

References below in red applicable to the “Environmentally Sound Management and Performance Standards for Direct Processors”. Documentation to be included as an addendum to the normal standard audit requirements within the current standards. These additional requirements pertain only to section 15 of the current standard.

## 15. Due Diligence Downstream

### **Minimum Performance Standards from WAC 173-900-650**

No minimum performance standards in WAC 173-900-650.

### **Preferred Performance Standards**

(a) For materials of concern and residuals containing materials of concern a direct processor must only use downstream vendors who conform with all of the performance standards in this document.

(i) A direct processor must review its downstream vendors’ conformity to these standards at least every two years and more frequently as changes in circumstances warrant. The direct processor must provide the verification and documentation to Ecology upon request.

(ii) A direct processor must document the chain of custody of all materials of concern and their residuals through final disposition.

All Focus Materials (Materials of Concern) down streams through to final disposition provide the following:

- Contact Info (Company Name, POC, Address, Phone, Email)
- Description of material being sent (form factor – shredded, whole unit, etc.)
- Type of processing (shredding, dismantling, etc.)
- End result (does it need further processing? Is it ready for reuse/disposal? Etc.
- All necessary permits, certifications as defined by R2 Guidance doc p. 11 & 12 as it relates to Provision 3 – Legal Requirements
- Proof of audit (some form of audit the recycler has done or purchased to validate legitimacy of the downstream processor)
- Proof of shipping and receiving (not enough that they show outbound documentation, there needs to be proof of receipt – ie: signed BOL, invoice for material received, check if issuing payment, etc.)
- Sampling of most recent shipping paperwork and validate against mass balance report.
- **Auditors and Direct Processors need to adhere to “Guidance for Provision 5 – R2:2013 Focus Materials (Materials of Concern)”**

(iii) A direct processor does need to conduct the due diligence for downstream vendors certified to the performance standards in this document by an accredited body.

<b>Provision 4 – Clarifications</b>		
<b>Comment No.</b>	<b>Area of the Standard</b>	<b>Guidance</b>
4.12	Training	All personnel, including permanent, temporary and volunteer staff, shall be trained in applicable environmental, health and safety information relevant to their responsibilities and exposures in the workplace. Training is unique to each facility and determined by applicable environmental, health and safety regulations, as well as identified risks in hazard assessments. Job roles determine who needs the identified training. Frequency of training should include initial and refresher training, as well event driven training that is needed upon witnessing unsafe practices.

### **Guidance for Provision 5 – R2:2013 Focus Materials**

<b>Provision 5 - General Guidance</b>		
<b>Comment No.</b>	<b>Area of the Standard</b>	<b>Guidance</b>
5.1	The Focus Material (FM) Management Plan – tracking and illustrating the flow of FMs through to final disposition	<p>The FM Management Plan must indicate how FMs are identified and tracked from entry into, and movement through the facility, on through each downstream vendor in the Recycling Chain (see definition of “Recycling Chain” in the Definitions Section of the Standard).</p> <p>A flow chart, or similar methodology, should be included as part of the plan and should reflect all subcontractors’ and downstream vendors’ facilities used for the entire audit period from receipt of each type of FM to the end processor.</p> <p>When the following FMs have reached the state described below, they may be interpreted as having completed the recycling process:</p> <ul style="list-style-type: none"> <li>• CRT Glass – requires no further processing (final form) to be used as an effective substitute for a commercial product or as an ingredient in a new product in accordance with the following: <ul style="list-style-type: none"> <li>– If CRT Glass is being processed to separate lead and other composites, then it is a FM until separated at a lead smelter or similarly effective operation.</li> <li>– If CRT Glass is being remanufactured in a glass-to-glass recycling operation, then it is a FM until frit, panel glass, and funnel glass are separated and cleaned of</li> </ul> </li> </ul>

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		<p>phosphors.</p> <ul style="list-style-type: none"> <li>- If CRT Glass passes a TCLP with &lt;5 ppm lead, then it is not an FM</li> <li>- Final products from recycled CRT Glass should be evaluated for consistency with the recycler's FM management plan. Example: if the FM management plan states that CRT Glass is recycled in glass-to-glass recycling processes, then the recycler's due diligence should ensure that the final processing is not, for example, smelting, or deep well injection for fracking, or any form of land disposal.</li> <li>• Mercury containing items – recovered commodity grade liquid mercury from mercury retort (unless alternative management is required by law). Although additional distillation of liquid mercury may be performed, it is not cause for continuing to track mercury beyond the retort process.</li> <li>• Circuit Board – metals recovered and refined to a state that makes them sellable for remanufacturing (which could include additional steps of refining the metals to meet particular commodity specifications). This is commonly in a bar or ingot form comprised of metals.</li> <li>• Batteries - metals and other materials recovered and refined to a state that makes them sellable for remanufacturing (which could include additional steps of refining the metals to meet particular commodity specifications). Common metals recovered include Cadmium, Nickel, Cobalt, and Lead.</li> <li>• Polychlorinated biphenyl-containing items (PCBs) – destruction in accordance with regulatory requirements. Processors may recover the metals in the housing of products, but the PCB material must be tracked to (legal) incineration or landfill.</li> </ul> <p>As stated above, tracking throughput shall extend for FMs through the entire Recycling Chain, not just through the R2 facility's own processing. Although order-by-order tracking of material flow through downstream vendors is not required, recyclers shall demonstrate there is a process in place for throughput tracking of FMs through the Recycling Chain.</p>

