Screening Report,

Prepared Pursuant to the

Environmental Assessment and Review Process Guidelines Order

Prepared by

Regional Environmental Review Committee,

Department of Indian Affairs and Northern Development

Whitehorse, Yukon Territory

In Regards To

Loki Gold Corporation's

Brewery Creek Heap Leach Gold Mine Project

Date: April 28, 1995

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1.0 Introduction

1.1 Project Identification

Proponent:	Loki Gold Corporation Limited
Project:	Brewery Creek Gold Heap Leach Mine (Brewery Creek Project)
DIAND File #:	5510-4-21
Entry Point:	November 29, 1993 -- Loki submitted their "Project Overview and Plan for Initial Environmental Evaluation"
	August 18, 1994 - Initial Environmental Review received and RERC review initiated

2.0 Environmental Assessment and Review Process

The purpose of the federal *Environmental Assessment and Review Process Guidelines Order* (EARPGO) is to identify all potentially significant adverse environmental effects and directly-related socio-economic effects of the project. Before a project can be approved, all potentially significant effects must be mitigated or compensated for.

The Brewery Creek Project is subject to EARPGO because the project takes place on federal lands and it has an environmental effect on an area of federal responsibility. The project requires a federal Water Licence issued under the authority of the *Yukon Waters Act* and Land Use and Quarry Permits under the *Territorial Lands Act*. The Minister of DIAND must fulfill his obligations pursuant to EARP prior to making an affirmative regulatory decision such as issuing a water licence.

Because heap leaching is new to the Yukon, there were some aspects of the environmental review process of this project which were unique:

- DIAND hired a consultant team with specialist knowledge to review and provide advice regarding aspects of the project related to heap leach technology.
- DIAND hosted three public heap leach seminars in Dawson City, Whitehorse, and Carmacks. The purpose of these seminars was to provide an introduction and information about heap leach technology to interested persons;
- DIAND organized two tours of heap leach operations in other jurisdictions (Alaska and Nevada) to familiarize key review staff including either federal and territorial agencies,

Exhibit 9.1.1

and First Nations, with the technology;

- information on the environmental review and permitting process of heap leach operations in other jurisdictions both in Canada and the USA was used to assist DIAND.

3.0 Project Description

3.1 Background of Brewery Creek Property

The Brewery Creek property is located approximately 77 road kilometres from Dawson City (Figure 1a). Access from Dawson City involves travelling 40 km east on the Klondike Highway, 6 km north on the Dempster Highway, 21 km east on the "Klondike Ditch Road" and then 10 km north on the company's road.

Exploration on the Brewery Creek property commenced in August of 1987 and was staked by Noranda Exploration Company Limited (NOREX) in October of 1987.

In June 1990, Loki Gold Corporation entered into a joint venture agreement with Noranda and by August 1991 had a 49 percent equity interest in the property. In May of 1991, Noranda transferred its interest in the property to Hemlo Gold Mines Inc.

Exploration programs continued throughout 1990, 1991, and 1992. In June of 1993, Loki aquired Hemlo Gold's 51 percent share in the property, to hold 100 percent equity interest.

3.2 Project

Loki proposes to develop a gold heap leach operation on its Brewery Creek property, located east of Dawson City (Figure 1b). The eight year project is proposed to commence in spring of 1995 and will involve open pit mining at a production rate of about two million tonnes of ore per year. Eight near-surface largely oxidized deposits have been delineated at Brewery Creek along a seven metre corridor. The total geologic reserves for these eight deposits, including both oxidized and unoxidized ore, is approximately 21.8 million tonnes grading 1.5 g/tonne of gold with a cut-off grade of 0.5 g/tonne. In addition, Loki has classified four other zones as exploration targets. This environmental assessment is limited to the eight ore zones which Loki has proposed for development.

To date, the company has cleared areas on mineral claims for the heap leach pad, process ponds, and associated infrastructure. Some upgrading (i.e. resurfacing) of the Ditch Road has occurred. The Klondike Bridge has been upgraded.

Further construction of the heap leach pad, solution processing plant, infrastructure, process ponds, haul roads is expected to occur during summer 1995. Loki plans to mine and

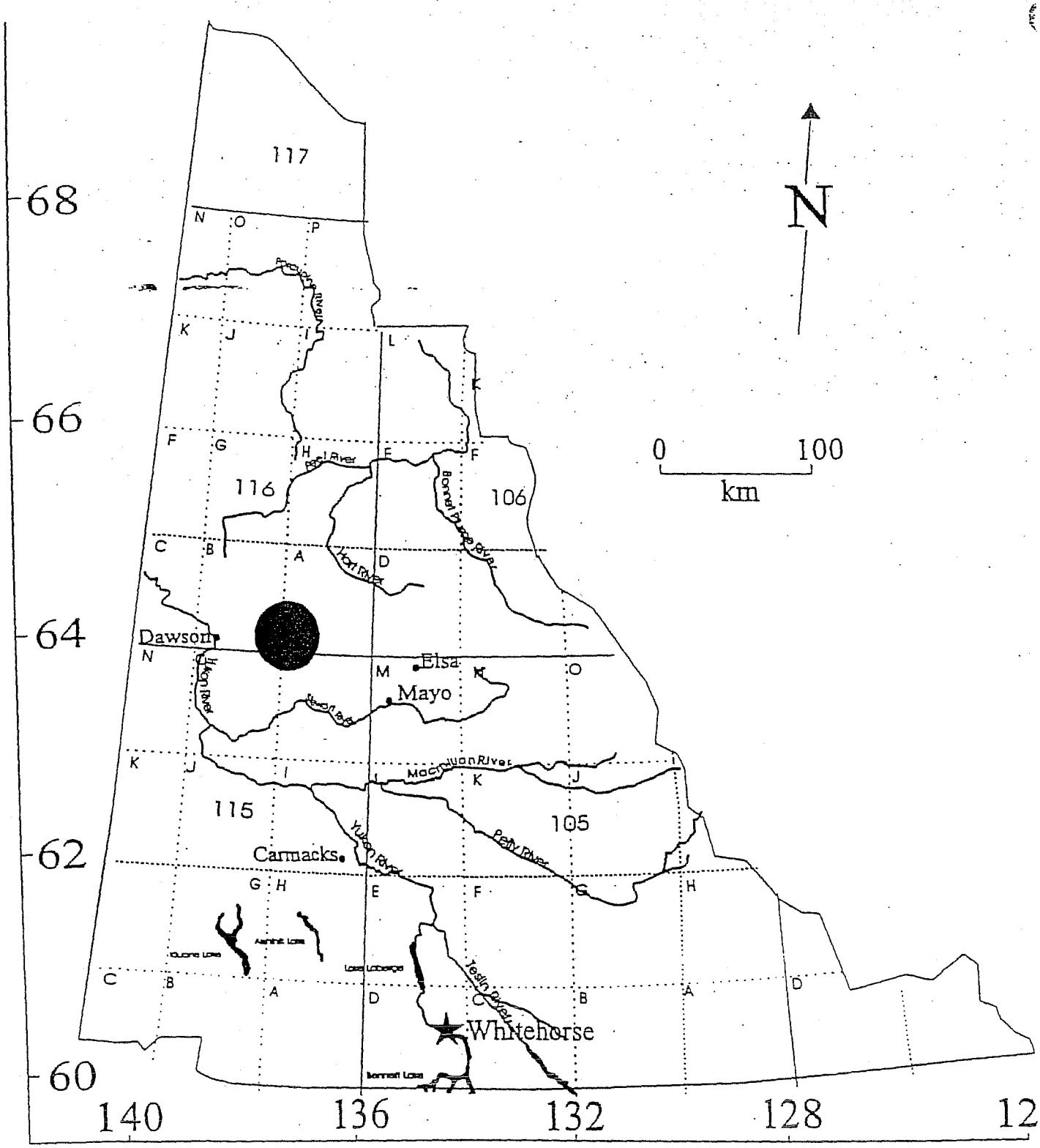

Figure 1a: Location of Brewery Creek Project

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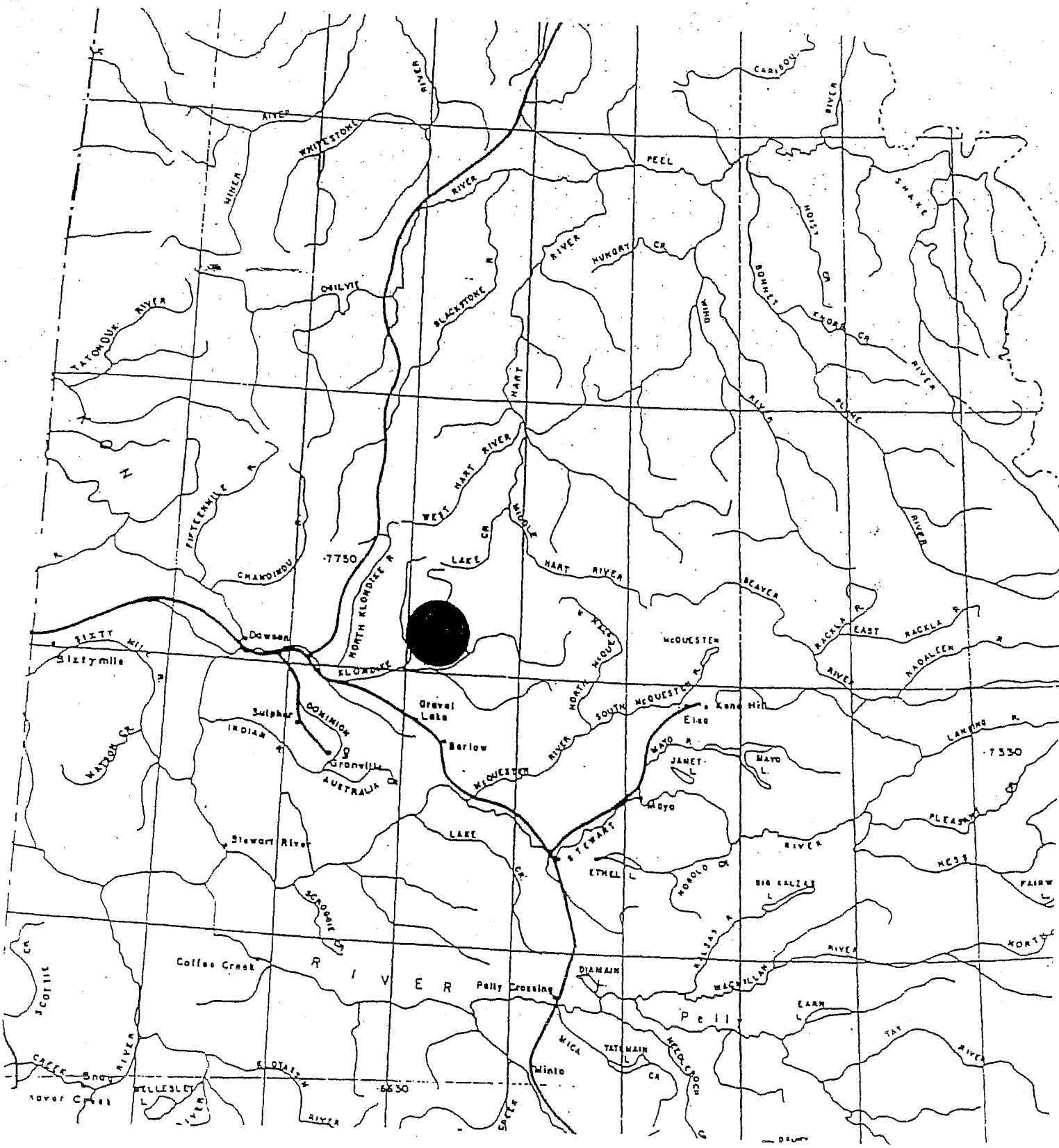

Figure 1b : Regional Location of Brewery Creek Project

stockpile the ore from the Blue and Fosters pits during summer, 1995.

