ICEBERG INDUSTRIES CORPORATION

June 16, 2000

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Felicia B. Satchell
Chief, Food Standards Branch
Office of Food Labeling (HFS-158)
Center For Food Safety and Applied Nutrition
Food and Drug Administration
200 C Street, SW
Washington, DC 20204

Dear Ms. Satchell,

Please find enclosed documentation for the Citizen's Petition to Include Iceberg Water in the Standards of Identity as covered in 21 CFR 165.110 (a) (2) and (3).

If you have any questions or need further data please call me at 709-438-2435 or 709-739-5731.

Yours truly,

Vernon Matheson – Operations Manager

BOREALIS ICEBERG VODKA

BOREALIS Genuine Iceberg WATER

DISCOVERY SPRINGS Natural Spring Water

00P-1363

CP1

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Citizen's Petition to Amend 21 CFR 165.110 to Include a Standard of Identity for Iceberg Water

The undersigned submits this petition under 21CFR 5.10 (15) to request the Commissioner of Food and Drugs to amend the standard of identity for Bottled Water as defined in 21 CFR 165.110 to include a category of water to be known as Iceberg Water.

Action Requested:

The current standard of identity for bottled water is contained in 21 CFR 165.110 (a) (2) and (3). The text of this standard is included in **Attachment A**.

We request that the amended standard of identity should include a new paragraph which would become 21 CFR 165 (a) (2) (ix). The text of this paragraph is as follows:

> The name of water that is produced by the capture of or harvesting of ice from icebergs or incipient icebergs from a marine environment which are subsequently melted to produce a bottled water product may be called "Iceberg Water."

Statement of Grounds:

Current Regulation: The current standard of identity provides specific identities for various specific classes of bottled water. Each class has an identity that is based on the source of the water, or in a few cases, the manufacturing process that is used to produce the water. The existing classes which are categorically defined in 21 CFR 165.110 are "bottled water," "drinking water," "artesian water," "artesian well water," "groundwater," "mineral water," "purified water," "demineralized water," "deionized water," "distilled water," "purified drinking water," "demineralized drinking water," "deionized drinking water," "sparkling bottled water," "spring water," "sterile water," "sterilized water," and "well water."

The petitioner wishes to market water that is produced by the melting of ice that is harvested from naturally occurring icebergs. The current regulation does not recognize icebergs as a potential water source, nor does it recognize the melting of ice as a process by which bottled water could be produced. Therefore, there is currently no acceptable label designation that reflects the origin of this product. Although this product could be labeled "bottled water" or "drinking water" under the current regulation, these names do not provide sufficient information to allow a purchaser to make an informed decision whether to buy (or not to buy) this product.

Harvesting Process: The petitioner currently employs the process described below for the harvest of ice and the production of Iceberg Water products. The petitioner does not envision this process as being the only process by which icebergs can be utilized as a bottled water source. However, the current process merits description to illustrate that waters that are produced by the melting of iceberg ice are not included in the current

specific standards of identity. The following description is a summary of the process, and a more detailed description is included as **Attachment B** to this petition.

Iceberg water is produced with the use of an iceberg harvesting craft (the craft) that has been specifically designed for this process. The craft is towed to iceberg locations by using a seagoing tugboat. The craft contains the following essential equipment items:

1. A crane and grapple assembly that can be used to break manageable ice fragments from icebergs.
2. Six storage tanks that can store approximately 1,000,000 liters of water.
3. An ice crusher, that reduces harvested ice blocks to fragments that are a few centimeters in size.
4. A heating system, located beneath the storage tanks, which can be used to melt ice.
5. Appropriate transfer pumps to move and circulate melted water.
6. On board treatment equipment used to maintain the purity of water produced at sea. This equipment includes 20-micron filtration and an ultraviolet sterilization system sized for a flow of 200 gallons per minute. Water is continuously circulated through this system while the craft is at sea.

During normal marine operations, the harvesting craft is towed to a suitable iceberg. The crane and grapple are used to break off suitable fragments of ice that are immediately placed in the ice grinder. The ice is ground into small pieces, and is delivered to one of the storage tanks. The heating system is used continuously at sea to melt the ice and thus produce water. The water is continuously circulated through the treatment equipment to maintain purity while at sea.

When the craft returns to port, the water is unloaded into a 1,017,000-liter tank farm at the company's production facility. It is then bottled in a recently constructed water plant that is generally similar to other modern plants in the water industry. Prior to bottling, the water passes through several additional treatment steps that include additional filtration, and ozonation.

Unique Characteristics of Iceberg Water:

Water that is produced from melting ice is unique in several ways, and the unique properties may constitute a consumer benefit. When crystals form from solutions containing foreign ions, the foreign ions are excluded from the newly forming crystals. This process can yield crystals of exceptional purity, even though the solutions from which they form contain a variety of foreign materials. Chemists who produce pure substances from impure mixtures routinely use this so-called fractional crystallization. Icebergs are normally derived from glacial or ice cap ice that calves into the ocean at the marine-glacier boundary. The water that forms glaciers is snowfall formed from naturally distilled water (distilled when it entered the atmosphere) and then fractionally crystallized during precipitation. The crystallization process that converts snow into glacial ice may provide a second fractional crystallization. The resulting iceberg ice is

very low in dissolved solids; the total dissolved solids is typically a few parts per million. The analysis included in **Attachment C** illustrates the purity of water produced from melted ice. In particular:

1. The sodium level is well below the level designated as Sodium Free under current FDA regulations. The FDA standard states that less than 5mg of sodium per 8 oz. serving may be called sodium free. The sodium content of Iceberg water is typically 1 mg or less per 8 oz. serving.
2. There are no detectable levels of trace elements. This is particularly relevant in the case of arsenic, which is now becoming a contaminant of common occurrence with concern at low levels.
3. It is likely that the water is bromide free so that bromate formation after ozonation should not be a problem.

Iceberg water is therefore of particular benefit to consumers who wish to consume a sodium free natural water with low dissolved solids. It is also a water that is likely to be free from two concerns (bromate and arsenic) that are major problems in today's bottled water market place.

Consumer Demand and Acceptance

The petitioner will illustrate the presence of a consumer demand for Iceberg Water, and the degree of consumer acceptance of this product, with a discussion of the Iceberg Industries company's experience in Canadian marketing. This will be followed by a discussion of the response to marketing that has been achieved in the United States.

Iceberg Industries began marketing its Iceberg Water products in 1997. Until that time, Iceberg Water was not in common use as a beverage or beverage ingredient and was unknown as such by most North Americans.

The company has created a consumer demand through an intensive marketing program that publicized the high quality characteristics of the Iceberg Water.

In 1997 Iceberg Industries approached the Canadian Loblaws supermarket chain with the idea of a 1-liter private label Iceberg Water. The Loblaws' management group saw a large sales potential of having such a demonstrably pure bottled water product on their shelves and they agreed to the proposal. This was the beginning of the President's Choice line of Iceberg Water, which is produced by Iceberg Industries and is marketed under the President's Choice label. Although Iceberg Water is not yet marketed in the United States under this label other Presidents Choice beverage products are available in the United States.

Since 1997, the consumer demand in the Loblaws stores for Iceberg Water has increased dramatically, and sales figures for the year 2000 are approximately double the figures for 1999. In fact, Loblaws is currently in the process of introducing the Iceberg Water in a 500-milliliter size.

The marketing area in which the Loblaws stores market the water is growing as well. In 1997 the Iceberg Water was introduced in 20 stores in Ontario plus a few stores in Atlantic Canada. As of June of this year their Iceberg Water is sold in 412 stores in Ontario and all their affiliates in the Atlantic Region. The company is also in the process of introducing the Iceberg Water into their Quebec distribution, which will approximately double again the number of distribution outlets.

Consumer awareness and consumer demand outside of the Loblaws Network has also increased, primarily as a direct result of the marketing initiatives by Loblaws and Iceberg Industries. Iceberg Industries own brand of Borealis Iceberg Water is now available through the following major wholesale outlets and retail chains:

Central Dairies – Newfoundland
Farmer's Dairy – Nova Scotia, Prince Edward Island and New Brunswick
Sincere Group – 2500 'C' Stores in Ontario
Longo's – Ontario
Highland Farms – Ontario
Hyzel Food and Drug – Ontario
Lanzerotta Groceries – Ontario
Rabba Foods – 'C' stores Ontario

Based on the continually expanding customer demand and product acceptance in Canada, Iceberg Industries has been actively marketing Borealis Iceberg Water in the United States since the FDA granted a Temporary Marketing Permit in 1999.

Iceberg Industries initially found that, as in Canada, very few individuals or companies in the United States were aware of the use of Iceberg Water as a beverage ingredient or as bottled water.

Customer demand has been and is continuously being built through intensive marketing initiatives, which included calling on all major United States wholesalers and retailers of bottled water as well as attending appropriate trade shows.

Iceberg Industries found that in order to market its product in the United States, the company first had to obtain permits for the sale of bottled water in most of the 50 states. That process started in May of 1999 and is ongoing. At this date, the company is permitted to sell the Borealis Iceberg Water in 46 states; however, these sales must currently be carried out under FDA's temporary market permits.

