Responsible Recycling – R2

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Responsible Recycling – R2

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- Welcome From PJR Headquarters:

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- Audience for today's meeting
- Introduction of speakers

- Today's Session (1 Hour)
  - Informational Standard Overview
  - R2 Breakdown
  - Common Concerns
  - Top Nonconformances
  - Management Pitfalls
  - Certification Process
  - Questions

Responsible Recycling – R2

PJR is accredited to grant certification for :

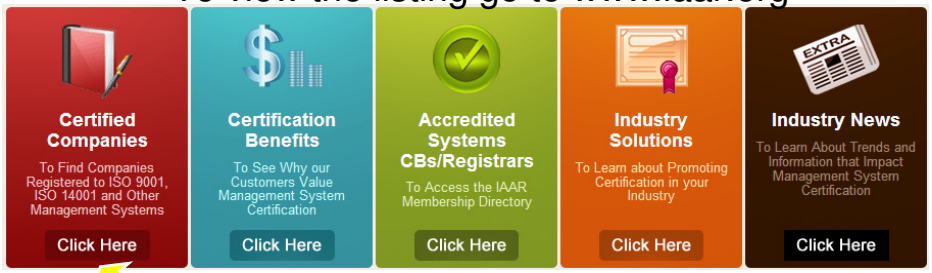
- ISO 9001
- ISO 14001
- AS 9100, 9110 & 9120
- ISO/TS 16949
- **Responsible Recycling-R2**
- RIOS
- ISO 13485
- SQF
- BRC
- TL 9000
- OHSAS 18001
- ISO 27001
- RCMS® AND RC14001
- ISO 22000
- BS 25999
- BA 9000
- HAACP Compliance
- FSSC 22000

Responsible Recycling – R2

PJR RANKS AS THE #1 REGISTRAR!

(according to www.iaar.org) Industry Association of Accredited Registrars

To view the listing go to www.iaar.org



First click on: Certified Companies

Next click on: Registered Companies

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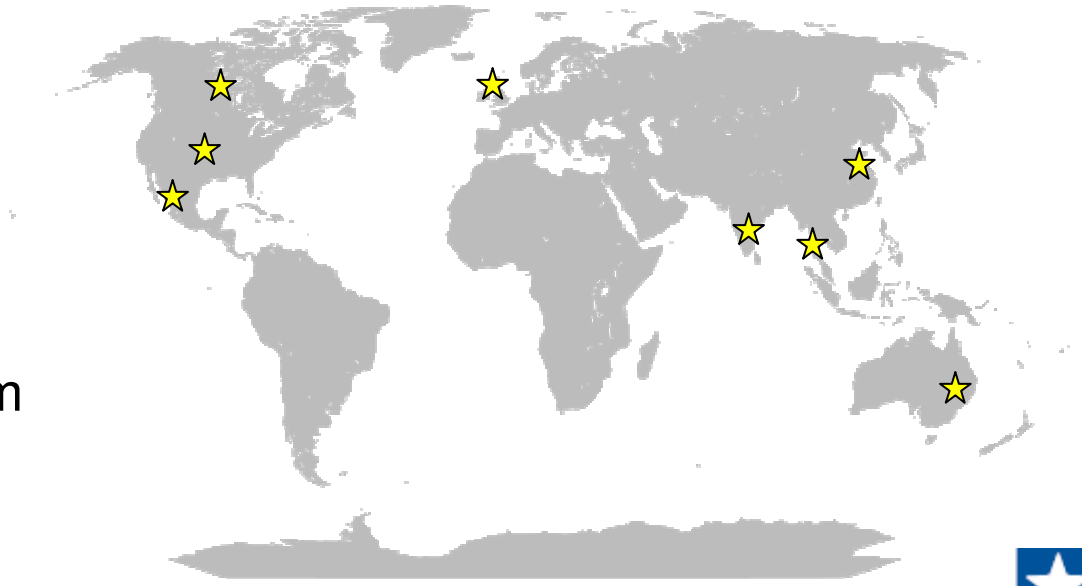
PJR is the #1 R2 Registrar

- PJR is the #1 R2 registrar of the six accredited R2 registrars in the world with 87 of the 176 certificates issued worldwide.
- Countries where PJR has certified companies to R2:
  - Australia
  - Canada
  - China
  - India
  - Malaysia
  - Mexico
  - Singapore
  - United Kingdom
  - United States



