Parker, Bill

From: Kellenberger, Bill

Sent: Monday, March 15, 2004 10:43 AM

To: Price, John L.

Cc: Tenace, Laurie; Byer, James; Posner, Augusta; Parker, Bill; Bahr, Tim; 'Jeff A Kirk'

Subject: RE: Onyx Alternate method and meeting

Realize this is old message, but.. Hope to see you all tomorrow. Jim has a briefing, copies, etc. and has talked with Jeff Kirk. We are prepared. Hit thru the ball.

----Original Message-----From: Price, John L.

Sent: Monday, February 23, 2004 11:00 AM

To: Kellenberger, Bill

Cc: Tenace, Laurie; Byer, James; Posner, Augusta; Parker, Bill; Bahr, Tim; 'Jeff A Kirk'

Subject: RE: Onyx Alternate method and meeting

Twin Towers Rm 350 (Tallahassee) is reserved for 1:00-3:00 March 16.

John L. (Jack) Price
Environmental Manager
Hazardous Waste Management
Florida Department of Environmental Protection
850.245.8751
john.l.price@dep.state.fl.us
www.dep.state.fl.us/waste

----Original Message-----From: Kellenberger, Bill

Sent: Monday, February 23, 2004 11:30 AM

To: 'Jeff A Kirk'

Cc: Byer, James; Posner, Augusta; Parker, Bill; Bahr, Tim; Price, John L.

Subject: RE: Alternate method and meeting

March 16th is good with Pensacola and Augusta Posner. I have cc'd the action folks and hope they are available too. Tuesday March 16. Jack Price: Will you be good enough to get us a conference room for 1:00PM in Twin Towers? Thanks to all. Hit thru the ball.

----Original Message----

From: Jeff A Kirk [mailto:JAKirk@onyxsp.com] Sent: Monday, February 23, 2004 9:13 AM

To: Kellenberger, Bill

Subject: Alternate method and meeting

Just an informal FYI on distiller results with metal rods added. Run 868 - 1/21/04 - Before 400 mg/kg - After 3.3 mg/kg = 99.2% (duplicated after sample - 2.9 mg/kg = 99.3%) Run 872 - 2/04/04 - Before 420 mg/kg - After 5.5 mg/kg = 98.7%

When you were here last month, we talked about getting together to discuss the variance. How does March 16th sound? Phill will be down here then. We can meet in either Tallahassee or Pensacola. Let me know if this works. Looking forward to hearing from you,

Jeff Kirk Operations Manager

1 450 2 01 2

Onyx Electronics Recycling - Tallahassee, FL 866-877-8299 jakirk@onyxsp.com



Department of Environmental Protection FILE COPY

leb Bush Governor

Northwest District 160 Governmental Center Pensacola, Florida 32502-5794

David B. Struhs Secretary

December 24. 2003

REQUEST FOR INFORMATION (RFI)

Mr. Jeff Kirk General Manager Onyx Special Services, Inc. 342 Marpan Lane Tallahassee, Florida 32305

RECEIVED **RCRA** DEC 3 1 2003

Hazardous Waste Regulation

Dear Mr. Kirk:

This is in response to your letter dated October 27, 2003, which was received by the Department on December 3. This letter enclosed information and requested an extension to the variance that was issued on January 4, 2002.

The following items require clarification and or explanation:

- 1. It appears from the sampling and analyses data that the information required by the variance was not acted upon in a timely manner. A year passed before Onyx began the trials related to increased retention time at peak temperature, as required by subparagraph c. of the variance.
- 2. The anomalous results of sampling and analysis, and your proposal to investigate, have not been explained satisfactorily. Even if "the overall time the material spends in the oven" is reduced because "programming is lost in the system," how does that result in a "negative percent recovery?"
- 3. No information was provided in accordance with sub-paragraph d. of the variance, which requires research and testing of at least two technological alternatives.
- 4. Has Onyx contacted the equipment supplier for recommendations about increasing the efficiency of their present equipment?
- 5. Is there better/more efficient equipment on the market?
- 6. Has Onyx tried operational alternatives such as agitating the drums; providing a center perforated core for volatile mercury to escape from the drums, etc.?
- 7. Has Onyx considered the use of an independent consultant to take and transport samples, and then analyze the sampling results? Have split samples been considered?
- 8. Some sampling results have no values and are shown to be "regular;" for example #'s 756-769. Please show the values for all of these runs.

