

Report

Identification and Comparison of e-Waste Certification Programs

Electronic Demanufacturing Facility

Project I.D.: 09S003

Prepared For

Waste Commission of Scott County

Davenport, Iowa

May 2010

May 7, 2010

Ms. Kathy Morris
Waste Commission of Scott County
1048 East 59th Street
Davenport, IA 52807

Dear Ms. Morris:

RE: Identification and Comparison of e-Waste Certification Programs for the WCSC
Electronic Demanufacturing Facility

Foth is pleased to provide this report on its identification and comparison of e-Waste certification programs for the Electronic Demanufacturing Facility operated by the Waste Commission of Scott County.

We trust that this report will be of use to you as you consider your future efforts to become a certified e-Waste recycling and collection facility.

Sincerely,

Foth Infrastructure & Environment, LLC



Peter E. DeRossi, CPEA
Senior Project Manager



James Miles-Polka, P.E.
Project Director

Identification and Comparison of e-Waste Certification Programs

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Identification and Comparison of e-Waste Certification Programs

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Identification and Comparison of e-Waste Certification Programs

Executive Summary

Foth Infrastructure & Environment, LLC (Foth) has researched up to seven e-Waste EMS programs that include either formal program certification or registration processes. Examples and sources of such programs include:

- ◆ Basel Action Network's e-Stewards program;
- ◆ United States Environmental Protection Agency's (USEPA's) R2 (Responsible Recycling) program;
- ◆ Institute of Scrap Recycling Industries' (ISRI) Recycling Industry Operating Standard (RIOS) program, and
- ◆ The four state programs that can impact directly on the Commission's Electronic Demanufacturing Facility. Those states include Illinois, Iowa, Minnesota, and Wisconsin.

Foth used an approach that consisted of document review and interviews to assess the characteristics of each program so as to identify their major requirements and then determine similarities and differences between the programs.

Foth also contacted a number of entities, some names of which were supplied by the Commission staff, in order to understand the level of knowledge and preference for one or more of the certification e-Waste programs under review. Finally, Foth contacted a number of other e-Waste generators, as well as registrars that are in the business of certifying e-Waste handlers to the various certification programs.

As a result of these efforts, Foth makes the following observations:

Observation #1: The certification status of e-Waste handlers **is becoming increasingly important** to entities generating e-Waste and to original equipment manufacturers (OEMs).

Observation #2: Where it exists, preference for one certification versus another appears to be a function of the size of the entity and its role in the e-Waste recycling marketplace.

Observation #3: Certification is timely for entities that shred e-Waste in preparation for further processing, such as WCSC, or which actually recover precious and heavy metals from e-Waste.

Observation #4: We are still in the early stages of e-Waste Certification as the ANSI-ASQ National Accreditation Board (ANAB) is about to release its initial list of firms that can certify e-Waste facilities in the U.S. to the Basel Action Network E-Stewards program.

Observation #5: Each of the e-Waste certification programs reviewed resides on the management system platform defined as the ISO 14001 Environmental Management System (EMS.)

Observation #6: States are becoming very aggressive in requiring registration by e-Waste *collectors* and *recyclers/refurbishers*. This process is occurring without the passage of regulations which allow for attendant rule-making processes such as public hearings and legislative over-sight.

Observation #7: The WCSC will have to be registered in the states of Illinois, Minnesota, and Wisconsin, if it plans to receive e-Waste from them.

Foth's research leads it to make the following recommendations:

Recommendation #1: The WCSC should proceed as expeditiously as possible to develop and implement an ISO-14001-ready EMS.

Recommendation #2: The WCSC should clarify its business model for the EDF to determine if it wants to be of service to large collectors of e-Waste and Fortune 100 electronics manufacturers. If it intends to expand its role with such enterprises, it should set a goal of becoming certified to the Basel Action Network's e-Stewards program. If not, it should pursue developing an R2 (Responsible Recycling) program as defined by the USEPA.

Recommendation #3: If it has not done so already, the WCSC should register its EDF in Minnesota and Wisconsin, unless it proposes not to take e-Waste from one of these neighboring states. WCSC is currently permitted in Iowa and registered in Illinois.

Recommendation #4: The WCSC should monitor the efforts of the Basel Action network on a routine basis in order to track the development of a BAN standard for e-Waste collectors.

Currently, the Basel Action Network does not have a standard of performance for collectors, but it is planning to create such a program.

The balance of this report discusses the methodology leading to the observations and recommendations presented herein.

List of Abbreviations, Acronyms, and Symbols

ANAB	ANSI-ASQ National Accreditation Board
BAN	Basel Action Network
EDF	Electronic Demanufacturing Facility
EHSMS	Environmental Health and Safety Management System
EMS	Environmental Management System
e-Waste	Electronic waste
Foth	Foth Infrastructure & Environment, LLC
IDNR	Iowa Department of Natural Resources
ISO	International Standards Organization
ISRI	Institute of Scrap Recycling Industries, Inc.
OECD	Organization for Economic Co-operation and Development
R2	Responsible Recycling
RIOS	Recycling Industry Operating Standard
USEPA	United States Environmental Protection Agency
WCSC	Waste Commission of Scott County

1 Introduction

The Waste Commission of Scott County (WCSC) operates the Electronic Demanufacturing Facility (EDF) at 1048 East 59th Street, Davenport, Iowa 52807. The facility operates on a one shift, five-day per week schedule. The WCSC describes its EDF as providing residents and businesses with an environmentally sound and economically feasible disposal option for electronic waste (e-Waste) such as computers, televisions, monitors, stereos, and printers.

e-Waste is defined as any item of waste containing a circuit board or cathode ray tube (CRT). Material received at this facility is completely demanufactured. To ensure data security, none of the e-Waste is refurbished or reused. Demanufacturing, or disassembling of e-Waste, involves manually breaking down equipment into its separate components prior to shredding or recycling.

1.1 Purpose

The Waste Commission of Scott County is seeking to understand the nature of its market place with regard to its clientele's support for formal certification to such programs as the Basel Action Network's E-Stewards program or USEPA's R2 program. As a first step to gaining this understanding, Foth has been asked to prepare a comparison of the various certification programs. The comparison is to be presented in a tabular format and will highlight the similarities and differences between the programs reviewed.

Following the completion of this comparative analysis, Foth has contacted a number of e-Waste related entities to gain knowledge on where they stand with regard to their own certifications and preferences for their vendors or customers to have an e-Waste management certification.

