

ENVIRONMENTAL REGISTRATION DOCUMENT
FOR STELLARTON PIT MINE EXTENSION
VOLUME II - APPENDICES



Mining Operations – East of MacGregor Avenue

Submitted to Nova Scotia Department of Environment and Labour

By Pioneer Coal Limited

January 2004

APPENDIX A
REFERENCE LIST

Appendix A - Reference List

The following is a list of select documents and mapping pertinent to the proposed undertaking that were reviewed and/or referenced in the preparation of this ERD. In addition, various written correspondence was reviewed and discussions held with numerous individuals.

Analyses and Reactivity of Pioneer Coal Sample. Hazen Research, Inc. 2000.

Approval to Construct and Operate – Surface Coal Mine, Stellarton, Pictou County – Approval No. 2001-023478-A03. Nova Scotia Department of Environment and Labour. 2003.

Backfill Stability Evaluation. Jacques Whitford and Associates. 1996.

Canadian Climate Normals. Environment Canada. 2000.

Environment Act. 1994-95, c. 1, s. 1.

Environmental Assessment Regulations. (N.S. Reg. 44/2003).

Environmental Assessment Report for the Proposed Stellarton Pit Mine. Pioneer Coal Ltd. 1995

Erosion and Sediment Control Handbook for Construction Sites, 1998.

Geological / Engineering Report. Highwall Mining Trial Panel. 2001.

Guide to Preparing an EA Registration Document for Mining Developments in Nova Scotia. Nova Scotia Department of Environment and Labour. 2002.

Guidelines for the Formation of a Community Liaison Committee. Nova Scotia Department of Environment and Labour.

Habitat Investigation: Areas of Proposed Extension of Stellarton Pit coal Mine East of MacGregor Avenue. Nova Scotia Department of Natural Resources. 2003.

Highwall Stability Assessment of Stellarton Pit Mine. Dr. S. Zou. 1997.

Industrial Approval #95-052. Nova Scotia Department of Environment. 1996.

Letter of Offer – Proposed Lease of Crown Land. Nova Scotia Department of Natural Resources. 1999.

Mining Permit No. 0044. Nova Scotia Department of Natural Resources. 1996.

Nova Scotia Well Survey Database. Nova Scotia Department of Natural Resources. 1997.

Proponent's Guide to Environmental Assessment. Nova Scotia Department of Environment and Labour. 2001.

Report and Recommendations on the Stellarton Pit Mine. Environmental Assessment Administrator of the Nova Scotia Department of Environment. 1995.

Seizing the Opportunity. Vol. 2. Nova Scotia's Energy Strategy. 2001.

Special Mining Lease No. 96-1. Department of Natural Resources. Amended 2002.

Stellarton Methane Determination. Vaughan Engineering Ltd. 2001.

Stellarton Pit Mine Project: Environmental Assessment Conditions of Approval. Nova Scotia Department of Environment. 1995.

Stellarton Open Pit Coal Mine – Noise and Dust Assessment. CBCL Ltd. 2002.

Topographic Series 1:50,000. Third Edition. Energy, Mines and Resources Canada.

Various Safe Work Practices and Contingency Plan. Pioneer Coal Ltd. (unpublished).

Various Monitoring Results (Dust, Noise, Surface Water, Groundwater and Aquatic Habitat). Pioneer Coal (unpublished). 1996 to present.

Watershed Mapping for Nova Scotia. Nova Scotia Department of the Environment. 1980.

APPENDIX B
CURRENT APPROVALS AND CORRESPONDENCE

REPORT and RECOMMENDATIONS

on the

STELLARTON PIT MINE

PIONEER COAL LIMITED

submitted to the

MINISTER of the ENVIRONMENT

prepared by

ENVIRONMENTAL ASSESSMENT ADMINISTRATOR

October 14, 1995

STATEMENT ON PROJECT ACCEPTABILITY

Surface mining is a carefully regulated activity, and the semi-urban location of this proposed mine lends itself to intense public scrutiny. Because the activity is highly regulated, and the environmental impacts well understood, mitigation of these impacts is well known, and if consistently and stringently applied, very effective in reducing or eliminating adverse environmental impacts.

The lands slated for mine development in Stellarton are undermined by shallow, abandoned mine workings, and therefore not suitable for any form of development because of the potential for subsidence. Surface mining is the only known effective method of restoring the lands to other uses. If not surface mined, the land will remain as a hazard and be of no use to the Town of Stellarton.

Nova Scotia depends upon a secure coal supply for power generation. Over 74% of the provinces' electricity comes from coal fired generating plants, which support a coal industry that directly employs over 2,000 persons. It is appropriate to provide Nova Scotia's energy needs from indigenous sources, where labour and environmental laws strictly control the coal industry. Security of supply of Nova Scotian coal to the power plants depends both upon a healthy mainland and Cape Breton coal industry.

The coals proposed to be mined have low sulphur contents, and their use in power production will greatly assist Nova Scotia in achieving its national commitments for sulphur emission reductions. Coal used in power plants that is produced from a blend of low sulphur Stellarton coal with higher sulphur content Cape Breton coal, will produce an optimum blend to meet NSPI specifications at the Trenton generating station.

This Report and Recommendations concludes that the surface mine can be developed and operated without adverse environmental impacts. Any environmental impacts can be mitigated or lessened through application of controls and measures proposed by the proponent, and in accordance with provisions of environmental assessment approval, and with provisions of the required subsequent environmental and mining approvals.

It is therefore recommended that the Minister of the Environment approve the Stellarton Pit Mine proposal of Pioneer Coal Limited, subject to the recommendations contained in this Report and Recommendations, and in consideration of the Report and Recommendations from the Environmental Assessment Board.

government review agencies from May 12, 1995 until June 29, 1995.

On May 9, 1995, the Minister referred the E.A. Report to the Environmental Assessment Board, who convened public hearings on the Stellarton Pit Mine proposal in the Town of Stellarton on the 4th, 5th, 6th and 10th of July 1995.

1.2 Environmental Review Participants

The Environmental Assessment Administrator coordinated a technical review of the E.A. Report by government agencies and by the public. Comments were submitted by the following departments and agencies.

**Nova Scotia Department of the Environment
Industrial Pollution and Control
Water Resources
Pictou District Office**

**Nova Scotia Department of Natural Resources
Forest Resources, Truro Office
Mining Engineering**

**Nova Scotia Department of Education and Culture
Nova Scotia Museum**

**Nova Scotia Economic Renewal Agency
Project Analysis**

**Nova Scotia Department of Transportation and Communications
Environmental Engineering**

**Nova Scotia Department of Municipal Affairs
Provincial Planning Section**

**Fisheries and Oceans Canada
Habitat Management Division, Gulf Region**

SECTION 2.0 PROJECT DESCRIPTION

2.1 Introduction

Pioneer Coal Limited is proposing to develop and operate a series of surface strip mines in the MacGregor Avenue/Foster Avenue area of Stellarton in Pictou County, Nova Scotia. Areas identified by Pioneer Coal Limited for mining contain an estimated four million tonnes of coal in the Foord, Cage, Third, Fleming and MacGregor coal seams to a depth of approximately 120 metres. The company proposes to extract up to 200,000 tonnes coal per year, giving a mine lifespan of about twenty years. Approximately 50 people will be employed at the mine.

The proposed mine site is located in the central portion of the Pictou coalfield, which has yielded more than 65 million tonnes of coal over more than 165 years. Extensive underground mining in the Stellarton - Westville - New Glasgow area has left many areas of land rendered unsafe, unattractive and unusable for other land uses because of abandoned mine workings, coal and wasterock dumps, and areas prone to subsidence and surface collapse due to shallow underground workings.

2.2 Mine Development and Operation

The initial development is to involve three pits on the west side of MacGregor Avenue that would extract coal from the Foord, Cage/Third, and McGregor/Fleming seams. Following progressive reclamation and rehabilitation of these three pits, mining of the Cage/Third and McGregor/Fleming seams to the east of MacGregor Avenue is proposed. The feasibility of developing a third pit east of the avenue to extract coal from the Foord seam will be evaluated sometime after approximately the 15th year of mine operation, depending on geological, economic and environmental experience obtained from preceding operations. The mining schedule proposed by Pioneer Coal indicates that normally only one pit will be open at once, with development of a subsequent pit to start in the final mining and reclamation phases of a preceding pit.

Mining will be conducted by conventional earth moving equipment; blasting is not contemplated. Topsoil, overburden and wasterock overlying the coal seams will be excavated by bulldozers equipped with mechanical hydraulic rippers, and stockpiled initially by dumptrucks next to the pit. The company is proposing to use a conveyor system to move rock out of the pit once initial earth moving and site preparation operations for the first pit have been completed.

SECTION 3.0 | ISSUES

Coal mining has a long history in Nova Scotia. Many areas were significantly aided in their growth through coal mining, such as the Sydney, Glace Bay and Inverness areas of Cape Breton, and the Springhill, Joggins, and the Stellarton - Westville - New Glasgow areas of the mainland. Settlements grew up around the underground coal mines, and unfortunately on top of many remaining surface deposits. Land use conflicts between surface mining and nearby residential settlements therefore are common.

Environmental concerns and impacts of surface mining in semi-urban areas are very similar from project to project, and commonly result from the usual proximity of surface mines to residential areas, i.e., dust and noise, water quality impacts, truck traffic, perceived devaluation of residential properties, etc. Similarly, the mitigation or elimination of these commonly occurring impacts is normally handled through well known, effective methods and procedures.

Submissions from government agency reviewers primarily concerned details of the proposed development such as mining plans, procedures and plans regarding coal washing and blending, and mitigative measures designed to protect surface watercourses. Some concern was expressed over a lack of current environmental baseline data on surface and groundwater conditions, and on fish habitat.

Table 1 provides a first glance comparison of the Stellarton mine proposal with other coal mine proposals in Nova Scotia that have been subject to environmental assessment; Alder Point Coal Mine, Sullivan Creek Mine, Evans Coal Mine, Toronto Road Mine, McBean Surface Mine and the Springhill surface mine developments.

3.1 Social Issues

Proposals to strip mine coal at this site in Stellarton have been of significant concern to residents ever since the land surface was initially disturbed by the 23,000 tonne bulk sample program of George F. Wimpey Canada Limited in 1978. Public concern was heightened from activity at the site associated with the 100,000 tonne bulk sample mined by Westray Coal in 1992.

