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MRF Contracts Guidance: Final Report

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# Materials Recovery Facilities (MRFs) Contracts Guidance

For Local Authorities and MRF operators

WRAP helps individuals, businesses and Local Authorities to reduce waste and recycle more, making better use of resources and helping to tackle climate change.

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# Executive summary

Material Recovery Facilities (MRFs) – the standards they achieve and their relationships with those they serve are increasingly important to the long term sustainability of recycling markets in the UK.

There are three key drivers:

- markets across the UK, Europe and the Far East are starting to tighten their quality specifications and this trend is expected to continue;
- recycling targets continue to increase across the UK; and
- co-mingled collections of mixed dry recyclables are increasing.

WRAP believes that to improve the performance of UK MRFs and expand their capacity there needs to be a good shared understanding of the factors affecting performance – from the control of contamination of inputs to the quality management of the final outputs - and that understanding should be reflected in contracts which share risk and incentivise responsibility in the right way.

This Guidance builds on three earlier studies published by WRAP in 2006 and summarised in 'Recovering Value from MRFs'<sup>1</sup>. That earlier work identified significant weaknesses in contractual arrangements and poorly constructed agreements which later caused problems for one or other of the parties. We held two MRF Masterclasses in the light of the earlier work and this Guidance responds to the need identified there for further advice on the preparation of service specifications and contractual arrangements.

Any successful procurement for MRF services – as with anything else - starts with a knowledgeable client. They will be better placed to understand the risks associated with MRF contracting and able to make sound decisions.

Open communication with potential MRF service providers can encourage innovation, attract experienced contractors and improve tender documents. To gain maximum benefit from the contract, it is important that each contracting party understands the other's procedures, pressures, issues and challenges from the outset.

The Guidance considers three contracting options:

- "merchant" MRF – a private sector MRF that is commercially available to process Local Authority and commercial recyclables;
- "dedicated" MRF – a MRF put in place by the private sector through a tender process that is primarily dedicated for use by the Contracting Authority; and
- Local Authority-owned MRF – a MRF that an Authority finances and owns, but procures through a competitive tender, often a design/build/operate or design/build/operate/maintain contract with a private sector operator.

The Guidance addresses a wide range of contractual issues but specifically reviews and makes recommendations relating to the following areas:

## Collections

- Composition of incoming materials
- Form of delivery (single or 2-stream)
- Current volumes
- Collection/delivery frequency
- Compaction in collection vehicles
- Material quality/contamination and auditing
- Projected material range and tonnages

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<sup>1</sup> "Recovering Value from MRFs" WRAP 2006 [http://www.wrap.org.uk/downloads/WRAP\\_2661\\_ROTATE\\_V11.eafecaef.pdf](http://www.wrap.org.uk/downloads/WRAP_2661_ROTATE_V11.eafecaef.pdf)

## **MRF Processes**

- Sorting quality
- Performance monitoring
- Processing efficiency
- Markets and revenues
- Flexibility/change – new materials, new sorting equipment/processes

## **Contracted parties**

- Communications and information, problem resolution
- Risk-sharing
- Contingency planning

The Guidance also identifies good contractual practice and provides examples of effective clauses. Not all of the contract clauses given in this Guidance are appropriate for each of the contracting scenarios and the wording must be reviewed and adapted, as necessary, by the contracting parties to suit their own circumstances.

We are grateful to all those from Local Authorities and the waste industry who have contributed their advice and experience in preparing this Guidance. Its main concern is with achieving high quality, low contamination and improved efficiency rather than with the legal and procedural aspects of drawing up contracts. While its main audience is MRF providers and waste disposal Authorities, it also addresses the critical issues in service agreements between a waste collection Authority and its waste disposal Authority, particularly about the control of the quality of inputs. The Guidance is intended for use by all of these parties and the contractors who work with them. We hope it is practical and useful.

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## Acknowledgement

This Guidance was prepared by Entec Consulting Ltd. under contract to WRAP. Entec Consulting Ltd. is a specialist consultancy established by Bob Graham to provide advice on a variety of waste management issues.

This Guidance could not have been completed without the participation of the Local Authorities and MRF contractors listed in Table 2.1 who agreed to share their experience and opinions on a wide variety of matters related to contracting for MRF services.

Thanks to these individuals, as well as to the following peer reviewers who provided independent comments and suggestions:

- Andy Conn, Waste Services Manager, Wiltshire County Council
- Bill Griffiths, National Recycling Manager, Viridor Waste Management
- Sue Jones, Development Manager, Cory Environmental
- Ben Pryn, Defra WIDP
- Eric Randall, Director, Bryson Recycling
- Phillip Russell, Head of Wastes Management, West Sussex County Council
- Mike Thomas, Recycling & Disposal Team Leader, Southampton City Council

## 1.0 Project objectives and approach

### 1.1 Objectives

WRAP commissioned this guidance to help Local Authorities and MRF operators set up contractual arrangements that address clearly the items that are important to consider in preparing service specifications and entering into contractual arrangements.

The guidance is intended to be:

- thorough, comprehensive and based on good practice experience in the industry; and
- equitable, reflecting the views and needs of both the Local Authority and the MRF operator.

### 1.2 Guidance

A variety of interested parties were invited to participate in the preparation of this guidance:

- Waste Collection Authorities (WCAs) that collect recyclables and deliver to a MRF, but do not have any direct contracting relationship with MRFs.
- Waste Disposal Authorities (WDAs) that contract for MRF processing services on behalf of their collection districts.
- Unitary Authorities (UAs) that either contract for MRF services or who own their own MRF.
- Private sector contractors that provide MRF services.

Interviews were conducted with each of the participants to discuss the issues, their experiences, what items should be included in tender documents and the specifics that might apply in their circumstances. Participants also reviewed and commented upon the draft guidance.

**Table 1** Participants in the study

Organisation	Type	Contact name
<b>Local Authorities</b>		
Bedfordshire CC	WDA	Andy Smith, Assistant Director - Waste Services
Hampshire CC	WDA	Paul Archer, Assistant Director, Waste and Environment
Liverpool City Council	WCA	Chris Lomas, Neighbourhood Environmental Services Manager
Merseyside WDA	WDA	Jeff Sears, Assistant Contracts Manager
Milton Keynes Council	UA	Andy Hudson, Chief Waste Management Engineer
Northumberland CC	WDA	Paul Jones, Head of Waste Management
North Yorkshire CC	WDA	Ian Fielding, Assistant Director, Waste Management
Poole BC	UA	Ian Poultney, Contracts & Performance Manager
Wiltshire CC	WDA	Martin Litherland, Waste Contracts and Development Manager
<b>MRF operators</b>		
Veolia Environmental Services		Lorraine Graham, Sales and Marketing Manager, Recycling and Recovery
Community Waste Ltd		Richard Cutts, Director
Waste Recycling Group		Paul Rowland, Regional Operations Manager
Hills Waste Solutions Ltd		Steve Burns, Municipal Contracts Manager

An internet search was also conducted to identify other contract approaches to MRF processing. All of the background information was compiled, analysed and summarised in producing this guidance. While there was not complete agreement on every issue, there was participant agreement on most issues. Diverging opinions and approaches are presented in the guidance, but recommendations represent the consensus of the participants.

### 1.3 Differentiating between contracting procedures and content

It is not the intention of this project to discuss tender formats and procedures, but rather to focus on key items that should be included when contracting for MRF processing. Most Authorities are subject to application of the Public Procurement Regulations, which in the UK implement EU Procurement Directives. Many Authorities are now also fully conversant with the Competitive Dialogue procedure (Competitive Dialogue Process 2004/18/EC) and how to best make that procedure work for them. Local Authorities also have their own tender formats and standard contract conditions that are often dictated by their purchasing office and council Standing Orders.

Many Authorities are now involved, or are soon to be involved, in the Private Finance Initiative (PFI) developmental and procurement process which is a well-defined and detailed process to procure private sector expertise and investment in the delivery of public facilities and services<sup>2</sup>.

While Authorities may have a good knowledge of tendering and procurement procedures, they may not have a detailed knowledge of the relationships that exist between collection, processing and marketing of recyclable materials. These issues arose a number of times in discussions with study participants. MRF operators expressed the need for Local Authorities to become more knowledgeable about MRFs and how they operate before commencing any procurement process for MRF services.

A more knowledgeable Contracting Authority is more capable of understanding risks associated with MRF contracting and is better able to make sound decisions in this regard. Contracting Authorities with little experience of MRFs or with staffing limitations should obtain external advice to help with these issues if they need it. A better-informed Contracting Authority would reduce the number of tenders that either do not provide sufficient information, or ask for things that may not be necessary or that the MRF operator is not able to provide. The new competitive dialogue process will enable Contracting Authorities to develop solutions with bidders that will better meet joint objectives. The private sector may have advice or viewpoints that will assist the Contracting Authority in developing options to include in the tender.

Even in the case of procuring processing services through a merchant MRF, Contracting Authorities should understand the capability (or limitations) of the MRF in producing quality products, have a general sense of the costs involved, the potential revenues from material sales<sup>3</sup> and how these relate to the gate fee charged.

Clauses and requirements that are outlined in a MRF tender document should be included in the eventual contract between the parties involved. It is always worthwhile to include contract terms and conditions in the tender, so that the MRF operator is well aware of what will be required when the contract is formulated. After contracting with a service provider, Authorities have a duty to ensure that the MRF is operating as intended and that materials are being marketed to bona fide markets.

Simply put, if Local Authorities are tendering for MRF services, they should be knowledgeable about how MRFs operate and the inter-relationship between collection, processing and marketing of recyclables. Authorities should recognise any potential impacts and interfaces a MRF contract might have with any other contracts they have entered into including, for example, any PFI contract obligations (e.g. obligation for supply of a particular type or quantity of waste to another facility) and that contracting for a MRF will also require a commitment of Local Authority resources and time to procure and administer the contract.

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<sup>2</sup> HM Treasury has published Revision to Standardisation of PFI Contracts SoPC Version 4 ("SoPC4") on its website.

<sup>3</sup> Whilst most materials sorted in a MRF generate positive revenue, there are also situations, depending on markets and market fluctuations that require the MRF operator to pay for the onward processing of materials or at best get material removed for free. This volatility is also important to consider in understanding the MRF processing and risks associated with end products.

This guidance is intended to provide some of the background knowledge to assist Contracting Authorities in being better equipped when procuring MRF services.

