



## MUNICIPALITY OF IQALUIT

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November 27, 2001

Water Resources Officer  
INAC, Nunavut District Office  
Government of Canada  
P.O. Box 100  
Iqaluit, NU  
X0A 0H0



Sent by Fax: 979-6445

Pages: 1

To Whom It May Concern:

**Re: Iqaluit Landfill Expansion**

Further to correspondence from your office dated November 1, 2001, I offer this documentation to address concerns with, and discuss aspects of, our Iqaluit Landfill expansion project.

The first attachment is a letter from Dillon Consulting. This letter stands, on behalf of the Municipal organization, as our response to the specific concerns brought forth by INAC, EC and DFO. Please note the major improvement to the site as illustrated in the photos attached to the Dillon letter.

As a result of the discussions between INAC and Dillon Consulting, I ask that a baseline environmental agreement be established between the Municipality and INAC detailing existing levels of toxins. This is to ensure that the Municipality will not be liable for any existing leachate levels at the site. Please contact Dillon Consulting directly regarding existing records.

Also attached is a letter prepared by Transport Canada in 1991 regarding the ownership of land upon which the expansion site is situated. Discussions with your department and with the GN Department of Community Government & Transportation lead me to believe that there is an unresolved land ownership issue between INAC and CGT. If INAC does have jurisdiction over the land I ask that we be granted land use approval for the site. If this is not the case, I ask that INAC and CGT quickly resolve this issue and inform us of what action is required to legitimise the use of this land as a landfill site.

I have also included (for all recipients of this letter to include in their records) the chronology of consultation undertaken by our consultants on this project. This task list and timeline record demonstrate an exhaustive effort to solicit comments and comply with all regulators needs and wishes. It has been noted that many regulators were not involved actively in the consultation process making the completion of the project quite difficult. I thank INAC for working with our consultants to resolve all outstanding issues.

As you may be aware, the City will be starting a household recycling collection program on December 3. The program will involve the collection of household plastics and metals separately to food and 'wet' waste. We are still ironing out the final arrangements for the separation and baling of the material and as such require storage space. As the current landfill site is near capacity and the expansion site is not currently being used for the disposal of waste, I ask that INAC approve the use of the expanded site for the temporary storage of the separated material. Sea containers will be used at first to store 'blue bags' full of household plastics and metals. The intent of this program is to divert plastics and metals away from open burning to lower the chances of producing toxic air emissions. Please notify me of any concerns regarding this course of action.

Thank you again for your interest and work on this important project.

Sincerely,



Matthew Hough  
Director of Engineering

Cc Nunavut Water Board, Fax: 867-360-6368  
Sylvia Taylor, CGT, Fax: 975-5330  
Doug Sitland, CGT, Fax: 979-5811  
Krista Taverner, Dillon Consulting, Fax: 979-0345  
Rick Butler, City of Iqaluit  
Paul Fraser, City of Iqaluit

November 23, 2001

City of Iqaluit  
P.O. Box 460  
Iqaluit, NU  
X0A 0H0

Attention Matthew Hough, Director of Engineering

***Response to Letter from Federal Departments Regarding Landfill Expansion Concerns***

This letter is in response to the letter dated November 1, 2001, received from INAC and signed by INAC, EC, and DFO. In addition to the issues raised in the letter, we would like to provide some additional background, and information related to comments received during the meeting of November 2, 2001 where the above mentioned parties and the City were present. The following is a description of the issues and our commentary on these issues.

**Issue - Sediment Control**

A concern was raised by the federal government that the installation of the sedimentation pond has been delayed to a later phase of the project. A concern was also raised with respect to unacceptable levels of silt leaving the site and entering into waters controlled under the fisheries act.

**Commentary**

The intent of the sedimentation pond, described in the documentation provided by Dillon, was to control surficial runoff from the ash-fill operation. The proposed construction date of the ash-fill is in approximately 3 years, should the City choose to proceed with the incinerator option.

The proposed operation of the landfill is to collect all surficial water, including run-off and leachate, in the perimeter ditch. The perimeter ditch is directed to a main ditch. There is a control structure located in the main ditch inside the landfill which can be closed to temporarily prevent water from leaving the site. Water collected on the site can be monitored prior to discharge from the site. A discussion of the proposed monitoring plan is included in this letter.

The sediment from the site was controlled during construction through the installation of a lined sediment control structure in the main ditch on the down stream side of construction. This structure is still in place, and though not part of the original design, will provide additional sediment control during operation. If sediment is identified as a concern based on site monitoring, additional sediment control structures can be installed in the main ditch, downstream of the control structure.

The quantities of sediment leaving the site are expected to be much less than the quantity prior to the landfill cell construction. Before the construction, the old dump site surface consisted of a loose soil and metal mixture. The site is now covered with compacted layers of clean granular



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Dillon Consulting  
Limited

City of Iqaluit  
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material.

#### **Issue - Water Infiltration and Runoff**

Two issues were raised regarding water infiltration and runoff. The first concern related to the new landfill cell ditching and the appearance that it directs uncontaminated water into the site through lowered ditches. The second issue raised was that there is insufficient cover material over the historic waste which may result in leachate carrying contaminants discharging into water controlled through the Fisheries Act.

#### **Commentary**

The design of the landfill does not direct uncontaminated water through the site. The area of concern identified by the parties is the area that has been specified for the metal storage area. We feel that water entering into the metals area, as well as the water entering into the HAZMAT area, should be collected and monitored along with the water collected from the main waste mass. Therefore we do not agree with the comment related to the direction of uncontaminated water into the site.

