

Recycling Practice Guide and Minimum Standards

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DEFINITIONS

Best Practice means a practice that is specifically recommended by this document. It does not necessarily infer that a related regulatory mandate exists (nor that such a mandate should exist). If a Facility voluntarily chooses to comply with this Best Management Practice, then in order to remain in compliance, the Facility must follow each Best Practice found in this document as determined by the AFRA certification process.

Practice Guides reflect advice from AFRA on how to meet the principles established by the Best Practices. Generally, they reflect one way but not necessarily the only way to meet the Best Practice. In some cases they might reflect the only practical manner in which to meet the Best Practice, and in other cases a Facility may employ other approaches that could be judged to meet the Best Practice.

A **Minimum Standard** states the minimum requirement in order to pass the AFRA BMP audit on the first audit. A company that does not meet the minimum standard will not pass the audit. Minimum standards do not take the place of the BMP Best Practice Standards; they are advisory in nature and they are meant to establish minimum levels for companies new to the industry. Companies are expected to evolve their own quality systems beyond the Minimum Standards in order to meet the intent of the BMP Standards. As the industry evolves, AFRA expects that the AFRA BMP Committee will raise the Minimum Standards.

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Article II b) BMP System Requirements

BEST PRACTICE (II)(b) 1 - Each accredited company shall have a BMP Manual.

Practice Guides:

1. The manual may consist of assigned hard copies or electronic copies (such as PDF) available to staff, or a combination of these two.
2. Care should be taken to assure that unauthorized staff do not have access to the manual which can be edited; this to prevent unintended alterations.

Minimum Standards

A current manual available to staff

BEST PRACTICE (II)(b) 2 - The BMP Manual is made up of all of the Procedures reflecting the company's compliance with this BMP.

Practice Guides:

1. Where there is a stand-alone BMP manual, it is preferable for it to be structured to sequentially reflect the BMP format for the numbering of the Articles.

Minimum Standards

A manual which addresses all the requirements of the current BMP.

BEST PRACTICE (II)(b) 3 - This BMP manual may be part of another manual system, and/or it may incorporate and/or commingle issues that are not reflected within this BMP; however the procedures found within the BMP Manual should include references to the BMP sections that they are each designed to meet, either in the procedures themselves, in the headings to the procedures, or in an index to the BMP Manual and its procedures.

Practice Guides:

1. In such cases, it is recommended that a cross reference table be established that shows all the BMP Articles and where the applicable procedure may be found.

Minimum Standards

All procedures which have applicability to demonstrate compliance with the BMP are unambiguously labeled or referenced as such.

BEST PRACTICE (II)(b) 4 - The BMP manual must have a change management tracking system, such as a list of sections affected that tracks the revision history of the BMP Manual.

Practice Guides:

1. Manuals can have a separate or combined revision elements as follows:

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- A Record of Revision page (ROR). This page shows the sequential issued revision numbers and the corresponding date. It is recommended that a brief reason be entered stating the reason for the revision.
- List of Effective Pages (LOEP). This is used in cases where a given revision only changes the effected pages, and the unaffected pages remain at their last revision. With this arrangement the LOEP shows the revision status of each page of the manual. In cases where it is policy that each revision changes the entire manual, an LOEP is not necessary.
- In order for staff to quickly identify the revised subject matter for a given revision, it is recommended that a visual means to highlight the revised passage be implemented. For example, use of colored highlighted sentences, or a vertical line in the left margin adjacent the revised passage.

Minimum Standards

A demonstrable means for tracking changes and revisions.

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ARTICLE III - FACILITY (including infrastructure & management process)

Article III a) - Location characteristics; Identification and Compliance with Relevant Standards

BEST PRACTICE (III)(a) 1 - The Facility shall have a fixed location for recycling, or a procedure for assuring that the location for recycling is adequately prepared, or both.

Practice Guides

1. Although such procedures are not a required part of the standard, a facility may wish to consider procedures for addressing local jurisdiction compliance requirements like:
 - appropriate business permits
 - appropriate fire department permits
 - appropriate airport permits
 - other appropriate local jurisdiction requirements.
2. A procedure for addressing local jurisdiction compliance requirements can be especially important for a **recycling** facility that regularly operates from remote or mobile **recycling** locations.
3. Because work flow and work flow areas can change frequently based on what materials are in the facility at any time, work flow may be a description that is separate from the work area map; this is not meant to proscribe a map-based description of work flow in a facility with a relatively static map of work flow.

Minimum Standards

Work area map showing major area locations with description of work flow.

BEST PRACTICE (III)(a) 2 - If the Facility has a fixed location for recycling, then the Facility shall identify, and ensure compliance with, applicable environmental laws and standards.

Practice Guides:

1. Ensuring compliance may require periodic auditing.
2. The Facility should have spill prevention and response procedures.
 - The Facility should have a process for preventing the release of hazardous substances.
 - The Facility should consider control technologies

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- designed to permit capture and/or reclamation of fluids that may come out of an Asset or Materials for Recycling.
 - The Facility should have training associated with this procedure
3. Ensuring compliance may require implementation of certain control technologies.

