

**RETURN BIDS TO:  
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving  
PWGSC  
33 City Centre Drive  
Suite 480  
Mississauga  
Ontario  
L5B 2N5  
Bid Fax: (905) 615-2095**

**REQUEST FOR PROPOSAL  
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government  
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services  
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

<b>Title - Sujet</b> AEROLOGICAL BALLOONS	
<b>Solicitation No. - N° de l'invitation</b> K3D33-121016/A	<b>Date</b> 2012-09-18
<b>Client Reference No. - N° de référence du client</b> K3D33-121016	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$TOR-224-6017	
<b>File No. - N° de dossier</b> TOR-2-35002 (224)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2012-10-29</b>	
<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Daylight Saving Time EDT	
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Juan, Peggy	<b>Buyer Id - Id de l'acheteur</b> tor224
<b>Telephone No. - N° de téléphone</b> (905) 615-2467 ( )	<b>FAX No. - N° de FAX</b> (905) 615-2060
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> DEPARTMENT OF THE ENVIRONMENT 4905 DUFFERIN STREET DOWNSVIEW Ontario M3H5T4 Canada	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

**Vendor/Firm Name and Address**

**Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

<b>Delivery Required - Livraison exigée</b> See Herein	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

**Issuing Office - Bureau de distribution**

Public Works and Government Services Canada  
Ontario Region  
33 City Centre Drive  
Suite 480  
Mississauga  
Ontario  
L5B 2N5

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## PART 1 - GENERAL INFORMATION

### 1. Introduction

The bid solicitation is divided into six parts plus attachments and annexes, as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, if applicable, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided; and
- Part 6 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Requirement, the Procurement Specification for All Weather Aerological Balloon (325 Gram Payload), the Basis of Payment, the Technical Evaluation Plan and the Financial Evaluation.

### 2. Summary

Environment Canada, Meteorological Service of Canada (MSC) has a requirement for the supply, delivery and acceptance testing of All Weather Aerological Balloon (325 gram Payload), meeting or exceeding the technical specifications detailed in Annex B. The contract period will be a 3-year period with an option to extend for two (2) one-year periods. The quantity of balloons required is as follows:

#### Firm contract period:

Year	Fiscal Year	Firm Quantity	Optional Quantity
1	April 1, 2013 - March 31, 2014	15,000 ea	up to 15,000 ea
2	April 1, 2014 - March 31, 2015	15,000 ea	up to 15,000 ea
3	April 1, 2015 - March 31, 2016	15,000 ea	up to 15,000 ea

#### Option years:

Year	Fiscal Year	Firm Quantity	Optional Quantity
4	April 1, 2016 - March 31, 2017	15,000 ea	up to 15,000 ea
5	April 1, 2017 - March 31, 2018	15,000 ea	up to 15,000 ea

#### Sample Submission

By Bid Closing Date, bidders must submit fifty (50) samples of their proposed balloon product for field testing which is part of the evaluation process detailed in Annex D, Technical Evaluation Plan. Samples are to be delivered to:

Environment Canada  
 Meteorological Service of Canada  
 4905 Dufferin Street  
 Toronto, Ontario CANADA  
 M3H 5T4

Attention: Manager, Upper Air Network  
Requisition Number K3D33-121016

Bidders must submit with their bids by Bid Closing Date a copy of documentation that shows that the sample balloons were shipped to MSC prior to Bid Closing Date and Time. Acceptable documentation includes a courier slip, a Canada Post Corporation (CPC) cancellation date stamp, a CPC Priority Courier Bill of Lading, or a CPC Xpresspost Label.

Bidders proposing to supply a balloon product previously field tested and accepted by MSC, such as balloon type TOTEX G-805-TX800 or an identical product with different part number, may request a waiver for the field test by contacting the Contracting Authority no later than 10 calendar days before Bid Closing Date.

The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), and the Agreement on Internal Trade (AIT).

### 3. Debriefings

After contract award, bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

## PART 2 - BIDDER INSTRUCTIONS

### 1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2012-07-11) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

The text under Subsection 4 of Section 01 - Code of Conduct and Certifications of 2003 referenced above is replaced by:

Bidders should provide, with their bid or promptly thereafter, a complete list of names of all individuals who are currently directors of the Bidder. If such a list has not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to provide such a list within the required time frame will render the bid non-responsive. Bidders must always submit the list of directors before contract award.

Canada may, at any time, request that a Bidder provide properly completed and Signed Consent Forms (*Consent to a Criminal Record Verification form - PWGSC-TPSGC 229*) for any or all individuals named in the aforementioned list within a specified delay. Failure to provide such Consent Forms within the delay will result in the bid being declared non-responsive.

The text under Subsection 5 of Section 01 - Code of Conduct and Certifications of 2003 referenced above is replaced by:

The Bidder must diligently maintain the list up-to-date by informing Canada in writing of any change occurring during the validity period of the bid, and must also provide Canada, when requested, with the corresponding Consent Forms. The Bidder will also be required to diligently maintain the list and when requested, provide Consent Forms during the period of any contract arising from this bid solicitation.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

**Delete: sixty (60) days**

**Insert: one hundred and eighty (180) days**

**1.1 SACC Manual clause**

B1000T (2007-11-30) Condition of Material

**2. Submission of Bids**

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.

**3. Enquiries - Bid Solicitation**

All enquiries must be submitted in writing to the Contracting Authority no later than 10 calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

**4. Applicable Laws**

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

## **PART 3 - BID PREPARATION INSTRUCTIONS**

### **1. Bid Preparation Instructions**

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (3 hard copies)  
Section II: Financial Bid (1 hard copy)  
Section III: Certifications (1 hard copy)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders are encouraged to :

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and/or containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

#### **Section I: Technical Bid**

In their technical bid, bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

#### **Section II: Financial Bid**

- 1.1** Bidders must submit their financial bid in accordance with the Basis of Payment in Annex C. The total amount of Goods and Services Tax or Harmonized Sales Tax must be shown separately, if applicable.

#### **Section III: Certifications**

Bidders must submit the certifications required under Part 5.

## PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

### 1. Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

### 1.1 Technical Evaluation

#### 1.1.1 Mandatory Technical Criteria

See Annex D, Technical Evaluation Plan, Section A. Mandatory Technical Criteria.

##### 1.1.1.1 Submission and Testing of Samples

See Annex D, Technical Evaluation Plan, Section B. Submission and Testing of Samples.

#### 1.1.2 Point Rated Technical Criteria

See Annex D, Technical Evaluation Plan, Section C. Point Rated Technical Criteria.

### 1.2 Financial Evaluation

**1.2.1** Bidder must submit its Financial Bid in accordance with Annex C, Basis of Payment.

**1.2.2** The price used in the evaluation will be calculated as shown in Annex E.

**1.2.3** SACC Manual clause A0220T (2007-05-25) Evaluation of Price

### 2. Basis of Selection - Highest Combined Rating of Technical Merit and Price

1. To be declared responsive, a bid must:
  - (a) comply with all the requirements of the bid solicitation;
  - (b) meet all mandatory criteria; and
  - (c) obtain the required minimum of 900 points overall for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of 1642 points.
2. Bids not meeting (a), (b) and (c) will be declared non-responsive.
3. The evaluation will be based on the highest responsive combined rating of technical merit and price. The ratio will be 40% for the technical merit and 60% for the price.
4. To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 40%.
5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 60%.
6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.

7. Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 40/60 ratio of technical merit and price, respectively. The total available points equals 135 and the lowest evaluated price is \$45,000 (45).

Basis of Selection - Highest Combined Rating Technical Merit (40%) and Price (60%)

	Bidder 1	Bidder 2	Bidder 3
<b>Overall Technical Score</b>	115/135	89/135	92/135
<b>Bid Evaluated Price</b>	\$55,000.00	\$50,000.00	\$45,000.00
<b>Calculations Technical Merit Score</b>	115/135 x 40 = 34.07	89/135 x 40 = 26.37	92/135 x 40 = 27.26
<b>Pricing Score</b>	45/55 x 60 = 49.09	45/50 x 60 = 54	45/45 x 60 = 60
<b>Combined Rating</b>	83.16	80.37	87.26
<b>Overall Rating</b>	2nd	3rd	1st

## PART 5 - CERTIFICATIONS

Bidders must provide the required certifications to be awarded a contract. Canada will declare a bid non-responsive if the required certifications are not completed and submitted as requested.