The main ditch which collects the runoff from the main waste mass site, is an existing ditch. The ditching along the waste mass has not been lowered. The ditch depth has been increased, but this is the result of the ground on both sides of the ditch being raised through the installation of the berms and the base for the landfill. This ditch was reshaped to provide adequately sloped sidewalls but was not lowered during construction.

The purpose of the landfill area base fill is to provide an efficient base for the operation of the landfill. The base is constructed of a minimum 0.5 metres of clean granular material, which was compacted in layers and graded to provide positive drainage away from the waste mass (both historic and current waste). The improved drainage design has removed the historic ponding on the site over the historic waste mass. It was observed by the authors of the ESG report (March 1995) that the area had "a pool in the flat marshy area", and that the vegetation "was restricted almost entirely to sages, due to the poor drainage from much of the area". Through the installation of the base fill the following improvements are expected:

- Reduction of water infiltrating into the historic waste mass and consequential reduction in the production and migration of leachate due to the improved drainage;
- Lower levels of the historic deleterious substances in the runoff due to covering of the historic waste with 0.5 m of compacted granular material.

See attached photos for view of historic and current conditions.

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### Issue - Monitoring Program and Operational Practices

During the meeting of November 2, 2001, issues regarding the runoff monitoring program were discussed.

### Commentary

The intent of the monitoring program is to determine the short and long term impacts that the landfill site has on the receiving environment (Koojesse Inlet). The existing landfill operation currently has a monitoring program in place. The proposed program is intended to replace the existing program. The Dillon report dated August 17, 2001, outlined a proposed program for review by the regulators. There have been no comments related to the parameters to be monitored, the frequency, or the allowable levels of the contaminants of concern.

It should be recognized that there are three point sources of contaminants that will be directly or indirectly monitored. These include the current landfill site, the proposed landfill site, and the historic waste dump. Water collected from the drainage ditches may contain contaminants that originate from any or all of the three waste locations. Monitoring that has been completed in the past by INAC has also had contaminants that would have originated from both the municipal landfill operation, and the historic waste area. It is proposed that the contaminant concentration limits set out by INAC and the Water Licence in the past be maintained for the proposed site.

The question of what actions the City would undertake should the monitoring indicate that the discharge from the site exceeds acceptable limits, was raised by both EC and INAC. This is a broad question since it was raised without identifying specific contaminants of concern. Several actions are possible depending on the contaminant and the level of non-conformance. Some typical responses would include;

- For TSS and particulate matter, the installation of a silt fence in the down gradient ditch. A silt fence can be constructed from non-woven geo-textile which is readily available in Iqaluit.
- For inorganic material (eg. metals) the use of pH control (addition of lime) can be used to precipitate the metals.
- For organics, depending on their constituent, the effluent can be transported to the sewage treatment plant, or lagoon, for treatment prior to discharge.
- It is also common practice to pump the leachate back onto the waste mass to control effluent discharge, provided that the amount of water can be assimilated by the landfill.
- A drying pond can be developed if persistent non conformance occurs. The pond would be used to evaporate the water. The residual sludge would be land-filled.
- A storage pond can be developed down gradient of the control structure to provide longer retention time prior to ultimate discharge to the environment. The storage pond would provide treatment for sediment and digestion of some organic components.

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The action that the City would undertake would need to be based on the contaminant of concern, the concentrations determined from the monitoring, the duration of the expected non conformance, and the volume of water that is developed. Discussion with the regulator prior to undertaking any actions would also be prudent.

The operation of the landfill would provide for the proposed monitoring program, conducted five times per season. The monitoring is planned for each month that water will be present on the site (June to October). The monitoring can be adjusted based on actual conditions on a year to year basis and as information from the monitoring program becomes available. Monitored parameters maybe added or deleted based on several years of results.

It is not the intent to retain water on site over long periods of time. The site will need to be managed such that water is not allowed to remain in contact with historic or current waste materials. This is intended to minimize the production of leachate. Site management will include observing the water within the control area, and discharging the water on a weekly basis. When water runoff is non turbid, with non visible sheen, and with no colouration, it will be released, unless prior testing indicates that there are concerns with the discharge water.

#### Issue - Nunavut Water Board

The final issue raised by the federal government is related to the decision of the Nunavut Water Board not to review the proposed landfill expansion until an inter-jurisdictional discussion between the Nunavut Water Board and INAC is concluded.

#### Commentary

Under this decision by the Water Board, a new or modified licence will not be issued to the City of Iqaluit. As a result, the City is unable to use the new landfill cell, or any site except for the existing landfill. It could be argued that the use of the existing site is also not permitted, since the City's Water Licence has expired. Therefore the City is disposing of solid waste in an unlicensed facility. However, for the City to exist, there is a requirement for the disposal of solid waste.

The existing landfill operation is nearing capacity. It is expected that the capacity of the existing landfill will be exhausted within the next 4 to 8 weeks, necessitating the use of the new landfill cell immediately following this period. The jurisdictional issues between INAC and the Nunavut Water board are not expected to be reconciled within the next 8 to 12 months. Therefore the operation of the new landfill cell will need to be well underway prior to the issuance of the new water licence. Under these conditions, we feel that the City's operation of the new landfill cell should be completed as an emergency case under the Waters Act. The City should operate the new site under the general terms and conditions of the current site, and operate the site to be in

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compliance with all these conditions, including conformance to the site discharge criteria found in the current licence.