1.2 Scope of Work

Foth Infrastructure & Environment, LLC (Foth) has been asked to research e-Waste certification and registration programs. Examples and sources of such programs include:

- ◆ Basel Action Network's (BAN) e-Stewards program;
- ◆ United States Environmental Protection Agency's (USEPA's) R2 (Responsible Recycling) program;
- ◆ Institute of Scrap Recycling Industries' (ISRI) Recycling Industry Operating Standard (RIOS) program, and
- ◆ The four state programs that can impact directly on the Commission's Electronic Demanufacturing Facility. Those states include Illinois, Iowa, Minnesota, and Wisconsin.

Foth used an approach that consisted of document review and interviews to assess the characteristics of each program so as to identify their major requirements and similarities and differences between the programs.

As a related component of this project, Foth is providing a documented recommendation to the Commission on what Foth believes would be the best path forward regarding e-Waste program certification. Foth's recommendations are based on:

- ◆ Review of the Commission's present e-Waste management system;
- ◆ The Commission's long term e-Waste program goals, and
- ◆ Information gathered through its document review and interviews as described above.

This information necessarily reflects the e-Waste market place as it exists in early 2010, but will also include knowledge gained regarding near term future market directions. Foth contacted a number of entities, some names of which were supplied by the Commission staff, in order to understand the level of knowledge and preference for one or more of the certification e-Waste programs under review. Finally, Foth contacted a number of other e-Waste generators, as well as registrars that are in the business of certifying e-Waste handlers to the various certification programs.

2 Background Information

During 2009, the WCSC was selected to participate in an EMS pilot program sponsored by the Iowa Department of Natural Resources (IDNR). The IDNR program is designed to fund participating agencies with test programs for addressing six areas of waste management. The WCSC sees the application of aspects of the IDNR program as being beneficial to its desire to develop its e-Waste management program.

The WCSC has been evaluating the market drivers in the e-Waste sector and it anticipates that facilities accepting e-Waste will be required by manufacturers to have some level of EMS certification. While it is not certain which EMS programs will be selected by manufacturers, the WCSC has elected to focus its EMS efforts on the e-Waste program because of its anticipated high value based on market conditions. The WCSC believes that it will eventually need to “certify” its EDF EMS to one of several EMS programs that will have widely differing requirements. The WCSC is aware of efforts by the following entities:

- ◆ BAN and its e-Stewards program;
- ◆ USEPA and its Responsible Recycling or R2 program;
- ◆ ISRI and its RIOS; and
- ◆ Various state-level e-Waste registration programs.

With regard to e-Waste, the WCSC’s mission includes:

1. Careful marketing of e-Waste materials to avoid shipping materials overseas for re-use.
2. Assuring that none of its incoming e-Waste is sold or distributed for re-use as the equipment’s original purpose.
3. Its goal to demanufacture e-Wastes to a raw material state before shipping off-site for further reclamation.

The WCSC’s supply chain for incoming materials includes:

1. Residential curbside collection of electronics. The WCSC does not collect material. Currently, 78% of received e-Waste material comes from residential collection within the regional Comprehensive Planning Area (CPA). However, the WCSC also works with out-of-CPA collectors such as Dubuque, Metro Waste Authority, etc. WCSC also works with such companies as ALCOA that sponsor residential e-Waste collection events.
2. The WCSC views the material delivered to the facility as “end of life” quality with a wide variety of types, brands, ages, etc. Approximately 22% of material comes from local businesses, schools, hospitals, etc.

The WCSC's supply chain for out-bound materials includes:

1. Approximately 10% of the incoming waste goes for disposal. Such materials include treated wood from speakers and console TVs. It is the goal of the WCSC to reduce this by 20% per year for which there are no outlets. At the present time, the total volume through the facility is approximately 1.6 million pounds per year.
2. The WCSC does not have an equipment re-use program due to the low percentage of reusable material that it receives. WCSC also does not actively promote reuse of e-Waste due to its concern about assuring data security. At this time the WCSC mission of environmental safe use, data security and or disposal of materials precludes involvement in the re-use market for their e-Waste program.

3 Methods

The portion of the project relating to the identification and comparison of e-Waste certification programs consists of a review of documentation related to:

- ◆ BAN's e-Stewards program;
- ◆ USEPA's R2 (Responsible Recycling) program;
- ◆ ISRI RIOS program, and
- ◆ The four state programs that can impact directly on the Commission's Electronic Demanufacturing Facility. Those states include Illinois, Iowa, Minnesota, and Wisconsin.

The e-Stewards, R2 and RIOS programs were screened against 19 criteria presented in the table below. The point of the screening was to determine to what extent each program embodies the core elements of an ISO 14001 Environmental Management System and to what extent the program exceeded the basic ISO EMS.

Program Element
Environmental Policy Statement
Environmental Aspects
Legal and Other Requirements
Objectives, Targets and Programs
Resources, Roles, Responsibility and Authority
Competence, Training and Awareness
Communication
Documentation
Control of Documents
Operational Control
Emergency Preparedness and Response
Monitoring and Measurement
Evaluation of Compliance
Nonconformity, Corrective Action and Preventive Action
Control of Records
Internal Audit
Management Review
Accreditation and Certification Process
General Applicability

The portion of the project relating to the recognition, acceptance of, and preference for an e-Waste certification program by vendors and customers of the EDF, as well as other entities was accomplished through telephone interviews of a select group of contacts. The entities contacted included:

Telephone Interview Contacts

Generators/Collectors

Alcoa
Alter Trading Corporation
Genesis Health Systems
Jackson County Disposal Agency
JJ Keller & Associates
Lamp Recyclers Inc.
Muscatine Transfer Station

Recyclers/Metals Recovers:

5R Processors, Ltd.
Dynamic Recycling
Material Processing Corporation
Sims Recycling Solutions
Total Metal Recycling
Universal Recycling Technologies, LLC

Registrars:

ANSI-RAB (ANAB)
AQA International
Orion Register Inc.
Perry Johnson
SGS Systems

The telephone interviews consisted of asking a brief set of questions regarding the subject's knowledge of the various e-Waste certification programs, their certification status, their preference for any particular certification program, if they were an e-Waste generator, and their preference for using a certified collector or recycler. Foth was discrete in not revealing the identity of our client.

4 Discussion

4.1 Comparison of e-Waste Certification Programs

4.1.1 Basis of Analysis – Standards Comparison

Foth has made a comparison of several e-Waste certification programs to the basic ISO 14001:2004 Environmental Management System standard. Again the three standards for comparison are: Basel Action Network's e-Stewards program; USEPA's R2 program and the ISRI program known as RIOS.