It is anticipated that a workforce of 78 would be employed during operations. Power requirements would be two to three megawatts supplied by on-site diesel generation.

3.3 Physical Description of Property

The property comprises 788 contiguous mineral claims covering 16,135 hectares (39,870 acres) in a roughly rectangular block 15 km east-west by 9 km north-south.

The property may be described as rolling hills with moderately incised drainage. Relief on the property is about 700 metres, with the lowest and highest elevations approximately 600 and 1,300 metres respectively.

The principle streams in the project area are the Laura, and Golden Creeks, which are tributaries of the Klondike River. Four additional creeks, Carolyn, Pacific, Lee, and Lucky Creeks are tributaries of the principal streams.

3.4 Terrestrial Biota of Property

The vegetative community consists of: riparian,(black spruce, buck brush / willow, mixed, aspen) and sub-alpine.

Wildlife which has been identified or expected to inhabit the area includes moose, caribou, grizzly and black bear, beaver, lynx, marten, fox, mink, wolverine, weasel, wolf, squirrel, coyote, muskrat and otter. Identified or expected bird species include spruce grouse, blue grouse, ruffed grouse, ptarmigan, sharptail grouse, waterfowl and raptors.

3.5 Mining Method

Heap leaching is a process of percolating a weak leaching solution (Sodium Cyanide) through piles of ore that have been placed on a lined pad (Figure 2). An irrigation system distributes a leach solution over the ore surface through a system of drip emitters, augmented by sprinklers during the summer to increase evaporation and maintain the water balance. The solution percolates down through the heap to the impermeable base (approximately 90 days). As the solution passes through the pile, it chemically reacts with the gold metals, bringing it into solution. The solution is collected in a metal-rich "pregnant" pond.

The pregnant solution is collected and processed to extract the gold through a carbon adsorption circuit, followed by desorption, electrowinning and smelting to produce dore' bullion. The leach solution is then temporarily stored in a stripped or "barren" solution) pond before being recirculated back to the heap to leach again. Thus, the solution system is designed to be a closed system with no need for regular discharges of process solutions.

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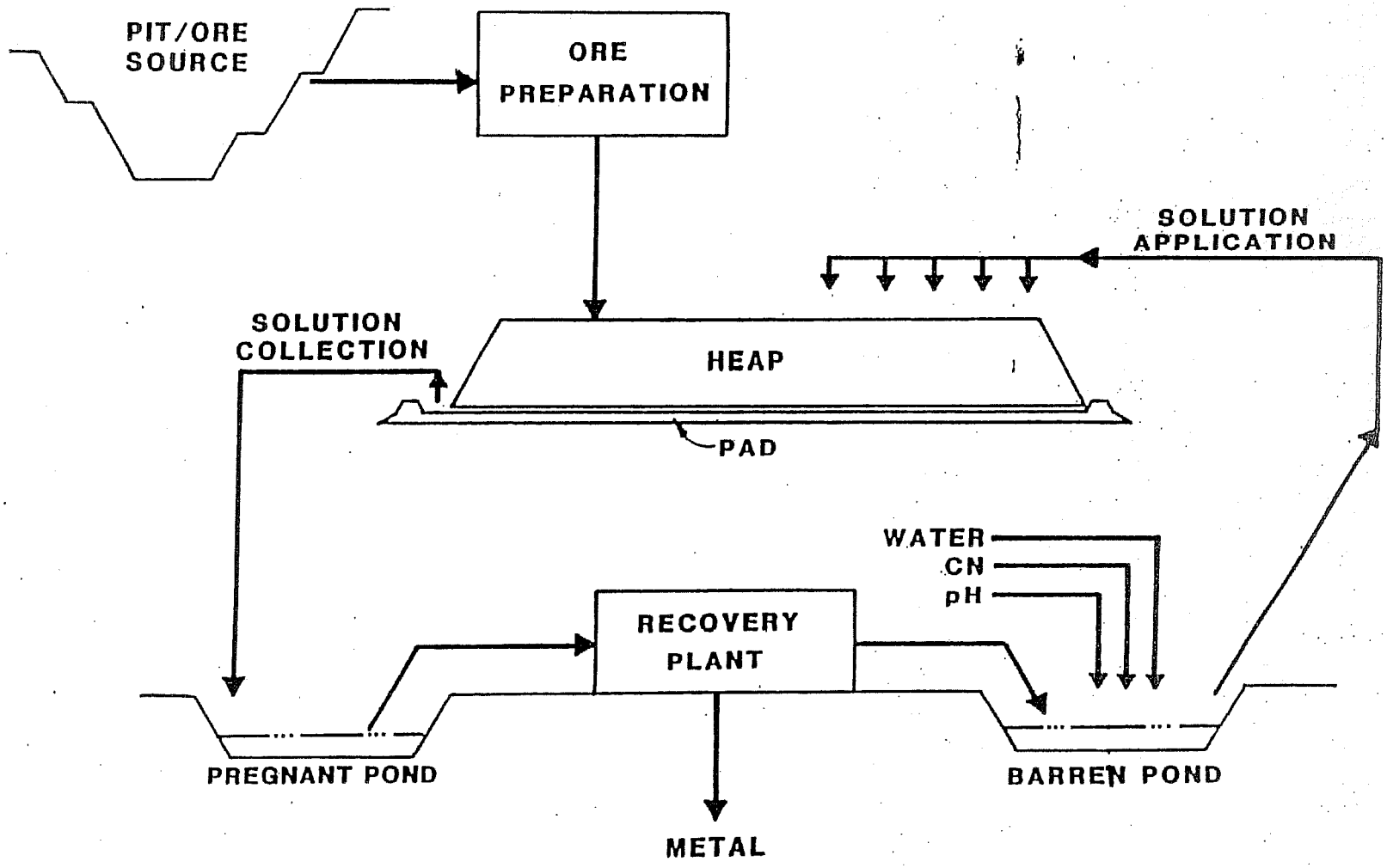


FROM: Van Zyl, Hutchinson and Kiel, 1988

After all gold has been leached out of the ore, the spent ore would be washed to remove residual cyanide and other contaminants. Following washing, steps are taken to revegetate and recontour the heap. Decommissioning the Brewery Creek operation also includes revegetating pits, removal of structures, monitoring, etc.

The Brewery Creek deposits are proposed to be mined by conventional open pit methods, using diesel-driven equipment. Separate pits and associated pushbacks would be mined for each deposit and linked to the leach pad and mine yard by haul roads.

Run-of-mine ore would be dumped by trucks and spread by bulldozers on a lined heap leach pad in a ~~series of~~ three 10 metre high "lifts" comprising ten cells each. The total overall heap height would therefore be 30 m. Each leach pad cell is approximately 83 m wide and 462 m long, with a total lined leach pad area of 387,000 m^2.

The operation would be seasonal, working 24 hours a day for that portion of the year where ore can remain above zero degrees Celsius. Sub-surface (i.e. beneath ground frost) leaching with barren solution (to wash spent cells) would operate year round.

Loki has sought to incorporate design measures to ensure that climatic conditions and extreme events specific to the Yukon do not adversely affect the metallurgical or environmental performance of the heap leach facility. These measures include a limited window for ore stacking, double lined pads and ponds, free draining of the heap to the ADR palnt to eliminate leachate solution storage in the pregnant pond during the winter, heat traced insulated pipes for solution collection and application, process pond pumps and controls relocated inside the heated ADR plant, and the sizing of ponds, including overflow ponds, to accommodate extreme events.

4.0 CONSULTATION

4.1 Public Consultation - General

In addition to the RERC process, key stakeholders such as the affected community, the Yukon Conservation Society and the Chamber of Mines are invited to participate during presentations of the project and IEE to the RERC.

A wider public notice by way of advertising and mailouts is provided when an IEE is received and when a screening report is available for public review. An extensive public distribution list was derived for the Brewery Creek Project which included interested members of the public, City of Dawson, Yukon Conservation Society, Yukon Chamber of Commerce, Yukon Chamber of Mines, Villages of Carmacks and Mayo, and the Whitehorse, Dawson and Yukon College libraries.

On August 22, 1994 a letter was sent to the Brewery Creek public distribution list. This letter informed interested members of the public that Loki had submitted their Initial Environmental Evaluation (IEE) and that it was available for public review. The letter also provided information regarding the environmental assessment process and invited members of the public to submit any comments or concerns about the project. The IEE was made available at the Whitehorse and Dawson Public Libraries, Dawson and Na-cho N'yak Dun First Nation Offices, the DIAND and Loki Gold offices' in Dawson, and DIAND library in Whitehorse. Loki Gold further distributed the IEE to the Yukon Chamber of Mines and the Yukon Conservation Society.

4.2 Public Heap Leach Seminars

Because heap leach technology has not yet been used in the Yukon Territory, the Northern Affairs Program organized three public heap leach seminars. The purpose of these seminars was to provide members of the public and interest groups with information on heap leach technology.

The seminars were advertised in the Whitehorse Star and Yukon News. Invitations were sent to Carmacks/Little Salmon and Dawson First Nations who advertised the sessions in their respective communities. Advertisements invited anyone who was interested (eg. First Nations, stakeholders, businesses, companies, students, general public, etc.) to attend free of charge.

The seminars were for the entire day (approx. 9:00 a.m. - 4:00 p.m.) and took place in:

- Carmacks, December 7, 1993
- Dawson, December 9, 1993 and
- Whitehorse, December 11, 1993.

The Village of Carmacks hosted a seminar because of the proposed copper heap leach project near that community. A substantive public distribution list was derived for the Brewery Creek Project as a result of these seminars.

4.3 Public Meetings During the Review Process

DIAND encouraged Loki Gold to carry out, and document, a public consultation program. Loki held a number of public meetings which are documented in their IEE (Appendix F-2 and F-3, Supporting Document I -- Project Description). DIAND participated at a number of these sessions.

DIAND may also hold a public meeting(s) if interested members of the public so desire. At such a meeting, there would be an opportunity for members of the public to ask questions about the project and express any concerns in relation to the EARP review of the project and for DIAND to summarize its findings and recommendations. Public concerns are then considered prior to DIAND making its final determination on a project.

4.4 Public Interest Groups / Interested Parties

The Yukon Chamber of Mines participated at the December 8, 1993 RERC meeting. Dawson City council participated at RERC meetings December 8, 1993 and September 27, 1994.

The Yukon Conservation Society (YCS) provided comments on Loki's Project Overview in July, 1994. To assist with YCS participation in the environmental assessment process and review of Loki's submissions DIAND provided funds to YCS in March, 1994. In August, 1994 YCS was provided a copy of the IEE for review.

4.5 Consultation with First Nations

4.5.1 Council for Yukon Indians

The Council for Yukon Indians has a permanent seat on the RERC and as such was represented during this review.