#### 1.4 Guidance structure

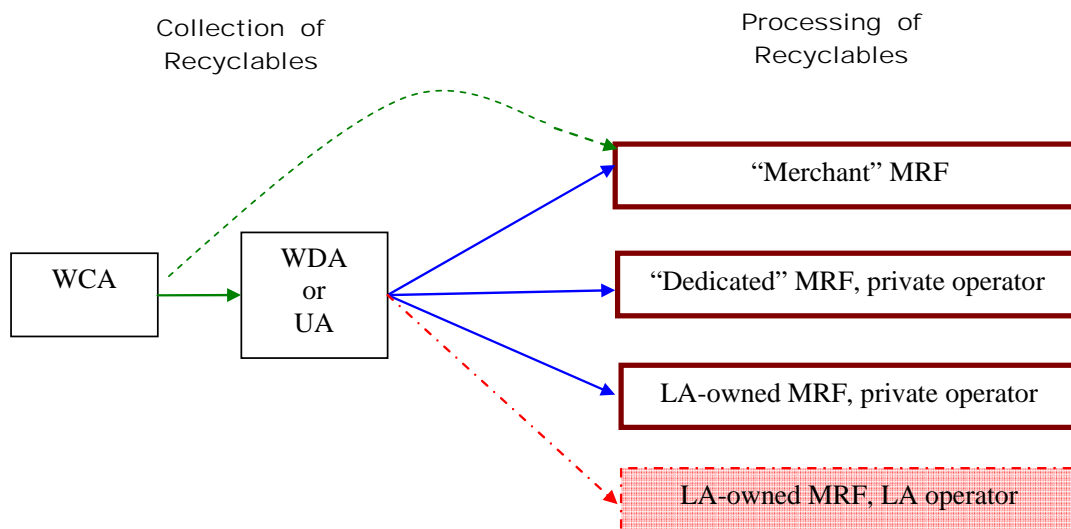
The following section deals with individual issues that need to be addressed when Authorities are contracting for MRF services. Table 2 indicates which clauses are applicable to which MRF contract scenario.

Sample wording for some of the key clauses are presented in Appendix A. Appendix B presents a list of reference documents.

## 2.0 MRF contract scenarios

Figure 1 illustrates the relationships of parties involved in contracting for MRF processing services:

**Figure 1** Collection and processing scenarios studied



Tendering for MRF services and arranging subsequent contracts is usually done either through a UA or through a WDA on behalf of member WCAs. However, collection authorities sometimes procure MRF services either on an individual basis or collectively (e.g. Scarborough Borough Council and the WCAs in the Suffolk Waste Partnership), which may have a financial benefit, taking the recycling credits from the WDA into account. Whilst the collection Authority may not always be the contracting party, they usually have direct interactions with the MRF on a day-to-day basis and decisions on how materials are collected and delivered to the MRF can directly impact the MRF design and operation.

There is no tangible difference in whether recyclables are collected by a Local Authority or a private contractor on behalf of the Authority – the same contract issues identified in this guidance apply, although there is an issue around the sharing of risk. Issues related to contamination, compaction, collection frequency, etc have the same impact on the MRF regardless of the collector. WCAs and their WDA should have a service level agreement (SLA) or memorandum of understanding (MoU) in place covering how recyclables are to be collected and delivered to the MRF. These issues are addressed in this guidance.

There are three MRF contracting scenarios considered:

- “merchant” MRFs;
- “dedicated” Local Authority MRFs; and
- Local Authority-owned MRFs.

A “merchant” MRF is a private sector MRF that is available on a commercial basis to process Local Authority and commercial recyclables (e.g. Viridor’s Crayford MRF). When contracting with a merchant MRF, the MRF operator typically will dictate what materials are acceptable, how they will be processed and what gate fee will be charged to the Contracting Authority. If the gate fee to be paid exceeds relevant EU thresholds, the Contracting Authority will be required to tender the procurement.

As an alternative, a Contracting Authority may go out to tender for the private sector to put in place a MRF that is primarily dedicated for use by that Contracting Authority, usually over an extended contract period (e.g. Veolia’s Alton MRF in Hampshire). This scenario is termed a “dedicated” MRF for the purpose of this

guidance. In this case, there are a number of options for sharing financing of the MRF, risks for attracting additional processing tonnage and for sharing material sales revenue<sup>4</sup>.

In the third scenario, a Local Authority owns the MRF and contracts with the private sector for operation of the MRF (e.g. Milton Keynes). In this case, the Contracting Authority would have an operating contract with the selected contractor, and outline all of the appropriate contract conditions. Again, there are a variety of options available on sharing risks and attracting additional tonnage. Often, the MRF will be procured through a design/build/operate or design/build/operate/maintain tender.

In both the dedicated and Authority-owned MRF scenarios, additional processing capacity may be available for merchant processing activity. For this reason, forecasting long term capacity needs for the primary Authority becomes critical and has a significant impact on the design capacity of the MRF and hence on its capital costs.

The one MRF scenario that is not covered by this guidance is a Local Authority MRF that is operated by Authority staff (shown in red in Fig 1). In this instance, the Authority has complete control over all design and operating conditions and finances the entire project.

A decision to procure an Authority-owned MRF assumes full capitalisation of major facility assets such as building and processing equipment while giving the Authority complete control over what materials are to be processed, the degree of sorting capability, and ultimately how the MRF is designed. Procurement in this scenario is typically done through a design/build/operate contract, with the selected contractor given a relatively short (5 year) initial operating period. While this scenario puts full financial risk on the Authority, prudential borrowing will likely reduce financing costs for the capital assets and the Authority will have complete control of its own future.

Merchant MRFs may be an option for consideration, provided there is a MRF (or MRFs) within acceptable haulage distance to the Contracting Authority. In this case, the MRF will likely dictate what materials are acceptable and how they will be separated and marketed. The Contracting Authority is at risk if the merchant MRF is not capable of producing quality products and has little negotiating power over the gate fee charged at the MRF.

An Authority-dedicated MRF gives a Contracting Authority the ability to share risks with the selected MRF contractor – financial, marketing and material sales revenue. While the MRF is designed and operated with the Contracting Authority as the primary customer, it has the ability to process 3<sup>rd</sup> party recyclables to the advantage of both the operator and the Authority.

Contracting Authorities need to consider all of the variables and risks in each of the scenarios to identify which scenario best suits their own circumstances and which clauses are included in the contract to achieve an equitable arrangement between both parties and encourage open communications, high quality outputs, efficient sorting, with low contamination and low processing losses and appropriate sharing of financial risks.

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<sup>4</sup> Third party income issues are addressed in PFI contracts and the principles are also relevant here

## 3.0 MRF contract issues

### 3.1 Good procurement practice

Although it is not the intention of this guidance to detail procurement procedures, there are a number of good practices that are considered worthwhile when procuring MRF services. One recent study<sup>5</sup> listed components of a good tender and contract as follows:

- Clearly defined terms.
- Detailed description of service(s) to be provided.
- Adequate background information and data.
- Expectations regarding qualifications and experience.
- Detailed performance specifications that address the following:
  - location of service;
  - regulatory compliance;
  - recyclables (initial & provisions for future);
  - markets for processed materials;
  - capacity/throughput;
  - vehicle access, operating hours, weighing;
  - residue management and limits;
  - start up schedule;
  - handling of complaints;
  - record keeping and reporting;
  - equipment requirements; and
  - public education requirements.
- Payment terms.
- Incentives/penalties to support increasing performance.
- Opportunities for amending scope to address changing circumstances.
- Avenues for resolving disagreements - mandatory 3<sup>rd</sup> party mediation clause.
- Clear financial/cost proposal instructions.
- Proposal submission instructions.
- Description of selection process and evaluation criteria.
- Health & Safety responsibilities and procedures for the assessment and management of risks.

Authorities planning to procure MRF services should tender well in advance of service requirements, recognising that potential bidders may be busy responding to other procurement requests and that process equipment suppliers may have similar constraints. Authorities should contract with only one service provider who would be responsible for coordinating and managing any other equipment suppliers or sub-contractors involved in implementing the MRF.

Regular and open communication is encouraged between Contracting Authorities and potential service providers. This helps ensure that the potential contractors understand the Authority's needs, that innovation is encouraged, that high quality end products are required and that experienced contractors are attracted to bidding for the contract. This will also help the potential contractor to understand the Contracting Authority's history, issues and aspirations

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<sup>5</sup> KPMG; Blue Box Program Enhancement and Best Practices Assessment Project, Final Report, Volume I – July 31, 2007; for Stewardship Ontario

The Contracting Authority should strive to achieve a partnering style approach to monitoring and managing the contract and the contractor so as to achieve its objectives and to encourage all parties to take advantage of opportunities for improvement.

### 3.2 Contract issues checklist

The following contract issues should be considered by Local Authorities procuring private sector MRF services. Table 2 provides a checklist of the items discussed in this section, indicating which clauses are applicable to which MRF contracting scenario.

**Table 2** Contract items applicable for MRF contract scenarios

Contract item	WCA/WDA service level agreement	Authority-owned MRF (operating contract)	Dedicated MRF	Merchant MRF
<b>Background</b>				
Materials to be processed	✓	✓	✓	✓
Composition	✓	✓	✓	✓
Present quantities (and historical)	✓	✓	✓	✓
Additional materials to be added	✓	✓	✓	✓
Future quantities	✓	✓	✓	✓
<b>Material delivery</b>				
Form of collection (SS, 2-stream, etc)	✓	✓	✓	✓
Collection frequency	✓	✓	✓	✓
Obligation of collection Authority	✓	✓	✓	✓
3rd party delivery	✓	✓	✓	
Hours (delivery and operation)	✓	✓	✓	✓
Weighing of incoming loads	✓	✓	✓	✓
Unloading procedures	✓	✓	✓	✓
Waiting time (turnaround)	✓	✓	✓	✓
Compaction	✓	✓	✓	✓
Contamination and residue control	✓	✓	✓	✓
Rejection of loads	✓	✓	✓	✓
<b>MRF performance</b>				
Design considerations		✓	✓	
Service delivery plan		✓	✓	✓
Permits and approvals		✓	✓	✓
Disruptions in service	✓	✓	✓	✓
Material recovery	✓	✓	✓	✓
Performance monitoring	✓	✓	✓	
Markets and market specifications	✓	✓	✓	
Staff training		✓	✓	
Mobile plant		✓	✓	
Facility maintenance		✓	✓	
Co-operation for pilot tests	✓	✓	✓	
Management and reporting	✓	✓	✓	✓

<b>Contract issues</b>				
Contract term	✓	✓	✓	✓
Health & Safety		✓	✓	✓
Revenue sharing		✓	✓	
Deductions for unavailability		✓	✓	✓
Annual price adjustments		✓	✓	✓
Benchmarking and market testing		✓	✓	
Performance testing and commissioning		✓	✓	

The content topics addressed in this guidance are those that should be included when procuring MRF services through any tendering procedure and are items that would form part of an eventual contract with the selected contractor. \* indicates where sample wording for the items is provided in Appendix A.