To date, Iceberg Industries has entered marketing agreements with the following wholesalers and retail companies with orders in place and product being shipped.

Snapple – Massachusetts
SBI Communications, Inc. – California (order in excess of 60,000 cases)
Arctic Pure - Connecticut

Harris Teeter – North Carolina
Premier Beverages – Florida

Iceberg Industries is presently conducting discussions with

Publix – Florida
Wild Oats – Colorado
Starbucks – Washington
Jaydor Beverages – New Jersey
Kroger Co. – Ohio
Wegman's – New York
Sysco Foods – Pennsylvania
US Army Base – Saudi Arabia

The development of consumer demand is an ongoing process and it is most important that this process continue without interruption. The Iceberg Water launch in Canada was highly successful and the reaction to date in the United States leads the company to believe that a similar success will be achieved. The feedback and interest that Iceberg Industries has received over the past 15 months has been very positive and the current marketing effort will continue with confidence.

Meets FDA Safety and Purity Standards:

Iceberg water, which is produced, as described above meets the FDA purity standards, and the standards of 50 states. This compliance is illustrated by the analyses included in **Attachment C.**

Bureaucratic Burden:

Marketing of Iceberg water has recently been allowed in the United States under a temporary FDA permit. A copy of the permit is included as **Attachment D**. Under the current situation, future marketing of this product will require a continuous succession of temporary permits. This places an undue bureaucratic burden on companies that wish to produce this product, as well as an undue burden on the FDA for document review and decision-making.

Economic Impact:

Few if any measurable impacts are anticipated. Justification for this conclusion will be submitted if requested.

Unfavorable Information:

The petitioner has considered this issue, and knows of no unfavorable information that affects this petition

Certification:

The undersigned certifies, that to the best of knowledge and belief of the undersigned, this petition includes all information and views on which the petition relies, and that it includes representative data and information known to the petitioner, which are unfavorable to the petition.

Signature:_____

Name of Petitioner: Vernon Matheson – Operations Manager

Mailing Address: Iceberg Industries Corporation
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PART 165—BEVERAGES

Subpart A—General Provisions

Sec.
165.3 Definitions.

Subpart B—Requirements for Specific Standardized Beverages

165.110 Bottled water.

AUTHORITY: Secs. 201, 401, 403, 403A, 409, 410, 701, 721 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321, 341, 343, 343A, 348, 349, 371, 379e).

SOURCE: 60 FR 57124, Nov. 13, 1995, unless otherwise noted.

Subpart A—General Provisions

§ 165.3 Definitions.

(a) A *lot* is:

(1) For purposes of determining quality factors related to manufacture, processing, or packing, a collection of primary containers or units of the same size, type, and style produced under conditions as nearly uniform as possible and usually designated by a common container code or marking, or in the absence of any common container code or marking, a day's production.

(2) For purposes of determining quality factors related to distribution and storage, a collection of primary containers or units transported, stored, or held under conditions as nearly uniform as possible.

(b) A *sample* consists of 10 subsamples (consumer units), one taken from each of 10 different randomly chosen shipping cases to be representative of a given lot, unless otherwise specified in a specific standard in this part.

(c) An *analytical unit* is the portion(s) of food taken from a subsample of a sample for the purpose of analysis.

Subpart B—Requirements for Specific Standardized Beverages

§ 165.110 Bottled water.

(a) *Identity*—(1) *Description.* Bottled water is water that is intended for human consumption and that is sealed in bottles or other containers with no added ingredients except that it may optionally contain safe and suitable antimicrobial agents. Fluoride may be optionally added within the limitations established in § 165.110(b)(4)(ii). Bottled water may be used as an ingredient in beverages (e.g., diluted juices, flavored bottled waters). It does not include those food ingredients that are declared in ingredient labeling as "water," "carbonated water," "disinfected water," "filtered water," "seltzer water," "soda water," "sparkling water," and "tonic water." The processing and bottling of bottled water shall comply with applicable regulations in part 129 of this chapter.

(2) *Nomenclature.* The name of the food is "bottled water," "drinking water," or alternatively one or more of the following terms as appropriate:

(i) The name of water from a well tapping a confined aquifer in which the water level stands at some height above the top of the aquifer is "artesian water" or "artesian well water." Artesian water may be collected with the assistance of external force to enhance the natural underground pressure. On request, plants shall demonstrate to appropriate regulatory officials that the water level stands at some height above the top of the aquifer.

(ii) The name of water from a subsurface saturated zone that is under a pressure equal to or greater than atmospheric pressure is "ground water." Ground water must not be under the direct influence of surface water as defined in 40 CFR 141.2.

(iii) The name of water containing not less than 250 parts per million (ppm) total dissolved solids (TDS), coming from a source tapped at one or more bore holes or springs, originating from a geologically and physically protected underground water source, may be "mineral water." Mineral water

shall be distinguished from other types of water by its constant level and relative proportions of minerals and trace elements at the point of emergence from the source, due account being taken of the cycles of natural fluctuations. No minerals may be added to this water.

(iv) The name of water that has been produced by distillation, deionization, reverse osmosis, or other suitable processes and that meets the definition of "purified water" in the United States Pharmacopeia, 23d Revision, January 1, 1995, which is incorporated by reference in accordance with 5 U.S.C. 551(a) and 1 CFR part 51. (Copies may be obtained from the United States Pharmacopial Convention, Inc., 12601 Twinbrook Pkwy., Rockville, MD 20852 and may be examined at the Center for Food Safety and Applied Nutrition's Library, 200 C St. SW., Washington, DC, or at the Office of the Federal Register, 800 North Capitol St. NW., suite 700, Washington, DC), may be "purified water" or "demineralized water." Alternatively, the water may be called "deionized water" if the water has been processed by deionization, "distilled water" if it is produced by distillation, "reverse osmosis water" if the water has been processed by reverse osmosis, and "_____ drinking water" with the blank being filled in with one of the defined terms describing the water in this paragraph (e.g., "purified drinking water" or "deionized drinking water").

(v) The name of water that, after treatment and possible replacement of carbon dioxide, contains the same amount of carbon dioxide from the source that it had at emergence from the source may be "sparkling bottled water."

(vi) The name of water derived from an underground formation from which water flows naturally to the surface of the earth may be "spring water." Spring water shall be collected only at the spring or through a bore hole tapping the underground formation feeding the spring. There shall be a natural force causing the water to flow to the surface through a natural orifice. The location of the spring shall be identified. Spring water collected with the use of an external force shall be from the same underground stratum as the spring, as shown by a measurable hy draulic connection using hydrogeologically valid method be tween the bore hole and the natura spring, and shall have all the physica properties, before treatment, and be o the same composition and quality, a the water that flows naturally to th surface of the earth. If spring water i collected with the use of an externa force, water must continue to flow nat urally to the surface of the eart through the spring's natural orific Plants shall demonstrate, on reques to appropriate regulatory official using a hydrogeologically valid met od, that an appropriate hydraulic co nection exists between the natural o fice of the spring and the bore hole.

(vii) The name of water that mee the requirements under "Steril Tests" <71> in the United States Ph macopeia, 23d Revision, January 1995, which is incorporated by referen in accordance with 5 U.S.C. 552(a) an CFR 51. (Copies may be obtained fr the United States Pharmacopeial Co vention, Inc., 12601 Twinbrook Pkw Rockville, MD 20852 and may be exa ined at the Center for Food Safety a Applied Nutrition's Library, 200 C SW., Washington, DC, or at the Off of the Federal Register, 800 North C itol St. NW., suite 700, Washingt DC), may be "sterile water." Alt natively, the water may be call "sterilized water."

(viii) The name of water from a h bored, drilled, or otherwise construc in the ground which taps the water an aquifer may be "well water."

(3) *Other label statements.* (i) If TDS content of mineral water is be 500 ppm, or if it is greater than 1 ppm, the statement "low mineral c tent" or the statement "high min content", respectively, shall appea the principal display panel follo the statement of identity in type at least one-half the size of the st ment of identity but in no cas than one-sixteenth of an TDS of mineral water and 1,500 ppm, no ad need appear.

(ii) When b communit 40 CFR

treated to meet the definitions in paragraphs (a)(2)(iv) and (a)(2)(vii) of this section and is labeled as such, the label shall state "from a community water system" or, alternatively, "from a municipal source" as appropriate, on the principal display panel or panels. This statement shall immediately and conspicuously precede or follow the name of the food without intervening written, printed, or graphic matter, other than statements required by paragraph (c) of this section, in type size at least one-half the size of the statement of identity but in no case of less than one-sixteenth of an inch.

(iii) When the label or labeling of a bottled water product states or implies (e.g., through label statements or vignettes with references to infants) that the bottled water is for use in feeding infants, and the product is not commercially sterile under § 113.3(e)(3)(i) of this chapter, the product's label shall bear conspicuously and on the principal display panel the statement "Not sterile. Use as directed by physician or by labeling directions for use of infant formula."

(4) *Label declaration.* Each of the ingredients used in the food shall be declared on the label as required by the applicable sections of parts 101 and 130 of this chapter.