4.5.2 Dawson First Nation

The Dawson First Nation (DFN) was represented on the RERC throughout the review of this project because the Brewery Creek proposal falls within the DFN traditional territory. The DFN participation on RERC for the Brewery Creek Project included receiving all RERC correspondence, attendance at RERC and technical subgroup meetings, and identification and submission of Dawson First Nation concerns. DIAND provided contribution funds to assist Dawson First Nation to participate at RERC and subgroup meetings in Whitehorse, Dawson and Calgary as well as a tour of heap leach operations in Nevada.

4.5.3 Na-cho Ny'ak Dun First Nation

Due to the close proximity of the project to Na-cho N'yak Dun (NND) First Nation traditional territory, the NND were copied all significant RERC correspondence related to the Brewery Creek Project.

4.6 Government Representation on RERC

Other federal and territorial government departments participate on RERC and serve as specialist agencies during the review process.

4.6.1 Federal Government:

- Northern Affairs Program, Department of Indian Affairs and Northern Development
  - Environment Directorate
  - Land Resources

- Economic Development
- Water Resources
- Exploration and Geological Services
- Mineral Development

- Department of Fisheries and Oceans
- Environment Canada
- Health and Welfare Canada

4.6.2 Yukon Government:

- Yukon Worker's Compensation Health and Safety Board (Mine Safety)
- Transportation Planning and Programming, Community and Transportation Services
- Community Services Branch, Community and Transportation Services
- Economic Development, Energy and Mines Branch
- Heritage Branch, Department of Tourism
- Environmental Protection, Department of Renewable Resources

5.0 Environmental Issues

The principle of heap leaching has a long history with the first commercial precious metal application of heap leaching occurring in the late 1960s in Nevada. Heap leaching has been used extensively in the United States and around the world and is considered a viable low-cost mineral processing technology for recovering gold, silver and copper from low-grade ore including in areas with cold and harsh climatic conditions. However concerns have bee raised with the viability of using this type of process technology under extremely harsh climatic conditions and where permafrost/thaw unstable ground conditions exist.

At present there are no operating mines using heap leach technology in the Yukon or Northwest Territories. The review of Loki Gold Corporation's Brewery Creek proposal represents the first commercial heap leach operation that has undergone an environmental evaluation in northern Canada.

A number of environmental issues identified during this review stem specifically from the uncertainties associated with constructing and operating a heap leach operation in the north. Initial planning and design are critical to a successful heap leach operation, particularly for the heap leach pad liners, and proper design and construction are essential for heap leach pad stability and overall performance. Diligent quality assurance and quality control during construction are therefore critical to ensure fulfilment of design objectives. The ability of a proponent to undertake modification or repairs to certain components including the heap leach pad are difficult, if not impossible, once ore placement has begun. A critical review of this project was therefore undertaken to address these uncertainties.

In order to evaluate and identify the appropriate method of heap leaching for a particular project, as well as the techniques to be applied to optimize the operation, it is necessary to integrate the results of metallurgical testing, topographic and climatic conditions, general geotechnical and geologic site conditions, hydrogeological characteristics, and methods and rate of ore mining.

Each heap leach is unique and the design of the heap and pad require the assimilation of the above influencing factors. The heap and pad need to be designed to be stable structures which will contain both the ore and process solutions (leachate). The foundation for the heap must be capable of withstanding the loads applied by the heap, not only in terms of stability, but also in terms of differential settlements across the heap. Differential settlement may adversely affect the heap drainage and stability and/or damage the liner system. The liner is needed principally for the purpose of containing leach solutions (and recovering the gold) within the facility and proper selection must consider all engineering, construction and operational aspects of the project for the most effective overall liner to prevent leakage.

6.0 Specific Environmental Issues

This section has been structured as follows: the topic; a statement and explanation of the issue; the mitigation that Loki has proposed (where such mitigation exists); and RERC's recommendation which relates directly to the issue as stated and mitigation as proposed.

6.1 Heap Leach Pad - Design Specification

6.1.2 Heap Leach Liner

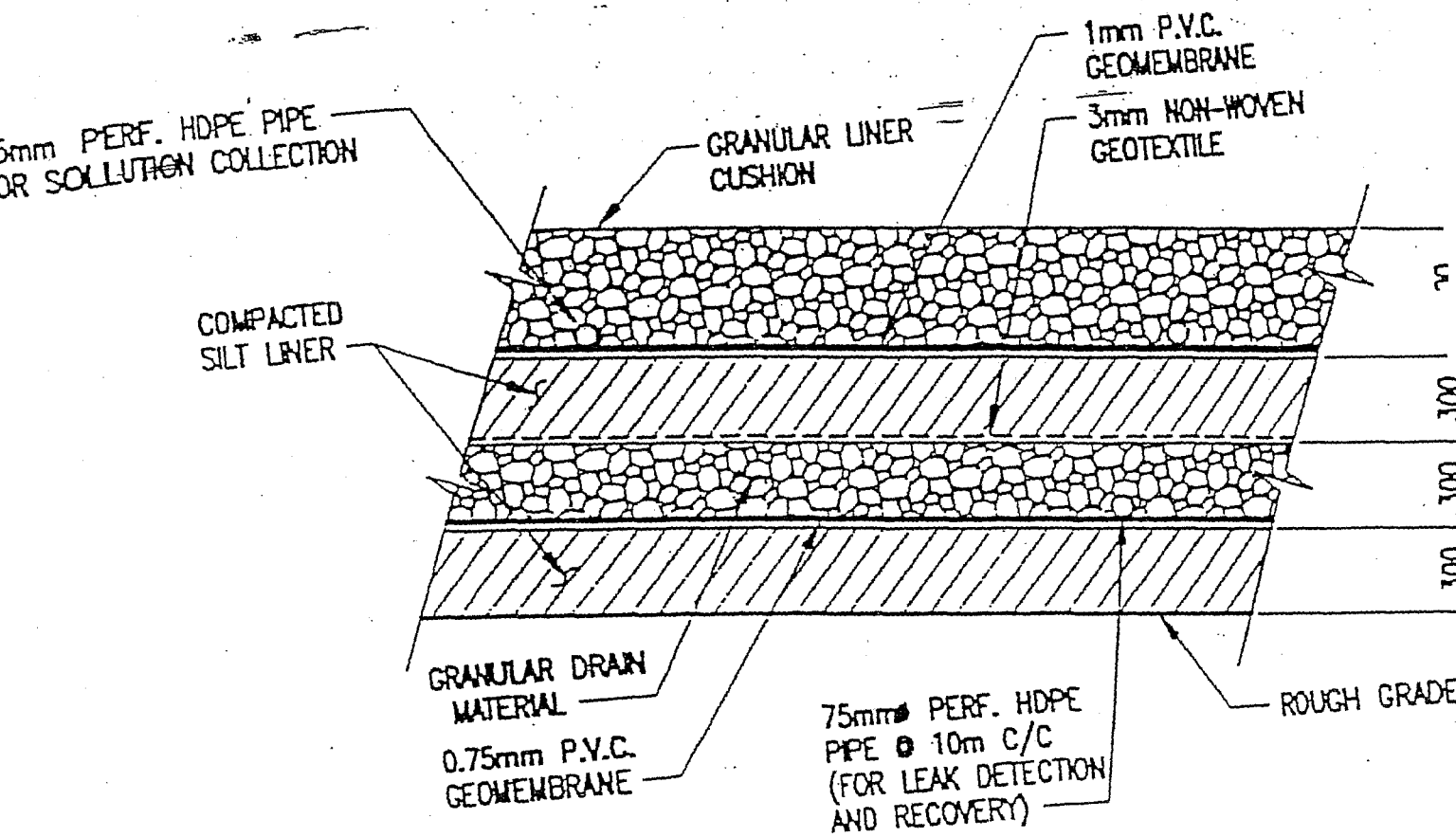
A number of concerns were raised during the review about the liner system proposed for the Brewery Creek heap leach pad. The leach pad liner system was originally proposed as a composite silt liner with a leak detection system. The composite liner system consisted of a synthetic liner overlying two layers of compacted silts with a leak recovery system sandwiched between the silt layers. A layer of screened ore was to be placed over the synthetic liner to protect the geomembrane liner from the impacts of run-of-mine ore placement. The lower and upper silt liners were to meet a design permeability requirement of 1 x 10-6 cm/s. Laboratory testwork provided by the company indicated that the silt could be compacted to this design specification. Although Loki committed to the addition of bentonite to in situ silts to ensure that the permeability specification could be met, DIAND and Loki expressed concerns with the feasibility of this option. Concerns included the assuredness of a Construction Quality Assurance program to demonstrate silt permeability, the cost of the bentonite to achieve silt permeability if required, the short construction season and the risk to Loki in not being able to achieve the required permeability in the field. For the composite liner system to function as designed this permeability requirement had to be met.

On February 15, 1995, in consultation with DIAND and DIAND consultants, Loki and their consultant proposed revisions to the liner system to address the above concerns (Figure 3). Revisions included addition of a 0.75 mm thick PVC geomembrane liner below the leak detection and recovery system (LDRS) to ensure rapid reporting of leaks in the primary composite liner and an increase to the LDRS layer from 75 mm to 150 mm and finally to 300 mm. This resulted in a double geocomposite liner which placed less reliance on the silt permeability (and field assurance), added redundancy in the liner system, and offered a more predictable leak detection performance and more effective construction control.

RERC Recommendation:

The company must construct and operate the heap leach pad and supporting facilities according to design specifications contained in "Loki Gold Corporation, Brewery Creek Mine, Design Criteria Report", (Design Criteria Report) and, "Loki Gold Corporation, Brewery Creek Mine, Technical Specifications",. The heap leach pad and supporting facilities must be constructed according to "Loki Gold Corporation, Brewery Creek Mine, Construction Quality Assurance Manual",(CQA Manual). Detailed, as-built construction drawings must be filed with the Yukon Territory Water Board (YTWB) after completion of each phase of construction.

FIGURE 3 HEAP LEACH PAD LINER



FROM: Figure 5, Update to Water Licence Application QZ94-003 Supporting Documentation, April 21, 1995

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Construction of all facilities outlined in the Design Criteria Report must be supervised, inspected and approved by a certified professional engineer as per the CQA manual. The designer is recommended to perform the role of either the engineer or the QA monitor as presented in the CQA manual. The Construction Records Report referred to in the CQA Manual must be filed with the YTWB after completion of each phase of construction.

6.1.3 Heap Leach Pad Subgrade:

The key issue in relation to the design of the heap leach pad is the removal of thaw unstable material that could affect the stability and performance of the leach pad and supporting infrastructures. This is due in part to operating in harsh northern climatic conditions and on frozen foundation conditions on site. This issue has implications on other areas of the heap leach process including the containment of the cyanide process solutions.

To ensure that the leach pad functions as designed, the pad subgrade must be sufficiently stable and competent to support the loads that will be imposed on the liner system. The stability of subgrade materials beneath the leach pad and the potential for differential settlement across the pad were identified as issues during the project review. An unstable pad subgrade or excessive differential settlement, due to permafrost degradation or ground responses to ore loads, could compromise the integrity of the composite double liner system and lead to loss of process solutions.

Loki Mitigation:

The company has indicated that permafrost and thaw unstable ground conditions exist beneath the pad subgrade and require mitigation. The company has committed to ensure that all thaw unstable foundation materials are excavated and removed from the area underlying the heap leach pad and berms. All frozen surficial materials in these areas with greater than 100 mm thick ice lenses and with greater than 17% moisture content will be stripped to subcrop surface. The material under the berms is stripped to bedrock regardless of frost or moisture. Stripped areas will be backfilled. Laboratory testing shows expected settlement to be in the range of 200 mm to 500 mm . Loki has stated that this range of settlement will not effect the heap performance as the overall slope of the ground will maintain positive drainage to the solution collection locations.

