

Submitted with ^{response} letter of June 30, 2003
for Cabot - Boyertown facility
docket NO. 40-6940

ENVIRONMENTAL ISSUES

23. Climatic Conditions

Discussion: The CPM response 2 to the June RAI did not provide information adequate for the evaluation of potential impacts to licensed site activities due to adverse extreme climatic conditions such as a tornado, flood, or earthquake.

Request: Provide information on what adverse climatic conditions can be expected at the site and the plans or measures that have been or will be taken to mitigate potential impacts on the control of radioactive and hazardous materials.

Response: Adverse climatic conditions that can be expected at the site include the types of events that are typical for the region and have been experienced during the decades that the plant has been in operation; severe thunderstorms, heavy precipitation and floods, severe winter storms with significant snow accumulations, and occasional strong winds. Extreme weather conditions are not typically experienced because the site is far enough inland to be spared the direct impact of coastal storms such as hurricanes, and because the surrounding topography minimizes the potential for tornadoes to affect the site, although tornadoes are occasionally reported in the region.

Adverse weather conditions were taken into account when the plant was designed, and are considered when changes are planned in the site grading, process buildings, or materials storage configurations on-site. Wind-loading, snow-loading, and precipitation run-off calculations are part of any design plans for structures and site configuration. There is minimal potential for adverse weather to impact the licensed material at the site in a manner that would disperse significant quantities of the material into the environment because of the small quantities of material that are present at the site, and because virtually all of the material contained throughout the process. The ore is received in a variety of containers such as individual drums or similar containers, and remains in those containers until they are emptied directly into the process circuit. Most of the drums are stored in protected areas around the process buildings until they are fed into the circuit; the ore is not stored outside in a dispersible form.

After processing, all significant quantities of radioactive material are present in the ore residues (presscake) that are stored temporarily in small quantities in hoppers kept in a covered area. The presscake is then transported to the bulk storage bins for interim storage. The bulk storage bins are concrete brick buildings that are constructed to withstand severe weather conditions and have been maintained to ensure that the residues are protected from the weather. Details of the current condition of the bulk storage bins are provide in response to item 26, below.

The site is graded to contain precipitation run-off from the immediate plant areas on the site, using the on-site settling ponds as retention areas. Water from the ponds is released to the nearby stream in accordance with the site NPDES permit after CSM ensures that

effluent standards are met. Site areas that are not impacted by licensed materials or process chemicals are graded toward the natural drainages in the area, ultimately flowing into the nearby stream.

24. Cultural and Historic Resources

Discussion: The staff must confirm that measures are in place to protect cultural and historic resources (see Section 106 of the National Historic Preservation Act) at the licensed facility. A standard license condition requiring work stoppage and notification of NRC if any such resources are encountered is under consideration for the CPM license.

Request: The licensee should provide an update on any activities related to identification of potential cultural and historic resources and procedures in place to protect such resources.

Response: CSM commits to the following to ensure cultural and historic resources are adequately protected.

CSM will administer a cultural resource inventory before engaging in any developmental activity in an area of the site not previously assessed for cultural and historic resources. All disturbances associated with the proposed development will be completed in compliance with the National Historic Preservation Act (as amended) and its implementing regulations (36 CFR 800), and the Archaeological Resources Protection Act (as amended) and its implementing regulations (43 CFR 7).

In order to ensure that no unapproved disturbance of cultural resources occurs, CSM will halt any work that results in the discovery of previously unknown cultural artifacts. Exposed artifacts will be inventoried and evaluated in accordance with 36 CFR Part 800, and CSM will ensure that no further disturbance of the area occurs until a cultural and historic resource assessment is completed in compliance with the applicable regulations, as listed above, or CSM has received authorization from the NRC to proceed.

25. Water Use

Discussion: The staff must consider current and future water uses in the area for the evaluation of potential health and environmental impacts. The land use survey provided by CPM as response 4 on October 11, 2002, indicated that a subdivision was under construction 2 miles southeast of the facility, but there was no mention of potential impacts.

Request: Provide an update for the current and future water uses (surface and ground water) in the area that are relevant to the evaluation of potential impacts of continued facility operation, including any significant changes that were not addressed since the

last license renewal.

Response: The following text addresses the issue of water use and further provides a general description of the Boyertown operations and the waste streams to supplement and update the introductory information in the Environmental Assessment.