"More Protection, Less Process"

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Mr. Jeff Kirk Onyx Special Services Inc Page 2

Please provide the above information to the Department by January 15, 2004. Upon receipt and review of the information we will request a meeting with you to discuss your request.

If you have any questions, please call Bill Kellenberger at (850) 595-8360, ext: 1264.

Sincerely,

Charlie Goddard

Program Administrator Waste Management

CFG:bkk

Parker, Bill

From: Kellenberger, Bill

Sent: Tuesday, October 28, 2003 9:22 AM

To: Parker, Bill

Subject: FW: NEED HELP IN ANALYZING.HG

Bill See below. Your input is needed tooooooo. Do we or you do the variance...Hit thru the ball.

----Original Message-----From: Kellenberger, Bill

Sent: Tuesday, October 28, 2003 8:19 AM

To: Price, John L.; Tenace, Laurie

Subject: NEED HELP IN ANALYZING.HG

Hi All, See the attached letter and data from Jeff. We feel that they have a problem with all the negative results, etc. It also appears that an extension of the variance is asked for. I am not sure how we do this. What do you think on both issues. Let's have a conference call to discuss in house. Thanks. Hit thru the ball.

----Original Message----

From: Jeff A Kirk [mailto:JAKirk@onyxsp.com] **Sent:** Monday, October 27, 2003 3:37 PM

To: Kellenberger, Bill

Subject: Letter to Bill Kellenberger

Bill, Here is the quarterly report.

Jeff Kirk Onyx Special Services 342 Marpan Lane Tallahassee, FL 32305 866-877-8299 Fax 850-878-3349 Mr. Bill Kellenberger Department of Environmental Protection Northwest District Office 160 Governmental Center Pensacola, FL 32501-5794

RE: Onyx Special Services, Inc. 342 Marpan Lane
Tallahassee, FL 32305
EPA ID# FL0000207449
OGC File No. 01-1298

Dear Mr. Kellenberger:

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 file number on January 4, 2002. This letter is also being submitted to request an extension of the variance for the purpose of conducting additional research and development activities.

Below is a summary of the results obtained from the additional time at maximum temperature tests. Attached is a detailed listing of every batch that was processed in the retort along with the associated analytical data, percent recoveries, and any maintenance activities contained in the maintenance log.

Trial 1, 2 additional	1 of 6	>99% recovery or <10 mg/kg total mercury			
hours at max. temp. 4 of 6		>0 and <99% recovery and >10 mg/kg total mercury			
	1 of 6	Negative percent recovery			
Trial 1, 4 additional 3 of 6 >99% recovery of		>99% recovery or <10 mg/kg total mercury			
hours at max. temp. 3 of 6		>0 and <99% recovery and >10 mg/kg total mercury			
Trial 1, 6 additional 1 of 6 >99% recovery or <10 mg/kg total		>99% recovery or <10 mg/kg total mercury			
hours at max. temp. 5 of 6		>0 and <99% recovery and >10 mg/kg total mercury			
Trail 2, 2 additional 3 of 6 >99% recovery or <10 mg/kg to		>99% recovery or <10 mg/kg total mercury			
hours at max. temp	1 of 6	>0 and <99% recovery and >10 mg/kg total mercury			
	2 of 6	Negative percent recovery			
Trial 2, 4 additional	0 of 6	>99% recovery or <10 mg/kg total mercury			
hours at max. temp	2 of 6	>0 and <99% recovery and >10 mg/kg total mercury			
	4 of 6	Negative percent recovery			
Trial 2, 6 additional	additional 1 of 6 >99% recovery or <10 mg/kg total mercury				
hours at max. temp 1 of 6 >0 and <99% recovery and >10 mg/kg t		>0 and <99% recovery and >10 mg/kg total mercury			
	4 of 6	Negative percent recovery			

The data would seem to suggest that the efficiency of the retort decreases with the additional time at maximum temperature; however, this conclusion is not consistent with the theory and logic of the trial. After receiving the results, a number of items were investigated and/or evaluated.