Minimum Standards

A procedure denoting process for ensuring compliance and the assignment of responsibility for knowing applicable laws and assuring compliance

BEST PRACTICE (III)(a) 3 - If the Facility recycles materials at locations remote from the Facility's main location(s), then the Facility shall have one or more procedures designed to identify, and ensure compliance with, applicable environmental laws and standards.

Practice Guides:

1. Ensuring compliance may require an initial audit of the location at which the recycling will take place to identify compliance issues, followed by a post- implementation, recycling audit to ensure compliance.
2. The Facility should have spill prevention and response procedures.
 - The Facility should have a process for preventing the release of hazardous substances.
 - The Facility should consider control technologies designed to permit capture and/or reclamation of fluids that may come out Materials for Recycling.
 - The Facility should have training associated with this procedure
3. Ensuring compliance may require implementation of certain control technologies.
4. If the Facility uses the same procedure for remote locations as the procedure for the main location then a single procedure may be sufficient for all locations.

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Minimum Standards

A procedure denoting process for ensuring compliance and the assignment of responsibility for knowing applicable laws and assuring compliance

BEST PRACTICE (III)(a) 4 - If the Facility has a fixed location for recycling, then the Facility shall identify, and ensure compliance with, applicable occupational health and safety laws and standards.

Practice Guides:

3. Many jurisdictions have laws that require an employer to protect the employees from reasonably identifiable hazards to health and safety.
4. Ensuring compliance may require periodic auditing.
5. Occupational health and safety laws and standards often include training requirements
6. There are special dangers inherent in recycling. Immediate dangers include dangerous goods (hazardous materials), and the weight of the asset or materials; but less obvious are the long term dangers to health, like carcinogens and radioactive materials.

Minimum Standards

A procedure denoting process for ensuring compliance and the assignment of responsibility for knowing applicable laws and assuring compliance

BEST PRACTICE (III)(a) 5 - If the Facility recycles materials at locations remote from the Facility's main location(s), then the Facility shall have one or more procedures designed to identify, and ensure compliance with, applicable occupational health and safety laws and standards.

Practice Guides:

1. Many jurisdictions have laws that require an employer to protect the employees from reasonably identifiable hazards to health and safety.
2. Ensuring compliance may require an initial audit of the location at which the recycling will take place to identify compliance issues, followed by a post- implementation, pre-recycling audit to ensure the health and safety of the employees are protected.

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3. Occupational health and safety laws and standards often include training requirements
4. There are special dangers inherent in recycling. Immediate dangers include dangerous goods (hazardous materials), and the weight of the asset or materials; but less obvious are the long term dangers to health, like carcinogens and radioactive materials.
5. If the Facility uses the same procedure for remote locations as the procedure for the main location then a single set of procedures may be sufficient for all locations.

Minimum Standards

A procedure denoting process for ensuring compliance and the assignment of responsibility for knowing applicable laws and assuring compliance

Article III b) - Security

BEST PRACTICE (III)(b) 1 - The Facility shall establish a secure area in which recycling will take place.

Practice Guides:

1. Security protocols for the recycling area/s should be established and maintained. They should be adequate to protect the Asset, the parts, and/or the materials from loss, contamination, and from unwanted comingling.
2. Customer contracts may require certain security measures. The Facility should ensure that it has a procedure for implementing security that is consistent with contractual requirements.
3. If maintenance is performed at the Facility, the secure recycling area should be separate from any area where maintenance is performed.
4. Security standards for a remote or mobile location may be different from those for a permanent location.

Minimum Standards

A written description of how security will be maintained; and actual implementation of that security description at the time the recycling is performed.

BEST PRACTICE (III)(b) 2 – The Facility shall establish procedures and infrastructure to prevent material from leaving the Facility in a manner inconsistent with the intent of the Facility.

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Practice Guides:

1. The security system should prevent unwanted loss.
2. Unwanted loss can include theft, or disposition of material inconsistent with contractual obligations.

Minimum Standards

A procedure for controlling the dispatch or disposal of material.

BEST PRACTICE (III)(b) 3 – Aviation materials received in a fashion so as to be recognizable as such, and intended to be precluded from re-entry into the civil aviation market, shall be precluded from re-entry into the civil aviation marketplace by rendering those parts unusable for their original intent during the recycling process.

Practice Guides:

1. Mutilation of parts or Materials for Recycling should occur within a reasonable period after delivery.
2. When items are destroyed, destruction should be witnessed by a responsible person other than the operator of the mutilation equipment and the schedule of destroyed items should be certified as destroyed by the witness.
3. Remnants of the destroyed items should be disposed-of properly to preclude their rework back into apparently-viable parts – this *may* also be subject to the witness' certification. Those remnants may be reclaimed through the recycling process
4. It is normal to provide the customer with a signed certification from the witness that the lot, part, or article has been destroyed. Generally speaking the signed certificate references a batch rather than listing individual parts unless the customer otherwise requests.
5. Any record required to be produced or maintained under this standard shall be retained by the Facility for not less than two (2) years. This requirement does not supersede legal obligations that may require longer retention times.

Minimum Standards

A procedure for implementing supplier or customer contractual minimum requirements for destruction to preclude affected parts from return to service.

BEST PRACTICE (III)(b) 4 – The Facility shall establish procedures and infrastructure to prevent unwanted material from entering the Facility.