The prevalent issue noted in the public submissions was a perceived disruption of lifestyle resulting from operation of the project for an approximately 20-year period. Many submissions of those opposed to the proposal maintain that residents in homes adjacent and near to the mine site, will have to endure many environmental impacts including increased noise, dust, traffic, and potential surface subsidence, all of which will disrupt a quiet, semi-rural lifestyle. The experience of Westville residents with noise, dust and lifestyle disruption caused by the strip mine that operated in the centre of their town for many years was presented as an example of what Stellarton residents can expect. Many also argue that the coal is not necessary, as cheaper coal supplies are available from other sources.

The proponent does concede that there would be negative impacts to residents from the proposed development; *"There is however, some cost of negative impact to be borne during the operational period. This will include: the ongoing physical land disruption, occasional effects of noise, and possibly elevated dust levels in the immediate area of the mine."*

As mentioned previously, most public involvement to this environmental assessment process occurred at the public hearings. The issue of social impact is therefore expected to be dealt with in more detail in the Report and Recommendations to the Minister from the Environmental Assessment Board.

Conclusion

It is concluded that residents in the immediate vicinity of the undertaking will certainly be aware of daily operations at the mine, and may occasionally experience undesirable noise, dust or truck traffic levels. The company has expressed a willingness to meet with any residents in the area who feel they are being adversely affected by the mine, and has suggested that a Community Liaison Committee be formed as a means by which local area concerns can be brought to the company's attention, and by which Pioneer Coal can keep the community informed of the project's progress.

Environmental Assessment Report and Recommendations

The company has stated that mining operations will cease in July and August of each year for annual maintenance. It is not clear if coal will be transported to the blending area on site for processing during this shut-down period. If so, it is not clear what environmental controls, dust suppression methods and site security will be employed during this period.

Recommendation

3.2.1 **Blasting is not permitted.**

3.2.2 **All mining and related site activity is prohibited between the hours of 11:00 p.m. and 07:00 a.m. The proponent shall provide NSDOE with advance notice for approval, of any activities planned to occur between these hours, that have the potential to cause disturbance to local area residents, such as excessive machinery and vehicle movements, truck operations, blending facility operation, etc.**

3.2.3 **The following information is to be submitted as part of the application of any necessary Industrial Approvals required under the Environment Act.**

1. **Mining plans for all areas, including areas located north of Foster Avenue and east of MacGregor Avenue.**
2. **Summer mine activity plans, including maintenance, environmental monitoring plans and schedules, and site security procedures.**

3.3 **Coal Preparation, Washing and Blending**

The primary customer of Stellarton Pit Mine coal is the Nova Scotia Power Trenton power plant, which requires coal with a maximum ash content of 20%. With Foord Seam coal ash contents of about 25%, and Cage/Third ash contents from 22.5 - 31.6%, it is necessary to blend the higher ash content Stellarton coal with lower ash content coals to produce a product suitable for the Trenton power plant. Pioneer is proposing to blend coals on a paved site near the entrance of the Stellarton Pit Mine. Any reject coal produced by the blending operations will be backfilled in the pit, along with waste rock. Pioneer also indicates that on occasion it may be necessary to transport coal to the coal washplant operated by Pioneer in Westville.

A number of environmental problems can be created from blending operations if not properly

3.4 Reclamation

Pioneer Coal Ltd. is proposing to progressively reclaim the land following coal exaction by placing the wasterock back into the excavation. The re-filled excavations are then contoured and covered with overburden and topsoil, and revegetated. Site rehabilitation of surface mines is well controlled by environmental approvals and by the Mineral Resources Act, which requires the company to reclaim the site to an environmentally acceptable state.

In site reclamation, a depression does not remain after coal is mined because the overlying waste rock that is removed occupies a greater volume when placed back in the pit because of a swell factor Pioneer Coal estimates this swell factor to be 30%, however geologists from the Department of Natural Resources observed a swell factor of less than 30% at the surface mining operations of Pioneer Coal Ltd. at Westville. If this observation is valid for the operations at Stellarton, then final rehabilitated land contours may be different from any proposed in consideration of a 30% swell factor .

The company states that *"the waste piles will be constructed in lifts and side slopes will be progressively vegetated as each lift is completed."* As waste rock cannot normally be vegetated without the addition of soil, additional details are required from the company on how they intend to stabilize wasterock piles

Another unknown that could be significant is the method by which the company intends to move wasterock back into the excavation. To reduce site noise and dust creation, Pioneer Coal Ltd. intends to use a conveyor system to move wasterock out of the pit, and back into the pit for the reclamation process. It is unclear how placing the waste back into the pit by this method can be accomplished without creating excessive dust .

Recommendation

The following information is to be submitted for review and approval as part of the application for an Industrial Approval, and also submitted to the Department of Natural Resources for review and approval.

- 3.4.1. A preliminary reclamation plan, that includes topsoil and overburden movement and tailings disposal procedures, methods and schedules. These plans are to discuss proposed procedures for wasterock stabilization.

crushing, overburden, topsoil and waste rock stockpiling, not be permitted on both sides of MacGregor Avenue simultaneously.

3.6 Dust Impacts

One of the most significant public concerns are the potential impacts of coal and waste rock dust emissions from the proposed mine. Fugitive particulate emissions can result from the mining operation itself, from truck movements, coal stockpiling operations, and from wind eroded particulates from overburden, soil and wasterock stockpiles.

Pioneer Coal Ltd. intends to use wet suppression as the primary mitigative measure for the waste piles at the site and on all truck haul roads. Wet suppression for dust control is acknowledged to be very effective if applied consistently. Vegetative cover is proposed for stabilization and erosion control of overburden and wasterock stockpiles.

A common source of public complaint is from dust, mud and dirt being carried by trucks leaving mine sites and deposited on public highways, and blowing off the trucks into off-site areas. This dust source can be adequately mitigated by washing and inspecting trucks leaving the site.

Pioneer Coal has indicated that tractor trailers leaving the site with coal shipments will be fitted with tarp covers to minimize dust emissions and spillage. In addition, the company states that coal haulers be restricted to the paved entrance and coal blending area of the site, and will not enter disturbed, non-paved areas. Trucks leaving the site are proposed to be washed.

Recommendation

Given the high degree of public concern over dust emissions, the following recommendations are made to ensure an appropriate level of dust monitoring and control for the proposed mine.

- 3.6.1 A dust suppression and monitoring program shall be submitted to NSDOE for review as part of the application for an Industrial Approval. No site disturbance shall be undertaken without the approval of NSDOE until the plan is approved, and until monitoring sites and procedures are established.
- 3.6.2 All coal and waste rock transportation trucks are to be washed in the paved blending - truck wash area before leaving the site. All coal shipments from the site are to be

Conclusion

It is concluded that characterization of baseline environmental conditions for natural surrounding surface waterbodies that could be impacted by the project is inadequate. The information must be updated so that current water quality, quantity, and fish habitat can be accurately described, and serve as a baseline to which future environmental data can be compared.

Recommendation

Before any new excavations are started, or other surface activities that in the opinion of appropriate NSDOE staff have the potential to adversely impact surface water quality or fish habitat, the proponent shall:

- 3.7.1 Conduct an environmental baseline water quality and quantity survey of receiving waters. Water flows in Bear Brook shall be determined to check on theoretically determined values. Survey sample suite, sample locations and frequency and other monitoring parameters shall be submitted to NSDOE for review and approval.
- 3.7.2 Undertake a baseline fish habitat survey and benthic organism inventory survey of receiving waters. The proponent shall consult with Fisheries and Oceans Canada as to details of the survey, including extent. Survey results are to be submitted to NSDOE for review and approval.
- 3.7.3 Submit for review and approval as part of the application for an Industrial Approval, an environmental effects monitoring program to gauge the long term impacts of site effluent discharges on water quality and fish habitat of nearby streams and waterbodies.

3.8 Surface Water Control and Watercourse Protection

Surface water control, management and monitoring procedures for surface mining activities are well known to the permitting agencies, and proper engineering design can ensure that all mine site discharges are within acceptable water quality standards. Acceptable water quality parameters and discharge water quality data reporting procedures will be clearly identified in the required Industrial Approval.

Government agency reviewers noted several points in the proponents discussion on mine site

bedrock and surficial cover aquifers into the excavation. Depending upon the areal surface extent of water table lowering, nearby domestic water wells and local surface watercourses could be impacted. Residents in the areas where the water table is affected will experience water supply interruptions if the water table is depressed to an elevation lower than the well supplying water to their homes.

Public concern was expressed that any reduction of the water table in the vicinity of the surface mine could have the effect of removing physical-structural support for the numerous nearby abandoned underground coal workings, potentially permitting their collapse and surface subsidence.

To address these concerns of groundwater levels and quantities, the company notes that from their experience at other strip mines in Nova Scotia, the area of water table influence adjacent to a surface mine is not great, and none of their previous operations resulted in any water supply interruptions in nearby homes or businesses. These observations are reinforced, the proponent contends, by data gathered from a four month pump test conducted in 1981 at the Stellarton surface mine site. This data suggests that the level of groundwater in the immediate vicinity of the excavation will experience a decrease, but that there would be no significant impact to production capacity of local domestic wells.

Groundwater Quality

There is the potential for the surface mine to alter groundwater quality due to chemical changes in the disturbed geological materials, or through contamination from mining activities. It is probable that any groundwater quality changes due to disturbance of the bedrock would be insignificant, temporary, and limited in extent.

To mitigate against adverse impacts to groundwater quality and quantity, Pioneer Coal Ltd. has proposed a network of monitoring wells surrounding the site that would provide advance warning of any problems before they impact domestic wells or surface watercourses. Standard groundwater remediation methods following cessation of mining activities would be adequate to deal with the problems that could occur.

In recognition that domestic water supplies are of vital importance to numerous surrounding homes, Pioneer Coal Ltd. has a corporate policy relative to impairment of water which is summarized as:

- provide temporary water service
- inspection by independent party
- if responsible, repair water supply

Recommendation

Before any new excavations are started, or other surface activities that in the opinion of appropriate NSDOE staff have the potential to adversely impact groundwater, the proponent shall;

- 3.9.1 Undertake additional groundwater pump tests to predict the areal extent of any cone of depression that may be caused by pit dewatering.
- 3.9.2 Undertake a groundwater quantity and quality program to document and characterize baseline site groundwater conditions, domestic well water yield and water quality information.
- 3.9.3 Details regarding procedures and extent of these groundwater tests and monitoring programs are to be submitted by the proponent to NSDOE for review and approval.