#### Summary

- The drainage pattern of the site was not significantly altered during construction of the new landfill cell. The runoff from the site is expected to have significantly lower quantities of sediment and contaminants as the old waste mass has been covered with compacted layers of clean granular material resulting in much less water contact with existing contaminated soil and the site was graded to provide good drainage resulting in less ponding and therefore less infiltration and leachate.
- A site monitoring program has been proposed in the Dillon preliminary design report and an agreement should be established between the City and the Federal departments regarding the operation of the monitoring program and the acceptable concentration limits based on existing monitoring data from the old metals dump site and the existing landfill site.
- The operation of the new landfill cell is required prior to issuing of a new water license by the Nunavut Water Board therefore the City should operate the new site as an emergency case and should follow the general terms and conditions of the current site.

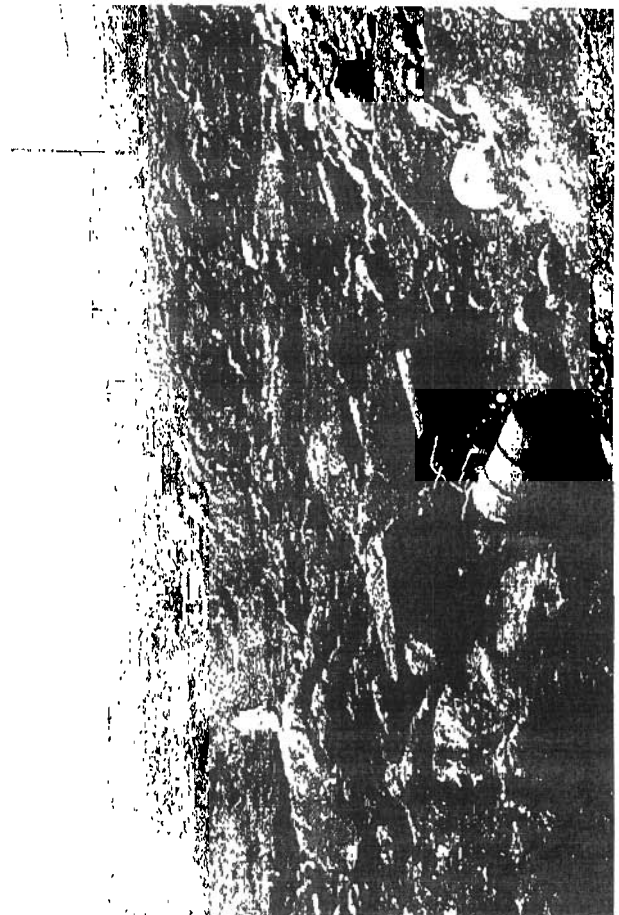
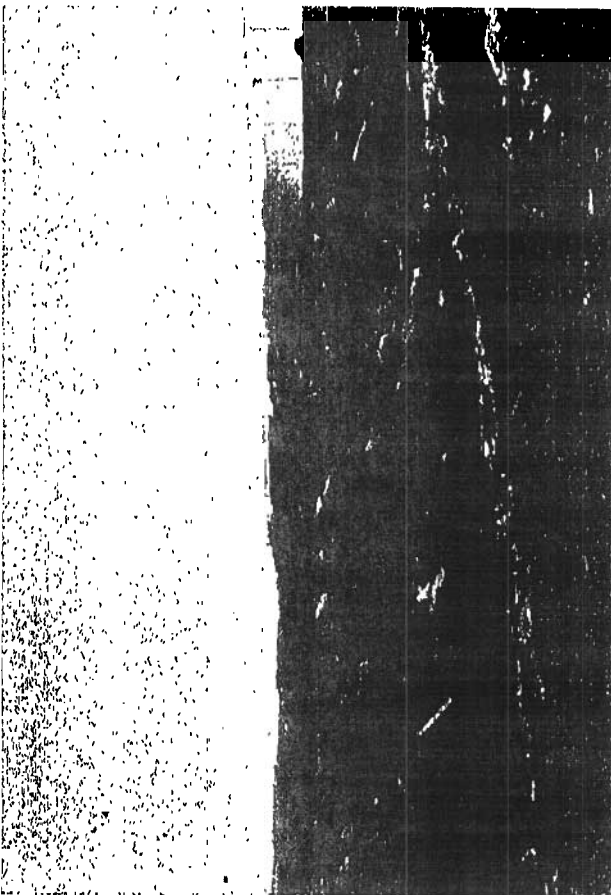
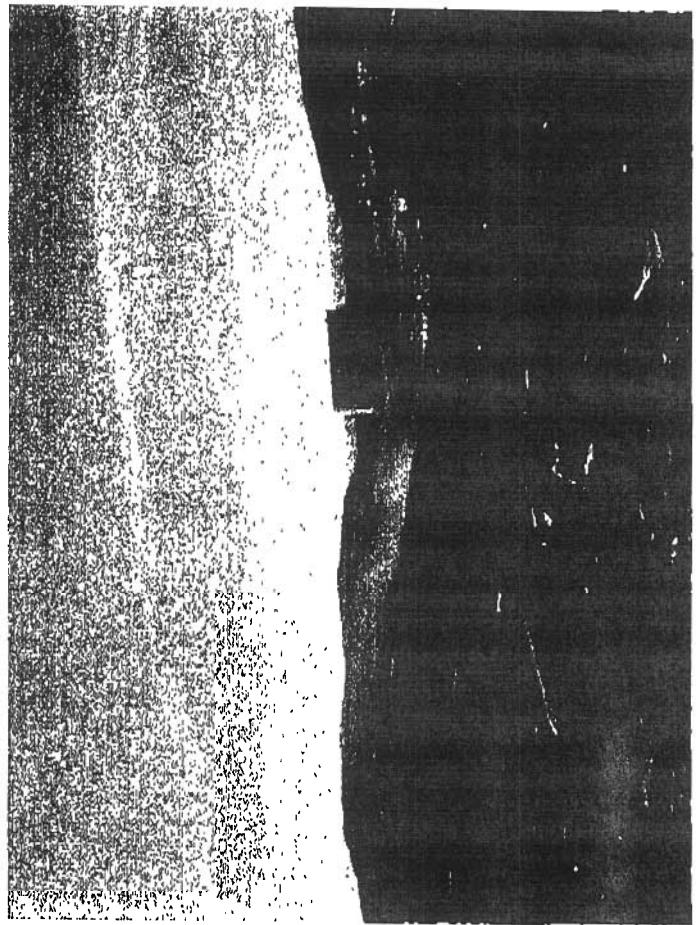
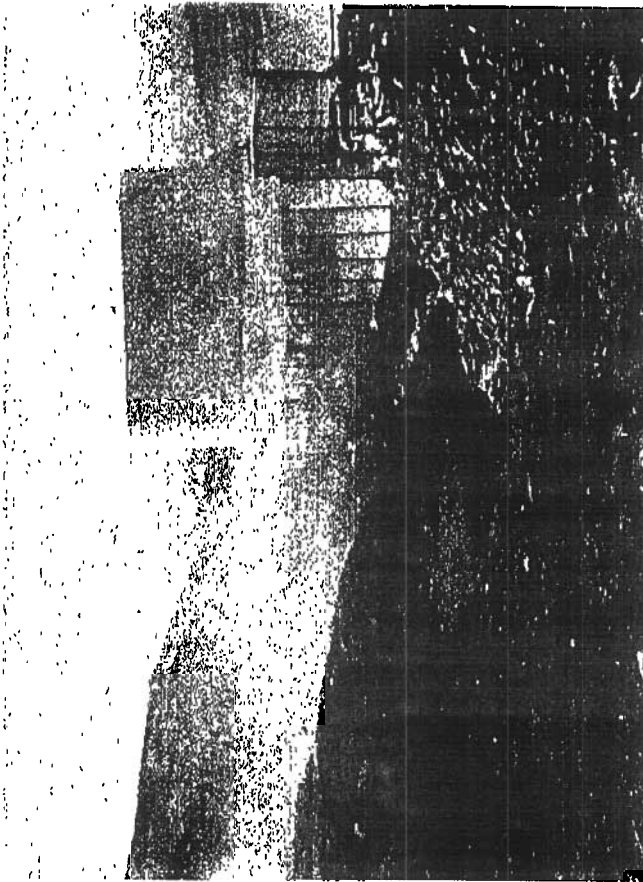
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DILLON CONSULTING LIMITED



