

Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant Rio Algom Limited

Subject Application for a Radioactive Waste Facility
Operating Licence

Date August 16, 2002

RECORD OF PROCEEDINGS

Applicant: Rio Algom Limited

Address/Location: 120 Adelaide Street West, Suite 26, Toronto, Ontario M5H 1W5

Purpose: Application for a Radioactive Waste Facility Operating Licence

Application received: October 5, 2001

Date(s) of hearing: April 18, 2002 June 27, 2002

Location: Canadian Nuclear Safety Commission (CNSC) Public Hearing Room, 280 Slater St., 14th. Floor, Ottawa, Ontario

Members present: L.J. Keen, Chair
A.R. Graham
Y.M. Giroux
C.R. Barnes (Absent on June 27, 2002 and therefore did not participate in the decision)
L.J. MacLachlan (Absent on April 18, 2002 and therefore did not participate in the decision)

Counsel: B. Shaffer (Day 1) I.V. Gendron (Day 2)

Secretary: M.A. Leblanc

Recording Secretary: C.N. Taylor

Applicant Represented By	Document Number
<ul style="list-style-type: none"> • M.A. Wiber, Vice President, Health, Safety, Environment & Community • A. Coggan, Manager of Environment and Decommissioning • K. Black, Director of Closed Mines for BHP Billiton Base Metals • R. Knapp, Senes Consultants • P. McKee, Beak Consultants 	CMD 02-H10.1 CMD 02-H10.1A CMD 02-H10.1B
CNSC Staff	Document Number
<ul style="list-style-type: none"> • C. Maloney • C. Clement • R. McCabe 	<ul style="list-style-type: none"> • R. Ferch • P. Thompson • R. Barker CMD 02-H10 CMD 02-H10.A
Intervenors	Document Number
See Appendix A	

Decision and Reasons:

Licence: Issued: X
Date of Decision: June 27, 2002

1. Introduction

Rio Algom Limited of Toronto, Ontario has applied to the Canadian Nuclear Safety Commission (CNSC) for a Radioactive Waste Facility Operating Licence. The proposed licence would cover five currently unlicensed uranium mine waste sites in the vicinity of Elliot Lake Ontario. The sites, identified as the Spanish-American, Milliken, Lacnor, Nordic/Buckles and Pronto sites, contain uranium mine tailings and other uranium mine wastes that were produced prior to 1968 when the now-decommissioned mines and mills associated with the waste areas were operating. Rio Algom Limited (Rio Algom) has closed and rehabilitated the mine and mill sites and continues to actively manage the remaining waste sites.

Under the *Nuclear Safety and Control Act* (NSCA), Rio Algom requires a licence from the CNSC for the continued possession and management of the nuclear substances (i.e., the tailings and other mine wastes) currently located at the Spanish-American, Milliken, Lacnor, Nordic/Buckles and Pronto sites. The CNSC Transition Plan (ref. CMD 00-M19 and CMD 02-M48) provides temporary exemptions for the sites from the requirements of the *Nuclear Safety and Control Act* and the regulations made under that Act to allow the environmental assessment and licensing actions that are the subject of this public hearing to be completed.

The proposed activities to be licensed include: regular site inspection and maintenance; treatment of effluent water; and environmental monitoring. No wastes will be added to the waste management facilities, and no additional structures are proposed.

Prior to making a decision on the licence application, the CNSC, as the responsible authority for the project under the *Canadian Environmental Assessment Act* (CEAA), was required to make a decision on the results of a screening environmental assessment of the proposed future operation of the waste management facilities, prepared pursuant to the CEAA. The public hearing that is the subject of this *Record of Proceedings* was held to address both the environmental assessment and licensing matters.

2. Decisions

The Canadian Nuclear Safety Commission, in making its decisions, considered information presented for a public hearing held on April 18 and June 27, 2002 in Ottawa, Ontario.

Based on its consideration of the matter, as described in more detail in the following sections,

the Commission, pursuant to paragraph 20(1)(a) of the CEAA, concludes that the project, taking into account the implementation of appropriate mitigation measures, is not likely to cause significant adverse environmental effects.

Subsequently, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, issues a Radioactive Waste Facility Operating Licence (WFOL-W5-3101.00/2005) to Rio Algom Limited of Toronto, Ontario. The licence is valid until December 31, 2005, unless otherwise suspended, amended, revoked or replaced.

3. The Public Hearing Process

The public hearing, conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*, was held in Ottawa, Ontario on April 18 and June 27, 2002. The Commission received written submissions and heard oral presentations from Rio Algom Limited (CMD 02-H10.1, CMD 02-H10.1A and CMD 02-H10.1B) and CNSC staff (CMD 02-H10 and CMD 02-H10.A). The Commission also heard oral presentations and considered written submissions from intervenors as listed in Appendix A.

Location of the Public Hearing:

Two intervenors (City of Elliot Lake and the United Steelworkers of America) expressed the view that the public hearing should have been held in the Elliot Lake area so that the people most affected by the decisions could participate more easily. The Commission made the decision to not change the venue for the public hearing to Elliot Lake. However, in response to the concerns expressed, the Commission arranged for intervenors and general public from Elliot Lake to participate at the public hearing by video-conference. No intervenors chose to participate at the hearing by video-conference; however, some members of the public observed the audio-video feed of the proceedings that was provided in Elliot Lake. The Commission notes that it gives equal consideration to both oral and written submissions.

Scope of the Public Hearing:

An intervenor (Northwatch) expressed concern about the Commission's decision to consider the licensing application at the same time as the environmental assessment under the CEAA. Northwatch is of the view that this could create an impression that the decision on the environmental assessment has been predetermined. Northwatch recommended therefore that the Commission defer the licensing hearing to a later date. CNSC staff, in supplementary information to the hearing, advised the Commission that the environmental assessment and licensing decisions remain independent and that the public hearing, while providing an opportunity to be heard on both matters, does not prejudice the outcome of either matter.