Practice Guides:

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1. Unwanted material can include materials that the Facility does not **recycle**, that the Facility does not expect, or that the Facility does not want.
2. Unwanted materials can include material that poses unexpected hazards.
3. Contract language may be part of the method for accomplishing this element. This could include details of materials that will not be accepted.

Minimum Standards

A procedure for implementing supplier or customer contractual minimum requirements for destruction to preclude affected parts from return to service.

Article III c) – Storage and Segregation of Materials

BEST PRACTICE (III)(c) 1 – The Facility shall have a process for material control, which meets the following standards:

- (i) ensures that Recycled Material is segregated (by material) according to commercially reasonable standards or standards defined in a customer contract;
- (ii) effectively segregates all Recycled Material that are intended to be transferred as aerospace materials, or as having been derived from an aviation or aerospace source, from those that are not intended to be described in this way;
- (iii) documents the segregation mechanisms.

Practice Guides:

1. Segregation according to commercially reasonable standards in this provision is meant to reflect segregation by material. Segregation based on customer requirements or other factors is addressed elsewhere in the standard.
2. Material that is expected to be identified as aerospace material should be segregated from material that will not be identified as aerospace material.
3. The segregation of aerospace-described material is meant to

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apply to those materials that will be described to third parties as derived from aerospace sources; a Facility's internal description of source is not covered by this provision, in the absence of an intent to transfer the material under an aerospace description.

Minimum Standards

Written description of the segregation protocols and a map designating segregated locations.

BEST PRACTICE (III)(c) 2 – When a specific customer provides written requirements that their materials be segregated from other materials, the Facility shall have a procedure for ensuring that these customer segregation requirements are followed.

Practice Guides:

1. The Facility should have a procedure for implementing customer contract requirements.
2. Where the Facility is recycling material that belongs to a client, the Facility should segregate those materials.

Minimum Standards

Procedure for implementing customer contract requirements for segregation; written description of how required segregation of different customers' materials will be maintained during all stages of processing; and written description of how security of such segregated area(s) will be maintained.

Article III d) – Inventory Accounting & Audits

BEST PRACTICE (III)(d) 1 - The Facility shall have a procedure for periodic internal audits to the BMP Checklist.

Practice Guide:

1. Periodic verification of internal practices through auditing controls and procedures helps to assure that internal procedures are followed.

Minimum Standards

Procedure and copies of audit records (preferably using BMP checklist)

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BEST PRACTICE (III)(d) 2 - The Facility shall have a procedure for retaining documentation of periodic internal audits on how the company is following this Guidance, including results, and (where necessary) root-cause analysis, and corrective actions taken. Records required for the purpose of this best practice article must be kept for a period of at least two (2) years.

Practice Guides

None

Minimum Standards

Procedure and an archive that may be reviewed by the auditor during the audit.

BEST PRACTICE (III)(d) 3 - A recycling Facility shall have a procedure for periodic verification of quality of recycled materials through auditing controls and procedures.

Practice Guides:

1. The Facility should follow its own inventory and quality auditing practices.
2. A recycling Facility should spot check representative samples of Recycled Materials. This verification should ensure that Recycled Material is consistent with the declarations and assertion that the Facility makes concerning the nature and quality of the recycled materials.
3. The Facility should verify that items in inventory with shelf-life limits have not reached their shelf-life limits.
4. When a physical inventory shows that there are items or materials missing that belong to an owner other than the Facility, such shortages should be disclosed to the owner of the missing items or materials.
5. When a physical inventory shows that there are items or materials missing, the Facility should perform a root cause analysis to discover why the items or materials are missing.

Minimum Standards

A **recycling** Facility must have a procedure for quality verification against applicable intended, stated, or contractual standards. Maintain on-site records

BEST PRACTICE (III)(d) 4 - In the event that periodic verification shows an unexplained loss, or a failure to meet the Facility's quality expectations, the Facility shall investigate and seek an explanation for the loss or failure.

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Practice Guides:

1. The Facility should consider a procedure for promptly reporting loss of Customer-owned material or parts to the affected Customer.

Minimum Standards

Procedure for investigative action, such as root cause analysis, and maintenance of records of root cause analysis.

BEST PRACTICE (III)(d) 5 - Following investigation of a loss, the Facility shall develop and implement appropriate corrective action.

Practice Guides:

NONE

Minimum Standards

Procedure and maintain records of corrective action

BEST PRACTICE (III)(d) 6 – A recycling Facility shall have a procedure for periodic verification of quantity of recycled materials through auditing controls and procedures.

Practice Guides:

1. The Facility should follow its own inventory auditing practices;
2. Where material is packaged or contained, the Facility should check for package deterioration and integrity;
3. When a physical inventory shows that there are materials missing that belong to an owner other than the Facility, such shortages should be promptly disclosed to the owner of the missing items.
4. When a physical inventory shows that there are items missing, the Facility should perform a root cause analysis to discover why the items are missing.

Minimum Standards

Procedure for periodic inventory verification against loss. Maintain on-site records of the periodic inventory verification.

Article III e) – Process Flow and Process Management

BEST PRACTICE (III)(e) 1 – The Facility should have a diagram that is marked to show process and / or material flow through the Facility.

Practice Guides:

1. The Facility may be using the same location for different purposes based on different operations. Therefore, the

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- diagram may reflect the other uses of the locations.
2. Equipment can be used for different purposes. There may be different flow diagrams for different product streams. For this reason, this often should be a flow diagram rather than a facility map.

