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October 4, 2011

VIA EMAIL & REGULAR MAIL

Roberto Puga, RG  
Project Navigator, Ltd.  
One Pointe Drive, Suite 320  
Brea, CA 92821

RE: Ex-ASARCO Workers Response to Malcolm Pirnie's Reverberatory  
Furnace Operations Review and Possible Implications of PCB Disposal in  
the Furnace

Dear Mr. Puga,

Please consider this a response to the August 16, 2011 Malcolm Piernie report ("the report") regarding PCB burning in the reverberatory ("reverb") furnace at ASARCO-El Paso. Subsequent to the August 16<sup>th</sup> report, as well as meetings between you, Malcolm Piernie, EPA, TCEQ and experts and representatives of the workers, we have been able to continue discussing related technical issues candidly. We are satisfied that this method of direct communication with you is benefiting the remediation of ASARCO-El Paso. We write this letter simply to complete the written record regarding the burning of PCBs in the reverb furnace, not to set in motion more studies or written responses which would unnecessarily expend the Trust's resources.

Soon after the August report, we agreed that in lieu of organizing a meeting to discuss the factual bases related to the burning of PCBs, your team would test the bricks from the reverb furnace for PCBs. Malcolm Piernie then created a brief report for the brick sampling protocol. On September 26, 2011, former workers of the smelter visited the site and saw the reverb bricks first-hand. Upon doing so, the workers realized that the bricks do not date back to the time relevant to the burning of PCBs. They then withdrew their request to test the reverb brick for PCBs, dioxins, and furans. Instead, they have requested that the brick from the waste heat boilers located by the reverb's south end (exit) be tested for PCBs, dioxins and furans. It is our understanding that the request is being considered. The two waste heat boilers ("boilers") were located within feet of the reverb and their role was to suction the heat (and, of necessity, gases) from the reverb and convert it to steam that was directed to the powerhouse where it was used to generate electricity. The steam and gases did not pass through any pollution control devices prior to entering the waste heat boiler. The boilers were surrounded by brick walls. Those bricks were exposed to the gases and heat from the reverb, however, unlike the bricks

within the reverb, they were not protected by slurry and were not replaced.<sup>1</sup> As described below, reverb workers saw electrical department workers introducing oils into the south end of the reverb, which was closest to the waste heat boilers. For these reasons, the workers request the testing of the bricks surrounding the boilers for PCBs, dioxin, and furans.

The information provided here is based on interviews with workers who are intimately familiar with the operations of the reverb furnace and the electrical and mason departments. Most of the workers we interviewed spent their career at ASARCO and each has from ten to thirty years of direct experience observing and participating in the operation of the furnace. Initially, some of the workers agreed to speak with the agencies only under the condition of anonymity. However, by the time our June 2, 2011 letter was written, a number of the workers with relevant information allowed us to disclose their names to you and the EPA and TCEQ. The workers named in that letter, as well as other workers who have approached us since, provided the information described below.

### **It is plausible that PCBs were introduced into the reverb**

#### **Liquids were introduced regularly through portals**

Contrary to statements made in the report, the reverb had over 6 portals along its 11-foot high walls. Some of the portals were at eye-level, others were located higher along the sides. The portals were used every day by furnace workers whose job was to spray silica-slurry onto the bricks that lined the inner arched roof of the reverb. The slurry filled areas where the brick had deteriorated. The slurry crew used a lance and a gun that was connected to the slurry line. The slurry line was connected to the slurry machine on the other side of the reverb. The workers would introduce the lance and gun into the reverb through portals that were at eye-level (from the ground). Like the oils, the slurry was not pre-heated. Nor did the lance and gun melt. Burning oil and spraying the slurry did not disrupt the smelting process due to the incredibly high temperatures of the reverb and the keen observation of the reverb skimmers who would halt any disruptive activity. The portals thus provide a reasonable mechanism for the introduction of oils into the reverb.