The Commission acknowledges its responsibility to make a decision under the CEAA independently of, and prior to, its decision on the licence application. The Commission therefore concluded that the licensing hearing would not be deferred to a future date.

PART 1 – Canadian Environmental Assessment Act

4. Issues and Commission Findings

4.1 The Environmental Assessment Screening Report

Pursuant to the requirements of the *Canadian Environmental Assessment Act* (CEAA), the Commission was required to consider and decide on the results of a "screening" environmental assessment (i.e., a Screening Report) before the Commission could make a decision on the

licence application under the *Nuclear Safety and Control Act* (NSCA). This also required the Commission to consider whether either the environmental effects of the project, or public concerns about the project, warrant a referral of the project to the federal Minister of the Environment, pursuant to paragraph 20(1)(c) of the CEAA, for his referral to a review panel or mediator. To assist in the consideration of public concerns, the Commission made the Screening Report part of this public hearing (the Screening Report is attached to CMD 02-H10). Furthermore, CNSC staff appended to the Screening Report (Appendix F of the Screening Report) the comments received from the public on an earlier draft of the Screening Report, including information on how CNSC staff addressed those comments (see Screening Report attached to CMD 02-H10).

4.1.1 CNSC Staff Conclusions and Recommendations

With reference to the conclusions in the Screening Report, CNSC staff expressed its opinion that the project is not likely to cause significant adverse environmental effects, taking into account the identified appropriate mitigation measures. CNSC staff also expressed its opinion that the public concerns raised during the process have been adequately addressed in the environmental assessment screening and licensing processes. Therefore, CNSC staff recommended that the Commission not refer the project to the federal Minister of the Environment for his referral to a review panel or mediator as permitted under paragraph 20(1)(c) of the CEAA. With that recommendation, CNSC staff further recommended that the Commission take a course of action consistent with paragraph 20(1)(a) of the CEAA and proceed to make a licensing decision on the proposed project under the NSCA.

4.1.2 Public Concern

The City of Elliot Lake, in its intervention, expressed the view that the Commission may not yet have a full appreciation of the level of public concern about the project. The City stated that the apparent low level of public participation in the process thus far may be a function of what the City considers to be a lack of visibility of the proponent in the community, and the lack of technical information in a form that the local people can readily understand.

Other intervenors (Northwatch, the United Steelworkers of America, the Standing Environmental Committee of the Serpent River Watershed (SEC) and Mining Watch Canada) expressed similar concerns about what they consider to be the public's general lack of awareness of issues and about the difficulty the public has in understanding the highly technical issues involved. The intervenors generally feel that the availability of an independent expert review would help the public to understand the issues and be more engaged in expressing its concerns. Mining Watch Canada recommended that the Commission address the issue of an independent review by using its authority to request a panel review under the CEAA. Similar concerns about the public information programs are discussed further in Part 2 of this *Record of Proceedings* (as relating to the licence application under the NSCA).

The Commission considered the above comments of intervenors, and the documented concerns of the public as expressed during the environmental assessment and for this hearing. The Commission also considered whether adequate efforts had been taken by both the proponent and

CNSC staff to inform and engage the public in a meaningful way during the environmental assessment. In this regard, the City of Elliot Lake stated that it has received outstanding cooperation to date from Rio Algom, its contractor Denison Environmental Services, and CNSC staff in terms of obtaining information on the project and environmental assessment. The SEC also specifically acknowledged the responsible actions of Rio Algom in providing information to the committee. The Commission noted that the intervenors appear generally satisfied with the public consultations that were carried out by Rio Algom and the CNSC for the purpose of the environmental assessment, but are presently concerned about whether the information program will be sustained to meet the future long-term needs of the communities.

The concerns of the intervenors about Rio Algom's future public information and consultation programs are addressed further below in Part 2, section 5.8, of this *Record of Proceeding*.

Based on this information, the Commission is of the opinion that the public has had sufficient opportunity to become informed about, and provide comments on, the project and environmental assessment. The Commission considers that the information provided was of a type that would assist the public in understanding the nature of the project and the potential effects it could have on them and their environment. The Commission also considers that the public concerns have been adequately addressed in the preparation of the environmental assessment Screening Report, and in the information presented for this public hearing. The Commission therefore concludes that public concerns about the project do not warrant a referral, pursuant to subparagraph 20(1)(c)(iii) of the CEEA, to the Minister of the Environment for a review panel or mediator.

4.1.3 Likely Significant Adverse Effects:

In addition to considering public concern, the Commission is required under the CEEA to decide on whether the project is likely to cause significant adverse environmental effects, taking into account appropriate mitigation measures.

Northwatch and Mining Watch Canada expressed the opinion that the large size of the hazardous contaminant inventories at the sites, together with what they consider to be inherent difficulties in attempting to contain those contaminants over the very long term (i.e., millennia), leads to their conclusion that the mitigation measures are not adequate and that the environmental effects are likely to be significant. Mining Watch Canada stated that an independent review panel under the CEEA would provide a needed independent review of those potentially significant effects. Northwatch recommended that the Commission not proceed with a decision on the environmental assessment until the assessment is made more comprehensive and the issues raised by Mining Watch Canada and other intervenors have been evaluated. In support of its view, Northwatch pointed to an observed gradual increase in the presence of environmental contaminants in the surrounding environment, such as copper, nickel, radium-226 and uranium. Northwatch noted that this appears contrary to the general conclusions of CNSC staff and the proponent about a steady improvement in the levels of environmental contamination. As discussed further below in section 5.3.2 (Current and Predicted Environmental Effects), Northwatch also expressed concerns about what they consider to be an outdated and

oversimplified assessment of acid mine drainage – a subject covered in detail during the earlier Kirkwood environmental assessment panel¹.