RERC Recommendation:

The company must construct and operate the heap leach pad and supporting facilities according to design specifications contained in "Loki Gold Corporation, Brewery Creek Mine, Design Criteria Report", dated April 18, 1995 (Design Criteria Report) and, "Loki Gold Corporation, Brewery Creek Mine, Technical Specifications", dated April 20, 1995. The heap leach pad and supporting facilities must be constructed according to "Loki Gold Corporation,

Brewery Creek Mine, Construction Quality Assurance Manual", dated April 17, 1995 (CQA Manual). Detailed, as-built construction drawings must be filed with the Yukon Territory Water Board (YTWB) after completion of each phase of construction.

Construction of all facilities outlined in the Design Criteria Report must be supervised, inspected and approved by a certified professional engineer. The Construction Records Report referred to in the CQA Manual must be filed with the YTWB after completion of each phase of construction.

6.2 Process Ponds – Liner Design

During the review concerns were raised with the process ponds design criteria. The consultants assisting DIAND contend that process ponds should be designed with a double synthetic liner system and LDRS because of the hydraulic heads over the liners and the need to ensure timely reporting in the LDRS.

Loki's initial proposed liner system for the processing ponds was similar to that originally proposed for the heap leach pad and consisted of: a 2 mm HDPE geomembrane liner; 300 mm of compacted silt; a geotextile; a 150 mm gravel layer to collect any leakage through the primary liner and convey leakage through collector pipes to monitoring and collection points; and 300 mm of compacted silt to cover the rock subgrade.

Loki Mitigation:

Through discussions between RERC, DIAND, Loki, and consultants the above liner system was changed to a double HDPE geomembrane liner (2 mm thick upper and 1 mm thick lower geomembrane) with a geonet drainage layer (drainage net) between the geomembranes. The geonet drainage layer and second 1 mm HDPE geomembrane layer readily conveys any solutions which may have leaked through the primary HDPE layer enabling quick detection and repair the opportunity to maintian a low hydraulic head on the lower liner.

RERC Recommendation:

The company must construct and operate the heap leach pad and supporting facilities according to design specifications contained in "Loki Gold Corporation, Brewery Creek Mine, Design Criteria Report", (Design Criteria Report) and, "Loki Gold Corporation, Brewery Creek Mine, Technical Specifications". The heap leach pad and supporting facilities must be constructed according to "Loki Gold Corporation, Brewery Creek Mine, Construction Quality Assurance Manual", (CQA Manual). Detailed, as-built construction drawings must be filed with the Yukon Territory Water Board (YTWB) after completion of each phase of construction.

Construction of all facilities outlined in the Design Criteria Report must be supervised,

inspected and approved by a certified professional engineer as pler the CQA manual. The designer is recommended to perform the role of either the engineer or the QA monitor as presented in the CQA manual. The Construction Records Report referred to in the CQA Manual must be filed with the YTWB after completion of each phase of construction.

6.2.2 Overflow Ponds -- Liner Design and Pond Capacity

Loki has proposed to construct two overflow ponds in a phased approach. Overflow pond #1 would be constructed in year one; overflow pond #2 would be constructed in year 4. Loki has committed to the construction of two overflow ponds with a liner design which consists of a single 2 mm HDPE geomembrane liner, underlain by 300 mm of compacted silt with no LDRS.

To determine the adequacy of the liner design for the overflow ponds as proposed by Loki, RERC required further information to be submitted which included: anticipated solution residency time in the overflow pond and volume stored.

RERC Recommendations:

The company must construct and operate the ponds according to design specifications contained in "Loki Gold Corporation, Brewery Creek Mine, Design Criteria Report", (Design Criteria Report) and, "Loki Gold Corporation, Brewery Creek Mine, Technical Specifications". The ponds must be constructed according to "Loki Gold Corporation, Brewery Creek Mine, Construction Quality Assurance Manual". Detailed, as-built construction drawings must be filed with the Yukon Territory Water Board (YTWB) after completion of each phase of construction.

Construction of all facilities outlined in the Design Criteria Report must be supervised, inspected and approved by a certified professional engineer as per the CQA manual. The designer is recommended to perform the role of either the engineer or the QA monitor as presented in the CQA manual. The Construction Records Report referred to in the CQA Manual must be filed with the YTWB after completion of each phase of construction.

6.3 Construction Quality Assurance / Quality Control Plans (CQA):

Concerns have been raised that the CQA plan must be reviewed and assessed prior to construction commencing. In other jurisdictions (e.g. the State of Nevada), CQA plans are submitted with engineering design reports as part of the permit application. These plans are then reviewed and the adequacy determined before permits are issued. Due to concerns raised with the company's ability to achieve particular design specifications at the Brewery Creek site and the importance of ensuring that the pad is properly constructed, RERC has recommended that the company must provide a detailed CQA manual as part of the water licence application.

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Loki Mitigation

Loki has committed to constructing and operating the facility according to design specifications for the project. The company submitted to DIAND and RERC a Draft Design Report and a Draft CQA Manual and has committed to submission of final documents as part of their water licence application for review at the public hearing. The manual will address sampling and testing procedures for foundations materials, permeability tests, inspections procedures, and testing of synthetic liner welds and seams, engineering of all structures, leak detection and piping, and netting and placement of ore.

RERC Recommendations:

The company must construct and operate the heap leach pad and supporting facilities according to design specifications contained in "Loki Gold Corporation, Brewery Creek Mine, Design Criteria Report" (Design Criteria Report) and. "Loki Gold Corporation, Brewery Creek Mine, Technical Specifications". The heap leach pad and supporting facilities must be constructed according to "Loki Gold Corporation, Brewery Creek Mine, Construction Quality Assurance Manual" (CQA Manual). Detailed, as-built construction drawings must be filed with the Yukon Territory Water Board (YTWB) after completion of each phase of construction

Construction of all facilities outlined in the Design Criteria Report must be supervised, inspected and approved by a certified professional engineer as per the CQA manual. The designer is recommended to perform the role of either the engineer or the QA monitor as presented in the CQA manual. The Construction Records Report referred to in the CQA Manual must be filed with the YTWB after completion of each phase of construction.

6.4 Heap Leach Pad/Process Ponds - Leak Detection and Recovery System (LDRS):

A concern raised during the review of this proposal was the company's proposed process fluids leakage volumes and rates that would trigger action to repair and/or shut down an individual leach pad cell or process pond. The composite liner LDRS is designed so that any leakage from leach pad cells or process ponds are detected in the LDRS and collected in the monitoring wells and then pumped back to recover process fluids. At some particular leakage rate repairs must be initiated or the cell or pond must be shutdown.

The company has designed a double geo-composite liner system for the heap leach pad and process ponds that incorporates a leak detection and recovery system (LDRS). The LDRS is a piped leak detection monitoring sytem which reports directly to the ADR plant for reapplication onto the heap.It includes a gravel layer which is sandwiched between a 0.75 mm PVC geomembrane on the bottom and a permeable geotextile liner on the top. The company has further re-designed the pad to incorporate 40 separate cells instead of 10. This will mean that each section can be shut down without compromising the entire cell.

The State of Nevada has established guidelines for leach pad and process ponds leakage rates and volumes based on the liner permeability which are provided in the table below. These rates were agreed to by RERC and Loki and remain a RERC recommendation.

Table 1: Leakage Rates and Associated Action Levels

Action	Heap Leach Pad (Each Cell)		Process Pond (Each Pond)	
	Maximum Quarterly Average[2] (litres/day)	Maximum Yearly Average[2] (litres/day)	Maximum Quarterly Average (litres/day)	Maximum Yearly Average (litres/day)
Daily Monitoring	≤300	≤100	≤600	≤200
Shutdown and Repair[1]	>300	>100	>600	>200

[1] If repairs are not practical then the company should close down the cell or pond permanently.

[2] Where yearly average is defined as the maximum yearly average leakage rates (for each cell and each pond) is based on the previous 12 month period; and the maximum quarterly average (for each cell and each pond) is based on the immediatly proceeding 3 months.

RERC Recommendation:

The company's revised LDRS leakage rates and associated action levels must meet the rates set out in the table as a minimum. Detailed leakage rates and action levels and all LDRS monitoring should be contained as a condition of licence. If leakage rates are exceeded then a leach pad cell or process pond must be shut down and repaired or closed.

In addition the company shall provide details of the LDRS monitoring program, including monitoring wells locations, monitoring frequencies, analytical parameters and reporting in the company's Monitoring Plan which should be submitted with the water licence application.

6.5 Solution Management

An accurate water balance analysis that predicts precipitation input and the amount of evaporation/evapotranspiration is essential for the proper operation of a heap leach facility. Because of the difficulties in determining an accurate water balance for the leach pad and process/overflow ponds, conservative estimates and design parameters must be used by the company.

In the company's original IEE submission, a commitment was made to operate the heap leach pad and processing ponds as a zero discharge facility. The company designed their facility components based on their water balance analysis to ensure that adequate allowances are made

for extreme events and that no process fluids or excess water would have to be treated and released to a watercourse. This has been a typical operating procedure for other heap leach operations in the U.S. where leach operations are managed to ensure no discharges are released. In very recent years, however, heap leach operating companies have sought a more flexible discharge operating regime to provide for solution releases so that facility components are not compromised.

Concerns were raised with the baseline data collected (data from other sites and a low precipitation year) and used in the water balance analysis for facility design components. Adequacy of the process and overflow ponds storage capacities was also raised as a concern during the review. RERC requested a further analysis to demonstrate that a conservative approach had been undertaken in determining the water balance to ensure that even under a more conservative analysis the storage capacities were adequate.

In the IEE Addendum, Loki proposed a water licence condition to treat and discharge process solution should extreme events occur. Although RERC agreed that planning for a possible solution discharge from the facility was prudent environmental management, RERC requested further information from Loki, such as the scenarios which may justify the need to treat and discharge excess process solutions; details of the nature of the discharges, including quantities, rates, durations, effluent quality, treatment methods and testwork; and an assessment of potential downstream impacts.
Loki outlined the three main circumstances which may contribute to a discharge: water management problems during operations and heap draindown: rainfall during winter/spring; repeated extreme precipitation events.

Loki Mitigation:

The company undertook two reviews: a review of the company's previous water balance calculations; and a sensitivity analysis of the water balance based on conservative design parameters. The sensitivity analysis showed that overflow ponds were sufficiently sized to accommodate the more conservative analyses.

Loki also agreed to develop a Solution Management Plan that details the daily monitoring and management of process solutions. Climatic (including precipitation, temp, wind, solar radiation, evaporation, snow) and hydrologic monitoring will continue at the site and will be used to finalize design criteria for the #2 overflow pond. The company has committed to submitting a detailed Solution Management Plan with the water licence application. The company intends to refine the water balance annually and in the third and eighth year of the operation re-assess the additional overflow pond design requirements.