Minimum Standards

Diagram that is marked to show process and / or material flow through the Facility.

Article III f) – External Transportation of Materials

BEST PRACTICE (III)(f) 1 – When the Facility is responsible for moving Customer Materials for Recycling, then the Facility shall have a procedure for identifying a secure method for moving the Customer materials and reporting the shipped material details to the Customer.

Practice Guides:

1. If the Facility does not have control over the movement (e.g. materials are moved at the discretion of and by the Customers) then this should be made clear in the contract.
2. For Material to be Recycled, the Facility and the customer should clarify, in writing, which party has responsibility for transferring the materials from the customer's pick-up point to the Facility.
3. The Facility should confirm that there is adequate recycling space and storage space before agreeing to accept material for recycling.
4. When the material arrives at the recycling location, the Facility may want to examine the material to ascertain its weight and condition at the time of arrival. A video-tape or photographic record would allow the Facility to document the material's arrival condition. The Facility may wish to record the condition of the items like engines and other high-value recyclable materials.

Minimum Standards

Procedure for identifying a secure method for moving the customer materials and reporting the shipped material details to the customer.

BEST PRACTICE (III)(f) 2 – When the Facility is responsible for moving Customer Recycled Materials, then the Facility shall have a procedure for

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identifying a secure method for moving the Customer materials and reporting the shipped material details to the Customer.

Practice Guides:

1. If the Facility does not have control over the movement (e.g. materials are moved at the discretion of and by the Customers) then this should be made clear in the contract.
2. For Recycled Materials, the Facility and the customer should clarify, in writing, which has responsibility for transferring the materials from the Facility to the customer's pick-up point.
3. The next location for the material may be a secondary smelter, an end-user, a land-fill, or any other location. For material that has completed the recycling process at the Facility, the Facility and its business partner(s) should clarify, in writing, which party has responsibility for transferring the materials from the Facility to the next location.

Minimum Standards

Procedure for identifying a secure method for shipping and reporting.

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ARTICLE IV – TRAINING

BEST PRACTICE (IV)(a) 1 – The Facility shall prepare training records to document the way that it has met its training requirements.

Practice Guides:

1. Each training record may include
 - A description of the training;
 - Date and length of instruction;
 - Name of the student;
 - Name of the person (instructor) and organization conducting the training (the organization may be the Facility itself, such as when OJT is provided);
 - Any additional information required by custom, law or regulation.

Minimum Standards

Record showing that employees have been trained appropriately.

BEST PRACTICE (IV)(a) 2 – A recycling Facility shall ensure that the recycling personnel have received appropriate training related to the functions they perform, including but not limited to use of equipment and machinery and materials identification techniques.

Practice Guides:

1. **Recycling** personnel who must be trained would include temporary or contract employees.
2. Useful training topics for **recycling** personnel may include (depending on the person's actual functions):
 - Material identification
 - Material segregation
 - Hazard identification and self-protective training;
 - Training in recognition and identification of materials that are considered to be subject to shipping regulations;
 - Training in recognition and identification of materials that are considered to be subject to import and/or export restrictions;
 - Applicable customer specifications;
 - Document recognition and creation standards;
 - BMP procedures applicable to job function(s) performed.

Minimum Standards

Record(s) showing that employees have been trained appropriately.

ARTICLE V – DOCUMENTATION & RECORDS

Article V a) – Material and Transaction Records

BEST PRACTICE (V)(a) 1 – A recycling Facility shall have a procedure for identifying, collecting and reviewing the appropriate records related to the Materials for Recycling.

Practice Guides:

1. The records that you need will depend on the regulatory requirements of the government(s) with appropriate oversight and the commercial requirements of the customers. Records that may be useful include, but are not limited to:
 - All historical records pertaining to any materials that may have value;
 - Traceability to the source who provided the material;
2. Generally, it is recommended that the records be collected and reviewed as necessary prior to beginning the recycling process.

Minimum Standards

Procedure for identifying, collecting and reviewing the appropriate records related to the Materials for Recycling.

BEST PRACTICE (V)(a) 2 – A recycling Facility shall have or prepare a receiving document describing each arriving Materials for Recycling, and shall have a procedure for the acquisition and/or preparation of such records.

Practice Guides:

1. The receiving document may be created by the Customer (as a packing list or manifest) or the Facility may communicate with the Customer about what the Facility received (e.g. by sending a copy of the receiving document).
2. An accurate receiving document becomes the Facility's "input" record.
3. The Facility may wish to report the information in the receiving document to affected customers or business partners, and should report information the extent required by contract.

Minimum Standards

Recycling Practice Guide and Minimum Standards

Procedure that a manifest will be prepared; copies of such records are retained.

BEST PRACTICE (V)(a) 3 – A recycling Facility shall have a clear, written understanding of any customer expectations or demands concerning handling of Materials for Recycling that belong to a Customer.