In response to the Commission's questions on the thoroughness of the environmental assessment, CNSC staff stated that, in this case, the analysts had extensive data from several years of actual field sampling data to apply to the validation of the predictive assessment studies. Staff reported that environmental contaminants are, and are expected to remain, within acceptable levels. CNSC staff also stated its satisfaction that the facilities are adequately designed to effectively contain the hazardous contaminant inventories, and that the acid mine drainage estimates are sufficiently conservative. CNSC staff further noted that monitoring programs will continue to assess the significance of any observed trends in the data, and that contingencies are in place to adjust the facility operations in response to any negative developments. CNSC staff expressed the opinion that, based on the monitoring and assessment results, the project is not likely to cause significant adverse effects.

Based on the information presented, the Commission concludes that, while the waste facilities contain large inventories of substances that are potentially hazardous to the environment, there is sufficient evidence to demonstrate that those substances are adequately contained (see also section 5.3 - Environmental Protection - below for further discussion of the environmental effects and impact mitigation measures inherent in the facility designs). The Commission notes that the CEAA requires the responsible authority to credit appropriate impact mitigation measures in deciding on the likelihood and significance of the effects. In that regard, the Commission considers the facility designs and proposed operations are adequately robust and effective in limiting the release of contaminants to the surrounding environment in the long-term, under both normal and abnormal conditions.

4.1.4 Commission's Conclusions on the Screening Report

In summary, having considered the Screening Report (attached to CMD 02-H10), the Commission concludes, pursuant to paragraph 20(1)(a) of the CEAA, that the project, taking into account the appropriate mitigation measures, is not likely to cause significant adverse environmental effects. Having considered the environmental effects and public concerns about the project, the Commission also decides that it will not refer the project to the federal Minister of the Environment for referral to a review panel or mediator.

Further details on the various aspects of environmental protection that were considered by the Commission in the context of the licence application are presented below in section 5.3 of this *Record of Proceedings* (Environmental Protection).

With these decisions made pursuant to the CEAA, the Commission proceeded with a decision on the licence application, as documented in Part 2 of this *Record of Proceedings*.

¹ A Review Panel under the former *Federal Environmental Assessment and Review Process*, commonly known as the Kirkwood Panel, held public hearings from 1993 to 1996 on the proposed decommissioning of Rio Algom's Quirke and Panel uranium mine tailings in the Elliot Lake area. The report, titled "*Decommissioning of Uranium Mine Tailings Management Areas in the Elliot Lake Area*" was published in June 1996.

PART 2 – The Licence Application

5. Issues and Commission Findings

5.1 Radiation Protection

CNSC staff stated that, although the subject waste management areas were not previously licensed by the CNSC (or its predecessor, the Atomic Energy Control Board – AECB), Rio Algom has continued to monitor and report to the AECB/CNSC radiation doses of all personnel working on the sites in the same manner as it monitors personnel at its other nearby licensed decommissioned mine properties. CNSC staff reported that the doses to the workers have generally been below detectable limits (i.e., less than 0.2 mSv per year). CNSC staff also estimated that the maximum dose to a member of the public (i.e., to an individual in a critical group and including all exposure pathways) to be approximately 0.06 mSv per year. The maximum permissible public dose is 1 mSv per year. Rio Algom expressed the view that although it will continue to restrict access to the sites to the extent practical, the sites would be safe for casual access by the public.

An intervenor (Northwatch) raised a concern about future site access and noted that the Screening Report asserts that land use restrictions will change over time in accordance with property interests and ownership. Northwatch is of the view that changes in the environmental conditions, if any, should be the only factor governing what land uses will be appropriate over time.

In response to questions from the Commission on the type of access that would be permitted, or not permitted, Rio Algom explained that public access to the tailings is not permitted. Casual access for activities such as snowmobiling, skiing or hiking is permitted in the buffer zones established around each site; however, there will be no public access for any long-term uses of those properties or the tailings. Rio Algom noted that road access to the sites is controlled by locked gates, but that due to the size and location of the properties, the sites and tailings areas can be accessed through the “bush”. This type of casual access was assumed in the assessment of the potential public radiation exposures.

CNSC staff noted that it had met in May 2002 with Rio Algom and representatives of various recreation clubs in the area to discuss and clarify the types of access that will be considered acceptable at the sites.

Based on the recorded low doses of persons that have worked on the sites regularly, and based on the proposed controls for access and land-use over time, the Commission is satisfied that Rio Algom has made, and will continue to make adequate provisions for the protection of people from the effects of radiation.

5.2 Occupational Health and Safety

CNSC staff reported that, during the period from 1998 to 2000 (including 70,000 person-hours worked), there were no lost-time injuries at the facilities. In 2001, there was one minor injury leading to one day lost-time. CNSC staff concluded that this represents a good safety record.

Based on this safety record, and the fact that the amount of work on the sites has decreased since the completion of the construction phase, the Commission concludes that Rio Algom has made, and will continue to make, adequate provisions for the protection of workers from non-radiological risks to health and safety at the waste management sites.

5.3 Environmental Protection

5.3.1 Environmental Site Design

Rio Algom described each of the Spanish-American, Milliken, Lacnor, Nordic/Buckles, and Pronto waste sites, highlighting the various features of the environmental designs that Rio Algom has put in place. Rio Algom noted that emphasis in all of the site designs was placed on the management and treatment of water flowing through the systems, and on the stabilization and isolation of the inventory of radioactive and other potentially hazardous substances. The design objectives were to provide long-term containment of the substances while meeting all federal and provincial requirements, and Rio Algom's own corporate environmental engineering criteria.

Rio Algom recounted the work it had previously done to dismantle the mine and mill buildings and infrastructures, cap the mine openings, and rehabilitate the adjacent mine and mill sites. Rio Algom noted that the mine capping and stabilization was done in compliance with the provincial mine rehabilitation criteria and standards. The CNSC's radiological surface contamination criteria, that was applied at the other licensed decommissioned mine properties in the area, were also used in the clean-up of these historic mine properties.