3.10 Acid Mine Drainage

The proponent has indicated that all coals, with the exception of the Cage seam coal, and all waste rocks at the site, do not have the potential to acidify water they may come in contact with. Consequently, Pioneer Coal has concluded that acid mine drainage (AMD) is not expected to be a problem. Should acidified water be produced from Cage seam coal, then the company proposes to neutralize the water to bring the acidity to neutral or natural background levels.

Reviewers have indicated that the characterization of AMD potential conducted by the proponent is inadequate. The proponent's conclusion was based upon 10 individual samples of coal and waste rock. Coal and associated waste rock from the Purvis, MacGregor, Fleming and New Seam were not tested for this assessment.

Recommendation

Before any new excavations are started or bedrock and wasterock piles disturbed, or other surface activities that in the opinion of appropriate NSDOE staff have the potential to acidify water, the proponent shall:

- 3.10.1 Submit to NSDOE for review and approval a plan and methodology for AMD characterization.



Nova Scotia

**Department of
the Environment**

Office of the Minister

PO Box 2107
Halifax, Nova Scotia
B3J 3B7

Our file no:

John W. Chisholm
President
Pioneer Coal
P.O. Box 1328
3098 Post Road
Antigonish, Nova Scotia
B2G 2L7

Dear Mr. Chisholm:

The environmental assessment of the proposed Stellarton Pit Mine is now complete.

You may consider this letter approval of the mine proposal, subject to the attached conditions. It is important to note that failure to comply with the conditions of approval may constitute a violation of the Environment Act. This approval with conditions does not relieve Pioneer Coal Limited of its responsibility to obtain all other necessary approvals and permits required by municipal, federal and provincial agencies.

If you have any questions concerning this approval with conditions, please contact Mr. Andrew J. D. Kendall, Environmental Assessment Administrator, at your convenience.

Yours truly,

Wayne Adams
Minister



STELLARTON PIT MINE PROJECT

Pioneer Coal Limited

Environmental Assessment

Conditions of Approval

Nova Scotia Department of the Environment

November 1, 1995

Table of Contents

1.0	Community Liaison Committee	1
2.0	Mining Plans and Operations	1
3.0	Coal Preparation, Washing and Blending	2
4.0	Reclamation	2
5.0	Noise Impacts and Mitigation	3
6.0	Dust Monitoring and Mitigation	4
7.0	Surface Water Quality and Fish Habitat	5
8.0	Surface Water Control and Watercourse Protection	5
9.0	Groundwater	6
10.0	Acid Mine Drainage (AMD)	7
11.0	Spontaneous Combustion	7
12.0	Areas East of MacGregor Avenue	8
13.0	Other	8

STELLARTON PIT MINE PROJECT

Pioneer Coal Limited

Environmental Assessment

Conditions of Approval

1.0 Community Liaison Committee

The company shall form a Community Liaison Committee (CLC) with local area residents, and as a minimum, the following terms apply to the CLC.

1. The purpose of the CLC is to allow local resident concerns to be brought forward to the company for response and possible resolution, and for the company to keep the local community advised of mine developments. The CLC is an advisory body to the company, with a role to facilitate this communication between the community and the company.
2. Individual membership on the CLC is to be undertaken and continued on the understanding that the mine project has received government approval to proceed, and will proceed in accordance with all other environmental assessment conditions of release, and in accordance with all other required approvals.
3. As a general guide for the conduct of the CLC, the Guidelines for the Formation of a Community Liaison Committee are suggested as a format to be followed.
4. Terms of Reference and membership for the Community Liaison Committee shall be jointly developed by the Proponent and the CLC, and provided to NSDOE.
5. In addition to the above, the CLC shall have the functions described by Pioneer Coal in the Environmental Assessment Report.

2.0 Mining Plans and Operations

1. Blasting is not permitted.
2. All mining and related site activity is prohibited between the hours of 10:00 p.m. and 07:00 a.m. The proponent shall provide NSDOE with advance notice for approval, of any activities planned to occur between these hours, that have the potential to cause disturbance to local area residents, such as excessive machinery and vehicle movements, truck operations, blending facility operation, etc.

3. Summer mine activity plans, including maintenance, environmental monitoring plans and schedules, and site security procedures is to be submitted as part of the application of any necessary Industrial Approval required under the Environment Act.

3.0 Coal Preparation, Washing and Blending

As part of an application for an Industrial Approval for the Blending Plant at the Stellarton Pit Mine, Pioneer Coal Limited must provide the following information:

1. Blending facility and site design details including coal blending rates and volumes, dust suppression methods, reject wasterock stockpile characteristics including net acid generation potential, wasterock handling procedures, and all points of effluent emission.
2. Blending coal feedstock characteristics, including capacities, sulphur and ash contents, and net acid generation potential.
3. Procedures to separate and dispose of any reject coals, wasterock and tailings, with net acid generation potential.
4. Processing of any coal at the Westville wash plant of Pioneer Coal that does not originate from the Drummond mine of Pioneer Coal in Westville, requires separate approval from NSDOE.

4.0 Reclamation

The following information is to be submitted for review and approval as part of the application for an Industrial Approval, and also submitted to the Department of Natural Resources for review and approval.

1. A preliminary reclamation plan, that includes:
 - (a) topsoil and overburden movement and tailings disposal procedures, methods and schedules.
 - (b) proposed procedures for wasterock stabilization.
2. a detailed landscaping programme that includes:
 - (a) details of the mechanisms and planting proposed to stabilize all nonactive, but worked areas.

- (b) identification of stabilization problems posed by seasonal factors, and discussion, to the satisfaction of the appropriate government agencies, that an effective stabilization programme will be in effect at all times.
- (c) a detailed schedule of proposed reclamation of the worked areas.

This schedule must provide information on how reclamation is to proceed including detail of finished slope gradients, the nature and timing of planting, an indication whether or not planting is permanent or temporary, and an indication of any other materials that might be used to screen specific sites or to finish surfaces.

- (d) landscaping details for a reinforced minimum 30 metre buffer zone (as measured from the mine property boundaries) that provides screening for dust and noise on all sides of the proposed mining site.

The submitted plan should indicate the species of trees and shrubs, e.g., the hybrid willow, proposed to strengthen the buffer and details of their characteristics and rates of growth.

- 3. Should there be areas of the site where it is not possible to create a minimum 30 metre buffer (as measured from the mine property boundaries), or areas that pose particular problems such as the blending area, the plan is to provide detail of alternative buffering materials. The latter might include hard materials appropriate to screening and/or surface contouring such as the development of appropriately planted berms.
- 4. A final reclamation plan is to be submitted for review and approval to NSDOE six months prior to cessation of mining work at any pit.

5.0 Noise Impacts and Mitigation

Pioneer Coal Ltd. shall submit for review and approval, a noise monitoring program as part of an application for an Industrial Approval. The noise mitigation and monitoring plan shall include the following:

- 1. (a) a minimum 30 metre buffer zone, as measured from the mine property boundary
- (b) use of a conveyor belt to transport waste rock to the waste pile rather than the use of trucks.
- (c) the use of well maintained mufflers on operational equipment.

- (d) the possible use of noise baffles in the mine area.
- 2. Noise monitoring stations shall be established at appropriate positions around the perimeter of the site and on private properties close to the boundary site, operating on a daily basis and providing an adequate sampling of noise over a 12 (or 24) hour period.
- 3. Mining related activities that tend to create excessive noise, such as coal extraction and crushing, overburden, topsoil and waste rock stockpiling, not be permitted on both sides of MacGregor Avenue simultaneously.

6.0 Dust Monitoring and Mitigation

- 1. A dust suppression and monitoring program shall be submitted to NSDOE for review as part of the application for an Industrial Approval. No site disturbance shall be undertaken without the approval of NSDOE until the plan is approved, and until monitoring sites and procedures are established.

This plan will be developed in consultation with the CLC.

- 2. The coal blending area shall be paved with asphalt, and as part of the dust suppression program, the proponent shall construct non-permanent roads to and in the mine from washed gravel.
- 3. All coal and waste rock transportation trucks are to be washed in the paved blending - truck wash area before leaving the site. All coal shipments from the site are to be covered with fitted tarps.
- 4. Coal transportation trucks are restricted to the paved blending and truck wash area near the mine site access.
- 5. Activities that have the potential to create significant dust, such as wasterock and overburden stockpiling, coal extraction and processing, operation of the conveyor system and other earth moving activities, can only be undertaken during the months of July and August by approval from NSDOE.

7.0 Surface Water Quality and Fish Habitat

Before any new excavation is started, or other surface activities that in the opinion of NSDOE have the potential to adversely impact surface water quality or fish habitat, the proponent shall:

1. Conduct an environmental baseline water quality and quantity survey of receiving waters. Water flows in Bear Brook shall be determined to check on theoretically determined values. Survey sample suite, sample locations and frequency and other monitoring parameters shall be submitted to NSDOE for review and approval.

Water quality parameters to be tested for are to include, but not be limited to, pH, turbidity, suspended solids, alkalinity, aluminum and heavy metals.

2. Undertake a baseline fish habitat survey and benthic organism inventory survey of receiving waters. The proponent shall consult with Fisheries and Oceans Canada as to details of the survey, including extent. Survey results are to be submitted to NSDOE for review and approval.
3. Submit for review and approval as part of the application for an Industrial Approval, an environmental effects monitoring program to gauge the long term impacts of site effluent discharges on water quality and fish habitat of nearby streams and waterbodies.

8.0 Surface Water Control and Watercourse Protection

1. The site shall be maintained to prevent siltation of surface water that is discharged from the property.
2. Pioneer Coal shall, as part of the application for an Industrial Approval, submit:
 - (a) Plans for soil erosion prevention, sedimentation control, and wastewater effluent treatment systems. These plans shall include, but not be limited to, engineering design of flow control structures, treatment systems and wastewater impoundments, description of parameters and construction materials of all flow control structures, truck wash runoff management, and potential incorporation of emergency spillways into site drainage control structures. Site drainage and runoff control structures shall be designed to capture a 24 hour precipitation event with a 20 year statistical recurrence, or at the direction of NSDOE.

