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Vulture

ESTIMATE OF CN IN SYSTEM (WORST CASE)

WORST CASE PARAMETERS -

(1) Pregnant POND Full

(2) AREA OF HEAP UNDER LEACH SATURATED TO 25 gallons /TON ORE

(3) Solution concentration 0.5 lbs CN per TON of H_2O

(4) Application RATE .005 gpm / FT^2 / 100 gpm TOTAL

(5) HEAP HEIGHT 75 FEET

Pregnant POND Volume

480,000 gallons (per SHB) or 2000 TONS of H_2O

CONTAINING 1000 lbs CN

ORE UNDER LEACH

100 gpm ÷ 0.005 gpm / FT^2 = 20,000 FT^2

Volume with 75' heap = 20,000 x 75 = 1,500,000 FT^3

@ 20 cu. FT / TON 75,000 TONS

Volume of Solution contained

75,000 TONS X 25 gals / TN = 1,875,000 gals

or 7,820 TONS of H_2O

Containing 3910 lbs of CN

VULTURE

TOTAL gallons & lbs CN

POND	480,000 gals	1000 lbs CN
HEAP	1,875,000	3510
TOTAL	2,355,000 gals	4910 lbs CN

5820 TONS H_2O

STORM POND Volumes

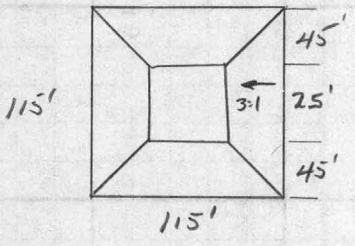
Frustrum of Pyramid –

$$V = \tfrac{1}{2}h\left(B + B' + \sqrt{BB'}\right)$$

h = height
B = AREA LARGE BASE
B' = AREA SMAL BASE

TOTAL POND Volume

$B = 115 \times 115 = 13,225\ FT^2$



3:1 :: 45:15

$B' = 25 \times 25 = 625\ FT^2$

$$V = \tfrac{1}{3}(15)(13,225 + 625 + \sqrt{13225 \times 625})$$

$= 83,625\ FT^3$ or 625,515 gals.

2608 TONS

Vulture

5' of WATER IN POND

$B' = 625$

$B_{(5')} = [25 + (5 \times 3 \times 2)]^2 = 3025$

$\therefore V = \frac{1}{3}(5)(3025 + 625 + \sqrt{3025 \times 625})$

$= 8375$ FT^3 or 62,645 gals or 261. TONS

10' of WATER IN POND

$B' = 625$

$B_{(10')} = [25 + (10 \times 3 \times 2)]^2 = 7225$

$\therefore V = \frac{1}{3}(10)(7225 + 625 + \sqrt{7225 \times 625}$

$= 33250$ FT^3 or 248,710 gals or 1037 tons

12.5' of WATER IN POND

$B' = 625$

$B_{(12.5')} = [25 + (12.5 \times 3 \times 2)]^2 = 10{,}000$

$V = \frac{1}{3}(12.5)(10\,000 + 625 + \sqrt{10\,000 \times 625}$

$= 54\,687.5$ FT^3 or 409,062 gals or 1706 TONS

Vulture

TOTAL TONS H_2O - PRIOR to RAINFALL EVENT (WORST CASE)

9820 TONS CONTAINING 4510 lbs CN

With 5' IN STORM SURGE POND

9820 + 261 = 10081 TONS H_2O

CONTAINING 0.487 lbs / TON CN

WITH 10' IN STORM SURGE POND

9820 + 1037 = 10857 tons H_2O

CONTAINING 0.452 lbs / TON CN

WITH 12.5' IN STORM POND

9820 + 1706 = 11526 TONS H_2O

CONTAINING 0.426 lbs / TON CN

POND FULL

9820 + 2608 = 12428 TONS H_2O

CONTAINING 0.355 lb / TON CN

8/26/87

Vulture

ESTIMATE OF COST to STACK AND EVALUATE TEST HEAP

GIVENS: 1) MATERIAL TO BE NEAR SURFACE ORE @ 5,000 TONS @ 0.100 OPT Au

2) RENT ALL EQUIPMENT NECESSARY

3) Source of EQUIPMENT Costs - RENTAL RATE Blue Book -

4) LABOR cost $10.00/hour + 30% FRINGES

5) Ore crushed to - 3/8" AND Agglomerated

6) 60 DAY LEACH CYCLE

7) Mining RATE 250 TPD or 1 month to stack

8) LEACH/Agglomeration cost at $6.00/TON

9) Gold Price @ $450/oz.