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5.2	Downstream requirements outlined in this provision are not required in some instances for reuse equipment as described in Provision 6	Equipment that is diverted for reuse and satisfies Sections (c1), (c2) or (d) of Provision 6 (or are new and in original packaging) does not need to conform to the downstream requirements of this provision. However, this does not mean that all equipment sent to a certified R2 electronics recycler is exempt. As stated in Provision 6, this only applies to equipment legitimately sent for reuse, repair, refurbishment, or remanufacturing. If equipment condition or packaging is consistent with material recovery rather than reuse, then all requirements of Provision 5 shall apply. Furthermore, equipment exported for reuse must have a legitimate reuse market, be current technology for the market, and be in reusable condition.

<b>Provision 5 – Clarifications</b>		
<b>Comment No.</b>	<b>Area of the Standard</b>	<b>Guidance</b>
5.3	(a) what the FM Plan must cover	<p>The FM Management Plan must describe the mechanisms and procedures that assure FMs are properly managed on-site and by each downstream vendor throughout the Recycling Chain.</p> <p>The FM Management Plan may reference relevant portions of the EHSMS, for example work instructions and procedures for identifying and processing FMs.</p>
5.4	(b) removal of FMs	Steps required to remove FMs using safe and effective mechanical processes, or manual processes prior to shredding, need to be spelled out in the FM Management Plan. Focus materials should be individually identified and referenced in the Standard Operating Procedures (SOP's) for both mechanical processes and material tear down processes and referenced to the applicable section in the FM plan where removal procedures, associated hazards, and proper handling procedures are described.
5.5	(b) Print cartridges	Print cartridges should be removed prior to shredding due to the risk of explosion.
5.6	(b) 1&2	Bulbs should be removed before shredding. This saves the need for additional hygiene monitoring and the possibility of mercury-contaminated equipment and filters (see next comment).

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5.7	(b)(1) in the rare event that mercury-containing devices cannot be removed prior to on-site shredding or materials recovery	<p>If mercury-containing devices are deemed to be too small or fragile to remove safely prior to materials recovery, in the FM plan the recycler shall:</p> <ul style="list-style-type: none"> <li>• Identify and document which devices qualify for this exemption, why they qualify, and describe the process used to assure conformance with all the requirements of Section 5(b)(1). Examples of documentation could include a time study demonstrating how long it would take to safely remove that device and why that makes it economically unfeasible.</li> <li>• Describe and document how workers are protected from the risks posed by the mercury remaining in the items during any materials recovery.</li> <li>• Present evidence that the devices are being processed downstream by mercury retorters that are properly licensed and have the appropriate technology for managing the mercury.</li> </ul> <p>Evidence can be presented through downstream vendor audit reports that include process flow summaries and compliance review.</p>
5.8	(b)(2) with respect to shredding CRTs	<p>“Shredding and/or materials recovery” as used in the context of (b)(2) include any form of breakage, cutting, and separation of the glass in CRT monitors.</p> <p>Recyclers shall demonstrate what type of controls and monitoring is in place that is commensurate with the risks of the activities performed.</p>
5.9	(c) downstream vendors for FMs	<p>R2 recyclers shall verify that all downstream vendors in the recycling chain as well as the final materials recovery facility maintain all necessary permits and operating licenses as well as evidence that appropriate procedures and technologies required in (c) (1-4) are utilized. These permits and licenses must be current and valid. It is recommended that recyclers establish a system for annually checking-in with all downstream vendors to verify updated permits to ensure all records continue to be current.</p>
5.10	(c)(1) destination of mercury-containing equipment and components	<p>All mercury-containing equipment and components shall be recycled at a licensed mercury retorter (unless otherwise required by law).</p>

