



**Technical Meeting and
Pre-Hearing Conference for the
Type 'A' Water License Application
Hamlet of Arviat
Response to Agency Comments**

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Nuna Burnside Engineering and Environmental Ltd.
March 30, 2010**

**The Government of Nunavut,
Department of Community and
Government Services**

on behalf of the

Hamlet of Arviat

retained

**Nuna Burnside Engineering and
Environmental Ltd.**

to submit an application for the renewal of the

Arviat Water Use and Waste Disposal License

NWB3AR0308, which expired December 31, 2008



Initial Submission – December 23, 2008

Support documents included:

- Annual Report for 2008
- Operations and Maintenance Plan for the Solid Waste Management Facility
- Operations and Maintenance Plan for the Sewage Treatment Facility
- Operations and Maintenance Plan for the Water Supply Facility
- An Environmental Emergency Contingency Plan
- An Environmental Monitoring Program and Quality Assurance/Quality Control Plan.

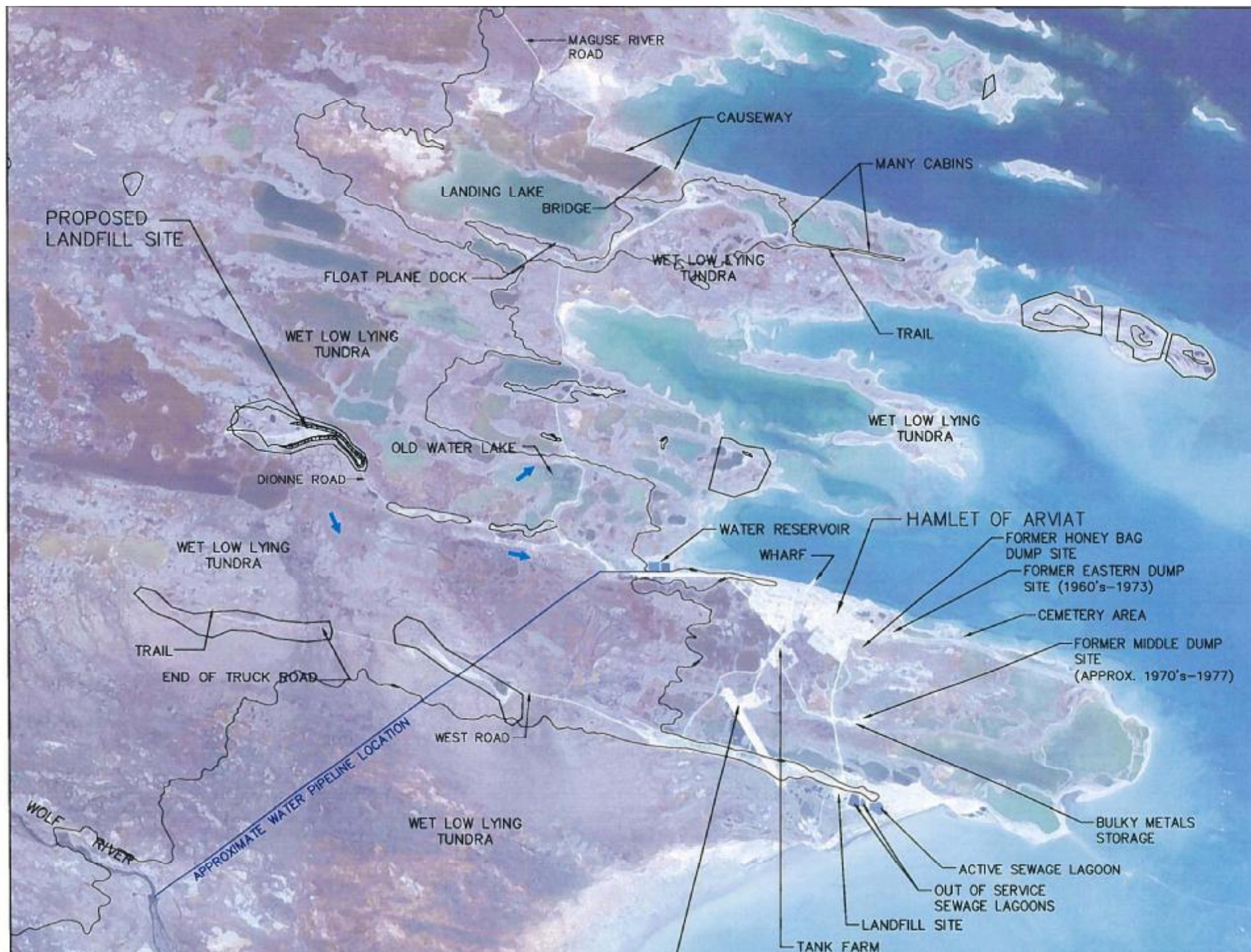


Focus of the Application

The primary areas of Hamlet infrastructure:

- Solid waste management
- Sewage treatment and disposal
- Water supply.

Those activities that could impact the land and water that are the jurisdiction of the Nunavut Water Board.



Solid Waste Management

Solid waste management includes:

- Landfill site
- Bulky metals area
- Hazardous waste storage area.

In the future it could include a landfarm.



Landfill Site

- The landfill site is reaching capacity
- It is within take-off and approach path for the runway
- A Bird Hazard to Aircraft Study by LGL Ltd. indicated the site is a potential hazard and should be closed
- In 2008 CGS retained Nuna Burnside to identify a new landfill site location.

LANDFILL AND SEWAGE LAGOON ACCESS ROAD

LITTER CONTROL FENCE

ACTIVE
FILL
AREA

SEWAGE LAGOON
(OUT OF SERVICE)