General Observations:

- ◆ Each standard envisions a systematic approach to managing the recycling of solid waste so as to minimize its impact on the environment and human health.
- ◆ Each standard is comprehensive and will require significant effort to develop and implement a program suitable for certification.
- ◆ At this point in time there are a limited but growing number of registrars in the United States that have been qualified by ANAB to provide certifications to the three programs being reviewed.

Common Features:

- ◆ Each of the three formal standards reviewed uses the ISO 14001 protocol as a management system platform.
- ◆ Each program adds a health and safety emphasis to the ISO 14001 EMS, which greatly expands the level of effort beyond the purely environmental management standard.
- ◆ Each program envisions certification by an independent third-party registrar.

Significant Differences:

- ◆ The BAN and the USEPA both expect that to be certified a facility must assure that all international export/import laws for e-Waste are adhered to, as well as emphasis being placed on protecting foreign workers. ISRI's program is silent on exports.
- ◆ BAN and ISRI have a component requiring internal management system audits; however the USEPA's R2 program is silent on this subject.
- ◆ BAN's standard explicitly prohibits the use of prison labor for the handling of e-Waste.
- ◆ ISRI's RIOS program does not reference e-Waste as a particular type of waste.
- ◆ The RIOS program does not reference data security protocols to assure that electronically stored data does not become accessible from data storage devices destined for recycling.

- ♦ The RIOS program envisions a certification program that has elements of the ISO 9000 Quality Management Standard (QMS), as well as ISO 14001 EMS and the OHSAS 18001:1999 Health and Safety Management Standard (HSMS.)

A copy of the comparison table showing the elements of these three certifications is presented in Appendix A. Basic program elements in each of four state programs were also evaluated. A separate table with useful web-links to the four state programs is provided in Appendix B.

4.1.2 Basis of Analysis – Vendor & Customer Survey Results

Foth has made a number of contacts with entities (public agencies, private companies, registrars) in order to gain understanding of the present level awareness and interest in the e-Waste management systems under review. Names and contact information for eight of the entities were provided by the Commission staff. In addition to these eight entities, Foth elicited comments from a number of other entities in order to broaden its knowledge base about the e-Waste recycling market place.

To help interpret the meaning of the results of the survey it is important to understand the definition of various members in the e-Waste supply chain. BAN defines a number of pertinent terms, as follows:

- ♦ "Collectors" are entities other than recyclers that only serve as sites for receiving and possibly consolidating electronic waste prior to sending it to recyclers. Collectors are currently not eligible to become certified e-Stewards.
- ♦ An "End Processor" is the final Downstream Recycler at the end of the recycling chain that turns a particular type of waste material into a commodity. End processors can also produce waste for final disposal, such as slag. These include smelters, mercury retorters, and others. End processors do not include end refurbishers.
- ♦ An "End Refurbisher" is a certified e-Steward that has ensured that all electronic equipment containing hazardous e-Waste coming through their facilities and control is tested, repaired, refurbished, and/or repurposed prior to going for reuse.
- ♦ An "End User" is a recipient of electronic equipment that has been tested, repaired, and refurbished or repurposed by an end refurbisher, if that electronic equipment will be directly reused and not recycled or disposed of. The end user is not an acceptable recipient for untested or non-working equipment or parts, scrap, or hazardous e-Waste generated during reuse/refurbishment operations.
- ♦ "Intermediary" means any entity within the recycling chain which holds, buys, sells, brokers, transfers, manages, represents, or facilitates transactions of any e-Waste (including material derived from it) that passes through the initial e-Steward's facility or control. Intermediaries include: independent representatives, agents, independent managers, logistics (e.g. trucking) firms, brokers, cross-docking firms, etc.

- ◆ "Recyclers" are entities that have facilities for and engage in recycling. This term does not refer to those involved solely in acting as intermediaries or collectors.
- ◆ "Recycling" of e-Waste includes all forms of materials recovery, refurbishment, repair, repurposing, end processing, end refurbishment or storage for such, but does not include final disposal or the actions of intermediaries or collectors. Specifically, recycling includes the physical alteration or manipulation of hardware or software for the purpose of recycling, remanufacturing, repairing, refurbishing, repurposing, processing, end processing, upgrading and redeploying electronic equipment.

General Observations:

- ◆ Entities in the e-Waste recycling business may fall into more than one category of the e-Waste supply chain. For example, by BAN's definitions, the WCSC EDF is a collector, intermediary and a recycler of e-Waste.
- ◆ There was limited knowledge about the practice of e-Waste recyclers being registered to any particular standard among *collectors* and *generators* interviewed. Once they were informed about the significance and purpose of such certifications, they generally expressed support for the idea of using certified recyclers.
- ◆ Conversely, there was significant knowledge and interest in the subject of certification by those members of the e-Waste *recycling* community that Foth interviewed.
- ◆ At first glance, it appears that more e-Waste recyclers expressed support for the USEPA R2 program than the BAN e-Stewards program, although one entity interviewed was pursuing multiple certifications including the BAN e-Stewards certification.
- ◆ Despite its very rigorous set of requirements, large commercial e-Waste recyclers and refurbishers are pursuing the BAN's e-Stewards certification because of marketplace pressures from collectors and world-class manufacturers.
- ◆ Currently, the BAN does not have a standard of performance for collectors, but it is planning to create such a program. When this occurs, it may impact directly on the e-Waste collection activities of the WCSC, and therefore the activities of BAN should be monitored on an ongoing basis.

A summary of select telephone interviews is included in Appendix C.

5 Conclusions

Although e-Waste recycling has been in place for a number of years there is only in recent years an emerging awareness of the possibilities for and value of being formally certified to specific e-Waste management standards. The standards have been driven by the need to prevent cross-planet pollution from developed to undeveloped countries and to assure that where e-Waste is demanufactured or recycled that the work place environment is free of the undesirable exposure to toxins. In addition, it is recognized that guaranteeing data security is a growing demand due to the need to protect confidential business data and personal information that may remain stored on obsolete electronics.

Foth has completed its analysis of several e-Waste certification programs and four state programs and with this report is providing a summary of its findings in tabular form. It is Foth's assessment that the WCSC should pursue certification to either the BAN's e-Stewards program or the USEPA's R2 program, but only after it has determined what its intended future market place is likely to be.

At this time there are a limited number of ANAB-approved registrars that are qualified to issue certifications under the three programs evaluated. A summary of currently identified e-Waste certification program registrars is provided in Appendix D.

6 Recommendations

Following are Foth's recommendations based on its completion of the scope of work defined in its proposal of January 2010.

