



**PROJECT AGREEMENT**

BY AND BETWEEN  
THE REGIONAL MUNICIPALITY OF DURHAM  
AND  
THE REGIONAL MUNICIPALITY OF YORK,  
AS OWNER

AND

COVANTA DURHAM YORK RENEWABLE ENERGY LTD.,  
AS DBO CONTRACTOR



**REGIONAL MUNICIPALITIES OF DURHAM AND YORK**  
**APPENDICES – PROJECT AGREEMENT - *CONFIDENTIAL***

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**PROJECT AGREEMENT**

THIS AGREEMENT is made as of the     day of November, 2010.

**B E T W E E N:**

THE REGIONAL MUNICIPALITY OF DURHAM and  
THE REGIONAL MUNICIPALITY OF YORK

(collectively the "Owner")

**OF THE FIRST PART**

**A N D**

COVANTA DURHAM YORK RENEWABLE ENERGY LTD.

(the "DBO Contractor")

**OF THE SECOND PART**

(each individually referred to as a "Party" and collectively as the "Parties")

**WHEREAS** the Owner issued a Request for Proposals dated August 22, 2008 for the design, construction, commissioning, start-up, testing, operation and maintenance of the Durham/York Energy from Waste Project (the "Project");

**AND WHEREAS** the DBO Contractor submitted a Proposal in response to the Request for Proposals and was selected by the Owner as Preferred Proponent;

**AND WHEREAS** DBO Contractor entered into an Early Works Agreement dated January \_\_, 2010 with the Owner for the provision of certain early works services such as architectural design services and obtaining many of the requisite Authorizations including, without limitation, the Certificate of Approval for the Project (the "Early Works")

**AND WHEREAS** the Parties intend that the Early Works Agreement be subsumed within this Agreement by way of novation such that the Early Works shall hereafter be deemed to have been performed under this Agreement;

**AND WHEREAS** THE Owner wishes to retain the DBO Contractor to perform the Work and the DBO Contractor agrees to perform the Work in accordance with the terms and conditions of this Agreement;



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**WITNESSETH THAT** in consideration of the covenants and agreements herein contained and for other good and valuable consideration (the receipt and sufficiency of which are hereby acknowledged), the Parties hereto covenant and agree as follows:

**ARTICLE 1**  
**INTERPRETATION**

**1.1 Definitions**

Unless the context otherwise specifies or requires, for the purposes of this Agreement, the following terms shall have the following meanings:

**“Acceptable Waste”** or **“Waste”** means **“municipal waste”** as described in the *Environmental Protection Act*, Ontario Regulation 347, RRO 1990.

**“Acceptance”** means that, with the exception of the performance and observation of all those covenants, agreements and obligations that continue under this Agreement, the DBO Contractor has fully performed the Design Build Work and Service Commencement can proceed. Acceptance is evidenced by the issuance by the Owner of the Acceptance Certificate.

**“Acceptance Certificate”** means the certificate issued by the Owner’s Consultants in the form attached at **Appendix 18**, certifying that the DBO Contractor has achieved Acceptance.

**“Acceptance Test Certificate”** means the certificate issued by the Owner’s Consultant in the form attached at **Appendix 15**, certifying that the DBO Contractor has successfully completed the Acceptance Test Work.

**“Acceptance Test Declaration”** has the meaning set out in **subsection 6.2.6(a)(iv)**.

**“Acceptance Test Protocol”** means a procedure proposed by the DBO Contractor and approved by the Owner as more particularly described in the Technical Requirements.

**“Acceptance Test Work”** has the meaning set out in **subsection 6.2.6(a)(iv)**.

**“Adjudicator(s)”** means the individual or individuals identified in **subsection 28.8.2**.

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“**Agreement**” means this Project Agreement.

“**Annual Service Plan**” has the meaning ascribed thereto in **subsection 36.8.1**.

“**APC Plant**” means the portion of the Facility known as the Air Pollution Control Plant, and includes the conditioning towers, lime injection reactors, fabric filters and other related equipment.

“**Appointment Notice**” means a written notice provided to the DBO Contractor by the Owner appointing the Owner’s Representative pursuant to **subsection 2.1.1** or the Owner’s Consultant pursuant to **subsection 2.1.4**.

“**Approved Change Request**” means a Change Request that has been approved by the Owner or the terms of which have been determined in accordance with **subsection 15.1.15**.

“**Area**” means an area of the Facility designated as such in the Technical Requirements.

“**ASME**” means the American Society of Mechanical Engineers.

“**ASTM**” means American Society for Testing and Materials.

“**Authorizations**” means all approvals, authorizations, consents, waivers, permits and licences in connection with the Work to be obtained, complied with, promptly renewed, updated and maintained in good standing by the DBO Contractor and or the Owner, and shall include, without limiting the foregoing, the Certificate of Approval.

“**Availability**” means, in respect of an Incinerator Unit, the proportion of time the Incinerator Unit is operating within a given time period, expressed as a percentage, determined by taking the total number of hours the Incinerator Unit has operated during the period, divided by the total number of hours available for operation during the period, multiplied by 100. Down time due to scheduled and unscheduled maintenance and holidays will be included in the calculation of the total number of hours available in a period.

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“**Benchmark Diesel Index Average**” means the annual average change in Diesel prices from year to year as measured by, and provided in, the Canadian Industry Price Index, Diesel Fuel, Ontario (Catalogue #62-011-XPB) as published by Statistics Canada.

**Bottom Ash**” means the solid residue left after the incineration burning process, except Fly Ash, grate siftings, and APC Plant waste.

“**Build Component**” means the Procurement Work, the Construction Work, the Training Work, the Commissioning Work, the Acceptance Test Work and the Finishing Work, all in accordance with the provisions of the Contract Documents and as set out in **subsection 6.2**.

“**Business Day**” means any day which is not:

- a Saturday or a Sunday; or
- a day observed as a holiday under any of the laws of the Province of Ontario or the federal laws of Canada applicable within the Province of Ontario.

“**By-pass Waste**” means waste, excluding Hazardous Waste, that is received at the Facility and is not combusted.

“**Calendar Year**” means the period of twelve consecutive months beginning January 1<sup>st</sup> and ending December 31<sup>st</sup>.

“**Capital Improvements**” means any physical improvement, alteration, modification, addition or change to the Facility authorized by the Owner, requiring a financial contribution of not less than fifty thousand (\$50,000) individually or two hundred thousand dollars (\$200,000) in the aggregate, as such amounts may be adjusted to reflect the change in the manner set out in **subsection 37.2** that adds to the Facility a functionality not existing prior to or that otherwise provides a material benefit to the operation or maintenance of the Facility by the Owner and that is not a replacement or upgrade of an existing part, component or the structure of the Facility. For greater certainty, Capital Improvements does not include Major Maintenance Activities.

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“**CEMS**” means the continuous emissions monitoring system of the Facility, including any emission monitors upstream from the stack (such as the SO<sub>2</sub> monitoring system at the inlet of the air pollution control plant), probes, sample lines, pumping systems, analyzers, programmable logic controllers, software and hardware and any other equipment associated with measuring the emissions from the Facility on a continuous basis.

“**CEMS Availability**” means, in respect of an analyzer, the number of valid data points for the appropriate averaging period recorded by the CEMS data acquisition system for the analyzer in a given month of divided by:

- in the case of shared analyzers, the number of hours of operation for all Incinerator Units, and
- in the case of dedicated analyzers, the number of hours of operation for each Incinerator Unit.

“**Certificate of Approval**” means the Approval to be issued by the Minister of the Environment for the Province of Ontario for the development and operation of the Facility.

“**Change in Law**” means the coming into effect of any new Laws and Regulations or any modification or repeal of the existing Laws and Regulations after the identification of Covanta as the Preferred Proponent on April 22, 2009 to the extent that compliance therewith results in a change in the scope of the Work, a delay in the timing and/or performance of obligations under the Master Project Schedule and/or an increase in the capital or operating costs with respect to the Project. Prior to the execution of this Agreement, the parties hereto shall exchange signed certificates attesting to their knowledge, or lack thereof, of any matter in existence as of that date, after exercising reasonable diligence to discover same, which would constitute a Change in Law as defined herein. For greater certainty, a Change in Law includes:

- the adoption, amendment, promulgation, issuance, modification, repeal or written change of any Laws and regulations;
- the order or judgment of any Court of competent jurisdiction or administrative agency or adjudicative body to the extent that such order or

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judgment is not the result of wilful or negligent action, error or omission or lack of reasonable diligence of the party asserting a Change in Law; provided, however, that the party contesting in good faith or the failure in good faith to contest any such order or judgment shall not constitute or be construed as such a wilful or negligent action, error or omission or lack of reasonable diligence;

- the denial of an application for, a delay in the review, issuance or renewal of, or the suspension, termination, or interruption of any Authorization, or the imposition of a term, condition or requirement which is more stringent and/or burdensome than those in effect as of April 22, 2009, to the extent that such occurrence is not the result of wilful or negligent action, error or omission or a lack of reasonable diligence of the party asserting the Change in Law, provided however, that the contesting in good faith or the failure in good faith to contest any such occurrence shall not constitute or be construed as such a wilful or negligent action, error or omission, or lack of reasonable diligence.
  
- The adoption or amendment of laws, treaties, regulations, rulings, codes, or other promulgations by an entity with legal jurisdiction over matters enforceable by the State of New York affecting the disposal of Fly Ash, Bottom Ash or By-pass Waste from the Project.

“**Change Order**” means a written order issued by the Owner directing the DBO Contractor to cause the Technical Requirements, the Project Plans, the Master Project Schedule, or the Work to be revised, new work, services or material to be added in addition to that provided for in the Technical Requirements, the Project Plans, or the dimensions, character, quantity, quality, description, location or position of the whole or any part of the Work to be dispensed with, deleted or changed.

“**Change Request**” means a written request issued by the DBO Contractor for a revision to the Technical Requirements, the Project Plans, the Master Project Schedule or the Work, to add new work, services or material in addition to that provided for in the Technical Requirements or the Project Plans or to dispense with, delete or change the

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dimensions, character, quantity, quality, description, location or position of the whole or any part of any Work.

“**Claim**” means any claim, demand, liability, damage, loss, suit, action or cause of action and all costs and expenses relating thereto.

“**Commissioning Plan**” means the plan attached hereto as **Appendix 13**.

“**Commissioning Work**” has the meaning as set out to in **subsection 6.2.5** and “Commissioning” has a concomitant meaning.

“**Construction Work**” means the building, construction and installation of the Facility as set out in **subsection 6.2.3**.

“**Conditions Precedent**” means the achievement of the matters set forth on **Appendix 35**.

“**Consumables**” means any items, excluding fuels and chemicals, which are directly or indirectly consumed in the operation and maintenance of the Facility and must be replenished/replaced on an as-needed basis.

“**Contract Documents**” means, collectively, this Project Agreement (including all Appendices hereto), the Project Plans, Change Orders, Approved Change Requests, Scope Changes, the Specifications and Standards, Authorizations, and, subject to Examination or (if required by this Agreement) approval by the Owner, the plans, procedures and programs prepared by or on behalf of the DBO Contractor pursuant to this Agreement.

“**Cost Substantiation**” means, with respect to those costs identified as requiring same for which the DBO Contractor is seeking payment from the Owner, including costs for Extra Work, a certificate signed by an officer of the DBO Contractor setting out:

- the amount of the cost, together with supporting invoices and other pertinent documentation required by the Owner, acting reasonably,
- the DBO Contractor’s reasons for incurring the cost,

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- the section of this Agreement or other authorization by the Owner authorizing the DBO Contractor to incur such cost, and
- a statement that such cost is reasonable for the services or materials supplied.

**“DBO Contractor”** means the Party of the Second Part and its respective permitted successors and assigns.

**“Data”** means all information, plans (including the Project Plans), schedules, notices, requests, materials, studies, tests, test results, certificates, investigations, samples, surveys, documents, minutes, information, facts, records, data (including test data), reports and statements provided, prepared, produced, created, collected, recorded, analyzed, characterized, categorized, processed, generated and/or stored by or on behalf of the DBO Contractor in connection with the Facility or the Work, but excluding the DBO Contractor’s financial records or other information regarding amounts payable by the Owner under this Agreement that were priced in its Proposal on a fixed or lump sum basis and any information that is proprietary from a financial perspective, provided that if it becomes difficult or impossible for the Owner to administer this Agreement without access to the aforementioned proprietary financial information, then the DBO shall reveal such information to the Owner provided that the scope of disclosure is limited to that which is reasonably necessary to address the difficulty and further provided that access to such information shall be restricted by the Owner to those employees who have a need to know and only upon taking reasonable steps to protect such information from improper disclosure or use and provided further that Owner shall ensure that such information is not disclosed to Owner’s Representative or any of DBO Contractor’s competitors for any purpose. For the sake of greater clarity, at no time shall any data from the Facility related to its operations be deemed confidential or proprietary.

**“DCS”** means Supervisory Control and Data Acquisition System or Distributed Control System.

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“**Default**” means an event or condition (including an act or omission), the occurrence of which would, with the lapse of time or the giving of notice, or both, become an Event of Default.

“**Delivered Waste**” means the amount of Acceptable Waste delivered to the Facility by, or on behalf of, the Owner.

“**Diesel Operated Residue Haulage Vehicles**” means any diesel fueled waste haulage vehicles utilized to haul Residue Waste to off-site disposal facilities, as per **Appendix 31** and including Bottom Ash, Fly Ash, grate siftings, APC Plant waste and other material that remains after combustion of waste and recovery of metals in the Facility.

“**Design Build Work**” means, collectively, the Design Component and the Build Component, and the performance and observance of all covenants, agreements and obligations arising therefrom or related thereto, as more particularly described in this Agreement.

“**Design Component**” means the design of the Facility or portion thereof including the Design Component and the Detailed Design Phase all in accordance with the provisions of the Contract Documents as set out in **subsection 6.1**.

“**Detailed Design Phase**” means the performance of the detailed engineering for the Facility as set out in **subsection 6.1.2**.

“**Dispute**” has the meaning set out in **Article 28**.

“**Early Works**” means the work performed by the DBO Contractor under the Early Works Agreement.

“**Early Works Agreement**” means the agreement between the DBO Contractor and the Owner dated **January \_\_, 2010** under which the DBO Contractor performed the Early Works.



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“**Emergency Shutdown**” means an unplanned shutdown of the Facility during which the normal procedures for shutdown cannot be followed.

“**Energy Customer**” means any purchaser of district heat or electricity.

“**Environmental Laws and Regulations**” means any and all requirements including Authorizations under or prescribed by any and all federal, provincial or municipal laws, by-laws, codes, orders, ordinances, rules, regulations or statutes relating to the protection of the environment.

“**Environmental Performance Adjustment**” means that adjustment to the Total Annual Operating Fee more particularly described in **subsection 37.9**.

“**Environmental Performance Points**” are those points assigned to the DBO Contractor by the Owner pursuant to the provisions of **subsection 37.9**.

“**Equipment**” means production machinery, equipment, apparatus, appurtenances, and their accessories.

“**Event of Default**” in respect of the DBO Contractor has the meaning set out in **subsection 26.1**, and in respect of the Owner has the meaning set out in **subsection 26.11**.

“**Examination**”, “**Examine**” or “**Examined**” and similar terms mean, with respect to any matter or thing, the performance by or on behalf of the Owner of such examinations, investigations, inspections, confirmations, certifications, tests, studies and determinations of or relating to such matter or thing as the Owner may determine, in its sole and absolute discretion, to be advisable or desirable in the circumstances, but excluding the DBO Contractor’s financial records or other information regarding amounts payable by the Owner under this Agreement that are priced on a fixed or lump sum basis and any information that is proprietary from a financial perspective.

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“**Expiry Date**” means the date which is twenty years plus one day after the Service Commencement Date, as set forth in **subsection 30.2.1**, unless this Agreement is renewed, and in that event it means the date on which any Renewal Term expires.

“**Facility**” means:

- all buildings, erections, structures, Equipment and works, whether temporary or permanent, erected or located in, on, under or upon the Facility Lands from time to time;
- all other facilities, fixtures, appurtenances and corporeal moveable property, including inventories of any nature whatsoever contained on or attaching to the Facility Lands from time to time and/or used in connection therewith; and,
- all mechanical, electrical and other systems installed or used in connection with any of the foregoing,

and shall expressly include the Facility Lands.

“**Facility Acceptance Test Criteria**” means the acceptance test criteria set forth in **Appendix 10, section 1.14**.

“**Facility Substantial Completion**” means the DBO Contractor has satisfied the following requirements:

- Mechanical and controls completion;
- Substantial Completion;
- Certificate of installation and testing (from manufacturers) if applicable;
- Warranty documentation provided;
- Submission and approval of Acceptance Test Protocol;
  - Including emissions test plan (if required);
  - Commitment to schedule for completion of Acceptance Test;
- completion of the Acceptance Test Work and issuance of the Acceptance Test Certificate;
- Utilities/interconnect completed;

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- Spare parts and consumables are on-site;
- Submission of draft O&M manuals;
- Submission of draft as-built drawings of all mechanical, electrical and process related systems;
- Completion of all regulatory inspections and certifications (*i.e.* Certificate of Occupancy) with exception of emissions test; and
- Definition of an agreed upon Punch List.

**“Facility Lands”** means the lands designated for the Facility as described in the Technical Requirements.

**“Facility Performance Test”** has the meaning set out in **subsection 6.2.6.**

**“Finishing Work”** means the Work performed after the issuance of the Acceptance Test Certificate and prior to the issuance of the Acceptance Certificate as set out in **subsection 6.2.7**, and includes the performance of all Work on the Punch List.

**“Five Year Maintenance Plan”** has the meaning ascribed thereto in **subsection 36.8.2.**

**“Fly Ash”** means solid residue removed by the air pollution control devices after the incineration burning process and which may contain traces of materials burned in the Facility and their combustion products and reacted and unreacted products from the APC Plant, including lime and carbon.

**“Force Majeure”** means any event, circumstance or act beyond the control of a Party to this Agreement claiming Force Majeure, including, an intervening act of God or public enemy, war, blockade, civil commotions, a stop-work order or injunction issued by a court or public authority having jurisdiction, governmental embargo, all or any of which delays the performance of any obligation under this Agreement beyond its scheduled time, provided such circumstance or act is not expressly dealt with under this Agreement or does not arise by reason of:

- the negligent actions or omissions or wilful misconduct of the Party claiming Force Majeure or those for whom it is responsible at law;

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- any act or omission by the Party (or those for whom it is responsible at law) claiming Force Majeure in breach of the provisions of this Agreement, except occurring as a result of another event, circumstance or act which is not excluded under the definition of Force Majeure hereunder
- the lack or insufficiency of funds or failure to make payment of monies or provide required security unless, in the case of the DBO Contractor, such event occurs as a result of the failure of the Owner to make Payments to the DBO Contractor as required under this Agreement;
- the inability to obtain Authorizations arising out of the DBO Contractor's failure to exercise commercially reasonable efforts to obtain same;
- any strike, labour dispute, labour protest slow down and/or pressure tactic whatsoever by DBO Contractor's or its sub-contractor's employees caused by or attributable to any act (including, any pricing or other practice or method of operation) or omission of the DBO Contractor, its sub-contractor's employees and any person for whom the DBO Contractor is responsible at law provided such labour activity does not constitute a breach of the peace;
- the inability to attain expected or reasonable labour productivity, except occurring as a result of another event, circumstance or act which is not excluded under the definition of Force Majeure hereunder;
- any reasonably anticipated weather conditions for the geographic area of the Facility; or
- general economic conditions, except occurring as a result of another event, circumstance or act which is not excluded under the definition of Force Majeure hereunder,

and provided further that, in the case of an event of Force Majeure affecting the DBO Contractor, the DBO Contractor notifies the Owner as soon as possible and in any event within five (5) Business Days following the date upon which any of the DBO Contractor or its Managers, first becomes aware (or should have been aware, using all reasonable due diligence), of such event so that the Owner may verify the same.

**“Form 3, 3A, 3B and Schedule A to Form 3”** means Form 3, 3A, 3B and Schedule A to Form 3 to the DBO Contractor's Proposal respectively, all of which are attached hereto as **Appendix 31**.

**“Fundamental Matters”** means a Dispute relating to a Claim, Change Order, Change Request or Milestone Payment of a value or resulting in a value exceeding Two Hundred and Fifty Thousand Dollars (\$250,000), a Default, the issuance of the Acceptance Test

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Certificate or the Acceptance Certificate, the exercise by the Owner of its rights under **Article 25** and **Article 26**, and any Dispute relating to the exercise by the Owner of its rights under **Article 20**.

“**Guarantees**” means the Guarantees provided by the DBO Contractor in accordance with this Agreement as set out in **Article 17**.

“**Guarantor**” means **Covanta Holding Corporation, a corporation incorporated under the laws of the State of Delaware**.

“**Handback Requirements**” means the requirements for the condition of the Facility on the Expiry Date described in **Appendix 27**.

“**Handback Survey**” has the meaning ascribed thereto in **subsection 44.2.1**.

“**Handback Works**” has the meaning ascribed thereto in **subsection 44.2.2**.

“**Hauler**” means a person who delivers Waste to the Facility on a commercial basis and who is licensed to operate as a Waste hauler within Ontario, or who is otherwise approved in writing by the Owner.

“**Hazardous Substance**” means, but is not limited to, any solid, liquid, gas, odour, heat, sound, vibration, radiation or other substance or emission which is a contaminant, pollutant, dangerous substance, liquid waste, industrial waste, hazardous material or hazardous substance which is or becomes regulated by Environmental Laws and Regulations or which is classified as hazardous or toxic under Environmental Laws and Regulations.

“**Hazardous Waste**” means waste that is defined as hazardous in Ontario Regulation 347 RRO, 1990.

“**Incinerator Unit**” means Equipment and other parts and components of the Facility used to process Waste commencing from the Waste feed chute to the air emissions stack.

“**Initial Term**” has the meaning ascribed thereto in **subsection 30.2.1**.

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“**Inspectors**” has the meaning ascribed thereto in **subsection 39.3**.

“**Intellectual Property**” means any technology, inventions, developments, discoveries, improvements, concepts, processes, writings, ideas, patents, copyrights, trade marks, industrial designs, mask works, trade secrets, know-how, goodwill and all other intellectual and industrial property rights whatsoever, whether or not copyrighted or patented or registered or protected, or capable of such registration or protection.

“**Intellectual Property Rights**” includes

- any and all proprietary rights provided under (i) patent law; (ii) copyright law; (iii) trademark law; (iv) design patent or industrial design law; (v) semi-conductor chip or mask work law, or (vi) any other statutory provision or common law principle applicable to this Agreement, the Work or the Facility which may provide a right in either (a) ideas, formulae, algorithms, data, concepts, inventions or know-how generally, including trade secret law or (b) the expression or use of such ideas, formulae, algorithms, data, concepts, inventions or know-how; and
- any and all applications, registrations, licenses, sub-licenses, franchises, agreements or other evidence of a right in any of the foregoing.

“**Labour and Material Payment Bond**” means the labour and material payment bond as described in and which satisfy the requirements of **subsection 20.1.1(b)**.

“**Laws and Regulations**” means any and all requirements under or prescribed by any and all applicable federal, provincial or municipal laws, by-laws, codes, orders, ordinances, rules, regulations or statutes affecting, applicable or otherwise relating to the Work, including Environmental Laws and Regulations.

“**Life Cycle Plan**” has the meaning ascribed thereto in **subsection 36.8.3**.

“**Lump Sum Performance Liquidated Damages**” means those liquidated damages more particularly described as such in **subsections 6.2.6(d)(iv)** and **18.1.5(a)**.

“**Lump Sum Price**” means the amount to be paid to the DBO Contractor for the Design Build Work as set out in **Article 13**.

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“**Major Equipment**” means the equipment specified by the DBO Contractor in Schedule A to Form 3a of its Proposal.

“**Major Maintenance Activity**” means a maintenance activity having a value of not less than **One Hundred Thousand Dollars (\$100,000.00)**.

“**Managers**” means, collectively, the Project Manager and the individual(s) designated as the Project controls manager, quality manager, environmental manager, engineering design manager, the occupational health and safety manager, construction manager, training manager, commissioning manager and Acceptance Test manager, or such other duly licensed, qualified and/or accredited individual(s) retained by the DBO Contractor to perform the functions of a Manager and approved by the Owner.

“**Master Project Schedule**” means the project schedule attached hereto as **Appendix 5** and as described in **subsection 7.1.1**, and as the same may be updated from time to time pursuant to **subsection 7.1.2**.

“**Material Subcontracts**” means the subcontracts between the DBO Contractor and those Material Subcontractors, Suppliers and Equipment Vendors referred to in **Article 12** listed in **Appendix 4** and “**Material Subcontractor**” shall have the concomitant meaning.

“**Mechanically Complete**” means that the Facility or any Area thereof is mechanically complete and ready for Commissioning.

“**Milestone Billing Report**” means a report in the form of **Appendix 7** prepared by the DBO Contractor and accompanied by a Project Manager’s Certificate which shall certify, as at the date thereof:

- the Work completed as per the Milestone Payment Schedule, together with supporting evidence;
- supporting evidence demonstrating that all of the requirements for achievement of the stated milestone have been satisfied;
- the aggregate Payments previously made;

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- the current Payment Request;
- the then expected costs and expenses to be incurred in order to complete the Work;
- the amounts paid to the subcontractors, the persons having supplied the Products and to any other person having participated in the Work, and of the amounts he still owes them for the completion of the Work and of any claims for extension of schedule, additional compensation, extra work or extras;
- that all subcontractors, suppliers and workers having a valid claim for payment under their respective subcontracts or agreements with respect to the Work for which a previous Payment has been made by the Owner to the DBO Contractor have been paid;
- the second and succeeding Milestone Billing Reports shall include receipted vouchers or other satisfactory evidence of payment of all items included in the preceding Milestone Billing Report;
- that there has been no claim or notice received related to any construction lien; and
- that all applicable taxes, duties, withholdings, and similar rights have been paid in full and that all other obligations, monetary or otherwise, imposed by law, in connection with the Work have been fulfilled, including under the *Workplace Safety and Insurance Act* 1997, S.O. 1997, c.16 and the *Occupational Health and Safety Act* R.S.O. 1990, c. 0.1.

**“Milestone Payment Schedule”** means the schedule of milestone payments described in **subsection 14.1.1(a)** and set out in **Appendix 9**.

**“Minimum Acceptance Criteria”** means the criteria set forth in **Appendix 10**, section 1.15.

**“Mobile Equipment”** means any piece of machinery or equipment at the Facility that is not permanently affixed to the Facility, including forklifts and tractors.

**“MOE”** means the Ontario Ministry of the Environment.

**“Monthly Operating Fee”** has the meaning set out in **subsection 37.1.1(d)**.

**“Monthly Operating Report”** has the meaning ascribed thereto in **Article 36**.



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**“Monthly Status Report”** means a monthly report referred to in **subsection 22.1.1**.

**“Noise Control Plan”** means the plan attached hereto as **Appendix 32**.

**“Non-Conformance”** means, collectively, any non-conformities, inadequacies, errors, defects, deficiencies or failures relating to the Work, the Facility, or any part thereof; and **“Non-Conformance Notice”** has the meaning set out in **subsection 4.3**, unless and to the extent directly attributable to Owner Fault.

**“Normal Start-up and Shutdown”** means a planned start-up or shutdown of the Facility that allows the DBO Contractor to follow documented procedures to allow the operation to stabilize.

**“Notice to Proceed”** means the Owner's notice to the DBO Contractor to commence the Work as referred to in **subsection 5.1.1**.

**“Odour Control Plan”** means the plan attached hereto as **Appendix 33**.

**“Operations and Maintenance Manuals”** means manuals related to the operation and maintenance of the Facility.

**“Operations Component”** means the provision of services and materials by the DBO Contractor in respect of the operation, maintenance and repair of the Facility including, without limitation, the provision of management and supervisory services, all in accordance with the provisions of the Contract Documents as set out in **subsection 30.1**.

**“Operations Performance Security”** means the renewable letter of credit provided by the DBO Contractor to the Owner in accordance with **subsection 20.4.1**.

**“Operations Work”** means the portion of the Work performed by the DBO Contractor as part of the Operations Component.

**“Owner”** means the Party of the first part; namely, and its permitted successors and assigns.

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“**Owner Fault**” means any breach (including the breach of any Owner representation or warranty herein set forth), negligence, action, failure, non-performance or non-compliance by the Owner, the Owner’s Representative and/or the Owner’s Consultant or anyone for whom they are responsible at law, including other contractors employed by the Owner in connection with the Project, under this Agreement with respect to their respective obligations and responsibilities, in each case to the extent directly attributable to the Owner, the Owner’s Representative and/or the Owner’s Consultant or others for whom they are responsible at law, and which adversely affects the DBO Contractor’s rights, obligations, ability or costs to perform under this Agreement.

“**Owner’s Consultant**” means the individual identified in the Appointment Notice pursuant to **subsection 2.1.4**.

“**Owner’s Representative**” means the individual or firm identified in the Appointment Notice pursuant to **subsection 2.1.1**.

“**Parent Company**” means the corporate entity put forward by the DBO Contractor during the Request for Qualifications as the Prime Financing Team Member, or that company’s parent company.

“**Parent Company Guarantee**” has the meaning set forth in **subsection 20.2**.

“**Payment**” means a payment by the Owner to the DBO Contractor in respect of the amounts for the Design Build Work as set out in **Article 14**.

“**Payment Request**” means a written request for a Payment submitted by the DBO Contractor to the Owner in the form of **Appendix 8** setting out the Payment requested, certifying that all conditions for Payment set out in this Agreement have been satisfied, and which is accompanied by a Milestone Billing Report and Project Manager’s Certificate.

“**Performance Bond**” means the performance bond as described in and which satisfies the requirements of **subsection 20.1.1(a)**.

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“**Performance Guarantees**” means the performance guarantees provided by the DBO Contractor in accordance with **subsection 17.4**.

“**Performance Holdback**” means the performance holdback as set out in **subsection 20.3**.

“**Performance Liquidated Damages**” means those liquidated damages related to Throughput Capacity, Electricity Production and/or Residue Quantity during the performance of the Operations Work described in **subsection 18.1.5(c)**. For the avoidance of doubt, Performance Liquidated Damages do not include Schedule Liquidated Damages or Lump Sum Performance Liquidated Damages.

“**Performance Requirements**” means any or all of the performance requirements set out in **Article 42 and Appendix 19**.

“**Per Tonne Charge for Throughput in Excess of 140,000 Tonnes**” has the meaning set out in **subsection 37.1.1(c)**.

“**Per Tonne Total Annual Operating Fee**” has the meaning set out in **subsection 37.1.1(b)**.

“**PIN**” means a personal identification number entered by the driver of a Hauler’s truck at the Facility to identify the vehicle, account number, material source, and material type.

“**Place of Work**” means the Facility Lands.

“**Plans**” means the Annual Service Plan, the Five Year Maintenance Plan and the Life Cycle Plan.

“**Power Purchase Agreement**” means an agreement between the Owner and the Ontario Power Authority, as amended from time to time, to sell Electricity.

“**Prime Rate**” means, on any given day, the applicable “Prime business (“prime rate”)” as published weekly by the Bank of Canada on or through its web site <http://www.bankofcanada.ca/en/rates/interest-look.html>.

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**“Procurement Work”** has the meaning set out in **subsection 6.2.2**.

**“Products”** means material, machinery, Equipment, and fixtures forming part(s) of the Work, but does not include machinery and equipment used to prepare, fabricate, convey, or erect the Work, which are referred to as construction machinery and equipment.

**“Project”** means the Durham/York Energy from Waste Project.

**“Project Manager”** means the representative of the DBO Contractor designated in accordance with **subsection 11.1.3**.

**“Project Manager's Certificate”** means a certificate of the Project Manager in the form of **Appendix 6**:

- stating that the Project Manager has examined the relevant Milestone Billing Report and Payment Request, if any; and
- certifying that:
  - the information set out in the relevant Milestone Billing Report and Payment Request is accurate and complete;
  - all necessary Authorizations have been applied for, obtained and complied with, as may be required, for the purposes of the performance of those parts of the Work for which a Payment Request has been made;
  - the applicable milestone to which the Payment Request relates has been achieved in accordance with **Appendix 9**, the Work complies with the Contract Documents relating thereto and any previously identified Non-Conformance has been rectified or is being rectified in the manner agreed upon by the Owner and the DBO Contractor;
  - the Project Manager has no knowledge of any outstanding infractions of Laws and Regulations relating to the Work; and
  - to the best of his knowledge, information and belief, after due enquiry, no Default or Event of Default with respect to the DBO Contractor has occurred and is continuing and no such Default or

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Event of Default will result from the Payment requested pursuant to the relevant Payment Request.

“**Project Plans**” means the plans referred to in **subsection 6.1.2(a)**.

“**Proposal**” means the written Proposal of the DBO Contractor in response to the Request for Proposals.

“**Punch List**” means a deficiency list or statement of repairs, modifications, installations, corrections and adjustments to be made to the Work so that the Work conforms with the Contract Documents, including without limitation Specifications and Standards, Laws and Regulations.

“**Quality Management Plan**” means the plan as set out in **Article 8** and attached hereto as **Appendix 2**.

“**Recall Period**” means the period that commences on the earlier of the date of the issuance of the Acceptance Certificate or the termination of this Agreement (or with respect to Work to be performed by the DBO Contractor pursuant to **subsection 26.10** after termination, upon the completion, termination or abandonment thereof), and expires on the second anniversary of the date on which the Recall Period commenced; however, in the event that any portion of the Design Build Work, including any Equipment, is repaired or replaced during such two year period, the Recall Period shall, in respect of that portion of the Work or Equipment, automatically recommence and extend for a further two year period which shall commence in relation to that portion of the Design Build Work or Equipment from the date the repair or replacement of the Design Build Work or Equipment is complete.

“**Renewable Performance Bond**” means the renewable Performance Bond as described in and which satisfies the requirements of **subsection 20.1.1(c)**.

“**Renewal Term**” has the meaning ascribed thereto in **subsection 30.3**.

“**Request for Proposals**” means the Request for Proposals issued by the Owner on August 22, 2008, together with all addenda relating thereto.

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“**Requests for Information**” means requests for information provided in writing from the DBO Contractor to the Owner’s Consultant during the performance of the Design Build Work.

“**Residue**” means Bottom Ash, Fly Ash, grate siftings, APC Plant waste and other material that remains after combustion of waste and recovery of metals in the Facility.

“**Schedule Liquidated Damages**” means schedule liquidated damages as set out in **subsection 18.1.1**.

“**Scope Change**” means:

- a Change Order or Approved Change Request;
- the identification, removal, transportation and disposal of those Hazardous Substances described in **subsection 10.2.1**;
- a Change in Law;
- occurrence of Owner Fault; or
- occurrence of Force Majeure

in each case which results in a change in the Work, and/or a change to the timing of performance of scheduled obligations under the Master Project Schedule and/or an increase or decrease to the Lump Sum Price or the Total Annual Operating Fee or otherwise impacts either parties’ rights or obligations under this Agreement as determined in accordance with the procedure set out in **Article 15**. For greater certainty, the exercise by the Owner of any of its rights in respect of any cash allowance does not constitute a Scope Change.

“**Service Commencement**” means the DBO Contractor has achieved Facility Substantial Completion as defined, and is ready to proceed with the Operations Component.

“**Service Commencement Date**” means the first calendar day following achievement of Service Commencement.

“**Service Level Adjustment**” means the adjustment to the Total Annual Operating fee as set out in **subsection 37.10.1**.

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“**Service Level Points**” means those points assigned to the DBO Contractor by the Owner pursuant to **subsection 37.10**.

“**Specifications and Standards**” means any and all design and/or construction requirements, specifications, standards, directives, protocols, guidelines, policy statements and procedures issued, utilized or adopted from time to time, by the Owner, the DBO Contractor or any federal, provincial or municipal government, public or statutory authority, commission, tribunal, agency, department, ministry, body or other governmental unit or entity applicable to the Work or any part thereof, including those requirements, specifications and standards expressly set out or referred to in the Technical Requirements, as such requirements, specifications and standards may be amended, supplemented or replaced from time to time by the applicable entity or authority.

“**SSO**” means Source Separated Organic material collected in Regional Green Bin organic waste programs.

“**Standard Operating Procedures**” means the procedures and methods for the usual operation of the Facility under standard operating conditions as more particularly described in the Operation and Maintenance Manual(s).

“**Start-up Operations and Shakedown Protocol**” shall have the meaning set out in **Appendix 10**.

“**Substantial Completion**” means that the Design Build Work has been substantially performed as described in Section 2 of the *Construction Lien Act*, R.S.O. 1990 c.C.30.

“**Surety**” means a person regulated by the Office of the Superintendent of Financial Institutions of Canada that has provided a Performance Bond, Labour and Material Payment Bond, Renewable Performance Bond and/or any other bonds required to be provided or caused to be provided under this Agreement.

“**Surety Bonds**” means, collectively, the Labour and Material Payment Bond, Performance Bond, Renewable Performance Bond and any other bonds required to be

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provided or caused to be provided by the DBO Contractor under this Agreement as security for the performance of obligations under this Agreement, which bonds shall be issued by a Surety and which shall be in form and substance approved and which shall include waivers with respect to amendments to the underlying agreements, extensions of time, other indulgences or other matters which may release the Surety.

**“Target Date”** means shall be the date which is 1,215 calendar days from the date Notice to Proceed is issued, which is the target date contained in the Master Project Schedule by which the DBO Contractor is to achieve Service Commencement.

**“Technical Requirements”** means the document attached hereto as **Appendix 1**.

**“Term”** means, collectively, the Initial Term and any Renewal Term as set out in **subsections 30.2.1 and 30.3.1**, respectively.

**“Third Party”** means any entity which is not engaged in any business dealings with the DBO Contractor, excluding any entities that are affiliates of the DBO Contractor or are engaged in business dealings with the DBO Contractor unless such entities have been approved in writing by the Owner.

**“Throughput”** means the quantity of Acceptable Waste combusted by the Facility, in tonnes.

**“Tonne”** means a metric ton or 1,000 kg.

**“Total Annual Operating Fee”** has the meaning set out in **subsection 37.1.1(a)**.

**“Total Performance”** means the DBO Contractor has achieved Acceptance of the Work.

**“Training Work”** has the meaning set out in **subsection 6.2.4**.

**“Transient Condition”** means an operating period, excluding normal start-up, normal shut-down, and emergency shut-down, during which the operating parameters of the Facility fall outside the values specified by the Owner for normal steady state operating conditions.



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“**Unacceptable Waste**” means waste that does not conform with one or more of the elements of the definition of “municipal waste” described in Ontario Regulation 347 RRO 1990.

“**Value Added Taxes**” means such sum as shall be levied upon the Lump Sum Price by the Federal or Provincial Government and is computed as a percentage of the Lump Sum Price and includes the Goods and Services Tax, Harmonized Sales Tax and the Ontario Sales Tax, the payment or collection of which is by the legislation imposing such tax an obligation of the DBO Contractor.

“**Work**” means, collectively the Design Component, the Build Component and the Operations Component and all other work or services relating to the Facility or otherwise to be performed by on or behalf of the DBO Contractor as described in this Agreement and the performance and observance of all of the covenants, agreements and obligations of the DBO Contractor under this Agreement, and “portion of the Work”, “parts of the Work” and similar expressions, shall mean the performance and, if applicable, the observance of portions of the Work, described herein.

“**WSIB**” means “Workers’ Safety and Insurance Board” of the Province of Ontario.

“**Year-End Report**” has the meaning ascribed thereto in **subsection 36.4**.

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**1.2 Construction of Agreement**

1.2.1 In this Agreement:

- (a) words denoting the singular include the plural and vice versa and words denoting any gender include all genders;
- (b) the word “including” shall mean “including without limitation”;
- (c) any reference to a statute shall mean the statute in force as at the date hereof, together with all regulations promulgated thereunder, as the same may be amended, re-enacted, consolidated and/or replaced, from time to time, and any successor statute thereto, unless otherwise expressly provided;
- (d) when calculating the period of time within which or following which any act is to be done or step taken, the date which is the reference day in calculating such period shall be excluded. If the last day of such period is not a Business Day, the period shall end on the next Business Day;
- (e) all dollar amounts are expressed in Canadian Dollars;
- (f) any tender of documents or money under this Agreement may be made upon the Parties or their respective counsel and money may be tendered by bank draft drawn upon a Schedule I or Schedule II Canadian chartered bank or by negotiable cheque payable in Canadian Dollars and certified by a Schedule I or Schedule II Canadian chartered bank or by electronic transfer;
- (g) the division of this Agreement into separate articles, sections, subsections and Appendices, the provision of a table of contents and the insertion of headings is for convenience of reference only and shall not affect the construction or interpretation of this Agreement. The use of the headings “Design Build Phase of the Project Agreement” and “Operations Phase of the Project Agreement” is for convenience of reference only and shall in no way limit the applicability of any of the provisions in this Agreement at any time during the Term;
- (h) save and except as otherwise expressly defined in this Agreement, words or abbreviations which have well known or trade meanings are used herein and in the Contract Documents in accordance with their recognized meanings;
- (i) save as otherwise expressly set out in this Agreement, all monies due and payable hereunder shall bear interest at the Prime Rate from the date such monies are due to the date of payment.

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**1.3 Precedence**

- 1.3.1 In the event of conflicts or inconsistencies between or among Contract Documents, the following order of precedence shall apply to the extent only of such conflict or inconsistency:
- (a) documents of later date shall govern and prevail, unless otherwise expressly specified therein or herein;
  - (b) detailed drawings shall govern and prevail over general drawings;
  - (c) specifications shall govern and prevail over drawings;
  - (d) detailed designs and specifications shall govern and prevail over general designs and specifications;
  - (e) the terms of this Agreement shall govern and prevail over other Contract Documents unless otherwise expressly specified therein; and
  - (f) the Articles of this Agreement shall govern and prevail over the Appendices to this Agreement unless otherwise expressly specified in any such Appendix.
  - (g) the terms of the Contract Documents other than the Proposal shall govern and prevail over the Proposal.
- 1.3.2 In the event of any conflict or inconsistency in the contents of standards, codes or specifications, then, subject to Laws and Regulations and Regulations, the following order of precedence shall govern to the extent only of such conflict or inconsistency:
- (a) Specifications and Standards, then
  - (b) other standard or code specifications, such as, but not limited to, those produced by the Canadian Standards Association, the Canadian General Standards Board, the American National Standards Institute and the American Society for Testing and Materials.
- 1.3.3 For greater certainty and without limiting the provisions of **subsections 1.3.1 and 1.3.2 or 1.3.4**, in the event of any conflict or inconsistency between a specification or standard expressly provided for in the Contract Documents and Technical Requirements not expressly provided for in the Contract Documents, the specification or standard expressly provided for in the Contract Documents (including any Appendix) shall govern and prevail to the extent only of such conflict or inconsistency.
- 1.3.4 For greater certainty, in the event of a conflict or inconsistency between any provisions of the Contract Documents and any Laws and Regulations having the force

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of law, the provisions of the Contract Documents shall govern and prevail to the extent permissible.

**1.4 Deemed Reliance**

1.4.1 All covenants, agreements, warranties and representations and Plans set forth herein or in any certificate or other instrument or document (unless such covenants, agreements, warranties, representations, Plans, certificate, instrument or document is subsequently replaced, amended or withdrawn prior to any detrimental reliance thereon by the Owner) delivered by or on behalf of the DBO Contractor under this Agreement shall be deemed to have been relied upon by the Owner.

**1.5 Appendices**

1.5.1 The following Appendices are incorporated into this Agreement by reference and are deemed to be a part hereof.

Appendix 1:	Technical Requirements
Appendix 2:	Quality Management Plan
Appendix 3:	Environmental Management Plan
Appendix 4:	Material Subcontractors
Appendix 5:	Master Project Schedule
Appendix 6:	Project Manager's Certificate
Appendix 7:	Milestone Billing Report
Appendix 8:	Payment Request(s)
Appendix 9:	Milestone Payment Schedule
Appendix 10:	Pre-Acceptance Testing Requirements and Acceptance Test Procedures
Appendix 11:	Hourly Rates for Trades

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Appendix 12:	Training Plan
Appendix 13:	Commissioning Plan
Appendix 14	Acceptance Test Declaration
Appendix 15:	Acceptance Test Certificate
Appendix 16:	Form of Performance Bond
Appendix 17:	Form of Labour and Material Payment Bond
Appendix 18:	Acceptance Certificate
Appendix 19:	Performance Guarantees
Appendix 20:	Insurance
Appendix 21:	Occupational Health and Safety Plan
Appendix 22:	Communications Plan
Appendix 23:	Emergency Services Plan
Appendix 24:	Deleted
Appendix 25:	Form of Parent Company Guarantee
Appendix 26:	Rental Rates for Equipment
Appendix 27:	Handback Requirements
Appendix 28:	Annual Service Plan
Appendix 29 A:	Five Year Maintenance Plan
Appendix 29 B:	Life Cycle Plan

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Appendix 30	Renewable Performance Bond
Appendix 31	Form 3A to the DBO Contractor's Proposal
Appendix 32	Noise Control Plan
Appendix 33	Odour Control Plan
Appendix 34	Waste Delivery Acceptance Criteria
Appendix 35	Conditions Precedent to the Issuance of the Notice to Proceed

**ARTICLE 2**  
**OWNERS OBLIGATIONS**

**2.1 Owner's Representative**

- 2.1.1 The Owner shall have the right from time to time and at any time to appoint by written notice (the "Appointment Notice") to the DBO Contractor, an Owner's Representative as selected by the Owner to perform (as agent for and on behalf of the Owner) the duties and functions of the Owner and to give the approvals required or provided for under this Agreement. Following the giving of an Appointment Notice by the Owner to the DBO Contractor, the Owner's Representative shall have the authority, for and on behalf of and as agent for the Owner to perform the duties and functions (including Examinations) and to provide the approvals set out in this Agreement. The DBO Contractor shall deliver to the Owner's Representative all documentation, drawings, plans, specifications, lists, reports, studies, surveys, investigations, agreements and other material as may be reasonably necessary for the performance of such duties and functions and the giving the approvals required or provided for in this Agreement. Any duty or function performed by the Owner's Representative and any approval given by the Owner's Representative shall be binding upon the Owner and may be relied upon by the DBO Contractor to the same extent as if such duty, function or approval were performed or given by the Owner itself.
- 2.1.2 The Owner shall have the absolute right from time to time or at any time by written notice to the DBO Contractor:
- (a) to remove an Owner's Representative previously appointed by the Owner and appoint and designate a replacement Owner's Representative selected by the Owner; or
  - (b) to prospectively revoke, in whole or in part, on a temporary or permanent basis, the authority granted to the Owner's Representative to perform any or all of the duties or

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functions or give approvals and to exercise such duties and functions and provide such approvals on its own behalf until and unless a replacement Owner's Representative is selected and appointed pursuant to **subsection 2.1.2 (a)** by the Owner.

- 2.1.3 In the event that the Owner does not appoint the Owner's Representative, or removes and does not replace the Owner's Representative, all references in this Agreement to Owner's Representative shall be read as referring to the Owner.
- 2.1.4 The Owner may, by written notice to the DBO Contractor, appoint an Owner's Consultant, as selected by the Owner to assist the Owner in the performance of the Owner's obligations under this Agreement, including without limitation, payment and payment certification, conduct of inspections, reviewing submittals received from the DBO Contractor such as the Project Plans, the preparation or consideration of Change Orders and Change Requests, and the conduct of any tests, including the Facility Performance Test. For greater certainty, the Owner's Consultant's authority will be limited to those matters expressly set out in this Agreement, and in no event will the Owner's Consultant have authority to bind the Owner.
- 2.1.5 The Owner shall have the absolute right from time to time or at any time by written notice to the DBO Contractor:
- (a) to remove an Owner's Consultant previously appointed by the Owner and appoint and designate a replacement Owner's Consultant selected by the Owner; or
  - (b) to prospectively revoke, in whole or in part, on a temporary or permanent basis, the authority granted to the Owner's Consultant to perform any or all of the duties or functions or give approvals and to exercise such duties and functions and provide such approvals on its own behalf until and unless a replacement Owner's Representative is selected and appointed pursuant to **subsection 2.1.2 (a)** by the Owner.

**2.2 Owner's Obligations**

- 2.2.1 The Owner shall pay the DBO Contractor pursuant to the terms of this Agreement, in accordance with the provisions of **Article 13** and **Article 14**, respectively.
- 2.2.2 The Owner shall provide, at the Owner's expense, commencing not later than the Notice to Proceed, full and unrestricted access and egress for the DBO Contractor to the Facility Lands in accordance with the Technical Requirements.
- 2.2.3 The Owner's obligations with respect to obtaining Authorizations are set forth in the Early Works Agreement. The Owner shall obtain those government authorizations listed in the **Early Works Agreement** for which it is designated as responsible and in the event that the Owner determines to proceed with any part of the Work in the absence of any such authorization, the Owner shall be responsible to the DBO

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Contractor for its reasonable costs, if any, arising therefrom. The Owner shall promptly deliver to the DBO Contractor copies of all such governmental authorizations which are the Owner's responsibility. The Owner shall give all notices and pay all fees required to be given or paid to any governmental authority in relation to the governmental authorizations which are the Owner's responsibility. The Owner shall use reasonable efforts to assist the DBO Contractor in its efforts to obtain the Authorizations for which the DBO Contractor is designated as responsible under this Agreement.

- 2.2.4 The Owner shall provide the DBO Contractor with sufficient fuel to conduct the Commissioning Work and the Acceptance Test Work.
- 2.2.5 The Owner shall provide temporary power, potable water, natural gas and service connections to the property line at the northeast corner of the Facility Lands. The DBO Contractor shall be responsible for the cost of all temporary power and potable water used or consumed by the DBO Contractor in performing the Construction Work.
- 2.2.6 The Owner reserves the right to award separate contracts in connection with other parts of the Project to other contractors or to perform that work with the Owner's own forces, provided that any claim for reasonable compensation for the substantiated impact on the DBO Contractor's time and cost for performance of the Work shall be determined in accordance with **subsection 15.1**. In that event, the Owner agrees to cooperate with the DBO Contractor in respect of coordination and to ensure that any other contractors and the Owner's own forces comply with the DBO Contractor's Occupational Health and Safety Plan in accordance with **subsection 9.1.5**.

**ARTICLE 3**  
**APPROVALS AND CONSENTS**

**3.1 Procedure for Approvals Consents and Owner Decisions**

- 3.1.1 Wherever the provisions of this Agreement require or provide for or permit an approval or consent by the DBO Contractor or the Owner (or the Owner's Representative on its behalf), of or to any matter contemplated by this Agreement, this Agreement shall (unless the text hereof expressly states that such approval or consent may be unreasonably or arbitrarily withheld or shall be subject to the sole and/or absolute discretion of the person to give such approval or consent, in which event the provisions of **subsections 3.1.1 (b) to 3.1.1 (f)**, inclusive, shall not apply, or unless the text hereof expressly states that the time periods are to be otherwise, in which event this **subsection 3.1.1** shall apply but the time periods shall be adjusted accordingly), be deemed to provide that:
- (a) such request for approval or consent shall be signed, dated and be in electronic and hard copy written form and shall:



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- (i) contain or be accompanied by any documentation or information required for such approval or consent in reasonably sufficient detail, as determined by the Party receiving the request, acting reasonably;
  - (ii) clearly set forth the matter in respect of which such approval or consent is being sought;
  - (iii) form the sole subject matter of the correspondence containing such request for approval or consent; and,
  - (iv) clearly state that such approval or consent is being sought;
- (b) such approval or consent shall be signed, dated and be in electronic or hard copy written form;
- (c) such approval or consent shall not be unreasonably or arbitrarily withheld or delayed;
- (d) the person whose approval has been requested (the "Responding Party") shall, expeditiously and in any event, no later than seven (7) days after the giving of a notice requesting an approval or consent, advise the person who has requested the approval or consent (the "Initiating Party") by notice either that it consents or approves, or that it withholds its consent or approval and in which case it shall set forth, in reasonable detail, its reasons for withholding its consent or approval, which reasons may include the insufficiency, as determined by the Responding Party, of the information or documentation provided. To the extent that the Responding Party does not respond within the seven (7) day period then the Initiating Party can seek redress under **Article 15**;
- (e) if the responding notice mentioned in **subsection 3.1.1.(d)** indicates that the Responding Party does not approve or consent (unless such disapproval or withholding of consent is subsequently reversed, in which case, such approval or consent shall be deemed to have been given on the date of the issuance of the applicable responding notice), the Initiating Party shall promptly take all steps necessary to satisfy the objections of the Responding Party set out in the responding notice and thereupon, shall resubmit such request for approval or consent from time to time and the provisions of this **subsection 3.1.1.** shall again apply until such time as the approval or consent of the Responding Party is finally obtained; and,
- (f) any Dispute as to whether or not such consent or approval has been unreasonably withheld or delayed shall be resolved in accordance with the provisions of **Article 28**.
- 3.1.2 Wherever the provisions of this Agreement require or provide for or permit a decision by the Owner (or the Owner's Representative on its behalf), relating to any matter contemplated by this Agreement, this Agreement shall (unless the text hereof expressly states that such decision may be unreasonably or arbitrarily made or shall be

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subject to the sole and/or absolute discretion of the person to make such decisions) be made by, or on behalf of the Owner, in a commercially reasonable manner.

**3.2 Approved Documents**

3.2.1 Subject to the other provisions hereof, wherever in this Agreement approval is required with respect to any document, proposal, certificate, plan, drawing, specification, contract, agreement, schedule, report or other written instrument whatsoever (collectively, a "Document"), following such approval, except as set forth herein, such Document shall not be changed in any manner whatsoever, without obtaining or undergoing a further approval. For greater certainty, any reference to a Document shall be deemed to include all amendments, supplements, revisions, modifications, alterations or changes thereto following approval thereof, as the case may be. The provisions of this **subsection 3.2.1** shall not prohibit the DBO Contractor from modifying a Document without the Owner's prior written approval where such modification (i) is reasonably necessary for the timely completion of the Design Build Work and, (ii) would not cause the Facility to fail to comply with any provision of the Contract Documents.

**3.3 Statements, Certificates, Etc.**

3.3.1 The notices, plans, statements, certificates, proposals, schedules and reports required to be furnished by or on behalf of the DBO Contractor in connection with this Agreement or the Work, shall be submitted to the Owner in a format prescribed by this Agreement or otherwise approved by the Owner and the DBO Contractor shall ensure that the information contained therein is presented fairly and is true, accurate and complete in every material respect as at the dates or for the periods indicated.

**ARTICLE 4**  
**EXAMINATIONS AND NOTICES OF NON-CONFORMANCE**

**4.1 Examinations**

4.1.1 In addition and without prejudice to any of its other rights and remedies under this Agreement, the Owner's Representative (including the Owner's Representative's delegees) and the Owner's Consultant shall, from time to time, be entitled but not obliged to perform or cause to be performed Examinations with respect to any aspect of the Work, including any document, report, certificate, test, study, investigation, inspection, schedule, plan, process, design, notice, specification and/or order implemented, prepared or submitted by or on behalf of the DBO Contractor in relation to the Work, but excluding the DBO Contractor's financial records or other information regarding amounts payable to the DBO Contractor under this Agreement that are priced on a fixed or lump sum basis and any information that is proprietary from a financial perspective, and the Owner's Representative and the Owner's Consultant shall, upon reasonable notice, have unrestricted access to the Work and/or Facility for such purposes. If any such Examination reveals any Non-Conformance,

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then the Owner's Representative shall be entitled to submit a Non-Conformance Notice with respect thereto, in which event the provisions of **subsections 4.2 and 4.3** shall apply. Without limiting the foregoing and for greater certainty, if the occurrence of any event, matter or thing (including the completion of the Acceptance Test Work) is to be determined, confirmed or certified by the DBO Contractor and an Examination reveals any material Non-Conformance in relation thereto, such event, matter or thing shall be deemed not to have occurred until such time as the material Non-Conformance is rectified or dealt with to the satisfaction of the Owner's Representative. Any claim for reasonable compensation for the substantiated impact on the DBO Contractor's time and cost for performance of the Work shall be determined in accordance with **subsection 15.1** for the impact of any Examination required by the Owner, other than any Examinations specifically provided for in the Contract Documents.

**4.2 Examinations, Assistance, Inspections and Approvals**

4.2.1 Wherever in this Agreement reference is made to the Owner or the Owner's Representative providing assistance, services, approvals or consents to or on behalf of the DBO Contractor, the inspecting, testing, reviewing or Examining the Facility or the Work or any part thereof or any document of the DBO Contractor, such shall not relieve, insulate or exempt the DBO Contractor from or represent a waiver of any requirement, liability, covenant, agreement or obligation under this Agreement or at law and shall not create or impose any requirement, liability, covenant, agreement or obligation (including, an obligation to provide other assistance, services or approvals) on the Owner not otherwise created or imposed pursuant to the express provisions of this Agreement.

**4.3 Notice(s) of Non-Conformance**

4.3.1 The Owner's Representative shall be entitled at any time or times on or before the expiry of the Recall Period for the Work, to deliver to the DBO Contractor a Non-Conformance Notice stipulating any Non-Conformance with respect to the Work, the Facility or any part thereof. The Owner's Representative shall provide a Non-Conformance Notice, specifying the Non-Conformance and such other particulars as reasonably required to convey to the DBO Contractor the nature of the deficiency, to the DBO Contractor promptly upon becoming aware of any Non-Conformance with respect to the Work. The DBO Contractor shall, at its sole cost and expense, and in the manner and within the time period required by the Quality Management Plan correct and rectify any Non-Conformance or cause to be corrected and rectified any Non-Conformance described in a Non-Conformance Notice and upon completion of such correction and rectification provide written certification of the correction and rectification together with all appropriate supporting documentation to the Owner's Representative.

4.3.2 The Owner's Representative shall be entitled to Examine the certification, supporting documentation and, in its discretion, the work performed to correct and rectify the

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Non-Conformance and may, if appropriate, deliver a further Non-Conformance Notice in respect of any or all of the foregoing, in which event the provisions of **subsection 4.3.1** shall apply thereto.

- 4.3.3 The DBO Contractor acknowledges that its responsibility for the delivery of the Work pursuant to the Master Project Schedule, the other Contract Documents and Laws and Regulations shall not be diminished in any way as a result of either any Examination or the issuance or non-issuance of a Non-Conformance Notice.
- 4.3.4 In the event of any non-conformity directly attributable to Owner Fault, the DBO Contractor shall correct and rectify said non-conformity and any claim for reasonable compensation for the substantiated impact on the DBO Contractor's time and cost for performance of the Work shall be determined in accordance with **Article 15**.

**ARTICLE 5**  
**PERFORMANCE OF THE WORK**

**5.1 Performance of the Work**

- 5.1.1 Subject to the provisions of this Agreement including the satisfaction of the Conditions Precedent or waiver thereof by the party so entitled in accordance with **Appendix 35**, the DBO Contractor is hereby engaged and authorized by the Owner to cause the Work to be performed so as to satisfy all of the requirements of the Contract Documents, including the Guarantees and the Laws and Regulations. If Owner has not issued the Notice to Proceed by December 31, 2011, the DBO Contractor may (a) notwithstanding any delays due to events of Force Majeure, elect to terminate this Agreement, (b) make a claim for reasonable compensation for the substantiated impact on the DBO Contractor's time and cost for performance of the Work, which claim shall be determined in accordance with **subsection 15.1**, or (c) subject to any delays due to events of Force Majeure, elect to terminate this Agreement, in which case said termination shall be deemed to have been a termination for convenience by the Owner pursuant to **Article 25** and the provisions of **Article 27** shall apply. Upon issuance of the Notice to Proceed, the DBO Contractor shall commence the Work and, subject to the terms and conditions of this Agreement, shall achieve Service Commencement in accordance with the Master Project Schedule.
- 5.1.2 For greater certainty, the Work shall consist of the Design Component and the Build Component, as more particularly described in **Article 6** and the Operations Component as more particularly described in **Article 30**, along with the performance and observance of all other obligations, covenants and agreements to be performed by the DBO Contractor as described in this Agreement. For greater certainty, the Work includes obtaining, complying with, updating, renewing and maintaining in good standing all Authorizations.

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**ARTICLE 6**  
**THE SCOPE OF THE DESIGN COMPONENT AND OF THE BUILD COMPONENT**

**6.1 Design Component**

- 6.1.1 The DBO Contractor shall perform the Design Component of the Work.
- 6.1.2 The DBO Contractor shall prepare, based on the Technical Requirements, all plans, drawings, specifications, reports and schedules setting forth in detail the requirements for each relevant portion of the Work, and in this regard:
- (a) Project Plans – The DBO Contractor shall deliver to the Owner and the Owner’s Consultant copies of the completed plans, specifications, drawings, reports and schedules demonstrating compliance with the Technical Requirements for each portion of the Work in the manner described in **subsection 6.1.2(b)**. All plans and specifications forming part thereof shall be approved for construction by the DBO Contractor, signed and stamped by the appropriate design professional(s), being a professional engineer and/or professional architect duly licensed in the Province of Ontario (collectively, the "Project Plans").
  - (b) Delivery of Project Plans – The DBO Contractor shall deliver to the Owner's Representative and the Owner’s Consultant, the Project Plans at 25%, 75% and 100% completion of the Design Build Work so as to ensure compliance with and achievement of the specified events by the dates scheduled therefor in the Master Project Schedule. The DBO Contractor shall not undertake any portion of the Work in any Area before issuing Project Plans for such Work in such Area. The DBO Contractor shall deliver one (1) complete electronic and two (2) complete hard copies of the Project Plans to the Owner’s Representative and the Owner’s Consultant when the Project Plans are twenty-five per cent (25%), seventy-five per cent (75%) and one hundred per cent (100%) complete. At a minimum the “Project Plan” submissions will include the following:
    - (A) Presentation of design
    - (B) Basis of design report outlining major design features, overall Facility configuration, design basis for process components, generalized process flow diagram, mass and energy balances, facility expansion capabilities, emissions monitoring and reporting system.
    - (C) Drawings by discipline (e.g. general, mechanical, electrical etc.):
    - (D) Schedule update including progress report and procurement status

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(E) Permitting status

(F) Information requirements

With respect to each of the twenty-five per cent (25%) complete and seventy-five per cent (75%) complete set, the Owner's Representative and the Owner's Consultant will notify the DBO Contractor, in writing, of any comments or queries within twenty (20) Business Days of receipt of the Project Plans, subject to any reasonable request for an extension of the review period. Notwithstanding such comments or queries and DBO Contractors obligations to address such matters, DBO Contractor reserves the right to proceed with the Design Build Work at its own risk. In the event that the review period is extended herein, then the Master Project Schedule shall be extended by a similar period of time unless the extension was as a result of deficiencies in the Project Plan submissions identified by the Owner's Representative and Owner's Consultant that the DBO Contractor is required to correct. For each design submission, within five (5) Business Days following receipt of any comments or queries, and subject to **subsection 4.2**, the DBO Contractor shall take account of and respond to the Owner's Representative and the Owner's Consultant in respect of such comments or queries, and will attend a meeting to discuss and resolve any comments. If changes result from the review process, DBO Contractor will amend the Project Plans and resubmit the revised set to the Owner's Representative and Owner's Consultant for further review.

- (c) Changes to the Project Plans – If any changes are required to the Project Plans as a result of Facility Lands or other conditions after commencement of construction of any portion of the Work, the DBO Contractor shall notify the Owner's Representative promptly of the Facility Lands or other conditions and submit such revised plans to the Owner.
- (d) Project Plans, etc. Signed and Sealed – All Project Plans shall be prepared under the stamp and signature of either professional engineers duly licensed in the Province of Ontario or professional engineers and/or architects who have obtained a temporary licence permitting them to practice in the Province of Ontario; provided, however, that without limiting the provisions of **subsection 6.1.2(a)**, the responsibility for the accuracy and completeness of the Project Plans shall remain solely that of the DBO Contractor.

6.1.3 The DBO Contractor shall cause each portion of the Design Component to be performed in compliance with and so as to implement:

- (a) the applicable Contract Documents;
- (b) the Certificate of Approval;
- (c) Laws and Regulations; and

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- (d) the results of any studies and tests related to the Work and carried out in accordance with the provisions of this Agreement.
- 6.1.4 The DBO Contractor shall prepare or cause to be prepared any additional explanatory or promotional information and documents concerning the Design Component as may be reasonably required by the Owner and/or any governmental or regulatory authorities having jurisdiction.
- 6.1.5 The DBO Contractor shall make or cause to be made such revisions to the Technical Requirements and the Project Plans as may be required from time to time as a result of a Scope Change, in accordance with the provisions of this Agreement and shall submit or cause to be submitted such revisions to the Owner. The DBO Contractor shall prepare and issue “as built” drawing as required by **subsection 6.2.7(b)**.
- 6.1.6 The DBO Contractor shall reasonably cooperate with the Owner in reviewing proposed materials, and sampling, testing and inspecting of actual materials that are used or intended to be used in the Work. If requested, and to the extent that such materials are available from the relevant manufacturers, the DBO Contractor shall provide or cause to be provided to the Owner a complete written statement of the origin, composition and manufacturer of any materials supplied by or on behalf of the DBO Contractor that are used or intended to be used in the Work.
- 6.1.7 The DBO Contractor shall perform all other activities, actions, engineering and consulting services necessary or appropriate for the performance and completion of the Design Component in accordance with the Contract Documents, Certificate of Approval, and the Laws and Regulations.
- 6.1.8 Subject to the express provisions of this Agreement, the DBO Contractor shall have complete control of the Design Component and shall effectively direct and supervise the Design Component and shall be solely responsible for the means, methods, techniques, sequences and procedures for co-ordinating the various parts of the Design Component with the other parts of the Design Component and with the Build Component and to ensure compliance with the Contract Documents, the Certificate of Approval and the Laws and Regulations.

**6.2 Build Component**

- 6.2.1 The DBO Contractor shall perform the Build Component of the Work. The Build Component of the Work is comprised of the Procurement Work, the Construction Work, the Training Work, the Commissioning Work, the Facility Performance Testing Work and the Finishing Work.
- 6.2.2 The DBO Contractor shall perform the Procurement Work in accordance with the Contract Documents and the Laws and Regulations and shall:

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- (a) be fully responsible for the procurement and expediting of all the Products specified in the Contract Documents;
- (b) ensure that the manufacturing of all Equipment is done in accordance with the Contract Documents and the Laws and Regulations and that the supplier providing the Equipment strictly complies with all scheduling requirements;
- (c) ensure that all Equipment is assembled and fully tested in the presence of its representative at the manufacturer's plant when possible and to the extent necessary to maintain quality, and that all defects, errors and omissions revealed are corrected prior to delivery to the Place of Work and ensure that test certificates are issued; and
- (d) be responsible for the cost of services such as temporary power and potable water, as required.

6.2.3 The DBO Contractor shall perform the Construction Work in accordance with the Contract Documents, Laws and Regulations, in a good and workmanlike manner and in compliance with and so as to implement the Contract Documents and the results of any studies and tests carried out in accordance with the provisions of this Agreement, and shall:

- (a) not proceed with the Construction Work until Project Plans, approved for construction by the DBO Contractor, have been issued for such Construction Work;
- (b) proceed at its own risk with respect to any portion of the Construction Work carried out prior to receiving the applicable approvals from the Owner required under this Agreement;
- (c) comply with any procedures and requirements relating to archaeological finds set out in the Contract Documents and Laws and Regulations. Without limiting the foregoing, the DBO Contractor shall document any findings which appear to be of archaeological significance located in, under, on or around the Place of Work; provided, however, that the DBO Contractor acknowledges and agrees that any artefacts exposed and/or recovered as a result of the Work shall be the property of the Owner and shall be dealt with as the Owner may direct in writing. Any costs, expenses and/or delays incurred by the DBO Contractor as a result of the presence of archaeological finds shall be dealt with in accordance with **Article 15**; and
- (d) be responsible for coordinating the Construction Work with the activities and work of other contractors and the Owner's own forces, and promptly report to the Owner's Representative any conflict, delay or other situation which might negatively impact the DBO Contractor's ability to perform the Construction Work in a timely manner.

6.2.4 The DBO Contractor shall perform the Training Work in accordance with the Contract Documents and the Laws and Regulations and the requirements set out in the Training Plan attached hereto as **Appendix 12** and in this regard:



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- 6.2.5 The DBO Contractor shall perform the Commissioning Work (including all necessary pre-commissioning) in accordance with the Contract Documents and the Laws and Regulations and the requirements set out in the Commissioning Plan to be developed by the DBO Contractor and agreed to by the Owner prior to the commencement of the Commissioning Work. The DBO Contractor shall:
- (a) when the DBO Contractor is of the opinion that the Facility or any Area thereof is Mechanically Complete and ready for Commissioning, so notify the Owner in writing at least five (5) days in advance of the commencement of the Commissioning Work. The DBO Contractor shall be responsible for notifying any other concerned persons and ensure their availability and presence;
  - (b) prepare and provide check out packages for all equipment for review by Owner and Owners Representative, including the following:
    - (i) instrumentation calibration sheets;
    - (ii) hydro test data;
    - (iii) electrical test reports;
    - (iv) subcontractor field reports; and
    - (v) other system information.
  - (c) provide the required competent and experienced personnel to carry out the Commissioning Work in order that any Non-Conformance resulting from the execution of the Work be corrected without delay at no cost to the Owner;
  - (d) provide to the Owner preliminary versions of all operating and maintenance manuals as they become available; and
  - (e) develop the Punch List in consultation with the Owner's Representative and the Owner's Consultant, which Punch List will include an estimated value of each item, and against which the Owner may, in its absolute discretion, withhold amounts otherwise due to the DBO Contractor of a value not to exceed the estimated value of each item, which amount becomes payable to the DBO Contractor upon completion or rectification of the Punch List item to the satisfaction of the Owner's Consultant.
- 6.2.6 The DBO Contractor shall perform the Acceptance Test Work in accordance with the Contract Documents **Appendix 10** and the Laws and Regulations including conducting a performance test of the Facility to determine the ability of the Facility to achieve the Performance Guarantees (the "Facility Performance Test").
- (a) In this regard, the DBO Contractor shall:

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- (i) when the Commissioning Work is complete and the Facility, as mutually agreed upon between the Owner's Consultant and the DBO Contractor is ready for the conduct of the Acceptance Test Work, the DBO Contractor shall notify the Owner's Consultant and Owner's Representative in writing that it intends to conduct the Acceptance Test in accordance with the Technical Requirements and **Appendix 10**. Once approved by the Owner and the Owner's Consultant, the DBO Contractor shall diligently conduct the Acceptance Test in accordance with the Acceptance Test Protocol. The DBO Contractor shall make any revisions to the Acceptance Test Protocol reasonably requested by the Owner's Consultant. In the event that the DBO Contractor does not initiate the Acceptance Test within a reasonable period of time, the Owner's Representative may deliver to the DBO Contractor a Non-Conformance Notice in accordance with **subsection 4.3**;
  - (ii) establish the ability of the Facility to achieve the Performance Guarantees in a Facility Performance Test lasting up to thirty (30) days, without interruption, conducted in accordance with the procedures set forth in the Technical Requirements, and the Acceptance Test Protocol in the presence of representatives of the Owner, including the Owner's Representative and the Owner's Consultant;
  - (iii) maintain the Facility in accordance with good practice throughout the Acceptance Test Work; and
  - (iv) give notice to the Owner's Representative that the Acceptance Test Work has been successfully completed and provide all Data attesting to such as set out in the Technical Requirements, and such notice shall be in the form of the Acceptance Test Declaration attached hereto as **Appendix 14**.
- (b) Completion of the Acceptance Test Work occurs when the Owner issues the Acceptance Test Certificate in the form attached hereto as **Appendix 15**.
- (c) The Owner shall issue an Acceptance Test Certificate upon:
- (i) the successful completion of the Acceptance Test Work in accordance with the Technical Requirements and **Appendix 10**;
  - (ii) the written agreement between the Owner and the DBO Contractor to a Punch List (or if they are unable to agree, the Owner shall have prepared and issued a Punch List to the DBO Contractor). The Punch List work shall not interfere with the occupancy, use and lawful operation of the Facility. Any disagreement with regard to the contents of the Punch List shall be subject to dispute resolution pursuant to **Article 28**; and

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- (iii) the removal from the Place of Work by the DBO Contractor of all surplus products, tools, construction machinery and equipment, as well as all waste products and debris, save and except for any tools, construction machinery and equipment which the DBO Contractor requires in order to perform the Work in relation to the Punch List.
- (d) If the Facility fails to achieve all of the Performance Guarantees during the first Acceptance Test or if the first Acceptance Test is stopped because the DBO Contractor concludes that the test cannot be carried through to a successful conclusion, then:
  - (i) The DBO Contractor shall, at its own expense, perform or arrange the performance of such corrective measures as shall, in the DBO Contractor's judgment, be required to put the Facility in the condition to meet the Performance Guarantees and a second, or any subsequent, Acceptance Test shall be conducted in accordance with **subsection 6.2.6** and the procedures outlined in **Appendix 10**. Any additional fees and expenses reasonably incurred by the Owner shall also be the responsibility of the DBO Contractor.
  - (ii) In the event that the DBO Contractor does not achieve the required thresholds set forth in **Appendix 10** – Section 1.15 Minimum Acceptance Criteria, the DBO Contractor shall continue to perform the corrective measures described in **subsection 6.2.6(d)(i)** and shall continue to re-test the Facility until it meets said thresholds, at the DBO Contractor's expense,
  - (iii) If after the second or any subsequent re-test of the Facility the DBO Contractor does not achieve the required thresholds set forth in **Appendix 10** – Section 1.14, Facility Acceptance Test Criteria, but otherwise does meet the thresholds of **Appendix 10** – Section 1.15, Minimum Acceptance Criteria, the DBO Contractor may choose to terminate the testing procedures set forth herein, cease performing any corrective measures related to achieving total compliance with the **Appendix 10** – Section 1.14 Facility Acceptance Test Criteria thresholds, and in such case shall pay the Owner the Lump Sum Performance Liquidated Damages described in **subsection 18.1.5(a)** and the Owner shall thereupon issue the Acceptance Test Certificate. In the event that the DBO Contractor exercises its right to buy-down compliance with respect to the throughput capacity and/or the net electrical production rate for the Facility pursuant to this section, then henceforth, the DBO Contractor's Performance Requirement with respect to that threshold shall be determined by reference to the throughput capacity and/or the net electrical generation rate achieved during the Acceptance Test.

