ATI Wah Chang
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March 23, 2012

Mr. Brian Fuller, Manager
Hazardous Waste Program
Oregon Department of Environmental Quality
1102 Lincoln St., Suite 210
Eugene, Oregon 97401

Re: Management of Zirconium Swarf

Dear Brian:

Our Albany plant generates various forms of grinding swarf from the finishing of zirconium products. Grinding swarf is also generated by facilities, such as Precision Finishing in Pennsylvania that we contract to finish the surface of zirconium plates. Grinding swarf consists of metal fines or threads, small particles of the grinding media (minerals such as garnet), and water-based cutting oil. Most swarf has a consistency like dense mud of sludge, but some has a consistency more like wet, muddy felt clumps (due to threads of metal). As Wah Chang uses the term "swarf," it includes only wastes consisting mostly of fine metal particles, grinding media and cutting oil, water or other liquid coolant. It does not include wastes from dry processes or wastes consisting mostly of chips or turnings.

We have a long history of managing grinding swarf without incident. We have tested our grinding swarf in the full range of its physical states (mud to felt), and have consistently determined that it does not exhibit any hazardous waste characteristic. Since 2001, we have been testing grinding swarf using the test methods specifically required by DEQ to evaluate the ignitability and reactivity of swarf and similar metallic wastes we generate. The swarf has consistently passed all those tests. Accordingly, we have managed it as a nonhazardous waste. However, because it can be flammable and can produce intense heat if ignited, we manage it with protocols designed to ensure that it cannot be ignited. The protocols include keeping the swarf wet and disposing of it in a hazardous waste incinerator.

As you may be aware, a tragic accident involving zirconium grinding swarf occurred this past December at an incinerator operated by Heritage-WTI in Ohio. Although we had specified that drums of the swarf were to be incinerated as whole drums without opening the drums, WTI employees were opening the drums and repackaging the swarf into smaller containers. We understand that swarf ignited while a worker was performing this task, creating an intense fire in

the drum. The worker was fatally burned in the accident and another worker was also badly burned. We are still trying to obtain details regarding this accident. At this point, we do not know how the swarf was ignited, whether it was wet or dry or whether other materials may have been involved.

The swarf involved in the incident at WTI was of felt consistency and was generated by Precision Finishing (not our Albany plant). We have tested felt swarf several times, always with negative results for reactivity and ignitability. In fact, we tested one grab sample of the batch of 40 drums of felt swarf sent to WTI, and that sample was negative for both ignitability and reactivity. Because our testing does not suggest even the possibility of the sort of incident that appears to have occurred at WTI, it is possible that the particular batch or drum of felt swarf was unique in some way. WTI is still holding 32 drums of the Precision Finishing felt swarf. We are attempting to make arrangements to inspect these drums and to sample each of them. We are hoping further testing will help us understand what happened, but we have not yet been able to obtain samples of the swarf at WTI.

Because we do not yet know what caused the WTI accident, we determined immediately (upon learning of the incident in December) that the batch in question should be handled as hazardous waste. Because the WTI accident involves behavior of swarf inconsistent with our knowledge and years of testing, we believe there may be something unusual about that batch or the particular drum involved. Because the incident raises questions about our grinding swarf generally, however, we immediately stopped all shipments of our grinding swarf for disposal and have been accumulating the swarf on site while we conduct further analysis.

Since December, we have been reassessing all our zirconium grinding swarf. We are looking at various factors that may cause swarf from one machine or process to be different from other swarf, such as differences in the heat generated by the abrasive process, differences in cutting oil or cooling media and differences in particle size and shape. We have sampled the various different waste streams and have been testing them using the methods approved by DEQ. Late last week, we started getting the test results back from the laboratory. So far, the test results have been entirely consistent with the historic testing and have all been negative. Nevertheless, because we have been unable to sample and test the batch at WTI and because our testing does not yet reveal how or why the batch at WTI is different from our other swarf, we have determined to manage all our zirconium swarf as hazardous waste effective today, March 23, 2012. We will label our accumulation of swarf as both D001 and D003 and date the drums with today's date.

We will continue to manage all our zirconium swarf as hazardous waste until we can complete thorough testing, evaluate the difference between the batch at WTI, felt swarf generally and our other swarf, and further consider the hazards that may be associated with these materials. We still do not have any actual knowledge to conclude that grinding swarf is hazardous, but we determined to act conservatively based on the limited factual information we have today.

We are working with a couple of hazardous waste TSDFs to complete a new profile of grinding swarf so that a TSDF can accept it for disposal. Because zirconium grinding swarf was involved in the accident at WTI, both the TSDFs and Wah Chang are proceeding very carefully and deliberately to make sure the swarf is safely handled. At this point, we do not know when the treatability studies and other work necessary for disposal will be completed. It is possible that we may need to request an extension to the 90-day accumulation period to allow adequate time to completed treatability studies and to prepare a plan for safe management. I will let you know as soon as I have a better sense of the schedule for completing this work.

I know our handling of the swarf is of interest to DEQ. I've spoken several times to Rich Duval about it and have informed him of our work with TSDFs and how we are handling the swarf in the interim. I understand that he believes we are being conservative in our approach. If you have further suggestions or questions, however, please call me at (541) 812-7063.

Sincerely,

Lee Weber

cc: Rich Duval - DEQ