Ms. Elaine Brummert
U.S. Nuclear Regulatory Commission
Fuel Cycle Facilities Branch
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safetyguards

Re: Responses to Cabot Corporation Request for Additional Information, Renewal of NRC Source Material License SM-920

Dear Elaine:

In response to your request for additional information to support renewal of NRC Source Material License SM-920 for the Boyertown, Pennsylvania plant, Cabot Performance Materials (CPM) is submitting this letter and the attached documents to supply the requested information.

*1. **Decommissioning Funding Plan**. The licensee must provide an updated detailed cost estimate for decommissioning and documentation of adequate funds for decommissioning the licensed facility.*

According to the Office guidance NUREG-1727, Section 15, the renewal application should have included a decommissioning funding plan as described above.

See Attachment A, *Cabot Performance Materials, 2002 Decommissioning Cost Estimate for the Boyertown, Pennsylvania Site*, dated September 6, 2002.

*2. **Climatology and Meteorology**. The licensee should provide updated climatology and meteorology data for the site area.*

The climatology and meteorology data described in the ER for the 1994-1996 license renewal accounts for the time period between the years 1972 and 1976. The staff considers this time interval to be of limited value in evaluating the potential impacts of site activities under various climatic conditions (e.g., tornados).

CPM collected weather data from September 1999 to June 2002 using a DAVIS - Weather Monitor II weather station unit. The meteorological data collected on site includes air temperature, relative humidity, wind speed, wind direction, and barometric pressure. Collected data was stored in hourly increments. Rainfall data for this time period were acquired from the National Climatic Data Center, a product and service information center provided by the United States National Oceanic and Atmospheric Administration (NOAA).

On June 28, 2002, CPM installed a WeatherLog™ Weather Monitoring System. This new system monitors air temperature, relative humidity, dew point, barometric pressure, wind direction, wind speed, and rainfall. Located in CPM's security and main communications center, this weather monitoring system is equipped with real-time weather condition monitoring to be used during emergency response in the event of a spill or release. The new system is also equipped with a 4 to 20 milliamp signal output

that is received by CPM's central environmental monitoring system. All weather station parameter data points are then stored for future use.

The mean monthly temperatures and extremes are shown in Table 1. The maximum-recorded temperature during the period of record was 100.2 degrees F and the minimum was 3.8 degrees F. The annual mean temperature for the period of record was 52.8 degrees F based on the data collected on site.

Table 1. Mean and extremes of monthly average temperature (°F)

Month	Monthly Mean	Monthly Maximum	Monthly Minimum
January	30.1	68.2	3.8
February	34.5	64	6.6
March	41.9	80.8	16.2
April	53.1	94.1	26.2
May	62.4	97.7	34
June	71.8	98.9	42.3
July	71.5	96.6	37.3
August	73.3	100.2	41.3
September	63.7	91.4	34.6
October	52.4	84	25.2
November	44.6	70.7	17.7
December	33.7	70.4	7.4

The mean monthly temperatures and extremes are shown in Table 2. The maximum-recorded temperature during the period of record was 100.2 degrees F and the minimum was 3.8 degrees F. The annual mean temperature for the period of record was 52.8 degrees F based on the data collected on site.

Table 2. Mean, maximum daily rainfall and monthly mean.

Month	Average Daily Rainfall	Maximum Daily Rainfall	Average Monthly Rainfall
January	0.1	1.04	3.02
February	0.1	0.92	1.7
March	0.2	3.07	4.93
April	0.1	1.73	3.63
May	0.2	3.92	5.79
June	0.1	1.8	3.92
July	0.1	1.41	3.72
August	0.2	2.83	5.18
September	0.2	5.21	5.97
October	0.1	1.41	1.92
November	0.1	1.29	2.2
December	0.1	2.05	3.55

Precipitation data from September 1999 to June 2002 were acquired through NOAA at the neighboring town of Bechtelsville, Pennsylvania (40 degrees 23' N / 75 degrees 37' W). These data are summarized in Table 2. The annual mean precipitation was 45.53 inches. The maximum daily rainfall took place on September 17, 1999.