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- (iv) Notwithstanding **subsection 6.2.6(d)(iii)**, if after any third or any subsequent re-test of the Facility the DBO Contractor does not achieve the required thresholds set forth in **Appendix 10** – Section 1.14, Facility Acceptance Test Criteria, but otherwise does meet the thresholds of **Appendix 10** – Section 1.15, Minimum Acceptance Criteria, the Owner, in its sole discretion may require the DBO Contractor to terminate the testing procedures set forth herein, cease performing any corrective measures related to achieving total compliance with the **Appendix 10** – Section 1.14 Facility Acceptance Test Criteria thresholds, and pay the Owner the Lump Sum Performance Liquidated Damages described in **subsection 18.1.5(a)** and the Owner shall thereupon issue the Acceptance Test Certificate. In the event that the Owner requires the DBO Contractor to pay the Lump Sum Performance Liquidated Damages with respect to the throughput capacity and/or the net electrical production rate for the Facility pursuant to this section, then henceforth, the DBO Contractor’s Performance Requirement with respect to that threshold shall be determined by reference to the throughput capacity and/or the net electrical generation rate achieved during the Acceptance Test.
  - (e) Contemporaneous with the issuance by the Owner of the Acceptance Test Certificate, the DBO Contractor shall deliver to the Owner any applicable licenses necessary to operate the Facility.
- 6.2.7 Following the issuance of the Acceptance Test Certificate, the DBO Contractor shall be considered to have achieved Facility Substantial Completion of the Design Build Work, and the DBO Contractor shall perform the Finishing Work in accordance with the Contract Documents and the Laws and Regulations which shall include:
- (a) proceeding with all due diligence to perform the repairs, modifications, installations, corrections and adjustments identified in the Punch List in a manner, coordinated with the Owner so as not to interfere with the Operations Work and in accordance with the Occupational Health and Safety Plan and the Technical Requirements;
  - (b) delivering to the Owner final comprehensive operating and maintenance manuals and final and complete sets of stamped and certified “as built” drawings showing the details of the Facility “as is” at completion;
  - (c) any additional relevant information including sub-process and equipment specific manuals, forms and documents relating to confirming compliance with applicable Certificate of Approval provisions, equipment and process specific Computer Based Training and Video Tape Training materials, training records; and
  - (d) delivering to the Owner all documentation pertaining to warranties.
- 6.2.8 Subject to the express provisions of this Agreement, the DBO Contractor shall have complete control of the Build Component and shall effectively direct and supervise the

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Build Component and shall be solely responsible for the means, methods, techniques, sequences and procedures for co-ordinating the various parts of the Build Component with the other parts of the Build Component and with the Design Component and to ensure compliance with the Contract Documents and the Laws and Regulations and to cause the Facility to pass the Acceptance Test.

**6.3 Completion of the Finishing Work and Acceptance Certificate**

- 6.3.1 The Finishing Work shall be complete when all the Design Build Work, with the exception of the performance and observation of all those covenants, agreements and obligations that continue under this Agreement, has been completed in all respects (including the rectification of all deficiencies and the performance and completion of all items on the Punch List) in compliance with the Contract Documents, Laws and Regulations including, without limiting the generality of the foregoing, the fulfillment of the following conditions:
- (a) The DBO Contractor has complied with all of its obligations and undertakings set forth in this Agreement, with the exception of the performance and observation of all those covenants, agreements and obligations that continue under this Agreement; and
  - (b) The title to the Facility Lands is free and clear of the registration of construction liens and certificates of action in each case solely to the extent arising out of or related to the Work; and
  - (c) The DBO Contractor has removed from the Place of Work all tools, construction machinery and equipment which the DBO Contractor required to perform the Punch List Work.
- 6.3.2 When the DBO Contractor is of the view that it has completed the Finishing Work, it shall request in writing that the Owner issue a certificate in the form attached hereto as **Appendix 18**, indicating that the Owner accepts the Work (the "Acceptance Certificate"), and that with the exception of the performance and observation of those covenants, agreements and obligations that continue under this Agreement, the Design Build Work is complete. Owner shall, within fifteen (15) Business Days after the Owner's receipt of the DBO Contractor's request, either issue the Acceptance Certificate or, if the Owner determines that the conditions for completion of the Work, including the Finishing Work, have not been fulfilled, then the Owner shall issue a Non-Conformance Notice specifying on what basis the Owner has determined that the conditions for completion of the Work, including the Finishing Work, have not been fulfilled. Upon remedying the Non-Conformance(s) specified by the Owner, the DBO Contractor shall transmit a new request in writing, to the Owner and the procedure set out above shall apply, *mutatis mutandis*.
- 6.3.3 None of the following shall be construed as the Owner's acceptance of any Work which is defective, incomplete, or otherwise not in compliance with this Agreement, or as the Owner's waiver of any rights under this Agreement, or as the Owner's release

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of the DBO Contractor from any obligation, guarantee or warranty under this Agreement, or as the Owner's extension of the DBO Contractor's time for performance, or as an estoppel against the Owner, or as the Owner's acceptance of any claim by the DBO Contractor:

- (a) The Owner's payment to the DBO Contractor or any other person of all or any portion of the Lump Sum Price or the Owner's failure to retain any portion of the Lump Sum Price; or the Owner's change or variation in the time, method or condition of payment;
- (b) The Owner's approval or acceptance of any Punch List, other documents or certifications;
- (c) The Owner's approval of any construction, means, methods, techniques, sequences, or procedures for the Work;
- (d) The Owner's failure to include any item on the Punch List or any other similar document;
- (e) The Owner's entry at any time on the Facility Lands (including any area in which the Work is being performed) or the Owner's installation at any time of any equipment, furnishings, fixtures and machinery on the Facility Lands, or the Owner's use or occupancy of the Facility Lands at any time (whether before or after completion of the Finishing Work);
- (f) Any Examination, inspection, testing, or approval of any Work (whether finished or in progress) by the Owner or any other person acting on the Owner's behalf, including the Owner's Consultant.

**ARTICLE 7**  
**SCHEDULING**

**7.1 Master Project Schedule**

- 7.1.1 The DBO Contractor shall upon receipt of the Notice to Proceed diligently perform the Work according to the Master Project Schedule in **Appendix 5**. The Target Date for Service Commencement shall be the date which is 1,215 calendar days from the date Notice to Proceed is issued.
- 7.1.2 In addition to the reporting requirements more particularly described in the Technical Requirements, an updated Master Project Schedule (or written confirmation that no changes to the then current Master Project Schedule have been made or are then contemplated) shall be delivered by the DBO Contractor to the Owner on a monthly basis with the monthly construction report under the provisions of subsection 22.1.1. The DBO Contractor shall update the Master Project Schedule on a weekly basis, at a minimum.

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**ARTICLE 8**  
**QUALITY MANAGEMENT**

**8.1 Quality Management Plan**

- 8.1.1 The DBO Contractor shall, as part of the Work, implement the quality management measures applicable to the Work as described in the Quality Management Plan attached hereto at **Appendix 2**.
- 8.1.2 The DBO Contractor shall perform all quality management measures as are required pursuant to and so as to ensure compliance with the requirements of the Contract Documents and Laws and Regulations.

**ARTICLE 9**  
**OCCUPATIONAL HEALTH AND SAFETY**

**9.1 Occupational Health and Safety**

- 9.1.1 For the purposes of the Design Build Work, the DBO Contractor assume or cause a Material Subcontractor to assume the designation of “constructor” for the Project, as that term is defined under the *Ontario Occupational Health and Safety Act*, R.S.O. 1990, c. 01 (the “OHS”).
- 9.1.2 The DBO Contractor shall, as part of the Work, implement the occupational health and safety measures applicable to the Work as described in the Occupational Health and Safety Plan attached hereto as **Appendix 21**.
- 9.1.3 The DBO Contractor undertakes to comply and to ensure that its Subcontractors comply with the Occupational Health and Safety Plan and all Laws and Regulations and Regulations relating to occupational health and safety.
- 9.1.4 The Owner's Representative or one of his representatives on Facility Lands may issue an emergency stop work order, without loss or penalty to the Owner, where the area is unsafe or where the DBO Contractor is not complying with the Occupational Health and Safety Plan.
- 9.1.5 In the event that the Owner retains other contractors to perform work at the on Facility Lands, or determines to perform work through the use of the Owner's own forces, the Owner will contractually require such other contractors and the Owner's own forces to comply with the DBO Contractor's Occupational Health and Safety Plan and any instructions or directions made by the DBO Contractor, as constructor, respecting health and safety matters. The DBO Contractor shall have the right to remove such other contractors or the Owner's own forces from the Place of Work in the event that they fail to comply with the Occupational Health and Safety Plan or any instructions or directions made by the DBO Contractor respecting health and safety matters, in its capacity as constructor for the Project. The Owner shall have the right to

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assign to the DBO Contractor the work of other contractors retained by the Owner or the work of the Owner's own forces for the purpose of the coordination of such work with the Work and to ensure the proper safety training and compliance of all persons engaged in such work, provided that if such coordination, safety training and safety compliance results in an increase in the DBO Contractors cost of performing the Work, DBO Contractor may claim for reasonable compensation for the substantiated impact on the DBO Contractor's time and cost for performance of the Work in accordance with **subsection 15.1**.

**ARTICLE 10**  
**ENVIRONMENTAL COMPLIANCE**

**10.1 Environmental Protection and Other Matters**

- 10.1.1 The DBO Contractor will cooperate with the Owner in obtaining and maintaining a Certificate of Approval for the Facility including performing any work or providing any services not completed as part of the Early Works. The DBO Contractor shall ensure full compliance of the Facility with the said Certificate of Approval.
- 10.1.2 The DBO Contractor shall ensure that all applicable Environmental Laws and Regulations are complied with at all times during the performance of each portion of the Work.
- 10.1.3 The DBO Contractor shall perform the Environmental Management Plan attached as **Appendix 3**.

**10.2 Disposal of Hazardous Substances**

- 10.2.1 Subject to the provisions of **subsection 10.3**, the DBO Contractor shall cause to be identified Hazardous Substances affecting any portion of the Facility Lands and shall cause the storage, removal, transportation and disposal of Hazardous Substances in compliance with all applicable Contract Documents, Laws and Regulations, and the Environmental Management Plan attached hereto at **Appendix 3**. Except to the extent caused by the DBO Contractor or anyone for whom it is at law responsible, the DBO Contractor shall have no liability to the Owner for the presence of Hazardous Substances on the Facility Lands. The Owner shall pay all costs associated with the activities performed by the DBO Contractor pursuant to this **subsection 10.2** except to the extent caused by the DBO Contractor or anyone for whom it is at law responsible. For the sake of greater clarity, the Owner is responsible for the presence of any pre-existing Hazardous Substances located upon the Facility Lands.

**10.3 Hazardous Substances**

- 10.3.1 The DBO Contractor shall provide the Owner's Representative with a list of those Hazardous Substances which the DBO Contractor expects to be used in connection with the Construction Work, together with a description of the procedures to be



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followed with respect to the transportation, storage and handling of such substances. The DBO Contractor shall comply with or cause compliance with such procedures outlined in the Environmental Management Plan and any Laws and Regulations applicable to these substances.

**10.4 Discharge of Hazardous Substances**

- 10.4.1 At all times during the performance of the Construction Work, spills or discharges of Hazardous Substances arising as a result of the Construction Work shall be reported immediately to the Owner's Representative and to the MOE and shall be remedied or caused to be remedied by the DBO Contractor in accordance with all applicable Contract Documents, Environmental Laws and Regulations and the Environmental Management Plan attached hereto as **Appendix 3**, at its expense, unless and to the extent directly attributable to Owner Fault, in which event such expenses shall be to the Owner's account.

**ARTICLE 11**  
**OTHER OBLIGATIONS AND DUTIES OF**  
**THE DBO CONTRACTOR**

**11.1 Duties**

- 11.1.1 Subject to the provisions of this Agreement, the DBO Contractor shall perform the following other duties and obligations in connection with the Work.
- 11.1.2 The DBO Contractor shall, except as otherwise provided herein, cause all Authorizations for which the DBO Contractor is responsible under this Agreement to be obtained, complied with, promptly renewed, updated and maintained in good standing. If the requirement or necessity to obtain any Authorization was not required as at April 22, 2009, then the following shall apply:
- (a) the DBO Contractor shall take or cause to be taken all reasonable steps to obtain such Authorizations as expeditiously as possible; and
  - (b) if any such Authorization is subject to renewal or cancellation, the DBO Contractor shall take or cause to be taken all reasonable steps to promptly renew and maintain same in good standing.
- 11.1.3 The DBO Contractor shall, by written notice to the Owner's Representative, designate a Project Manager, who shall represent the DBO Contractor at all times throughout the duration of the Design Build Work and shall be fully dedicated to the Project on a full time basis during the progress of the Design Build Work. The DBO Contractor shall also name alternate representatives who shall represent the DBO Contractor in the absence of the Project Manager. During the Operations Component of the Work, the DBO Contractor shall appoint a Plant Manager and other personnel in accordance with **subsection 31.3**.

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- 11.1.4 The Owner shall have the right from time to time to require the DBO Contractor to cause the replacement of the Project Manager, the Plant Manager or any other Manager, if such Manager is not carrying out his or her duties to the reasonable satisfaction of the Owner provided the Owner shall provide the DBO Contractor with reasonable substantiation of such Manager's deficiencies and provided further that the Owner shall excuse the DBO Contractor from all schedule delays or other performance impacts reasonably related to such removal or replacement.
- 11.1.5 The DBO Contractor shall take steps to ensure that Change Orders issued during the performance of the Work are diligently complied with and implemented.
- 11.1.6 During the Design Build Work the DBO Contractor shall submit all Change Requests to the Owner's Representative for approval together with all appropriate supporting documentation in accordance with **Article 15**. No Change Request shall be implemented or incorporated as part of the Design Build Work unless and until such Change Request has been approved by the Owner's Representative.
- 11.1.7 The DBO Contractor shall take steps to ensure that Scope Changes made in accordance with **Article 15** are diligently complied with and implemented in accordance with the Contract Documents and the Laws and Regulations and in such a manner so that costs and delays relating thereto are minimized to the greatest extent possible in the circumstances. Costs or delays incurred in complying with or arising out of any Scope Changes shall be dealt with in accordance with **Article 15**.
- 11.1.8 The DBO Contractor shall obtain and maintain or cause to be obtained and maintained all required Surety Bonds and all other forms of security at the levels specified in **Article 20** of this Agreement.
- 11.1.9 The DBO Contractor shall maintain in full force and effect its existence as a corporation and all qualifications necessary to carry on its business pertaining to the Work, including, all rights, franchises, licences, privileges and qualifications required in connection with the Work.
- 11.1.10 Subject to the provisions of this Agreement, the DBO Contractor shall pay or cause to be paid all costs relating to the Work for which the DBO Contractor is responsible pursuant to this Agreement as and when the same are payable.
- 11.1.11 The DBO Contractor shall immediately notify the Owner if a Default or Event of Default has occurred hereunder.
- 11.1.12 The DBO Contractor shall immediately give notice to the Owner of all Claims, proceedings, Disputes (including, labour disputes) or litigation in respect of the DBO Contractor or the Work (whether or not any such Claim, proceeding or litigation is covered by insurance) of which the DBO Contractor is aware or ought to be aware, using due diligence. The DBO Contractor shall provide the Owner with all information requested by it from time to time concerning the status of such Claims,

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proceedings or litigation. The Owner shall immediately give notice to the DBO Contractor of all Claims, proceedings, Disputes (including, labour disputes) or litigation in respect of the Owner or the Work (whether or not any such Claim, proceeding or litigation is covered by insurance) of which the Owner is aware or ought to be aware, using due diligence. The Owner shall provide the DBO Contractor with information requested by it from time to time concerning the status of such Claims, proceedings or litigation.

- 11.1.13 Without limiting the obligations and liabilities of the DBO Contractor under this Agreement, the DBO Contractor shall carry out its respective duties hereunder diligently and expeditiously, in good faith, in a safe, reasonable and prudent manner, in accordance with good business practices and management techniques and in compliance with all Contract Documents and the Laws and Regulations.
- 11.1.14 The DBO Contractor shall keep complete records of all Change Orders and Approved Change Requests and shall provide a monthly summary of all Requests for Information, Change Requests and approved Change Orders to the Owner's Representative.
- 11.1.15 The DBO Contractor shall, in the course of the performance of the Design Build Work, protect the Work, persons, property and the environment from damage or injury, and shall be responsible for all loss, injury and damage to the Work, persons, property and the environment which may arise as the result of the DBO Contractor's operations in the performance of the Work. If any such damage occurs, the DBO Contractor shall cause each portion of the Work and property to be repaired in a satisfactory manner in compliance with all Contract Documents, Laws and Regulations and the requirements of all governmental authorities having jurisdiction. Without limiting the foregoing, at all times prior to delivery by the DBO Contractor of the Acceptance Test Declaration, the DBO Contractor shall cause any damage to be repaired in a satisfactory manner in compliance with all Contract Documents, Laws and Regulations and the requirements of all governmental authorities having jurisdiction at its sole cost and expense, unless and to the extent directly attributable to Owner Fault, in which case such cost and expense shall be to the Owner's account.
- 11.1.16 The DBO Contractor shall provide or cause to be provided such security and security surveillance with respect to the Work and the Facility and each part thereof as may be required, from time to time, by the insurers providing insurance under **Article 19** and in any event in accordance with the Technical Requirements, good and prudent industry practice and all Laws and Regulations.
- 11.1.17 The DBO Contractor shall cause the proper protection of Products stockpiled for use in the Work against damage due to exposure, handling or any other reasonably anticipated cause. No used or damaged materials shall be used in any portion of the Work and any costs associated with the replacement or repair of damaged material shall be borne solely by the DBO Contractor.

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- 11.1.18 If the DBO Contractor or the Project Manager is of the opinion, acting reasonably, that there is an emergency arising with respect to any portion of the Work, pursuant to which there is an imminent risk to life, safety, property or the environment, the DBO Contractor or the Project Manager may, upon such notice, if any, to the Owner's Representative as may be reasonably possible in the circumstances, perform or cause to be performed such work as may be reasonably necessary to avoid such imminent risk. The DBO Contractor shall thereafter immediately give to the Owner written notice setting forth the nature of the emergency and specifying the work performed.
- 11.1.19 The DBO Contractor shall at all times keep at least one (1) copy of all current Contract Documents (including this Agreement and the Technical Requirements) at the DBO Contractor's project office in good order and available to the Owner and the Owner's Representative, and their respective advisors for inspection.
- 11.1.20 The DBO Contractor shall obtain and maintain the insurance specified in **Article 19** of this Agreement.
- 11.1.21 DBO Contractor shall either as determined by the DBO Contractor, (a) pay to the Owner the sum of TWO MILLION DOLLARS (\$2,000,000.00) within sixty (60) calendar days of the issuance by the Owner of the Notice to Proceed as a contribution towards the construction and implementation of a hot water heating system or other improvements within the Facility including Change Orders, as requested by the Owner, or (b) construct and install within the Facility and on the Facility Lands at the time of construction or thereafter such necessary capital infrastructure for a hot water heating system or other improvements within the Facility including Change Orders, as requested by the Owner,; provided the DBO Contractor's obligation to fund the construction cost shall be capped at TWO MILLION DOLLARS (\$2,000,000.00), of direct costs without mark-up and subject to full Cost Substantiation of its costs in relation to this commitment.
- 11.1.22 The DBO Contractor understands and agrees to be bound by the commitments that are being made on its behalf.
- 11.1.23 The DBO Contractor agrees to comply with the terms and conditions set out in this Agreement.

**ARTICLE 12**  
**MATERIAL SUBCONTRACTORS**

**12.1 Material Subcontractors**

The DBO Contractor shall engage or cause to be engaged each Material Subcontractor to perform the task assigned to such Material Subcontractor pursuant to the list of Material Subcontractors attached hereto as **Appendix 4**. The DBO Contractor shall not

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engage or permit to be engaged any person to perform any Material Subcontractor task other than the Material Subcontractor to whom such Material Subcontractor task has been assigned pursuant to the list of Material Subcontractors attached hereto as **Appendix 4** without the prior approval of the Owner, which approval shall not be unreasonably withheld.

12.1.1 The DBO Contractor shall use commercially reasonable efforts to cause that the Material Subcontracts contain provisions providing that:

- (a) each Material Subcontractor performs its work in accordance with the terms of this Agreement;
- (b) each Material Subcontractor incorporates specifically or by reference the terms of this Agreement, mutatis mutandis, and in particular, the provisions of **Article 28**, Dispute Resolution;
- (c) each Material Subcontractor undertakes to participate in Arbitration between the DBO Contractor and Owner; and
- (d) upon termination of this Agreement and upon written notice by the Owner to the other Parties to any Material Subcontract, any Material Subcontract shall be assigned to the Owner and the obligations of the DBO Contractor thereunder shall be assumed by the Owner, without the imposition of further terms and conditions; provided, however, that until the Owner has given such notice, nothing herein contained shall be deemed to create any contractual or other liability upon the Owner for the performance of obligations under the Material Subcontracts, and the DBO Contractor shall be fully responsible for all obligations and liabilities (if any) under the Material Subcontracts.

Prior to its execution, the DBO Contractor will advise the Owner of any Material Subcontract in which it has been unable to incorporate any of provisions (a), (b), (c) or (d) immediately above. Notwithstanding such notice to Owner, DBO Contractor shall not be prevented or delayed from entering into such Material Subcontract.

**12.2 Acknowledgement**

12.2.1 Notwithstanding any subcontracting by the DBO Contractor hereunder to a Material Subcontractor or to any other person, the DBO Contractor shall be and remain fully responsible and liable with respect thereto.

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**ARTICLE 13**  
**LUMP SUM PRICE**

**13.1 Lump Sum Price**

13.1.1 For and in consideration of the performance of the Design Build Work, the DBO Contractor shall be paid the Lump Sum Price, to be determined on the Notice to Proceed date and calculated as the sum of the Fixed Construction Price, Constuction Inflation Adjustment and Architectural Enhancements as set forth below:

(a) The Fixed Construction Price shall be Two Hundred Thirty-Five Million, Seven Hundred Fifty-Nine Thousand Dollars (\$235,759,000); *plus*

(b) The Construction Inflation Adjustment which shall be the increase or decrease to the Fixed Costruction Price, as calculated as of the Notice to Proceed date as follows:

$$\left( \left( \frac{BCIf - BCi}{BCi} \right) \times 0.70 \times \$235,759,000 \right) + \left( \left( \frac{MCIf - MCI}{MCI} \right) \times 0.30 \times \$235,759,000 \right)$$

Where:

*BCi* = The Building Costs Index (*BCI*) for Toronto, Ontario, as published by McGraw Hill Construction ENR (Engineering News Record) within their monthly report "Construction Economics, Cost Indexes by City," for the month ended April 30, 2009 which was reported as 4,972.92.

*BCIf* = The Building Costs Index (*BCI*) for Toronto, Ontario, as published by McGraw Hill Construction ENR (Engineering News Record) within their monthly report "Construction Economics, Cost Indexes by City," for the month in which Notice to Proceed is issued; provided that if Notice to Proceed occurs prior to midnight on the 15<sup>th</sup> day of any month the previous month's *BCI* shall be the *BCIf*. If Notice to Proceed occurs after midnight on the 15<sup>th</sup> day of any month the current month's *BCI* shall be the *BCIf*.

*MCI* = The Materials Costs Index (*MCI*) for Toronto, Ontario, as published by McGraw Hill Construction ENR (Engineering News Record) within their monthly report as published in the Engineering News Record for Toronto Ontario for the month ending April 30, 2009 which was reported as 3,403.72.

*MCIf* = The Materials Costs Index (*MCI*) for Toronto, Ontario, as published by McGraw Hill Construction ENR (Engineering News Record) within their monthly report "Construction Economics, Cost Indexes by City," for the month in which Notice to Proceed is issued; provided that if Notice to Proceed occurs prior to midnight on the 15<sup>th</sup> day of any month the previous month's *MCI* shall be the *MCIf*. If

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Notice to Proceed occurs after midnight on the 15<sup>th</sup> day of any month the current month's *MCI* shall be the *MCI*; *plus*

(c) the amount Nine Million Dollars (\$9,000,000) as such amount has been determined as the Architectural Enhancements Price. Exhibit C to **Appendix 1** to the Project Agreement sets forth the specifications for the architectural enhancement work to be performed.

**13.2 Changes to the Lump Sum Price**

13.2.1 The Lump Sum Price shall only be adjusted for and in respect of the following matters:

- (a) Scope Changes pursuant to **Article 15**;
- (b) adjustments as a result of any material Non-Conformance pursuant to **subsection 13.2.3**; and
- (c) escalation pursuant to the terms of the Agreement.

13.2.2 Save as otherwise expressly set out in this Agreement, if the Parties are unable to agree upon the adjustment to the Lump Sum Price within five (5) Business Days (or such longer period as the Parties may agree to in writing), following written notice from either Party hereto to the other given in the manner provided in this Agreement, then the matter shall be resolved in accordance with the provisions of **Article 28**; provided, however, that if, in the opinion of the Owner, acting reasonably, the resolution of the matter is necessary in order to avoid further adjustments to the Lump Sum Price, then such matter shall be determined as set forth in **subsection 15.1.15**.

13.2.3 Prior to the expiry of the Recall Period, any material Non-Conformance identified by Owner or Owner's Representative shall be corrected or otherwise dealt with so that it conforms. If the DBO Contractor does not comply with the foregoing in the manner and within the time period required by the Quality Management Plan, the Owner may (but shall not be required to), in addition and without prejudice to its other rights and remedies hereunder, make such corrections and/or remove and replace such materials at the expense of the DBO Contractor in which event the DBO Contractor shall repay to the Owner on demand all costs and expenses incurred by the Owner in so doing together with simple interest at the Prime Rate plus one percent (1%). If, in the opinion of the Owner, it is not expedient to correct defective work or work not done in accordance with the construction standards described in the Contractual Documents, the Owner may deduct from the Lump Sum Price, the difference in value between the work as done and that called for by this Agreement, the amount of which shall be determined by mutual agreement between the Parties and failing agreement, in accordance with the provisions of **Article 28**.

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**ARTICLE 14**  
**PAYMENT OF THE LUMP SUM PRICE**

**14.1 Payment**

14.1.1 Subject to the provisions of this Agreement, the Owner shall:

- (a) make milestone payments to the DBO Contractor on account of the Lump Sum Price when due in accordance with the Milestone Payment Schedule set out in **Appendix 9**, in the amount certified by the Owner's Consultant together with such Value Added Taxes as may be applicable to such payment, and subject to the retention by the Owner of the holdback of ten percent (10%) of the milestone payment amount, from time to time, in accordance with the Ontario *Construction Lien Act* R.S.O. 1990, CHAPTER C.30 (the "CLA");
- (b) make payments in respect of amounts due to the DBO Contractor under any approved Change Order or Approved Change Request in accordance with the terms of said approved Change Order or Approved Change Request,
- (c) upon Acceptance of the Design Build Work, pay to the DBO Contractor the unpaid balance of the Lump Sum Price, excluding the Performance Holdback, together with such Value Added Taxes as may be applicable to such payment, but subject to **subsections 14.5 and 14.7**; and
- (d) pay to the DBO Contractor the Performance Holdback in accordance with **subsection 20.3**.

**14.2 Interest**

14.2.1 Except as provided in **subsections 14.7 and 18.1**, should either Party fail to make payments as they become due under the terms of this Agreement or in any award by arbitration, simple interest at One percent (1%) per annum above the Prime Rate on such unpaid amounts shall also become due and payable until payment is made in full.

14.2.2 Interest shall apply at the rate and in the manner prescribed by **subsection 14.2.1** on an amount of any Claim or Dispute settled pursuant to **Article 28** from the date the amount would have been due and payable under this Agreement, had it not been in Dispute, until the date it is paid in full.

**14.3 Application for Payment**

14.3.1 Applications for payment may be made once a milestone has been achieved in accordance with **Appendix 9** and shall consist of a Payment Request, a Milestone Billing Report and the Project Manager's Certificate.



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14.3.2 Applications for payment shall be in an amount consistent with the Milestone Payment Schedule in respect of the milestone to which the payment application relates.

14.3.3 The Milestone Payment Schedule is attached hereto as **Appendix 9**.

**14.4 Milestone Payment**

14.4.1 The Owner's Representative will issue to the Owner, no later than 10 days after the receipt of a payment request from the DBO Contractor submitted in accordance with **subsection 14.3**, a Project Manager's Certificate for payment in the amount applied for. If the Owner's Representative and/or the Owner's Consultant amends the Payment Request, the Owner's Representative will promptly notify the DBO Contractor in writing giving the reasons for the amendment.

14.4.2 The Owner shall make payment to the DBO Contractor no later than thirty (30) days after the date of a Project Manager's Certificate is forwarded by the Owner's Representative and/or the Owner's Consultant.

**14.5 Final Payment**

14.5.1 The DBO Contractor shall submit an application for final payment in respect of the Design Build Work, including a final Payment Request, a final Billing Report, final Project Manager's Certificate together with a statutory declaration that certifies that all of the DBO Contractor's subcontractors and suppliers have been duly paid.

14.5.2 Once the Owner's Representative determines that the DBO Contractor's application for final payment validly reflects the attainment of the Acceptance criteria, then subject to **subsection 14.7**, the Owner's Representative will forward the final Project Manager's Certificate.

14.5.3 Subject to **subsection 14.7**, and the expiry of the applicable period for the registration of liens under the CLA, and providing that no liens or certificates of action have been registered against the title to the Facility Lands, and have not been removed, the Owner shall make final payment to the DBO Contractor within thirty (30) days of the forwarding of the final Project Manager's Certificate.

14.5.4 Subject to **subsection 14.7**, acceptance by the DBO Contractor of the amount tendered as final payment by the Owner, provided such amount is the same as DBO Contractor's application for final payment shall constitute a waiver and release by the DBO Contractor in favour of Owner, of all Claims by the DBO Contractor under the Agreement, or arising out of performance of the Design Build Work, except (1) only Claims which have been submitted by the DBO Contractor by notice to the Owner's Representative in accordance with the Contract Documents before the issue of the Acceptance Certificate; (2) or Disputes which are being resolved in accordance with **Article 28** hereof; and (3) right to payment of Performance Holdback under **subsection 20.3**.

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- 14.5.5 For greater certainty, fifty per cent (50%) of the amount withheld by the Owner in respect of CLA holdback, being an amount equal to ten per cent (10%) of the value of Work in respect of the Design Build Work shall, upon the expiry of the applicable CLA period for preserving construction liens, become the Performance Holdback. Payment of the Performance Holdback shall be in accordance with **subsection 20.3**.

**14.6 Work to Continue**

No Dispute of any nature, including with respect to the amount of a progress payment Acceptance Certificate or in respect of any amount withheld by Owner pursuant to the provisions of this Agreement shall entitle the DBO Contractor to delay the **Design Build Work** and the DBO Contractor shall prosecute the **Design Build Work** as if there were no disagreement unless with respect to that portion of the **Design Build Work** which is the subject of the Dispute the following three conditions are established: (i) said dispute is in respect to the amount of any unpaid progress payment Acceptance Certificate or in respect of any amount withheld by Owner pursuant to the provisions of this Agreement; (ii) said dispute has remained unresolved pursuant to the provisions of **Article 28** for a period in excess of six (6) months; and, (iii) the Owner is not acting in good faith to expeditiously resolve the outstanding dispute pursuant to the provisions of **Article 28**. Such continuation of the **Design Build Work** shall not be a waiver of any right held by the DBO Contractor to present and/or pursue a Dispute or settlement consistent with **Article 28**.

**14.7 Withholding Payment**

Notwithstanding the other provisions of this **Article 14**, the Owner may decline to approve any Payment Request and may withhold any Acceptance Certificate for payment, including a final Acceptance Certificate for payment in whole or in part, to the extent necessary to protect the Owner, and may withhold such funds as the Owner shall, pursuant to the opinion of the Owner's Representative, be required to offset any previous payment made to the DBO Contractor, or to offset any costs and/or damages, to such extent as may be necessary in the opinion of the Owner's Representative to protect the Owner from loss because of:

- (a) Non-Conformances in the Design Build Work, not remedied or corrected in accordance with the terms of the Contract Documents;
- (b) Evidence, without a commercially reasonable explanation, of the DBO Contractor's failure to make payments promptly to subcontractors or suppliers;

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- (c) The DBO Contractor's failure to remove or bond any construction liens and certificates of action arising from the Design Build Work in accordance with the terms of the Contract Documents.

To the extent it is subsequently determined by the parties or through dispute resolution that any such offset amounts were levied in error, Owner shall pay or repay DBO Contractor such amounts plus interest at Prime Rate plus four percent (4%) plus reasonable costs of enforcement and, as applicable, approve any Payment Request and issue any Acceptance Certificate.

- 14.7.2 Where the Owner has withheld payment of any portion of the Lump Sum Price pursuant to the provisions of this Agreement, the Owner shall be entitled to apply such portion of the Lump Sum Price withheld toward the costs of any required remedial work or for damages, loss or as indemnification with respect to any third party claims or other loss arising under this Agreement, thereby reducing the payment to the DBO Contractor and the Lump Sum Price, by the amount of payment reasonably withheld by the Owner and applied to these costs, then, subject to the Owner's rights otherwise provided in this **subsection 14.7**, provided however that once the basis for withholding any portion of the Lump Sum has been corrected or remediated, Owner shall promptly pay the DBO Contractor any amounts withheld with respect to the corrected items.
- 14.7.3 Where the Owner has withheld payment of any portion of the Lump Sum Price pursuant to the provisions of this Agreement, it shall within a reasonable period provide the DBO Contractor with notice and a rationale for withholding such payment(s).

**14.8 Payment of Undisputed Amounts**

- 14.8.1 Subject to the express provisions of this Agreement, including **subsection 14.7**, where there is any Dispute as to the amount of monies owing by any Party to any other Party hereunder including Milestone Payments, the portion of the amount owing that is not in dispute or otherwise contested or challenged, if any, shall be paid within the time required herein or if the required time has elapsed, shall be paid immediately, without deduction or abatement, but without prejudice to the rights of the Parties to contest, challenge or otherwise dispute the appropriate disposition of the remaining portion of the monies claimed hereunder.

**14.9 Change Orders**

- 14.9.1 If a Change Order results in an additional amount payable by the Owner to the DBO Contractor, the additional amount shall be invoiced separately by the DBO Contractor at the time(s) and in the manner, and subject to the documentation requirements set out in the Change Order(s) and the retention by the Owner of the Holdback, if applicable. If a Change Order(s) results in the reduction of the Lump Sum Price or the Total

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Annual Operating Fee, it shall be adjusted in the manner set out within the Change Order(s).

**14.10 Title**

- 14.10.1 Products covered by Payment Requests by the DBO Contractor shall, upon payment being received by the DBO Contractor from the Owner, become the sole property of the Owner. Upon payment by the Owner to the DBO Contractor, risk of loss and title to the Facility shall pass to the Owner to the extent not already passed, and the DBO Contractor warrants that the title transferred to the Owner under this **subsection 14.10.1** shall be free and clear of encumbrances. Notwithstanding the foregoing, title to any Products that are left over after the Acceptance of the Design Build Work shall revert to and remain with the DBO Contractor.

**ARTICLE 15**  
**CHANGES**

**15.1 Changes**

- 15.1.1 The Owner may, without invalidating this Agreement, at any time issue a Change Order.
- 15.1.2 The DBO Contractor may, at any time submit a Change Request to the Owner for approval by the Owner.
- 15.1.3 No additional Work constituting a Scope Change shall be undertaken without a Change Order and/or Approved Change Request and no payment shall be made for changes completed without a Change Order and/or Approved Change Request.
- 15.1.4 Subject to the other provisions of this **Article 15** the DBO Contractor shall perform or cause to be performed the Work in accordance with any Change Order and/or Approved Change Request as if the matters referred to therein had appeared in and been part of the Contract Documents.
- 15.1.5 The Owner in consultation with the DBO Contractor shall determine, subject to **subsection 15.1.15**, whether or not any matter has arisen which constitutes a Scope Change for the purposes of this Agreement, and such Scope Change will be reflected in either a Change Order or an Approved Change Request.
- 15.1.6 If a Scope Change has occurred, the DBO Contractor shall provide the Owner with an estimate of the effect of the Scope Change, attributable to such change, together with all supporting information.
- 15.1.7 If the DBO Contractor is of the opinion that a Scope Change is anticipated, the DBO Contractor shall, within seven (7) days, notify the Owner and provide a written estimate of the effect of the Scope Change within seven (7) days of such notice.

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- 15.1.8 Changes shall be valued in accordance with one of the following methods, as determined by the Owner:
- (a) By lump sum price, as agreed upon between the DBO Contractor and the Owner; or
  - (b) By time and material cost(s) determined in accordance with the list of Rental Rates for Equipment and Hourly Rates for Trades attached hereto as **Appendix 26** and **11** respectively, or to the extent not provided for in such Appendices, the DBO Contractor's actual costs plus, where the Change results in a net increase in the DBO Contractor's cost, an allowance for overhead and profit of 10% of such costs.
- 15.1.9 If the Owner's Representative determines that the DBO Contractor is to provide a lump sum price for a proposed Change, the DBO Contractor shall provide the Owner's Representative with a quotation describing the specific scope of the proposed change and the method by which the DBO Contractor has established its value for the proposed change, showing the estimated labour costs, material costs, equipment costs, Facility costs, indirect costs, and any mark-up component for any overhead and profit and the specific cost, if any, that has been included for any impact on schedule or productivity.
- 15.1.10 In addition to the information described in **subsection 15.1.9**, the Owner and/or Owner's Representative will require information on scheduling impacts and may request that the DBO Contractor provide additional information and documentation in relation thereto.
- 15.1.11 If the Owner or Owner's Representative determines that a proposed change is to be valued on the basis of time and material costs, then the DBO Contractor shall submit to the Owner's Representative a detailed account of the actual quantities of labour, materials, equipment and other costs used for or incurred in relation to the proposed change in accordance, where applicable, with the lists of Rental Rates for Equipment and Hourly Rates for Trades attached hereto as **Appendix 11** and **26** respectively.
- 15.1.12 If a Change Order (i) constitutes a Scope Change and (ii) will result in a decrease to the Lump Sum Price or the Total Annual Operating Fee, then the amount of such decrease shall be to the benefit of the Owner.
- 15.1.13 If a Change Request (i) is approved by the Owner (ii) constitutes a Scope Change, and (iii) will result in a decrease in the Lump Sum Price or the Total Annual Operating Fee, then the amount of such decrease shall be shared on the basis of sixty per cent (60%) for the Owner and forty per cent (40%) for the DBO Contractor.
- 15.1.14 For greater certainty, it is acknowledged and agreed that unless a Change Order or Approved Change Request constitutes a Scope Change, (i) no increase or decrease to the Lump Sum Price or the Total Annual Operating Fee shall be made on account of the costs and expenses relating to such change, and (ii) the DBO Contractor shall not

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be entitled to any extension or claim for delay as a result of compliance with or implementation of such change.

15.1.15 Determination by the Owner

- (a) If the Parties cannot agree as to whether a matter constitutes a Scope Change and/or the effect of a Scope Change, such issue shall be resolved in accordance with the dispute resolution procedures set out in **Article 28**; or if the change is required to be proceeded with, then the DBO Contractor in the first instance, will determine the effect of such change, subject to final resolution in the manner set out in **Article 28**.

The DBO Contractor shall, pending such resolution, nonetheless proceed to perform such change and such continuation shall not constitute a waiver of any right by the DBO Contractor or the Owner.

- 15.1.16 Relief granted to either party arising from a Scope Change shall be limited to the relief determined by this **Article 15**. The parties shall not receive and hereby waive any Claim and any reserved right to assert a Claim for relief arising from, relating to or resulting from a Scope Change(s), except as determined in accordance with this **Article 15**.

- 15.1.17 Deleted

**15.2 Changes in Law and Force Majeure**

- 15.2.1 In the event that a Change in Law or Force Majeure has occurred which constitutes a Scope Change, the Lump Sum Price and/or the Total Annual Operating Fee, as the case may be, shall only be adjusted from time to time provided the DBO Contractor's additional costs arising as a result of said Changes in Law and Force Majeure equals or exceeds \$50,000 in the aggregate, at which time DBO Contractor may claim for all such time and cost impacts (including for greater certainty, those arising prior to attaining the \$50,000 threshold).

**ARTICLE 16**  
**DELAYS AND FORCE MAJEURE**

**16.1 Delays**

- 16.1.1 The performance of scheduled obligations under this Agreement shall, if applicable, be extended as a result of compliance with or implementation of a Scope Change or which is directly attributable to Owner Fault, and such extension and any costs relating thereto is to be determined pursuant to **Article 15**.

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- 16.1.2 Subject to the provisions herein, no extension for the performance of scheduled obligations of the DBO Contractor under this Agreement shall be permitted unless written notice of the event causing the delay is given to the Owner within the latest of: fifteen (15) Business Days of its commencement; fifteen (15) Business Days following the date on which the DBO Contractor, acting reasonably, became aware of the event; or such longer period; provided the DBO Contractor indemnifies the Owner for any loss, damage, expense, suits, actions, claims, liens, proceedings, demands, awards, payments and liabilities caused by the DBO Contractor's delay in providing said notification. In the case of a continuing cause of delay, only one (1) notice shall be necessary.
- 16.1.3 Suspension of the Work by the Owner in accordance with **Article 25** shall not constitute a delay for the purposes of this **Article 16**.
- 16.1.4 The DBO Contractor shall use its commercially reasonable efforts to anticipate and manage the Master Project Schedule to minimize delays caused by any of the matters referred to in this **Article 16** and the costs relating thereto.
- 16.1.5 To the extent that the DBO Contractor reasonably anticipates or experiences delays in its performance of the Work, the DBO Contractor shall immediately take all necessary corrective actions in order to recoup any such delays and achieve the Target Date in accordance with the Master Project Schedule.

**16.2 Force Majeure**

- 16.2.1 Without limiting the provisions of **Article 15**, DBO Contractor shall not be considered in default of its obligations under this Agreement to the extent that its performance of such obligations is delayed, hindered or prevented by reason of Force Majeure or Change in Law. A delay or interruption in the performance of either party of scheduled obligations under this Agreement due to Force Majeure or Change in Law, shall extend the period of performance of the obligations by an appropriate number of Business Days as the Owner and the DBO Contractor may agree upon and the Master Project Schedule shall be deemed to be amended accordingly. If the Parties cannot agree upon whether a Force Majeure or Change in Law event has occurred and/or upon the appropriate period of permitted delay, within five (5) Business Days following receipt of written notice from any Party, such matters shall be resolved in accordance with **Article 28**.

**ARTICLE 17**  
**GUARANTEES**

**17.1 Design**

- 17.1.1 The DBO Contractor guarantees that the design of the Work will be executed in conformity with the Contract Documents including the Certificate of Approval, as well as Laws and Regulations, Specifications and Standards and that the final detailed

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design of the Work will be in conformity with the Technical Requirements attached hereto as **Appendix 1**. The DBO Contractor shall diligently perform, at the written request of the Owner at any time within the Recall Period, all corrective engineering and design services, required in connection therewith, necessary to conform to the foregoing guarantee.

**17.2 Workmanship**

- 17.2.1 The DBO Contractor guarantees that the construction materials and workmanship of the Work will be in conformity with the Contract Documents, the Certificate of Approval and the Laws and Regulations. The DBO Contractor shall diligently perform, at the written request of the Owner at any time within the Recall Period, all corrections, repairs, or replacements of any field workmanship which is defective or does not conform to the foregoing guarantee.

**17.3 Products**

- 17.3.1 The DBO Contractor guarantees to the Owner that the Products, including material and Equipment, furnished will be of good quality and new unless otherwise agreed by the Owner and the DBO Contractor. During the Recall Period, the DBO Contractor guarantees material and Equipment shall be free from defects. If any Products, including any material or Equipment are found to be defective during the Recall Period, the DBO Contractor shall at its sole expense repair or replace such defective material or Equipment after receipt of written notice from the Owner to do so.

**17.4 Performance Guarantees**

- 17.4.1 The DBO Contractor guarantees that:
- (a) It shall adhere to and/or achieve the performance guarantees contained within Exhibit 2 to **Appendix 19** in respect of both the Design Build Work and the Operations Work which are more particularly described in **Appendix 19**;
  - (b) the Facility, when tested in accordance with **subsection 6.2.6** will meet or exceed the Acceptance Test Criteria contained within **Appendix 10**, as may be adjusted pursuant to **subsection 6.2.6(d)(iii)**; and,
  - (c) the Facility will be operated in accordance with the Performance Requirements described in **Article 42** and **Appendix 19**.

All of which are collectively hereafter referred to for the purposes of this Agreement as the Performance Guarantees.



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**17.5 Assignment of Warranties**

- 17.5.1 In the event of termination of this Agreement due to the DBO Contractor's default, the DBO Contractor shall, upon receipt of notice in writing from the Owner, assign to the Owner all warranties provided by Material Subcontractors which have not already been assigned under **subsection 6.2.7(d)**, if any. The DBO Contractor shall be relieved of any obligations hereunder which are otherwise addressed under said warranties.

**ARTICLE 18**  
**LIQUIDATED DAMAGES**

**18.1 Liquidated Damages**

- 18.1.1 If the DBO Contractor does not achieve Service Commencement by the Target Date as may be adjusted under this Agreement, then the DBO Contractor shall pay to the Owner liquidated damages (the "Schedule Liquidated Damages") in respect thereof, in the amount of ten thousand dollars (\$10,000.00) per day for each day or part day after the 30<sup>th</sup> day following the Target Date, until the DBO Contractor achieves Service Commencement, as evidenced by the issuance of an Acceptance Certificate by the Owner.
- 18.1.2 It is acknowledged and agreed that if the Owner notifies the DBO Contractor that it is claiming Schedule Liquidated Damages, such Schedule Liquidated Damages shall be due and payable within ten (10) Business Days after receipt by the DBO Contractor of a demand for payment from the Owner. If the DBO Contractor fails to pay any Schedule Liquidated Damages when due, the Owner shall have the right, without limiting any other remedies available to it hereunder or at law, to retain from monies otherwise owing by the Owner to the DBO Contractor under this Agreement, an amount sufficient to fully satisfy any such unpaid Schedule Liquidated Damages.
- 18.1.3 The DBO Contractor and the Owner acknowledge that the Schedule Liquidated Damages represent a reasonable and genuine pre-estimate of actual damages for the mere delay in the performance of the Work and shall constitute the Owner's sole remedy in respect of delay.
- 18.1.4 The DBO Contractor and the Owner acknowledge that the Performance Liquidated Damages and the Lump Sum Performance Liquidated Damages represent a reasonable and genuine pre-estimate of actual damages for the failure by the DBO Contractor to achieve the Performance Guarantees.
- 18.1.5 In the event that the DBO Contractor fails to achieve:
- (a) compliance with the **Appendix 10** – Section 1.14 Facility Acceptance Test Criteria thresholds related to the throughput capacity and/or the net electrical production rate but does achieve the Minimum Acceptance Criteria in **Appendix 10** – Section 1.15,

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and the DBO Contractor chooses, pursuant to **subsection 6.2.6(d)(iii)**, to terminate the testing procedures and cease performing any further corrective measures related to achieving compliance with those thresholds under **Appendix 10** – Section 1.14, then the DBO Contractor shall pay the Owner Lump Sum Performance Liquidated Damages which are determined based upon the percentage of compliance the Facility has achieved with respect to the throughput capacity and/or the net electrical production rate during the Acceptance Test. The Lump Sum Performance Liquidated Damages are as follows:

- (i) Throughput Capacity shortfall:

<u><b>% of Acceptance Threshold:</b></u>	<u><b>Lump Sum Performance Liquidated Damages (\$):</b></u>
100%	\$0
99%	\$4,000,000
98%	\$7,500,000
97%	\$11,000,000
96%	\$14,500,000
95%	\$18,000,000
94%	\$22,000,000
93%	\$25,500,000
92%	\$29,000,000
91%	\$33,000,000
90%	\$36,500,000

- (ii) Net Electrical Production Rate Shortfall:

<u><b>% of Acceptance Threshold:</b></u>	<u><b>Lump Sum Performance Liquidated Damages (\$):</b></u>
100%	\$0
99%	\$1,000,000
98%	\$2,000,000
97%	\$3,000,000
96%	\$4,000,000
95%	\$5,000,000
94%	\$6,000,000
93%	\$7,000,000
92%	\$8,000,000
91%	\$9,000,000
90%	\$10,000,000

- (b) deleted

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- (c) the Performance Requirements set out in **Article 42** and in **Appendix 19** related to Throughput Capacity, Electricity Production and/or Residue Quantity during the performance of the Operations Work, then the DBO Contractor shall pay the Owner Performance Liquidated Damages in respect thereof as calculated below.

(i) Throughput Capacity shortfall:

$\$210.00^* \times$  (Quantity of tonnes of Throughput below the Throughput Capacity Guarantee in **Appendix 19**)

(\* = figure to be adjusted on an annual basis based on 100% of the annual average change in the Consumer Price Index (CPI), Ontario All-Items)

(ii) Electrical Production Shortfall:

$\$0.08^* \times$  (Quantity of kwh/tonne below the Electricity Production Guarantee in **Appendix 19**  $\times$  Quantity of tonnes of Throughput)

(\* = figure to be adjusted on an annual basis based on 100% of the annual average change in the Consumer Price Index (CPI), Ontario All-Items)

(iii) Residue Quantity

$\$200.00^* \times$  (quantity of Residue in excess of Residue Quantity guarantee in **Appendix 19**  $\times$  Quantity of tonnes of Throughput)

(\* = figure to be adjusted on an annual basis based on 100% of the annual average change in the Consumer Price Index (CPI), Ontario All-Items)

- (d) Payment of any of the Performance Liquidated Damages shall be made within five (5) Business Days after receipt by the DBO Contractor of a demand for payment from the Owner. If the DBO Contractor fails to pay Performance Liquidated Damages when due, the Owner shall have the right, without limiting any other remedies available to it hereunder or at law, to retain from monies otherwise owing by the Owner to the DBO Contractor under this Agreement, an amount sufficient to fully satisfy any such unpaid Performance LDs. To the extent it is subsequently determined by the parties or through dispute resolution that any such set off amounts were levied in error, Owner shall promptly repay DBO Contractor such amounts plus interest thereon at the Prime Rate plus four percent (4%) plus reasonable costs of enforcement. The exercise of the Owner's right under this section to levy Performance Liquidated Damages shall be Owner's sole remedy for DBO Contractors failure to meet the Performance Requirements set out in **Article 42** and in **Appendix 19** related to Throughput Capacity, Electrical Production and/or Residue Quantity; provided however Owner shall not be limited to Performance Liquidated damages for any other default under this Agreement. For greater clarity,

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the levy of Performance Liquidated Damages against the DBO Contractor does not, in any way, limit, reduce or waive any of the Owner's rights and remedies under this Agreement in the event of the breach, violation or non-performance by the DBO Contractor of any covenant, obligation or agreement of the DBO Contractor contained or described in this Agreement (other than the Performance Requirements related to Throughput Capacity, Electrical Production and/or Residue Quantity) which may have caused or contributed, directly or indirectly, to the DBO Contractor's failure to meet the Performance Requirements.

- 18.1.6 The DBO Contractor's liability for Schedule Liquidated Damages and Performance Liquidated Damages during the Operations Component shall be subject to the limit set forth below:
- (a) Schedule Liquidated Damages shall not exceed **10%** of the Lump Sum Price;
  - (b) Performance Liquidated Damages shall not exceed **10%** of the Lump Sum Price; and
  - (c) The aggregate liability for Schedule Liquidated Damages and Performance Liquidated Damages shall not exceed **15%** of the Lump Sum Price.
- 18.1.7 For greater certainty, the limits in **subsection 18.1.6** shall not apply to Lump Sum Liquidated Damages in **subsection 18.1.5**, which shall constitute the Owner's sole remedy in respect of the matters claimed in **subsection 18.1.5**.

**ARTICLE 19**  
**INSURANCE**

**19.1 Required Insurance**

- 19.1.1 The DBO Contractor agrees to provide the insurance specified in **Appendix 20** at its own cost, in accordance with the terms and conditions described in **Appendix 20**, including policy limits and deductible limits.

**19.2 Insurance Requirements for Subcontractors**

- 19.2.1 The DBO Contractor covenants and agrees to require in contract(s) with any subcontractor retained in connection with the Construction Work, that such subcontractor obtain appropriate insurance, insuring the interests of the Owner, the DBO Contractor and any other subcontractors in respect of the applicable Design Build Operate Work and, where appropriate, adding the Owner as an additional insured. When requested to do so by the Owner, the DBO Contractor covenants and agrees to provide or cause to be provided evidence of such insurance to the Owner, in form and content acceptable to the Owner, acting reasonably.

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**19.3 Cooperation**

- 19.3.1 The Owner and the DBO Contractor covenant and agree to do everything which may be reasonably necessary or required to expedite the adjustment of any claim for loss or damage covered by insurance hereunder so as to expedite the release and dedication of proceeds of such insurance in the manner and for the purposes herein contemplated.

**ARTICLE 20**  
**SECURITY**

**20.1 Surety Bonds**

- 20.1.1 After the execution of this Agreement and in any event no later than Notice to Proceed, the DBO Contractor shall deliver the bonds described in (a) and (b) below to the Owner and upon commencement of the Operations Component of the Work the DBO Contractor shall deliver the bond described in (c) below to the Owner:
- (a) Performance Bond – The DBO Contractor shall provide the Owner with a Performance Bond issued by a Surety to secure the performance of the Design Build Work under this Agreement. The Performance Bond shall provide comprehensive coverage for all aspects of the performance of the Design Build Work and be consistent with the terms of this Agreement, and have an aggregate value equal to fifty (50) percent of the Lump Sum Price, and be substantially in the form attached hereto as **Appendix 16**.
  - (b) Labour and Material Payment Bond – The DBO Contractor shall provide the Owner with a Labour and Material Payment Bond securing the payment by the DBO Contractor of all labour and material supplied to or in respect of the Design Build Work. The Labour and Material Payment Bond shall have an aggregate value equal to fifty (50) percent of the Lump Sum Price, and be substantially in the form attached hereto as **Appendix 17**.
  - (c) Renewable Performance Bond – The DBO Contractor shall provide the Owner with a Renewable Performance Bond in respect of the Operations Component of the Work. The Renewable Performance Bond shall have a value equal to one hundred per cent (100%) of the annual Total Annual Operating Fee and be substantially in the form attached hereto as **Appendix 30**.
- 20.1.2 Each Surety Bond shall be duly executed by a Surety or by an agent or an attorney-in-fact for the Surety, in which latter case, the DBO Contractor is required to submit with such Surety Bond a power of attorney appointing the signatory agent or the attorney-in-fact executed by the Surety upon a date reasonably proximate to the date of the Surety Bond, and the power of attorney shall in each instance be retained with the Surety Bond.

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**20.2 Parent Company Guarantee(s)**

- 20.2.1 The DBO Contractor shall obtain and deliver to the Owner, on or prior to the execution of this Agreement, a parent company guarantee from Parent Company, to jointly and severally guarantee the performance of the DBO Contractor's obligations hereunder (the "Parent Company Guarantee"). Such Parent Company Guarantee shall be substantially in the form of **Appendix 25** hereto. Such Parent Company Guarantee shall be subject to the limits of liability set forth in **subsection 24.2.1.1**.
- 20.2.2 Notwithstanding any of the provisions of this Agreement, in the event of any breach of this Agreement by the DBO Contractor the Owner shall have immediate recourse against the Parent Company under its Parent Company Guarantee and the exercise of any of the Owner's rights shall not be deemed to be a waiver of any of the Owner's rights under this Agreement.

**20.3 Performance Holdback**

- 20.3.1 Upon the expiry of the applicable period under the CLA for preserving construction liens in respect of the Design Build Work and providing that there have been no construction liens preserved in respect of the Project which have not been vacated, released or discharged, the Owner shall be entitled to continue to retain that portion of the CLA holdback equal to five per cent (5%) of the Lump Sum Price as the Performance Holdback.
- 20.3.2 Subject to the Owner's right to set-off against the Performance Holdback as hereinafter described in **subsection 20.3.3**, the Performance Holdback will be released to the DBO Contractor on the expiry of the Recall Period.
- 20.3.3 In the event that the DBO Contractor fails to fulfill any of its obligations hereunder during the Recall Period, including the correction of defects during the Recall Period and meeting or exceeding the Performance Requirements, then without prejudice to any other right or remedy it may have under this Agreement, the Owner may, without duplication, set off against the Performance Holdback or draw on any letter of credit deposited with the Owner pursuant to **subsection 20.3.5** such amounts as are reasonably required in order to ensure compliance of the DBO Contractor with its obligations hereunder.
- 20.3.4 In the event that construction liens are preserved against the title to the Project which are not vacated, released or discharged, then the DBO Contractor shall be required to ensure that any portion of the CLA holdback which the Owner must set aside, pay into court or pay to a lien claimant on account of the preservation of a lien is, within two (2) Business Days of the Owner having to do so, refreshed or repaid to the Owner to ensure that the Owner has complied with its obligations under the CLA and has a Performance Holdback equal to five per cent (5%) of the Lump Sum Price. Should the DBO Contractor fail to repay to the Owner any required portion of the CLA

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holdback, the Owner shall be entitled, without prejudice to any other right or remedy it may have, to set off against any amount otherwise due to the DBO Contractor.

- 20.3.5 Following the issuance of the Acceptance Certificate, the DBO Contractor shall be entitled, at its option, to substitute security in the form of a letter of credit in an amount equal to the full amount of the Performance Holdback. Such letter of credit shall be a demand letter of credit in favour of the Owner in a form acceptable to the Owner and must be issued by a bank or financial institution having a credit rating of “A” or better with Standard & Poor’s or “A2” or better with Moody’s Investor Services. The letter of credit shall expire at the end of the Recall Period and shall contain, as an attachment, the form of draw certificate which will contain a statement that the Owner is entitled to draw on it under the terms of this Agreement.

**20.4 Operation Performance Security**

- 20.4.1 No later than thirty (30) days prior to the commencement of the initial term as described in **subsection 30.2.1**, the DBO Contractor shall deliver to the Owner Operations Performance Security effective as of the Service Commencement Date in the form of a demand letter of credit in favour of the Owner in an amount equal to the estimated Total Annual Operating Fee for a period of three (3) months for the coming year. Such letter of credit must be in a form acceptable to the Owner and be issued by a bank or financial institution having a credit rating of “A” or better with Standard & Poor’s or “A2” or better with Moody’s Investor Services, and shall contain, as an attachment, the form of draw certificate which will contain a statement that the Owner is entitled to draw on it under the terms of this Agreement.
- 20.4.2 The letter of credit referred in **subsection 20.4.1** shall either be renewed annually or replaced by a replacement letter of credit on the anniversary of the posting of the letter of credit for the preceding year.
- 20.4.3 Without prejudice to any of its rights or remedies under this Agreement, the Owner shall be entitled to draw on the Operation Performance Security in the event that the DBO Contractor fails to perform any of its obligations in respect of the Operations Work, and the Owner incurs costs, damages or expenses as a result of any such failure.
- 20.4.4 In the event that, at any time during the term of this Agreement, Parent Company’s long-term corporate credit rating ceases to be at least Ba3 by Moody’s Investor Services, Inc. or its successor, or at least B+ by Standard & Poor’s Ratings Services (a division of McGraw-Hill, Inc.) or its successor, then the DBO Contractor shall replace, or augment, the Operations Performance Security held by the Owner so that the total Operations Performance Security is an amount equal to the estimated Total Annual Operating Fee for a period of nine (9) months for the coming year.

**20.5 Maximum Liability**

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20.5.1 Except and to the extent expressly provided otherwise in this Agreement including, without limitation, in **subsection 24.2**, the DBO Contractor's maximum liability for the performance, non-performance or defective performance of its obligations under this Agreement shall be for an amount equal to one hundred percent (100%) of the Lump Sum Price. For greater certainty, such maximum liability includes the DBO Contractor's aggregate liability under the various forms of security provided for in this **Article 20**, and for liquidated damages pursuant to **Article 18** of the Agreement.

**ARTICLE 21**  
**TESTS, PROCEDURES, STUDIES AND INVESTIGATIONS**

**21.1 Required Tests and Procedures**

21.1.1 In addition to the Acceptance Test and other tests and procedures set out in the Quality Management Plan, the DBO Contractor shall, as part of the Work, perform or cause to be performed any tests, procedures, studies and investigations, including, environmental, engineering, geological and hydrological investigations, wind tests, stress tests, structural tests, vibration and noise tests, and moisture and snow accumulation studies as may be required by the contract Documents and the Laws and Regulations to demonstrate or ensure that the Work is in conformity with, the Contract Documents and the Laws and Regulations, respectively.

**21.2 Requested Tests and Procedures**

21.2.1 In addition to the tests, studies and investigations required pursuant to **subsection 21.1.1**, the DBO Contractor shall also perform, from time to time, such tests, procedures, studies and investigations as may be reasonably requested by the Owner's Representative, prior to and during performance of each portion of the Work, and shall provide to the Owner's Representative, three (3) copies of each report made in connection with such tests, procedures, studies or investigations. Subject to **subsection 21.4.1**, any claim for compensation for the substantiated impact on the DBO Contractor's time and cost for performance of the Work of any such tests, procedures, studies or investigations shall be determined in accordance with **subsection 15.1**.

**21.3 Tests and Procedures by the Owner**

21.3.1 Without limiting the provisions of **subsections 21.1** and **21.2** hereof, the Owner's Representative shall be entitled, at any time and from time to time, to perform any test, study or investigation in connection with the Work as the Owner's Representative may determine to be reasonably necessary or advisable in the circumstances and the DBO Contractor shall provide to the Owner's Representative with all necessary assistance in connection with the carrying out of such tests, procedures, studies and investigations. For greater certainty, in connection with the foregoing, the Owner's Representative, shall be entitled to install machines, equipment, systems, monitors, and other devices in, on, under, over or adjacent to the Facility to permit and facilitate any test,



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procedure, study, evaluation, review, investigation or Examination of or relating to the Work or the Facility. The performance of any Examination, tests, procedures, studies and/or investigations by or on behalf of the Owner shall not relieve the DBO Contractor of any of its obligations to fulfil the terms of this Agreement. No Default by the DBO Contractor will be waived or be deemed to have been waived by any test, study or investigation by or on behalf of the Owner, and in no event will any such test, study or investigation be construed as a representation that there has been or will be compliance with this Agreement or that the Work is free from defect or deficiency. The Owner's Representative shall use its reasonable best efforts to ensure that any tests, procedures, studies or investigations performed or carried out hereunder and any machines, equipment, systems, monitors, counters and other devices installed hereunder are performed, carried out or installed so as to minimize disruption or interruption to the Work. Notwithstanding the foregoing, Owner shall relieve DBO Contractor from all Performance Guarantees and schedule obligations to the extent directly impacted by the performance of any Examination, test, procedure, study and/or investigation conducted by or on behalf of the Owner, Owner's Representative or such other party for whom Owner is responsible including the installation or operation of any machines, equipment, systems, or monitors. Any claim for compensation for the substantiated impact on the DBO Contractor's cost for performance of the Work of any such tests, procedures, studies or investigations shall be determined in accordance with **subsection 15.1**.

**21.4 Payment of Costs and Expenses of Test**

- 21.4.1 For the purposes of **subsections 21.2** and **21.3** hereof, the costs of any of the tests, procedures, studies and/or investigations required by the Owner to be performed by the DBO Contractor or performed by the Owner shall be for the sole account of the Owner.
- 21.4.2 For the sake of greater clarity, except as provided in **subsections 21.2.1** and **21.3.1** above, the DBO Contractor shall have no entitlement to compensation or schedule relief for the impact of any such tests, procedures, studies or investigations pursuant to this **Article 21** reasonably conducted by the Owner that discloses a Non-Conformance or does not materially impact DBO Contractors' performance of the Work.

**ARTICLE 22**  
**REPORTS**

**22.1 Reports and Certificates**

- 22.1.1 In addition to complying with all of the submission and reporting requirements described in the Technical Requirements during the performance of the Design Build Work, the DBO Contractor shall submit to the Owner's Representative on a monthly basis a Monthly Status Report which shall include the following:

- (a) a report on compliance with the Master Project Schedule;

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- (b) a report on the status of the Master Project Schedule, including a list of the major activities performed by the DBO Contractor during the month and a report on the status of the Work;
- (c) a list of upcoming matters that may require or involve approval or resolution by the Owner's Representative and/or a list of major activities to be performed in subsequent months;
- (d) a report on the results of tests performed in relation to the Work in accordance with the Quality Management Plan together with a schedule of upcoming tests (showing dates and locations) to be performed pursuant to the Quality Management Plan for the next one (1) month period;
- (e) a report on project quality including a summary of the status of responses to matters set out in any Non-Conformance Notice;
- (f) a report on the status of the DBO Contractor's health and safety prevention program including a description of any incidents which occurred during the month; and
- (g) any other report referred to in the Technical Requirements.

**22.2 Other Information**

- 22.2.1 In addition to the obligation to deliver the Master Project Schedule and the Monthly Status Report, the DBO Contractor shall forthwith advise the Owner of any material deviation from the Master Project Schedule or the then current Monthly Status Report that has occurred or is expected to occur since the date that the Monthly Status Report was last delivered pursuant to the provisions hereof, and describe the corrective action being taken by the DBO Contractor to rectify the material deviation.
- 22.2.2 The DBO Contractor, at any and all times during normal business hours, at the request of the Owner's Representative, shall make available or cause to be made available (and, if requested by the Owner's Representative, furnish or cause to be furnished) to the Owner's Representative all such specific documents, information or materials regarding the performance of the Work (including, any Contract Documents) as may be specified in such request and as shall be in the possession or control of the DBO Contractor, but excluding the DBO Contractor's financial records or other information regarding amounts payable by the Owner under this Agreement that are priced on a fixed or lump sum basis and any information that is proprietary from a financial perspective.

**22.3 Maintenance and Examination of Documents**

- 22.3.1 Subject to **Article 36** and **Article 39** which shall specifically apply in respect of the Operations Component, the DBO Contractor shall maintain and keep the Data and the Contract Documents and shall preserve the same until forty-eight (48) months after the

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Completion Date for the Facility in its entirety or until all Claims have been settled, whichever is longer. The DBO Contractor shall require that all Material Subcontractors preserve the Data and Contract Documents for a similar period of time. The Data and the Contract Documents shall not be destroyed without the prior written consent of the Owner.

- 22.3.2 The Owner and the Owner's Representative may, on reasonable notice and during normal business hours, cause such inspection of the Data and the Contract Documents for the purpose of ascertaining compliance by the DBO Contractor with the requirements of this Agreement as such Party shall deem necessary in the circumstances and shall be entitled to make copies thereof and to take extracts therefrom, solely at the expense of the Party making or taking the same and the DBO Contractor shall make available or cause to be made available to any such Party such reasonable information and material as may be required by such Party for its purposes and otherwise give such cooperation as may be required by such Party.

**22.4 Examination and Inspection of Work**

- 22.4.1 In addition and without prejudice to the rights of the Owner, the Owner's Consultant and the Owner's Representative shall, at all times, have access to the Facility (including portions under construction) during the performance of the Work and the DBO Contractor shall furnish the Owner with every assistance for ascertaining that the Work is in accordance with the provisions and requirements of this Agreement. In the event that an examination or inspection of the Work discloses a Non-Conformance, the DBO Contractor shall diligently rectify such Non-Conformance at no cost to the Owner. For the sake of greater clarity, the DBO shall have no entitlement to compensation or schedule relief for the impact of any Examination reasonably conducted by the Owner that discloses a Non-Conformance or does not materially impact DBO Contractors' performance of the Work.
- 22.4.2 The inspection of Work by the Owner or the Owner's Representative shall not relieve the DBO Contractor of any of its obligations hereunder. No Default or Non-Conformance by the DBO Contractor will be waived or deemed to have been waived by any Examination or Inspection by the Owner, hereunder. In no event will any Examination or Inspection by the Owner hereunder be a representation that there has been or will be compliance with the Contract Documents and the Laws and Regulations or that the construction is free from defective materials or workmanship.

**22.5 Examination and Inspection Not Waiver**

- 22.5.1 Failure by the Owner, or the Owner's Representative, to Examine, review or otherwise inspect the Work or any part thereof or Examine, review or otherwise inspect the Data shall not constitute a waiver of any of the rights of the Owner hereunder. Examination, review or inspection not followed by a Non-Conformance Notice or notice of Default shall not constitute a waiver of any Non-Conformance Default or Event of Default, nor shall it constitute an acknowledgement that there has been or

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will be compliance with this Agreement, the other Contract Documents or the Laws and Regulations.

**ARTICLE 23**  
**CONSTRUCTION LIENS**

**23.1 Removal of Construction Liens**

23.1.1 In the event that a construction lien is registered against the Facility Lands by a subcontractor or supplier to the DBO Contractor, and provided that the Owner is not in default of its payment obligations under this Agreement, the DBO Contractor shall, at its own expense:

- (a) within ten (10) days of becoming aware of the construction lien and any certificate of action, see to their removal by discharge, release or by posting security, and in the case of written notices of lien, their withdrawal in writing.
- (b) In the event that the DBO Contractor fails to conform to its obligations pursuant to **subsection 23.1.1(a)**, the Owner may take any steps it deems appropriate to see to the removal of the construction lien, certificate of action or withdrawal of the written notice of lien and the Owner shall be entitled to set off all costs associated therewith, including legal costs and the costs of any security against amounts otherwise owing to the DBO Contractor.

**ARTICLE 24**  
**INDEMNIFICATION, LIMITS OF LIABILITY AND EXCLUSION OF**  
**CONSEQUENTIAL DAMAGES**

**24.1 DBO Contractor's Indemnity**

24.1.1 Subject to **subsection 24.2**, the DBO Contractor covenants to indemnify and save harmless the Owner and its respective members, directors, officers, officials, employees, consultants and advisors involved in the Project including anyone else for whom the Owner is at law responsible from and against any and all Claims of any nature whatsoever and howsoever caused resulting from or relating to:

- (a) Any breach, violation or non-performance by the DBO Contractor of any covenant, obligation or agreement of the DBO Contractor contained or described in this Agreement and Laws and Regulations;
- (b) The existence of any dangerous defect or dangerous condition in the Work;
- (c) Any acts negligently performed or omitted to be performed (including, without limitation, any negligent acts or omissions) by or on behalf of the DBO Contractor;

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- (d) Any damage to property, either real or personal and either owned by the DBO Contractor, the Owner, or others (including, without limitation, any member of the public), howsoever occasioned as a result of the Work;
- (e) Any personal or bodily injury to or death of any person or persons (including, any member of the public), howsoever occasioned by or as a result of the Work;
- (f) Any inaccuracy in or breach of any of the representations or warranties of the DBO Contractor contained in this Agreement, or any document, undertaking or certificate given pursuant to any such agreement;
- (g) A Claim relating to the Work, including the use of the Facility by Owner or its successors or assigns as contemplated by this Agreement, that asserts a breach of the Intellectual Property Rights of any third party.
- (h) All costs, expenses, fines, and legal fees (on a substantial indemnity basis) that may be incurred or paid by the Owner, in enforcing the terms, covenants and conditions of this Agreement and/or that may be incurred or paid by the Owner in connection with any action, suit or proceeding with respect to a matter for which the DBO Contractor is obligated to indemnify the Owner, and its respective directors, officers and officials pursuant to this **subsection 24.1**.

**24.2 Limitations on DBO Contractor's Indemnity**

24.2.1 Notwithstanding **subsection 24.1** or any other provision of this Agreement to the contrary, the following limitations shall apply in respect of the indemnity obligations of the DBO Contractor hereunder:

- (a) subject to **subsections 24.2.1(b) and 24.2.1(c)**, and to **subsections 18.1.6 and 20.5**, in no event shall the liability of the DBO Contractor under **subsection 24.1** for Claims against it by the Owner arising as a result only of physical damage to the Facility or the negligent act, omission, or fault of the DBO Contractor be greater than an amount equal to One Hundred per cent (100%) of the Lump Sum Price for acts or omissions which occur during or arise out of the performance of either the Design Build Work or the Operations Work;
- (b) notwithstanding **subsection 24.2.1(a)**, the limitation on liability described therein shall not apply to the indemnity by the DBO Contractor with respect to Claims arising as a result of fraudulent acts, wilful acts or gross negligence of the DBO Contractor;
- (c) notwithstanding **subsection 24.2.1(a)** the limitation on liability described therein shall not apply in the event of:
  - (i) bodily injury or death covered by the proceeds of insurance maintained under **Article 19**; and,

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- (ii) damage to property, either real or personal, owned by persons other than the Owner covered by the proceeds of insurance maintained under **Article 19**.