Area Investigated	Results			
Retort temperature	The retort is equipped with an indicator light that is activated			
	when the retort reaches the maximum temperature contained in the program controller. This light was activated on every batch			
	indicating that the retort reached maximum temperature.			
Retort Vacuum	All vacuum reading were found to be within the retorts normal			
	operating range and there was no correlation between vacuum			
	readings and percent recovery.			
Laboratory Quality Control	Copies of quality control documents were obtained from the			
	laboratory and all quality control measures were found to be			
	within acceptable ranges.			
Laboratory Sample Control	When phosphor powder is heated in the retort the powder			
	undergoes a slight color change. All samples analyzed by the			
	laboratory were shipped back to the facility and the samples were			
	visually inspected. This inspection did not find any evidence of			
	samples being mislabeled and the color changes were consistent			
	between all samples.			
Processed powder on regular	Between the two trials several batches were processed using the			
program	regular program in the retort. All of the samples from this			
	material met the requirement for a >99% recovery or <10 mg/kg			
	final concentration.			

Based on the laboratory data and the results of the investigation that we have conducted we can make the following conclusions.

- 1. When operated on the regular processing program the retort continues to meet the requirements of the variance.
- 2. The additional cook time results are not valid.
- 3. We cannot at this time identify the reason for the invalid results.

One theory as to why the results are not valid is when the retort is reprogrammed for the additional time at maximum temperature, some of the other programming is lost in the system. This could lead to the oven heating up too quickly and reducing the overall time the material spends in the oven. To conclusively answer this question we are proposing to purchase and install a data logging thermocouple on the retort. This device will monitor the temperature of the retort oven and log that temperature at a set interval. This will allow us to chart the length of time the retort is requiring to reach maximum temperature and the length of time at that temperature.

Mr. Bill Kellenberger October 28, 2003 Page 3

We anticipate that it will take several weeks to obtain the new thermocouple and to have an adapter manufactured to allow the installation of the thermocouple. Once we have the thermocouple installed it will take several additional weeks to run the trial and obtain the analytical results.

The trial study to determine if processing the material for a longer period of time at the maximum temperature has taken longer than originally anticipated and the completing this trial for the third time with the data logging thermocouple will also take several additional months to complete. The time spent on this project has precluded us from attempting the two additional methods for increasing retort efficiency required by the variance. Based on these factors, Onyx Special Services, Inc. is requesting an extension of the variance issued January 4, 2002 under the above referenced file number.

If you have any questions please call Phillip Ditter at (262) 243-8908 or call me at (850) 878-2259.

Sincerely,

ONYX SPECIAL SERVICES, INC.