### 3.3 Key tender clauses

#### 3.3.1 Background data provided by the Authority

The following items should be present in the MRF contracting scenarios noted:

##### **Materials to be processed**

Provide a list of target recyclable materials to be processed. MRF operators need to know what materials are designated recyclables in the Contracting Authority's programme, so that they can determine the appropriate process design and operating plan for those materials.

##### **Composition and tonnage \***

Provide a breakdown of annual tonnes collected, processed and marketed (if a scheme is now operating) and any audit data available for the recyclables collected and residual waste (refuse). Monthly data would assist in highlighting any seasonal tonnage variations.

This breakdown should also identify the existing or anticipated level of contamination in the dry recyclables to be delivered to the MRF. Contamination of incoming recyclables and its relationship with MRF processing residue is covered in detail under the headings "contamination and residue control" and "MRF performance".

If detailed audits have not been undertaken or if a change in the composition of the recyclables is anticipated (e.g. resulting from adding materials or changing the form of collection), estimates should be presented using the best available data.

Contractors should be offered an opportunity to visually inspect material or to obtain a representative sample of the dry recyclables for their own analysis. This may not be possible where a new MRF contract is intended to support some change in collection systems such as a move to co-mingled collections. Provision will need to be made to manage this risk as evidence becomes available.

The Contracting Authority should caution bidders that the composition data presented represent best available information and that the Authority takes no responsibility for the accuracy or completeness of the information.

### **Future quantities**

MRF operators need to know projected changes in present tonnage resulting from, for example, planned communications to householders to promote the recycling service, increase in number of households provided with the service, adding new materials to the collection or removing existing materials and how the tonnage is anticipated to change over the term of the processing contract.

### **Additional materials to be added**

For a purpose-built or dedicated MRF, operators should be aware of the intent or likelihood of new materials (e.g. foil, beverage cartons, etc) that may be added to the collection scheme during the contract term. Local Authorities should develop projections of quantity increases resulting from these additions (as well as market requirements and recovery rates for these materials). The capture rates for these materials achieved by similar Authorities may be a useful guide in making these estimates.

The MRF designer (through the potential contractor) should be requested to either provide the necessary equipment and sorting requirements for the additional materials, or alternatively, to provide for the necessary space in the process design for installation of the equipment at some future date, recognising that special handling needs may be necessary for some materials (e.g. shredded paper, film plastic, etc). It is often very difficult to retrofit equipment into the process design at a later date if planning provisions have not been made at the outset.

### *3.3.2 Material delivery*

#### **Form of collection (single stream co-mingled, or 2 stream co-mingled)**

Processors need to be aware of how materials are presently collected and how the collection methods may change during the contract. This would include the degree of kerbside sorting (if any), the frequency of collection (weekly, fortnightly, etc) and the collection container used (boxes, bins, bags). How the materials are collected will impact on delivery details as discussed in the following section.

Contracting Authorities should indicate if recyclables might be delivered in bulk loads. Special design and quality control considerations may be necessary as a result (e.g. door heights, special unloading arrangements, cross contamination of loads at a transfer station, etc).

#### **Collection frequency**

The MRF operator should be advised of the frequency of material collection/delivery to the MRF and any anticipated changes over the contract term so that appropriate staffing and process changes can be scheduled to meet the material delivery pattern. This is especially the case where alternate week collections schemes may collect recyclable material only every other week.

#### **Obligation of Collection Authority \***

In every case, the processor needs to be assured that a base tonnage of recyclables will be delivered to the MRF. The Contracting Authority should determine a reasonable base tonnage to guarantee to the processor. For instance, if the Authority anticipates a requirement for processing 25,000 tonnes per annum, a reasonable guaranteed tonnage might be 20,000. The MRF operator needs assurance of this tonnage to plan for the required level of staffing and mobile plant. The base tonnage set should take account of the length of the contract period – see below.

A WDA has the power to direct<sup>6</sup> collection Authorities in its area to deliver all household recyclables to a specified MRF, thereby in essence assuring the MRF processing tonnage. However, few if any have utilised this power preferring instead to work with the collection Authorities to determine the best arrangement. In either case, a service level agreement should be in place between the WDA and each WCA.

In the case of a merchant MRF, the Local Authority is securing throughput processing capacity that the operator could otherwise market to another customer, and it is reasonable that the MRF operator is assured of this tonnage (or alternatively, the potential revenue from that tonnage). This is often referred to as a

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<sup>6</sup> By issuing a direction to the WCA under Section 51 (4) (a) of the Environmental Protection Act 1990.

“put or pay” contract. On the other hand, the MRF may wish to set an upper limit to the throughput processing capacity available to the Contracting Authority, since it may not be able to guarantee that significant increases in tonnage can be processed at the MRF. Arrangements should be agreed as to where and how excess tonnage can be sorted.

In all contracting scenarios, good and timely communication is required between all relevant Authorities (WCA, WDA, UA) and the contractor so that the contractor is made aware of any potential change to the collection system that may impact the quantity or composition of the dry recyclables to be delivered to the MRF.

### **3rd party delivery \***

A third party can be defined as a business, Local Authority or government agency not actively involved in a legal proceeding, agreement, or transaction. The issue of whether a MRF operator processes other Local Authority or commercial recyclables at a MRF (beyond that of the primary Authority) is very dependent on the type of MRF and the specific contract arrangements agreed between the Local Authority and the MRF operator. Obviously, a merchant MRF, by its nature, is set up for the purpose of serving a variety of customers. However, arrangements at Local Authority owned MRFs and dedicated merchant MRFs vary.

There are differences of opinion among project participants about who should contract for additional tonnage. In one case, a unitary Authority left the decision on 3<sup>rd</sup> party contracts entirely to the contracted MRF operator. In this case the contractor retains all of the additional revenue and the Contracting Authority benefits from reduced per tonne payments (gate fee) to the operator as 3<sup>rd</sup> party tonnage throughput increases. The only stipulation to the contracted MRF operator is that the host Authority has priority in terms of processing capacity at the MRF and that receipt of 3<sup>rd</sup> party recyclables should not interfere with receiving and processing the host Authority's recyclables. The host Authority receives daily records of all incoming deliveries and monthly reporting of the tonnages processed.

In another instance, a WDA makes the arrangements for 3<sup>rd</sup> party processing. The argument posed was that the Authority should be in complete control of all aspects of processing at the MRF. In this case, the host Authority and contractor agree on the incremental gate fee to be charged to 3<sup>rd</sup> parties and both share the gate fee and the additional revenue generated.

While the issue of how the additional costs and revenues will be shared between the Authority and MRF operator can be left to the discretion of the Local Authority, it will be important to ensure that the processing of 3<sup>rd</sup> party recyclables does not interfere with what should be the contractor's primary objective – processing of recyclables from the “primary” Contracting Authority to the standard provided in the contract. It is important to recognise that exceeding a MRF's sorting capacity has been identified as a major cause of poor quality and high rates of residues from MRFs. The Contracting Authority would also have the ability to reward 3<sup>rd</sup> parties that deliver low levels of contamination with lower gate fees. Sufficient detail should be included in the contract to clearly indicate the clauses related to accepting 3<sup>rd</sup> party material.

### **Hours (delivery and operation)**

Any special considerations regarding delivery restrictions should be identified in the tender. For instance, if an Authority has delivery limitations that would impact an operator (e.g. all material to be delivered in bulking vehicles during evening hours), these details should be outlined in the tender. Similarly, a merchant MRF responding to a Local Authority tender should note any delivery restrictions or limitations.

### **Weighing of loads**

The tender should specify that all incoming loads be weighed at a certified weighbridge, preferably at the MRF. It is also good practice to require vehicles to be weighed on leaving the MRF.

### **Unloading procedures**

Any special unloading requirements or restrictions should be noted by the MRF operator in the tender submission.

### **Waiting time (turnaround) \***

Very often, Local Authorities include a clause in the tender designating a maximum turnaround time at the MRF (e.g. 20 minutes). This is monitored through weighbridge in and out times. It should be noted that a longer turnaround window may be required at a MRF than is typical at disposal points due to:

- the nature of the operation (quality checking at the point of deposit);
- health and safety issues (limited reception area where vehicle conflict is possible between customers vehicles and loading shovel); and
- peaks resulting from vehicle deliveries.

Maximum turnaround times should be flexible enough to accommodate situations not caused by the MRF operator, for example, collection vehicles breaking down on-site.

One of the participants in this study noted that penalties are included in their contract for every delay incurred beyond the specified time (e.g. the number of occasions a vehicle was delayed beyond 20 minutes is calculated each month from weighbridge records and a specified penalty for each occasion is used to calculate the monthly penalty, which is then deducted from the contractor's monthly processing fee). Delays at the MRF can cost collection Authorities time and money and can result in missed collections and delays to collection schedules. This is one of the reasons why it is important for the MRF operator to know proposed delivery patterns to the MRF. It is important that the MRF contractor considers and prices this risk, as appropriate, within their tender submission.

In most cases, if such issues arise they are discussed and resolved at regular scheduled contract management meetings between the MRF operator and the Local Authority. Although the agreed maximum turnaround time should be indicated in the contract, it is recommended that the Authority maintains a good working relationship with the MRF contractor, discusses operational issues and works to resolve these issues before problems develop. Whilst Authorities should always take a reasoned approach, failing to impose deductions, when problems have been incurred due to the contractor's failings, shifts this risk back to the Authority, which is not recommended.

### **Contamination and residue control \***

Contamination of incoming recyclables delivered to a MRF and the residue resulting from the MRF processing are directly linked and are key issues to be addressed in any MRF tender and contract.