Compliance with the certifications bidders provide to Canada is subject to verification by Canada during the bid evaluation period (before award of a contract) and after award of a contract. The Contracting Authority will have the right to ask for additional information to verify bidders' compliance with the certifications before award of a contract. The bid will be declared non-responsive if any certification made by the Bidder is untrue, whether made knowingly or unknowingly. Failure to comply with the certifications or to comply with the request of the Contracting Authority for additional information will also render the bid non-responsive.

### 1. Code of Conduct Certifications - Certifications Required Precedent to Contract Award

- 1.1 Bidders should provide, with their bids or promptly thereafter, a complete list of names of all individuals who are currently directors of the Bidder. If such a list has not been received by the time the evaluation of bids is completed, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Bidders must submit the list of directors before contract award, failure to provide such a list within the required time frame will render the bid non-responsive.

The Contracting Authority may, at any time, request that a Bidder provide properly completed and Signed Consent Forms (*Consent to a Criminal Record Verification form - PWGSC-TPSGC 229*) (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/229-eng.html>) for any or all individuals named in the aforementioned list within a specified delay. Failure to provide such Consent Forms within the delay will result in the bid being declared non-responsive.



## 2. Certifications Precedent to Contract Award

The certifications listed below should be completed and submitted with the bid but may be submitted afterwards. If any of these required certifications is not completed and submitted as requested, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid non-responsive.

### 2.1 Federal Contractors Program - Certification

1. The Federal Contractors Program (FCP) requires that some suppliers, including a supplier who is a member of a joint venture, bidding for federal government contracts, valued at \$200,000 or more (including all applicable taxes), make a formal commitment to implement employment equity. This is a condition precedent to contract award. If the Bidder, or, if the Bidder is a joint venture and if any member of the joint venture, is subject to the FCP, evidence of its commitment must be provided before the award of the Contract.

Suppliers who have been declared ineligible contractors by Human Resources and Skills Development Canada (HRSDC) are no longer eligible to receive government contracts over the threshold for solicitation of bids as set out in the Government Contracts Regulations. Suppliers may be declared ineligible contractors either as a result of a finding of non-compliance by HRSDC, or following their voluntary withdrawal from the FCP for a reason other than the reduction of their workforce to less than 100 employees. Any bids from ineligible contractors, including a bid from a joint venture that has a member who is an ineligible contractor, will be declared non-responsive.

2. If the Bidder does not fall within the exceptions enumerated in 3.(a) or (b) below, or does not have a valid certificate number confirming its adherence to the FCP, the Bidder must fax (819-953-8768) a copy of the signed form LAB 1168, Certificate of Commitment to Implement Employment Equity, to the Labour Branch of HRSDC.
3. The Bidder, or, if the Bidder is a joint venture the member of the joint venture, certifies its status with the FCP, as follows:

The Bidder or the member of the joint venture

A.( ) is not subject to the FCP, having a workforce of less than 100 full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada;

B.( ) is not subject to the FCP, being a regulated employer under the Employment Equity Act, S.C. 1995, c. 44;

C.( ) is subject to the requirements of the FCP, having a workforce of 100 or more full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada, but has not previously obtained a certificate number from HRSDC (having not bid on requirements of \$200,000 or more), in which case a duly signed certificate of commitment is attached;

D.( ) is subject to the FCP, and has a valid certificate number as follows: \_\_\_\_\_ (e.g. has not been declared an ineligible contractor by HRSDC).

Further information on the FCP is available on the HRSDC Web site.

## PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

### 1. Requirement

The Contractor must provide All Weather Aerological Balloons (325 gram Payload) in accordance with the Requirement at Annex "A", Annex "B" and Annex "C".

#### 1.1 Optional Goods and/or Services

The Contractor grants to Canada the irrevocable option to acquire the goods, services or both described at Annex C Basis of Payment of the Contract under the same conditions and at the prices and/or rates stated in the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment.

The Contracting Authority may exercise the option at any time before the expiry of the Contract by sending a written notice to the Contractor.

#### 1.2 Procedures for Design Change/Deviations

The Contractor must follow these procedures for any proposed design change/deviation to contract specifications.

The Contractor must complete Part 1 of form PWGSC-TPSGC 9038, Design Change/Deviation, (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/9038.pdf>) and forward one (1) copy to the Technical Authority and one (1) copy to the Contracting Authority.

### 2. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

#### 2.1 General Conditions

2030 (2012-07-16), General Conditions - Higher Complexity - Goods, apply to and form part of the Contract.

The text under Subsection 4 of Section 43 Code of Conduct and Certifications of General Conditions 2030 referenced above is replaced by:

During the entire period of the Contract, the Contractor must diligently update, by written notice to the Contracting Authority, the list of names of all individuals who are directors of the Contractor whenever there is a change. As well, whenever requested by Canada, the Contractor must provide the corresponding Consent Forms.

#### 2.2 Warranty Period

Section 22 of general conditions 2030 (2012-07-16) General Conditions - Higher Complexity - Goods is amended by replacing the period of twelve (12) months by eighteen (18) months.

All other provisions of the warranty section remain in effect.

### **3. Term of Contract**

#### **3.1 Period of the Contract**

The period of the Contract is from April 1, 2013 to March 31, 2016 inclusive.

#### **3.2 Option to Extend the Contract**

The Contractor grants to Canada the irrevocable option to extend the term of the Contract by up to 2 additional one-year periods under the same conditions. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise this option at any time by sending a written notice to the Contractor before the expiry date of the Contract. The option may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

#### **3.3 Delivery Date**

3.3.1 For Year 1, 10,000 balloons must be delivered by 31 May 2013. The remaining firm quantity of 5,000 balloons must be delivered by 31 July 2013. If the optional quantity is exercised, the optional quantity must be delivered within 6 months of notification by the Contracting Authority.

3.3.2 For Year 2, 10,000 balloons must be delivered by 31 May 2014. The remaining firm quantity of 5,000 balloons must be delivered by 31 July 2014. If the optional quantity is exercised, the optional quantity must be delivered within 6 months of notification by the Contracting Authority.

3.3.3 For Year 3, 10,000 balloons must be delivered by 31 May 2015. The remaining firm quantity of 5,000 balloons must be delivered by 31 July 2015. If the optional quantity is exercised, the optional quantity must be delivered within 6 months of notification by the Contracting Authority.

3.3.4 For Year 4, if the option is exercised, the firm quantity of 10,000 balloons must be delivered by 31 May 2016. The remaining firm quantity of 5,000 balloons must be delivered by 31 July 2016. If the optional quantity is exercised, the optional quantity must be delivered within 6 months of notification by the Contracting Authority.

3.3.5 For Year 5, if the option is exercised, the firm quantity of 10,000 balloons must be delivered by 31 May 2017. The remaining firm quantity of 5,000 balloons must be delivered by 31 July 2017. If the optional quantity is exercised, the optional quantity must be delivered within 6 months of notification by the Contracting Authority.

### **4. Authorities**

#### **4.1 Contracting Authority**

The Contracting Authority for the Contract is:

Peggy Juan  
Supply Specialist  
Public Works and Government Services Canada  
Acquisitions Branch

Address: 33 City Centre Drive, Suite 480, Mississauga, Ontario L5B 2N5

Telephone: (905) 615-2467

Facsimile: (905) 615-2060

E-mail address: peggy.juan@pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

#### 4.2 Technical Authority

The Technical Authority for the Contract is:

Name: \_\_\_ To be inserted at contract award \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_ - \_\_\_\_ - \_\_\_\_

Facsimile: \_\_\_\_ - \_\_\_\_ - \_\_\_\_

E-mail address: \_\_\_\_\_

The Technical Authority named above is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

#### 4.3 Contractor's Representative

(Please fill-in)

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_ - \_\_\_\_ - \_\_\_\_

Facsimile: \_\_\_\_ - \_\_\_\_ - \_\_\_\_

E-mail address: \_\_\_\_\_

### 5. Payment

#### 5.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm unit prices, as specified in Annex C for a cost of \$ \_\_\_\_\_ (insert the amount at contract award). Customs duties are included and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

**5.2 Limitation of Price**

SACC Manual clause C6000C (2011-05-16) Limitation of Price

**5.3 Multiple Payments**

SACC Manual clause H1001C (2008-05-12) Multiple Payments

**6. Invoicing Instructions**

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be distributed as follows:
  - a. The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.
  - b. One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

**7. Certifications**

- 7.1 Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

**8. Applicable Laws**

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in \_\_\_\_\_.