Wind direction data were recorded in hourly increments. Calm wind speed (which resulted in a non-detectable wind direction) was observed approximately 30% of the total

observed time. The remaining 70% of observed wind directions are shown as the total detectable wind direction observations, as shown in Figures 1 and 2. The predominant wind direction group was north to west-northwest, which was observed 45% of the observed time.

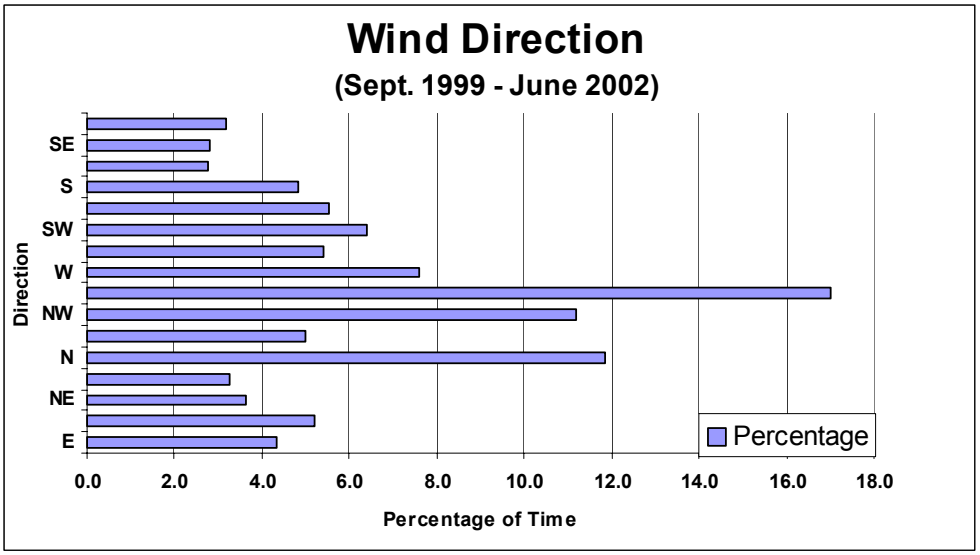

Figure 1. Wind Direction as a percentage of total time with wind.

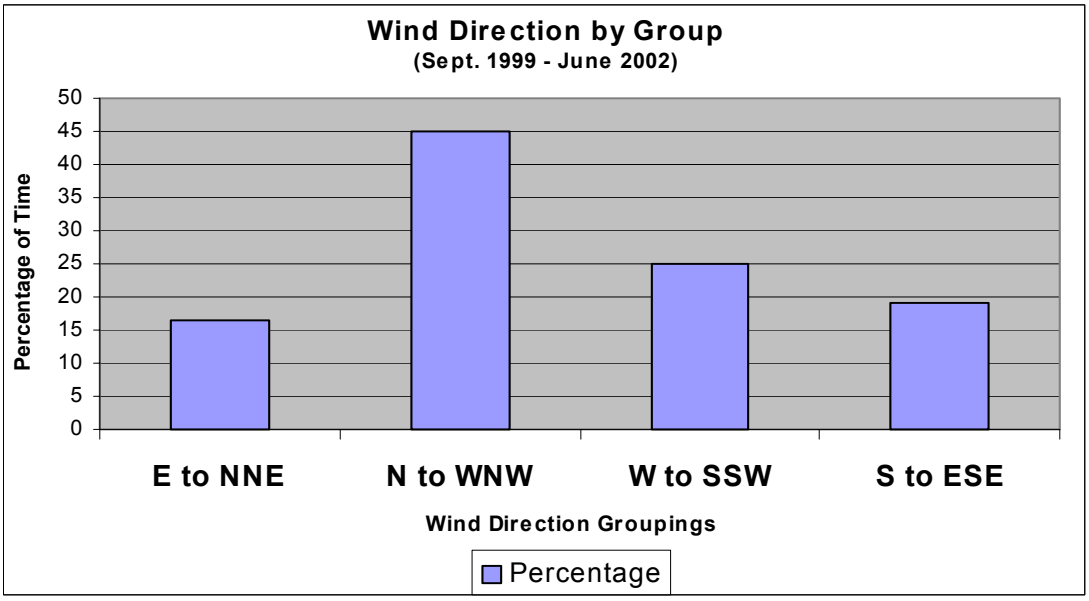

Figure 2. Wind Direction by groups.