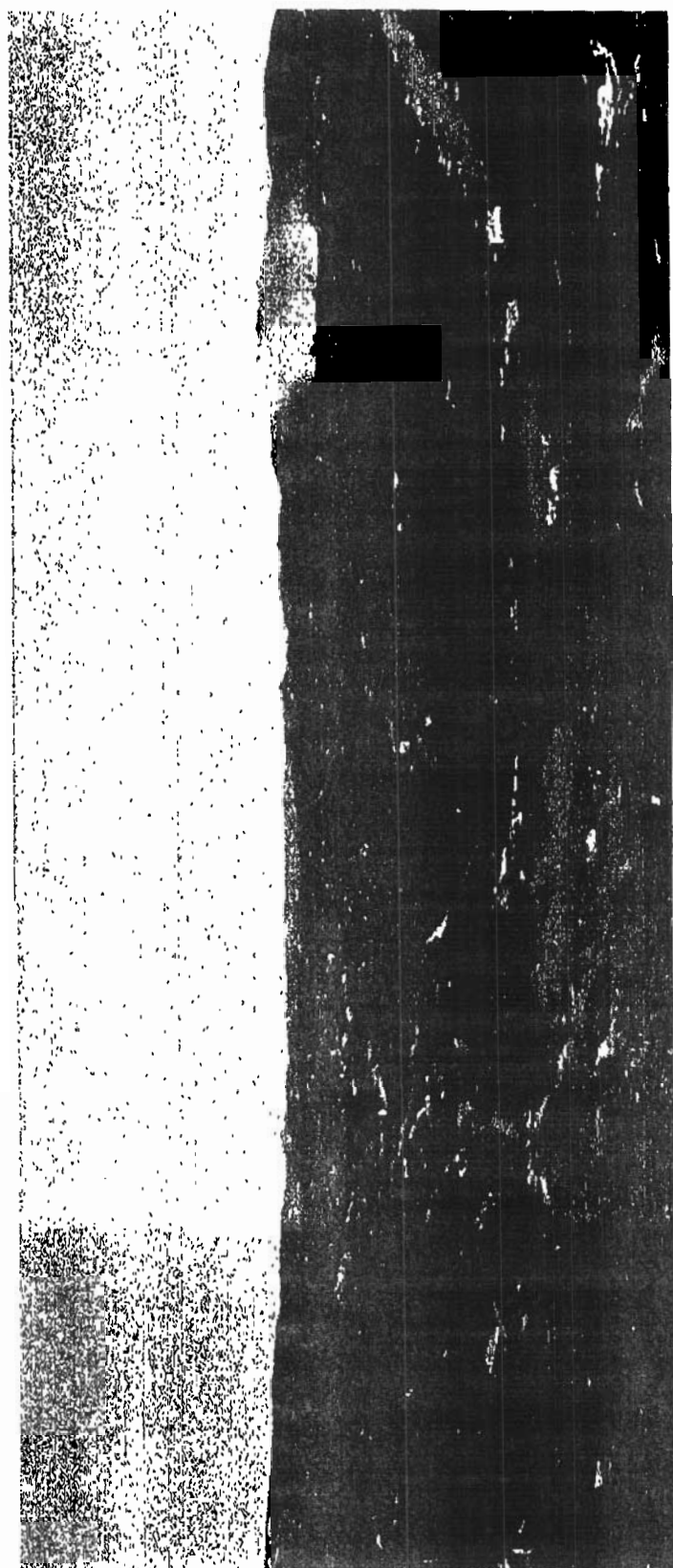
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Project Manager