Contaminants are part of every Local Authority recycling collection programme to some degree – kerbside collection schemes where sorting is done by the collection operator at the kerbside result in lower levels of contaminants as any unwanted materials can be removed and left in the box. On the other hand single stream co-mingled collections of recyclables in wheeled bins typically result in higher levels as the unwanted materials are not detected until the recyclables reach the MRF. The degree of contamination in the recyclables collected is directly under the control of the collection Authority.

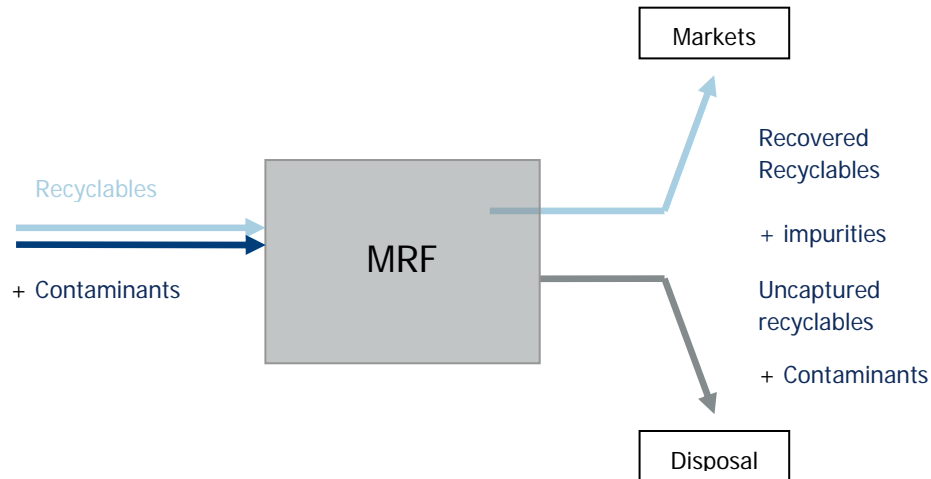
From a MRF operator's perspective, contaminants are any material delivered to the MRF that are not designated recyclable materials. Contaminants are comprised of two different items:

- "objectionable" materials – materials that can be tolerated in very small quantities; these are materials that are similar in nature to designated recyclables but not officially part of the Local Authority's programme (such as waxed papers, margarine tubs and lids, etc); and
- "prohibitive" materials - materials that are clearly not part of the dry recyclables scheme (e.g. garden waste, food waste, wood, etc) and theoretically, cannot be tolerated in any degree.

## Relationship between contamination and residue

The following schematic helps to illustrate how contaminants impact MRF operations and outputs:

**Figure 2** Contract items applicable for MRF contract scenarios



Although some contaminants flow through the MRF process without much problem or handling (i.e. negatively sorted), many require additional sorting to remove them from the process as early as possible. These contaminants result in additional operating cost, additional cost for haulage and disposal and, if not removed, can also reduce the quality and hence value of the recovered recyclables. In some cases they may also limit the end markets into which the recovered materials can be sold.

The second part of the residue stream that is typically sent for disposal is uncaptured or “missed” recyclables from the sorting process – sometimes also referred to as process residues. The extent of uncaptured recyclables is a function of the MRF process design and how the MRF is operated. It is vitally important that contracting Authorities understand the difference between contaminants and uncaptured recyclables and build appropriate controls and performance measures in for both.

### Audits of incoming materials

As previously noted, both the level and type of contamination for an existing recycling scheme is information that assists the operator in assessing how these materials will impact the MRF operation and obviously in determining MRF operating costs. Periodic audits of incoming recyclables help to characterise the nature and extent of contaminants in the mix.

It is common in many tenders to set limits on the percent contamination that the MRF operator is expected to process, depending on specifics of individual schemes. The tender should define this limit and who is responsible for the cost involved in dealing with the resulting residue. Milton Keynes, for example, has set a 15% contamination limit for its own material coming into the MRF. The MRF operator bears the cost of disposal for this material up to the 15% limit and Milton Keynes bears the cost beyond this level. At present, contamination is well below this level and it is in the Authority’s best interest never to exceed this level. The contractor is required to recover at least 95% of incoming targeted recyclables and is responsible for disposal costs for the uncaptured recyclables (see Material Recovery). A monthly auditing protocol is built into the operator’s contract to quantify incoming contamination and recovery levels for recyclables. Where possible, the frequency of any auditing should be flexible. If there are no issues, then there may not be a requirement for monthly auditing. However, when issues occur, auditing may need to be more frequent to identify problems and ensure that issues are being resolved to the benefit of both parties.

Hampshire, on the other hand, has set a 15% residue limit (uncaptured recyclables and incoming contamination) with the contractor paying for disposal of all residue. Hampshire is liable for the landfill tax element if the residue cannot be recovered in some way and ends up being disposed to landfill. Hampshire has built a Material Analysis Facility (MAF) adjacent to the MRF to audit incoming recyclables delivered to the MRF. The audit data<sup>7</sup> are used as feedback to analyse collection rounds within each district so as to improve input material quality and to reduce contamination. Audit results are also used as a means of allocating material sales revenue back to contributing collection districts (50% of the revenue from the sale of the recovered materials is returned to the district Authorities - see Payment method and terms).

An alternative approach is to implement a graded scale of fines linked to the level of contamination in the incoming material, for example £30/tonne for 10 – 12%, £50/tonne for 12 – 15%. This recognises that higher than expected contamination rates result in higher processing costs and allows the MRF operator to recover costs if contamination rates remain high.

In many instances, residue is not distributed to Authorities contributing recyclables to the MRF according to the contamination level of their input. For instance, at the present time, residues at the Bidston MRF on Merseyside are apportioned equally to all contributing collection Authorities (e.g. Liverpool City Council and Wirral Borough Council), regardless of their actual levels of contamination in their input stream. While apportionment by input quality may not always “match” output weights of residue, apportioning residues by reference to this may give a more positive incentive compared to pro rating based on input weights alone.

Merchant MRFs typically will visually inspect recyclables from prospective customers prior to setting gate fees for processing each customer’s material. At the present time, most merchant MRFs do not routinely audit incoming material.

It is recommended that:

- collection and disposal Authorities set reasonable contamination limits for recyclables collected, based on the nature of their recycling scheme and the extent of materials collected;
- contracts between MRF operators and contracting Authorities delivering recyclables to the MRF set out maximum contamination limits for incoming materials;
- MRF operators routinely audit incoming recyclables to monitor contamination; and
- WDAs/MRFs consider alternative outlets to landfill for residue where possible (e.g. RDF).

### **Compaction**

Recyclables that are over-compacted during collection adversely affect the ability of MRF processing equipment to separate these materials (materials collected with dedicated recycling vehicles without compaction capabilities are not a problem). Research has identified that a recyclables density of 2.5:1 (i.e. 2.5 times the loose density of the mixture) is considered the maximum density that should be allowed on delivery to the MRF. A density of 2:1 is considered a more practical limit. RCVs operating on residual waste would typically adopt a ratio of 5:1.

Merseyside WDA, after testing the impacts of compacted recyclables on MRF separation performance, has introduced maximum weight limits to collection vehicle loads that are acceptable for processing at their Bidston MRF. These weight limits are based on a recyclables density limit of 225 kg/m<sup>3</sup>. For practical purposes, this limit is translated to a maximum allowable weight for collection vehicles with different compartment sizes. These limits are then readily identified at the weighbridge as loads are delivered.

Collection Authorities must work with disposal Authorities and the MRF contractor to determine an acceptable level of compaction according to the MRF’s sorting capabilities and appropriate clauses must be included in contracts to regulate compaction during collection.

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<sup>7</sup> WRAP is presently developing an auditing protocol for incoming materials to MRFs to assist Authorities and MRF operators to provide consistent, accurate and replicable audit data.

### **Rejection of incoming loads \***

MRF contracts should have clauses setting out protocols for identifying and dealing with rejected loads of incoming materials, including which party is responsible for the costs associated with the rejected load. Many MRF operators explained that rejecting a load is the last step they would typically take (they would rather work with an Authority to solve a problem so as to reduce or eliminate contamination), however contracts should always contain clauses to detail what will happen if unacceptable loads are delivered to the MRF by the collection Authorities or their contractors.

### *3.3.3 MRF performance*

#### **Design considerations**

If a tendering Authority has any specific design requests they wish to be considered by the bidders, these should be made clear at tendering stage. For example, minimum capacity of the tipping floor storage area, the ability to keep separate 'clean' loads of individual materials such as cardboard, a baler that will produce 'export' size bales, the need for an education/visitor centre, etc

#### **Service delivery plan \***

An Authority tendering for a dedicated, private sector MRF should request a service delivery plan from private sector bidders. A full service delivery plan would typically include a layout or schematic of the processing system, a description of the process and how the MRF will be operated and information about the products that are produced and marketed. Even though the MRF and equipment will be owned and operated by the contractor, the Authority has an obligation to request and review proposed design and operating parameters, such as:

- size and location of tipping floor and product storage areas;
- equipment to be utilized and recyclable capture rates;
- proposed number and responsibilities of staff;
- flexibility of the MRF to respond to fluctuations in tonnage material composition and market specifications; and
- all operating and market risks.

In fact, the Authority would likely use these and other criteria in evaluating and comparing tender submissions.

Obviously, a Local Authority that owns its own MRF and is tendering for its operation would not need detail about the process layout, but should request a description of how the contractor plans to operate the MRF, including specifics of the grades of materials to be produced and market outlets proposed for those materials (see "markets and market specifications"). Even though Authorities contracting with merchant MRFs do not need a detailed operations plan, they should understand the flexibility of the MRF in meeting various market specifications and its capability in producing quality products.

Authorities are incurring additional risk if they contract with a MRF with processing and/or marketing limitations. For instance, a MRF that is only capable of producing a mixed plastic grade (i.e. is not designed to be able to sort individual plastic resins such as PET, HDPE, etc) will suffer if market prices for mixed plastics decline dramatically or if the market disappears completely.

#### **Permits and approvals**

Tender documents should clearly indicate which party is responsible for preparing the planning application, the Waste Management Licence application, a fire safety certificate, etc and all other supporting documentation. The anticipated duration of obtaining each of these approvals should be built into a timeline for procuring and implementing the MRF.

### **Disruptions in service (and contingency plans) \***

Local Authorities need assurance that they will be able to continue collections and delivery of recyclables to a MRF regardless of either scheduled or unscheduled down time at a MRF. Tenders should request information about contingency plans if the MRF is not able to operate for extended periods and who is responsible for the costs involved. Responsibility for costs may vary, depending on the cause of the disruption (e.g. fire, labour strikes, etc) and who owns the MRF and the processing equipment (e.g. baler explosion, etc).