**24.2.1.1 Limitation on Parent Company Guarantee**

Notwithstanding **subsection 20.2.1** or any other provision of this Agreement to the contrary, in no event shall the liability of the Parent Company under **subsection 20.2.1** be greater than an amount equal to fifty per cent (50%) of the Lump Sum Price for acts or omissions which occur during or arise out of the performance of the Design Build Work, which aggregate limit of liability under the Parent Company Guarantee shall reduce to an amount equal to thirty per cent (30%) of the Lump Sum Price for acts or omissions which occur during or arise out of the performance of the Operations Work.

**24.3 Owner's Indemnity**

- 24.3.1 Subject to **subsection 24.4**, the Owner covenants to indemnify and save harmless the DBO Contractor and its respective directors, officers, employees and shareholders involved in the Project from and against any and all Claims of any nature whatsoever and howsoever caused resulting from or relating to:
- (a) Any breach, violation or non-performance by the Owner and its respective members, directors, officers, officials, employees, consultants and advisors involved in the Project including anyone else for whom the Owner is at law responsible including any other contractors of the Owner of any covenant, obligation, agreement, representation or warranty of the Owner contained in this Agreement or any document or certificate given pursuant to this Agreement;
  - (b) Any negligent or wilful acts or omissions by the Owner and its respective members, directors, officers, officials, employees, consultants and advisors involved in the Project including anyone else for whom the Owner is at law responsible, including any other contractors of the Owner;
  - (c) All costs, expenses and legal fees (on a solicitor and his own client basis) that may be incurred or paid by the DBO Contractor in enforcing the terms, covenants and conditions of this Agreement and/or that may be incurred or paid by the DBO Contractor in connection with any action, suit or proceeding with respect to a matter for which the Owner is obligated to indemnify the DBO Contractor, and its respective directors, officers and officials, pursuant to this **subsection 24.3**;

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- (d) The existence of any dangerous defect, dangerous condition, Hazardous Substances, Hazardous Waste or any other liability, environmental or otherwise, that exists on the site prior to the commencement of the Work;
- (e) Any damage to property, either real or personal and either owned by the DBO Contractor, the Owner, or others (including, without limitation, any member of the public), howsoever occasioned as a result of any Work performed by Owner, Owner's subcontractor or anyone for whom Owner is responsible at law including the conduct of any Examination or Investigation or installation or maintenance of equipment; and/or
- (f) Any personal or bodily injury to or death of any person or persons (including, any member of the public), howsoever occasioned by or as a result of any Work performed by Owner, Owner's subcontractor or anyone for whom Owner is responsible at law including the conduct of any Examination or Investigation or installation or maintenance of equipment.

**24.4 Liability of the DBO Contractor or Owner**

- 24.4.1 Notwithstanding anything to the contrary contained in this Agreement, but subject to **subsection 24.2**, the DBO Contractor shall be liable for and the Owner shall have no obligation to indemnify the DBO Contractor for Claims or Disputes arising as a result of a breach of this Agreement by the DBO Contractor or the negligence or wilful act or omission of the DBO Contractor.
- 24.4.2 Notwithstanding anything to the contrary contained in this Agreement, Owner shall be liable for and the DBO Contractor shall have no obligation to indemnify the Owner for Claims or Disputes arising as a result of a breach of this Agreement by the Owner or the negligence or wilful act or omission of any of Owner's subcontractors, agents, representatives or for anyone for whom Owner is responsible at law.

**24.5 Exclusion of Consequential Damages**

- 24.5.1 In no event, whether because of a breach of this Agreement or any other cause, whether based upon contract, warranty or otherwise arising out of the performance or non-performance by the DBO Contractor of its obligations under this Agreement shall the DBO Contractor be liable for or obligated to pay special, consequential or indirect damages except to the extent that such consequential damages are included within Schedule Liquidated Damages, Performance Liquidated Damages, Lump Sum Performance Liquidated Damages or are indemnified and covered by insurance proceeds actually received.
- 24.5.2 In no event, however, whether based upon contract, warranty or otherwise arising out of the performance or non-performance by the Owner of its obligations under this Agreement shall the Owner be liable for or obligated to pay special, consequential or indirect damages.

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- 24.5.3 Nothing in this **subsection 24.5** shall be construed or interpreted as limiting the responsibility or liability of the DBO Contractor or the Owner for Claims brought by third parties.

**ARTICLE 25**  
**SUSPENSION OF WORK OR TERMINATION FOR CONVENIENCE**

**25.1 Suspension or Termination by the Owner**

- 25.1.1 The Owner may suspend performance of the Work and/or terminate this Agreement at any time and for any reason whatsoever by giving written notice to that effect to the DBO Contractor. Such suspension or termination shall be effective in the manner specified in the notice. Notwithstanding the foregoing, the Owner shall not terminate this Agreement: under this **subsection 25.1.1**: (i) prior to the achievement of Facility Substantial Completion unless the Owner is abandoning the Project; or (ii) during the period between the achievement of Facility Substantial Completion and the day before the tenth (10<sup>th</sup>) anniversary of the Service Commencement Date, unless the Owner is abandoning the Project. If the Owner terminates this Agreement where it is abandoning the Project, the DBO Contractor shall, if the Owner resumes the Project within three (3) years of the date of such termination, have the right of first refusal to complete the Work and on the same terms as this Agreement, *mutatis mutandis*, including such adjustments to the Lump Sum Price, Total Annual Operating Fee and other provisions as are appropriate and equitable under the circumstances.

**25.2 DBO Contractor to Suspend Operations**

- 25.2.1 Upon receiving the notice of suspension or termination in accordance with the provisions of **subsection 25.1.1**, the DBO Contractor shall suspend or cause the suspension of all operations except those which, in the DBO Contractor's opinion, are necessary for the safety of personnel or for the care and preservation of the Work. Subject to any directions in the notice of suspension or termination, the DBO Contractor shall discontinue or cause to be discontinued the ordering of products, material, Equipment and supplies and shall make reasonable efforts, in the event of termination of this Agreement, to cancel existing orders on the best terms available.

**25.3 No Removal of Products**

- 25.3.1 During the period of suspension, the DBO Contractor shall not remove or permit the removal from the Facility or the Facility Lands of any Products, materials, Equipment or supplies intended to be incorporated into the Work without the prior approval of the Owner.

**25.4 Expiry of Suspension**

- 25.4.1 If the period of suspension expires within ninety (90) Business Days after the issuance of the notice of suspension from the Owner, the DBO Contractor shall resume



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performance of the Work and shall be paid by the Owner for all costs associated with complying with the suspension and the date by which the DBO Contractor shall be required to deliver the Work in accordance with the Master Project Schedule, shall be automatically extended for the duration of such suspension, plus a reasonable period of time to remobilize (including, without limitation, time to reorder materials and equipment) and such period of time as may be necessary to take into account any seasonal conditions.

**25.5 Termination of Agreement**

25.5.1 If the period of suspension does not expire within ninety (90) Business Days after the issuance of a notice of suspension from the Owner, then either the DBO Contractor or the Owner shall have the option to terminate this Agreement upon providing ten (10) Business Days' prior written notice to the other hereunder.

**25.6 Termination Payment**

25.6.1 If this Agreement is terminated pursuant to **Article 25**, then the provisions of **Article 27** shall apply.

**ARTICLE 26**  
**DEFAULT**  
**AND REMEDIES**

**26.1 Default by DBO Contractor**

26.1.1 The occurrence of any one or more of the following events shall constitute a Default by the DBO Contractor under this Agreement but shall not be considered an Event of Default unless written notice of Default is given to DBO Contractor and such Default is not remedied prior to the expiry of the relevant notice period (if any) and the relevant cure period (if any) applicable to such Default as hereinafter set out, or in the event that it is a circumstance for which Liquidated Damages are being paid by the DBO Contractor pursuant to **subsection 18.1.5(c)** :

- (a) if the DBO Contractor fails to perform or observe any of its obligations under this Agreement, (other than as referred to in **subsections 26.1.1(b), (c), (d), (e), (f) or (g)**) and such failure to perform or observe any of its obligations shall continue for a period of ten (10) Business Days following notice thereof from the Owner to the DBO Contractor or such longer period as may be reasonably necessary to cure such failure; provided that the DBO Contractor has demonstrated that:
  - (i) it is proceeding with all due diligence to cure or cause to be cured such failure;
  - (ii) the measures adopted can be reasonably expected to cure or cause to be cured such failure within the notice and cure period; and

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- (iii) it shall cure such failure with all due diligence and within six (6) months or such longer period as may be agreed to by the Owner;
- (b) if there is a default by the DBO Contractor under any Material Subcontract to which it is a party, which default is not cured prior to the expiry of the applicable notice and cure periods, if any, relating thereto;
- (c) if the DBO Contractor defaults in the payment of any undisputed amount due to the Owner under this Agreement and such default shall continue unremedied for ten (10) Business Days following notice thereof from the Owner to the DBO Contractor;
- (d) if the DBO Contractor fails to perform or observe any arbitration award binding on the Parties pursuant to **Article 28** and such failure to perform or observe any such order shall continue unremedied for a period of thirty (30) Business Days following notice thereof from the Owner to the DBO Contractor;
- (e) if the DBO Contractor fails to perform, observe and/or comply with or fails to cause to be performed, observed and/or complied with the terms, provisions and conditions of any of the insurance policies, Surety Bonds or other security described in **Article 19** and **Article 20**, respectively, which failure has an adverse effect on the availability or the amount of coverage of, or the amount of the proceeds paid under, any such insurance policies, Surety Bonds or security or any rights and remedies of the Owner with respect thereto, and such failure is not cured within ten (10) Business Days of notice of such failure by Owner;
- (f) if there is any *bona fide* proceeding pending against the DBO Contractor, which would, if successful, materially adversely affect the ability of the DBO Contractor to fulfil its obligations under this Agreement;
- (g) if any representation or warranty made by the DBO Contractor in this Agreement or in any document or certificate given pursuant to any such agreement shall prove to have been incorrect in any material respect when made and such incorrect representation or warranty has not been remedied within twenty (20) Business Days following notice thereof from the Owner to the DBO Contractor;
- (h) if any proceedings are commenced or taken for the dissolution, liquidation or winding-up of the DBO Contractor or for the suspension of operations of the DBO Contractor, whether by extra-judicial means or under any statute of any applicable jurisdiction or otherwise, unless such proceedings have been withdrawn or dismissed within twenty (20) Business Days of commencement;
- (i) if a decree or order of a court having jurisdiction is entered adjudging the DBO Contractor bankrupt or insolvent, or proving as properly filed a petition seeking a winding-up or arrangement or compromise of the DBO Contractor under the *Companies Creditors Arrangement Act* (Canada), the *Bankruptcy and Insolvency Act* (Canada) or the *Winding Up Act* (Canada) or any other bankruptcy, insolvency or

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analogous law or issuing process or execution against the DBO Contractor or any of the Guarantors, or against any substantial part of the property of the DBO Contractor or ordering the winding-up or liquidation of the DBO Contractor, and any such decree or order is not withdrawn or discharged within thirty (30) Business Days of issuance, or if a trustee, receiver, receiver and manager, interim receiver, custodian or other person with similar powers is appointed in respect of the DBO Contractor or in respect of all or a substantial portion of its property or assets and any such appointment continues in effect for twenty (20) Business Days;

- (j) if the DBO Contractor becomes insolvent, admits its inability to or fails to pay its debts generally as they become due, or otherwise acknowledges its insolvency, makes any assignment in bankruptcy or makes any other assignment for the benefit of creditors, makes any proposal under the *Bankruptcy and Insolvency Act* (Canada) or any comparable law, seeks relief under the *Companies Creditors Arrangement Act* (Canada), the *Winding Up Act* (Canada) or any other bankruptcy, insolvency or analogous law or is adjudged bankrupt, files a petition or proposal to take advantage of any act of insolvency, consents to or acquiesces in the appointment of a trustee, receiver, receiver and manager, interim receiver, custodian, sequestrator, agent for a person with similar powers, in respect of the DBO Contractor or any of the Guarantors or in respect of all or a substantial portion of its property or assets, or files a petition or otherwise commences any proceeding seeking any reorganization, arrangement, compromise, composition, compounding, scheme, arrangement, extension of time, moratorium or readjustment under any applicable bankruptcy, insolvency, moratorium, reorganization or other similar law affecting creditors' rights or consents to, or acquiesces in, the filing of such petition or the commencement of such proceeding;
- (k) if there is a change in the financial condition, composition, business or affairs of the DBO Contractor which has a material and adverse effect on the ability of the DBO Contractor to meet its obligations under this Agreement;
- (l) if there is an abandonment of the Work or any part thereof;
- (m) if the DBO Contractor ceases to carry on all or substantially all of its business or makes a sale in bulk or transfers all or substantially all of its undertaking and assets;
- (n) if the DBO Contractor fails to submit a Plan to the Owner which reasonably conforms with the requirements of **Article 36**.

**26.2 Remedies of the Owner**

- 26.2.1 Upon the occurrence of an Event of Default by the DBO Contractor under this Agreement, the Owner may, except as otherwise limited in this Agreement, do any or all of the following as the Owner, in its sole and absolute discretion, shall determine:

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- (a) the Owner may terminate this Agreement and take possession of the Place of Work, including the Work in progress, the Products, the DBO Contractor's construction equipment, tools, fuel, temporary structures and facilities (including for offices, lunchrooms, canteens, sanitation, showers, change rooms, accommodations, warehouses and garbage disposal) at the Place of Work, and there shall be no liability to the Owner for the retention and use thereof;
- (b) if the DBO Contractor is in default under this Agreement by reason of its failure to pay any monies, the Owner may (without obligation to do so) make payment on behalf of the DBO Contractor of such monies. Any amount so paid by the Owner shall, together with all accrued interest thereon at the Prime Rate plus one percent (1%), be repayable on demand;
- (c) the Owner may, without termination of this Agreement, cure the default (but this shall not obligate the Owner to cure or attempt to cure the default or, after having commenced to cure or attempt to cure such default, to continue to do so) and all costs and expenses incurred by the Owner in curing or attempting to cure the default together with interest thereon at the Prime Rate plus one percent (1%), shall be payable by the DBO Contractor to the Owner on demand. No such action by the Owner shall be deemed to be a termination of this Agreement. The Owner shall not incur any liability to the DBO Contractor for any act or omission of the Owner in the course of remedying or attempting to remedy any such Default;
- (d) [Reserved]
- (e) the Owner may bring any proceedings in the nature of specific performance, injunction, or other equitable remedy, it being acknowledged that damages at law may be an inadequate remedy for a Default by or with respect to the DBO Contractor under this Agreement;
- (f) the Owner may require the performance of the Work (in whole or in part) to be stopped;
- (g) the Owner may bring any action at law as may be necessary or advisable in order to recover damages and costs;
- (h) the Owner may retain, draw upon or otherwise claim under the Surety Bonds; and/or
- (i) the Owner may exercise any of its other rights and remedies provided for under this Agreement or otherwise available to it.

26.2.2 In the event that the Owner terminates this Agreement under **subsection 26.2.1(a)**, but it is subsequently determined, through arbitration under **Article 28** or otherwise, that no Event of Default by the DBO Contractor actually existed, then the termination by the Owner is hereby deemed to have been a termination for convenience under **Article 25**, and **Article 27** shall then apply, provided, however, that if the Owner is

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not entitled to terminate this Agreement under Article 25 at the time of such termination, then the DBO Contractor shall, at its option, be re-instated, and shall be reimbursed for any unpaid fees under this Agreement and any forgone revenue sharing as if DBO Contractor had been fully performing the Work and shall be indemnified for all acts or omissions during the period of time during which DBO Contractor was not in control of the Facility. In the event that the DBO Contractor elects to accept the termination by the Owner then the termination by the Owner is hereby deemed to have been a termination for convenience under **Article 25** as of the tenth anniversary of the Service Commencement Date, and **Article 27** shall then apply.

**26.3 Emergencies**

26.3.1 Subject to **subsection 9.1.4**, which shall govern in respect of occupational health and safety stop work orders, but otherwise notwithstanding anything to the contrary contained in this Agreement, if in the reasonable judgment of the Owner there is a real or apprehended emergency or danger to persons or property arising out of or in connection with any matter, state, condition or thing relating to the Work whether as a result of a breach by the DBO Contractor of this Agreement or otherwise, the Owner may without notice and, in addition and without prejudice to other remedies, (but without obligation to do so) rectify any such matter, state, condition or thing, in which event the provisions of **subsection 26.2.1(c)** shall apply, mutatis mutandis, or stop the progress of the Work, in which event the provisions of **Article 25** shall apply.

**26.4 Assignment of Rights**

26.4.1 Upon the termination of this Agreement pursuant to **subsection 25.5** or **subsection 26.2.1(a)**, the DBO Contractor shall, for no further consideration, remove from the Facility Lands such materials and supplies as the Owner may designate in writing to the DBO Contractor, deliver or cause to be delivered to the Owner executed copies of all Contract Documents and all work-in-progress, instruments and agreements relating to the Work (not already in the possession of the Owner) which are in the possession or control of the DBO Contractor and shall use its best efforts to deliver or cause to be delivered any and all documents, instruments and agreements relating to the Work which are in the possession or control of any DBO Contractor's subcontractor's and the Owner shall, with respect to Material Subcontracts, be entitled, at its option, to exercise the rights described in **subsection 12.1.1(d)** with respect thereto. In addition, at the request of the Owner, the DBO Contractor shall provide to the Owner, for no further consideration, assignments of agreements and licences, and such training, instruction, consulting, assistance and support as may be requested by the Owner so as to permit an orderly and efficient continuation of the Work by the Owner.

26.4.2 The DBO Contractor hereby irrevocably nominates, constitutes and appoints the Owner as the DBO Contractor's true and lawful attorney-in-fact and agent, for, in the name of and on behalf of the DBO Contractor to execute and deliver in the name of the DBO Contractor, all such assignments, transfers, deeds, instruments, conveyances

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and other documents as may be necessary to give effect to the provisions of **subsection 26.4.1**.

**26.5**     **Liability Continues**

26.5.1     Notwithstanding the termination of this Agreement, whether as a result of the DBO Contractor's Default or otherwise, the DBO Contractor shall remain liable to the Owner for any breach or Default committed by the DBO Contractor hereunder on, as a result of or prior to such termination. In addition, the Guarantees of the DBO Contractor set out in **subsections 17.1, 17.2 and 17.3** applicable to the Work as at the time of termination and applicable to the Work (if any) completed by the DBO Contractor after termination pursuant to **subsection 26.10** shall continue in full force and effect after such termination, provided that such Guarantees with respect to the Work shall be diminished to the extent that Owner or any of its subsequent contractors have undertaken any intervening activities or work on the Project affecting the Work save as may be required in order to mitigate any damages or loss as a result of a default by the DBO Contractor.

**26.6**     **Limited Right of Termination**

26.6.1     In the event that the DBO Contractor reaches the limit set forth in **subsection 18.1.6(b)**, the Owner shall have the sole and exclusive right to:

- (i)     terminate this Agreement and take possession of the Place of Work, including the Work in progress, the Products, the DBO Contractor's construction equipment, tools, fuel, temporary structures and facilities (including for offices, lunchrooms, canteens, sanitation, showers, change rooms, accommodations, warehouses and garbage disposal) at the Place of Work, and there shall be no liability to the Owner for the retention and use thereof;
- (ii)    draw upon the Operation Performance Security in **subsection 20.4**; and,
- (iii)   make a claim upon the Renewable Performance Bond in **subsection 20.1.1(c)**.

**26.7**     **Exclusivity**

26.7.1     Except as otherwise provided in this Agreement and subject to **Article 28**, the Owner may, in its sole discretion, exercise any right or recourse and/or proceed by any action, suit, remedy or proceeding against the DBO Contractor authorized hereunder or permitted by law and may proceed to exercise any and all rights hereunder and no remedy for the enforcement of the rights of the Owner shall be exclusive of any other rights or remedies provided hereunder or at law or be dependent upon any such right or remedy and any one or more of such rights or remedies may from time to time be exercised independently or in combination and, without limiting the foregoing, the

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Owner is not obliged to proceed to exercise any of its rights under or pursuant to the Surety Bonds or any letter of credit prior to proceeding to exercise any right or recourse against the DBO Contractor directly.

**26.8 Non-Merger**

26.8.1 The taking of a judgment or judgments or any other action or dealing whatsoever by the Owner shall not operate as a merger of or discharge the DBO Contractor from any indebtedness, liability or obligation of the DBO Contractor to the Owner arising under this Agreement.

**26.9 Remedies Cumulative and Waiver**

26.9.1 For greater certainty, it is expressly understood and agreed that the respective rights and remedies of the Owner hereunder, are cumulative and are in addition to and not in substitution for any other rights or remedies otherwise available at law and any such rights or remedies may be exercised by the Owner from time to time concurrently or independently and as often and in such order as the Owner may deem expedient in its sole and absolute discretion. The Owner may grant extensions of time and other indulgences, take and give up securities, accept compositions, grant releases and discharges and otherwise deal with the DBO Contractor and with other persons and security as the Owner or may see fit without prejudice to the liability of the DBO Contractor hereunder or the rights and remedies of the Owner. Any single or partial exercise by the Owner of any right or remedy in respect of a default of any term, covenant or condition contained herein, shall not be deemed to be a waiver of or to alter, affect or prejudice any other right or remedy or other rights or remedies to which the Owner may be lawfully entitled for such default. Any failure or delay of the Owner in the exercise of any right or remedy or any abandonment or discontinuance of steps or proceedings to enforce the same shall not operate as a waiver thereof or affect or prejudice the right of the Owner to exercise any right or remedy available to it. No waiver or indulgence by the Owner of the strict observance, performance or compliance with any term, covenant, condition or agreement herein contained shall be effective unless made in writing and then only in the specific instance and for the purpose for which it was given and shall be deemed not to be a waiver of any rights and remedies of the Owner hereunder, as a result of any other default hereunder.

**26.10 Termination of DBO Contractor's Rights**

26.10.1 In addition to the other provisions set out in this **Article 26**, if this Agreement shall be terminated for any reason whatsoever then, save and except for the provisions of **Article 27**, all further rights of the DBO Contractor hereunder shall cease and terminate and the Owner shall be under no further obligation or liability to the DBO Contractor other than with respect to Work already completed; provided that, notwithstanding such termination, the Owner shall have the right and option to require the DBO Contractor to complete or cause to be completed (in accordance with this Agreement and at the cost of the Owner) any or all of the Work as the Owner may

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designate in writing to the DBO Contractor for a price to be mutually agreed upon between the DBO Contractor and the Owner, each acting reasonably. Without limiting the foregoing, the Owner, shall be entitled, without hindrance or interference, to enter into such contracts, agreements and instruments with such person or persons (other than the DBO Contractor), as the Owner, shall in their sole discretion, determine with respect to the Work, the Facility and/or the Project or any part or parts thereof, and the DBO Contractor shall have no right or basis to make any Claim or pursue, initiate or take any action against the Owner for so doing.

**26.11 Default by Owner**

26.11.1 The occurrence of any one or more of the following events shall constitute a Default by the Owner under this Agreement but shall not be considered an Event of Default unless such Default is not remedied prior to the expiry of the relevant notice period (if any) and the relevant cure period (if any) applicable to such Default as hereinafter set out:

- (a) Any representation or warranty of the Owner hereunder was false or inaccurate in any material respect when made, and the legality of this Agreement or the ability of the DBO Contractor to carry out its obligations hereunder is thereby adversely affected;
- (b) The Default by the Owner in its payment obligations to the DBO Contractor with respect to any undisputed amount owing under this Agreement and such default shall continue unremedied for thirty (30) calendar days following notice thereof from the DBO Contractor to the Owner;
- (c) The Default by the Owner in performing any other material obligation under this Agreement and such default shall continue unremedied for ten (10) Business Days following notice thereof from the DBO Contractor to the Owner;
- (d) The Default by the Owner in performing or observing any arbitration award binding on the Parties pursuant to **Article 28** and such failure to perform or observe any such order shall continue unremedied for a period of thirty (30) Business Days following notice thereof from the DBO Contractor to the Owner;

**26.12 Remedies of DBO Contractor**

26.12.1 Upon the occurrence of an Event of Default by the Owner under this Agreement, the DBO Contractor may, without limiting any other rights or remedies otherwise available at law, do any or all of the following as the DBO Contractor, in its sole and absolute discretion, may determine:

- (a) Pursue resolution of the Dispute in accordance with **Article 28**; or
- (b) Terminate this Agreement.



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**ARTICLE 27**  
**TERMINATION PAYMENTS**

**27.1 Termination for Convenience Payments**

27.1.1 If this Agreement is terminated by the Owner pursuant to **Article 25** then, subject to **subsection 14.7** and the outcome of any Dispute outstanding at the time of any termination, the Owner will pay to the DBO Contractor an amount equal to the aggregate of:

- (a) The value of the Work performed to the date of termination for which Payments have not been received determined with reference to the Milestone Payment Schedule;
- (b) The reasonable cost of cancellation of contracts and agreements (including, relevant employment severance costs), as well as any unrefunded bonding and insurance premiums relating to periods after the termination of this Agreement that were funded by the DBO Contractor with its own funds and not with funds provided by the Owner;
- (c) Demobilization costs actually incurred by the DBO Contractor up to an amount equal to five percent (5%) of the unpaid Lump Sum Price, it being acknowledged that amounts paid under subparagraph (a) shall reduce the amount of the unpaid Lump Sum Price for the purposes of determining the demobilization costs; and
- (d) if this Agreement is terminated after the tenth (10<sup>th</sup>) anniversary of the Service Commencement Date, unless the Owner is abandoning the Project, an amount equal to the most recently determined Total Annual Operating Fee multiplied by a fraction, the numerator of which is the number of years (including any part thereof) remaining in the Initial Term and the denominator of which is 10. For clarity, and by way of example, if the Agreement were terminated at any time after the 11<sup>th</sup> anniversary but before the 12<sup>th</sup> anniversary of the Service Commencement Date such fraction would be 9/10ths. For the avoidance of doubt, this subsection (d) shall not apply in the case of the Owner abandoning the Project pursuant to **subsection 25.1.1**.

and the termination payment provided for by this **subsection 27.1.1** shall be paid by the Owner to the DBO Contractor within thirty (30) Business Days following the termination of this Agreement, provided the DBO Contractor is in compliance with its obligations under **Article 25**.

**27.2 Release and Discharge**

27.2.1 The DBO Contractor acknowledges and agrees that the payment by the Owner to the DBO Contractor of the amounts required under **subsection 27.1**, shall constitute full and final settlement of any and all Claims the DBO Contractor may have against the Owner for and in respect of the termination of this Agreement and upon such payment,

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the DBO Contractor shall execute and deliver all such releases and discharges as the Owner may reasonably require to give effect to the foregoing.

**ARTICLE 28**  
**DISPUTE RESOLUTION**

**28.1 Arbitration**

28.1.1 Subject to **subsection 28.8**, any dispute, disagreement, controversy, question or Claim (including a Claim for indemnification) arising out of, in relation to, or in connection with this Agreement or any other Contract Document, (collectively, a “Dispute”) which cannot be amicably settled by negotiation or mediation may be finally settled by arbitration. In the event that the Parties agree to resolve any Dispute by arbitration, the arbitration shall be conducted in accordance with the Ontario *Arbitration Act 1991* and *The Municipal Arbitrations Act*. The arbitration award shall be final and binding on the Parties, subject to applicable Laws and Regulations. Any party to this Agreement shall have the right to have recourse to and shall be bound by the pre-arbitral referee procedure of the International Chamber of Commerce in accordance with its Rules for a Pre-Arbitral Referee Procedure. All disputes arising out of or in connection with the present contract shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with the said Rules of Arbitration. To the extent of any inconsistency between the provisions of the Ontario *Arbitration Act 1991* and *The Municipal Arbitrations Act* and the International Chamber of Commerce Rules of Arbitration then the provisions of the aforementioned statutes shall prevail.

**28.2 Material Subcontractors or Other Persons**

28.2.1 Where a Material Subcontractor is considered by either the Owner or the DBO Contractor to be a necessary party, or in the case of other persons, where the written consent of the person or entity sought to be joined has been obtained, an arbitration arising out of or relating to a Dispute must include, by consolidation, joinder or in any other manner, any person or entity not a Party to this Agreement under which such arbitration arises, where it is shown at the time the demand for arbitration is served that:

- (a) such person or entity is substantially involved in a common question of fact or law;
- (b) the presence of such person or entity is required if complete relief is to be accorded in the arbitration; and
- (c) the interest or responsibility of such person or entity in the matter is not insubstantial.

28.2.2 The DBO Contractor shall ensure that the provisions of any Material Subcontract require the Material Subcontractor to participate as a full party in any such arbitration if so notified by either the Owner or the DBO Contractor.

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**28.3 Confidentiality**

- 28.3.1 The Parties will keep confidential and not disclose to any other person, the arbitration and all matters arising directly or indirectly from the Dispute (including all documents exchanged, the evidence and the award). A Party may however disclose any such information to the extent required:
- (a) to obtain assistance from persons to conduct the arbitration;
  - (b) by Laws and Regulation; or
  - (c) by a disclosure requirement with a shareholder, lender or potential lender (including any advisor to any such recipient person), so long as such person is informed of the confidential nature of such information and such person agrees to be bound, subject to Laws and Regulations, by such confidentiality obligation.

**28.4 Costs of Arbitration**

- 28.4.1 Subject to the terms of this Agreement, the Parties will bear the costs of any arbitration under this **Article 28** in the manner specified by the Arbitrators. Subject to the terms of this Agreement, if the Arbitrators do not specify the costs, each Party will bear its own costs and will share the costs of the Arbitrators equally.

**28.5 Governing Law**

- 28.5.1 This **Article 28** and any arbitration conducted under this **Article 28** are governed by, and are to be construed and interpreted in accordance with, the laws of Ontario and the laws of Canada applicable in Ontario.

**28.6 Negotiation and Mediation of Disputes**

- 28.6.1 Before commencing any arbitration respecting a Dispute, the Parties shall first attempt in good faith to resolve the Dispute through negotiation and mediation as follows:
- (a) **Negotiation** – The Parties shall first attempt in good faith to promptly resolve the Dispute by negotiation between the Owner Representative and the Project Manager. If, following good faith negotiation between them, resolution of the Dispute has not been reached, upon the request of either Party, executive officers of each Party shall attempt to resolve, in good faith, such Dispute. If the Dispute is resolved, such resolution will be evidenced by an instrument in writing.
  - (b) **Mediation** – If the Dispute has not been resolved within fifteen (15) days of a Party’s request for executive officer negotiation, the Parties may agree to submit the Dispute to mediation. If the matter is resolved through mediation, such resolution will be evidenced by an instrument in writing. Mediation shall be considered to have failed if a Party, at any time, gives written notice to such effect to the other Party.

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**28.7 Measures of Protection**

28.7.1 Notwithstanding the foregoing, either Party shall be entitled to apply to the court for interim measures of protection at any time after a notice of Dispute has been delivered, whether or not arbitration proceedings have yet been commenced.

**28.8 Adjudication (for other than Fundamental Matters)**

28.8.1 Any Dispute between the Parties other than a Fundamental Matter, which arises between the issuance of the Notice to proceed and Acceptance, which cannot be amicably settled by negotiation shall be resolved by compulsory adjudication in accordance with this **subsection 28.8**. For greater certainty, Fundamental Matters are not subject to resolution by Adjudication. To the extent that there is a disagreement between the Parties as to whether a Dispute involves a Fundamental Matter, the Dispute shall not be resolved by way of Adjudication.

28.8.2 From time to time, the Parties shall appoint either one (1) or three (3) suitable qualified individuals to act as Adjudicator(s) for the purposes of this Agreement. Unless the parties can agree upon a single Adjudicator, then any dispute shall be decided by three Adjudicators. Each party shall nominate one Adjudicator. The nominated Adjudicators shall consult and agree upon the third Adjudicator, who shall be appointed to act as Chairperson for the purposes of the Adjudication.

28.8.3 Either Party intending to refer a Dispute to the Adjudicator(s) must provide written notice of its intention to the other Party at least three (3) days prior to making the referral.

28.8.4 Once a Dispute has been referred to the Adjudicator(s), the Adjudicator(s) is required to make a decision within twenty-eight (28) days of the referral, or such longer period as is agreed by the Parties, after the Dispute has been referred, and such decision shall be in writing.

28.8.5 The Adjudicator(s) will act impartially in fulfilling his/her duties and may take whatever initiative he/she deems necessary to resolve the dispute including requiring the Parties to submit whatever documents, statements of position or other information the Adjudicator(s) requires.

28.8.6 The Parties agree that they will proceed on the basis of the Adjudicator's decision, and neither Party can take any steps to challenge that decision, by way of court proceeding, arbitration or otherwise, until following the achievement of Acceptance. The Parties acknowledge that this **subsection 28.8.6** is subject to the provisions of the CLA.

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**ARTICLE 29**  
**CERTAIN REPRESENTATIONS AND WARRANTIES**  
**OF THE DBO CONTRACTOR**

**29.1 Representations and Warranties of the DBO Contractor**

29.1.1 The DBO Contractor makes the following representations and warranties to the Owner with respect to itself and confirms that the Owner is relying upon such representations and warranties:

- (a) the DBO Contractor understands the commitments that are being made on its behalf;
- (b) [Reserved];
- (c) it possesses all of the experience and resources to faithfully fulfill its commitments under this Agreement in compliance with Laws and Regulations and Regulations, standards and codes.
- (d) it has requested and obtained all the information to fully understand and evaluate the scope of the Work that it undertakes to perform and the services it undertakes to supply, and, that it is entirely satisfied with the information in its possession;
- (e) it has conducted a thorough analysis of all aspects of the Work and every condition affecting the Work, including but not limited to, the design requirements, Facility Lands conditions and the labour and material to be provided, the Technical Requirements and studies and has obtained all information necessary for the Work, and is not relying upon any information, documentation or advice provided by the Owner, in connection with the carrying out of the Work.
- (f) the analyses by the DBO Contractor have been based on its own examination, knowledge, information and judgment and not upon any statement, representation, warranty or information made or given by the Owner.
- (g) it has brought to the Owner's attention in writing any errors, omissions, ambiguities, contradictions and problems of any kind in the Contract Documents;
- (h) it has examined thoroughly all aspects of the Master Project Schedule that it has prepared, has made all verifications necessary to ensure its feasibility and is satisfied with it;
- (i) it has carried out a review of physical Facility Lands conditions and available geotechnical studies and confirms that they contain all information necessary for the execution of the Work;
- (j) the Technical Requirements and this Agreement provides a complete description of the Work;

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- (k) it does not have knowledge of any fact that could place the DBO Contractor in a conflict of interest situation and undertakes to immediately advise the Owner in writing of any change in this regard;
- (l) the Owner, has not made any representation or warranty concerning the tax or other consequences to the DBO Contractor of any structure utilized by the DBO Contractor or in connection with the Project; and
- (m) the DBO Contractor is solely responsible for obtaining its own independent legal, financing, accounting, engineering and technical advice.

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**OPERATIONS PHASE OF PROJECT AGREEMENT**

**ARTICLE 30  
SCOPE AND TERM OF OPERATIONS COMPONENT**

**30.1 Scope of Work**

- 30.1.1 During the Operations Component, the DBO Contractor shall:
- (a) operate, maintain and repair the Facility in accordance with the Contract Documents; and
  - (b) provide all management and supervisory services and all personnel, materials, equipment, services, supplies and everything necessary to operate, maintain and repair the Facility throughout the Term, in accordance with the Contract Documents.

**30.2 Initial Term**

- 30.2.1 The initial term of the Operations Component shall commence on the Service Commencement Date and shall expire upon the expiration of twenty (20) years after the Service Commencement Date, unless earlier terminated in accordance with the terms and conditions of this Agreement (the “Initial Term”).

**30.3 Option to Renew**

- 30.3.1 The Owner shall have the right to renew the Operations Component of this Agreement for one or two, as the case may be, successive renewal terms each of five (5) years duration (each a “Renewal Term”) to an aggregate Term of thirty (30) years, upon giving, prior to the expiration of the Initial Term or preceding Renewal Term, as the case may be, not less than twelve (12) months’ written notice of its intention to do so; provided DBO Contractor has not provided a notice at least twenty-four (24) months’ prior to the expiration of the Initial Term that it does not desire to continue on the same terms. Each such renewal shall be upon the same terms and conditions as are contained in this Agreement, except as may be otherwise agreed by the Parties.

**ARTICLE 31  
MANAGEMENT OF THE FACILITY**

**31.1 DBO Contractor’s Basic Obligations**

- 31.1.1 The DBO Contractor shall operate and maintain the Facility throughout the Term in a well planned and controlled, safe, cost-effective, efficient, competent, reliable, and neat and tidy manner in accordance with the terms of this Agreement, Environmental

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Laws and Regulations, the Certificate of Approval, the Laws and Regulations and any other Authorizations related to the Facility.

- 31.1.2 The DBO Contractor shall cooperate with and provide access to the Owner, the Owner's Representative, the Owner's Consultant, any testing agent engaged by the Owner, and any representative from a governmental authority having jurisdiction, for the purposes of conducting inspections of or tests to part or all of the Facility, as provided for in the Contract Documents, whether during any planned or unplanned shutdowns or outages, or otherwise. Such inspection and testing shall include stack emissions testing in accordance with **Article 35**.
- 31.1.3 The DBO Contractor shall provide the Owner with access to the DBO Contractor's business and financial records related to the Project and the Operations Work for the purpose of inspection, upon reasonable notice, with such frequency as the Owner may, in its discretion determine, not to exceed two (2) times a year, in accordance with **Article 39**. Notwithstanding the foregoing, the DBO Contractor shall not be required to provide access to business or financial records that are proprietary from a financial perspective, or relate to amounts payable by the Owner under this Agreement that are priced on a fixed or lump sum basis.

**31.2 Operation and Maintenance Manuals**

- 31.2.1 The DBO Contractor shall, at least sixty (60) days prior to Facility Completion Date, prepare and deliver to the Owner the Draft Operation and Maintenance Manuals that incorporate all aspects of the operation and maintenance of the Facility. The Operations and Maintenance Manuals shall contain all information as detailed in the Technical Requirements.
- 31.2.2 The draft Operation and Maintenance Manuals shall be subject to review and acceptance by the Owner. The DBO Contractor shall have due regard for, and provide written responses to comments provided by the Owner. The final Operation and Maintenance Manual shall reflect any changes resulting from the review.
- 31.2.3 Following acceptance by the Owner, the Operation and Maintenance Manual shall form part of the requirements of the Agreement and the Facility shall be operated and maintained in accordance with the requirements of the accepted Final Operation and Maintenance Manual.
- 31.2.4 The DBO Contractor shall revise and update the Operation and Maintenance Manuals for the Facility from time to time during the Term as necessary to reflect any changes in the operation and maintenance of the Facility, including the adoption of new instructions or information for operating personnel.
- 31.2.5 An up-to-date copy of the Final Operation and Maintenance Manual shall be present at the Facility at all times during the Term of the Contract.



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31.2.6 The DBO Contractor shall provide to the Owner electronic files of the Operation and Maintenance Manual and all revisions or updates to the Operation and Maintenance Manuals promptly upon publication thereof.

**31.3 Plant Manager and Other Personnel**

31.3.1 The DBO Contractor shall staff the Facility in accordance with the staffing and human resources management plan submitted by the DBO Contractor in its Proposal, as accepted by the Owner, and as may be amended by the DBO Contractor from time to time with the approval of the Owner.

31.3.2 Accepted staffing and human resource management plan shall be included in the Operation and Maintenance Manual required under **subsection 31.2**.

31.3.3 The DBO Contractor shall staff the Facility with the appropriate number of hourly and salaried employees consistent with good management practices to perform all of the DBO Contractor's obligations and duties under this Agreement in a timely and efficient manner.

31.3.4 The DBO Contractor shall ensure that all of its personnel employed at the Facility are appropriately trained and suitably certified to conduct their assigned duties in accordance with all applicable Operating Instruments, Environmental and Quality Management Systems, Laws and Regulations, that apply to the Facility to ensure that it is operated and maintained in accordance with good waste-to-energy and steam generating plant practices and the terms and conditions of this Agreement.

31.3.5 The Plant Manager's duties will include but not be limited to overseeing the operation and maintenance of the Facility, working with the Owner to ensure the co-ordination and stability of the Owner's solid waste disposal system, dealing with regional and political issues, involvement with haulers' associations and professional groups, and being a proponent for the incineration of waste in the Owner and surrounding areas.

31.3.6 The Owner shall have the right to a face-to-face meeting with the person selected by the DBO Contractor for the position of Plant Manager prior to their commencement of duties.

31.3.7 The DBO Contractor will conduct an annual evaluation of the Plant Manager's performance and the Owner's Representative reserves the right to provide input.

31.3.8 The DBO Contractor shall ensure that a responsible official representing the DBO Contractor is accessible to the Owner by telephone at all times during the Term, on a twenty four (24) hours per day seven (7) days per week basis. The DBO Contractor shall provide the Owner with the name and telephone number of the responsible official and any alternate or replacement from time to time during the Term.

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**31.4 Safety of Persons and Property**

31.4.1 The DBO Contractor shall, at least sixty (60) days prior to the Facility Completion, prepare and deliver to the Owner an operations Health and Safety Plan as generally described in the Technical Requirements. The DBO Contractor shall implement and maintain the Health and Safety Plan in accordance with the requirements of the OHSA.

**31.5 Maintenance of the Facility**

31.5.1 The DBO Contractor shall regularly inspect the Facility and shall maintain and repair the Facility so as to keep it in good condition, order and repair and shall, without limitation, perform all necessary repairs, restorations, modifications, replacements and additions, consistent with good solid waste handling, mass-burn boiler and energy generating plant practices as determined by the Owner from time to time, so as to comply with the requirements under the Certificate of Approval, the Environmental Laws and Regulations and any other Authorization related to the Facility or the process, as may be amended from time to time, and its obligations under this Agreement, including the Performance Guarantees set out in **Appendix 19**.

31.5.2 The DBO Contractor shall maintain and keep up to date a computerized maintenance management system for the Facility.

**31.6 Equipment**

31.6.1 The DBO Contractor shall at all times during the Term keep and maintain on the Facility Lands sufficient supplies of Equipment as may be necessary or desirable to ensure the continued, reliable and safe operation of the Facility in accordance with the terms and conditions of this Agreement.

31.6.2 The DBO Contractor acknowledges that all Equipment relating to the operation and maintenance of the Facility and Facility upgrades shall be deemed to have been paid for by the Owner through the fees paid under this Agreement and are therefore the property of the Owner. Except as set out in this Agreement, all right, title and interest in and to all such Equipment and maintenance tools save those which are the personal property of the DBO Contractor's staff or subcontractors, shall vest in the Owner.

31.6.3 The DBO Contractor shall provide to the Owner, on or before January 31<sup>st</sup> of each year during the Term or as otherwise requested by the Owner, a list of all Equipment.

31.6.4 The DBO Contractor shall keep all Equipment in good repair and operating condition, in accordance with good solid waste handling, mass-burn boiler and energy generating plant practices.

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- 31.6.5 The DBO Contractor shall perform all tests and obtain all permits for the Equipment as may be required by all Laws and Regulations, including those pertaining to WSIB requirements.
- 31.6.6 The DBO Contractor shall promptly notify the Owner in the event that any piece of Equipment without which the Facility cannot operate breaks down, fails or is seriously damaged. The DBO Contractor shall forthwith repair the Equipment or replace it with a unit of comparable or better quality.

**31.7 Consumables and Spare Parts**

- 31.7.1 The DBO Contractor shall at all times during the Term keep and maintain on the Facility Lands a sufficient inventory of Consumables and spare parts, as may be necessary to ensure the continued, reliable and safe operation of the Facility in accordance with the terms and conditions of this Agreement.
- 31.7.2 The DBO Contractor acknowledges that all Consumables and spare parts kept and maintained on the Facility Lands under **subsection 31.7.1** shall be deemed to have been paid for by the Owner through the fees paid under this Agreement and are the property of the Owner. Except as set out in this Agreement, all right, title and interest in and to all such Consumables and spare parts shall vest in the Owner.
- 31.7.3 The DBO Contractor shall provide to the Owner, on or before January 31<sup>st</sup> of each year during the Term or as otherwise requested by the Owner, a list of all Consumables and spare parts kept on the Facility Lands.

**31.8 Fuels and Chemicals**

- 31.8.1 The DBO Contractor shall at all times during the Term keep and maintain on the Facility Lands an adequate supply of all fuels, reagents and chemicals as may be necessary to ensure the continued, reliable and safe operation of the Facility in accordance with the terms and conditions of this Agreement. For the purposes of this section, an “adequate supply” shall mean sufficient quantities to permit the facility to operate at expected loads until a delivery of such item can be made.
- 31.8.2 The DBO Contractor acknowledges that all fuels, reagents and chemicals kept and maintained on the Facility Lands under **subsection 31.8.1** shall be deemed to have been paid for by the Owner through the fees paid under this Agreement and are the property of the Owner. Except as set out in this Agreement, all right, title and interest in and to all such fuels, reagents and chemicals shall vest in the Owner.
- 31.8.3 [Reserved]
- 31.8.4 The DBO Contractor shall perform all tests and obtain all permits and assume liability for the use or storage of all fuels, reagents and chemicals as may be required by all Laws and Regulations, including those pertaining to WSIB requirements.

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31.8.5 The DBO Contractor shall be responsible for obtaining and maintaining agreements for the supply of all utilities required to operate and maintain the Facility.

**31.9 Weigh Scales**

31.9.1 The Owner will operate the weigh scales in a well planned and controlled, safe, efficient, competent, and reliable manner in accordance with the terms of this Agreement, Environmental Laws and Regulations, the Certificate of Approval, the Laws and Regulations and any other Authorizations related to the Facility or the weigh scales. The DBO Contractor will maintain the weigh scale computer system, including software that controls the weigh scales and shall supply all expendables.

31.9.2 The DBO Contractor shall be responsible for the costs of maintaining the weigh scale computer system save and except where the defect or malfunction is caused by the Owner or those for whom Owner is responsible. The DBO Contractor shall ensure that the requirements of the Owner are met with respect to correction of any malfunction of or change to the weigh scale computer system. If at any time the weigh scale computer system or scales are not operating correctly the DBO Contractor and the Owner shall cooperate in developing and implementing a plan for processing vehicles.

31.9.3 The DBO Contractor, at any time, may utilize the weigh scale computer system's reporting tools to provide information and prepare reports. The DBO Contractor must not tamper with or attempt to make any changes to the weigh scale computer system hardware or software save as required to maintain such systems.

31.9.4 The DBO Contractor shall regularly maintain the weigh scales at the Facility so they provide accurate weights. The DBO Contractor shall have the weigh scales inspected and calibrated four (4) times per year by a qualified scale company and in accordance with Laws and Regulations. The Owner shall be entitled from time to time to independently check the weigh scales for accuracy at any time.

31.9.5 Radiation Detectors shall be maintained and calibrated by the DBO Contractor.

**31.10 Security**

31.10.1 The DBO Contractor shall maintain, at all times during the Term, including any period of shutdown of the Facility, such security at the Facility as may be required to safeguard the Facility. The DBO Contractor shall regularly inspect and maintain the security fences surrounding the Facility.

31.10.2 The DBO Contractor shall operate, maintain and monitor the closed-circuit television system installed at the Facility. The DBO Contractor shall maintain a minimum of five (5) days of continuous record from the security system. The DBO Contractor shall provide to the Owner a monthly report setting out any infractions of the rules and procedures of the Facility.

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**31.11 Fire Precautions**

- 31.11.1 The DBO Contractor shall provide an Emergency Management Plan that includes fire control and response procedures.

**31.12 Communications Systems**

- 31.12.1 Without limiting the generality of **subsection 31.5**, the DBO Contractor shall keep and maintain in good working order and repair, the existing communications systems at the Facility, and maintain a communications protocol.

**31.13 Signage**

- 31.13.1 The DBO Contractor shall not erect any signs at the Facility, except those relating to safety, without the prior written approval of the Owner order and in accordance with the local municipal sign by-law. The DBO Contractor will be permitted to display its logo and name on the exterior of the Facility in an unobtrusive manner, as approved by the Owner in writing. All signage and displays shall be maintained in good working order.

**31.14 Roadways and Lighting**

- 31.14.1 Without limiting the generality of **subsection 31.5**, the DBO Contractor shall maintain and keep in good repair all roadways, parking areas, exterior and interior lighting. The DBO Contractor shall promptly replace all damaged or defective equipment with replacements having the same specifications as the original components.

**31.15 Condition of Facility Lands**

- 31.15.1 The DBO Contractor shall maintain the Facility and the Facility Lands in a neat, clean and tidy condition in keeping with an exemplary standard of aesthetic quality in the energy from waste industry.
- 31.15.2 Upon the request of the Owner, the DBO Contractor shall perform such other landscaping or other housekeeping work on and off site as may be reasonably requested by the Owner from time to time.

**31.16 Control of Odours, Dust, Noise and Pests**

The DBO Contractor shall employ measures to control pests and to reduce or eliminate to the maximum extent practicable, all odours, dust and noise generated by the Facility in accordance with the Odour Control Plan and the Noise Control Plan. Without limiting the generality of the foregoing, the DBO Contractor shall ensure that the receiving hall and refuse bunker are kept under negative air pressure to minimize odours and the

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evacuated air is used as primary combustion air for the Incinerator Units. The DBO Contractor shall ensure adequate pest control measures are in place and that odours, dust or noise do not cause a nuisance to Facility personnel, neighbours, adjacent landowners or the residents of the surrounding community. The DBO Contractor shall ensure that the operation and maintenance of the Facility at all times complies with statutory requirements including the Certificate of Approval and any other control instruments relating to the facility.

**31.17 Cooperation**

- 31.17.1 The Owner may directly undertake or separately contract work within the Facility that is not included within the scope of the Work for which the DBO Contractor is responsible, and the DBO Contractor shall afford any such workers all reasonably required access and assistance, provided that any claim for reasonable compensation for the substantiated impact on the DBO Contractor's time and cost for performance of the Work shall be determined in accordance with **subsection 15.1**. The Owner shall provide for the coordination of the activities and work of other contractors and the Owner's own forces with the Work of the DBO Contractor and, subject to the DBO Contractor's obligations under **subsection 31.17**, and shall use reasonable efforts to ensure that such activities and work do not interfere with the performance of the DBO Contractor's Work.
- 31.17.2 The DBO Contractor shall cooperate with all other contractors who may be performing work on behalf of the Owner and workers who may be employed by the Owner on any work on the Facility Lands. The DBO Contractor shall make good promptly, any injury or damage that may be sustained by other contractors or employees of the Owner caused by the DBO Contractor. The Owner shall, without limiting the provisions of **subsection 24.3.1**, make good promptly, any injury or damage that may be sustained by the DBO Contractor caused by other contractors or employees of the Owner.
- 31.17.3 The DBO Contractor shall cooperate and work in harmony with all other contractors and with workers and other persons employed by the Owner on, or in the vicinity of, the Facility Lands. The DBO Contractor shall to the extent reasonably possible arrange its Work in such a manner as not to interfere with the work of other contractors, provided that the Owner has given the DBO Contractor reasonable advance notice for such purposes.

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**ARTICLE 32**  
**SUPPLY OF WASTE**

**32.1 Supply of Waste**

- 32.1.1 The Owner will provide to the DBO Contractor a minimum of 140,000 tonnes of Acceptable Waste per calendar year during the Term. The Owner is entitled, but not obligated, to deliver additional Acceptable Waste to the Facility if capacity is available. The sole and exclusive remedy to the DBO Contractor for a failure of the Owner to provide to the DBO Contractor a minimum of 140,000 tonnes of Acceptable Waste in any calendar year during the Term shall be the payment by the Owner to the DBO Contractor of the Total Annual Operating Fee, in accordance with **subsection 37.4**, in respect of the quantity of Acceptable Waste by which the Owner fails to provide the requirement of one hundred and forty thousand (140,000) tonnes of Acceptable Waste. If the Owner does not deliver at least ninety percent (90%) of Guaranteed Annual Throughput as defined in Exhibit 1 to **Appendix 19** in any Calendar Year, the Owner shall relieve the DBO Contractor of its Electricity Production Guarantee for such Calendar Year. Notwithstanding the foregoing, the DBO Contractor shall continue to attempt to maximise electricity production from the Facility regardless of the tonnage of Acceptable Waste delivered by the Owner. The Owner shall have no further liability to the DBO Contractor of any kind whatsoever for any failure to provide a minimum of one hundred and forty thousand (140,000) tonnes of Waste in any calendar year during the Term. Any failure of the Owner to provide to the DBO Contractor a minimum of one hundred and forty thousand (140,000) tonnes of Acceptable Waste in a calendar year caused by the DBO Contractor shall not constitute a breach by the Owner of this subsection. The Owner and the DBO Contractor shall agree upon a schedule of the projected Throughput, before December 1st preceding the next calendar year during the Term, for each month for the following calendar year.
- 32.1.2 The DBO Contractor will ensure that the Facility operates under normal conditions, including scheduled shutdowns, so that it can process the maximum annual tonnage identified in **subsection 32.1.1**. The DBO Contractor shall make reasonable efforts to plan scheduled shutdowns for periods when the Owners' deliveries of Acceptable Waste have historically been lower.
- 32.1.3 The Owner reserves the right to reduce the minimum tonnage for any year, where extended, or recurring, periods of Facility shut down time make it impossible (taking into account the entire year) for the Facility to accept the annual tonnage identified in **subsection 32.1.1**. In such case, the delivered tonnage amount would be reduced by an amount proportional to the duration of the extended or recurring period of down time.
- 32.1.4 The DBO Contractor acknowledges that the supply of available Acceptable Waste may be subject to variations and fluctuations, including in respect of the organic

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composition of the Waste, but which is beyond the Owner's control. The Owner will make reasonable efforts to provide a "regular supply" of Waste for processing at the Facility. Subject to the provisions contained herein, the DBO Contractor agrees to accept any variations in the composition of the Waste and to use its best efforts to process the Waste despite any such variations or fluctuations. In the event that the average higher heating value for the Acceptable Waste in any given calendar year, as determined utilizing methods mutually agreeable to DBO Contractor and the Owner, falls outside the range of 11.0 MJ/kg to 15.0 MJ/kg, then the DBO Contractor shall not be subject to the imposition of performance liquidated damages pursuant to **subsection 18.1.5(c)** for a Throughput Capacity Shortfall, Residue Quantity or Electrical Production Shortfall which is caused by the average higher heating value falling outside the aforementioned range for that calendar year.

- 32.1.5 The DBO Contractor shall work with the Owner and its contractors to coordinate deliveries of Waste to the Facility from sources approved by the Owner to ensure an appropriate supply of waste to maintain smooth operation of the refuse bunker at the Facility.
- 32.1.6 The DBO Contractor may, on written advance notice, request the Owner to attempt to make temporary arrangements to increase or decrease deliveries of Waste to the Facility to balance the inventory of Waste stored at the Facility with the Facility's processing capacity.
- 32.1.7 Any requests for reductions or increases shall not extend beyond seven (7) days unless specifically agreed to in writing by the Owner.

**32.2 Waste Composition**

- 32.2.1 The Owner makes no representation, warranty or guarantee whatsoever as to the quality, composition, heating value or other characteristics of Waste delivered to the Facility. The DBO Contractor acknowledges that the Facility receives Waste from a number of sources approved by the Owner and that the Owner cannot in any way control the composition, heating value or other characteristics of such Waste. It is anticipated that deliveries of Waste received at the Facility will include Acceptable Waste and may, from time to time, contain quantities of Unacceptable Waste and the provisions of, *inter alia*, **subsections 32.3, 32.4 and 33.6** shall apply.

**32.3 Unacceptable Waste**

- 32.3.1 The DBO Contractor shall not knowingly accept any deliveries of Unacceptable Waste for processing at the Facility.
- 32.3.2 In the event that Hazardous Waste is inadvertently received at the Facility, the DBO Contractor and the Owner shall work together to separate, remove and dispose of this waste. The Owner is responsible for removal, transportation and disposal costs for



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Hazardous Waste. The Owner and the DBO Contractor agree to use reasonable efforts to locate the source of the Hazardous Waste to prevent further deliveries.

**32.4 Rejection of Waste**

- 32.4.1 Waste that does not meet the delivery acceptance criteria as described in **Appendix 34** shall be handled in accordance with the provisions of **Appendix 34**.
- 32.4.2 The DBO Contractor shall have the authority to reject an entire truckload of Waste being delivered to the Facility, if the DBO Contractor reasonably determines that:
- (a) any portion of the load is Unacceptable Waste;
  - (b) the Hauler is uncooperative with or otherwise abusive to the DBO Contractor's employees; or
  - (c) the Hauler does not follow proper weigh scale or applicable health and safety procedures at the weigh scales or the Facility; or
  - (d) the Facility is unable to accept the Waste due to the occurrence of a Force Majeure event, a Change in Law or Owner Fault.
- 32.4.3 Any Waste so rejected shall be excluded from the record of Waste received for processing at the Facility and the DBO Contractor shall notify the Owner of each such occurrence.

**32.5 Regional Waste Flow Coordination**

- 32.5.1 The DBO Contractor shall work with the Owner to co-ordinate the flow of Waste from the Owner's municipal solid waste system. This may involve, but not be limited to, such activities as increasing or decreasing burn rates, varying bunker levels, directing traffic to alternate disposal facilities, or notifying the Owner of any issues that may affect the flow of Waste. The DBO Contractor can request the Owner to hold waste within the Owner's capacity at the Owner's transfer station(s) for delivery at a mutually agreeable later date as a direct result of the storage pit being full due to the occurrence of an exceedance of the daily, weekly or monthly amounts of Acceptable Waste set forth in **Appendix 34**.

**ARTICLE 33**  
**OPERATING REQUIREMENTS**

**33.1 Hours of Operation**

- 33.1.1 The DBO Contractor shall operate the facility on a twenty four (24) hours, 7 days per week basis except in the event of a planned or unplanned shutdown.

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**33.2 Standards of Operation**

33.2.1 The DBO Contractor shall operate and maintain the Facility in accordance with the Contract Documents, the Operations and Maintenance Manuals, any Environmental and Quality Management Systems and all other industrial standards applicable to the operation and maintenance of a municipal solid waste incinerator, regulations, codes and standards, as such regulations, codes and standards may be amended from time to time, the Certificate of Approval, Authorizations and Environmental Laws and Regulations.

**33.3 Vehicular Traffic**

33.3.1 The DBO Contractor shall provide for a safe and efficient flow of vehicle traffic on the Facility Lands. The DBO Contractor shall use all efforts to minimize the length of vehicle line-ups at the Facility and to avoid spill over of line ups off the property. The DBO Contractor shall provide an adequate number of employees to control and direct traffic.

**33.4 Receipt of Waste**

33.4.1 The DBO Contractor shall only receive Waste approved by the Owner. The DBO Contractor shall receive Waste at the Facility 7.00 a.m. to 7.00 p.m. Monday to Friday unless indicated in writing by the Owner, except Good Friday, the period from 7:00 p.m. Christmas Eve Day to 7:00 a.m. Boxing Day, and New Year's Day, subject to available storage capacity at the Facility and scheduled full plant shutdowns. The Owner may change the foregoing receiving hours at any time upon delivery of written notice thereof to the DBO Contractor in accordance with **Article 15**.

**33.5 Weighing of Waste**

33.5.1 The Owner shall ensure that each vehicle delivering Waste correctly uses the weigh scales at the Facility and that a Regional weigh scale ticket has been accurately produced for each such vehicle.

33.5.2 The DBO Contractor shall ensure that each vehicle removing Bottom Ash, Fly Ash, Unacceptable Waste not otherwise rejected or other recyclable materials from the Facility correctly uses the weigh scales at the Facility and that a Regional weigh scale ticket has been accurately produced for each such vehicle.

33.5.3 The DBO Contractor may review the audit trail reports with Owner's staff at the end of each day to ensure that all transactions have been completed correctly and that all transactions and weights accurately reflect the loads delivered to or removed from the Facility. If any transactions appear to be incorrect, the DBO Contractor shall immediately transmit any pertinent information regarding the transactions to the Owner.

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33.5.4 The Owner shall be responsible for logging, tracking and issuing appropriate billing for each vehicle that is given access to the Facility by the Owner.

**33.6 Waste Screening Protocol**

33.6.1 Subject to **subsection 32.4**, the DBO Contractor shall not restrict or reject any Acceptable Waste without approval from the Owner.

33.6.2 For waste screening purposes, the DBO Contractor shall ensure that at least one competent employee is in the waste receiving area at all times that the Facility is accepting Waste.

33.6.3 The DBO Contractor shall have the right to inspect, all vehicles delivering Waste to the Facility. In the event that Unacceptable Waste is delivered to the Facility and accepted by the Owner, the DBO Contractor shall use its best efforts to separate such Unacceptable Waste to a designated area on the tipping floor for subsequent inspection, removal and disposal and notify the Owner and the Ministry of the Environment as appropriate. The DBO Contractor shall weigh such Unacceptable Waste and maintain separate weigh scale records thereof. The DBO Contractor shall use its best efforts to immediately return all such Unacceptable Waste to the generator or Hauler. If the generator or Hauler cannot be identified, the DBO Contractor shall, with the prior consent or direction of the Owner, arrange for the disposal of the Unacceptable Waste, including transportation and special handling, and the Owner shall be responsible for all costs associated therewith. The DBO Contractor shall provide written notice to the Owner and the Ministry of the Environment, as appropriate, of all Unacceptable Waste disposed by it under this section.

33.6.4 Other than as set forth in **Appendix 34**, any Acceptable Waste or rejected materials that cannot be processed through the combustion unit because of the non-processible nature of the waste and cannot otherwise be processed in small quantities when mixed with other waste, shall be separated into a container located on the tipping floor and disposed of by the DBO Contractor at its cost. Such non-processible waste shall not count towards the calculation of the DBO Contractor's Throughput Capacity Guarantee and Electrical Production Guarantee.

**33.7 Scavenging**

33.7.1 The DBO Contractor will not allow the scavenging of materials from Waste at the Facility by Haulers, the public, employees of the Facility or any other person, without the written approval of the Owner.

**33.8 Recovery of Ferrous and Non Ferrous Metals**

33.8.1 The DBO Contractor shall remove from the Bottom Ash ferrous and non-ferrous metal objects according to the equipment specifications and Contract Documents. The metal recovery systems shall be operated in a manner that prevents fugitive dust emissions.

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The DBO Contractor shall not make any significant changes to the processing of Bottom Ash that will reduce its metal recovery without the authorization of the Owner.

- 33.8.2 If the drum magnet separator is not functioning, and if requested by the Owner, the DBO Contractor shall utilize commercially reasonable efforts to remove large ferrous objects from the Bottom Ash on a continuous basis to meet the requirements specified in **subsection 33.8.1** until the drum magnet separator can be repaired.
- 33.8.3 The Owner may periodically inspect the bottom ash to ensure that metal recovery guarantees are being met. If necessary, the DBO Contractor shall make changes, modifications, or additions to the Facility as may be necessary to meet the requisite Performance Guarantees.

**33.9 Fly Ash**

- 33.9.1 The DBO Contractor, unless otherwise directed by the Owner, shall handle and dispose of all fly ash produced by the facility and ensure that Fly Ash processing is conducted in a manner that precludes fugitive emissions and escape of dust.
- 33.9.2 The area around the Fly Ash silo must be kept clean at all times and spills must be dealt with immediately. The driver of the Fly Ash truck shall be required to use personal protective equipment during the loading and unloading of Fly Ash to prevent the inhalation of Fly Ash dust and fumes.

**33.10 Facility Shutdowns**

- 33.10.1 No later than October 31<sup>st</sup> of the year prior to of each calendar year, the DBO Contractor shall submit to the Owner a tentative schedule of planned Facility shutdowns for the coming year, and shall advise the Owner in writing of any anticipated changes in that schedule. The DBO Contractor shall not schedule shutdowns for more than one Incinerator Unit at a time, other than for a total Facility maintenance shutdown.
- 33.10.2 The DBO Contractor shall use all reasonable efforts to schedule planned Facility shutdowns for maintenance and repairs during the periods of the year when the quantities of Waste received in the Owner's municipal solid waste system are lower than average (typically in February and March). The peak Waste quantities in the Owner's municipal solid waste system typically occur during May through August. Updated Waste flow information will be made available by the Owner to the DBO Contractor. Insofar as it is compatible with the DBO Contractor's and the Owner's needs, the DBO Contractor shall also consider any preference of energy customers in scheduling regular shutdowns.
- 33.10.3 The DBO Contractor shall submit to the Owner for approval, in writing, a minimum of sixty (60) days prior to a proposed scheduled Facility shutdown, the exact date, time

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and probable duration of the proposed shutdown. Following approval of the proposed shutdown by the Owner, the DBO Contractor shall send a copy of the letter to the Energy Customer. The DBO Contractor may notify haulers of the shutdown by copy of the letter to the Owner or by another form of communication agreed by the Owner and the DBO Contractor. The DBO Contractor shall not undertake a scheduled Facility shutdown without the prior written approval of the Owner, not to be unreasonably withheld.

**33.11 Environmental Operating Requirements**

- 33.11.1 The DBO Contractor shall ensure that it complies with all applicable Environmental Laws, statutory requirements, permits, approvals, by-laws and other control instruments relating to site and facility operation in operating and maintaining the Facility during the Term.
- 33.11.2 The DBO Contractor shall ensure that all continuous air emission monitoring equipment is well maintained so as to comply with the requirements of the specification and the Certificate of Approval emissions performance and performance enhancement payment negotiation structure.
- 33.11.3 The Owner may, upon reasonable notice at such time or times as are reasonably agreed upon by the Owner and the DBO Contractor, conduct continuous emission monitoring equipment calibration audits and stack tests. The Owner shall exercise reasonable efforts to ensure that such audits or tests do not interfere with the performance of the DBO Contractor's obligations under this Agreement. Any claim for reasonable compensation for the substantiated impact of the Owner's audits or tests on the DBO Contractor's time and cost for performance of the Work shall be determined in accordance with **subsection 15.1**.
- 33.11.4 If the DBO Contractor at any time fails to comply with any statutory requirement they shall immediately notify the Owner and the appropriate regulatory agency or agencies in the prescribed manner of such non-compliance.

**33.12 Residue Storage**

- 33.12.1 The DBO Contractor shall store Residue and Recovered Metal in an enclosed structure.

**ARTICLE 34**  
**RESIDUE DISPOSAL**

**34.1 Sale of Ferrous and Non-Ferrous Metals**

- 34.1.1 The DBO Contractor shall sell, at market rates to a recycling operation approved by the Owner, all recovered metals separated from Bottom Ash produced at the Facility. The DBO Contractor shall not dispose or cause the disposal of any separated ferrous

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metals in any landfill, unless all recycling options are exhausted and no feasible recycling alternative can be found within a reasonable time, and only then with the written consent of the Owner. Any net revenues resulting from the handling and recycling of recovered metals from the Facility will be shared with the Owner on the basis of eighty-five percent (85%) to the Owner and fifteen per cent (15%) to the DBO Contractor, as set out in **subsection 37.4**.

**34.2 Bottom Ash**

34.2.1 The DBO Contractor will provide for the transport and disposal of all Bottom Ash produced by the Facility. The DBO Contractor shall weigh all Bottom Ash prior to removal from the Facility and shall minimize the production of fugitive dust during truck loading, transport and unloading.

**34.3 Fly Ash Disposal**

34.3.1 The DBO Contractor will provide for the transport and disposal of all Fly Ash produced by the Facility. The DBO Contractor shall weigh all Fly Ash prior to removal from the Facility and shall minimize the production of fugitive dust during truck loading, transport, and unloading.

**34.4 Bypass Waste Disposal**

34.4.1 The DBO Contractor shall arrange for the transport and disposal of all Bypass Waste. The cost of transport and disposal of Bypass Waste shall be governed by the provisions of **Appendix 34** and the annual reconciliation provisions of **subsection 37.13**. The DBO Contractor shall weigh all Bypass Waste prior to removal from the Facility and shall minimize the production of fugitive dust during truck loading, transport and unloading.

**34.5 Restriction on Disposal**

34.5.1 In no event shall the DBO Contractor dispose of Residue and Bypass Waste in the State of Michigan in the United States of America while applicable law, or any agreement similar to that currently in existence between the Province of Ontario and the Senate representatives for the State of Michigan, exists to prevent or discourage same.

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**34.6 Cost Risk of Disposal**

- 34.6.1** For greater certainty, notwithstanding any other provision of this Agreement, save and except for Force Majeure, Change in Law, the provisions of **Appendix 34**, and subject to the Total Residue Haulage Diesel Fuel Cost adjustment in **subsection 37.6.1(b)**, the DBO Contractor is solely responsible for the cost of transport and disposal of Bottom Ash, Fly Ash and By-Pass Waste.

**ARTICLE 35**  
**TESTING REQUIREMENTS**

**35.1 Access for Testing**

- 35.1.1** The DBO Contractor shall provide any and all modifications to the Facility or Work required to provide access for environmental sampling by the DBO Contractor or the Owner in accordance with this **Article 35**, including, without limitation, flue gas emission sampling, Fly Ash and Bottom Ash testing, and wastewater discharge testing.

**35.2 Manual Stack Emissions Testing**

- 35.2.1** The DBO Contractor, at its cost and expense, shall arrange for a qualified independent and impartial testing agent approved by the Owner to conduct stack emissions testing. The testing agent shall submit the test report to the MOE. The DBO Contractor shall be responsible for obtaining MOE acceptance of the testing agent's report from the Facility in accordance with the requirements set out in the Certificate of Approval. The DBO Contractor shall assist the testing agent in taking samples of stack emissions from the Facility.

**35.3 Bottom Ash Testing**

- 35.3.1** The DBO Contractor shall engage a qualified, independent and impartial agent to test and provide reports to the Owner as required by the Certificate of Approval for Bottom Ash. Bottom Ash generated by the Facility to ensure that it complies with Certificate of Approval, specifications, environmental regulations and the Performance Requirements set out in **Article 42**.

**35.4 Wastewater Discharge Testing**

- 35.4.1** The DBO Contractor shall take and test wastewater discharge samples in accordance with the terms and conditions of the Region's Sewer Use By-Law.

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**35.5 Other Testing**

- 35.5.1 The DBO Contractor acknowledges and agrees that the Owner may perform periodic testing at the Facility. The DBO Contractor shall cooperate with the Owner in performing any such tests.

**ARTICLE 36**  
**REPORTING REQUIREMENTS**

**36.1 Emergency Contact List**

- 36.1.1 The DBO Contractor shall continuously maintain an internet accessible, current and up to date telephone and e-mail directory of all staff and corporate officers involved in the operation of the facility.

**36.2 Report of Interruptions in Operations**

- 36.2.1 The DBO Contractor shall report to the Owner, either verbally or in writing, as soon as practicable, the occurrence of any interruption in the normal operation of the Facility. The DBO Contractor shall provide to the Owner within one (1) week of such occurrence, a written report in a form and format reasonably acceptable to the Owner, setting out the cause, circumstances, and duration of the interruption, and the measures taken to resume operations at the Facility.