The plan should also include consideration of methods to direct run-off

from the washing of both on-site and off-site trucks to the water treatment ponds.

- (b) A wastewater management contingency plan that details the control, treatment and disposal steps that would be taken to deal with situations such as acid mine drainage, suspended solids, control of storm water events, sedimentation pond breach, etc. If untreated water from the site is entering the Middle River by way of the old workings, the flow of this water is to be contained and controlled until the mine water has been treated and is in compliance with effluent discharge limits.
 - (c) A plan for a liming treatment system and for the disposal of sludge from sediment ponds.
3. All liquid effluent discharges from the site shall be in compliance with all appropriate regulations and guidelines that pertain to water quality and fish habitat protection.
 4. The testing of water quality from the retention ponds be undertaken on a random basis at least once a month for the complete set of samples. pH and turbidity are to be tested for and recorded on a daily basis.
 5. If a flocculant aid is needed in the settling ponds, a non-aluminum based product shall be used.

9.0 Groundwater

Before any new excavation is started, or other surface activities that in the opinion of NSDOE have the potential to adversely impact groundwater, the proponent shall;

1. Undertake additional groundwater pump tests to predict the areal extent of any cone of depression that may be caused by pit dewatering.
2. Undertake a groundwater quantity and quality program to document and characterize baseline site groundwater conditions, domestic well water yield and water quality information.
3. Details regarding procedures and extent of these groundwater tests and monitoring programs are to be submitted by the proponent to NSDOE for review and approval.

4. Groundwater shall be tested from samples taken from test wells close to the existing residents on a bimonthly basis. Water levels in test wells and a representation sample of residential wells in the area are to be recorded weekly
5. If residential wells are negatively affected by the open pit mining operation, an alternate supply shall be provided.
6. A check is to be made by use of existing records or other means as to the actual elevation of the water level in the old mine workings.

10.0 Acid Mine Drainage (AMD)

Before any new excavations are started or bedrock and wasterock piles disturbed, or other surface activities that in the opinion of appropriate NSDOE staff have the potential to acidify water, the proponent shall:

1. Submit to NSDOE for review and approval a plan and methodology for AMD characterization.
2. Conduct a survey to characterize AMD potential of all coals, waste rocks, tailings, and any other bedrock materials expected to be disturbed by the project.
3. As part of the general mining plan to be submitted for government review and approval, the proponent shall include an AMD monitoring, prevention and treatment plan.
4. Kinetic or B.C. Confirmation Tests shall be performed on samples which have the potential for acid generation. The location of all samples taken for these tests shall be clearly delineated on a map.

11.0 Spontaneous Combustion

Before any previously undisturbed coal is mined or disturbed, the proponent shall:

1. Be restricted to mining only virgin coal in the Foord seam until the probability of spontaneous combustion is determined.
2. Take representative coal samples from all coal seams to be disturbed, and tested to determine the coal characteristics and susceptibility to spontaneous combustion.

3. Provide a proposed spontaneous combustion monitoring program and a coal fire extinguishing plan, and include proposals for coal fire mitigation. Mitigation is to consider, among other measures, sealing off surface openings on the site in an effort to oxygen starve a coal fire.
4. Submit this information for review and approval, plus a detailed plan to the Nova Scotia Department of Natural Resources that presents procedures and methods to reduce or eliminate any potential for spontaneous combustion.

12.0 Areas East of MacGregor Avenue

Due to the lack of information regarding the potential impacts of surface mining in the areas east of MacGregor Avenue, the open pit operation is to be confined to the area west of MacGregor Avenue.

13.0 Other

1. The proposed operator of the open pit mine shall have in place equipment and material to contain an oil or chemical spill.
2. The proponent shall take into account the historic as well as the current market value of properties on which he is acquiring options.
3. The proponent make offers to purchase properties on the west side of Foster Avenue where the mine site boundaries are in close proximity to adjacent private property homes.
4. The process of arbitration agreed to by the proponent be mandated.

NOVA SCOTIA DEPARTMENT OF THE ENVIRONMENT

*P.O. Box 2107
Halifax, Nova Scotia B3J 3B7
Tel. 902-424-6343
Fax: 902-424-0501*

FAX TRANSMISSION COVER SHEET

Date: November 1, 1995
To: John Chisholm, Pioneer Coal Ltd.
Fax: (902) 863-2291
From: Andrew J. D. Kendall
Environmental Assessment Administrator
Re: Release with Conditions, Stellarton Pit Mine

**YOU SHOULD RECEIVE PAGE (S), INCLUDING THIS COVER SHEET.
IF YOU DO NOT RECEIVE ALL THE PAGES,
PLEASE CALL <902-424-6343>.**

As discussed.

-2-

1. In this Lease, Act means the Mineral Resources Act and Regulations as amended from time to time, or replacements thereof, and except where the context otherwise requires, words in this Agreement have the same meaning as in the Act.
2. The term of this Lease shall be for 20 years beginning on the date first above written, subject to compliance with the Act.
3. The Lease shall be renewed for a further period of 20 years upon application to the Minister made within six months immediately preceding the date of expiration of this Lease, provided the Lessee is bona fide working the Lease and is in compliance with the Act and the provisions of the Lease.
4. The Lessee shall not mine on the area covered by this Lease except in accordance with a valid Permit issued pursuant to the Act.
5. The Lessee shall not enter upon or conduct any surface excavation, surface mining or other surface work upon any lands until the Lessee has obtained the consent of the landowner or tenant or a surface rights permit to enter upon or conduct the work.
6. The Lessee shall pay to the Registrar, a yearly rental as prescribed by or under the Act for each acre included under this Lease, or at such other rates as shall from time to time be determined by Order of the Governor in Council. Such rental shall be payable yearly in advance, the first payment to be made on 15th day of January 1996 next succeeding the date of the Lease, and thereafter on 15th day of January in each year.
7. The Lessee shall pay to the Mine Assessor, a royalty which is due and payable as prescribed by or under the Act, or at such other rate as shall from time to time be imposed by the Order of the Governor in Council.
8. The Lessee shall file a report on or before March 1st each year during the term of this Lease, in the form prescribed by or under the Act, of all work performed on the area covered by this Lease during the previous calendar year.
9. The Lessee shall indemnify and save harmless the Lessor from any and all claims, demands, losses, damages, actions or other suits which may hereafter arise out of, or as a result of, any exploration, mining, milling or any other act or omission.
10. The Lessee shall not disrupt or interfere with exploration or development activities performed pursuant to any existing or future petroleum or mineral rights in the area covered by this Lease. If a dispute arises between the holder of any such petroleum or mineral rights and the Lessee which dispute cannot be resolved by the rights holders involved, the provisions of Sections 170 and 171 of the Act apply. The Lessee agrees to be bound by a decision made by the Minister and agrees that the Province shall not be liable to compensate the Lessee for any losses, damages, claims or costs arising out of such dispute or the decision of the Minister made pursuant to Sections 170 and 171 of the Act.
11. Except where renewed pursuant to the Act, all rights under the Lease shall absolutely revert to the Lessor upon the surrender, abandonment, expiration or termination of this Lease for any reason

- 12. This Lease cannot be assigned or transferred in whole or part by the Lessee without the prior written consent of the Minister.
- 13. Any notice pursuant to this Lease shall be valid if given in writing, by registered mail, postage prepaid, and addressed to the Lessee at PO Box 1328, Antigonish, NS B2G 2L7 , Attention: Mr. John W. Chisholm , and to the Lessor at the Department of Natural Resources, P. O. Box 698, Halifax, Nova Scotia, B3J 2T9, Attention: The Minister of Natural Resources, and shall be deemed to have been given five business days after such letter is posted excepting interruptions of postal service. Nothing contained herein precludes the delivery of notice by means other than mailing.
- 14. The Lessee shall be registered to do business in Nova Scotia and shall maintain such registration in good standing during the term of this Lease.
- 15. The provisions of this Lease are binding upon and shall enure to the benefit of the Lessee, its successors and permitted assigns, and will remain in full force until such time as the Lessee has fulfilled its obligations created under this Lease.
- 16. Time is of the essence in this Lease.
- 17. In the event of any inconsistency between any provisions of the Act and this Lease, the Act shall prevail.