Very often, contingency efforts will involve recyclables still being delivered to the tipping hall of the MRF, where they are then transported in bulk to another MRF on an interim basis. Some contracts require guarantees on percent MRF availability, with severe financial penalties if the MRF underperforms.

### **Material recovery \***

Tendering Authorities should know what level of material recovery to anticipate at any MRF and should request this information as part of any MRF tender.

As previously discussed, there is a direct relationship at any MRF between the level of contamination in the incoming materials, the overall percentage recovery of incoming recyclables and the quantity of residue produced. Authorities contracting for operation of their own MRF or contracting for a dedicated MRF have the option of either specifying required recovery levels for individual recyclables (e.g. 96% for news and pams, 93% for PET, 97% for ferrous cans, etc) or for the incoming mix as a whole (e.g. 95% of all recyclables, as in Milton Keynes). Although a minor portion of material is lost on other material (e.g. a few cans in with the paper), auditing residue gives an overall recovery rate that is statistically valid. Sample material recovery rates are shown in Appendix A.

Determining realistic recovery rates requires knowledge of the MRF design and the processing equipment to be used as well as what can reasonably be expected from an experienced, conscientious MRF operator. If an Authority feels that it is not able to set out required recovery rates in the tender document, it can request the MRF operator to identify what rates will be guaranteed, based on the operator's knowledge of the MRF design and how the MRF will be operated. Some research will be necessary here, by the tendering Authority, to ensure the recovery rates are set at realistic levels. Incentives for improved performance can be built into the contract to reward the contractor for exceeding the required recovery levels. Similarly, the operator can be penalised if recovery drops below guaranteed levels. Such an example is shown in Appendix A.

In the case of a merchant MRF, the Authority should request that the MRF either guarantees a minimum recovery level of recyclables delivered, or alternatively, guarantees a maximum level of residue, subject to material input quality. This again points to the importance of material audits in setting these levels and in monitoring MRF performance.

Contracting Authorities should seek the provision of monthly waste flows both into and out of the MRF to assist in tracking contamination levels, confirming recycling activity and to highlight if MRF throughputs are impacting on recovery levels achieved.

### **Performance monitoring \***

Assuming that recovery performance levels are identified, the contracting Authorities will need to identify a method to ensure that these levels are being achieved and to satisfy their obligations to report against National Performance Indicators on waste and tonnages of biodegradable municipal waste sent to landfill. Periodic audits of MRF residue will identify missed recyclables, and when compared with recyclables recovered and marketed, will identify recovery performance. Contracting Authorities will need to identify in the tender the sampling frequency, methodology and reporting requirements and whether the contractor needs to build this cost into the tender price or gate fee.

### **Markets and market specifications \***

Similar to “material recovery”, Local Authorities with their own MRF or access to a dedicated MRF have the option of either specifying the required end quality of processed recyclables or requesting the MRF operator to identify proposed markets and material specifications that will be met. In so doing, the Authority will understand markets and processing requirements and have a benchmark by which to measure how well the MRF is being operated. Transparency of market specifications also enables the Authority to respond to market rejections of loads that do not meet these specifications.

In all circumstances, MRF operators should be required on a monthly basis to report to Contracting Authorities the quantity of materials recovered and where materials are marketed. However, as end markets are considered to be commercially sensitive, Contracting Authorities requesting market identification at tender stage should ensure that the information will be treated as confidential, although after award of contract an Authority may wish to disclose such information. Contracting Authorities have a duty of care to ensure that their recyclables are being marketed responsibly and are not going to unsustainable markets or for disposal. They also have an obligation to report the end destinations for recyclable materials via their quarterly reporting under WasteDataFlow.

Scrutiny by third party auditors of the sold material output quality may be necessary to prove acceptable performance to authorising bodies such as the Environment Agency and the Recycling Registration Service<sup>8</sup>. A mass balance of input and output tonnes and quality of material both in and out is also required. Sold material market standards should be clearly laid down and systems put in place to show how these are being met, this process being subject to independent external audit, as appropriate. Scrutiny by third party auditors of the sold material output quality may be necessary to prove acceptable performance to the Environment Agency. If contracting Authorities are prepared to share more marketing risk, they can work with the contractor to identify and research suitable material markets.

### **Mobile plant**

Ownership and maintenance responsibilities for mobile plant should be detailed in the tender. It is recommended that contractors provide whatever mobile plant is required to operate the MRF and that they maintain the equipment throughout the contract term. They are then entirely responsible to provide whatever mobile equipment is required to operate the MRF.

### **Staff training**

Contracting Authorities should request details of the contractor’s proposed training plans for both managers and operatives, including the use of agency staff and how language issues will be tackled. It is important that the site/facility manager is fully trained in all aspects of plant operation, including incoming and outgoing material standards, understands the MRF process and is responsible/ accountable for overseeing the entire process.

### **Facility maintenance \***

#### Building and site maintenance

Responsibility for maintenance of the MRF building and site should be addressed. Responsibilities vary and, very often, but not always, depend on ownership.

In Milton Keynes, the MRF is owned by the Authority, but the contractor leases the building and the site and is therefore responsible for all maintenance. In Hampshire, the Alton MRF and site is owned by Veolia (a “dedicated” MRF) and Veolia is responsible for all associated maintenance. However, at the Luton MRF, the Authority owns the site and the building and WRG is contracted to maintain both.

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<sup>8</sup> Some MRF operators are choosing to join the ESA’s Recycling Registration Service which is a voluntary scheme where members adhere to a Code of Practice. The Code’s objective is to establish a scheme under which each Member can demonstrate that recyclables are handled or processed at the Registered MRFs in accordance with good industry practice in the UK.

Site maintenance usually includes litter control, landscaping, road sweeping, etc while building maintenance would include all floor areas, staff canteens and toilets and changing rooms and all lighting within the MRF. All maintenance and inspections related to fire safety may be designated to either party. If ownership of the MRF transfers to the Authority at the expiry of the contract, it is essential that the expectations of both parties as to the condition of the building and plant at handover are agreed from the outset.

#### Equipment maintenance

The contractor should always be responsible for scheduled maintenance on all processing equipment within the MRF according to a Maintenance Programme submitted to the Contracting Authority for approval prior to commencement of the contract. This maintenance is scheduled and performed in a manner and frequency that meets or exceeds specifications and schedules set forth by the original equipment supplier. The Authority should regularly review contractor records to ensure that proper maintenance is being performed.

Maintenance of the weighbridge and associated equipment usually falls to the party that owns the equipment.

#### **Co-operation for pilot tests**

The MRF operator should co-operate with the Authority in pilot testing various items that the Authority may be considering in the future (e.g. adding new materials to the programme, changing the method or frequency of collection, new sorting equipment or techniques, etc). The operator is usually required to consider what impact the change(s) will have on the MRF operations and processing costs, and submit an evaluation to the Contracting Authority for further consideration.

#### **Site visits \***

Contracting Authorities should have the ability to visit the MRF processing their recyclables, with reasonable notice, to view operations and ensure that recyclables are being processed according to the operations plan, to view health and safety conditions in the MRF and to visually inspect the quality of products being sent to market. This may be less important in the case of a merchant MRF, but the Authority still has a duty of care to ensure that the MRF is managed in accordance with current legislation and that the products produced are marketed to bona fide market outlets.

#### **Management and reporting**

The facility should have detailed management systems in place to set out how it is managed. Tenders should outline contractor management and reporting requirements and procedures. These will vary according to the type of MRF contracting situation (merchant, dedicated, etc). Reports will typically include all pertinent information regarding MRF operation and may include, but not be limited to, the following:

- weighbridge records;
- utility consumption records;
- labour utilisation and material recovery efficiency;
- all safety and accident reports;
- market identification for product materials;
- reports of rejected loads to market;
- tonnages of residue sent for disposal & details of disposal facilities used; and
- site visits.

### 3.3.4 Contract issues

#### Contract term

The contract term selected is very dependent on the particular circumstances for each Authority. Authorities financing their own MRF (e.g. through prudential borrowing perhaps) and looking only for private sector operation may want a relatively short term operating contract (say 5 years with two additional 1 year extensions at the Authority's discretion). This would allow the Authority sufficient time to assess the contractor's abilities, but not so they are stuck for a longer term with an operator that may not be performing well. Sustainability Victoria in its Guide for Model Recyclables Contracts<sup>9</sup> suggests that these contracts be for a term of at least 5 years. In design/build/operate approaches, where the contractor is financing the majority or all of the capital costs, contract terms are likely to be longer and the associated risks will need to be addressed in the contract.

In the case of a merchant MRF, the operator will always push for a long term contract so as to provide security of throughput tonnage. Gate fees may also be more attractive over longer term contract periods. An Authority will often select a term based on other considerations, such as the need to access interim processing capacity pending commissioning of their own MRF, or arranging for interim capacity at one MRF while awaiting longer term capacity at another MRF that is closer or processes a wider range of recyclables.

In past years, it was common practice to integrate contract terms for collection and processing, since there were advantages in having the same contractor perform both services – for example, by having greater control over the quality and quantity of the recyclables delivered for processing and by making responsibilities and liabilities for managing interface issues such as turn around times and reject loads clear. Today, with many of the controls and performance requirements that are now in place, the advantages of this approach have been reduced. In fact, it can be argued that separating collection and processing contracts is more likely to secure value for money, as it increases competition and opens up the market to smaller, local operators that previously may not have had the financial capability to meet bonding and surety requirements of integrated contracts.

#### Health and safety

MRF operators, as employers, have clear and well defined responsibilities for health and safety. These responsibilities arise from the "Health and Safety at Work etc Act 1974" and the "Management of Health and Safety at Work Regulations 1999".

The Act imposes a duty of care for their employees and, so far as is reasonably practicable, for others who may be exposed to risk as a result of their activities. In discharging this duty of care the employer must assess and manage the risks arising from the work undertaken.

Specific guidance for MRF operators is limited. PUWER (Provision and Use of Work Equipment Regulations 1998) will be relevant. These regulations require that any equipment should be:

- suitable for its intended use;
- safe for use, maintained in a safe condition and inspected to ensure this remains the case;
- used only by people who have received adequate information, instruction and training; and
- accompanied by suitable safety measures (such as protective devices, markings and warnings).