An intervenor (Northwatch), noting that the Ontario Ministry of Northern Development and Mines (MNDM) had only put its mine rehabilitation code into effect in 1999, stated that there was no evidence that Rio Algom has relied on that code. In response to follow-up questions from the Commission on Rio Algom's compliance with provincial rehabilitation requirements, Rio Algom explained that it has maintained close contact with the MNDM and has followed all guidance from the Ministry up to and including the establishment of the current code.

Rio Algom further explained that the rock and earth dams (built where necessary to contain the tailings) were designed to withstand a 1 in 1,000 year seismic event, and that the dam failure consequence assessment assumed a 1 in 10,000 year seismic event. Rio Algom concluded from those assessments that there is no risk of catastrophic failure for any of the sites.

Rio Algom also stated that the hydraulic design of the sites was based on a Probable Maximum Precipitation (PMP) event of 42 cm. In response to a question from the Commission on the

design for the PMP, Rio Algom stated that such a PMP event has a return frequency of once in 10,000 years and that all of the dams and spillways are designed to handle that amount of flow.

The Commission questioned Rio Algom on the extent to which it had explicitly considered climate change in designing the facilities for the long-term. Rio Algom responded that, in addition to assuming a conservative PMP as noted above, it assessed how the sites would perform under periods of extended drought. Rio Algom stated that it considered the resulting risks and have identified appropriate contingencies. For example, the feasibility of expanding the precipitation catchment area for the more drought-sensitive sites was identified.

An intervenor (Northwatch) expressed dissatisfaction with the extent to which climate change has been considered or addressed in the facility designs. Northwatch considers that Rio Algom has made only passing reference to the issue, and that no information was provided on how the Pronto, Lacnor, Nordic or Milliken sites would be affected by changes in climate. Northwatch expressed the view that much longer-term projections of prolonged drought, or progressive reductions in water covers and water tables, need to be carried out.

The Commission sought further information from CNSC staff on the issue of long-term climate change. CNSC staff expressed satisfaction with the evaluations done on the extreme environmental events of drought and flood, which staff consider would be the main consequences of climate change. CNSC staff noted that, because the science of predicting climate change is not yet well advanced, it is appropriate, as in this case, to design for extreme weather, prepare for contingencies, and continue to monitor and adapt the facility operations as necessary.

Also with respect to the matter of the facility designs, Northwatch observed that Rio Algom is not proposing anything that would reduce the volume of hazardous radionuclides and metals in storage, and that, as a result, the hazards will remain long after Rio Algom no longer has responsibility for the sites. The intervention by the Standing Environmental Committee of the Serpent River Watershed (SEC) also addressed the lack of any proposed processes to treat the tailings. In this regard, CNSC staff stated its satisfaction that the facilities are adequately designed to effectively contain the hazardous contaminant inventories for the purpose of protecting the surrounding environment in the long-term. The Commission concurs with the CNSC staff 's conclusion (see Part 1 above) and notes that the purpose of the project is to store, rather than to treat, the waste inventories.

In its intervention, the City of Elliot Lake recommended that the Commission evaluate these historic properties independently of the other decommissioned mine sites in the Elliot Lake area. The City noted that, unlike the recently decommissioned licensed mine sites, the subject sites are not simple, they have been there for many years, and, as such, they may not be as well understood. The Commission agrees that each property must be assessed independently, as well as collectively (for cumulative effects). The Commission considers that the information provided in support of the application permits this. The Commission acknowledges that although the age of the sites may pose some challenges to predicting their long-term performance, the many years of active field monitoring to date provides other opportunities for understanding the long-term behaviour of the sites that may not be available at a new waste area.

As discussed in section 5.3.3 below, monitoring will continue into the foreseeable future to ensure early detection of any unanticipated effects.

In response to questions on the facility inspection program, Rio Algom explained that the site inspections will range from daily for those properties that have effluent treatment plants, to weekly for the other sites. In addition, site inspections will be undertaken during, or immediately following unusual events, such as an earthquake or heavy rainfall. Comprehensive inspection reports will be prepared on a monthly basis and a detailed geotechnical engineering inspection will be undertaken annually by the designers of the facilities. The United Steelworkers of America, in its intervention, noted that the inspections and maintenance will need to be carried out indefinitely in a sustained, systematic and vigilant manner in order to provide the needed long-term assurances to area residents about their health.

Based on the information provided on the facility designs and performance, including evidence indicating an acceptable current and projected environmental performance of the facilities, the Commission is satisfied that the facilities have been designed to provide an acceptable level of protection to the surrounding environment. The Commission agrees with the views of the intervenors concerning the dependency of the facility designs on a continued inspection and maintenance program. The Commission also notes that the site designs are integral with, as opposed to being independent from, the surrounding natural environment. As such, the Commission is of the view that the performance of the current facility designs will need to be periodically re-evaluated in light of any significant change in environmental conditions on which those designs depend, particularly where hydrologic conditions may change, such as due to climate change. In that regard, the Commission is satisfied that the proposed inspection, maintenance and reporting program will provide early warning of any required facility modifications.

A further examination of the environmental monitoring program is documented below in section 5.3.3 (Environmental Monitoring Program) of this *Record of Proceedings*. The matter of how the proponent will ensure that adequate resources are available to provide a sustained inspection and maintenance program is addressed below in section 5.9 (Decommissioning and Financial Guarantees).

The Commission acknowledges the public's desire to have ongoing and ready access to information on facility performance. As discussed in section 5.8 below (Public Information Program), the Commission is satisfied that Rio Algom will continue to make the relevant information available to the public.

5.3.2 Current and Predicted Environmental Effects

With reference to the information presented in the environmental assessment Screening Report (attached to CMD 02-H10 – see also Part 1, section 4 of this *Record of Proceedings*), CNSC staff expressed the view that, with the appropriate mitigation measures, there will likely be no significant adverse environmental effects associated with the proposed continued operation of the waste management facilities.