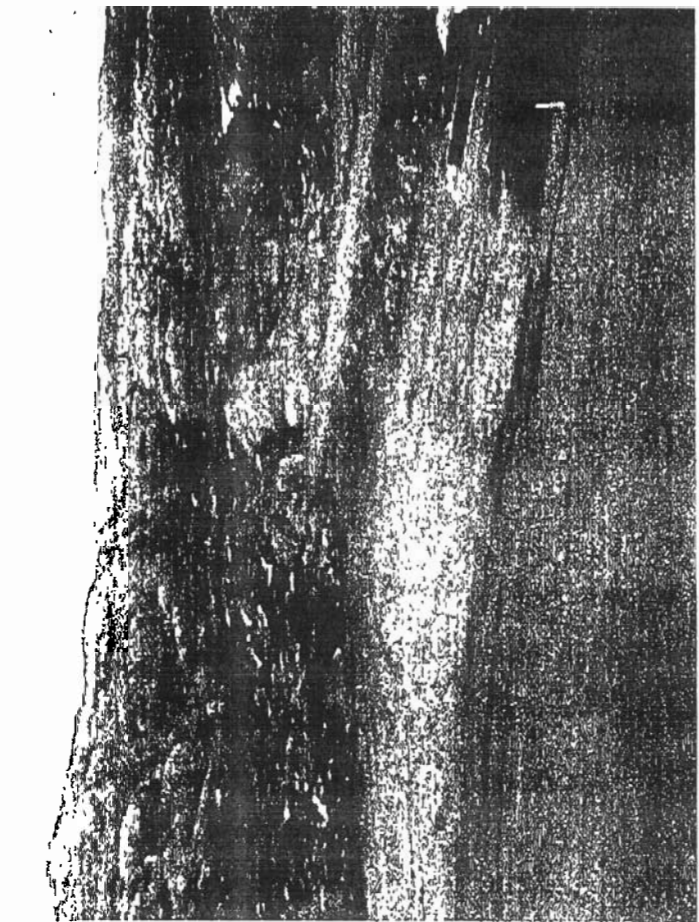
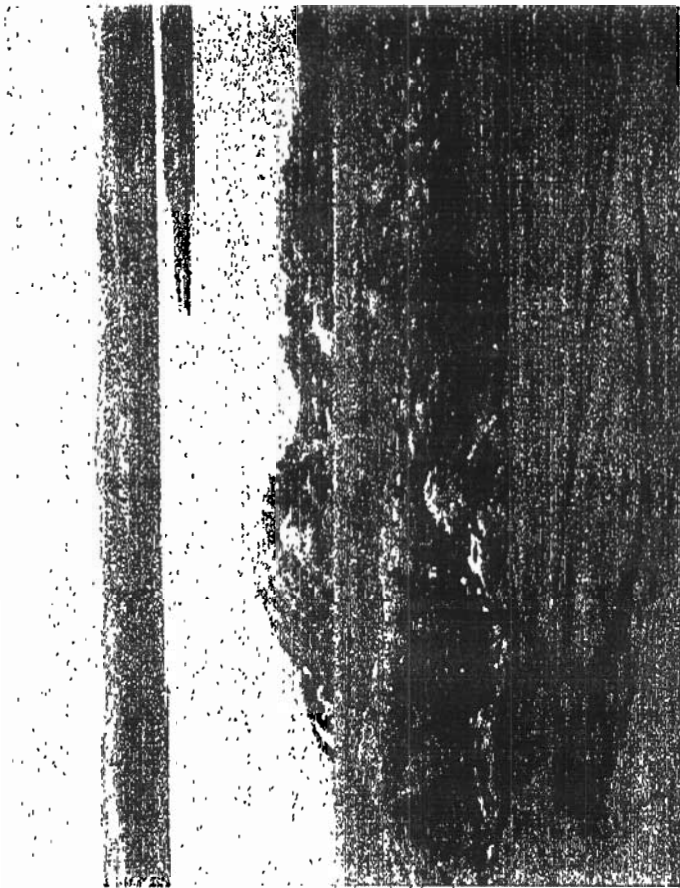
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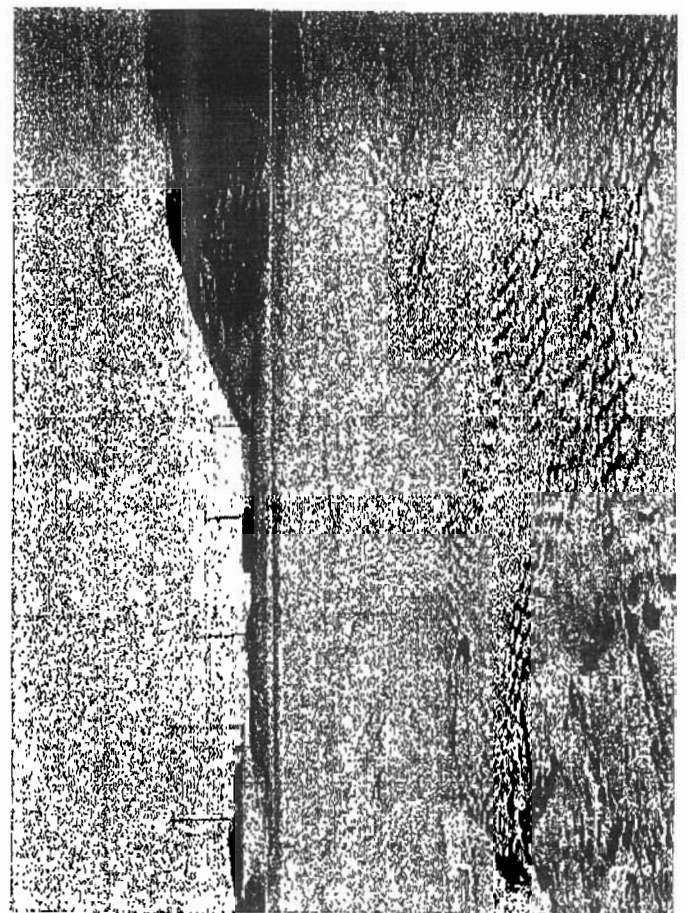