Benefits of Certification

- Key benefits of R2 certification and implementation:
  - Promotes safe and effective recovery and reuse of electronic equipment
  - Guards downstream control of the recycling chain
  - Minimizes environmental and public health risks
  - Demonstrates compliance with domestic and international laws
  - Minimizes liability and encourages reduced insurance costs for recyclers
  - Assists original equipment manufacturers (OEM's) with due diligence for their end-of-life electronics
  - Instills public confidence through certified third party review

Essential "R2" Concepts

- Reuse and Recycling Required
  - Disposal of focus materials only in exceptional circumstances
- On-site Worker & Environmental Protection
  - Federal OSHA consulted for section
  - On-going hazard identification & assessment of risks
  - Special handling for focus materials
- Downstream Due-Diligence for Focus Materials
  - Throughout the recycling stream
  - Includes international venders
  - Written focus material management plan for recyclers & downstream vendors; possess & have documentation on downstream controls

Essential "R2" Concepts

- Evidence of Legality of Export
  - Documentation must be from the Government

- Comprehensive Management System
  - Includes, environmental, health and safety concepts
  - Written programs using "Plan-Do-Check-Act" model for continual improvement

- Compliance with all Laws, Regulations and Rules
  - An R2 certification audit is NOT a compliance audit (ANAB Accreditation Rule #9)

Essential "R2" Concepts

- Destroy, purge or sanitize data from all memory;
  - NIST Guidelines for Media Sanitation - 800-88, or other standard or certification program (i.e., NAID)
- Track throughput and recordkeeping;
  - Business records of all transfers of equipment and materials into and out of facility
- Store and transport materials securely and safely; and
- Possess insurance, closure plans and financial mechanisms to cover the potential risks of the facility.

Details on Exports

- R2 requires exports of focus materials to be legal and responsible, by having:
- Recycler's responsibility extends to conducting due diligence on "focus materials" to international markets; and
- Recycler must show documentation that export of any focus material to any non-OECD country is legal
  - Law or court ruling;
  - Letter from the competent authority; or
  - Request documentation from EPA
    - EPA website has information of who to contact with what information
    - Concept of Prior Informed Consent requires documentation prior to shipment

Export Markets

- **Reuse** allows usable electronics to be used in developing countries
- **e-Scrap** exported to countries can be used in manufacturing new equipment
- US has no smelters or glass furnaces to refine copper/precious metals from circuit boards or produce new CRT glass

EPA Requirements

- **Universal Waste Rule**:
  - Mercury-containing devices are in this rule and are considered hazardous waste, but have streamlined requirements when going for recycling or reuse.

- **CRT Rule**:
  - CRTs and CRT glass are not considered solid or hazardous waste when reused or recycled if certain conditions are met (40 CFR, Subpart E, 261.39). Similar streamlined requirements as Universal Rule.

- **Responsible Recycling Practices (R2):**
  - Includes a broader spectrum of electronic materials; complements the other traditional approaches; does not replace any of the electronics recyclers legal obligations.

New E-Waste Policy for Federal Government

Effective March 1, 2012

- *Government electronics will now have to be reused and recycled.*
- Federal agencies are being banned from disposing of these materials in landfills or incinerators, and instead they will now send them to third-party certified e-waste recyclers — under R2 or eStewards — when reuse is not an option.
- For a list of R2 certified recyclers go to **www.pjr.com** or **www.r2solutions.org/**

R2 Guidance

Effective June 6, 2012

- This document has been designed as a tool that can aid recyclers in both the preparation for an R2 audit and in maintaining ongoing conformance.
- The guidance offers explanation about how the Provisions of the R2 Standard can be put into practice and what activities constitute conformance.
- **It should only clarify the existing provisions.**

Provision #1

Environmental, Health & Safety Management System

- R2 electronic recycler shall develop and use an EHSMS
  - Define scope of the system (e.g. part of a larger complex with some shared activity).
- Based on PDCA model for continual improvement
  - Policy supporting a “reuse, recover, dispose hierarchy” throughout the recycling chain.
  - Documented goals to support the policy: goals that reflect R2, not “reduction of paper”
  - Policy and goals understood by all employees
  - Identification of all site activities (e.g. process flow)
  - Identification and monitoring of on-site occupational & environmental risks
  - Focus materials plan
  - Emergency response plan
- Important to understand the component parts of the PDCA model per note 2
  - Includes international monitoring (auditing) and system review to ensure effectiveness of the EHSMS.