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5.11	(c)(2) removal of mercury and batteries from circuit boards	Recyclers must review applicable exporting/importing legal requirements. Example: in the U.S., mercury and batteries from circuit boards must be removed prior to shredding in order to comply with hazardous waste exclusions, even if the smelter has the technology designed to safely and effectively manage the mercury and batteries left on the circuit board.
5.12	(c)(2) treatment of small fractions of circuit boards	<p>Sometimes small fractions of circuit boards remain in shredded plastics and shredded steel, and it is not always economically feasible to remove all circuit board fractions. The presence of small amounts of shredded circuit boards in other non-FM commodity streams is acceptable so long as the commodities are being handled at a processor that can safely and legally import and consume the de-minimis amount of shredded circuit boards in new product manufacturing. Example: steel mills which consume ferrous metals can usually consume de-minimis amounts of circuit board fragments. “De-minimis” is defined as the amount that is not removed by an acceptable circuit board removal/processing technology. See the guidance for the definition of “Focus Material” for further information.</p> <p>De-minimus may never exceed the applicable regulatory requirements for classification as a hazardous waste and imports/exports must remain in compliance with importing, transit and exporting regulations.</p>
5.13	(c)(3) management of PCB containing items	<p>Items containing polychlorinated biphenyl, also known as PCBs, shall be separated from all other materials at the facility and managed appropriately according to the FM Management Plan and applicable law.</p> <p>PCBs may be found in products such as cooling fluids, light ballasts, capacitors and older types of computer equipment and televisions. PCBs were restricted in manufacturing in 1979. In general, most equipment containing PCBs were manufactured before 1979. However, manufacturers were permitted to use remaining stocks of PCBs after 1979 and there are still specific permitted applications of PCBs.</p> <p>Due to older televisions still in the waste stream, employees should be trained on PCB identification, storage and shipping requirements.</p>

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5.14	(d) documented rare and extreme circumstances disrupts normal FM management practice	<p>It is not acceptable for FMs to be managed through energy recovery, incineration or land disposal. In the event of documented extreme and rare circumstances beyond the control of an R2 recycler, FMs may be required by regulatory officials to be disposed in properly permitted hazardous waste facilities or landfills. Again, this is not to be a normal management strategy for FMs and is to only be used in the event of an unforeseeable event or accident (e.g., shut down of CRT glass furnace; 100 year flood; tornado; tsunami; severe natural occurrences) and not for economic feasibility. See <a href="#">Guidance for Provision 5</a> for additional information about acceptable management methods for FMs.</p> <p>A recycler must maintain documentation showing it has exhausted all recovery options before seeking disposal options allowable under the law. If it can be determined that a disruption in the marketplace is likely short-term (less than 90 days), recyclers should temporarily store FMs on-site, if possible and to the extent allowable under the law, until recovery options become available.</p> <p>If a recycler is forced to dispose of FMs because recovery options become unavailable for the long-term, recyclers need to demonstrate they exhausted all known recovery options. This includes retaining documentation of efforts to find alternative downstream vendors for the material.</p>
5.15	(e) selection of downstream vendors	<p>For an R2 recycler to show that it is conforming to Section 5(e), it needs to obtain from its 1<sup>st</sup> tier FM vendors documentation that will enable its R2:2013 auditor to reasonably conclude that each 1<sup>st</sup> tier vendor possesses or conforms to Sections 5(e) (1)-(7). Note that a completed questionnaire alone is not sufficient evidence of “auditing” a downstream vendor.</p> <p>Also, an R2 recycler needs to provide its R2 auditor with evidence that will enable the auditor to reasonably conclude that each 2<sup>nd</sup>, 3<sup>rd</sup>, (and 4<sup>th</sup>, etc.) tier downstream vendor for FMs possesses or conforms to Sections 5(e) (1)-(7). This can be demonstrated by having a system in place ensuring all downstream vendors are contractually required to apply R2:2013 principles, including the requirements for auditing their downstream vendors for FMs. If using this method, language in the contracts must require all contracted downstream</p>

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		<p>vendors to hold their downstream vendors to the principles of R2:2013. Use of such language must ensure that R2:2013 requirements are enforced throughout the downstream, but is not alone sufficient evidence of downstream due diligence to meet Section 5(e).</p> <p>To audit that such a procedure is in place for ensuring downstream vendor conformance to R2:2013, the auditor should request copies of the downstream audit reports to verify that the audits have occurred, review the audit protocol used, and ensure contracts with reference to adherence to R2:2013 are in place. The scope of the downstream vendor audits should include a robust EH&amp;S compliance review, elements of the Focus Material requirements (and other R2:2013 requirements as applicable), and evidence that similar subsequent downstream auditing of subsequent tiers is required and actually occurs.</p> <p>Downstream vendor audits or desk reviews for Tier 1 vendors must be reviewed by the CB auditors for conformance to the FM Management Plan. If less than 100% of the downstream audits or desk reviews of Tier 1 FM vendors have been completed this would result in a major nonconformance, and the company could not be recommended for certification to R2:2013 until these were completed. See Appendix C, Example On site Audit Decision Tree, for an example of when on-site audits of downstream vendors might be necessary.</p> <p>The recycler is responsible for confirming that their material goes to the destination recycling facility. Brokers are not considered a destination recycling facility.</p>
5.16	(e) clarification of selecting both domestic and international downstream vendors	R2:2013 does not require recyclers to select BOTH domestic AND international downstream vendors. Recyclers may use domestic AND/OR international downstream vendors.
5.17	(e)(1) conform to the R2 Recycler's FM Management Plan	R2 recyclers shall select downstream vendors that conform to the recycler's FM Management Plan. For example, a recycler's FM Management Plan (FMMP) may state that the recycler only uses CRT glass-to-glass recycling. A downstream R2 certified recycler may use other forms of CRT glass processing which conform to <u>its own</u> FMMP. Thus, in the due diligence of that downstream vendor processing CRT glass (or Tier 2, Tier 3, etc.) the