**9. Priority of Documents**

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) the general conditions 2030 (2012-07-16) General Conditions - Higher Complexity - Goods;
- (c) Annex A, Requirement;
- (d) Annex B, Procurement Specifications for All Weather Aerological Balloon (325 Gram Payload);
- (e) Annex C, Basis of Payment;
- (f) the Contractor's bid dated \_\_\_\_\_ (*insert date of bid*).

**10. Insurance**

SACC Manual clause G1005C (2008-05-12) Insurance

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**ANNEX A****REQUIREMENT****METEOROLOGICAL SERVICE of CANADA****All-Weather Aerological Balloon (325 Gram Payload)**

(NATO Stock Number 6660-21-865-7306, MSC Stock Number 0026-9303)

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**1.0 GENERAL INFORMATION**

The Meteorological Service of Canada (MSC) uses aerological balloons, in conjunction with meteorological radiosondes and ancillary items, to gather data on atmospheric conditions from the ground up into the atmosphere. The balloons are filled with helium or hydrogen gas to create lift. At specific times throughout the day, the MSC releases these gas-filled balloons to take attached radiosondes into the atmosphere to gather data. The balloons ascend until they fail due to expansion or other failures and these flights occur in all weather conditions. The MSC requires all-weather aerological balloons to meet its mandate for flights over the next years as detailed below.

**2.0 STATEMENT OF WORK**

The Contractor must supply the MSC with a quantity of up to 30,000 balloons including optional balloons per year for three (3) years firm; with options of up to 30,000 in each of the following two (2) years, after the first three-year contract. The MSC will purchase the quantity of up to 30,000 in the following manner: a firm quantity of 15,000 plus an option of up to 15,000 in each year. The balloons must be the "800 gram" nominal type.

**3.0 APPLICABLE DOCUMENTS**

The Annex B MSC Procurement Specification, S0945-05, Issue 03, entitled "Procurement Specification for All-Weather Aerological Balloon (325 Gram Payload)", applies to this contract. The specification document describes the technical requirements that the balloon must meet to be acceptable.

**4.0 PRODUCT IDENTIFIER**

The Contractor must assign a unique product identifier number to the proposed balloon, and the number must be referenced in all future correspondence.

**5.0 QUALIFICATION OF CONTRACTOR'S PRODUCT**

5.1 Once a qualification approval has been given for a Contractor's product, the Contractor must not make modifications or alterations to the approved product. If modifications or alterations become necessary on any subsequent orders, the Contractor is required to submit new samples at their expense for MSC testing and qualification. No modified balloons must be delivered to the MSC without prior approval by the MSC. All requests for testing must be directed to the Technical Authority designated in the final contract.

## **6.0 QUALITY ASSURANCE AND ACCEPTANCE**

6.1 The balloon must be manufactured at a facility that complies with the ISO 9001:2000 Quality Management System Standard.

6.2 The Contractor is responsible for ensuring that all required inspections, tests and calibrations are performed either by itself or by a competent sub-contractor and must maintain appropriate quality records to substantiate compliance with the Procurement Specification and the contract.

6.3 MSC will also conduct the Burst Pressure Test and Ascent Rate on samples of balloons from each production batch delivered to the MSC, as part of its acceptance procedure detailed in Annex B.

6.4 No inspections, tests or audits conducted by the MSC will absolve the Contractor from supplying balloons that meet the Procurement Specification and contract.

6.5 The Contractor must develop and submit a Quality Assurance Plan for the balloons. The Final Quality Assurance Plan must be submitted to the Technical Authority designated in the contract, within 30 calendar days of the award of the contract. The Quality Assurance Plan must ensure that all balloons supplied under the contract are controlled during all stages of production, inspection and testing, whether these functions are performed by the prime Contractor or a Subcontractor.

The plan may be prepared as per ISO 10005 Guidelines for Quality Plans or in the Contractor's own format. The MSC will return a critique of the Draft Quality Assurance Plan to the Contractor after contract award and identify where the plan needs to be updated or revised for implementation during the contract.

The Quality Assurance Plan must incorporate the updates and changes that were deemed necessary by the MSC critique of the Draft Quality Assurance Plan that was submitted with the proposal. The Contractor must continually review and update the plan to ensure consistently acceptable balloons are delivered to the MSC.

## **7.0 DELIVERY AGAINST THE CONTRACT**

All deliveries must be in accordance with best commercial standards and must allow for multiple modes of shipment to reach the final MSC destinations in an undamaged condition. The Contractor must deliver production balloons in satisfaction of the contract requirements to:

Environment Canada  
Meteorological Service of Canada  
4509 Dufferin Street  
Toronto, Ontario Canada  
M3H 5T4

Attention: National Stores

## **8.0 WARRANTY**

An eighteen (18) month warranty applies to all goods purchased under this contract.

## **9.0 FIELD USE FAILURES**

The performance of an aerological balloon is vital to the operation of the MSC and the safety of Canadians. Notwithstanding the prior acceptance of a Contractor's balloons, in the event that the balloons fail to perform to specification during field operations, the Contractor must provide an alternative balloon until the performance problem is remedied. The alternative balloon will be designated by the MSC. The balloon may be made by another manufacturer. The MSC will advise the Contractor when the Contractor's remedial action is acceptable. Acceptability will be established by re-testing of balloons in accordance with the specification. If field use problems occur a second time, the Crown may proceed for termination of the contract.

## **10.0 COMPENSATION FOR SECOND RELEASES**

When the number of second releases due to balloon failure exceeds 3% per month at any launch site during the period of warranty, compensation will be required from the Contractor for radiosonde and lifting gas replacement. This compensation will only be required for second releases in excess of 3%.



Solicitation No. - N° de l'invitation

K3D33-121016/A

Amd. No. - N° de la modif.

File No. - N° du dossier

TOR-2-35002

Buyer ID - Id de l'acheteur

tor224

Client Ref. No. - N° de réf. du client

K3D33-121016

CCC No./N° CCC - FMS No/ N° VME

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## **ANNEX B**

### **Environment Canada Procurement Specification for All-Weather Aerological Balloon (325 Gram Payload) Specification S0945-05, Issue 03**

(See attached)

### ANNEX C BASIS OF PAYMENT

The Firm Unit prices are F.O.B. destination, Custom Duties and Excise Taxes included, GST/HST extra. The Firm Unit Price will include the provision of the balloons, test documentation, packaging fee, quality assurance service, transportation costs, warranty, Canadian Custom Duties and Excise Taxes, and any other identified/specified costs in order to meet the requirement as detailed in Annex A and Annex B.

*Compensation for second release:*

When the number of second releases due to balloon failure exceeds 3% per month at any launch site during the period of warranty, compensation of \$200CDN per flight will be required from the Contractor for radiosonde and lifting gas replacement. This compensation will only be required for second releases in excess of 3%.

**Firm Contract Period**

a) Year	Fiscal Year	Firm Quantity	Firm Unit Price (GST/HST extra)	Extended Price (GST/HST extra)
1	April 1, 2013 - March 31, 2014	15,000 ea	\$_____	\$_____
2	April 1, 2014 - March 31, 2015	15,000 ea	\$_____	\$_____
3	April 1, 2015 - March 31, 2016	15,000 ea	\$_____	\$_____
<b>Total Firm Price</b>				<b>\$_____</b>

Environment Canada may purchase any or all of the quantities of optional balloons specified below:

b) Year	Fiscal Year	Option Quantity	Firm Unit Price (GST/HST extra)	Extended Price (GST/HST extra)
1	April 1, 2013 - March 31, 2014	up to 15,000 ea	\$_____	\$_____
2	April 1, 2014 - March 31, 2015	up to 15,000 ea	\$_____	\$_____
3	April 1, 2015 - March 31, 2016	up to 15,000 ea	\$_____	\$_____

If Option years exercised, the pricing for the extension periods will be the lesser of either:

- i) the prices detailed below; or
- ii) the Contractor's published price list in effect at the time the extension(s) is exercised, less any applicable quantity discounts; or
- iii) price to be negotiated with Canada at the time the extension(s) is exercised.