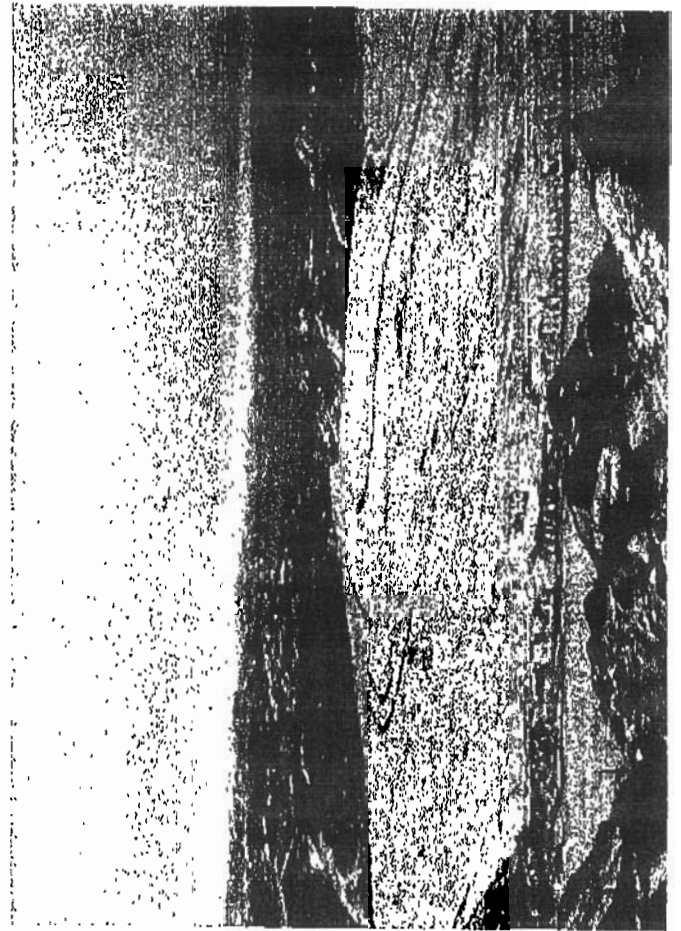
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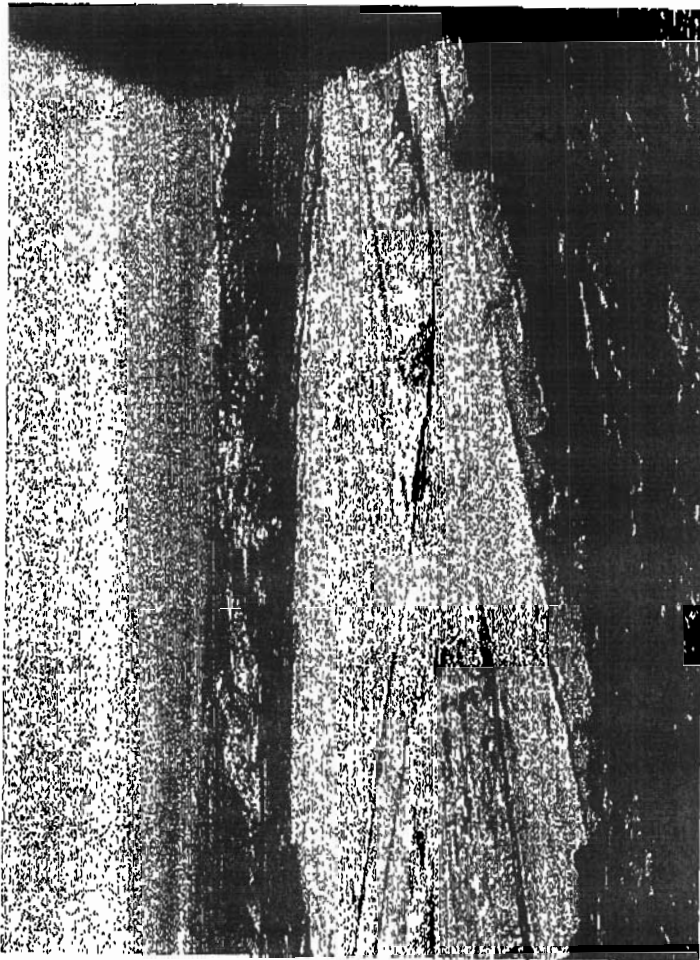














