

To H. E. Pawson, W. L. Richardson.
From M. E. Lane.
Subject USE OF IRON SALTS IN WASTE TREATMENT.

Date April 7, 1972.
Ref. Memo from W. L. Richardson
dated March 29, 1972.

Results of inquiries indicated that Ferrous Sulphate would be the cheapest source of soluble iron, so a fresh sample of reagent was obtained, and used in a re-run of Bill Richardson's tests.

	<u>pH</u>	<u>CN(ppm)</u>	<u>% CN Reduction</u>	<u>As (ppm)</u>	<u>% As Reduction</u>
1. Barren solution.	11.4	460	-	3.1	-
2. D.W.T.O. solution.	5.9	14	-	93.6	-
3. Barren + 0.5 lb./ton FeSO_4	11.1	390	15	1.7	45
4. Barren + 1.0 lb./ton FeSO_4	10.8	310	33	1.4	55
5. 200 cc. Barren + 200 cc. D.W.T.O.	7.6	82	65	14.2	71
6. 200 cc. Barren + 0.5 lb./ton FeSO_4 + 200 cc. D.W.T.O.	7.2	73	69	17.2	64
7. 200 cc. Barren + 200 cc. D.W.T.O. + 0.5 lb./ton FeSO_4	7.2	78	67	11.4	76

Barren solution contains approximately 1.0 lb./ton lime. Consequently results of tests 3 and 4 verify that Ferrous Sulphate will precipitate Arsenic satisfactorily in the presence of lime. No appreciable effect was made on Cyanide content in these two tests.

It has been proved before that the mixing of Barren solution with the acidic wash thickener overflow will result in extensive Cyanide and Arsenic reduction, due to the change in pH and the presence of lime respectively. Tests 6 and 7 illustrated the fact that any effects due to Ferrous Sulphate addition were the result of the drop in pH. This was caused by the low pH of Ferrous Sulphate solution (4.95), and could be as easily achieved with an excess of D.W.T.O. or acid additions.

Conclusion: Ferrous Sulphate has no value in treatment of Barren solution for Cyanide reduction. A further series of tests are being carried out to assess its value in treating D.W.T.O. for Arsenic reduction.

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