Recommendation #1: The WCSC should proceed as expeditiously as possible to develop and implement an ISO-14001-ready EMS. The platform upon which the three certification programs (e-Stewards, R2, and RIOS) are built is ISO 14001. Simultaneously, it should evaluate the requirements of OHSAS 18001, the parallel health and safety standard developed by BSI (British Standards Institute.) All three certification programs have intensive health and safety components within their frameworks.

Recommendation #2: The WCSC should clarify its business model for the EDF to determine if it wants to be of service to large collectors of e-Waste and Fortune 100 electronics manufacturers. If it intends to expand its role with such enterprises, it should set a goal of becoming certified to the BAN's e-Stewards program. If not, it should pursue developing an R2 program as defined by the USEPA. Foth's research indicates that multi-national OEMs (original equipment manufacturers) are increasingly mandating that e-Waste collectors and recyclers be subject to the BAN e-Stewards standard as a way of minimizing their perceived risks that would result from mismanaged e-Waste. In particular, the OEMs are looking for US-based collection and recycling resources so as to avoid the stigma associated with the exportation of e-Waste to "third-world countries."

Recommendation #3: If it has not done so already, the WCSC should register its EDF in Minnesota and Wisconsin, unless it proposes not to take e-Waste from either of these neighboring states. WCSC is currently permitted in Iowa and registered in Illinois. Following the example of Illinois and Iowa, Minnesota and later Wisconsin have passed e-Waste recycling laws that require annual registration by collectors and recyclers. Illinois, Minnesota, and Wisconsin have bypassed the standard rule-making process and are having their environmental agencies implement the laws without legislative oversight.

Recommendation #4: The WCSC should monitor the efforts of the BAN on a routine basis in order to track the development of a BAN standard for e-Waste collectors. Currently, the BAN does not have a standard of performance for collectors, but it is planning to create such a program. When this occurs, it may impact directly on the e-Waste collection activities of the WCSC, and therefore the activities of BAN should be monitored on an ongoing basis.

7 References

International Standard ISO 14001, Second edition, 2004-11-15

OSHAS 18000, <http://www.osha-bs8800-ohsas-18001-health-and-safety.com/>

Performance Requirements Excerpted from the e-Stewards Standard for Responsible Recycling and Reuse of Electronic Equipment®, Version 1.0, July 22, 2009

Responsible Recycling (“R2”) Practices, For Use In Accredited Certification Programs for Electronics Recyclers, October 30, 2008, Decisions a& Agreements LLC,

Recycling Industry Operating Standard, Prepared for ISRI Services Corporation, Copyright © 2005, 2006 ISRI Services Corporation, September 2005

Appendix A
Comparison of Selected e-Waste Management Programs

Comparison of Selected e-Waste Management Programs

Item No.	ISO 14001 Basic Program Element	International Standards Organization ISO 14001:2004	Basel Action Network (BAN) E-Stewards Program	U.S. EPA Responsible Recycling (R2)	Institute of Scrap Recycling Industries (ISRI) Recycling Industry Operating Standard (RIOS)
1	Environmental Policy Statement	Yes – Must include items in Element 4.2 of the Standard, including commitment to continual improvement, prevention of pollution and compliance with legal requirements.	Yes – Same as ISO 14001, but must include additional items in Section 4.2.1: hazardous e-Waste accountability for final disposition, certain prohibitions on exports, social accountability values, prohibition on use of prison labor and data security issues.	Yes – Under Provision 2, facility must have <u>written</u> policy outlining how it manages e-Waste based on the hierarchy of reuse, materials recovery and energy recovery or disposal. The policy must also be consistent with the Focus Material (FM) Management Plan that is also required (see Item 10 below).	Yes – Section 2 of RIOS describes what must be included in a <u>written</u> Policy statement for a Quality, Environmental, Health & Safety (QEH&S) system. It includes most items in ISO 14001, but does not specifically state that the environmental portion of the policy must be communicated to all personnel working on its behalf. This may need to be clarified if seeking ISO 14001 certification.
2	Environmental Aspects	Yes – Under Element 4.3.1, identify environmental aspects of entity’s activities, products and services that it can control and influence. Also determine those environmental aspects that can have significant impacts.	Yes – Similar to ISO 14001, but also requires facility to identify health and safety aspects of its activities, products and services.	Yes – The footnote under Provision 1 (a) (2) requires the facility to identify environmental, health and safety impacts. In addition, under Provision 4 (c), the facility shall conduct ongoing hazards identification of occupational and environmental risks. The provision does not require the facility to identify environmental aspects of processes as per ISO 14001.	Yes – Section 3.1.1 (Important Environmental Impacts and Health & Safety Risks) indicates that the facility must identify and <u>document</u> actual and potential environmental impacts and health and safety risks, considering both routine and non-routine activities. For those seeking ISO 14001, this may need to be expanded to describe environmental aspects of activities, products or services.
3	Legal and Other Requirements	Yes – Element 4.3.2 requires the organization to maintain procedure to identify and have access to legal requirements and determine how these apply to its environmental aspects.	Yes – Requires conformance with the ISO 4.3.2 as well as additional specific requirements that adhere to all international exportation laws related to hazardous e-Waste and identify data security and privacy requirements.	Yes – Provision 3 requires the facility to identify all applicable environmental, health and safety legal requirements as well as legality of international shipments of E-Waste.	Yes – Section 3.1.2 (Legal, Product and Other Relevant Requirements) stipulates that a facility must establish processes to have access to legal requirements, product and customer requirements.
4	Objectives, Targets and Programs	Yes – Per Element 4.3.3, facility shall have documented objectives and targets that are consistent with its Environmental Policy and shall take into account legal requirements and environmental aspects. A program shall be developed to implement objectives and targets that is measurable, designates responsibility and outlines a means and timeframe for achievement.	Yes – References Element 4.3.3, but in additional requires objectives and targets to include health and safety issues.	Yes – The footnote to Provision 1 (a) (2) requires establishment of environmental goals and objectives and targets. In addition, Provision 4 (d) requires the facility to manage the health, safety and environmental hazards it identifies using a combination of strategies, including use of engineering controls, administrative controls and personal protective equipment.	Yes – Section 3.2 (Improvement Planning) establishes that a facility must have <u>written</u> QEH&S goals. The facility must take into account its policy and “footprint” when setting goals. While RIOS does not mention “environmental aspects” in the same vein, the term “footprint” as defined is similar in nature, but also encompasses quality and health and safety concerns. A facility must identify responsible parties and timeframes must be set. Goals shall also be measurable where appropriate.