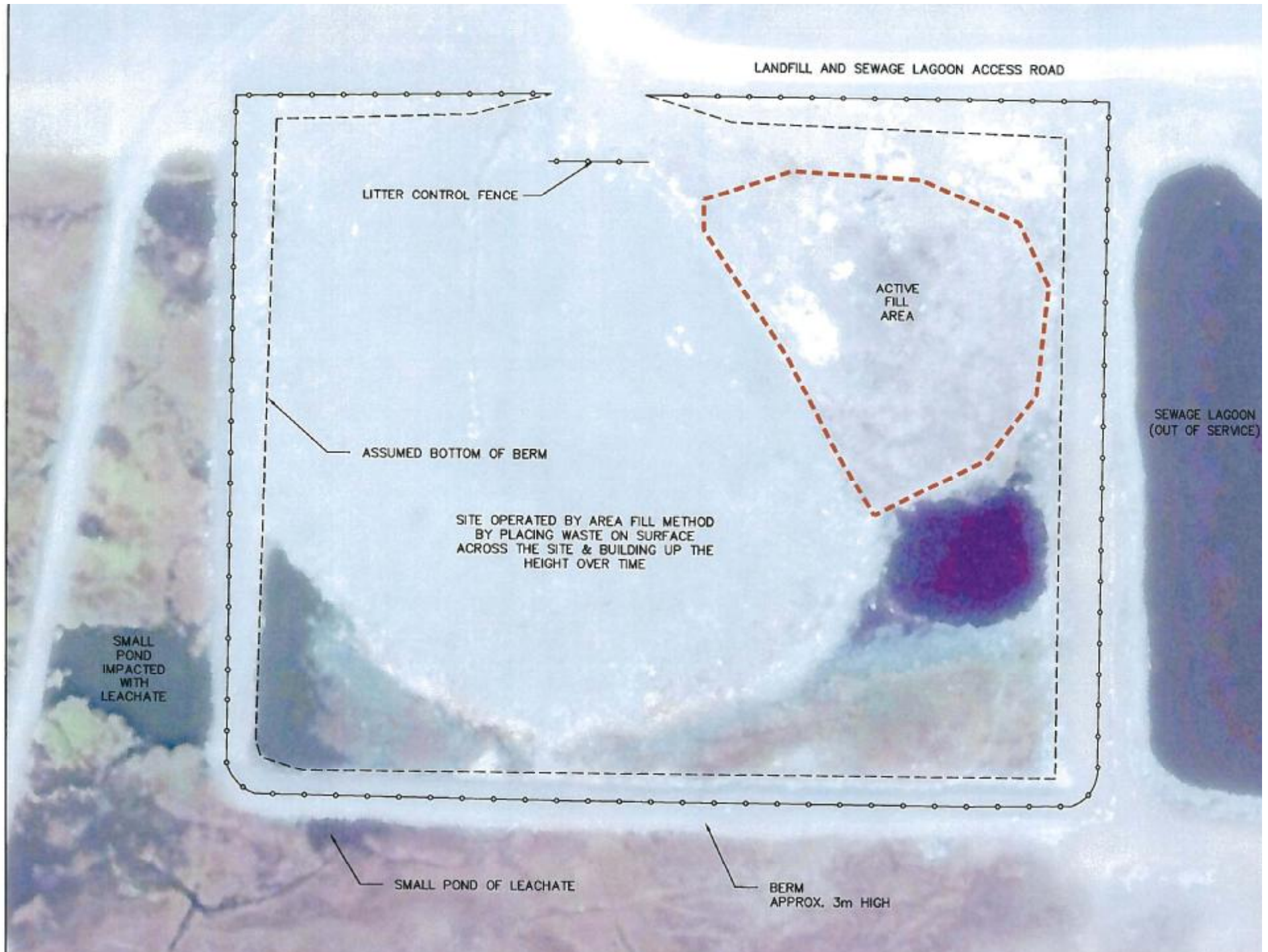
ASSUMED BOTTOM OF BERM

SITE OPERATED BY AREA FILL METHOD
BY PLACING WASTE ON SURFACE
ACROSS THE SITE & BUILDING UP THE
HEIGHT OVER TIME

SMALL
POND
IMPACTED
WITH
LEACHATE

SMALL POND OF LEACHATE

BERM
APPROX. 3m HIGH



Landfill Site Operational Issues

- Lack of cover over the waste
- Fencing damaged
- Leachate ponding
- Limited monitoring
- Bird hazards to aircraft.



















Bulk Metals Area Issues

- Includes buried waste
- Includes hydrocarbon contaminated soil
- Scattered over a wide area
- Limited assessment and control of materials.





Hazardous Waste Storage

- Current storage area near public works building
- Does not comply with regulations
- Limited segregation of materials.



Landfarm and Contaminated Soil

- No landfarm facility
- No approved storage or treatment area for contaminated soil
- Some contaminated soil placed at bulk metals area.

New Solid Waste Management Facility

In 2008 CGS on behalf of the Hamlet retained Nuna Burnside to:

- Locate a new Solid Waste Management Facility
- Prepare a conceptual design for Hamlet and NWB approval
- Prepare a detailed design for the approved site
- Construct the new facility
- Close the existing landfill.

Status of New Solid Waste Management Facility

- Location identified approximately 6.5 km from Hamlet along the Dionne Road
- Site and access road design completed
- Would include areas for:
 - Landfill
 - Hazardous waste storage
 - Bulky metals storage
 - Landfarm.

Public Consultation and Planning for New Solid Waste Management Facility

- Public consultation conducted in 2009
- No consensus reached as to a location
- Hamlet wishes to complete Community Planning first
- Community Plan scheduled for completion in late 2010.

License Application and Solid Waste Management

- New Solid Waste Management Facility will take a year or two to complete after a location has been approved
- Existing site cannot be decommissioned until new facility is operational
- Need to address existing solid waste management issues until a new facility is commissioned.



Solid Waste Management

– Compliance with Regulations

- Until a new solid waste management facility is completed, existing facilities will continue to be used
- Existing facilities do not meet regulatory requirements
- Suggest adding “Conditions” to the new license requiring some upgrading of facilities and improved practices.