3. ***Environmental Monitoring Program***

   a. *The licensee should provide updated ER information regarding: (1) Air Monitoring, (2) Forage Sampling, (3) Surface Water and Sediment Sampling, and (4) Groundwater Monitoring. The licensee should provide tabulated data or summary graphs for the monitoring results mentioned above and required under License Condition 14. The licensee should include the monitoring evaluation such as the possible effects of the nonradiological constituents released to the environment by the facility. For example, the staff considers that the licensee's proposal to discontinue the monitoring of the forage crops for fluoride should be justified (based on releases 1996-2001) because fluoride could have an impact on the biotic resources. Also, the licensee should provide data on any evaluation since June 2001, for the elevated radiation in the MMW3 monitoring well.*

   b. *The staff considers that changes or trends in monitoring data may have occurred in the last 6 years that staff should consider for the EA. The 1996 EA indicated that the operation of the facility had resulted in elevated fluoride concentration in forage crops growing adjacent to the plant, and the biannual monitoring of both the corn and the grasses since 1988 indicated that the annual average fluoride concentration has exceeded the 40 parts per million reporting level required by the previous license for reporting results to the Pennsylvania Department of Environmental Resources and the NRC. Also, the Cabot RSO report of June 29, 2001, indicated possible reasons for elevated radiation in the MMW3 monitoring well but the effects should have dissipated by this time and possibly another source of the contamination identified.*

The following revisions apply to the 1996 EA. Section numbers and table numbers correspond to the location in that document.

Section 4.1 – Effluent Monitoring (paragraph 2 of the 1996 EA should read):

The liquid waste treatment system generates liquid and solid streams that have the potential to contain radioactive material. The liquid stream is routed to lagoon 5, then to lagoon 6 for final pH adjustment, and then released from outfall 001 to West Swamp Creek. The water flow rate through the outfall is monitored continuously under the NPDES program. Outfall 001 is monitored quarterly and analyzed for isotopic U and Th and gross beta activity. Action levels for uranium and thorium are 15 and 1.5 pCi, respectively. Actions may include re-analysis, investigation and correction of cause, and verification of correction. Current minimum detection levels are reported as 1.0 pCi/l or better for isotopic U and Th.

Table 4.1. Summary of environmental monitoring program

Sample Medium	Number of Stations	Analytical Frequency	Sample Type	Type of Analysis
Air	4	Semi-Monthly	Continuous	Fluoride
Air	3	Weekly	Continuous	Gross Alpha
Sediment	3	Quarterly	Grab	Gross Alpha, Gross Beta
Groundwater		Quarterly	Grab	Gross Alpha, Gross Beta, pH, Fluoride, Chloride, Potassium, Total dissolved solids, nitrogen, ammonia
Surface water	2	Quarterly	Grab	Gross Alpha, Gross Beta

Section 4.2.1 Air Monitoring

Ambient air is sampled continuously at seven locations, either downwind of plant operations or at or near the site boundary. Four of these locations (shown in the Site Plan in Attachment B) are monitored semi-monthly for ambient fluoride, and the other three locations are monitored weekly for gross alpha activity.

The results of the environmental monitoring for fluoride are summarized in Figure 3 for the period 1999 through 2002. During this time period there have been no excursions that have exceeded the Commonwealth of Pennsylvania fluoride standard of 5 µg/m^3.