Question #1

Which of the following is not a requirement of the plan-do-check-act model?

a. Establish objectives
b. Establish training procedures
c. Conduct internal audits
d. Conduct management reviews
e. None of the above

Provision #2
"Reuse, Recover…"
Hierarchy of Responsible Management Strategies

- Reuse, Recover, Dispose- Written Policy
  - Communicated to employees and downstream vendors
- Consistent with FM Plan
  - Apply hierarchy to focus materials
- Includes control of vendors
  - Expect downstream hierarchy to address reuse/recovery.

Provision #3
Legal Requirements

- Compliance with all environmental, health, and safety legal requirements
  - **R2 certification audit is NOT a compliance audit** - ANAB Accreditation Rule #9
- Export FM components to countries that legally accept them
  - Documentation from EPA or Competent Authority: Documents sent with each shipment
- Periodic compliance evaluation
  - Identify and document all legal requirements applicable to the facility (e.g. CFR 40, CFR 29, local, state, county regulations, International regulations, etc.)
    - Keep in mind that a regulation can have several components or requirements- a title is not enough!
  - Document the steps necessary to comply (e.g. work instruction that shows how to label CRT's)
  - Take Corrective Action (NOT just correction) for any identified non-compliance
    - Fix so it doesn't happen again

Question #2

Completing a gap analysis of legal requirements is equivalent to evaluating compliance?

T or F

Provision #4
On-Site Environmental, Health & Safety

- Expertise and capability for processes
- Ongoing hazards identification of occupational and environmental risks- e.g. new processes or materials
  - Regular, documented training/refreshers- includes entire workforce (any volunteers)
- Manage risks on priority basis: Engineering controls, Administrative controls, PPE
- Monitor/sample for risk management- e.g. PELS
  - Two-way communication encouraged
- Designated site coordinator for promotion of health/safety
- Respond/report releases/accidents
  - Emergency planning, drills, training
- This section essentially addresses the major portion of OSHA 18001 and ISO 14001

Provision #4
Environmental & Safety hazards include but are not limited to:

- High traffic areas – heavy equipment traffic
- Trips and falls
- Cuts from glass or sharp metals
- Burns in facilities that do assaying
- Eye injuries from debris
- Head injury from falling objects
- Improper outside storage resulting in impacts to storm water.
- Exposure to high decibel noise levels for a short time
- Improper labeling resulting in diminished equipment reuse opportunity
- Particulate or metals dust exposure from cleaning CRT's, crushing, washing CRT's, shredding metals
- Improper evaluation & sorting resulting in diminished equipment ruse opportunity.
- Chemical exposure from processing areas
- Transportation spills

Question #3

Focus Materials include:

A. CRT's, CRT glass, glass Items containing mercury, Items containing PCBs, Batteries, Whole and shredded circuit boards
B. CRT's, CRT glass, glass Items containing mercury, Batteries, Whole and shredded circuit boards, Toner cartridges
C. Toner AND Toner cartridges
D. All e-waste

Provision #5
R2 Focus Materials

- Items containing polychlorinated biphenyls (PCB's)
  - Ballasts, capacitors, medical equipment- need training to identify/manage-hazwaste
- Items containing mercury
  - Switches, bulbs, flat-panel tubes
- CRT's and CRT glass
- Batteries
  - Handle as universal waste; many U.S. facilities for final destination

- Whole and shredded circuit boards except for whole and shredded circuit boards which do not contain solder and have undergone safe and effective mechanical processing or manual dismantling to remove mercury and batteries
- Toner and toner cartridges, while not FM's, should be reused, recovered as possible.