(b) *Quality.* The standard of quality for bottled water, including water for use as an ingredient in beverages (except those described in the labeling as "water," "carbonated water," "disinfected water," "filtered water," "seltzer water," "soda water," "sparkling water," and "tonic water"), is as follows:

(1) *Definitions.* (i) *Trihalomethane* (THM) means one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

(ii) *Total trihalomethane* (TTHM) means the sum of the concentration in milligrams per liter of the trihalomethane compounds (trichloromethane, dibromochloromethane, bromodichloromethane and tribromomethane), rounded to two significant figures.

(2) *Microbiological quality.* Bottled water shall, when a sample consisting of analytical units of equal volume is examined by the methods described in applicable sections of "Standard Methods for the Examination of Water and Wastewater," 15th Ed. (1980), American Public Health Association, which is incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51 (copies may be obtained from the American Public Health Association, 1015 15th St., NW., Washington, DC 20005, or a copy may be examined at the Office of the Federal Register, 800 North Capitol St., NW., suite 700, Washington, DC, or at the Center for Food Safety and Applied Nutrition's Library, 200 C St., SW., Washington, DC), meet the following standards of microbiological quality:

(i) *Multiple-tube fermentation method.* Not more than one of the analytical units in the sample shall have a most probable number (MPN) of 2.2 or more coliform organisms per 100 milliliters and no analytical unit shall have an MPN of 9.2 or more coliform organisms per 100 milliliters; or

(ii) *Membrane filter method.* Not more than one of the analytical units in the sample shall have 4.0 or more coliform organisms per 100 milliliters and the arithmetic mean of the coliform density of the sample shall not exceed one coliform organism per 100 milliliters.

(3) *Physical quality.* Bottled water shall, when a composite of analytical units of equal volume from a sample is examined by the method described in applicable sections of "Standard Methods for the Examination of Water and Wastewater," 15th Ed. (1980), which is incorporated by reference (the availability of this incorporation by reference is given in paragraph (b)(2) of this section), meet the following standards of physical quality:

(i) The turbidity shall not exceed 5 units.

(ii) The color shall not exceed 15 units.[1]

(iii) The odor shall not exceed threshold odor No. 3.[1]

[1] Mineral water is exempt from allowable level. The exemptions are aesthetically based allowable levels and do not relate to a health concern.

(4) *Chemical quality.* (i)(A) Bottled water shall, when a composite of analytical units of equal volume from a sample is examined by the methods described in paragraph (b)(4)(i)(B) of this section, meet standards of chemical quality and shall not contain chemical substances in excess of the following concentrations:

Substance	Concentration in milligrams per liter
Arsenic	0.05
Chloride[1]	250.0
Iron[1]	0.3
Manganese[1]	0.05
Phenols	0.001
Sulfate[1]	250.0
Total dissolved solids[1]	500.0
Zinc[1]	5.0
Organics:	
Endrin (1,2,3,4,10,10-hexachloro-6,7-epoxy 1, 4, 4a, 5, 6, 7, 8, 8a-octahydro-1,4-endo, endo-5,8-dimethane naphthalene)	0.0002
Total Trihalomethanes	0.10

[1] Mineral water is exempt from allowable level. The exemptions are aesthetically based allowable levels and do not relate to a health concern.

(B) Analyses conducted to determine compliance with paragraph (b)(4)(i)(A) of this section shall be made in accordance with the methods described in the applicable sections of "Standard Methods for the Examination of Water and Wastewater," 15th Ed. (1980), or "Methods for Chemical Analysis of Water and Wastes," Environmental Monitoring and Support Laboratory (EMSL), EPA-600/4-79-020, March 1983, U.S. Environmental Protection Agency (EPA), both of which are incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

(C) Analyses for organic substances shall be determined by the appropriate methods set forth below. The methods in paragraphs (b)(4)(i) (C)(*1*) and (C)(2) of this section are incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51 and are described in "Standard Methods for Examination of Water and Wastewater," 15th Ed. (1980). Copies may be obtained from the American Public Health Association, 1015 Fifteenth St., NW., Washington DC 20005, and examined at the Office of the Federal Register, 800 North Capitol St., NW., suite 700, Washington DC, or the Center for Food Safety and Applied Nutrition's Library, 200 C St. NW., Washington DC. The methods in paragrap (b)(4)(i)(C)(3) and (C)(*4*) are cross-r erenced in 40 CFR part 141, subpart appendix C.

(*1*) "Methods for Organochlorine Pe ticides in Industrial Effluents;"

(2) "Methods for Chlorinat Phenoxy Acid Herbicides in Industri Effluents," November 28, 1973;

(3) "Part I: The Analysis Trihalomethanes in Finished Waters the Purge and Trap Method;" which cross-referenced in 40 CFR part 1 subpart C, appendix C;

(4) "Part II: The Analysis Trihalomethanes in Drinking Water Liquid/Liquid Extraction," which cross-referenced in 40 CFR part 1 subpart C, appendix C;

(ii)(A) Bottled water packaged in United States to which no fluoride added shall not contain fluoride in cess of the levels in Table 1 and th levels shall be based on the annual erage of maximum daily air tempe tures at the location where the bott water is sold at retail.

TABLE 1

Annual average of maximum daily air temperatures (°F)	Fluoride co centration in ligrams per
53.7 and below	
53.8–58.3	
58.4–63.8	
63.9–70.6	
70.7–79.2	
79.3–90.5	

(B) Imported bottled water to whi no fluoride is added shall not cont fluoride in excess of 1.4 milligrams liter.

(C) Bottled water packaged in United States to which fluoride added shall not contain fluoride in cess of levels in Table 2 and these l els shall be based on the annual av age of maximum daily air tempe tures at the location where the bott water is sold at retail.

TABLE 2

Annual average of maximum daily air temperatures (°F)	Fluoride co centration in ligrams per
53.7 and below	
53.8–58.3	
58.4–63.8	
63.9–70.6	
70.7–79.2	

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Technical Description
Iceberg Industries Corporation Harvesting Method
September 24, 1999

I. Introduction

This is a technical description of the Iceberg Industries Corporation process for the harvesting of icebergs.

II. Harvesting

Iceberg harvesting is carried out at sea using a vessel called the Iceberg Harvesting Craft (or the craft), which was specifically outfitted for this process (**Photograph A**). The craft is an unpowered ocean-going vessel that is moved to location with an ocean-going tugboat. The primary source area for the icebergs is located off the Eastern Coast of Newfoundland and Labrador and falls between latitudes 47N and 57N. Icebergs are typically harvested on a seasonal basis between May and November. The icebergs are closer to the 47N latitude at the start of the harvesting season and as the season progresses the Iceberg Harvesting Craft must move further north to find suitable icebergs. A drawing of the plumbing present on the Harvesting Craft is found after this text, and the drawing is followed by photographs of the craft.

The craft, which is approximately 200 feet in length, carries the following major equipment items:

1. A crane capable of lifting 60 tons at a boom angle of 60 degrees which is equipped with an hydraulic grapple. The grapple is used to remove suitably sized (1,000 lb. maximum) pieces of ice from the iceberg (**Photograph B**).

2. An ice crushing unit to further reduce the size of ice, once it is on board. The ice crusher hopper is constructed of stainless steel as are crushing drum and tips (**Photographs C and D**).

3. Four, 55,000 gallon potable water storage tanks which have been fitted with a steam heating system for the melting of ice. The steam heating pipes are located in the harvesting craft hold beneath the tanks, and do not pass through the tanks. Therefore there is no possibility of steam leakage into the product water.

4. An oil fired steam generation system rated at 2,000,000 BTU/hr to produce steam for ice melting.

6. Two additional 55,000 gallon potable water storage tanks. All the tanks are coated with Devoe Bar Rust 233H which is an NSF approved potable water epoxy coating.

7. A 10 horsepower transfer pump for use in transferring water from the ice melting tanks to the remaining tanks. All piping to and from the tanks is 2 inch, type 304 stainless steel. This pump is rated at 180 gallons per minute for off-loading water; however, it is arranged to pump at lower flow rates when water is being produced.

8. Six charcoal filtration units connected in parallel to give a flow rate of approximately 100 GPM. These units are positioned below deck in such a way as to allow them to be easily removed for charcoal changeovers above deck. These are followed by an AMTEC canister filter containing 20 micron cartridges which are capable of a flow rate of 200 GPM, and which capture stray carbon from the charcoal towers.

9. Two Ultraviolet Water Sterilizers manufactured by Sterilite with a rated flow of 100 gallons per minute each. These units are connected in parallel to yield a flow capacity of 200 GPM.

10. An electrical generation system capable of 440 volts 75 KVA.

11. Living quarters for the crew are located on the ocean-going tug boat.

III. Operations

Iceberg harvesting is carried out in the following manner:

1. The craft is brought to the harvesting area using the seagoing tug boat.

2. The tug and craft approach the iceberg from the leeward side. The tug slowly maneuvers the craft close to the iceberg. The craft and iceberg are secured together via a long tether. Weather and sea conditions play a big part in the day to day harvesting and the craft will not harvest in unsafe conditions. Iceberg harvesting takes place during daylight hours only, and the May to November harvesting season assures that there is sufficient daylight for cost efficient operations and because this is the season that icebergs are available for harvest

3. The crane and grapple are used to break off fragments of ice which are approximately 6" to 24" in diameter with a maximum weight of 1,000 pounds. The claw fingers of the grapple are clad with stainless steel.