**36.3 Monthly Operating Report**

- 36.3.1 The DBO Contractor shall submit to the Owner, in a form and format reasonably acceptable to the Owner, in writing, a monthly operating data report (the “Monthly Operating Report”) on or before the 21<sup>st</sup> day of the month immediately following the month covered by the Monthly Operating Report. Each Monthly Operating Report shall include the following information in table form, with amounts expressed in metric tonnes:

- (a) daily totals for the month reported, monthly totals for the year-to-date and a year-to-date total for each Incinerator Unit (where applicable) and the Facility as a whole, for each of the following:
  - (i) the amount of Delivered Waste,
  - (ii) the amount of Throughput,
  - (iii) the amount of Bypass Waste,
  - (iv) the amount of Waste rejected and not processed at the facility, including Unacceptable Waste.
  - (v) the amount of Bottom Ash removed from the Facility,



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- (vi) the amount of Fly Ash removed from the Facility,
- (vii) the amount of ferrous materials removed from the Facility,
- (viii) the amount of other recovered materials removed from the Facility,
- (ix) the amount of transportation costs incurred to make the sales noted in (viii) and (ix), including the total net revenues from those sales,
- (x) the total truck kilometres, destinations, and corresponding amount of diesel fuel consumed to dispose of residue or bypass waste,
- (xi) the amount of APC reagents used,
- (xii) the amount of boiler downtime and Availability by Incinerator Unit,
- (xiii) a breakdown of causes for boiler downtime,
- (xiv) the amount of natural gas, electrical power, water, and other utilities used,
- (xv) the amount of insurance costs and taxes incurred;
- (xvi) the amount of steam produced by each process line,
- (xvii) the amount of Electricity in kWh produced by the Turbogenerator,
- (xviii) the amount of Electricity in kWh exported to the electrical power grid or to the electrical power grid or transmission system of any other electrical power transmission entity,
- (xix) [Reserved].
- (xx) the amount of Electricity in kWh purchased from the electrical power grid, if any,
- (xxi) the average kWh of Electricity generated per tonne of processed Waste,
- (xxii) the number of hours the Turbogenerator is synchronized to the electrical power grid or to the electrical power grid or transmission system of any other electrical power transmission entity,
- (xxiii) the amount of Turbogenerator downtime with complete details setting out the causes therefore,
- (xxiv) a description of other major system downtime,

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- (xxv) an estimate of the average waste higher heating value (“HHV”) and supporting data and calculations for the reporting period,
  - (xxvi) any other operating or maintenance information or data that the DBO Contractor may consider relevant or that the Owner may request, and
  - (xxvii) details on each of the components of the Environmental Performance Adjustments and Service Level Adjustments as specified in **subsection 37.9** and **subsection 37.10** respectively, including a cumulative total of deductions or additions;
- (b) monthly totals for the year-to-date of the Waste received by the Facility from each Region and from other customers;
  - (c) a monthly maintenance report in a format reasonably acceptable to the Owner setting out:
    - (i) the work orders issued during the month reported, completed during the month reported, and outstanding at the end of the month reported,
    - (ii) a summary of maintenance activities for each major component of the Facility;
  - (d) an environmental summary report of air emissions from the Facility during the month reported and reporting on environmental impacts of the Facility;
  - (e) the results of wastewater discharge testing under **subsection 35.4**, if applicable;
  - (f) the daily average individual reagent use on a per tonne of incoming waste basis during the month reported;
  - (g) a summary of public complaints and public relations activities during the month reported, including plant visits, public inquiries or complaints made about the Facility;
  - (h) a summary of the Facility security system showing the number of transactions checked, any incidences of misuse of the weigh scale system;
  - (i) site specific meteorological data as required in the Certificate of Approval during the month reported compared to average historical levels;
  - (j) details of the following for the month reported, as applicable:
    - (i) any health and safety incident reports,
    - (ii) any Facility Lands visits by government authorities, media or tour groups,

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- (iii) any media contact involving the DBO Contractor,
- (iv) any customer complaints received by the DBO Contractor from Customers of the Facility and the actions taken in response,
- (v) any security issues and identification of any property damaged or stolen,
- (vi) any incidents at the Facility or on the Facility Lands that may potentially result in an insurance claim,
- (vii) any problems with the handling and delivery of any Waste or Fly Ash or Bottom Ash from the Facility,
- (viii) any difficulties, potential or otherwise, with the marketing of ferrous metals, Bottom Ash, Fly Ash and other recyclables,
- (ix) an update of Capital Improvements which are scheduled to be completed in the current or next calendar quarter,
- (x) any weigh scale inspection and calibration reports for the Facility,
- (xi) any fire protection or security system inspection or test reports for the Facility,
- (xii) any safety issues identified with equipment or personnel at the Facility or on the Facility Lands and actions taken to resolve these issues,
- (xiii) copies of all written reports, instructions or control instruments received by the DBO Contractor relating to the Facility prepared by any Government Entity having jurisdiction, including WSIB, municipal health departments and municipal fire departments, and
- (xiv) the number of “hot” (i.e., smouldering or burning) loads received, and when fire departments respond to a fire at the Facility;

provided that notwithstanding the foregoing, the DBO Contractor shall not be required to disclose any information that is proprietary from a financial perspective, or any financial records or other information regarding amounts payable by the Owner under this Agreement that are priced on a fixed or lump sum basis.

**36.4 Year-End Report**

- 36.4.1 The DBO Contractor shall submit to the Owner, in writing, in a form and format acceptable to the Owner for each year during the Term, an annual year-end report (the

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“Year-End Report”) on or before the 28<sup>th</sup> day of February of the year immediately following the calendar year covered by the Year-End Report. Each Year-End Report shall include the following information in a form satisfactory to the Owner:

- (a) a year-end summary of all operating statistics and events provided in the Monthly Operating Report for the year reported, along with comparisons identifying any major variances from the previous calendar year of operations;
- (b) a current list of all of the DBO Contractor’s personnel, setting out each person’s name, position or function, and number of years of service;
- (c) a general review of the performance of the Facility for the year reported setting out statistics on the performance of the Facility and descriptions of the DBO Contractor’s regular maintenance practices and any major repairs and renewals implemented during the year;
- (d) a complete record of scheduled and unscheduled shutdowns, including Emergency Shutdowns, periods of reduced quantity of Waste processed and periods of interrupted steam supply to the Steam Customer, for the year reported, stating the exact times, duration and reasons therefor;
- (e) a complete record of scheduled and unscheduled shutdowns for the Calendar Year, including forced outages of the Turbogenerator and periods of interrupted electrical supply to the electrical power grid or to the electrical power grid or transmission system of any other electrical power transmission entity, setting out in full detail the precise times, durations and reasons for the shutdowns, outages and interruptions;
- (f) a complete record of any occurrences of rejection by the Steam Customer of steam;
- (g) a current detailed inventory of Major Equipment;
- (h) a current detailed inventory of all Consumables, spare parts, fuels and chemicals stored at the Facility or on the Facility Lands;
- (i) a description of the operation, performance and maintenance of all emission control devices and continuous monitoring systems at the Facility during the year reported;
- (j) a description of the operation and performance of the Fly Ash and Bottom Ash treatment and processing systems at the Facility during the year reported;
- (k) any other operating or maintenance information the DBO Contractor or the Owner may consider relevant, provided that the DBO Contractor shall not be required to disclose any information that is proprietary from a financial perspective, or any financial records or other information regarding amounts payable by the Owner under this Agreement that are priced on a fixed or lump sum basis save as may be otherwise specifically provided for in this Agreement.; and

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- (l) monthly and total amounts of
  - (i) net revenue shared under **subsection 37.8**;
  - (ii) the amount of Delivered Waste and the amount of Throughput in accordance with **subsection 37.4** or **subsection 37.5**, as required;
  - (iii) the performance adjustments in accordance with **subsection 37.9.2** and **subsection 337.10.2**, as required;
  - (iv) waste stored in the pit.

**36.5 CEMS Reporting**

- 36.5.1 The DBO Contractor shall ensure that the DCS generates daily reports that shall include, in a format acceptable to the Owner, the hourly averages for the parameters defined in the Certificate of Approval
- 36.5.2 For any hour where CEMS data is unavailable, the DBO Contractor shall provide reasons for occurrences of CEMS data unavailability and document corrective actions taken.
- 36.5.3 The DBO Contractor shall maintain continuous remote computer connections to allow access by the Owner to CEMS data.
- 36.5.4 The DBO Contractor shall provide an electronic display board on the Facility exterior for the purpose of displaying at a minimum actual real-time emissions data. This data shall also be available on a web site accessible to the general public.
- 36.5.5 The DBO Contractor shall report any
  - (a) emission limit exceedances identified by the CEMS;
  - (b) deviation from Certificate of Approval requirements; and
  - (c) Facility Start-up and Shut-Downto the MOE in the manner identified in the Certificate of Approval.
- 36.5.6 The DBO Contractor shall store and maintain in a secure location an electronic record of all CEMS data for a minimum period of ten (10) years.

**36.6 Wastewater Discharge**

- 36.6.1 The DBO Contractor shall submit to the Owner, any information relating to the discharge of wastewater from the Facility that may be requested by the Owner, including the results of testing performed under **subsection 35.5**, if applicable.

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**36.7 Outage Reports**

- 36.7.1 The DBO Contractor shall make available to the Owner, within thirty (30) days after each scheduled maintenance shutdown during the Term, a written report of any work performed during the scheduled maintenance outage (system shut down) setting out the following information:
- (a) a detailed description of the work performed during the shutdown, including any and all pertinent data or information related to the maintenance work;
  - (b) the date on which the same work was last performed; and
  - (c) the next scheduled maintenance shutdown for the work performed.
- 36.7.2 The DBO Contractor shall provide to the Owner and the MOE, within two (2) days after each scheduled and unscheduled shutdown during the Term, a written report setting out the date, time, duration, and reason for the shutdown.

**36.8 Service and Maintenance Plans**

- 36.8.1 The DBO Contractor will establish and implement an annual operations and maintenance services plan (the “Annual Service Plan”) for the delivery of services forming part of the Operations Work for the coming year in accordance with the requirements of **Appendix 28**. Notwithstanding the delivery of the Annual Service Plan: (a) the DBO Contractor shall not be obligated to perform all of the provisions of such Plan provided reasonable advance notice and explanation of any deviation from the Plan is given to the Owner based upon DBO Contractor’s operating experience and objective performance indicators where available, (b) The DBO Contractor shall be entitled to change such Plan upon reasonable advance notice to the Owner specifying the change and reasonable explanation for said change based upon the DBO Contractor’s operating experience and objective performance indicators where available.
- 36.8.2 The DBO Contractor will establish and implement as part of the Operations Work a rolling five (5) year maintenance plan (the “Five Year Maintenance Plan”) for all major elements, components, systems and equipment forming part of the Facility which will include a listing of tasks and anticipated scheduling of planned, preventative and replacement maintenance programs for the coming five (5) year period in accordance with the requirements of **Appendix 29A**. Notwithstanding the delivery of the Five Year Maintenance Plan: (a) the DBO Contractor shall not be obligated to perform all of the provisions of such Plan provided reasonable advance notice and explanation of any deviation from the Plan is given to the Owner based upon DBO Contractor’s operating experience and objective performance indicators where available, (b) The DBO Contractor shall be entitled to change such Plan upon reasonable advance notice to the Owner specifying the change and reasonable

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explanation for said change based upon the DBO Contractor's operating experience and objective performance indicators where available.

36.8.3 The DBO Contractor will establish and implement, as part of the Operations Work, in conjunction with the Five Year Maintenance Plan, an asset life cycle and rehabilitation plan (the "Life Cycle Plan") for all elements, components, systems and equipment forming part of the Facility, in accordance with the requirements of **Appendix 29B**. Notwithstanding the delivery of the Life Cycle Plan: (a) the DBO Contractor shall not be obligated to perform all of the provisions of such Plan, provided reasonable advance notice and explanation of any deviation from the Plan is given to the Owner based upon DBO Contractor's operating experience and objective performance indicators where available, (b) The DBO Contractor shall be entitled to change such Plan upon reasonable advance notice to the Owner specifying the change and the reasonable explanation for said change based upon the DBO Contractor's operating experience and objective performance indicators where available.

36.8.4 No later than:

- (a) One hundred eighty (180) days prior to Service Commencement, the DBO Contractor shall submit to the Owner's Representative the Service and Maintenance Plans. The Owner will review the Service and Maintenance Plans and may, but will not be obliged to, provide comments to the DBO Contractor. The DBO Contractor will give due regard to any comments which the Owner may have in relation to such Plans, will provide written responses to such comments and where changes to the Plans are agreed to, will submit amended Plans to the Owner's Representative.
- (b) December 1<sup>st</sup> of each year, the DBO Contractor will submit to the Owner the Annual Service Plan and the Five Year Maintenance Plan for the subsequent year, and an updated version of the Life Cycle Plan describing any change to the previous year's version of the Life Cycle Plan.

36.8.5 Any failure of the DBO Contractor to submit any Plan to the Owner in accordance with this **subsection 36.8** shall constitute a Default under **Article 26**.

**36.9 DBO Contractor Tests**

36.9.1 The DBO Contractor shall provide the Owner with written notice ninety (90) days prior to any testing undertaken by the DBO Contractor for consideration of potential modifications to the Facility, and shall promptly provide the Owner with copies of any such test results.

36.9.2 Notwithstanding the reporting requirements set out in this **Article 36**, the Owner may request additional operating or maintenance data, records and other operating or maintenance information relating to the Facility from time to time, and the DBO Contractor agrees that it shall provide such information to the Owner promptly upon request, provided that under no circumstances shall the DBO Contractor be required to

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provide or disclose any information that is proprietary from a financial perspective, or any financial records or other information regarding amounts payable by the Owner under this Agreement that are priced on a fixed or lump sum basis save as may be otherwise specifically provided for in this Agreement.

- 36.9.3 All reports to be maintained under this **Article 36** shall be accurate and complete in all material respects.

**ARTICLE 37**  
**FEES**

**37.1 Additional Definitions**

37.1.1 For the purposes of this **Article 37** and in this Agreement:

- (a) **“Total Annual Operating Fee”** is the sum of the cost items contained within Form 3A, (**Appendix 31**) expressed in Canadian dollars, as amended from time to time in accordance with the terms and conditions of **subsection 37.6** of this Agreement;
- (b) **“Per Tonne Total Annual Operating Fee”** is the Total Annual Operating Fee divided by 140,000 tonnes of Throughput, expressed in Canadian dollars, as amended from time to time in accordance with the terms and conditions of **subsection 37.6** of this Agreement;
- (c) **“Per Tonne Charge for Throughput in Excess of 140,000 Tonnes”** is the per tonne fee for Throughput in excess of 140,000 tonnes processed annually, and is the total at the end of Form 3B, (**Appendix 31**) Per Tonne Charge for Waste Processed in Excess of 140,000 of Annual Throughout in the DBO Contractor’s Proposal expressed in Canadian dollars, as amended from time to time in accordance with the terms and conditions of **subsection 37.6** of this Agreement.
- (d) **“Monthly Operating Fee”** is the monthly fee payable to the DBO Contractor for performance of the Operations Work in accordance with **subsection 37.3**, and is the product of the Per Tonne Total Annual Operating Fee and the Throughput processed in any given month, based on the records maintained by the DBO Contractor under **subsection 39.1**, subject to confirmation by the Owner with its weigh scale records.
- (e) **“DBO Contractor’s Proposal”** means the DBO Contractor’s proposal response to the Request for Proposals.

**37.2 Operating Fee Payable During Start-up Operations and Shakedown Protocol Period**

- 37.2.1 At the commencement of the Start-up Operations and Shakedown Protocol period, as outlined in Section 1.5 of **Appendix 10**, the Per Tonne Total Annual Operating Fee will be adjusted as per **subsection 37.6**.



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37.2.2 For each month during the period of time between the Start-up Operations and Shakedown Protocol and the issuance by the Owners of the Acceptance Test Certificate as outlined in **Appendix 15**, the Owner will pay to the DBO Contractor, 50% of the Per Tonne Total Annual Operating Fee for each tonne processed at the Facility.

**37.3 Monthly Operating Fee Payable After Issuance of Acceptance Test Certificate**

37.3.1 During the period of time beginning with the issuance of the Acceptance Test Certificate as outlined in **Appendix 15** and the completion of the Term, the Owner will pay to the DBO Contractor the Monthly Operating Fee.

**37.4 Payment for Delivered Waste Less Than 140,000 Tonnes of Throughput**

37.4.1 If the quantity of Delivered Waste in any given year is less than 140,000 tonnes over that calendar year (save and except the first year of Operations where the Owner's obligation to deliver waste shall be prorated), at the end of each calendar year, the DBO Contractor will nonetheless be paid in total the Total Annual Operating Fee for that calendar year.

37.4.2 The Payment in **subsection 37.4.1** shall be based on the records maintained by the DBO Contractor under **subsection 39.1**, subject to confirmation by the Owner with its weigh scale records, and such records shall be suitable to Owner to demonstrate that the amount of Delivered Waste is less than 140,000 tonnes over any calendar year.

37.4.3 For clarity, **subsection 37.4.1** only applies after the issuance of the Acceptance Test Certificate as outlined in **Appendix 15**.

**37.5 Payment for Throughput in Excess of 140,000 Tonnes**

37.5.1 At the end of each calendar year, the DBO Contractor will be paid for all Throughput processed in excess of 140,000 tonnes over that calendar year, if any, as follows:

- (a) The product of the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes and the amount of Throughput processed in excess of 140,000 tonnes over that calendar year.

37.5.2 The payment in **subsection 37.5.1** shall be based on the records maintained by the DBO Contractor under **subsection 39.1**, subject to confirmation by the Owner with its weigh scale records, and such records shall be suitable to Owner to demonstrate the amount of any Throughput processed in excess of 140,000 tonnes over any calendar year.

37.5.3 **Subsection 37.5.1** only applies after the issuance of the Acceptance Test Certificate as outlined in **Appendix 15**.

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37.5.4 **Subsection 37.5.1** is subject to the performance adjustments listed in **subsection 37.9**.

**37.6 Operating Fee Adjustments**

37.6.1 The Owner will provide annual adjustments to the Total Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 tonnes, as is set forth below:

(a) General Inflationary Adjustment

- (i) Except and to the extent otherwise provided in this **subsection 37.6.1(a)** in respect of elements of the Total Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes, the Total Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes shall be adjusted on an annual basis based on eighty percent (80%) of the annual average change in the Consumer Price Index (CPI), Ontario All-Items.
- (ii) The following cost items of the Per Tonne Total Annual Operating Fee and the Per Tonne Charge for Waste Processed in Excess of 140,000 Tonnes will be adjusted as per **subsection 37.6.1(a)(i)** above:
  - (1) [Reserved]
  - (2) Total Maintenance Costs as per Form 3A, Item 2, Maintenance Costs (**Appendix 31**);
  - (3) Total Unitary Major Equipment Repair and Facility Refurbishment Costs as per Form 3A, Item 4, Total Unitary Major Equipment Repair and Facility Refurbishment Costs (**Appendix 31**);
  - (4) Total Residue Disposal (Excluding Residue Haulage Diesel Fuel Costs) as per Form 3A, Item 7, Total Residue Disposal (Excluding Residue Haulage Diesel Fuel Costs) (**Appendix 31**) at the quantities in Form 3A, Item 7, Total Residue Disposal (Excluding Residue Haulage Diesel Fuel Costs) (**Appendix 31**); and,
  - (5) Total Contract Rental or Lease Services as per Form 3A, Item 9, Total Contract Rental or Lease Services.
- (iii) The following cost item of the Per Tonne Total Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 tonnes shall be adjusted on an annual basis based on 100% of the annual average change in the Consumer Price Index (CPI), Ontario All-Items:

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- (1) Total Labour Cost as per Form 3A, Item 1, Labour Costs (including fringe) (**Appendix 31**).
- (b) Total Residue Haulage Diesel Fuel Cost Adjustment
- (i) The Total Residue Haulage Diesel Fuel Cost adjustment is for Diesel Operated Waste Haulage Vehicles utilized for waste haulage to off-site disposal facilities, as noted in Form 3A, Item 8, Total Residue Haulage Diesel Fuel Costs (**Appendix 31**).
  - (ii). The Total Residue Haulage Diesel Fuel Cost adjustment item of the Total Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes, is excluded from the adjustments of **subsection 37.6.1(a)(i)**, and will be based on one hundred percent (100%) of the annual average change in Diesel from year to year as provided in the Canadian Industry Price Index, Diesel Fuel, Ontario (Catalogue #62-011-XPB), published by Statistics Canada, and at the quantities quoted in Form 3A, Item 8, Total Residue Haulage Diesel Fuel Cost (**Appendix 31**).
- (c) Total Consumables Cost Adjustment:
- (i) The adjustment is for Total Consumables (i.e. chemicals, reagents) utilized in the Facility as noted in Form 3A, Item 3, Total Consumables (**Appendix 31**).
  - (ii) The Cost of Consumables item of the Total Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 of Annual Throughput, is excluded from the adjustments of **subsection 37.6.1 (a)**, and will be based on one hundred percent (100%) of the annual average change in Industrial Chemicals cost from year to year, as provided in the Canadian Industry Price Indexes, Industrial Chemicals, (Catalogue #62-011-X, Vector number v1575972) published by Statistics Canada, and at the quantities quoted in Form 3A, Item 3, Total Consumables (**Appendix 31**).
- (d) Flow Through Items of the Per Tonne Total Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes:
- (i) The following items of the Total Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes are excluded from the adjustments of **subsection 37.6.1(a)(i)**, and any annual changes will be paid for on an as-incurred-basis, provided that they are based upon verification of actual costs to the satisfaction of the Owner, as noted in **subsection 36.3.1**:

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- (1) Total Auxiliary Fuel Costs, at the quantities quoted in Form 3A, Item 5, Total Auxiliary Fuel Costs (**Appendix 31**);
  - (2) Purchased Utilities, at the quantities quoted in Form 3A, Item 6, Total Purchased Utilities (**Appendix 31**);
  - (3) Total Insurance Costs, as per Form 3A, Item 12, Total Insurance Costs (**Appendix 31**).
  - (4) Total Taxes, as per Form 3A, Item 13, Total Taxes (**Appendix 31**); and
- (e) Cost Items Excluded from any Annual Inflation Adjustment
- (i) The following items of the Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes are excluded from the adjustments of **subsection 37.6.1(a)(i)**, and will be fixed and not adjusted during the Term:
    - (1) Total Administrative Costs, as per Form 3A, Item 10, Total Administrative Costs (**Appendix 31**);
    - (2) Total Annual Guarantee Agreement Costs, as per Form 3A, Item 11, Total Annual Guarantee Agreement Costs (**Appendix 31**); and
    - (3) Total Overhead Costs, as per Form 3A, Item 14, Total Overhead Costs (**Appendix 31**).

37.6.2 The Total Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes adjustments in **subsection 37.6.1** shall be calculated when the required information becomes available from Statistics Canada, and effective retroactively to the anniversary of the issuance of the Acceptance Test Certificate.

37.6.3 In the event that an index used to calculate the Total Annual Operating Fee and the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes is discontinued by Statistics Canada, the Owner in its discretion shall select, in consultation with the DBO Contractor Operator, a replacement index.

**37.7 Review of the Operating Fee and/or its Adjustments**

37.7.1 The Owner may, from time to time, review the adjustments to the Total Annual Operating Fee and/or the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes, as noted in **subsection 37.6**, at the discretion of the Owner in response to a request from the DBO Contractor or on its own initiative.

37.7.2 Subject to **subsection 37.7.1** and the agreement of DBO Contractor, the Owner may amend the Total Annual Operating Fee, the Per Tonne Charge for Throughput in

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Excess of 140,000 Tonnes, or their adjustments as noted in **subsection 37.6**, to reflect increases or decreases in the DBO Contractor's actual cost of performing the Work resulting directly from:

- (a) A Change in Law, Force Majeure, Owner Fault or
- (b) A request by the Owner resulting in a material change in the cost of performing the Operations Work.

DBO Contractor shall demonstrate that the proposed increase or decrease in the Total Annual Operating Fee or the Per Tonne Charge for Throughput in Excess of 140,000 Tonnes or change to **subsection 37.6** adjustments accurately represent the change in the DBO Contractor's actual cost of performing the Operations Work, and the DBO Contractor is otherwise in full compliance with the terms and conditions of this Agreement. Any amendments are effective at the earliest reasonable time after the increase or decrease goes in to effect.

**37.8 Revenue Sharing**

37.8.1 Revenue sharing for Recovery of Ferrous and Non Ferrous Metals shall be in accordance with the following:

- (a) The Owner and the DBO Contractor will share net revenues (net of transportation costs) incurred to complete the sale from the recovery of recyclable materials on the basis of Owner eighty-five percent (85%) and the DBO Contractor fifteen percent (15%), and resulting primarily from the DBO Contractor's sale of ferrous and non-ferrous metals; and,
- (b) The Owner and the DBO Contractor will share net revenues (net of transportation costs) from any beneficial reuse or sale of Residue on the basis of Owner (ten percent (10%) and the DBO Contractor ninety percent (90%).
- (c) The DBO Contractor will provide to the Owner, promptly after the end of each calendar month during the Term, written notice of net revenues noted in **subsection 37.8.1 (a)** collected during such month.
- (d) The determination of the DBO Contractor's net revenues noted in **subsection 37.8.1(a)** net of transportation costs incurred to complete the sale, shall be subject to confirmation by the Owner, as evidenced by a Cost Substantiation, which shall include, without limitation, supporting documentation from, or related to, the purchasers of the recyclable materials and/or haulage costs.

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37.8.2 The revenue sharing noted in **subsection 37.8.1** shall be applied for each month during the Term and is in addition to the fees paid in **subsections 37.2, 37.3 and 37.4 and 37.5**. For clarity, the revenue sharing provisions shall commence beginning with the issuance of the Acceptance Test Certificate as outlined in **Appendix 15**.

**37.9 Environmental Performance Adjustment**

37.9.1 The Owner shall make a positive or negative adjustment (the “Environmental Performance Adjustment”) to the Total Annual Operating Fee paid to the DBO Contractor for each calendar year during the Term, based on the environmental performance of the DBO Contractor at the Facility over the calendar year. The annual adjustment shall not be cumulative and shall not carry forward in regards to subsequent calendar years during the Term. The Environmental Performance Adjustment shall be calculated as a percentage of the Total Annual Operating Fee.

37.9.2 The Environmental Performance Adjustment will be based on a points system as follows:

<b>Environmental Demerit Points in a Calendar Year<sup>1</sup></b>	<b>Environmental Performance Adjustment to Total Annual Operating Fee</b>
Up to 50	+ 2% of Total Annual Operating Fee
51-75 points	+ 1% of Total Annual Operating Fee
76-100 points	No Env. Performance Adjustment
101-125 points	- 1% of Total Annual Operating Fee
over 125 points	- 2% of Total Annual Operating Fee

<sup>1</sup> In the event of a partial calendar year, the environmental performance points set out in the column entitled “Environmental Performance Points in a Calendar Year” shall be reduced on a *pro rata* basis.

**The Owner will assign Environmental Performance Points to the DBO Contractor in accordance with the following table:**

<b>Pollutant</b>	<b>Units</b>	<b>YD EFW Proposed Limits</b>	<b>Guaranteed Limit</b>	<b>Environmental Demerit Points</b>

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The exceedance of any environmental and operational aspects of any of the Certificates of Approval resulting in any MOE fine/Order/Directive will result in the DBO Contractor not receiving any bonus payments for that calendar year.				76
Further violations will increase demerit points and demerit points for specific emissions are cumulative with CEM or Stack test demerits listed below.				
The DBO Contractor can receive both a negative Performance Adjustment and MOE fines.				
<b>Continuous Emission Monitoring (CEM) Parameters</b>				
Excludes exceedances during Normal Start-up and Shutdown conditions and Emergency Shutdowns				
Sulphur Dioxide (SO <sub>2</sub> ) 24 hour geometric mean exceeds CEM guarantee	mg/Rm <sup>3</sup>	35	35	10
Hydrogen Chloride (HCl) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm <sup>3</sup>	9	9	10
Hydrogen Fluoride (HF) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm <sup>3</sup>	0.9	0.9	10
Nitrogen Oxides (NO <sub>x</sub> ) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm <sup>3</sup>	180	121	10
Carbon Monoxide (CO) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm <sup>3</sup>	45	45	10
<b>Stack Test Parameters<sup>3</sup></b>				
Mercury (Hg) Stack Test result exceeds Emission Guarantee	µg/Rm <sup>3</sup>	15	15	20
Cadmium (Cd) Stack Test result exceeds Emission Guarantee	µg/Rm <sup>3</sup>	7	7	20
Cadmium + Thallium (Cd + Th) Stack Test result exceeds Emission Guarantee	µg/Rm <sup>3</sup>	46	46	20
Lead (Pb) Stack Test result exceeds Emission Guarantee	µg/Rm <sup>3</sup>	50	50	20
Sum of (As, Ni, Co, Pb, Cr, Cu, V, Mn, Sb) Stack Test result exceeds Emission Guarantee	µg/Rm <sup>3</sup>	460	460	20

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Dioxins Stack Test result exceeds Emission Guarantee	pg/Rm <sup>3</sup>	60	60	20
Total Particulate Matter Stack Test result exceeds Emission Guarantee	mg/Rm <sup>3</sup>	9	9	20
Organic Matter (as methane) Stack Test result exceeds Emission Guarantee	mg/Rm <sup>3</sup>	49	49	20
<b>Operational Parameters</b> Excludes exceedances during Normal Start-up and Shutdown conditions				
Continuous Emission Monitor Monthly Availability	percent	95 %	95%	5
Opacity exceeds CEM guarantee	Opacity units	TBD	TBD	5

- <sup>1</sup> The Owner will assign environmental performance points for guaranteed operating level exceedances during operation, but will exclude exceedances during Normal Start-up and Shutdown conditions, and Emergency Shutdowns.
- 2 “Daily CEM guarantees” and “Guaranteed Emission Limits” are shown in Exhibit 2 to Appendix 1, Item 89 Performance Guarantees in the DBO Contractor’s Proposal.

- 37.9.3 All emission monitoring requirements and limits are based on Part 8 of Exhibit 2 to **Appendix 19** Performance Guarantees in the DBO Contractor’s Proposal.
- 37.9.4 Environmental Performance Points will be assigned to the DBO Contractor for a manual stack test exceedance, regardless of whether or not the Owner performs a re-test to confirm efficacy of remedial measures. If the results of the re-test also exceed the regulated limit, additional Environmental Performance Points will be assigned to the DBO Contractor for the re-test exceedance.
- 37.9.5 Within sixty (60) days of the end of a given year, the Owner will provide the DBO Contractor with written notice of the Environmental Performance Adjustment to the Total Annual Operating Fee for a particular calendar year once it has been calculated by the Owner. The Environmental Performance Adjustment shall be included as a credit or debit on the subsequent month’s invoice.



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37.9.6 The application of a positive adjustment to the Total Annual Operating Fee pursuant to **subsection 37.9.1** shall be in the Owner’s sole discretion and shall not be subject to the provisions of **Article 28**. The application of a negative adjustment to the Total Annual Operating Fee pursuant to **subsection 37.9.1** shall be subject to the provisions of **Article 28** in the event of a dispute.

**37.10 Service Level Adjustment(s)**

37.10.1 The Owner shall make a positive or negative adjustment (the “Service Level Adjustment”) to the Total Annual Operating Fee, based on the DBO Contractor’s service level performance for the Facility over the calendar year. The adjustment shall be a one-time adjustment which shall not be cumulative and shall not carry forward in regards to subsequent calendar years during the Term. The Service Level Adjustment shall be calculated as a percentage of the Total Annual Operating Fee paid to the DBO Contractor for the calendar year.

37.10.2 The Service Level Adjustment will be based on a points system as follows:

<b>Service Level Points in a Calendar Year<sup>1</sup></b>	<b>Service Level Adjustment to Total Annual Operating Fee</b>
17 -18 points	+ 1% of Total Annual Operating Fee
15 -16 points	+ 0.5% of Total Annual Operating Fee
13-14 points	No Service Level Adjustment
11 -12 points	- 0.5% of Total Annual Operating Fee
0 -10 points	- 1% of Total Annual Operating Fee

<sup>1</sup> In the event of a partial calendar year, the service level points will be awarded on the applicable partial calendar year.

The Owner will assign **Service Level Points** to the DBO Contractor in accordance with the following table:

<b>Category</b>	<b>Occurrence</b>	<b>Service Level Points</b>	
		Condition met	Condition not met
Labour & Safety	No DBO Contractor labour disputes causing down time at the Facility	2	0

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		Service Level Points	
	No WSIB write-ups for violations of WSIB rules and regulations	2	0
	Number of Lost Time Accidents:		n/a
	0	2	
	1-2 more than 2	1 0	
Hauler Service	Number of valid on-site Hauler service complaints (as determined by the Owner):		n/a
	0-4 more than 4	1 0	
	Average processing time <sup>1</sup> : (Packer Trucks)		Total /2
	less than 15 minutes 15 to 20 minutes greater than 20 minutes	2 1 0	
	Less than 10% of the processing times <sup>1</sup> are greater than 20 minutes, AND Less than 5% of the processing times are greater than 30 minutes	1	
	Average processing time <sup>1</sup> : (Hauler Trucks)		3
	less than 20 minutes 20 to 30 minutes greater than 30 minutes	2 1 0	
	Less than 10% of the processing times <sup>1</sup> are greater than 30 minutes, AND Less than 5% of the processing times are greater than 40 minutes	1	
	No Hauler accidents on Facility Lands resulting in an insurance claim against the Owner	1	
	DBO Contractor is fully complying with the Owner's weigh scale management and operating requirements.	1	0
<ul style="list-style-type: none"> <li>• Correction of any/all scale malfunctions</li> <li>• Monthly Scale inspections</li> <li>• Quarterly scale calibration by 3<sup>rd</sup> party</li> <li>• Care and maintenance to scale house</li> </ul>			

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		<b>Service Level Points</b>	
General Quality of Service	<ul style="list-style-type: none"> <li>• Maintain scale software and all peripherals</li> <li>• Maintain Radiation detection equipment</li> <li>• Development of backup plan in the event of scale or system malfunction</li> </ul> Processing of all commercial vehicles entering and exiting the facility grounds		
	DBO Contractor is fully complying with all conditions of all permits and approvals, including but not limited to: <ul style="list-style-type: none"> <li>• local noise bylaws,</li> <li>• landscaping and maintenance,</li> <li>• litter control,</li> <li>• hazardous waste handling,</li> <li>• pest and vermin control,</li> <li>• MOE testing, etc.</li> </ul>	2	0
	Prompt response to information requests and resolution of complaints in accordance with the DBO's ISO EMS plans. (plans to be developed with ISO registration)	1	0
	Environmental Innovation and Community Outreach. The DBO Contractor has proposed economically innovative alternatives/programs that reduce the impact of the Facility on the receiving environment and work towards continuous improvement, consistent with ISO EMS plans, that are approved by the Owner. See list of possible items below <sup>3</sup>	2	0
	Environmental Management System Certification/Registration with ISO 14001( as revised from time to time) maintained <sup>2</sup>	1	0
<b>MAXIMUM NUMBER OF SERVICE LEVEL POINTS</b>		<b>18</b>	

- 1 The "processing time" of vehicles is determined by vehicles which are weighed in and weighed out of the Facility, provided that the processing time of transactions where the Hauler is asked to remove Unacceptable Wastes or where the Hauler is delayed through no fault of the DBO Contractor will not be used in the calculation of the average processing time.
- 2 During the first two years of the Agreement until an ISO 14001 consistent with Environmental Management System is developed, points will be awarded if it is shown that the DBO Contractor is working diligently towards ISO 14001 consistent with Environmental Management System completion.

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3 Environmental Innovation and Community Outreach:

Community Outreach includes commitment to:

- Collaboration and participation with UOIT/Durham College
  - Research partnership
  - Scholarships
  - Operator training programs
- Regular cooperation with local agricultural community
  - DAAC & CAAC
- Communication plan
  - Public awareness
  - Advertising
  - Performance updates
- Regular interaction/cooperation with community schools
  - Tours/mentoring
  - Education
- Regular interaction/cooperation/sponsorship with local host community
  - Youth groups
  - Sports groups
  - Earth day
  - DEAC – Durham Environmental Action Committee
  - Municipality of Clarington
  - Waste fair and event sponsorship
- Interaction with Durham/York Waste Management departments
  - Works Committee
  - Solid Waste Management Committees

Environmental

- Stewardship programs
- Awards – Provincial/National/International awards
  - Engineering
  - Leadership
  - Stewardship
  - Community service
  - Recycling/diversion
  - Facility recognition

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- SWANA
- Safety
- Business partnering
- Etc.
  
- New innovative equipment/processes that are environmentally and economically beneficial to the facility operations
  
- As a leader in this industry we expect Covanta to be more current on technology advances and bring continuous process improvements to us for consideration
  - Increased metals recoveries
  - Glass or other materials
  - Approved use of bottom ash
  - Increased marketing of recovered materials
  
- Continuous improvement

37.10.3 The application of a positive adjustment to the Total Annual Operating Fee pursuant to **subsection 37.10.1** shall be in the Owner's sole discretion and shall not be subject to the provisions of **Article 28**. The application of a negative adjustment to the Total Annual Operations Fee pursuant to subsection **37.10.1** shall be subject to the provisions of **Article 28** in the event of a dispute.

37.10.4 deleted

37.10.5 In the event that the DBO Contractor operates the Facility in such a fashion which results in an actual net electrical production rate in excess of its Electrical Production Guarantees contained within the **Appendix 19**, then the Owner shall make a positive adjustment (the "Steam Generation Adjustment") to the Total Annual Operating Fee, based on an amount equal to (fifty percent (50%) of the then current rate paid to the Owner for each kwh generated by the Facility) x (quantity of Tonnes Processed) x (Quantity of kwh/tonne above the Electricity Production Guarantee in **Appendix 19**). The adjustment shall be made annually, if applicable.

37.10.6 Within sixty (60) days of the end of a given year, the Owner will provide the DBO Contractor with written notice of the Service Level Adjustment and the Steam Generation Adjustment to the Total Annual Operating Fee for a particular calendar year once it has been calculated by the Owner. The Service Level Adjustment shall be included as a credit or debit on the subsequent month's invoice.

**37.11 Fees All-Inclusive**

37.11.1 The fees, adjustments and costs payable by the Owner to the DBO Contractor under this **Article 37** shall be the all-inclusive consideration for the performance of the Operations Work, and the DBO Contractor shall make no claims for any additional

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fees, adjustments or costs or any contribution or reimbursement by the Owner, except as expressly provided in this Agreement.

**37.12 Taxes**

- 37.12.1 The Owner shall pay to the DBO Contractor, and the DBO Contractor shall collect from the Owner, any Goods and Services Tax or Harmonized Sales Tax which may be payable on the fees payable under this Agreement.
- 37.12.2 In the event of any change in the structure of any federal, provincial or local taxes applicable to the operation and maintenance of the Facility, including a change in the rate thereof, which imposes on either Party an increase or decrease in tax liability of one two-hundredth (1/200<sup>th</sup>) or more of the fees noted in **Article 37** payable under this Agreement in any calendar year, the Owner and the DBO Contractor shall promptly after implementation of such change, initiate discussions, negotiate and mutually agree on an amendment of this Agreement to accommodate the change, which may include a change in any of the fees noted in **Article 37** of this Agreement. In the event the Parties cannot mutually agree on the amendment of this Agreement within 90 days following the implementation of the tax change, either Party may refer the matter to arbitration under **Article 28**.

**37.13 Annual Reconciliation of By-pass Waste Transportation and Disposal**

- 37.13.1 DBO Contractor shall enter into such contracts or arrangements with waste hauling and disposal providers to transport and dispose of By-Pass Waste.
- 37.13.2 Within sixty (60) days of the end of each quarter during the term, DBO Contractor shall provide Owner with a reconciliation invoice setting forth (a) the amount owed by the Owner to DBO Contractor for By-pass Waste transportation and disposal attributable to Owner's account pursuant to **Appendix 34** and (b) reasonable documentation of the facts and circumstances by which the By-pass Waste was attributable to the Owner's account under the provisions of **Appendix 34**. Owner shall provide prompt written notice of dispute to DBO Contractor or shall pay such invoice within thirty (30) days of receipt.

**37.14 Reconciliation of Non-Processible Waste Costs**

- 37.14.1 DBO Contractor shall enter into such contracts or arrangements with waste hauling and disposal providers to collect, transport and dispose of non-processible waste described in **subsection 33.6.4**.
- 37.14.2 Within sixty (60) days of the end of each year during the term, DBO Contractor shall provide Owner with a reconciliation invoice setting forth (a) the total annual Throughput for such prior year, (b) the total amount of non-processible waste collected, transported and disposed of during the prior year pursuant to **subsection 33.6.4** and (c) the amount, if any, owed by the Owner to DBO Contractor for the direct

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costs, without mark-up of the collection, transportation and disposal of non-processible waste during the prior year pursuant to subsection 33.6.4 to the extent the quantity of such non-processible waste, when added to the quantity of Throughput for such year, exceeds 140,000 tonnes; provided such invoice shall be subject to reasonable Cost Substantiation of all related collection, transportation and disposal costs. Owner shall provide prompt written notice of dispute to DBO Contractor or shall pay such invoice within thirty (30) days of receipt.

- 37.14.3 Notwithstanding the provisions of **subsection 37.14.2**, beginning in the month in which the quantity of non-processible waste determined pursuant to **subsection 33.6.4**, when added to the quantity of Throughput for such year, exceeds 140,000 tonnes (such quantity, the “Bulky Threshold”) and for each month during such calendar year thereafter, DBO Contractor may commence monthly invoicing of Owner for the direct costs, without mark-up of the collection, transportation and disposal for (a) each tonne of such non-processible waste delivered subsequent to the attainment of the Bulky Threshold, and (b) each tonne of such non-processible waste delivered prior to the attainment of the Bulky Threshold for each tonne of Acceptable Waste delivered to the Facility subsequent to the attainment of the Bulky Threshold; provided such monthly invoices shall be subject to reasonable Cost Substantiation of all related collection, transportation and disposal costs. Owner shall provide prompt written notice of dispute to DBO Contractor or shall pay such invoice within thirty (30) days of receipt.

**ARTICLE 38**  
**INVOICING AND PAYMENT**

**38.1 DBO Contractor’s Invoices**

- 38.1.1 The DBO Contractor shall provide to the Owner within the first fourteen (14) days of each calendar month during the Term, an invoice setting out the following amounts as separate line items
- (a) the Monthly Operating Fee under **subsection 37.3**, as applicable, for the preceding month;
  - (b) the net revenue shared under **subsection 37.8** applicable to the preceding month including Cost Substantiation;
  - (c) any taxes applicable to the preceding month;
  - (d) all amounts to which the DBO Contractor is entitled as a result of Change Orders or Approved Change Requests during the preceding month; and
  - (e) any other applicable adjustments as outlined in **Article 37** (Cost Substantiation shall be applicable to all items in **subsection 37.6.1(d)**);

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The DBO Contractor shall issue only one invoice per month to the Owner. Any fees, adjustments or costs incurred during or otherwise attributable for a particular month but not appearing on that month's invoice will appear on the following month's invoice as a separate line item.

- 38.1.2 The DBO Contractor shall provide to the Owner within sixty (60) days of the end of the previous calendar year, an accounting of setting out the following amounts as separate line items:
- (a) the amount of Delivered Waste and the amount of any Throughput in Excess of 140,000 Tonnes over the calendar year and the corresponding payment required in accordance with **subsection 37.4** or **subsection 37.5**, as required;
  - (b) any cumulative adjustment to the Aggregate Monthly Operating Fee based on the cumulative results of the performance adjustments in accordance with **subsection 37.9.2** and **subsection 37.10.2**, and the corresponding payment required.

The items identified in **subsection 38.1.2(a) and (b)** shall be included as a credit or debit upon the subsequent month's invoice after receipt of the accounting as per **subsection 37.9.5 and 37.10.4**.

**38.2 Payment of Fees**

- 38.2.1 The Owner shall remit the fees calculated under **subsection 38.2.1** to the DBO Contractor within forty-five (45) days of receipt of the invoice.
- 38.2.2 Except as otherwise provided in **Article 37**, in the event that any amount claimed by the DBO Contractor under **subsection 38.1** is disputed by the Owner, the matter shall be resolved in accordance with the dispute resolution mechanism set out in **Article 28**, provided that any amount not in dispute shall be paid by the Owner.

**38.3 Charges to DBO Contractor**

- 38.3.1 Any amounts charged to the DBO Contractor under the terms of this Agreement shall be paid by the DBO Contractor to the Owner on demand and may be deducted by the Owner from any monies due or to become due to the DBO Contractor under this Agreement and may be recovered by the Owner from the DBO Contractor.



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**ARTICLE 39**  
**RECORDS AND INSPECTION**

**39.1 Record Keeping**

- 39.1.1 In addition to any requirements regarding record keeping stipulated in any Authorization, the DBO Contractor shall maintain throughout the Term, complete and accurate records of all information and data (whether in electronic or hard copy form including computer data bases) relating to all aspects of the operation and maintenance of the Facility, including the information and data to be reported to the Owner under **Article 36** and operations and maintenance log books setting out irregular operating conditions. The DBO Contractor shall provide to the Owner or any designate of the Owner reasonable access to all records in a read-only format on a real time basis and provide copies of any such information and data upon request, including, without limitation, those pertaining to:
- (a) weigh scale information, Throughput, quantity of Delivered Waste;
  - (b) Facility security system reports and video surveillance;
  - (c) energy production and sales;
  - (d) utility usage at the Facility;
  - (e) environmental aspects of the Facility, including CEM data;
  - (f) ash treatment and disposal and metal removal processes; and
  - (g) any other aspects of the operation and maintenance of the Facility.
- 39.1.2 The DBO Contractor shall keep and maintain all records required under this Agreement at the Facility or at a secure storage facility for the Term, except that:
- (a) security system tapes may be re-used after a minimum period of sixty (60) days;
  - (b) operations and maintenance log books shall be kept at the Facility permanently;  
and
  - (c) continuous maintenance monitoring system databases shall be continuously backed up and a copy kept on site.
- 39.1.3 The DBO Contractor shall not destroy any records without the prior written consent of the Owner.

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**39.2 Drawings**

39.2.1 The DBO Contractor shall ensure all as-built drawings in AutoCAD 2004 format (or other format acceptable to the Owner) certified by a Professional Engineer or Architect for the Facility are complete and up-to-date at all times and available in a read-only format accessible by the Owner in real time, including revisions to the appropriate drawing specifications and/or procedures showing all physical changes to the Facility following completion of any construction, reconstruction or modification at the Facility. The drawings shall be updated as necessary. The DBO Contractor shall provide to the Owner four (4) copies of each new drawing or revision to such drawings promptly upon preparation thereof.

**39.3 Inspection of the Facility**

39.3.1 The DBO Contractor shall permit the Ministry of the Environment, the Owner and its employees, servants, directors, agents and designees (“Inspectors”) to inspect the Facility at any time during the Term, upon reasonable notice at such time or times as are reasonably agreed upon by the Owner and the DBO Contractor. Any claim for reasonable compensation for the substantiated impact on the DBO Contractor’s time and cost for performance of the Work shall be determined in accordance with **subsection 15.1** For the sake of greater clarity, at no time shall the DBO Contractor be entitled to compensation for any impact on its time and performance of the Work resulting from the inspections by the Ministry of the Environment or any other government regulator. The DBO Contractor shall cooperate with the Owner in the performance of any such inspection, including the provision of adequate work space, power, labour and such other assistance as the Owner may reasonably require. Without limiting the generality of the foregoing, the DBO Contractor shall permit the Owner to conduct inspections of the Facility at regular intervals throughout the Term to inspect the Facility and review and make such copies of documents as may be reasonably necessary to assess the DBO Contractor’s compliance with the terms and conditions of this Agreement.

39.3.2 In the exercise of its rights and powers of inspection of the Facility, the Owner shall:

- (a) ensure that its Inspectors fully comply with the site access and safety protocols of the DBO Contractor; and,
- (b) exercise reasonable efforts in the conduct of such inspections so as not to unreasonably interfere with the work of the DBO Contractor.

**39.4 Audits**

39.4.1 The Owner may, at its discretion, cause to be conducted an audit of all of the DBO Contractor’s financial records and other information regarding the performance of its obligations under this Agreement, including, without limitation, records required to confirm the amount of any payments under **Article 38**, on the first anniversary of the

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execution of this Agreement and thereafter with such frequency as the Owner may in its discretion determine, not to exceed twice per year. The DBO Contractor shall cooperate in the conduct of any such audit. All audits shall be conducted by such internationally recognized firm of chartered accountants as may be selected by the Owner in its discretion, and may include a written opinion to the Owner as to the matters referred to herein. The Owner will cover the cost of each audit conducted under this section. Notwithstanding the foregoing, the DBO Contractor shall not be required to disclose through audit examination or otherwise that information that is proprietary from a financial perspective, nor any financial records or other information regarding amounts payable by the Owner under this Agreement that are priced on a fixed or lump sum basis, save as may be otherwise specifically required under this Agreement.

**ARTICLE 40**  
**CHANGES TO THE OPERATIONS WORK**

**40.1 Performance of Extra Work**

- 40.1.1 If the Owner requires or the DBO Contractor requests a change in respect of the Operations Work they shall utilize the procedures in **Article 15** with respect to Change Orders or Change Requests.

**ARTICLE 41**  
**CAPITAL IMPROVEMENTS**

**41.1 Capital Improvements Required by Owner**

- 41.1.1 The Owner may provide for the construction or installation of any Capital Improvements to the Facility, in which case the Owner may construct or install the Capital Improvement itself, or through a third party contractor or the Owner may direct the DBO Contractor to construct or install the Capital Improvement(s), in which event the DBO Contractor shall, if requested, provide an estimate and time frame for such work within such time as is mutually agreed upon. Such Capital Improvements may include an expansion of the Facility.
- 41.1.2 Where the Owner is considering a Capital Improvement to the Facility, the DBO Contractor shall, if requested, at a cost to be agreed upon by the Owner and the DBO Contractor, both acting reasonably, provide an assessment of:
- (a) the effect, if any, of such Capital Improvement(s) on the DBO Contractor's performance standards;
  - (b) the anticipated adjustment, if any, to the Total Annual Operating Fee for operation and maintenance of the Capital Improvement(s); and

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- (c) any and all cost savings resulting from the implementation of any Capital Improvement(s).
- 41.1.3 The DBO Contractor may propose the construction or installation of any Capital Improvements to the Facility:
- (a) provided that each such proposed Capital Improvement does not adversely affect the Facility and its performance in any manner and does not impair the DBO Contractor's ability to fulfill any of its obligations or meet any of the Performance Guarantees or Performance Requirements under this Agreement by providing the Owner with a written proposal setting out the full details and specifications of the proposed Capital Improvement, including:
- (i) the full details and specifications of the proposed Capital Improvement(s) including the benefits of the Capital Improvement(s) (including environmental benefits, financial savings, and increased plant efficiency);
- (ii) a firm price quotation, and whether it is proposed that the Owner pay all, part, or any, of the cost of the Capital Improvement(s);
- (iii) a schedule for the construction and completion of the Capital Improvement(s).
- 41.1.4 All Capital Improvements proposed by the DBO Contractor hereunder shall be subject to the prior written approval of the Owner and under no circumstance shall any such Capital Improvement(s) be commenced or implemented without such written approval.
- 41.1.5 The Owner and the DBO Contractor shall work together to determine the course of action and costs associated with implementing any Capital Improvement(s) required by the Owner or approved by the Owner under this **Article 41**. The impact of any such Capital Improvement(s) performed by the Owner or a third party on the DBO Contractor shall be determined in accordance with **Article 15**, Changes.
- 41.1.6 Where the Owner implements a Capital Improvement(s) under **subsection 41.1** by itself or through a third party contractor, the DBO Contractor shall cooperate with the Owner or the third party contractor, as the case may be, in the construction and installation of the Capital Improvement(s). The Owner shall exercise reasonable efforts to ensure that the third party Contractor or the Owner's own forces, as the case may be, do not unreasonably interfere with the performance of the DBO Contractor's obligations. Any claim for reasonable compensation for the substantiated impact on the DBO Contractor's time and cost for performance of the Work shall be determined in accordance with **subsection 15.1**.

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41.1.7 The Owner may request the DBO Contractor to provide an assessment of the extraction of more than 7.4 MW (thermal) from the Facility. Said assessment shall at a minimum include:

- (a) the effect, if any, of such extraction on the DBO Contractor's performance standards or other contractual rights or obligations;
- (b) the anticipated adjustment, if any, to the Total Annual Operations Fee;
- (c) the full details and specifications of the proposed extraction;
- (d) a firm price quotation for the implementation of any work necessary to effect the extractions; and
- (e) a schedule for the construction and completion of any work required in order to implement said extraction.

Only upon the agreement of the parties will such extraction in excess of 7.4MW (thermal) be implemented.

**ARTICLE 42**  
**OPERATIONAL PERFORMANCE REQUIREMENTS**

**42.1 Facility Operation Requirement**

42.1.1 The DBO Contractor shall, at all times during the Term:

- (a) operate the Facility so that any processing line operates a minimum of seven thousand eight hundred eighty-four (7,884) hours in a 12 month period. Outages shall not be scheduled on both lines at the same time unless previously approved by the Owner in accordance with **subsection 33.10**.
- (b) process at the Facility all Acceptable Waste delivered to the Facility; and ,
- (c) meet or exceed the Performance Guarantees; provided, however that such failure in and of itself does not constitute a breach of contract to the extent the DBO Contractor is paying the applicable Liquidated Damages.

**42.2 Energy Recovery Requirement**

42.2.1 The DBO Contractor shall, at all times during the Term, except during any Normal Start-up and Shutdown or any Emergency Shutdown, operate the Facility in an efficient manner so as to maximize the production of energy and meet the electricity production guarantee contained within the Performance Guarantees.

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**42.3 Compliance with Laws and Regulations Requirement**

42.3.1 The DBO Contractor shall, at all times during the Term, operate and maintain the Facility in full compliance with all legal instruments, by-laws, Laws and Regulations.

**42.4 Environmental Requirement**

42.4.1 Without limiting the generality of **subsection 42.3**, the DBO Contractor shall, at all times:

- (a) operate and maintain the Facility in full compliance with all Environmental Laws and Regulations; and
- (b) implement and maintain an environmental management system at the Facility and consistent with the ISO 14001:2004 standard or such updated standard as may be amended from time to time, and provide Owner with External Auditor's report on the Environmental Management System performance on a bi-annual basis.

**42.5 Bottom Ash Requirement**

42.5.1 The DBO Contractor shall, at all times during the Term, ensure that all Bottom Ash produced by the Facility contains no more than three percent (3%) combustibles on a dry weight basis. This shall be determined using a method determined by the Owner notwithstanding the quality of the Acceptable Waste processed at the Facility.

**42.6 Fly Ash Requirement**

42.6.1 The DBO Contractor shall prepare a contingency plan for any breach or failure to comply with these provisions.

42.6.2 DBO Contractor shall transport and dispose of fly ash in accordance with **subsection 34.3** and all Environmental Laws and Regulations.

**42.7 Breaches of Requirements**

Upon receiving notice by telephone, or written notice by facsimile transmission, electronic mail or delivery, from the Owner (notice by telephone to be confirmed promptly thereafter by written notice) that there is a breach of any of the requirements set out in **subsection 42.1, 42.2, 42.3, 42.4, 42.5** or **42.6** the DBO Contractor shall immediately commence and thereafter diligently and in good faith continue to completion, the curing of the breach in a manner and within a time frame approved by the Owner. Without limiting the generality of the foregoing, in the event of a breach of **subsection 42.4.1(a)**, the DBO Contractor shall immediately implement any changes, modifications or additions to the Facility as may be necessary to cure the breach;

42.7.1 The DBO Contractor shall pay any fines, penalties or other costs and expenses which may be levied against or incurred by the DBO Contractor or the Owner as a result of any breach of the requirements set out in **subsection 42.1, 42.2, 42.3, 42.4, 42.5** or

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**42.6**, except to the extent directly attributable to Owner Fault in which case such fines, costs or expenses shall be to the Owner's account.

- 42.7.2 A breach or failure to comply with the provisions set out in this **subsection 42.7** for curing any breach of the provisions of **subsection 42.1, 42.2, 42.3, 42.4, 42.5** and **42.6** will entitle the Owner to exercise the remedies set out in **Article 26**.

**ARTICLE 43**  
**REPRESENTATIONS AND WARRANTIES**

**43.1 Representations and Warranties**

- 43.1.1 The DBO Contractor shall pay or remit promptly, as and when they become due, any and all accounts for labour (including Workers' Compensation Assessments, Unemployment Insurance Assessments and wage and salary deductions required by law including those for federal and provincial income taxes and benefits), services, Equipment, and machinery and equipment used by it in performing the Work, and all other amounts for which it is liable to third parties in connection with the Work, and all taxes required by law to be paid in relation thereto. The DBO Contractor shall provide a statutory declaration of payment of such accounts, to the Owner upon request by the Owner.
- 43.1.2 The DBO Contractor shall effect the release from title of any construction lien or other lien arising from the Equipment and Work that is registered or filed against the Facility Lands, forthwith upon receipt of notice of any such lien or otherwise becoming aware of any such lien and no payment under this Agreement shall become due and payable until all such liens are released and discharged. For greater clarity, the DBO Contractor's obligation to release a construction lien or other lien from title under this **subsection 43.1.2** shall not require the DBO Contractor to make payment to any lien claimant where the DBO Contractor disputes such claimant's lien, provided the DBO Contractor has posted a lien bond or furnished other security in respect of the lien and has obtained and registered in the appropriate Land Title Office a registrable release from title of the construction lien or other lien issued by the court or the lien claimant. The DBO Contractor shall provide sufficient proof of the release of any such liens to the Owner upon request by the Owner.

**ARTICLE 44**  
**HANDBACK REQUIREMENTS**

**44.1 Facility Condition**

- 44.1.1 On the Expiry Date, the Facility and each element comprising the Facility will be in a condition which is:

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- (a) consistent with the Facility and each of its elements having been designed and constructed in accordance with the Technical Requirements, this Agreement and the Laws and Regulations; and
- (b) consistent with the DBO Contractor having performed the Operations Work and having maintained the Facility in accordance with the Technical Requirements, this Agreement and the Laws and Regulations, all as is more particularly described in **Appendix 27**, Handback Requirements.

**44.2 Handback Survey**

- 44.2.1 In conjunction with the preparation of the Annual Service Plan for the year commencing three (3) years prior to the Expiry Date, the Owner and the DBO Contractor will conduct a joint inspection and survey of the Facility (the “Handback Survey”).
- 44.2.2 If the Handback Survey indicates that any element of the Facility will not be in a condition consistent with the Handback Requirements upon the DBO Contractor implementing the Plans over the remainder of the Term, within sixty (60) days of the completion of the Handback Survey, the DBO Contractor will deliver to the Owner’s Representative a proposal as to the maintenance or other works required to be carried out to satisfy the Handback requirements (the “Handback Works”) and the DBO Contractor’s plan for carrying out such Handback Works.
- 44.2.3 Upon approval by the Owner of the DBO Contractor’s proposal for carrying out the Handback Works, the DBO Contractor shall:
  - (a) within ten (10) Business Days of receiving the Owner’s approval of its proposal, deliver to the Owner a letter of credit in favour of the Owner issued by a financial institution listed on Schedule 1 of the *Bank Act*, securing the performance of the Handback Works, in an amount equal to the estimated value of the Handback Works. The letter of credit shall be renewable annually for the period which expires no sooner than one year after the Expiry Date. The Owner may draw upon the letter of credit and hold and/or apply the proceeds therefrom in the event that the DBO Contractor fails to renew the letter of credit and provide the Owner with a copy of same within thirty (30) days prior to the expiry of its term;
  - (b) at its own cost and expense, carry out the Handback Works in accordance with the approved proposal, notwithstanding that the actual cost of the Handback Works might exceed the estimated value of the Handback Works;
  - (c) be at liberty to substitute reduced security for the letter of credit delivered in accordance with **subsection 44.2.3(a)** in the event that some portion of the Handback Works has been performed to the satisfaction of the Owner, providing that the reduction in the quantum of the security shall be on a dollar for dollar basis, not to exceed the agreed value of the completed Handback Works; and



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- (d) Without prejudice to any of its rights or remedies under this Agreement, the Owner shall be entitled to draw on the security set forth in **subsection 44.2.3(a)** in the event that the DBO Contractor fails to perform any of its obligations in respect of the Handback Works, and the Owner either incurs costs, damages or expenses or reasonably believes that it will incur costs, damages or expenses as a result of any such failure.

**ARTICLE 45**  
**GENERAL**

**45.1 Non-Disclosure**

- 45.1.1 Subject to the provisions and disclosure requirements of any applicable legislation, any disclosure required by law or any disclosure required in the course of enforcement or arbitration proceedings, or any disclosure permitted hereunder, no public disclosure by the DBO Contractor of any kind shall be made or permitted in respect of this Agreement or the subject matter hereof without consultation with and the consent of the Owner (such consent not to be unreasonably withheld). Any press release to be issued by the DBO Contractor, relating to this Agreement, its subject matter or any agreement or transaction contemplated herein shall be in form and substance as mutually agreed upon by the Owner and the DBO Contractor. The DBO Contractor shall not permit any public announcement or ceremony in connection with the Facility or the Work without the prior approval of the Owner.

**45.2 Notice**

- 45.2.1 All notices and approvals required or permitted by this Agreement shall be in writing and delivered personally or by courier or sent by telecopier to:

- (a) in the case of the Owner, at:

Address:           The Regional Municipality of Durham,  
605 Rossland Road E.,  
Whitby Ontario L1N 6A3  
Fax: (905) 668-2051  
Attention: Commissioner of Works

- (b) in the case of the DBO Contractor, to it at:

Address:           Covanta Durham York Renewable Energy Ltd.  
445 South Street,  
Morristown, NJ 07960  
Fax: (862) 345-5000  
Attention: General Counsel

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or at such other address or fax number of which the addressee may from time to time have notified the addressor. A notice shall be deemed to have been sent and received on the day it is delivered personally or by courier or on the day on which transmission is confirmed, if telecopied. If such day is not a Business Day or if the notice is received after ordinary office hours (time of place of receipt), the notice shall be deemed to have been sent and received on the next Business Day.

**45.3 Costs**

45.3.1 Except as otherwise provided in this Agreement, each Party shall be responsible for its own fees, expenses, and other costs incurred in connection with carrying out its obligations under this Agreement.

**45.4 Time of the Essence**

45.4.1 Time is of the essence of every provision of this Agreement. Extension, waiver or variation of any provision of this Agreement shall not be deemed to affect this provision and there shall be no implied waiver of this provision.

**45.5 Further Acts**

45.5.1 The Parties shall do or cause to be done all such further acts and things as may be reasonably necessary or desirable to give full effect to this Agreement. Without limiting the foregoing, the DBO Contractor will at any time and from time to time execute and deliver or cause to be executed and delivered such further instruments and take such further actions as may be reasonably requested by the Owner in order to cure any defect in the execution and/or delivery of this Agreement.

**45.6 Laws and Regulations**

45.6.1 This Agreement shall be governed by the laws of the Province of Ontario and the laws of Canada applicable therein. Each Party hereby irrevocably attorns to the exclusive jurisdiction of the courts of the Province of Ontario.

**45.7 Amendment**

45.7.1 This Agreement may be amended only by written agreement of the Parties.

**45.8 Waiver**

45.8.1 No waiver of any provision of this Agreement shall be binding unless it is in writing. No indulgence or forbearance by a Party shall constitute a waiver of such Party's right to insist on performance in full and in a timely manner of all covenants in this

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Agreement. Waiver of any provision shall not be deemed to waive the same provision thereafter, or any other provision of this Agreement at any time.

**45.9 Entire Agreement**

45.9.1 This Agreement, the Appendices attached to this Agreement and the agreements contemplated herein or therein constitute the entire agreement among the Parties pertaining to all the matters herein. This Agreement, the Appendices attached to this Agreement and the agreements contemplated herein or therein supersede all prior agreements, understandings, negotiations, representations and discussions, whether oral or written, of the Parties, including the Request for Proposals and the Proposal Response.

**45.10 Severability**

45.10.1 If any provision of this Agreement or portion thereof or the application thereof to any person or circumstances shall to any extent be invalid or unenforceable,

- (a) the remainder of this Agreement or the application of such provision or portion thereof to any other person or circumstance shall not be affected thereby; and
- (b) the Parties hereto will negotiate in good faith to amend this Agreement to implement the intentions set forth herein. If the Parties cannot agree on an appropriate amendment, either Party may refer the matter for determination pursuant to and in accordance with **Article 28**. Each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

**45.11 Counterparts**

45.11.1 This Agreement may be executed in one or more counterparts which, together, shall constitute one and the same Agreement. This Agreement shall not be binding upon any Party until it has been executed by each of the Parties and delivered to all other parties.

**45.12 Assignment**

45.12.1 The DBO Contractor shall not sell, convey, charge, mortgage, hypothecate, pledge, encumber, assign, transfer or otherwise dispose of whether by operation of law or otherwise (collectively, a "Transfer") any of its interest, in whole or in part, in and to the Work, this Agreement, the Contract Documents, and/or any other document, agreement or instrument relating to any of the foregoing, without the prior approval of the Owner, which approval may be arbitrarily withheld. A change in the shareholders of or shareholdings in the DBO Contractor (either in fact or in law), shall not be deemed to be a Transfer which shall be subject to the foregoing provision. If the DBO Contractor is or becomes a public company or if a transferee that has been approved is

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a public company, a Transfer of less than five percent (5%) of the shares of such public company shall not be a Transfer for the purposes of this Agreement.

- 45.12.2 Other than as may be required as a result of the assignment of the Owner's responsibilities to a municipal business corporation, municipal service board or commission, another municipality or other governmental agency or body which assumes, or is delegated, responsibility for the waste management functions currently exercised by the Owner, the Owner shall not sell, convey, charge, mortgage, hypothecate, pledge, encumber, assign, transfer or otherwise dispose of whether by operation of law or otherwise (collectively, a "Transfer") any of its interest, in whole or in part, in and to the Work, this Agreement, the Contract Documents, and/or any other document, agreement or instrument relating to any of the foregoing, without the prior approval of the DBO Contractor, which approval may not be unreasonably withheld. The Owner shall be released from its obligations hereunder to the extent that same have been assigned in accordance with the foregoing provisions of this subsection to an assignee having substantially the same or better credit as the Owner and which assignee assumes in a written instrument delivered to the DBO Contractor all of the duties, obligations and liabilities of the Owner arising under this Agreement.

**45.13 Enurement and Binding Effect**

- 45.13.1 This Agreement shall enure to the benefit of the Parties hereto and their respective permitted successors and assigns and be binding upon the Parties hereto and their respective successors and assigns.

**45.14 Ownership and Copyright**

- 45.14.1 The Data, all licenses and applicable instruments related to clear ability to use all processing equipment solely at the Facility, including all Intellectual Property Rights therein, shall enure to the benefit of the Owner with full, absolute and unencumbered rights thereto. In the alternative, the DBO Contractor shall, at no cost to the Owner, grant, sub-license to or otherwise obtain an irrevocable, perpetual, non-exclusive, royalty-free license and covenant of assurance from any licensor of Intellectual Property utilised in the Work in favour of the Owner. Said license and covenant of assurance shall ensure access to the Owner to the technology, any improvements thereon, parts and equipment from the licensor for so long as the Facility is operated. The DBO Contractor shall execute and deliver for no additional consideration all such transfers, assignments, deeds and other conveyances as the Owner may require to give effect to the foregoing, including for the assignment of all applicable Intellectual Property Rights, and the waiver of all applicable moral rights by all individuals involved in the preparation of such Data.

**45.15 Intellectual Property Rights**

- 45.15.1 Intellectual Property Rights

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- (a) The DBO Contractor shall not use in the performance of this Agreement or incorporate into the Work any concepts, products or processes or other inputs which are subject to the Intellectual Property Rights of any third party unless the DBO Contractor has, or will procure through licensing without cost to the Owner, the right to use and employ solely at the Facility such concepts, products and processes or other inputs in the Work on a royalty-free, irrevocable, perpetual, non-exclusive basis for Owner and its successors and assigns. The DBO Contractor represents, warrants and covenants that the Work will not breach the Intellectual Property Rights of any third party, nor require the payment of any royalty or other payment by the Owner.
- (b) For more clarity, but without limiting any other term of this Agreement, the DBO Contractor hereby represents, warrants and covenants that the Owner shall have all rights solely at the Facility to complete, operate, maintain, modify, extend or alter the Work or any portion thereof, including without limitation to use for any other contract awarded in relation to the Work, or any other contracts in the future if the Work is cancelled, suspended or postponed without any further authorization from the DBO Contractor.
- (c) The DBO Contractor shall deliver to the Owner one copy of the final versions of all drawings produced in connection with the Work. All drawings and all documents which are produced by CAD or computer, or which are otherwise in a form which can readily be input into a CAD program or word processing program, shall also be provided to the Owner in such form and on such electronic or magnetic medium as the Owner may reasonably require.

**45.16 Language**

- 45.16.1 This Agreement is drawn in English at the request of all Parties hereto. Ce contrat est rédigé dans la langue anglaise à la demande de toute les Parties.

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IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the date and year first above written.

THE REGIONAL MUNICIPALITY OF  
DURHAM:

By: \_\_\_\_\_  
Name:  
Title:

THE REGIONAL MUNICIPALITY OF  
YORK

By: \_\_\_\_\_  
Name:  
Title:

COVANTA DURHAM YORK  
RENEWABLE ENERGY LTD.:

By: \_\_\_\_\_  
Name:  
Title:

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APPENDIX 1  
TECHNICAL REQUIREMENTS



**REQUEST FOR PROPOSALS TO DESIGN, BUILD,  
OPERATE AND MAINTAIN AN ENERGY FROM WASTE  
FACILITY**

**APPENDIX 1 TO PROJECT AGREEMENT**

**TECHNICAL REQUIREMENTS**

**ISSUED BY THE REGIONAL MUNICIPALITY OF DURHAM  
AND  
THE REGIONAL MUNICIPALITY OF YORK**



**REGIONAL MUNICIPALITIES OF DURHAM AND YORK**  
**APPENDIX '1' TO PROJECT AGREEMENT - TECHNICAL REQUIREMENTS REVISION 1**

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**TECHNICAL REQUIREMENTS**

**1.0 GENERAL REQUIREMENTS**

This section provides a general overview description of key elements of the Work. The information contained in this section is general in nature and is provided solely for the convenience of the Design Build Operator (DBO) Contractor and in no way limits the responsibilities or obligations of the DBO Contractor for compliance with all requirements of the Contract Documents.

**1.1 Project Objectives**

The Regions of Durham and York (the Regions) are undertaking the Work of this project to achieve a fully functional and long-term operating energy from waste facility to fulfil the requirements of these technical specifications.

The Contract Documents generally describe the requirements for the Work from a performance basis. DBO Contractor is responsible to complete the work of the project to design, construct, operate and maintain a fully functional energy from waste facility in accordance with the Contract Documents. DBO Contractor's responsibilities include provision of all project management, professional engineering, technical and other services, supervision, labour, materials, transportation, plant and equipment, temporary facilities, spare parts, consumables and incidentals as may be necessary, whether explicitly specified in the Contract Documents or implicitly required to meet the objectives of the Project.

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**2.0 GENERAL DESCRIPTION**

These technical requirements cover the design, construction, start-up, testing and operation of a state-of-the-art mass burn energy from waste (EFW) Facility utilizing the Regions’ residual municipal waste as fuel. The Facility will be capable of processing the Regions’ municipal residual waste up to a guaranteed initial processing rate of 140,000 tonnes per year, with short-term expansion capabilities for processing an additional minimum 110,000 tonnes per year, and an ultimate total processing capacity of 400,000 tonnes per year. All processing rates assume a guaranteed availability of 90% (or 15,768 unit hours per year).

The following table summarizes the throughput requirements for the base facility and expansions:

	<b>Annual throughput at 90% Availability</b>	
	Tonnes per year	Tonnes per day (tpd)
Base Facility	140,000	436
First Expansion	Minimum 110,000	335
Full Expansion	150,000	457
Base+ First	250,000	761
Fully Expanded	400,000	1,218

The Facility must be capable of processing municipal solid waste with HHV in the range of 11 MJ/kg to 15 MJ/kg. DBO Contractor will size the Facility to operate continuously at a minimum processing rate of 436 tpd of municipal solid waste based on an average waste HHV of 13 MJ/kg, which will be the DBO Contractor’s guaranteed initial phase processing rate. Besides providing a safe and environmentally acceptable method of waste disposal, this Facility is to efficiently generate electrical power as well as have the capability to provide hot water for a future district energy system. These technical requirements discuss the minimum technical requirements and provide background information to be used as the basis for the design of the proposed Facility.

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The DBO Contractor will design, construct, start up, test, and operate the Facility in accordance with these Technical Requirements and the Project Agreement. The DBO Contractor will provide a dual line system (2 x 218 tpd) that satisfies these Technical Requirements, including the capability to accommodate implementation of future district heating. The Facility will be designed to have expansion capability for a single additional minimum 110,000 tonne per year line. The DBO Contractor's Facility will include all equipment accessories, structures, items and appurtenances necessary for a complete and operational Facility with expansion capabilities.

It is anticipated that the first future expansion will take the Facility's total processing capacity to a minimum of two hundred and fifty thousand (250,000) metric tonnes per year. The ultimate processing capacity of four hundred thousand (400,000) metric tonnes is a long-term estimate for the purposes of completing the environmental assessment and should not be treated as a reflection of the Region's anticipated waste processing requirements during the initial term of the DBO Contract.

The Facility will include all equipment accessories, structures, items and appurtenances necessary for a complete and operational Facility with expansion capabilities. The Facility's will be designed with state-of-the-art air pollution control equipment capable of complying with the **most stringent of the Province of Ontario's Air Emission Requirements and the European Union, as** set forth in Exhibit 2 of Appendix 19 to the Project Agreement.

The DBO Contractor will offer equipment of a design, size, and type which meet the experience requirements specified in these Technical Requirements and which are adequate to meet the DBO Contractor's Performance Guarantees.

The requirements established herein are the minimum prescribed requirements and are not intended in any way to be all-inclusive or in any way to limit design margins which the DBO Contractor may wish to apply. The DBO Contractor is solely responsible for the design of this Facility. Nothing contained in these Technical Requirements or any subsequent reviews or approvals will change this responsibility. The Regions reserve the right to reject any design or

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operational alternatives submitted by the DBO Contractor that are not in compliance with the Project Agreement or these Technical Requirements.

Multiple stages of feedwater heating, reheat and other efficiency enhancements are encouraged .

All equipment and materials must be new and unused and must, at the minimum, comply with generally accepted industry standards.

The minimum design useful life of the Facility will be thirty (30) years.

