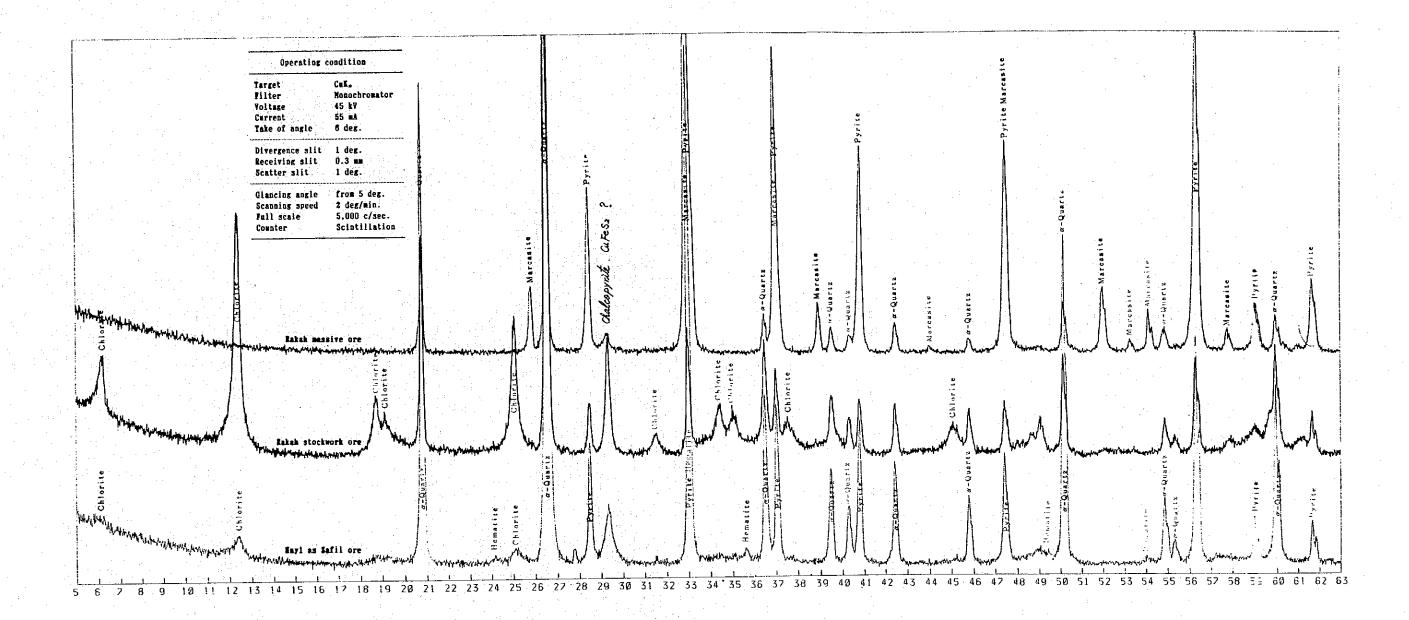
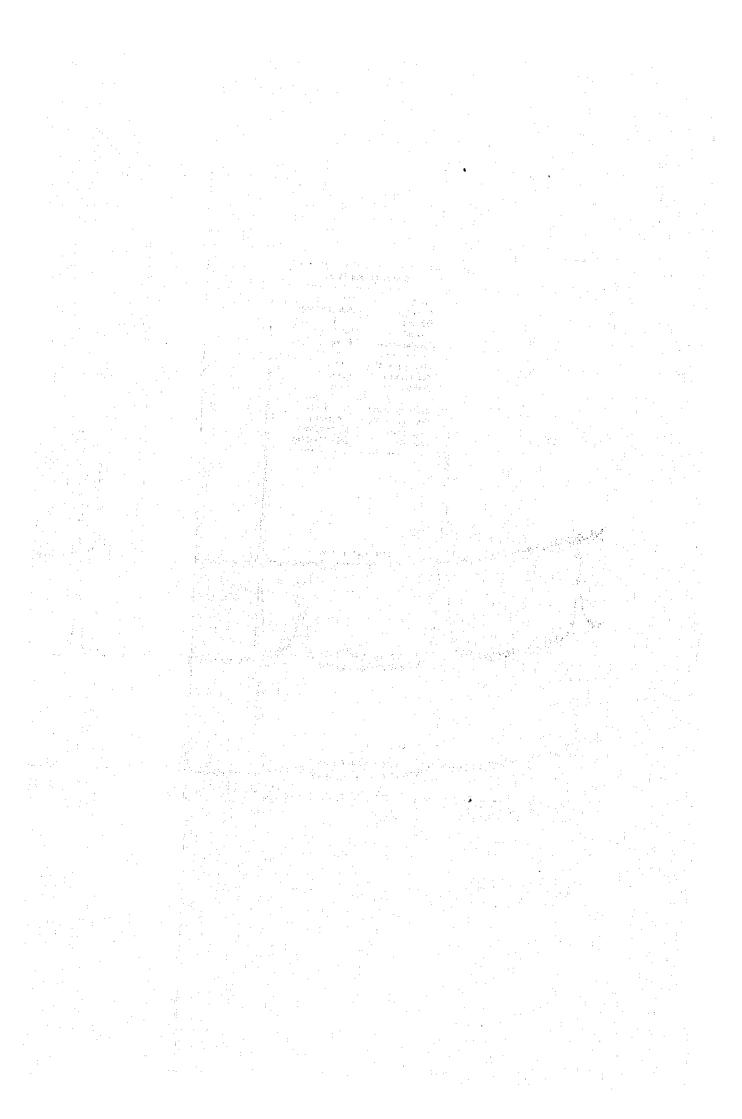
Appendix 5

X-ray diffraction pattern of head samples





Appendix 6

Details and results of flotation tests

Table 1 Flotation Test Results of Hayl as Safil Ore - Effect of feed size on copper selective flotation -

TES1	OPER		٠.			COND	CONDITIONS				R0	WEIGHT		ASSAY		Id	II	S
NO.	ATION	Time min.	еР. Б.	S12e %	Temp	-3 20	KAX g/I	AF65 8/T	Intial	Final	ucis	%	2%	æ %	v%	ري %	ъ. 9%	s %
: ≓	GRINDING ROUGHER SCAVEN- GEI	ည် ည်	960 57		25	2000	င်္လ	27 9.3	1.7	11.6	C.Head C-1 C-2 Tail	100.00 25.99 5.34 68.67	1.14 4.02 0.57 0.10	15 73 36.93 34.67 5.23	14.33 42.22 36.93 2.02	100,00 91.34 2.65 6.00	100.00 61.03 11.77 27.20	100.00 76.56 13.75 9.68
.7	GRINDINC ROUGHER SCAVEN-	<u>ධ</u> ස	92 32	80	25	2000	တ <u>ို</u>	27.9	12.0 11.8	11.8	C. Head C-1 Tail	100.00 16.03 1.31 82.66		200 200 200 200 200 200 200 200 200 200	14.58 40.65 31.75 9.25	100.00 90.61 1.58 7.81	100.00 36.52 2.58 60.90	100.00 44.69 2.85 52.45
က	GRINDING ROUGHER SCAVEN-	7 4 110 120 130	35 35	70	26	2000	တ္ဆ	27.9 9.3	12.1.	8.9 	C-Head C-1 C-2 Iail	100.00 12.45 1.50 86.05	18.10 1.5.27 1.1.1	18.19 13.04 13.14 13.16	14.52 38.47 33.77 10.72	100.00 89.82 2.02 8.16	100.00 26.95 3.10 69.95	100.00 32.98 3.50 63.52
4	GRINDING ROUGHER SCAVEN- GEH	7 2 C	35 35	80	25	2000	င္က ဗ	27.9 9.3	12.0 11.6	11.9	C. Head C-1 Tail	100.00 11.11 1.86 87.03	1.0 1.43 1.43	16.03 34.16 34.79 13.31	14.31 38.25 35.73 10.80	100.00 89.42 2.30 8.29	100.00 23.68 4.03 72.29	100.00 29.70 4.64 65.67

				ti. Taha e	
	ON %	100.00 43.24 14.85 41.91	100.00 30.82 11.89 57.29	100.00 24.31 5.81 53.83	100.00 29.70 4.54 65.67
	SIRIBUTIO	100.00 34.87 12.15 52.98	100.00 25.30 9.76 64.94	100 00 20 01 4.92 75.07	100.00 23.68 4.03 72.29
	ng %	100.00 80.14 10.98 8.88	100 81.33 9.33 9.31	100.00 82.27 5.60 12.13	100.00 89.42 2.30 8.29
	a a	14.66 41.31 47.74	14.62 36.44 40.51 10.05	14.67 35.90 35.90 11.69	14.31 38.26 35.73 10.80
11 Or	ASSAY Fe %	6 15.81 7 35.92 2 36.42 3 10.55	66 16 57 64 33 91 64 83 12 91 12 91	16.08 3.32.40 3.33.03	16.03 34.16 34.79 13.31
₩	n varyī T Cu	0 4 6 7 8 0.1 8	5 2 2 5 0 1	0 1 16 3 9 58 0 2 7 0 7 0 16	0 1 1.16 1 43 6 1.43 3 0.11
s of H	flotatio	ad 100.0	ad 100.0 12.3 1 83.3	ad 100.0 9.9 2.4 1 87.6	ad 100.0 11.1 1.87.0
با م م تا	v e UCTO	8.2 C.He 8.1 C-1	9.00 - 0.00 - 0.	9.7 C-1 9.4 C-2 Tal	1.6 C.He. 1.3 C-1 1.3 T-2
ti on Te	per se	ω ω 	æ≎ თთ	10.8 9.7	12.0 11.6
F. 0 t	AX on c S AF65	27.9	27 . 9	27.3	27.9
ញ .ក .ស	ect of K ONDITION THE KAX T &/T	-09 -09	00 20	00 30	30
	Temp Ci	27	28 11	28 15	25 20(
	Size %	080	08	80	80
	# # % % %	350 350 300	32 32 20	6 60 0 35 5	35 5 5
	OPER ATION TI	GRINDING I ROUGHER SCAVEN- GER	GRINDING 10 ROUGHER 10 SCAVEN-	GRINDING 10 ROUGHER 10 SCAVEN-	GRINDING 16 ROUGHER 10 SCAVEN-
	TEST No.	ίΩ	- A40 -	2	4

- Effect of AP3501 on copper selective flotation varying pH value -

% N	38.02 4.64 57.34	00.00 31.14 5.36 63.51	00.00 23.30 5.86 70.84	00.00 20.70 5.71 73.58
TRIBUTION Fe %	100.00 1 31.00 4.01 65.00	100.00 25.58 4.59 69.83	100.00 1 18.41 4.92 75.68	100.00 1 16.75 4.76 78.49
DIS. %	100.00 75.68 5.96 18.36	100.00 86.58 3.58 9.74	100.00 86.48 3.81 9.71	100 00 86.84 3.45 9.71
s %	14.92 39.74 33.45 10.23	14.50 37.32 34.75 10.75	14.84 35.22 35.73 11.98	14.46 35.09 37.52 11.92
ASSAY Fe	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	16.57 35.04 34.04 13.51	17.42 32.66 35.17 15.22	16.57 32.53 35.80 14.57
n.%	1.18 5.28 3.41 0.26	1.14 8.19 1.83 0.13	1 17 10 35 1 84 0 13	1.19 12.16 1.87 0.13
WEIGHT %	100.00 14.28 2.07 83.65	100.00 12.10 2.23 85.67	10.0 00 9.82 2.43 87.75	100.00 8.53 2.20 89.27
PROD	C. Head C-1 Tail	C. Head C-1 C-2 Tall	C.Head C-1 C-2 Tail	C. Head C-1 C-2 Tail
inal	2.5	8 8 6 8	10.2	11.4
IntialF	8.1	9,28	11.1	11.8
tia	• •	. ,	го 10	∴. ∞.4,
AF65 Intia	ω·-	7.9	3.3 11. 9.3 10.	.9 11.8 .3 11.4
65 I Intia	6.7 27.9 5.8 9.3 7.	6.7 27.9 9. 5.8 9.3 8.	6.7 23.3 11. 5.8 9.3 10.	6.7 27.9 11.8 5.8 9.3 11.4
CONDITIONS Lime AP3501 AF65 8/T 8/T Intia	0 46.7 27.9 8. 5.8 9.3 7.	46.7 27.9 9. 5.8 9.3 8.	46.7 23.3 II. 5.8 9.3 10.	46.7 27.9 11.8 5.8 9.3 11.4
CONDITIONS SizeTemp Lime AP3501 AF65 % °C g/T g/T Intia	7 800 46.7 27.9 8. 5.8 9.3 7.	8 1000 46.7 27.9 9. 5.8 9.3 8.	1500 46.7 23.3 11. 5.8 9.3 10.	9 2000 46.7 27.9 11.8 5.8 9.3 11.4
CONDITIONS D.Sizelemp Line AP3501 AF65 % % °C g/I g/I g/I Intia	0 27 800 46.7 27.9 8. 5.8 9.3 7.	0 28 1000 46.7 27.9 9. 5.8 9.3 8.	0 28 1500 46.7 23.3 II. 5.8 9.3 10.	0 29 2000 46.7 27.9 11.8 5.8 9.3 11.4
CONDITIONS SizeTemp Lime AP3501 AF65 % °C 8/T 8/T Intia	16 60 10 35 80 27 800 46.7 27.9 8. 5	16 60 35 80 28 1000 46.7 27.9 9.5 5.8	16 60 10 35 80 28 1500 46.7 23.3 11. 5	16 60 -10 35 80 29 2000 46.7 27.9 11.8 5.8 9.3 11.4
CONDITIONS ImeP.D.SizeTemp Line AP3501 AF65 in: % % °C g/T g/T Intia	50 35 80 27 800 46.7 27.9 8. 5.8 9.3 7.	60 35 80 28 1000 46.7 27.9 9.	6 60 0 35 80 28 1500 46.7 23.3 11. 5	6 60 0 35 80 29 2000 46.7 27.9 11.8 5