RERC Recommendations:

The company must manage process solutions and operate the heap leach pad according

to the plan outlined in" Loki Gold Corporation, Brewery Creek Project, Solution Management Plan". The solution management plan must be reviewed and updated in year 4 and the revised plan must be submitted to the YTWB for approval.A monitoring summary log for all Solution Management Plan monitoring components must be maintained by the operator at the adsorption/desorption/recovery (ADR) plant and be made available for inspection by an Inspector pursuant to the Yukon Waters Act (YWA). The Leak Detection Recovery System (LDRS) monitoring results must be reported monthly to the YTWB and summarized in the Annual Report. Climatic information for the project site (temperature, rainfall, snow depth and density, solar radiation, wind and pan evaporation) must be summarized and reported in the Annual Report.

Loki has committed to the construction of overflow pond # 2 in year 4; The proposed design capacity for overflow pond # 2 must be submitted for review and approval to the Regulatory agencies and include rationale and supporting water balance monitoring and supporting climatological data from the three years of data collection on site.

Treatment and release of process solutions from the overflow ponds can be provided for in licence, subject to the following restrictions:

There must be no treatment and release of process solutions from the heap leach pad during the first three years of operation.

Details and design specifications for the ADR treatment plant are to be approved by the YTWB prior to any effluent release.

Treatment and release of excess solutions must be on a contingency basis only, when required to prevent emergency discharges due to design capacities for the facilities components being exceeded.

The YTWB and Regulatory agencies must be provided with advance notice (minimum 2 weeks) of planned effluent release. Agreements with such agencies should occur to determine release criteria and agencies' concurrence. Prior to release, Loki must demonstrate that the effluent release is required as a result of extreme climatic events which will result in exceeding the design capacities of the process and overflow ponds. or, where climatic conditions (i.e. winter) preclude the reduction in solution volume by application to the heap.

The quantity of effluent to be released must be monitored and reported and shall not exceed 200,000 m^3. The rate of treated effluent discharge must not exceed the daily flow rate in Laura Creek immediately above Carolyn Creek (BC 3).

The treated effluent must meet the effluent discharge limits as proposed in the March

31, 1995 "Treat and Release Scenario Extreme Event" and as proposed in "Loki Gold Corporation, Brewery Creek Project, Solution Management Plan, Appendix C", and meet the non-toxicity requirement defined by the 96 hour LC50 bioassay, using rainbow trout.

6.6 Cold Weather Operations:

During the review concerns were raised with the ability of the company to successfully operate a heap leach in extreme northern climatic conditions. Cold weather operation of a heap leach mine in the Yukon has not been demonstrated on a production scale and concerns were raises about placement of frozen ore and process solutions on a frozen heap.

Loki Mitigation:

The company has committed to monitor in heap temperatures with thermistor strings in order to ensure that frozen ore is not placed on a frozen heap and process solutions are not irrigated over a frozen heap. In addition, pad design criteria incorporate measures to ensure that the heap pad remains stable during winter icing conditions and a Solution Management Plan will be submitted that ensures that process solutions will be managed properly by the company year round.

Loki has committed to not stack ore below ambient temperatures that would be expected to cause either a buildup of ice in the heap or retention of ice layers. The company has reduced the average number of days for stacking of ore from 210 to 180 days per year.

RERC Recommendations:

The company must prepare and submit a Solution Management Plan that addresses solution management throughout the year as part of the water licence application. The Solution Management Plan should outline cold weather strategies to be used by the company to control and manage process solutions. The approved Solution Management Plan should become a required operational plan outlined in the water licence. Revisions and updates to the plan should be made and submitted for review to the YTWB and regulatory agencies.

6.7 Potential for effects on Wildlife

Wildlife must be protected from solutions which may pose a potential threat to their health. Loki has proposed to use the overflow ponds to temporarily store solutions. The solution would be barren, treated, and include precipitation and runoff and would be expected to pose a minimal threat to wildlife. However, the exact chemical composition and concentration of the solution and residency time in the overflow pond(s) is unknown and may represent a potential short term threat to wildlife.

Loki Mitigation:

Loki has committed to: net over the pregnant and barren process ponds; monitor, by visual inspection on a daily basis, both ponds for possible bird or mammal mortality; monitor the integrity of the netting over the process ponds on a daily basis by visual inspection; and sample and test the netting on a seasonal basis for fibre stability and longevity.

RERC Recommendation:

As part of the monitoring plan, residency time should be documented and submitted to the YTWB . Any mammalian mortalities resulting from exposure to process solutions must be reported to the YTWB and the Yukon Government, Department of Renewable Resources. Depending on the data collected, regulatory agencies may require that additional mitigation measures such as netting of overflow pond(s) are employed to protect wildlife.

6.8 Waste Rock Dumps

During the review concerns were raised with the potential for metal leachate to be released from the waste rock dumps and the stability of the external waste rock dump piles. The company has made significant strides to minimizing the number of external waste rock dump sites. Approximately 78% of the waste rock volumes is scheduled for return to finished open pits during operations. The company is still developing a detailed scheduling plan for waste rock disposal. However, some external waste rock dumps are still required and dump stability and metal release from these dumps during and after operations are a concern.

Loki mitigation:

A company commitment to investigate and remove thaw unstable material below any external waste rock dump should minimize concerns with dump instability. The company has also undertaken an assessment of waste rock metal leachate and acid rock drainage potential and model resulting water quality to assess impacts. This acid rock testing program will be continued by the company to assess dump metal leachate. In addition, sediment control ponds may be established below any waste rock dumps, based upon monitored effluent quality and any further treatment undertaken to ensure discharges meet effluent standards.

RERC Recommendation:

During the first year of operations the company shall submit to the YTWB a Waste Rock Management Plan. The plan must outline waste dump scheduling for both external and internal waste rock dumps, an ARD testing program, and sediment control and treatment programs for each waste rock dump that could discharge to receiving waters. All external waste dumps must undergo geotechnical investigation prior to construction to ensure that thaw-stable conditions exist at each location. Thaw unstable material is to be removed. The

foundation material of all external waste dumps shall be stripped of vegetation material and top soil.

Additional geotechnical, and permafrost studies including slope stability and settlement analyses should be undertaken at all external waste rock dump locations.

The discharge limits proposed in "Loki Gold Corporation, Brewery Creek Project, Solution Management Plan, Appendix C", dated April 13, 1995 apply to all effluent releases from the project (heap leach pad, waste dump settling ponds, pit discharge) both during operations and at final decommissioning of the mine. Any effluent discharged must meet the non-toxicity requirement defined by the 96 hour LC50 bioassay, using rainbow trout.

6.9 Baseline Fisheries Information and Protection of Fisheries Resources

Fisheries resources must be identified and information documented (i.e. species composition, abundance, feeding habits, etc.). This baseline information is necessary in determining baseline environmental conditions so that any changes to the environment can be quantified and appropriate mitigation measures taken to protect it from significant adverse environmental effects. A Department of Fisheries and Oceans and Yukon Territorial Government study (carried out in August, 1994) has shown the presence of juvenile chinook salmon in Lee Creek upstream of the confluence of Pacific Creek. Loki's aquatic baseline information does not yet include this information. In addition there is a potential for water to flow from Pacific and Moosehead pits to Lee Creek drainage basin via groundwater.

Loki currently states that discharge into the Klondike from Laura Creek is by groundwater. The exact point(s) or zone(s) of discharge into the Klondike are unknown. If quality of the effluent at the point of discharge into Laura Creek exceeds Loki's predictions, this should initiate further investigations in regard to the discharge point(s) or zone(s) into the Klondike River.

Loki Mitigation:

Loki committed to carrying out a detailed investigation (by air-photo and visual inspection) during 1995 to determine the discharge point(s) or area(s) from Laura Creek to the Klondike River. Loki committed that if water quality predictions exceed those as stated in the IEE, the company would carry out more intensive investigations of the link between Laura Creek and the Klondike River plus studies of the aquatic resources of the area of the connection.

RERC Recommendation:

Loki must update their aquatic biota baseline information to include the above DFO/YTG study so that any changes to the environment can be evaluated and quantified.

Loki should include water quality monitoring of Lee Creek upstream of Pacific Creek confluence as part of the Monitoring Plan due to potential groundwater infiltration into the Lee Creek watershed from Pacific and Moosehead Pits.

Loki must revise water quality predictions at the Laura Creek entrance point to the Klondike River to reflect the treat and release scenarios and incorporate information from the baseline study. Should the water quality predictions exceed those stated in the IEE Addendum, the company must revise the treatment/release option and/or propose studies that indicates no significant adverse environmental impacts from these original water quality predictions.

6.10 Emergency Response Plans

In the IEE Loki provided an outline for an emergency response plan. Concerns were raised during the review with the transport, handling, and storage of hazardous chemicals used in the heap leach process (cyanide, acids, petroleum products, etc.). Proper use and management of the products are essential to ensure human and environmental safety and Loki must have adequate plans for any emergency situations that may arise. The preparation of an approved Emergency Response and Spill Contingency Plan ensures that plans are in place to control and respond to these emergencies.

Loki Mitigation:

Loki has committed to the development of Emergency Response Plans in coordination with federal and territorial authorities prior to the commencement of heap leach operations.

RERC Recommendation:

The company must use and implement the following spill contingency and emergency response plan: "Loki Gold Corporation, Brewery Creek Project, Spill & Emergency Response Plan", dated April 13, 1995. This plan must be a licence condition and must be reviewed by the company annually and any changes made submitted to the YTWB.

6.11 Monitoring Plans

The company has already undertaken a number of monitoring activities on the project site to characterize baseline environmental conditions and collect preliminary site data to support design criteria. A number of these monitoring programs must continue through the mine life to monitor site impacts and verify design criteria used by the company.

Loki Mitigation:

The company has committed to submitting a Monitoring Plan which details monitoring programs to be implemented at the site.

RERC Recommendation:

The monitoring programs must outline the monitoring stations, parameters, frequencies, testing, reporting, assessment, recommendations and any other pertinent information relevant to the particular program. The monitoring programs must be required as a licence term and condition to ensure that the programs are undertaken. More specific recommendations on aspects of monitoring are noted below.

The following monitoring programs must be carried out by the licensee and the data reported by the company in their Annual Report:

Physical structures monitoring. An annual inspection shall be undertaken by a certified engineer of all physical structures. Results are to be reported in the Annual Report.

Leakage detection and recovery system (LDRS) monitoring as outlined in " Loki Gold Corporation, Brewery Creek Project, Solution Management Plan. Results are to be reported monthly and summarized in the Annual Report.

Climatic monitoring as outlined in " Loki Gold Corporation, Brewery Creek Project, Solution Management Plan". Climatic information for the project site (temperature, rainfall, snow depth and density, solar radiation, wind and pan evaporation) shall be summarized and reported in the Annual Report. Results of the Sprinkler test plot shall be included in above information.

Sediment monitoring program. Results are to be reported in the Annual Report.

Benthos monitoring program. Results are to be reported in the Annual Report..

Air quality monitoring program. Atmospheric emissions for arsenic, mercury and particulate matter must be monitored weekly and reported in the Annual Report.

Mammal mortality monitoring. Any mammalian mortalities resulting from exposure to process solutions must be reported to the YTWB and Government of Yukon, Renewable Resources.

Heap Leach Pad Thermal monitoring programs. Thermistor strings shall be installed in select heap cells and temperatures reported in the Annual Report.

Monitoring netting over process ponds; and
Monitoring of solutions stored in overflow ponds.

6.12 Environmental Baseline Information – Program of studies

The following program of studies is required to be carried out and should be considered a condition of licence.