#### **Items that were not pre-heated were regularly introduced**

The workers concur that the materials introduced as part of the charge were dry and preheated to 1100 degrees Fahrenheit before being introduced into the furnace. However, as explained before, slurry was among the materials that were introduced into the furnace at room-temperature. In addition, it was well known among the workforce that the reverb was also used to dispose of materials that were not a part of the smelting process and that were not pre-heated. For instance, ASARCO used the reverb furnace to burn, among other things, contraband confiscated by the U.S. Customs, DEA, and Sheriff's office (drugs, weapons, illegal leathers, etc.), defective boots from local manufacturers, and the medical waste (gloves, syringes, etc.) generated by ASARCO's

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<sup>1</sup> The workers recall that bricks for one of the boilers bricks were replaced in the late 1980's.

on-site health clinic. The reverb skimmers kept a close eye on the size and speed of the introduction of these items. The introduction of these room-temperature items did not cause an immediate "flash over" or the ignition of all combustible material in the area close to the furnace. Likewise, the introduction of room-temperature oil would not have caused any ignition or disruption of the process.

### **The ambient temperature surrounding the furnace was bearable**

The workers concur that the heat inside of the reverb furnace had an average temperature of 2,100 to 2,700 degrees Fahrenheit. They estimate that its walls were 38 inches thick, which kept the heat from radiating outside. They recall that the ambient temperature directly outside the south end of the furnace was not unbearable. The north end, where the matte was tapped, was unbearable because of the gases released at that end. At the south end, the workers, including reverb slagmen, report standing directly next to the furnace. In the summer, when the temperature in the rest of El Paso was 100 degrees Fahrenheit, the workers recall that the area outside the reverb was slightly hotter than that. In the winter, when temperatures dropped to 30 to 40 degrees Fahrenheit, the workers recall warming up by standing close the reverb, as the air around it felt around 80 degrees Fahrenheit. The workers who saw the pumping of oil into the reverb have stated before that it was done through the portals on the south end of the furnace. The ambient heat around the furnace would not have been a deterrent to the workers who stood next to the furnace to pump in the oil.

### **Explosions were avoided**

The Malcolm Piernie report presumes that an introduction of oils onto the surface of molten metal would cause an explosion. Depending on how the oils were poured, they could be correct. But the oils were slowly pumped into a long metal rod and gradually pumped into the furnace. The workers cranked the pump for 15 minutes and then waited for about 30 minutes and then cranked the pump for another 15 minutes and so on, until the drum was empty. The workers who saw this activity, did not see it as a regular occurrence and recall that only one drum was emptied (by pump) per day. Explosions were averted due to the high temperatures in the reverb, the large amount of molten material it contained, and the slow introduction of the oils – all under the watchful eye of the reverb skimmer who would have stopped that activity if he saw that it was affecting the temperature or gases emanating from the furnace. The introduction of the oils did not cause an explosion at any time.

### **Even if PCBs incinerated, dioxins and furans would have been released**

The Malcolm Pirnie report correctly points out that the furnace was maintained at a very high temperature, between 2100 and 2700 degrees Fahrenheit. They suggest that such a high temperature would quickly and efficiently incinerate the PCBs because the PCB flash point is 2200 degrees Fahrenheit. We are not convinced that all the PCBs would have been incinerated, because even in permitted PCBs incinerators, upsets can lead to the incomplete incineration of PCBs. Further, even if the PCBs were completely


incinerated, their incineration released dioxins and furans. This emphasizes the importance of testing not just for PCBs but also dioxins and furans, also toxic chemicals, which were produced as a result of the heating of the PCBs.

### Conclusion

We have previously discussed why we believe that the oils burned at the reverb were PCB oils. We will not belabor that point. The focus of this response has been to describe how the introduction of room-temperature oils into the furnace was plausible and did not disrupt the smelting process. Having demonstrated such mechanisms, we reiterate our concerns that the PCBs may not have been efficiently incinerated and even if they were, their burning released dioxins and furans.

We hope this information is useful to the engineering team. The practical and real world experience that the former ASARCO workers bring to this process has previously helped you locate hidden dumping grounds at the site. The workers look forward to further participation in the remediation and appreciate the collaborative process that is developing. We look forward to working with you more on these issues.

Sincerely,

  
Veronica Carbajal  
Attorney at Law

cc: The Honorable Silvestre Reyes, United States Congressman, United States House of Representatives

The Honorable Jose Rodriguez, State Senator, Texas Senate

The Honorable Marisa Marquez, State Representative, Texas House of Representatives

The Honorable John Cook, Mayor, City of El Paso

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