Also useful will be HSE guidance "Ergonomic Considerations for Designing and Selecting Conveyor Belt Systems" and the HSE/WISH guidance "Safe Transport in Waste Management and Recycling Facilities".

Where Local Authorities are entering into a contract for the provision of a service with a MRF operator then they also retain duties and responsibilities under the "Health and Safety at Work etc Act 1974". Essentially,

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<sup>9</sup> Sustainability Victoria; "A Guide for using Model Recyclables Contracts"; February 2006

Local Authorities cannot contract away their responsibilities for ensuring safe systems of work. Key stages for managing this responsibility are:

- **Contract design and specification:** Local Authorities need to ensure that they are specifying tasks that can be undertaken using safe systems of work.
- **Contractor appointment:** Local Authorities need to satisfy themselves that their contractor has sufficient competence in health and safety matters and that their management systems will deliver such competence. Fulfilling this responsibility is likely to require examination not only of the contractor's policies but also their reporting systems and track record.
- **Contract delivery:** before contract commencement the Local Authority must ensure that the contractor has put all necessary risk assessments and control measures in place.
- **Contract management:** the Local Authority retains a responsibility for ensuring that the approved safe systems of work are adhered to. A system of regular inspection, monitoring and review should be in place to enable the Local Authority to fulfil this responsibility.

Local Authorities should have competent advice available to ensure that they are able to comply with their duties and responsibilities. Most Local Authorities will have an in-house health and safety function which should be involved in the contracting process.

Where a number of Local Authorities are procuring services from the same contractor then they might consider the potential for joint working on these issues.

In respect of client/contractor issues the HSE guidance "Use of contractors: a joint responsibility" provides a good reference point.

### **Payment method and terms**

The structure of how a Local Authority pays for contracted MRF services varies, depending on who owns the MRF's capital assets (site, building and processing equipment) and a number of other items that the Authority may wish to build into the payment mechanism. These include incentives to encourage the contractor to increase throughput tonnage, to improve recovery of recyclables, to reduce operating costs and/or to provide sharing of material sales revenue. Some flexibility should also be incorporated into arrangements where risk is shared to adjust gate fees (or other payment mechanisms) to allow and recognise improvements made to the MRF.

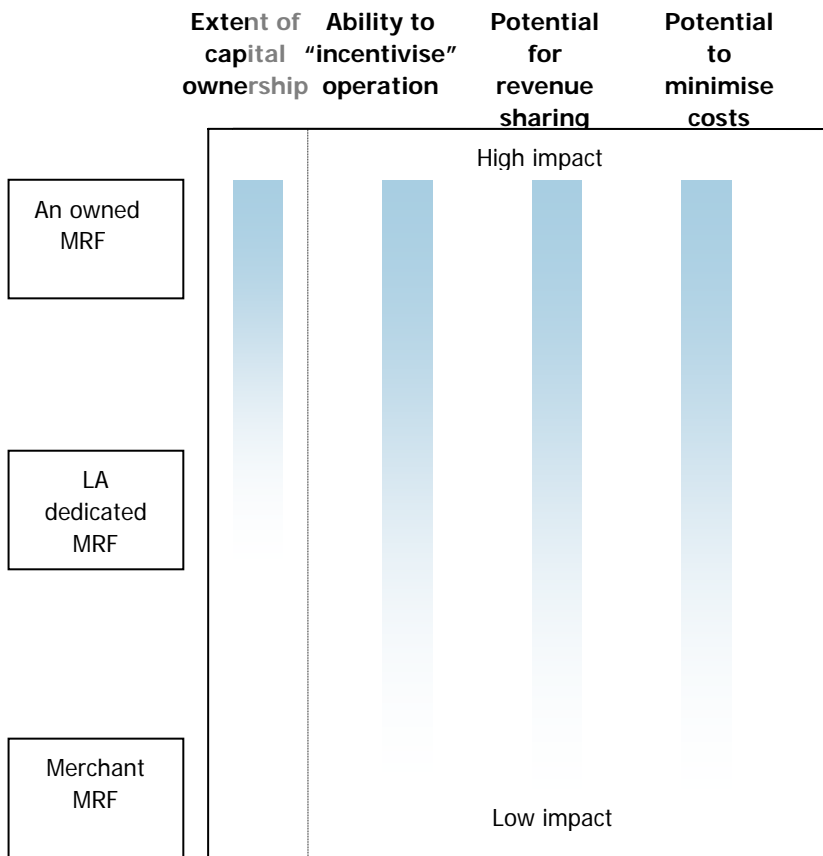
One of the key factors in determining whether some or all of these items can be built into a MRF contract is whether or not the Local Authority owns the MRF. As an alternative to actually "owning" the MRF, the Contracting Authority also has the opportunity to finance construction of the MRF through prudential borrowing. Defra notes<sup>10</sup> that "prudential borrowings are usually in the form of a loan from the Public Works Loan Board ("PWL"), at rates of interest marginally above those at which the Government itself can borrow from the gilts market". In essence, the Contracting Authority operates like a bank or lending institution - it would have a financial interest in the MRF (presumably cheaper than the private sector) and would provide greater control and security of the asset.

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<sup>10</sup> Prudential Borrowing In The Waste Sector; Defra Waste Infrastructure Delivery Programme (Widp) Consultation Draft; December 2007

As the schematic in Figure 3 illustrates, MRF ownership impacts each of these items.

**Figure 3** Relationship of MRF types to key impacts



### Local Authority-owned MRF

When an Authority owns a MRF, it controls its own processing destiny. The Authority has wide latitude in how it structures a contract with a private sector operator. As previously discussed, it can set acceptable limits either for recovery of recyclable materials or for residue. Incentives can be built into the contract for improved performance, increasing tonnage (thereby reducing unit processing costs) and marketing products to increase sales revenue. In some cases, the Authority may decide to market portions or all of the recovered materials. In these cases, the contractor must be tasked to produce output materials to set market specifications. The objective of the contract should be to develop mechanisms whereby both parties benefit from improved performance. In this scenario, the Contracting Authority has the potential to benefit from positive improvements, but also accepts higher risks in doing so.

For example, in Milton Keynes, the contractor:

- operates the MRF;
- maintains the equipment;
- markets all products;
- is required to meet 95% recovery of delivered recyclables;
- retains 100% of the sales revenue; and
- solicits 3<sup>rd</sup> party Authorities to fill unused capacity at the MRF.

The contractor pays "rent" to Milton Keynes for the use of the MRF building and processing equipment (amount established through a tendering process) and has an inherent incentive to maximize recovery of

recyclables, since they receive 100% of additional revenue from marketing all recovered recyclables in the MRF. Although the existing contract does not include a penalty clause for not achieving the required 95% recovery level, Milton Keynes is considering adding such a clause in its next contract (due October 2009).

For additional 3<sup>rd</sup> party recyclables processed at the MRF, the contractor benefits by retaining 100% of additional material sales revenue and Milton Keynes benefits from reduced unit operating costs. Table 3 illustrates the structure of reduced rent payments by the contractor for incremental tonnage bands beyond the base tonnage.

**Table 3 Milton Keynes contractor payment structure**

	Incoming MRF tonnage	£ per tonne	Percentage of base figure paid to contractor
<b>Band A</b>	Up to 20,000	Base Figure	100%
<b>Band B</b>	20,001 -30,000		50%
<b>Band C</b>	30,001-35,000		40%
<b>Band D</b>	35,001-40,000		30%
<b>Band E</b>	40,001+		20%

#### **Dedicated MRF**

When a private sector contractor bids for implementing a dedicated MRF for an Authority, some of the potential benefits and risks to the Local Authority are lowered. The contractor will usually own the building and the processing equipment and will assume responsibility for the MRF operation and material marketing.

In these cases they prefer longer term contracts, and in fact, this may benefit the Contracting Authority, since annual financing charges on capital will be less over a longer term contract. The contract will need to address the residual value and disposition of the site and asset at the end of the contract term.

The Authority may have the ability to encourage improved efficiency and may be able to benefit from the processing of additional tonnage and prudent material marketing. For example, at the Alton MRF in Hampshire, Veolia receives an agreed incremental gate fee for additional tonnage that the Authority contracts and Hampshire receives a corresponding rebate from Veolia on the gate fee it pays. The marketing arrangement is that the contractor and Hampshire share revenues 50/50. County revenues are then redistributed to the collection Authorities based on audit sample results of incoming materials delivered (see "contamination and residue control"). Similarly, Northumberland County Council benefits financially from additional third party processing that Sita arranges where this generates additional cash flow over and above an agreed threshold.

The percentage reductions reflect reduced unit costs of operating the MRF with increased throughput. In these arrangements, there are incentives for all parties to maximize recyclables recovery and revenue.

#### **Merchant MRF**

When contracting with a merchant MRF, the Local Authority typically pays a gate fee to the private sector MRF operator that may or may not be related to the net cost of processing its recyclables. The Authority has no say in how the MRF is operated, has little likelihood of benefiting from improved efficiencies and increases in market prices for the recovered materials, but does not have to deal with the time and costs involved in obtaining planning consent and procurement of its own MRF. The private sector MRF operator assumes all market risk and the Local Authority has relative stability in forecasting its costs.

Other MRF contracts have been established so that key MRF costs are identified and separated:

- annualized capital costs are paid to the operator on a monthly basis (assuming MRF ownership);
- variable operating costs of the MRF are paid according to a set sliding scale (per tonne payment); and
- revenue is identified separately and shared in some manner between the operator and the Authority.

Local Authorities retaining material sales revenue should base their budget on receiving a “conservative” portion of the anticipated revenue rather than setting budgets based on total anticipated sales revenue. Since market prices fluctuate, budgets that are set using conservative revenue estimates do not suffer during periods of lower market prices.

Regardless of the payment arrangements, the cost of recyclables processing needs to be transparent in tenders to allow for continuous improvement, transparency, benchmarking, etc.

### **Annual pricing adjustments**

Since most contracts extend beyond one year, some mechanism for price adjustment needs to be identified in the tender. As previously identified, MRF costs are typically comprised of capital costs (annualized costs for fixed assets such as the MRF building, processing equipment, etc) and variable operating costs such as labour, utilities, residue disposal, etc). These costs can be offset by the net revenue derived from marketing processed recyclables (e.g. transportation costs, material sales, etc).