Item No.	ISO 14001 Basic Program Element	International Standards Organization ISO 14001:2004	Basel Action Network (BAN) E-Stewards Program	U.S. EPA Responsible Recycling (R2)	Institute of Scrap Recycling Industries (ISRI) Recycling Industry Operating Standard (RIOS)
5	Resources, Roles, Responsibility and Authority	Yes – Under Element 4.4.1, resources shall be available to implement EMS and roles, responsibility and authorities shall be defined, documented and communicated. EMS management representative shall be appointed by top management.	Yes – Has Clause 4.4.1, which is similar to the ISO Standard.	Yes – Provision 1 indicates a facility must follow the “Plan-Do-Check-Act” model for continual improvement. While not discussed specifically, a footnote states that resources, roles and responsibilities for the EHSMS shall be provided. In addition, Provision 4 (g) indicates the facility shall designate a qualified employee to coordinate its efforts to promote health and safety.	Yes – Section 1.2.1 (Management Structure) and Section 1.2.2 (Resources and Facilities) of RIOS indicate that senior management shall define roles and responsibilities in <u>writing</u> for the QEH&S system and shall ensure necessary resources are available. A QEH&S representative shall be appointed to report on performance of the QEH&S system.
6	Competence, Training and Awareness	Yes – Per Element 4.4.2, the facility shall assure that persons performing tasks that could have a significant environmental impact are competent on the basis of appropriate education, training or experience. The facility shall also identify its training needs for environmental aspects and assure they receive appropriate training.	Yes – Has Clause 4.4.2, which is similar to the ISO Standard, but also requires health and safety training and specific training regarding conformity with export requirements in the program.	Yes – While not discussed specifically in the program, a footnote to Provision 1 (a) (2) indicates a written EHSMS shall be developed that ensures staff is trained and capable of carrying out responsibilities.	Yes – Section 4.1 outlines similar training requirements as the ISO standard, but extends these requirements to quality, health and safety. General awareness training must be provided, and competency requirements must be identified. The effectiveness of training must also be verified and records maintained.
7	Communication	Yes – As stated in Element 4.4.3, the facility shall develop a procedure for internal and external communications. The facility shall decide whether to communicate to the public about its significant environmental aspects.	Yes – Has Clause 4.4.3, which is similar to the ISO Standard.	Yes – While not specifically discussed in the program, a footnote to Provision 1 (a) (2) indicates a written EHSMS shall be developed that establishes a process for communicating about the EHSMS.	Yes – Section 4.2 (Communication) has specific subsections on internal, customer, supplier, contractor and interested party communications. If a RIOS facility decides to seek ISO 14001 certification, the section on internal communications will need to be expanded to include communication of environmental aspects. With respect to interested parties, this section will also need to be expanded to include a decision as to whether and how significant environmental aspects are to be communicated.
8	Documentation	Yes – Element 4.4.4 indicates the facility should have a description of the main elements of the EMS and their interaction and a reference to related documents.	Yes – Has Clause 4.4.4, which is similar to the ISO Standard.	Yes – Provision 1 requires the facility to develop, maintain and implement a <u>written</u> Environmental, Health and Safety Management System (EHSMS) that is based on the “Plan-Do-Check-Act” model for continual improvement. The facility shall also include a management plan for how the facility and downstream users will manage e-Waste through the recycling chain.	Yes – Section 1.1 of RIOS outlines the scope and application of implementing the QEH&S infrastructure at a facility. The QEH&S system must be maintained in electronic or paper format and describe the core elements of the system, their interaction and provide direction to related documentation.

Item No.	ISO 14001 Basic Program Element	International Standards Organization ISO 14001:2004	Basel Action Network (BAN) E-Stewards Program	U.S. EPA Responsible Recycling (R2)	Institute of Scrap Recycling Industries (ISRI) Recycling Industry Operating Standard (RIOS)
9	Control of Documents	Yes – Element 4.4.5 requires a facility to establish, implement and maintain a procedure to control documents required by the EMS. This would include document approval, periodic review and ensuring only current documents are available at point of use.	Yes – Has Clause 4.4.5, which is similar to the ISO Standard.	No – The R2 program does not specifically discuss this aspect of an EMS.	Yes – Section 1.2.3 (Document and Recordkeeping Controls) indicates that written procedures must be prepared that describe how QEH&S documents will be established and maintained, approved, kept current and made available at the point of use.
10	Operational Control	Yes – Element 4.4.6 requires a facility to identify and plan operations associated with significant environmental aspects consistent with its environmental policy and objectives and targets to ensure they are carried out under specified conditions by implementing documented procedures and communicating applicable procedures to suppliers, including contractors.	Yes – The program has similar language as the ISO Standard, but has numerous additional provisions related to monitoring health and safety aspects, establishing criteria for reuse and refurbishment of electronic equipment, providing data security, managing hazardous e-Waste and problematic components and materials, establishing procedures to track e-Waste in the downstream recycling chain, ensuring proper management of e-Waste during materials recovery and final disposition, arranging for exportation of hazardous e-Wastes only under certain circumstances, developing site closure plans and maintaining insurance requirements.	The R2 Program does not have similar language for operational control as stated in the ISO 14001 Standard. The program does have unique sections that discuss management of R2 “Focus Materials” (materials in end-of-life electronic equipment that require greater care during management). A FM Management Plan must be developed that includes removal of FMs, processing, recovery and treatment of FMs, energy recovery and disposal of FMs and selection and due diligence of downstream vendors of FMs. The R2 Program must also include a description of how reusable equipment and components will be managed, how throughput will be tracked, how data on hard drives will be destroyed, how storage of equipment will incorporate procedures to protect the environment and health and safety, management of facility security, documentation of appropriate insurance and closure plan and requirements for materials transport.	Yes – Section 4.3 of RIOS requires the facility to consider operations and activities associated with its QEH&S footprint and goals and establish processes and written procedures to ensure they are carried out in a controlled manner. This section has several subsections describing how operational controls will apply to customers, suppliers and contractors. If seeking registration to the ISO 14001 standard, this section may need to be expanded to discuss how significant environmental aspects will be covered.
11	Emergency Preparedness and Response	Yes – Element 4.4.7 requires a facility to develop, implement and maintain a procedure to identify potential emergency situations and accidents that can have an impact on the environment and how it will respond to them. The facility shall periodically review the procedures and test them where practicable.	Yes – The program has a similar requirement and indicates drills to test the procedures shall be conducted where safe and practical. The procedures shall address environmental, health and safety impacts.	Yes – The R2 Program indicates the EHSMS shall include a plan for responding to and reporting exceptional releases, accidents, spills, fires, explosions and other events that pose a risk to worker safety, public health or the environment.	Yes – Section 4.4 of RIOS indicates that members shall establish processes to identify the potential for and respond to incidents, accidents and emergency situations. These processes must be tested to the extent practical. This is similar to what is required by the ISO 14001 standard, but includes additional requirements for quality, health and safety.