Jeff Kirk General Manager

Cc: Phillip Ditter

10102033 756 4 Yes Regular Replaced bearing in vac pump	
1010/030 758 2 Yes Regular	
1016/03/03 759 2 Yes Regular	
1016/033 760 2 Yes Regular	
Diricipion 762 2 Yes Regular	
1011003	
D11/10/03 764 4 Yes Regular	
Diff.1003 766 4 Yes Regular	
01/14/03 766 2 Yes Regular Replaced filters, cleaned out chiller	
Off-14/03 767 2 Yes	
Official Color	
D1116/03 795	
1012/103	
01/22/03 770b	
01/23/03	
01/24/03	
01/28/03	
01/12/03	
01/30/03	
01/31/03 776 2 Yes	
C2/20/03 Replaced 2 heating elements Replaced 2 heating elements Replaced 2 carbon in lead filter, swapped filter C2/21/03 778 2 Yes	
O2/21/0/3	
02/28/03 778	
Cleaned pipes Replaced filters	cations
C3308/03	
C3/19/03 779 2 Yes	
03/20/03	
03/24/03 782 2 Yes	
03/25/03 783 2 Yes	
03/26/03	
03/27/03	
03/28/03	
03/30/03	
04/01/03 789 2 Yes +6 hours 810.00 21.00 97.41% 04/02/03 Cleaned chillers 04/07/03 790 2 Yes +6 hours 597.00 1.90 99.68% 04/08/03 791 2 Yes Regular 99.68% 99.68% 04/09/03 792 2 Yes Regular 99.68% 99.68% 04/11/03 793 2 Yes Regular 99.68% 99.68% 04/14/03 793 2 Yes Regular 99.68% 99.68% 04/14/03 793 2 Yes Regular 99.68% 99.68% 04/14/03 794 2 Yes Regular 99.68% 99.68% 99.68% 04/16/03 794 2 Yes Regular 99.68% 99.68% 99.68% 99.68% 99.68% 04/18/03 796 2 Yes Regular 99.68% 99.28% 99.68% 99.68% 99.68% 99.28% 99.28% 99.28% 99.28% 99.28% 99.28% 99.	
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1 03/13/03 00/1 21165 Tequial	
05/15/03 808 2 Yes Regular 512.00 7.10 98.61%	
05/22/03 Replaced filters, cleaned chillers and pipes	
05/29/03 809 2 Yes Regular	
06/02/03 810 1 Yes +2 hours 214.00 0.42 99.80%	
06/04/03 cleaned screens in carbon filters	
06/14/03 811 1 Yes +2 hours 58.30 167.00 -186.45%	
06/15/03 812 1 Yes +2 hours 197.00 190.00 3.55% Date in run log lists 6/13/03	
06/16/03 813 1 Yes +2 hours 1.01 165.00 -16236.63% 06/26/03 814 1 Yes +2 hours 214.00 0.48 99.78% Cleaned pipe above DME	
07/02/03 815 1 Yes +2 hours 247.00 7.01 97.16%	
07/08/03 816 11Yes +4 hours 109.00 136.00 -24.77%	
07/11/03 Replaced filters	
07/15/03 817 1 Yes +4 hours 184.00 255.00 -38.59%	
07/16/03 818 +4 hours 80.00 142.00 -77.50% run number not in log	
07/17/03 819 1 Yes +4 hours 217.00 175.00 19.35%	
07/23/03 820 1 Yes +4 hours 106.00 134.00 -26.42%	
07/28/03 821 1 Yes +4 hours 108.00 90.40 16.30%	
08/01/03 822 1 Yes +6 hours 33.00 127.00 -284.85%	
08/04/03 Replaced bad fuse	
08/12/03 823 1 Yes +6 hours 94.00 9.12 90.30%	
08/14/03 824 1 Yes +6 hours 105.00 91.20 13.14%	

Date	Run Number	Vac. Reading	Max. Temp	Program	Conc. Before	Conc. After	% Recovery	Maintenance Activities
08/16/03	825	1	Yes	+6 hours	194.00	344.00	-77.32%	
08/18/03	826	1	Yes	+6 hours				
08/25/03						l		Cleaned chillers and pipes
08/27/03	827	1	Yes	+6 hours	148.00	212.00	-43.24%	
09/03/02			T			[Replaced filters
09/04/03	828	1	Yes	+6 hours	208.00	214.00	-2.88%	
09/12/03	829	1	Yes	Regular				
09/18/03								Replaced bearing in vac pump, cleaned chillers
09/19/03	830	1	Yes	Regular		l		
09/25/03	831	1	Yes	Regular	7			



Department of Environmental Protection

Jeb Bush Governor Northwest District 160 Governmental Center Pensacola, Florida 32501-5794

David B. Struhs Secretary

January 4, 2002

Mr. Jeff Kirk Operations Manager Superior Special Services, Inc. 242 Marpan Lane Tallahassee, Florida, 32305 RECEIVEL RCRA JAN 0 7 2002

Hazardous Waste Regulation

Dear Mr. Kirk:

Enclosed is a copy of the Final Order Granting Petition for Variance from Rule 62-737.860(4), F.A.C., concerning Superior Special Services, Inc. located at 4972 Woodville Highway in Tallahassee, Florida.

If you have any other questions concerning this matter, please contact Jim Byer at telephone (850) 595-8360, extension 1265.

Sincerely,

Charles F. Goddard Program Administrator Waste Management

CFG:jbl Enclosure

Cc: Satish Kastury, Hazardous Waste Regulation Jack Price, Hazardous Waste Management Augusta Posner, OGC

"More Protection, Less Process"

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BEFORE THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

In re, Superior Special Services, Inc.