CNSC staff noted that its analysis, based on several years of actual monitoring data, indicates that the surface waters downstream of the sites are not significantly impacted and that there is evidence of a general decline in significant mine-related contaminants over time. The environmental monitoring program is examined further below in section 5.3.3. Furthermore, CNSC staff and Rio Algom reported that the modelled future effects on aquatic and terrestrial species, as documented in the Screening Report, are low.

CNSC staff stated that both federal and provincial effluent regulations were used to evaluate and set performance requirements for the treatment systems located at the Nordic and Pronto sites. The effluent treatment plant discharges are currently regulated under *Certificates of Approval for Industrial Sewage* granted by the Ontario Ministry of the Environment. CNSC staff noted that effluent water quality has consistently met the criteria specified in those approvals.

Northwatch, in its intervention, expressed concern about what it considers to be outdated methods used to predict the impact of future acid drainage from the sites on the environment. Northwatch does not agree with CNSC staff's position that the studies of acid generation completed in 1987 were sufficiently conservative (i.e., based on worst-case scenarios) and that they do not need to be repeated using current methods.

In response to questions from the Commission on the acid-base accounting methods, Rio Algom acknowledged that the science is evolving and that Rio Algom is actively involved in advancing knowledge in this area. Rio Algom expressed the view, however, that the conservative calculations used in the assessment ensure that the effects have not been underestimated. CNSC staff elaborated on this by explaining that the methods of estimating acid generating potential normally account for the net balance between the acid-generating and the acid-neutralizing minerals present. In this case, the assessment assumed full oxidation of the acid generating sulphide minerals and gave no credit to the neutralizing capacity of the other minerals.

Based on this information, and further to the above conclusion of the Commission regarding the environmental engineering in the facility designs (refer to section 5.3.1 above – Environmental Site Design), the Commission concludes that adequate provisions have been made to protect the environment. The Commission notes, however, that the evidence of satisfactory environmental performance over time depends on the quality of the environmental monitoring program. The Commission's examination of the monitoring program is documented in the following section (5.3.3) of this *Record of Proceedings*.

5.3.3 Environmental Monitoring Program

CNSC staff described what it considers to be an appropriate environmental monitoring program. The environmental monitoring program (currently operational and proposed for continuation under the CNSC licence) has several components that address the Serpent River watershed (i.e., in the areas surrounding the proposed licensed areas), the conditions within the tailings basins, the quality of discharge from the licensed areas, and the facility operations.

Rio Algom reported that the off-site watershed monitoring program received the acceptance of CNSC staff and the other federal and provincial reviewers in 1998. Rio Algom described the

program as a comprehensive ecological assessment of the cumulative effects of the subject waste sites, together with the other uranium tailings management sites in the watershed. The program involves 20 lakes and 28 stream locations and is designed to assess the effects of the tailings management areas on water quality, sediment quality, benthic communities, fish health, and radiation and metal doses to humans and wildlife. Rio Algom noted that the program has been specifically designed to adapt as the understanding of the environmental effects evolves and improves.

An intervenor (Mining Watch Canada) recommended that the Commission ensure that there are clear mechanisms for monitoring before the project is allowed to proceed.

The Commission, in its questioning on the monitoring program, sought clarification of the anticipated duration and evolution of the program. CNSC staff indicated that the monitoring program has no defined end date. The monitoring program is cited in the draft licence and, therefore, any change to the monitoring requirements would require an amendment of the licence. CNSC staff added that, in accordance with the proposed licensing documentation, a review of the findings of the monitoring program will occur at least every five years, with provision for modifications where justified. In this way, CNSC staff indicated that the environmental effects monitoring program could be eventually discontinued once stable background conditions have been reached. An intervenor (Elliot Lake Research Field Station of Laurentian University - ELRFSLU) sought assurance that any changes to the monitoring program would only be made with CNSC regulatory approval. Northwatch recommended that such changes only be considered at the time of licence renewal.

Noting the wide breadth and scope of the environmental monitoring program described, and the currently observed low levels of effect, the Commission asked CNSC staff and Rio Algom whether either considered the program to be over-engineered in the circumstances. CNSC staff stated that the type and frequencies of monitoring have, in its view, been designed to support the current intent of each aspect of the program. CNSC staff noted that although the extent of the monitoring in the future will be driven by observed behaviour and stability of the sites, data from a few more annual cycles will be required before the apparent stability in the initial results can be confirmed. Rio Algom expressed its opinion that, although the environmental monitoring program is presently more detailed than typical, it sets a good and meaningful standard in the circumstances.

Further on the level of detail in the monitoring program, an intervenor (ELRFSLU) expressed the view that the monitoring programs should be kept broad and more detailed than strictly scientifically justifiable in order to continue to provide the public with confidence in the cleanliness of their environment. The ELRFSLU is of the view that progressive reductions in the monitoring program poses a risk of eroding public confidence in the safety of the facilities and health of their environment.

Also on the matter of maintaining public confidence and managing perceptions of risk in the community, the ELRFSLU requested that the Commission use its authority to require Rio Algom to continue to use the accredited Field Station Laboratories in Elliot Lake for the analysis of environmental samples on the condition that the laboratory remain technically competent and

cost-competitive. The ELRFSLU is of the view that this would help meet commitments made to the earlier federal environmental assessment panel (Kirwood Panel) and would build public confidence by having local people engaged in the work. The ELRFSLU explained to the Commission that Rio Algom plans to seek competitive bids from large commercial laboratories for future sample analysis work. The ELRFSLU stated that, although it is competitive on a normal sample cost basis, the Elliot Lake Field Station laboratory may not be able to compete against predatory bids from commercial labs attempting to increase market share. The Commission, although sympathetic to the concerns expressed about the need to maintain public confidence and address perceived risk, noted that the CNSC's mandate does not allow the Commission to dictate the business arrangements of licensees -- providing that the objectives of protecting health, safety and the environment have been met.