Item No.	ISO 14001 Basic Program Element	International Standards Organization ISO 14001:2004	Basel Action Network (BAN) E-Stewards Program	U.S. EPA Responsible Recycling (R2)	Institute of Scrap Recycling Industries (ISRI) Recycling Industry Operating Standard (RIOS)
12	Monitoring and Measurement	Yes – Element 4.5.1 states that the facility should have a procedure to monitor and measure the key characteristics of its operations that can have a significant environmental impact. Equipment used for this purpose shall be calibrated and maintained and records shall be retained.	Yes – The program has a similar requirement as the ISO Standard, but in addition requires monitoring of health and safety impacts. In addition, the program requires the facility to develop a tracking system to monitor and document the total incoming and outgoing quantities of electronic equipment. The facility must also provide certain detailed information to a central database at the E-Stewards website.	Yes – Under Provision 1 (a) (2), the footnote indicates a facility must “monitor key activities and track performance.” Similar to the E-Stewards Program, the R2 Program requires tracking throughout, but does not go into the excruciating detail of the E-Stewards Program. There are no requirements to provide information to a central database.	Yes – Section 5.1 outlines requirements to monitor and measure the key characteristics of its operations to ensure effective QEH&S performance. For ISO 14001 certification, it may need to also include more details on monitoring characteristics that can have a significant environmental impact. Subsection 5.1.1 (Supplier Qualification and Verification of Raw Materials) requires the member to establish processes to verify raw materials to ensure source control and also shall be considered in supplier qualification and selection. Equipment shall be maintained and calibrated.
13	Evaluation of Compliance	Yes – Element 4.5.2 requires a facility to establish, maintain and implement a procedure to periodically evaluate compliance with applicable requirements.	Yes – This program has a similar element, but also requires a facility to evaluate compliance with health and safety requirements.	Yes – In Provision 3 (a) (1), a facility must periodically evaluate its compliance with environmental, health and safety requirements.	Yes – Section 5.1.2 of RIOS requires the member to establish processes to monitor compliance with applicable EH&S requirements and other requirements to which it subscribes.
14	Nonconformity, Corrective Action and Preventive Action	Yes – Element 4.5.3 states that a facility shall establish, implement and maintain a procedure for dealing with actual and potential nonconformities and for taking corrective and preventive action. Appropriate changes shall be made to the EMS as a result of identified issues.	Yes – This program has a similar element, but would extend the program to health and safety issues.	Yes – In Provision 1 (a) (2), the footnote indicates the facility must include in the <u>written</u> EHSMS a process to identify and correct problems and prevent recurrence.	Yes – Section 5.2 of RIOS requires the facility to develop <u>written</u> procedures to address and eliminate the causes of nonconformances and potential nonconformances. This section requires responsibility to be assigned, an investigation of the cause, a process to implement corrective and preventive action and a review the effectiveness. This process also needs to include nonconforming product.
15	Control of Records	Yes – Element 4.5.4 requires a facility to maintain records to demonstrate conformance to the EMS and the ISO Standard. A procedure shall be established to describe how this will be accomplished.	Yes – The program has a similar requirement for control of records. It is implied that health and safety records will also be maintained in the same manner.	Yes – Provision 13 stipulates that a facility shall maintain the documentation necessary to demonstrate conformity to the requirements of the program.	Yes – Section 1.2.3 (Document and Recordkeeping Controls) states that written procedures shall be prepared that describe how records will established and maintained, legible, retrievable and stored to protect from damage or loss. This is similar to ISO 14001, but also applies to quality and health and safety.

Item No.	ISO 14001 Basic Program Element	International Standards Organization ISO 14001:2004	Basel Action Network (BAN) E-Stewards Program	U.S. EPA Responsible Recycling (R2)	Institute of Scrap Recycling Industries (ISRI) Recycling Industry Operating Standard (RIOS)
16	Internal Audit	Yes – Element 4.5.5 states that a facility shall ensure that internal audits are performed at planned intervals to assess whether the EMS conforms to requirements of the ISO Standard and is properly implemented and maintained. A procedure shall be established describing how this will be accomplished. Results shall be reported to top management.	Yes – The program has a similar requirement as the ISO Standard.	No – The R2 Program does not specifically address internal audits in its program. However, under its “Plan-Do-Check-Act” model, it has a general requirement to “conduct annual progress reviews.” It could be implied that during development of the EHSMS that one would include an internal audit program to assist in its review of the overall program.	Yes – Section 5.3 requires a <u>written</u> procedure to be developed to periodically evaluate the QEH&S system’s conformance to RIOS and the proper establishment of the QEH&S management system. The procedure shall address the scope, responsibilities and reporting of results. This section of RIOS does not specifically state that results shall be reported to top management.
17	Management Review	Yes – ISO Element 4.6 requires top management at a facility to review the EMS at planned intervals to ensure its continued suitability, adequacy and effectiveness. As a result of the review, changes may be made to the EMS consistent with the commitment to continual improvement.	Yes – This program has a similar requirement as the ISO Standard.	Yes – While the R2 Program does not specifically have a provision that deals with management review, a footnote to Provision 1 (a) (2) indicates that a facility shall “conduct annual progress reviews and act to make necessary changes to the EHSMS and create an action plan for continual improvement.”	Yes – Section 6 of RIOS outlines the requirements for completing management review. It includes the same inputs and outputs as found in the ISO 14001 standard, but in addition includes as outputs identification of resource needs and product improvements as part of continual improvement.
18	Accreditation and Certification Process	Facility contacts registrar accredited by ANSI-ASQ and works with facility on document review, pre-assessment and conducting actual audit. After certification is attained, an annual (or semi-annual) surveillance audit occurs. Once every three years, facility will go through renewal process.	Facility must contact accredited auditor (currently three) to arrange for audit of facility to E-Stewards criteria. If pass audit, facility is issued certificate and licensing agreement. Subject to annual surveillance audit to maintain certification. Cost for audit may vary with auditor and licensing agreement varies with gross revenue.	EPA is currently evaluating how it will implement a certification program for electronics recyclers. ISRI has incorporated R2 into its RIOS second edition of its RIOS implementers guide. It provides guidance on how facilities can implement the EPA R2 program into RIOS practices.	ISRI has set up a certification program that is similar to ISO 14001. It requires an accredited auditor (currently only one) to review the QEH&S program at the facility. Several steps are followed to achieve final certification. Certification is maintained by participating in annual surveillance audits and renewal.
19	General Applicability	Environmental matters only	Environmental, health and safety matters.	Environmental, health and safety matters.	Quality, environmental, health and safety matters.