The Facility will be designed to be a ZERO WASTEWATER DISCHARGE Facility, with the exception of the Facility's sanitary uses that will be discharged to the regional Water Pollution Control Plant (WPCP); therefore, all process water\_\_discharges, are required to be recycled/reused.

The DBO Contractor will provide a completely functional Facility. The Facility will be designed using an "independent unit system" approach with sufficient redundancy in subsystem equipment to minimize unscheduled outages.

(NOTE: Annual average availability is defined in the Project Agreement.)

During any calendar year, the DBO Contractor will guarantee a minimum annual Facility processing capacity of 140,000 tonnes of municipal solid waste per year based on an average higher heating value of 13.0 MJ/kg. The Facility will be capable of processing input waste having higher heating values within the range of 11 to 15 MJ/kg.

The Facility will include two (2) identical, equally-sized, independently operable chute to-stack systems, including furnaces/boilers, pollution control equipment, auxiliaries such as fans and pumps, a Continuous Emissions Monitoring System (CEMS) and a common stack that meets the environmental and performance of the Project Agreement and these Technical Requirements.



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The Facility will contain one electrical power generation system consisting of one turbine/generator set, switch gear and a steam bypass and dump system. The turbine will be designed to maximize electrical output. The DBO Contractor will design for the future capability to provide hot water to meet the future district heating requirements of the Clarington Energy Park and the Courtice WPCP as described in Section 8.18.2 of these Technical Requirements - Future District Heating Capability. The Clarington Energy Park is in the planning stages and therefore the potential exists to build a district heating/cooling system into the development of the Park. The potential future energy demands of the Park are included in Section 8.18.2. The ability to accept thermal energy in the form of hot water or steam was incorporated into the design of the Courtice WPCP. The Courtice WPCP hot water requirements can also be found in section 8.18.2.

Interconnection for net power sales will be with Hydro One. Normal station power will be self generated. (i.e. the Facility may not operate on a buy gross - sell gross power basis.) Back up station power, if purchased, may be purchased from the grid through the Hydro One interconnection.

At a minimum, the Facility will be designed with a back-up power system to allow for a safe shutdown of the Facility in an emergency situation. The Facility will be designed to meet applicable Regional, local and Provincial codes and standards in addition to all fire and safety codes. The DBO Contractor is responsible for contacting the proper authorities to determine code requirements. Applicable handicapped access requirements as determined by all applicable laws and standards will be incorporated into the design of the Facility administration building and visitor center at the Facility. The DBO Contractor will submit a safety plan which satisfies all applicable safety codes and standards.

The DBO Contractor will provide costs for furnishing and installing all utilities (Gas, Electric, Water, Sewer) on site and extending to the Gas, Water and Sewer interface connection locations at the North-eastern border of the property boundary. All utilities will be designed for the ultimate Facility processing size (400,000 tonnes per year).

**3.0 FACILITY DESCRIPTION**

**3.1 Facility Description**

Refer to Section 2 of these Technical Requirements for background information for the general Facility Description.

**3.2 Acceptable Equipment Manufacturers**

Where a manufacturer is specified for a particular system or piece of equipment in these Technical Requirements, the DBO Contractor may propose an "equal", however, all substituted "equals" are subject to the approval of the Regions and such approval will not be unreasonably withheld. The following is a list of Acceptable Manufacturers by equipment:

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### **3.3 Operation and Turndown**

The furnace/boiler combustion units will be normally operated at unit Maximum Continuous Rating (MCR); however, they must be capable of operating at a Maximum Continuous Turndown (MCTD) point, safely and for extended periods, without supplemental fuel firing. The MCTD is 80% of the MCR heat input. The boiler will be designed to maintain superheater outlet temperature under medium fouled conditions at 80% of MCR heat input.

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**4.0 GENERAL DESIGN AND OPERATING CONDITIONS**

**4.1 General Design Requirements**

Each unit will be designed such that the sum of the units refuse fuel feed rates equals or exceeds the MCR Load as defined in Exhibit 2 of Appendix 19 to the Project Agreement.

Each unit will be designed to satisfy all of the air emission guarantees shown in Exhibit 2 of Appendix 19 to the Project Agreement.

The Facility will be designed such that, aside from periods of scheduled and forced outages including shutdown and start-up and provided the availability of sufficient quantities of processible waste, the Facility will operate continuously at the rates equal to or exceeding the rates specified in Exhibit 2 of Appendix 19 to the Project Agreement. The Facility will be capable of processing waste having heating values within the range of 11-15 MJ/kg.

**4.2 Site Design Conditions**

Ambient design conditions will conform to local climatology. Equipment and systems will be required to stop, stand-by without operating for extended periods, start and function without harm at the maximum and minimum ambient conditions. Systems need be designed based on the design ambient temperatures. The maximum and minimum ambient temperatures will be used to determine criteria for equipment protection (e.g., freeze protection and ambient operating temperature limits, etc.) while the design temperatures will be used to establish sizes and capacities of equipment.)

**4.3 Fuel Analysis**

The fuel supply will be processible waste delivered by or on behalf of the Regions. processible waste will be as delivered or as received at the Facility and the DBO Contractor will use their experience to establish their design.

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The HHV value 13.0 MJ/kg will be used as the design value for the MCR capacity of the Facility and its individual furnace/boiler processing lines (i.e. “design HHV”). The steam generating units must be sized to process the design throughput at 13 MJ/kg and other systems and accessories must be sized to accommodate the air, flue gas and steam flows associated with that throughput. However, it must be understood that actual HHV values may fluctuate and throughput is to be guaranteed at an average MSW HHV of 13.0 MJ/kg. The Facility will be capable of processing waste having heating values within the range of 11-15 MJ/kg. The units will be designed to deliver steam at rated conditions on a continuous basis without excessive maintenance, slagging, fouling, or other operating difficulties when firing processible waste at rates sufficient to satisfy the Throughput Capacity Guarantees.

#### **4.4 Facility Expansion Capability**

The key mechanical systems and structural components which are affected by expansion requirements are identified below. This listing contains the minimum that will be included by the DBO Contractor.

##### **4.4.1 Overhead Refuse Cranes**

Two (2) overhead refuse cranes are required; each will be capable of handling 250,000 tonnes per year, and 761 tpd or 32 tonnes per hour of processible waste, plus an appropriate factor of safety for hourly and daily peak stacking, mixing and loading rates assuming waste is delivered over a six day, 12 hour per day delivery schedule.

##### **4.4.2 Refuse Storage Pit and Tipping Floor**

The tipping floor and refuse storage pit will be large enough to accommodate four days of storage at the expanded Facility capacity of 250,000 tonnes per year (761 tpd) of MSW. The bottom ash storage area and fly ash storage system will be sized for a minimum of 4 days storage for the 761 tonne per day facility.

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Four (4) tipping bays will be provided. The tipping floor will have a minimum open span distance of 30.5 meters from the front of the storage tip dumping bays to the exterior wall of the tipping floor, to accommodate turning requirements of transfer trailers and all other vehicles.

During normal operation, odour and dust will be controlled by combustion air fans in combination with tipping hall entrance/ exit doors and manually operable louvers. During the rare occasions when no combustion air fans are operating, the roll up doors will be kept closed, except when actually receiving trucks, and louvers will be closed to contain odours and dust.

4.4.3 Boiler House Modifications

The boiler house will be constructed to facilitate the minimum 110,000 tonnes per year (335 tpd) single unit expansion and inclusion of the additional line. The common foundation between the new and future boiler house will be designed with provisions for expansion, but the foundations for the third unit will not be provided.

4.4.4 Electrical Generating Capacity

The electrical generating capacity will be configured for a single turbine-generator which will be able to handle the steam equivalent of at least the full throughput capacity of processible waste equivalent to one or two units online at 100% MCR. The DBO Contractor will incorporate sufficient margin into the design of the turbine (minimum 5% margin) to accommodate normal fluctuations and overfiring of the boilers. The steam turbine room will be sized for the initial turbine-generator only. To accommodate the additional turbine generator for the minimum 110,000 tonne/year future expansion size (335 tpd), the common foundation between the new and future turbine building will be designed with provisions for expansion. The transmission and breaker capacity for the EFW Facility will be designed for the ultimate processing capacity of 400,000 tonnes per year (1,218 tpd). The DBO Contractor will size the transformer(s) to meet the requirements of the initial facility capacity of 140,000 tonnes per year, plus the first expansion to a minimum facility capacity of 250,000 tonnes per year.

4.4.5 Boiler Feedwater System

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Water treatment system, storage tanks, pumps, valves, regenerative heaters, deaerating feedwater heater, feedwater pumps, and ancillary equipment will be sized for the Facility running at 100% capacity at the minimum 140,000 tonnes per year, including all prudent margins. Adequate space will be provided on the site for the 400,000 tonnes per year expanded facility processing size (1,218 tpd).

4.4.6 Exhaust Stack

The stack will have one flue to accommodate the initial facility processing trains with space provided for the minimum 335 tonne per day expansion unit. The stack will be a metal stack with insulation. Each boiler train will have the sampling ports and access platforms suitable for isokinetic sampling (located in the duct work). At least the last 3 meters of the flue will be 316L stainless steel or better.

4.4.7 Residue Removal and Storage

The main residue conveyor, residue storage area storage silos, outloading facilities, drums and/or screens, magnets, etc. for residue processing will be sized for the Facility capacity of 250,000 tonnes per year capacity or 761 tonnes of processible waste per day, or approximately 10 tonne per hour of residue (761 tpd\*30% residue/24hrs), with suitable margin for upset and peak conditions. The residue area will be capable of separately storing processed bottom ash, conditioned fly ash, ferrous metals and non-ferrous metals with the arrangement established to allow future expansion if the facility is expanded to 1,218 tpd. All residue removal, processing, storage and ferrous and non ferrous recovery will be located inside the residue building.

4.4.8 Ferrous and Non Ferrous Recovery

Ferrous and non ferrous recovery and associated conveying and storage facilities will be designed to accommodate a minimum design MSW throughput rate of 761 tpd (initial Facility capacity plus the first expansion),

4.4.9 Control Room



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The control room will be designed to serve its primary purpose of safely and efficiently operating the Facility, as well as serve as an educational tool for visitors and site tours. The control room will have space for installation of an additional control console, instrument rack, cable trays, etc. associated with the installation of additional boilers and turbine cycle equipment without using the space required for visitors.

4.4.10 Utilities

All utility (gas, sewer and water) lines within the Facility boundaries will be designed for a capacity to support the ultimate 1,218 tpd facility capacity (i.e., sizes, pumps, valves, meters, etc. need to be sized accordingly). The DBO Contractor will include the cost of running the on-site gas, sewer and water utilities from the NORTHEAST corner of the site boundaries.

The Facility will be designed to be a ZERO WASTEWATER DISCHARGE Facility, with the exception of the Facility's sanitary uses.

4.4.11 Fire Protection

Fire pumps, tanks, risers, and piping and equipment that would serve an expansion will be sized for an ultimate processing capacity of 400,000 tonnes per year facility (1,218 tpd).

4.4.12 Administration Building

The administrative building and crew quarters-will be large enough to accommodate the extra personnel associated with the additional unit(s).

4.4.13 Roadways and Parking

Roadways and parking will be planned in a manner which minimizes interference during construction of the additional boiler(s) with existing operations. Roadways will reflect the needs of a facility capable of processing 250,000 tonnes per year (761 tpd) and parking will reflect the needs of a facility capable of processing 400,000 tonnes per year (1,218 tpd).

4.4.14 Noise

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Noise emission levels will at a minimum meet the Local and Provincial noise standard, at the property boundary at all operating times (excluding noise emissions from motor vehicles on the Facility Site and noise emissions not caused by the Facility). Noise emission levels will be measured and tested at points along the boundary of the Facility Site to determine if the Facility complies with all regulations, licenses, and permits relating to noise emissions.

**4.5 Operating Schedule**

The Facility's operating schedule will be continuous (24 hours per day, 7 days per week).

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**5.0 CODES AND STANDARDS**

Although all applicable Codes and Standards may not be specifically shown or specified herein, the DBO Contractor will be responsible for determining applicable codes, acquiring copies at its sole expense, and complying with the applicable requirements of Codes and Standards.

Equipment, material, design, fabrication, erection, inspection, start-up, and tests provided by the DBO Contractor will be in strict conformance with all applicable Provincial, Regional, local and industry codes, standards, specifications, regulations, tests, procedures, and definitions unless otherwise specified in these Technical Requirements. The Facility's design, construction, and operation will comply with Building and Electrical Codes adopted by the Durham Region and the DBO Contractor will be required to review design, procurement, construction, and testing progress and details with the Regions, and/or the Regions' Engineer in a timely manner.

The latest edition of codes or standards referred to in this schedule which are in effect as of April 22, 2009 will apply.

DBO Contractor or its boiler subcontractor will possess the requisite ASME Boiler Code symbol stamp and have a valid certificate of authorization from ASME.

A partial listing of applicable codes follows.

The list below is not all-inclusive. It is the DBO Contractor's responsibility to identify and comply with all applicable Codes and Standards.

**Applicable Codes**

**Design Standard**

American Association of Regional Highway and Transportation Officials  
American National Standards Institute  
ASME Boiler and Pressure Vessel Code  
American Society of Testing and Materials  
American Water Works Association

**ACRONYM**

AASHTO  
ANSI  
BPVC  
ASTM  
AWWA

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**Applicable Codes**

<b><u>Design Standard</u></b>	<b><u>ACRONYM</u></b>
Canadian Construction Association	CCA
Canadian Construction Documents Committee	CCDC
Canadian Electrical Code (published by CSA)	CEC
Canadian Engineering Standards Association	CESA
Canadian General Standards Board	CGSB
Canadian Institute of Steel Construction	CISC
Canadian Lumberman's Association	CLA
Canadian Prestressed Concrete Institute	CPCI
Canadian Paint Manufacturers Association	CPMA
Canadian Roofing Contractors Association	CRCA
Canadian Standards Association	CSA
Canadian Wood Council	CWC
Canadian Welding Bureau	CWB
Construction Specifications Canada	CSC
Commercial Standards	CS
Crane Manufacturers Association of Canada	CMAA
Deutsche Industrie Norman	DIN
Ductile Iron Pipe Research Association	DIPRA
Illuminating Engineering Society of North America	IESNA
Institute of Boiler & Radiator Manufacturers	IBRM
Institute of Electrical and Electronic Engineers	IEEE
Instrument Society of Automation	ISA
Instrument Society of Canada	ISC
Insulated Cable Engineer Association	ICEA
Ministry of the Environment (Ontario)	MoE
Ministry of Transportation (Ontario)	MTO
Manual of Uniform Traffic Control Devices	MUTCD
National Building Code of Canada	NBC
National Electric Code	NEC
National Electrical Manufacturers Association	NEMA
National Fire Protection Code	NFPA
Ontario Building Code, Ontario Regulation	OBC
Ontario Fire Code, Ontario Regulation	OFC
Ontario Fire Marshal	OFM
Ontario Industrial Roofing Contractors Association	OIRCA
Ontario Provincial Standard	OPS
Ontario Provincial Standard Specification	OPSS
Ontario Traffic Manual	OTM
Professional Engineers Ontario	PEO
Sheet Metal Air Conditioning Contractors National Association	SMACNA
Applicable Codes (Continued)	
Steel Structures Painting Council	SSPC
Terrazzo, Tile and marble Association of Canada	TTMAC

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**Applicable Codes**

**Design Standard**

Transport Canada Civil Aviation Directorate  
Underwriters Laboratory  
Underwriters Laboratory of Canada

**ACRONYM**

TCCA  
UL  
ULC

Where the requirements of these Technical Requirements differ from the requirements of the codes and standards referenced herein, then the more stringent requirements will apply.

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**6.0 STRUCTURAL/CIVIL**

**6.1 Facility Site**

The proposed facility site is that site on Osbourne Road in Clarington, Ontario described in Section 6.6 of these Technical Requirements.

**6.2 Site Layout**

The site layout will incorporate space requirements consistent with required building and equipment sizes and will incorporate proper engineering practices for safety, accessibility, maintenance and good housekeeping, and will take into account and provide for Facility expansion needs.

The air pollution control equipment will be laid out and spaced to provide adequate room between equipment and the stack or behind the stack to install additional emissions control equipment (e.g., wet scrubbers, polishing scrubbers or SCR) at a future date.

The DBO Contractor will provide adequate space in their site design for the equipment required to implement the future district energy system. The space allotted for this purpose will be clearly defined in the site layouts.

All materials loading and unloading will be managed inside the buildings to prevent scattering and blowing of debris or dust.

Stormwater drainage and collection for all areas of the site will comply with all local, Regional, Provincial and federal requirements, including Ministry of the Environment (MoE) and Conservation Authority requirements.

The construction of all on-site utilities including, but not limited to water, potable water, wastewater, fire protection and stormwater will be provided by the DBO Contractor from the property boundaries of the EFW Facility. The DBO Contractor will furnish all appurtenances for collection, pumping, storage and distribution as appropriate. The DBO Contractor will obtain

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and/or install all utility services and/or tie-ins for electricity and telephone. The DBO Contractor will provide all utility tie-ins required for the Facility to the property boundaries.

The Facility entrance ramp, from the access gate to the scales to the tipping floor will be sufficiently sized to accommodate the maximum anticipated number of vehicles in queue during peak delivery hours for the fully expanded facility capacity of 1218 tpd. No vehicles will be permitted to queue off-site on local roads. A traffic and vehicle study report can be obtained from the Region of Durham and York Website ([www.durhamyorkwaste.ca](http://www.durhamyorkwaste.ca)).

### **6.3 Types of Structures**

At the Facility, the refuse receiving, manoeuvring, and tipping area structure, storage structure, boiler structure, air pollution control equipment, ash conveyance and storage equipment, maintenance building, control room, CEMS room, turbine building, residue building, pumphouses, and administration building will be structural steel and/or reinforced concrete framed enclosed structures. The refuse truck receiving, manoeuvring and unloading area, which includes the refuse storage pit and boiler refuse feed chutes, the boiler structure and air pollution control equipment area, and the service area which includes the control rooms, personnel areas, and turbine area, will be combined into a common or contiguous enclosed structure. Other ancillary structures, including the maintenance shops, etc. can be stand-alone structures.

The waste storage system used at the Facility will be a refuse pit. The refuse storage pit will be designed for a minimum of 4 days overall storage of processible waste at the expanded guaranteed processing rate of 250,000 tonnes per year (761 tpd) and storage of all received and accumulated processible waste from excess of receipts over daily firing capacity. Pit design will provide for the operating requirement that MSW may not exceed a level of 1.5 meters below the crane deck floor, and the pit will be designed such that 40 to 45% of the storage volume is below tipping floor level. The design density of refuse will be assumed to be 415 kg/m<sup>3</sup> for calculation of storage capacity.

Four (4) tipping bays will be provided for refuse truck unloading. The pit storage area, pit walls, and bay framing must be totally enclosed with reinforced concrete. Refuse building above the

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charging floor area will be of steel construction. The tipping floor will be totally enclosed utilizing rapid close exit and entrance doors and kept under negative pressure by drawing combustion air from that area.

During normal operation, odour and dust will be controlled by combustion air fans in combination with tipping hall entrance/ exit doors and manually operable louvers. During times when all units are offline, the tipping floor doors will remain shut to contain dust and odours, except when actually receiving trucks. The refuse tipping area will be designed to allow for tractor trailer load deliveries of waste.

The refuse pit charging elevation (charging hopper and crane maintenance areas) will be designed to provide sufficient space for all crane maintenance activities for the cranes specified in paragraph 8.6, Refuse Cranes. Two (2) cranes are required. The DBO Contractor will provide an individual space for each crane supplied. The crane maintenance areas will be arranged to maintain each crane, one on each end of the pit. Monorails will be provided for convenient removal of crane motors.

A curbed area will be provided on the outbound side of the tipping floor for temporary storage of undesirable objects. A provision will be made for the removal of undesirable objects by mobile equipment into the designated storage area. The DBO Contractor will protect walls from potential damage due to unloading and manoeuvring equipment. The far crane will be able to access the near feed hopper with the other crane parked in its maintenance bay.

Storage pit walls subject to damage through repeated impacts will be constructed of high strength (minimum 34 MPa) concrete. The DBO Contractor will provide a design that will minimize wear and prevent structural deterioration of the walls and floors. This may include additional rebar and/or concrete. The tipping floor and residue building floor will be asphalt and will include the required base, subbase and stabilized sub-base as required. Paving will be done in accordance with OPSS. Pavement will be designed for axle loads 20% above legal limits plus an additional 80 mm thick wear layer. A continuous reinforced concrete grade beam will be provided around the three outer sides of the perimeter of the tipping floor. All pit edges and outside corners



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exposed to the grapple or bucket operation will be armoured with carbon steel angle-iron imbedded, so as not to expose any edges. Furnishing drains in the refuse storage pit is not a requirement; however, a portable sump pump will be utilized to evacuate excess water from the pit, if required. In addition, the pit must be sealed to prevent pit water from leaching into the surrounding environment.

A 1.0 meter high charging hopper level parapet wall (upward extension of the rear pit wall), with generous sweep-through openings will be provided. The top surface of the wall will be capped with angle-iron. The pit lip of each charging hopper will be steeply declined as supplied by Martin GmbH.

The residue storage area will be designed to provide four days' storage at 761 tpd Facility at MCR throughput conditions. The residue storage building walls will be constructed of reinforced concrete up to 5 meters above grade and will be equipped with roll-up doors to allow vehicle drive through. The residue building floor will be constructed of asphalt. All residue storage areas will be fully enclosed, capable of being drained and force-ventilated (or have other vision control such as fog lights provided). Concrete drainable pits are not required.

At a minimum, the tipping floor, boilers, turbine floor, refuse storage pit, residue processing area, residue storage area, air pollution control equipment, and turbine/ generators will be fully enclosed.

Floor construction will, as a minimum, be as follows:

- Refuse storage building floors including charging level floor - reinforced concrete.
- Administration, pumphouse, and maintenance building floors-reinforced concrete.
- Turbine building floors - reinforced concrete at operating and grade levels.
- Boiler area ground floors - reinforced concrete.

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- Boiler area elevated floors - bar grating or checkered plate except where necessary for equipment reinforced concrete will be provided and will not interfere with hoisting equipment.
- Grade level under pollution control area and residue building will be asphalt.
- Tipping floor and residue building will have a minimum 80mm sacrificial asphalt wear layer.

All public areas of the Facility including the administration building, visitor's area, and parking areas will be designed and constructed for accessibility in accordance with the Accessibility for Ontarians with Disabilities Act of 2005.

The turbine/generators will be supported on a separate reinforced concrete pedestal and foundation system to isolate it from the building and associated foundations and will be designed in accordance with the manufacturer's recommendations.

The facility height, exclusive of stack, is approximately 35 m above grade.

#### **6.4 Improvements to the Site**

The site requires full development including seeding and landscaping. The design of the Facility will take into account the existing site conditions. The DBO Contractor will be responsible for all site preparation. The DBO Contractor will be fully responsible for all Facility Site development necessary to render the Facility and the Facility Site usable and constructible, including but not necessarily limited to the following: establishment of lines and grades, site clearing and grubbing, initial and finish grading, site drainage and control, boundary fencing, on-site vehicular and automobile access, all provisions for acceptance of deliveries, all landscaping, retention ponds, stormwater management, sediment control and all other measures necessary to assure a quality Facility as required by these Technical Requirements.

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The site will be developed assuming two furnace/boiler units; two additional future furnace/boiler units; one initial turbine generator; two additional future turbine generators; associated equipment; and will be designed with provisions for services and facilities.

The site will be provided with positive drainage by sloped paving and grading as required. The parking areas and plant proper will be drained by surface grading to an on-site stormwater management system provided by the DBO Contractor. The parking lot and area around the administration building will be provided with a closed drainage system, and the balance of the site will be provided with an open drainage system. Work and services required for storm drainage systems will be furnished in compliance with local, Regional, and Provincial codes and the Certificate of Approval. Local rainfall data along with stormwater management and drainage codes will be used to design the site drainage. Design will be based on the minimum standards of the local stormwater management agency and local codes. Stormwater management design and construction will be approved by the Durham Region, Conservation Authority and Ministry of the Environment (MoE) and will take into consideration all improvements both on and off site for the Facility.

Where storm drain elevations intersect the groundwater table, all piping will be gasketed to prevent infiltration. The DBO Contractor will be responsible for proper drainage and soil erosion and sediment control during construction in areas affected by work activity. A soil erosion and sedimentation plan will conform to Durham Region and Regional grading and other erosion control requirements and be submitted for approval by the Durham Region and Ministry of the Environment (MoE). All sediment traps, stone filter perimeter swales, straw bales, perimeter dikes, interceptor dikes and other items required for soil erosion and sediment control will be provided.

The DBO Contractor will take all steps necessary during design, construction and operation to control soil erosion on site and to minimize dust emanating there from. This will include design and operation of equipment associated with handling lime and other chemicals used in the operation of the Facility. Settling ponds and control ditches will be employed to control runoff in accordance with a Durham Region's grading permit.

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Retaining walls will be constructed of reinforced concrete. All Push walls installed at the Facility will be required to be of the straight wall type.

The effects of adjacent property which may drain onto the Facility site will be included in the design. Any off-site grading and seeding will not be allowed.

### **6.5 Geotechnical Investigation**

The DBO will determine all information and data necessary to complete the design and construction of the Facility. The DBO Contractor has not performed a detailed site investigation or archaeological survey prior to signing the Project Agreement. The DBO Contractor will perform a detailed site investigation at its own expense. Data which the Regions have concerning the site is included as attached as Exhibit A to these Technical Requirements. Data is titled PROJECT NO. 1009497.01. DBO Contractor will not be held accountable for any site conditions that are encountered during the construction of the facility that were not anticipated in the Regions' report. Any building costs associated with venting radon or methane from the underside of floor slabs, costs associated with rock excavation, costs for any archaeological or subsurface conditions that require remediation and building costs associated with actual soil conditions or foundation design that vary from the soil boring information provided by the Regions will be at the Regions' sole cost and expense.

### **6.6 Survey**

The proposed site is approximately 12 hectares and is located in the Clarington Energy Park in Clarington, Ontario.

All work and services necessary for or incidental to the performance and completion of survey work necessary for the construction of site work, buildings, new utilities, and other new facilities and establishment and maintenance of bench marks, measurement to verify location of completed construction, and survey alignment to existing property boundaries will be provided by the DBO Contractor. Existing bench marks and property line monuments, both on and off site, will not be disturbed. The surveyor must be certified in Ontario.

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The DBO Contractor will furnish all labour, materials, tools, equipment and all work and services necessary for or incidental to the performance and completion of survey work for the construction of the Facility. The DBO Contractor will establish and maintain lines and grades, benchmarks, make measurements to verify location of completed construction and survey alignment to existing property boundaries.

**6.7 Clearing and Grubbing**

The DBO Contractor will perform work and services necessary for the completion of site clearing, grubbing, removal and disposing of brush, fences, debris, any existing structures and substructures known as of April 22, 2009, and any demolition within the Boundary Limits of the Facility Site at its sole expense. Waste materials will be removed from the site and disposed at a location secured by the DBO Contractor.

No open burning will be allowed on the Facility Site.

**6.8 Erosion Control**

An Erosion Control Plan and a Stormwater Management Plan should be developed for the site. Best Management Practices (BMPs) from the local, Conservation Authority and MoE requirements should be put into place to control soil erosion impacts. BMPs should include, but not be limited to, the following:

1. Silt Fence should be located along the limits of disturbance at the downstream toe of all cut and fill slopes to help reduce sediment loss.
2. Inlet Sediment Traps should be located at all storm drain structures to minimize soil loss from entering the storm drainage systems.
3. Temporary Sediment Basins should be located in each watershed basin adjacent to proposed extended detention and retention stormwater ponds.

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4. Temporary swales, dry swales and wet swales should be used to convey stormwater runoff during construction to storm drain and erosion control features.
5. Check dams and rock dams should be located in drainage swales to help filter and settle out any sediments.
6. Construction exits should be employed to stabilize all construction entrances and exits and prevent mud from tracking on roadways from construction vehicles.
7. Temporary and Permanent Grassing should be used for all areas of disturbance.
8. Dust control should be used during dry conditions to prevent any blowing of dust.

In addition to the above mentioned BMPs, the DBO Contractor will be required to stage work consistent with local and MoE requirements and will need to stabilize all land disturbing activity within 14 days. In the event that temporary grassing can not be performed due to cold weather conditions, mulching will be required instead. Permanent grassing of site will be required by completion of work once warm weather grasses can be planted. Erosion control devices will need to be inspected at least weekly and after each rain, and repaired by the contractor as necessary. Erosion control devices will be properly installed prior to site disturbance as logistically feasible depending on staging of work and must be maintained in good working condition until completion of project or replaced when effectiveness is reduced to 50%. Finally, additional erosion control measures will be installed to control sediment and silt from leaving the site as determined necessary.

**6.9 Excavation, Filling and Backfilling**

The DBO Contractor will perform all operations in connection with excavation of materials including unsuitable materials as required, but not including toxic and hazardous waste material, and obtain fill and backfill materials approved by DBO Contractor's geotechnical consultant to produce final grade lines. Such hazardous materials excavated and disposed of at the Regions' sole cost. Arrangements for obtaining necessary fill material and topsoil from off-site borrow

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areas will be the responsibility of the DBO Contractor. Any excess non-hazardous excavated soils will be stored at the option of the Durham Region, and, if stored onsite, such storage will be in areas designated by the Durham Region.

Earthwork, including excavation, fill, backfilling, dewatering, subgrade preparation and stabilization, shoring, drainage and frost protection will comply with the geotechnical consultant's recommendations, applicable standards and provisions of local codes. The grading of embankments and ditches will have a minimum of three horizontal to one vertical slope. Earthwork associated with roads will conform to applicable standards.

The DBO Contractor will be fully responsible for all earthwork required to render the Facility and the preferred Facility Site usable and constructible, including but not limited to all materials, equipment, labour and supervision necessary to perform compaction tests, and to assure proper placement of all materials. The DBO Contractor will be responsible for all costs associated with the inspection and testing of the earthwork.

**6.10 Foundations**

All work and services necessary for the furnishing, installation, and any required testing of foundations will be provided. Foundations will be designed and constructed on the basis of geotechnical information. Any existing geotechnical information can be obtained from the Regions of Durham and York website ([www.durhamyorkwaste.ca](http://www.durhamyorkwaste.ca)).

If piling or drilled pier foundations are used, the DBO Contractor will employ a subcontractor who is experienced with such work. The DBO Contractor will provide for the services of an independent testing laboratory to perform material evaluation tests, and perform pile load tests and any other material and/or geotechnical tests required.

**6.11 Paving, Curb and Gutter,-and Sidewalk and Surfacing**

The DBO Contractor is responsible for all roads at the Facility. The access roads and/or ramps will be designed to achieve the greatest truck or tractor manoeuvring efficiency, to minimize the interaction of trucks or tractors with staff, visitor vehicles and supplier vehicles hauling

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containers for residue, refuse or rejects and supplies and to prevent the queuing of vehicles on public roadways. The DBO Contractor will furnish and install all pavements as required for construction of site roadways, parking areas, and unloading areas complete with curbing, sidewalks, steps and other features. Pavements will be constructed of required thicknesses of concrete or asphalt to final lines and grades. Pavement sections will be crowned or sloped to provide positive stormwater or washdown drainage. Base, sub-base and stabilized sub-base as required will be included in the work. Paving will be done in accordance with OPSS.

Roads will be designed with proper turning radii. Parking areas must be curbed, with catch basins and drop inlets used to control storm runoff. Roads will be provided with an open storm water collection system. On-site roadways used by supply delivery vehicles will be at least 4 meters wide, per lane, with 1.2 meter surfaced shoulders on each side except that one-way roadways for truck traffic must be a minimum of 4.5 meters wide with 1.2 meters surfaced shoulders each side. Pavements to be used by trucks will be designed for axle loads of at least 20% above legal limits. Pavement design and construction will be in accordance with DBO Contractor's geotechnical consultant's recommendations and Durham Region's requirements.

The main Facility roadway will be tied to Osbourne Road. The routing and construction and improvements of the Access Road within the property boundaries will be provided by the DBO Contractor.

At the Facility, traffic flow to the weigh scale(s), tipping floor and tipping bays must be controlled by means of a traffic control signal system. The tipping floor entrance ramp must be designed for sufficient on-site queuing space to accommodate the maximum anticipated number of vehicles during peak delivery times for the fully expanded facility (1,218 tpd). No offsite queuing of vehicles will be permitted. The DBO Contractor must provide adequate traffic markings and signs.

Paved employee parking will be separate from the processing building, maintenance shop and storage areas. Parking spaces will be adequate for maximum shift operation of the fully expanded Facility, up to five (5) spaces for the Regions' employees and an additional ten (10)



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visitor parking spaces and handicapped parking as required by applicable regulation. Provisions will be included to allow for two (2) buses to park on site. On-street parking will not be permitted. Construction and outage support parking sites are the responsibility of the DBO Contractor. The DBO Contractor will maintain responsibility for traffic control of the construction work force.

**6.12 Utilities**

All on-site above-ground and underground utilities required for permanent service of service water, potable water, wastewater, electrical, telephone, storm drains, and any other type of utility required for Facility operation will be furnished and installed by the DBO Contractor and sized for the ultimate expanded guaranteed processing capacity of 400,000 tonnes per year (1,218 tpd). The Facility will be designed as a zero discharge Facility. The DBO Contractor will provide all needed collection, pumping, storage, distribution lines, and collection lines within the property boundaries. The Durham Region will coordinate with the local utilities for connection of utilities beyond the property boundary.

Installation of electrical utilities, service water, potable water, storm and wastewater systems will comply with applicable provisions of civil, mechanical and electrical requirements of these specifications and local, Regional, Provincial and utility codes, standards, and specifications. The DBO Contractor will arrange and provide for all temporary and interim power, water, and sanitary facilities for work during construction. Temporary power systems must meet CEC requirements.

The construction of the storm water handling facilities must comply with local Conservation, Municipal and Regional Code requirements.

The DBO Contractor will provide sufficient potable water and electrical power service to a point on the site designated by the Electricity Sale Agreement and the Electric Power Purchase Agreement, if applicable. The DBO Contractor will be responsible for safe and adequate distribution of water and electricity over the construction site as required including fittings,

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pipings, valves, cable and transformers. The cost of water, wastewater and electricity and all other utilities used during construction, start-up and testing will be at the DBO Contractor's expense.

The DBO Contractor will install a substation and transmission line, sized for the expanded guaranteed processing capacity of 400,000 tonnes per year Facility (1,218 tpd), meeting the requirements set forth in Section 9.0 Electrical Requirements. The cost of the substation will be included in the proposed Facility Price. The cost of interconnection service provided by the DBO Contractor is limited to the overhead transmission line connection from the Facility substation to the 44 kV transmission line on the east side of Osbourne Road.

The Regions have selected the voltage level and location of the Facility interconnection with the Hydro One system. Any costs associated with the addition of any services or equipment, whether located in the Facility substation or the Hydro One system, required to remediate any deficiencies found by Hydro One in the interconnection selection will be at the Regions' sole cost and expense. (This includes, but is not limited to, services or equipment required to: limit Facility short circuit contribution, upgrading existing Hydro One equipment, reduce voltage dips due to transformer inrush current or during Facility startup/operation, resolve unacceptable voltage flicker conditions, optimize power flow, provide power factor correction, provide transfer trip or other system dependent switching requirements, provide system voltage support or system frequency regulation, etc.)

The DBO Contractor must provide the equipment and controls necessary for natural gas service to its auxiliary burner installation. The natural gas utility service provider will provide a gas transmission line up to the property boundary with the capability to deliver the maximum anticipated gas usage for a 400,000 tonne per year (1,218 tpd) Facility.

**6.13 Finished Grading and Topsoiling**

All work and services necessary for the topsoiling and finished grading of all areas within the limits of grading and for all areas outside the limits of grading disturbed in the course of work will be furnished. Work will consist of, but is not limited to correction, adjustment, and/or repair

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of the rough grading, preparation of the subgrade and spreading of topsoil in areas to be seeded and sodded.

**6.14 Fencing**

A security fence is required around the entire operations area within the Facility Site. The security fence must be at least two and one half (2.5) meters high and must have three barbed wires at the top. Gates will be of an automatic closure design, sturdy and lockable. Remote locking and unlocking controls and visual monitoring equipment will be provided to allow monitored control of personnel access during non-business hours.

The DBO Contractor will be responsible for providing an adequate level of security during construction of the Facility. Such security will, at a minimum, be implemented in a manner designed to prevent unauthorized individuals from entering the Site, for safety and security reasons, seven days per week, twenty-four hours per day.

The DBO Contractor will provide work in accordance with provisions of OPS and OPSS.

**6.15 Concrete**

All labour, materials, tools, equipment, and all work and services for furnishing and installing all concrete and reinforcement materials will be provided. The DBO Contractor will furnish and install all supplementary or miscellaneous items, appurtenances, and devices incidental to or necessary for a sound, secure, and complete installation. All work will be in conformance to OPSS. Concrete must be provided in accordance with OPSS and other applicable standards and specifications.

All work and services necessary for concrete testing will be provided by an approved independent testing agency retained by the DBO Contractor.

Required testing services will be performed by a qualified testing agency and meeting requirements of all applicable standards.

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Testing will include review and approval of proposed materials for batch design, mix-design, securing production samples of materials at plants for compliance with OPSS and all applicable standards, conduct compressive strength tests, slump tests, air content, unit weight, air entrainment, and the DBO Contractor will submit to testing laboratory copies of mill test reports for all shipments of cement, reinforcing steel, and pre-stressing tendons. Copies of all test reports will be submitted to the Regions or the Regions' Engineer.

**6.16 Structural Steel**

The DBO Contractor will furnish labour, materials, welding, tools, equipment, and supervision for the supply, detailing, fabricating, galvanizing, painting, delivering, and installing of structural steel. All structural steel work must be in conformance with all applicable standards and specifications.

All labour, tools, materials, equipment, and supervision for the supply, detailing, fabricating, galvanizing, painting, delivering, and installing of miscellaneous steel and accessories will be provided.

Grating work will conform to all applicable standards and requirements and will include banded cut-outs and clearance openings for all penetrations consisting of columns, pipes, ducts, conduits, and all other installations passing through the grating work. Grating sections will be banded on ends. Banding is not required under toe plates where grating ends meet. All grating will be galvanized bar grating. Provide serrated grating for exterior platforms, stairs, and sloping walkways.

**6.17 Basis for Design**

The DBO Contractor's design for the Facility will be documented showing minimum design loads and will conform to all applicable National and Provincial building codes and DBO Contractor's insurance carrier requirements.

Equipment loads will be per equipment manufacturer's recommendations and will be incorporated in the basic design. Structural design of equipment foundations and support will

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limit deflections and vibrations to within manufacturer's specified tolerances and local, Regional and provincial code requirements.

Wind loads, seismic loads, snow loads will be in accordance with the most severe case for the area under consideration, as described in the National and Ontario Building Code or other codes and standards, whichever is most stringent. Foundations will be installed in accordance with all applicable building codes and permits. Slabs on grade will be designed on free draining material to prevent build-up of material. As a minimum, the Facility must be designed per all National and Ontario building codes. All of the above must be figured based on the latest addition of ANSI A58.1.

Structural steel design must conform to OPSS or all applicable standards, whichever is more stringent.

Reinforced concrete design must conform to OPSS or all applicable standards, whichever is more stringent.

The DBO Contractor will be expected to provide a basis of design report to the Regions upon completion of the conceptual design.

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**7.0 ARCHITECTURAL**

**7.1 General**

The architectural treatment of the structures within the Facility must be designed in accordance with applicable Provincial, Regional and local codes, including but not limited to building codes, fire codes, energy codes, accessibility requirements, and life safety codes.

The EFW Facility must incorporate sustainable design initiatives wherever feasible. The design must be functionally efficient as well as aesthetically pleasing.

Final color selections will be approved by the Regions.

**7.2 Materials**

The materials of construction will be selected to provide durability and ease of maintenance. Materials must be of a quality suitable to the functions performed at the Facility. All materials will also be considered for their suitability in terms of the projects sustainable design goals.

The structural framework of the Facility will be of concrete or structural steel. The enclosure will be of a durable and low maintenance material designed to express the aesthetic intent discussed herein. Metal panels/siding will have a protective coating (finished with premium baked on synthetic coatings) that minimizes maintenance unless they are self finishing and intended to be left exposed to the elements. All structural steel will receive prime and finish paint coats.

The administration building will be analyzed to determine the ideal insulation system for the structure with its associated activities. The insulation will meet or exceed code requirements and will be designed for human comfort, freeze protection, wet or dry cleanup and maintenance, and to meet process requirements as described elsewhere in this document. The insulation will have an R factor of 19 (minimum) in walls, and 30 (minimum) in the roof and be in accordance with Durham Region's codes and standards. In addition, the DBO Contractor will comply with or exceed energy conservation standards, codes, laws, and other requirements in effect in Ontario.

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Exterior doors, with the exception of special entrances, will be painted, galvanized steel, insulated hollow metal in grouted hollow metal frames. Overhead doors will be painted galvanized steel. Where safety concerns are evident, glazed door lights will be provided.

Exterior window units will be provided with minimum double thickness insulated glass in aluminium frames. Safety glazing will be provided where required by the fire and safety codes or other codes and standards. Certificates will be provided during construction attesting that materials meet all tests and specified requirements.

Administration building, control rooms, and office areas must receive interior finish materials as appropriate for each area. Exposed structure ceilings will be painted for corrosion resistance in areas of exposure to moisture or other corrosive materials. Floor finish materials will be selected with personnel safety as a primary concern. Administration building will have finishes which are typical for office areas.

All work will be protected against weather when work is not in progress.

All fabrications including stairs and handrails will be provided in compliance with all applicable regulatory agencies and applicable codes including handicapped requirements.

The DBO Contractor will work with the Regions to provide a color scheme of finish materials to be developed during the schematic phase for later transformation into a final color schedule. The Regions will review and approve this schedule. All items requiring a color selection such as carpeting, wall coverings, etc., will have samples submitted for the Regions' review and approval.

Waterproofing and other protective coatings will be provided, as necessary to protect building materials, equipment from refuse, residue, water infiltration and deterioration caused by reactive agents.

All areas will be accessible vertically by stairs or ladders. Stairs and ladders will meet applicable codes. Stairs must have solid treads in areas where office personnel and visitors may be present.

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Open grating treads may be used in equipment access areas. An elevator(s) must be provided for access by the physically handicapped to areas above the ground floor if access would be required by local codes.

All areas which are subject to hazards associated with the containment, conveyance and storage of combustible matter, pressurized gases and vapours, corrosive materials and the like will have suitable escape ways for the operating personnel.

All working platforms around boiler furnaces, pumps, conveyors, and cranes will have sufficient head room and must not be blocked by the random placement of accessory equipment and auxiliary machinery to the extent reasonable. Retractable soot blowers may partially or completely block access around the boilers. As such, the facility must be in compliance with applicable safety standards.

### **7.3 Signage**

#### **7.3.1 Indoor Signage**

Signs and graphic designs for identification and directions must be provided. Signage such as Exits, Fire Escape diagrams, building labels, door labels for room use and pipe labels must be employed for safety, ease of operation and direction. The signage system used must provide simple and direct indications using graphics, color, and/or text.

#### **7.3.2 Outdoor Signage**

Identification signs, directional signs and traffic controls signs, signals, lane divider markings, and painted pavement marking within the Facility Site for control of vehicles to and on the site must be furnished and installed. In addition to traffic control signage, there must be a sign erected during the construction phase describing the nature of the Facility and authorizing authorities. A permanent sign describing the facility, approved by the Regions, compatible with the architecture of the Facility, must be erected prior to, or upon acceptance of the Facility. In addition, a Facility identification sign must be installed at the main entrance to the Facility. The type, design and location of the entrance way sign must be approved by the Regions.



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The site signage system must direct all suppliers to the Facility and visitors to the appropriate areas for their specific business at the site. The signage must be designed to create a "campus" type sign system, tying the various elements of the Facility into one group.

All signage must be subject to the regulatory agencies and the Regions' approval.

#### **7.4 Landscaping**

The landscape for the Facility must be designed and furnished. All areas on the site which are non-paved and/or do not have buildings, and which are not required to remain open space for functional or safety reasons must be planted and maintained to in native forest species consistent with any site plan approval requirements as quickly as possible. Safety must be a primary justification for vegetation placement to ensure clarity where visual access is required. Vegetation genus and species must be carefully selected to adapt to the climatic conditions and the environment developed by activities on the site. Durability and adaptability to harsh conditions must be the basis for selection criteria.

All landscaping plans must be approved by the Regions.

#### **7.5 Exterior Lighting**

Sufficient outdoor lighting of roads, walkways and parking areas must be provided to ensure the safety and security of the operation of the Facility, the safe movement of people and vehicles, and adequate security. In addition, the lighting system must be designed to minimize nuisance lighting on any neighbouring residential or otherwise sensitive areas. The exterior of the buildings must be provided with lights for safe night operations. However, exterior lighting must be designed to minimize light pollution, direct or indirect, that will go into the sky or otherwise interfere with night sky viewing by local astronomers. At a minimum, each door, both overhead and Personnel passage doors must have artificial light for safety. Accent lighting on structures and/or landscaping should be considered in the development of the aesthetic nature of the Facility. Exterior lighting should have photocell control or other means of limiting operation.

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All parking areas must have artificial light that meets or exceeds local codes and standards, and must be approved by the Regions.

**7.6 Personnel Facilities**

Centralized personnel facilities must be provided in a building adjacent to the truck receiving, unloading and refuse storage areas, boiler house and turbine building for employees. These facilities must include rest rooms, showers, locker rooms, and clean rooms. Facilities must reflect approved handicapped access requirements. Separate areas must be developed for use by male and female employees. A room must be established as a clean room to provide an area for an employee lounge and lunch area. Fixtures must be installed which are appropriate for eye-wash and showering under emergency conditions.

**7.7 Administration Building Requirements**

Adequate space will be provided at the Facility to house administrative and clerical personnel. In addition, office space will be provided inside the administration building for the Regions' personnel and MoE staff. A minimum of five offices will be provided and each will be a minimum of 14 square meters in size and reasonably isolated from those of the DBO Contractor's personnel in order to ensure privacy. A clerical area of 9.3 square meters and a small conference room area will also be provided for the Regions' use. These offices will be equipped with separate phone lines which are not routed through the DBO Contractor's switchboard. The Regions' office area should also include a kitchen area with storage cabinets, a counter top and a sink.

**7.7.1 Visitor Education Center**

The Administration Building will include a visitor education center, which is comprised of a conference room for meetings of up to 100 people and a viewing gallery. Attention will be given to the two primary purposes of the Visitor Education Center: offering a comfortable and convenient area for visitors to the Facility; and serving as an educational tool for the visiting public. The Visitor Education Center will include the capability for presentations to a large group of people (e.g., video screens; internet access; a public address system, etc.). Viewing gallery and

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presentation room in the Administration Building provide visitors with a safe environment to observe Facility operations. The Administration Building will also include storage and reception areas, restrooms for visitors and office personnel that are separate from locker rooms. The building will be independently heated, ventilated, and air-conditioned. The building ventilation system will be designed to provide an odour free and dust free environment at all times.

The administrative building and visitor areas will be sound insulated and have provision for handicapped.

### **7.8 Maintenance Facilities**

A maintenance building must be furnished and installed at the Facility including equipment and tools required for the maintenance of equipment installed in the Facility and for Facility vehicles, containers, etc. This building must include open floor areas, bench areas, and an area for welding. The maintenance building must be located in the vicinity of the truck receiving area, refuse storage area, boiler building and turbine building. The maintenance building must also contain general maintenance shop and an area for spare parts storage. Inside the maintenance building or immediately adjacent to it, a covered and secure storage area must be provided for the storage of materials. An initial supply of materials including but not limited to spare parts, steel plate, wire, water tubes, piping, and cable must be supplied by the DBO Contractor together with suitable storage racks.

The DBO Contractor must determine requirements for maintenance activities. The maintenance building must be equipped with high bay doors, cranes, monorails, hoists and the like which are needed for moving heavy equipment in and out. This includes but is not limited to grapples, motors, pumps, containers, trailers and tractors. The DBO Contractor must submit a comprehensive maintenance plan for all buildings, equipment and grounds.

The maintenance shop and electrical/instrumentation shop must be equipped with cabinets, tool set drawers and storage shelving as required to perform required maintenance activities at the Facility. The electrical/instrumentation shop may be located near the electrical room.

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The laboratory must be equipped with analysis equipment and furniture as necessary to perform chemical analysis for operation of the plant. Grab samples will be analyzed to confirm performance of chemical analysis equipment and additional analyses will be performed where automatic analyzers are not installed (e.g. auxiliary cooling system). The laboratory will be located near the control room.

### **7.9 Central Control Room**

A Central Control Room must be furnished which allows for the efficient controlling, monitoring and supervising of plant operations.

The Central Control Room must be provided with full environmental conditioning for temperature and humidity. Filtered, positive pressure outside make-up air systems must be provided to hold down dust and odour penetration. This environmental conditioning must be totally separate from systems used elsewhere in the plant

Any control room windows furnished must be double glazed windows. Fully insulated ceilings must be installed in all operating areas.

Central Control Room lighting must be sufficient to meet all applicable codes and standards.

Sufficient cable spreading space will be provided above the switchgear and below the control room for cable spreading and access to Control Room . All duct, tray and cable penetrations into the Central Control Room must be sealed and fire-stopped to prevent air or water entry into the Central Control Room, and to prevent cable flame spread.

The Central Control Room must be sound insulated from the rest of the plant to allow for ease of voice communications. None of the construction materials used are to interfere with two-way radio communications between the Central Control Room and major work stations in the boiler house, the turbine hall, the crane pulpits and repair areas and the residue removal area. A communications console must be furnished with the Central Control Room. A plant-wide communication system, with remote call stations and an intercom system will be installed for plant communication.

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Furniture for operator use and control system documentation storage must be provided in the Central Control Room. It must be coordinated with furniture in the office wing. The Central Control Room must be furnished with an individual bathroom with basin and water closet.

The Control Room complex must be equipped with a small refrigerator and means for heating water.

The Control Room must be sized for the ultimate expansion capacity of 400,000 tonnes per year, (1,218 tpd) and to provide sufficient space to accommodate visitors.

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**8.0 MECHANICAL**

**8.1 Equipment Installation**

8.1.1 General

All labour, supervision, services, technical direction, tools, equipment, materials, and consumable supplies required for the receiving, unloading, storage, protection, check-out, testing, start-up, installation, and erection of equipment must be furnished.

8.1.2 Workmanship and Materials

The installation and erection of equipment and materials must be governed by the applicable laws of Ontario and the Durham Region and must, unless otherwise specified, be in accordance with the latest revisions in force as of April 22, 2009 of the Codes and Standards listed in Section 5.0 and all other applicable codes and standards. If there is a conflict between any requirement, the more stringent code will apply.

Erection methods and procedures must conform with accepted good engineering practice, the requirements of the OPSS and all applicable pressure piping and boiler codes where applicable, and in accordance with procedures furnished and approved by the equipment manufacturers. In case of conflict between these Technical Requirements and the equipment manufacturers' procedures, the most stringent must govern.

Equipment must be designed, fabricated and assembled in accordance with the best modern engineering and shop practice. Individual parts must be manufactured to the standard sizes and gauges used in the Country of origin. In order to provide the Regions with the most economical design the DBO Contractor will source equipment globally. Like parts of duplicate units must be interchangeable. Equipment must not have been in service at any time prior to delivery, except as required for tests.

All brackets and hangers for pressure parts will be shop welded and stress tested. Field welding of brackets and hangers is acceptable if performed in accordance with proven methods. All field

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welding on brackets, hangars and pressure parts must be inspected and stamped in accordance with all applicable codes.

The DBO Contractor must be responsible for conformance with the design criteria and all operating and performance guarantees. The Regions will have the right to review all detailed plans and specifications as they become available prior to and during construction for intent and compliance with the terms of the Project Agreement, but such review will not relieve the DBO Contractor of any of its responsibilities.

If the equipment does not meet the minimum operating and performance guarantees, it must be replaced by equipment that will meet these guarantees at no additional cost to the Regions prior to the acceptance of the Facility or release of the payment and performance bond.

The DBO Contractor must be responsible for providing expert representatives, if required, from each of the manufacturers of the major sub-systems to instruct and oversee plant operating personnel during facility shakedown, start-up, acceptance testing, plus 10 days of on-call maintenance, and troubleshooting of all equipment and components provided under the Technical Requirements for a period of one year after the date of Acceptance Certificate.

## **8.2 Furnace and Steam Generating Unit Requirements**

### **8.2.1 General**

The steam generating units must be drum type, bent tube, with combustion chamber designed for firing Municipal Solid Waste. Individual steam generating units must be able to hold variation in steam output to within +/- 10%, or less, of set point when on manual control, or +/- 4%, or less, of set point when on automatic control. Control limits must be achieved regardless of fluctuations of the higher heating value between 11 MJ/kg to 15 MJ/kg. This band is to be interpreted as the two sigma limit (standard deviation) divided by average flow taken over a typical 24-hour operating period and multiplied by 100%. Alternatively, the DBO Contractor may propose that each individual steam generating unit be able to hold the variation in steam

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output to within +/- 5%, or less, of the setpoint based on a standard normal deviation with a confidence interval of 90% based on one (1) minute average steam flow values”

The Facility must be designed so that the combustion system is isolated from the waste receiving and storage areas, with exception of the combustion air ducts that are drawing air from that area and the refuse feed chute.

Steam generators must be natural circulation, one- drum with air/gas tight insulated steel cased, welded waterwall furnaces. This system must include all equipment from charging hopper inlet through economizer or air heater gas outlet, including stoker, combustion air fans, ducts, flues, overfire air systems, controls and fly ash/siftings/residue hoppers, chutes, and conveyors.

Each boiler unit must be constructed in strict accordance with the ASME Power Boiler Codes or equal and any other applicable codes.

A corrosion allowance of at least one gauge beyond the tube gauge required by the applicable ASME pressure vessel code, or equivalent, must be provided.

The DBO Contractor will base the boiler design upon the Martin GmbH stoker/boiler design.

The Martin GmbH stoker/boiler design employs a Martin GmbH reverse-acting grate and the Covanta/Martin VLN™ (Very Low NOx) combustion process. The VLN™ process employs a unique combustion system design, where in addition to the primary and secondary air systems, an internal gas recirculation (IGR) system will inject flue gas into the upper furnace to yield the optimal combustion gas composition and temperature profile to minimize NOx and control combustion. The quantity of primary air in the VLN™ process will be adjusted to minimize excess air during the combustion of the waste on the grate, and secondary air flow in the VLN™ process will be significantly less than that of a conventional EfW facility.

Primary air will be supplied through plenums located under the grate and will be forced through the grate to dry and combust the waste. The quantity of primary air will be adjusted to minimize



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excess air during the combustion of the waste on the grate. Secondary air will be injected through nozzles located in the furnace waterwalls immediately above the grate.

The IGR stream will be drawn from the rear of the combustor, above the burnout zone of the grate where combustion of carbonaceous materials is completed. The flow of IGR stream will be set to achieve complete coverage of the furnace cross-section to ensure good mixing with the combustion gases. The IGR system will yield uniform flue gas temperature and velocity profiles. The IGR nozzles will be located on the side waterwalls of the upper furnace.

A single fan will supply the primary and secondary air streams, while a second hot flue gas fan will be used for the IGR stream; this fan also has the capability of taking in ambient air during upset conditions.

The combustion control methodology will take into account the heating value of the waste and the fouling condition of the furnace.

Acceptable manufacturers are Babcock & Wilcox, Foster Wheeler Ltd., Indeck – Keystone Energy, Alstom Power, Babcock Power, China Western Power, Hangzhou Boiler Group and Anhui Jinding Boiler.

### 8.2.2 Furnace

#### 8.2.2.1 Furnace Design

Furnace design must be of the mass burn type, capable of firing MSW on a continuous basis without auxiliary fuel burning and incorporating the following criteria:

1. The furnace must have gas-tight construction.
2. Combustion air to under stoker to be zoned, with adequate provisions for adjustment.
3. Overfire air must have flexibility of adjustment.

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4. Balanced draft. DBO Contractor will provide sufficient margin in the design of the main forced draft fans (minimum 20% above their standard excess air design flows) to ensure the efficient operation of the furnace/boiler/system.
5. Cast steel alloy grates – water cooled or air cooled with air passages in grates to be non-plugging design with provisions for easy cleaning.
6. Auxiliary burner to have flame monitoring and fail safe provisions and automatic ignition.
7. Auxiliary burners to be of low NO<sub>x</sub> design.
8. Furnace waterwall gas-tight with membrane type construction.
9. Furnace wall above stoker to be protected by a combination of Inconel, high alloy wear plates and 85 percent silicon carbide refractory suitable for 1,650 °C on studded waterwalls. Alternatively, Inconel cladding may be used in part or all of the lower furnace provided demonstration of acceptable performance in operating units is provided that addresses acceptable abrasion performance.
10. Furnace-welded membrane wall, extend below grate line.
11. Lower furnace wall studded and lined with high temperature refractory.
12. Finned tubes not allowed.
13. Separate adjustable overfire air system.
14. Any Inconel used in the Furnace will be shop applied and spiral wound, or installed in the field on the flue gas side of the tubes in accordance with standard and proven methods.

The DBO Contractor must provide a firing diagram that at a minimum shows the acceptable operating range of the proposed grates over a range of higher heating values and throughputs.

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Maximum gas velocities through convection sections of the superheater and economizer will be 6.0 m/sec. Maximum gas velocities through the furnace and boiler will be 6.0 m/sec and 7.5 m/sec respectively. Infrared technology or thermocouples will be provided for measuring gas temperature across plane of superheater entrance, furnace, boiler, and economizer.

Gas temperature at the superheater inlet is defined as the flow-averaged gas temperature across the plane that makes up the entrance of the first superheater section, where flow refers to the mass per unit time moving normal to said plane.

Per Ontario Guideline A7, the furnace will be designed to provide at least a one second retention time of an incineration temperature of 1,000°C in the combustion zone while processing waste between all higher heating values. During normal operation and non emergency shut down, the temperature in the furnace will not fall below 1,000°C. To assure that all particles entrained in the gas are solid and dry so as to avoid having semi-soft sticky particles entering the horizontal superheater the gas temperature entering the horizontal superheater must not exceed 770°C. The design temperatures of gas entering the horizontal superheater at MCR must be 700 °C or less.

Gas tight observation/sampling doors with ready access thereto must be provided at strategic locations in the furnace, at the screen tube, superheater, auxiliary burner and stoker levels. The boiler settings must be equipped at each side with man-access doors ahead of the slag screen tubes, between the slag screen and superheater (between the low temperature and high temperature superheater), the superheater and the front boiler bank, in each open bay within the boiler bank and between the rear boiler bank and the economizer, between economizer sections and the rear wall of the setting. Access doors will be provided wherever tube bundles are separated for sootblower lanes and between bundles of various boiler sections. The DBO Contractor must provide a means to safely hang or support scaffolding within the cavities of the boiler for the purpose of inspecting and performing maintenance in the units during planned and unplanned outages. The shop welding of lugs or other supports directly to boiler tube surfaces will not be permitted, except in areas specifically required by the manufacturer. Suitably located sleeves (ordinarily filled with refractory, capped and sealed) must be provided through the furnace roof to permit suspending scaffolding along the inside walls of the furnace(s) to permit

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inspections, tube thickness measurements, and any necessary repairs of the waterwalls. Airtight observation ports must be provided to accommodate gas sampling and instrument probes and lances. Ample clear space must be provided to permit insertion and removal of probes and lances. Furnace observation door design must avoid dust and slag accumulations within the port so as to facilitate routine surveillance of furnace conditions.

All supporting steel, buckstays and hangers for independent support of all equipment and subsystems will be provided and must be designed for applicable loadings.

Superheater surface will be provided in the second pass.

The setting beyond the furnace(s) will also be of welded water-wall design. Refractory baffles and refractory wall enclosures must be avoided.

Single or multiple shop assembled natural gas burner assemblies must be located in a side wall of each furnace for use during start-up and shutdown, to expedite drying and combustion when processing wet or difficult to burn refuse, and when required to maintain furnace stability and temperature. Burner blower, piping, burner flame safeguard and combustion controls and necessary instrumentation will be provided. The burner throat will be "completely" water cooled and covered with silicon carbide castable refractory to avoid build-up of slag.

Sufficient burner capacity will be installed to provide for a total stated heat release rate of 50% of Maximum Continuous Rating (MCR) input. Burners must be selected and arranged to avoid flame impingement on furnace tubes. The auxiliary burners must be of a low NO<sub>x</sub> emission design which will satisfy the air permit requirements. Burners will be capable of a 10:1 turndown rate. During any operating year, firing with the auxiliary burners will not account for more than 10% of the annual heat input to all boilers including burner operation during furnace start ups and shut down.

To protect sidewalls at the grate line from abrasion due to moving refuse, armour blocks of cast iron or silicon carbide must be installed with heat conducting cement and mechanical anchorage

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to a height of at least 1 meter above grate level, transitioning to calcium bonded silicon carbide refractory gunnited or troweled (or refractory tiles) onto all furnace wall tubes equipped with closely spaced stainless steel studs shop welded onto the waterwalls to above the auxiliary burner level. Suitably armoured "clink-chill" water-tube panels located along the lower sidewalls adjacent and above the grate surface (or lower side wall headers) will also be provided.

If a refractory material lining is employed in the lower furnace, it must meet the following requirements:

1. Refractory in the lower furnace section will be modular silicon carbide tube tiles (blocks), grate line tiles (blocks) and other related shapes or equal.

Provide St. Gobain T-Clip CN183D double fired refractory tiles (blocks) or approved equal in all high heat release areas suitable for firing MSW with the full range of HHV as indicated in Section 8.2.

St. Gobain T-Clip CN183 tiles may be used at other locations per tile manufacturer's recommendations.

Stainless steel hardware will be field welded to membrane.

All tile installation will be completed in accordance with manufacturer's recommendations.

2. As a minimum, refractory in furnace will extend upward from grate to top of fireball. Alternatively, a combination of Inconel cladding and refractory can also be used.
3. Areas where silicon tiles cannot be installed, gunnited or manually applied St. Gobain or approved equal silicon carbide will be installed, with shop welded studs and Y-anchors sufficient to support refractory applied.

Resistance welded studs will be fitted with ceramic protective caps.

Stud pattern will be one (1) stud per square cm or per manufacturer's recommendation.

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Minimum thickness will be 25.4 mm or as recommended by manufacturer in high wear locations.

4. All refractory materials will be selected with boiler maintenance and ease of refractory and boiler tube replacement in mind.
5. Refractory shapes will be removable for routine inspection and maintenance of water wall.

Bulging and destruction of refractory material is to be prevented by employing suitable expansion joints and stainless steel reinforcing. Ties and anchors will be made of stainless steel. The wall construction must be of air/gas tight design. Refractories used must be selected for a minimum service temperature of 1,760 °C and must be in accordance with ASTM C 64, Class 8. Air-setting, refractory, bonding, and wet/dry types of cement must be in accordance with ASTM C-105. Pre-burned tile and castable material must be 85% alumina heavy-weight refractory having a minimum service temperature of 1,537°C. Mineral block insulation must be a minimum of 50.8 mm thick with a minimum service temperature of 1,037 °C and in accordance with ASTM C-612.

Where Inconel is used in the boiler, it may be shop applied or spiral wound or installed in the field on the flue gas side of the tubes in accordance with proven methods.

Furnace will be designed for plus or minus 65 mm Hg pressure. An allowance for a design standard of 30 mm Hg can be granted provided that the DBO Contractor can demonstrate compliance with all applicable codes, standards and insurance requirements. The DBO Contractor must also give consideration to ID fan capacity in their design.

### 8.2.3 Evaporative Section

The steam drum must be fusion welded to ASME Boiler Code specifications (or an approved equivalent) and all welds completely radiographed.

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The final steam drum must be provided with a system of internal piping for feedwater, chemical feed, continuous blowdown, drum internals, separators, scrubbers, and dryers to effect positive separation of steam and water. Nozzles must be fusion-welded radially to the drum with ends projecting beyond the drum insulation and casing.

Provisions must be made to allow for steam sampling in accordance with ASME PTC 19.11 - 1970, Section 3 (ASME Performance Test Code), or an approved equivalent.

### **8.3 Steam Generator and Superheater**

The DBO Contractor must demonstrate its experience with the temperatures and pressures it proposes. The minimum and maximum steam pressures will be between approximately 4 MPa and 9.1 MPa. Steam generator must include all drum downcomer water supply and steam riser piping, piping between economizer and steam drum, piping between steam drum and superheater and piping between the primary and secondary superheater. Steam temperature control must be provided by an intermediate spray header before the parallel flow high temperature pendant superheater loop. A drainable superheater design is preferred. All piping must have suitable bends to minimize expansion/contraction stresses.

Direct viewing water gauges must be complete with high and low water alarm contacts, reflecting hood and floor stand mirror (if applicable), dial steam pressure gauge, main feedwater valves, chemical feed valve, and all trim valves.

Each unit must have a steam drum of at least 1500 mm diameter and be equipped for continuous blowdown. The solids content in the steam must satisfy requirements of the turbine manufacturer, and in any case not exceed one part per million.

The lower waterwall headers must be equipped with suitable (seal-welded) handholes along the length of the headers to permit ready access and internal inspection and permit mechanical tube cleaning.

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All areas of dust deposition must be arranged with hoppers, drain spouts and double dump sealing valves to minimize fly ash accumulations within the setting; horizontal surfaces must be avoided. Clear space between tubes must be at least 50 mm. Rotating regenerative air heaters are specifically not permitted. Steam air heaters are permitted but must be designed to prevent freezing.

Superheater(s) must be arranged to promote a constant superheater temperature characteristic over the control range and to minimize the amount of desuperheating required. Superheater surfaces must not be located in the radiant section of the boiler.

Tubes must be spaced and arranged to minimize erosion, slagging, and fouling and to promote effective cleaning of tube surfaces with sootblowers or a rapper system. A minimum of 760 mm (tube to tube centerlines) will be between each superheater section (bundle) to allow manual cleaning during outages.

Steam temperature control must consist of an intermediate spray heater section ahead of the parallel flow high temperature steam loop, spray water assembly including spray nozzle and orifice plate, spray heater lines and the appropriate temperature control components. Performance data sheets which indicate the amount of spray water over the range from the point of maximum turndown to MCR must be submitted for the Facility Design Review.

Superheater and steam drum pressure relief vents will be equipped with silencers.

#### **8.4 Economizer**

One continuous loop, horizontal tube, or a multiple header, vertical tube, economizer may be provided. Tubes must be in-line.

Economizer supports must allow free expansion of the tubes and headers.

Tube materials must be of seamless construction.



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The DBO Contractor must ensure that the proposed tubing manufacturers have the facilities required to produce the quality of tubes required. Finned tubes are not acceptable.

**8.5 Environmental Monitoring with Respect to Stack Gases and Auxiliary Burners**

Low NO<sub>x</sub> auxiliary burners are required, must use natural gas and be designed to pre-heat the furnace. The burners must be equipped with a burner management system which meets boiler insurance approval. The DBO Contractor will monitor and record furnace temperature as required by regulatory requirements.

One complete continuous emission monitoring (CEM) system must be furnished for each combustion train. The Facility must be equipped with a CEM system which satisfies regulatory requirements.

The following combustion gas parameters must be continuously monitored from locations downstream from the final air pollution control device and recorded: Oxygen (O<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), Nitrogen Oxides (NO<sub>x</sub>), hydrogen chloride (HCl), hydrogen fluoride (HF), moisture, and opacity. O<sub>2</sub> (dry gas basis), SO<sub>2</sub> and CO must be measured between the economizer outlet and the air pollution control equipment.

Reagent feed rates and combustion temperature and other process temperatures must also be continuously measured. These monitors must be certified, calibrated and maintained by the DBO Contractor in accordance with the manufacturer's specifications.

In addition, the DBO Contractor will furnish a long-term continuous dioxins sampling device at the stack or ID fan inlet ductwork. The dioxins will be collected over a period of up to one month. The sampling cartridge will be replaced, with the old cartridge sent to a laboratory for analysis.

All measurement units must be equipped with duplicate contacts and signal conditioners which will be suitable for remote read-out at the Regions offices in the future.

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The CEM must be capable of producing hard copies of the various emission parameters in color format and capable of generating monthly reports for submission to MoE and the Region of Durham.

The DBO Contractor will provide an electronic display board on the Facility exterior that displays the real time emissions and most recent stack test results. The electronic display must be large enough to be seen by the visiting public.

### **8.6 Refuse Cranes**

Two (2) refuse handling overhead bridge cranes and associated accessories must be furnished and installed. The overhead bridge cranes must be as manufactured by Whiting, KONE, Aceco, Reel S.A.S., Demag Cranes & Components GmbH or equal. Riding bridge cranes will not be allowed.

Each crane must be capable of continuous operation in the handling of solid waste consisting of light industrial, commercial, and household rubbish, ranging in density from 180 to 500 kg/cubic meter. Each crane must also be capable of rehandling (mixing and recasting) incoming material. The cranes must be used to feed refuse to each steam generator and for refuse management in storing and receiving refuse for the 761 tonne per day facility. Each crane must be designed to meet all applicable codes and specifications and ANSI/ASME B30.2 (or its equivalent). The crane must perform these operations with a temperature rise not to exceed the specified rating of any motor.

Each crane (hoisting, trolley and bridge) must be capable of operating with full load at minimum speeds determined to be in accordance with time-motion studies prepared by the original equipment manufacturer.

The cranes must be designed for indoor use under the following conditions:

Temperature

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Minimum----- -32 °C

Maximum----- 48.8 °C

Relative Humidity----- 100 %

Heavy Dust Loading

Each crane must be furnished with one (1) electrohydraulically operated orange peel type grapple as manufactured by Peiner, McGinnis, Mack, Anvil, or equal. The orange peel type grapples must be interchangeable with bucket types of grabs. One such bucket grab must be furnished with the crane installation for the purpose of cleaning out the refuse storage pit bottom.

The cranes must include separate motors for the hoist bridge and trolley drives. All motors must be totally enclosed, air-over, fan cooled (TEAO or IP54, IC417), rated for crane service.

The cranes must be designed for semi-automatic operation in order to minimize operator stress.

Power supply for cross travel must be by the festoon cable method. Cables must be suitable for easy access and long life.

Closed, remote crane control pulpit may be furnished and installed. Alternatively, crane controls may be installed in the control room. If the pulpit option is chosen, the pulpit must be designed for full hopper viewing and sized to accommodate a minimum of two crane operators and control consoles and allow operation of all cranes at the same time. The pulpit must also include independent fresh air systems with air conditioning, heating and ventilating equipment, electrical and fire safety water spray and portable devices, escape way, and accessories

Crane electrical gear must be located in a separate ventilated and cooled electrical room. Crane maintenance areas must be designed for easy access.

Refuse cranes must be capable of weighing and logging each and every individual bucket or grab load recorded by unit and time prior to its discharge into feed chute. The weighing method must

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have a minimum accuracy of +/-3% with the Facility operating at an expanded facility capacity of 761 tpd.

## **8.7 Refuse Stokers and Grates**

### 8.7.1 General

The stokers and grates must be suitable for burning municipal solid waste. The stokers and grates must be considered an integral part of the steam generator in that it must be subject to all applicable provisions of Section 5.0 of these Technical Requirements, Performance Guarantees, and requirements of tests and other warranties specified for the boiler.

### 8.7.2 Stokers and Grates

The stokers and grates must be designed in such a way as to provide an effective lifting and turning of the refuse. All stokers and grates throughout the grate area must be designed for even distribution of the incoming waste and the stokers must provide for positive air distribution under the waste load regardless of waste composition.

The refuse stokers and grates must be made of heat resistant cast alloy, and cast to minimize initial strain. Undergrate air seals must be provided at both front and rear ends in close contact with the under sides of the grates. Side seals between the edge of stoker grates and boiler must be the manufacturer's proven standard for this type unit.

The refuse grates will be a standard Martin Reverse-Acting Grate.

Grate support structures must be provided from the lower end of the charging chute to the residue discharge chute. Each grate section must have its individual, readily accessible hydraulic drive with individual controls for grate speed and grate travel. Individual grate drives must be easily accessible while the furnace/boiler is in operation. A sufficient number of spare drives will be maintained to ensure reliable operation of the grate. The DBO Contractor must provide control terminals with appropriate instrumentation signals for connection to a remote DCS control panel.

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Multiple hydraulic cylinder operated charging rams must be provided for each grate. At least one hydraulic cylinder for each longitudinal grate section must be provided and will be complete with all necessary hydraulic control valves for automatic/manual incremental operation. The feeding ram systems must be arranged so that they can be operated individually or in concert, with adjustable ram stroke length and ram speed.

A complete hydraulic system for moving the grates, the charging rams, and charging chute cut-off gates must be provided, along with the necessary electro-hydraulic control equipment for variable control of the reciprocating movement of the hydraulic cylinders. A complete automatic central lubricating system for all lubricating points of each stoker and moving mechanism must be furnished, including distribution piping, grease pumps, sensors, indicators, alarms and all required accessories. Electrical instrumentation signals from this lubricating system to the DCS must be provided.