Practice Guides:

1. The Facility may have a standard boiler-plate agreement explaining its normal practices. Such an agreement should allow the customer to confirm that the customer has no additional demands or requirements.
2. The customer may require more than what is required by any applicable regulations. If so, then these requirements should be captured in writing to assure that all parties have a mutual understanding of the Facility's obligations.
3. Issues that may be addressed in an agreement include:
 - Who has responsibility for recycling costs?
 - Who has responsibility for taxes?
 - Who has continuing ownership of the scrap?
 - Who has continuing liability for the scrap?
 - What are the recycler's continuing obligations?
 - What are the timeframes and deadlines associated with the interim and final disposition of the Materials for Recycling?
 - What degree of processing will be required?
4. The Facility should have an understanding with the customer about who is responsible for crating and shipping the Recycled materials, and who remains legally responsible as the shipper of such parts.

Minimum Standards

Contract terms on file.

BEST PRACTICE (V)(a) 4 – If a recycling Facility does not own the Materials for recycling, then the Facility shall have a clear, written understanding of how the Recycled Materials are to be dispositioned following recycling.

Practice Guides:

1. If the Asset belongs to a Customer other than the Facility, then the Facility shall enter into a written agreement with the customer that addresses Asset disposition issues like:

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- Who owns the Recycled Materials?
- Following recycling, who bears responsibility for disposition of the Recycled Materials and any attendant environmental issues?

Minimum Standards

Contract terms on file.

BEST PRACTICE (V)(a) 5 – A recycling Facility shall have or prepare an output document describing each lot of Recycled Materials, and shall have a procedure for the preparation of such output documents.

Practice Guides:

1. Where the Recycled Materials belong to a customer, this record helps to create accountability output documents that can be shared with the customer.
2. An accurate output document becomes one of the Facility's "output" records.
3. The Facility may wish to report this information to affected customers or business partners.

Minimum Standards

Procedure that a record will be prepared; copies of records are retained.

BEST PRACTICE (V)(a) 6 – Where the recycling Facility accepts Material for Recycling that belongs to a customer, the Facility shall have a procedure for documenting what reporting requirements, if any, are owed to the Customer with respect to the Material for Recycling or the resultant Recycled Materials.

Practice Guides:

1. Where the Recycled Materials belong to a customer, the reporting requirements should be settled upon with the customer.
2. This includes reporting during, as well as at the end of, the recycling process.

Minimum Standards

Contract terms on file.

Article V b) – Reference Manuals

BEST PRACTICE (V)(b) 1 – A recycling Facility shall maintain appropriate reference manuals as aids in identifying materials and their physical

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properties. The Facility shall maintain appropriate customer specifications as aids in processing materials.

Practice Guides:

1. The Facility recycling personnel should have received appropriate and complete training in material identification, and their training and techniques for recycling should be current for the materials being recycled.

Minimum Standards

Appropriate manuals and customer specifications are available to workers.

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ARTICLE VI – TOOLING

BEST PRACTICE (VI) 1 – The Facility shall ensure that it has and uses the appropriate tooling, equipment and / or machinery for the recycling functions it performs.

Practice Guide:

1. Where the Facility uses subcontractors for specialized processes, the Facility should ensure that the subcontractors have and use appropriate tooling.

Minimum Standards

Tool maintenance & calibration records

BEST PRACTICE (VI) 2 – Tooling, equipment and machinery should be maintained, calibrated and tested according to the manufacturer’s recommendations, so long as those recommendations are appropriate to the usage at the facility. Where there are no manufacturer’s recommendations for maintenance, calibration and testing, or where the manufacturer’s recommendations are inappropriate for the Facility, the Facility should develop its own procedures for maintenance, calibration and testing.

Practice Guide:

None

Minimum Standards

Tool maintenance & calibration records

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ARTICLE VII – PARTS AND MATERIALS MANAGEMENT DURING PROCESSING

Article VII a) – Receiving Inspection for Materials for Recycling

BEST PRACTICE (VII)(a) 1 – Incoming Materials for Recycling should be checked to ascertain whether they contain unexpected hazards.

Practice Guide:

1. Unexpected hazards may include safety hazards, like unexpected radiation.
2. Unexpected hazards may include environmental hazards, like unexpected toxins or carcinogens that may be restricted from landfills, which may affect the ultimate disposition of the Recycled Materials.
3. Unexpected hazards may be rejected, or they may be set aside in a separate "hold area" pending disposition
4. The Facility should notify the supplier of the unexpected hazards in order to seek their input into the disposition.
5. The Facility should identify and segregate the material containing the hazards, pending appropriate disposition.
6. The Facility may have a legal obligation to disclose certain types of hazards to appropriate authorities.

Minimum Standards

Procedure for inspection of incoming material and monitoring/identification of hazards.

BEST PRACTICE (VII)(a) 2 – Incoming Materials for Recycling should be checked to assure they meet the documented identification.

Practice Guide:

1. The facility should have a means to identify significant discrepancies between the material that was received and the assertions on the documentation.
2. The facility should have a means to document the identified significant discrepancies.

Minimum Standards

Procedure for receiving inspection of incoming material.

BEST PRACTICE (VII)(a) 3 – After Receiving Inspection, Incoming Materials for Recycling being received should be identified and segregated.

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Practice Guide:

None

Minimum Standards

Procedure for identifying and segregating incoming material.

Article VII b) – Segregation during Recycling Stages

BEST PRACTICE (VII)(b) 1 – The recycling facility should have a procedure for segregating materials during the various stages of recycling.