**Option Periods**

c) Year	Fiscal Year	Firm Quantity	Firm Unit Price (GST/HST extra)	Extended Price (GST/HST extra)
4	April 1, 2016 - March 31, 2017	15,000 ea	\$_____	\$_____
5	April 1, 2017 - March 31, 2018	15,000 ea	\$_____	\$_____

d) Year	Fiscal Year	Option Quantity	Firm Unit Price (GST/HST extra)	Extended Price (GST/HST extra)
4	April 1, 2016 - March 31, 2017	up to 15,000 ea	\$_____	\$_____
5	April 1, 2017 - March 31, 2018	up to 15,000 ea	\$_____	\$_____

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Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

tor224

Client Ref. No. - N° de réf. du client

K3D33-121016

File No. - N° du dossier

TOR-2-35002

CCC No./N° CCC - FMS No/ N° VME

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## **ANNEX D**

### **TECHNICAL EVALUATION PLAN**

(See Attached)

**ANNEX E****FINANCIAL EVALUATION**

The firm unit prices provided by the Bidder at Annex C will be used in the calculation. Bid Evaluated Price of the Bidder will be calculated as shown here. Quantities listed below are for evaluation purposes only.

**Firm Contract Period**

a)	Year	Fiscal Year	Firm Quantity		Firm Unit Price (GST/HST extra)		Extended Price (GST/HST extra)
	1	April 1, 2013 - March 31, 2014	15,000 ea	x	\$_____	=	\$_____
	2	April 1, 2014 - March 31, 2015	15,000 ea	x	\$_____	=	\$_____
	3	April 1, 2015 - March 31, 2016	15,000 ea	x	\$_____	=	\$_____

b)	Year	Fiscal Year	Optional Quantity		Firm Unit Price (GST/HST extra)		Extended Price (GST/HST extra)
	1	April 1, 2013 - March 31, 2014	15,000 ea	x	\$_____	=	\$_____
	2	April 1, 2014 - March 31, 2015	15,000 ea	x	\$_____	=	\$_____
	3	April 1, 2015 - March 31, 2016	15,000 ea	x	\$_____	=	\$_____

**Option Periods**

c)	Year	Fiscal Year	Firm Quantity		Firm Unit Price (GST/HST extra)		Extended Price (GST/HST extra)
	4	April 1, 2016 - March 31, 2017	15,000 ea	x	\$_____	=	\$_____
	5	April 1, 2017 - March 31, 2018	15,000 ea	x	\$_____	=	\$_____

d)	Year	Fiscal Year	Optional Quantity		Firm Unit Price (GST/HST extra)		Extended Price (GST/HST extra)
	4	April 1, 2016 - March 31, 2017	15,000 ea	x	\$_____	=	\$_____
	5	April 1, 2017 - March 31, 2018	15,000 ea	x	\$_____	=	\$_____

**Bid Evaluated Price = Sum of Extended Prices =** \$\_\_\_\_\_ (GST/HST extra)

**ANNEX B**

**Procurement Specification**

**For**

**All Weather Aerological Balloon**  
**(325 Gram Payload)**

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## SECTION I

### INTRODUCTION

#### 1.0 PURPOSE

1.1 Requirements for a free-flight, freely expanding, aerological balloon are presented in this specification. This balloon, also known as a “**sounding**” or “**radiosonde**” balloon, is used in conjunction with meteorological radiosondes and its ancillary items. This specification will also form the basis for inspection and testing procedures to be performed on the balloon, to ensure conformance to this specification.

#### 1.2 BALLOON TYPE

1.2.1 This balloon will carry a payload aloft day or night under the environmental conditions specified in paragraph 3.3.

#### 1.3 DEFINITIONS

1.3.1 The performance of aerological balloons is described using certain terms. The definitions of these terms are as follows:

1.3.1.1 **Total Lift (T):** This is the total upward force of the gas enveloped by the balloon. It is the sum of the weight of the balloon (B) and the Nozzle Lift (W).

$$T = B + W$$

1.3.1.2 **Nozzle Lift (W):** The nozzle lift is the weight which the inflated balloon will lift (i.e. equal to the weight of the inflation hanger, weights plus the inflation nozzle and attachments including the radiosonde. )

$$W = T - B$$

1.3.1.3 **Free Lift (F):** The free lift is the lift that remains available after the complete train (payload) is supported by the balloon. In other words it is the net buoyancy or net upward force available to cause the balloon to rise through the atmosphere. If “P” represented the weight of the train (payload) then:

$$F = W - P$$



## SECTION 2

### APPLICABLE DOCUMENTS

#### 2.0 REFERENCED DOCUMENTS

2.1 The documents listed below are referenced in this specification

Document Number	Title
<b>D412</b>	ASTM Standard Test Methods for Rubber Properties in Tension
<b>43-GP-21M</b>	Canadian General Standards Board (CGSB) Standards for Boxes, Fiberboard
<b>Federal Standard 601</b>	Federal Test Method Standard, Rubber Sampling and testing

2.2 The documents of the issue in effect on the date on the contract form part of this specification to the extent specified herein.

2.3 In the event of a conflict between a reference document and this specification, this specification must take precedence. The Contractor must immediately notify the Upper Air Network Manager indicated in the contract of any apparent conflict.

#### 2.4 AVAILABILITY

2.4.1 The above listed documents are available from the following sources:

<b>ASTM</b>	American Society for Testing and Materials 1916 Race Street, Philadelphia. PA 19103, U.S.A
<b>CGSB</b>	Canadian General Standards Board Canadian Government Publishing Centre Ottawa, Canada K1A 1G6
<b>Federal Standards</b>	Publications/Specifications Office of Communications General Services Administration Washington DC, 20405 U.S.A

## SECTION 3

### REQUIREMENTS

#### 3.0 GENERAL

3.1 The aerological balloon supplied under this specification must be constructed to meet the requirements specified herein. Design and construction details determined by the manufacturer must conform to the best acceptable practices of industry, with product performance and reliability being prime considerations.

3.1.1 **Inflation Gas** Hydrogen or Helium gas will be used to inflate the balloon. The gas will be supplied from an on-site hydrogen generator or from containers of helium.

3.1.2 **Payload** The weight of the payload will be up to 325 grams.

#### 3.2 Balloon Performance

3.2.1 The aerological balloon must meet the performance requirements of Table 3.1, subject to the storage and preconditioning requirements of paragraphs 3.6 and 3.7 and the nominal payload specified in 3.1.2

<b>Ascent Rate:</b> [in metres per minute (m/min)]	
Surface to 200 hPa	250-325 m/min
Surface to Burst	250 m/min Minimum

Table 3.1

### **3.3 ENVIRONMENTAL CONDITIONS AND AGE**

#### **3.3.1 GENERAL**

3.3.1.1 The balloon, during its use will be subject to environmental conditions found anywhere in Canada, at any time.

#### **3.3.2 Environmental Conditions**

3.3.2.1 The balloon supplied under this specification must provide reliable and satisfactory service under any combination of the following conditions outlined in Table 3.2 below.

Pressure	108.0 to 1.0 kPa
Temperature	-90°C to + 55°C
Humidity	0% to 100%
Precipitation	Any Type
Icing	Exposure to Icing Conditions
Ozone	Exposure to ozone concentrations normally found in the atmosphere from ground level to the minimum burst pressure
Ultra- Violet Radiation	Exposure to ultra-violet radiation normally found in the atmosphere from ground level to minimum burst pressure
Wind	Ground Speed 0 to 50 knots

Table 3.2

#### **3.3.3 AGE**

3.3.3.1 Balloons must provide satisfactory service under any combination of the above conditions for a period of minimum of 18 months from the date of delivery to the Meteorological Service of Canada when stored and pre-conditioned in accordance with paragraphs 3.6 and 3.7.