## **8.8 Refuse Charging Hopper, Chute, and Feeder**

### **8.8.1 Charging Hopper**

Each furnace unit must be provided with one refuse charging hopper. The charging hopper must have a structural steel frame designed for attachment to the support.

The charging hopper must be of welded steel plate and designed to prevent refuse from bridging. A standard Martin charging hopper will be provided. The refuse pit sprinkler system will be used to provide fire protection of the charging hopper. A gate must be installed between the charging hopper and charging chute. The gates must be arranged to close automatically in the event of a power failure unless the chute is blocked by waste.

### **8.8.2 Chute**

Below each charging hopper must be a waste delivery chute. The waste chute must be of welded steel plate. A Martin standard chute will be provided. The lower section of the chute will be water cooled. The height of the chute must be adequate to provide an air seal.

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The chute will be provided with an access door. Low refuse level sensing devices (non-obstructive type) must be provided with alarms in the control room and for crane operators.

8.8.3 Refuse Feeders

Each furnace must be provided with a hydraulically actuated refuse feeding system for providing an even, constant flow of refuse onto the grates. The feeders must be of the volumetric type which can be controlled to vary the feed rate depending on the load of the unit, and must be capable of transporting any item of acceptable waste which passes through the chute.

**8.9 Boiler Fans**

Each steam generating unit will be provided with a minimum of one (1) combustion air (CA) fan, one (1) induced draft (ID) fan and an internal gas recirculation (IGR) fan. The fans must be furnished complete with all necessary accessory equipment.

The fans must be designed for combustion air flow requirements and ambient air conditions, taking into consideration different higher heating values of the MSW. In addition, the design static pressure of the CA and IGR fan must be sufficient to provide penetration into the furnace to achieve the turbulence and mixing required for this type of service. ID fan gas flow must include excess air, water, steam, leakage allowance, as well as calculated flue gas flow. This being done, the vendors will use the following margins to determine the fan test block rating above MCR:

ID Fan:

Capacity Margin: At minimum Net +(25%);

Temperature Margin at Fan Inlet for ID Fan: Net +14° C (or +25° F);

CA Fan:

Capacity Margin: At minimum Net +(30%);

Temperature Margin at Fan Inlet for CA Fans: Net +14° C (or +25° F);

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IGR fan:

Temperature Margin at Fan Inlet for IGR Fans: Net +14° C (or +25° F);

Capacity Margin: At minimum Net +(30%);

For all three fans:

Fan efficiency will be maximized at MCR conditions to greatest extent possible;

Static Pressure Margin: Net +32% of the variable portion of the system losses;

The fans must be as manufactured by TLT, Howden, Canadian Buffalo, Northern Blower or equal.

The CA fans will be sized with sufficient margin to ensure the efficient operation of the furnace/boiler/system. The fans must have radial tip or backward curved blade designs, including inlet boxes split housings, drains, independent oil-lubricated pillow block bearings and may include multi-louvre control dampers arranged for automatic/manual control, silencer, coupling, and motor drive with safety guards. Overhung wheel arrangements are not acceptable.

The CA fans must have inlet vanes.

Separate UFA and high pressure OFA systems must be provided for each process train complete with air nozzles, air supply ductwork from the fans to the furnace, air flow control dampers. CA fan inlet air will be ducted from the waste storage pit area.

### **8.10 Air Heaters**

Capability to preheat the UFA is required. The DBO Contractor must furnish and install a steam coil air heater between the CA fan and the underfire air plenum(s) on each steam generator. The coils must be designed with sufficient capacity to maintain a minimum design combustion air temperature under all weather conditions. Coil must be designed and controlled for protection from freezing. Freeze protection will ensure no condensate accumulation in a coil exposed to ambient air.

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The underfire combustion air heating system may be comprised of a drainable finned tube steam coil heat exchanger with headers. This air heater system will be arranged with access doors and drains to permit periodic steam or water washing. Several removable bundle sections which can be isolated from the steam and condensate connection and removed for cleaning and provided that the air is cleaned with a readily cleanable air screen. - The DBO Contractor may provide an alternate option (i.e. a bypass) to ensure the air heater tubes can be cleaned on-line without impacting the operation of the combustion air system. The finned air-preheater will use carbon steel fins over the carbon steel tubing or piping, arranged in an in-line tube pattern.

### **8.11 Condensing Heat Exchanger**

The use of a condensing heat exchanger is not being provided.

### **8.12 Air Pollution Control (APC) Systems**

#### **8.12.1 General**

The air pollution control system must be designed to comply with Exhibit 2 of Appendix 19 to the Project Agreement. At a minimum, the air pollution control system must consist of an acid gas scrubber (either dry or semi-dry), NO<sub>x</sub> control, mercury and dioxin control, and a high efficiency particulate collection system. One air pollution control system must be installed for each combustion train in the Facility. The air pollution control equipment must be designed, spaced, and arranged in such a way as to allow for the possible installation of future control technologies. Any type of dump stack where the flue gases are released into the atmosphere untreated will not be accepted. Proper insulation and lagging must be provided to limit condensation, build-up of fly ash, and corrosion. Further, it is requested that the Facility's consumptive water use be minimized with preference given to a zero discharge facility.

#### **8.12.2 NO<sub>x</sub> Control**

An ammonia based SNCR system along with VLN technology will be provided to meet or exceed the NO<sub>x</sub> emissions standards in Exhibit 2 of Appendix 19 to the Project Agreement.



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The quantity and mixture of water and reagent will be selected to provide the required nitrogen oxide (NO<sub>x</sub>) control.

The SNCR system will be provided complete with all required components including but not limited to injection nozzles, distribution systems, metering, circulation systems, pumps, storage tank and instrumentation and controls. The system will be designed for 19% aqueous ammonia solution, and insulation, heaters and heat tracing will be provided if required. Piping and tubing will be stainless steel downstream of pump discharge filters.

Injection nozzles for an SNCR system will be provided on a single level with provisions for a second level of injection. Wallbox assemblies will be provided for the second elevation of nozzles. Computational fluid dynamics (CFD) and other modeling will be used to determine the optimal injection nozzle locations and system design.

Automatic control of reagent injection rate will be provided with feedback from Facility NO<sub>x</sub> continuous emission monitor system (CEMS) instrumentation. Switching from one level of injectors to another will be completed manually.

A complete set of spare injection nozzle assemblies will be provided.

The NO<sub>x</sub> control system will be manufactured by Covanta or an approved equal.

8.12.3 NOT USED

8.12.4 Acid Gas Scrubbers

Each combustion train must be equipped with a dedicated acid gas scrubber so that all exiting flue gases are in compliance with Exhibit 2 of Appendix 19 to the Project Agreement.

Either dual fluid nozzle spray-dry scrubbers or rotary atomizer spray-dry scrubbers may be used. In either case, the acid gas scrubbers must be followed by a baghouse for particulate control.

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The spray-dry acid gas scrubbers must use a lime/water slurry injected into a reaction chamber to neutralize the acid gases. The quantity and mixture of water and lime, quality of pebble lime, slurry atomization, and scrubber operation must achieve the performance indicated in Exhibit 2 of Appendix 19 to the Project Agreement.

Injection of the slurry into the spray-dry scrubber must be by atomizing dual fluid nozzles or rotary atomizers. An entire set of spare nozzles or a rotary atomizer must be kept on site at all times. The atomization system must be designed and/or constructed so that the spares can be installed with the steam generator operating at nameplate capacity.

Atomization and spraying of water must result in complete evaporation of the water without wetting of walls and causing deposit formations. Flue gas residence time in the scrubbers will be sufficient to provide for the efficient removal of acid gas emissions.

The acid gas scrubbers must be insulated and have hopper accessories at least equal to those required for the baghouses, as described under Section 8.12.5, including hopper heaters, vibrators, and high level alarms. Special attention must be given to the design to avoid cold spots at structural supports and other penetrations through the insulation barrier.

The acid gas scrubber vessel must be constructed of carbon steel, 6.4 mm thick as a minimum or as required by the manufacturer. The bottom of the dry scrubber vessel must have a sloped cone hopper with angle of the cone selected to prevent build-up of solids on the hopper walls and also to avoid bridging over all discharge points. Hoppers must be provided with electrically driven or pneumatically operated double flap valves and knife gate isolation valves.

Minimum flue gas temperature exiting the spray-dry scrubber must be 130°C.

The lime system will consist of one storage silo having a pneumatic loading station (or approved equal). The silo will be sized for five days storage at normal operation for a 761 tpd facility or have a minimum capacity of two truck loads of pebble lime, whichever is more stringent. Silos must be equipped with vibrators or other provisions designed to prevent bridging and rat-holing

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of pebble lime. Lime feed systems must be supplied for each slaker. Two (2) slakers, each must be capable of slaking 100% of the pebble lime required for the expanded facility capacity of 761 tons per day. Slaked lime slurry must be stored in a mixed slurry tank. The system must be capable of modulating the flow of lime slurry to each scrubber in accordance with measured acid gases, or to maintain set flow rates. Sufficient spare pumps and feed system components must be supplied to assure reliable operation at all times.

Complete systems must be supplied including pumps, slakers, grit removal, blowers, feeders, piping, instrumentation and controls, foundations and other auxiliaries as required for complete and operating systems.

The ducts must be constructed of A36 carbon steel at the minimum. The bottoms of vessels used to collect dry residues must be sloped at angles selected to prevent buildup of solids on hopper walls and also to avoid bridging over any discharge points. Hoppers must be provided with poke holes and other provisions to facilitate unplugging of bridged hoppers. A36 carbon steel should be used for the lower portion of the hopper.

The spray-dry scrubber must be manufactured by General Electric, Babcock and Wilcox (Joy Niro), Clyde Bergemann EEC, Dupont Belco, Hamon-Research Cottrell, Alstom (Flakt), Siemens Environmental Systems, SPE-Amerex, SanFeng Environmental or approved equal.

#### 8.12.5 Dry Injection

A dry injection system may be provided as an alternative to a spray dryer absorber if demonstrated experience can be provided. Means for flue gas temperature control and humidification should be provided. One dry injection acid gas scrubber must be provided for each combustion/steam generator.

The dry injection acid gas scrubbers must use hydrated lime for HCl and SO<sub>2</sub> removal. Sodium bicarbonate (nahcolite) may also be used to enhance SO<sub>2</sub> removal. These reagents must be injected into a dispersion and reaction vessel. A water spray, which is injected separately from

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dry injection in order to control flue gas temperature or other means to control flue gas temperature entering the scrubber will be provided.

The quantity of reagents must be sufficient to efficiently and effectively meet the emission standards specified in Exhibit 2 of Appendix 19 to the Project Agreement. Injection of the dry reagents must achieve effective dispersion by either pneumatic or mechanical means.

Dry injection vessels must be insulated and have hopper accessories, if applicable, at least equal to those required for a baghouse.

Dry injection scrubbers must include a fly ash and reacted and unreacted particulate collection system with minimum requirements as described under Section 8.12. A portion of the collected flyash and lime mixture should be recycled to minimize the use of lime.

The reagent systems will consist of one storage silo for each reagent with a dedicated pneumatic truck unloading station (or approved equal) for each reagent. Reagent feed systems must be supplied for each generator line, capable of modulating the flow of reagents in accordance with measured acid gases, or to maintain set flow rates. Sufficient spare blowers and feeders must be supplied to assure reliable operation at all times.

Complete systems must be supplied including blowers, feeders, piping, instrumentation and controls, foundations and other auxiliaries as required for complete and operating systems.

Ducts and vessels must be constructed at the thickness required by the manufacturer. The bottoms of vessels used to collect dry residues must be sloped at angles selected to prevent build-up of solids on hopper walls and also to avoid bridging over any discharge points.

The flue gas temperature exiting the dry injection system must be adjustable down to 130°C.

The dry injection acid gas system must be manufactured by Alstom, Siemens, Research Cottrel, Von Roll, Environmental Elements, Babcock Power, Kuttner, Allied Environmental Solutions or approved equal.

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8.12.6 NOT USED

8.12.7 Activated Carbon Injection System

One activated carbon injection system will be provided for each combustion/steam generator at the Facility.

Other specialty carbons such as brominated carbon may be proposed, other reagents may be proposed or no activated carbon injection system may be proposed. APC systems will provide the mercury and dioxin removal efficiencies indicated in Exhibit 2 of Appendix 19 to the Project Agreement.

If an activated carbon system is provided, the system will consist of one storage silo having a pneumatic truck unloading station. The silo will have a minimum of four days storage for the Facility capacity of 400,000 tonnes per year (1,218 tpd) or a minimum capacity of one and one half truck loads of activated carbon, whichever is more stringent. Silos will be equipped with vibrators or other provisions designed to prevent bridging and rat-holing of activated carbon. Activated carbon feed systems will be supplied for each generator line, capable of modulating the flow of activated carbon by means of weigh feeders in accordance with prescribed inputs and activated carbon feed measurement requirements. Provisions to cross connect the independent feed systems will be supplied to assure reliable operation at all times.

Complete systems will be supplied including blowers, feeders, piping, instrumentation and controls, foundations and other auxiliaries as required for complete and operating systems.

Injection of the dry activated carbon will achieve effective dispersion. Injection will be into the ductwork located between the spray dryer and the economizer. Design will allow for proper distribution of activated carbon evenly to all cells of the baghouse.

The activated carbon system will be manufactured by North America's Schick, Smoot or approved equal.

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8.12.8 Baghouse

A baghouse must be provided for each unit in the Facility. The baghouses must be designed to clean the dry scrubber outlet gases, if a dry scrubber is provided.

All combustion/steam generators at the Facility must provide the emissions control efficiencies indicated in Exhibit 2 of Appendix 19 to the Project Agreement.

The baghouse must be either reverse air or pulse jet type baghouse consisting of multi-compartment units with fabric filter bags. If a pulse jet baghouse is selected, the bag frames must be carbon steel or approved equal. On reverse air units, the connection of the bag to the tube sheet must be by a quick disconnect system designed to hold the bag securely in place yet allow easy removal and replacement.

Net air-to-cloth ratio for pulse jet baghouses must be no greater than 1.2:1 m/min under the maximum flue gas flow conditions with one module offline. For reverse air baghouses net air-to-cloth ratio must be no greater than 0.6:1 m/min under the maximum flue gas flow conditions with one module offline.

Fabric material must be fibreglass with fabric coating, Gortex or similar material or Ryton as approved. The selection of bag material and fabric coatings must be defended on the basis for the intended service.

The baghouse must be insulated with design considerations to prevent corrosion, buildup of fly ash and spent salts, and erosion. Special attention must be given to the design to avoid cold spots at structural supports, doors, and other penetrations through the insulation barrier. Hopper accessories must include hopper heaters, vibrators, and high level alarms. Baghouse collection screw conveyors will have rotary valves to provide a seal for bag house hoppers. Each hopper will have an isolation device.

Hoppers must be sufficiently sized and sloped at an angle to prevent buildup of fly ash. Adequate poke holes and other means will be provided to aid clearing of a bridged hopper.

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The baghouse must be manufactured by General Electric, Babcock and Wilcox (Joy Niro), Clyde Bergemann EEC, Hamon-Research Cottrell, Alstom (Flakt), Siemens Environmental, Babcock Power Environmental, SPE-Amerex, SanFeng Environmental, MicroPul, Kuttner, Allied Environmental or approved equal.

**8.13 Residue Handling System**

For each boiler/furnace/APC system, a complete residue conveying system must be furnished and installed. Common conveyors may be used to transport residue from each unit to the storage facility. The storage facility will have a dedicated filtered ventilation system that also draws air from the grizzly and conveyor gallery. Adequate means of redundancy must be provided that would prevent the shutdown of more than one boiler/furnace/steam generating unit if a system component must be taken out of service. It is not required to provide identical systems for redundancy. For example, front end loaders can be used to transport bottom ash in case the bottom ash conveyor system is not in service.

The system proposed must provide for the separate collection of bottom ash and the air pollution control residue (fly ash and spent salts of reaction). The boiler residue (i.e., fly ash from the convective passes) will be combined with the air pollution control residue.

The system must be designed for a minimum number of transfer points. The system must be capable of handling both bottom ash and fly ash separately as produced from the burning of processible waste as described in Section 4.3, Fuel Analysis, and from the treatment of the flue gas as described in Section 8.12, Air Pollution Control Systems. Residue must be transported from the Facility to the Designated Landfill or processing facility by truck.

The method of residue handling technology proposed must be that for which the DBO Contractor has demonstrated two years prior experience.

8.13.1 Conveyors

Bottom ash conveyors must prevent dusting so as not to present a hazard to either operations or maintenance personnel.

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Bottom ash conveyors must be capable of handling residue containing glass, steel packing bands, wire, bed springs, metal rods, steel cans and drums, aluminium slag, rocks, bricks, concrete, and other materials commonly found in MSW residue without causing choking or plugging of the system. Conveyors must be reliable and easily maintained.

Minimum width for the bottom ash conveyors prior to bulky separation must be 1.5 meters. If bulkies are separated from the smaller bottom ash material conveyors may be 1.25 meters wide after separation.

A wet bottom ash residue removal system as described below must be used, however an alternate arrangement may be proposed by the DBO Contractor for consideration. Residue from the grates siftings from under the grates for each unit must be discharged into a Residue pusher type Residue discharger. The equipment must be capable of using wastewater from the other Facility operations. The Residue pusher type Residue dischargers must consist of a quench tank equipped with a hydraulically operated Residue pusher. The Residue must be discharged from the Residue pushers onto a conveyor which must convey the Residue to a Residue building dedicated to bottom ash only. The residue from the boiler and economized hoppers will be part of a separate collection system that does not involve a quench tank and be directed to the fly ash surge bin. All system components must be designed with housekeeping and safety in mind.

The bottom ash residue handling system must be designed to satisfy the requirements of Section 4.4.7 for future Residue processing provisions.

The bottom ash residue system must be sized such that any item able to pass through the refuse feed chute must be able to be passed by the bottom ash residue handling system to the bottom ash residue building. The bottom ash residue building must be designed for a minimum of four days' usable storage of Residue from a 761 tonne per day Facility. The bottom ash residue building and all conveyors external to buildings must be completely enclosed with a filtered ventilation system. The bottom ash residue building must be fully enclosed and must not be connected to any other structures in such a fashion as to enable dust to infiltrate to other parts of the Plant.



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The vibrating pan or belt conveyors used must be heavy duty construction, sized to handle the type of Residue typical of solid waste as described in Section 4.3, Fuel Analysis.

Boiler hopper ash and air pollution control system fly ash must be collected from each boiler, economizer, and air pollution control system hopper with drag conveyors, screw conveyors, or a pneumatic conveying system to two (2) 2-hour surge bins with conditioning apparatus. After conditioning the fly ash will be stored in bunkers. The combined storage capacity for conditioned fly ash system will be 21 days for a 761 tpd Facility. Provisions will be made to prevent dusting during transfer to a disposal truck. The surge bins will be fully enclosed and dustproof and located in the residue building

Boiler ash and fly ash drag conveyors, screw conveyors, or pneumatic system must be completely dust-tight to prevent leakage of fly ash.

Residue trucks will be operated so as not to present a hazard to either plant personnel or the general public while Residue is being loaded and transported to the landfill. The loading station at the Facility must be fully enclosed. In general, all Residue loading and unloading systems must be designed to meet the general requirements for residue loadout established by MoE. In particular, no visible emissions of dust from any doorway, window, vent, louver or other opening are allowed.

All residue conveying and handling systems, including silos, and conveyors, must be fully automatic. Sensors must be provided with alarms for readout and recorded on the DCS in the Central Control Room for any system failure.

All Residue mixing and/or handling areas must be fully enclosed, well ventilated and sufficiently protected from extreme weather conditions, but unheated. In addition, all such areas must be designed to facilitate cleanup and good housekeeping. All outside conveyors handling Residue must be fully enclosed and insulated, as required.

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All furnace/boiler fly ash/air pollution control equipment fly ash collection hoppers must be insulated and equipped with motorized, pneumatic, or solenoid operated positive closing single or double dump valves, as applicable, except that baghouse collection screws will be fitted with rotary vales at their discharge. The dump valves or rotary valves must be properly sized to prevent pluggage during operation.

All fly ash drain spouts must be provided with angled 100 mm OD "Tee" connections (with tight threaded caps) located to allow for obtaining fly ash samples periodically.

The Residue handling system must be designed so that projected plant expansion can be accommodated by adding only the conveyors dedicated to the additional furnace/boiler.

The residue handling system must be designed to achieve all performance requirements included in these Technical Requirements.

A reasonable design density of the ash for volumetric sizing should be used for conveyor and structural sizing. The design densities will be as follows:

	<u>Volumetric Sizing Density</u>	<u>Structural Sizing Density</u>
Bottom Ash	1,120 kg/m <sup>3</sup>	1,600 kg/m <sup>3</sup>
Fly Ash	480 kg/m <sup>3</sup>	800 kg/m <sup>3</sup>

Acceptable manufacturers of flyash handling systems are Materials Handling Equipment Co., Wolf Materials Handling Systems, S. Huot, EDC, CDM Systems, Allen Sherman Hoff, CP Manufacturing Co., Jervis B. Webb, Martin Sprocket & Gear, Nordstrong Equipment Ltd, Screw Conveyor Corp. or equal.

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Acceptable manufacturers of bottom ash handling systems are Vulcan, Jervis B. Webb, S. Huot, Wolf Material Handling Systems, CP Manufacturing Co., EDC, Allen Sherman Hoff, Nordstrong Equipment Ltd, Process Barron or equal.

Note: Vibrating conveyors will be supplied by General Kinematics, Triple S. Dynamics, or equal.

#### **8.14 Ferrous and Non Ferrous Recovery System**

A ferrous recovery system and non ferrous recovery system must be provided for the Facility which must meet or exceed the requirements for ferrous and non-ferrous recovery included in the Project Agreement. This system may consist of conveyors, magnets, eddy current separators, screens and other equipment required for a complete, operational system. Ample space and access should be provided for maintenance of all system components.

Bottom ash should have oversized bulky materials removed prior to recovery of smaller ferrous materials. Use of drum magnets is preferred over belt magnets for ferrous recovery. System should be designed with product cleanliness in mind to minimize residual ash being carried with the recovered metal. Ferrous recovery will be at least 80 percent of all material greater than 2.5 cm and less than 15 cm.

Non-ferrous metal should be recovered after all ferrous metal has been removed from the residue. Eddy current separators should be arranged to minimize possible damage from tramp ferrous metal. Non-ferrous recovery will be greater than 60 percent of all non-ferrous greater than 1 cm and less than 5 cm.

Separate storage areas should be provided for ferrous and non-ferrous metal. Storage areas may be incorporated into ash processing buildings and processing areas.

#### **8.15 Stack**

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One (1) steel stack with a common flue will be furnished and installed. The stack must disperse flue gases from the furnace/boilers that burn solid waste as described in Section 4.3, Fuel Analysis. Each flue must be cylindrical. "D" shaped flues are not acceptable. At least the top 3 meters will be 316L stainless steel or better material.

Stack must be designed for an exit gas velocity (each flue) of about 15 – 18 meters per second.

Measures to reduce or eliminate nuisance stack emitted noise to nearby residences must be considered in the DBO Contractor's design.

Stack height must be based on Good Engineering Practice (GEP) and approved by the Regions and the MoE. The DBO Contractor will provide a dispersion model that shows that ambient air quality standards will be met.

Stack must be designed for all conditions, loads and effects to which it may be subjected, including basic design, corrosion, wind loading, thermal load, earthquake loading, dead loading, reaction forces and vibration effects from vortices produced.

Walls of the flue must be insulated to minimize acid condensation.

All stack materials must conform to ASTM specifications for service in an acidic environment and have demonstrated compatibility with and suitability for design requirements. A 316L SS stack is not required by these Technical Requirements, with the exception of the top 3 meters. As stated in the specification in Section 8.15, the top three (3) meters of the **FLUE** (not stack) must be 316L SS or better. Access must be provided from ground level to the upper level maintenance platform and sampling platforms located on the stack or the breeching. All ladders, walkways and platforms must be designed and installed in accordance with OPSS standards. The entire length of any ladder must be enclosed in a safety cage. CEMS ports and sampling ports must be installed for each boiler train. Adequate back pull space must be provided to allow testing equipment to be inserted into each port. Ample working space must be provided on all testing platforms. Sample ports may be located in the flue duct in lieu of in the stack.

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Obstruction marking and lighting must be provided in accordance with Transport Canada regulations.

Stacks must be provided by Hamon Custodis, Commonwealth Dynamics, Structural Preservation, International Chimney, Warren Environmental, Pullman Power or equal.

**8.16 Combustion Air and Flue Gas Ducts, Dampers, and Expansion Joints**

The combustion air and flue-gas duct system must comprise:

1. The flue-gas ducts from the economizer outlet to the air pollution control equipment and from the air pollution control equipment to the stack including all necessary attachments to and from the ID fan;
2. The CA fan suction ducts from the refuse storage building to the CA fan;
3. The under-fire air ductwork from the CA fan to the under-fire air plenum;
4. The SA supply ductwork from the CA fan to the nozzles.
5. The IGR fan suction ductwork from the furnace to the IGR Fan.
6. The discharge ductwork from the IGR fan to the furnace.
7. Space must be reasonably provided to allow for the installation of SCR equipment at a future date.

Ductwork must be welded steel plate construction reinforced as required. Ducts must be air-tight and be of sufficient minimum thick carbon steel with exterior stiffeners and external structural steel supports as required. Ductwork and supports must be designed and fabricated in accordance with OPSS and any other applicable rules and standards; welding must be in accordance with all applicable requirements.

Access doors must be provided in each run of ductwork of 600 mm square or round diameter or greater. Doors must be located on both sides of turning vanes and between each piece of

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equipment. Hand holds must be provided both inside of and outside of the ductwork as required for the safe entry to and exit from the ductwork. Rungs, footholds, and handrails, fitted to vertical and steeply sloping duct runs, and guard rails at abrupt drops in duct runs must be provided to aid and protect men working inside of the ductwork. Access doors must be equipped with quick tightening clamp bolts and designed to provide an air tight seal.

Expansion joints must be provided to permit thermal expansion of the ductwork system without skewing and imposing excessive reactions on the ductwork, the supporting structures, or the connected equipment. Expansion joints must be of the bellows type, with fabric elements consisting of elastomer coated fibreglass of sufficient membrane strength to withstand the internal design pressure and temperature. Expansion joints must be provided with integral insulation and sliding liner plates, fitted to overlap in the direction of flow. Drains and cleanout nipples must be provided. Aluminium weather hoods must be provided for outdoor exposed expansion joints.

### **8.17 Sootblowers and Furnace Probes**

A complete, automatic, sequential, electrically driven and controlled, sootblowing system, designed to effectively clean the heat transfer surfaces including the primary superheater, and the economizer sections, must be furnished for each unit. The first row of tubes exposed to sootblower steam spray must be protected by stainless steel shields.

The DBO Contractor must supply sootblowers in number and arrangement to effectively clean the furnace, the convection pass, and heat transfer surfaces so that under normal operating conditions when firing the fuel specified in Section 4.3, Fuel Analysis, rated loads and performance can be continuously met.

In high temperature zones, lances and wall blower nozzle tubes must be retractable. Lances, wall blower nozzle- tubes, and nozzles must be constructed of alloy steel suitable for the temperature conditions.

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Furnace temperature probes for monitoring the gas temperature entering the superheater during start-up must be provided for each unit. Probes must be furnished complete with dual element, Type E, chromel-constantan thermocouples. Infrared technology may be proposed as an alternative to using thermocouples.

Furnace temperature probes designed to monitor flue gas temperature must be provided.

Sootblowers and furnace probes must be as manufactured by Diamond Power, Bergemann or equal.

## **8.18 Turbine-Generators**

### 8.18.1 General

A regenerative cycle turbine with multiple extractions for in plant use is expected. Turbine must be designed to accept all of the steam produced by the Facility operating at the MCR. The turbine may be manufactured to IEC 45-1 Steam Turbines.

Turbine extractions will be provided to supply steam to two (2) low pressure closed feedwater heaters and a deaerator. The steam turbine-generator set should be complete with an air cooled condenser (or an approved permitted alternative cooling system), non-condensable removal package, and all required ancillary equipment. The services of the manufacturer's representative during unloading, installation, start-up and testing must be provided.

A suitable tap and valve arrangement will be furnished in order to allow for extraction steam to be taken out of the turbine. This arrangement will be needed for the thermal delivery system. Control will be by a flow control valve. Moisture removal and water induction control is required for the capped extraction.

The turbine-generator and accessories must be designed for the following operating conditions:

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The governor and turbine controls must have the capacity to hold turbine speed below the overspeed trip setting following local separation under isochronous conditions (instantaneous loss of electrical load), while initially operating with the steam valve wide open.

Backpressure will be 127 mm Hg or less at the design dry bulb temperature listed in Section 8.19.2.1 of these Technical Requirements.

Steam Flow, kg/hr (lb/hr) Sum of MCR furnace/boiler steam outputs

- (a) Free moisture content in the last turbine stage under all loads should be within the manufacture's recommendations.

Energy balances will be provided for the facility for several load points. At a minimum, energy balances will be provided for the following conditions; all boilers at MCR, all boilers processing waste with an HHV of 15 MJ/kg and all boilers processing waste with an HHV of 11 MJ/kg. Heat balance calculations must be based on the ASME Steam Tables, and presented in metric.

Turbine heat rate must be calculated in accordance with the following formula:

$$HRG = \frac{QT}{PG}$$

PG

where: HRG = Gross heat rate, KJ/kWhr

QT = Heat supplied to turbine, KJ/hr

PG = Gross generator output measured at generator terminals, kW and:

- (b) Seal steam and other steam leakages must be the maximum expected after 5 years' operation with quoted clearances.
- (c) Feedwater flow equals main steam flow.

The turbine set must be designed to withstand throttle steam temperatures in excess of the specified rated temperatures as follows:



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- +8 °C, provided the 12-month average is not greater than throttle steam temperature +2.8 °C.
- -14 °C, during abnormal conditions for operating periods not more than 400 hours in a 12-month period.
- +28 °C, for swings of 15-minute duration or less, aggregating not more than 80 hours per 12-month period.

The turbine manufacture's back pressure limitations will be stated and coordinated with the air cooled condenser performance curves (if selected) to confirm that the turbine can operate safely with maximum steam flow at the maximum ambient temperature.

The turbine must be complete with all related accessories including, but not limited to, the following major items:

- a. Extraction nozzles for feedwater heating steam to closed heaters and deaerating heater must be provided.
- b. Turbine inlet steam stop and control valves, extraction non-return and motor operated or pneumatic block valves must be provided.
- c. Complete console type hydraulic and lubricating oil system(s) designed for the turbine-generator unit. Lube oil pumps must include main and auxiliary tube oil pumps driven by 60 Hz AC motors with a DC motor driven emergency lube oil pump. A gear driven pump is acceptable, but a DC electric back-up for the T-G lube oil system must be provided.
- d. Means of isolation of stop valve during chemical cleaning and steam blowing.
- e. An AC motor driven turning gear system connected to the diesel generator will be provided to assure a reliable system when unit is disconnected from the outside power grid.
- f. Complete steam sealing and gland steam exhausting and cooling systems.

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- g. Internal moisture separators and drainage for all turbine stages where moisture quantity could result in excessive blade erosion.
- h. A grounding device between the stationary and rotating parts of the turbine to prevent the flow of turbine shaft currents between the rotor and the bearings.
- i. Complete turbine control system and instrumentation for safe, reliable operation.
- j. Special tools, including the turbine and generator rotor lifting equipment and all other special lifting slings, wrenches, and tools, including any metric tools, required for repair, maintenance and overhaul.
- k. Capability to meet district heating loads (as specified in 8.18.2), if extraction steam is used as the energy source.

Acceptable manufacturers of turbine generators are Alstom, Dresser Rand, GE, Mitsubishi Heavy Industries, Siemens, Man Turbo, Fuji or equal.

8.18.2 Future District Heating Capability

It is the Region's intent that the initial phase of the energy from waste Facility includes the essential design, construction, and equipment selection required to support a future local district heating system. To the greatest extent feasible, the DBO Contractor's planning and concept development should minimize impacts on electrical energy output associated with anticipation of a future district heating system and cost – effectively defer capital investments until such time as the Regions may choose to implement district heating.

The DBO Contractor's facility design will include the necessary provisions and space to incorporate the future equipment that may be required to supply hot water to the Courtice WPCP and a future district heating system. The future district heating system would potentially supply hot water heating to customers in the surrounding Clarington Energy Park and the adjacent Courtice WPCP.

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It is noted that with respect to the potential future demand of 7.4 MW, the only accommodation the DBO Contractor is providing is the adequate sizing of the turbine's medium pressure extraction. Space for all other components, including, piping, controls and control panels, valves, interconnects, strainers, filters or clarifiers, pumps, boilers and backup generator, will be provided.

## **8.19 Heat Rejection**

### **8.19.1 Steam Dump Capability**

The plant must have a means of dumping steam in the event of a turbine trip and continue to process MSW at MCR regardless of turbine outage. Provision must be made to dissipate energy from combustion until the plant can be shut down in an orderly fashion and without damage. If the turbine can resume operation after the plant cooldown, it must be possible to resume operation immediately. The means for dumping steam must be compatible with the air cooled condenser.

#### *8.19.1.1 Steam Dump Alternatives*

1. The facility will be capable of operating in the dumping mode for prolonged periods of time (greater than one day). The air cooled condenser will be provided as the cooling system for the steam cycle and serve as the dump condenser when the turbine is out of service.

### **8.19.2 Cooling System**

#### *8.19.2.1 Air Cooled Condenser*

The design dry bulb temperature will be approximately 29.4 °C, but must be confirmed by the DBO Contractor. The ACC must be designed to operate under all ambient conditions anticipated at the site. The system will be designed with appropriate controls, devices and provisions to not freeze under any of the ambient conditions and steam loads anticipated.

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The condenser must be constructed of steel plate, pipe and tubes, and the design will be adequate for the intended service. Provisions will be made for differential expansion between tube banks and condenser supports and anchors. All nozzles 64 mm and larger should be butt welded, and connections 50 mm and smaller should be socket welded.

Support structures will be designed for snow, wind, and earthquake loads as appropriate for the area.

Flanged connections will be avoided where possible. Where used, they will have machined faces.

Tube supports will be of sufficient number and properly spaced to provide adequate support for the tubes.

To minimize the amount of field welding, shop assembled components will be of the largest size possible commensurate with transportation and handling limitations. Weld-ends for field welds must be machine bevelled.

The finned tube bundles will consist of finned tubes and headers arranged for efficient steam distribution and drainage. The tube material will be carbon steel, welded or seamless type. Fin material and construction will be suitable for the conditions, and thickness will be sized to minimize damage due to water washing.

Freezing will be prevented by a combination of features of the ACC. Upon extremely low temperatures the ACC can be sectionalized and accept steam in only a single section, reducing the heat exchanger surface, thereby aiding in maintaining the condenser temperature above freezing. The ACC will be equipped with 2-speed reversible fans and may be provided with manually adjustable pitch blades. These features allow the fans to be adjusted to provide the proper air flow to maintain the condenser temperature above freezing. In extreme conditions, the fans are reversed, conserving heat in the condenser to prevent freezing.

Corrosion and fouling protection will be managed with the proper coatings, insulation and cleaning. All non-galvanized carbon steel surfaces will be prime and finished painted for

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corrosion protections. Cold lines such as cooling and process water will have anti sweat insulation. External heat exchange surfaces will be pressure washed as needed to maintain minimal fouling.

Edge-wound fins and L-footed fins on CS base tube are unacceptable.

Smooth fin surface is preferred.

The steam and drain headers will be of all welded construction. Gasketed joints and threaded plugs are not acceptable.

Fan hubs will be dynamically balanced and fan blades statically balanced prior to shipment. Fan blades will be of Reinforced Fiber Plastic or aluminium.

Fans will be driven by two-speed electric motors. They must be totally enclosed fan-cooled designed in accordance with all applicable requirements. The motors must be capable of operation within their horsepower rating under all ambient air temperature conditions. Gearboxes must be parallel shaft. The AGMA service factor will be 2.0. Gearboxes will have forced lubrication.

One vibration switch per motor will be supplied. It will be of manual reset type.

The steam duct size will be optimized.

The steam duct will be carbon steel material. The steam duct will be shop fabricated in largest possible transportable sections. The ends will be bevelled suitable for field welding. The duct supply will include the flanged transition piece to the turbine exhaust as well as the required expansion bellows and support saddles.

Noise requirements will be maintained during all operational events of the ACC including a steam dumping scenario.

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Steam distribution piping to distribute steam to tube bundles, condensate manifold to drain condensate to the condensate receiver, and air take off manifold to remove noncondensibles to ejectors will be supplied. The material will be carbon steel.

Inter-connecting piping such as condensate transfer pump suction line, pump discharge line, condensate discharge line within the condenser plot to boiler system, drain line inter/after condenser of ejector system will be supplied. The material will be carbon steel. The piping must include the necessary valves.

A rupture disk assembly will be supplied for the protection of air cooled condenser only.

The condensate receiver will be of carbon steel. The condensate receiver will provide a storage capacity stated in Section 8.19.4 of these Technical Requirements. The condensate receiver will be provided with the required connections.

The steel structure will include supporting structure for air cooled condenser, motor/fan support, fan deck, fan ring and support structure for condensate receiver and ejector system.

The structural design will be designed in accordance with appropriate codes and standards for specified seismic condition, wind and snow loads.

Walkways and platforms will include motor maintenance platforms and maintenance platforms for condensate receiver and ejector systems to allow easy access and maintenance. The scope of supply will also include ladders to gain access to the platforms and tube bundles as required for normal maintenance activities.

The necessary valves and instruments required to operate the air-cooled condenser will be provided and shown on the vendors P & I diagram. Vacuum gauges will be installed in conspicuous, accessible locations.

An electronic control system will be supplied that will allow for automatic mode of operation with manual override over the range of steam loads and ambient temperature condition.

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The system will consist of local instrumentation, sensors, transmitters, receivers, math unit, sequence and logic units, memory module, various panels, and cabinet.

The system will control the turbine back pressure. The method of air flow control may be any of the following or combination thereof:

- Multiple Fans (one per cell)
- Two forward speeds and one reversible
- Sectionalizing Valves.

Acceptable manufacturers of air cooled condensers are SPX Marley, GEA Cooling Systems, Holtec, Parharpur or equal.

8.19.3 Not Used

8.19.4 Condensate Collection Tank (Condensate Receiver)

The DBO Contractor must supply a condensate collection tank (CCT). The CCT(s) must have sloped bottoms and drains to provide ease of clean-out. The minimum storage volume, when operating at mid-level, must be of sufficient capacity to retain the total quantity of steam condensed at turbine bypass mode flow for five minutes.

8.19.5 Air Removal Equipment

Air removal equipment for each condenser must include one completely assembled package consisting of, but not limited to:

- Steam supply piping including automatic pressure control valve, strainer, block valves, and pressure and temperature gauges.
- Holding ejector elements consisting of two stages with two 100% capacity elements for each stage.
- One atmospheric hogging ejector.

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- Surface type inter and after condensers, with 304 or 316 SS tubes and stainless steel tube sheets.
- Interconnecting non-condensable, steam and condensate piping and fittings including valves, traps and instrumentation.
- Design, construction and testing in accordance with HEI standards.

In lieu of steam holding ejector system, two (2) 100% capacity vacuum pumps and accessories, as manufactured by Nash or equal, may be furnished and installed.

## **8.20 Boiler Feed Pumps**

### 8.20.1 Drive Arrangement

Feed pumps must be supplied as follows:

- Two (2) 50% capacity electric feed pumps, which can supply feed water at plant MCR.
- ONE (1) 100% capacity steam driven feed pump which can supply feed water at plant MCR.

### Design Requirements

A minimum additional 10% head (above MCR requirement) must be achievable by replacing impellers with maximum diameter impellers as the sole modification. The pumps must take suction from the deaerator tank. Pump characteristics must include the following margins:

1. Design flow: Turbine VWO + 15%  
Design head: 106% of the lowest boiler drum relief valve pressure setting plus 10% of the frictional head loss due to pipe, fittings and valves (including control valve)  
Design temperature: 13.9°C margin
2. Boiler attemperator water is included in VWO flow.



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3. NPSH: Pumps must survive a turbine trip without cavitation. NPSH available will exceed NPSH required by a minimum of 10% when the deaerator is at minimum level (level associated with the feedwater pump trip)

**8.20.2 Performance Characteristics**

The feedwater pump arrangement chosen must be capable of providing the full feedwater flow required for full capacity plant operation as well as providing partial flow to individual boilers if one or more boilers are shut down. The DBO Contractor must certify that computations have been performed to determine that adequate NPSH is available to the boiler feed pumps during transient load conditions, including turbine trip at full load.

**8.20.3 Feedwater Control System**

A three element feedwater control system, Bailey or approved equal, must be provided.

The three element control system must use temperature / pressure compensation, drum level, steam flow and feedwater flow to control feedwater flow.

If a feedwater pump trips, the control system must place the spare in operation without a plant trip.

Acceptable manufacturers of feedwater pumps are [REDACTED] or equal.

**8.21 Condensate Pumps BLG ParaTab L2**

**8.21.1 Condensate Pumps**

Two (2) 100% horizontal condensate pumps and motor drives, and associated accessories must be provided.

Pumps must be designed to take suction from the condensate receiver and deliver condensate to the deaerator as a minimum for the following conditions:

Design flow: flow at VWO +5% ;

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Design head: capable of supplying the deaerator up to the deaerator relief pressure.

Attemperator water (for turbine bypass mode) is included in VWO flow.

Acceptable manufacturers of condensate pumps are [REDACTED]  
[REDACTED] or equal.

## **8.22 Miscellaneous Pumps**

All miscellaneous pumps as required in the proposed Facility design must be furnished.

The miscellaneous pumps and accessories (if applicable) to be furnished and installed by the DBO Contractor must include, but not necessarily be limited, to the following:

- Boiler chemical feed pumps.
- Fire pumps.
- Plant sump pumps.
- Auxiliary cooling water pumps.
- Service water pumps (if required).
- Desuperheater booster pump (if required).
- Wastewater collection sump pumps.
- Forced main wastewater pumps (if required).
- Motors, couplings, coupling guards and baseplates for the above pumps as applicable.
- Special tools required for maintenance and installation.
- Potable water distribution pumps as required.

Pump capacities and heads for all pumps must include, as a minimum, a 20% and 10% margin respectively based on the DBO Contractor's final piping arrangement.

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Pumps must be designed, as a minimum, in accordance with the manufacturer's standard for the service intended.

The DBO Contractor must perform a failure mode and effects analysis for the various pump categories. In addition, the DBO Contractor must develop a hierarchy according to which pump functions are grouped based on critical safety needs. The DBO Contractor must submit for the Facility Design Review the results of this analysis indicating for which function redundant pumps, priority circuitry and/or back-up power supplies are needed.

Acceptable manufacturers of Misc. horizontal pumps are [REDACTED] or equal.

**8.23 Air Compressors, Air Dryer and Accessories**

A minimum of two (2) full capacity air compressors with aftercoolers, two (2) air receivers, one (1) air dryer with bypass capabilities without shutting down both compressors, associated accessories and services of the Manufacturer's representatives for technical direction during installation, start-up and testing must be provided. The dryer must produce air with a dew point of  $-54^{\circ}\text{C}$  or less. Prefilter will produce an air quality with hydro carbon content, exclusive of non-combustibles as close to zero (0) ppm as possible; and under no circumstance exceeding 0.01 ppm with remaining oil content under normal operating conditions.

Compressors and compressor motors must be provided with a control system which must load and unload the compressors during operation. Compressor operation must alternate between the two compressors during normal operation. If one air compressor trips, the control system must automatically place the stand-by compressor in operation without low air pressure trip. The control system must be the compressor manufacturer's standard offering for this type of service. All couplings and drives both must be covered with metal guards.

The air compressor system must be designed to provide plant air and instrument air for the Facility. Separate controls must be provided for plant air and instrumentation air.

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Acceptable manufacturers for air compressors are [REDACTED]  
[REDACTED] or equal.

Acceptable manufacturers for air dryers are [REDACTED] or equal.

**8.24 Deaerating Feedwater Heater**

One (1) deaerating feedwater heater and associated accessories must be furnished in accordance with all applicable standards. The deaerating feedwater heater must be furnished complete with all appurtenances including the following:

- Horizontal storage tank.
- Support legs and saddles or brackets, platform support and insulation clips and angles and other attachments.
- Steam, water, drip, drain, vent, instrument, and control connections.
- Manholes and access doors.
- Relief valves.
- Vent valve with suitable orifice drilled in disc.
- Platform and ladder for servicing the deaerator.

The residual oxygen content in the effluent feedwater leaving the storage tank must not exceed 7 parts per billion (ppb) as determined by the HEI Method and Procedure for the Determination of Dissolved Oxygen.

The total carbon dioxide content in the effluent feedwater must be zero ppm as determined by the titration method of the American Public Health Association (APHA).

For design purposes, all water entering the deaerator is to be considered as saturated with oxygen and carbon dioxide at the entering temperature and pressure.

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Deaerator must be installed as one of the turbine extraction steam feedwater heaters for the turbine-generator.

The deaerator storage tank must have a minimum of 10 minutes of storage when operating under turbine valves wide open, conditions. This storage will be based on the volume between the normal operating level and the level corresponding to a low level boiler feed pump trip.

All internal components of the deaerator must be stainless steel. The deaerator storage tank must be stress relieved.

Acceptable manufacturers of deaerators are [REDACTED]  
[REDACTED] or equal.

### **8.25 Closed Feedwater Heaters**

The DBO Contractor will furnish and install low pressure closed feedwater heaters and associated accessories, as required by DBO Contractor system design.

The closed feedwater heaters must be complete and operational, furnished with the following items:

- Shell, head, tube sheet, and complete tube bundle with stainless steel tubes.
- Tube and shell side pressure and thermal relief valves.
- Flanged connections at the heads.
- Nozzles and connections on head and shell sides, including those for feedwater and condensate inlet and outlet, extraction steam inlet, drips inlet and outlet, emergency shell dump, relief valves, level controls, monitoring instrumentation, vents, bottom drains, chemical cleaning and for nitrogen purging.
- Supports and pulling lugs, including lifting lugs for loading and unloading of heaters.
- Individual flow orifice for each vent connection.

Shell side non-condensable gases will not be vented to the deaerator or main condenser.

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Fluid velocities through tubes must not exceed 3 meters/sec during MCR operating conditions, calculated using the specific gravity of feedwater corresponding to the average of the inlet and outlet operating temperatures.

Feedwater heaters must conform to all applicable requirements and standards for Closed Feedwater Heaters, except as amended herein.

Acceptable manufacturers of feedwater heaters are [REDACTED]

[REDACTED] or equal.

### **8.26 Miscellaneous Heat Exchangers**

All miscellaneous heat exchangers for boiler blowdown, condensate return, auxiliary cooling water, and similar services must be provided. Heat exchangers must be designed for the service intended.

Acceptable manufacturers of shell and tube heat exchangers are [REDACTED]

[REDACTED] or equal.

Acceptable manufacturers of late Type: [REDACTED]

[REDACTED] or equal.

### **8.27 Water Treatment Equipment**

#### **8.27.1 General**

Water treatment equipment must be provided to fulfill the following functions as necessary:

- Boiler makeup water treatment
- Auxiliary cooling water treatment
- Chemical feed systems
- Sampling systems

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All water for the Facility will be obtained from the Durham Region. The Durham Region does not guarantee the physical, chemical or biological character of the water provided.

The source of potable water for the Facility will be the Clarington Municipal Water Supply . In the case that the actual potable water quality is significantly different from the water quality identified in Ontario Drinking -Water Quality Standards, Ontario Regulation 169/03, made pursuant to the *Safe Drinking Water Act, 2002*, as of April 2009 as attached as Exhibit B to these Technical Requirements (the “Water Standards”). If the quality of the potable water provided to the Facility differs from the Water Standards such that additional pre-treatment equipment, additives, treatments or other special handling is required, such matter shall be handled under the provisions of **Article 15** of the Project Agreement.

8.27.2 Boiler Makeup Water Treatment

A Reverse Osmosis (RO) unit to provide boiler make-up water shall be provided. The RO unit will be designed for a facility capacity of 436 tpd and will be expandable to handle a 761 tonne per day facility. The RO system must be designed for push-button automatic operation. The boiler makeup water system design will include provisions to add the additional pre-treatment equipment required in the case that the actual potable water quality is significantly different from the water quality identified in the Water Standards. If the quality of the potable water provided to the Facility differs from the Water Standards such that additional pre-treatment equipment, additives, treatments or other special handling is required, such matter shall be handled under the provisions of **Article 15** of the Project Agreement.

The RO water will meet the boiler and turbine manufacturer's requirements. In addition to boiler makeup, this system must provide makeup as necessary to other plant systems.

Acceptable manufacturers of RO systems are [REDACTED] or equal.

8.27.3 Auxiliary Cooling Water Treatment System.

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The DBO Contractor will provide equipment to makeup water to the auxiliary cooling water system and to maintain its chemistry within required limits.

8.27.4 Waste Water Treatment Systems

All industrial wastes, including spent regenerants, backwash and rinse waters, shall be utilized on site. There will be zero process waste water from the Facility.

Sanitary waste, if discharged, must be treated for compliance with applicable permits to be obtained by the DBO Contractor. Any costs for treatment of sanitary waste will be at the Regions' sole cost and expense.

8.27.5 Chemical Feed Systems

A chemical feed system must be provided for each water system requiring chemical control, including:

- Feedwater/condensate system
- Auxiliary cooling water system

8.27.5.1 *Boiler Water Chemical Feed System*

One skid-mounted chemical feed system must be furnished and installed to inject chemical solutions as specified by boiler and turbine manufacturers into the boiler water system for protection of the boiler and turbine.

Chemical solution makeup and feed tanks along with positive displacement pumps must be provided. The chemical feeders must be designed to operate essentially unattended, except for periodic inspection, manual change of feed rates, replenishment of required bulk chemicals and solution makeup.

The boiler water chemical feed system must be suitable for feeding chemicals on a continuous basis under flow proportioned control for oxygen scavenging, pH and hardness control.



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8.27.6 Auxiliary Cooling Water Chemical Addition System

Means will be provided for periodic manual addition of chemicals to the auxiliary cooling water system.

8.27.7 Sampling Systems

A centralized chemical sampling station must be supplied in order to provide information on chemical conditions in the feed, condensate, and steam system. Samples shall be drawn from the points defined in the schedule below. Samples will be drawn and analyzed as defined in the schedule below.

Each of the automatic analyzers must provide an indication at the sample panel and in the control room. Out of specification chemical conditions will also be alarmed in the control room.

The sampling panel must also provide for taking grab samples from each of the points in the schedule.

**Sample Analysis Schedule**

- Point 1 - Condensate pump discharge (one point per condenser) parameters:
  - pH (drawn and analyzed manually)
  - total dissolved solids (drawn and analyzed manually)
  - oxygen concentration (drawn and analyzed manually)
  - Specific Conductivity (drawn and analyzed automatically and continuously)
- Point 2 - Feed pump discharge (1 point) parameters:
  - pH (drawn and analyzed manually)
  - total dissolved solids (drawn and analyzed manually)
  - Specific Conductivity (drawn and analyzed automatically and continuously)
  - Cation Conductivity (drawn and analyzed automatically and continuously)
- Point 3 - Blowdown (one point per boiler) parameters:

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- pH (drawn and analyzed manually)
- total dissolved solids (drawn and analyzed manually)
- phosphate concentration (drawn and analyzed manually)
- Specific Conductivity (drawn and analyzed automatically and continuously)

Provisions must also be made for taking grab samples from the auxiliary cooling water system.

**8.28 Auxiliary Cooling Water System and Fire Protection Water**

- An auxiliary cooling water system must be provided to remove heat from auxiliary loads including:Generator coolers.
- Turbine lubricating oil.
- Coolers instrument air.
- Compressor coolers.
- Sample coolers.

Additional cooling loads may exist and must be served depending on the DBO Contractor's design.

The auxiliary cooling water system will be designed to reject the heat through a fin-fan cooler.

Condensate will not be used for direct cooling of waste chutes.

The auxiliary cooling water system must be capable of operation at full capacity with one auxiliary cooling water pump.

Suitable treatment equipment, pumps and storage for fire protection water must be provided in accordance with all applicable fire codes.

**8.29 Tanks**

At a minimum, a boiler makeup water storage tank, auxiliary cooling water head tank (if applicable), raw water storage tank (if applicable), wastewater storage tank (if applicable), fire

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fighting water storage tank, and any other miscellaneous tanks necessary to DBO Contractor's design must be provided.

Acceptable manufacturers of shop fabricated tanks are [REDACTED]

[REDACTED] or equal.

Acceptable manufacturers of field fabricated tanks are [REDACTED]

[REDACTED] or equal.

### **8.30 Scales**

A complete electronic inbound and outbound scale system will be furnished and installed. The system will have the capability of being a completely automated system. Automation will, at a minimum, include automatic truck identification, weighing, and ticketing. The scale system will consist of a single inbound, outbound scale and scalehouse. The system will include load cells, platforms, digital weight indicators, scoreboard readouts, grounding, ups, load cell totalizer components and connections for load cell totalizers to digital readouts. The DBO Contractor must furnish and install all accessories and components for a fully functioning truck scale and scalehouse.

Scales will be of the low profile single weighing platform type. Both scales will be mounted at the same level and will be mounted above grade.

The scales will be a monolithic concrete deck or of the concrete on steel substructure frame type and will nominally be 22.9 meters long by 3.35 meters wide with a capacity of 91,000 kg. The deck will be supported entirely of load cells with access to each load cell provided through open sides underneath the concrete deck and/or service panels in the deck. The scales will have two sets of red and green traffic lights to control the trucks on the scales and immediately behind the scales. If the scale is furnished with a pit, drains will be provided at the bottom of the pit and access to the pit will be provided for cleanout.

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Load cells will be stainless steel, either hydraulic or electronic with a 150% overload capacity without requiring zero and a 300% shock overload capacity.

The Region of Durham will operate the scales. The DBO Contractor will be able to station an observer inside the scale house for monitoring purposes, if desirable. The Region will share electronic copies of its weigh records with the DBO Contractor.

Scalehouse will be fully equipped with heating, air conditioning, ventilation, and closed circuit televisions of the inbound scales, outbound scales, and tipping floor. Scalehouse will also be provided with a restroom, and adequate file storage and desk space.

The scale and scalehouse dimensions, tolerances, materials and construction of the system will comply with NTEP, SMA, and the Durham Region's regulatory agency governing the use of scale and weights at solid waste facilities.

The scale system will also include radioactive waste detection monitors.

### **8.31 Miscellaneous Hoists and Cranes**

The DBO Contractor must furnish and install miscellaneous monorail hoists, and cranes with associated accessories, as required.

As a minimum, turbine building crane, and maintenance shop and boiler feed pump aisle hoists must be furnished, sized for DBO Contractor's maximum maintenance loads. Turbine building crane must be furnished and installed with controls and accessories as required for installation and maintenance of the turbine-generator in strict accordance with manufacturer's requirements and instructions.

Acceptable manufacturers of turbine cranes are [REDACTED] or equal.

### **8.32 Piping**

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Labour, supervision, services, tools, equipment, materials and consumable supplies required for the design, fabrication and erection of all piping systems must be provided. Fire protection pipe and potable water line must be sized for the expanded Facility, or at a minimum, provisions must be made in the design to accommodate future expansion.

Piping must conform to OPSS, as applicable, and ANSI material and fabrication standards. Steam and extraction piping must be designed and installed in accordance with the recommendations contained in ASME No. TWDP-1 "Recommended Practices for Prevention of Water Damage to Steam Turbines" (or an approved equivalent) and the turbine manufacturer's instructions.

The design, materials of construction and installation of pipe hangers, supports, guides, restraints and anchors must be in accordance with OPSS and all applicable standards.

DBO Contractor must furnish and install electrical temperature controlled heat tracing and insulation on water piping exposed to outdoor temperatures such as tank external piping, wet-pipe fire protection, and service water washdown and dust suppression piping.

### **8.33 Valves**

All valves and accessories, including motor and pneumatic operators as required by DBO Contractor's system design must be provided. As a minimum, isolation valves must be provided to facilitate repair of all equipment. All valves must be designed for the service intended.

All valves must be in accordance with applicable standards. All valves will be reasonably and safely accessible for routine operation and maintenance. Platforms will be provided to facilitate the operation and maintenance of the valves as required.

Materials for valves must be matched to materials in their pipe lines. For example, stainless steel valves must be used in stainless steel lines.

### **8.34 Refractories, Insulation and Lagging for Piping, Ducts and Equipment**

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All insulating materials, refractories and lagging required for piping, vessels, ventilation ducts, and equipment must be designed and provided.

Insulation material must be provided for the service intended. Insulation must be installed in accordance with manufacturer's requirements. Exterior insulation must be properly lagged.

**8.35 Miscellaneous Mechanical Specialties**

All various miscellaneous mechanical specialty equipment including, but not limited to, the following must be designed, furnished, installed and tested.

- Steam Traps
- Boiler Drain Flash Tank
- Expansion Joints
- Strainers
- Safety and Relief Valves
- Sample Coolers
- Silencers

All specialties must be designed for the service intended and installed in accordance with manufacturer's recommendations.

**8.36 Fire Protection System**

The fire protection systems, interior sprinkler systems and exterior fire main system must meet the requirement and standards of the local fire code. In addition, the fire protection system must meet the requirements and standards of the fire insuring agency.

The fire protection system must be furnished, installed and tested. It must include all piping, water cannons, valves, fire extinguishers, sprinklers, hydrants, hose cabinets, hose, pumps,

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fittings and accessories, both underground and above ground, inside buildings, by the boiler and air pollution control equipment, and special items.

Dry sprinkler piping must be provided where subject to freezing. Standpipes, fire pumps and hose stations must be provided where prudent, particularly in the vicinity of the waste storage pit.

In addition to a dry pipe sprinkler system located over the pit and charging hopper parapet, deluge water cannons arranged for local operation are to be provided. The piping systems normally containing water in unheated areas must be heat traced to prevent freezing. These cannons are to be strategically located, and arranged to avoid inadvertent impact by the crane grapple. A foam fire suppression system may be considered alternatively. Large emergency smoke relief hatches (solenoid release operated) are to be provided in the roof above the parapet-pit area.

All equipment, devices, piping and other materials and the design, installation, inspection and testing of the systems and components must meet or exceed all standards required by the fire insurance agency, and all applicable Regional, local and Provincial laws and regulations.

All materials must bear the approval of Underwriters' Laboratories, Inc. (UL).

The DBO Contractor must arrange for the installation of two fire water pumps. One of these pumps must be redundant to the other and isolated in a fireproof enclosure. Both fire pumps will be dedicated-diesel-driven fire pumps.

Fire protection measures must be reviewed on a regularly scheduled basis throughout the design, construction, testing and operation with local city and Durham Region fire officials. Part of these measures must include realistic drills with regard to promptly reporting emergencies, requesting fire fighting and medical assistance, evacuating safely all personnel and preparing for an orderly shut-down of plant operations. These measures must be detailed in a plant safety manual which is to be submitted by the DBO Contractor prior to the commencement of testing. This manual

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must be submitted by the DBO Contractor together with its operations manual clearly indicating the command operation during normal and emergency conditions.

A fire emergency control and evacuation plan must be provided by the DBO Contractor satisfying all applicable safety requirements.

Acceptable manufacturers of fire pumps are Patterson, Peerless Pump, Fairbanks Morse, Aurora Pump or equal.

### **8.37 HVAC**

All air conditioning, heating and ventilation equipment, systems and accessories must be provided, cleaned, tested and balanced. HVAC design outdoor conditions must be used for the local climate conditions of the site.

The Central Control Room must be provided with full environmental conditioning for temperature and humidity. Filtered, positive pressure outside make-up air systems must be provided to hold down dust penetration. This environmental conditioning must be totally separate from systems used elsewhere in the Facility. One 100% air handling unit shall be provided. Design indoor conditions for the control room must be:

Temperature: 22.2–25.5 °C Relative Humidity: 30-50%

Offices, rest rooms, locker rooms, scale operations facilities, reception area, laboratory, electrical and instrumentation shop, control room, and plan room must be heated, cooled and ventilated. The ventilation system for these areas will be designed to ensure an odour free environment.

Design indoor temperatures for administrative areas must be as follows:

Winter 20 °C

Summer 25.5 °C



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Electrical rooms containing electronic equipment requiring cooling will be cooled to maintain 32.2°C. The balance of rooms containing electrical equipment that doesn't require cooling will be ventilated.

The maintenance shop must be heated and ventilated.

The boiler building, turbine building, heater bay and air pollution control equipment enclosures must be heated to a minimum of 10 °C and ventilated with a minimum of 5 air changes per hour. The residue building will be ventilated but unheated.

Under normal operation, the refuse tipping and storage building must be ventilated by drawing air from the refuse pit for boiler combustion air.

Equipment of major manufacturers with reputation for quality and energy efficiency must be provided. Free cooling (economizer cycle), low-leak dampers, and high EER compressors must be furnished. Systems must be designed and equipped in accordance with ASHRAE guidelines.

The CA fans will be used to ventilate the tipping floor and will maintain the building under negative pressure (with all roll-up doors open). . In addition, this tipping floor ventilation system will be designed to prevent the escape of undesirable dusts and odours from the building. This ventilation system will remove dust, particulate matter, odours, and smoke within the tipping floor. Careful consideration should be given to reducing the escape of odours.

### **8.38 Plumbing**

All plumbing, laboratory services, waste and drainage systems, and service and potable water systems must be designed, furnished, installed, tested and started up in accordance with local codes and regulations.

All facility rest room sanitary wastes within the Facility must flow to the sanitary sewer.

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Floor drains in the water treatment area of the Facility, a drain from the bulk acid and caustic tanks, sump drains from water treatment equipment, and a chemical cleaning drain must permit flow of these fluids to the settling basin.

Facility roof drains must be galvanized steel or PVC pipe to carry rain water from the roof of the plant to the storm drain system.

Facility floor drains and bell-ups for equipment drains must provide drainage throughout the plant. The drains will flow to the settling basin.

The potable water system must be thoroughly flushed and disinfected in accordance with the Region's Health Department requirements and protected by required backflow preventers.

**8.39 Vehicles**

All vehicles necessary to operate and maintain the Facility must be provided by the DBO Contractor.

Acceptable mobile equipment manufacturers are Caterpillar and Volvo or equal.

At the Facility, one street sweeping machine and , if applicable, two front loaders (one for tipping floor operations and one for ash handling operations) will be furnished. The latter must be configured with interchangeable implements for residue and snow removal and to assist with maintenance duties.

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**9.0 ELECTRICAL**

**9.1 General**

The electrical systems, including electric transmission line to the Hydro One substation must consist of equipment and arrangements commonly found in power-generating stations, outdoor utility substations and switchyards in accordance with CSA, ANSI, IEEE, and NEMA (or EEMAC) standards. Broad categories of equipment to be used include power transformers, outdoor power circuit breakers, metal-clad medium voltage switchgear, metal enclosed low-voltage switchgear, unit substations, and transmission feeders and terminating potheads and structures. Control equipment must be utility/industrial class.

Although not specifically mentioned, designing, furnishing and installing of all supplementary or miscellaneous items, appurtenances, devices and services incidental to or necessary for a sound, secure, and complete electrical installation must be provided by the DBO Contractor.

The technical criteria contained herein are intended to establish certain requirements supplemental to those, dictated by good engineering judgment and industry accepted design practices or, as deemed prudent by the DBO Contractor, and in- no way are to be construed to limit the DBO Contractor's responsibility or obligation to fulfill the terms and conditions of the Contract Documents.

Under normal operations, all Facility auxiliary electrical loads including those required for administrative operations must be supplied from the Facility's internal steam turbine driven electric generator.

The DBO Contractor must design, furnish and install equipment of a design, size and type which has been previously built and proven in satisfactory operation to meet the stated performance. Prototype designs are not acceptable.

The DBO Contractor shall use VFD's on the ID fans. The Facility electrical auxiliary systems will be arranged for reliability and redundancy. No single electrical auxiliary system equipment

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or circuit failure will result in a trip or prevent operation of more than one combustion unit. All electrical equipment and circuits must be capable of being isolated for maintenance without affecting more than one combustion unit. Common auxiliary systems with redundant process equipment will have the redundant equipment split between two sources to minimize the impact of a single circuit outage. The Facility will include, as necessary, medium voltage power distribution; low voltage power distribution; lighting; grounding; raceway and cable; control, security and communication systems.

The electrical interconnection must conform to Hydro One requirements and the requirements of the regional Independent Electricity System Operator (IESO). The DBO Contractor must be responsible for designing and providing an electrical system in compliance with Hydro One and IESO requirements, and must obtain Hydro One and IESO approvals of the production Facility, and the related inter-connection, operation and protective equipment.

The DBO Contractor will provide all system metering, controls and protection required by Hydro One and the IESO, which may include but are not limited to revenue metering, intertie protective relaying and power system stabilizer (PSS). All costs associated with equipment and circuits necessary for related telemetry and communication will be at the Regions' sole cost and expense. The cost of interconnection service provided by the DBO Contractor is limited to the overhead transmission line connection from the Facility substation to the 44 kV transmission line on the east side of Osbourne Road (see Section 6.12 – Utilities).

All interconnect equipment must be sized for initial and future 400,000 tonnes per year (1,218 tpd) facility thermal and fault duties.

All circuit breakers and protective relaying must provide selective coordination in isolating faulted or overloaded circuits or equipment. Circuit breakers and relaying for interconnection related equipment must conform to Hydro One's requirements.

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The Facility electrical system must comprise both power generation and power distribution and must be based on the design criterion that incinerator operation must have priority over steam and/or power generation.

Provide metering and power quality monitoring within the Facility distribution system adequate to electronically monitor energy usage and circuit and equipment loading to the 600 V motor control center feeder level, and to monitor each medium voltage and low voltage switchgear bus for sags, surges, and harmonic quantities. Integrate metered and power quality data into the Facility control system for display and trending or provide a separate power monitoring system with stand alone PC-based operator terminal.

A substation must be provided by the DBO Contractor on the facility site, and must be of a modern, fenced low-profile design, and complete with connection between generator switchgear and Facility step-up transformer. The design must require all the electrical equipment to be protected from electrical fault damage by protective relays. The substation must have capacity to operate over the range from import of full station auxiliary power requirement to export of full net plant real and reactive power capability to the transmission system while maintaining standard operating voltage limits on the Facility buses.

A 44 kV transmission line must be provided between the Facility substation and Hydro One interconnection point at the 44 kV line on the east side of the property. The electrical system must be designed and constructed to limit voltage and current distortion, unbalance and harmonic content to the limits of applicable ANSI and IEEE standards. Electricity delivered to Hydro One will be between 85% lagging (positive export VARS measured at the generator terminals) and unity power factor.

The design will provide a comprehensive system of grounding and surge protection including line and substation shielding, lightning protection, grounding and bonding, and terminal surge protection for transformers medium voltage and rotating machinery, if required.

**9.2 Electric Generator(s)**

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9.2.1 Power Distribution and Control Systems

The main circuits for power distribution must be identified and classified in order of their priorities. Provisions must be made for automatic switching and load shedding during electrical emergencies.

**9.3 Station Auxiliaries and Step-Up Transformer**

9.3.1 Synchronization and Paralleling Systems

The systems for generator synchronization and paralleling must be designed in a manner which allows all power sources to function independently of each other, or in unison, using whatever power source is available (including the Facility's steam driven generator, or a standby diesel generator). Individually or in combination, these power sources must satisfy the requirements of Hydro One's guidelines.

**9.4 Emergency and DC Power Systems**

9.4.1 Coordination Study

Prior to start-up and testing, the DBO Contractor must submit to the Regions a complete electrical system study. This study must include, but not be limited to, the following elements: development of complete one-line diagram, load flow and voltage drop, short circuit analysis, short circuit calculations, protective device coordination and arc flash hazard analysis. Similar information must be provided to Hydro One for the interconnection related equipment, if required. DBO will assist the Regions with providing Facility equipment data required for Hydro One to complete a system stability analysis, if required by Hydro One or IESO.

Critical power requirements must be met by batteries and/or battery back-up uninterruptible AC power systems. Adequate protection for generator, transformers and all electrical equipment will be provided in accordance with IEEE guidelines.

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The DBO Contractor must supply a standby power system that is capable of safely bringing the Facility down on loss of utility and steam turbine generation. The DBO

**9.5 Lighting**

The Facility lighting must include complete interior and exterior site lighting in accordance with IESNA Recommended Lighting Levels for Central Stations and Section 7.5.

Indoor lighting systems must include emergency lighting and exit lighting as required.

**9.6 Safety and Security of Electrical Systems**

Fire alarm and detection systems, emergency lighting systems and telecommunication systems must be powered at all times. Their wiring needs are to be independent of all other wiring.

**9.7 Motors**

Motors for pump services that are uncontrolled (e.g., sump pumps) must be non-overloading (based on nameplate HP rating without consideration of service factor) over the operating range of the equipment. In general, motors must be provided with a 1.15 service factor and be sized so as not to operate in the service factor during normal or maximum brake horsepower conditions of the driven equipment. Motors located in areas subject to dust and debris are to be totally enclosed and fan-cooled (TEFC). Other equipment in such areas is to be suitably enclosed. Motors are to be rated for a NEMA Class B temperature rise above a 40 °C ambient.

**9.8 Generator**

- |    |  |  |
|----|--|--|
| 1. | Minimum net continuous capability at generator terminals at 0.85 power factor, KVA | Match turbine output at Turbine VWO conditions |
| 2. | Generator voltage, KV  | 13.8   |
| 3. | Energy characteristics   | 3 phase, 60 Hz                                 |
| 4. | Exciter and Voltage Regulator  |  |

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- |     |                         |   |
|-----|-------------------------|---|
| (a) | Type                    | Permanent Magnet Generator with Brushless Exciter |
| (b) | Rating                  | Match generator                                   |
| (c) | Response ratio          | Equal to or greater than 0.5                      |
| (d) | Waveform distortion     | 5% maximum  |
| (e) | Phase voltage unbalance | 1% maximum  |
| 5.  | Enclosure:              | Totally Enclosed Water Cooled (TEWAC)             |

Acceptable manufacturers of generators are [REDACTED] or equal.



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**10.0 INSTRUMENTATION AND CONTROL**

**10.1 Introduction**

The Instrumentation and Control System must be designed to aid the DBO Contractor in achieving a safe, reliable and economical operation of the entire Facility. The Instrumentation and Control System for the Expansion will include safety features to automatically alarm and execute pre-programmed actions, if unsafe situations are likely or imminent. An interlock system will prevent initiation of systems operation in unsafe sequences.

Control facilities will be designed so that the operation of the major equipment is accomplished from a centralized control area located in the main control room. Local control with control room alarming may be utilized where conditions permit sufficient reaction time without undue jeopardy to personnel, equipment or to the ability of maintaining output of the entire Facility.

All Control panels in the control rooms will be color coordinated with the interior aesthetic scheme.

**10.2 General**

These Technical Requirements identify the anticipated hardware and software solutions for implementing the controls for the Facility. These are accepted available options as of April 22, 2009. Due to the rapidly changing nature of technology, the DBO Contractor will evaluate if these solutions remain current and viable, or if more modern technologies exist in terms of compatible hardware and software to perform all of the proposed functions. Examples of these options should include universal bus solutions, as well as remote I-O opportunities to reduce costs for signal wiring, etc. If these new options exist and offer real benefits by way of lower cost of procurement/ownership, longer active development life, etc., the DBO Contractor should include/propose these components upon approval of the Regions and the Regions' Engineer.

All control system I/O will be configured to be "fail-safe", i.e., in the event of a processor failure, communication failure or I/O card failure, the output function will cause the controlled

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device to advance to the predetermined fail-safe condition or position. All contacts except feedback from motor control centers (MCC's) and valve limit switches will be used in an "open on event" configuration.

### **10.3 Distributed Control System (DCS)**

The Instrumentation and Control System for all equipment installed will be integrated into a Distributed Control System (DCS).

The Instrumentation and Control System will consist of a network of microprocessors integrated with a Central Control Console to provide control, monitoring, interlocking, data acquisition, data manipulation, trending, logging and reporting capabilities. The DCS will consist of microprocessor based Process Control Units (PCU) which provide for the multiplexing of process I/O and perform internal dedicated measurement, control, interlocking, and data acquisition functions. The PCU cabinets with associated process controllers will interface with state of the art electronic input/output modules that convert field signal into data and send it to the PCU. The PCU's and the Central Control Console Color Graphic operator interface stations will be interconnected via redundant high speed data communication links.

Control of the plant must be organized hierarchically with the primary point of control centered around a digital distributed microprocessor based process controller (DDPC).

Control must be segregated into those systems which are solely operated from the main control room, those systems or loops which employ local logic and provide parametric indication and/or alarm in the control room, and those loops or systems which are local control only.

Information exchanged between the primary elements, the DDPC system, and final elements must be transmitted via a high reliability data highway. DPU's must be located in the vicinity of associated motor control center groupings only to the extent that the requirements for data transmission (i.e. cable runs) are reduced, flexibility is enhanced (at the very least, not compromised), and the units must be situated in a dust free, air conditioned environment.