Table 4 Flotation Test Results of Hayl as Safil Ore - Effect of AP3418 on copper selective flotation varying pH value -

		$A = \left\{ \begin{array}{ccc} A & A & A \\ A & A \end{array} \right\}$		
ON S	100 00 29.32 3.55 67.12	100.00 20.18 4.62 75.20	100.00 26.62 6.29 67.09	100.00 33.96 7.48 58.56
STRIBUTI Fe %	100.00 23.63 3.15 73.22	100.00 16.44 4.01 79.54	100.00 21.43 5.25 73.32	100.00 26.59 6.38 67.02
DI Cu	109.00 69.93 5.23 24.84	100.00 67.25 7.58 25.17	100 00 83 94 4 86 11 20	100.00 89.42 3.27 7.31
% %	14.53 40.23 32.73 11.10	14.73 36.67 34.05	14.54 37.54 38.03 11.18	14.62 38.68 37.71 10.16
ASSAV Fe	16 05 35 83 32 00 13 38	16.42 33.32 32.98 14.53	16.31 33.88 35.59 13.70	15.65 32.43 34.46 12.45
%	7.71 7.71 3.87 0.33	1.18 0.44 8.33 8.33	1.17 9.51 0.15 0.15	1.15 0.03 0.10
WEIGHT %	100.00 10.59 1.58 87.84	100.00 8.10 2.00 89.90	100 00 10 31 2 40 87 28	100.00 12.84 2.90 84.27
PROD UCIS	C. Head C-1 C-2 Tail	C.Head C-1 C-2 Tail	C.Head C-1 C-2 Iail	C.Head C-1 C-2 Tail
H Final	ω ω	8.8	10.0	11.2
Intial	80 80 1.0	8.8 7.2	10.7	11.8
AF65 8/T	27. 9.3	9.3	27. 20.00	27.9 9.3
CONDITIONS ime AP3418	46.4	46.4	46.4	46.4
71 %	0 86	1140	1400	2520
Temp	28	53	28	30
8128	80	80	80	8 0
eP. D.	0 c 0 c	9.0 3.0	80 35	3.50 3.50
Time min.	0.00 0.00	10 10 2	1.6 10.8	16 10 5
1	NA E	NG RR RR	ING IER IGER GER	ING IER N- GER
OPER	GRINDT ROUGHE SCAVEN	GRINDIN ROUGHER SCAVEN-	GRIND ROUGHE SCAVEN	GRINDI ROUGHE SCAVEN

- Effect of AP404 on copper selective flotation varying pH value

NO S	100.00 21.88 4.62 73.51	100 00 15.68 5.69 78.69	100.00 19.27 4.61 76.12	100.00 19.90 4.21 75.89
STRIBUTI Fe	100 00 17.71 3.35 78.33	100.00 12.70 4.83 82.47	100.00 15.41 3.91 80.58	100.00 15.60 3.80 80.80
Cu %	100.00 66.13 8.94 24.92	100.00 71.76 10.27 17.97	100.00 82.19 4.66 13.15	100.00 83.29 4.20 12.51
w%	14.89 39.03 34.12 12.21	14.80 35.35 36.21 12.77	14.85 35.84 37.63 12.53	14.35 34.71 34.94 12.10
ASSAY Fe	123 33 33 33 33 33 33	15.81 30.60 32.84 14.31	15.91 30.72 34.20 14.23	15.41 29.21 32.07 13.83
2%	1.15 9.12 5.11 0.32	1.17 12.75 5.15 0.23	12.01 2.99 0.17	1.15 11.66 2.80 0.16
WEIGHT	100 00 8 35 2 01 89.64	100 00 6.56 2.32 91.11	100.00 7.98 1.82 90.20	100.00 8.23 1.73 90.04
PROD UCTS	C. Head C-1 C-2 Tail	C.Head C-1 C-2 Tall	C.Head C-1 C-2 Tail	C.Head C-1 C-2 Tail
H Final		დ ლ ფ დ	10.0 9.6	11.4 11.3
Intial		6.0 0.0 0.0	10.8 10.0	11.9
AF65	L-0	27.9 18.6	27.9	27.9
CONDITIONS ime AP404	4.0	54.1	54.1	54.1 7.7
CONE Lime		1000	1400	2980
e Temp	28	58	28	30
Size	80	080	80	80
₽. 0.%	က္က သူ	35 35	320 320	32 32 32
Tin		မ ဝ ပ	20 C	မ မ မ
T OPER ATION	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER
TEST No.	9	1-7	18	1.9
	*	- A43 -		·

- Recovery as a function of flotation time on copper selective flotation varying KAX dosage -

, ,			,					
			: :					
			:					
Õ								
BUT	₽.%	000	20084 2007 2007	٥.		2 C & & & & & & & & & & & & & & & & & &	Σ r⊶1 αΩ:	e el
비법	12.01	000	w co H co w	72	100	24.00 €	ા ન્ન જા	년 9
DIS		-00	၂၀ဖ ႕က	ന	0.0	က်ကလေလ) ;1 ;1	О
	۳ 2%	0 0 2	32770	4	0	3401	2	Ţ
		10(1	10(0 ~ 4 -		
								
} }								
5-1		م م مارم	يسو هند جوا خواه					
<	₽.%	ထယ္ဂ		2	က္	2 C G G	יי-יי	r.
A S			200000 40400		H 0	2000	325	<u> </u>
1		0 4 n	16000 041111	10		200 200 200 200		
	3%	⊢! ભ ર	ようろうよこ	0		, w w v		
		00,	വവാധാ	2	٥,	4000	. – ro	~
IGH	%	ဝဖင	~ H O O O O 4 O 4 D	6	"	2011C	~ 4	1.7
불	. 123 . 123	10		∞	20	ì		ထ
10	IS	์ ช พ.ศ.	⁷ ധഎന്0		e a c	- N to 4	യവം	7
PRO	<u>ن</u> ا	1 1	ဥုဂုဂ္ဓုဂ္	er l	C. He	2000 4004	ြိုင်	Гај
			-i-i-0,00			000		
	pH 1Fina		india					- ' .
	ਲ	ထ	കവാധര		. (০ ব.ব	਼ ਖਾਚ	
	Inti	근				i d-	, , , ,	
	35	9	ကကကက	-	<u> </u>	ာ	ကက	
	AF 6 8/1	80 H	တတ်တ်တ		5		တတ	
ONS		96	ໝ		<u> </u>	2	ιΩ	
111	KAX g/T	က		:	•	₽.		٠.
CONDI	<u>0</u>	<u> </u>	2222	. 2		2 00	.00	
S	Lim g/T	208	20 15 20		Ú		100	
-	8 8 0 8							
	<u>-</u>	က	· .			.		
	S12 %	80			C	0		
	% ت	350	. :		50			********
	표 E -	ယက္	ನಮುಬಾರ			ാധ എന്		
	₩ 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	म् कल्ल	-			न्यल्ड		
E.R.	0	DIN			DINC	:i		
D.		RIN			RINI	3		
SI	$\overline{}$	58			CR) 		
(w	S S		20	:		21		

Table 7 Flotation Test Results of Hayl as Safil Ore - Effect of feed size on bulk flotation -

j		
10N S %	100.00 88.42 4.17 7.41	100.00 82.09 5.68 12.23
BUI e	100.00 73.81 4.11 22.08	100.00 68.20 5.61 26.19
DISTR Cu F	00.00 84.45 6.71 8.84	00.00 78.83 8.78 12.39
ω%	15.56 20.45 1.80	15.47 43.02 22.66 2.84
ASSAY Fe %	15 20.09 50.71 5.51	15.97 236.91 5.28
ກ%	1.16 2.49 0.16	1.18 2.16 0.22
¥ЕІСНТ %	100.00 32.74 3.17 64.08	100 00 29 51 3.87 66.61
PROD UCIS	C. Head C-1 C-2 Tail	C. Head C-1 C-2 Tail
nal	7.5	7.4
pH ntialF	5-7- 5-4-	7.2
AF65 8/T	37.2 9.3	37.2 18.6
TIONS KAX g/T	က်	ი გ
CONDI Lime	620	880
ZeTemp % - %	29	29
S12e %	20	99
леР. D. %	920	3 8 9
Time min.	ထင္က	H 0 10
OPER ATION	GRINDING 22 ROUGHER 1 SCAVEN- GEN	GRINDING ROUGHER SCAVEN- GER
TEST No.	22	23

Table 8 Flotation Test Results of Hayl as Safil Ore - Effect of pH value on bulk flotation -

		٠.			
NO S %	100.00 89.74 8.57	100.00 88.42 4.17 7.41	100.00 84.37 4.59 11.04	100.00 50.50 15.73 33.78	100 100 100 000 000 000
STRIBUTI Fe	100.00 73.96 5.74 20.30	100.00 73.81 4.11 22.08	100.00 70.43 4.27 25.30	100.00 42.31 13.57 44.12	100.00 61.03 11.77 27.20
Cu DI	100.00 80.03 13.65 6.31	100.00 84.45 6.71 8.84	1.00.00 83.11 6.89 1.0.00	100.00 76.45 7.52 16.04	100.00 91.34 2.66 6.00
8%	14.58 42.77 18.93 0.81	15.56 42.01 20.45 1.80	15.26 44.34 25.31 2.47	15.51 44.66 43.07 6.82	14.33 42.22 36.93 2.02
ASSAY Fe	ਜਲਜ	15.99 26.05 20.71 5.51	16 26 39 44 25 12 6.03	1000 000 000 000 000 000 000 000 000 00	36.93 346.93 6.23
12 %		1.1.2.2.9.9.0.0.1.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.1.6.0.1.6.0.1.6.0.1.6.0.1.6.0.1.6.0.1.6.0.1.6.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.1.6.0.0.0.1.6.0.0.0.1.6.0.0.0.1.6.0.0.0.1.6.0.0.0.1.6.0.0.0.0	1.16 3.32 2.89 0.17	1.20 5.22 1.59 0.25	1.14 4.02 0.57 0.10
WEIGHT	0.00	100.00 32.74 32.17 64.08	100, 00 29, 03 68, 21	100.00 17.54 5.66 76.80	100.00 25.99 5.34 68.67
PROD	C. Head C-1 C-2 Tail	C. Head C-1 C-2 Tail	C. Head C-1 C-2 Tail	C. Head C-2 Tail	C. Head C-1 Tail
H. (F.	4.4.	4.13	0.00	0. 80 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	11.7
Tutial	হাহা	24	8.0 7.9	10.0 9.2	12.1
AF65	, co	. 2 . 2 . 2 . 3	27.9 9.3	2. 0.00	27.9
KAX	1447. A 147	ည်က	တ လ	င္တဏ က	က က
COND Lime	ી ત્રસ	620	480	1000	2000
e Tear	28	29	26		25
512		50	о <u>л</u>	50	50
G.%	322	350 350	35 35	3.60 3.50	60 35
FE	€ , 1	7 C T 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	20 CZ	დ ე დ ი ი	G 8 10 8 8
T OPER ATION	GRINDING ROUGHER SCAVEN-	GRINDINC ROUGHER SCAVEN-	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER
TES1	24	22	25	26	H