Suggested Water License “Conditions”

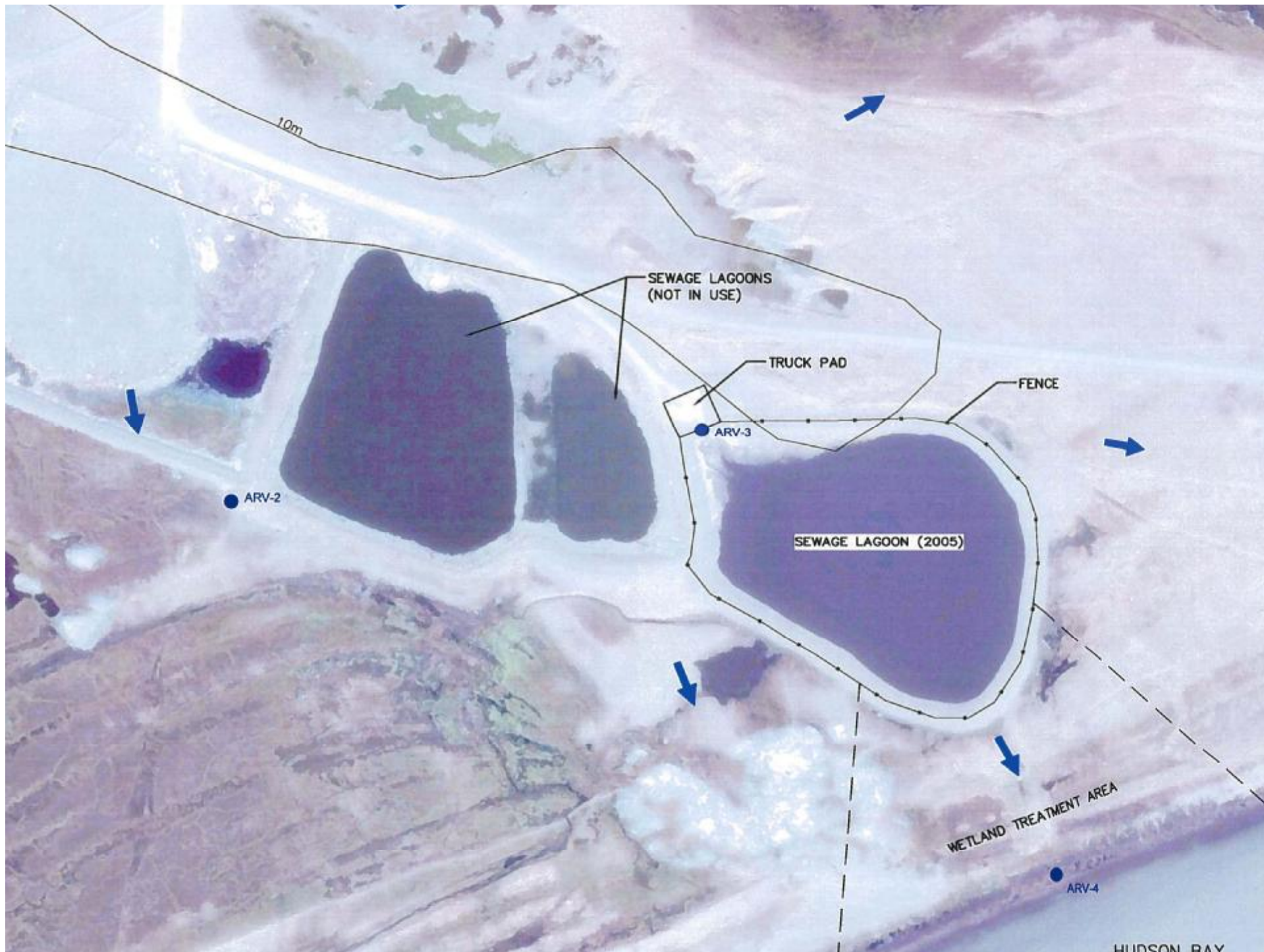
- Recognize that it will take years to address all of the solid waste management issues
- It is better to have a license with “Conditions” recognizing the limitations of the infrastructure than having no license
- Focus on continual improvement until all issues are resolved
- Timelines to achieve specific milestones should be included

Suggested Water License “Conditions” (cont’d)

- Suggested Conditions include:
 - Improving landfill site Operations and Maintenance
 - Monitoring
 - Improved hazardous waste storage and handling
 - Improve O&M of the bulky metals area
 - Environmental assessment of waste disposal and storage areas.