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The plant must be provided with field instrumentation plus local controls which are dedicated mainly to manipulate auxiliary loops such as: pressure reducing stations, local operating loops, local level control loops in feedwater heat exchangers or auxiliary tanks.

The control philosophy for the plant involves functions such as closed loop control to be performed by the Distributed Control System. All malfunctions of equipment which would interrupt the process must be alarmed in the Control Room in the DCS.

A data logging system must be provided which provides a log of plant parameters, with readings being taken at intervals no longer than 1 minute. Readings must be stored in computer memory such that computer operation difficulties and electric supply disruptions will not result in a loss of data. Hard copy logs of summary data must be printed out on a shift basis at eight or twelve hour intervals and also upon operator demand. Data to be logged must cover all important plant parameters.

Provide data adequate for thermal performance monitoring of all major plant systems including flows, temperatures, pressures and electrical energy consumption. Provide vibration monitoring of all critical rotating equipment including turbines, generators, draft fans and feed pumps.

Trends in selected plant parameters must be displayed on video monitors in the control room. It must be possible for the operator to select parameters to be trended. Also, the control system must provide for automatically displaying trends when a parameter is approaching its normal operating limit. Provide the following workstations, minimum:

Two (2) operator stations in the control room

One (1) operator station in the plant managers office

One (1) engineering workstation

One (1) auxiliary workstation for trending, analysis, enterprise interface, etc.

Acceptable manufacturers of DCS systems are XXXXXXXXXX or equal.

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Acceptable manufacturers of Control Panels are [REDACTED]  
[REDACTED] or equal.

Acceptable manufacturers of programmable logic controllers are [REDACTED]  
[REDACTED] or equal.

#### **10.4 Central Control Console**

A central control room must be provided. See Sections 4 and 6 of these Technical Requirements for the architectural features of the control room.

The control room must be equipped to control access to the site. A television unit must be provided so that the operator can see who is at the gate (See Section 10.8 of these Technical Requirements). A speaker system must permit voice communication between the operator and people at the gate. The gate must be operated from the control room.

Control room panels must be uniform in appearance and color. Color scheme for the control room must be submitted to the Regions for approval.

All parameters used in the digital control system must be indicated in the control system, preferably on video monitors.

Alarms are integrated with DCS system; separate alarm panels (analog) are not provided. Multiple monitor set ups are provided.

#### **10.5 Local Controls**

Local controls for equipment required as part of the Facility will be of the electronic or pneumatic types. Final control drives will be electric or pneumatic types, as determined by equipment selection and dynamic response required. Analog signal transmission levels will, in general, be restricted to 4 - 20 mA DC and 21 - 103 kPa.

#### **10.6 Combustion Control**

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Combustion Control will be provided for the each combustion unit through a dedicated PLC as part of the Stoker Control. This system will be capable of controlling other related systems including the Over fire Air System, as well as other related systems.

Primary Operator interface will be from a graphical type OIS for the new stoker mounted on the stoker control cabinets. In addition, a PLC interface to the DCS will be included to permit operator access for control of the Combustion system from the DCS Operator Interface Stations.

The DBO Contractor has the option to integrate the Combustion Control System directly into the DCS.

### **10.7 Air Pollution Control System (APC)**

The instrumentation and process control system for the APC system will be designed and furnished by the DBO Contractor.

Operator's interface with the APC control system will be through the DCS.

The APC control system must ensure that all process conditions are maintained within safe limits and that emissions, including NO<sub>x</sub>, SO<sub>2</sub>, CO, HCl, HF and other monitored parameters for mercury, metals and dioxin are within limits specified in Exhibit 2 of Appendix 19 to the Project Agreement. Control of each combustion train must be independent of the others.

The APC control system will also be tied into the emissions display billboard on the exterior of the Facility in order to display real-time emissions values.

The DBO Contractor has the option to integrate the APC Control System directly into the DCS.

### **10.8 Facility Cameras**

The Facility will be designed with a closed circuit TV system to monitor the Facility entrance, inbound and outbound scales, tipping floor and Refuse storage pit, Refuse feed hoppers, Residue building.

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Lenses will be adjustable in the field in order to select the best viewing angle (wide angle to telephoto).

A monitor will be provided in the control room.

A dedicated Furnace TV camera, with the necessary air cooling systems and retract or isolation mechanisms will be provided for each combustion train. The system will be designed to retract or isolate upon loss of cooling. The system will include the appropriate Optics (lens) to permit view of the necessary grate combustion process. A clean-out port will be provided to permit online removal of slag surrounding the lens field of view. A color monitor will also be provided in the control room to view the process.

### **10.9 Radiation Detection System**

The DBO Contractor will provide a radiation monitoring and alarm system for incoming vehicles at the inbound scale house.

## **11.0 TESTING**

### **11.1 General**

A variety of checkout, start-up and Acceptance Tests must be performed to fulfill the performance guarantees as described in the Project Agreement. The minimum tests required are described below and in more detail in the Project Agreement. The Regions will observe these tests.

However, it is expected, as a matter of good start-up philosophy, that the DBO Contractor plan and implement its own schedule of checkout and start-up tests which would occur prior to and in addition to the above referenced Acceptance Test. These would include a series of control loop tests, hydrostatic pressure tests, air tests, water circulation tests and subunit operation tests which could occur without firing the furnaces, for example.

### **11.2 Acceptance Testing**

Acceptance Testing will be performed in accordance with the Project Agreement. Acceptance Testing will follow the start-up activities at the Facility. Successful completion of the Acceptance Testing and approval of the test report will signify that the Facility is performing as designed and that long term commercial operation can proceed. The tests will be performed at the expense of the DBO Contractor.

### **11.3 Hydrostatic Tests**

After the completion or erection, all pressure parts of the steam generator must be hydrostatically tested by the DBO Contractor in accordance with the ASME Boiler Code. The test may be witnessed by the Regions or its Consulting Engineer. Any gaskets or packing requiring replacement after hydrostatic testing must be furnished and installed.

Shop assemblies must be hydrostatically tested in the shop in accordance with the ASME Boiler Code. These tests may be witnessed by the Regions or its Consulting Engineer.

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All piping associated with process steam and feedwater cycle must be hydrostatically tested to 150% of design pressure. The other piping systems may be similarly tested or must be tested for leaks at design pressure. The Test Pressure of 150% of design must be held for a minimum of ten minutes, or in accordance with all applicable codes and standards, whichever is more stringent. These tests may be witnessed by the Regions or its Consulting Engineer. If leaks are identified during the hydrostatic testing then it is the DBO Contractor's responsibility to repair these leaks, and repeat the test until no leaks are identified.

Appropriate hydrostatic tests must be performed for all piping including raw water, potable water, firewater, gravity and force rain sewerage and all associated tankage. These tests may be witnessed by the Regions or its Consulting Engineer.

#### **11.4 Air Emissions Testing**

Air Emissions Testing will be performed on a quarterly basis or in accordance with the Certificate of Approval, with the exception of those pollutants that are monitored on a continuous basis.

The furnace chamber, the steam generating unit casings, ductwork and air pollution control equipment will be visually inspected for leakage.

The test may be witnessed by the Regions or their designated representatives.

#### **11.5 Electrical Tests**

All switchgear, cables, apparatus and other electrical equipment will receive routine factory testing as specified in the applicable standards, with certified test reports provided for review prior to shipment.

All equipment and circuits will be field acceptance-tested per all applicable requirements and standards. The DBO Contractor will provide certified field test reports to the Regions and Regions' Engineer.



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**11.6 Other Tests**

The DBO Contractor will perform all other tests required to complete the Facility or to meet all applicable standards and requirements.

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**12.0 MANUALS AND SPECIAL TOOLS**

The DBO Contractor will prepare Operation and Maintenance Manuals for all components and operations included in the project. These manuals will be developed during the construction phase of the project and be completed by the time of start-up of the Facility. These manuals should be sufficiently detailed and complete so as to be suitable for personnel training, conducting start-up activities, and operating the Facility.

The Operation and Maintenance Manuals will include, but not be limited to the following:

1. Table of Contents;
2. Index, in alphabetical order;
3. Name plate data of equipment installed;
4. One copy of each warranty, bond and service contract;
5. List of names, addresses, telephone number, email addresses of the three nearest suppliers and manufacturers, including local source of supplies and parts;
6. Manufacturer's literature describing each piece of equipment and specifically identifying the manufacturer's model number, part number, and drawing number;
7. Operation instructions, including step-by-step preparation for starting, operation, operational limits (e.g., time, speed, pressure, temperature, etc.), shutdown and draining;
8. Control diagrams, as installed by manufacturer;
9. Sequence of operation by the control manufacturer;
10. Complete electrical schematics and wiring diagrams;

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11. Diagrammatic location, function and tag number of each valve;
12. Maintenance instructions;
13. Possible breakdowns and repairs;
14. Manufacturer's parts list of functional components, control diagrams and wiring diagrams, giving manufacturer's model numbers and part numbers;
15. Lubrication schedule indicating type and frequency;
16. Complete list of spare parts and supplies; and
17. Operating diagrams.

Drawings will be clearly legible and no larger than half size drawings (approximately 279 mm x 432 mm).

In addition, for individual items of equipment, the DBO Contractor will maintain equipment operating manuals, spare parts lists, equipment drawings, specifications, and current catalogues.

The DBO Contractor will be solely responsible for supplying any specialty tools that may be required to complete the construction of the Facility, as well as for operating and maintaining the Facility.

**13.0 PERSONNEL TRAINING**

Prior to the start-up of the Facility the DBO Contractor will provide the Regions with a copy of their Training Plan for Facility personnel. All personnel training must be conducted and substantially completed prior to start-up of the Facility so that personnel will be trained and capable in the activities required for plant operations during start-up and acceptance testing. Training will consist of both classroom and field instruction. All training will take place at the work site or at a place specified by the DBO Contractor and will be conducted by qualified training specialists.

With the exception of personnel dedicated to data collection and performance /witnessing of the Acceptance Test, no special or additional employees may be used for routine operations or maintenance during the Acceptance Test.

The DBO Contractor will provide qualified Facility personnel, particularly at management positions, with experience with the operation and maintenance of an energy from waste facility or similar industries.

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**14.0 OPERATING LOGS AND REPORTING**

The DBO Contractor will maintain current and complete maintenance schedules and logs as detailed in the Project Agreement.

During operation of the facility, a weekly operating log will be prepared showing, at a minimum, the following items:

- hours of operation of each combustion unit
- residue generated
- metals recovered
- waste bypassed or rejected
- detailed explanation of downtime at Facility (including the cause and remedy for such downtime and the duration of such downtime)
- waste received
- tonnage burned
- auxiliary fuel consumed
- electricity consumed
- water consumed
- recyclables received
- Non-Processible waste rejected
- Steam generated
- Gross electricity generated
- Net electricity sold
- Steam sold (if applicable)
- Ambient temperature

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- Condenser Backpressure

Notes on weather, precipitation, and unusual waste characteristics will be made on a daily basis and included in the log. The log will include hourly records of combustion conditions, including temperature, oxygen concentration, draft pressure, flue gas opacity, and continuous emission monitor data.

The DBO Contractor will also maintain a computerized maintenance management system (or CMMS) to track all maintenance activities at the Facility, including but not limited to preventative maintenance schedules and work orders.

In addition, the DBO Contractor will supply the Regions and designated Regions' Engineer with periodic operating reports as described in the Project Agreement.

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**15.0 HOUSEKEEPING**

The DBO Contractor must institute an on-going cleaning procedure to prevent the accumulation of dirt and dust throughout the Facility. In addition to the DBO Contractor's standard plan and procedures for all routine and long-term equipment maintenance, the following Facility maintenance requirements are specified:

The waste receiving and storage areas and residue storage areas must be maintained free of litter, controlled for dust and odour, and must be washed down daily.

Residue trucks will be operated so as not to present a hazard to either plant personnel or the general public while Residue is being loaded and transported to the landfill.

All Facility roads and areas of significant vehicle activity will be swept at least weekly as required to be maintained free and clear of litter.

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Exhibit C to Technical Requirements  
Architectural Enhancements



**APPENDIX 2**  
**QUALITY MANAGEMENT PLAN**

1. The DBO Contractor shall develop a written project specific Quality Management Plan (“QMP”) that details the DBO Contractor's quality assurance and quality control (“QA/QC”) procedures to be implemented in conducting the Work of the Agreement. The DBO Contractor's QMP is subject to review and acceptance by the Owner. The DBO Contractor's QMP must address the following as a minimum:

General

Objectives

Roles and responsibilities

Communication

Review

Document control

Specific QA/QC procedures relating to the following project activities:

Design

Construction

Commissioning

Operation and Maintenance

2. The DBO Contractor shall submit six copies of draft DBO Contractor's QMP to the Owner for review. Revise DBO Contractor's QMP in accordance with review comments and to the satisfaction of the Owner. Submit six copies of revised DBO Contractor's QMP to the Owner. Final DBO Contractor's QMP is subject to acceptance by the Owner. Once accepted by the Owner, the final DBO Contractor's QMP forms part of the requirements of the Agreement for the Work.
3. The DBO Contractor shall, as part of the Work, implement the quality management measures applicable to the Work as described in the DBO Contractor's QMP submitted

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by the DBO Contractor and approved by the Owner, so as to ensure that the DBO Contractor and its Subcontractors comply with the requirements of the Agreement.

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**APPENDIX 3  
ENVIRONMENTAL MANAGEMENT PLAN**

DBO Contractor to supply prior to Facility Substantial Completion

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**APPENDIX 4  
MATERIAL SUBCONTRACTORS**

DBO Contractor to provide within sixty (60) days after Notice to Proceed

<b>Material Subcontractor</b>	<b>Material Subcontractor Function</b>

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**APPENDIX 5  
MASTER PROJECT SCHEDULE**

DBO Contractor to supply

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**APPENDIX 6**  
**PROJECT MANAGER’S CERTIFICATE**

**To:** [The Owner’s Representative]

**From:** [Project Manager]

**RE:** **Project Manager’s Certificate – Design Build Lump Sum Agreement dated as of \_\_\_\_\_, 20\_\_\_\_, made between the Owner and the DBO Contractor, as amended and/or supplemented from time to time (the “Agreement”)**

I, [Project Manager], hereby certify that:

I am the Project Manager, and as such have knowledge of the matters which I hereinafter certify.

I have examined the Milestone Billing Report dated \_\_\_\_\_, 20\_\_\_\_, and the Payment Request dated \_\_\_\_\_, 20\_\_\_\_.

In my opinion, the information set out in the said Milestone Billing Report and the Payment Request is accurate and complete.

All necessary Authorizations have been applied for, obtained and/or complied with, as may be required, for the purposes of those portions of the Work for which the aforesaid Payment Request has been made (the “Applicable Work”).

The Applicable Work complies with the Contract Documents relating thereto and any previously identified Non-Conformance has been rectified or dealt with to the satisfaction of the Owner’s Representative.

I have no knowledge of any outstanding infractions of the Laws and Regulations relating to the Work.

To the best of my knowledge, information and belief, after due inquiry, no Default or Event of Default with respect to the DBO Contractor or any Material Subcontractor has occurred and is continuing and no such Default or Event of Default will result from the Payment requested pursuant to the relevant Payment Request.

All capitalized words or terms used herein and not otherwise defined herein shall have the respective meanings ascribed thereto in the Agreement.

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**DATED** THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.

**[PROJECT MANAGER]**

By: \_\_\_\_\_

Name:

Title:

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**APPENDIX 7**  
**MILESTONE BILLING REPORT**

**To:** [The Owner’s Representative]

**From:** [The DBO Contractor]

**RE:** Milestone Billing Report – Design Build Lump Sum Agreement dated as of \_\_  
\_\_\_\_\_, 20\_\_ made between the Owner and the DBO Contractor, as amended  
and/or supplemented from time to time (the “Agreement”)

1. All capitalized words or terms used herein and not otherwise defined herein shall have the respective meanings ascribed thereto in the Agreement.

The undersigned, being the DBO Contractor under the Agreement, hereby certifies the following information:

Portion of the Work	Percentage of Work Completed or Milestone Achieved	Cost Allocation per Schedule of Values	Aggregate Payments previously Made	Current Payment Requested	Cost to Complete
[•]	[•]	[•]	[•]	[•]	[•]

Evidence in support of the above information is attached hereto as **Schedule A** and the required accompanying Project Manager’s Certificate dated \_\_\_\_\_, 20\_\_ is attached hereto as **Schedule B**.

The undersigned further certifies that all subcontractors, suppliers and workers having a valid claim for payment under their respective subcontracts or agreements with respect to the Work for which a previous Payment has been made by the Owner to the DBO Contractor have been paid, and that the undersigned still owes the subcontractors, suppliers and workers the amounts listed in **Schedule C** attached hereto, for the completion of the Work and for any and all claims for extension of schedule, additional compensation, extra work or extras.

The undersigned further certifies that there has been no claim or notice received relating to any legal construction lien and that all applicable taxes, duties, withholdings, and similar rights have been paid in full and that all other obligations, monetary or otherwise, imposed by law, in connection with the Work have been fulfilled.



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**DATED** THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.

**[DBO CONTRACTOR]**

By: \_\_\_\_\_

Name:

Title:

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**APPENDIX 8  
PAYMENT REQUEST(S)**

**To:** [The Owner’s Representative]

**From:** [The DBO Contractor]

**Re:** **Payment Request – Design-Build Lump Sum Agreement Dated As Of \_\_\_\_\_, 20\_\_,  
Made Between The Owner And The DBO Contractor, as amended and/or  
supplemented from time to time (The “Agreement”)**

1. All capitalized words or terms used herein and not otherwise defined herein, shall have the respective meanings ascribed thereto in the Agreement.

Please find enclosed a copy of the Project Manager’s Certificate dated \_\_\_\_, 20\_\_ and the Milestone Billing Report dated \_\_\_\_, 20\_\_.

We hereby request Payment in the amount of \$\_\_\_\_\_ for Work performed during the period \_\_\_\_\_ to \_\_\_\_\_.

The undersigned hereby certifies that all conditions for Payment set out in the Agreement have been satisfied and that the Work described in the attached Milestone Billing Report satisfies the requirements of the Milestone Payment Schedule. Evidence of the performance or supply of the Work relevant to the Payment is attached hereto as **Schedule A**.

**DATED** as of the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**[DBO CONTRACTOR]**

By: \_\_\_\_\_

Name:

Title:

By: \_\_\_\_\_

Name:

Title:

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**APPENDIX 9**  
**MILESTONE PAYMENT SCHEDULE**

The Lump Sum Price shall be paid to the DBO Contractor in accordance with the Payment of Lump Sum Price procedures as defined in the Project Agreement and on the basis of Column 2 below.

Milestone Payment Number	Description of Milestone	Percentage of Lump Sum Price to be Drawn-not-to-exceed	
		Column 1 Percentage of Total Lump Sum Price (minimum 5% per milestone)	Column 2 <sup>1</sup> Total to be Paid (less 10% of Lump Sum Price)
1	Notice to Proceed	<u>5</u>	<u>4.5</u>
2	25% Completion and Review of Construction Specifications and Drawings	<u>15</u>	<u>13.5</u>
3	Completion of Site Preparation	<u>20</u>	<u>18.0</u>
4	Completion of Foundations	<u>35</u>	<u>31.5</u>
5	75% Completion and Review of Construction Specifications and Drawings	<u>5</u>	<u>4.5</u>
6	Completion of Superstructure	<u>5</u>	<u>4.5</u>
7	100% Completion and Review of Construction Specifications and Drawings	<u>5</u>	<u>4.5</u>

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8	Completion of Equipment Installations and Start-up	<u>5</u>	<u>4.5</u>
9	Issuance of the Acceptance Test Certificate	<u>5</u>	<u>4.5</u>
	Sub Total	<u>100%</u>	<u>90%</u>

**Note:** The order of the above milestones definitions is not fixed and may vary based on the Design Build process, staging and seasonality of general construction scheduling.

1 10% withholding will be paid in accordance with Project Agreement.

The following shall have the meaning ascribed to FORM 2C:

1. **Notice to Proceed** - This definition has the same meaning ascribed to that term in Section 1.1 of the Project Agreement.
2. **25% Completion and Review of Construction Specification and Drawings** – will be deemed when sufficient design is completed to achieve the first level of construction permitting, including but not limited to:
  - site servicing permitting
  - clearing and grubbing permitting
  - storm water permitting
  - procurement schedule
  - project construction schedule
  - foundation permitting via staged building permit
  - site layout acceptance
  - review and approval by Owner.

As part of the 25% Submittal, the DBO shall provide Basis of Design (BOD) report that depicts the major design parameters of the Project. The intent of the BOD is to serve as the basis from which the DBO will perform the engineering effort and will not be used to determine the final equipment sizing. The BOD should include at a minimum the combustion calculations, mass and energy balances for the entire system, performance and environmental guarantees, equipment schematics and conceptual layouts, artist renderings, etc. The BOD, along with the specifications, will set forth the minimum equipment procurement requirements for the Project. In addition to the BOD and permitting requirements, the DBO will provide their Technical Requirements for the Project.

3. **Completion of Site Preparation** - will be deemed complete when:
  - Construction site access road is installed with minimum 300 mm granular B and 150 mm granular A and 90 mm high density base course asphalt. This site access road must extend far enough into the site to provide access to all site offices and related construction trailers for subcontractors and owners engineers for the length of the project until the permanent access road and parking lot is installed.
  - Mud mat is installed adjacent to the asphalt access road and truck wash station is provided to prevent mud tracking onto Osbourne Rd., Courtice Rd. or the South Service Rd.

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- Clearing and grubbing is complete.
  - Stripping and stockpiling of existing topsoil on site is complete and available for reuse in final site landscaping.
  - Installation of permanent fencing and temporary barriers necessary to maintain site security and protect the public.
  - Installation of all site silt control fencing and all other silt control systems including all temporary storm water management facilities required by the local municipality and conservation authorities.
  - Installation and operation of site dewatering system as required by the project design and existing site conditions.
  - Installation of project site board and all other related temporary site signage.
- 4. Completion of Foundations** – will be deemed complete when all foundations required for all permanent buildings, structures and major equipment have been completed in accordance with the contract drawings and specifications including all required sub-drain systems and water proofing as required, and sufficient backfilling has been completed around these foundations to adequately protect them against damage from frost.
- 5. 75% Completion and Review of Construction Specification and Drawings** – will be deemed complete when sufficient design is completed to include, but not be limited to:
- Process and Environmental P&ID's;
    - Site Plans and final layout;
    - Emission control design/waste receiving and handling/odour and noise control;
    - Civil/Structural;
    - Architectural treatments and safety systems;
    - Mechanical/Piping
  - Electrical/Instrumentation specifications
- 6. Completion of Superstructure** – will be deemed complete when the building envelopes for all required buildings have been completed including all exterior walls and roofs so that these facilities are watertight and all exterior doors and windows are installed so that these facilities can be locked and made secure to prevent all unauthorized access inside these facilities and help prevent the possibility of theft.
- 7. 100 % Design Completion and Review of Construction Specifications and Drawings** – will be deemed complete when all required contract drawings and specifications described in #5 above (contract documents) for the entire project have been finalized and provided to the Regions in both hard copy and digital form to the Regions' latest document standards after the Regions' 100 % review comments have been incorporated into these contract documents to the complete satisfaction of the Regions, and these contract documents have been submitted to the local all municipality as part of the final building permit application and also submitted to all regulatory authorities requiring a related submission including the Ministry of Environment, Ministry of Natural Resources and local conservation authority.
- 8. Completion of Equipment Installations and Start-up** – shall be as per APPENDIX 10 PRE-ACCEPTANCE TESTING REQUIREMENTS AND ACCEPTANCE TEST PROCEDURES SCHEDULE, of the Project Agreement
- 9. Issuance of the Acceptance Test Certificate** – shall be as per APPENDIX 15 ACCEPTANCE TEST CERTIFICATE of the Project Agreement.

**APPENDIX 10**  
**PRE-ACCEPTANCE TESTING REQUIREMENTS AND ACCEPTANCE TEST**  
**PROCEDURES**

**1.1 GENERAL**

The intent of the Acceptance Test is to demonstrate that the performance of the entire Facility can meet the Performance Guarantees in **Article 17 and Appendix 19** and to verify individual combustion train performance. The Owner's goal is to have achievement of the Performance Guarantees clearly and unquestionably demonstrated during the Acceptance Test, to the maximum extent possible. To the extent this cannot be accomplished due to insufficient waste quantities the DBO Contractor may identify modeling or other mechanisms to provide this additional demonstration.

**Table A10-3** at the end of this appendix provides a preliminary schedule for the major milestones associated with the Acceptance Test. A revised schedule will be submitted by the DBO Contractor with the submission of the Draft Acceptance Test Plan.

It is not expected for this Appendix to cover every nuance of testing but to describe the requirements and timetable for Test Plan development and Test Performance.

**1.2 MINIMUM TESTING REQUIREMENTS**

All testing shall be performed simultaneously, to the extent practicable, in accordance with all applicable laws, regulations, codes and standards, the Certificate of Approval (CofA), Authorizations and Environmental Laws and Regulations. The Guiding Principles set forth in American Society of Mechanical Engineers (ASME) Performance Test Codes (PTC) 4 and 34-2007 will generally apply. Actual test measurements without consideration of uncertainty will be used for determination of test results.

Prior to Start-up and Testing, the DBO Contractor shall provide protocols, schedules and notifications to the Owner as set out in Table A10-3 at the end of this Appendix. The Acceptance Test Plan will contain the DBO Contractor's best estimate of the amount of waste required for testing on a daily basis, and the schedule and procedures of the Acceptance Tests. Processible Waste quantities needed for preliminary runs will also be specified as closely as possible. The Owner shall deliver, or cause to be delivered, such amounts of Processible Waste during the testing period

It is the objective of these tests to determine whether the Facility meets the Performance Guarantees, Technical Requirements, and operates at its design capacity.

During the Acceptance Test period, all equipment will operate at its design mode and capacity, and the operating personnel and supplies shall be those proposed to be available during normal operation of the Facility – all to demonstrate the capability of the Facility under normal operating conditions. Supplemental personnel will only be permitted where required for test purposes. During the Acceptance Tests, the DBO Contractor shall operate the Facility in conformance with all Applicable Law, regulations, codes and standards, the CofA,

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Authorizations and Environmental Laws Regulations. Prior to Acceptance Testing, the Facility must have completed start-up as defined in the Contract Documents and each unit will have been operated for a minimum of four (4) weeks of cumulative operation at or above 75 percent capacity to attempt to bring the heat transfer surfaces to a normal operating condition. If cleaning of the heat transfer surfaces with the exception of normal rapping, soot blowing and/or shower cleaning is performed after the four (4) week start-up period has been established, an additional three (3) weeks of operation at or above 75 percent capacity will be undertaken by the DBO Contractor.

Following the start-up and phasing-in of all process operating equipment of the Facility (Start-up Operations and Shakedown) and before conducting Acceptance Testing, all key process and temporary instrumentation and controls required for testing and documentation will be calibrated by technicians provided by the DBO Contractor, its subcontractors, or suppliers. The DBO Contractor shall make available at the Facility all satisfactory start-up or commissioning reports from vendors of all equipment to the Owner or Owner's Engineer.

Crane scales shall be used to determine all waste charged to each unit. Scales shall be capable of automatically weighing each charge, at a minimum recording the time, date, weight charged, and unit. Scale systems shall be capable of automatically printing hourly and daily totals by unit. Records shall be obtained in hard copy, as well as electronic format if possible. Crane scales shall be checked for linearity prior to the start of the test period and at the conclusion of the test period by use of a test weight near the maximum anticipated charge weight. Each crane shall be calibrated even if it is anticipated only one of the cranes will be used for charging units. Twice daily during all testing, each crane shall be checked for span by hoisting the test weight and also verifying the zero reading. Additional crane calibration testing shall also be required before and after each Energy Recovery Test. Test procedures shall address measures to be taken for addressing spillage and avoiding unrecorded data.

During the testing period, all data required to demonstrate performance shall be made available to the Owner and the Owner's Engineer(s) within 24 hours of collection. To the extent practical, all data should be collected electronically at intervals of no more than 1 minute and assembled into data summaries and forwarded to the Owner's Engineer in Excel or other acceptable format. Manually recorded test data and records and electronic data from the previous day shall be available by noon the following day. Access to DCS trends available on an operator console will be provided to the extent it does not impact the operator's ability to operate the facility.

**1.3 ADJUSTMENTS PERTAINING TO THROUGHPUT CAPACITY AND ELECTRICITY PRODUCTION RATES**

Steam production and electric generation are dependent upon the waste throughput rate, the waste composition, and the higher heating value ("HHV"). For Acceptance Testing purposes, it is recognized that the waste HHV delivered to the Facility may not be representative of the Reference Waste HHV, and the net electric generation must, therefore, be corrected to that obtainable with the Reference Waste HHV. For the purposes of determining the Energy Recovery, the electrical generation will be adjusted to annual average conditions. It is further

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recognized that, by using the combustion system as a calorimeter, the higher heating value of the waste combusted may be determined while the steam production and electric generation are measured, and the results can then be corrected for HHV to the specified conditions as described hereinafter.

The Throughput Capacity will be adjusted for waste HHV in accordance with the table of Throughput Capacity Guarantees provided in Exhibit 2 to Appendix 19 Performance Guarantees. It is further recognized that it is difficult to obtain an accurate measurement of the heating value of the waste through sampling of the waste being processed during the Acceptance Test. It is, therefore, proposed that the combustion system be used as a calorimeter, following, in general, the principles described in the ASME Power Test Code ("PTC") 4 for Stationary Steam Generating Units and 34-2007 for Waste Combustors with Energy Recovery (the "Energy Recovery Tests"). The heating value of the waste used during the Energy Recovery Tests shall be used in conjunction with Electricity Production Guarantees provided in Exhibit 2 to Appendix 19 to demonstrate compliance.

One purpose of the Energy Recovery tests is to determine the HHV of the waste processed during the test and determine the boiler steaming rate, net electrical production, and associated efficiency. The results of the Energy Recovery tests shall be adjusted for the waste HHV in accordance with the table of Electricity Production Guarantees provided in Exhibit 2 to Appendix 19.

Additional Boiler Calorimetry Tests shall be performed to determine the HHV of the waste. The results of these tests and the Energy Recovery Tests shall be used to develop a correlation to calculate the HHV of the fuel during subsequent test periods.

#### **1.4 PRE-ACCEPTANCE TEST CONFERENCE**

There shall be a pre-Acceptance Test conference to provide a forum for all individuals associated with approval of testing of the Facility so that the DBO Contractor can clearly discuss responsibilities of the participants during the Acceptance Test. The conference shall be held at the Facility within 120 days, but no later than 90 days prior to the start of the Acceptance Test. The DBO Contractor shall notify the Owner of the date of the pre-Acceptance Test conference in writing at least fourteen (14) days in advance of such date.

At the pre-Acceptance Test conference, the Acceptance Test Plan shall be reviewed, and any changes relating to the Acceptance Test Plan shall be discussed and, if agreed upon, incorporated into the Final Acceptance Test Plan.

#### **1.5 START-UP OPERATIONS AND SHAKEDOWN**

During this phase of construction, the DBO Contractor shall gradually start-up and phase-in all process operating equipment. The DBO Contractor shall:

- (a) At least 90 days prior to commencement of Start-up Operations activities, submit a procedure and schedule for Start-up Operations and Shakedown of the Facility (Start-up Operations and Shakedown Protocol) to the Owner. The schedule



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should outline major equipment initial operation dates, as well as the DBO Contractor's best estimate of the amount of waste, on a daily basis, required to support Start-up Operations activities.

- (b) Notify the Owner ten (10) days prior to Start-up Operations. Such notification shall serve as confirmation of the DBO Contractor's intentions to initiate Start-up Operations activities and notify the Owner of any changes in the schedule and/or waste delivery schedule referred to in Part (a) above.
- (c) Have designed, constructed, and equipped the Facility in accordance with the Contract Documents and be able to demonstrate that the Facility's systems and operating equipment have satisfied all hydrostatic, pneumatic, electrical, and other tests required to demonstrate mechanical operation, all prior to commencing Start-up Operations activities.
- (d) Be responsible for all costs of repairs, modifications, testing, and operation and maintenance of the Facility during Start-up Operations including costs for reagents supply and residues removal/disposal.
- (e) Substantially complete the training of all designated staff of the Owner and contractor personnel required for commercial operation of the Facility.

The Start-up Operations and Shakedown Protocol shall comprise, as a minimum, the following provisions:

- (i) *During the Start-up Operations and Shakedown period, the Facility shall be operated for a minimum of four (4) weeks of cumulative operation at or above 75 percent of rated capacity. The DBO Contractor shall provide copies of records, logs, and data that are necessary to substantiate compliance with this requirement.*
- (ii) *During Start-up Operations and Shakedown, the DBO Contractor shall operate the Facility in accordance with good power plant operating practice.*
- (iii) *All instrumentation and controls shall be calibrated by technicians provided by the DBO Contractor, its subcontractors, or suppliers. The DBO Contractor shall notify the Owner of the date and time specific calibration evolutions are to occur. The Owner reserves the right and option to monitor the calibration of any instrument and/or control equipment. The DBO Contractor shall maintain an instrument/controls calibration log for each instrument and control loop that is calibrated. The DBO Contractor shall provide the Owner a copy of the calibration log prior to commencing Acceptance Tests.*

## **1.6 TEST PLAN STRUCTURE**

The Acceptance Tests will be composed of the tests outlined in Table A10-1 and described below.

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**Table A10-1: Required Acceptance Tests**

<b>Test</b>	<b>Acceptance Test Requirements and Description:</b>	<b>FREQUENCY/ DURATION</b>
30-Day Reliability Test	Facility-wide operation at a minimum of 95% of the Demonstrated Design Steam Flow. During the 30-Day Reliability Test, the 4-hour block average steam flow will not exceed 110% of the highest 4-hour block average steam flow measured during any of the three 8 hour Energy Recovery Tests.	One 30 day duration test
Throughput Capacity Test	Operation of the Facility at full load for five (5) consecutive days to demonstrate compliance with the Throughput Guarantees in Exhibit 2 to Appendix 19	One 5-day duration test
Energy Recovery Test	Demonstrate compliance with the Electricity Production Guarantees in Exhibit 2 to Appendix 19.	Minimum of –Three (3)-tests. Each test shall be a minimum of 8-hour duration tests (performed during the Throughput Capacity Test)
Residue Quality Test	Residue Quality (bottom ash only) meeting Performance Guarantees for moisture content of less than or equal to 25%, unburned carbon of less than or equal to 3% during the Energy Recovery Tests and Throughput Capacity Tests.	Simultaneous with 5 day Throughput Capacity Test
Residue Quantity Test	Residue Quantity meeting Performance Guarantee for the total Residue (including bottom ash and fly ash) weighing not more than 30% of the Tonnage combusted to produce such Residue during the 30-day Reliability Test, adjusted for the waste HHV in accordance with Table A10-2.	Measured during the 30-Day Reliability Test and the 5-Day Throughput Capacity Test.
Metals Recovery Test	The ferrous and non-ferrous recovery systems to be tested to demonstrate the Metals and Other Metals Recovery Guarantees specified in Exhibit 2 to Appendix 19.	Minimum of Three (3) 8-hour tests on each system
Environmental Compliance Test	The testing of all emission and operating parameters in accordance with requirements established by the CofA and the MOE anytime	

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	<p>during the 30-day Reliability Test.</p> <p>The CEMS shall be certified and used to demonstrate continuous compliance during the Test Period with all CEMS emission parameters.</p>	
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**1.7 30-DAY RELIABILITY TEST**

The objective of this test is to demonstrate the capability of the entire facility to process waste, and produce steam and electricity during a 30-day period.

During this test the Facility will be operated at a minimum of 95% of Demonstrated Design Steam Flow. The Demonstrated Design Steam Flow shall be established during the Energy Recovery Tests and will be the average steam flow when burning 436 tons per day of MSW with an HHV of 13 MJ/kg. During the 30-day test period, the 4-hour steam flow averages used to demonstrate compliance will be limited to the lesser of i) the actual 4-hour steam flow averages or ii) 110% of the highest 4-hour average steam flow measured during the Energy Recovery Tests.

In addition, the availability during the 30-day Reliability Test, defined as the ratio of the number of boiler-hours the processing lines are on-line to process waste versus the number of hours during the period (e.g. 30 days x 24 hours/day x 2 processing lines), shall not be below an availability of 95%.

During the 30-Day Reliability Test period, routine measurement of normal operational parameters shall be collected and reported to illustrate normal operation during the test period. This will include waste throughput, appropriate temperature, and pressures, electrical generation, etc.

**1.8 THE FACILITY WILL HAVE PASSED THE 30-DAY RELIABILITY TEST CONTINGENT UPON THE SUCCESSFUL PASSAGE OF THE TESTS DESCRIBED IN SECTIONS 1.8 THRU 1.11. THROUGHPUT CAPACITY TEST**

The objective of this test is to demonstrate compliance of the facility with the Throughput Guarantees in Exhibit 2 to Appendix 19 during a five (5) day (120-hour) test period. The Facility will be tested for one consecutive 120-hour period, during which the Facility will process at least **2,130 tonnes (and no less than 1,000 tonnes per unit)** of Reference Waste.

The amount of waste processed during the Throughput Capacity Test shall be adjusted for the measured waste HHV in accordance with the table provided in Exhibit 2 to Appendix 19. The waste HHV shall be determined during the Energy Recovery Tests using a correlation developed from boiler calorimetry tests taken at the Facility. In the event the measured waste

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HHV lies between two data points in the table in Exhibit 2 to Appendix 19, a linear interpolation will be performed to determine the waste throughput.

If the heating value of the waste burned is determined to have an HHV below 11,000 kJ/kg, the waste supplied shall be considered outside of the facility acceptable range and the test will then be repeated at the Owner’s expense.

The Facility shall not have passed the Throughput Capacity Test, even though the tonnage processed meets the capacity requirements stated above, if the facility fails the Residue Quality Test.

**1.9 ENERGY RECOVERY TEST**

The objective of the Energy Recovery Test is to demonstrate the ability of the Facility to generate electricity at a specified throughput of waste (at a Reference Waste HHV) for the purpose of meeting the Electrical Generation Guarantee. Energy Recovery Tests shall consist of a minimum of three (3) minimum 8-hour electric generation tests performed during the 5-day Throughput Capacity Test period. During the test all Facility electrical power requirements shall be supplied by the Facility generator. The tests should include using boiler as a calorimeter (BAC) tests to determine the actual HHV of the waste to correct the kwh/tonne of reference fuel combusted. The basic formulas shall include:

1)	Fuel Heat Input	=	Heat Output (Steam) +  Losses – Heat Credits
2)	HHV of Burned Waste	=	<div style="text-align: center;">                     Fuel Heat Input  <hr style="width: 100%;"/>                     kgs of Burned Waste                 </div>
3)	Boiler Efficiency	=	<div style="text-align: center;">                     Heat Output(Steam)  <hr style="width: 100%;"/>                     Heat Input                 </div>
4)	Steaming Rate	=	<div style="text-align: center;">                     kgs of Steam  <hr style="width: 100%;"/>                     kgs of Burned Waste                 </div>
5)	Electric Generation Rate	=	<div style="text-align: center;">                     Net kWh  <hr style="width: 100%;"/>                     kgs of Burned Waste                 </div>

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The determination of Heat Input will require the steam and feedwater pressure, temperature, and flow measurements. From these, the enthalpy rise from feedwater to outlet steam will be determined.

Heat losses and credits will be determined in accordance with the procedures outlined in ASME PTC 4 and 34 and require primarily a certified stack gas monitoring system to determine excess air; a traversing of the flue duct to determine gas flow rates and temperatures; determination of moisture content in the flue gas; assumption of radiation losses from PTC 4.1, Figure 8 - American Boiler Manufacturers Association (ABMA) Standard Radiation Loss Chart or as estimated from procedures in PTC 4; temperature of residue ash and fly ash; temperatures and quantities of quench water; flow, pressure, temperature, and humidity of combustion air, blowdown flow, and other measurements or determinations of minor losses. The development of the detailed Test Protocol will consider and address minor allowances for factors that may be isolated during testing as a means of simplifying the test and improving test accuracy. These minor allowances may include but will not necessarily be limited to the following: sootblowing; rapping, boiler blowdown; baghouse cleaning; and other normal operating practices required for long-term operation of the Facility. Except for equipment required specifically for testing, no temporary or portable equipment, such as air compressors, will be allowed to be used during the Energy Recovery testing period. All other equipment that contributes to parasitic load will be in a normal or “on” mode.

Each Energy Recovery Test shall be a consecutive 8-hour period (minimum) for each unit. Pertinent test data shall be recorded at appropriate intervals in accordance with the test code. More specifically, the readings taken and recorded during the test will include, but will not necessarily be limited to, the following:

- Waste feed rate;
- Boiler outlet steam – flow rates, temperatures, and pressures;
- Feedwater – flow rates, temperatures, and pressures;
- Attemperator – water flow rates, temperatures and pressures;
- Boiler drum pressures;
- Flue gas – flow rates and temperatures at the economizer outlet;
- Carbon dioxide, oxygen, carbon monoxide, and moisture in the flue gas at the outlet of the economizer;
- Residues and fly ash quantities and unburned carbon content;
- Ambient wet/dry bulb temperatures, barometric pressures;
- Residue quench water quantities (if applicable);

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- Moisture in Residue;
- Boiler blowdown rate and temperature;
- Turbine generator output;
- In-house power consumption;
- Actual Net Electrical Output to the utility grid;
- Steam delivered to the Customers (if applicable)
  - In normal operating or waste based operating mode
  - In standby mode; and
- Steam measured at inlet of the turbine (waste based operations only).

Test measurements will be taken from installed plant instruments which will have been previously calibrated during the start-up period described in the Agreement prior to the test and agreed accurate by the Owner's Engineer. Special portable instrumentation may also be used where required and agreed upon.

Where appropriate, all data and measurements for the test will be read and recorded separately for each combustion unit.

## **1.9 RESIDUE TESTS**

### **1.9.1 Residue Quality Test**

The Residue (e.g. bottom ash and grate siftings only) moisture content and percent combustible matter shall be determined during the Residue Quality Test. The Residue Quality Test will be performed during the five (5) day Throughput Capacity Test and on more frequent intervals during the Energy Recovery Tests. The purpose of this test is to ensure the quality of the bottom ash from the combustion units meet the Performance Guarantees for moisture content of less than or equal to 25%, and unburned carbon of less than or equal to 3%. The Residue samples shall be collected from the combined bottom ash and siftings generated by each combustion train in accordance with ASME PTC 34, the CofA, and MOE requirements. The sampling and testing procedures for the Residue Quality Test shall be included in the Final Acceptance Test Plan, which shall be submitted to the Owner and MOE at least sixty (60) days prior to the start of the Acceptance Test for approval.

Testing of the fly and bottom ash will be performed to demonstrate compliance with appropriate regulatory requirements applicable given the intended disposition of the material.

### **1.9.2 Residue Quantity Test**

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The purpose of the Residue Quantity Test is to ensure the Facility meets the Exhibit 2 to Appendix 19 Performance Guarantee for the total Residue (including bottom ash, grate siftings, boiler and air pollution control fly ash) weighing not more than 30% of the Tonnage combusted to produce such Residue, adjusted for the measured waste HHV in accordance with Table A10-2. The Residue Quantity Test shall be performed during the 30-day Reliability Test and the 5-day Throughput Capacity Test. The main weigh scale and other weighting devices shall be used to determine quantity of residues generated

**Table A10-2: Residue Guarantee Adjustment**

<b>Waste HHV</b>	<b>Ash Quantity</b>
11.0 MJ/kg	33.5%
12.0 MJ/kg	31.7%
13.0 MJ/kg	30.0%
14.0 MJ/kg	28.2%
15.0 MJ/kg	26.5%

### **1.11 METALS RECOVERY TESTS**

The objective of the Metals Recovery Tests are to demonstrate the capability of the Facility to meet the recovery efficiency guarantees for ferrous and non-ferrous recovery from the Residue exiting the boiler after combustion. The test plan shall include adequate sampling provisions for determining that the Facility's ferrous and non-ferrous recovery systems are in compliance with the Metals Recovery Guarantees in Exhibit 2 to Appendix 19.

#### **1.11.1 Ferrous Recovery Test**

The Ferrous Recovery Test shall be conducted on three (3) separate days during the 30 day Reliability Test. Each test shall be a minimum of 8 hours in duration. Residue Samples shall be collected at one-half (1/2) hour intervals. The unrecovered ferrous ratio shall be sampled downstream of the magnetic ferrous separator. The oversize (or grizzly scalper) ferrous shall also be collected, weighed and added to the process ferrous extracted from the magnetic separator. The total Residue weight collected during the test shall also be obtained during the test period. Compliance will be determined by comparing the average of the three (3) tests to the Metals Recovery Guarantee for ferrous metals in Exhibit 2 to Appendix 19.

#### **1.11.2 Non-Ferrous Recovery Test**

The Non-Ferrous Recovery Test shall be conducted on three (3) separate days during the 30 day Reliability Test. Each test day shall be a minimum of 8-hours in duration. Residue samples shall be collected at one-half (1/2) hour intervals. The unrecovered non-ferrous ratio

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shall be sampled downstream of the eddy current or non-ferrous metal separator. The oversize (or grizzly scalper) non-ferrous metals shall also be collected, weighed and added to the process non-ferrous extracted from the eddy current separator. The total Residue weight collected during the test shall also be obtained during the test period. Compliance will be determined by comparing the average of the three (3) tests to the Metals Recovery Guarantee for non-ferrous metals in Exhibit 2 to Appendix 19.

## **1.12 ENVIRONMENTAL COMPLIANCE TEST**

### **1.12.1 Air Emissions**

1.12.2 During the 30-Day Reliability Test, each combustion unit shall be stack-tested. The testing shall be consistent with standard practice of conducting three runs for each parameter with the average of all valid runs being used to demonstrate compliance with the requirements of the CofA and MOE requirements, Noise

If directed by the conditions of the CofA, the DBO Contractor shall carry out acoustic audit measurements on the actual noise emissions due to the operation of the entire Facility at the design rating. The noise measurements shall be performed by an Independent Acoustic Consultant in accordance with the MOE requirements. Independent Acoustic Consultant shall prepare an acoustic audit report which will be included in the Emission Test Report.

### **1.12.3 General**

Testing shall be performed as directed by the conditions of the CofA and MOE. An Emission Test Report shall be prepared in accordance with the MOE requirements and included as part of the Acceptance Test Report described in Section 1.13. The provisions of Article 15 of this Agreement shall apply to the Testing to the extent any of the conditions of the CofA or MOE differ from the conditions as at April 22, 2009.

## **1.13 ACCEPTANCE TEST REPORT**

After completion of the Acceptance Test, a report containing the information related to the Acceptance Test (the "Acceptance Test Report") shall be prepared by the DBO Contractor and, within 60 calendar days, 10 copies shall be submitted to the Owner. The Acceptance Test Report shall contain, but not be limited to, the following information and certifications:

- Copies of all data and log sheets.
- Copies of all laboratory analyses.
- A listing of all federal, state, county, and other regulatory agency requirements and the respective test results indicating conformance and compliance or lack of conformance/compliance with these requirements.
- All necessary certificates relating to calibrations, testing, evaluation, analyses, and performance required pursuant to the Acceptance Test Plan.



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- A summary of test results supported by calculations demonstrating the ability to meet the requirements relating to the Throughput Performance Capacity and Energy Recovery Tests.
- A stand alone Emission Test Report prepared in accordance with the Certificate of Approval and MOE requirements.
- A stand alone Residue Test Report prepared in accordance with the Certificate of Approval and MOE requirements.
- A certification signed by an officer of the DBO Contractor stating that the Acceptance Tests were conducted in accordance with the Acceptance Test Plan; the requirements of the Acceptance Test were satisfied or the extent to which they were not satisfied; and the Acceptance Test demonstrated that the Facility met each of the Performance Guarantees specified in the Contract Documents.

**1.14 FACILITY ACCEPTANCE TEST CRITERIA**

The Facility shall be deemed to have passed the Acceptance Test Criteria if the Acceptance Test demonstrates that, each of the following criteria has been met or exceeded:

- The 30-day Reliability Test has demonstrated during the test period that the Facility has operated at a minimum of 95% of the Demonstrated Design Steam Flow with a Facility availability greater than 95%.
- The Throughput Capacity Guarantee Test has demonstrated the ability of the Facility to process waste in accordance with the Throughput Capacity Guarantee in Exhibit 2 to Appendix 19 during a consecutive five (5)-day test period , and that the amount of Reference waste (in tonnes) processed during the testing period is 2,130 tonnes (and no less than 1,000 tonnes per unit).
- The Energy Recovery Test has demonstrated that the average net electrical production rate (in kWh/tonne) is not less than the Electrical Production Guarantee identified in Exhibit 2 to Appendix 19.
- The Residue Quality Guarantee has demonstrated that the unburned carbon content is less than 3%, and moisture content is less than 25%.
- The Residue Quantity Guarantee is demonstrated if the quantity of Residue generated (in tonnes) is less than or equal to 30% of Waste processed(in tonnes), adjusted for the measured waste HHV in accordance with Table A10-2. Residue to be Residue from the Facility, excluding ferrous and non-ferrous materials recovered, but including any returned or disposed ash resulting from the ferrous and non ferrous cleanup-The Metals Recovery Guarantee is demonstrated if the measured recovery efficiency percentages for ferrous metals and for non-ferrous metals comply with those identified by the DBO Contractor in Exhibit 2 to Appendix 19.

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- The Environmental Compliance Guarantee is demonstrated if the results of the air emissions, noise, and general test requirements are in compliance with the CofA.

**1.15 MINIMUM ACCEPTANCE CRITERIA**

The Facility shall be deemed to have satisfied the Minimum Acceptance Criteria if the minimum criteria for throughput capacity (90% compliance with Throughput Capacity Guarantee), for energy (95% compliance with the Electrical Generation Rate Guarantee), for metals recovery (90% compliance with the Metals Recovery Guarantee, and for environmental compliance (100% compliance with the Environmental Compliance Guarantees) have been demonstrated.

**Table A10-3: Tentative Acceptance Test Schedule**

<b>No.</b>	<b>Milestone Description</b>	<b>No. of Days Before Start of Acceptance Test</b>
1	DBO Contractor issues Draft Acceptance Test Protocol and Preliminary Test Schedule.	180
2	Owner and Owner’s Engineer provides comments on Draft Test Protocol to DBO Contractor.	120
3	Pre-Acceptance Conference with DBO Contractor, all subcontractors, Owner and Owner’s Engineer.	120-90
4	DBO Contractor submits Final Acceptance Test Protocol and Final Test Schedule to Owner and MOE.	90-60
5	DBO Contractor notifies Owner of their intent to start-up the Facility.	Minimum 40
6	DBO Contractor begins the start-up/shakedown period of Facility.	Minimum 30
7	Start of Acceptance Test and 30-Day Reliability Test.	0
8	Completion of Acceptance Test and 30-Day Reliability Test.	-30
9	DBO Contractor submits Acceptance Test Report to Owner and Owner’s Engineer.	-90
10	Owner and Owner’s Engineer’s issues or approvals of Acceptance Test Report.	-120

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**APPENDIX 11**  
**HOURLY RATES FOR TRADES**

<b>Trade</b>	<b>Hourly Rate</b>

DBO Contractor to supply within sixty (60) days after Notice to Proceed

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**APPENDIX 12**  
**TRAINING PLAN**

To be developed by DBO Contractor prior to Start-Up as per Appendix 10 and **subsection 6.2.4.**

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**APPENDIX 13  
COMMISSIONING PLAN**

To be developed by DBO Contractor prior to commencement of the Commissioning Work as per  
**subsection 6.2.5.**

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**APPENDIX 14  
ACCEPTANCE TEST DECLARATION**

**To:** [The Owner’s Representative]

**From:** [The DBO Contractor]

**Re:** Acceptance Test Certificate – Design Build Lump Sum Agreement dated as of \_\_\_\_\_, 20\_\_\_, made between the Owner and the DBO Contractor, as amended and/or supplemented from time to time (the “Agreement”).

The [DBO Contractor], hereby certifies that:

1. The DBO Contractor has successfully completed the Facility Performance Test Work in accordance with the Technical Requirements and the Contract Documents.
2. Evidence in support of the successful completion of the Facility Performance Test Work in the form of all Data required by the Technical Requirements is attached hereto as **Schedule A**.
3. All capitalized words or terms used herein and not otherwise defined herein, shall have the respective meanings ascribed thereto in the Agreement.

**DATED** as of the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_.

**[The DBO Contractor]**

Per: \_\_\_\_\_

Name:

Title:

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**APPENDIX 15**  
**ACCEPTANCE TEST CERTIFICATE**

**To:** [The DBO Contractor]

**From:** [The Owner]

**Re:** Facility Performance Test Certificate – Design Build Lump Sum Agreement dated as of \_\_\_\_\_, 20\_\_\_\_, made between the Owner and the DBO Contractor, as amended and/or supplemented from time to time (the “Agreement”).

**The Owner**, hereby certifies that:

1. The Owner has examined the Acceptance Test Declaration, including all Data attached thereto as **Schedule A**, and in reliance upon the information contained therein, hereby certifies that the DBO Contractor has successfully completed the Acceptance Test Work.
2. The Owner agrees that the statement of repairs, modifications, installations, corrections and adjustments to be made to the Work which the DBO Contractor can complete with no interference to the occupancy, use and lawful operation of the Facility by the Owner is attached hereto as **Schedule B**.
3. The Owner has confirmed that the DBO Contractor has removed all surplus products, tools, construction machinery, equipment, waste products and debris from the Place of the Work.
4. All capitalized words or terms used herein and not otherwise defined herein, shall have the respective meanings ascribed thereto in the Agreement.

**DATED** as of the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**[The Owner]**

Per: \_\_\_\_\_

Name:

Title:

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**APPENDIX 16**  
**FORM OF PERFORMANCE BOND**

Bond No. \_\_\_\_\_

Contract \_\_\_\_\_

Amount \$ \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS THAT WE \_\_\_\_\_ hereinafter called "the Principal", and \_\_\_\_\_ hereinafter called "the Surety", are jointly and severally held and firmly bound unto the Regional Municipality of Durham, hereinafter called "the Obligee", its successors and assigns in the sum of \_\_\_\_\_ DOLLARS (\$\_\_\_\_\_) of lawful money of Canada, to be paid unto the Obligee, for which payment well and truly to be made we the Principal and the Surety jointly and severally bind ourselves, our and each of our respective heirs, executors, administrators, successors and assigns by these presents.

WHEREAS the Principal has entered into a contract with the Obligee through acceptance of the Principal's proposal dated \_\_\_\_\_ by the Obligee followed by the completion of successful negotiations of commercial terms on \_\_\_\_\_ hereinafter called the "Contract" for the \_\_\_\_\_ as in the Contract provided, which Contract is by reference herein made a part hereof as fully to all intents and purposes as though recited in full herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall at all times duly perform and observe the Contract or as the same be changed, altered or varied as hereinafter provided, to the satisfaction of the Obligee and shall at all times fully indemnify and keep indemnified the Obligee from and against all and any manner of loss, damage, expense, suits, actions, claims, liens, proceedings, demands, awards, payments and liabilities arising out of or in any manner based upon or attributable to the Contract and shall fully reimburse and repay the Obligee for all outlay, expense, liabilities, or payments incurred or undertaken to be made by the Obligee pursuant to the Contract, then this obligation shall be void, but otherwise it shall be and remain in full force and effect.

PROVIDED ALWAYS and it is hereby agreed and declared that the Obligee and the Principal have the right to change, alter and vary the terms of the Contract and that the Obligee may in its discretion at any time or times take and receive from the Principal any security whatsoever and grant any extension of time thereof or on any liability of the Principal to the Obligee.

PROVIDED FURTHER and it is hereby agreed and declared that the Principal and the Surety shall not be discharged or released from liability hereunder and that such liability shall not be in any way affected by any such changes, alterations, or variations, taking or receiving of security, or extension of time, as aforesaid, or by the exercise by the Obligee of any of the rights or powers reserved to it under the Contract or by its forbearance to exercise any such rights or powers, including (but without restricting the generality of the foregoing) any changes in the extent or nature of the works to be constructed, altered, repaired or warranted under the Contract,



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or by any dealing, transaction, forbearance or forgiveness which may take place between the Principal and the Obligee.

Whenever the Principal shall be, and declared by the Obligee to be, in default under the Contract, the Obligee having performed the Obligee's obligations thereunder, the Surety shall promptly:

- 1) remedy the default, or;
- 2) complete the Contract in accordance with its terms and conditions or;
- 3) obtain a bid or bids for submission to the Obligee for completing the Contract in accordance with its terms and conditions and upon determination by the Obligee and the Surety of the lowest responsible bidder, arrange for a contract between such bidder and the Obligee and make available as work progresses (even though there should be a default, or a succession of defaults, under the contract or contracts of completion, arranged under this paragraph) sufficient funds to pay to complete the Principal's obligations in accordance with the terms and conditions of the Contract and to pay those expenses incurred by the Obligee as a result of the Principal's default relating directly to the performance of the work under the Contract, less the balance of the Contract price; but not exceeding the Bond Amount. The balance of the Contract price is the total amount payable by the Obligee to the Principal under the Contract, less the amount properly paid by the Obligee to the Principal, or;
- 4) pay the Obligee the lesser of (1) the Bond Amount or (2) the Obligee's proposed cost of completion, less the balance of Contract price

And is hereby declared and agreed that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the said Principal shall operate as a discharge or release of liability of the said Surety.

Provided further and it is hereby agreed and declared that the Surety shall not be liable for a greater sum than that specified in this Bond.

Any suit under this bond must be instituted before the expiry of two (2) years from the date of Facility Substantial Completion.

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IN WITNESS WHEREOF the Principal and the Surety have executed these presents this \_ day of \_\_\_\_\_, 20\_\_.

SIGNED AND SEALED BY THE PRINCIPAL  
in the presence of

\_\_\_\_\_

Occupation: \_\_\_\_\_

\_\_\_\_\_  
Principal

Address: \_\_\_\_\_

\_\_\_\_\_  
Surety

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**APPENDIX 17**  
**FORM OF LABOUR AND MATERIALS BOND**

Bond No.

Contract

Amount \$

KNOW ALL MEN BY THESE PRESENTS THAT WE \_\_\_\_\_ hereinafter called "the Principal", \_\_\_\_\_ and \_\_\_\_\_ hereinafter called "the Surety", are jointly and severally held and firmly bound unto the Regional Municipality of Durham, hereinafter called "the Obligee", for the use and benefit of the Claimants, their and each of their heirs, executors, administrators, successors and assigns in the amount of DOLLARS (\$\_\_\_\_\_) of lawful money of Canada, for the payment of which sum well and truly to be made, we, the Principal and the Surety jointly and severally bind ourselves, our and each of our respective heirs, executors, administrators, successors and assigns by these presents.

WHEREAS by an agreement in writing dated the \_\_\_ day of \_\_\_\_\_, 20\_\_\_, the Principal has entered into a Contract with the Obligee, hereinafter called "the Contract", for the which Contract is by reference herein made a part hereof as fully to all intents and purposes as though recited in full herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall make payment to all Claimants for all labour and material used or reasonably required for use in the performance of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A Claimant for the purpose of this bond is defined as one having a direct Contract with the Principal for labour, material, or both, used or reasonably required for use in the performance of the Contract, labour and material being constructed to include that part of water, gas power, light, heat, oil, gasoline, telephone service or rental equipment, directly applicable to the Contract provided that a person, firm or corporation who rents equipment to the Principal to be used in the performance of the Contract under a contract which provides that all or any part of the rent is to be applied towards the purchase price thereof shall only be a Claimant to the extent of the prevailing industrial rental value of such equipment for the period during which the equipment was used in the performance of the Contract, labour and material.

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2. The Principal and the Surety hereby jointly and severally agree with the Obligee, as Trustee, that every Claimant who has not been paid as provided for under the terms of his Contract with the Principal, before the expiration of a period of ninety (90) days after the date on which the last of such Claimant's work or labour was done or performed or materials were furnished by such Claimant, may as a beneficiary of the trust herein provided for, sue on this Bond, prosecute the suit to final judgement for such sum or sums as may be justly due to such Claimant under the terms of the Contract with the Principal and have execution thereon. Provided that the Obligee is not obliged to do or take any act, action or proceeding against the Surety on behalf of the Claimants, or any of them, to enforce the provisions of this Bond. If any act, action or proceeding is taken either in the name of the Obligee or by joining the Obligee as a Party to such proceeding, then such act, action or proceeding, shall be taken on the understanding and basis that the Claimants, or any of them, who take such act, action or proceeding, shall indemnify and save harmless the Obligee against all costs, charges and expenses or liabilities incurred against all costs, charges and expenses or liabilities incurred thereon and any loss or damage resulting to the Obligee by reason thereof. Provided still further that, subject to the foregoing terms and conditions, the Claimants or any of them may use the name of the Obligee to sue on and enforce the provisions of this Bond.
3. No suit or action shall be commenced hereunder by any Claimant:
- (a) unless such Claimant shall have given written notice within the time limits hereinafter set forth to each of the Principal, the Surety and the Obligee, stating with substantial accuracy the amount claimed. Such notice shall be served by mailing the same by registered mail, or served in any manner in which legal process may be served in the Province of Ontario, to the Principal and Surety at any place where an office is regularly maintained for the transaction of business by such persons, and to the Obligee addressed to the attention of the Regional Clerk, the Regional Municipality of Durham, 605 Rossland Road, East, Whitby, Ontario.

Such notice shall be given:

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- (1) in respect of any claim for the amount of any portion thereof required to be held back from the Claimant by the Principal under either the terms of the Claimant's contract with the Principal or under the Construction Lien Act, 1983, and amendments thereto applicable to the Claimant's contract with the Principal, whichever is the greater within one hundred and twenty (120) days after such Claimant should have been paid in full under the Claimant's contract with the Principal.
    - (2) in respect of any claim other than for the holdback, or portion thereof, referred to above, within one hundred and twenty (120) days after the day on which such Claimant did, or performed the last of the work or labour or furnished the last of the materials for which such claim is made, under the Claimant's contract with the Principal.
  - (b) After the expiration of one (1) year following the date on which the Principal ceased work on the Contract, including work performed under the guarantees provided in the Contract.
  - (c) Other than in a Court of competent jurisdiction in the Province of Ontario, and the Parties hereto agree to submit to the jurisdiction of such Court.
4. The amount of this Bond shall be reduced by, and to the extent of any payment or payments made in good faith, and in accordance with the provisions hereof, inclusive of the payment by the Surety of claims under the Construction Lien Act, 1983, as amended, whether or not such claims be presented under and against this Bond.

PROVIDED ALWAYS and it is hereby agreed and declared that the Obligees and the Principal have the right to change, alter and vary the terms of the contract, and that the Obligees may in its discretion at any time or times take and receive from the Principal any security whatsoever and grant any extension of time thereon or on any liability of the principal to the Obligees.

PROVIDED FURTHER and it is hereby agreed and declared that the Principal and the Surety shall not be discharged or released from liability hereunder and that such liability shall not be in

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any way affected by any such changes, alterations, or variations, taking or receiving of security, or extension of time, as aforesaid, or by the exercise by the Obligee of any of the rights or powers reserved to it under the Contract or by its forbearance to exercise any such rights or powers, including (but without restricting the generality of the foregoing) any changes in the extent or nature of the works to be constructed, altered, repaired or maintained under the Contract, or by any dealing, transaction, forbearance or forgiveness which may take place between the Principal and the Obligee.

PROVIDED FURTHER and it is hereby agreed and declared that the Surety shall not be liable for a greater sum than that specified in this Bond.

SIGNED AND SEALED BY THE PRINCIPAL  
in the presence of

\_\_\_\_\_

Occupation: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Surety

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**APPENDIX 18  
ACCEPTANCE CERTIFICATE**

**To:** [The DBO Contractor]

**From:** [The Owner]

**Re:** Acceptance Certificate – Design Build Lump Sum Agreement dated as of \_\_\_\_\_, 20\_\_\_, made between the Owner and the DBO Contractor, as amended and/or supplemented from time to time (the “Agreement”).

**The Owner**, hereby certifies that:

1. With the exception of the performance and observation of those covenants, agreements and obligations that continue under the Agreement, the conditions for completion of the Finishing Work have been fulfilled, and the Work is complete.
  
2. All capitalized words or terms used herein and not otherwise defined herein, shall have the respective meanings ascribed thereto in the Agreement.

**DATED** as of the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_.

**[The Owner]**

Per: \_\_\_\_\_

Name:

Title:

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**APPENDIX 19**  
**PERFORMANCE GUARANTEES**

1. Performance Guarantees:

<b>Requirement</b>	<b>Guaranteed Limit</b>	<b>Implications</b>
Throughput Capacity	140,000 TPY as may be adjusted as per (a) Appendix 10 Section 1.15, Minimum Acceptance Criteria, (b) subsection 6.2.6(d)(iii), and (c) as approved in Appendix 15, Acceptance Test Certificate; subject to the provisions in Appendix 34 and subsection 33.6.4.	Liquidated Damages for failure to meet the Throughput Guarantee will be applied annually as set out in Article 18 “Performance Liquidated Damages”
Electricity Production	As per Exhibit 2 to Appendix 19, item 3 or the accepted adjusted value as per Appendix 10 Section 1.15, Minimum Acceptance Criteria and <b>subsection 6.2.6(d)(iii)</b> and as approved in Appendix 15, Acceptance Test Certificate; and, in either case as applicable, subject to Exhibit “1” attached hereto. On each day which the Facility is required to operate at less than 90% of MCR (as such is defined in Exhibit 2 of Appendix 19) due solely to the lack of sufficient amounts of Acceptable Waste having been delivered to the Facility for reasons other than DBO Contractor fault, the electricity produced and the tonnes processed such day shall be excluded from the calculation of DBO Contractor’s performance with respect to the Electricity Production Guarantee and Steam Generation Adjustment . DBO Contractor shall promptly notify Owner of such occurrence and shall maintain reasonable records of each such day for at least eighteen (18) months. The DBO Contractor undertakes to act in good faith and operate the Facility and manage the waste volumes received so as to minimize the occurrence of days where the Facility is required to operate at less than 90 % of MCR (as such is	Liquidated Damages for failure to meet the Electricity Production will be applied annually as set out in Article 18 “Performance Liquidated Damages”



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defined in Exhibit 2 of Appendix 19).

The DBO Contractor shall give the Owner a minimum of 72 hours prior written notice of the potential for the Facility to be required to operate at less than 90% of MCR (as such is defined in Exhibit 2 of Appendix 19) due solely to the lack of sufficient amounts of Acceptable Waste having been delivered to the Facility for reasons other than DBO Contractor fault so that the Owner can adjust deliveries to avoid that eventuality.

Notwithstanding the foregoing, all quantities of Acceptable Waste processed on days when the Facility is required to operate at less than 90 % of MCR (as such is defined in Exhibit 2 of Appendix 19) will still be counted towards the Owner’s supply of waste commitment in **Article 32** and in setting the kWh/tonne Electricity Production Guarantee.

Any day in which the turbine at the Facility is not functioning and which the Owner or Owner’s Representative has received at least 5 days' prior written notice of the scheduled downtime shall be excluded from the calculation of the Electricity Production Guarantee. In no event shall a scheduled turbine downtime include any turbine downtime in excess of 28 days during any consecutive 5-year period.

Residue Quality	As per Exhibit 2 to Appendix 19, item 4	n/a
Residue Quantity	As per Exhibit 2 to Appendix 19, item 4	Liquidated Damages for failure to meet the Residue Quantity Guarantee will be applied annually as set out in Article 18 “Performance

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		Liquidated Damages”
Metals Recovery (ferrous)	As per Exhibit 2 to Appendix 19, item 5	n/a
Other Material Recovery	As per Exhibit 2 to Appendix 19, item 6	n/a
Facility Availability	As per Exhibit 2 to Appendix 19, item 7	n/a
Maximum Emission Limits	As per Exhibit 2 to Appendix 19, item 8	Failure to meet Maximum Emission Limits subject to Article 37.9 Environmental Performance Adjustment
Any other Certificate of Approval specified limits	To be Determined through MOE CofA negotiations	n/a

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**Exhibit “1” to Appendix 19**

**Net Energy Recovery Kwh Per Tonne Guarantees**

The following formulas duplicate the tables in Exhibit 2 to Appendix 19 and shall be used to calculate the Kwh per Tonne Guarantees at various HHV and Annual Acceptable Waste Delivery Levels.

**Electricity Production Guarantee (Exhibit 2 to Appendix 19, Item 3)  
Not Including the Future District Energy Component**

For HHV from 11 MJ/kg to 12 MJ/kg

$$\frac{\text{Kwhr}}{\text{tonne}_{(11-12)}} = \left[ \left( \frac{\text{HHV}}{5} - 0.1 \right) (\% \text{GAT} * 100) \right] + (53 * \text{HHV}) - 166$$

For HHV from 12 MJ/kg to 13 MJ/kg

$$\frac{\text{Kwhr}}{\text{tonne}_{(12-13)}} = \left[ \left( \frac{\text{HHV}}{5} - 0.1 \right) (\% \text{GAT} * 100) \right] + (47 * \text{HHV}) - 94$$

For HHV from 13 MJ/kg to 15 MJ/kg

$$\frac{\text{Kwhr}}{\text{tonne}_{(13-14)}} = \left[ \left( \frac{\text{HHV}}{5} - 0.1 \right) (\% \text{GAT} * 100) \right] + (53 * \text{HHV}) - 172$$

**Electricity Production Guarantee  
Future District Energy Component (Exhibit 2 to Appendix 19, Item 9)**

For HHV from 11 MJ/kg to 12 MJ/kg

$$\frac{\text{Kwhr}}{\text{ton}_{(11-12)}} = \left[ \left( \frac{\text{HHV}}{10} + 1 \right) (\% \text{GAT} * 100) \right] + (55 * \text{HHV}) - 267$$

For HHV from 12 MJ/kg to 13 MJ/kg

$$\frac{\text{Kwhr}}{\text{ton}_{(12-13)}} = \left[ \left( \frac{3 * \text{HHV}}{10} - 1.4 \right) (\% \text{GAT} * 100) \right] + (29 * \text{HHV}) + 45$$

For HHV from 13 MJ/kg to 14 MJ/kg

$$\frac{\text{Kwhr}}{\text{ton}_{(13-14)}} = \left[ \left( \frac{\text{HHV}}{5} - 0.1 \right) (\% \text{GAT} * 100) \right] + (46 * \text{HHV}) - 176$$

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For HHV from 14 MJ/kg to 15 MJ/kg

$$\frac{\text{Kwhr}}{\text{ton}}_{(14-15)} = \left[ \left( \frac{\text{HHV}}{10} + 1.3 \right) (\% \text{GAT} * 100) \right] + (55 * \text{HHV}) - 302$$

Key:

%GAT = the guaranteed annual throughput as defined in Note 1 to Item 3 of Exhibit 2 to Appendix 19 and subject to the provisions in Appendix 34 and subsection 33.6.4.

HHV= annual average higher heating value of Acceptable Waste delivered to the Facility based upon the agreed upon approach developed in Appendix 10.

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Exhibit 2 to Appendix 19

The performance guarantees:

<b>1. Construction Period Guarantee</b>		
Length of time from Notice to Proceed to Schedule Acceptance Date (days)		<b>1,217 days</b>
<b>2. Throughput Capacity Guarantee (140,000 tonnes per year)</b>		
HHV		<u>Tonnes per day</u>
11.0 MJ/kg		<b>515</b>
12.0 MJ/kg		<b>472</b>
13.0 MJ/kg *		<b>436</b>
14.0 MJ/kg		<b>405</b>
15.0 MJ/kg		<b>378</b>
* = Design waste HHV		
<b>3. Electricity Production Guarantee* (Annual Average)</b> <b>*Not including the Future District Energy System component</b> <b>(See Part 9 to this form, below)</b>		
Throttle Conditions Proposed (Bar)		<b>Approx. 90</b>
Throttle Conditions Proposed (°C)		<b>Approx. 496</b>
Maximum Steam load (kg/hr)		<b>Approx. 72,000 @ VWO</b>
<b>Electricity Production Guarantee at or above 100% of the Guaranteed Annual Throughput [See Note 1]</b>		
<u>HHV</u>	Gross Electrical Output (kWh/tonne)	Net Electrical Output (kWh/tonne)
11.0 MJ/kg	<b>712</b>	<b>627</b>
12.0 MJ/kg	<b>793</b>	<b>700</b>
13.0 MJ/kg	<b>868</b>	<b>767</b>
14.0 MJ/kg	<b>949</b>	<b>840</b>
15.0 MJ/kg	<b>1030</b>	<b>913</b>

Note 1. The Guaranteed Annual Throughput is calculated by multiplying the "Tonnes per Day" in the table in item 2 above by the number of days in the year by 0.88. The Electrical Production Guarantee (Annual Average) shall be determined using the equations set forth in Exhibit 1 to Appendix 19. Maximum Continuous Rating or "MCR" for each boiler is the Guaranteed Annual Throughput calculated at 13 MJ/kg divided by two (2).