### **3.4 MATERIAL**

#### **3.4.1 Balloon Material**

3.4.1.1 The balloon may be made of an elastomer, natural latex or neoprene (chloroprene) or a mixture thereof of the best quality. It must be of uniform texture, free from dirt and other impurities.

#### 3.4.2 Anti-blocking Agent

3.4.2.1 The balloons must be dusted evenly, inside and outside with an inert non-toxic, dry powder that will effectively prevent adhesion of the balloon material to itself and to the packing bag.

### 3.5 COLOUR

3.5.1 The colour of the finished balloon must be the colour of the balloon material. The colour must be uniform throughout the balloon material in the inflated and uninflated conditions.

### 3.6 STORAGE CONDITIONS

#### 3.6.1 General

3.6.1.1 The balloons will be stored under a variety of conditions; from temperature-controlled warehouses to unheated sheds in the high Arctic during winter. The balloons must be constructed to withstand the following storage conditions.

a) **Temperature:** The balloons will be subjected to storage temperatures in the range of  $-55^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$  at ambient humidity.

b) **Storage Time:** The balloons may be stored for periods of up to 18 months from the date of delivery to the Meteorological Service of Canada.

### 3.7 PRE-CONDITIONING

3.7.1 Balloons stored in accordance with paragraph 3.6 will be pre-conditioned prior to use by being removed from storage and kept at  $20^{\circ}\text{C} \pm 4^{\circ}\text{C}$  for 2 weeks.

### 3.8 NECK

3.8.1 **Size:** The neck must be  $27.5 \text{ mm} \pm 2.5 \text{ mm}$  nominal inside diameter. The length of the neck must be  $120 \text{ mm} \pm 10 \text{ mm}$ . The minimum thickness of the film of the neck must suit the requirements of the specification. The thickness of the film must be uniform throughout the balloon. The edge on the neck may be plain; a rolled edge is not mandatory.

3.8.2 **Strength:** The neck and adjacent film of the balloons must be constructed to withstand a force of 200 Newton for 30 seconds.

**3.8.3 Attachment of Neck to Body of Balloon:** It is not a requirement for the neck to be constructed integrally with the body of the balloon. If the neck is constructed separately from the body, the joint between the neck and the body must be a smooth transition between the neck film thickness and the balloon film thickness.

### **3.9 BALLOON FILM**

**3.9.1** The minimum thickness of the film of the balloon must suit the requirements of this specification. The thickness of the film must be uniform throughout the balloon.

### **3.10 BALLOON WEIGHT**

**3.10.1** The weight of the balloon must be specified by the balloon manufacturer and marked on the exterior of the packaging.

### **3.11 WORKMANSHIP ON FINISHED BALLOONS**

**3.11.1** The finished balloons must be free of workmanship defects such as, but not limited to, pin holes, blisters, adhesions, abrasions, cuts, nicks and blemishes.

### **3.12 Inflated Balloons Dimensions**

**3.12.1** The maximum height of an inflated balloon from the neck to balloon top must be 280 cm at surface pressure, and the maximum diameter, from side to side, must be 180 cm at surface pressure.

## **SECTION 4**

### **TESTING**

#### **4.0 SCOPE OF TESTING**

4.1 The tests specified herein must be performed on the finished balloons to verify compliance with the various requirements of the specification. All of the tests except those specified in paragraph 4.8 must be performed by the Contractor. Other tests deemed necessary to ensure compliance with this specification may be performed at the discretion of the Contractor.

##### **4.1.1 Test Methods**

4.1.1.1 Test methods other than those specified herein, to be used by the Contractor, must be approved by the Meteorological Service of Canada, before any testing starts. The Contractor must supply full details of the proposed test method(s) before approval is given.

##### **4.1.2 Repeating Tests**

4.1.2.1 The Meteorological Service of Canada reserves the right to repeat any or all tests specified herein.

##### **4.1.3 Test Results – Disposition**

4.1.3.1 The Contractor must forward the test results to the Technical Authority of the Meteorological Service of Canada as soon as possible after the results are obtained. At the latest the test results must be shipped with the balloons.

#### **4.2 TEST CONDITIONS**

4.2.1 Unless specified otherwise the tests must be conducted at 22°C ±4°C, ambient relative humidity, and at ambient atmospheric pressure.

##### **4.2.2 Accelerated Aging**

4.2.2.1 Where accelerated aging is required the samples must be heated in an air convection oven as described in Federal Standard 601. The samples must be heated at 100°C ±5°C for 8 hours.

##### **4.2.3 Conditioning**

4.2.3.1 The aged samples must be conditioned at +22°C ±4°C for 3 hours prior to being tested.

### **4.3 LOT and SAMPLE SIZES**

4.3.1 The Contractor must randomly select samples for testing from their approved production lots. The lot size for testing purposes must be one day's production. Where the daily production was completed in more than one batch, the total samples must be taken from more than one batch (i.e. stratified sampling). The samples for testing must be less than 3 months old. The sample size for each test is stated in the test details below.

### **4.4 NECK STRENGTH**

4.4.1 The purpose of this test is to test the strength of the balloon neck and adjacent film, to comply with paragraph 3.8.2.

#### **4.4.2 Test Equipment Required**

a) A scale capable of indicating a minimum of 200 Newtons with an accuracy and precision of 5 Newtons.

b) Cord Embalex Ltd; P/N X1016 or equivalent. The cord is a ribbon-like 10-strand viscose rayon, with tensile strength of 68 to 80 kg.

c) A neck test fixture similar to the one shown in Figure 1 must be used to hold the neck sample. The base and clamping ring must be made of plywood, plastic, or other suitable material with sufficient strength to withstand the test procedure. The area which will come in contact with the balloon must be covered with a soft material so that no sharp edges cut or damage the film. The base and clamping ring must be clamped together (e.g. using C clamps) in at least 8 places equidistant about the circumference. The base of the test stand must be securely mounted and braced to do the tests.

#### **4.4.3 Test Method**

4.4.3.1 The neck strength must be tested as follows:

a) The balloon neck and sufficient adjacent film must be clamped in the test stand. The film must be evenly distributed about the circumference to avoid any overlapping of film

b) Tie a 2 m length of cord around the neck. The knots must be made in the middle of the neck using the middle portion of the cord. The cord must be wrapped several times around the neck and then knotted. Repeat this at least twice. This knot must be tight enough to preclude any slipping during the test. Knot the loose ends of

the cord to form a loop. This second knot must be tight enough to preclude any slipping during the test.

- c) Attach the weight scale to the looped end of the cord.
- d) Apply  $200 \pm 20$  Newtons to the neck. The force must increase smoothly over a period of 30 to 60 seconds.
  - I. Hold the required force for at least 30 seconds
  - II. Release the force
  - III. Examine the neck and adjacent film for any signs of damage

#### 4.4.4 Number of Samples

4.4.4.1 The number of samples tested per lot must be five.

#### 4.4.5 Test Results

4.4.5.1 The test results must show no apparent damage to the neck and adjacent film.

### 4.5 ELONGATION

4.5.1 The purpose of this test is to determine the ultimate elongation of the balloon film under specific conditions described below.

#### 4.5.2 Requirements

- a) The elongation at  $+22^{\circ}\text{C}$  must be 700% minimum
- b) The elongation at  $-70^{\circ}\text{C} \pm 2^{\circ}\text{C}$  must be 450% minimum
- c) The elongation at  $22^{\circ}\text{C}$  after accelerated aging must be 650% minimum

#### 4.5.3 Test Conditions

4.5.3.1 The tests must be made under the following conditions (see paragraph 4.2)

- a) at  $+22^{\circ}\text{C} \pm 4^{\circ}\text{C}$
- b) at  $-70^{\circ}\text{C} \pm 2^{\circ}\text{C}$  and
- c) at  $22^{\circ}\text{C} \pm 4^{\circ}\text{C}$

#### 4.5.4 Test Method

4.5.4.1 The elongation must be determined according to ASTM D412 Method A. Die 'C' as described in ASTM D412 must be used to cut samples for testing.