Appendix B
Comparison Table of Four State Programs

Comparison Table of Four State Programs

e-Waste				
Program Element	Illinois	Iowa	Minnesota	Wisconsin
	Yes	Yes	Yes	Yes
Supporting State Statute	IL Public Act 095-0959	Iowa Code Section 455D	Minn. Stat. §§ 115A.1310 to 115A.1330	http://www.legis.state.wi.us/2009/data/acts/09Act50.pdf
Supporting Administrative Code	No e-Waste-specific regulations in administrative code.	<ul style="list-style-type: none"> • Changes are proposed to IAC 567-Chapter 122, Cathode Ray Tube device Recycling that will: • Remove requirements for short term collection events. • Replace permit requirement for facilities that collect CRTs with a registration requirement. • Provides collection and storage requirements for registered collection points including limiting the number of CRTs on site to 2,000, limiting storage time to one year, and requiring a training program for collection site employees. • Increase length of CRT Recycling permit from 3 to 5 years. • Remove the requirement for DNR approved training for staff of CRT recycling facilities. 	According to the MPCA, the Minnesota statute, cited above, provides sufficient direction and flexibility that the agency has not promulgated any regulations to implement the statute, nor has any plans to.	Law took effect in January 2010. No e-Waste-specific rules at this time. Mismanaged e-Waste may be subject to hazardous waste rules depending on heavy metal content.

e-Waste

Program Element

Illinois

Iowa

Minnesota

Wisconsin

<p>Registration / Permit for Collectors</p>	<p>Yes – Annual Registration - No Fee</p> <p>http://www.epa.state.il.us/land/electronic-waste-recycling/processor-form.pdf</p> <p>All collectors must submit a registration to the Agency. No registration fee is required for persons acting only as collectors. Only those collectors that have submitted the registration will be considered eligible by the Illinois EPA to act as a collector for a manufacturer obligated to meet its annual recycling goal. Collectors who register are listed on the Illinois EPA's website.</p>	<p>Yes – WCSC has this permit.</p> <p>http://www.iowadnr.gov/waste/recycling/files/form50s.doc</p>	<p>Yes – Annual Registration</p> <p>http://www.pca.state.mn.us/oea/stewardship/electronics/form-collector.pdf</p>	<p>Yes – Annual Registration</p> <p>http://www.dnr.state.wi.us/org/aw/wm/ewaste/4400257_fillP rintExt.pdf</p>
<p>Registration / Permit for Recyclers</p>	<p>Yes – Annual Registration and Fee (\$2,000)</p> <p>http://www.epa.state.il.us/land/electronic-waste-recycling/processor-form.pdf</p> <p>Each recycler and refurbisher must register with the Agency and remit a registration fee. Only those recyclers and refurbishers that have submitted the registration form and remitted the fee are permitted by the Act to engage in CED or EED recycling in Illinois.</p>	<p>Yes – WCSC has this permit.</p> <p>http://www.iowadnr.gov/waste/recycling/files/form50r.doc</p>	<p>Yes – Annual Registration</p> <p>http://www.pca.state.mn.us/oea/stewardship/electronics/form-recycler.pdf</p>	<p>Yes – Annual Registration</p> <p>Certification to e-Stewards or R2 is optional.</p> <p>http://www.dnr.state.wi.us/org/aw/wm/ewaste/4400258_fillP rintExt.pdf</p>
<p>Agency Dedicated e-Waste Webpage</p>	<p>http://www.epa.state.il.us/land/electronic-waste-recycling/index.html</p>	<p>http://www.iowadnr.gov/waste/recycling/ewaste.html</p>	<p>http://www.pca.state.mn.us/oea/stewardship/electronics-law.cfm</p>	<p>http://www.dnr.state.wi.us/org/aw/wm/ecycle/index.htm</p>

Appendix C
Select Telephone Interviews

Select Telephone Interviews

Telephone Interview Contacts	Certification Preferred or Being Sought	Comments	Contact Information
Generators / Collectors			
Alcoa, Inc.	NA	Mr. Tumey referenced his use of WCSC. He was very complementary of the WCSC facility and the way it is run. He indicated that at this point in time it is not critical to him that an e-Waste recycler have any particular certification. Mr. Tumey was not familiar with the BAN e-Stewards or EPA R2 or ISRI RIOS certification programs.	Alcoa, Inc. (Site #2410) 4879 State Street Bettendorf, IA 52722 Contact: Troy Tumey Tel: 563-459-3042 www.alcoa.com
Alter Trading Corporation	NA	Mr. Klein indicated that Alter Trading Corp. is ISO 9001 and ISO 14001 certified. He described Alter as not being a “big player” in the e-Waste recycling business. Mr. Klein was not familiar with the BAN e-Stewards or EPA R2 or ISRI RIOS certification programs.	Alter Trading Corporation 626 Schmidt Road Davenport, IA 52802 Contact: Mr. David Klein Tel: 314-872-2480 www.altertrading.com
Genesis Health Systems	NA	Mr. Jon Oelerich indicated that he would like to see some type of certification program adhered to by e-Waste recyclers, but did not express a preference.	Genesis Health Systems 1227 E. Rusholme Street Davenport, IA 52803 Contact: Jon Oelerich (IT Dept) Tel: 563-421-4885 http://www.genesishealth.com

Telephone Interview Contacts	Certification Preferred or Being Sought	Comments	Contact Information
Generators / Collectors - Continued			
Jackson County Disposal Agency	NA	Mr. Mark Beck indicated that his facility relies on WCSC to manage the e-Waste they collect. He felt that it was “not a bad idea” for e-Waste recycling facilities to be certified. He indicated that he was “comfortable” with WCSC. Mr. Beck was not familiar with the BAN e-Stewards or EPA R2 or ISRI RIOS certification programs.	Jackson County Disposal Agency 201 West Platt Maquoketa, IA 52060 Contact: Mark Beck, Director Tel: 563-652-5658 www.jcsda.org
JJ Keller	NA	JJ Keller is a publishing company – just now looking into the issue – no preference at this time. Mr. Bell was not familiar with BAN’s -Stewards or EPA’s R2 or ISRI’s RIOS certification programs.	Mr. Frank Bell J. J. Keller & Associates, Inc. 3003 Breezewood Lane Neenah, WI 54957 www.jjkeller.com
Muscatine Transfer Station	NA	Ms. Leigois indicated that their operation is certified by the Iowa DNR and that is all they are looking at, at this point in time. She did not express strong awareness or any preference for any particular certification program.	Muscatine Transfer Station 1000 S. Houser Street Muscatine, IA 52761 Contact: Laura Leigois Tel: 563-263-9689 http://ci.muscatine.ia.us/pw/transfer

