10 Things E-Waste Dismantlers and Treatment Facilities Need to Understand about Plasma Panel Glass Management

Plasma panel devices are an ever-growing waste stream for e-waste recyclers in California. Each day thousands of these devices are dropped off for recycling by consumers who purchase newer LCD or LED televisions and monitors. Management of plasma panel treatment residuals presents unique challenges since leaded plasma panel glass has little value and cannot be commingled with CRT glass. The Department of Toxic Substances Control (DTSC) has observed many violations involving mismanagement and improper disposal of plasma panel glass. DTSC designed this guidance document to answer many important questions that recyclers may have about this waste stream.

Q1. What's so hazardous about plasma panels?

A1. Inner plasma panels consistently fail the Toxicity Characteristic Leaching Procedure (TCLP) for lead, and therefore must be managed as RCRA hazardous waste. DTSC published its own test results that support this finding on the DTSC website. DTSC recognizes that this testing was conducted twelve years ago, and less toxic plasma screens may have been manufactured since then. The burden is on the generator of the plasma panel glass (the dismantler or treatment facility) to conduct testing of the plasma waste stream load they want to send offsite if they believe that the waste won't fail the TCLP. The dismantler or treatment facility will need to make a cost-benefit business decision on whether it is efficient to presume that the plasma panels are RCRA waste and pay the higher disposal fees or conduct the testing to prove that it may be non-RCRA.

In its testing, DTSC concluded that *outer* plasma panels are non-hazardous, and therefore may be sent to a sanitary landfill if no recycling options are available.

Q2. If inner plasma panels fail the TCLP for lead, and whole CRTs and CRT funnel glass fail the TCLP for lead, then why can't I put them all in the same Gaylord box and send them to the same destination?

A2. Title 22, Chapter 23, Article 8 regulates CRTs and CRT glass separately from other types of e-waste treatment residuals. This was done to allow expanded recycling and disposal options for CRTs, which compose a large proportion of e-waste and the vast majority of material claimed in

the California CEW (Covered Electronic Waste) Payment Program. Unlike CRTs and CRT glass, plasma panel glass is not its own category of universal waste and is instead regulated as an electronic device treatment residual that is subject to a hazardous waste generator determination. Title 22 regulations currently prohibit the commingling ("dilution") of CRTs with plasma panels pursuant to Title 22, Chapter 23, section 66273.31(b).

Q3. Where can I send inner plasma panels for recycling?

A3. DTSC is unaware of recycling markets for inner plasma panels in California, the rest of the US, or abroad. Unfortunately, DTSC cannot control the market forces that drive demand for e-waste treatment residuals. If your company finds a market outlet that states it can recycle plasma panels, it is your responsibility to ensure that the plasma panels are actually recycled at the downstream company, and to keep outgoing shipment records in compliance with Chapter 23 regulations.

Q4. Where can I send inner plasma panels for disposal?

A4. Inner plasma panels need to go to a Class I landfill since they are presumed to be RCRA hazardous waste. Sending them to another e-waste recycler or to a standardized permit facility (i.e., a facility authorized to receive and further treat non-RCRA waste) for disposal is a serious violation, not just for your company but for the company who receives your inner plasma panels.

If you have specific laboratory analytical results for a specific load of inner plasma panels that clearly demonstrates that they are non-RCRA waste, then the shipment can go to a Class II landfill.

Q5. What's involved with sending inner plasma panels for disposal to a Class I landfill?

A5. Your company will need to obtain and use a federal EPA identification number (ID#) on a hazardous waste manifest, comply with all Land Disposal Restriction (LDR) requirements, and use a registered hazardous waste transporter. You will be responsible for training your personnel to understand the hazards of managing, and preparing for offsite shipment, RCRA plasma panel glass. You will also need to comply with hazardous waste labeling requirements and accumulation time requirements. Accumulation time limits will be 90 days (for Large

Quantity Generators) or 180 days (for Small Quantity Generators), not the one year allowed for accumulation of universal waste.

Inner plasma panel glass is generally characterized as RCRA D008 waste, California Waste Code 181. Do not rely on your hazardous waste transporter to give you the correct information; it is your responsibility to ensure that the manifest is filled out completely and accurately.

Q6. What if I make a mistake and send my RCRA inner plasma panel glass to a sanitary landfill or to a universal waste handler?

A6. Take action to correct the mistake as quickly as possible by rerouting the material and preventing unauthorized disposal. Send an email to ewaste_hwnotify@dtsc.ca.gov describing what was sent, when, and how you plan to reroute the material to an authorized destination facility.

Q7. Are the plasma panel devices still eligible for payment from CalRecycle if I'm sending treatment residuals (e.g., the inner plasma panels) for hazardous waste disposal?

A7. Yes, they are eligible, but there are many CEW Program documentation requirements you must comply with in order to successfully get paid for a claim which includes plasma devices. Please contact CalRecylce for more information.

Q8. If breakage of plasma panel glass occurs during dismantling, what are the guidelines to follow to ensure compliant management?

A8. Your personnel should sweep up the broken glass immediately, package it separately from intact plasma panels and other wastes and arrange to have it shipped offsite as hazardous waste. You should also identify how and why breakage occurred and how personnel should be trained or re-trained in order to prevent future accidents.

Q9. I know of collectors or recyclers who are breaking plasma panel glass to save room in shipping packages, or who are illegally disposing of inner plasma panels. What should I do?

A9. File a complaint via the Cal/EPA Online Complaint System or contact Rita Hypnarowski of the DTSC Enforcement and Emergency Response Division at rita.hypnarowski@dtsc.ca.gov .

Q10. I don't want to deal with all the complications involved with managing inner plasma panel glass. What do I do?

A10. Don't disassemble plasma panel TVs or devices. Send them intact downstream to another universal waste handler for proper recycling and management.

Still have questions? Contact Rita Hypnarowski at rita.hypnarowski@dtsc.ca.gov or Michael Reid at michael.reid@dtsc.ca.gov .