- Recovery as a function of flotation time on bulk flotation varying KAX dosage

	1 1	3		1			1	- 1	1.	:	
	ω %	0.00		, D	დ დ		6.71	۲.	သ	G.	
χΌ		0	~ ;	-	,,,		2	r-4			
BUI	₽% e	00.				°	41	\vdash	S,	വ	1:
ISIRI	下 0/	100	 	- 1	2.7	100	81	(D)	েন	တ - 1	
DI		00	4.0	90	0	00	8	80	58	ည	
	2% 2%	100	91	7	ထ		83				
		က က	22	2	0.5	4.8	83	50	31	46	-;- : .
	∞%	4	42.	ز. ام	ci .	4	42.	H	0	0	
λ¥		73	დ.	, 0	23	77	95	7.9	36	0.4	
A S.S	æ.%	12	36	رن م	တ		36	. •			à
	3,0	14	02	<u>ئ</u>	0	5	9.	80	2	90	
: .	3%	,4	ব্য	>	0	-	(C)	0	0	0	
GHI	10		о О			1	. 22	•			
WE I		100	25	ŋ	ဗ္ဗ	10.0	26	∞	က	6.1	:
ROD	SIS	lead	C-1	7	errel re-l	I 0) } 1	~	ო		
<u> </u>	ä		င်း	دٰ	i⊐ :		$\cdot:$	٦	င်	Н	
		<u>. </u>	-	-	· . —	-				<u>: </u>	_
	inal		11.7	_;		-	8.0	10.7	ر ا	•	
	pH ialFinal		11.7			-	.6 10.8	.4 10.	.3 10.5		
	D.E		711.7	1.(11.		-	1.6 10.8	4 10.	1.3 10.5		
	tial		2.1 11.7	11.		-	11.6 10.8	1.4 10.	11.3 10.5		
ONS	5 Intial		12.1 11.7	11.		-	11.6 10.8	11.4 10.	11.3 10.5		
SILIONS	5 Intial		12.1 11.7	11.		-	11.6 10.8	11.4 10.	11.3 10.5		
CONDITIONS	Lime KAX AF65 pg/T g/T Intial		12.1 11.7	11.		-	40 37.2 11.5 10.8	11.4 10.	00 10 18.6 11.3 10.5		
CONDITIONS	Lime KAX AF65 pg/T g/T Intial		30 27.9 12.1 11.7	11.		-	40 37.2 11.5 10.8	200 10 9.3 11.4 10.	00 10 18.6 11.3 10.5		
CONDITIONS	Lime KAX AF65 pg/T g/T Intial		30 27.9 12.1 11.7	11.		-	2000 40 37.2 11.5 10.8	200 10 9.3 11.4 10.	00 10 18.6 11.3 10.5		
CONDITIONS	Sizeremp Lime KAX AF65 pg 8/1 g/I g/I Intial		5 50 25 2000 30 27.9 12.1 11.7	11.			32 2000 40 37.2 11.6 10.8	200 10 9.3 11.4 10.	00 10 18.6 11.3 10.5		
CONDITIONS	Sizeremp Lime KAX AF65 p 9 % °C g/I g/I Intial		5 50 25 2000 30 27.9 12.1 11.7	11.			50 32 2000 40 37.2 11.6 10.8	200 10 9.3 11.4 10.	00 10 18.6 11.3 10.5		
	TimeP.D.Sizeremp Lime KAX AF65 pmin. 8/8 % % % % g/I g/I g/I Intial		10 35 50 25 2000 30 27.9 12.1 11.7	THE STATE OF	800 Control of the co		10 35 50 32 2000 40 37.2 11.5 10.8	17 10 9.3 11.4 10.	2 10 18.6 11.3 10.5		
	Sizeremp Lime KAX AF65 pg 8/1 g/I g/I Intial		10 35 50 25 2000 30 27.9 12.1 11.7	THE STATE OF		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	JGHER 10 35 50 32 2000 40 37.2 11.6 10.8	WER1 10 9.3 11.4 10.	7 ER2 10 18.6 11.3 10.5		
	TimeP.D.Sizeremp Lime KAX AF65 pmin. 8/8 % % % % g/I g/I g/I Intial		10 35 50 25 2000 30 27.9 12.1 11.7	THE STATE OF			JGHER 10 35 50 32 2000 40 37.2 11.6 10.8	CAV'ER1 10 200 10 9.3 11.4 10.	7 ER2 10 18.6 11.3 10.5		

Table 10 Flotation Test Results of Hayl as Safil Ore - Effect of pH value and KAX dosage on bulk rougher/cleaner flotation -

NO S	1000 444.00 45.11 1000 11.34 134.55	100.00 98.68 45.81 52.87 34.32 11.50	100.00 98.28 28.82 69.46 69.46 1.72	100 98.14 28.72 69.41 55.15 1.86
STRIBUTIC	100 81.00 42.82 38.83 77.57 18.32.57	100 82.35 36.25 27.03 17	100 82.50 82.50 71.98 14.00 17.98 17.98	100 100 100 100 100 100 100 100 100 100
Cu DI	100.00 96.80 15.21 72.34 8.87 3.20	100.00 96.00 13.15 12.10 3.11 3.15	100.00 97.39 84.91 73.65 11.26 2.61	100.00 96.87 13.21 79.38 3.138
ν,%	14.47 36.10 46.70 28.19 43.05	#64444 44669640 0000040 00000000000000000	248 344 312 422 423 60 60 64 60 64 60 64 60 60 60 60 60 60 60 60 60 60 60 60 60	24 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
ASSAY Fe	15.84 32.70 40.13 27.16 40.55 46.55	15.96 32.70 39.54 39.57 39.17 4.71	15.91 31.60 35.41 36.41 47.04 47.76	15.93 32.69 31.79 37.97 37.97
: :: ::	1.22.03.00 1.24.03.00 1.03.00.00 1.03.00.00	2.1 6.474 7.54 0.0 3.36	1.12 2.62 9.61 0.44 12.76 0.05	1.1.2 9.9.8 11.69.1 0.0569.0
WEIGHT %	100.00 39.55 18.91 13.90 60.45	10000000000000000000000000000000000000	0.00 3.00 0.00 0.00 0.00 0.00 0.00 0.00	100 300 200 200 170 100 100 100 100 100 100 100 100 1
PRODUCIS	CC T CC	CO I I I I I I I I I I I I I I I I I I I	CO H B C C C C C C C C C C C C C C C C C C	C. H. H. C.
H Finel	0.11 9.8 9.9	111 11 2	10.9 12.2	10.9 11.8
Intial	11.6 10.6 10.4	н н н с 44	11.4 12.3 12.3	11.6 12.0 12.0
AP65	65.1	65.1	74.4	. 8 . 8
ITIONS KAX E/T	90	80	60	60
COND Lime	2400 200 200 50	2300 300 200	2400 2000 500	2600 1200 600
e Temp	31 26 25	30 26 26	32 27 26	27 28 28
Siz8 %	0 G	20	0 0 0 0	0 B
2,%	35 13 18	300 100 100 100 100 100 100 100 100 100	96 HH	350
H H H H H H H H H H H H H H H H H H H	လ ထဝက ပေန	ယ ထင်က ကု4	ဆဝ်က လု44	က ထင်ဆ ဃန
T OPER ATION	GRINDING ROUGHER REGRIND- ING 1CLEANER 2CLEANER	GRINDING ROUGHER REGRIND- ICLEANER 2CLEANER	GRINDING ROUGHER REGRIND- 1CLEANER 2CLEANER	GRINDING ROUGHER REGRIND- ICLEANER 2CLEANER
TEST No.	28	σ ₂ σ ₃	ပ ဗ	ස් ස්

Table II Flotation Test Results of Rakah Stockwork Ore - Effect of feed size on copper selective flotation -

TEST No. A	-: 1									-								
	Ω,			1.		CONDITIONS	SNOI		•		RO	WEIGHT		ASSAY		DI	SIR	NO
	TION	ineP.	.D.Si %	izeTe %%	emp L)	ime K /T g	AX //I	AF65 8/T	pH IntialF	i nal	UCIS	%	%5.	.r. %	s.%	ភូ%	}	ν %
32 GR SG	RINDING COUGHER CAVEN- GER	დო ი ტ	ල හැ ග	2 0 0	2 2	000	2 2 3	27.9	10.0	10.0 9.6	C.Head C-1 C-2 Tail	100.00 20.81 2.80 76.39	1.25 0.08 0.08	19.89 36.44 30.70 14.98	9.62 38.37 26.31 1.18	100.00 92.48 2.62 4.83	100.00 38.13 4.32 57.55	100 00 82.98 7.66 9.37
€00 € € - A49-	RINDING 1 ROUGHER 1 SCAVEN- GER	30 HOF	9 32 6	0	27 2(2000	25.55	27.9 9.3	10.2	თ დ თ დ	C.Head C-1 Tail	100.00 18.54 2.54 78.61	0 1 8 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.11 37.46 34.65 15.49	39.54 31.957 1.654	100 00 91.48 3.49 5.04	100.00 34.54 4.54 60.56	100.00 76.95 9.53 13.52
34 GR SC SC	GRINDING 1 ROUGHER SCAVEN- GER	11.0 10.0 0.0 0.0	55 7	G.	2.7 2(000	22.03	27.9	01 00. 8.1	10.1 9.8	C.Head C-1 C-2 fall	100.00 17.39 1.62 80.98	1.28 6.84 1.33	20.14 37.58 34.53 16.10	9.72 39.97 31.84 2.78	100.00 93.23 1.69 5.08	100.00 32.47 2.78 64.75	100.00 71.53 5.31 23.16
35 GR SC SC	RINDING I OUGHER CAVEN-	က္ မ မ		2	7	2000	25.	27.9	တ္တ တ္တ (၂	თ დ თ თ	C.Head C-2 Tail	100.00 14.29 1.63 84.08	1.25 8.24 0.97	20.05 37.20 33.38 16.88	9.71 39.60 28.90 4.25	100.00 94.04 1.26 4.70	100.00 26.51 2.71 70.78	100.00 58.27 4.85 36.88

Table 12 Flotation Test Results of Rakah Stockwork Ore-Effect of KAX on copper selective flotation varying pH value -

NO %	100.00 80.60 7.45 11.95	100.00 72.72 6.72 20.52	100.00 58.27 4.85 36.88	100.00 53.53 2.74 43.73
SIRIBUTI Fe	100.00 37.29 4.19 58.52	100.00 33.62 3.67 62.71	100.00 26.51 70.78	100.00 23.93 1.56 74.51
DI 2	100.00 04.63 1.38 3.99	100.00 95.03 1.42 3.54	100.00 94.04 1.26 4.70	100.00 93.58 1.59 4.84
ω%	9.40 38.13 26.03 1.45	9.32 37.64 27.88 2.40	9.71 39.60 28.90 4.26	9.41 39.06 24.92 4.78
ASSAY Fe	20.07 37.68 31.27 15.17	19.92 37.18 32.40 15.67	20.05 37.20 33.38 16.88	1.9.96 37.05 30.02 17.28
η Ω	1 38 6.48 0 70 0 70	1 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.25 8.24 0.07	1.25 9.04 1.91 0.07
WEIGHT	10	100 00 18.01 2.26 79.73	100.00 14.29 1.63 84.08	100 00 12.89 1.03 86.07
PRODUCIS	C.Head C-1 C-2 Tail	C. Head C-1 C-2 Tail	C-1 C-1 Tail	C. Head C-1 C-2 Iail
H Final	80 80 27 27	∞ ∞ ~	ன ம - ச	10.9
Intial		0.00 0.00	ဖစ ၁၈ ၂	11.4
8/T	27.9 9.3	27.9 9.3	27.9	27.9
ITIONS KAX g/T	25 5	7 20	25 5	25 53
CONDIT Lime K	1000	1500	2000	4000
Tem O	27	27	27	27
Size	80	80	80	0 0
5%	အလ ည	3.6 5.0	တက တက	35 35
TimeP min.	ਜਜ	10 20 20	10 5	2005
T OPER ATION	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER
ES:	ပ		ເດ	20

Table 13 Flotation Test Results of Rakah Stockwork Ore - Fffect of AP3501 on copper selective flotation varying DH value -