4. The ice fragments are immediately delivered by the grapple to the crusher where they are broken into smaller fragments that are about 3 cubic inches in volume. The crushing is carried out to aid handling of the ice and to improve the efficiency of the melting stage.

5. The crushed ice is then sent to one of the designated melting tanks by means of a chute.

6. Ice melting is an on-going procedure that may operate through a 24-hour day. As water is produced, it is pumped through the two-stage filtration system, through the UV sterilizer and into one of the 55,000-gallon potable water storage tanks. The system typically has a maximum flow rate of 100 GPM.

7. Harvesting proceeds until the two storage and four melting tanks are full. The ship then returns to port.

8. Once in port, the ship off-loads water from the storage tanks. The water is pumped through a 4" pipeline to a tank farm for storage.

9. The tank farm is located on a knoll above the plant. This facility consists of nine 25,000 gallon tanks that are manifolded together to give a total capacity of 225,000 gallons. These tanks are fitted with a Clean in Place (CIP) system, and are routinely sanitized prior to each filling.

IV. Sanitization

The following procedures are used for sanitizing equipment on the craft:

1. Sanitization of on board tanks is carried out before each trip to sea. The following procedure is used: Tanks are first rinsed with clear water and flushed completely to drain. A 200 PPM chlorine solution is then sprayed onto the tank inside surfaces. The surfaces are then hand scrubbed. The tanks are then rinsed with clear water and flushed to waste. The tanks are then rinsed with municipal water and chlorine residual checks are made until the chlorine residual is gone. The tank cover is then sealed with a bolting mechanism and locked.

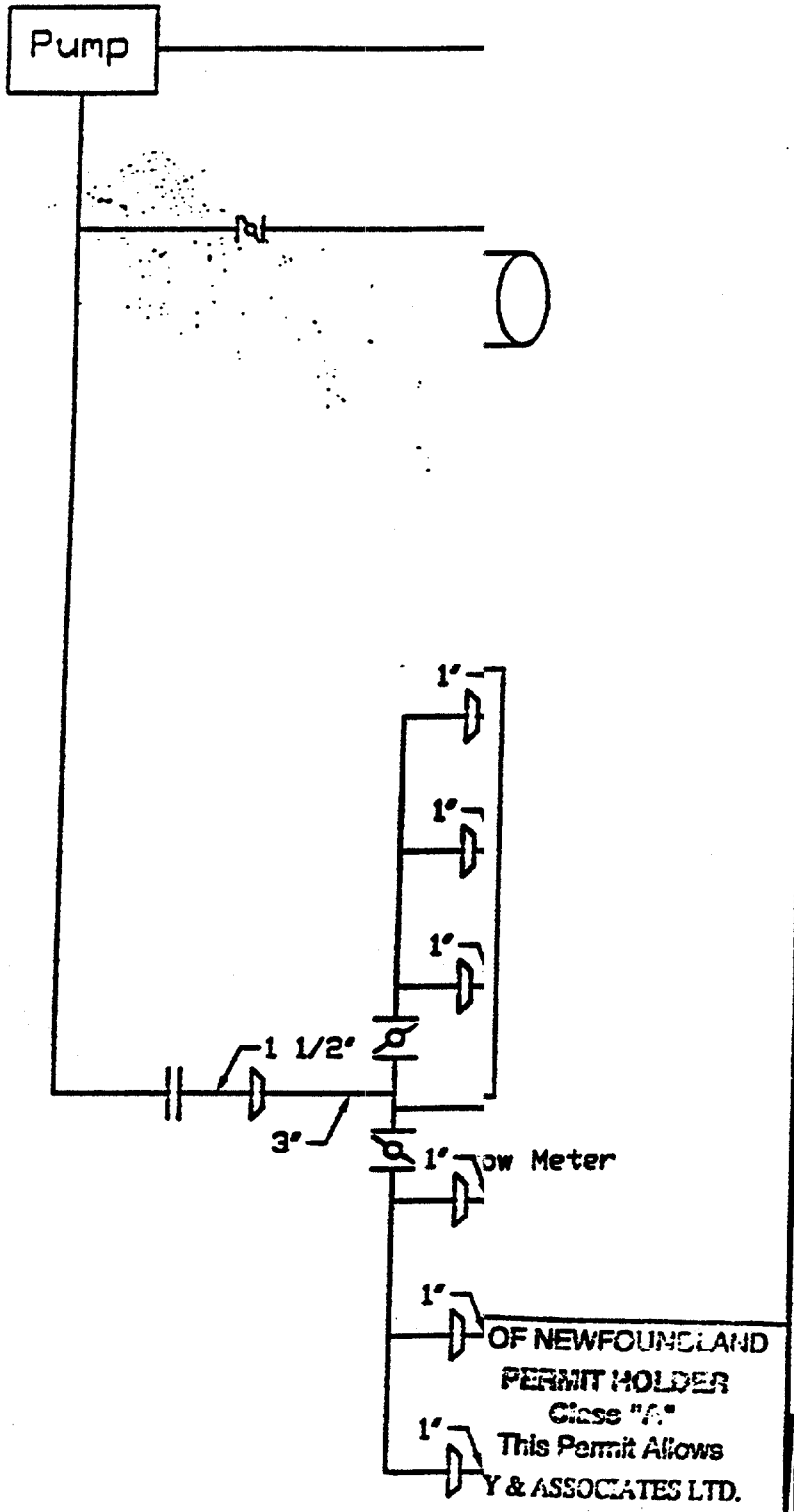
2. Water lines on the craft are sanitized before each trip to sea. These lines are first rinsed with clear water and flushed to drain. A Dibac injection system is used to prepare a 200 ppm chlorinated solution that is circulated within the lines for 15 minutes. The lines are then rinsed, and chlorine residual checks are made until the residual is gone.

3. The grapple and ice crusher are washed and sanitized prior to each day's production using a 200 ppm chlorine solution and a similar procedure.

V. Special Precautions

The iceberg harvesting process has been designed to avoid contaminating the production water with petroleum contaminants. The hydraulic systems used for the harvesting process have been designed to operate with food grade hydraulic fluid. All hydraulic fittings are examined daily for signs of leakage or incipient failure, and if necessary, corrective actions are taken prior to the start of production. If a large hydraulic leak were to occur, it would be evidenced by an equipment malfunction, and potentially affected ice would be discarded. The charcoal filtration system on the harvesting craft is designed to remove any organic materials that might enter the water during processing. In addition to this, the bottling facility also has a charcoal filtration stage, which was installed as another precautionary measure to remove any organic compounds were they to enter the water through an unanticipated path.

The ultraviolet sterilizers and on board recirculation maintain the water in a sanitary condition on the craft. The bottling plant includes 1 micron absolute filtration as well as an advanced feed back controlled ozonation system to assure a sanitary final product.



OF NEWFOUNDLAND
PERMIT HOLDER
Class "A"
This Permit Allows
Y & ASSOCIATES LTD.

essional Engineering
CHARG d and Labrador.
ued by APEGN F0-114
r the year 1999.

REGISTERED PROFESSIONAL ENGINEER
MORPHY
29/08/99
PROVINCE OF NEWFOUNDLAND

NO.	DESCRIPTION	DATE
0	Issued for Comments	24/08/99

[redacted] 16 FOREST ROAD, SUITE 300
P.O. BOX 5009
ST. JOHN'S, NEWFOUNDLAND
CANADA
A1C 5W4
ICEBERG INDUSTRIES CORPORATION

DRAWN BY	E.B.	DATE 24/08/99
CHECKED BY	E.B.	DATE 24/08/99
APPROVED BY	E.B.	DATE 24/08/99
SCALE	N/A	

PROJECT TITLE
ICEBERG INDUSTRIES CORPORATION
TREPASSEY, NFLD.