Practice Guides:

1. Materials segregation is desirable when it increases the net value of the recovered materials.
2. The objective of segregation should be to obtain the highest potential net recycling value of materials.
3. The sorting process should segregate recyclable material from non-recyclable material.

Minimum Standards

Procedure for material segregation.

Article VII c) – Containerization

BEST PRACTICE (VII)(c) 1 – The Facility shall ensure that it has appropriate storing and shipping containment and packing materials for the articles or materials that it handles.

Practice Guides:

1. Containment devices may include vehicles, pallets, Gaylord containers, etc.
2. Where crates are used, the Facility may have pre-made crates or it may establish appropriate resources to permit it to manufacture crating on an as-needed basis.
3. Different nations have limits on the materials that may be used for packaging (e.g. treatment of woods packaging). The Facility may wish to ensure that crates or other packaging will meet the special import requirements of other nations to which the packages may be sent (as well as domestic requirements).
4. In some cases, the manufacturer may provide packaging recommendations.

Minimum Standards

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Appropriate inventory of containers for materials being held.

Article VII d) – Shipping

BEST PRACTICE (VII)(d) 1 – The agreement with the Customer may specify that the Customer is responsible for shipping or transportation issues, in which case the Customer’s procedures, and not the Facility’s procedures, shall be used.

Practice Guide:

None

Minimum Standards

Specified in contract, with sample contracts available for review

BEST PRACTICE (VII)(d) 2 – The Facility shall ensure that materials it ships or transports are packaged and shipped appropriately in accordance with acceptable standards, including contractual requirements.

Practice Guide:

1. Applicable packaging standards may be found in ATA Spec 300 and in applicable dangerous goods regulations.

Minimum Standards

Procedure to assure that appropriate packaging standards are followed. Appropriate documentation of compliance with contractual requirements.

BEST PRACTICE (VII)(d) 3 – The Facility shall have a procedure for assuring its own compliance with dangerous goods regulations.

Practice Guides:

1. Some parts removed from Assets are dangerous goods. The transportation of dangerous goods is regulated by many countries.
2. All personnel should be trained in the recognition of dangerous goods. Shipping personnel should be trained in the proper shipping of dangerous goods.

Minimum Standards

Procedure to assure that appropriate shipping and packaging standards are followed

BEST PRACTICE (VII)(d) 4 – The Facility shall have a procedure for assuring its own compliance with import and export regulations.

Practice Guides:

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1. When the Materials for Recycling cross international boundaries in order to reach the Facility, the shipper will need to consider legal issues like taxes, import requirements, export restrictions, assignation of customs value to parts, etc. The Facility should ensure that the shipper meets this obligation.
2. When the Facility is informed that parts or material is controlled for export purposes, the Facility should pass this information along to the next party who receives that part or material.

Minimum Standards

Procedure for import and export compliance.

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ARTICLE VIII – ENVIRONMENTAL PROTECTION

BEST PRACTICE (VIII) 1 – The area and methodology for recycling should adequately protect the environment from unanticipated releases of fluids and hazardous materials that are used during the processing or that might escape from the Asset during recycling.

Practice Guides:

1. The Facility may have an environmentally contained pad with oil/water catching capacity large enough to contain the largest storage vessel of the Asset or Materials for Recycling.
2. The Facility may have an intact, impervious surface with run- off control and containment systems such as booms, pads, etc.
3. The Facility may have a Spill Prevention and Control Plan and the equipment on-hand that is called out in that plan.

Minimum Standards

Having spill equipment and spill prevention & management plan in place in event of unexpected release

BEST PRACTICE (VIII) 2 – Aircraft parts that are intended by the Facility or the Customer to be precluded from re-entry into the civil aviation marketplace shall be rendered unusable for their original intent and recycled or properly discarded.

Practice Guides:

1. Material anticipated for destruction should be identified in a parts disposal schedule like the written Agreement between the Facility and the Customer or an appendix to the manifest.
2. The parts disposal schedule should be reviewed and approved by the owner of the Asset.
3. The owner of the Asset or Materials for Recycling should review the final list of parts to be scrapped (the parts disposal schedule, as amended) and should authorize the parts for destruction in writing.
4. Destruction of the parts listed in the parts disposal schedule should occur within a reasonable period after authorization.
5. When items are destroyed, destruction should be witnessed and the schedule of destroyed items should be certified as destroyed by the witness.
6. Remnants of the destroyed items should be disposed-of

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properly to preclude their rework back into apparently-viable parts – this *may* also be subject to the witness' certification.

7. Identification items (i.e. data plates) should be removed.
8. Provide notification to customer and any interested agency with jurisdiction that the Asset has been destroyed and the degree to which that the Asset has been recycled.

Minimum Standards

Procedure for ensuring parts are rendered unusable.

BEST PRACTICE (VIII) 3 – If the Asset or the Materials for Recycling contain fluids then the fluids must be drained, managed and disposed of according to local jurisdictional requirements.