**4.5.5**            **Number of Samples**

4.5.5.1           The total number of samples tested must be 9; i.e. three for each condition in paragraph 4.5.2. One sample for each condition must be taken from the top area, the equatorial area, and the neck area of one balloon for testing.

**4.5.6**            **Test Report**

4.5.6.1           A test report must be kept for each sample tested.

**4.6**              **TENSILE STRENGTH**

4.6.1            The purpose of this test is to determine the tensile strength of the balloon film.

**4.6.2**            **Requirements**

4.6.2.1           The tensile strength must not be less than 7500 kPa.

**4.6.3**            **Test Conditions**

4.6.3.1           The tests must be made under the following conditions (see paragraph 4.2

- a)            at  $+22^{\circ}\text{C} \pm 4^{\circ}\text{C}$
- b)            at  $-70^{\circ}\text{C} \pm 2^{\circ}\text{C}$  and
- c)            at  $22^{\circ}\text{C} \pm 4^{\circ}\text{C}$

**4.6.4**            **Test Method**

4.6.4.1           The tensile strength must be determined according to ASTM D412 Method A. Die 'C' as described in ASTM D412 must be used to cut samples for testing.

**4.6.5**            **Number of Samples**

4.6.5.1           The total number of samples tested must be 9; i.e. three for each condition in paragraph 4.6.2. One sample for each condition must be taken from the top area, the equatorial area, and the neck area of one balloon for testing.

**4.6.6**            **Test Report**

4.6.6.1           A test report must be kept for each sample tested.

## **4.7 BLOCKING**

4.7.1 The purpose of this test is to determine the effectiveness of the anti-blocking agent.

4.7.2 Requirement

4.7.2.1 The anti-blocking agent must effectively prevent adhesion of the balloon material to itself and to the material of the packing bag.

4.7.3 Test Samples

4.7.3.1 Balloon film samples and packaging bag samples must be 20 cm by 20 cm.

4.7.4 Test Methods

4.7.4.1 The following test method will be used to determine the effectiveness of the blocking agent.

- a) Place the 2 balloon samples and one packaging bag sample, one on top of the other, in the order of: balloon, balloon, bag.
- b) Place on top of this pile a smooth bottomed weight or metal plate that will apply a force of 70 g per cm<sup>2</sup> on the samples.
- c) Leave the weight in place for 24 hours  $\pm$ 30 minutes.
- d) Remove the weight.
- e) Carefully separate each sample.

4.7.5 Number of Samples

4.7.5.1 The number of samples per lot must be two. Each set of samples must be taken from a different balloon and packaging bag.

4.7.6 Test Results

4.7.6.1. There must be no adhesion between any two surfaces.

4.7.7 Test Report

4.7.7.1 A test report must be kept for each sample tested.

## **4.8 BURST PRESSURE AND ASCENT RATE**

4.8.1 The MSC is responsible for conducting this test. The purpose of this test is to determine the minimum burst pressure and ascent rate of the balloon.

4.8.2 Requirement

4.8.2.1 The balloon must meet the requirements stated in Table 3.1.

4.8.3 Test Location

4.8.3.1 The MSC will select the sites where this test will be conducted.

4.8.4 Test Conditions

4.8.4.1 The radiosonde flights will be made under the prevailing weather conditions encountered at the test site(s). All pre-flight preparations will be made under normal operating conditions.

4.8.5 Test Samples

4.8.5.1 The number of samples per lot must be five. These samples must be selected from the shipment at random.

4.8.6 Test Results

4.8.6.1 The burst pressure is the average pressure of the five flights. The minimum pressure obtained by each flight will be determined by the Meteorological Service of Canada's Upper Air Technician. The ascent rate from the surface to 200 hPa is the average of the five flights. The overall ascent rate is the average of the five flights. The flights will be conducted with the nominal payload specified in 3.1.2. An additional 75 grams of nozzle lift may be used to compensate for a paper parachute that may be required at the test site. If a radiosonde fails during a test the balloon test results will not be included and the flight must be repeated.

**4.9 ACCEPTANCE and REJECTION**

4.9.1 When the test results in paragraph 4.8 indicate that one of the samples failed a test, another sample, (the same number of units as the previous sample for that test), will be selected and:

- a) The test will be repeated on the new samples,
- b) When the test of the second sample is completed, only one failure (one unit) within the two samples is permitted.

4.9.2 Rejection

4.9.2.1 When test results indicate that more than one sample has failed on retest the lot will be rejected.

4.9.3 Acceptance – Burst Pressure and Ascent Rate Balloons

4.9.3.1 When the test results for paragraph 4.8 indicate that any one sample of those tested has failed to reach a pressure of 100 hPa, or the average of the burst pressures for the flights is greater than the stated minimum in Table 3.1, the test will be repeated.

4.9.3.2 In the repeated test, balloons selected at random from the subject lot must meet the criteria specified in 4.8.5.

4.9.3.4 When the test results indicate a failure on retest the lot will be rejected.

**Summary of Requirements**

Burst Pressure (Minimum)	10 hPa
Ascent Rate	250-325 m/min (Surface to 200 hPa)
Ascent Rate (Minimum)	250 m/min (Surface to Burst)
Neck Length	120 mm (Nominal)
Neck Inside Diameter	25 – 30 mm
Elongation	700% (Minimum)
Elongation (After Aging, At Break)	650% (Minimum)
Elongation -70°C	450% (Minimum)
Tensile Strength	7500 kPa (Minimum)
Tensile Strength (After Aging)	7500 kPa (Minimum)
Neck Strength	200 Newtons ±20 Newtons

Table 4-1

## **SECTION 5**

### **PREPARATION FOR DELIVERY**

#### **5.0 PACKAGING AND PACKING**

5.1 The Contractor must package and pack the finished balloon (s) to its commercial standards, commensurate with the following requirements. The packaging and packing must be suitable for:

- a) Preserving and protecting the product for the warranty period;
- b) Shipping anywhere in Canada by land, air and/or water;
- c) Identifying the product;
- d) Allowing easy removal of the product for use; and
- e) Environmentally friendly disposal (e.g. made from biodegradable or recycled material).

5.2 Typical packaging and packing methods used by the balloon manufacturers are dependant on the size and weight of the balloon. The 1000 gram or 800 gram balloons are placed in the unit bag, the unit bags are placed in a unit box, and several unit boxes are placed in a shipping container.

5.3 It is the Contractor's responsibility to ensure that the packaging and packing of the balloons allows the shipment to reach the destination in an undamaged condition.

#### **5.4 MINIMUM REQUIREMENTS**

##### **5.4.1 Packaging Bag**

5.4.1.1 Each balloon must be placed in a plastic bag. The material of the bag must not react with, or adhere to the balloon material, or the anti – blocking agent. The size of the bag must be adequate for the intended use. The bag must be sealed against the entry of air. A simple method of opening the bag must be provided so that it does not require the use of a sharp tool to open it.

##### **5.4.2 Balloon Handling Note**

5.4.2.1 The balloon must be handled with the utmost care during the packaging and packing process to prevent damages during handling.

##### **5.4.3 Unit Box or Inner Container**

5.4.3.1 The packaged balloon must be packed into a unit container or box, in such a fashion that the balloon is not subjected to any undue stress that would cause structural deterioration during the shipping, storage, flight preparation, or use of the

balloon. The box size must be adequate for the intended use, and must be sealed against the entry of light and dust. A simple method of opening the box must be provided so that it does not require the use of a sharp tool to open it.

#### 5.4.4 Labeling

5.4.4.1 The bag, box, or inner container must be labeled with the following:

- a) MSC Stock Number "0026-9303"
- b) Nominal Weight of each balloon
- c) Year and Month of Manufacture
- d) Quantity as applicable

5.4.4.2 Packaging and Labeling of Dangerous and Hazardous Goods:

It is the responsibility of the Contractor to ensure that any hazardous and dangerous goods are packaged and labelled in accordance with all applicable legislation. Goods must be shipped with the appropriate WHMIS (Workplace Hazardous Material Information system) labels and be accompanied by an MSDS (Material Safety Data Sheet) in English and French. Packaging of goods that fail to comply with this requirement will result in immediate rejection.