BOREALIS II

DRAWING TITLE
FILTER AND PIPING SYSTEM

DRAWING NO.	SHEET NO.	REV.
IHV001.01	S1	0

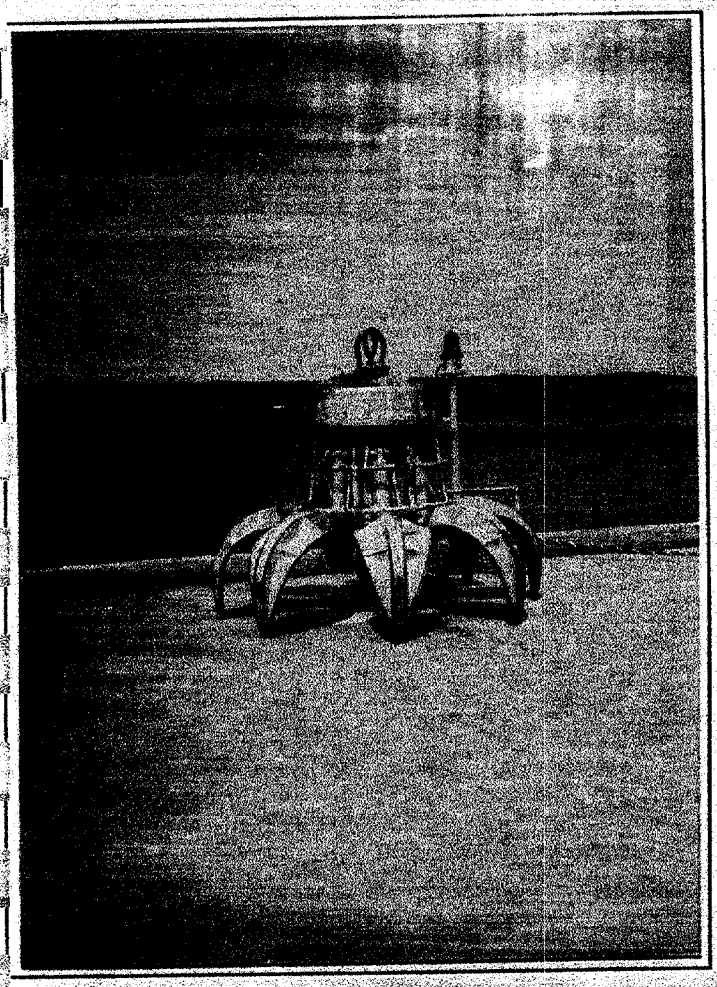


Photo B: Grapple

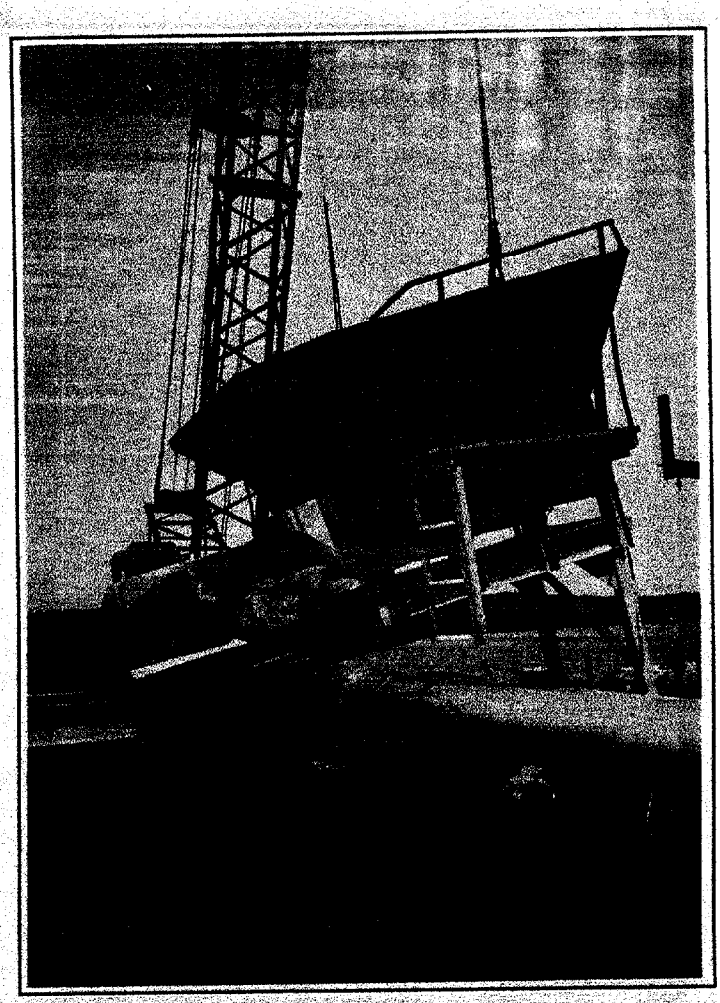


Photo C: Ice Crusher.

Photo D: Ice Chipper.

Product Analysis

NATIONAL TESTING LABORATORIES, LTD.
556 South Mansfield, Ypsilanti, MI 48197-5166
(440) 449 2525 • Fax (440) 449-8585

Date: 06/10/99 Report #: 94205[illegible] Laboratory ID #: 0055

Client: ICEBERG INDUSTRIES CORP
P.O. BOX [illegible]
[illegible], CANADA [illegible]

Date Collected: SEE OPENING [illegible]
Time Collected: SEE OPENING [illegible]
SOURCE: ICEBERG
BOREALIS
FINISHED PRODUCT
LL/ PROD CODE: APRIL 15/99

Date received at lab: 06/03/99
OPENED 06/10/99 @ 04:15 BY K.S.

Time received at lab: 09:00
Collected by : R.RYAN

NOTE: "*" The MCL (Maximum Contaminant Level) or an established guideline has been exceeded for this contaminant.
"ND" This contaminant was not detected at or above our stated detection limit.
"BD" Bacteria destroyed due to lack of collection information or because the sample has exceeded the 30-hour holding t
INTC: Too Numerous To Count. NBS: No Bacteria sample submitte
TNTC-NC: Too Numerous To Count Non-Coliform. Sample is invali for Total Coliform determination.
FA = Fecal Coliform Absent FP = Fecal Coliform Present

Req Id #	Analysis Performed	Method	MCL	Det. Level	Level Detected	Ana Dat
Microbiological:						
3000	Total coliform (CFU/100ML)	92228	0	0	ND	06/1
3001	SFC (CFU/ML.)	9215A	500	1	ND	06/1

Note: The MCL's shown above were derived from the USEPA National Primary and Secondary Drinking Water Regulations.

Lorri White

Lorri White, Lab Director

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NATIONAL TESTING LABORATORIES, LTD.
556 South Mansfield Ypsilanti, MI 48197-5166
(440) 449-2525 • Fax (440) 449-8585

Date: 06/23/99 Report #: 9420159 Laboratory ID #: 0055

From: ICEBERG INDUSTRIES CORP.
P O BOX 99
TRENASSEY, CANADA A0P 4E0

Date Collected: SEE OPENING
Time Collected: SEE OPENING
SOURCE: ICEBERG
BOREALIS
FINISHED PRODUCT
U/ PROD CODE: APRIL 15/99

Date received at lab: 06/03/99 Time received at lab: 09:00
Collected by : R RYAN
OPENING INFORMATION: METALS, VOCs, METHODS 504.1, 505, AND 552.1 O
06/03/99 @ 11:15 BY D.K., INORGANIC CHEMICALS & PHYSICAL FACTORS OP
06/03/99 @ 02:00 BY L.Z., METHOD 515.2 OPENED 06/07/99 @ 07:30 BY K
AND METHOD 507 OPENED 06/10/99 @ 06:00 BY K.O.

Note : "*" The MCL (Maximum Contaminant Level) or an established guideline has been exceeded for this contaminant.

"ND" This contaminant was not detected at or above our stated detection limit.

Fed Id #	Analysis Performed	Method	MCL (mg/l)	Det. Level	Level Detected	An Da
Inorganic chemicals - metals:						
1002	Aluminum	200.7	0.2**	0.05	ND	06/
1074	Antimony	200.8	0.006	0.001	ND	06/
1005	Arsenic	200.8	0.05	0.002	ND	06/
1010	Barium	200.8	2	0.10	ND	06/
1075	Beryllium	200.8	0.004	0.001	ND	06/
1079	Boron	200.7	---	0.10	ND	06/
1015	Cadmium	200.8	0.005	0.001	ND	06/
1016	Calcium	200.7	---	2.0	ND	06/
1020	Chromium	200.8	0.1	0.001	ND	06/
1022	Copper	200.8	1.3**	0.002	ND	06/
1028	Iron	200.7	0.3**	0.020	ND	06/
1030	Lead	200.8	0.015	0.001	ND	06/
103.	Magnesium	200.7	---	0.10	0.21	06/
1032	Manganese	200.8	0.05**	0.004	ND	06/
1035	Mercury	200.8	0.002	0.0002	ND	06/
1036	Nickel	200.8	0.1	0.002	ND	06/
1042	Potassium	200.7	---	1.0	ND	06/
1045	Selenium	200.8	0.05	0.002	ND	06/
1050	Silver	200.8	0.1**	0.002	ND	06/
1052	Sodium	200.7	---	1.0	1	06/
085	Thallium	200.8	0.002	0.001	ND	06/
1095	Zinc	200.8	5**	0.004	0.004	06/

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NATIONAL TESTING LABORATORIES, LTD.
556 South Mansfield, Ypsilanti, MI 48197-5168
(440) 449-2525 • Fax (440) 449-8585

