

MEMORANDUM

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C.Q.O.

From

Ref

Subject ARSENIC SUPPRESSION

Abstract: To reproduce the results of page 5 from the February 16, 1976 report.

Procedure: Combined samples from #6, #11 and #13 thickeners were subjected to a constant amount of FeCl_3 (2.5g FeCl_3 /2000 ml) combined sample or 238 ppm Fe) and agitated. after agitation 1 ml, 2 ml, 5 ml and 8 ml of NH_4OH were added and agitated again, and an analysis performed. They were then left for 24 hours analyzed again, and were subject to dilutions of 1/2 and 1/4.

Data

A)

	pH	ppm Cu	ppm Fe	ppm As
#6 thickener	6.6	ND	11.2	30
#11 thickener	3.6	ND	180	110
#13 thickener	6.1	ND	11	524
Combination	6.1	ND	50	140
Combination (theo)	?	ND	58.4	131
Combination & FeCl_3	2.7	.35	360	140

B) All samples are 2000 ml with 2.5g FeCl_3 added

Amount NH_4OH (ml)	pH	ppm Cu	ppm Fe	ppm As
1	2.8	.48	226	103
2	3.2	.30	56	58.5
5	8.7	ND	2.0	3.0
8	9.2	ND	1.6	3.0

C) 24 hour wait period

Combination - pH = 6.3 ppm Cu = .36 ppm Fe = 25.4 ppm As = 124
Combination - pH = 2.6 ppm Cu = .36 ppm Fe = 270 ppm As = 125
& FeCl_3

Amount NH_4OH (ml)	pH	ppm Cu	ppm Fe	ppm As
1	2.7	.36	146	90
2	3.2	.32	42	56
5	8.6	ND	.52	3.5
8	9.1	ND	.33	3.5

D) Combined samples diluted to 1/2 and 1/4 from 24 hour wait period

AMOUNT NH ₄ OH (ml)	DILUTION	pH	ppm Cu	ppm Fe	ppm As
1	1/2	3.1	.30	60	38.5
1	1/4	3.1	.10	26.4	20.5
2	1/2	3.5	.20	22.1	29.5
2	1/4	3.6	.08	11.4	15.0
5	1/2	8.6	ND	1.39	1.30
5	1/4	8.5	ND	1.15	1.21
8	1/2	9.1	ND	ND	.99
8	1/4	9.0	ND	.89	1.21

Conclusions

the preceeding results have proven that it is possible to remove our nemesis to a level that is surely below its expected limits. Other words, it is possible to obtain a limit of 3 ppm As and a solid precipitate that does not dissolve very readily, as shown in the dilutions

this procedure seems very effective for the supression of arsenic