#### 5.4.5 Shipping Format

5.4.5.1 The shipping box must be a single wall or double wall corrugated, fiberboard box with a minimum bursting strength of 1500 kPa. The box must conform to the CGSB Standard 43-GP-21M, Type 1 for corrugated fiberboard, Class 1 (regular slotted box) Grade C-5. The class and grade may be upgraded by the Contractor to ensure the balloons arrive at the consignee in the undamaged condition. The size of the shipping container must comply with CGSB-43-GP-21M paragraph 7.2.2, Type 2 – Average Load.

#### 5.4.6 Shipping Box Labeling

5.4.6.1 The shipping box must be labeled with the following:

- a) MSC Stock Number "0026-9303"
- b) "ALL-WEATHER AEROLOGICAL BALLOON"  
"BALLON AÉROLOGIQUE TOUT-TEMPS"
- c) Nominal weight
- d) Year and Month of manufacture
- e) Contractor's lot number
- f) Quantity of balloons
- g) Gross weight

## **SECTION 6**

### **6.0 WARRANTY**

6.1 Notwithstanding prior acceptance of the finished work, and without restricting any other term of the contract or any condition, warranty or provision implied or imposed by the law, the Contractor must, if required by the Technical Authority to do so at any time within a period of eighteen (18) months from the date of delivery of the balloons:

- a) Replace at their own expense for any balloon which becomes defective or which fails to conform to contract requirements.
- b) Deliver such replacement balloons free from all defects to the delivery point specified by the Technical Authority. The location may be anywhere in Canada. The replacement balloons must be shipped in accordance with instructions from the Technical Authority.

### **7.0 DEVIATION FROM SPECIFICATION**

7.1 The Contractor must not deviate from the requirements of this specification without the expressed written approval from the Project Authority. Request for deviation and/or waiver must state the reason of the request and must, where applicable, describe in detail the proposed alternatives. All requests for deviations must be forwarded to, and in accordance with instructions from, the Contracting Authority identified in the contract.

### **8.0 QUALITY ASSURANCE**

8.1 The Contractor is responsible for all inspections and tests required to be performed in accordance with the requirements in this specification (except for paragraph 4.8). The Contractor must either perform the inspections and tests itself or, subcontract the inspection or test to a competent organization. The Contractor is responsible for maintaining appropriate inspection and test records to substantiate the acceptability of the deliverables to the requirements of this specification.

## **9.0 GLOSSARY**

Term used	Definition
43-GP-21M	Canadian General Standards Board standards for fiberboard boxes
ASTM	American Society for Testing Materials
CGSB	Canadian General Standards Board
cm	centimeter
cm <sup>2</sup>	Centimeter squared
D412	ASTM Standard Test Methods for Rubber Properties in Tension.
DSQM	Data Standard and Quality Management
Federal Standard 601	Federal Test Method Standard, Rubber Sampling and Testing
g	Force of Gravity
hPa	hecto Pascal
kg	kilogram
kPa	Kilo Pascal
m	meter
m/min	Meters per minute
mm	millimeters
MSC	Meteorological Service of Canada
Newton	Metric force unit
°C	Degree Centigrade or degree Celsius



Neck Test Fixture

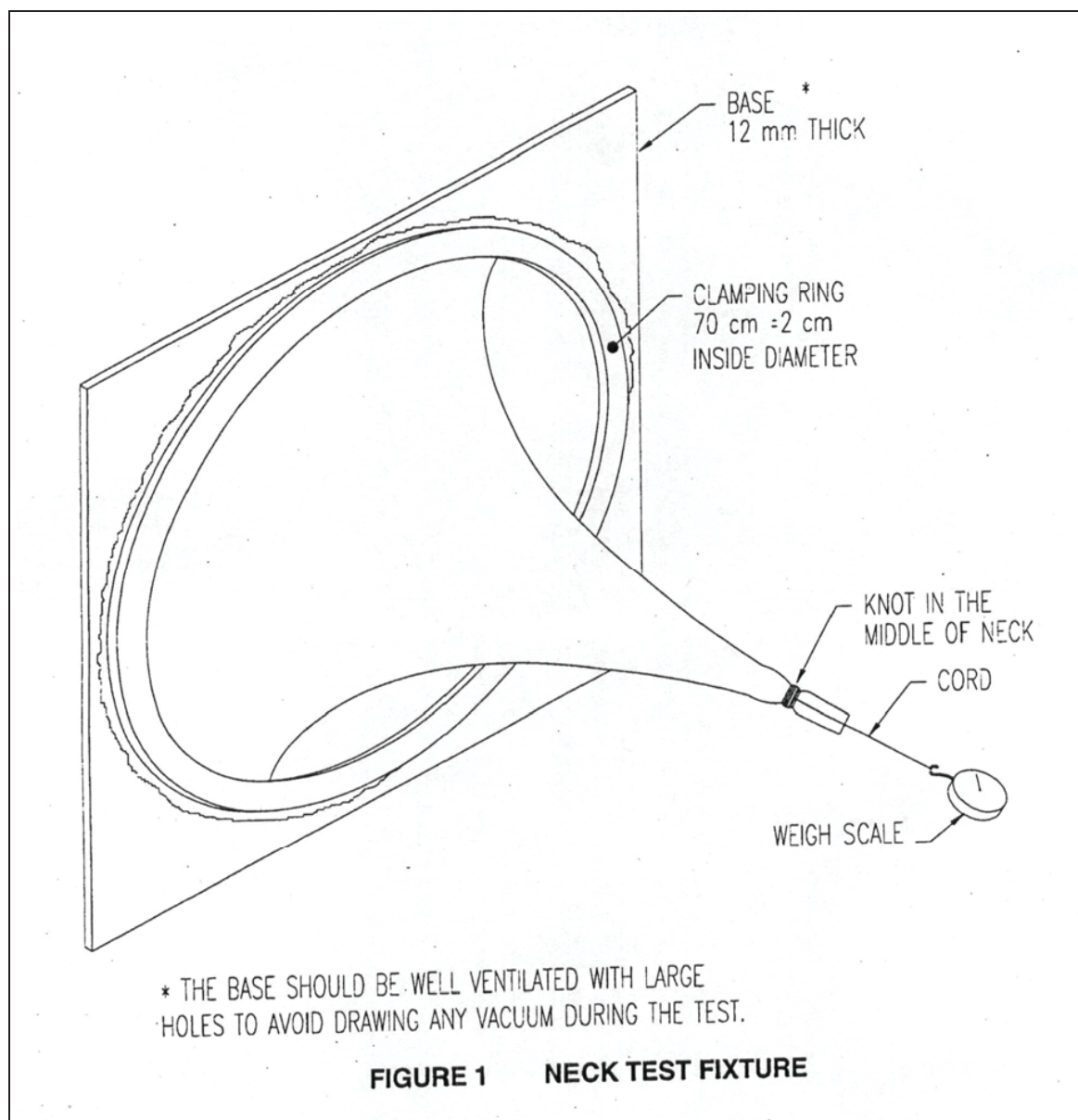


Figure 1

**ANNEX D**

**TECHNICAL EVALUATION PLAN**

**A. Mandatory Technical Criteria**

Proposals not complying with one or more mandatory requirements will receive no further consideration.

1. The Bidder must provide the following information with the bid proposal. Failure to provide any of this information will result in the bid being deemed non-responsive:
  - a) Test data and/or flight data in accordance with Article 1.0 Provision of Data below.
  - b) Physical information of the proposed balloon type in accordance with Article 2.0 Physical Information below.
  - c) A copy of the Bidder's Draft Quality Assurance Plan in accordance with Article 3.0 Quality Assurance Plan below.
  - d) A copy of the certification demonstrating that Bidder's balloon manufacturing facility complies with the ISO 9001:2000 Quality Management System standard.
2. The Bidder's proposed balloon type must achieve "Type Approval" by meeting the acceptance criteria in accordance with Article 4.0, Article 5.0, Article 6.0 and Article 7.0.