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		<p>upstream R2 recycler cannot accept R2 certification of the downstream vendor alone as conformance to their own FMMP.</p> <p>As evidence of consistency with the FMMP, an up-to-date material flow chart may be used to show the management of all FM's handled by the recycler and its downstream tiers throughout the Recycling Chain. R2 recyclers shall also demonstrate how they monitor downstream vendor performance.</p>
5.18	(e)(2) A documented system to manage environmental, health and safety and legal requirements	<p>Downstream vendors handling FM's must have a documented EH&amp;S Management System. The EHSMS does not need to be certified, but must contain sufficient elements of an EHSMS to adequately mitigate EH&amp;S risks appropriate to the vendor's operation. The vendor should have the following:</p> <ol style="list-style-type: none"> <li>1. Documented applicable EH&amp;S legal requirements;</li> <li>2. Copies of all required permits;</li> <li>3. Emergency Response Plans;</li> <li>4. Health &amp; Safety Programs;</li> <li>5. Environmental Management Programs; and</li> <li>6. Assigned responsibilities for EH&amp;S elements.</li> </ol>
5.19	(e)(3) copies of environmental permits	The R2 recycler may maintain copies of the downstream vendor's environmental permits or state they reviewed permits in a downstream vendor on-site audit report.
5.20	(e)(4) each facility in the recycling chain conforms to Sections 5(e) (1)-(7).	The R2 recycler should request cover pages of the downstream vendor's downstream vendor audit reports or state they reviewed the audit report in a downstream vendor on-site audit report.
5.21	(e)(7) - Provision 7 (Tracking Throughput)	The R2 recycler should demonstrate that each 1 <sup>st</sup> tier vendor and its subsequent tier vendors handling FM's, per Section 7(a) on tracking throughput, "maintains for at least three years commercial contracts, bills of lading, or other commercially-accepted documentation for all transfers of equipment, components, and materials into and out of its facility, as well as for any brokering transactions."
5.22	(f) regarding R2 certified downstream vendors	If a downstream vendor holds a current R2:2013 certificate, downstream due diligence still needs to be performed, though the process may be greatly expedited. The recycler should maintain a current R2:2013 certificate for the downstream vendor. The recycler must conduct a review of an R2:2013 certified downstream vendor's own FM Management Plan

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		(5.e.1) and Section 5(e)(7) should be evaluated based on the material type sent to the downstream and the tracking of that material through subsequent downstream vendors to final processing.
5.23	(h) regarding non-focus materials requiring specific management	<p>Print cartridges (loose and removed from electronics) should be handled, stored and shipped in a manner conducive for reuse. Print cartridges should not be managed through energy recovery, incineration and land disposal, unless a customer directs otherwise or they are unrefurbishable.</p> <p>Section 5(e) due diligence is not required for print cartridge remanufacturers, recyclers or Original Equipment Manufacturers (OEMs).</p> <p>Print cartridge remanufacturers, recyclers or OEMs may utilize energy recovery, or proper land disposal after reuse options have been eliminated, although plastic recycling is preferred.</p>

### **Guidance for Provision 6 – Reusable equipment and components**

<b>Provision 6 - General Guidance</b>		
<b>Comment No.</b>	<b>Area of the Standard</b>	<b>Guidance</b>
6.1	Legitimate reuse	<p>Handling, packaging, and price are key differentiators between legitimate “reuse” and “recycling”. Equipment destined for reuse will be handled with extra care to avoid breakage and damage throughout the recycler’s process and transportation. Also, the price paid by the recycler for equipment purchased and the price received for reuse equipment sold by the recycler must be in line with market conditions for similar equipment. Reusable equipment is typically priced by unit, whereas recyclable material is priced by weight. A recycler should consider the use of a “Bill of Sale” to establish transfer of ownership for assets being reused.</p>