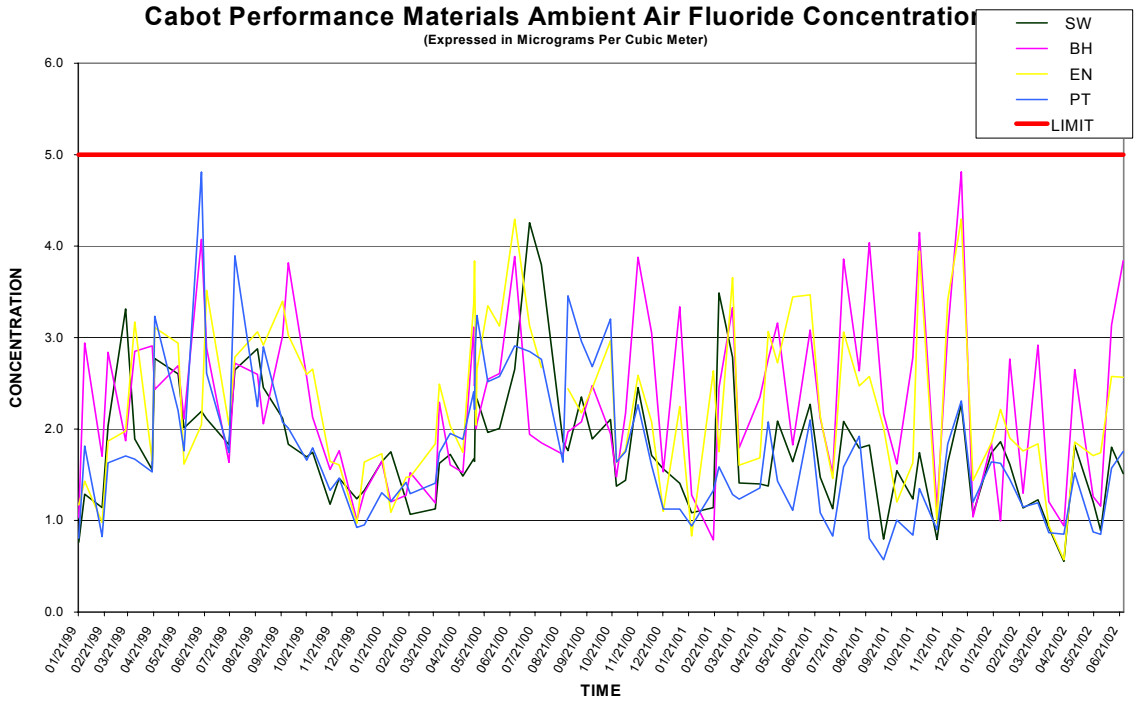

Figure 3. Average ambient air fluoride concentrations.

Results from the perimeter air sampling stations for radiological contaminants are summarized in Table 4. These results are compared to the calculated effective concentration limits established by the "Constraint Rule"(Regulatory Guide 4.20, *Constraint on Release of Airborne Radioactive Material to the Environment for Licensees Other Than Production Reactors*, December 1996). These concentrations would therefore not allow any member of the public to receive an annual dose greater than 10 mrem. The Walker Road Sampler, located upwind of the plant, is used to establish background.

Table 4. Summary of Background Corrected Ambient Air Samples for the CPM Facility

		County Line Road		Boiler House	
Quarter	Effective AEC for 10 mrem/ year:(µCi/ml)	Average effluent concentration (µCi/ml)	Fraction of Effective AEC (%)	Average effluent concentration (µCi/ml)	Fraction of Effective AEC (%)
1-99	1.29E-15	6.1E-16	47	3.15E-16	24.3
2-99	1.29E-15	7.19E-16	55.5	9.59E-17	7.41
3-99	1.29E-15	4.26E-16	32.9	nd	
4-99	1.29E-15	4.83E-16	37.3	nd	
1-00	1.29E-15	6.72E-16	51.9	3.67E-16	28.4
2-00	1.29E-15	4.05E-16	31.3	3.94E-16	30.4
3-00	1.29E-15	nd		9.83E-17	7.59
4-00	1.29E-15	5.76E-16	44.5	2.73E-16	21.1
1-01	1.29E-15	6.32E-16	48.8	nd	
2-01	1.29E-15	5.29E-16	40.8	8.00E-16	61.8*
3-01	1.29E-15	2.88E-16	22.2	3.9E-17	30.1
4-01	1.29E-15	nd		nd	

*Data suspect because there is no correlation with County Line Road sample

4.2.2 Forage Crop Sampling

Under a determination by the NRC in 1996 and as stipulated in the 1996 EA, CPM no longer performs forage crop sampling. Attachment C provides copies of letters documenting the 1996 determination by the NRC and notification from CPM to the NRC in 2002 verifying that forage crop sampling was terminated as a result. The chart referred to in the notification letter from CPM appears as Figure 3 above.

