

## MOP WATER CASE STUDY-2

### Mop & Scrubber Water Sample



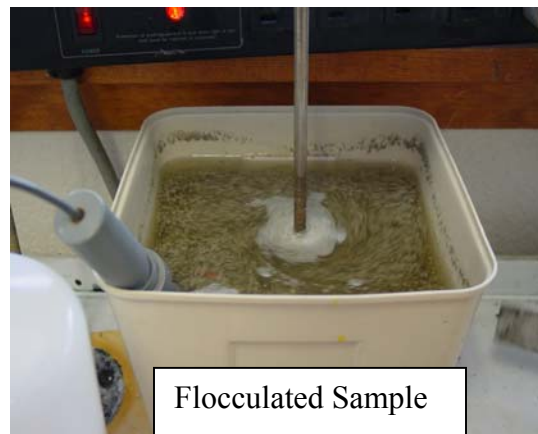
Untreated & Treated Samples

The samples were tested at our facility on Thursday, March 20, 2003. Visually the samples were a homogeneous mixture of mop water, oil, and metals. The initial pH was 10.5 and the conductivity was 7,500  $\mu$ S.

The sample was ozonated at a setting of 35% of capacity (35% of 3.9 gm/hour) or 1.37 gm/hour in the stabilization column for 12 hours. There appeared to be very little separation of oils from the mixture although there was noticeable decrease in the water viscosity (surface tension)

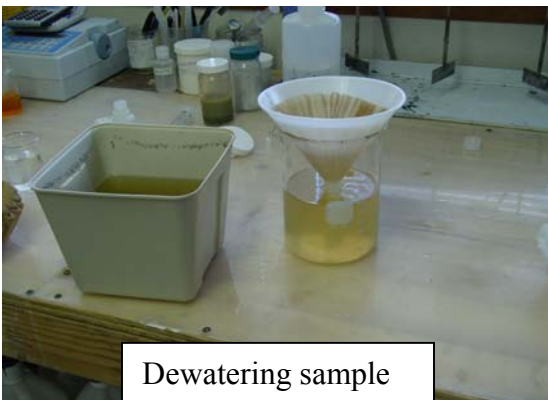
indicating the effect of the ozonation process. Post ozonation pH was 10.5 and the conductivity was 6,621  $\mu$ S (a drop of 879  $\mu$ S).

With 2,000 ml of sample and using a 2,500 ml square container, the pH was decreased with sulfuric acid (the  $\text{CO}_2$  unit we would normally use in the field) using 20 ml of a 20% acid solution to a final pH of 7.0 $\pm$ . The ORP meter was then used to measure the ORP, which is an indication of the residual metals in solution. The initial reading after pH adjusting to 7.0 was +86 mV. Adding IE-061 dropped the ORP down to -123.4 mV with a dosage of 0.4 ml. (200 ppm).



Flocculated Sample

5.0 gm. of Floccin-HP was added to the 2,000 ml and mixed at 300 rpm for 10 minutes until the floc was stable and there was a clear separation of floc and water. The floc/water was then poured through dewatering paper and the samples were collected for analytical work.



Dewatering sample



Dewatered Sludge

The analytical results are shown in the table (units are in ppm or mg/L):

<b>Analyte</b>	<b>Untreated</b>	<b>Treated</b>	<b>% Reduction</b>
Ammonia	54	ND	99%
Biological Oxygen Demand	6,600	2,700	59%
Chemical Oxygen Demand	46,000	14,000	69.5%
Suspended Solids	1,900	100	94.7%
Antimony	ND	ND	N/a
Arsenic	ND	ND	N/a
Barium	0.90	ND	99%
Beryllium	ND	ND	N/a
Cadmium	ND	ND	N/a
Chromium	ND	ND	N/a
Cobalt	ND	ND	N/a
Copper	1.1	ND	99%
Cyanide	18	1.5	91.7%
Lead	0.40	ND	99%
Mercury	ND	ND	N/a
Molybdenum	ND	ND	N/a
Nickel	ND	ND	N/a
Selenium	ND	ND	N/a
Silver	ND	ND	N/a
Thallium	ND	ND	N/a
Vanadium	ND	ND	N/a
Zinc	38	3.6	90.5%

\* Carbon Dioxide (non hazardous) will be used instead of acid (hazardous)