**EXECUTED IN THE NAME OF THE MINISTER
IN THE PRESENCE OF**

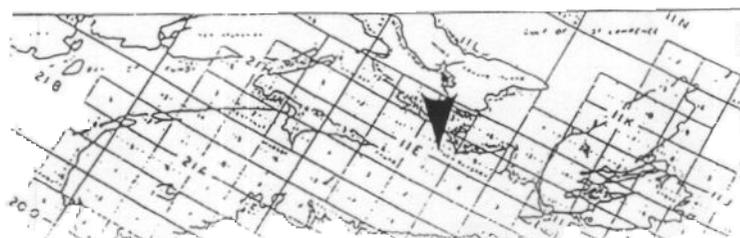
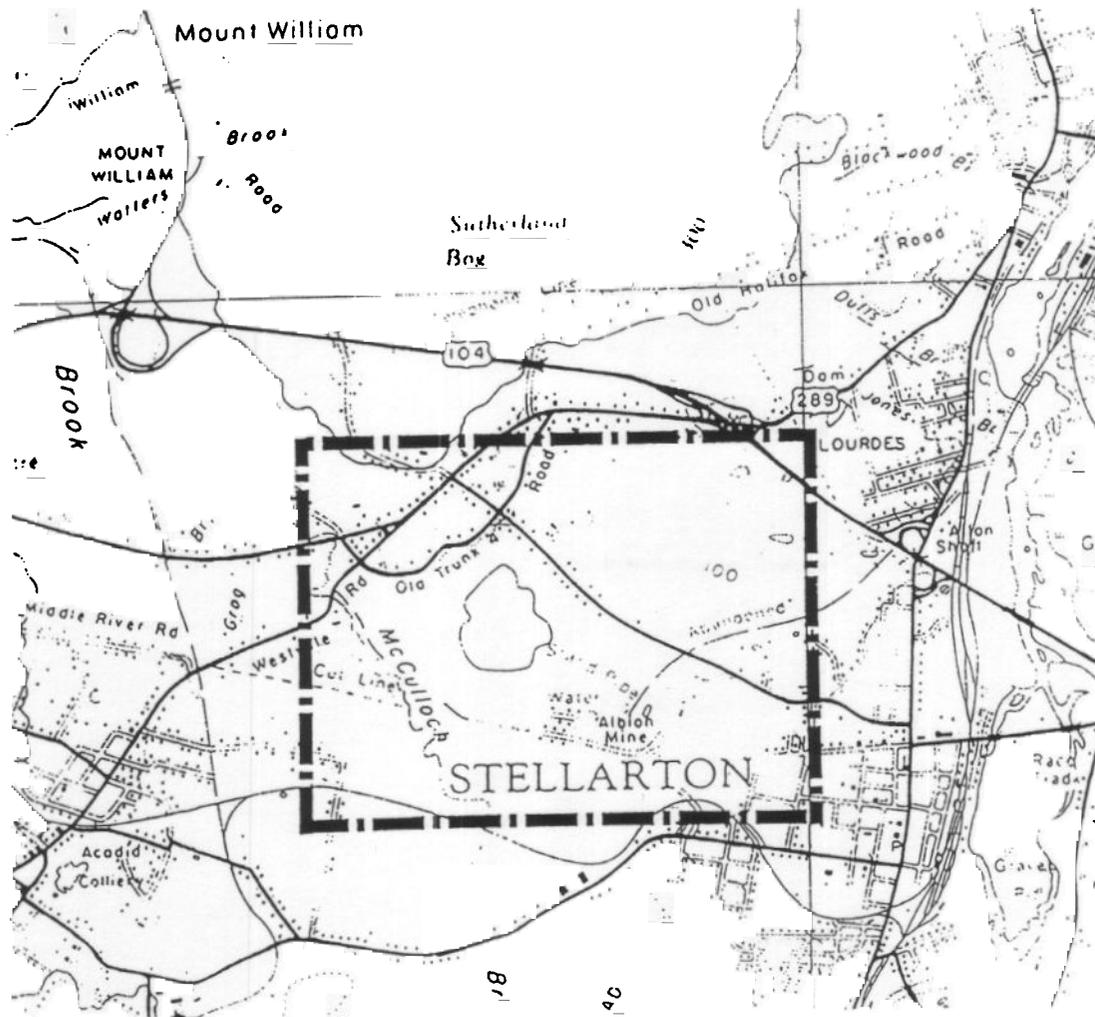
Mary E. Lewis

Don Deane (Seal)
Minister of Natural Resources

Carl Hartigan

PIONEER COAL LIMITED
John Hill (Seal)
Lessee

Map Showing Area
Special Lease No. 96-1
Pioneer Coal Limited
Stellarton



AMENDED SPECIAL LEASE

THIS AMENDED SPECIAL LEASE made in duplicate this 10th day of October A.D., 2002.

BETWEEN:

HER MAJESTY THE QUEEN in right of the Province of Nova Scotia, represented in this behalf by the Minister of Natural Resources for the Province of Nova Scotia.

(hereinafter called the "LESSOR")

AND

PIONEER COAL LIMITED, a body corporate, with registered office at Antigonish, Nova Scotia.

(hereinafter called the "LESSEE")

WHEREAS this Amended Special Lease is supplemental to Special Lease No. 96-1 (hereinafter referred to as the "Special Lease") dated the 15th day of January, A.D., 1996, between the Lessor and Pioneer Coal Limited, whereby the Lessor granted to Pioneer Coal Limited the rights to coal lying on surface to 400 feet vertical within the tracts of land totalling approximately 1200 acres in the Stellarton area of Pictou County, which area is further described in the Special Lease;

AND WHEREAS the Lessee has requested an extension of their rights to exploit coal to a greater depth than the original Special Lease authorized

AND WHEREAS the requested amendments to the Special Lease are authorized by Order in Council No. 2002-449;

APPENDIX 1

All testing should be done by qualified persons (such as a well driller, hydrogeologist, etc.) to ensure accurate results. In lieu of testing, documented well logs would be acceptable.

1. Provide access to well casing and measure static water levels.
2. Pump well at rate of 4 IGPM for one hour.
3. Direct all water a sufficient distance from well to ensure accurate, uninfluenced results. (Alternatively, water may be collected in a sanitary tank for re-use).
4. Measure drawdown of water in the well.
5. Check and record recovery over the next hour (or longer if necessary to obtain a measurable recovery).
6. Calculate well yield.

Note: The above procedure is mandatory on wells equipped with pitless adaptors, with the owner's permission, unless logs are provided.

The following alternative would be acceptable, with the homeowner's permission, for wells not equipped with a pitless adapter

1. Open taps in house to achieve a flow rate of 4 IGPM. (May require opening two or more taps).
2. Monitor flow rate throughout testing process to ensure it remains constant. Any discrepancies must be recorded.
3. Allow flow to continue for one hour. A minimum volume of 240 Imperial gallons must be produced in this time period.
4. Repeat 1-3 (incl) 24 hours later. Provided a minimum of 240 Imperial gallons is again produced, the well would meet departmental standards.
5. Ensure water flows are not discharged near the well.

MINING PERMIT

(For Claims Held Under a Lease)

This MINING PERMIT grants to **PIONEER COAL LIMITED** hereinafter called "the Company", the right to mine coal lying on surface to 400 feet vertical

subject to subsection 90(1) of the Mineral Resources Act, in or upon that certain area held under Lease No. 96-1

situated at or near **Stellarton** in the County of **Pictou** as described as follows:

CLAIMS	TRACT NUMBER	CLAIM REFERENCE MAP
MNO	57	11 E 10 A
JK PQ	58	11 E 10 A
AB	63	11 E 10 A
CD	64	11 E 10 A

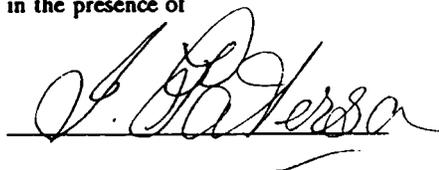
and outlined on the map attached as Schedule "A" and forming part of this Permit.

1. In this Permit, Act means the Mineral Resources Act, and Regulations as amended from time to time, or replacements thereof, and except where the context otherwise requires, words in this Permit have the same meaning as in the Act.
2. This Permit shall be in effect as long as it has not been surrendered and the Permit Holder is in compliance with the Act, the provisions of this Permit, the provisions of the Lease, and is operating in accordance with the approved mining plan or revisions authorized under the Act.
3. The Permit Holder shall, on or before March 1st each year, provide the Registrar with the annual information reports for all operations on the Permit area during the previous calendar year, as required by the Act in Form 15.
4. The Permit Holder shall provide the Registrar of Mineral and Petroleum Titles, Department of Natural Resources, P. O. Box 698, Halifax, N.S., B3J 2TP, with written notification whenever:
 - (i) it is anticipated that production will be suspended for a period greater than 60 days;
 - (ii) production has been suspended for a period greater than 60 days;
 - (iii) it is anticipated that the company will resume production;
5. The Permit Holder shall provide the Minister with six months notice of the Permit Holder's intent to permanently terminate mining operations; and where the Permit Holder is required through no fault of the Permit Holder to suddenly and permanently terminate mining operations, the Permit Holder, the lessee, the legal representative of the Permit Holder or any creditor of the Permit Holder shall forthwith notify the Minister.

6. The Permit Holder shall, at all times, maintain public liability insurance in an amount acceptable to the Minister.
7. The Permit Holder shall maintain a security for the performance of the proposed reclamation program in an amount and form determined by regulation.
8. The Permit Holder shall indemnify and save harmless the Province from any and all claims, demands, losses, damages, actions or other suits which may hereafter arise out of, or as a result of, any exploration, mining, milling or any other act or omission.
9. The Permit Holder must hold and maintain in good standing all permits required by the Nova Scotia Department of the Environment.
10. The Permit Holder shall not assign, transfer, sublet or in any way divest itself of this permit, in whole or in part, without the prior written consent of the Minister of Natural Resources.
11. The provisions of this Permit are binding on the Company and its successors and will remain in full force and effect until such time as the Permit Holder has fulfilled the obligations created under this Permit.
12. Any notice pursuant to this Permit shall be valid if given in writing, by registered mail, postage prepaid, and addressed to the Lessee at P.O. Box 1328 Antigonish, Nova Scotia B2G 2L7 Attention: John W. Chisholm, and to the Lessor at the Department of Natural Resources, P. O. Box 698, Halifax, Nova Scotia, B3J 2T9, Attention: The Registrar, and shall be deemed to have been given five business days after such letter is posted excepting interruptions of postal service. Nothing contained herein precludes the delivery of notice by means other than mailing.
13. Time is of the essence in this Permit.
14. In the event of any inconsistency between any provisions of the Act and this Permit, the Act shall prevail.

