



## 602-2005 ADDENDUM No 2

### SUPPLY AND DELIVERY OF BIOREACTOR AERATION EQUIPMENT FOR THE WEST END WATER POLLUTION CONTROL CENTRE BNR UPGRADE PROJECT

#### **URGENT**

**PLEASE FORWARD THIS DOCUMENT TO WHOEVER IS IN POSSESSION OF THE BID OPPORTUNITY**

ISSUED: Dec 15 2005  
BY: Eric Hutchison PEng  
TELEPHONE NO. (204) 477-5381

**THIS ADDENDUM SHALL BE INCORPORATED INTO THE BID OPPORTUNITY AND SHALL FORM A PART OF THE CONTRACT DOCUMENTS**

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**Please note the following and attached changes, corrections, additions, deletions, information and/or instructions in connection with the Bid Opportunity, and be governed accordingly. Failure to acknowledge receipt of this Addendum in Paragraph 10 of Form A: Bid may render your Bid non-responsive.**

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#### **PART A – BID SUBMISSION**

Revise Form G: Guaranteed Performance

Delete line "Guaranteed useful life of the diffuser membranes, N1 = \_\_\_\_ years"

Explanation: This is included as Item 3D in Form F: Life Cycle Cost Page 2 of 3 (Average Diffuser or Tube Life" , and will be used to evaluate annual maintenance cost.

#### **PART E – SPECIFICATIONS**

Section 11531 Clause 1.3.2.7

REVISE to read:

Verification of the determination of the maximum air flow to each cell, in Nm<sup>3</sup>/min, based on the specified maximum oxygen requirements for each tank, the required diffuser depth and the Manufacturer's anticipated oxygen transfer efficiency for each tank, signed and sealed by a Professional Engineer registered in Canada or the United States.

Section 11531 Clause 1.3.2.8

REVISE to read:

Verification of the number of diffusers proposed for each cell based on the maximum air flow per cell, and the proposed maximum air flow per diffuser and any other factors, clearly stating any other factors considered which impact the number of diffusers, signed and sealed by a Professional Engineer registered in Canada or the United States.

Section 11531 Clause 1.3.2.9

REVISE to read:

Verification that the proposed distribution of laterals and diffusers will achieve uniform dissolved oxygen concentrations through the aerated cells.

Section 11531 Clause 1.3.2.10

REVISE to read:

Verification that the air flow per diffuser will not vary by more than 2.5 percent within a grid at the minimum and maximum specified air flow rate, signed and sealed by a Professional Engineer registered in Canada or the United States.

Section 11531 Clause 1.3.4

REVISE to read:

Detailed aeration system design: based on the basic design parameters contained in this section and the verified performance characteristics of the aeration devices proposed, undertake detailed design of the aeration system and

submit the drawings and any other explanatory information, signed and sealed by a Professional Engineer registered in Canada or the United States.

Section 11531 Clause 2.1.4

REVISE to read:

Air rates to Aerobic Cell 1, Aerobic Cell 2, Aerobic Cell 3 and Aerobic Cell 4 in the bioreactor will be varied independently to maintain the desired dissolved oxygen concentration. Furnish equipment under this section to provide adequate mixing of Aerobic Cell 1, Aerobic Cell 2, and Aerobic Cell 3 in the bioreactors to prevent solids deposition and assure uniform distribution of the mixed liquor. Aerobic Cell 4 will be equipped with mechanical mixer(s). It is proposed one mixer will be installed: a slow speed submersible "banana blade" unit, and will be located approximately midpoint along the long exterior wall and aimed directly across the cell. Exact mixer location and type may be subject to change.

Section 11531 Clause 2.3.4

REVISE to read:

The system shall be designed to require not more than 60 kPa at the flanged connection on the dropleg, above the liquid level, as indicated on the Drawings, after the diffusers have been in service for a minimum of one year.

Section 11531 Clause 2.3.4.4

REVISE to read:

The floor elevation may vary in each bioreactor. Ensure that the minimum elevation of the diffuser above the floor is 200 mm.

Section 11531 Clause 2.3.5

REVISE to read:

Elevation of top of diffuser: as required to meet specified SOTE and system pressures, and at the minimum height above the high point of the bioreactor floor, as specified in 11531 2.3.4.4.

Section 11531 Clause 2.4.1.6

REVISE to read:

Distribution laterals: PVC SDR-26 to CSA B137.3 or stainless steel, Type 304 to ASTM A774 and ASTM A778

Section 11531 Clause 2.5.2.3.1

REVISE to read:

Each diffuser assembly shall consist of two tubes, a minimum 1000 mm long

Section 11531 Clause 2.5.2.3.1.1

REVISE to read:

Diffuser membranes shall be fully supported over full length and circumference with a PVC, polypropylene, or stainless steel support frame. Diffuser membrane shall be held in place by two Type 304 stainless steel clamps. Membranes shall be perforated on top half of unit.

Section 11531 Clause 2.5.2.3.1.2

REVISE to read:

Diffuser mount saddle assembly shall be heavy-duty ABS or polypropylene construction. Saddle mount shall fully encompass air distribution piping reinforcing pipe wall at diffuser connection. Saddle shall attach directly to diffuser assembly.

Section 11531 Clause 2.5.2.7

REVISE this Clause to read:

If required, provide a back flow prevention device integrally with the diffuser. When air flow ceases, this device will allow the pressure of the water above the diffuser to close the main flow passage and prevent backflow into the diffuser and air piping.

Section 11531 Clause 2.7.7

REVISE to read:

Four (4) purge valves meeting the requirements of 11531 2.5.6.7

Section 11531 Clause 3.1.1

DELETE this Clause entirely

Section 11531 Clause 3.6.5

REVISE to read:

The Installation Contractor shall provide a means of isolating each cell, with the basin completely filled. The internal basin are not designed for hydrostatic loads.