1	-								.)				ir la je			
TimeP.D.	0%	Size %	Selemp Co.	12 80	CONDITIONS ime AP3501	AF65 g/T	pl Intial	oH IFinal	PROD UCIS	WEIGHT %	Cu %	ASSAY Fe	s%	Cu %	SIRIBUT Fe %	0N S %
GRINDING 16 60 ROUGHER 10 35 SCAVEN- 5	35 35	 80	27	620	6.0 9.0 8.0	27.9	7.8	7.8	C.Head C-1 C-2 Tail	100.00 17.64 2.17 80.19	1.26 6.69 0.80 0.08	20.12 36.82 32.34 16.12	9.45 38.36 28.80 2.57	100.00 93.54 1.37 5.08	100.00 32.28 3.48 54.24	100.00 71.60 6.60 21.80
GRINDING 16 60 ROUGHER 10 35 SCAVEN 5		 80	29	1500	40.9 5.8	ω σ. ω σ.	ο. 4. α	න ශ න ශ	C.Head C-1 C-2 Tail	100 130 83.56 83.931	1.24 8.47 1.04 0.08	16.27 35.82 32.09 12.64	9.59 37.61 28.59 4.49	100.00 92.49 2.10 5.41	100.00 29.85 4.95 65.20	100.00 53.20 7.48 39.31
GRINDING 16 60 ROUGHER 10 35 SCAVEN- 5	35 35	080	5.9	2000	40.9 5.8	18 9.9	10.8 9.8	യ പ	C.Head C-1 C-2 Tail	100 00 10 90 2 09 87 00	1.25 10.61 1.33 0.07	20.11 31.90 34.16 18.29	9.56 31.88 6.26	100.00 92.87 2.24 4.89	100.00 17.30 3.56 79.14	100.00 36.35 6.71 56.85
GRINDING 16 60 ROUGHER 10 35 SCAVEN- 5 GER	85 35	 80	29	4000	40.9 5.8	က က တ တ	12.2 11.8	11.8	C. Head C-1 C-2 Tail		сап по	t contr	froth			

Table 14 Flotation Test Results of Rakah Stockwork Ore - Effect of AP3418 on copper selective flotation varying pH value -

ION	ς» %	0 100.00 2 55.07 1 15.50 8 18.33	0 100.00 7 48.11 0 10.59 3 41.31	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0 100.00 6 45.87 4 10.33 0 43.81
DISTRIBUT	т. %	0 100.0 5 29.5 7 7.9 9 62.5	0 100.0 5 21.0 4 5.0 1 73.9	100 13.4 85.2	100.0 20.3 4.8 74.8
1 1	2%	100.0 93.7 2.4 3.7	100.0 94.5 1.3 4.0	100.00 94.64 1.02 4.34	100.00 93.45 1.19 5.36
	ω %	38.39 38.39 2.25	9.46 34.77 34.49 4.65	9.67 28.90 22.60 7.59	9.55 35.39 37.94 4.92
ASSAY	⊕%	20.29 36.32 37.81 16.02	21.23 34.18 36.54 18.68	19.57 28.71 18.55 18.55	21.53 35.42 40.07 18.94
	ટ%	0 1.26 9 7.14 4 0.73 7 0.06	0 1.28 9 9.09 0 0.58 1 0.06	1.24 12.89 1.41 0.06	1.27 9.58 0.58 0.08
WEIGHT	%	4 100.000 16.45 79.27	100.00 13.00 2.90 84.01	4 100 000 9 14 0 90 89 96	d 100.00 12.38 2.60 85.02
윤	UCIS	C.H.CC-11 CC-1 Tail	C. H. G. C. 1. H. C.	G	C. H. C. T. T. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
	pH IFinal	& α α. τ-	ω ω 	111 111 10 4	တတ တ
-:	Intia	ω α 4 α	10.3 9.6	12.0 11.6	10.6 9.8
S	8 AF55 g/T	27.9	27.9 9.3	ი. გ.ი. გ.ი.	27.9 9.3
ION	AP341 g/T	38.7	38.7	38.7	30.9
CONDIT	р В/Т	1500	2000	3400	2000
	e Tem	28	29	27	29
	.Si2 %	80	80	80	80
	eP D	35 35	35 35	.35 35	9.5 3.5
	Tim min	10 10 15	97 10 20 10 10 10 10	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	10 10 5
T OPER	ATIO	GRINDINC ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHEN SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER
20		स्म ह	44	45	46

Table 15 Flotation Test Results of Rakah Stockwork Ore - Effect of AP404 on copper selective flotation varying pH value -

TimeP	- %	SizeT	10 EB	CONDIT Lime AP	AP404	AF65	H d H a t + a T	1.	PROD UCTS	WEIGHT	π ₀	ASSAY Fe	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Cu %	STRIBUTI Fe	DN S
	80		28	820	, ∞.~	့ ထက	8.0	~~	C. Head C-1 Tall	100.00 16.58 79.94	1.28 0.83 0.083	19 36 36 34 15 420 420	10.09 40.43 33.79 2.75	100.00 92.72 2.27 5.01	100.00 30.84 6.15	100.00 66.45 11.67 21.87
80 35 80	08		29	1500	38.7	27.9	8.0	88 8.5	0 0 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1	100.00 11.65 2.14 86.21	1.24 9.94 0.84	13.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.	33.63 5.53 5.55	100.00 93.02 1.44 5.54	100.00 20.12 3.80 76.09	100.00 43.67 7.36 48.97
60 35 80	80		28	2620	38.7	23 00 30	11.0 10.2	10.2 9.9	C.Head C-1 C-2 Tail	100.00 7.59 1.28 91.13	1.26 15.14 2.11 0.09	19.50 29.85 31.84 18.46	9.87 32.89 29.93 7.67	100.00 91.33 2.15 6.52	100.00 11.62 2.09 86.29	100.00 25.29 3.89 70.83
60 35 80	80		53	2000	30.9	27.9	10.8	10.0	C. Head C-1 Tail	100.00 8.45 1.58 89.97	1.25 13.52 1.80 0.09	20.11 31.65 31.02 18.84	9.36 28.82 26.23 7.24	100.00 91.26 2.27 6.47	100.00 13.30 2.44 84.27	100.00 26.01 4.42 69.55

Table 16 Flotation Test Results of Rakah Stockwork Ore - Recovery as a function of flotation time on copper selective flotation varying KAX dosage -

ı										1.	:							
	NO								÷									
	1-4	n.%	0.0	ເຕເ	ů.	1.4 0.63	3	1.2	- 2		C.	2.44	٥,	ιĊ	က	ი ი	4	
	DIS	۳% %د	0	L.	.o. o	0.0	2	0	-		'n	3.54	Ç,	L)	N	4	۲,	
) i						!			
	ASSAY	ਜ* ®%	3	7.7	» رد ب د	24.23	2.3	4 7	7.2	0	വ	29.21	လ လ	1.9	0	2	ic.	
		ກ %	. 2	ထ	7.5	1.82		က	0	1	100	2.75	⇔ .	4	တ		٥,	
	WEIGHT	%	0.0	ന	۰.	10 10	က	о С	γc i		1	1.59	ω	4	က	ထ	~	
	80	UCIS	123	ر ن	1 .	າດ ນ 4	1	ì	10	1 7		C-2	1	1 :	1	113	ro.	
		H Final	:		٠	n on	. •	. •				•	٠	၁		٠	. t	
		Intial		10.6	ć	0 4.	0	್ರೆ	***************************************		10.5		•	10.0	0	٠		
		AF65 8/T		18.6	c	ກຕ	တ	თ			18.6	ლ ნ	6	တ	ლ თ	တ		
	ITIONS	KAX g/I		25				ιĊ			က					ហ	*****	
	CONDI	Lime g/T		2240		100		c			2320		200		100	200		
		Temp		30							رى دى							
		S126		80							80						1	
		_ ਹ%	9	35				:			(J)							
į		Time min.	91		×	; 4 K	ധ	7.0		5	(7)	က	4	י כא	r)	0		
	OPER	: Z	GRINDING	ROUGHERI	N 0	० च	ഹ	<u>.</u>	:	GRINDING	ROUGHERT	7	ਨਾ	4	Ŋ	(2)	:	
	TEST	No.			ű	-1							52					

Table 17 Flotation Test Results of Rakah Stockwork Ore

	ω <i>%</i>	100.00 85.49 3.13 11.38	00.00 82.10 7.29 10.61
rion			
DISTRIBU	æ%	100.00 44.96 2.66 52.38	100.00 37.95 4.75 57.29
I Q	% %	100.00 93.28 1.86 4.86	100 90 90 93 53 54 54 55
	ω%	10.28 35.72 14.04 1.60	9.44 37.54 19.70
ASSAY	۳.% % ه	20.20 36.93 23.49 14.47	19 89 36 57 27 11 15 02
	2%	1.20 4.57 0.98	1 5 5 5 5 0 0 0
WEIGHT	%	100.00 24.59 2.29 73.12	100.00 20.64 3.49 75.87
PROD	UCIS	C. Head C-1 C-2 Tail	C.Head C-1 C-1 Tail
·	a l	٦-2	200
	H Fina	7	2
	pH IntialFin	7.0 7.	7.0 7.
	pH tialFi	30 7.0	27.9 7.0 7.
	5 pH IntialFi	30 7.0	3.0
CONDITIONS	Lime KAX AF65 pH g/T g/T g/T IntialFi	27.9 7.0 9.3 7.1	5 27.9 7.0
CONDITIONS	Lime KAX AF65 pH g/T g/T g/T IntialFi	0 25 27.9 7.0 5 9.3 7.1	25 27.9 7.0 5 9.3 7.2
CONDITIONS	Sizelemp Lime KAX AF65 pH % °C g/T g/T g/T lntialFi	0 25 27.9 7.0 5 9.3 7.1	25 27.9 7.0 5 9.3 7.2
CONDITIONS	.D.Sizelfemp Lime KAX AF65 pH % % °C g/T g/T g/T IntialFi	0 25 27.9 7.0 5 9.3 7.1	25 27.9 7.0 5 9.3 7.2
CONDITIONS	Sizelemp Lime KAX AF65 pH % °C g/T g/T g/T lntialFi	9 60 10 35 50 27 420 25 27.9 7.0 5 9.3 7.1	11 60 10 35 60 26 660 25 27.9 7.0 5 9.3 7.2
PER CONDITIONS	TimeP.D.SizeTemp Lime KAX AF65 pH min. % % % °C g/T g/T g/T IntialFi	0 5 50 27 420 25 27.9 7.0 5 9.3 7.1	60 35 60 26 660 25 27.9 7.0 5 9.3 7.2

Table 18 Flotation Test Results of Rakah Stockwork Ore - Effect of pH value on bulk flotation -

	EST UPER	Time		S	∵ [-		KAX	AF65			PROD	WEIGHT	a C	ASSAY	જ	Cu Cu	STRIBUTI	ON
		min.	%	%	ړ	*0	\sim 1	g/T	IntialF	Final	1	%	%	%	%	%	%	%
<u>ເ</u> ດັ	GRINDING SCAVEN SCAVEN-	ග 0 හ -	60 35	20	28	H2S04	25.5	27.9	3.9	7.4	C. Head C-1 C-2 Tail	100.00 26.12 2.05 71.83	1.22 4.37 1.19 0.08	20.15 35.17 20.85 14.67	9.48 33.74 8.82 0.67	100.00 93.31 2.00 4.70	100,00 45.53 2,12 52.23	100.00 93.01 1.91 5.08
– A56 –	GRINDING SCAVEN- GER	ာ O ဏ	90 32	50	27	420	25 5	27.9	7.0	7.1	C. Head C-2 Tall	100 00 24 59 2 29 73.12	1.20 4.57 0.98 0.08	20.20 36.93 23.49 14.47	10.28 35.72 14.04 1.60	100.00 93.28 1.86 4.86	100.00 44.96 2.66 52.38	100.00 85.49 3.13 11.38
	GRINDING ROUGHER SCAVEN-	00 CM	32 32	50	28	740	25 5	27.9	2.7	7.7	C. Head C-1 C-2 Tail	100 00 23.78 1.96 74.25	1.28 4.93 1.35 0.11	19.98 35.54 24.74 14.87	10.27 36.64 16.30 1.67	100.00 91.55 2.07 6.38	100.00 42.31 2.43 55.26	100.00 84.82 3.11 12.07
(Q)	GRINDING 7 ROUGHER SCAVEN- GER	တင္း	က လ ဝ လ	ъ 0	26	1000	2 2 2	27.9	თ დ თ დ	8 8 51 9	C.Head C-1 C-2 Tail	100.00 22.51 3.05 74.43	1.29 5.18 1.37	19.77 36.05 25.25 14.62	9.80 37.00 17.99 1.24	100.00 90.41 3.24 6.35	100.00 41.06 3.90 55.04	100 00 84 98 5 61 9 42
8	GRINDING 2 ROUGHER SCAVEN- GER	90E	လ လ လ လ	200	23	2000	2 5 5	27.9	10.8 10.0	10.0	C.Head C-1 C-2 Tail	100.00 20.81 2.80 76.39	1.25 5.55 1.17 0.08	19.89 36.44 30.70 14.98	9.62 38.37 26.31 1.18	100.00 92.48 2.62 4.89	100.00 38.13 4.32 57.55	100.00 82.98 7.65