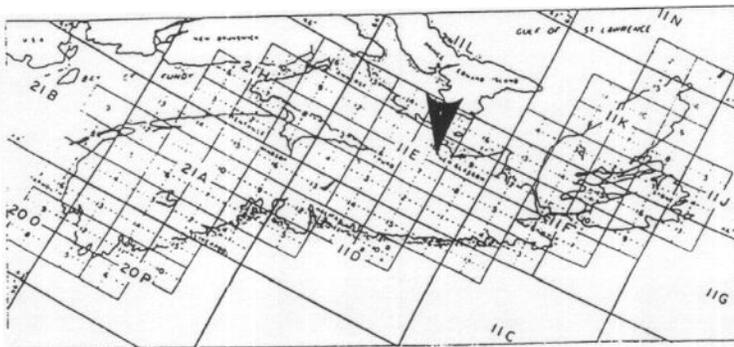
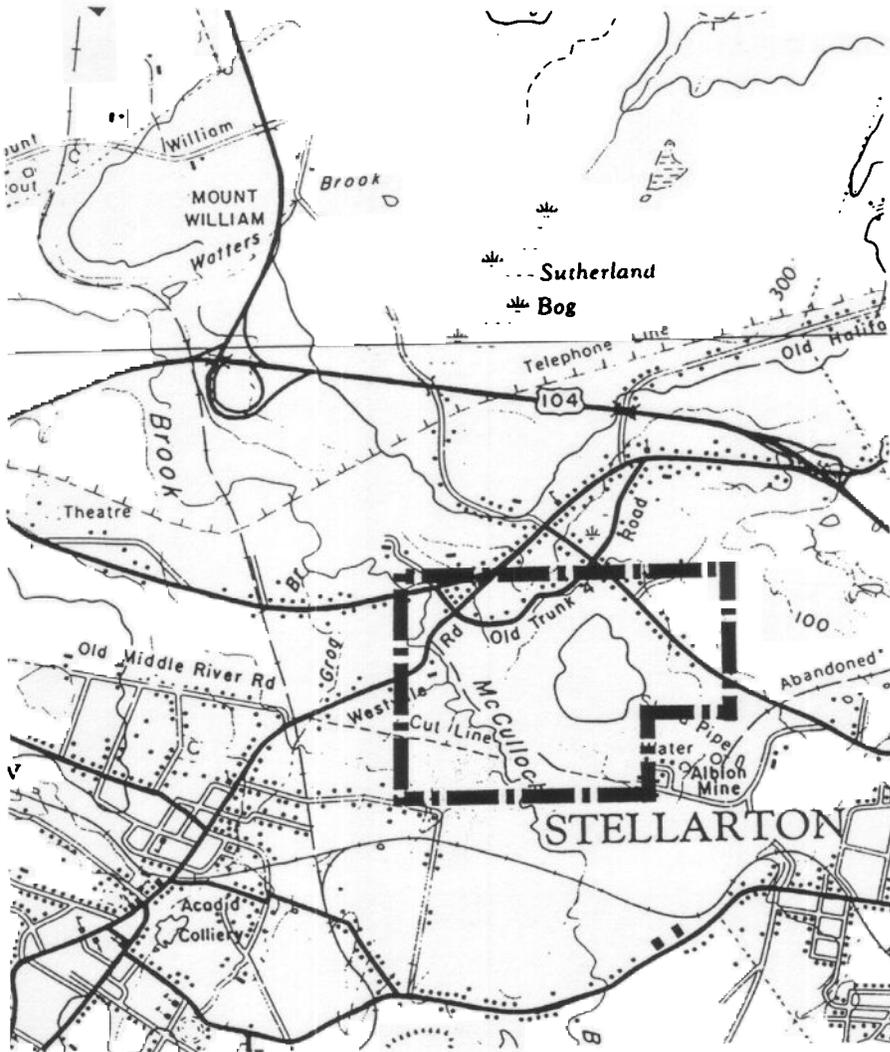
In Witness whereof this Permit is duly executed in the name of the Minister of Natural Resources and under his Seal of Office this 5th day of March A.D. 1996, at Halifax in the County of Halifax.

Signed, Sealed and Delivered
in the presence of



Minister of Natural Resources

MAP SHOWING
MINING PERMIT No. 0044
PIONEER COAL LIMITED
Coal lying on Surface to 400 Feet Vertical



November 4, 1999

Priority Post

Pioneer Coal Limited
c/o Mr. Carl Hartigan, Comptroller
P.O. Box 1328
Antigonish, Nova Scotia
B2G 2L7

RE: Proposed Lease of Crown Land - Pioneer Coal Limited - Stellarton, Pictou County

Dear Mr. Hartigan:

I understand you have requested a lease of approximately 187 acres of Crown land situate at Stellarton, Pictou County for the purpose of surface mining for coal and the placement of infrastructure necessary to develop and operate a surface coal mine.

This is to advise that, upon receipt of items #2, #6 & #15 listed below, the Department of Natural Resources is prepared to forward your application to lease approximately 187 acres of Crown land situate at Stellarton, Pictou County, more particularly shown cross hatched on the attached reference sheet, the exact location and acreage to be determined upon survey, to Cabinet for consideration. This offer shall be subject to the following terms and conditions:

1. The lease shall be for the purpose of surface mining for coal and the placement of infrastructure necessary to develop and operate a surface coal mine and for no other purpose.
2. **The Department's support of this project is conditional upon the Department of Natural Resources' staff's receipt, review and approval of your Company's submission to the Department of Environment. The Department of Natural Resources reserves the right to make additional comments and conditions upon receipt of said submission. The Department will require a copy of any environmental approvals prior to a submission to Cabinet.**
3. The lease shall be for the term of ten (10) years and may be renewed for a further term of ten (10) years provided the Lessee complies with the terms and conditions of the lease to the satisfaction of the Lessor and provided that the Lessee notifies the Lessor, in writing, of its intention to renew three (3) months prior to termination.

June 27, 2003

Mr. John Chisholm
Pioneer Coal Limited
PO Box 1328
Antigonish, NS
B2G 2L7

Dear Mr. Chisholm:

**RE: Approval to Construct and Operate - Surface Coal Mine, Stellarton, Pictou County - Approval
No. 2001-023478-A03, PID # 00925842**

Enclosed please find Approval Amendment # 2001-023478-A03 to continue to construct and operate the Surface Coal Mine, including using Highwall Mining Methods, at Stellarton, Pictou County, Nova Scotia.

Strict adherence to the attached terms and conditions is imperative in order to validate this approval. Despite the issuance of this Approval, the Approval Holder is still responsible for obtaining any other authorization which may be required to carry out the activity, including those which may be necessary under provincial, federal or municipal law.

I draw your attention to the approval amendment condition 6 (g) for control of fugitive dust at the discharge point of the waste conveyor.

Should you have any questions, please contact Kathleen Johnson, Northern Regional Office, Pictou at (902) 396-4194.

Yours truly,



Jay Brenton, P.Eng.
Regional Manager

cc Penny McLeod, District Manager
Kathleen Johnson, P.Eng., Engineer
Gordon Anderson, Inspector Specialist
Dale Bennicke, OH&S Div.
John Campbell, DNR
Joyce Eaton, Town Clerk
Eimas #: 2001-023478-A03

APPROVAL

Province of Nova Scotia
Environment Act, S.N.S. 1994-95, c.1

APPROVAL HOLDER: Pioneer Coal Limited

APPROVAL NO: 2001-023478-A03

EFFECTIVE DATE: June 27, 2003

EXPIRY DATE: October 31, 2011

Pursuant to Part V of the *Environment Act, S.N.S. 1994-95, c.1* as amended from time to time, approval is granted to the Approval Holder subject to the Terms and Conditions attached to and forming part of this Approval, for the following activity:

Construction and operation of a Surface Coal Mine (including the use of Highwall Mining Technology), and associated works, at or near Stellarton, Pictou County in the Province of Nova Scotia.

Administrator
Date Signed


June 27, 2003

TERMS AND CONDITIONS OF APPROVAL

Nova Scotia Department of Environment and Labour

Project: Pioneer Coal Limited
Surface Coal Mine
(Including use of Highwall Mining Technology)
Stellarton, Pictou County

Approval No: 2001-023478-A03

File No: 92100-30

Map Series: 11 E / 10

Grid Reference: E 524500 N 5045800

PID # : 00925842

Reference Documents:

- Application (Amendment) dated August 2, 2001 and attachments.
- Amendment to the Approved Mine Plan (Use of Highwall Mining Method), Stellarton Surface Coal Mine (July 11, 2001).
- Original Application for Industrial Approval (Approval No: 95-052) dated November 27, 1995 and that as depicted in the legal survey dated May, 1997 including amendments (Amendment #1 & #2).
- Stellarton Pit Mine Project, Pioneer Coal Limited, Environmental Assessment, Conditions of Approval, (November, 1995).
- Application (Amendment) dated January 2, 2002 and attachments. (Letter of proposed activities, monitoring, etc., CBCL report dated January 18, 2002 and Noise Monitor Locations Drawing 1, Pioneer Coal Limited, Stellarton Mine, January 2002).

1. Definitions

- (a) "Abandonment" means cessation of mining activities for a period of twelve (12) months.
- (b) "Act" means the *Environment Act* S.N.S. 1994-1995, c.1 and includes all regulations made pursuant to the Act.
- (c) "Active Area" means the area required to operate a site and includes the working face and associated works.
- (d) "Activity" means any activity or part of an activity prescribed by the regulations.
- (e) "Administrator" means a person appointed by the Minister for the purpose of this Act and includes an acting administrator.

- (f) "Approval" means an approval issued pursuant to this Act with respect to an activity, and includes the renewal of an approval.
- (g) "Approval Holder" means a person who
 - (i) carries out or proposes to carry out an undertaking or activity, or
 - (ii) is the owner or person having care, management or control of an undertaking or activity,

and for the purpose of this approval means Pioneer Coal Limited and / or persons contracted by Pioneer Coal Limited.

- (h) "Associated works" means any building, structure, processing facility, pollution abatement system or stockpiles.
- (i) "Department" means the Northern District Office, Pictou, of the Nova Scotia Department of Environment and Labour located at the following address:

Nova Scotia Department of Environment and Labour
Environmental Monitoring and Compliance Division
Northern District Office, Pictou
P.O. Box 675
New Glasgow, Nova Scotia B2N 5E7

Attention: District Manager

Phone: (902) 396-4194
Fax: (902) 396-4765

Note: to report an environmental emergency or request environmental assistance (after hours) phone: 1-800-565-1633

- (j) "Disturbed Area" means any area on a site that has been stripped of vegetation and is susceptible to erosion.
- (k) "Facility" means the Surface Coal Mine and associated works.
- (l) "Minister" means the Minister of the Nova Scotia Department of Environment and Labour.
- (m) "Release" means spill, discharge, dispose of, spray, inject, inoculate, abandon, deposit, leak, seep, pour, emit, empty, throw, dump, place, drain, pump or exhaust.
- (n) "Rehabilitation" means restorative work performed or to be performed in accordance with the rehabilitation plan.

- (o) "Structure" includes but is not limited to a private home, a cottage, an apartment building, a school, a church, a commercial building or a treatment facility associated with the treatment of municipal sewage, industrial or landfill effluent, an industrial building, infrastructure or construction, a hospital, or a nursing home.
- (p) "Waste" means a substance that would cause or tend to cause an adverse effect if added to the environment and includes rubbish, slimes, tailings, air emissions, or other industrial wastes effluent, sludge, sewage, garbage, refuse, scrap, litter or other waste products of any kind.

