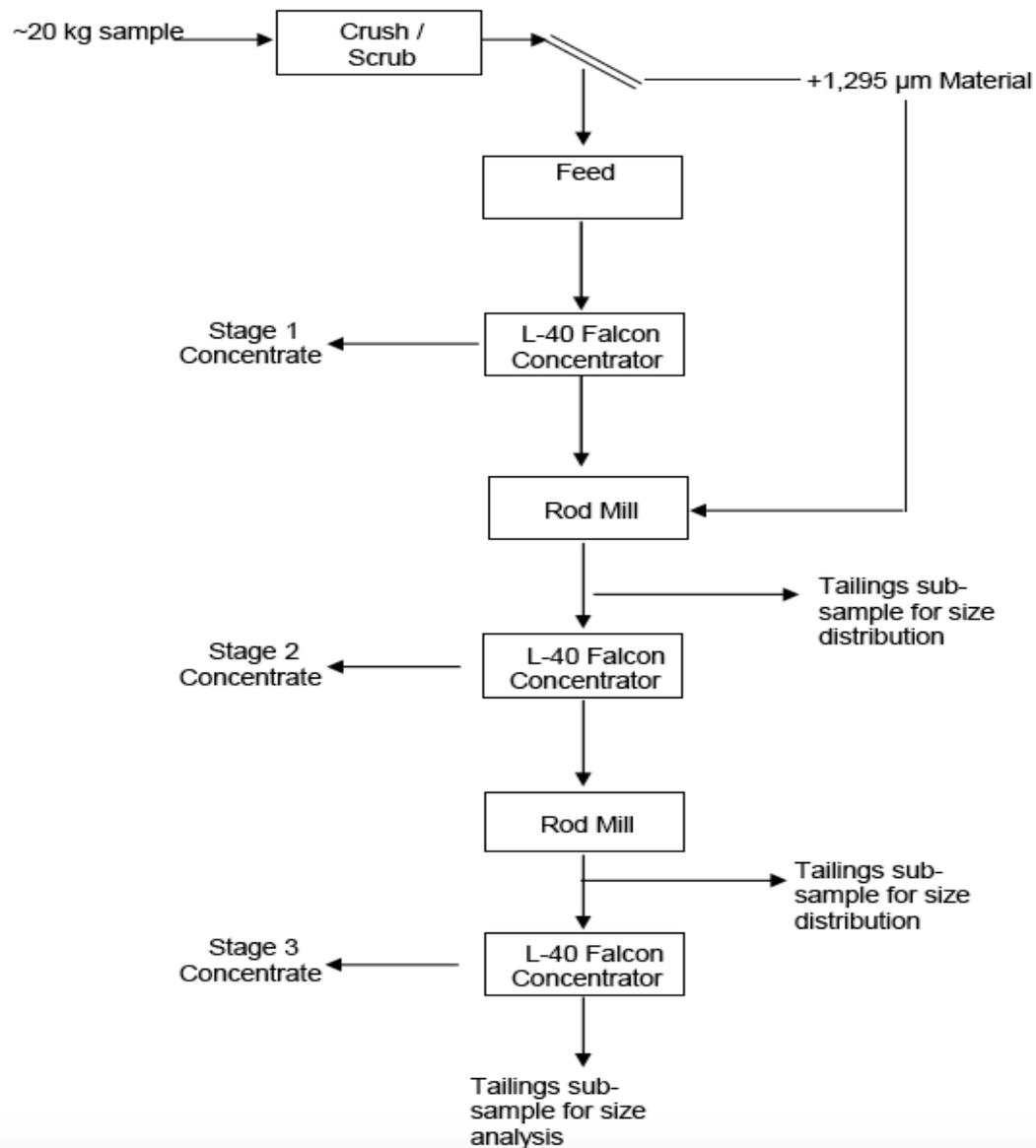


# Analysis de Laboratorio

## Muestras de 3 diferentes minas de Abangares

Sample ID	Assay Head (g/t)	Calc. Head (g/t)	GRG (%)	Tails (g/t)
DC100	24.34	<b>22.95</b>	<b>70.9</b>	6.80
DC200	8.57	8.95	58.9	3.75
DC300	41.49	<b>41.20</b>	<b>81.1</b>	7.93