OGC File No. 01-1298

Petition for Variance

FINAL ORDER GRANTING PETITION FOR VARIANCE FROM RULE 62-737.860(4), F.A.C.

On August 6, 2001, Superior Special Services, Inc., filed a petition for variance from requirements in rule 62-737.860(4) of the Florida Administrative Code (F.A.C.), under sections 120.542 and 403.201, Florida Statutes (F.S.) and rule 28-104.002, F.A.C. The petition was for a variance from the requirement of rule 62-737.860(4), F.A.C., that facilities shall demonstrate an effective reclamation rate of 99 percent of the mercury introduced into the process, or a resulting total mercury concentration below the method detection limit.

The Department has jurisdiction under Chapters 120 and 403, Florida Statutes (F.S.) and Chapters 28-104, 62-110 and 62-737, Florida Administrative Code (F.A.C.)

A notice of receipt of the petition was published in the Florida Administrative Weekly on August 31, 2001. Notice of the Department's intent to issue this Order was published in Tallahassee Democrat on December 17, 2001. No comments or petitions were received by the Department in response to the published notices.

The Department finds that the Petition establishes the following facts and conclusions of law on which this Order is based:

- 1. Superior Special Services, Inc., ("Petitioner") has operated a mercury reclamation and mercury recovery facility since 1996. Petitioner is located at 4972 Woodville Highway, Tallahassee, Florida 32311. The facility permit number is HO37-82472-004, and the facility hazardous waste identification number is FL0000207449.
- 2. Petitioner processes mercury containing devices, mainly waste fluorescent lamps, generating a phosphor powder which contains mercury. The mercury is separated from this phosphor powder by distillation in a retort unit. In the retort unit, the mercury is separated by heating the phosphor powder in a vacuum chamber which causes the mercury to vaporize. The vaporized mercury is subsequently condensed and collected for recycling.
- Since the mid 1990s, fluorescent lamp manufacturers have reduced the concentration of mercury in fluorescent lamps. Additionally, new lamps have become available that contain even less mercury.
- 4. As part of the quality control program for the facility, Petitioner has collected pre-retort and post-retort mercury concentration sample analyses of phosphor powder on a monthly basis. This

Superior Special Services, Inc. OGC File No. 01-1298
Petition for Variance
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analytical data confirms that the concentration of mercury contained in the phosphor powder prior to retort has dropped significantly in recent years.

- 5. As the concentration of mercury in the waste stream has declined, the concentration in the post-retort powder has remained essentially steady. Petitioner identified the reason for this disparity: as the concentration of mercury decreases, the amount of time required to volatilize and capture the mercury increases. Eventually a point is reached where current equipment and operating procedures are no longer technically capable of capturing 99 percent of mercury in the waste stream because the initial mercury concentration of the phosphor powder is so low.
- 6. The applicable rule states in pertinent part: "(f)acilities shall maintain quality control and testing records based on statistically significant and updated laboratory analyses that use an EPA-approved methodology for analyzing total mercury content as specified in the facility's operation permit issued under this Chapter, and that demonstrate at least semi-annually an effective reclamation rate of 99 percent of the mercury introduced into the process, or a resulting total mercury concentration below the method detection limit." [Rule 62-737.860(4), F.A.C.]
- 7. Petitioner has stated that to achieve an effective reclamation rate of 99 percent of the mercury introduced into the process would create a substantial hardship because there is no currently available technology to achieve this reclamation rate. Petitioner asserts it evaluated three alternatives that are not technologically viable, including: a) increase the residence time of the processed material in the retort unit, b) increase the surface area of the processed material in the retort unit, and c) increase the peak operating temperature of the retort unit. Petitioner has stated that no technologically viable alternative exists to consistently achieve a 99% reclamation rate once the concentration of the material being processed drops below a level of 750 milligrams per kilogram (mg/kg).
- 8. Petitioner proposes to replace the 99 percent reclamation rate with a two-part reclamation schedule based on the original concentration of mercury contained in the material to be processed. When the original concentration of mercury is greater than or equal to 1000 mg/kg the minimum reclamation rate will be 99 percent. When the original concentration of mercury is less than 1000 mg/kg the maximum mercury concentration in the resulting processed material will be 10 mg/kg.
- 9. The purpose of the Statute is to remove mercury from the municipal waste stream and to recover and manage the mercury in a manner that protects human health, safety, and welfare and the environment. At the time that the rules regarding the 99% reclamation rate were promulgated, no one anticipated that the concentration of mercury in fluorescent lamp phosphor powder would drop so precipitously. The initial average concentration of mercury in the phosphor powder derived from processing fluorescent lamps in calendar years 1997 and 1998 was in excess of 2000 mg/kg. At a reclamation rate of 99%, the residual mercury remaining in the phosphor powder could have been in excess of 20 mg/kg and been in compliance with the regulations. The actual average post-retort concentration of mercury in the phosphor powder in calendar years 1997 and 1998 was 10.35 mg/kg.