2. **Scope of Approval**

- (a) This Approval (the "Approval") relates to Pioneer Coal Limited ("the Approval Holder") and their application and supporting documentation, as listed in the reference documents above, to construct and operate a Surface Coal Mine ("the Facility"), situated at or near Stellarton, Pictou County (the "Site").
- (b)
 - (i) The Proponent shall restrict the development of Surface Mine workings and surface area disturbance to that specified in the original Application for Industrial Approval (the Application) dated November 27, 1995 and that as depicted in the legal survey dated May, 1997 with the exception of the berm location. The area shall comply with Condition 5 (f).
 - (ii) Development shall be restricted to the area within the bounds west of MacGregor Avenue, south of Foster Avenue, east of Foster Avenue Extension and north of Bear Brook.
 - (iii) Development shall be limited to the extraction of 230,000 tonnes per year of coal unless the approval of the Minister or Administrator is obtained to expand production. Records of coal extraction shall be maintained and available to the Department upon request.
 - (iv) Development of a waste rock storage area adjacent to the Nova Scotia Power Inc. right of way shall be restricted to the boundary lines of Nova Scotia Power Inc. as depicted in the Pioneer Coal Limited site plan dated January 1, 1998.
- (c) The Facility shall be constructed and operated as outlined in the applications for industrial approval and subsequent amendments and supporting documentation. The Site shall not exceed the area as outlined in the application and supporting documentation.

3. **Conditions of Release**

The Approval Holder shall comply with all thirteen (13) Conditions of Approval from the environmental assessment review process, Stellarton Pit Mine Project, Pioneer Coal Limited, Environmental Assessment, Conditions of Approval, (November, 1995). If there is a discrepancy between the 13 conditions of approval from the EA review process and the Terms and Conditions of this Approval, the Terms and Conditions of this Approval shall apply.

4. **General Terms and Conditions**

- (a) The Approval Holder shall construct, operate and reclaim its Facility in accordance with provisions of the:
 - (i) *Environment Act* S.N.S. 1994-1995, c.1;
 - (ii) Regulations pursuant to the above Act;
 - (iii) Any future amendments to the Act and regulations
- (b) No authority is granted by this Approval to enable the Approval Holder to construct the Facility on lands which are not in the control or ownership of the Approval Holder. It is the responsibility of the Approval Holder to ensure that such a contravention does not occur. The Approval Holder shall provide, to the Department, proof of such control or ownership upon expiry of any relevant lease or agreement. Failure to retain said authorization will result in this Approval being null and void.
- (c) If there is a discrepancy between the reference documents and the terms and conditions of this Approval, the terms and conditions of this Approval shall apply.
- (d) The Minister or Administrator may modify, amend or add conditions to this Approval at anytime pursuant to Section 58 of the Act.
- (e) This Approval is not transferable without the consent of the Minister or Administrator.
- (f)
 - (i) If the Minister or Administrator determines that there has been non-compliance with any or all of the terms and conditions contained in this Approval, the Minister or Administrator may cancel or suspend the Approval pursuant to subsections 58(2)(b) and 58(4) of the Act, until such time as the Minister or Administrator is satisfied that all terms and conditions have been met.
 - (ii) Despite a cancellation or suspension of this Approval, the Approval Holder remains subject to the penalty provisions of the Act and regulations.
- (g) The Approval Holder shall notify the Department prior to any proposed extensions or modifications of the Facility, including the active area, process changes or waste disposal practices which are not granted under this Approval. An amendment to this Approval will be required before implementing any change. Extensions or modifications to the Facility may be subject to the Environmental Assessment Regulations.

- (h) Pursuant to Section 60 of the Act, the Approval Holder shall submit to the Administrator any new and relevant information respecting any adverse effect that actually results, or may potentially result, from any activity to which the Approval relates and that comes to the attention of the Approval Holder after the issuance of the Approval.
- (i) The Approval Holder shall immediately notify the Department of any incidents of non-compliance with this Approval.
- (j) The Approval Holder shall bear all expenses incurred in carrying out the environmental monitoring required under the terms and conditions of this Approval.
- (k) Unless specified otherwise in this Approval, all samples required to be collected by this Approval shall be collected, preserved and analysed, by qualified personnel, in accordance with recognized industry standards and procedures.
- (l) All samples required by this Approval shall be analysed by a laboratory that is:
 - (i) Accredited by the Standards Council of Canada; or
 - (ii) Accredited by another agency recognized by the Nova Scotia Department of Environment and Labour to be equivalent to the Standards Council of Canada; or
 - (iii) Maintaining an acceptable standard in a proficiency testing program conducted by the Canadian Association for Environmental Analytical Laboratories for all parameters being reported; or
 - (iv) Maintaining an acceptable standard in a proficiency or performance testing in another program considered acceptable to the Nova Scotia Department of Environment and Labour for all parameters being reported.
- (m) The Approval Holder shall submit any monitoring results or reports required by this Approval to the Department. Unless specified otherwise in this Approval, all monitoring results shall be submitted within 30 days following the month of monitoring.
- (n) The Approval Holder shall ensure that this Approval, or a copy, is kept on Site at all times and that personnel directly involved in the Facility operation are made fully aware of the terms and conditions which pertain to this Approval.
- (o) The Approval Holder shall forthwith notify the Department of any spills, release or discharges of dangerous goods, waste dangerous goods or petroleum hydrocarbons through compliance with the Act (Part VI) and the Emergency Spill Regulations.
- (p) The Approval Holder shall maintain a contingency plan to deal with the accidental spillage, release or discharge of dangerous and waste dangerous goods. This plan shall be made available to staff of the Department upon request.

- (q) The Approval Holder shall notify the Department of any confidential business information included in information submitted to the Department.
- (r) The use of blasting to mine coal is absolutely prohibited without the written approval of the Minister.

5. Mine Operation

- (a) All mining and related site activity is prohibited between 2200 hours and 0700 hours, with the exception of 5 (b), unless the approval of the Minister or Administrator is obtained.
- (b) Mining activity between 2200 hours and 0700 hours shall be limited to highwall mining operations and associated equipment including:
 - the Highwall Miner (NOVAMINER 2000)
 - two loaders
 - one large dozer (to be used for ongoing site reclamation when not required to attend the NOVAMINER 2000)
- (c) The Approval Holder shall minimize the impacts associated with site illumination on adjacent residential dwellings.
- (d) The Approval Holder shall be permitted to conduct the following activities during the months of July and August of each year:
 - (i) site security;
 - (ii) environmental monitoring;
 - (iii) site reclamation (between 0700 hours and 2200 hours);
 - (iv) equipment maintenance, and
 - (v) maintenance and operation of site environmental controls.
- (e) The Approval Holder shall ensure petroleum fuels are not stored on site unless they are stored in accordance with the Petroleum Storage Regulations.
- (f) (i) The Approval Holder shall not situate any mine workings, stockpiles, access roads or other associated mine structures, except drainage ditches and noise reduction structures, within 30 metres of any adjacent property boundaries unless written approval is obtained from the property owners to allow encroachment.
- (ii) An exception to the above condition 5(f)(i) noted buffer zone shall be in the following areas where the Approval Holder shall maintain the enhanced buffer zone as described in the Application:
 - the area separating the coal blending facility from MacGregor Avenue.
 - the area separating adjacent properties from that area delineated as the ninth (9th) year of production in the original Application.

- (g) The 30 metre buffer shall require the relocation of the topsoil stockpile if condition 5(f)(i) is not satisfied.
- (h) The Approval Holder shall ensure all the coal that is extracted from the Foord Seam using highwall mining technology, is carried out as indicated in the Amendment to the Approved Mine Plan (Use of Highwall Mining Method), Stellarton Surface Coal Mine (July 11, 2001).
- (i) The Approval Holder shall ensure that highwall mining is done only in areas as indicated in the Amendment to the Approved Mine Plan (Use of Highwall Mining Method), Stellarton Surface Coal Mine (July 11, 2001) and maintain a separation of 60 metres horizontal surface distance between any permanent dwelling and the extent of highwall mining activity.
- (j) The Approval Holder shall show on a mine survey plan the location of all new workings for both highwall mining and open pit mining. The plan shall be available to the Department upon request within 90 days of excavating the workings.
- (k) The Approval Holder shall carry out a subsidence monitoring program as indicated in the Amendment to the Approved Mine Plan (Use of Highwall Mining Method), Stellarton Surface Coal Mine (July 11, 2001). The results of the subsidence monitoring program shall be available to the Department upon request.
- (l) The Approval Holder shall ensure runoff from the coal stockpile located within the pit area will be collected, monitored and treated for discharge from the pit area to meet the requirements as outlined in Condition 7(d), Final Effluent Limits, for pH, Iron, Manganese, and Aluminum.
- (m) The coal stockpile shall be managed and controlled as indicated in the Amendment to the Approved Mine Plan (Use of Highwall Mining Method), Stellarton Surface Coal Mine (July 11, 2001)(Coal storage plans).

6. Air Emissions

Particulate Emissions (Dust)

- (a) The Approval Holder shall maintain four (4) particulate monitoring stations designated D1, D2, D3 and D4 as identified on Figure 6-1, Pioneer Coal Limited, Stellarton Pit Mine, November 1995 or as approved in writing by an Administrator.
- (b) Particulate (dust) monitors shall be of the high volume type and operate simultaneously over a 24 hour period every sixth day (NAPS schedule).

- (c) (i) Particulate emissions shall not exceed the following limits at the compliance monitoring stations identified in condition 6(a):

Annual Geometric Mean 70 g/m³
Daily Average (24 hour) 120 g/m³

- (ii) The Annual Geometric Mean shall be calculated on the twelveth (12) month of operation and recalculated on a monthly basis thereafter.
- (d) The generation of fugitive dust from the Site including the waste conveyors shall be suppressed by the use of water sprays or the application of other suitable dust suppressants. The application of used oil as a dust suppressant is prohibited.
- (e) Fugitive particulate emissions from the coal blending and load out facility shall be minimized through the installation of enclosures, as described in Dwg. 1, Project 29-3866-005.1, Coal Blending Area Functional Design Drainage Control, December 1995.
- (f) All trucks transporting coal from the Site shall be washed to remove particulate matter and covered with fitted tarps to minimize the release of dust emissions.
- (g) The applicant shall ensure dust, at the discharge point of the waste conveyor, is minimized through use of accepted dust suppression methods as to ensure fugitive dust emissions meet the limits outlined in 6(c) at the property boundaries of the site. Note: use of used oil for dust suppression is strictly prohibited.
- (h) Coal stockpiles, wasterock, overburden and topsoil stockpiles shall be stabilized with vegetation or by other suitable means to minimize fugitive dust emissions where necessary.

