CLOR-N-OIL™ FIELD TEST PROGRAM

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Eighty-seven utilities have participated in the test program, and so far (as of the end of November 1983) we have received test results back from 40 of them. This report presents the summary of these test results.

A total of 879 oil samples have been tested both with the CLOR-N-OIL test kit as well as on a gas chromatograph. Whenever a CLOR-N-OIL kit user recognized that he erred on his test procedure, either through breaking the capsules in the wrong order or spilling some fluid, the test results were discarded for this summary report.

Of the 879 samples, 424 tested negative (with a blue color at the end of the test) indicating less than 50 ppm of PCB. The remaining 455 tested positive (turned clear). However not all of these samples were drawn randomly, since many users wanted to explore this test method in a narrow, critical range of PCB contamination. This led to a larger percentage of oil samples testing clear.

If we were to choose only randomly picked samples, the test results show 372 (51%) blue and 352 (49%) clear. Of the 355 clear samples 161 (22% of the total) did contain more than 50 ppm of PCB and 194 samples (27% of the total) gave a false positive test. This in comparison to 51% of the samples being eliminated from any further tests is quite small. Of course on would like this percentage to get even smaller but in order to safeguard against contaminated samples testing negative, this is the best we can do.

A total of 18 tests showed false negatives, i.e., the CLOR-N-OIL test gave a negative (blue) test, but a subsequent PCB test indicated a contamination level greater than 50 ppm. While we continue to examine the reasons and retest many of these samples, we do have an explanation for many of the tests.

A user who reported four false negative readings in a batch of 20 tests subsequently found that PCB test carried out by an independent outside lab gave high PCB readings. The PCB test reported by the lab gave reading between 53 and 126 ppm, whereas the subsequent tests carried out on these same samples at General Electric tested between 2 and 11 ppm.

There were two other problems early in the test program that were rectified through appropriate changes in the instructions. One change was to show through a photograph that if a test sample has a substantial percentage of PCB (above a few hundred thousand ppm) the test sample being heavier than water will sink below the water and this test method will not work.

Another problem was eliminated through the removal of a photo showing a test resulting from a sample contaminated with 40 ppm of Akarel 1242. Here the photograph showed a slight purple ring at the top of the water layer which could look similar to a test sample if some oil was transferred to tube #2 (in step 4 of the instructions). Since the instructions were revised only two false negatives have been reported.

Conclusions: Through the use of the CLOR-N-OIL screening test one can typically eliminate half of the oil samples from any further testing. The general experience, especially since the instructions were revised, has been exceptionally good. This test method can offer a significant cost savings to the utility industry.

Number of Utilities Participating	87	
Number of Utilities that have Reported to Date	40	
Total Oil Samples Tested	879	
Blue	424	(48%)
Clear	455	(52%)
Random Sampling		
Blue	372	(51%)
Clear	355	(49%)
False Positives	194	(27%)
PCB Contamination	161	(22%)
False Negatives	18	(2.3%)