



November 30, 2004

Tim J Bahr  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

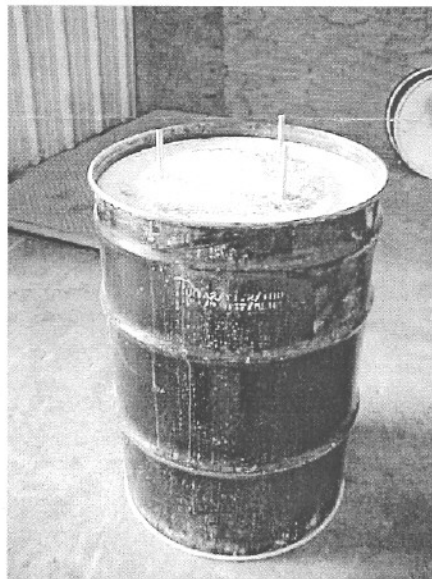
Subject: Onyx Special Services, Inc.  
EPA ID Number: FLO 000 207 449  
OGC File Number: 03-2171  
Permit Number: HO37-82472-004

Dear Mr. Bahr:

This letter is being submitted to report the status of research and development activities under the variance issued by the Florida Department of Environmental Protection under the above referenced number on June 8, 2004. In section c. of the variance, Onyx Special Services was required to generate data regarding the efficiency of the retort when operated with an increased surface area in relation to the volume of material processed or with other means of enhancing heat and vapor transfer. A minimum of six batches were to be processed for each trial, with a minimum of three trials to be conducted. Following are the methods employed and the results of each trial. In lieu of dimensional drawing, we have added pictures of the added hardware. If you would still like to see drawings of the rods, pipe, or drums, we can supply that information.

#### Trial One

In the initial trial we tried to add more heat to the drum by adding three ½ inch steel rods to the drum. By adding the steel rods we anticipated adding heat into the phosphor powder more quickly. The results of this test are as follows:



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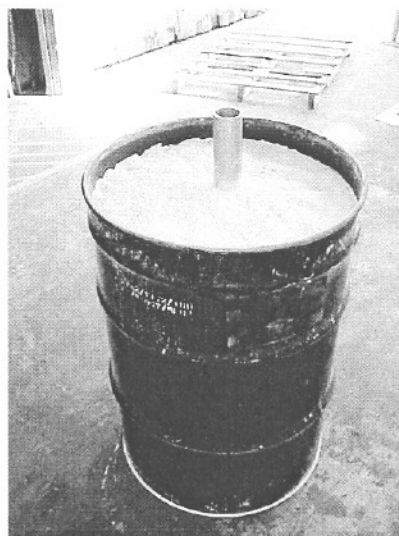


Run	Date	Before	After	% Recovery
868	1-21-04	400	3.3	99.18
869	1-23-04	436	5.12	98.83
870	1-27-04	504	4.9	99.03
871	1-28-04	459	4.2	99.09
872	2-03-04	397	5.2	98.69
873	2-04-04	531	5.2	99.02

As you can see, four of the six runs resulted in recovery rates higher than 99%. The average for this trial was 98.97%.

#### Trial Two

In trial two we added a 36 inch long, two inch wide perforated galvanized steel pipe to the drum. Here the idea was to not only add a heat sink to the drum but also add an easier path for the vapors to escape. The results are as follows:



Run	Date	Before	After	% Recovery
884	3-02-04	862	5.7	99.34
885	3-03-04	621	5.4	99.13
886	3-04-04	578	6.1	98.95
887	3-08-04	468	4.9	98.95
888	3-09-04	506	3.2	99.37
889	3-10-04	473	2.6	99.45

Again four of the six trials meet the 99% minimum recovery rate. The average of the six was 99.20%.

#### Trial Three



In trial three we increased the surface area per volume by decreasing the amount of phosphor powder in the drum. Here we only filled the drums approximately 2/3rds full. The results of this trial are as follows:

Run	Date	Before	After	% Recovery
897	7-22-04	2100	5.15	99.75
898	7-23-04	653	6.3	99.04
899	7-24-04	474	5.1	98.92
900	7-25-04	608	6.2	98.98
901	7-26-04	488	3.9	99.20
902	7-28-04	1240	4.8	99.61

Again four of the six trials meet the 99% minimum recovery rate. The average of the six trials was 99.25%.

#### Laboratory Issues

Additionally, to rule out lab issues we sent duplicate and split samples out during the year. In the duplicate sample we sent two samples of the cooked powder from run 868. The results were 3.3 and 2.9 mg/kg. For the split sample, run 925, we sent to our usual lab, STL Miami and to US Biosystems. The results from STL Miami were 480 before and 6.7 mg/kg after. The split sent to US Biosystems resulted in 440 before and 6 mg/kg after.

#### Conclusions

During the year we performed three different trials to find a consistent method to achieve the minimum 99% recovery rate. In all three of the trials four of the six batches run met the 99% recovery rate. And in all three of the trials, the two that fell below 99% were all greater than 98%. Trial three, short filling the drum, achieved the highest recovery percentage, 99.25% average. Going forward, Onyx will use the method from Trial 3 for all drums of phosphor powder.

Although we are confident that this method for processing powder is appropriate for achieving a 99% reclamation rate, we are concerned over the variability in samples and analytical procedures. In order to address this concern we are in the process of developing a new sampling plan. This plan is intended to provide a more consistent data set to work from and will not reduce the number of samples or the frequency of sampling. Since the sampling will provide more data than what is currently required by the permit, we believe a permit modification is not required prior to implementing the changes. However, we would like to request a meeting with the department to discuss the sampling plan revisions to



ensure that everyone understands what is being done and is in agreement with the appropriateness of the methods.

If you have any comments or questions, please contact me at (850) 878-2259 or Phillip Ditter at (262) 243-8900.

Regards,

A handwritten signature in black ink, appearing to read 'Jeff Kirk', with a large, looping initial 'J'.

Jeff Kirk  
Operations Manager

Cc Phillip Ditter  
James Byer