Superior Special Services, Inc. OGC File No. 01-1298
Petition for Variance
Page 3 of 4

The reclamation rate schedule that Petitioner is proposing in this request for variance would cap the final mercury concentration for low-level mercury wastes at 10 mg/kg. This schedule would provide a means for Petitioner to remain in compliance while still removing the mercury from the waste stream to the extent currently feasible, and still below levels achieved in previous years.

WHEREFORE, IT IS HEREBY ORDERED by the State of Florida Department of Environmental Protection that Petitioner, Superior Special Services, Inc., is granted a variance from the 99 percent mercury reclamation rate in Rule 62-737.860(4), F.A.C. for its Tallahassee facility, subject to the following conditions.

- a. This variance shall expire on January 1, 2004.
- b. Superior Special Services, Inc. shall demonstrate an effective reclamation rate of the mercury introduced into the process with a two-part reclamation schedule based on the original concentration of mercury contained in the material to be processed. When the original concentration of mercury is greater than or equal to 1000 mg/kg the minimum reclamation rate shall be 99 percent. When the original concentration of mercury is less than 1000 mg/kg the maximum mercury concentration in the resulting processed material shall be 10 mg/kg.
- c. Superior Special Services, Inc. shall generate data regarding the efficiency of the retort when operated with an increased residence time at peak temperatures. Superior Special Services, Inc., shall process one batch per week with an increased retention time. The length of time that each batch is held at the peak temperature will be increased by two hours. Subsequent tests will be conducted with an increase of four hours and an increase of six hours. A minimum of six batches will be processed for each time increase series. Upon completion of these tests, Superior Special Services, Inc. will submit a test evaluation report to the Department for review.
- d. Superior Special Services, Inc. shall research and subsequently test a minimum of two additional technology alternatives to increase the reclamation rate for low-level mercury-containing devices. Upon completion of these tests, Superior Special Services, Inc. will submit a test evaluation report to the Department for review.
- e. Superior Special Services, Inc. shall allow all authorized representatives of the Department access to the property and facility at reasonable times for the purpose of determining compliance with the terms of this Order and the rules and statutes of the Department.
- f. Entry of this Order does not relieve Superior Special Services, Inc. of the need to comply with applicable federal, state or local laws, regulations or ordinances.
- g. The terms and conditions set forth in this Order may be enforced in a court of competent jurisdiction pursuant to §120.69 and §403.121, F.S.

This Order is a final order of the Department pursuant to §120.52(7), F.S., and effective on the date filed with the Clerk of the Department.

Superior Special Services, Inc. OGC File No. 01-1298
Petition for Variance
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Any party to this Order has the right to seek judicial review of it under §120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department in the office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice must be filed (received) within thirty days after this order is filed with the clerk of the Department.

DONE AND ORDERED this, day of January 2002 in Pensacola, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

DIRECTOR OF DISTRICT MANAGEMENT

Northwest District

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FILING AND ACKNOWLEDGEMENT and CERTIFICATE OF SERVICE

FILED, on this date, pursuant to §120.53, Florida Statutes, with the designated Agency Clerk, receipt of which is hereby acknowledged. All copies were mailed before the close of business on the date below to the persons listed.

Clerk

Jaw. 4, 2002

Copies furnished to:

John Price, Hazardous Waste Management Doug Outlaw, Hazardous Waste Regulation Augusta Posner, OGC