Telephone Interview Contacts	Certification Preferred or Being Sought	Comments	Contact Information
Generators / Collectors - Continued			
Lamp Recyclers Inc.	NA	Lamp Recyclers is a waste collection company, not a recycler. They use Universal Recycling Technologies, LLC (URT) out of Janesville, WI as their recycler for e-Waste. Mr. Coffey was aware that URT had recently signed on to the BAN e-Stewards program. He thought that such certifications were becoming increasingly important. For instance, K-C Corporation requires that Lamp Recyclers provide certificates of destruction for the e-Waste they recycle through Lamp Recyclers.	Mr. Dick Coffey, President 3055 Holmgren Way De Pere, WI 54115 Tel: 800-558-1166 www.lamprecyclers.com
Foth Enterprise Solutions	NA	Mr. Waldow indicated that Foth's offices in Green Bay, WI utilize the e-Waste management services of Lamp Recyclers Inc. Mr. Waldow does not require that Foth's e-Waste be managed by facilities certified to one of the programs being evaluated. Mr. Waldow was not familiar with the BAN e-Stewards or EPA R2 or ISRI RIOS certification programs.	Mr. Scott Waldow Foth Enterprise Solutions 2737 S. Ridge Road Green Bay, WI Tel: 920497-2500 www.foth.com

Telephone Interview Contacts	Certification Preferred or Being Sought	Comments	Contact Information
Recyclers / Metals Recovers			
5R Processors, Ltd.	BAN e-Stewards	Ms. Bonnie Dennee indicated that 5R Processors, Ltd. is on the path to becoming licensed under the BAN e-Stewards program. She indicated that there are three levels of involvement with the highest level having an associated certification cost of \$50,000. She indicated that over the past several months her firm, which has operations in Wisconsin (2), Tennessee (2) and Georgia (1), has seen increased demand from her company's Fortune 500 customers for her firm to be certified. Her clients certification of choice is BAN's e-Stewards certification.	5R PROCESSORS, LTD PO Box 195 600 West Gates Ave. Ladysmith, WI 54848 Contact: Ms. Bonnie Dennee Tel: 715-532-2050 www.5rprocessors.com
Dynamic Recycling	USEPA R2	Mr. Greeno indicated that his firm is pursuing the USEPA's R2 certification. He indicated that he felt that the BAN certification program was too costly and too high a hurdle to overcome. He said he also did not appreciate the manner in which BAN criticized the other certification programs.	Dynamic Recycling 1404 Green Bay Street, La Crosse WI Contact: Mr. Curt Greeno Tel: 608-781-4030 www.dynamicrecycling.com

Telephone Interview Contacts	Certification Preferred or Being Sought	Comments	Contact Information
Recyclers / Metals Recovers - Continued			
Material Processing Corporation	USEPA R2 / e- Stewards	Mr. Yousha indicated that his firm believed that it was important to have multiple certifications. Material Processing Corp. is presently certified to ISO 9001 and 14001 and USEPA's R2 program. They are working toward e-Stewards certification.	Materials Processing Corporation 2300 Pilot Knob Road Mendota Heights, MN 55120 Contact: Mr. Allen Yousha Tel: 651-681-7365 www.materialsprocessing.com
Sims Recycling Solutions	USEPA R2	Mr. Jarocho indicated that Sims is presently ISO 14001 certified and that it was pursuing the R2 program. He indicated that his firm does not presently intend to obtain Ban's e-Stewards certification because it requires the release of certain business-confidential information that his firm does not wish to make public.	Sims Recycling Solutions 3700 N Runge Avenue Franklin Park, IL 60131 Contact: Allen Jarocho Cell: 847-980-4566 http://us.simsrecycling.com
Totall Metal Recycling	USEPA R2	Mr. VanDoren indicated that Totall Metal Recycling is pursuing USEPA's R2 program. They are presently ISO 9001 and ISO 14001 certified. They do not have a preference at this point in time for what certifications their suppliers of e-Waste hold.	Totall Metal Recycling, Inc 2700 Missouri Avenue Granite City, IL 62040 Contact: Matt VanDoren Tel: 618-877-0585 www.tmrusa.com

Telephone Interview Contacts	Certification Preferred or Being Sought	Comments	Contact Information
Recyclers / Metals Recovers - Continued			
Universal Recycling Technologies, LLC	BAN e-Stewards	Mr. Pritchett indicated that their firm works with over 40 OEMs. These firms are dictating that e-Waste recyclers be e-Stewards certified. Their primary issue is the risk of having their e-Waste exported to non-OECD countries. He indicated that URT will pursue other registrations.	Universal Recycling Technologies 2535 Beloit Avenue Janesville, WI 53546 Contact: Mr. Thomas Pritchett, EHS Director Tel: 608-314-8133 www.universalrecyclers.com

Appendix D
e-Waste Certification Program Registrars

e-WASTE CERTIFICATION PROGRAM REGISTRARS

ANAB
(ANSI-ASQ National Accreditation Board)
600 N. Plankinton Ave., Suite 300
Milwaukee, WI 53203
Tel: 414-347-9858
www.anab.org

AQA International – **e Stewards**
501 Commerce Drive, NE
Columbia, SC 29223 USA
Contact:
Tel: 800.281.4384
www.aqausa.com

PERRY JOHNSON, INC. – **R2**
26555 Evergreen Rd., Suite 1300
Southfield, Michigan USA 48076
Tel: 1-800-800-0450
www.pji.com

Obtained information from ANAB on Registrars that will be doing e-Stewards, R2 and RIOS certifications. At this time there are two certifying bodies qualified to issue certifications for e-Stewards including: AQA International and Orion Register Inc.

Firms accredited by ANAB to issue R2 certifications include: Perry Johnson and SGS Systems. SGS Systems is also qualified to issue certifications for ISRI's RIOS program.

Orion Registrar, Inc. – **e Stewards**
7850 Vance Dr. Ste. 210
Arvada, CO 80003
Tel: 303-456-6010
www.orion4value.com

SGS NORTH AMERICA – **R2 & RIOS**
201 Route 17 North
Rutherford, NJ 07070
Tel: 201-508-3000
www.us.sgs.com