Practice Guide:

1. Fluids may need to be drained from the Asset or Material for Recycling. For example, if the Asset or Material for Recycling is a complete jet engine then it will often contain residual fuel. Often, this is the first step in the recycling process.
2. Removing the fuel from the Asset or Material for Recycling may need to be done in a segregated area. The potential for static discharge or other source of sparks or combustion should be controlled.
3. Environmental concerns should be addressed through appropriate control technologies with sufficient capacity to handle largest liquid storage tank/system on Asset or Material for Recycling, for example:
 - Ground surface fully protected
 - Storm-water run-off pathways physically protected with spill barrier equipment (i.e., drains, culverts, channels, etc.)
 - Pumping and storage capacity immediately accessible
 - Oil/water separator
 - Wastewater treatment with aircraft fluid capabilities
 - Spill kits with sufficient absorptive materials
4. Fluids should be identified and segregated to minimize unwanted contamination during the recycling process.

Minimum Standards

- Procedure for drainage, management, segregation, and disposal
- Equipment for drainage, management, segregation, and disposal

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BEST PRACTICE (VIII) 4 – The Facility shall take reasonable care to contain Materials for Recycling, and Recycled Materials, from being released to the environment.

Practice Guide:

1. Debris should be contained from being dispersed by wind.

Minimum Standards

No obvious escapes from containment

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ARTICLE IX – ACCOUNTABILITY TO THE CUSTOMER

BEST PRACTICE (IX) 1 – Where verification is required by the Customer, supplier or source, the Facility shall have a procedure for verifying to each Customer or supplier of Materials for Recycling, or each Asset owner or source, that the Facility fully implements each element of the agreement between the Facility and the Customer, supplier or source.

Practice Guides:

1. The Customer, supplier, source, or owner may wish to bind the Facility to a contractual obligation to assure that the Asset or Material for Recycling is handled pursuant to the Customer, supplier, source, or owner's expectations
2. The Customer, supplier, source, or owner may wish to audit the Facility to assure that the Asset or Material for Recycling is handled pursuant to the Customer, supplier, source, or owner's expectations
3. The Customer, supplier, source, or owner may ask the Facility to provide a written confirmation of the disposition of the Asset or Material for Recycling. The Facility should consider providing such written verification.
4. The Customer or supplier may ask the Facility to meet one or more of the following standards:
 - All items to be destroyed beyond reconstruction to their original form and intended use;
 - All items to be destroyed beyond the ability to be reverse engineered;
 - If present, dataplates shall be destroyed or returned
5. Supplier requirements that affect value of recycled materials may affect Facility pricing.

Minimum Standards

Procedure for complying with Customer, supplier, source or owner agreements.

ARTICLE X – SCRAPPING

BEST PRACTICE (X) 1 – When aircraft parts and/or material are specifically identified by the Customer to be precluded from re-entry into the civil aviation marketplace, the facility shall have procedures to address the handling of such parts.

Practice Guides:

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1. The procedures should address the mutilation process, documenting and recording methods, and interactions or notifications as may be required by customers and/or contracts.
2. The procedure may make reference to a model that is followed based upon a regulation, guidance or industry standard such as the Aviation Suppliers Association Best Practice for Unsalvageable Material.

Minimum Standards

A procedure for implementing supplier or customer contractual minimum requirements for destruction to preclude affected parts from return to service.

BEST PRACTICE (X) 2 – The parts and/or material shall be precluded from re-entry into the civil aviation marketplace by rendering those parts unusable for their original intent.

Practice Guides:

1. Mutilation of parts or Materials should occur within a reasonable period after delivery.
2. When items are destroyed, destruction should be witnessed by a responsible person other than the operator of the mutilation equipment and the schedule of destroyed items should be certified as destroyed by the witness.
3. Remnants of the destroyed items should be disposed-of properly to preclude their rework back into apparently-viable parts – this *may* also be subject to the witness' certification. Those remnants may be reclaimed through the recycling process.
4. Identification items (i.e. data plates) should be removed.

Minimum Standards

Procedure for ensuring parts are rendered unusable.

BEST PRACTICE (X) 3 – Until such time that the identified parts and/ or material are rendered unusable, the identified parts shall be segregated from other parts.

Practice Guides:

1. The intent of this is to ensure these parts or material are not mistakenly taken to be processed for other purposes. Acceptable means of segregation could include Quarantine cages, Bond Rooms, conspicuous signage and/or tagging, or dedicated boxes, containers, or shelving conspicuously labeled or marked.

Minimum Standards

Quarantine or segregation procedures.

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BEST PRACTICE (X) 4 – The facility shall have a procedure and methods for accountability regarding the records created to list and attest that the identified parts and/or material have been rendered unusable.

Practice Guides:

1. When items are destroyed, destruction should be witnessed by a responsible person other than the operator of the mutilation equipment and the schedule of destroyed items should be certified as destroyed by the witness.
2. It is normal to provide the customer with a signed certification from the witness that the lot, part, or article has been destroyed. Generally speaking the signed certificate references a batch rather than listing individual parts unless the customer otherwise requests.
3. Any record required to be produced or maintained under this standard shall be retained by the Facility for not less than two (2) years. This requirement does not supersede legal obligations that may require longer retention times.
4. Material anticipated for destruction should be identified in a parts disposal schedule like the written Agreement between the Facility and the Customer or an appendix to the manifest.
5. The parts disposal schedule should be reviewed and approved by the owner of the Asset.
6. The owner of the Asset or Materials for Recycling should review the final list of parts to be scrapped (the parts disposal schedule, as amended) and should authorize the parts for destruction in writing.
7. Destruction of the parts listed in the parts disposal schedule should occur within a reasonable period after authorization.
8. Provide notification to customer and any interested agency with jurisdiction that the Asset has been destroyed and the degree to which that the Asset has been recycled.