Table 21 Flotation Test Results of Rakah Massive Ore Preliminary tests on copper selective flotation -

TEST OP																	
0 ATT	[=]				CONDI	TIONS				80	WEIGHT		ASSAY		DI	SIRIBUTI	NO
	E I E	° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °	.Size %	Temp C		KAX g/T	AF65 g/I	pl Intial	H Final	UCIS	%	5%	т. % Ф. %	ω%	2%	F.e.	S %
GRIN ROUG SCAV SCAV SCAV	NDING10. GHER 10 V ER2 V ER3 10	200	80	28	11100 250 250	200	466.4 111.6 11.6	11 044 444 444	100 100 100 100 100	CC - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	100.00 40.69 5.22 2.67 3.19 48.23	1.684 0.94 0.97 0.97	37.13 44.28 42.02 40.15 38.70 30.29		100.00 23.44 8.63 7.17 9.72 51.05	100 4 40 0 20 20 0 20 20 0 20 20 20 20 0 20 20 20 20 20 0 20 20 20 20 20 0 20 20 20 20 20 20 0 20 20 20 20 20 20 20 20 20 20 20 20 20	
- V29 - 64 - 64 - 64 - 64 - 64 - 64 - 64 - 6	DING10. HER 10. ER1 55.	2 2 0	80	27	11475 250 250	200	11.6 23.2	11.2	10.8 10.8 10.8	C. H. C. C. 1. C. C. 1. C.	100.00 37.13 8.51 14.97 35.34	1.66 0.96 2.03 1.94	36.64 43.27 41.95 40.51 26.35		100.00 21.50 10.31 8.78 18.05 41.36	100.00 43.85 93.45 15.45 42.45 42.45	
GRIN ROUG SCAV SCAV SCAV SCAV	DING 16 HER 10 ER1 5 ER2 5	50	94	27	14850 250 250 250 250	200 50	69.6 11.6 23.2	11.2	10.8 10.8	C. Head C-1 C-2 C-3 C-4 Iail	100 00 27.79 4.92 2.79 14.02 50.47	1.65 3.59 3.59 1.44	36.49 39.43 41.35 31.25		100.00 21.78 10.66 6.52 17.24 43.81	100.00 32.59 5.32 5.32 15.88 43.22	
GRIN ROUGI SCAV SCAV SCAV	DING 16 HER 10 FR2 5 FR2 5	50 20	94	2.9	12500 5625 250 250	200	46.4 11.6 11.6	11.0	10.8 10.9	CC CC L Be a d L L L L L L L L L L L L L L L L L L	100.00 30.96 4.71 3.10 46.85	1.58 3.17 1.28 1.28	37 17 44 23 42 43 40 75 30 05	44444 4077 6077 607 607 607 607 607 607 607 607	100.00 29.29 9.18 7.27 17.41	100 36.89 5.38 13.40 87.78	106.00 35.87 5.34 3.42 15.74 37.63

Table 22 Flotation Test Results of Rakah Massive Ore - Effect of feed size on copper selective flotation -

Table 23 Flotation Test Results of Rakah Massive Ore - Effect of KAX dosage on copper selective flotation -

00N S	700 36.00 13.387 37.42 37.63	100.00 24.83 8.15 29.57 37.45	100.00 111.10 5.64 5.88 23.88 56.72	100.00 8.23 3.16 2.22 7.28 7.28
STRIBUTI Fe	100 30.00 30.84 3.40 37.87	100.00 24.67 8.27 29.48 37.58	100 100 100 5.82 5.85 5.71 5.71	100.00 8.27 3.18 2.19 7.30 7.30
DI %	100.00 29.29 9.18 7.27 17.41 36.85	100.00 44.20 12.66 15.89 27.25	100.00 30.24 12.57 7.05 18.36 31.78	100.00 19.00 8.05 15.80 48.56
8%	24447 24447 3447 3387 3387 3387 3387	42.44 448.62 34.7.49 34.50	444446 140700000 00000000000000000000000000000	444.91 44.91 44.91 44.96 41.01
ASSAY Fe	377.17 444.24 420.74 30.05 30.05	36.45 41.51 41.39 42.95 29.75	0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,	36.77 38.93 38.93 38.39 36.11
۳% م	11.68.44 68.48.64 84.64.68	1.62 3.31 2.83 0.96	0.1.3.9.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0	44440 400000 4000000000000000000000000
WEIGHT	56.7	100.00 21.66 7.28 25.02	100.00 5.97 3.16 19.54 61.83	100 00 7 64 3 00 2 10 6 76 80 49
PROD	C. Head C-2 C-3 C-4	C. Head C-1 C-3 Tail	C. Head C-1 C-3 C-4 Tail	C. Head C-1 C-3 C-3 Iail
H Final	10.8 10.9	10.8 10.8	10. 8. 0.	10.8
d I		-2	-2	-2
Inti	## ##	. ㅋㅋ - ㅋㅋ 	## ##	
пti	4. 3. 11. 11.			
IIIONS KAX AF65 g/T g/T Inti	4. 3. 11. 11.	4.8 3.2 11 8.0 11	6.4 3.5 1	4116 800 11
CONDITIONS Lime KAX AF65 g/T g/T g/T Inti	500 625 200 46.4 11 250 11.6 250 50 11.6	50 34.8 11 23.2 11 50 34.8	00 46.4 I 11.6 50 23.2	0 34.8 1 11.6 1 0 23.2
CONDITIONS Emp Lime KAX AF65 C g/T g/T g/T lnti	500 625 200 46.4 11 250 11.6 250 50 11.6	0000 1175 250 500 500 500 34.8	500 700 250 250 50 11.6 13.2	0000 900 100 34.8 1 250 11.6 1 500 20 23.2
CONDITIONS 12eTemp Lime KAX AF65 % °C 8/T 8/T 8/T Inti	12500 5625 250 11.6 11.6 250 50 11.6	2 20000 34.8 11 250 500 50 34.8	8 7700 100 46.4 I 250 11.6 I 50 23.2	20000 900 100 34.8 1 250 11.6 1 500 20 23.2
CONDITIONS P.D.SizeTemp Lime KAX AF65 % % % % 1 g/T g/T Inti	4 29 12500 200 46.4 11 250 250 250 11.6 11.6 250 50 11.6	4 32 1175 150 34.8 11 250 50 50 34.8	4 28 700 100 46.4 I 250 250 11.6 II.6	9 27 20000 100 34.8 1 11.6 1 250 23.2
CONDITIONS CONDITIONS AF65 in % % % % 1 g/T g/T Inti	0 94 29 5625 200 46.4 11 250 50 11.6 250	0 94 32 1175 150 34.8 11 250 50 34.8	0 94 28 17500 100 46.4 I 250 11.6 I	0 >99 27 20000 100 34.8 1 11.6 1 500 23.2
CONDITIONS ### CONDITIONS ##	6 50 94 29 12500 200 46.4 11 5 11 6 11 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 50 94 32 20000 150 34.8 11 0 250 50 50 34.8	16 50 94 28 17500 100 46.4 I 550 550 100 45.4 I 5 100 100 100 100 100 100 100 100 100 1	0 50 59 27 20000 100 34.8 1 5 1 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Table 25 Flotation Test Results of Rakah Massive Ore

	% ×	100.00 51.29 40.48 8.23	100.00 21.04 22.38 56.58	100.00 23.07 10.07 66.86	24.52 24.52 8.36 67.11	
z	% e	100.00 50.80 40.31 8.90	100.00 21.16 22.04 56.80	100.00 22.64 10.24 67.12	100.00 24.06 8.46 67.48	100.00 12.95 6.91 9.38 70.76
STRIBUTIO	%ڌ	100.00 55.03 23.48 21.49	100.00 25.92 27.88 46.20	100 00 47 18 12 97 39 84	100.00 50.73 10.96 38.31	100.00 34.57 12.07 12.71 40.64
IQ	8% 8%	100.00 38.57 20.58 40.85	190.00 20.46 27.20 52.34	100.00 34.97 13.03 52.00	100.00 39.20 9.82 50.98	100.00 27.83 12.44 13.30 46.38
	A &	100.00 53.96 12.68 12.36	100_00 25_30 26_19 48_51	100.00 33.73 10.15 56.12	100.00 37.02 9.34 53.64	100 00 31 93 11 26 8 75 48 06
	v.%	42.07 48.22 48.98 16.89	43.77 49.67 51.06 39.77	43.38 47.83 47.76 41.48	43.73 48.29 48.36 41.87	
	2%	36.60 42.43 15.89	36.50 41.67 33.29	35.86 38.80 40.17 34.42	36.32 39.30 40.55	869666 869666 869669
ASSAY	3%	1.66 2.04 1.12 1.74	1.63 2.28 2.37 1.21	1.65 3.72 2.34 0.94	1.63 3.72 2.36 0.89	1.62 4.67 3.10 2.40 0.90
	8 8 K	4 0 0 0 4 0 0 0 0 0 0 0	4.74 4.74 6.09 3.61	3.64 5.19 2.71	3.16 3.16	1.4562 0.000 0.000 0.000 0.000 0.000
	Au E/t	11.67 14.08 11.31	10.09 13.77 13.77 7.86	10.80 17.41 11.99 8.67	10 70 13 82 13 20 8 18	17.33 11.66 4.29
WEIGHT	%	100.00 44.74 34.77 20.49	100.00 18.54 19.19 62.28	100.00 20.93 9.15 69.93	100 00 22 24 7 57 70.19	100.00 11.99 6.30 8.58 73.13
PROD	5]	C. Head C-1 C-2 Tail	C. Head C-1 C-2 Tail	C. Head C-1 C-2 Tail	C.Head C-1 C-2 Tail	C . He a d
	pn 1Final	7.7	ന െ നന	9.9 10.1	11.1	10.8 11.2
	Intial	7.5	0.0 4.0	10.2 10.4	11.2	# T T T T T T T T T T T T T T T T T T T
U 4	1 Arbb	69 34.8	59.6 46.4	46.4	46.4 23.2	6146 414 600
TION	8 P 3 5 U	20 20 20 20 20 20 20 20 20 20 20 20 20 2	153.3 51.1	153.3 51.1		102.2
00	p Llme	15000	15000 1975 125	17500 800 378	2000 1625 250	20000 1075 2500 500
į į.	50	29	28	28	23	60
	% Z	46	96	94	о Ф	94
	ੂੰ ਹੁ%	20 20	50 20	50 20	200	20 20
i . i	1 2	50 SE	20 20 10	15 20 10	C 16 20 10 R	10 10 10 10 10
OPER	그:	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN-	GRINDING ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVENT GER	GRINDING ROUGHER SCAV'ER1 SCAV'ER2
TEST		11	78	7.9	8.0	81