Test Analysis Performed Id #	Method	MCL (mg/l)	Det. Level	Level Detected	D
Inorganic chemicals, other, and physical factors:					
1927 Alkalinity (as CaCO3)	2320B	---	20	ND	06
1004 Bromide	300.0	---	2.0	ND	06
1017 Chloride	300.0	250**	1.0	7.7	06
1025 Fluoride	300.0	4	0.1	ND	06
1040 Nitrate as N	300.0	10	0.050	ND	06
1041 Nitrite as N	300.0	1	0.050	ND	06
1055 Sulfate	300.0	250**	5.0	ND	06
1915 Hardness (as CaCO3)	2340C	---	10	12	06
1044 Ortho Phosphate	300.0	---	2.0	ND	06
1925 pH (Standard Units)	150.1	6.5-8.5**	--	1.22*	06
1930 Total Dissolved Solids	2540C	500**	5	12	06
0100 Turbidity (NTU)	180.1	1.0	0.1	ND	06
1905 Color	2120B	15**	3.0	ND	06
1910 Corrosivity	Langlier Ind	---	---	-5.6	06
2905 Foaming Agents	5540C	0.5**	0.1	ND	06
1920 Odor Threshold	2150B	3 Con**	---	ND	06
1928 Bicarbonate (as CaCO3)	2320B	---	20	ND	06
1929 Carbonate (as CaCO3)	2320B	---	20	ND	06
1021 Hydroxide (as CaCO3)	2320B	---	20	ND	06
1067 Spec Cond (umhos/cm at 25C)	2510B	---	1	ND	06

** Denotes Secondary Maximum Contaminant Level (SMCL)

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NATIONAL TESTING LABORATORIES, LTD.
556 South Mansfield, Ypsilanti, MI 48197-5166
(440) 449-2525 • Fax (440) 449-8585

Lab Id #	Analytic Performed	Method	MCL (mg/l)	Det. Level	Level Detected	A D
Organic chemicals: trihalomethanes:						
2942	Bromoform	502.2	0.080	0.0005	ND	06/
2943	Bromodichloromethane	502.2	0.080	0.0005	ND	06/
2944	Chloroform	502.2	0.080	0.0005	ND	06/
2944	Dibromochloromethane	502.2	0.080	0.0005	ND	06/
2950	Total THMs-sum of above	502.2	0.080	0.0005	ND	06/
Organic Chemicals-Volatiles:						
2990	Benzene	502.2	0.005	0.0005	ND	06/
2995	Bromobenzene	502.2	---	0.0005	ND	06/
2430	Bromochloromethane	502.2	---	0.0005	ND	06/
2214	Bromomethane	502.2	---	0.0005	ND	06/
2427	n-Butylbenzene	502.2	---	0.0005	ND	06/
2428	sec-Butylbenzene	502.2	---	0.0005	ND	06/
2429	tert-Butylbenzene	502.2	---	0.0005	ND	06/
2987	Carbon Tetrachloride	502.2	0.005	0.0005	ND	06/
2989	Chlorobenzene	502.2	0.1	0.0005	ND	06/
2217	Chloroethane	502.2	---	0.0005	ND	06/
2216	Chloromethane	502.2	---	0.0005	ND	06/
2965	2-Chlorotoluene	502.2	---	0.0005	ND	06/
2966	4-Chlorotoluene	502.2	---	0.0005	ND	06/
2408	Dibromomethane	502.2	---	0.0005	ND	06/
2968	1,2-Dichlorobenzene	502.2	0.6	0.0005	ND	06/
2969	1,3-Dichlorobenzene	502.2	0.6	0.0005	ND	06/1
2970	1,4-Dichlorobenzene	502.2	0.075	0.0005	ND	06/1
2211	Dichlorodifluoromethane	502.2	---	0.0005	ND	06/1
2978	1,1-Dichloroethane	502.2	---	0.0005	ND	06/1
2980	1,2-Dichloroethane	502.2	0.005	0.0005	ND	06/1
2977	1,1-Dichloroethene	502.2	0.007	0.0005	ND	06/1
2980	cis 1,2-Dichloroethene	502.2	0.07	0.0005	ND	06/1
2979	trans-1,2-Dichloroethene	502.2	0.1	0.0005	ND	06/1
2983	1,2-Dichloropropane	502.2	0.005	0.0005	ND	06/1
2412	1,3-Dichloropropane	502.2	---	0.0005	ND	06/1
2416	2,2-Dichloropropane	502.2	---	0.0005	ND	06/1
2410	1,1-Dichloropropene	502.2	---	0.0005	ND	06/1
2223	cis 1,3-Dichloropropene	502.2	---	0.0005	ND	06/1
2224	trans-1,3-Dichloropropene	502.2	---	0.0005	ND	06/1
2991	Ethylbenzene	502.2	0.7	0.0005	ND	06/1

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NATIONAL TESTING LABORATORIES, LTD.
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(440) 449-2525 • Fax (440) 449-8585

Test Analysis Performed ID #		Method	MCL (mg/l)	Det. Level	Level Detected	Ana Da
Organic chemicals volatiles						
2246	Hexachlorobutadiene	502.2	---	0.0005	ND	06/
2994	Isopropylbenzene	502.2	---	0.0005	ND	06/1
2030	4-Isopropyltoluene	502.2	---	0.0005	ND	06/1
2964	Dichloromethane	502.2	0.005	0.0005	ND	06/1
2248	Naphthalene	502.2	---	0.0005	ND	06/1
2998	Propylbenzene	502.2	---	0.0005	ND	06/1
2996	Styrene	502.2	0.1	0.0005	ND	06/1
2986	1,1,1,2-Tetrachloroethane	502.2	---	0.0005	ND	06/1
2988	1,1,2,2-Tetrachloroethane	502.2	---	0.0005	ND	06/1
2987	Tetrachloroethene	502.2	0.005	0.0005	ND	06/1
2990	Toluene	502.2	1	0.0005	ND	06/1
2420	1,2,3-Trichlorobenzene	502.2	---	0.0005	ND	06/1
2378	1,2,4-Trichlorobenzene	502.2	0.07	0.0005	ND	06/1
2980	1,1,1-Trichloroethane	502.2	0.2	0.0005	ND	06/1
2985	1,1,2-Trichloroethane	502.2	0.005	0.0005	ND	06/1
2984	Trichloroethene (TCE)	502.2	0.005	0.0005	ND	06/12
2510	Trichlorofluoromethane	502.2	---	0.0005	ND	06/12
2504	Trichlorotrifluoroethane	502.2	---	0.0005	ND	06/12
2430	1,2,3-Trichloropropane	502.2	---	0.0005	ND	06/12
2411	1,2,4-Trimethylbenzene	502.2	---	0.0005	ND	06/12
2424	1,3,5-Trimethylbenzene	502.2	---	0.0005	ND	06/12
2976	Vinyl Chloride	502.2	0.002	0.0005	ND	06/12
2915	Methyl-Tert-Butyl-Ether	502.2	---	0.002	ND	06/12
2242	Methyl Ethyl Ketone	502.2	---	0.005	ND	06/12
2997	o-Xylene	502.2	---	0.0005	ND	06/12
2997	m-Xylene(1)	502.2	---	0.0005	ND	06/12
2996	p-Xylene(1)	502.2	---	0.0005	ND	06/12
2955	Xylenes (Total)	502.2	10			

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556 South Mansfield, Ypsilanti, MI 48197-5166
(440) 449-2525 • Fax (440) 449-8585

Test Id #	Analysis Performed	Method	MRL (mg/l)	Det. Level	Level Detected	Ar Da
200	Endrin	505	0.002	0.00001	ND	06/
201	Lindane	505	0.0002	0.00002	ND	06/
201	Methoxychlor	505	0.04	0.0001	ND	06/
2383	PCBs	505	0.0005	0.0001	ND	06/
2020	Toxaphene	505	0.003	0.001	ND	06/
2110	Silvex(2,4,5-TP)	515.2	0.05	0.0002	ND	06/
210	2,4-D	515.2	0.07	0.0001	ND	06/
205	Alachlor	507	0.002	0.0002	ND	06/
2356	Aldrin	505	---	0.001	ND	06/
2050	Atrazine	507	0.003	0.0001	ND	06/
2959	Chlordane	505	0.002	0.0002	ND	06/
203	Dalapon	552.1	0.2	0.001	ND	06/
2440	Dicamba	515.2	---	0.001	ND	06/
2933	Dichloran	505	---	0.001	ND	06/
2364	Dieldrin	505	---	0.001	ND	06/
204	Dinoseb	515.2	0.007	0.0002	ND	06/
206	Heptachlor	505	0.0004	0.00004	ND	06/1
206	Heptachlor Epoxide	505	0.0002	0.00002	ND	06/1
2274	Hexachlorobenzene	505	0.001	0.0001	ND	06/1
2041	Hexachlorocyclopentadiene	505	0.05	0.0001	ND	06/1
2934	Pentachloronitrobenzene	505	---	0.001	ND	06/1
2326	Pentachlorophenol	515.2	0.001	0.00004	ND	06/0
2040	Picloram	515.2	0.5	0.0001	ND	06/0
203	Simazine	507	0.004	0.00007	ND	06/1
205	Trifluralin	505	---	0.001	ND	06/1
2625	Bentazon	515.2	---	0.001	ND	06/0
2626	Molinate	507	---	0.001	ND	06/1
2627	Thiobencarb	507	---	0.001	ND	06/1

Volatile Organic Chemicals - method 504.1

295	1,2-Dibromo3chloropropane	504.1	0.0002	0.00002	ND	06/0
2946	1,2-Dibromoethane	504.1	0.00005	0.00001	ND	06/0

504.1- Date Extracted: 06/07/99
505 - Date Extracted: 06/10/99
507 - Date Extracted: 06/10/99
515.2- Date Extracted: 06/07/99
552.1- Date Extracted: 06/11/99

These test results may be used for compliance purposes as required.
(1) DUE TO THE LIMITATIONS OF EPA METHOD 502.2, m AND p ISOMERS OF XYLENE ARE REPORTED AS AN AGGREGATE.