Baseline Groundwater Quality Information for Lucky and Golden Creek Watershed

There is currently limited information to accurately characterize groundwater conditions for the Lucky and Golden Creek watershed. Such information is necessary prior to any development in the area.

RERC Recommendation:

Loki commit to carrying out additional and ongoing groundwater, hydrologic and baseline investigations which include groundwater monitoring for the Lucky and Golden Creek watershed. Studies should begin at least two years prior to any development in the basin. Such a commitment should form part of Loki's Monitoring Plan, which forms part of the Water Licence Application.

Baseline Laura Creek Groundwater Quality Information

Loki indicates that Laura Creek groundwater flow enters the Klondike River about 0.5 km south south-west from the intersection of Laura Creek and the Ditch Road. The discharge point consisting of an "oxbow" swamp in an abandoned channel.

RERC Recommendation:

Further studies must be carried out by Loki in order to determine the point(s) or zone(s) of discharge to the Klondike River. Loki should commit to continued monitoring of the discharge point(s) or zone(s) as part of their Monitoring Plan. Special attention must be made to collection of data during spring freshet.

Potential Contamination of Surface Waters by Acid Rock Drainage from Pits and Waste Rock Piles

Loki's studies have, to date, shown a low potential for Acid Rock Drainage (ARD) problems. Static tests were performed to document the range of characteristics of lithologies. The information to date indicates initial release of stored products with decreasing rates of metals over a 55 weeks testing period. Monitoring of the water quality from the waste rocks piles is required to verify the predictions and document the initial metal release from the waste.

Loki Mitigation:

Loki has committed to carrying out an ongoing in-situ ARD monitoring and field testing program to confirm metal loading predictions.

RERC Recommendation:

Loki's in-situ waste rock piles and pit walls monitoring plan should be carried out on a pit by pit basis, starting with the Blue Zone. The Blue Zone pit is the earliest to be mined.

6.13 Reclamation, Decommissioning, and Abandonment

Loki's IEE outlined in some detail plans for reclamation, decommissioning, abandonment, and post-abandonment monitoring for the leach pad, pits, dumps and other infrastructure.

Detailed elements of Loki's reclamation commitments are as follows:

- main roads not required for site access will be ripped; culverts removed; regrading will be carried out to return streams to natural course
- above ground structures will be demolished and/or salvaged
- any hydrocarbon or other contaminated soils will be removed for treatment
- washing of heap cells starting in year 5
- cyanide destruction starting in year 7
- breaching of dykes in barren ponds in year 11
- replacement of organic topsoil over backfilled ponds
- recontouring, covering and revegetation of the drained heap pile
- regrading of waste rock piles and backfill
- removal of waste rock sedimentation ponds and sumps
- replacement of organic topsoil of flat surfaces on waste rock piles and backfill and seeding to promote revegetation
- construction of berms to prevent access to pits
- analysis of sludges generated by the water treatment and development of disposal plans to suit the waste as classified

Issues are as follows:

Adequate Washing of Spent Ore to Remove Cyanide and Metals

Once the heap has been leached of accessible gold, the spent ore is washed to remove residual cyanide and then chemically treated to remove remaining cyanide and metals (eg. arsenic, antimony). There must be assurances that there are not significant amounts of cyanide remaining in the spent ore on abandonment.

Loki Mitigation:

Loki has committed to washing the spent heap (detoxification) to remove metals and residual cyanide until concentrations in the drainage from the heap meet effluent standards. The proposed standards are noted in the March 31, 1995 "Treat and Release Event" submission. Loki has committed to monitor drainage from the heap to ensure that water quality standards have been achieved prior to abandonment of the site.

Chemical Treatment of Wash Solution to Remove Cyanide and Precipitate Metals

The wash solutions containing contaminants (eg. cyanide) must be suitably treated. Sludges from the precipitation of metals from the wash solution must also be dealt with in order that they do not contaminate soils, surface water and groundwater.

Loki Mitigation:

Loki has committed to treatment of the washing solutions in order to remove cyanide. Metals from the wash water solution would be precipitated out and water discharged to meet effluent quality standards. Loki has also committed to chemically characterize the process pond sludges and submit to DIAND for review and approval appropriate disposal methods.

Revegetation and Wildlife

During reclamation activities, various mine components (eg. heap leach pad) will be revegetated. During revegetation activities, attempts should be made to maintain the integrity of the ecosystem as much as possible by, for example, using indigenous seed varieties.

RERC Recommendation Regarding Reclamation, Abandonment:

A complete site decommissioning, reclamation, and abandonment plan that incorporates results of on-going testwork must be submitted to the YTWB for review within 4 years of licence issuance in order to confirm or modify the procedures and incorporate approved plans as an amendment to the Water Licence.

The company shall apply to the YTWB for an amendment to it's licence to incorporate a Decommissioning and Abandonment Plan for the Brewery Creek project. The plan shall describe the measures to implement reclamation concepts outlined in the licence application. The plan shall be submitted to the YTWB no later than December 31,1998.

6.14 Security

In their IEE and Water Licence Application, Loki proposed a reclamation security plan and outlined a closure liability schedule and reclamation bonding. Their proposal provided sufficient security to meet their annual environmental liability.
DIAND reviewed the proposal and is in general agreement with the approach taken by Loki.

Recommendation:

Adequate financial security should be provided by Loki Gold Corporation to the Government of Canada prior to issuance of the water licence. The total amount of security on deposit at the beginning of any year should be sufficient to cover the liability accumulated by the end of the year. Liability is defined as the cost to the government to assume responsibility for mitigation should the company prove unwilling or unable to do so.

The security should be accessible to the Government of Canada should Loki be unwilling or unable to undertake the required mitigation / reclamation measures.

The amount of security should be periodically re-evaluated by Loki and the Government of Canada to ensure its adequacy.

DIAND is prepared to accept Loki's projections provided a 20% contingency is added to the security proposed by Loki and provided there is a regular review of the decommissioning, costs closure liability and security payments. There is a sufficient life in the mine to allow for adjustments to security should it be necessary.

The security agreement should become a term and condition of the water licence.

6.15 Other Environmental Management Plans and Mitigation Measures

The preceding environmental issues and mitigation measures are those that underwent change during this review through discussion by RERC, consultants and Loki during the review of this project.

There are a number of other mitigation measures and environmental management plans which Loki proposed and were deemed adequate by RERC. The accepted plans and mitigation are summarized below.

The environmental management plans have been divided into design measures, operational measures, reclamation activities and mitigation measures. monitoring. All of the following measures serve to mitigate potential adverse environmental effects to the environment that may be caused by project activities.

The following are the measures which Loki proposed and which RERC agreed to:

Design measures

- Two overflow ponds in the heap leach facility, with sufficient volume to store a complete draindown of the heap plus the 100-year snowmelt;

- Surface water diversions and surface runoff collection from the heap;
- Double composite liners and leak detection and recovery systems beneath the heap and the process solution ponds;
- Composite liners beneath the overflow ponds;
- Netting over the barren and pregnant solution ponds;
- Backfilling of portions of the pits with waste rock;
- Specification of waste dump geometry to maximize flat surface area and allow easy re-grading to stable side slopes;
- Location of dumps to avoid permafrost, streams, and minimize valley fills;
- Surface water diversions and settling ponds to minimize sediment loads from waste rock piles;
- Sumps in pits to remove suspended solids;
- Maximizing cut and fill in road construction on sidehills; and,
- Secondary containment around fuel storage areas.

Operational Measures

- Sediment control during construction;
- Storage, transport and handling of reagents according to strict safety policies;
- Specification of safety and emergency measures, to be included in a site health and safety plan;
- Careful selection of waste rock for haul road construction; and,
- Handling of garbage at an incinerator and dump and bury pit.

Reclamation measures:

- Washing of heap cells starting in Year 5;

- Cyanide destruction treatment of wash solutions starting in Year 7;
- Breaching dykes in the barren and overflow ponds in Year 11 including removal of the HDPE liner and revegetation;
- Replacement of organic topsoil over backfilled ponds;
- Recontouring, covering and revegetation of the drained heap;
- Removal of remaining reagents, fuel and waste oils, and hazardous materials;
- Regrading of waste rock piles and backfill;
- Removal of sedimentation ponds and sumps;
- Replacement of organic topsoil on flat surfaces of waste rock piles and backfill and seeding to promote revegetation;
- Construction of berms to prevent access to pits;
- Removal of buildings and backfilling or burial of foundations, basements, and slabs on grade;
- Removal of contaminated soil from equipment service areas; and,
- Removal of culverts and ripping of roads.

General Mitigation Measures

- Control of access to the site
- A "Do Not Feed Wildlife" policy;
- A "No Hunting" policy;
- Fencing of the entire heap leach area; and,
- Closure of the Access Road at Lee Creek when the mine is no longer in operation.

7.0 Socioeconomic Issues and Mitigation

7.1 Potential Adverse Effect on Trappers / Hunters from the Project

Although specific concerns have not been raised, as a result of project activities, there may be an adverse effect on trappers.

Mitigation:
Loki has committed to negotiate with the trapper in the area (Fraser family) and seek a mutually agreeable form of compensation if there is a demonstrable negative impact from the Brewery Creek Project. Loki further agreed to the provision of a commercial arbitrator if a mutual agreement cannot be reached.

RERC Recommendation:
The scope of Loki's commitment noted above should be broadened to include any trapper in the area where a demonstrable adverse effect by the project can be substantiated.

7.2 Protection of Heritage Resources

During development of the Brewery Creek project, steps must be taken to avoid and minimize significant adverse effects on heritage resources.

Mitigation:

Loki has committed to:

- Fund a program to conduct an historic site impact assessment of the southeast corner (pre-contact Site LaVh-10) of the Brewery property prior to any significant surface disturbance of the area (eg. road re-alignment, bridge construction);

- Avoid impacting the Klondike South Fork Intake / Diversion Complex; and

- Avoid impacting the Lee Creek Camp; attempting to preserve the horizontal alignment and retain the integrity of the Ditch proper, attempting to minimize the physical and visual impacts to the Ditch.

RERC Recommendation:

Loki must commit to:

- No further disturbance of Site LaVh-10 prior to the site impact assessment study being completed; if significant heritage resources are discovered, the bridge / road must avoid the site;

- Notification of the Heritage Branch should any archaeological or historic sites be

encountered in the course of developing the Brewery Creek property;

- Avoidance of the feature of potential archaeological significance report in the area of the Classic mineral zone until this feature can be assessed by an archaeologist; and

- Instructing mine workers and staff that no disturbance of heritage resources is permitted.

8.0 Other RERC Recommendations:

1. RERC Recommendation:

The company must construct and operate the heap leach pad and supporting facilities according to design specifications contained in "Loki Gold Corporation, Brewery Creek Mine, Design Criteria Report", (Design Criteria Report) and, "Loki Gold Corporation, Brewery Creek Mine, Technical Specifications". The heap leach pad and supporting facilities must be constructed according to "Loki Gold Corporation, Brewery Creek Mine, Construction Quality Assurance Manual" (CQA Manual). Detailed, as-built construction drawings must be filed with the Yukon Territory Water Board (YTWB) after completion of each phase of construction.

Construction of all facilities outlined in the Design Criteria Report must be supervised, inspected and approved by a certified professional engineer as per the CQA Manual. The designer is recommended to perform the role of either the engineer or the QA monitor as presented in the CQA manual. The Construction Records Report referred to in the CQA Manual must be filed with the YTWB after completion of each phase of construction.