Water Use

Process water is taken from the stream that flows along the plant site boundary, treated to remove impurities, used in the plant process, sent to the wastewater treatment plant to adjust the pH, and returned to the stream in accordance with the site NPDES permit. The process wastewater is returned to the stream at a rate of 150,000 gal/day, along with an additional 120,000-gal/day contribution from site runoff, non-contact cooling water, and steam condensate. Surface water sampling locations in the stream are monitored to ensure that effluent does not exceed regulatory limits. The removal, use, treatment, and return of the surface water imparts no significant impact to the environment because the effluent is treated to ensure that its pH, temperature, and particulate content do not alter conditions in the stream.

Commercial and residential development around the Boyertown area has been marginal over the past 10 years, and a single, new residential subdivision has been identified in the vicinity of the plant. Located approximately two miles from the site boundary, the subdivision consists of about 30 homes, all connected to city water and sewer lines. There is no impact to plant operations expected from the subdivision, as there are no resources or infrastructure shared between them. The stagnant residential and commercial development in the area is expected to continue and CSM does not foresee problems with water accessibility or quality.

Throughput, production rates, and process water requirements have been steady in recent years at the Boyertown Plant. There are currently no planned changes to operations that would impact the rate of water use or require alternate water supplies.

General Plant Information

The Boyertown Plant is operated by Cabot Supermetals, Inc (CSM) and receives and processes low-grade uranium ores to extract tantalum and niobium as product materials. The plant ore feed rate is approximately 4,350 kilograms per day (9,600 pounds per day), 5 days per week or 1,200 ton/yr. Based on analytical results from 207 samples collected throughout 2001, the ore averages 0.165% uranium and 0.057% thorium.

Ore residues in the form of presscake are transported on-site to the bulk storage bins for temporary storage until they are shipped off-site. Virtually all the radioactivity present in the ore is transferred into these residues, except for the trace amounts that are passed into the wastewater filtercake that is described below. The plant produces about 1,000 tons/yr of the presscake. In 1997 and 1998, CSM shipped approximately 18,000 tons of presscake for reprocessing as alternate feed at a uranium recovery facility (mill) in Utah. The average concentration of the shipped material was 2,800 pCi/g for a total calculated uranium and thorium activity of 45 Ci.

Wastewater is treated with the addition of lime and filter pressing to adjust the pH and remove solids. The levels of radioactivity in the filtercake are marginally greater than background, and the largest contributor is the lime that is added to treat the water. Daily accumulations of the residue are transported to a landfill for final disposal after the content of uranium and thorium in the material is determined. The release limit is 10 pCi/g and the material has averaged 4.21 and 0.14 parts per million (2.85 and 0.02 pCi/g), respectively, for uranium and thorium. From 1999 through September 2002, the uranium and thorium content averaged 4.2 and 1.0 parts per million (2.8 and 0.1 pCi/g), respectively. CSM produces about 19,000 tons/yr of this residue.

26. Improvements to Control of Licensed Material

Discussion: CPM's response 3 to the June RAI only states that in the summer of 2002, the storage bins' project to redirect sheet run off was completed. Information to assist the NRC to conclude that the environment is being adequately protected from the source material should be documented.

Request: Provide details on the 2002 project for the filtercake storage bins and any other control improvements since 1996 not previously mentioned, and indicate the effectiveness of such changes.

Response: The bulk storage bins are designed to contain the ore residues (presscake) in a secure manner that isolates them from the environment. In 2002 CSM initiated a project to maintain and improve the bins after noting that the roof to wall interface was no longer preventing precipitation from entering the bins. All but one of the bins were empty because of the previous shipments of the presscake to sites licensed to accept alternate feed materials, facilitating the following improvements:

- Placing rubber liners across the concrete floors and up the walls to further ensure that potential freestanding liquids would be retained in the bins,
- Replacing concrete blocks that had loosened or fallen repaired upper sidewalls,
- Extending the upper sidewalls to meet with the roof to prevent windblown precipitation from entering the bins, and
- Repairing and improving rain gutters and grading around the bins to prevent runoff from entering the bins.

The improvements have effectively eliminated the potential for surface water and precipitation intrusion into the bins.

An additional structural improvement was made to Building 73, where the drums of ore are temporarily stored prior to emptying them into the circuit. A roof extension and sidewalls were added to the northwest end of the building to provide a more secure and weather-protected storage location for the small quantity of drums that are staged there.