Lorri White

Lorri White, Lab Director

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BROWARD TESTING LABORATORY, LTD.

4416 N.E. 11TH AVE., FORT LAUDERDALE FLORIDA 33334

Date: 06/16/99 Report #: 7420029 Laboratory ID #: 86418

Client: ICEBERG INDUSTRIES CORP
P O BOX 99
TREPASSEY, CANADA A0A 4D0

Date Collected: SEE OPENING IN
Time Collected: SEE OPENING IN
SOURCE: ICEBERG
BOREALIS
FINISHED PRODUCT
LL/PROD CODE: APRIL 15/99

Date received at lab: 06/03/99 Time received at lab: 09:30
Collected by : R.RYAN
METHOD 4500CNF, METHOD 531.1, METHOD 525.2, METHOD 547 AND METHOD 54
OPENED 06/03/99, METHOD 420.1 OPENED 06/11/99, METHOD 548.1 OPENED 06/04/99.

NOTE: "*" The MCL (Maximum Contaminant Level) or an established guideline has been exceeded for this contaminant.
"ND" This contaminant was not detected at or above our stated detection limit.

Fed Id #	Analysis Performed	Method	MCL (ug/l)	Det. Level	Level Detected	Ana Dat
102	Cyanide	4500CNF	200	15	ND	06/0
2910	T. Phenols	420.1	---	1	ND	06/1
202	Carbaryl	531.1	---	0.69	ND	06/1
2021	Methomyl	531.1	---	0.47	ND	06/1
2043	Aldicarb sulfoxide	531.1	7	0.45	ND	06/1
204	Aldicarb sulfone	531.1	7	0.65	ND	06/1
204	Aldicarb	531.1	7	0.5	ND	06/11
206	3-Hydroxycarbofuran	531.1	3	0.77	ND	06/11
203	Oxamyl	531.1	200	0.63	ND	06/11
204	Carbofuran	531.1	40	0.67	ND	06/11
2041	Metolachlor	525.2	---	0.09	ND	06/04
207	Butachlor	525.2	---	0.08	ND	06/04
207	Propachlor	525.2	---	0.06	ND	06/04
235	Aldrin	525.2	---	0.02	ND	06/04
2070	Dieldrin	525.2	---	0.03	ND	06/04
2595	Metribuzin	525.2	---	0.12	ND	06/04
2035	Di(2-ethylhexyl)adipate	525.2	400	0.06	ND	06/04
227	Hexachlorobenzene	525.2	1	0.07	ND	06/04
2035	Di2-ethylhexylphthalate	525.2	6	0.08	ND	06/04
230	Benzo(A)pyrene	525.2	0.2	0.02	ND	06/04
203	Simazine	525.2	4	0.11	ND	06/04

BROWARD TESTING LABORATORY, LTD.
4416 N.E. 11TH AVE., FORT LAUDERDALE, FLORIDA 33334

Fed Id #	Analysis Performed	Method	MCL (ug/l)	Det. Level	Level Detected	Ana Dat
2034	Glyphosate	547	700	1.81	ND	06/0
2033	Endothall	548.1	100	8.95	ND	06/0
2032	Diquat	549.1	20	0.40	ND	06/0

525 2 DATE EXTRACTED 06/03/99
548 1 DATE EXTRACTED 06/04/99
549 1 DATE EXTRACTED 06/04/99

These test results may be used for compliance purposes as required.

Gary J. Meyer

Gary J. Meyer, Lab Director

Hazen Research, Inc.
4601 Indiana Street • Golden CO 80403
Tel (303) 279-4501
Fax (303) 278-1528

DATE	June 25, 1999
HRI PROJECT	009-205
HRI SERIES NO.	F079/99
DATE REC'D	6/4/99
CUST. P.O.#	8529

National Testing Laboratories, Inc.
Susan Henderson
6555 Wilson Mills Road, #102
Cleveland, OH 44143

REPORT OF ANALYSIS

SAMPLE NO. F079/99-3

SAMPLE IDENTIFICATION: 8420139
Iceberg Industries Corp.
Trepassey, NF, Canada
Borealis, 1 liter finished product
(source - Iceberg, Trepassey, NF, Canada)
Production Code/Lot # April 15/99
sample bottle opened on 06/15/99 @ 1500 by E. dela Fuente

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANAL'
Gross Alpha (+-Precision*), pCi/l (T)	0.0(+-1.2)	1.2	EPA 900.0	6/15/99 @ 1500	EDF
Gross Beta (+-Precision*), pCi/l (T)	0.7(+-2.5)	2.4	EPA 900.0	6/15/99 @ 1500	EDF
Radium-226 (+-Precision), pCi/l (T)	0.1(+-0.2)	0.1	SM 7500 Ra B	6/16/99 @ 2320	LH
Radium-228 (+-Precision*), pCi/l (T)	0.1(+-0.8)	0.8	EPA Ra-05	6/18/99 @ 1315	AS

*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.
Certification ID's: CO/U.S. EPA Region VIII - XM; CT - PH-0152, KY - 90076; KS - E-10265; NH - 232897-A; NY ELAP - 11417; PA DEP 68551; WI - 99837610

By: Robert Rostad
Laboratory Manager

CODES:
(T) = Total (D) = Dissolved
(S) = Suspended (R) = Total Recoverable
(PD) = Potentially Dissolved
< = Less Than

Pace Analytical Servic
1700 Elm Street - S
Minneapolis, MN
Tel: 612-60
Fax: 612-60

Pace Analytical

DETERMINATION OF 2,3,7,8-TCDD

Prepared for:
National Testing Laboratories
Attn: Susan Henderson
6555 Wilson Mills Road
Suite 102
Cleveland, OH 44143

Prepared by:

Name: Scott C. Unze

Title: Project Manager, Dioxins

Pace Analytical

Pace Analytical Serv
1700 Elm Street - S
Minneapolis MI

Tel: 612-6
Fax: 612-6

Finished Product

Company Name: Iceberg Industries Company
Company City and State: Trespassey, NF
Sample ID: 8420139
Source Name: Iceberg
Source Location: Trespassey, NF
PWS ID: NA
Date & Time Sample Opened: June 11, 1999 @ 12:15 PM
Opened By: J. Schindler
Laboratory Sample ID: 1306462

REPORT OF LABORATORY ANALYSIS

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1700 Elm Stre st - S
Minneapoli s, MN
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JOB NARRATIVE

Client Project Number: 8420139
Pace Project Number: 1015098

Date Received: 06/04/99
Number of Samples: 1

Method 1613 Drinking Water Analysis:

The results for the sample and related quality control samples for this project were all within the acceptance ranges for this method.

Scott C. Hage
Project Manager

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Minneapolis, MN
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Sample Information Sheet
Date: June 16, 1999

Pace Project Number: 1015098
Customer Project ID: 8420139
Description: 1613 Drinking Water
Customer: National Testing Lab
Attn: Ms. Susan Henderson

Lab Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
1306462	8420139	Drinking Water	06/11/99	12:15	06/04/99	10:00

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DRINKING WATER ANALYSIS RESULTS

2378-TCDD -- USEPA METHOD 1613

Sample ID.....	8420139	Collected:	06/11/99	Spike.....	200	pg
Client.....	Iceberg Industries	Received:	06/04/99	IS Spike..	2000	pg
Lab Sample ID.....	1306462	Extracted:	06/11/99	CS Spike.	200	pg

	Sample 8420139		Method Blank		Lab Spike	Lab Spike Dup
[2378-TCDD]	ND	pg/L	ND	pg/L	--	--
PRL	5	pg/L	5	pg/L	--	--
Spike Recovery	--		--		102%	100%
Pg Recovered					205	200
Spike Recovery Limits	--		--		73-146%	73-146%
RPD					2.5%	
IS Recovery	39%		95%		67%	73%
Pg Recovered	772		1895		1331	1453
IS Recovery Limits	31-137%		31-137%		25-141%	25-141%
CS Recovery	42%		98%		74%	79%
Pg Recovered	84		197		149	158
CS Recovery Limits	42-164%		42-164%		37-158%	37-158%
Filename	AS90616B#2		AS90615B#1		AS90615B#15	AS90615B#16
Analyst	MASB		MASB		MASB	MASB
Volume	1.00	L	1.00	L	1.00 L	1.00 L
Dilution	NA		NA		NA	NA
ICAL Date	04/16/99		04/16/99		04/16/99	04/16/99
CCAL Filename	AS90616A#2		AS90615A#2		AS90615A#2	AS90615A#2
Analysis Date	06/16/99		06/15/99		06/15/99	06/15/99
Analysis Time	10:45		14:02		23:06	23:45

I	= Outside the Control Limits
ND	= Not Detected
PRL	= Pace Reporting Limit
Limits	= Control Limits from Method 1613 (10/94 Revision), Tables 6A and 7A
RPD	= Relative Percent Difference of Lab Spike Recoveries
IS	= Internal Standard
CS	= Cleanup Standard

Project No 99-1015098

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Committed To *Your* Success

Severn Trent Laboratories
149 Rangeway Road
North Billerica MA 01862

Tel: (978) 667-1400
Fax: (978) 667-7871

Susan Henderson
[illegible]
Cleveland, OH 44143

July 13, 1999

Dear Susan:

The results for asbestos analysis by Transmission Electron Microscopy (TEM) according to the USEPA Phase II Primary and Secondary Drinking Water Regulations EPA Method 100.1, 100.2 (fibers longer than 10 microns) are listed under column A. ("<" is equal to the value of the detection limit). *(STL Job #10897).*

SAMPLE ID	A (million fibers/liter)
8120139; Borealis Finished Product; Produced From: Iceberg Source Water; Size: 1 Liter; Production Code: April 15/99	<0.177

Iceberg Industries	*Sampled by:*	Heather Yates
P.O. Box 99	*Date Sampled:*	06/29/99; 11:13
Trepassey NF	*Date Filtered:*	06/29/99; 11:13
	Date Analyzed:	07/12/99; 16:50

The final Maximum Contaminant Level Goal (MCLG) and Maximum Contaminant level (MCL) for asbestos in water is 7.0 million fibers/liter.