Intervenors expressed concern about the need for various forms of independent assessment to further strengthen public confidence, including with respect to the monitoring program results. For example, the City of Elliot Lake observed that the public is provided with large amounts of technical information with no independent review process provided. The Standing Environmental Committee (SEC) of the Serpent River Watershed also noted that the environmental assessment and licensing documentation makes no mention of independent analysis of the health of the Serpent River Watershed. The SEC recommends an independent review process so that people do not need to rely on information from the company and the regulator. The United Steelworkers of America made a similar recommendation for technical review assistance in its intervention. As noted above, the ELRFSLU also stressed the importance of building transparency and community trust by ensuring the monitoring and analytical test work is carried out by a local, independent, accredited laboratory.

With respect to the matter of independent analysis, the Commission is of the opinion that the quality assurance processes and procedures in the program are such that objective, accurate and auditable data will be generated (see section 5.4 of this *Record of Proceedings* for further discussion of quality assurance). Furthermore, the CNSC, as an independent regulator, will continue to assess the quality of the environmental monitoring program and make its findings available to the public. The environmental monitoring program will be a requirement of the licence and thus (as requested by several intervenors) significant changes to the program will require regulatory approvals by the Commission, or a person authorized by the Commission. On that basis, the Commission is of the view that further independent assessment of the environmental effects is not required at this time.

The request for access to independent technical reviewers by intervenors also arose during the Commission's examination of the proponent's public information programs. Further discussion of the matter is therefore contained in section 5.8 below (Public Information Program).

Based on the information provided, the Commission is satisfied that the proposed environmental monitoring program has been designed to be of sufficient breadth and scope to ensure early detection of any significant effects of the project on the environment. The Commission is also satisfied that all relevant stakeholders, including the public, have been, and will continue to be provided adequate opportunity to be informed about the program and its results (see also section 5.8 (Public Information Program)).

5.3.4 Conclusions on Environmental Protection

Based on the results of the screening environmental assessment (addressed above in Part 1, section 4 of this *Record of Proceedings*), and based on a further examination of the specifics of the environmental engineering of the facilities and proposed environmental monitoring program, the Commission concludes that, for the purpose of the proposed application for a Waste Facility Operating Licence, Rio Algom has made, and will continue to make, adequate provision for the protection of the environment.

5.4 Quality Assurance

CNSC staff indicated that it has reviewed Rio Algom's quality assurance program and finds it to be acceptable and in compliance with the regulatory requirements.

Rio Algom, in its presentation, added that its Elliot Lake operations are in compliance with its corporate policies and standards for the protection of health, safety and environment. Compliance with these corporate requirements is confirmed through regular internal audits.

The Commission, in its questioning of Rio Algom, sought further information on the company's standards for health, safety and environment. Rio Algom elaborated that these standards and programs were developed between Rio Algom and its new parent company BHP Billiton. Rio Algom explained that there are a series of 21 statements of management which form part of the quality assurance program. Rio Algom further noted that its environmental management system is certified under the ISO 14001 standard. When asked by the Commission whether the 21 management statements were reviewed by the CNSC, CNSC staff noted that the high-level documents relevant to the application had been examined and found to be satisfactory.

An intervenor (SEC) expressed concern that Rio Algom's application contains insufficient information on the exact scheduling of the audits for quality control and quality assurance, and on how the information from the audits and subsequent follow-up actions would be distributed. The City of Elliot Lake also expressed an interest in having access to internal audit information. The matter of public access to the quality assurance program and its results (as raised in the intervention by the SEC) is addressed below in section 5.8 (Public Information Program).

Based on the above description of Rio Algom's quality assurance program, the Commission is satisfied that the quality assurance program meets the regulatory requirements for the purpose of the proposed licensing action.

5.5 Security

On the matter of the physical security of the waste sites, CNSC staff remarked that acceptable measures are currently in place to prevent inappropriate access, removal of material and sabotage. Rio Algom elaborated that access to each site is controlled by locked gates at road

access points and that appropriate signs are posted. Furthermore, the effluent treatment plants at Nordic and Pronto are protected from unauthorized intrusion and have remotely monitored alarm systems.

Based on this information, the Commission concludes that Rio Algom has made adequate provisions to maintain security at the waste management sites.

5.6 Safeguards

CNSC staff reported that the applicant has made adequate provisions to implement the international safeguards obligations to which Canada has agreed. Specifically, CNSC staff are of the view that the proposed activities are in conformity with Canada's international obligations under the *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management* (June 2001).

Based on this information, the Commission concludes that Rio Algom has met all of the regulatory requirements concerning safeguards for this application.

5.7 Emergency Preparedness and Response

CNSC staff described what it considers to be an acceptable emergency preparedness and response program for the waste management facilities. CNSC staff noted that the program focuses on accidental releases of material and contaminants from the sites. The plan includes a response and notification process, as well as contingency actions to be taken.

Based on this information, the Commission is satisfied that an adequate emergency preparedness and response program is in place at the waste management facilities.

5.8 Public Information Program

5.8.1 CNSC Staff Assessment

CNSC staff described what it considers to be an acceptable public information program for the facility as operated by Rio Algom. The program consists of: newsletters and other printed materials; access to technical reports in central locations; signage on the sites; a telephone information line; and regular contact with stakeholders, including First Nations, and local environmental and economic groups.

5.8.2 Community Consultation Committees

With regard to local environmental committees, CNSC staff noted that Rio Algom had previously established a *Decommissioning Review and Advisory Committee* (DRAC). The DRAC participated in the review of the screening environmental assessment and other aspects of

the facility development activities during the period of 1998 - 2000. The DRAC has since disbanded and some of the members came together under a new committee, independent of Rio Algom, known as the *Standing Environmental Committee (SEC) of the Serpent River Watershed*.