**1.0 PROVISION OF DATA**

1.1 The Bidder must provide test and/or flight data with their proposed balloon. The test data must contain at a minimum the following information:

1. Number of flights (pass and fail)
2. Location(s) of flights
3. Payload weight
4. Parachute weight, if applicable
5. Weather conditions at flight site(s), if known
6. Nozzle lift and gas used
7. Results of flights
8. Burst pressure
9. Ascent rate to 200 hPa

10. Minimum ascent rate

11. Minimum total lift in grams required to meet the following ascent rate and burst pressure:

<b>Ascent Rate:</b> [in metres per minute (m/min)]	
Surface to 200 hPa	250-325 m/min
Surface to Burst	250 m/min Minimum
<b>Burst Pressure:</b>	
Minimum Burst Pressure 10 hPa	
<i>Note: A minimum burst pressure of 10 hPa is equal to the geopotential altitude of 31055 metres or greater.</i>	

Advertising brochures or Certificates of Conformance will not be accepted as proof of test data.

## 2.0 PHYSICAL INFORMATION

- a) Recommended nozzle lift, in grams of helium, necessary to carry the payload to the specified minimum pressure at the specified ascent rate range, (250 to 325 m/min):

250 gram payload \_\_\_\_\_ grams of nozzle lift  
325 gram payload \_\_\_\_\_ grams of nozzle lift

- b) Recommended nozzle lift, in grams of hydrogen, necessary to carry the payload to the specified minimum pressure at the specified ascent rate range, (250 to 325 m/min):

250 gram payload \_\_\_\_\_ grams of nozzle lift  
325 gram payload \_\_\_\_\_ grams of nozzle lift

**Please note that the nozzle lift you supply will be used as a starting point when filling the sample balloons for testing purposes. If necessary, adjustments will be made to suit the Ascent Rate to 200 hPa.**

- c) Nominal weight of balloon, in grams, and allowable deviation from nominal  
\_\_\_\_\_ grams  $\pm$  \_\_\_\_\_ grams.
- d) Nominal balloon film thickness, in mm, and allowable deviation from the nominal  
\_\_\_\_\_ mm  $\pm$  \_\_\_\_\_ mm
- e) The number of balloons produced in one day's production.

### **3.0 QUALITY ASSURANCE PLAN**

3.1 The content of the Quality Assurance Plan must ensure that all balloons supplied on the contract are controlled during all stages of production, inspection and testing, whether these functions are performed by the prime Contractor or a Subcontractor. The plan may be prepared as per ISO 10005 Guidelines for Quality Plans or in the Bidder's own format.

3.2 The Bidder must submit a Draft Quality Assurance Plan with the proposal for review by the MSC. Should the Bidder be awarded the contract, the MSC will return a critique of the Draft Quality Assurance Plan to the Bidder after contract award and identify where the plan needs to be updated or revised for implementation during the contract. The delivery of the Final Quality Assurance Plan will be due 30 days after contract award.

## **B. Submission and Testing of Samples**

### **4.0 SAMPLES**

4.1 Quantity: The Bidder must supply the MSC with **50 randomly selected sample balloons** to be tested for Type Approval in accordance with the specification, at no charge to the MSC. The samples must be submitted by bid closing.

4.2 Age: Sample balloons must not be older than 3 months at the time they arrive at the MSC. The samples must represent those made during a normal production run. It is the intention of the MSC to approve a typical balloon by testing randomly selected samples, and not specially selected or screened balloon samples.

4.3 Delivery: The package of the 50 samples must be identified with the following: **“Requisition Number K3D33-121016**; and delivered to:

Environment Canada  
Meteorological Service of Canada  
4905 Dufferin Street  
Toronto, Ontario CANADA  
M3H 5T4  
Attention: Manager, Upper Air Network

4.4 Bidders must submit with their bid by Bid Closing Date and Time a copy of documentation that shows that the sample balloons were shipped to MSC prior to Bid Closing Date and Time. Acceptable documentation includes a courier slip, a Canada Post Corporation (CPC) cancellation date stamp, a CPC Priority Courier Bill of Lading, or a CPC Xpresspost Label.

4.5 Environment Canada reserves the right to waive testing of Balloon Type TOTEX G-805-TX800 or an identical product with different part number, which have been previously tested, performed satisfactorily and approved by MSC. Bidders may request a waiver by contacting the Contracting Authority, Peggy Juan, Public Works and Government Services Canada; E-mail: [peggy.juan@pwgsc.gc.ca](mailto:peggy.juan@pwgsc.gc.ca) or Telephone: (905) 615-2467. Request for waiver must be submitted to the Contracting Authority no later than 10 calendar days before Bid Closing Date.

If the waiver is granted, the bidder will be assigned a pre-determined point rating score for the Balloon Type TOTEX G-805-TX800 or an identical product with different part number for the point rating evaluation detailed in Article 8.0 Point Rating System.

### **5.0 TESTING OF SAMPLES**

5.1 The MSC will test samples of the proposed balloon for burst pressure and ascent rate in accordance with the specification. Visual and qualitative testing will also be done in accordance with the specification.

5.2 The entire sample of 50 balloons will be flown under normal field conditions, unless it is determined the Bidder can no longer meet the 75% criteria detailed below in article 6.1 a).

5.3 Helium or hydrogen will be used for the test flights.

5.4 Seventy-five grams of nozzle lift will be added to compensate for a paper parachute that may be required at some sites.

5.5 Testing will take place at MSC facilities in Canada.

5.6 The MSC will test the sample balloons with 250 gram and 325 gram payloads and successful balloons will be suitable for either payload.

## **6.0 ACCEPTANCE CRITERIA**

### **6.1 Acceptance Criteria for Type Approval of Sample(s)**

The MSC will grant "Type Approval" for balloons that meet the following **MINIMUM** criteria, based on the 50 samples tested:

- a) **75%** of the samples must attain a burst pressure of **10 hPa** or less.
- b) **90%** of the samples must attain a burst pressure of **30 hPa** or less.
- c) **97%** of the samples must attain a burst pressure of **100 hPa** or less.
- d) Compliance with Annex B Specification S0945-05, Issue 03.

6.2 The ascent rates will be the average of all of the flights. A maximum of 3 failures will be allowed and thus not calculated into the average. The MSC will determine the ascent rates. Ascent rates outside the range of 250 to 325 m/min will result in the balloon being considered to be defective. If more than 3 out of 50 sample balloons fail to attain ascent rate within the range of 250 to 325 m/min, the Bidder will be deemed non-responsive.

## **7.0 REJECTION OF SAMPLE BALLOONS**

A balloon that is found defective will be considered a failure, regardless of when the defect is found or what kind of defect is observed, such as but not limited to the following instances:

- a) Before, during or after filling.
- b) Just prior to release.

- c) During the flight if it does not reach 100 hPa.
- d) Being a "floater", where the ascent rate of the balloon decreases dramatically below the 100 hPa level and proceeds slowly because of a slow leak of gas. The MSC will determine if the balloon is a "floater".
- e) Exceeding the maximum allowable of 6 of the total 50 samples for second releases due to balloon failure. A second release, due to unacceptable balloon performance, is required when the balloon bursts or floats before the flight reaches 100hPa.

## **C. Point Rated Technical Criteria**

### **8.0 POINT RATING SYSTEM**

8.1 The following point rating system will be used for technical evaluation.

8.1.1 Adherence to the specification while in test:

1. 10 hPa average level equals 1000 points; every 0.1 hPa decrease is a ten point addition; every 0.1 hPa increase is a ten point deduction.  
Maximum points available: 1600.
2. Ascent Rate (ASR) to 200 hPa: an average of 285 m/min equals 10 points; every 5 m/min change up or down is a one point deduction.  
Maximum points available: 10; Mandatory minimum points: 3.

8.1.2 Amount of lifting gas used (325 g sondes),

1200 grams average nozzle lift equals 10 points; every 25 gram increase in nozzle lift is a one point deduction; and every 25 gram decrease is a one point addition. Maximum points available: 20.

8.1.3 Weight of Balloon,

800 gram unit average weight equals 10 points; every 50 gram increase in weight is a one point deduction; and every 50 gram decrease is a one point addition.  
Maximum points available: 12; Mandatory minimum points: 8.

8.1.4 In addition to the mandatory minimum points specified for 8.1.1.2 and 8.1.3, the overall mandatory minimum point rating is 900 points. Sample balloons not achieving the mandatory minimum points will be deemed non-compliant. Overall Maximum Points Available: 1642.