4.2.3 Surface Water and Sediment Sampling

The average alpha and beta emitter concentrations of the upstream sediment sampling for 1999 through 2002 are 7.5 and 19.6 pCi, respectively. The average downstream concentrations of alpha and beta emitters for the same time period are 6.2 and 18.1 pCi/g, respectively. There is not much variability in either concentration, and there is no significant distinction between the concentrations at upstream and downstream monitoring locations. None of the recorded concentrations have exceeded the 100 pCi/g action level for sediment samples. The data for water and sediment are summarized in Tables 5 and 6.

Table 5. Gross alpha and beta results for upstream and downstream monitoring locations at the CPM facility

Year-Quarter	Upstream		Downstream		Outfall 001	
	Gross Alpha	Gross Beta*	Gross Alpha	Gross Beta*	Gross Alpha	Gross Beta*
1-99	nd	nd	nd	nd	210	nd
2-99**						
3-99**						
4-99	nd	nd	nd	nd	nd	15
1-00	nd	nd	3.4	nd	nd	nd
2-00	nd	nd	nd	74.6	nd	nd
3-00	nd	nd	nd	65.3	nd	4220
4-00	nd	nd	nd	39.7	nd	3970
1-01	nd	nd	nd	137	nd	3160
2-01	nd	61.8	nd	107	nd	793
3-01	nd	3.33	nd	88.2	nd	4090
4-01	1.02	1.98	3.59	77.3	nd	4470
1-02	nd	nd	nd	98.3	nd	4010

*Gross Beta results are inclusive of K-40.
**No data are available from these quarters due to the departure of the RSO and the difficulty in acquiring a replacement.

Table 6. Gross alpha and beta results (pCi/g) for sediment in upstream and downstream monitoring locations at the CPM facility

Year-Quarter	Upstream		Downstream	
	Alpha	Beta*	Alpha	Beta*
1-99	5.4	1	6.4	0.91
2-99**				
3-99**				
4-99	19	0.85	6.2	0.86
1-00	8.4	1.2	10	0.99
2-00	5.04	27	5.99	25
3-00	nd	23.1	3.56	20.8
4-00	12.5	31	4.48	19.2
1-01	3.72	24.4	nd	25.7
2-01	7.63	28.6	4.59	27.8
3-01	3.67	26.1	3.7	22.6
4-01	6.47	29.4	10.1	34.8
1-02	2.85	22.9	6.02	21.2

*Gross Beta results are inclusive of K-40.
**No data are available from these quarters due to the departure of the RSO and the difficulty in acquiring a replacement.

4.2.4 Ground water Monitoring

The ground water is monitored at several areas on site as shown on Figure 2 of Attachment D, *Technical Basis for the Location and Screen Interval of Groundwater Monitor Wells at Cabot Performance Materials Corporation Boyertown, Pennsylvania Plant*. The data from the four plant wells and the wells around the bulk storage bins are summarized in Tables 7 and 8.

Table 7. Ground water monitoring for plant wells

Year and Quarter	Gross Alpha				Gross Beta			
	MW-1	MW-2	MW-3	MW-4	MW-1	MW-2	MW-3	MW-4
1-99	nd	5.8	nd	4.2	nd	nd	nd	nd
2-99*								
3-99*								
4-99	nd	nd	nd	nd	nd	nd	nd	21
1-00	3.7	7.6	nd	3	nd	nd	nd	nd
2-00	4.4	nd	nd	nd	nd	nd	nd	32.7
3-00	6.99	9.86	4.24	nd	6.01	nd	4.73	39.2
4-00	4.62	4.01	nd	1.99	nd	4.98	7.58	43.1
1-01	4.34	3.01	nd	nd	nd	nd	nd	36.2
2-01	7.52	nd	nd	nd	nd	nd	nd	45.5
3-01	5.04	7.12	1.12	nd	3.37	nd	nd	52.3
4-01	8.36	11.5	16.9	nd	6.52	nd	21.3	49.8
1-02	6.88	8.81	2.71	nd	nd	nd	nd	36.7

* No data are available from these quarters due to the departure of the RSO and the difficulty in acquiring a replacement.