2. RERC Recommendation:

The company's revised LDRS leakage rates and associated action levels must meet the rates set out in the table as a minimum. Detailed leakage rates and action levels and all LDRS monitoring should be contained as a condition of licence. If leakage rates are exceeded then a leach pad cell or process pond must be shut down and repaired or closed.

In addition the company shall provide details of the LDRS monitoring program, including monitoring wells locations, monitoring frequencies, analytical parameters and reporting in the company's Monitoring Plan which should be submitted with the water licence application.

3. RERC Recommendations:

The company must manage process solutions and operate the heap leach pad according to the plan outlined in" Loki Gold Corporation, Brewery Creek Project, Solution Management Plan". The solution management plan must be reviewed and updated in year 4 and the revised plan must be submitted to the YTWB for approval. A monitoring summary log for all Solution Management Plan monitoring components must be maintained by the operator at the adsorption/desorption/recovery (ADR) plant and be made available for inspection by an Inspector pursuant to the Yukon Waters Act (YWA). The Leak Detection Recovery System (LDRS) monitoring results must be reported monthly to the YTWB and summarized in the Annual Report. Climatic information for the project site (temperature, rainfall, snow depth and density, solar radiation, wind and pan evaporation) must be summarized and reported in the Annual Report.

4. RERC Recommendation:

Loki has committed to the construction of overflow pond # 2 in year 4; The proposed design capacity for overflow pond # 2 must be submitted for review and approval to the Regulatory agencies and include rationale and supporting water balance monitoring and supporting climatological data from the three years of data collection on site.

5. RERC Recommendation:

Treatment and release of process solutions from the overflow ponds can be provided for in licence, subject to the following restrictions:

There must be no treatment and release of process solutions from the heap leach pad during the first three years of operation.

Details and design specifications for the ADR treatment plant are to be approved by the YTWB prior to any effluent release.

Treatment and release of excess solutions must be on a contingency basis only, when required to prevent emergency discharges due to design capacities for the facilities components being exceeded.

The YTWB and Regulatory agencies must be provided with advance notice (minimum 2 weeks) of planned effluent release. Agreements with such agencies should occur to determine release criteria and agencies' concurrence. Prior to release, Loki must demonstrate that the effluent release is required as a result of extreme climatic events which will result in exceeding the design capacities of the process and overflow ponds, or, where climatic conditions (i.e.

winter) preclude the reduction in solution volume by application to the heap.

The quantity of effluent to be released must be monitored and reported and shall not exceed 200,000 m^3. The rate of treated effluent discharge must not exceed the daily flow rate in Laura Creek immediately above Carolyn Creek (BC 3).

The treated effluent must meet the effluent discharge limits as proposed in the "Treat and Release Scenario Extreme Event" and as proposed in "Loki Gold Corporation, Brewery Creek Project, Solution Management Plan, Appendix C", and meet the non-toxicity requirement defined by the 96 hour LC50 bioassay, using rainbow trout.

6. RERC Recommendations:

The company must prepare and submit a Solution Management Plan that addresses solution management throughout the year as part of the water licence application. The Solution Management Plan should outline cold weather strategies to be used by the company to control and manage process solutions. The approved Solution Management Plan should become a required operational plan outlined in the water licence. Revisions and updates to the plan should be made and submitted for review to the YTWB and regulatory agencies.

7. RERC Recommendation:

As part of the monitoring plan, residency time should be documented and submitted to the YTWB . Any mammalian mortalities resulting from exposure to process solutions must be reported to the YTWB and the Yukon Government, Department of Renewable Resources. Depending on the data collected, regulatory agencies may require that additional mitigation measures such as netting of overflow pond(s) are employed to protect wildlife.

8. RERC Recommendation:

During the first year of operations, the company shall submit to the YTWB a Waste Rock Management Plan. The plan must outline waste dump scheduling for both external and internal waste rock dumps, an ARD testing program, and sediment control and treatment programs for each waste rock dump that could discharge to receiving waters. All external waste dumps must undergo geotechnical investigation prior to construction to ensure that thaw-stable conditions exist at each location. Thaw unstable material must be removed. The foundation material of all external waste dumps must be stripped of vegetation material and top soil.

Additional geotechnical, and permafrost studies including slope stability and settlement analyses should be undertaken at all external waste rock dump

locations.

The discharge limits proposed in "Loki Gold Corporation, Brewery Creek Project, Solution Management Plan, Appendix C", dated April 13, 1995 apply to all effluent releases from the project (heap leach pad, waste dump settling ponds, pit discharge) both during operations and at final decommissioning of the mine. Any effluent discharged must meet the non-toxicity requirement defined by the 96 hour LC50 bioassay, using rainbow trout.

9. RERC Recommendation:

Loki must update their aquatic biota baseline information to include the above DFO/YTG study so that any changes to the environment can be evaluated and quantified.

Loki should include water quality monitoring of Lee Creek upstream of Pacific Creek confluence as part of the Monitoring Plan due to potential groundwater infiltration into the Lee Creek watershed from Pacific and Moosehead Pits.

Loki must revise water quality predictions at the Laura Creek entrance point to the Klondike River to reflect the treat and release scenarios and incorporate information from the baseline study. Should the water quality predictions exceed those stated in the IEE Addendum, the company must revise the treatment/release option and/or propose studies that indicates no significant adverse environmental impacts from these original water quality predictions.

10. RERC Recommendation:

The company must use and implement the following spill contingency and emergency response plan: "Loki Gold Corporation, Brewery Creek Project, Spill & Emergency Response Plan", dated April 13, 1995. This plan must be a licence condition and must be reviewed by the company annually and any changes made submitted to the YTWB.

11. RERC Recommendation:

The monitoring programs must outline the monitoring stations, parameters, frequencies, testing, reporting, assessment, recommendations and any other pertinent information relevant to the particular program. The monitoring programs must be required as a licence term and condition to ensure that the programs are undertaken. More specific recommendations on aspects of monitoring are noted below.

The following monitoring programs must be carried out by the licensee and the data reported by the company in their Annual Report:

Physical structures monitoring. An annual inspection shall be undertaken by a certified engineer of all physical structures. Results are to be reported in the Annual Report.

Leakage detection and recovery system (LDRS) monitoring as outlined in " Loki Gold Corporation, Brewery Creek Project, Solution Management Plan, dated April 13, 1995. Results are to be reported monthly and summarized in the Annual Report.

Climatic monitoring as outlined in " Loki Gold Corporation, Brewery Creek Project, Solution Management Plan", dated April 13, 1995. Climatic information for the project site (temperature, rainfall, snow depth and density, solar radiation, wind and pan evaporation) shall be summarized and reported in the Annual Report. Results of the Sprinkler test plot shall be included in above information.

Sediment monitoring program. Results are to be reported in the Annual Report.

Benthos monitoring program. Results are to be reported in the Annual Repor t.

Air quality monitoring program. Atmospheric emissions for arsenic, mercury and particulate matter must be monitored weekly and reported in the Annual Report.

Mammal mortality monitoring. Any mammalian mortalities resulting from exposure to process solutions must be reported to the YTWB and Government of Yukon, Renewable Resources.

Heap Leach Pad Thermal monitoring programs. Thermistor strings shall be installed in select heap cells and temperatures reported in the Annual Report; and

Monitoring netting over process ponds.

12. RERC Recommendation:

Loki commit to carrying out additional and ongoing groundwater, hydrologic and baseline investigations which include groundwater monitoring for the Lucky and Golden Creek watershed. Studies should begin at least two years prior to any development in the basin. Such a commitment should form part of Loki's Monitoring Plan, which forms part of the Water Licence Application.

13. RERC Recommendation:

Further studies must be carried out by Loki in order to determine the point(s) or zone(s) of discharge to the Klondike River. Loki should commit to continued monitoring of the discharge point(s) or zone(s) as part of their Monitoring Plan.

14. RERC Recommendation:

Loki's in-situ waste rock piles and pit walls monitoring plan should be carried out on a pit by pit basis, starting with the Blue Zone. The Blue Zone pit is the earliest to be mined.

15. RERC Recommendation Regarding Reclamation, Abandonment:

A complete site decommissioning, reclamation, and abandonment plan that incorporates results of on-going testwork must be submitted to the YTWB for review within 4 years of licence issuance in order to confirm or modify the procedures and incorporate approved plans as an amendment to the Water Licence.

The company shall apply to the YTWB for an amendment to it's licence to incorporate a Decommissioning and Abandonment Plan for the Brewery Creek project. The plan shall describe the measures to implement reclamation concepts outlined in the licence application. The plan shall be submitted to the YTWB no later than December 31, 1998.

16. RERC Recommendation:

Adequate financial security should be provided by Loki Gold Corporation to the Government of Canada prior to issuance of the water licence. The total amount of security on deposit at the beginning of any year should be sufficient to cover the liability accumulated by the end of the year. Liability is defined as the cost to the government to assume responsibility for mitigation should the company prove unwilling or unable to do so.

The security should be accessible to the Government of Canada should Loki be unwilling or unable to undertake the required mitigation / reclamation measures.

The amount of security should be periodically re-evaluated by Loki and the Government of Canada to ensure its adequacy.

DIAND is prepared to accept Loki's projections provided a 20% contingency is added to the security proposed by Loki and provided there is a regular review of the decommissioning, costs closure liability and security payments. There is a sufficient life in the mine to allow for adjustments to security should it be necessary.

The security agreement should become a term and condition of the water licence.

17. RERC Recommendation:

The scope of Loki's commitments regarding compensation to trappers must be broadened to include any trapper in the area where a demonstrable adverse effect by the project can be substantiated.

18. RERC Recommendation:

Loki must commit to:

- No further disturbance of Site LaVh-10 prior to the site impact assessment study being completed; if significant heritage resources are discovered, the bridge / road must avoid the site;
- Notification of the Heritage Branch should any archaeological or historic sites be encountered in the course of developing the Brewery Creek property;
- Avoidance of the feature of potential archaeological significance report in the area of the Classic mineral zone until this feature can be assessed by an archaeologist; and
- Instructing mine workers and staff that no disturbance of heritage resources is permitted.

19. RERC Recommendation:

All recommendations contained in the Screening Report should form part of the Water Licence.

20. RERC Recommendation:

That the design criteria for the heap leach pad, liner, ponds, waste rock piles, pits, and associated infrastructure that has been agreed upon by RERC and Loki and documented in the Design Report and CQA Manual be incorporated as a term and condition of the Water Licence.

21. RERC Recommendation:

A third party engineer at expense of Loki is retained in order to ensure that the project is constructed as designed and the intent of the design is met.

22. RERC Recommendation:

That there be an opportunity for DIAND to review the terms and conditions of the Water Licence after three years of operation and before the construction of overflow pond number 2.

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23. RERC Recommendation:

Due to the fact that this project pioneers a metal recovery method unproven in the climatic setting of the Brewery Creek area; is a new technology to the Yukon; and is the first heap leach project to have undergone an environmental review by DIAND and RERC, DIAND wishes the formation of a Technical Advisory Group to follow-up on this project. The requirement for such a group should be included as a condition of licence.

24. RERC Recommendation:

Additional geotechnical investigations and analyses must be undertaken at all external waste rock dump locations to ensure that locations are thaw stable.