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<b>Electricity Production Guarantee at 90% of Guaranteed Annual Throughput [See Note 1]</b>			
	<u>HHV</u>	Gross Electrical Output (kWh/tonne)	Net Electrical Output (kWh/tonne)
	11.0 MJ/kg	<b>701</b>	<b>606</b>
	12.0 MJ/kg	<b>781</b>	<b>677</b>
	13.0 MJ/kg	<b>854</b>	<b>742</b>
	14.0 MJ/kg	<b>934</b>	<b>813</b>
	15.0 MJ/kg	<b>1014</b>	<b>884</b>

<b>4. Residue Quality and Quantity Guarantee:</b>			
The Average monthly quality and quantity of Residue (to include bottom ash, fly ash, siftings, scrubber residue and all other process residue) from combustion of processible waste:			
	Unburned Combustible Matter (% dry weight – not exceed 3.0%)	<b>3%</b>	
	Total Residue (bottom and fly ash) excluding ferrous and other materials (tonne of residue/tonne of processible waste – not to exceed 30%@ 13.0 MJ/kg)	<b>Waste HHV</b>	<b>Ash Quantity</b>
		11.0 MJ/kg	33.5%
		12.0 MJ/kg	31.7%
		13.0 MJ/kg	30.0%
		14.0 MJ/kg	28.2%
	15.0 MJ/kg	26.5%	
	Percent Moisture in Bottom Ash Residue (tonne of residue/tonne of processible waste – not to exceed 25%)	<b>25%</b>	

<b>5. Metals Recovery Guarantee (recovery efficiency test)</b>	
Measured as tonnes ferrous recovered/tonnes ferrous in residue pre-processing – expressed as a percentage	<b>80% Ferrous &amp; 60% Non-Ferrous</b>

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<b>6.</b>	<b>Other Material Recovery</b> (Specify material; tonne of material recovered/tonne of material recoverable – expressed as %)	
	Material 1: Non-Ferrous	<b>n/a</b>
	Material 2:	<b>n/a</b>
	Material 3:	<b>n/a</b>

<b>7.</b>	<b>Guaranteed Facility Availability</b>	
	the proportion of time the Incinerator Unit is available to process the Regions’ waste within a calendar year time period, expressed as a percentage (minimum requirement is 90% availability or 7,884 hours available in a year)	<b>90%</b>

<b>8.</b>	<b>Guaranteed Maximum Emission Limits</b>
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Pollutant	Units	YD EFW Proposed Limits	Guaranteed Limit	Environmental Demerit Points
<p>Exceed any Certificate of Approval Limit and Operator cannot receive any bonus payments for that year.</p> <p>Further violations will increase demerit points and demerit points for specific emissions are cumulative with CEM or Stack test demerits listed below.</p> <p>Operator can receive both a negative Performance Adjustment and MOE fines.</p>				75
<p><b>Continuous Emission Monitoring (CEM) Parameters</b></p> <p>Excludes exceedances during Normal Start-up and Shutdown conditions and Emergency Shutdowns</p>				
Sulphur Dioxide (SO <sub>2</sub> ) 24 hour geometric mean exceeds CEM guarantee	mg/Rm <sup>3</sup>	35	<b>35</b>	10
Hydrogen Chloride (HCl) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm <sup>3</sup>	9	<b>9</b>	10
Hydrogen Fluoride (HF) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm <sup>3</sup>	0.9	<b>0.9</b>	10
Nitrogen Oxides (NO <sub>x</sub> ) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm <sup>3</sup>	180	<b>121</b>	10
Carbon Monoxide (CO) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm <sup>3</sup>	45	<b>45</b>	10



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<b>Stack Test Parameters</b>				
Mercury (Hg) Stack Test result exceeds Emission Guarantee	µg/Rm <sup>3</sup>	15	<b>15</b>	20
Cadmium (Cd) Stack Test result exceeds Emission Guarantee	µg/Rm <sup>3</sup>	7	<b>7</b>	20
Cadmium + Thallium (Cd + Th) Stack Test result exceeds Emission Guarantee	µg/Rm <sup>3</sup>	46	<b>46</b>	20
Lead (Pb) Stack Test result exceeds Emission Guarantee	µg/Rm <sup>3</sup>	50	<b>50</b>	20
Sum of (As, Ni, Co, Pb, Cr, Cu, V, Mn, Sb) Stack Test result exceeds Emission Guarantee	µg/Rm <sup>3</sup>	460	<b>460</b>	20
Dioxins Stack Test result exceeds Emission Guarantee	pg/Rm <sup>3</sup>	60	<b>60</b>	20
Total Particulate Matter Stack Test result exceeds Emission Guarantee	mg/Rm <sup>3</sup>	9	<b>9</b>	20
Organic Matter (as methane) Stack Test result exceeds Emission Guarantee	mg/Rm <sup>3</sup>	49	<b>49</b>	20
<b>Operational Parameters</b>				
Excludes exceedances during Normal Start-up and Shutdown conditions and Emergency Shutdowns				
Continuous Emission Monitor Monthly Availability	percent	95 %	<b>95%</b>	5
Opacity exceeds CEM guarantee	percent	TBD	<b>TBD</b>	5
Any other MOE C of A imposed criteria	TBD	TBD	<b>TBD</b>	TBD

Note: The Owner will assign environmental performance points for guaranteed operating level exceedances during operation, but will exclude exceedances during Normal Start-up and Shutdown conditions and Emergency Shutdowns.

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<b>9. Future District Heating System Energy Output Guarantee [See note #2]</b>		
Provide a guaranteed maximum reduction in electrical output resulting from the implementation of the district heating loop. Vendor’s guarantee shall be at peak load conditions of 3.5 MW thermal to the future office buildings in the Energy Park and 3.9 MW thermal load to the Courtice WPCP.		
Maximum anticipated Extraction Steam load for district heating system (kg/hr)		<b>Approx. 11,000</b>
Extraction Steam Conditions Proposed for district heating system (°C)		<b>Approx. 260</b>
Extraction Steam Conditions Proposed for district heating system (Bar)		<b>Approx. 13.3</b>
<b>Electricity Production Guarantee at or above 100% of the Guaranteed Annual Throughput [See Note 1]</b>		
<u>HHV</u>	Gross Electrical Output (kWh/tonne)	Net Electrical Output (kWh/tonne)
11.0 MJ/kg	<b>633</b>	<b>548</b>
12.0 MJ/kg	<b>707</b>	<b>613</b>
13.0 MJ/kg	<b>773</b>	<b>672</b>
14.0 MJ/kg	<b>847</b>	<b>738</b>
15.0 MJ/kg	<b>920</b>	<b>803</b>
<b>Electricity Production Guarantee at 90% of Guaranteed Annual Throughput [See Note 1 under Item 3 to this Exhibit 2 to Appendix 19]</b>		
<u>HHV</u>	Gross Electrical Output (kWh/tonne)	Net Electrical Output (kWh/tonne)
11.0 MJ/kg	<b>622</b>	<b>527</b>
12.0 MJ/kg	<b>695</b>	<b>591</b>
13.0 MJ/kg	<b>760</b>	<b>647</b>
14.0 MJ/kg	<b>832</b>	<b>711</b>
15.0 MJ/kg	<b>904</b>	<b>775</b>

Note 2. The net electrical output does not include any future in-house loads associated with the district heating system.

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**APPENDIX 20**  
**INSURANCE**

**1.1 INSURANCE TO BE PROVIDED BY DBO CONTRACTOR DURING CONSTRUCTION**

1.1.1 Builders' Risk Insurance - The DBO Contractor shall procure and maintain builders' risk insurance, including boiler and machinery, contractor's pollution and delay in start-up coverage, to cover the Owner, the DBO Contractor, all subcontractors, architects, engineers, consultants and all other persons or firms providing services or materials to the Project, for damage to property forming part of the Work, in an amount not less than full value of the contract including installations, floater and goods while in transit, to cover "all risks" of direct physical loss or damage, including the perils of Flood and Earthquake and off premises debris removal. Coverage will apply during testing and commissioning.

Deductibles applicable to such insurance shall be paid by the DBO Contractor, unless and to the extent the insured loss is directly attributable to Owner Fault, in which case such deductibles, up to \$250,000 per occurrence shall be paid by the Owner.

1.1.2 Wrap-up Liability Insurance – The DBO Contractor shall procure and maintain Wrap-up Liability Insurance to cover the liability of the Owner, the DBO Contractor, all subcontractors, engineers, architects, consultants and all other persons or firms directly or indirectly engaged in the Project, and their respective employees, agents and representatives for third party injury or property damage resulting from occurrences arising during construction of the Project, in an amount not less than twenty million dollars (\$20,000,000) per occurrence for the duration of the Project, with respect to Products with two (2) years completed operations or DBO Contractor shall procure its own twenty million dollar (\$20,000,000) Commercial General Liability policy with the endorsements shown below and require that all subcontractors, engineers, architects, consultants and all other persons or firms directly or indirectly engaged in the Project provide their own Commercial General Liability insurance in limits that are commensurate with their scope of work.

Such insurance will contain the latest edition of the relevant CCDC endorsement forms including the following endorsements:

Broadform Property Damage

Premises and Operations Liability;

Elevator and Hoist Collision Liability;

Products and Completed Operations Liability;

Blanket contractual liability;

Contingent employers' liability;

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Non-Owned Automobiles;

Cross liability clause; and

Employees as additional insureds.

Such insurance shall contain a waiver of subrogation against all named and unnamed insureds, including the Owner and the DBO Contractor, and against their respective subcontractors and consultants as well as officers, directors and employees of the foregoing.

1.1.3 The policies of insurance obtained by the DBO Contractor will be available for inspection by the Owner upon reasonable notice to the DBO Contractor's Representative. Insurance certificates evidencing the required insurance will be provided annually to the Owner by the DBO Contractor, commencing at the effective date of the agreement.

1.1.4 Errors & Omissions (Professional Liability) - The DBO Contractor shall procure and maintain professional errors and omissions insurance to cover professional liability resulting from the errors, omissions and negligent acts of its consultants, engineers and architects in an amount not less than five million dollars (\$5,000,000) per claim for the duration of the Project. DBO Contractor shall require that any subcontractor that will provide professional engineering or architectural services for any part of the Work also procure and maintain professional errors and omissions insurance in an amount that is commensurate with the scope of work being provided by such subcontractor.

1.1.5 Automobile Liability Insurance – The DBO Contractor shall procure and maintain automobile liability insurance in an amount not less than five million dollars (\$5,000,000) per claim to cover third party damage and/or injuries resulting from the use and operation of licensed automobiles in conjunction with the DBO Contractor's performance of the Work.

1.1.6 The insurance coverage shall contain the latest edition of the relevant CCDC endorsement form.

**1.2 INSURANCE TO BE PROVIDED BY THE DBO CONTRACTOR DURING OPERATIONS**

1.2.1 Commercial General Liability Insurance, including premises and all operations. This insurance coverage shall be subject to limits of not less than twenty million dollars (\$20,000,000) inclusive per occurrence for third party Bodily Injury and Property Damage or such other coverage or amount as may be reasonably requested by the Owner.

1.2.2 Automobile Liability Insurance in respect to licensed vehicles with limits of not less than five million dollars (\$5,000,000) inclusive per occurrence for bodily injury, death and damage to property.

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1.2.3 Environmental Liability Insurance with limits of not less than twenty million dollars (\$20,000,000) inclusive per claim.

1.2.4 Errors and Omissions (Professional Liability) Insurance with limits of not less than five million dollars (\$5,000,000) per claim.

1.2.5 All Risks (including flood and earthquake property insurance and broad comprehensive boiler and machinery insurance in amounts sufficient to fully cover on a replacement cost basis all property in the premises which the DBO Contractor is responsible to repair or maintain, or which is installed by or on behalf of DBO Contractor including extra expense insurance for costs associated to divert waste for at least one year. Deductibles applicable to such insurance shall be paid by the DBO Contractor, unless and to the extent the insured loss is directly attributable to Owner Fault, in which case such deductibles, up to \$250,000 per occurrence, shall be paid by the Owner.

1.2.6 Business Interruption Insurance in such amounts as will reimburse the Owner for direct or indirect loss of earnings attributable to all perils insured against and other perils commonly insured against. Deductibles applicable to such insurance shall be paid by the DBO Contractor, unless and to the extent the insured loss is directly attributable to Owner Fault, in which case such deductibles, up to \$250,000 per occurrence, shall be paid by the Owner.

The policies shall include the Owner as an additional insured in respect of all operations performed by or on behalf of the DBO Contractor in relation to the Contract requirements and be endorsed to provide the Owner with not less than sixty (60) days written notice in advance of any cancellation, change or amendment restricting coverage.

Evidence of the required coverage shall be provided prior to execution of the agreement on the Owner's Standard Insurance Certificate, where applicable. Certified copies of the policies shall be made available for inspection upon request.

The DBO Contractor shall provide an updated Certificate of Insurance as soon as possible after the expiry date of any required coverage.

Failure to provide and continuously maintain the required insurance coverage throughout the entire term of the Contract will constitute a default.

**1.3 CONDITIONS APPLICABLE TO INSURANCE**

1.3.1 All insurers shall be licensed to do business in the Province of Ontario and shall be acceptable to the Owner. The insurance coverage shall contain the latest edition of the relevant CCDC endorsement form.

1.3.2 Evidence of the insurance specified herein (and renewals thereof) shall be provided to the Owner prior to the DBO Contractor commencing any portion of the Work on the Project

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Lands, and in the case of renewals, as soon as possible after the expiry date of such policies.

- 1.3.3 All property insurance losses excess of the deductibles, shall be controlled by a firm or firms of insurance adjusters to be named by the Owner and reasonable acceptable to the DBO Contractor.

**1.4 FAILURE TO MEET INSURANCE REQUIREMENTS**

- 1.4.1 If the DBO Contractor fails to provide any insurance required or if any such insurance lapses or is cancelled or is in any way altered, then the Owner shall have the right, but not the duty, to obtain and maintain such insurance in the name of the DBO Contractor. The expense so incurred by the Owner shall be reimbursed by the DBO Contractor on demand, or may be deducted by the Owner from any Payment then or thereafter due to the DBO Contractor under the Agreement.

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**APPENDIX 21  
OCCUPATIONAL HEALTH AND SAFETY PLAN**

DBO Contractor to supply prior to Facility Substantial Completion

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**APPENDIX 22**  
**COMMUNICATIONS PLAN**

DBO Contractor to supply prior to Facility Substantial Completion



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**APPENDIX 23**  
**EMERGENCY SERVICES PLAN**

DBO Contractor to supply prior to Facility Substantial Completion

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**APPENDIX 24  
LIST OF GOVERNMENT AUTHORIZATIONS/PERMITS**

- DELETED -

**APPENDIX 25**

**FORM OF PARENT COMPANY GUARANTEE**

+ (the “Guarantor”)  
a corporation organized and existing  
under the laws of the +

and

+ (“+”)

Made effective \_\_\_\_\_, 2006

**Preamble:**

- A. + and a wholly owned subsidiary of the *Guarantor*, + (the “*Subsidiary*”) are Parties to the Project Agreement dated \_\_\_\_\_ as the same may be amended, modified or supplemented from time to time (the “*Contract*”).
- B. In order to induce + to enter into the *Contract*, the *Guarantor* agrees to guarantee any and all duties and obligations of the *Subsidiary* contained in, or arising from, the *Contract* on the terms and conditions set out in this Guarantee.

Now therefore, in consideration of the premises, covenants and agreements herein contained, and in consideration of, and as a material inducement to + entering into the *Contract* with the *Subsidiary*, which is a benefit to the *Guarantor*, and for other good and valuable consideration, the receipt and adequacy of which are acknowledged by the *Guarantor*, the *Guarantor* and + agree as follows:

**ARTICLE 1  
DEFINITIONS AND INTERPRETATION**

- 1.1 **Defined Terms.** In this *Guarantee* the following terms shall have the meanings set out below:
- (a) “*Guarantee* ” means this Parent Company *Guarantee*; and
  - (b) “*Guaranteed Obligations*” means all and each of the *Subsidiary*’s covenants, obligations, indemnities, conditions or liabilities contained in, or arising from, the *Contract*.
- 1.2 **Defined Terms in the Contract.** In this *Guarantee* capitalized and italicized terms, used in this *Guarantee* and not otherwise defined in this *Guarantee*, shall have the meanings ascribed to them in the *Contract*.

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**1.3 Interpretation.**

- (a) Singular or Plural. Words importing the singular number shall include the plural and vice versa.
- (b) Headings. The headings of this *Guarantee* are for convenience only and shall not be considered in the interpretation of this *Guarantee*.

**ARTICLE 2**  
**GUARANTEE**

**2.1 Effective Date and Term.** This Guarantee shall be effective as at the date first above written and shall continue in full force and effect for so long as the Subsidiary has any Guaranteed Obligations to be performed.

**2.2 Unconditional Guarantee.** The Guarantor, as principal obligor and not as surety, does hereby irrevocably and unconditionally covenant and agree with +:

- (a) to guarantee the prompt and complete performance of the *Guaranteed Obligations*;
- (b) that, if, for any reason whatsoever, the *Subsidiary*, at any time, or from time to time, fails to perform any of *Guaranteed Obligations*, the *Guarantor* shall, forthwith, on written demand from +, cause the *Guaranteed Obligations* of the *Subsidiary* to be kept, observed, performed and satisfied in accordance with the provisions of the *Contract*; and
- (c) that should the *Guarantor* fail to perform its obligations pursuant to this Guarantee, the *Guarantor* shall indemnify and be liable to + for all of +'s reasonable costs of enforcement, occurring as a result of the *Guarantor* failing to perform its obligations pursuant to this Guarantee.

**2.3 Defences.** Notwithstanding any other provision of this Guarantee to the contrary, the Guarantor shall be entitled to assert as a defence to any claim for payment or performance of the Guaranteed Obligations:

- (a) any and all of the same defences which the *Subsidiary* would be entitled to assert if such claim were made directly against the *Subsidiary*, provided that such claim and such defences have not previously been adjudicated adversely to the *Guarantor* or the *Subsidiary*, and
- (b) the existence of a bona fide dispute as to the *Guaranteed Obligations*.

**2.4 Waiver.** In the event of the Subsidiary's default of any of the Guaranteed Obligations, the Guarantor waives any right to require +, before + can pursue any rights or remedies it may have under this Guarantee against the Guarantor, to:

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- (a) proceed against the *Subsidiary* or pursue any rights or remedies with respect to the *Contract*; or
- (b) pursue any other right or remedy whatsoever available to + or in +'s power.

2.5 **Guarantee Not Affected.** Without limiting the generality of this Guarantee, the liability of the Guarantor under this Guarantee shall be absolute and shall not be deemed to have been waived, released, discharged, impaired or affected by any reason, including but not limited to:

- (a) any change in the financial condition of the *Subsidiary* or the *Guarantor*;
- (b) the receivership, bankruptcy, winding up, liquidation, dissolution, insolvency or other creditor proceeding in respect of the *Subsidiary* or the *Guarantor*;
- (c) the release or discharge of the *Subsidiary*, the *Guarantor* or any other person or entity whatsoever in any receivership, bankruptcy, winding up or other creditor proceeding;
- (d) the issuance of any modification, amendment of, or supplement to the *Guaranteed Obligations*, the *Contract*, or any document or instrument made pursuant or ancillary to the *Contract*, including without limitation any change in the time, manner or place of performance of any of the *Guaranteed Obligations*, and notwithstanding that the *Guarantor* may not receive any notice thereof;
- (e) any failure or delay of + or any other entity to enforce, assert or exercise any right, privilege, power or remedy conferred on + or any other entity in respect of the *Contract*, or any action on the part of + or any other entity granting + any indulgence or extension of any kind; or
- (f) any change in the existence, structure, constitution, name, control or ownership of the *Subsidiary* or the *Guarantor*.

2.6 **Non Contestation.** The Guarantor shall not contest or otherwise challenge (including, without limitation, by asserting any defences whatsoever in respect of) the legality, validity or enforceability of any term, condition or other provision of this Guarantee. The Guarantor represents to + that it is familiar with and consents to the terms and conditions of the Contract and the Guaranteed Obligations hereby guaranteed, and that it shall not be a defence to the enforcement of this Guarantee that the Subsidiary's entering into the Contract was unauthorized or otherwise invalid, or that any of the Guaranteed Obligations are in any way unenforceable.

2.7 **Non Exhaustion of Remedies.** + shall not be bound or obligated to exhaust any recourse against the Subsidiary or take any other action whatsoever before being entitled to demand performance by the Guarantor of the Guaranteed Obligations.

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- 2.8 Costs and Expenses.** The Guarantor agrees to pay +, upon demand, all reasonable costs of enforcement incurred by or on behalf of + in connection with enforcing any of its rights against the Subsidiary or the Guarantor in respect of the Guaranteed Obligations.
- 2.9 Right of Subrogation.** In the event the Guarantor causes the Guaranteed Obligations of the Subsidiary to be kept, observed, performed and satisfied in accordance with the provisions of the Contract, the Guarantor shall have a right to be subrogated to all rights of the Subsidiary under the Contract.

**ARTICLE 3**  
**REPRESENTATIONS AND WARRANTIES**

- 3.1 Representations and Warranties.** The Guarantor makes the representations and warranties to + that are set forth below.
- (a) The *Guarantor* is a corporation duly continued, validly existing and in good standing under the laws of the State of Delaware.
  - (b) The *Guarantor* has full corporate power and authority to execute and deliver this *Guarantee* and perform its obligations hereunder.
  - (c) The execution and delivery of this *Guarantee* and the performance of its obligations hereunder have been authorized by all necessary corporate action of the *Guarantor*. No other act, approval or proceedings on the part of the *Guarantor* or the holders of any class of its equity or debt securities or any other person or entity is required to authorize the execution and delivery of this *Guarantee* by the *Guarantor* or performance of its obligations hereunder.
  - (d) This *Guarantee* constitutes a legal, valid and binding obligation of the *Guarantor* and is enforceable against the *Guarantor* in accordance with its terms except that:
    - (i) such enforcement may be subject to bankruptcy, insolvency, moratorium or similar laws affecting creditor rights; and
    - (ii) the remedy of specific performance and injunctive and other forms of equitable relief are subject to certain equitable defences and to the discretion of the court before which any proceedings may be brought.
  - (e) This *Guarantee* and the execution and delivery hereof by the *Guarantor* does not, and the fulfillment and compliance with the terms and conditions hereof and the performance of its obligations hereunder will not:
    - (i) conflict with any of, or require the consent or waiver of rights of any person or entity under the terms, conditions or provisions of the articles of incorporation or by laws or equivalent governing instruments of the *Guarantor*;

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- (ii) violate any provision of, or require any consent, authorization or approval under, any law or administrative regulations or any judicial, administrative or arbitration order, award, judgment, writ, injunction or decree applicable to the *Guarantor*;
- (iii) conflict with, result in a breach of, constitute a default under (whether with notice or lapse of time or both), or accelerate or permit the acceleration of the performance required by, or require any consent, authorization or approval under, any indenture, mortgage, lien, lease, agreement or instrument to which the *Guarantor* is a Party or by which it is bound or to which any of its property is subject; or
- (iv) result in the creation of any lien, charge or encumbrance upon the assets of the *Guarantor* under any such indenture, mortgage, lien, lease agreement or instrument.

**ARTICLE 4**  
**GENERAL PROVISIONS**

- 4.1 Applicable Law.** The validity, interpretation and performance of this Guarantee shall be governed by the laws of the Province of Ontario, Canada. Any legal action brought to enforce or construe the provisions of this Guarantee shall be brought in the Superior Court of Justice for the Province of Ontario, and the Parties agree to and hereby submit to the exclusive jurisdiction of such courts and agree that they will not invoke the doctrine of forum non conveniens or other similar defenses in any such action brought in such courts. TO THE EXTENT PERMITTED BY APPLICABLE LAW, EACH OF THE PARTIES TO THIS GUARANTEE HEREBY IRREVOCABLY WAIVES ALL RIGHT TO TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM ARISING OUT OF OR RELATING TO THIS GUARANTEE OR THE TRANSACTIONS CONTEMPLATED HEREBY. The Guarantor hereby specifically agrees that any injunctive or other equitable relief granted by a court located in the Province of +, Canada, or any award by a court located in the Province of +, Canada, shall be specifically enforceable as a foreign judgment in the +, + and agrees not to contest the validity of such relief or award in such foreign jurisdiction, regardless of whether the laws of such foreign jurisdiction would otherwise authorize such injunctive or other equitable relief, or award.
- 4.2 Dispute Resolution.** Any disputes arising out of this Guarantee shall be handled in the same manner permitted for disputes under the Contract.
- 4.3 Address and Form of Notice.** Any notice permitted or required to be given under this Guarantee shall be in writing, and shall be delivered in the manner provided in the Contract.

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- 4.4 Enforcement of Rights.** The rights and remedies set forth in this Guarantee (to the extent such rights and remedies are consistent with the rights and remedies set forth in the Contract) are the exclusive rights and remedies available to + against the Guarantor in respect of the subject matter hereof.
- 4.5 No Waiver of Rights.** Any failure or delay by + in exercising any right, power or privilege in respect of this Guarantee will not operate as a waiver, and a single or partial exercise of any right, power or privilege will not preclude any subsequent or further exercise of that right, power or privilege or the exercise of any other right, power or privilege. The failure of + to insist upon the strict performance of any provision of this Guarantee shall not waive such provision or in any manner impair the ability of + to enforce it, or any other provision.
- 4.6 Enurement.** This Guarantee may be assigned by the Guarantor only with prior written permission of +, which permission may be arbitrarily withheld. This Guarantee shall be binding upon the Guarantor and its successors and assigns and enure to the benefit of + and its successors and assigns permitted by the Contract:
- 4.7 Entire Agreement.** This Guarantee constitutes the entire agreement and guarantee of the Guarantor with respect to the subject matter hereof and supersedes all negotiations, discussions and undertakings between the Parties to the Contract or between + and the Guarantor, and there are no other understandings or agreements, oral or written, with respect thereto.
- 4.8 Amendments.** No changes, alterations or modifications to this Guarantee shall be effective unless in writing and signed by the respective duly authorized representatives of + and the Guarantor.
- 4.9 Severability.** If one or more of the non material provisions contained herein shall, for any reason, be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or enforceability shall not affect any other provisions of this Guarantee, and shall be deemed severed from this Guarantee which shall be construed as if such invalid, illegal or unenforceable provision or provisions had never been contained herein.
- 4.10 Time.** Time shall be of paramount importance in this Guarantee.
- 4.11 Execution in Counterparts.** This Guarantee may be executed in any number of counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.
- 4.12 Limitation of Liability.** Notwithstanding any other provision of this Guarantee or the Contract to the contrary, in no event shall the liability of Guarantor under this Guarantee be greater than an amount equal to fifty per cent (50%) of the Lump Sum Price (as defined in the Contract) for acts or omissions which occur during or arise out of the performance of the Design Build Work (as defined in the Contract), which aggregate limit of liability under this Guarantee shall reduce to an amount equal to thirty per cent



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(30%) of the Lump Sum Price for acts or omissions which occur during or arise out of the performance of the Operations Work (as defined in the Contract).

**4.13 Intention of Parties.** This Guarantee is entered into solely for the purpose of documenting that the Guarantor is assuming any and all obligations of the Subsidiary under the Contract, and that + is authorized to enforce any such obligation against the Guarantor to the same extent as if the Guarantor had been a Party to the Contract instead of the Subsidiary. It is the intention of the Parties that this Guarantee not impose any additional obligation on, or increase the liability of, the Guarantor and Subsidiary, collectively, in excess of those obligations and liabilities that would have been imposed upon, or incurred by, the Subsidiary under the Contract. Nor is it the intention of the Parties that this Guarantee grant to + any additional right to enforce such obligations or collect such liabilities in excess of those rights + possessed under the Contract had the Guarantor been the Party to the Contract instead of the Subsidiary. The terms and provisions of this Guarantee shall be interpreted and construed in a manner consistent with the foregoing intent, and any provision of this Guarantee contrary to such intent shall be null and void and of no force or effect.

**EXECUTION:**

Agreed to and signed by the *Guarantor* effective on the date first above written.

**[Name of Party]**

Per: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Agreed to and signed by +, effective on the date first above written.

**[Name of Party]**

Per: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

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**APPENDIX 26**  
**RENTAL RATES FOR EQUIPMENT**

<b>Equipment</b>	<b>Rental Rate</b>

DBO Contractor to provide prior to Facility Substantial Completion

**APPENDIX 27**  
**HANDBACK REQUIREMENTS**

Pursuant to **Article 44** Handback Requirements

**A Required Condition of Facility Structures Upon Return**

The Facility Structures shall be returned in good condition, working order and repair with ordinary wear and tear excepted as determined in light of the DBO Contractor's maintenance, repair and replacement obligations.

**B Required Condition of Facility Equipment Upon Return**

As part of the Handback Survey, DBO Contractor, Owner and their respective consultants shall review the maintenance history of the Project as documented in Monthly and Annual Report and the current Plans. The review shall include performance and historic repair replacement and refurbishment intervals of major components of the Project to ensure that the level of maintenance has not declined during the later portion of the Term

If the review reveals that major components of the Project have not been repaired, replaced or refurbished on an interval consistent with the Plans and Monthly and Annual Report, such components shall be evaluated to determine if they are in a condition to continue reliable service or in need of repair, replacement or refurbishment prior to or at the commencement of the extension periods.

The parties acknowledge that the objective of this Section is to prevent the DBO Contractor from deferring maintenance at the end of the Term such that there is a reasonable expectation that the Facility, if maintained in a manner and on intervals consistent with the maintenance history of the Facility as disclosed in the Handback Survey, will continue to have an operable lifespan during the renewal terms, subject to the replacement during the renewal terms of those pieces of Major Equipment identified by the DBO Contractor which would not ordinarily be replaced during the initial Term of the Agreement.

**C Ability to Meet Performance Guarantees**

The DBO Contractor shall conduct an exit performance test with a minimum duration of 7 days to demonstrate that all Facility operations over the exit test period are in full and continuous compliance with the Performance Guarantees.

During the tests, the DBO Contractor shall operate all systems within the Facility under normal operating conditions, including, but not limited to, routine equipment operation, maintenance services and electrical usage.

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**APPENDIX 28**  
**ANNUAL SERVICE PLAN**

Pursuant to **Article 36.8.1** the DBO Contractor shall provide to the Owner an Annual Service Plan that outlines the DBO Contractor’s operating maintenance plan that shall demonstrate that the Facility will be maintained in a manner that is consistent with good solid waste handling, mass-burn boiler and energy generating plant practices giving due consideration to manufacturer recommendations and requirements so as to comply with the requirements under the Certificate of Approval, the Environmental Laws and Regulations and any other Authorization related to the Facility or the process, as may be amended from time to time, and its obligations under this Agreement, including the Performance Guarantees set out in **Appendix 19** and the Handback Requirements.

The Plan shall include details of the DBO Contractor’s planned inspections of the Facility and plans regarding maintenance and repair of the Facility so as to keep it in good condition, order and repair.

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**APPENDIX 29A**  
**FIVE YEAR MAINTENANCE PLAN**

Pursuant to **Section 38.2** the DBO Contractor shall provide an initial Five Year Maintenance Plan to be updated each year as a rolling five year plan. The Five Year Plan shall demonstrate that the Facility will be maintained in a manner that is consistent with good solid waste handling, mass-burn boiler and energy generating plant practices giving due consideration to manufacturer recommendations and requirements so as to comply with the requirements under the Certificates of Approval, the Environmental Laws and Regulations and any other Authorization related to the Facility or the process, as may be amended from time to time, and its obligations under this Agreement, including the Performance Guarantees set out in **Appendix 19** and the Handback Requirements.

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**APPENDIX 29B**  
**LIFE CYCLE PLAN**

Pursuant to **Article 36.8.3** the DBO Contractor shall provide to the Owner an initial Life Cycle Plan to be updated annually that details the DBO Contractor's program for repair/replacement of major Facility equipment over the remaining term of the Agreement that shall demonstrate that the Facility will be maintained in a manner that is consistent good solid waste handling, mass-burn boiler and energy generating plant practices giving due consideration to manufacturer recommendations and requirements so as to comply with the requirements under the Certificate of Approval, the Environmental Laws and Regulations and any other Authorization related to the Facility or the process, as may be amended from time to time, and its obligations under this Agreement, including the Performance Guarantees set out in **Appendix 19** and the Handback Requirements.

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**APPENDIX 30**

**FORM OF RENEWABLE PERFORMANCE BOND**

No. \_\_\_\_\_ Bond Amount \$ \_\_\_\_\_

\_\_\_\_\_ as Principal, hereinafter called the Principal, and \_\_\_\_\_ a corporation created and existing under the laws of \_\_\_\_\_ and duly authorized to transact the business of Suretyship in \_\_\_\_\_ as Surety, hereinafter called the Surety, are held and firmly bound unto \_\_\_\_\_ as Obligee, hereinafter called the Obligee, in the amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) lawful money of Canada, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS, the Principal has entered into a written contract with the Obligee, dated \_\_\_\_ day of \_\_\_\_\_, in the year \_\_\_\_\_ for \_\_\_\_\_

\_\_\_\_\_ hereinafter referred to as the Contract.

The condition of this obligation is such that if the Principal shall promptly and faithfully perform the Contract then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Whenever the Principal shall be, and declared by the Obligee to be, in default under the Contract, the Obligee having performed the Obligee's obligations thereunder, the Surety shall promptly:

- 1) remedy the default, or;
- 2) complete the Contract in accordance with its terms and conditions or;
- 3) obtain a bid or bids for submission to the Obligee for completing the Contract in accordance with its terms and conditions and upon determination by the Obligee and the Surety of the lowest responsible bidder, arrange for a contract between such bidder and the Obligee and make available as work progresses (even though there should be a default, or a succession of defaults, under the contract or contracts of completion, arranged under this paragraph) sufficient funds to pay to complete the Principal's obligations in accordance with the terms and conditions of the Contract and to pay those expenses incurred by the Obligee as a result of the Principal's default relating directly to the performance of the work under the Contract, less the balance of the Contract price; but not exceeding the Bond Amount. The balance of the Contract price is the total amount payable by the Obligee to the Principal under the Contract, less the amount properly paid by the Obligee to the Principal, or;

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- 4) pay the Obligee the lesser of (1) the Bond Amount or (2) the Obligee’s proposed cost of completion, less the balance of Contract price.

This bond shall expire on \_\_\_\_\_, \_\_\_\_\_ and may be renewed by the Principal and Surety for multiple further term(s) of one year by the issuance of Continuation Certificate(s). However, should the Surety exercise its option not to renew, it must notify the Obligee in writing of its intention not less than ninety (90) days prior to the expiration date, otherwise this bond shall be deemed to be automatically renewed for a further one year term.

The Surety shall remain liable for a default occurring up to the date of expiry of this bond but shall not be liable for a default occurring subsequent to such expiry date. Notwithstanding the terms of the Contract, non-renewal of the bond shall not be considered a default hereunder.

**It is a condition of this bond that any suit or action must be commenced before the expiration of two (2) years from the earlier of (1) the date of Substantial Performance of the Contract as defined in the lien legislation where the work under the Contract is taking place, or, if no such definition exists, the date when the work is ready for use or is being used for the purpose intended, or (2) the date on which the Principal is declared in default by the Obligee.**

The Surety shall not be liable for a greater sum than the Bond Amount.

No right of action shall accrue on this Bond, to or for the use of, any person or corporation other than the Obligee named herein, or the heirs, executors, administrators or successors of the Obligee.

**IN WITNESS WHEREOF**, the Principal and the Surety have Signed and Sealed this Bond dated \_\_\_\_\_ day of \_\_\_\_\_, in the year \_\_\_\_\_ .

SIGNED AND SEALED  
in the presence of

Principal

\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Name of person signing*

ATTORNEY IN FACT

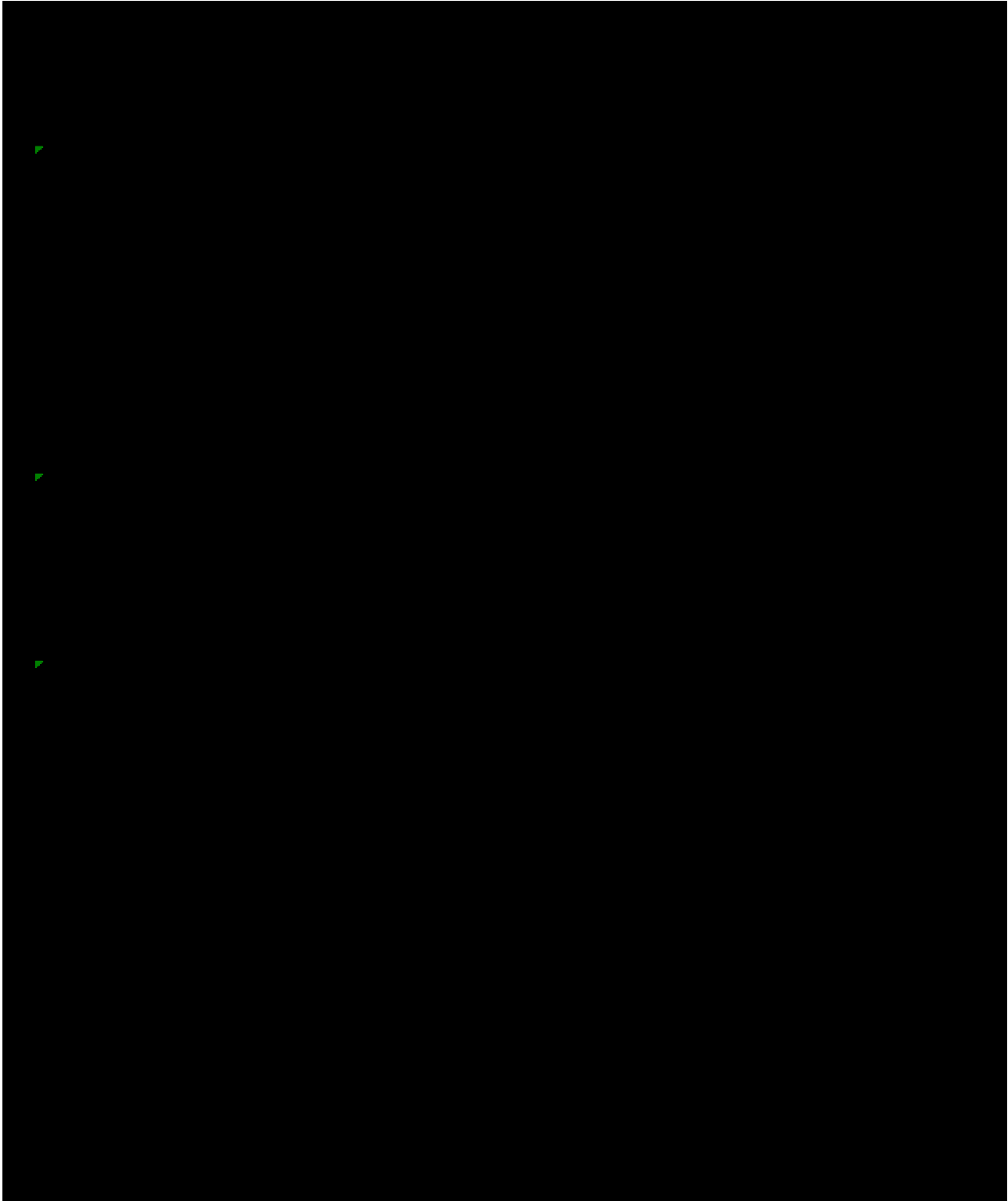
Surety

\_\_\_\_\_  
*Signature*

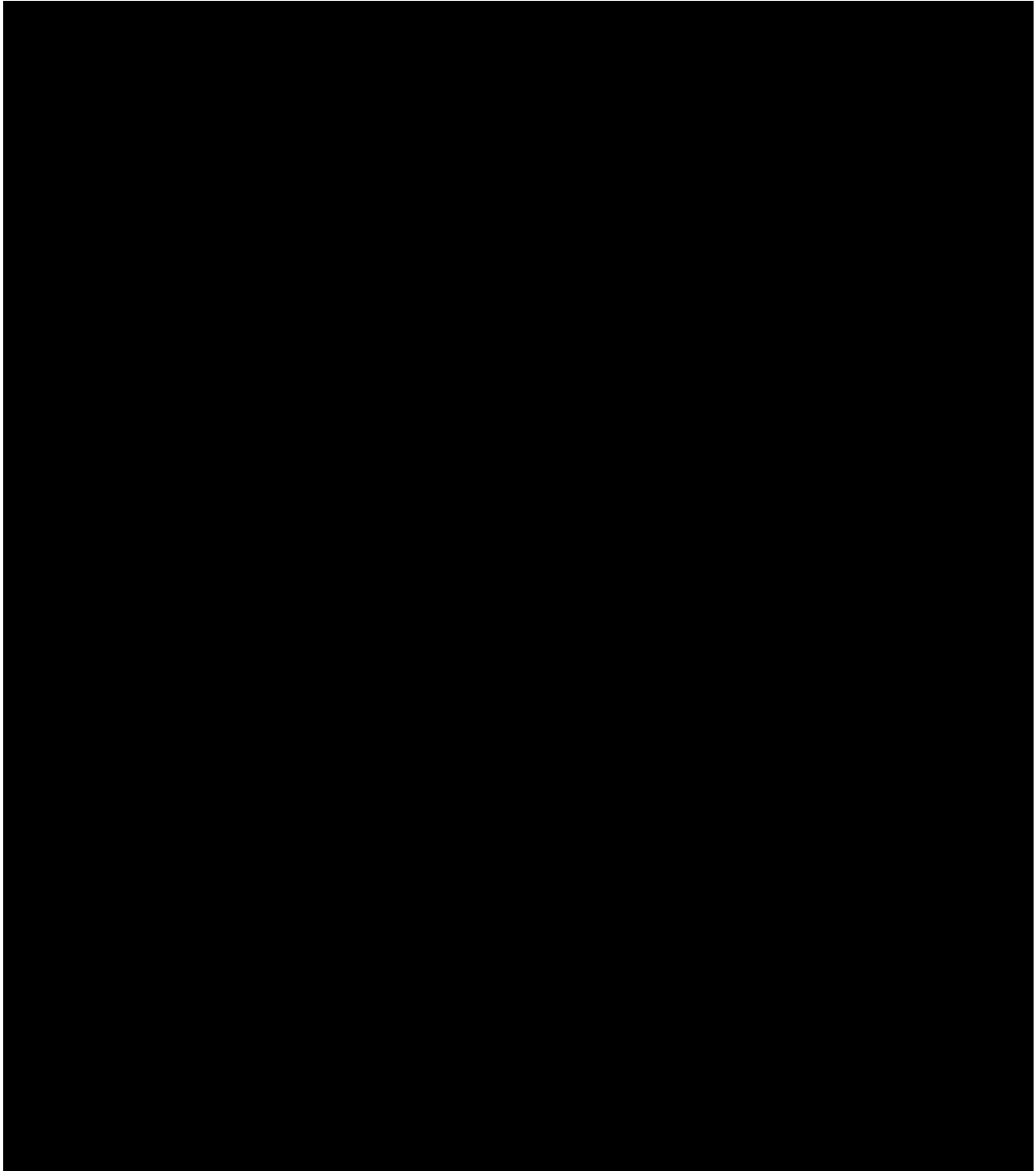
\_\_\_\_\_  
*Name of person signing*



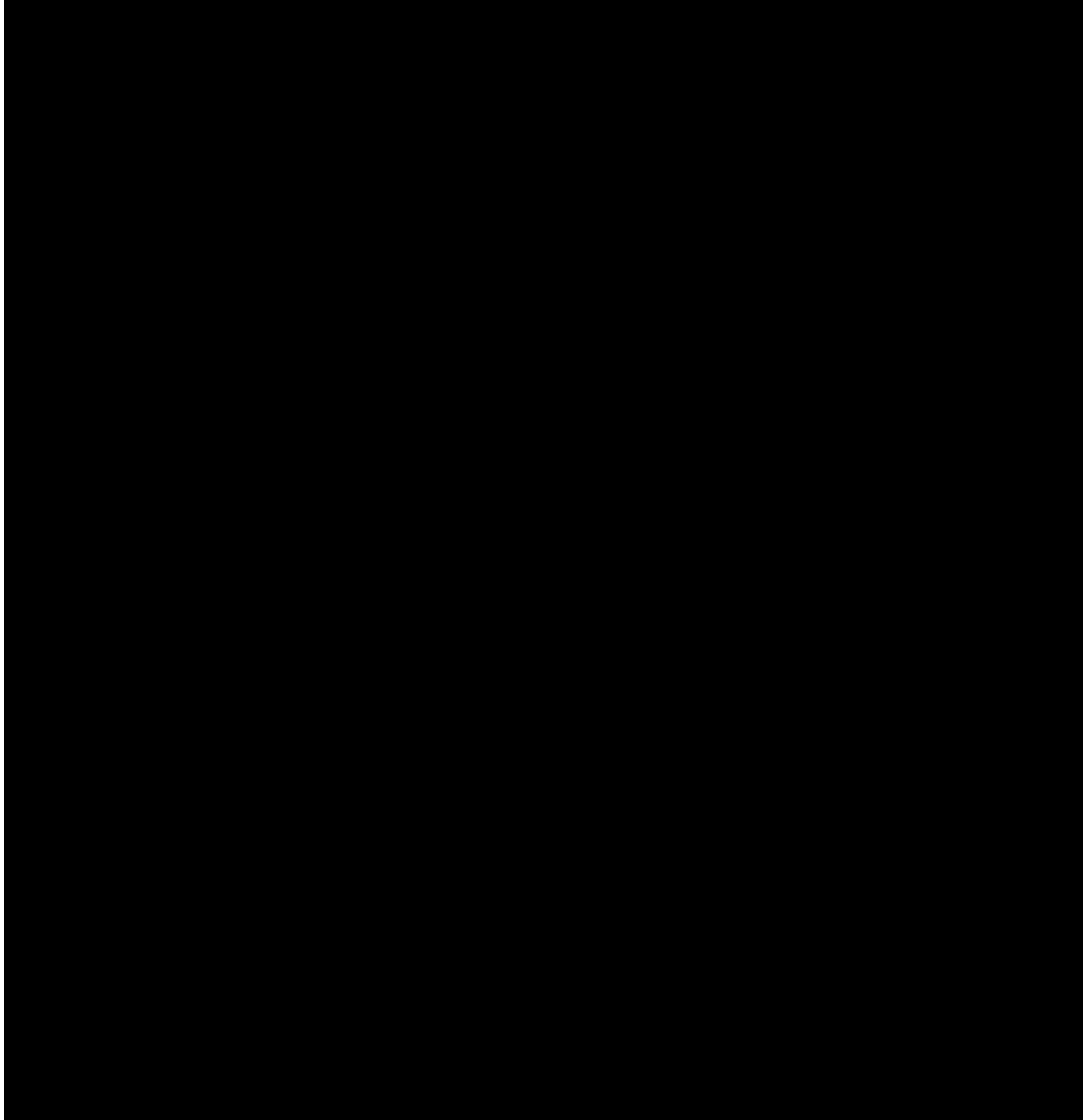
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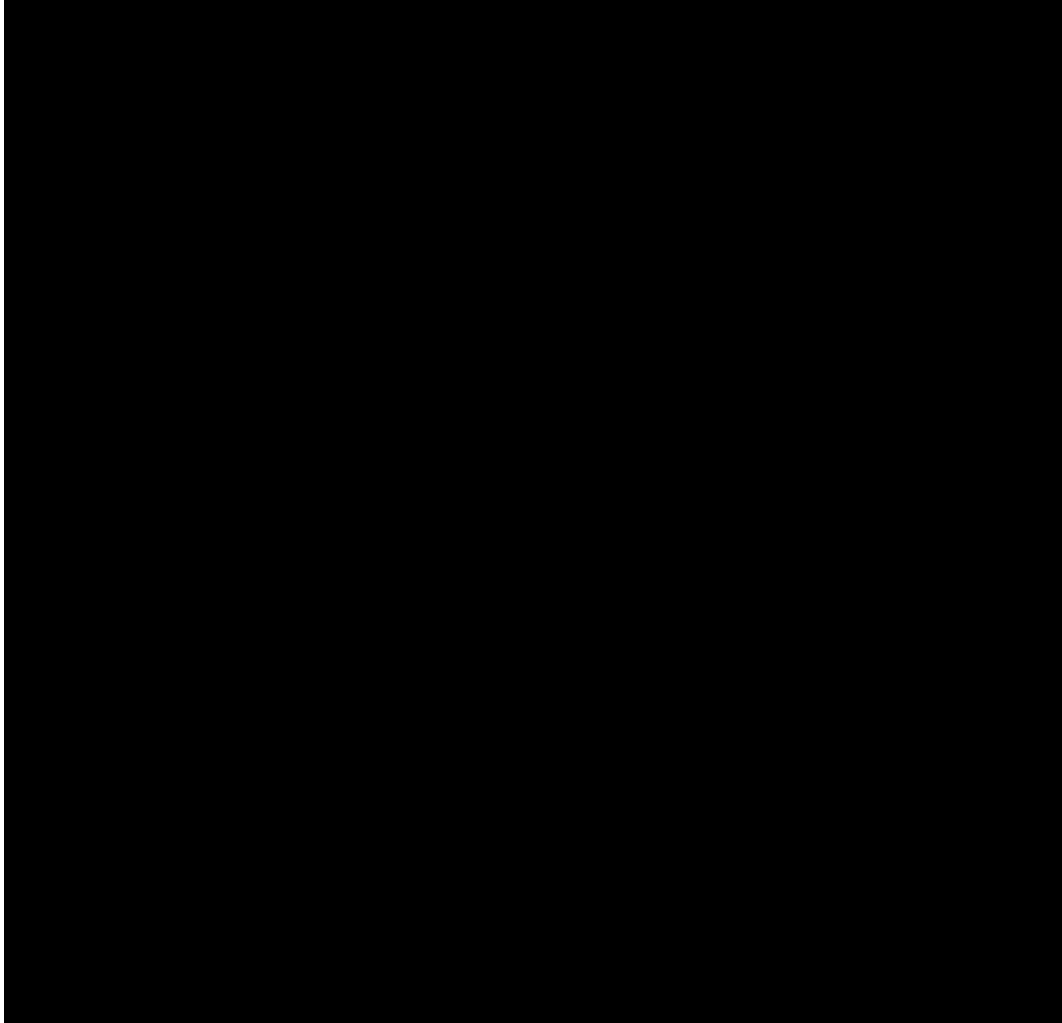
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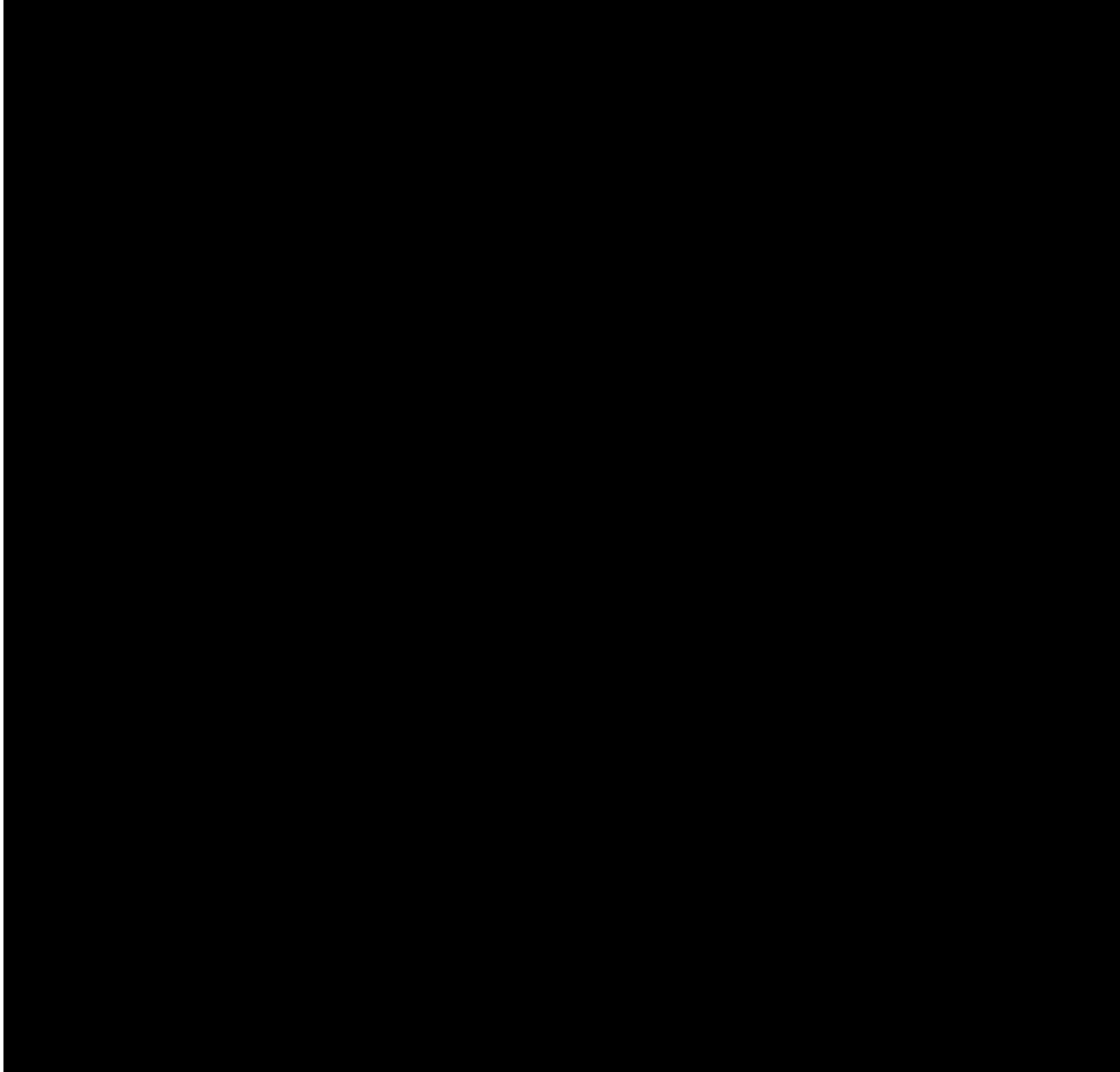
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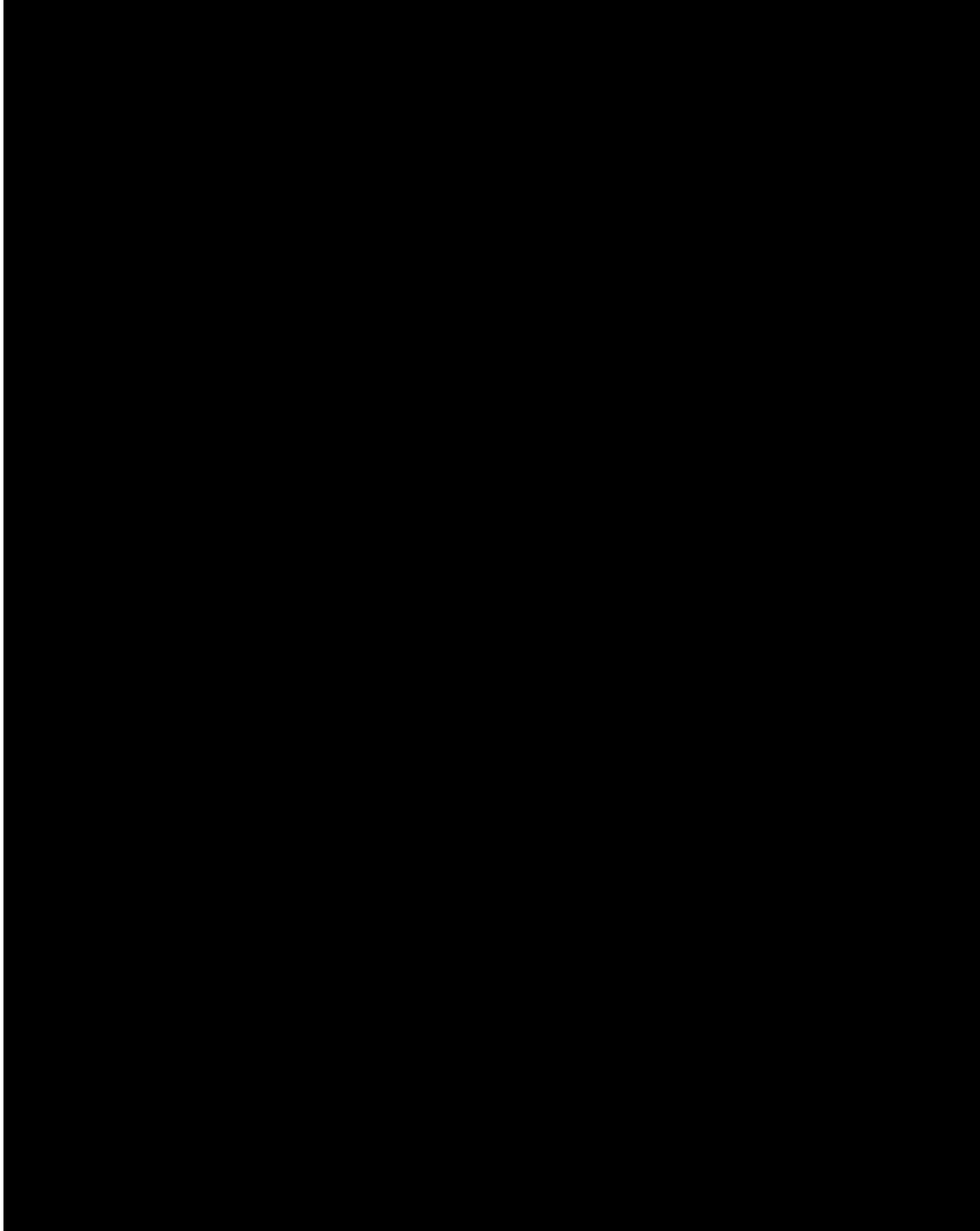
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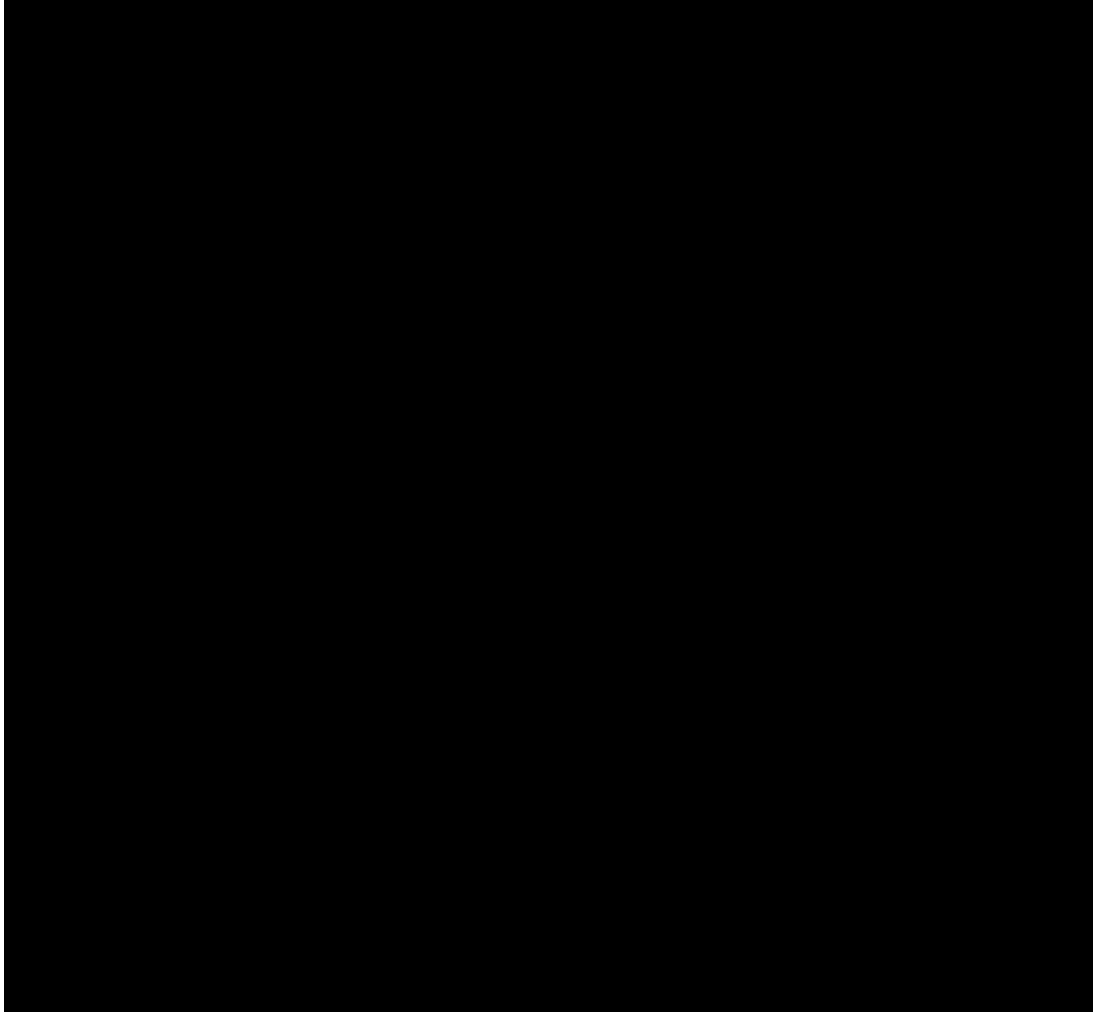
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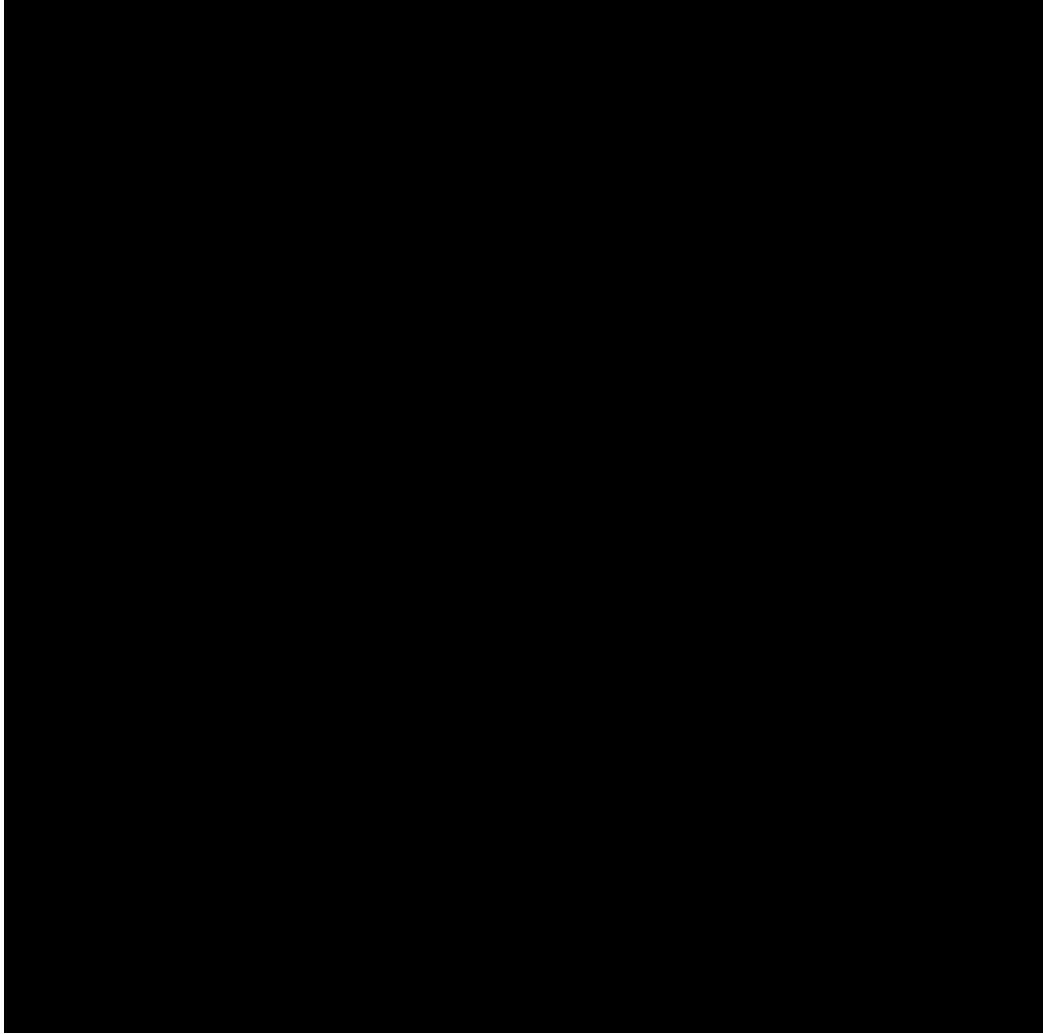
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**APPENDIX 32**

Noise Control Plan

DBO Contractor to provide prior to Facility Substantial Completion

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**APPENDIX 33**

Odour Control Plan

DBO Contractor to provide prior to Facility Substantial Completion

**APPENDIX 34**

**WASTE DELIVERY ACCEPTANCE CRITERIA**

During the term of the Agreement, DBO Contractor shall be obligated to accept and process all Acceptable Waste delivered by or on behalf of the Owner to the Facility, up to 140,000 tonnes of Acceptable Waste per calendar year; subject, however, to the following limitations and adjustments:

(a) Acceptable Waste delivered by the Owner and treated as By-passed Waste by DBO Contractor under the following circumstances shall not be counted as Acceptable Waste delivered to the Facility and the cost of transportation and disposal of such waste shall be to the account of the Owner as provided in Section 37.13 of the Agreement:

(i) Acceptable Waste delivered to the Facility:

(A) in excess of 872 tonnes in any delivery day;

(B) in excess of the sum of:

(1) 3350 tonnes in any seven day period in which no scheduled or unscheduled maintenance occurs, plus

(2) any additional capacity in the pit which DBO Contractor determines, subject to good operating standards, to be then available, so long as the loss of such capacity will not interfere with the obligations of DBO Contractor under this Agreement; or

(C) in excess of the sum of

(1) 3350 tonnes less 218 tonnes times the number of "boiler days" of scheduled or unscheduled maintenance in any seven (7) day period in which scheduled or unscheduled maintenance occurs; provided for the purposes of such calculation unscheduled maintenance shall not exceed six (6) boiler days in any seven (7) day period and total scheduled and unscheduled downtime shall not exceed 73 boiler days in any contract year prorated if such contract year is less than a calendar year, plus

(2) any additional capacity in the pit which DBO Contractor determines, subject to good operating standards, to be then available, so long as the loss of such capacity will not interfere with the obligations of DBO Contractor under this Schedule or this Agreement; or

(D) In excess of the sum of

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(1) 13,516 tonnes in any 31 day month (prorated for months with less than 31 days) in which no scheduled or unscheduled maintenance occurs, plus

(2) any additional capacity in the pit which DBO Contractor determines, subject to good operating standards, to be then available, so long as the loss of such capacity will not interfere with the obligations of DBO Contractor under this Schedule or this Agreement; or

(E) in excess of the sum of

(1) 13,516 tonnes in any 31 day month (prorated for months with less than 31 days) less 218 tonnes times the number of "boiler days" of maintenance in which scheduled or unscheduled maintenance occurs; provided for the purposes of such calculation unscheduled maintenance shall not exceed six (6) boiler days in any 31 day period and total scheduled and unscheduled downtime shall not exceed 73 boiler days in any contract year prorated if such contract year is less than a calendar year, plus

(2) any additional capacity in the pit which DBO Contractor determines, subject to good operating standards, to be then available, so long as the loss of such capacity will not interfere with the obligations of DBO Contractor under this Schedule or this Agreement.

(ii) Acceptable Waste delivered at times other than Receiving Hours; or

(iii) Acceptable Waste delivered during a period when the facility is unable to accept or process waste due to an Event of Force Majeure or Change in Law.

(iv) [Reserved].

(b) DBO Contractor shall not be subject to Performance Liquidated Damages for failure to meet the Throughput Capacity Guarantee to the extent such failure is attributable to the Acceptable Waste delivered by the Owner being treated as By-passed Waste by DBO Contractor under the circumstances described in paragraph (a) above.

Scheduled Outages will be established prior to the contract year using Owner's best estimate of the upcoming contract year waste flow pattern. These dates may be adjusted during the Term with sufficient notice and mutual agreement of both parties based on actual waste flows in order to maximize the utilization of onsite storage, maintain boiler loads, and reduce or eliminate need for waste to bypass the site.

**APPENDIX 35**

**CONDITIONS PRECEDENT**

1. The respective obligations and liabilities of the Owner and the DBO Contractor under this Project Agreement with respect to the Work, shall be subject to the satisfaction (or waiver in whole or in part, as the case may be, as set out below) of each of the respective conditions precedent set forth with respect to the Owner in Section 2 of this Appendix 35 and with respect to the DBO Contractor in Section 3 of this Appendix 35 on or before December 31, 2011. The parties will exercise good faith and due diligence in satisfying their respective conditions precedent set out below. If all of the conditions precedent are not so satisfied or are not waived, as the case may be, within the time limit, then the Project Agreement may be terminated by either party upon 30 days' written notice given to the other, unless the parties have agreed to an extension of such time limit.
  
2. The following conditions precedent are to be satisfied, or waived in whole or in part by the Owner in the sole discretion of the Owner, confirmation of satisfaction of which or waiver in whole or in part to be by written notice given by the Owner to DBO Contractor on or before the date specified in Section 1 of this Appendix 35:
  - (a) The DBO Contractor shall have delivered to the Owner evidence that the DBO Contractor has obtained all requisite permits and approvals for the Work and the operation of the Facility under applicable Laws and Regulations (the "**Permits**"), including, without limitation:
    - (i) all required Certificates of Approval for the construction and operation of the Facility issued by the MOE under Environmental Laws and Regulations (air, water, noise & vibration, waste); and
    - (ii) evidence of notification of the United States of America with regard to emissions from the Facility.
  
  - (b) The DBO Contractor shall have arranged for execution of and delivery to the Owner of the Parent Company Guarantee in accordance with Section 20.2.1 of the Project Agreement.
  
  - (c) The Owner shall have entered into a Power Purchase Agreement with the Ontario Power Authority as the Energy Purchaser with regard to electricity produced by the Facility.
  
  - (d) The Owner shall have received certificates of insurance (or an insurance broker's letter certifying) that the DBO Contractor and any applicable subcontractor will have obtained all policies of insurance required to be obtained by the DBO Contractor, or such subcontractor, prior to performance of the Work in

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accordance with the requirements of Section 19.1.1 and 19.2.1 of the Project Agreement.

- (e) The Owner shall have received the Performance Bond and Labour and Material Payment Bond, in each case as required under Section 20.1.1 of the Project Agreement.
  - (f) There will have been no Change in Law that would materially and adversely effect the performance or cost of the Work or the operation of the Facility in accordance with the Project Agreement.
  - (g) There will have been no material and adverse change in the financial condition or ability of the DBO Contractor to carry out its obligations under the Project Agreement between the date of entering the Project Agreement and the earlier of the date set out in Section 1 of this Appendix 35 and the Business Day preceding the day on which the Notice to Proceed is given by the Owner to the DB Contractor.
  - (h) The DBO Contractor shall have delivered a certificate of an officer of the DBO Contractor certifying to the effect that as at the date of the certificate, being the earlier of the date set out in Section 1 of this Appendix 35 and the Business Day preceding the day on which the Notice to Proceed is given by the Owner to the DB Contractor, the representations and warranties made by the DBO Contractor under Section 29.1.1 of the Project Agreement are true and correct in all material respects as if made on such date of the certificate, such certificate to be in customary form and reasonably acceptable to the Owner.
  - (i) No provisions of the Certificates of Approval issued by the MOE for the Facility (a) restrict the required combustion temperature of 1000°C for a combustion residence time of one second beyond the secondary air injection level (i.e. the first set of front and rear wall nozzles above the grate); or (b) restrict the Facility from being operated with a VLN system, as described in the Technical Requirements.
3. The following conditions precedent are to be satisfied, or waived in whole or in part by the DBO Contractor in the sole discretion of the DBO Contractor, confirmation of satisfaction of which or waiver in whole or in part to be by written notice given by the DBO Contractor to the Owner on or before the date specified in Section 1 of this Appendix 35:
- (a) The DBO Contractor shall have obtained Permits, including, without limitation:
    - (i) all required Certificates of Approval for the construction and operation of the Facility issued by the MOE under Environmental Laws and Regulations (air, water, noise & vibration, waste); and

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- (ii) evidence of notification of the United States of America with regard to emissions from the Facility.
  
- (b) The Owner shall have acquired ownership of the Facility Land, free and clear of any encumbrances that may affect or pertain in any way to performance of the Work or operation of the Facility in accordance with the Project Agreement, together with such easements, public road access, site servicing to the lot line of the Facility Land with all services required for performance of the Work and operation of the Facility.
  
- (c) There will have been no Change in Law that would materially and adversely affect the performance or cost of the Work or the operation of the Facility in accordance with the Project Agreement.
  
- (d) The Owner shall have delivered evidence to the DBO Contractor that the respective councils have duly authorized and/or ratified, if necessary, the Project Agreement.
  
- (e) No provisions of the Certificates of Approval issued by the MOE for the Facility (a) restrict the required combustion temperature of 1000°C for a combustion residence time of one second beyond the secondary air injection level (i.e. the first set of front and rear wall nozzles above the grate); or (b) restrict the Facility from being operated with a VLN system, as described in the Technical Requirements.