27. Threatened and Endangered Species

Discussion: To comply with Section 7 of the Endangered Species Act, NRC staff must ensure that the licensing action is not likely to jeopardize the continued existence of any endangered or threatened species or their habitat. A site survey of candidate, threatened, and endangered species (both State and Federal) is suggested, if one has not been performed in the last 5 years.

Request: Indicate potential impacts of facility operation to any protected species and how such impacts will be avoided or mitigated.

Response: The following text is provided to update the Floodplains and Wetlands, Biota, and Threatened and Endangered Species sections of the Environmental Assessment. Information has been added to address the lack of past and current impact from site conditions and operations.

Floodplains and Wetlands

In order to assess site conditions associated with floodplains and wetlands a number of information sources were reviewed, including:

- *Environmental Assessment for Renewal of Source Material License No. SMB-920, Docket 40-6940; Cabot Performance Materials; September 1996;*
- *Wetland Jurisdictional Determination Report – Cabot Performance Materials Corporation; Soil Services Company, Inc.; November 2002;*
- *National Wetlands Inventory; U.S. Fish and Wildlife Service; June 2003.*

Information in this report is based solely on the surveys conducted in support of the above-mentioned reports and references, and the results documented in those reports. As reported in the September 1996 EA report, and confirmed through review of current (June 2003) National Wetlands Inventory (NWI) maps, the site does contain several wetland areas. Specifically, as mapped by the NWI, two (2) distinct wetland areas are noted along the southeast portion of the site. These wetland areas have been classified as "Inland Forested Wetlands".

As noted in the September 1996 EA report portions of the site are located within the 100-year floodplain, including lagoons 1, 2, 3 and 4; the settling pond; and building 055. This report also noted that the base flood level within the area of these structures ranged from 95 to 96 meters above sea level. The ponds are diked to an elevation of approximately 1.8 meters above grade. Current site conditions and grade elevations have not changed significantly from conditions noted in the 1996 EA report to indicate an increased risk of site flooding.

A report prepared in November 2002 by Soil Services Company, Inc., titled, "*Wetland*

Jurisdictional Determination Report" was also reviewed in preparation of this discussion of site conditions associated with wetlands. This report was prepared in support of a proposed office development at the subject site in accordance with the U. S. Army Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1). This report summarizes wetland delineation activities completed for the area in the vicinity of this office expansion project, not the entire project site. As noted in this report, limits of delineated jurisdictional wetlands and waters of the Commonwealth of Pennsylvania and the United States of America appear to have been accurately defined and no impacts to these wetland areas have been identified from the recent office development project.

In summary, the proposed action, the renewal of the U.S. Nuclear Regulatory Commission source material license for the Boyertown, Pennsylvania facility is not associated with modifications or changes to manufacturing processes, facility structures or infrastructure. Therefore, impacts to floodplains and wetlands associated with site operations have not been identified.

No mitigative measures are required or proposed for floodplains or wetlands protection associated with the proposed action.

Biota

The following information source was reviewed in order to assess site conditions associated with biota:

- *Environmental Assessment for Renewal of Source Material License No. SMB-920, Docket 40-6940; Cabot Performance Materials; September 1996;*

No surveys of site flora and fauna were conducted in support of the current environmental assessment. It was assumed that, based on the lack of site development that has occurred from September 1996 to date, site conditions associated with flora and fauna have not changed significantly.

According to the former EA (September 1996), the natural climax vegetation in the region is classified as Appalachian oak forest. Dominant species include white and red oak. Other common species include red maple, sugar maple, swamp hickory, and several other species of oak and hickory. Farming and urbanization have significantly impacted regional native vegetation over the prior 200 years. Montgomery County woodlands consist primarily of second and third growth stands of red oak, ash maple elm, eastern red cedar, and sugar maple beech and yellow birch.

The 1996 EA estimated that 30% of the site has been developed with plant facilities. The remaining 70% consists of equal areas of woodlands and open fields. Common trees on and in the vicinity of the site include a number of species of oak, hickory, maple, elm and ash. Open fields consist of grasslands and agricultural lands, planted primarily with corn. As noted in the 1996 EA approximately 55 species of reptiles and amphibians, 42 species

of mammals, and 176 birds range throughout the area.