Sewage Treatment Facility

- Trucked sewage to a single lagoon
- Seepage/exfiltration to a wetland treatment area approximately 100 m from the ocean
- Limited data available indicating how it was designed and how it was supposed to operate
- Proximity to ocean a concern.



Sewage Treatment Facility – Issues

- Lack of information regarding how it was suppose to operate based on the design
- Limited monitoring data
- Predicted and actual impact to the environment is unknown
- Studies of sewage lagoons in Nunavut by Fleming College may assist in evaluating impacts.





Sewage Treatment Facility

– License Conditions

- An evaluation of the lagoon and its current and predicted long term impacts to the environment is required
- Suggest the license include “Conditions” to conduct studies and provide the findings with recommendations by December 31, 2010
- Further action would be contingent on the findings with the goal of achieving regulatory compliance.



Abandoned Sewage Lagoons

- Two out of service lagoons between the landfill site and the active sewage lagoon
- Visual inspection in 2009 did not identify an environmental concern
- An environmental assessment is required to determine the appropriate abandonment and restoration plan
- Suggest that the assessment and A&R Plan be a “Condition” of the license to be completed by December 31, 2010.





Water Supply Facility

- Focus of NWB, DFO, and EC mandate is the impact of the water withdrawals on Wolf Creek
- Particular concern for impact to fish and fish habitat
- Pumping to fill reservoirs conducted in the late summer when creek levels are low
- Limited information available regarding impact of pumping.