10) Assume 1:1 STRIPPING ratio

Cost Components

(1) MINING - drilling, blasting, loading

(2) Hauling - Trucks

(3) Crushing -

(4) Agglomeration/LEACHING

(5) Sampling/Metallurgical EVALUATION/ASSAYING

8/26/87

Vulture

TEST HEAP Cost ESTIMATE

* RENTAL RATES From Western Machinery

(1) MINING Cost (3 months operation)

Fleet components –

DRILL Mini-Mustang 4" hole 1000 CFM
$4,234.00 /month $7.75 hour
Compressor 1200 CFM 375 hp Diesel
$2700.00 * /month $20.65 /hr.
EXCAVATOR UH 123 1½ yd.
$6750.00 * /month $17.55 /hour

BLASTING Cost $0.08 /TON

3 months	RENTAL	Hourly	LABOR	TOTAL
DRILL (½ use)	12,702.00	1860.00	3,120	17,682.00
Compressor (½ use)	8,100.00	4,956.00	—	13,056.00
EXCAVATOR	20,250.00	8,616.00	6,240	26,490.00
BLASTING	30,000 TONS x $0.08			2,400.00
				$59,628.00

(2) HAULAGE Cost (3 months operation)

Fleet Components –
2 – 6X4 25 TON TRUCK 18 yd
$4,710 /month $20.65/hr

Rental	$28 260.00
hrly	15,824.00
LABOR	12,480.00
TOTAL	$60,564.00

8/26/87

Vulture

TEST HEAP COST ESTIMATE

(3) Crushing -

Components

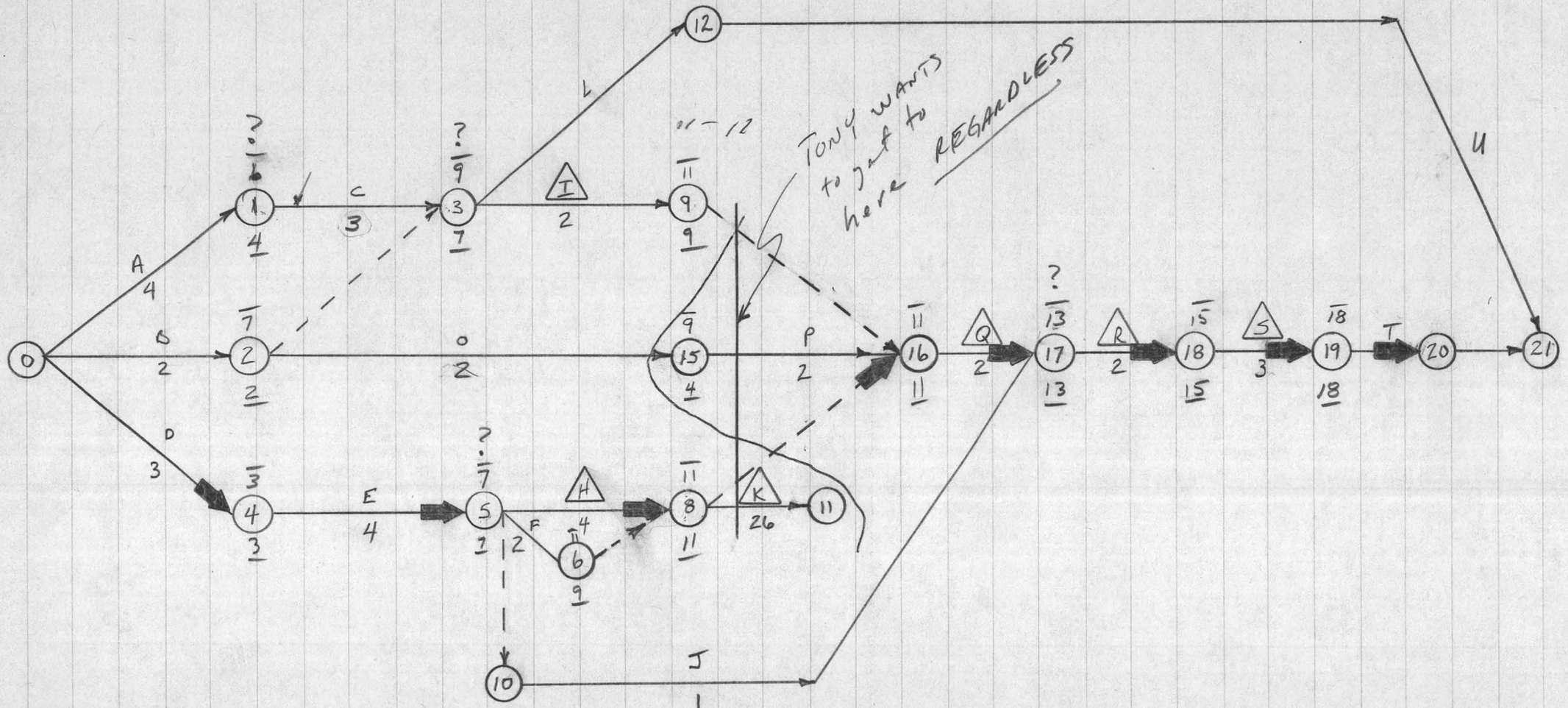
1/6/87
Rough Draft
Vulture C. P.