Transport Canada Transports Canada

Airports Aéroports

FILE:	
MAR 19 1991	
TO	CC
KJ	

Your file Votre référence

Our file Notre référence

5151-1-Q123 NKO

March 4th, 1991.

Mr. Yvon Blanchette, Mayor  
Town of Iqaluit  
P.O. Box 460  
Iqaluit, N.W.T. X0A 0H0

**SUBJECT :** WASTE MANAGEMENT PLAN FOR THE TOWN  
OF IQALUIT AND PROPOSED NEW SOLID  
WASTE DISPOSAL SITE

Dear Mr. Blanchette,

I would like to inform you that the waste management plan for the Town of Iqaluit and the proposal for a new solid waste disposal site, as submitted by UMA Engineering Ltd and presented by Mr. Ken Johnson, Project Engineer, to our Airport Land Use Committee on February 6th, 1991 was recommended for approval under the following conditions:

- . Strictly based on an airport operational evaluation, Transport Canada has no objection for the use of the new location for a solid waste disposal site.
- . Before using the new location as a solid waste disposal site, the Town of Iqaluit must take the initiative for negotiating an approval from other departments (DIAND, Environment Canada) and the Government of the Northwest Territories (GNWT).
- . Under the present policy, we suggest that the Town of Iqaluit conducts a public consultation on the project;
- . Transport Canada is requesting from the Town of Iqaluit a management and an operation plan before the new location is used as a solid waste disposal site. This plan will describe how the site will be operating and maintained. Transport Canada is very much concerned about the procedures and actions that will be taken in order to prevent any impact on the airport activities such as bird hazards, foreign objects, road maintenance, sea lift activities and the protection of the tank farm. The development of an action plan for securing a future site is a key element within this project.

.../ 2

Canada

NOV-23-01 FRI 11:21 AM CG&amp;T

FAX:8679795811

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Mr. Yvon Blanchette  
Mayor, Town of Iqaluit, NWT

5151-1-Q123 NKO

March 4th, 1991

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. As you probably know, the Department of Indian and Northern Affairs, Transport Canada and the Government of the Northwest Territories are engaged in a project to resolve a complicated land administration problem and the transfer of certain parcels of land adjacent to the Iqaluit airport. Within these lands are a number of waste disposal sites including the proposed new location for a solid waste disposal site that you submitted to us for evaluation. Our Airport Land Use Committee members based their comments on the airport activities point of view and also on the above mentioned project regarding the land problem.

. Transport Canada is then requesting full assurance and a written confirmation from the Town of Iqaluit that the new proposed site will not be used before DIAND and the GNWT give their approval to the project. Also, the Town of Iqaluit or the GNWT must agree to take full responsibilities on that site and this should not jeopardize with the land administration and transfer of that parcel of land as stated above.

We can assure you of our cooperation and ongoing support for this initiative.

Yours truly,

Original signed par  
Original signed by  
JEAN-DANIEL WAGNER

Jean-Daniel Wagner  
Regional Director General  
Airports Group  
Quebec Region

P.O. Box 500, 700 Leigh Capreol  
Montreal Int'l Airport  
Dorval, Quebec H9R 5P8

C.C. [REDACTED] P. Eng., UMA Engineering Ltd  
Mr. Normand Plante, Airport Manager Iqaluit  
Mr. André Thériault, DIAND Iqaluit  
NKC, NKTU, NKOO  
Administrator, Baffin Island, GNWT Iqaluit

JF/af

**Iqaluit Landfill Facility Expansion – Timeline and Approvals****• November 15, 2000**

- Letter from Dillon to Richard Mackenzie, Director of Nunavut Airports, CG&T regarding proposed West 40 ashfill site, including a site plan of West 40.
- The main objective of the letter was to find out if the site met Airport requirements for an ashfill facility.

**• November 24, 2000**

- Dillon received a faxed response from Nunavut Airports, CG&T regarding the ashfill site. Response from John Hawkins was also reviewed by John Graham.
- There were no objections to proposed ashfill site.

**• December 14, 2000**

- Telephone conversation between Richard Mackenzie, CG&T and Dillon regarding incinerator stack heights and location.

**• December, 2000**

- Solid Waste Steering Committee meeting to discuss waste site locations. Sites were rated by the committee.

**• December 22, 2000**

- Email from Rick Butler in response to email from Mike Ferris to discuss stack heights for an incinerator.

**• January 12, 2001**

- Letter from Dillon to Mike Ferris regarding incinerator height and location. Included plan of runway and incinerator stack.

**• January 19, 2001**

- Letter from John Hawkins, Nunavut Airports, CG&T, stating that they were reviewing stack heights of the incinerator.

**• January 24, 2001**

- Email from John Hawkins stating that 60m above sea level is maximum allowable stack elevation for an incinerator on Federal Road.