Table 8. Ground water monitoring for storage bin wells

Year and Quarter	Gross Alpha					Gross Beta				
	MMW-1	MMW-2	MMW-3	MMW-4	MMW-5	MMW-1	MMW-2	MMW-3	MMW-4	MMW-5
1-99	nd	nd	7.8	nd	7	nd	nd	nd	nd	nd
2-99*										
3-99*										
4-99	nd	nd	45	nd	nd	nd	8	63.00	nd	nd
1-00	2.1	3.2	6.5	nd	nd	nd	nd	nd	nd	nd
2-00	2.01	4.03	29.8	4.01	10.1	5	nd	11.50	nd	4.55
3-00	nd	2.95	9.55	6.84	4.68	nd	nd	nd	nd	nd
4-00	41.8	4.33	11.5	nd	6.04	nd	nd	nd	nd	nd
1-01	nd	3.99	20.6	nd	7.21	nd	nd	10.60	nd	4.28
2-01	nd	5.08	14.15	nd	10.2	nd	nd	10.46	nd	nd
3-01	2.55	5.26	14.8	2.13	7.12	2.99	nd	9.29	2.68	2.91
4-01	1.79	2.81	14.3	4.05	7.96	nd	5.08	6.22	nd	4.56
1-02	3.3	9.08	14.8	11.3	12.2	nd	nd	30.80	4.20	56.50

* No data are available from these quarters due to the departure of the RSO and the difficulty in acquiring a replacement.

In response to the excursions in monitoring well MMW-3 in the 4th quarter of 2001, CPM has re-developed the well, replaced the bladder inside the well, and replaced the

wellhead. In addition, in the summer of 2002 CPM completed a $250,000 project to redirect the sheet run off from around the bulk storage bins.

CPM has recently consulted with a groundwater expert to determine the optimum locations for all wells based on a refined (2000) groundwater flow conceptual model. Attachment D provides a brief discussion of groundwater flow near the bulk storage bins and CPM's suggested monitoring well network for future compliance monitoring:

*4. **Land Use Survey**. The licensee should provide an updated description of land use of adjacent areas, noting any significant changes from the last survey. The suggested adjacent area to be considered is within a 5-mile radius of the site boundary.*

An updated land use survey is necessary for the evaluation of the potential environmental impacts due to continued site activities.

A recent survey of the area within a 5-mile radius of the CPM facility indicates little change in the demographics of the Boyertown area. The primary land use is still farming to support dairy herds. One new residential development has started construction 2 miles southeast of the plant. It is estimated that the builder will erect 60 houses within this development.

*5. **Air Effluents**. The licensee should discuss the benefits and disadvantages of specific monitoring for air effluents released from Building 073.*

The licensee relies on air monitoring at the site boundary to determine its unrestricted area air effluents. The staff (see inspection report dated October 23, 2001) is concerned that the air from the baghouse and the Torrit stacks is not being monitored and thus workers or the public within the site boundary may be exposed to elevated air effluents. These releases include small quantities of radioactive material.

The airborne radioactive contaminants in Building 73 are evaluated in detail in Attachment E, *Review of the Bioassay Program at the Cabot Performance Materials Corporation Boyertown, Pennsylvania Plant* dated August 26, 2002. We believe that the results of that technical evaluation address the concerns raised in the inspection report dated October 3, 2001.

*6. **Groundwater Monitoring Well Locations**. The adequacy of the location and screen interval (sampling depth) of the groundwater wells, placed to monitor possible contamination from the Mausoleum, should be justified.*

The October 23, 2001, inspection report mentioned that the construction of the wells close to the buildings might disrupt the adequate assessment of groundwater contamination coming from the Mausoleum. "The environmental assessment for the renewal request will need to address ground water quality relative to potential radiological impacts."