Table 26 Flotation Test Results of Rakah Massive Ore

8%	100.00 57.84 29.30 12.86	100.00 32.40 20.65 46.95	100 00 19 26 12 36 58 38	100.00 31.65 11.76 56.58	
N (r. %)	100 00 57 82 28 80 13 28	100.00 32.28 20.51 47.21	100.00 19.81 12.67 67.52	100.00 31.01 11.58 57.41	100.00 15.64 7.04 9.77 67.55
TRIBUTIO Cu %	100.00 54.07 21.81 24.12	100.00 44.13 25.01 30.87	100.00 40.00 177.55 61.30 61.00	100.00 53.81 11.96 34.23	100.00 38.76 11.11 11.38 38.75
AE DIS	100.00 43.05 18.50 38.44	100.00 33.32 22.66 44.03	100 00 25 37 15 05 59 57	100.00 31.28 9.34 59.38	100.00 24.56 10.78 13.42 51.24
%u %	100 00 56 69 28 45 14 86	100.00 31.12 22.15 46.73	100.00 29.70 14.17 56.13	100.00 41.91 11.27 46.82	100.00 17.21 8.03 6.62 6.82 88.13
s %	42.22 48.68 48.41 22.35	41.96 48.44 48.30 36.49	41.98 45.45 45.45 40.45	42.39 48.74 48.50 38.57	
7. 9%	24 4 4 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	36.35 41.80 41.55 31.79	0.000 0.000 0.000 0.000 0.000 0.000	35.79 40.30 33.04	33333333333333333333333333333333333333
ASSAY Cu %	0.1 0.7 1.8 1.8 1.8 1.8 1.8	1.40 2.20 1.95 0.80	1.62 2.70 2.53 0.963	1.62 3.16 1.88 0.89	1.63 2.82 2.12 0.90
A 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	3.14 2.65 5.79	3.04 3.61 3.84 2.48	2.3.3.2 2.3.3.4 2.5.1 2.5.1 2.5.1 3.	4.54 4.51 4.74	2.4.4.2 8.8.8 1.4.10
Au g/t	10.90 12.32 12.14 6.67	10.28 11.40 12.69 8.90	10 4 3 13 1 4 2 8 2 5	11.08 12.86 8.34	8 10 2 2 3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
WEIGHT	100.00 50.16 25.55 24.29	100.00 28.07 17.94 53.99	100.00 17.79 11.24 70.98	100.00 27.53 10.28 62.18	100.00 14.63 6.42 8.42 8.75
OD	ead 1 2 1 1	Head -1 -2 ail	Head -1 -1 -2	Head -1 -2 ail	ead -2 -3 ail
8.D	က ကော့မှ မျိုးရ	ပ္ပံု	်ပ်ပဲမှ	ပ္ပပဲမ	000
PR H Final	7.6 C.7 7.6 C.1	8 8 0 6 1	တ တ တ တ	11.0 10.8 10.8	0.8 11.0
PR UC	ယယ	8 8 8 8	ထထ	0.0	0 80 11
AF65 PH DH UC	.6 .6 .7 .6	.4 8.9 .2 8.9	0.2 0.4 9.8	1.2 11.0 C	1.2 1.2-10.8 11.0
PR	46.4 7.4 7.6 23.2 7.6 7.6	58 9.4 8.9 5	58 10.2 9.8 3.2 10.4 9.8	6.4 11.2 11.0 C	4.8 11.4 C.8 4.8 11.2 11.0.8
CONDITIONS Lime AP3418 AF65 pH UC	8.3 23.2 7.6 7.6	4.6 8.3 23.2 9.2 8.9 6	4.6 58 10.2 9.8 8.3 23.2 10.4 9.8	4.6 46.4 11.2 11.0 G	6.3 34.8 11.4 10.8 23.2 34.8 11.2 11.0 8.3
CONDITIONS 1.00e AP3418	900 500 154.6 46.4 7.4 7.6 53.2 7.5 7.5	2500 250 48.3 23.2 9.2 8.9 9	7500 1325 154.6 375 48.3 23.2 10.4 9.8	0000 1500 154.6 46.4 11.2 11.0 250 48.3 23.2 11.1 10.8	0000 250 250 250 260 48.3 34.8 11.2 10.8 250 48.3 34.8
CONDITIONS Temp Line AP3418 AF65 DH "C g/I g/I IntialFinal	9 500 154.6 46.4 7.4 7.6 5.6 48.3 23.2 7.5 7.5	8 15000 154.6 58 9.4 8.9 C 250 48.3 23.2 9.2 8.9 C	9 1325 154.6 58 10.2 9.8 375 48.3 23.2 10.4 9.8	0 1500 154.6 46.4 11.2 11.0 C 250 48.3 23.2 11.1 10.8	0 800 106.3 34.8 11.4 250 250 48.3 34.8 11.2 10.8
CONDITIONS CONDITIONS CP. D. Sizelfemp Line AP3418 AF65 CR. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	50 94 29 500 154.6 46.4 7.4 7.6 7.6 48.3 23.2 7.6 7.6	50 94 28 1575 154.6 58 9.4 8.9 9 2 8.9 6 250 48.3 23.2 9.2 8.9	50 94 29 1325 154.6 58 10.2 9.8 375 48.3 23.2 10.4 9.8	20 94 30 1500 154.6 46.4 11.2 11.0 C	20 94 30 20000 106.3 34.8 11.4 C C 250 48.3 34.8 11.2 10.8 11.0
CONDITIONS P.D. SizeTemp Line AP3418 AF65 DH 00 % % °C g/T g/T IntialFinal	0 16 50 94 29 15000 154.6 46.4 7.4 7.6 10 10 20 20.9 7.6 7.6 8.3 23.2 7.6 7.6	116 50 94 28 15000 154.6 58 9.4 8.9 9 10 250 48.3 23.2 9.2 8.9	16 50 20 94 29 1325 154.6 58 10.2 9.8 to 20 20 375 48.3 23.2 10.4 9.8	16 50 54 30 20000 154.6 46.4 11.2 11.0 C 20 48.3 23.2 11.1 10.8	16 50 94 30 20000 106.3 34.8 11.4 C C 250 48.3 34.8 11.2 10.8 11.0
CONDITIONS ineP.D. SizeTemp Line AP3418 AF65 in. % % °C g/T g/T IntialFinal	6 50 94 29 500 154.6 46.4 7.4 7.6 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6 50 94 28 1975 154.6 58 9.4 8.9 0 250 48.3 23.2 9.2 8.9	6 50 94 29 1325 154.6 53 10.2 9.8 0 375 48.3 23.2 10.4 9.8	6 50 94 30 2500 154.6 46.4 11.2 11.0 C	6 50. 94 30 20000 106.3 34.8 11.4 11.0 0 250 48.3 34.8 11.2 10.8 11.0

Fe S	00 10 15 10 48 8	00.00 100.00 12.19 11.99 8.38 8.45 79.43 79.57	00.00 100.00 15.00 15.18 8.37 8.52 76.63 75.30	08.00 5.01 2.18 5.71 87.10
STRIBUTION Cu %	100.00 30.02 11.52 58.46	100,00 1 23,88 15,68 60,44	100.00 38.59 17.74 43.67	100.00 12.16 13.35 18.43 64.06
A. D.	100.00 21.40 9.11 69.49	100.00 17.43 12.25 76.31	100 00 28 88 13 58 57 53	100 00 5 65 3 67 9 889 79 78
Au %	100.00 17.99 8.89 73.12	100.00 14.27 11.28 74.45	100 00 21.44 11.91 66.65	100 00 15 13 10 88 58 58
s %	41.97 45.51 40.99	41.78 44.44 46.30 40.99	41.99 44.64 45.07 41.10	
Fe %	2 36.96 5 39.80 6 40.30 0 36.17	2 36 68 4 39 67 4 40 30 1 35 92	1 37 05 4 38 92 7 39 92 0 35 42	2000 2000 2000 2000 2000 2000 2000 200
ASSA Cu %	39 1.6 27 3.2 76 3.1 86 1.2	90 1 6 03 3 4 27 3 3 3	# 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7-6-8-1-3
# # # # t	95 5 4 9 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	200 m 200 m 200 m	9 4 4 7 2 2 4 4 4 1 2 8 2 8 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8	2100 100 100 100 22 200 200 200 200 200
GHT Au	00 10 99 12 92 15 09 95	27 14 27 14 11 10	28 17 77 17 95 95	00 5 78 17 16 13 27 11
WEI	d 100 14 79	100. 11. 81.	d 100	160 22 28 7
PROD	C.Hea C-1 C-2 Tail	C. Hea C-1 Tall	C. Hea C-1 C-2 Tail	C H C C C C C C C C C C C C C C C C C C
pH lifina l	7.5	80 80 80 80	01 0.0 0.0 0.0	10.8
Intia	7.5	დდ 6.4	11.2	4-C
S AF65	46.7	23.2	46.4	22.8 23.2 2.2
CONDITION	154.6 48.3	154.6 48.3	154 48.3	106.3 48.3
CON F Lime	15000	15000 1125 1250	2000 1425 500	2000 1375 250 375
elem O	29	29	32	င္လ
5.512	0 94	0 94	9,0	94
леР. D	22	2 0 0 2	50 00 00 00 00	2000
OPER ATION TI	GRINDING 18 ROUGHER 20 SCAVEN-10	GRINDING 1 ROUGHER 2 SCAVEN-1	GRINDING 1 ROUGHER 2 SCAVEN-1	GRINDING 1 ROUGHER 1 SCAV'ER1 1 SCAV'ER2 1
TEST	87	₩ - A65 -	83	0.6

Table 28 Flotation Test Results of Rakah Massive Ore Recovery as a function of flotation time on copper selective flotation

					٠						•	
	N 6/2	100.00	9.72	4.53	6.58	5.42	5.95	6.11	11.72	30.56	19.40	
×	9.%	100	o,	₹"	6.62	47	9	ထ်	-	30	5	
IR	ر م	100.00	27.06	13.42	13.68	7.88	5.86	4.38	4.59	Ф. 88	16.31	
018	A.8%	100.00	11.25	4 79	4 34	3.21	2.49	2.30	 	7.12		
	ny %	****			10.80						23.10	
	ν%	41.47	44.68	43.26	44.79	44.90	45.87	47.06	49.32	50.72	26.88	
	r. %	9	38	3,	38.87	4.0	39	4.0	42.		23	
ASSAY	3%				3.67		· 		<u> </u>		0	
	1/8 8/1	ິເກ		ω	4.20	<u>د</u> ې	~	~	2		12	
	Au g/t	0	7	ក	14.24	~	41	ゼ	-3*	9, 86	6.2	: -
WEIGHT	%	100.00	0	4 34	60.9	5,01	5.38	5.39	9.86	24.99	29.93	
PROD	UCIS	C. Head	<u>.</u>	ر ا 2	6-3 -3	C-4	r S	9-2	C-3	C-8	[a]]	
	inal					10.8				11.0		
11	pt IntialF		11.3			11.4-				-1		
ξ/A	AF65 8/T		34.8	11.6	23.2	23.2	23.2	11.6	11.6	34.8		
DITION	KAX g/T		100		20	20	20	20	20	50		
CON	p Line g/T	20000	1100	500	250	250	250	500	250	200		1
	12efem % °C		94 32	<u>.</u>	:		····-					
	meP.D.s	5.0	2.0	C		0			. 0		:	
(편) (작	ON Ti	DING	HER-1 1	7	(C)	4	<u></u>	<u>.</u>	~	ಪ	:-	-
0.0	AII	GRIN	ROUG		_						_	
S						31						

Table 29 Flotation Test Results of Rakah Massive Ore

S	84 38 87 38 87 38	000 0 77 0 8 4 14 5	100.00 88.38 7.70 3.92	00.00 75.42 18.56 6.01
ري. ص	% 00.00 84.22 7.37	00 0 76 9 8 6	00.00 87.97 4.05	00.00 74.85 18.93 6.22
IBUTION	0.00 1	00 00 00 00 00 70 1.61	00 00 1 73 73 1 9 08 17 20	00.00 172.50 11.84 15.67
DISTR	000 700 700 700 700	000 10 203 10 79 2	0 0 0 8 8 4 8 0 0 1	0.400 0.447
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0000	1 9 3 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	000 920 739 122 28 30
Au	100 %	100 100 16	001	53 100 91 73 33 18
S	ਰਾਚਾਚਾ-	2,44,9 2,54,4	1442 1047 1003	8 4 4 2 2 2 2 4 4 5 3 3 2 1 5 0 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
a) 	2 36 88 0 36.43 17.43 17.43	2 3 4 1 2 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	1 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	84421 822 8113
ASSA	% H-72-		9622	5 1 1 2 7 4 7 1 1 1 1 1 4 5 1 1 4 5 1 1 4 5 1
84	# R.W.D.	m.e.4.51	72 4 4 80 7 8 8 7 4 4 6 8 4 4	സ 4 ധയ ധസയര
TAU	8/t 0 10 17 0 11 0 7 12 7	111 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11.2.2.1 12.2.1 15.97	11.67 13.16 12.60 5.00
WEIGH	d 100 %	- 0	100 00 76 35 15 31	100.00 65.58 17.41
PROD	С. н С. 1	C.H.ea C-1 Tail	C - 1 1 - 2 1 - 1	C C L H C C C 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ξď	ialFina .3 8.(.0 8.(0.8	0.0 8.0 0.8	ಬ.ಕು ಬ.ಣ ಕ್ಕಬ
65	1 88 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0.00 0.00	ωω ωω	ο σ ο σ
TIONS	70 70 30 30	250 69	250 50 69	250 69 50 23
ND I	E/T 8 12500 2900	.5000 2125 125	5000 575	5000 1475
	ပူ ဗ္ဗ	2.9	23	29
.IS12	2 %	20	2.0	0.
<u> </u>	200 %	200	500	, , , , , , , , , , , , , , , , , , ,
I.I.	IN 64 5	7 20 1 10 1 10	10 10 10	7 10 10 10 10
OPER	GRIND IN ROUGHER SCAVEN-	GRINDING ROUGHER SCAVEN- GER	GRINDINGS ROUGHER SCAVEN- GER	GRINDING ROUGHER SCAVEN- GER
TEST No.	92	ဗ	94	9 5

able 30 Flotation Test Results of Rakah Massive One Effect of pH value on bulk rougher/cheaner flotation -