Activity		EXENT
A	Qpi, HW & EW column Tests	(1)
B	Crushing Plant Conceptual Design	(2)
C	Gold Recovery Plant Design	(3)
D	SHB PHASE I Prelim. Site Evaluation & Drainage Location	(4)
E	SHB PHASE II Detailed Investigation & Eng.	(5)
F	SHB PHASE III Plans & Specs.	(6)
H	ADHS WATER QUALITY PERMIT Application — Letter "Intent to issue..."	(8)
I	Air Quality Permit Application	(9)
J	Native Plants, MSHA, & Mine Insp.	(10)
K	ADHS Operating Permit	(11)
L	Gold Recovery Plant Construction	(12)
O	Interview prospective Leach Pad/Ponds construction contractors	(15)
P	Select Contractor	(16)
Q	Negotiate Contract (Bids Rec'd)	(17)
R	Draft Contract	(18)
S	Contractor Mob. lization	(19)

Sample	Calc Head Au, OPT	% Recovery Au	Agg Gravity? Y/N	Reagents lbs/ton Cement	Lime	CN
11/82 BR Tails *	.041	62.0	N	-	2.0	2.0
" "	.033	70.0	N	-	15.0	2.0
" "	.036	69.3	N	-	20.0	7.7
" "	.015	34.8	N	-	1.3	2.2
11/82 Column Tails *	.039	71.8	N	-	15.0	2.5
" "	.040	45.0	Y	10.0	15.0	2.3
TABLE I						
4/84 BR Tails	.029	72.2	N	-	3.1	3.0
BR Rock 80% -200	.041	95.1	N	-	2.0	2.0
BR Rock -1/2"	.070	33.3	N	-	2.0	1-3
5/84 Column Tails	.033	70.7	Y	10	5	1.5
	.029	66.5	Y	15	10	1.9
TABLE II	.028	65.8	Y	10	5	1.2
7/84 Column -3/8" 80/20 Rock/Tails	.079	77.2	Y	15	25	1.6
2/87 Qpi -1" BR	.053	37.7	N	-	1.4	1.25
Qpi -1/2" BR	.051	57.4	N	-	1.4	1.28
Qpi -1/4" BR	.066	62.9	N	-	1.5	1.42
Qpi -1/8" column	.063	52.3	Y	10.0	1.5	2.5
HW -1" BR	.058	58.3	N	-	1.6	2.1
HW -3/8" Column	.050	64.9	N	-	2.0	.39
FW -1" BR	.032	74.3	N	-	1.6	2.2
FW -3/8" Column	.034	83.7	N	-	2.0	.67
TABLE III						

* Zuetman - Landusky Work -

Preliminary (For Discussion only)



E / 4 ACTIVITY / DURATION

② EVENT

9 / 3 / 7 LATEST START FOR I + L / EARLIEST START FOR I + L

➡ indicates Critical Path

? INDICATES GO/NO GO Decision point

H INDICATES Activity Duration Dependent on others not UNDER OUR CONTROL

Vulture
CRITICAL PATH Schedule
Rough DRAFT
1/6/87