See Attachment D, *Technical Basis for the Location and Screen Interval of Groundwater Monitor Wells at Cabot Performance Materials Corporation Boyertown, Pennsylvania Plant*, dated August 9, 2002.

7. ***Facility or Site Changes****. The staff understands that the planned process modification (second stage digestor and kiln), mentioned in the 1994-1996 renewal application, was not constructed. This should be documented with any update to the site and operation description that should include the location of the mausoleum and the ground water monitoring wells (if previously provided, please reference). In addition, the update of the facility activities should include the amount and radioactivity content of material taken to the landfill, as well as the amount and activity level of radioactive material sent for licensed disposal since 1996.*

Any significant changes or planned changes to the facility operation or site must be considered in the staff's evaluation of potential safety and environmental impacts due to continued site activities.

CPM never commissioned the "second stage digester" as anticipated in the previous EA. In addition, under the current business conditions CPM does not intend to reprocess this material onsite; however, CPM may contract this service to a third party that is licensed and permitted to perform such work. The only current project potentially affecting the plant process is the proposed new wastewater treatment system. This system will upgrade CPM's current treatment technology and minimize operational costs. This change has been approved by the NRC on August 27, 2002 and is described below.

CPM is modifying its wastewater treatment process by segregating the "raffinate" wastewater from its composite wastewater stream. Currently CPM combines the raffinate wastewater stream with other wastewater streams to precipitate fluoride by adding lime. The segregated raffinate wastewater stream could be characterized as a mixed hazardous waste based on corrosivity (D002) and gross alpha concentrations in the range of 0.001 - 0.021 μCi/l.

Wastewater treatability studies have shown that the fluoride complexes contained in the raffinate wastewater stream, when combined with the other wastewater streams at the facility, reduce the effectiveness of precipitation by lime addition. These studies also showed that segregation of the raffinate wastewater stream and treatment with a combination of lime and de-watered wastewater treatment sludge allows for effective treatment of both the remaining combined stream and the segregated raffinate stream. The resulting stream would contain 40-50% solids.

In addition, the treatability studies have shown the resultant solids would not exhibit any hazardous waste characteristic, and the radiological constituents would be well below the 10 pCi/g (total U and Th) license condition. Therefore, CPM believes that the solids generated by the proposed segregation and on-site treatment of this mixed hazardous waste stream would continue to qualify for ultimate disposal as a residual waste.

On an annual basis CPM produces approximately 19,000 tons of "filtercake," which is shipped off site as a residual waste. The filtercake is composite sampled at least quarterly

and analyzed for U and Th to ensure that the total concentration remains below CPM's license condition of 10 pCi/g. The average concentrations of Th and U in the landfill cake have historically been 0.14 and 4.21 ppm, respectively.

Three shipments of low-level radioactive material have been sent off site since the last license renewal. The first was shipped in 1997 and 1998. CPM emptied all eight storage bins on site and shipped approximately 18,000 tons of ore digestion filtercake for reprocessing at a uranium recovery facility in Utah. The concentration of this material was calculated at 2,800 pCi/g for a total calculated U and Th activity of 45 Ci for the entire shipment. The second was shipped in September of 2000, with the NRC's approval. CPM shipped approximately 1,000 cubic yards of material to Waste Control Specialists (WCS) in Andrews, Texas, as "unimportant quantity" material as defined in 10 CFR Part 40.13. The third and most recent shipment of radioactive material was shipped in July of 2002 to RACE, LLC in Memphis, Tennessee, for consolidation and final disposition at WCS. This shipment, which was mostly old process equipment, was shipped as "Radioactive Material, Excepted Package-Limited Quantity of Material." The total volume of this shipment was 370 cubic yards, with a total calculated U and Th activity of 10.33 mCi.