**• January 26, 2001**

- Letter from Mike Ferris stating that the maximum stack height for an incinerator on Federal Road is 60ft above sea level.
- Letter states that structure would have to be assessed by Transport Canada for Airport zoning.
- **February 15, 2001**
  - Comments received from Doug Sitland regarding "Solid Waste Site Selection Study - Draft Report".
  - These comments were addressed in the final report.
- **May 3, 2001**
  - Letter from Dillon to regulatory bodies seeking input/feedback on proposed incinerator & ashfill facilities, with "Summary Report of Proposed Solid Waste Facility" attached. Summary report indicated that the West 40 site was ranked #1 by the steering committee as the location for the ashfill facility.
  - Letter and report were sent to Mike Ferris on May 3 and faxed to Doug Sitland on June 12, 2001.

**Letter and report sent to CG&T, Nunavut Water Board, Environment Canada, the Department of Health, the Department of Sustainable Development, DIAND, and the Department of Fisheries and Oceans.**

- **Regulator Questionnaire**
  - Dillon phoned each regulator approximately 2 weeks after the letter and report were distributed. Dillon asked each regulator the following three main questions:
    1. The need for permits or licenses from the Department prior to the start of construction for Cell #1.
    2. The Department's concerns, issues, and comments on the proposed development.
    3. Expected time requirement for the Department to complete the required reviews of the project design for all Cells.
  - Dillon phoned and left several messages for Doug Sitland and Mike Ferris to obtain comments and concerns. Dillon received no response.
- **June 26, 2001**
  - Meeting at City Hall with all Regulatory agencies regarding proposed incinerator & ashfill facilities.
  - Those present at the meeting included: Environment Canada (2 representatives), Department of Health, Sustainable Development, DIAND (2 representatives), and Public Works.
  - Minutes cc'd to CG&T, Doug Sitland, on July 4, 2001.

- **July 6, 2001**

- Fourteen (14) test pits dug as part of design for expansion of existing landfill at West 40 site. Depth of test pits ranged from 0.5m to 0.8m – depth to permafrost.
- Purpose of test pits was to determine types of waste material present and the density of the ground.
- Review of previous Environmental Assessment Reports of West 40 site was conducted in the preliminary design.

- **August 17, 2001**

- Letter to Regulators regarding Iqaluit Landfill Expansion Approval (letter attached), with "Preliminary Design Report -- Regulatory Submission" attached.
- Letter outlines construction stages and states the immediate need for the expansion of the facility.
- The following is a sentence which was written in bold font in the letter: **"The intent of this submission is to seek approval for the expansion of the existing landfill facility for a three year landfill (Cell #1)".**

**Letter and report sent to Mike Ferris and John Hawkins of CG&T, Nunavut Water Board, Environment Canada, the Department of Health, the Department of Sustainable Development, DIAND, and the Department of Fisheries and Oceans.**

- **August 29, 2001**

- Response from Dave Parker, CG&T. Email responding to Rosemary Keenainak, cc'd to Krista Taverner, Doug Sitland, and Mike Ferris.
- Email states:  
"Overall I agree with the report's recommendations and the phased in approach for construction of the ashfill."

- **August and September, 2001**

- Left several phone messages with the Nunavut Water Board.

- **September 11, 2001**

- Received a letter response from Environment Canada following a review of both the Preliminary Design Report and the environmental assessment report from Environmental Sciences Group, which includes a summary of results from previous reports.
- Response, addressed to DIAND and cc'd to Dillon, states:

"To conclude, Environment Canada does not have any overriding concerns with the use of this site."

- **September 10, 2001**

- Spoke to Bruce Trotter with the Department of Health and Social Services. He indicated that they have no licenses or permits required for the landfill expansion.

- **September 12, 2001**

- Email to John Hawkins, Nunavut Airports/CG&T, regarding Preliminary Design Report mailed to him three weeks earlier for review.
- Email states that construction of Cell #1 – the Municipal Landfill – has been tendered and awarded and asks whether there are any concerns, issues, and/or comments on the proposed development.
- Dillon has not received a response from Airports to date.

- **September 17, 2001**

- Received letter response from DIAND.
- DIAND completed an environmental assessment of the site.
- Stated that the landfill expansion as indicated would likely be beneficial to the site due to the covering with granular material and the ongoing monitoring and operational maintenance of the landfill.
- Concern over depth of granular base material.
- Concern over liability and responsibility for existing waste, however this was not stated in the letter response.

- **September 20, 2001**

- Received an email response from Rob Eno, Sustainable Development.
- Main concerns were with regard to the use of permafrost as a basis for the landfill liner.

- **September 22, 2001**

- Started construction of the landfill expansion.

- **September 25, 2001**

- Letter from the Mayor to Nunavut Water Board.
- Letter references the fact that the Water Board did not want the City to use the current landfill facility beyond October 31, 2001.
- Letter states:  
"As requested, we have submitted a contingency plan for enough landfill capacity to get us through the opening of a new Solid Waste Disposal facility. We would appreciate the Board's earliest consideration of that plan."

- **October 19, 2001**

- Letter from Mike Ferris, CG&T, to Rick Butler, stating that review of the Preliminary Design Report not yet completed.
- Letter outlines concerns pertaining to the custody and control of the lands, that these lands have been environmentally impacted, and that regulatory approvals do not appear to be in place.

- **October 23, 2001**

- Letter from Dillon to DIAND responding to concerns over depth of granular material.