WOLF RIVER

WATER INTAKE PIPE TO RESERVOIR

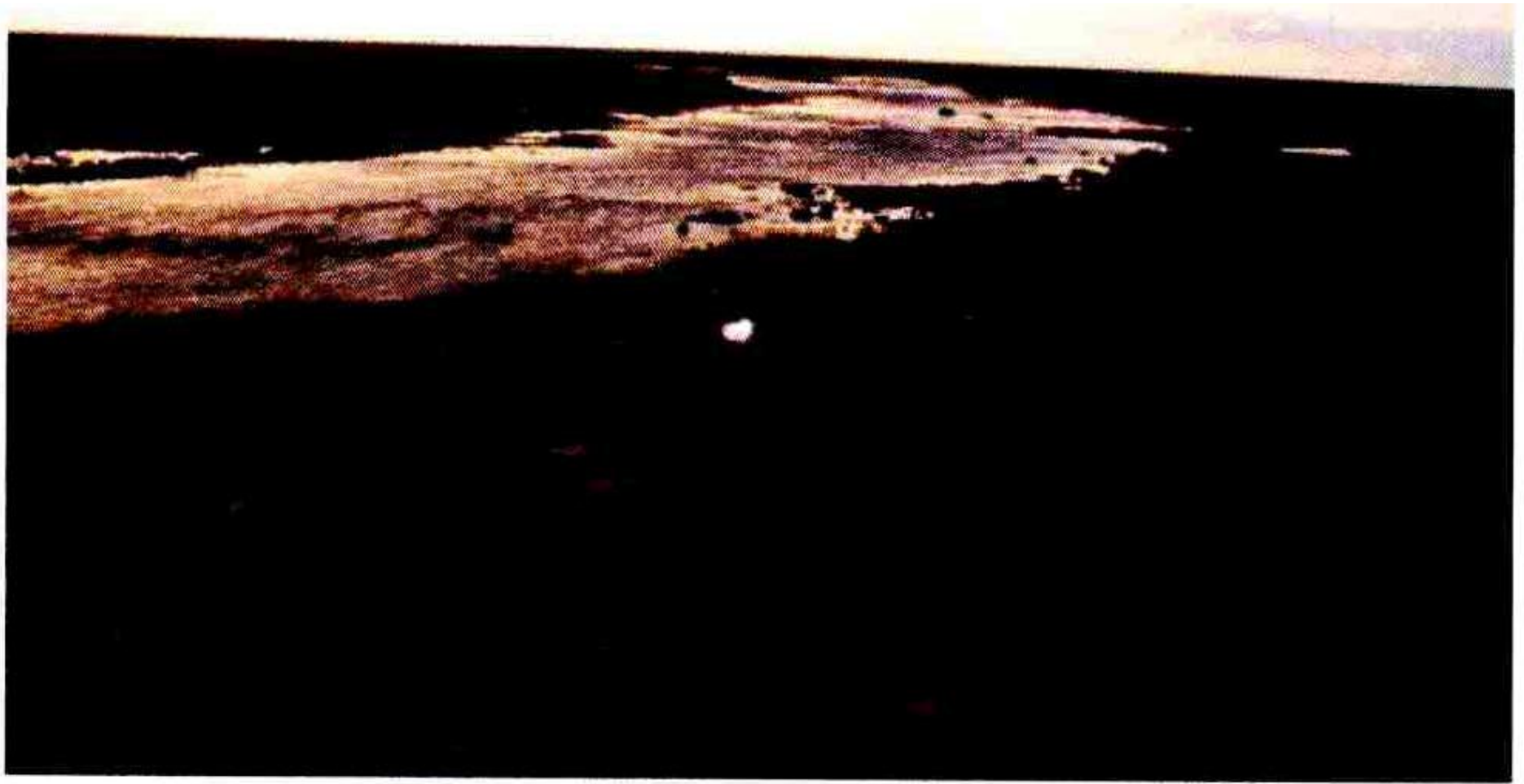
WOLF RIVER PUMPHOUSE

FUEL STORAGE TANK





Date: 09/01/04	Location: Wolf Creek
Description: Downstream of the natural pond where the intake line is	



Date: 09/01/04

Location: Wolf Creek

Description: Upstream of the natural pond where the intake line is located



Date: 09/01/04	Location: Wolf Creek
Description: Natural pond where the intake line is located	



Date: 09/01/04	Location: Wolf Creek
Description: Pumphouse and natural pond where the intake line is located	

Water Supply Facility – Conditions

- Suggest water license include “Conditions” to address issues related to the pumping of water from Wolf Creek including:
 - Creek conditions, morphology, and annual recharge
 - Presence of fish and fish habitat
 - Impacts of withdrawal
 - Long term impacts based on water requirements for the next 20 years
 - Intake fish screen and protection measures
- The studies with recommendations for action should be completed by December 31, 2010.

Monitoring and Reporting

- 2008 Annual Monitoring Report submitted with application
- Historically monitoring and reporting has been limited, which makes it difficult to assess impacts
- The Environmental Monitoring Program and Quality Assurance/Quality Control Plan needs to be followed
- In 2009 monitoring can be combined with the studies required as part of license “Conditions”.



Agency Comments and Application Document

- Agency comments have been addressed in the March 23, 2010 – Response to Comments letter
- Some issues/edits can be made to submission documents to address comments
- There remains a significant amount of information to acquire and/or actions to bring facilities into compliance
- Suggest agencies agree to “Conditions” to be added to license.



Hamlet of Arviat

- Hamlet has indicated they did not have the fiscal and technical resources to meet some of the Conditions on the previous license
- Hamlet has requested assistance from Government of Nunavut, Community and Government Services, to assist in meeting the Conditions proposed for the new license
- Hamlet will identify an approved location for the new Solid Waste Management Facility following the completion of the Community Plan.



Recommendations

- Address the issues raised in the agency review that can be addressed immediately (i.e. document edits and clarifications)
- Include the required studies and actions to address agency concerns that will require months of time as “Conditions” in the new license
- Ensure the Hamlet of Arviat and the Government of Nunavut, Community and Government Services, (on behalf of the Hamlet) has the resources to meet the “Conditions”.

