CRT recycling in the Pacific Northwest

Cathode ray tubes are predominantly glass. However, to understand the unique handling requirements of this material we need to know the anatomy of a CRT. Both televisions and monitors have a plastic and metal housing or cabinet around them. Once this case and the buttons, switches, and connectors are removed we are left with a glass cathode ray tube. The front panel glass formerly contained lead oxide; now it contains barium oxide. The funnel glass behind that is leaded glass. That is where most of the lead comes from in a CRT. The neck is also leaded glass. The entire vacuum tube cone is sealed with lead glass solder. There is an electron gun, a metal screen that is called a shadow mask, and an electromagnet that is wrapped in copper wire. The inside of the panel is coated in phosphor.

An electronic product stewardship process in the Pacific Northwest should begin with the knowledge of the current material handling situation available to consumers. Who accepts monitors or televisions for reuse or recycling in the Pacific Northwest? Where are they located? What processing is done on these CRTs in our region? Where do they go next? How far away is that next market? What happens to them there?

These are the questions that were asked of some regional material handlers in Oregon and Washington. The same questions were posed to two companies that have a larger regional or national presence in the CRT recycling industry. The following is a synopsis of their answers.

1. *Where are your facilities located (city and state only)?* Three of the respondents are in Oregon, two are in Washington. Two of them have larger regional and/or national coverage with no Pacific Northwest facilities.

2. *Does your facility accept monitors and TV's from commercial and/or residential users?* One company in Washington, one in Oregon and one national company accept both monitors and televisions from commercial and residential sources. Two companies in Oregon accept only monitors from both commercial and residential donors. One company in Washington accepts monitors from commercial sites only. One company that has a larger regional jurisdiction does not deal with the public. They prefer to work with government and private industry collection opportunities.

3. *Is there a fee for this service? If so, how much?* All of the respondents charge for this service. Some of them assess the fee by the pound. Some classify the material by screen size and quantity, charging more for televisions than monitors. Others have a flat fee for all incoming CRTs.

4. *Does your facility pursue reuse opportunities for these products?* Five of the respondents do. The remaining two work closely with non-profits that can screen the incoming materials for reuse possibilities.

5. *If so, what is your success rate (percentage of material stream)? What types or models are normally reused?* Working color monitors 17 inches and larger have a market. Some 15 inch monitors without screen burn have potential. No company reported any resale market for televisions.

6. *What processing and handling of these items occurs at your location?* Crating and shipping only – 3. Dismantling – 3. Crushing – 1.

7. *To what type of facility do you send your CRT material? Is it a dismantler? A market that grinds the material? A glass-to-glass recycler? Describe briefly what this material handler does with CRTs and TVs.* Two companies send their material to copper smelters and glass-to-glass recyclers. Three of the respondents send material to glass-to-glass recyclers only. One company sends all CRTs to Asian disassemblers; and one sends all to a smelter.

8. *Is this market within your state?* Pacific NW – none. West coast – none. Within the US – 4. Foreign – 1. Both – 2.

9. *Approximately how much material do you handle in this category (CRTs and TVs) either in tons or number of units?* The 5 Pacific Northwest companies are collecting about 65,000 monitors annually. The capacity of these companies was not determined in this survey.