	1 1			
	ν %		201.21 201.22 20.23 20.23 20.23 20.23 20.23	
NO	r. %	100.00 36.44 31.59	201122 201122 2011226 402504	3.5 2.5 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0
SIRIBULI	2%	100.00 87.32 38.24	24 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	8.24 12.68
DI	A.8%	100.00 69.53 25.02	12.22 12.60 12.42 12.42 12.42	30.47
	Åu %		11411 1201 1201 1201 1201 1201 1201 1201	
	ω %		444404 5000000 1-00000 1-000000	
	o. %	8444 844	144446 546040	
ASSAY	ე.% -	HHW-		71
	Ag g/t	4040		4 00
<u> </u>	Au g/t	സസര	**************************************	တက
WEIGHT	%	100 84 27		വവ
PROD	UCTS	0 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	30-1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	pH ialFinal	& &	12.0	
	Intia	ப	122.5	
	AF65 8/T	300 127.6	23.2	
NOLLION	KAX g/T	300	ਚ ਚ	
CONI	Lime g/T	15000 4375	4475 3000 2000	
. •.	Tem C	류	58 78 78	
	neP.D.SizoTemp Li n. % % °C g/	0 70	0 - 0 0 0 0 0	<u> </u>
٠	лер 7.	20 H	⊬ бю4 ∺ч	
OPER		DINGS.	ANGEN ANGEN ANGEN ANGEN ANGEN	
9	A I	GRIN ROUG REGR	96 10LEAN 20LEAN 30LEAN	
-				

Table 31 Flotation Test Results of Hayl as Safil Ore and Rakah Stockwork Ore - Scalp rougher/cleaner flotation -

TIIONS 601 10NS 10NS 10NS 601 10NS 10NS 10NS 601 10NS 10NS 10NS 601	.08 30.27 33.48 80.27 6.79 15. .99 28.45 25.84 10.54 3.71 5. .12 18.80 - 8.12 9.19 89.49 78.
The color of the	.08 30.27 33.48 80.27 6.7 .99 28.45 25.84 10.54 3.7 .12 18.80 - 8.12 9.19 89.4
France F	.08 30.27 33.48 80.27 .93 28.45 25.84 10.54 8.12
PROD WEIGHT APS 51	.08 30.27 33.48 80.2 .99 28.45 25.84 10.5 .12 18.80 8.12 9.1
PROD WEIGHT ALL ASSAY AND SET TOTAL	.08 30.27 33.48 99 28.45 25.84 .12 18.80 8.12
PROD WEIGHT ALGE ALGO ALGO ALGO ALGO ALGO ALGO ALGO ALGO	.08 30.27 33. 99 28.45 25. 12 18.80 8.
PROD WEIGHT ASSAY AP3501 2 7.9 11.8 11.2 R-RS-D 15.00	.08 30.2 99 28.4 12 18.8
PROD WEIGHT AUT AU	.08 .99 12
PROD WEIGHT ASSA AND	00.4
TITIONS	22.40
TIONS	000
FROD WEIGHT AND WEIGHT AND WEIGHT AND WEIGHT	000
TTIONS Col. 10 K AF65 AP3501 AP5501	000
TITIONS Col. Tor. AF65 AP3501 AP5501 AP550	တက္ကလ လက္ခလ
TTIONS Collor Af65 RAX RAX RAX RAX RAX RAX RAX RA	4.00 4.00
TITIONS Collor AF65 E/T C/T IntialFinal AP3501 Z7.9 11.8 11.2 KAX TA 9.3 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 12.8 AP3501 AP3701	HHH HHH HHH
TTIONS Collons Collons AF65 Intiaph & CAT CT	7777 8888 8888
TTIONS Colion AF65 AP3501 CTT RAX INTERPRESENT INTERP	ം പ്പപ്പ
TTIONS Collor AFF Collor AFF	2222
TITION C01100 AP350 KAX NAX NAX NAX 10 KAX 10 KAX 10 KAX 10 KAX 10 KAX	

NW 00 0 H000000 H 0 00000 O H00000 H 0	0000
71	৯ বা বা বা
	4444
1	
CH K CHEMINA DA MANANA O NAMENCA I OLI COLI COLI COLI COLI COLI COLI COL	Ф I O O O
A	ə 조조조조 너머
N D B B B B B B B B B B B B B B B B B B	ACCC ACCC

Table 32 Flotation Test Results of Rakah Massive Ore - Effect of mixing ratio of Rakah massive ore on bulk flotation of composite ore -

∾%		100.00 81.83 8.88 5.46 3.83	100,00 84,26 3,09 6,01 6,63	100.00 91.30 1.21 1.38 6.11	100.00 89.74 1.39	100.00 82.75 1.78 2.04 13.44
ON Fe	100 61.35 3.35 32.35 32.98	100 00 57 5 9 4 4 6 9 5 30 5 8	100.00 61.76 2.75 5.36 30.12	100.00 70.99 1.47 1.79 25.75	100.00 73.60 1.49 1.79 23.12	100,00 70,84 1,84 2,23 25,03
STRIBUTI Cu %	100.00 93.96 1.67 1.23 3.14	100.00 30.09 3.39 2.28 4.24	100 88 88 88 4.33 166 4.62 62 62 62	100 00 87.37 3.78 2.93 5.92	100 00 82 79 5 15 4 08 7 98	100.00 76.01 7.51 5.51 10.97
A 8 %		100.00 14.20 12.44 10.78	100 55 55 75 75 70 75 70 75 70 75 70 75 70 70 70 70 70 70 70 70 70 70 70 70 70	100.00 63.05 4.49 6.77 25.69	100 488.00 8.103 88.13 35.55	100 00 36.36 4 4.15 55.25
Au %		100.00 77.95 10.03 6.76 5.26	100 00 74 59 4 58 4 58 10 92	100.00 79.40 3.07 3.71 13.81	100 00 81 18 2 85 3 08 12 89	100.00 76.52 3.15 3.13 17.20
ω%		14.58 42.04 30.64 20.14 0.88	15.79 42.21 23.15 23.58 1.68	19.07 45.20 14.64 13.47	21.82 143.78 19.00 3.01	25.22 48.00 24.31 22.16 6.47
r. %	17.03 35.29 21.40 15.64 8.61	17.66 35.79 29.03 22.03 8.51	18 35 34 23 35 36 86 86	20.51 37.80 19.02 18.90 9.11	22.85 39.30 21.28 20.02 9.86	24.65 24.53 24.53 11.81
ASSAY Cu %		7 1 1 5 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	88 3.41 2.10 7 2.10 6 0 0.09	1 2 2 89 0 5 1 1 3 2 2 1 1 3 2 2 1 1 3 2 2 1 3 2 3 3 3 3	1.34 2.60 4.34 0.20	1.38 2.42 5.62 0.29
# 70 70 / 70		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 5 5 7 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	001480 700001 40040	8 3 12 3 9 12 7 15 92 2 07	3.69
Au 8/t		0.75	48.880	1 6 6 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20040 20896	ကတ္တလ္⊣ ဝေသက္စက္
FEIGHT	100.00 29.50 2.67 2.52 55.21	100.00 28.39 4.23 3.95 53.44	100 31.50 2.113 62.33	100.00 38.51 1.58 1.98 57.96	100 427 125 53 53 53 53 53	100.00 43.47 1.85 2.32
PROD	C. Head C-1 C-2 C-3 Iail	C. Head C-2 C-2 a-1	C. H. C. 1.	CC - H ead a d a d a d a d a d a d a d a d a d	CC - H CC - H a - 1 a a - 1 a a - 1 a	C Head C 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
H. Final		10.5	10.6 11.0	10.8	00 880	100 100 88
Intial	elel	# 다. - 연. 다. 다.	11.4	4.4	4.1. 2.1.	11.4
AF55	37.2 9.3 18.6	37.2 9.3 18.6	37.2 9.3 18.6	27. 18.3 6.6	27.9 9.3 18.6	27 27.9 18.6
DITIONS KAX g/T	35.	4 សភភភ	22 22 20 20 20	တ္တ တမာလ	ក ១ ម ១ ម	11 0.05
CONI Lime	2200 200 400	2900 200 200 200	3820 200 200	5240 200 200	6800 200 200	7600 200 200
21S.	48	8 4	8.8	8 4	88	48
лае Т. С.	9 55 55 0	02 33 03	0 22 20 0 22 20	92 92 92	0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	35 35 35 35
\$ % [1]	0	9	H.H		ਰ ਜ	7 7
OPER ATION	GRINDING ROUGHER SCAV'ERI SCAV'ER2	GRINDING ROUGHER SCAV'ERI SCAV'ERI	GRINDING ROUGHER SCAV ER1 SCAV ER2	GRINDING ROUGHER SCAV ERI SCAV ERZ	RINDING ROUGHER SCAV'ER1 SCAV'ER2	SRINDING ROUGHER SCAV'ER1
TEST No	တ္တ	100	101	102 R	103	104 R S S

the composite ore was prepared by mixing Hayl as Safil ore with Rakah stockwork ore in the ratio 1.85 to 1. R* : Percent of Rakah massive ore

Table 33 Flotation Test Results of Composite Ore - Bulk and copper selective rougher/cleaner flotation -

v %	27 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.00 0.00
7.7% 9.7%	11.00 4.00 1.00 1.00 1.00 1.00 1.00 1.00	000 4000000000000000000000000000000000
BUTION Zn %	22.22 20	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0
DISTRI Cu %	100 100 100 100 100 100 100 100	801 6-1 80 80 80 80 80 80 80 80 80 80 80 80 80
~. %%	94.100 94.50 94.50 95.56 95.56 95.77 95.72	200.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0000 300.000 300.000 300.000 300.000 300.000 300.000 300.0
A W	28 48.4 4.4 4.4 4.1 4.1.4 4.1.6 4.1.	2
v.%	HW CW44/WW2024W4W4 WWH ELIO 8014 W2019 W20	100 20
α. % Φ	422 20202024 22 2020202024 22 2020202020202 23 202020202020202 23 202020202020202 24 25 25 25 25 25 25 25 25 25 25 25 25 25	01.0 01.0
SSAY Zn %		00- 000040410180802 8
	000 000 000 000 000 000 000 000 000 00	2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1
t AB	220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
HT A	00000000000000000000000000000000000000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
WEIG	a	4 100 000 000 000 000 000 000 000 000 00
PROD	# 1 DOWWDODDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD	6 000000000000000000000000000000000000
ក្ក ក្រុក ខ្លួ	222222	8888888 0 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2
5 Inti	2002200	2222222
ONS X AF6 T g/T	6 - 2 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9	25 L SS C O O O
ONDITI F KA		1120 120 120 120 120 120 120 120 120 120
S LI	32 28 28 100 117 255 255 25 54 4 4 4 525 55 54 4 4 4 5 5 5 5	225 225 255 255 255 255 255 255 255 255
0.S1Zel	00 01 84 6210 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0.0 D 0.04-10 00.0-
TimeP.D	86 0444444 122230000000000000000000000000000000000	604 FROUESTIO 808 DS4HI
OPER ATION	RINDING EGGRINDING THEANING TH	00100 11 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 001000 001000 001000 001000 001000 001000 0010000 001000 001000 0010000 0010000 0010000 0010000 0010000 001000000
TEST No.	105 BULK	I S I O O I

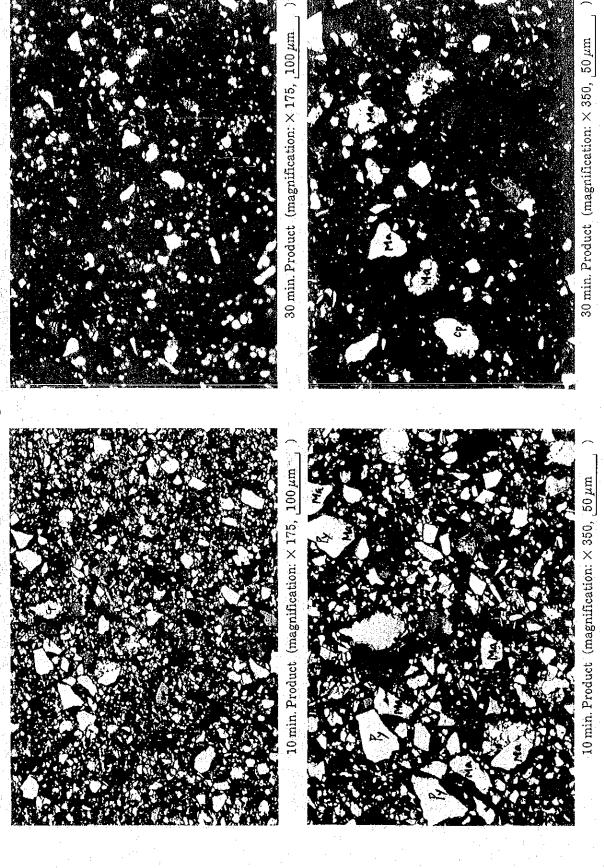
Table 34 Flotation Test Results of Composite Ore - Scalp rougher/cleaner flotation -