5.8.3 Sustaining the Public Information Program

In its intervention, the SEC expressed concern that the public information program should not be allowed to diminish to the point that the local people eventually become unaware of the facilities. In that regard, the SEC, although recognizing the responsible efforts of Rio Algom thus far to inform the public, expressed the view that the information program remains largely reactive, as opposed to proactive. The SEC is also concerned that only one Rio Algom employee now remains in the community and that public tours of the facilities were terminated in 2001. The SEC recommended that the Commission require, as a condition of the licence, that Rio Algom make at least one annual “presentation” in each of the communities of the City of Elliot Lake, Township of the North Shore, and the Serpent River First Nation. The City of Elliot Lake also raised concerns about the reduced presence of Rio Algom in the community and similarly recommended that yearly presentations to the public be made a condition of the licence, the first meeting being as soon as possible to address current concerns about health effects. Other intervenors, including the United Steelworkers of America, Northwatch and the Elliot Lake Field Station also expressed general concerns about recent reductions in consultation efforts by Rio Algom and the need for a sustained and proactive information program.

The City of Elliot Lake is of the view that a sustained and pro-active information program is needed to prevent an “*out-of-sight, out-of-mind*” attitude from developing. The City is of the view that this is particularly important in Elliot Lake where there is a relatively older demographic and a high population turn-over rate. The City noted that an up-to-date web site would be helpful. In response to a question from the Commission on the possibility of a web site, Rio Algom expressed its willingness to establish such a web site, but wished to first consult with the communities on what they wanted in terms of the preferred media for information exchange.

Concerning the alleged diminishing public information program, the Commission questioned Rio Algom as to why the site tours had been cancelled in 2001. Rio Algom explained that although the site tours were very popular while the sites were being remediated and constructed, interest in the tours has since dropped off significantly. Rio Algom also noted that there has been generally low attendance at its public forums despite extensive advertising.

On the matter of a diminished physical presence of Rio Algom in the project area, the Commission sought the views of CNSC staff on whether a single Rio Algom employee would be able to effectively manage the sites and operate the public information program. In response, CNSC staff expressed confidence that Rio Algom, with the assistance of its head-office staff and its contractor in Elliot Lake (Denison Environmental Services), would be able to effectively fulfill the requirements of the licence and regulations. Rio Algom provided further assurances to the Commission that the Elliot Lake-based employee would not be left to handle all of the operational event responses and public consultation activities alone; Rio Algom’s headquarters

staff and Denison Environmental Services Inc. will be immediately available to assist as required.

5.8.4 Public Understanding and Trust of Information

The City of Elliot Lake, SEC, United Steelworkers of America and Northwatch also commented in varying ways on the general difficulty that many people in the community have in understanding and interpreting the technical information available and, as noted above in section 5.3.3 (Environmental Monitoring Program), recommend that some form of independent review process be established. The United Steelworkers of America cited the role played by the *Canadian Institute for Radiation Safety* (CAIRS) in the Bancroft-Paudash Lake project as an example of the value of an independent reviewer in assisting public involvement. The City of Elliot Lake expressed the view that independent reviewers would help decrease the public's reliance on information from the private company and government bureaucrats that, in the City's opinion, the public considers unreliable. The United Steelworkers of America made similar statements about what it considers to be a public distrust of government agencies in these types of issues, due in part to what it characterized as the stake that the proponent and CNSC have in the outcome.

The Commission, while reminding the hearing participants that the Commission is an independent tribunal, sought clarification of the above-noted broad condemnations by intervenors of the reliability, competence and motives of the CNSC and the public service in general. On the question of the CNSC staff's alleged "stake" in the decisions, the United Steelworkers of America representative stated that the CNSC staff has a stake in upholding the regulations as written and interpreted by the staff. The representative from the City of Elliot Lake, citing the Walkerton Ontario water contamination incident as a possible factor, stated that he is aware of sentiments in the community of a general distrust, or lack of confidence, in all levels of government to protect the public. The City's representative stated that all levels of government need to work to manage this expectation and address the misconceptions and ignorance among the public concerning the regulatory processes.

The Commission agrees with the importance of explaining its independent regulatory licensing process to the public and thus is supportive of the recent initiatives of CNSC staff to meet with the public when carrying out inspections and audits in the project area. The Commission notes that a CNSC staff Open House is planned for September 2002.

The City of Elliot Lake also requested that "plain-language" summaries of the technical reports be prepared to assist people in understanding the issues. The City of Elliot Lake explained that such summaries would assist City staff in responding to the many questions from the public that it receives. Although sympathetic to the request for "plain language" information, the Commission expressed the view that it is often difficult to properly capture complex issues, such as health risk, in plain language. In response to these observations of the Commission, the City of Elliot Lake agreed with the need for caution in summarizing the technical information, but reiterated the need to augment the current "all-or-nothing" situation with some appropriate type of mid-level documentation. The City of Elliot Lake also noted that it is generally encouraged

by Rio Algom's statements during the hearing concerning its intent to re-examine the public information program, including in regard to the preparation of appropriate summary information.

5.8.5 Rio Algom's Commitments for the Future

In response to a follow-up question from the Commission on the future of the public information program, Rio Algom indicated that it intends to continue to operate an information program with the intent of providing the public with the relevant information and for the purpose of ensuring that Rio Algom understands the issues and concerns of the public. Rio Algom stated that it is committed to working with the communities on the information program and remains flexible to provide reports as requested by the communities. Rio Algom stated that, if there is interest, Rio Algom is willing to provide annual reports, hold annual meetings, conduct site tours, and arrange for community representatives to attend inspections and audits. In response to comments from Northwatch on the lack of consistency (for example, in the notification of stakeholders of information opportunities), Rio Algom acknowledged the need to improve in this area.

The Commission observed that, although the intervenors are generally encouraged by the statements made by Rio Algom during the hearing to re-evaluate and improve its public information program, the intervenors want assurance that these commitments will be sustained to meet the longer-term information needs of the communities.