25. RERC Recommendation:

Loki should commit to the protection of the environment through measures designed to reduce the impacts from mine operations. Although the company has committed to specific mitigation measures agreed upon by government, if new technology will allow mitigation which is at least as effective as that already specified, Loki can request through the appropriate regulatory body, that the mine plan and mitigation requirements are changed. If unpredicted impacts arise as a result of this project, notwithstanding the mitigation measures deemed acceptable to the Government of Canada, Loki must mitigate these impacts regardless of the specific requirements agreed upon previously.

9.0 CONCLUSION

The Regional Environmental Review Committee has concluded its review of the information provided by Loki Gold Corporation Ltd. regarding the Brewery Creek- Heap Leach gold mine project and recommends that the proposal, with mitigation measures identified in the documents submitted by Loki and the recommendations and mitigation measures set forth in this report, can proceed to the regulatory process for issuance of the necessary authorizations.

10.0 RECOMMENDATION

It is recommended that Loki's proposal, as outlined in this screening report, and as presented in

Loki's IEE and IEE Addendum submissions, in response to the RERC, meets the requirements of the Environmental Assessment and Review Process Guidelines Order under Section 12(c) specifically:

Section 12 (c) "the potentially adverse environmental effects that may be caused by the proposal are insignificant or mitigable with known technology, in which case the proposal may proceed or proceed with the mitigation, as the case may be".

Pursuant to Section 13 of the Guidelines Order, it is recommended that a public review by an EARP panel of the Brewery Creek Project is not necessary:

Section 13 "Notwithstanding the determination concerning a proposal made pursuant to Section 12, if public review is desirable, the initiating department shall refer the proposal to the Minister for public review by a panel".

Submitted to the Chair on behalf of the RERC by: Kirstie Simpson, Project Manager
Recommended to DIAND by:

Marg Crombie
Chair
Regional Environmental Review Committee

Kirstie Simpson
Project Manager

April 28, 1995
Whitehorse, Yukon

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Appendix 1: Summary of Key Changes Made to Proposal During the Environmental Assessment Process

Loki Gold Corporation submitted their Initial Environmental Evaluation (IEE) in August, 1994. Throughout the review period, there have been a number of changes made to the original IEE project submission. Changes to mine plans, designs, and site locations of mining infrastructure during an EARP review is an indication of the nature of the review process and may be looked upon as a positive aspect of the environmental assessment process. Such changes may occur for a variety of reasons including:

1. concerns raised by RERC members
2. studies carried out by Loki which optimize plans and designs
3. confirmation of local environmental conditions through ongoing studies and ground truthing by Loki
4. financial considerations

Key changes are noted in the table below.

Mine Component, Design, or Method That Changed	**As Proposed in Original IEE**	**Revised Proposal in IEE Addendum / Agreements between RERC and Loki**
heap leach pad -- liner	- composite liner with one geomembrane liner; - leak detection and recovery system, 75 mm - ore cushion (between ore and upper PVC liner) 300 mm thick	- addition of a second geomembrane liner (0.75 mm thick) below the Leak Detection and Recovery System; - sequentially increased to 150 mm then 300 mm - ore cushion increased to 1,000 mm in order to ensure adequate protection of PVC liner from run-of-mine ore
heap leach pad cells	ten cells with LDRS	each cell is separated into 4 areas with separate leak collection piping to better identify location of leakage if it occurs

Mine Component, Design, or Method That Changed	As Proposed in Original IEE	Revised Proposal in IEE Addendum / Agreements between RERC and Loki
heap leach pad site location		site (layout) changed to accommodate foundation conditions
barren and pregnant process ponds -- liner	- composite liner with a 2 mm HDPE geomembrane liner	- addition of a second HDPE geomembrane (1mm thick) liner below the upper geomembrane liner, with a geonet drainage layer between the two geomembranes
leakage rates and associated action levels for heap leach pad and process ponds	- Loki's proposed levels of acceptable leakage rates and action levels were inadequate	- maximum quarterly and maximum yearly average limits established (see Table 1)
process ponds -- locations		minor site (layout) changes-- changed to afford improved foundation and stability conditions
process ponds (pregnant, barren, and overflow pond #1) -- design	excavated into bedrock, such that the top of each pond is level with adjacent ground surface	in order to reduce costs, Loki revised their design such that the ponds are raised 3 meters and are now a combination of cut-and-fill. Maximum dyke height is 7 meres.
Leak Detection and Recovery System (LDRS)	- 75 mm thick layer of sand and gravel under the geotextile	- due to concerns that the overlying load of 30 m of ore may push the (75 mm) gravel layer into the underlying silt, the gravel layer thickness was increased to 150 mm then 300 mm

Mine Component, Design, or Method That Changed	As Proposed in Original IEE	Revised Proposal in IEE Addendum / Agreements between RERC and Loki
setback between toe of first lift of ore and liner edge	- shallow flow slides of ore might extend beyond pad liner edge	- a set-back of 7.5 m between the toe of the first lift and the liner edge
method to deal with process pond sludges during reclamation	enclose sludges in liner and bury in the process pond	chemically characterize the sludges to determine appropriate disposal methods prior to decommissioning
waste rock dumps	65% of waste rock backfilled to pits	several changes to waste rock dump site locations to minimize the number of external dumps; re-designing to allow 78% of waste rock backfilled to pits
pits		minor re-design of some pits
schedule for loading ore onto pad; method to ensure that frozen ore is not placed on pad	load ore onto pad 210 days per year	reduced to an average of 180 days per year to avoid ice lensing in the heap; emplacement of thermistors to monitor temperatures in heap; commitment to not place frozen ore on pad
discharge of solutions	designed as a "zero-discharge" (closed circuit) system during operations, except under extreme event scenarios	discharge of process solutions in the event of recurrent extreme climatic events or extreme events late in the season
method of determining, delineating, and removing thaw unstable soils	identification based largely on visual inspection	quantified, objective criteria established to determine and delineate such soils

APPENDIX 2

Summary of Key Events Related to the Environmental Review of the Brewery Creek Project

Noranda Minerals Inc.

April 8, 1991	• Project introduced to RERC upon receipt of the "Brewery Creek Environmental Baseline Study Program 1991 to 1992". This submission was considered by the company to be the first submission of baseline studies (socio-economic studies were not included in this submission, nor was any project information)

Change in Ownership to Loki Gold Corporation June 29, 1993

November 29, 1993	• Loki submitted their "Project Overview and Plan for Initial Environmental Evaluation".
December 8, 1993	• RERC meeting in Dawson at which company presented proposal.
February 7, 1994	• DIAND provided Loki with Information Guidelines to assist them in developing their Initial Environmental Evaluation (IEE).
August 18, 1994	• Loki submitted their Initial Environmental Evaluation (IEE). EARP review initiated.
September 27, 1994	• RERC meeting in Dawson City to discuss IEE submission and RERC site visit
November 16, 1994	• Letter from Chair, RERC to Loki Gold which identified initial RERC concerns, information deficiencies in Loki's IEE (RERC comments letters had already been forwarded to Loki as received)
November 16, 1994	Technical Sub-group to RERC and consultants met with Loki and Loki consultants in Calgary to discuss deficiency letter.

	- Draft Construction Quality Assurance Manual - Draft Extreme Event Treat and Release Scenario (a chapter from the Solution Management Program) - Draft " Discussion of Scenarios Leading to Controlled Treat and Release" - Draft Heap Leach Water Balance Sensitivity Analysis (a chapter from the Solution Management Program) - Update of Humidity Column Results - Statement of Design Criteria/Specifications/Operation Changes subsequent to the IEE Amendment Report, and a commitment by Loki Gold Corporation to the revised criteria. - Geotechnical Data Report #5 - Draft Pond Stability Report - Letter documenting revisions to project components and company's commitment to aforesaid
April 07, 1995	• Draft Emergency Response and Spill Plan submitted by Loki
April 10, 1995	• Loki submitted 17 maps which document the revised site plan, pond cross-sections, solution piping, permafrost excavation plan, etc.
April 13, 1995	• Loki submitted: Solution Management Plan; Environmental Data Collection, 1994-1995; Spill and Emergency Response Plan
April 28, 1995	• Screening Report issued to public
April 28, 1995	• Water Board Intent Date, Licence QZ94-0003
May 10, 1995	• Yukon Territory Water Board public hearing date, Dawson City
May 26 ~~27~~, 1995	• Due date for public to submit comments on Screening Report

Exhibit 9.1.1

Appendix 3

REFERENCES

Van Zyl, Hutchison, and Kiel, ed. Introduction to Evaluation, Design and Operation of Precious Metal Heap Leaching Projects. Society of Mining Engineers, Inc. Littleton, Colorado. 1988

Loki Gold Corporation's Initial Environmental Evaluation (IEE) submission consisted of the following five documents:

1) Summary Document
2) Supporting Document I -- Project Description
3) Supporting Document II -- Environmental Baseline
4) Supporting Document III -- Socio-economic Impact Assessment
5) Supporting Document IV -- Environmental Management

Loki Gold Corporation's Addendum to the Initial Environmental Evaluation consisted of the following:

6) The main document: "Brewery Creek Project - Addendum to the Initial Environmental Evaluation - Report - Parts I and II", which includes Appendices A, B, and C;

7) Technical Appendix: "Brewery Creek Project - Addendum to the Initial Environmental Evaluation" - Technical Appendices - Appendix D"

8) Technical Appendices: "Brewery Creek Project - Addendum to the Initial Environmental Evaluation" - Technical Appendices - Appendices E, F, G, H, I, J, K, and L

Further Loki submissions consisted of the following:

9) Historic Resources Assessment of Loki Gold's Brewery Creek Project - Yukon Archaeological Permit 94-21 ASR, Prepared by Sheila Greer, Edmonton, December 1994.

10) Loki Gold Corporation, Geotechnical Data Report, Brewery Creek Project, Prepared by Sitka Corporation, January 11, 1995.

11) A letter and attachments, dated February 17, 1995, entitled, Brewery Geotechnical Investigations.

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12) Table of Contents, Construction Quality Control/Construction Quality Assurance (CQC/CQA) Scoping Document, dated March 17, 1995.

13) List of Commitments, dated April 12, 1995.

14) Revised liner design for pad, process ponds, and over flow ponds, dated February 16, 1995

15) Draft - Design Criteria Report, dated March 29, 1995

16) Draft - Construction Quality Assurance Manual, dated March 31, 1995

17) Draft Treat and Release Scenario Extreme Event, dated March 31, 1995

18) Draft "A Discussion of Scenarios Leading to Controlled Treat and Release", dated April 3, 1995

19) Draft - Heap Leach Water Balance Sensitivity, dated March 31, 1995

20) Update of Humidity Column Results, dated March 31, 1995

21) Statement of Design Criteria/Specifications/Operation Changes subsequent to the IEE Amendment Report, and a commitment by Loki Gold Corporation to the revised criteria, dated April 2, 1995.

22) Geotechnical Data Report #5, dated March 31, 1995

23) Draft - Pond Stability Report, dated March 31, 1995

24) IEE, Water Board, and IEE Addendum Commitments, dated March 31, 1995

25) April 21 letter from Loki which addresses concerns raised by DIAND's consultants

26) 17 Revised maps (with cover letter, dated April 10, 1995)

27) Solution Management Plan, dated April 13, 1995

28) Environmental Data Collection, 1994-1995, dated April 13, 1995

29) Spill and Emergency Response Plan, dated April 13, 1995.

30) Update to Water Licence Application QZ94-003, Supporting Documentation, dated April 21, 1995.

Exhibit 9.1.1