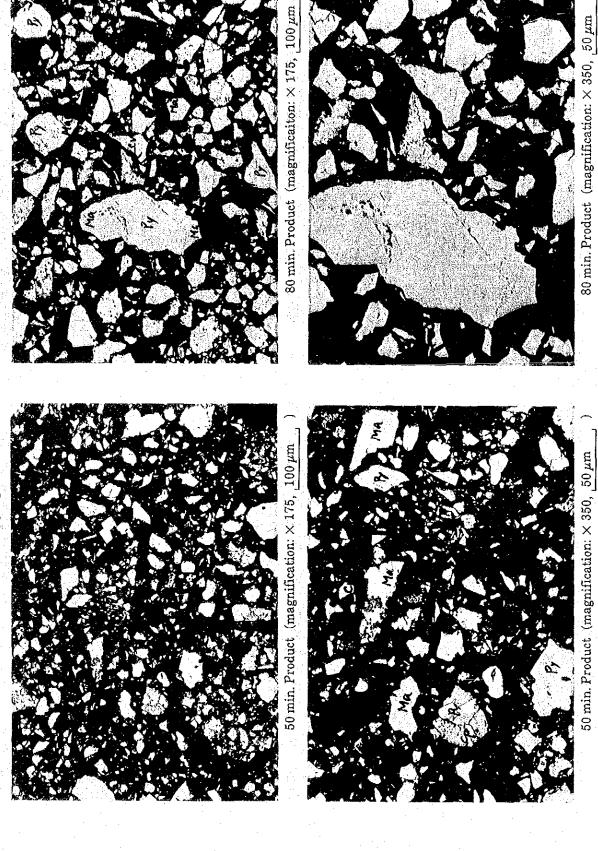
s %	25 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	60.17.7.2.26.4.3.8.4.0.6.17.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.3.
7.%	000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	25. 14. 14. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15
IBUTION Zn %	27.22.22.22.2.2.2.2.2.2.2.2.2.2.2.2.2.2	11000000000000000000000000000000000000
DISTR Cu	48 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 700 00 10 10 10 10 10 10 10 10 10 10 10 1
# %	880-1922 - 11 - 1 - 1 - 1 - 2000 800-1922 - 11 - 1 - 1 - 1 - 2 - 2000 900-1920 - 1000 - 1000 - 1000 900-1920 - 1000 - 1000 - 1000 900-1920 - 1000 - 1000 - 1000 900-1900 - 1000 - 1000 - 1000 900-1900 - 1000 - 1000 - 1000 900-1900 - 1000 - 1000 900-1900 - 1000 - 1000 900-1900 - 1000 - 1000 900-1900 - 1000 900 - 100	0.000000000000000000000000000000000000
A. A. W.	0.000 11 1 1 1 1 1 200 0.000 200 200 200 200 400 0.000 11 1 1 200 200 200 200 200 1 100 200 2	24 C1 HC 2 2 2 1 HE CH0
N %	HO OUGONOUGO ACHO OUGO HO OUGONOUGO HO OUGON	$\begin{array}{c} -16 & 06 & 06 & 06 & 06 & 06 & 06 & 06 & $
т. 9%	1000 000 000 000 000 000 000 000 000 00	
SAY Zn %	010010010101101101 000 0100000000000000	04044000404044444444444444444444444444
% Cu	010 100 100 100 100 100 100 100 100 100	12.021140E214111111111111111111111111111111
00 00	201000014140000000000000000000000000000	- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Au g/t	0 H O W O H O W H W H W W H W W H W W H W W H W W H W W H W W H W W H W	0maxmus
HEIGH	00 10 00 00 00 00 00 00 00 00 00 00 00 0	0100 04004000044000144100 461 060004040404040404000000000000000000
PROD	OMO 111	0
pH IFinal	1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 1 411 114111111111111111111111111111
Intia	11 122222 222222 2222222222222222222222	1 1 111 HITHING HITHING HIT CONT. CO
NS or AF65 g/T	0 46 .5 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9	46.5 46.5 82.00 8,12 2.12 2.12
NDITION e col o	AP 3 5	AP350 KAAX 10 NA KAX 13 NA HSO 30.1
CO WILL 8/T	120 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 7 2000 2000 1 2000 1 2000 1 2000 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Delem %	00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 52 23 23 24 24 24 24 24 24 24 24 24 24 24 24 24
ep D.S	18.T R R R R R R R R R R R R R R R R R R R	2 N
PER ION Tim	GULERN 13 ANING COLLERN GOTO COLLERN GOTO COLLERN GOTO COLLERN 13 ANING COLLERN 13 ANIO C	GREAT 1340 CT 1 CT
TEST ON	SCA 22-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	22-100 8 8 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Appendix 7

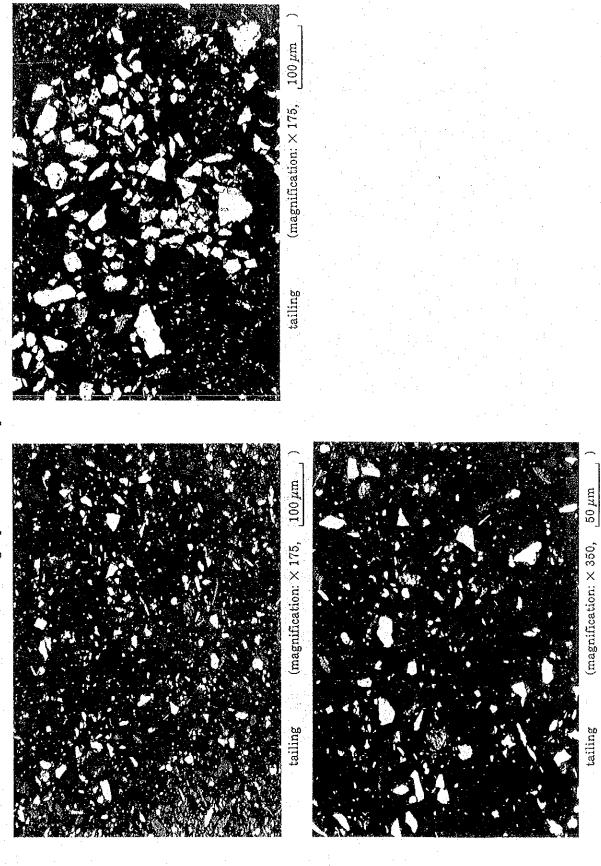
SEM and microprobe images of test samples

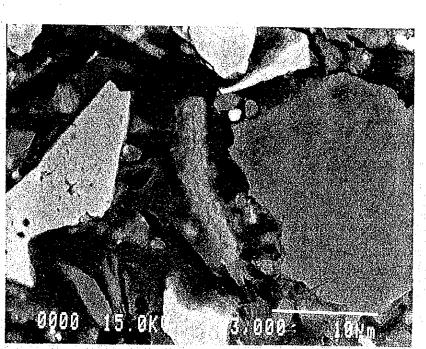
Carrier Congress of the Congre	
그는 이 있는 그는 이 사람들이 있는 것 같아 하는 것 같아.	
그리고 있다. 그리고 하고 있습니다 그런 한 번째로 함께 했다.	
그는 하다는 이 사람들은 아이들은 함께 하는 일 다른 사람들은 불편하다.	
그는 이 아름은 경소를 되고 가는 얼마 그릇만 하다 이 화기를 맺다.	
그 말이 나타지고 말하면 나는 이 가고 사람이 사람들이 가면 했다.	
그들이는 이렇지 않는 보이 되는 사람은 관계를 받는 한 말이를 받을 못했다.	
그 사원, 그는 그는 원인들이 가입니다고 함께 한 전체 황인을 모르고 있을 수	
그는 일이 내용하는 나는 그는 그는 것이라면 하는 것을 살을 했다.	
그리는 이 얼마 들어 하는 사람들은 사람들은 얼마를 통해 하고 되었다.	
	《紫蓝影》等《意思》是《天影》
그 가는 물리를 보고 그렇지만 개발 말이랑은 사고를 만든 내고를 들었다.	
그 프로그램이 하는 중요한 것이 만들을 다니고 그리를 중요한다.	
그는 소마 그림은 전반을 살아들었다. 하는 사람이 반으로 살아 모두 주었다.	
그리고 그리는 하는 회사 교육 발표를 다 다시라고 됐다. 날아나는	
	[1] 이 가는 그들면 이 등록 가는 수 있는 것으로 보는 것으로 되었다. 이 보다는 것으로 가는 것으로 하는 것으로 보고 있는 것으로 되었다.
는 사람들이 하는 것이 되었다. 그는 사람들이 되었다. 그런 사람들이 가장하는 것이 되었다. 그는 것이 되었다. 	
그는 사람들은 사람들이 있는 사람들이 되었다. 그런 사람들이 되었다. 그런 사람들이 되었다. 그런 사람들이 되었다. 그는 사람들이 가장 보고 있다. 그런 사람들이 사람들이 가장하는 사람들이 그런 것들이 되었다. 그런 것들이 되었다.	하게 된다고 되어 있는데 하는데 하는데 되어 된 것이다. 하는데 있는데 함께 되는데 하는데 되었다.
는 사람들은 다른 전에 따라 한다는 것들이라고 하는 것을 것을 하는 것을 하는 것을 하는 것을 것을 하는 것을 하는 것을 것을 것을 것을 것을 것을 수 없습니다. 것을	일 경영 : 사람이 되는 경험을 생활하는 것이다고 말했다. 이 건물 건물 생물이 되었습니다.
그림이 눈면 생각이 그리는 사람이 얼마나는 사람이 그릇 하는 아니라 하는데 생각이 되었다.	사이 사람이 교육하는 바람이 물을 바람이 되었다. 그 것도 없는 것도 없는 것도 없는 것도 없는 것도 없는 것도 없는 것이다. 그런 것이다. 그런 것이다. 그런 것이다. 그런 것이다. 그런 것이다.
그는 전 발표를 살아 하는 사람이 있는 그 사람이 모르고를 받아 되고 있었다.	
그는 물학에 대로 시민이 살은 다른 방로 발생을 걸쳐 모르는 생각	
그는 눈의 회원 문제 시작된 그리들이 되지만 되었다면 불살이 돌았습니다.	
그런 그 동안들이 아이지 않다는데 회복을 통리할 수없다는	
그 이 일이 있는 것이 없는 사람이 하면 만을 받았습니다. 그 사람들 중심하다	
그 그들이 그렇게 됐습니 날리를 가라고 화하지 않고 되었다.	
	하는 것이 이렇게 함께 가수되는 것이 되어 되었다. 가게 들은 사람들은 사람들이 가는 경기를 되는 것이 되었다.
。1996年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1966年,1	36、6.1% 特性的學家自由了# · /





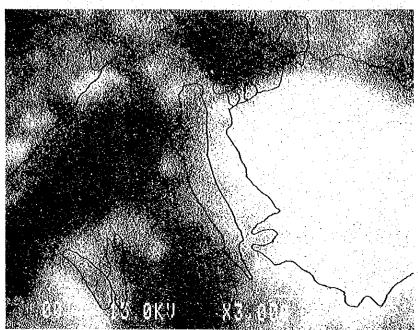
Photomicrograph 3 Flotation products of Rakah massive ore



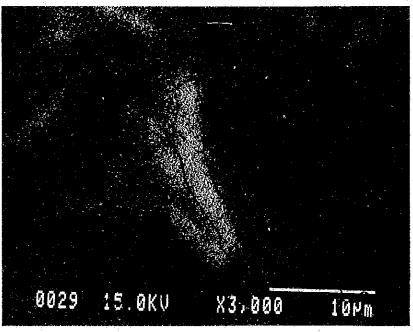


Back scattered electron image

X-ray images of tailing by EPMA analysis







Cu Ka X-ray Image