Variable costs are the ones most affected by inflation. The Retail Prices Index (RPI) is the most familiar general purpose domestic measure of inflation in the United Kingdom measuring the average change, from month to month, in the prices of the goods and services purchased by most households in the United Kingdom. The RPIx (excluding mortgage interest payments) may be a more exact version of the index to apply to MRF operation.

The RPI is used in the Hampshire, Milton Keynes, Wiltshire and Luton MRF contracts. Veolia uses a ‘Composite Index’ that comprises the following three constituents:

- the cost of labour (45%);
- the cost of plant maintenance (35%); and
- the cost of fuel (20%).

The indices are found as Nos. 1, 2 and 11 respectively in the Civil Engineering Formula - 1990 series within the Monthly Bulletin of Indices compiled by the Department for Business, Enterprise and Regulatory Reform (formerly DTI). This index more accurately represents actual operating costs at many MRFs. The percentages can be adjusted according to the degree of mechanical versus manual processing in the MRF. RPI based indexation is likely to be more risky from the MRF operator’s perspective but far more comfortable for the Contracting Authority. MRF prices will likely reflect this.

Where material prices have changed significantly or there have been efficiency improvements, the impacts of these can also be included in annual price adjustments. It is down to the interested parties to negotiate the appropriate measure to be used for price adjustments.

### **Benchmarking & market testing**

In either an Authority-owned or dedicated MRF, if the Contracting Authority has agreed fixed rates for a specified period for the income from the sale of recyclables or in respect of sub-contracted elements of the service (such as landfill disposal of residues or transportation of recyclables) in order to have greater certainty over future costs, then these rates should be subject to periodic market testing and benchmarking. This should seek to ensure that fixed prices for variable cost/income elements of the service (such as processing cost/tonne, revenue/tonne marketed, etc) continue to offer value for money and an appropriate level of risk transfer between the Authority and the MRF operator, especially in long term contractual arrangements.

### **Performance testing and commissioning**

In either an Authority-owned or a dedicated MRF, the Contracting Authority should require the contractor to demonstrate that the MRF, as designed, is capable of meeting all of the performance standards requested in the tender. Typically, this would involve three separate phases:

- equipment start-up (operating the MRF for a designated period on consecutive days without recyclable material, to check equipment speeds, motor current and voltage, excessive vibration or noise, etc and to demonstrate all control functions);
- initial operation (operating the MRF for a designated period on consecutive days with recyclable material, to demonstrate that the equipment supplied and installed is capable of “processing” the specified materials at the specified feed rates without overloads, plug-ups, trip outs, excessive spillage, dust or odour release, etc), and;
- acceptance testing (testing on consecutive days, with normal operating procedures and staffing to verify throughput, recovery rates, staffing levels and product specifications).

Performance testing is done to demonstrate that the contractor is able to meet the guarantees given to the Contracting Authority (minimum throughput tonnes/hr, guarantee recovery rates, etc). Presumably, the plant would not be accepted by the Contracting Authority and final payment would not be made to the contractor without the contractor successfully completing the acceptance testing phase.

One of the complications that may arise in performance testing is having one contractor responsible for the MRF process design and a different contractor responsible for MRF operation. If the MRF for any reason is not able to achieve the required performance standard, there is potential for the operating contractor to place the blame on the process equipment and the equipment supplier to place the blame on inefficient manual sorting productivity. These problems may be avoided by requesting both contractors to supply background sorting productivity data used to determine the number of manual sorters needed throughout the MRF. The Contracting Authority would then need to verify during tender review that the productivities used by each contractor are realistic and achievable. Another approach often used is to proceed with a design/build/operate contract, so as to avoid separating these contracts.

# APPENDIX A

## Sample contract clauses

Users of the guidance are referred to Table 2 to show which clauses are appropriate to which contracting situation.

**These clauses are meant for illustrative purposes only. Contracting Authorities should amend the clauses as necessary to suit their own needs and their own contract circumstances.**

### Composition and tonnage (see 3.3.1)

Composition data presented in Table \_ represent the best information that the Authority has available to provide to contractors. The Authority does not expressly or implicitly represent that the composition of materials received at the MRF will correspond to the information contained in the table. The Authority takes no responsibility for the accuracy or completeness of this information or any conclusions which may be drawn from it. Contractors are advised to view the material currently collected prior to submitting their proposals and form their own view regarding design composition.

### Obligation of Authority (see 3.3.2)

The Authority shall deliver to the MRF \_\_\_\_ tonnes/year (\_\_\_% of which will be guaranteed on a put-or-pay basis<sup>11</sup>) of single-stream co-mingled recyclables as described in Section \_\_. Based on XXX days per year of delivery to the MRF, the average daily quantity is therefore \_\_\_\_ tonnes/day. The guaranteed put-or-pay average daily quantity is \_\_\_\_ tonnes/day. Variations of +/- 25% of the stated average daily rates must be accommodated by the Contractor.

Responsibility for and ownership of the recyclables will transfer from the Authority to the Contractor when the collection vehicles carrying the recyclables enter the MRF and the vehicles have been directed by the Contractor to unload.

### Third party delivery (see 3.3.2)

The Contractor is responsible for contracting with third party agencies for processing of additional recyclables to maximize unused processing capacity in the MRF. Delivery and processing of third party recyclables must not interfere with delivery and processing of the Primary Authority materials.

The Contractor must produce to the Authority within 10 days of the end of each calendar month a Declaration of Incoming Materials Received showing the total Incoming Materials in the preceding month. The Declaration of Incoming Materials Received must be in the form contained in Annex \_\_. The Declaration of Incoming Materials Received must be accompanied by the weighbridge information in the form detailed in Annex \_\_, and such weighbridge information shall be provided both in printed form and submitted electronically on an Excel spreadsheet.

The payment structure to the Contractor for MRF operation is set out in Clause \_\_\_\_ and is shown in Table \_\_\_\_.

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<sup>11</sup> "put-or-pay" provides for payment for a minimum amount of material whether or not that material is delivered.

### **Waiting time (see 3.3.2)**

The contractor must use its best endeavours to ensure that collection vehicles can commence unloading shortly after being weighed at the weighbridge at the sorting facility.

If a collection vehicle cannot commence unloading immediately upon arrival, the contractor must direct the driver of the collection vehicle to a waiting zone within the sorting facility. Under no circumstances must a collection vehicle be made to stand on a public street.

If, on any working day:

- more than three (3) collection vehicles (being comprised of different collection vehicles or the same collection vehicle on separate occasions) are required to wait for more than 20 minutes each; or
- any collection vehicle is required to wait more than 30 minutes - from the time or times recorded on the weighbridge docket issued (or the latest time recorded on a weighbridge docket if more than one (1) weighbridge docket is issued on any one (1) visit to the sorting facility) to the driver or drivers of the collection vehicle or collection vehicles before being permitted to unload collected material at the sorting facility, the contractor must pay to the principal for the total time (including the first 20 minutes or 30 minutes, as the case may be) for which each collection vehicle was required to so wait. The payment must be calculated by multiplying the total waiting time by the waiting time rate, as adjusted under clause \_\_\_\_;
- the amount which the contractor is obliged to pay to the principal under this clause may be deducted from payments to the contractor or must be paid by the contractor to the principal within seven (7) days of the demand, at the option of the principal; and
- any determination of an amount by the supervisor for this purpose will be final and conclusive.

### **Rejection of loads (see 3.3.2)**

Unacceptable Material shall be identified and removed in accordance with the following:

- all deliveries shall be inspected in the tipping area by trained employees of the Contractor. If a load of material, in whole or in part, is determined to be unacceptable, colour photos shall be taken by the Contractor to verify the presence of Unacceptable Material. Only the Plant Manager, Shift Foreman or Night Operations Manager shall have the Authority to reject an entire load or delivery on behalf of the Contractor, and shall immediately notify the designated Authority representative. The Authority reserves the right to verify that the load rejection is appropriate prior to any further action being taken by the Contractor;
- any loads that are considered by the Contractor not to meet the specifications shall be put to one side and the Authority Representative informed. The load shall be held for a period of 24 hours commencing with the time the Authority Representative is informed to allow the Contractor and the Authority Representative to make arrangements to jointly inspect the same at an agreed time within such period;
- the Contractor and the Authority shall agree one of the following courses of action in respect of any loads which the Contractor considers fail to meet the specifications referred to in Section \_\_\_\_ and are set aside in accordance with Para \_\_\_\_:
  - that the load meets the specifications;
  - that the load shall be processed in accordance with the Contract, but that the Contractor shall be reimbursed by amending the Contract Price in respect of that load in accordance with Section \_\_\_\_ for the cost of removing any contaminants from the said load;
  - that the load be rejected and treated as Waste under Section \_\_\_\_ and dealt with accordingly under the Contract; or
  - that the load be subject to a detailed analysis in accordance with arrangements agreed between the parties. The results of the analysis shall be binding on both parties. In the event that the analysis

confirms that the load fails to meet the specifications, the cost of analysis shall be met by the Authority and the load treated in accordance with Section \_\_\_\_ above. In the event that the analysis shows that the load meets the specifications, the cost of the analysis shall be met by the Contractor and the load processed in accordance with the Contract.

- If the Contractor fails to comply with the arrangements for joint inspection of the load in accordance with Section \_\_\_\_ the load shall be accepted as meeting the appropriate specification. If the Authority Representative fails to comply with such arrangements the Contractor shall deal with the load in the manner set out in Section \_\_\_\_ of this Schedule; and
- For all rejected loads or materials, the Contractor shall, as soon as possible thereafter, complete and submit a report, complete with photos, to the Authority in a form satisfactory to the Authority.

#### **Contamination and residue control (see 3.3.2)**

Residue from the current MRF is presently \_\_\_\_% of the throughput tonnage. Since the Authority plans on continuing to use a box collection scheme for collecting household recyclables and will continue to screen non-recyclables during collection, contamination is not anticipated to increase measurably over the contract term.

The successful proponent will be responsible for the transportation and disposal of residue, including tipping fees up to this limit. The Authority will be responsible for the cost of transportation and disposal for any residue beyond the agreed limit.

#### **Service delivery plan (see 3.3.3)**

The Contractor shall prepare and submit a preliminary Service Delivery Plan to the Authority for review at least 90 calendar days prior to the planned commencement of the MRF Operations Phase. The Authority will provide comments on the draft Operations Plan within 30 days of its receipt. The final Service Delivery Plan shall be completed 30 days prior to the planned commencement of the MRF Operations Phase.