8. ***Work-area Air Monitoring***

A. ***Lapel Samplers****. Cabot indicated in a letter to the NRC dated December 20, 2001, responding to a Notice of Violation, that a technical report evaluating a comparison between lapel and general area sample results would be submitted by April 30, 2002, to justify why lapel sampling had been discontinued. Since the report has not been submitted to date, the licensee should provide the report, including the location and collection frequency of both types of samplers. The licensee should indicate how the report results relate to worker intakes and describe the work-area air sampling program that will be instituted, based on the report.*

See Attachment F, *Review of the Occupational Air Sampling Program at Cabot Performance Materials Corporation Boyertown, Pennsylvania Plant* dated August 26, 2002.

B. ***DAC Fractions****. The 1996 SER indicated that the 1994 renewal application had an incorrect procedure for calculating the DAC fractions. The licensee agree to calculate DAC fractions to reflect the presence of uranium and thorium progeny as well as use the ratio of uranium to thorium in the ore mixture. The licensee should indicate if the calculation of DAC fractions meets this commitment.*

See Attachment E, *Review of the Bioassay Program at the Cabot Performance Materials Corporation Boyertown, Pennsylvania Plant* dated August 26, 2002.

C. ***HF Monitors****. The 1994-1996 renewal application indicated plans to install continuous area HF monitors for the digestion areas of Building 073. The licensee should indicate what year these monitors were installed, or if not installed, the justification for this lack of action should be provided.*

The licensee should document that these safety related commitments were addressed, so that staff can complete the safety analysis.

Each digester and reslurry tank and both filter presses in Building 073 have local Scott-Bacharach HF monitors (one at each tank, two at each press) that continuously monitor the air quality in the work areas. These devices have local displays and are connected to the building programmable logic control (PLC) system that provides audible and visual alarms at programmed "warning" and "high" HF concentrations. Two units were installed in 2001, and the balance were installed in 2002.

*9. **Hazard Identification**. The 1994-1996 renewal application indicated plans to install overflow and continuous level indicators on the HF and slurry tanks and the digester. The licensee should indicate if these indicators were installed, and if not, indicate why a safety hazard does not exist.*

The NRC must conclude that health and safety issues are adequately addressed in order to renew the license.

CPM has installed various controls on the process tanks in Building 73 since the last renewal application. These control devices are outlined below:

- **Level monitoring of the digester and reslurry tanks**. Each tank is continuously monitored using Krohne radar level gauges with local displays and connections to the Building 073 PLC system. The PLC logic includes programmed high level and high-high level alarms that trigger audible and visual alarms. These alarms are also interlocked through the logic to halt transfers of material into the vessels in the case of such alarm conditions. These devices were installed in 1999.

- **Scrubber monitoring**. The scrubber pressure drop and make-up water flows are continuously monitored to verify proper operation of the scrubber system that ventilates the operation. These devices have local displays and are connected to the building PLC system. The operators monitor these readings on a routine basis.

- **HF tank monitoring**. The HF bulk tank and weigh tank are each mounted on Weigh-Tronix load cells with local displays and connections to the PLC system. In addition, both tanks have Ametek Drexelbrook high-high level capacitance probes connected to the PLC system.

For all of these systems, extensive interlock logic halts transfers in the event of unexpected weight and/or level loss, overweight and/or high level, and high-high level conditions, as well as in the case of scrubber malfunction. This logic is also programmed to prevent certain concurrent transfers if such transfer would compromise our ability to detect fault conditions.

Attachments

Attachment A *Cabot Performance Materials, 2002 Decommissioning Cost Estimate for the Boyertown, Pennsylvania Site*, dated September 6, 2002.

Attachment B Site Plan

Attachment C Letters

Attachment D *Technical Basis for the Location and Screen Interval of Groundwater Monitor Wells at Cabot Performance Materials Corporation Boyertown, Pennsylvania Plant*

Attachment E *Review of the Bioassay Program at the Cabot Performance Materials Corporation Boyertown, Pennsylvania Plant* dated August 26, 2002

Attachment F *Review of the Occupational Air Sampling Program at the Cabot Performance Materials Corporation Boyertown, Pennsylvania Plant* dated August 26, 2002.