Provision #5
R2 Focus Materials

- Develop FM Plan: downstream vendors
- Removal of FM's

  - Exceptions: mercury if too small to safely remove, and, CR 7's, batteries and circuit boards prior to shredding/recovery when sent to properly licensed facilities.
- Facilities properly licensed
- FM strategy should not utilize energy recovery, incineration or land disposal
  - May consider when normal system is disrupted as allowed by law.
- Due diligence of downstream vendors
  - Conformance to 5e (1-7)
  - Audit/monitor recycling chain
    - On-site or self review, or combination
    - Needs to be a robust process

Provision #5
R2 Focus Materials

- FM Plan should include, as a minimum
  - Identification of site FM's
  - Responsibility for specific activities
  - How/which FM's will be removed
    - Decisions on deminimus levels
  - Statement on use of energy recover, incineration, land disposal
  - Transportation issues- export requirements
  - Selection and due diligence of downstream vendors
    - Method of risk assessment
    - Audits/monitoring
    - Contractual requirements- communication of R2 expectations
    - How material will be tracked
  - Reference to supporting documents
- Matrix is a good way to show FM's and their movement though the vendor chain

Provision #6
Reusable Equipment & Components

- Comply with commercial agreements
- Label and sort to allow tracking (R2 #7)
- Transport/handle in conformance with R2 #12
- Confirm key functions
- Confirm recipient vendor certified R2 electronics recycle

OR

- Key functions
  - Vendor manages all residual FM's in conformance with R2
    - Exceptions for number of units
      - Less than 15 for evaluation
    - New in original packaging
      - Need not comply if satisfy R2 3 or 5

Provision #7
Tracking Throughput

- 3 year retention of records for transfer of equipment, components and materials, and brokerage transactions (note: could be longer if required by law or contract).
- Should be consistent with FM plan
- Link to R2 #13 for overall records management and document controls

RECYCLE ALL ELECTRONICS

Provision #8
Data Destruction

- R2 recycler shall follow NIST special publication 800-88 or generally accepted standard, or be certified (e.g. NAID)
- Documented destruction practices
  - Trained employees: Refreshers
  - Process reviewed and validated by independent party on periodic basis

Question #4

An independent validation of data destruction means that it must be performed by a third-party?

T or F

Provision #8
Data Destruction

- Steps to consider: per NIST guideline 800-88
  - Sanitization decisions based on security needs of the information on the media- on-site or outsourced, cost, training, volume
  - Decision on "clearing, purging, destroying"- based on security
    - Clearing: software overwriting
    - Purging: degaussing (suggests NSA/CSS approved equipment)
    - Destroying: disintegration, incineration, pulverization, melting- best way
- If outsourced
  - Contract for confidentiality control
  - Review and validate the process by R2 trained individual
  - Controlled shipments
  - Tier 1 vendor
- Equipment Maintenance & Calibration
- Competency of personnel- hiring/screening
- Records of sanitization to document what media were sanitized

Provision #9
Storage

- FM's, equipment, and components
  - Protect from atmospheric conditions/floods
  - Access controlled/security
  - Container labeling and storage area identification
    - Pay attention to any legal requirements (e.g. CRT's, batteries)
    - Consider inclusion in ongoing monitoring activities to ensure any compliance issues, and container integrity to eliminate leakage (dust, liquids)

Provision #10
Facility Security

- Controlled access
  - Consider equipment and customer needs
  - Consideration of shared resources (e.g. part of a MRF), or responsibility by a corporate entity not in the scope of R2 certification

Provision #11

Insurance, Closure Plan and Financial Responsibility

- Comprehensive or Commercial General Liability Insurance
  - Bodily injury, property damage, pollutant releases, accidents- need evidence for all categories
- Written and funded closure plan
  - May be state minimums
- Need to address as part of downstream vendor controls

Provision #12
Transport

- Package to minimize risk
  - CRT rules
- Transporters have/met regulatory authorization
  - No significant violations during past 3 years
    - Need documentation
  - If using trucking brokerage firm, verify requirements of their contracts
  - Be sure to include transport as part of environmental and health/safety risk assessment

Provision #13
Recordkeeping

- Maintained in a <u>single site location</u>
  - Show conformity to R2 requirements
  - Linkage to R2 provision #7

Common Concerns

The following are common questions/concerns auditors have identified in the field:

Acceptable exclusions in R2

- An organization may exclude specific R2 practices where applicable and justified. However, an organization cannot exclude the majority of R2 practices.
- Non-applicable practices will need to be identified on the certificate.

Data Destruction

- All data destruction must be verified and documented in some manner. If hardware is not shredded before leaving the site, it must remain secure during transport and staging.
- Off-site data destruction must be verified.