The Service Delivery Plan shall include, but not be limited to:

- an organization chart for the management of operations with job descriptions and staffing plans for the entire MRF;
- a procedure for scheduling deliveries of incoming single-stream recyclable materials (Received Materials) by the Agency;
- a procedure for inspecting incoming Received Materials and loads;
- a procedure for receiving and storing incoming Received Materials;
- a procedure for the storage, loading and disposal of Residue;
- a procedure for the storage, loading and shipping of Recovered Materials;
- a procedure for monitoring the quality and quantity of Residue;
- a procedure for monitoring the quality and quantity of Recovered Materials;
- a procedure for monitoring and controlling MRF costs and revenues;
- a procedure for annual MRF performance testing;
- a procedure for responding to complaints;
- a procedure for monitoring air and water emissions in accordance with regulatory requirements; and
- a description of plans for accommodating visitors.

#### **Disruptions in service (see 3.3.3)**

In the event of any disruption to the Recyclables Acceptance and Sorting Service, arising from any refusal or inability of the Contractor to accept Collected Material, the Contractor must notify the Authority within one (1) hour of the disruption occurring and keep the Principal informed of any developments and the likely duration of the disruption.

In the event of any disruption to the Recyclables Collection Service, the Authority must notify the Contractor within one (1) hour of becoming aware of the disruption and keep the Contractor informed of any potential impact on the delivery of Collected Material to the Sorting Facility and the likely duration of the disruption.

In the event of any disruption arising from the refusal or inability of the Contractor to accept Collected Material at the Sorting Facility, the Contractor must pay to the Authority:

- any amount which the Authority must pay to the Recyclables Collection Service Contractor under Clauses \_\_\_\_ of the Recyclables Collection Service Contract; and
- the amount of any costs reasonably incurred by the Authority as a result of the disruption, as determined by the Supervisor.

The payments due to the Authority under this clause may be deducted from payments to the Contractor or must be paid by the Contractor within seven (7) days of demand, at the option of the Authority.

**OR**

In the event that the Service is at any time unavailable, the Authority shall be entitled to deduct from the monthly payment for Service Month in which the Unavailability occurred the sum of (\_\_\_\_) per tonne for each day or part day that the service is unavailable.

The Contractor must also pay any and all extra costs incurred in providing an alternative route for the transport and recycling of waste delivered as a result of the Unavailability of the Service.

**Material recovery (see 3.3.3)**

The following Required Recovery Rates, calculated on a monthly basis, must be achieved at the Facility:

**Table 4** Required recovery rates

Material type	Required recovery rate (%)
Aluminium beverage cans	96%
Aluminium foil containers	93%
Steel cans	97%
HDPE	93%
PET	93%
Glass	95%
Beverage cartons	93%
Fibre	96%

**Performance monitoring (see 3.3.3)**

The previously noted Required Recovery Rates are the benchmarks for operation of the Facility. The Contractor will ensure that the Required Recovery Rates are met. During each operating month, Contractor's staff will conduct detailed composition analyses on post-processing residue in the residue compactor container. The Authority will be invited to participate in the analyses. The procedure to be used is as follows. A sample of residue material is randomly isolated from the residue compactor container. The material is separated into piles and then weighed based on material type. The recovery rate is calculated as follows: tonnes marketed for each material divided by the sum of the tonnes marketed for each material plus the calculated tonnes of each material that aren't recovered.

The Contractor will receive 100% of the revenue (net after transportation to market) for every tonne of a specific material above its Required Recovery Rate (e.g., every tonne of aluminium above the 96% recovery rate), based on market prices in effect on the last day of the month in question.

If the Contractor is unsuccessful in achieving the Required Recovery Rate for a specific material, the Contractor will pay the Authority 100% of the lost revenue (net after transportation to market) and the cost of disposal for every tonne of a specific material below its Required Recovery Rate. The Contractor must make every effort to meet the Required Recovery Rate for each material and repeated failure to meet a Required Recovery Rate(s) is unacceptable. Under such circumstances the Contractor must propose, for Authority review and approval, its planned action to modify equipment and/or operations to ensure the Required Recovery Rate(s) is met.

The revenue incentives or penalty costs will be calculated and paid every six months and will be calculated on the tonnage of material processed and shipped during the 6 months and the amount of processed material on site the last day of the month. It will be the Contractor's responsibility to identify the tonnage of material on site.

If a material has a negative value zero revenue will be assumed for the purpose of calculating the financial incentives and penalties.

To help facilitate more accurate and timely information on material processed, the Contractor is required to equip its forklift / clamp truck with an on-board weighscale and to maintain a daily journal / database with daily bale weights<sup>12</sup>. Also, the Contractor must have the ability to submit this information, as required, to the Authority in electronic format using software compatible with Microsoft excel.

The Authority will conduct random audits to ensure the accuracy of the Contractor's information pertaining to tonnage of material on site the last day of the six-month period. The Authority's weighscale system shall take precedent when a discrepancy exists.

### **Markets and materials specifications (see 3.3.3)**

The successful Contractor shall be responsible for the marketing of all recyclable Material received as per the Contract. The successful Contractor shall process recyclable material in a manner that optimizes revenue from the sale of recyclable material.

The Authority requires assurance that recyclable materials are being marketed to bona fide markets. Proponents shall provide details of material markets as outlined in Section \_\_\_\_ - Reporting Requirements. The Contractor must ensure output materials meet the Market Specifications contained in Appendix \_\_\_\_ and as they may be revised from time to time in response to changing market requirements. All costs associated with the Contractor's inability to meet these Market Specifications will be the responsibility of the Contractor. Further, the Authority will be reimbursed by the Contractor for any loss of revenue resulting from the aforementioned.

Although the Authority is responsible for the cost of shipping Recovered Container Materials to end markets, the Contractor shall co-ordinate transportation of Recovered Container Materials to market and load Recovered Container Materials on to appropriate transport vehicles.

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<sup>12</sup> Periodic weighing may be sufficient if average bale weights are consistent for each material.

**Table 5** Sample material specifications

Material	Prohibitive material (0% tolerance)	Objectionable material	% Objectionable material	Additional requirements	Baling
PET	<ul style="list-style-type: none"> <li>▪ special waste</li> <li>▪ broken glass</li> <li>▪ other sharps</li> <li>▪ paper</li> <li>▪ metal</li> <li>▪ glass products</li> <li>▪ organic matter</li> <li>▪ non-requested plastic materials</li> <li>▪ containers used for motor oil, animal care products, insecticide, fertilizer, medical products</li> </ul>	<ul style="list-style-type: none"> <li>▪ non-plastic material (e.g. aluminium and steel beverage food and containers, paper</li> <li>▪ less than 1% PVC, plastic bags, HDPE bottles, polypropylene</li> </ul>	3%	<ul style="list-style-type: none"> <li>▪ removal of caps (bottle tops) wherever possible</li> </ul>	<ul style="list-style-type: none"> <li>▪ bales should weigh between 200-325 kg</li> <li>▪ acceptable strapping minimum four straps</li> </ul>
Steel cans	<ul style="list-style-type: none"> <li>▪ hazardous materials</li> <li>▪ medical waste</li> <li>▪ sealed containers</li> <li>▪ ordinance and ammunition</li> <li>▪ radioactive materials</li> <li>▪ containers bearing hazardous chemicals (e.g. gasoline, etc)</li> </ul>	<ul style="list-style-type: none"> <li>▪ non-ferrous metals</li> <li>▪ wood</li> <li>▪ garbage</li> <li>▪ rubber</li> <li>▪ paper</li> <li>▪ sheet metal</li> </ul>	1%		<ul style="list-style-type: none"> <li>▪ minimum 350 kg/m<sup>3</sup></li> <li>▪ a maximum of 6 wire bands per bale</li> <li>▪ bales must not be wrapped in plastic or shrink-wrap</li> </ul>

**Facility maintenance (see 3.3.3)**

The Contractor shall maintain excellent housekeeping throughout the MRF to promote quality goals and reflect pride of workmanship essential to public and neighbourhood interest and approval. Specific areas of the MRF and Site to be maintained by the Contractor include:

- plant equipment and floor;
- maintenance area;
- MRF Operating staff canteens, washrooms, change rooms;
- parking and roads within the Contractor's operating limits on site; and
- on-site and off-site areas affected by the MRF operations.

The Contractor shall implement and carry out a MRF maintenance program consisting of the following:

- Site maintenance: On-site and bordering off-site roads affected by the operation of the MRF will be maintained on a daily basis through litter patrols which will also remove debris promptly (i.e. on discovery).
- Site security: The Contractor shall ensure that the MRF is locked and secured whenever the Contractor is not present. The Contractor is responsible for all security within the Contractor's operating limits.

The Contractor will be responsible for supplying, installing and maintaining door and lock hardware, as discussed in the Specifications Section of this document. The Authority will provide lock cores to the Contractor upon substantial completion and keys to the MRF as required by the Contractor for the MRF Operations Phase. If required, the Contractor shall supply and install an intrusion detection and/or access control building security system that must be compatible with the Authority standard. The Contractor will provide the Authority with master access.

- **Scheduled plant maintenance:** Maintenance of the MRF, plant and equipment shall be carried out in accordance with the written Preventive Maintenance Program set out below.
- **Preventive maintenance program:** The Contractor shall prepare and submit a preliminary written preventive Maintenance Program (Manual) to the Authority for review and comment at least 90 calendar days prior to the planned commencement of the MRF Operations Phase. The Authority will provide comments on the draft Maintenance Manual within 30 days of its receipt. The final Maintenance Manual shall be completed by the Contractor and submitted to the Authority 30 days prior to the scheduled commencement of the MRF Operations Phase.
- **The written preventive Maintenance Manual program will include a complete detailed schedule including person hours, individual equipment maintenance sign-off sheets and detailed descriptions of preventive maintenance required on, and for all equipment. Preventive maintenance will be scheduled and performed in a manner and frequency that meets or exceeds specifications and schedules set forth by the original equipment manufacturer and recognized industry standards including material and labour that provides for the maximization of the equipment life and/or required for the continuity of operations, safety and operating performance.**

**MRF site visits (see 3.3.3)**

The successful Contractor will cooperate fully with the Authority in the conduct of any visits to the MRF to view processing operations and to confirm that materials are being properly processed and marketed. Such visits may be conducted with reasonable prior notice. Appropriate PPE to be provided by the Contractor.

# APPENDIX B

## References

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