5.8.6 Conclusions on the Public Information Program

Based on the information presented for the hearing, the Commission is satisfied that Rio Algom has an adequate public information program, and that Rio Algom will continue to work with the affected communities to enhance the program for the future licensed operation of the facilities. The Commission notes that the program will include the maintenance of contacts with local interest groups and other stakeholders, and the continued placement of the relevant reports in public locations in the various communities (and possibly on a dedicated web site) at least on an annual basis. As the maintenance of an acceptable public information program is a requirement of the regulations under the NSCA, the Commission does not consider that a specific licence condition on this matter (as suggested by the SEC and City of Elliot Lake) is necessary.

5.9 Decommissioning and Financial Guarantees

CNSC staff explained that because the facility represents a permanent "post-decommissioning" state, no decommissioning plans are required. A financial guarantee, however, is required to ensure the inspections, maintenance and monitoring activities will continue into the future. In their interventions, Northwatch and Mining Watch Canada noted the importance of having a secure financial guarantee in place. For this purpose, Rio Algom presently has a \$14.6 million letter of credit in place. CNSC staff indicated that it currently finds this amount adequate for maintaining and monitoring the sites in perpetuity. CNSC staff will review the adequacy of the guarantee amount annually.

The Commission sought clarification on the operating and monitoring budgets for the sites. Rio Algom stated that the current annual operating and maintenance cost for the five historic waste sites is approximately \$2 million. In addition, the cost associated with the monitoring program for the same sites is approximately \$1 million per year, of which approximately \$300,000 is for the environmental sample analysis, and the remaining \$700,000 is for sample stewardship, interpretation and reporting.

Based on the information provided, the Commission is satisfied that an adequate financial guarantee is in place for the facility operations over the long-term. The Commission requests CNSC staff to provide information on the status of the financial guarantee at the time of the licence renewal in 2005 (see section 5.10 below).

5.10 Licence Term

Rio Algom has applied for a licence of indefinite term. CNSC staff recommended that an indefinite term be accepted by the Commission for a number of reasons set out in CMD 02-H10. CNSC staff considers that an indefinite term would be consistent with: the long-term and general static nature of the facility operations; the generally well characterized hazards; the acceptable measures for protecting people and the environment; and the good compliance record of the proponent. CNSC staff also noted that an indefinite term would be consistent with other similar CNSC licences in place at other mine waste facilities in Elliot Lake and Bancroft, Ontario.

CNSC staff proposed that a detailed review (including a status report) of the facility performance be conducted in approximately 3.5 years, with similar reviews taking place every five years thereafter. CNSC staff explained that this reporting frequency would align with the scheduled output from the Serpent River Watershed Environmental Effects Monitoring Program, thus allowing combined up-to-date reporting to the Commission on both the facility operations and the overall effects of the facilities on the surrounding environment. In response to a question from the Commission on this matter, Rio Algom concurred that this would be an optimum reporting schedule.

An intervenor (Northwatch) recommended that the Commission reject the notion of an indefinite licence term and that no more than an initial two-year licence be considered. The United Steelworkers of America also recommended against an indeterminate licence term. Northwatch stated that subsequent five-year licences could be contemplated, depending on the results of the monitoring programs. Northwatch also recommended that changes to the licence conditions, including those related to the monitoring program should only be considered at the time of licence renewals. Northwatch is of the view that this would provide the public with opportunities to make its views formally known to the Commission at each application for licence renewal. In response to questioning from the Commission, Northwatch indicated that, in light of the above-noted monitoring program cycle, a 3.5 years initial licence term and status reporting may be acceptable to Northwatch. CNSC staff also expressed the view that, if the licence were not to be of indefinite term, then the next logical time frame for the initial licence would be 3.5 years.

Based on the information summarized above, including the general concerns expressed by many of the intervenors about their needs and desires to remain actively involved in the immediate future licensing processes, the Commission concludes that the licence for the Spanish American, Lacnor, Milliken, Nordic/Buckles and Pronto waste management facilities will be for a term of approximately 3.5 years (or until December 31, 2005). The Commission may reconsider the possibility of an indefinite licence term at the time it considers an application for the renewal of the licence.

In making this decision on the term of the licence, the Commission took account of the fact that the proposed waste management facilities, and the other licensed tailings management facilities in the area, have great significance in the history, current culture and environment of the affected communities. The Commission also notes that much of the construction and remediation work at the sites has only recently been completed and that the environmental monitoring programs will need to operate through at least a few additional annual cycles before the stability and trends in the results observed thus far can be confirmed with a high degree of confidence. This has led the Commission to conclude that it is in the public interest to bring the matter of the licence renewal before the Commission at a public hearing in approximately 3.5 years.

In the meantime, the Commission requests CNSC staff to inform the Commission of any unplanned significant developments affecting the facilities during the licence period by way of Significant Development Reports, presented at regularly scheduled meetings of the Commission, or, if more urgent, directly through the Secretary of the Commission.

6. Conclusion

The Commission has considered the information and submissions of the applicant and CNSC staff as set out in the material available for reference on the record, as well as the oral and written submissions made by the intervenors.

The Commission therefore issues Radioactive Waste Facility Operating Licence WFOL-W5-3101.00/2005, pursuant to section 24 of the *Nuclear Safety and Control Act*, to Rio Algom Limited. The licence is valid until December 31, 2005, unless suspended, amended, revoked or replaced.

Marc A. Leblanc
Secretary,
Canadian Nuclear Safety Commission

Date of decision: June 27, 2002

Date of release of Reasons for Decision: August 16, 2002

Appendix A

Intervenors	Document Number
Elliot Lake Research Field Station of Laurentian University, represented by D.R. McCreath	CMD 02-H10.2
Northwatch, represented by B. Lloyd	CMD 02-H10.3
United Steelworkers of America, represented by J. Perquin	CMD 02-H10.4
City of Elliot Lake, represented by D. Gagnon	CMD 02-H10.5 CMD 02-H10.5A CMD 02-H10.5B
Standing Environmental Committee of the Serpent River Watershed	CMD 02-H10.6
Mining Watch Canada	CMD 02-H10.7