Minimum Standards

Written procedures.

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ARTICLE XI – KPIs

BEST PRACTICE (XI) 1 – A facility which voluntarily chooses to employ Key Performance Indicators, and to receive AFRA recognition of the same, shall implement one of four levels of KPIs; Bronze, Silver, Gold, or Diamond.

Practice Guides:

The four levels consist of the following KPIs:

BRONZE	SILVER	GOLD	DIAMOND*
KPI MEASUREMENTS:			
<ul style="list-style-type: none"> • Number of parts reused. • Recyclability rate. 	<ul style="list-style-type: none"> • Number of parts reused. • Recyclability rate. • Total Waste. • Total hazardous waste • Core disposal rate 	<ul style="list-style-type: none"> • Number of parts reused. • Recyclability rate. • Total Waste. • Total hazardous waste. • Core disposal rate. • Reusability rate. 	<ul style="list-style-type: none"> • Number of parts reused. • Recyclability rate. • Total Waste. • Total hazardous waste. • Core disposal rate. • Reusability rate. • Energy recoverability rate.

* In order to achieve the Diamond Level, individual KPI Data must be clearly derived from, and attributable to a serialized asset; for example, an aircraft MSN, Engine Serial Number, or APU Serial Number.

1. Number of parts reused, the formula:

$$\text{Number of parts reused} = \text{Total Number of parts intended to be returned to the market}^A$$

A: May consist of:

- Parts intended to be sold as AR
- Parts already tagged (i.e. Inspected)
- Parts already or intended to be sent to a repair station/AMO to be overhauled, repaired etc.
- Combination of all the above

2. Recyclability rate, the formula:

$$\frac{\text{Total Recycled mass output}^B}{\text{Input mass}^C} \times 100$$

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B: Consisting of all materials that were recycled (see definitions in the BMP of Recycled Material, and Recycling).

C: May consist of the totals of the mass sent to or received by the recycling facility. Alternatively, the published empty weight of the aircraft may be used.

3. Total waste, the formula:

Total Mass of material sent to the landfill^D

D: This is the mass of material which was not recycled and subsequently sent to a landfill.

4. Total hazardous waste, the formula:

Total Mass of Hazardous waste^E

E: May consist of waste oil, fuel, hydraulic fluid, and lavatory waste.

5. Core disposal rate, the formula expressed as a percentage:

$$\frac{\text{Total mass of material sent to the landfill^{F}G}}$$

F: This is the mass of material which was not recycled and subsequently sent to a landfill.

G: May consist of the totals of the mass sent to or received by the recycling facility. Alternatively, the published empty weight of the aircraft may be used.

6. Reusability rate, the formula expressed as a percentage:

$$\frac{\text{Number of parts reused^{H}I}}$$

H: May consist of:

- Parts intended to be sold as AR
- Parts already tagged (i.e. Inspected)
- Parts already or intended to be sent to a repair station/AMO to be overhauled, repaired etc.
- Combination of all the above

I: May consist of the total number of possible rotables gleaned from the IPC/IPL or similar

7. Energy recoverability rate, the formula expressed as a percentage

$$\frac{\text{Mass of materials to be used for energy recovery^{J}}$$

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Input mass^K

J: Consists of waste oil, hydraulic fluid, or fuel which can be submitted with the intent to have it recovered as an energy producing product.

K: May consist of the totals of the mass sent to or received by the recycling facility. Alternatively, the published empty weight of the aircraft may be used.

8. Exclusions:

- A facility may cite an exclusion if the KPI involves data it does not have access to. For example, if Bronze is chosen, and if the facility is accredited to Disassembly only (it is not accredited for Recycling), it may cite an exclusion to the Recyclability Rate KPI.
- Conversely, if the facility is accredited to Recycling only, it may cite an exclusion to the Number of Parts Reused KPI.
- Facilities accredited to both Disassembly and Recycling regardless of whether it is contracted or not, shall implement all the KPIs applicable to the chosen level.
- Facilities which claim publicly (in advertising for example) that they achieve certain levels of, for example, reuse or recycling, and the claimed data could reasonably be derived from one of the KPIs, then an exclusion cannot be listed.

Minimum Standards:

- The Facility Chooses one of the levels.
- Written procedures for the chosen level incorporating the noted formulas.
- All formulas are accounted for including exclusions

BEST PRACTICE (XI) 2 – All KPIs shall be measured every two years, or more frequently if desired. For the Diamond level, rather than every two years, the KPI data must be attributable to the asset by aircraft MSN or asset serial number.

Practice Guides

1. The maximum period for collection and documenting of the KPI shall not exceed 2 years.
2. Based on frequency of the available data or the automation of the process, the facility may choose to document the resulting KPI more frequently than every two years.

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3. For the Diamond Level, each KPI data result must be attributable to the asset's MSN or serial number. For example, for the formula 'Recyclability Rate', an acceptable form of KPI expression-result would be 'For aircraft MSN 45678, the Recyclability Rate was...'

Minimum Standards:

Written procedure.