STL-MA is accredited by NYELAP (#10838) and the Commonwealth of Massachusetts (#M-MA038) for asbestos analysis of water samples and is also accredited by the National Institute of Standards and Technology, NVLAP (#101009-0) for asbestos analysis of air samples by Transmission Electron Microscopy. (Accreditation in no way constitutes or implies product certification, approval or endorsement by NVLAP).

Should you have any questions, or need additional information, please feel free to contact Client Services or me at any time.

Sincerely,

Ernest T. Dobi

Ernest T. Dobi, Ph.D.
Manager, Asbestos Services

ETD/lml
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SEVERN TRENT LABORATORIES
ASBESTOS BY TEM (INDIVIDUAL SAMPLE, LEVEL I OR II)
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CLIENT: National Testing Labs, Inc CONTACT PERSON: Susan Henderson
SAMPLE: 8420139 TYPE: Water PROJECT#: Iceberg Industries

FILTER TYPE: MCE ACTIVE DIAMETER (mm): 22.14
VOLUME FILTERED (LITERS): 0.0300
GRID TYPE: 200 FINDER OPENING AREA (mm^2): 0.01037
MICROSCOPE USED: PHILIPS EM 300
ACCELERATING VOLTAGE (kv): 100 BEAM CURRENT (UA): 40
MAGNIFICATION: 18,000 TOTAL AREA EXAMINED: 0.07259 (MM^2)
GRIDS EVALUATED ACCORDING TO AHERA PROTOCOL: Y
ANALYZED BY: Aimee Cormier DATE: 07/12/99 STL JOB NO: 1089

INDIVIDUAL STRUCTURE DATA RECORD

KEY TO ABBREVIATIONS:

F FIBER
X FIBER INTERSECTING GRID
U UNKNOWN
M MATRIX
C CLUSTER
CH CHRYSOTILE ASBESTOS
AM AMOSITE ASBESTOS
CR CROCIDOLITE ASBESTOS
AN ANTHOPHYLLITE ASBESTOS

NA NON-ASBESTOS MINERAL
AB AMBIGUOUS MINERAL
JI JIRONU JAED PATTERN
FV FAINT OR VANISHING SAED PATTERN
NP NO PATTERN (FOLLOWING ATTEMPT)
NX NO PATTERN (NO ATTEMPT)
PA PATTERN AMBIGUOUS
TA TREMOLITE-ACTINOLITE ASBESTOS

EDX PROFILE, ELEMENTS ARE GIVEN AS NA-MG-SI-CA-FE

SAMPLE #: 8420139 STL #: 10897.01
VOLUME FILTERED (LITERS): 0.0300 TOTAL AREA EXAMINED: 0.07259

GRD No.	OBJ No.	OBJ TYP	LEN uM	WID uM	RATIO L/W	THK uM	MIN ID	SAED QUAL	MASS PG	EDX PROFILE	LEN <5

BEGIN GRID OPENING NO. 01 LOCATED: 01-N6
BEGIN GRID OPENING NO. 02 LOCATED: 01-R5
BEGIN GRID OPENING NO. 03 LOCATED: 01-S5
BEGIN GRID OPENING NO. 04 LOCATED: 02-R5
BEGIN GRID OPENING NO. 05 LOCATED: 02-S5
BEGIN GRID OPENING NO. 06 LOCATED: 03-R2
BEGIN GRID OPENING NO. 07 LOCATED: 03-S6

TOTAL 0

PLATE #:
COMMENTS:

SEVERN TRENT LABORATORIES
ASBESTOS ANALYSIS BY TRANSMISSION ELECTRON MICROSCOPY (TEM)
(COPYRIGHT (C) 1998 BY STL - VER 6.3 SEPT 98)

CLIENT: National Testing Labs, Inc CONTACT PERSON: Susan Henderson
SAMPLE: 8120139 TYPE: Water PROJECT#: Iceberg Industries

I ASBESTOS CONCENTRATION

A) TOTAL ASBESTOS COUNT = 0.0000 STRUCTURES/UU (- 0.00 STR/LIT)

B) TOTAL ASBESTOS COUNT = 0.00 STRUCTURES/SQUARE MILLIMETER

II ASBESTOS CHARACTERISTICS

A) CHRYSOTILE:
NONE OBSERVED

B) AMPHIBOLES:
NONE OBSERVED

III COUNTING DATA

A) TOTAL GRID OPENINGS EXAMINED = 7

B) TOTAL STRUCTURES INVESTIGATED = 0

C) TOTAL ASBESTOS CONTAINING STRUCTURES OBSERVED = 0
NO.CHRYSOTILE FIBERS = 0
NO.CHRYSOTILE BUNDLES,CLUSTERS,MATRIX STRUCTURES = 0
NO.AMPHIBOLE FIBERS = 0
NO.AMPHIBOLE BUNDLES,CLUSTERS,MATRIX STRUCTURES = 0

D) TOTAL NON-ASBESTOS STRUCTURES INVESTIGATED = 0

E) ANALYTICAL SENSITIVITY (ESTIMATED NOT TO EXCEED): 176.78564 STRUCTURE/

IV FILTER LOADING DATA

A) TOTAL ASBESTOS MASS (VOL) = 0.0000 PICOGRAMS PER LITER(=nanogram/M^3)
C) TOTAL ASBESTOS COUNT = 0.00 STRUCTURES PER MM I
D) TOTAL PARTICLES INVESTIGATED = 0.00 STRUCTURES PER MM^2
E) ASBESTOS LIMIT (ESTIMATED NOT TO EXCEED): 13.78 STRUCTURES/MM^2

RESPECTFULLY SUBMITTED: Aimee L Comeau DATE: 7/12/99

DEPARTMENT OF HEALTH & HUMAN SERVICES

Food and Drug Administration
Washington DC 20204

NOV 6 1998

Kelly Squires
Production/Quality Assurance Coordinator
Iceberg Industries Corporation
447 Kenmount Road, Box 13518
St. John's Newfoundland
Canada A1B 4B7

Re: Docket No.98P-0880

Dear Ms. Squires:

This is in response to your application to the Food and Drug Administration (FDA) for a temporary permit to market test, in interstate commerce, a product to be designated as Borealis Iceberg Water that will deviate from the U.S. standards of identity for bottled water (21 CFR 165.110) in that the source of the water is an iceberg and the name of the product is "Iceberg Water." In all other respects, the test product will conform to the standard for bottled water.

For the purposes of this permit, the name of the test product will be "Borealis Iceberg Water." The information panel of the labels will bear nutrition labeling in accordance with 21 CFR 101.9.

Relying on the representations made in your application, we are hereby granting your request to make interstate shipments for test marketing purposes of 75,000 cases of the 24 x 350 ml and another 75,000 cases of the 12 x 1 L, giving 150,000 cases in total. The total fluid weight of the test product will be 403,694 gallons or 1,530,000 liters. Finished labels must be submitted to the Branch Chief, Food Standards Branch, HFS-158, Division of Programs and Enforcement Policy, Office of Food Labeling, <u>before</u> the product is shipped in interstate commerce. The test product will be manufactured at Enterprise Atlantic Limited Water Bottling Plant, Daniel's Point, Trepassy, Newfoundland, Canada, AOA 4B0. The product will be distributed by Iceberg Industries in the United States. Each of the ingredients used in the food must be declared on the labels as required by the applicable sections of 21 CFR part 101.

This permit will be effective for 15 months, beginning on the date the test product is introduced into interstate commerce, but not later than 90 days after notice of issuance of the permit is published in the Federal Register. You will notify FDA, in writing, of the date the 15-month period will begin, as soon as it is determined.

While this permit is in effect, FDA will refrain from recommending regulatory action against shipments of "Borealis Iceberg Water" covered by this permit on the grounds that the food fails to comply with 21 CFR 165.110.

Sincerely yours,

Elizabeth J. Campbell

Elizabeth J. Campbell
Acting Director
Office of Food Labeling
Center for Food Safety
and Applied Nutrition