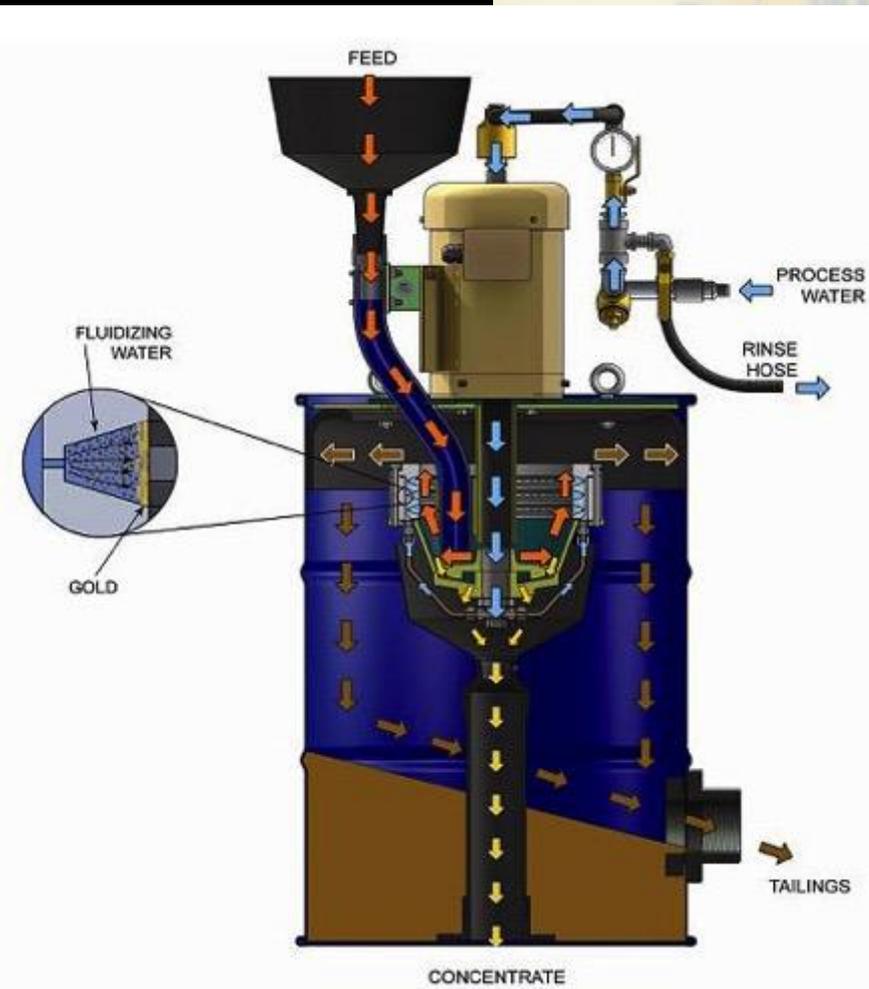
# Analysis de Laboratorio



# Ingenieros locales muestran perdidas



# Centrifuge



# Analysis de Laboratorio

## Muestra 1

Grind Size (P <sub>80</sub> in μm)	Product	Weight		Au	
		(g)	(%)	(g/t)	Dist'n (%)
231	Stage 1 Concentrate	128.5	0.64	1,364	37.8
188	Stage 2 Concentrate	116.1	0.58	550	13.8
	<b>Stage 1+2 Concentrate</b>	<b>244.6</b>	<b>1.21</b>	<b>978</b>	<b>51.6</b>
75	Stage 3 Concentrate	108.9	0.54	819	19.3
	<b>Total Concentrate</b>	<b>353.5</b>	<b>1.75</b>	<b>929</b>	<b>70.9</b>
75	Final Tailings	19,836.5	98.25	6.80	29.1
<b>Calculated Head</b>		<b>20,190.0</b>	<b>100.00</b>	<b>22.95</b>	<b>100.0</b>
<b>Assayed Head</b>				<b>24.34</b>	

# Analysis de Laboratorio

## Muestra 2

Grind Size (P <sub>80</sub> in μm)	Product	Weight		Au	
		(g)	(%)	(g/t)	Dist'n (%)
1142	Stage 1 Concentrate	181.7	0.90	203.7	20.5
323	Stage 2 Concentrate	101.7	0.50	235.2	13.3
	<b>Stage 1+2 Concentrate</b>	<b>283.4</b>	<b>1.41</b>	<b>215.0</b>	<b>33.8</b>
81	Stage 3 Concentrate	98.6	0.49	459.0	25.1
	<b>Total Concentrate</b>	<b>382.0</b>	<b>1.89</b>	<b>278.0</b>	<b>58.9</b>
81	Final Tailings	19,778.0	98.11	3.75	41.1
<b>Calculated Head</b>		<b>20,160.0</b>	<b>100.00</b>	<b>8.95</b>	<b>100.0</b>
<b>Assayed Head</b>				<b>8.57</b>	

# Analysis de Laboratorio

## Muestra 3

Grind Size (P <sub>80</sub> in μm)	Product	Weight		Au	
		(g)	(%)	(g/t)	Dist'n (%)
1224	Stage 1 Concentrate	107.7	0.53	1,321	17.1
335	Stage 2 Concentrate	100.0	0.49	1,739	20.9
	<b>Stage 1+2 Concentrate</b>	<b>207.7</b>	<b>1.03</b>	<b>1,522</b>	<b>38.0</b>
75	Stage 3 Concentrate	110.2	0.55	3,255	43.1
	<b>Total Concentrate</b>	<b>317.9</b>	<b>1.57</b>	<b>2,123</b>	<b>81.1</b>
75	Final Tailings	19,892.1	98.43	7.93	18.9
	<b>Calculated Head</b>	<b>20,210.0</b>	<b>100.00</b>	<b>41.20</b>	<b>100.0</b>
	<b>Assayed Head</b>			<b>41.49</b>	

# Analysis de Laboratorio

GR Distribution by Partical Size Class			on Class	on Class
Sieve Size		Inc. Rec. / Fraction	Inc. Rec. / Fraction	Inc. Rec. / Fraction
Tyler Mesh	Microns			
20	840	0.1	0.2	0.1
30	600	0.1	0.2	0.1
40	425	0.1	0.1	0.2
50	300	0.5	0.2	0.6
70	212	0.5	0.4	0.8
100	150	1.7	0.8	2.6
140	106	3.1	2.0	9.6
200	75	5.7	5.8	20.9
270	53	12.1	11.1	21.3
400	37	8.6	8.3	11.0
-400	-37	38.4	29.8	13.9
<b>TOTAL:</b>		<b>70.9</b>	<b>58.9</b>	<b>81.1</b>