Closure Plans

- The main discussion around this point involves the financial means to close the facility. As long as the facility can show they have the required monetary value (thru bonds, bank accounts, etc.) to properly close the facility, that will be sufficient. The organization is not required to solely have bonds.

Top findings of Nonconformance for Recyclers

- Lack of stormwater no exposure certification or stormwater permit
- Incorrect labeling of material or lack of labels
- Hazardous waste and universal waste regulations have not been considered
- Incomplete list of legal and other requirements
- Incomplete EHS hazards identification and assessment

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Common Management Pitfalls

- Management does not allocate the appropriate personnel (resources) and they don't empower the individual "management rep" with both the responsibility and authority. Also, they don't have the authority over the various departments to get the tasks accomplished in the timelines the facility sets as deadlines.

- Management often assigns a person to drive the certification but the individual is so busy doing the job that they already have. They often never get the program launched, have enough time to research the standard, seek out the appropriate training, or have the ability or time to master the appropriate procedure writing needed to meet the standard.

- Management hires an incompetent consultant. Have an interview list of points you expect as deliverables for a consultant and interview accordingly. Be sure to get references.

Common Management Pitfalls

- Constant turnover hurts the progression and the company has to continue to start over and over again. Company should do a “root cause” analysis as to why turnover continues. Usually point to top management philosophy getting in the way of employee retention.

- Company does not have competent personnel to write the procedures that meet the exact standard required. Procedure writing is an art and sometimes individuals can write way too much or not nearly enough and get the company into an audit quagmire that is unnecessary. Whatever format is used the philosophy of “keep it simple” should always be at the forefront. Make it easily auditable and easy for internal and external staff to follow and have a good document and data control and change/revision control system in place.

Common Management Pitfalls

Additional Pitfalls

- A company does not have the technical expertise to develop a complete list of legal and other requirements.
- A company does not devote the appropriate amount of time to investigating root causes of nonconformances and ensuring that corrective actions are effective.
- A company does not want to invest the time or money to effectively train employees.

Integrated Audits

- R2 follows the Plan-Do-Check-Act Model
- Easily integrated with ISO 14001 and RIOS
- Integrated audits help to reduce overall costs

R2 Certification

Stage 1 Requirements:

- Documentation reflecting R2 requirements
- Client understanding of requirements: training
- Site-specific conditions
- Scope of the ESHMS
- Compliance evaluation completed and issues being addressed
- Understanding of organizations' significant environmental/safety risks
- Evaluate internal audit planning and performance or equivalent monitoring of processes
- Evaluate management review- called annual review in R2

R2 Certification

Stage 2 Requirements:

- Conformity to requirements- Implementation
- Performance monitoring against key performance objectives
- Ongoing legal compliance
- Operational process controls
- Internal auditing and management review
- Responsibility and authority for policies

R2 Certification

Certification Steps:

- Training to R2 requirements
  - Staff
  - Internal Audits
- Create R2 documents or integrate with existing systems (e.g. ISO 9001, 14001 or OSHAS 18001)
- Implement R2 requirements
  - Conduct internal audits of system
  - Conduct compliance evaluation
  - Conduct review of system based on input from internal audit
- Contract with a certification body
- Complete S1 and S2 audits
  - Address any nonconformities → ☺ Certification!

Certification Process

The initial audit consists of two stages:

- Stage 1:
  - On-site document review of your EHSMS
  - Evaluates the readiness of your organization to move to stage 2.
- Stage 2:
  - Scheduled 30 to 75 days after the stage 1 audit.
  - On-site audit of your entire EHSMS.
  - Nonconformities will need to be resolved prior to issuing of the certificate.

Certification Process

- Surveillance audits
  - Scheduled at either six or twelve month intervals depending on the contract.
  - Partial system audit.

- Re-certification audit
  - On-site audit conducted prior to the third anniversary of the initial certification
  - Surveillance visits will then continue, as before, on a 3-year cycle.

R2 Training

Coming Soon!

- An Online R2 Auditor Course
  - ~8 hr online course
  - Certificate of completion provided to those who pass the exam
  - Go to www.PJR.com for status and updates

Questions

Please type any questions you may have.

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For additional technical information, please contact Scott Jones.

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