Common field animals noted include the eastern cottontail rabbit and ring-necked pheasant. Based on assessment of site habitat it is anticipated that bobwhite quail, mourning dove, and red fox may also be present. Woodland habitats are expected to contain gray squirrel, red squirrel, raccoons, opossums, and striped skunks. Waterfowl have been identified present within the on-site lagoons, including Canada geese, mallards, green-winged teal and black ducks.

As noted in the 1996 EA flora and fauna was surveyed within West Swamp Creek during a May 1967 biological survey. Twelve species of fish were identified, including shiners, dace, suckers, chubsuckers, killifish and sunfish. Major plant species identified in West Swamp Creek include duckweed, waterweed, mud plantain, arrowhead, and pondweed.

In summary, the proposed action, the renewal of the U.S. Nuclear Regulatory Commission source material license for the Boyertown, Pennsylvania facility is not associated with modifications or changes to manufacturing processes, facility structures or infrastructure. Therefore, impacts to site biota associated with site operations have not been identified.

No mitigative measures are required or proposed for protection of site biota associated with the proposed action. Site-specific, updated information regarding the relevant endangered species is provided in the following section of this report.

Threatened and Endangered Species

In order to assess whether threatened and endangered species were known to exist within or adjacent to the site boundaries, a current site survey of candidate, threatened and endangered species was completed. The U.S. Nuclear Regulatory Commission (NRC) in a letter dated 10 January 2003 to Mr. Timothy Knapp of Cabot Supermetals recommended this approach. Written species impact review responses were requested from the following agencies:

- U.S. Fish & Wildlife;
- Pennsylvania Fish & Boat Commission;
- Pennsylvania Natural Diversity Inventory;
- Berks County Conservation District;
- Montgomery County Conservation District.

Outlined below are the results of the species impact reviews. Copies of the written responses received from each agency are provided in Attachment A.

USF&W:

As outlined in their February 3, 2003 response, no Federally listed, proposed or candidate

species were identified within the site boundaries. However, the site lies within the known range of Bog turtle (*Clemmys mulhlenbergii*). Provided that wetlands occurred within or near the project and if the proposed project activities would adversely affect the species, USF&W advised that a habitat assessment be performed. As the Boyertown facility has been in continuous operation since approximately 1950 and no modifications to the facility, associated processes and facility infrastructure are associated with the NRC license renewal, no impacts to this potential species have been identified associated with the proposed action.

Pennsylvania Fish & Boat Commission:

As outlined in their January 23, 2003 response, no fishes, amphibians or reptiles listed by the PAF&B as threatened or endangered were known to occur at or in the immediate vicinity of the project area.

Pennsylvania Natural Diversity Inventory:

As outlined in their January 17, 2003 response, the PNDI records indicated that no occurrences of species of special concern were known to exist within the project area; therefore, they do not anticipate any impact on endangered, threatened, or rare species at the project location.

Berks County Conservation District:

As outlined in their screening response dated January 2, 2003 on the Supplement No.1 Pennsylvania Natural Diversity Inventory Form; no potential conflicts with ecological resources of special concern were encountered during their review.

Montgomery County Conservation District:

As outlined in their response letter dated January 3, 2003 no potential conflicts with ecological resources of special concern were encountered during their review. The County initially interpreted the review request to be associated with anticipated earth disturbance and therefore their response letter requested a National Pollutant Discharge Elimination System General Permit plan (NPDES); however, as no earth disturbance is anticipated, there will be no need to formally submit a finalized plan.

In summary, the proposed action, the renewal of the U.S. Nuclear Regulatory Commission source material license for the Boyertown, Pennsylvania facility is not associated with modifications or changes to manufacturing processes, facility structures or infrastructure. Therefore, impacts to species and habitat associated with site operations have not been identified. Each of the five involved agencies contacted regarding the proposed action did not identify threatened or endangered species, or species of special concern, associated with the proposed action at the Cabot Boyertown facility.

Based on this site survey no threatened or endangered species have been identified at the Cabot Boyertown facility. Although the Bog turtle has been identified as a species that may exist at the facility no activities associated with the proposed action would result in an impact to the Bog turtle or it's associated habitat.

No mitigative measures are required or proposed for threatened and endangered species protection associated with the proposed action.

Attachment A

Agency Responses Regarding Endangered Species

(see separate Adobe Acrobat files)