Noise

- (i) The Approval Holder shall maintain six (6) noise monitoring stations, designated No. N1 through N6 Monitor(s), as identified on Noise Monitor Locations, Drawing 1, Pioneer Coal Limited, Stellarton Mine, 2002.
- (j) Noise monitors shall operate continuously and integrate sound on the A - weighted scale and for maximum (instantaneous) levels for the monitoring stations identified in 6(i), designated No. N1 through N4 Monitor(s). Upon employment of the Highwall Miner, the Approval Holder shall initiate monitoring of stations N5 and N6 on the same basis.

- (k) Noise emissions as a result of mining operations shall not exceed the following limits at the compliance monitoring stations identified in condition 6(i), designated No. N1 through N4 Monitor(s) at the facility boundaries or at any other station identified by the Department. The Approval Holder shall use the compliance monitoring stations identified in condition 6(i), designated No. 5 and 6 Monitor(s) for determination of sources of exceedences when the Highwall Miner technology is employed:

Day	65 dBA 0700 hours to 1900 hours
Evening	60 dBA 1900 hours to 2300 hours
Night	55 dBA 2300 hours to 0700 hours: maximum (instantaneous) levels

- (l) The Approval Holder shall use conveyors to transport waste rock from within the pit to the waste rock stockpile with the exception of the planned first year of development of the Foord Pit, Cage/Third Pit and the Fleming/MacGregor Pit.
- (m) Stationary noise sources in the coal blending area shall be screened or enclosed to minimize noise transmission.
- (n) Air emission monitoring programs (particulate and noise) shall be reviewed by the Approval Holder on an on-going basis and if necessary the Approval Holder shall make changes to monitoring stations, monitoring procedures and/or the frequency of monitoring in consultation with the Department.
- (o) The Approval Holder shall complete and submit an independent third party review of the noise monitoring data after two months of night operations (between 2200 hours and 0700 hours).
- (p) The Approval Holder shall maintain records of the air emission monitoring program (particulate and noise) and submit an annual report by April 1st of each year of operation summarizing the data for background and operating conditions.

7. **Liquid Effluent / Surface Water**

- (a) The Approval Holder shall collect and treat all contaminated liquid effluent and surface water run-off from the Site through the appropriate construction of perimeter ditching, settling ponds and wastewater treatment systems as described in the Application for an amended approval dated January 8, 1998 including the site plan as submitted by Pioneer Coal Limited.
- (b) The Approval Holder shall maintain a minimum separation distance of 30 metres between the high water mark of Bear Brook and any surface disturbance including settling ponds and drainage ditching.

- (c) The Approval Holder shall maintain one liquid effluent monitoring station designated as Station 2 in Figure 6-1 Pioneer Coal, Stellarton Pit Mine, November 1995:

Station 2 -Discharge from Northwest Settling Ponds

- (d) Monitoring Station 2 shall meet the following final liquid effluent limits:

Final Liquid Effluent Limits

Parameters	Maximum Concentration in a Grab Sample	Monthly Arithmetic Mean	Monitoring Frequency
Total Suspended Solids (mg/)	50.0	25.0	Daily (when discharging)
pH (units)	5.0 - 10.0	6.0-9.5	Daily (when discharging)
Iron (mg/l)	7.0	3.5	Monthly (when discharging)
Manganese (mg/l)	4.0	2.0	Monthly (when discharging)
Aluminum (mg/l)	1.0	0.5	Monthly (when discharging)
Total Petroleum Hydrocarbon	15.0	15.0	Monthly (when discharging)
Acute Toxicity	Pass		Semi-Annually (June and December)

- (e) (i) Evaluation of acute toxicity at Station 2 shall be conducted on a split sample of wastewater used to determine compliance with the above limits noted in 7(d). The effluent shall also be sampled during acute toxicity testing and characterized for the water quality parameters listed in Table 1.
- (ii) Acute toxicity of the final effluent shall be evaluated using the 96 hour Acute Lethality of Effluent to Rainbow Trout Environment Canada, Reference Method EPS-1/RM/13.
- (f) Volumetric discharge from the settling ponds shall be estimated and recorded on a daily basis by the Approval Holder.

- (g) Volumetric discharge from the open workings to the settling ponds shall be monitored and recorded on a daily basis. This discharge shall be regulated to meet the design criteria of the settling ponds and the liquid effluent limits established in 7(d).
- (h)
 - (i) In the event of a known or suspected discharge which is in non-compliance with liquid effluent limits established in 7(d), the Approval Holder shall divert all wastewater associated with the non-compliance to the open surface workings.
 - (ii) The open surface workings shall act as a holding reservoir for contaminated wastewater until wastewater is adequately treated and analyzed to demonstrate compliance with limits established in condition 7(d).
 - (iii) This contingency shall involve the complete stoppage of surface mining until the non-compliance is resolved.
- (i) The Approval Holder shall ensure that settling ponds, ditching, and soil erosion and sedimentation controls are maintained and operational. Drainage ditching shall be constructed in a sequence which ensures the disturbed drainage areas of the Site are being controlled at all times. The Approval Holder shall ensure that settling ponds are maintained between precipitation events. Solid waste material collected in the settling ponds shall be excavated and properly disposed to ensure a minimum 60% of design volume is available in each pond.
- (j)
 - (i) The Approval Holder shall be responsible to ensure adequate soil erosion and sedimentation controls are installed and maintained on-site. This shall include the installation and maintenance of a protective (riprap) liner on all collection ditches and settling ponds and the installation of erosion and sedimentation controls during construction of drainage ditches and settling ponds.
 - (ii) The Nova Scotia Department of the Environment, Erosion and Sedimentation Control Handbook for Construction Sites shall be used as a guideline for the installation and maintenance of these controls.
- (k) The Approval Holder shall provide additional erosion and sedimentation controls if so directed by the Department. These controls shall meet the design requirements of the Department.
- (l) The Approval Holder shall maintain an oil boom at the mouth of the spillway from each settling pond to prevent accidental discharge of petroleum hydrocarbons.
- (m) All wastewater from the truck wash, and coal blending and load area shall be collected and routed to the settling ponds for treatment as described in Dwg. 1, Project 29-3866-005.1, Coal Blending Area Functional Design Drainage Control, December 1995.

- (n) (i) The Approval Holder shall monitor the water quality discharges to the East River emanating from all former mine workings which underlie the Site and discharge to the East River. This shall include the discharges at Bridge Street and from the Allen Shaft.
- (ii) Liquid discharges noted above shall be monitored on a monthly basis for the parameters specified in Table 1.
- (o) The Approval Holder shall maintain seven (7) surface water monitoring stations designated as follows: (Reference - Figure 6.1, Pioneer Coal, Stellarton Pit Mine, November 1995)
- | | | |
|------------------|---|--|
| <u>Station 1</u> | - | Bear Brook - Downstream of Final Effluent Discharge Station and the Westville Road (Route 289). |
| <u>Station 3</u> | - | Bear Brook - Upstream of Final Effluent Discharge Station 2. |
| <u>Station 4</u> | - | Bear Brook - Downstream of former final Effluent Discharge Station 5. |
| <u>Station 6</u> | - | Bear Brook - Upstream of former final Effluent Discharge Station 5 and 50 metres upstream of the railway crossing. |
| <u>Station 7</u> | - | Middle River at the Confluence of Bear Brook. |
| <u>Station 8</u> | - | Middle River upstream of the Confluence of Bear Brook. |
| <u>Station 9</u> | - | Middle River downstream of the Confluence of Bear Brook. |
- (p) The Approval Holder shall maintain the baseline monitoring conducted at surface water Stations 1, 6, 7, 8 and 9 for the parameters listed in Table 1.
- (q) (i) The Approval Holder shall monitor surface water Stations 1, 3, 4, 6, 7, 8 and 9 on a monthly basis for the parameters listed in Table 1.
- (ii) Monitoring to comply with Condition 7(q)(i) shall be conducted on the same day as monitoring to comply with Condition 7(d).
- (r) The Approval Holder shall maintain records of the liquid effluent / surface water monitoring program associated with the Surface Mine and submit an annual report by April 1st of each year of operation summarizing and interpreting the data for background and operating conditions.

8. Fish Habitat and Benthic Organism Survey

- (a) The Approval Holder shall maintain seven (7) stations for conducting fish habitat and benthic organism surveys which are designated as follows:

- Section A - Bear Brook - from the Mouth of Bear Brook to Highway 104 (TCH)
- Section B - Bear Brook - from Highway 104 to bridge at Route 289
- Section C - Bear Brook - Upstream of Station 2 to surface water Station 4
- Section D - Bear Brook - Upstream of the Confluence of former final Effluent Discharge Station 5
- Section E - At the Confluence of Bear Brook with Middle River
- Section F - Middle River - Upstream of the Confluence of Bear Brook
- Section G - Middle River - Downstream of the Confluence of Bear Brook

- (b) The Approval Holder shall maintain the baseline fish habitat and benthic organism surveys conducted at each station identified in 8(a) as described in the Application.
- (c) Fish habitat and benthic organism surveys shall be conducted by the Approval Holder semi-annually at each station identified in 8(a) during low flow and high flow conditions following commencement of the Surface Mine.
- (d) The Approval Holder shall maintain records of the fish habitat and benthic organism survey monitoring program associated with the Surface Mine and submit an annual report by April 1st of each year of operation summarizing and interpreting the data for background and operating conditions.

9. Sediment Monitoring

- (a) Stream sediments shall be sampled and analysed by the Approval Holder for the metals identified in Table 1 at surface water monitoring stations 1, 3, 4, 6, 7, 8 and 9 (Condition #7(o)) once per year following commencement of the Surface Mine.
- (b) The Approval Holder shall maintain records of the stream sediments monitoring program associated with the Surface Mine and submit an annual report by April 1st of each year of operation summarizing and interpreting the data for background and operating conditions.

10. Acid Mine Drainage

- (a) The Approval Holder shall analyse wasterock on a minimum bi-monthly basis for net acid generation potential during the life of the project. Alternately, the Approval Holder may analyze one sample for every 40,000 tonnes of waste rock generated, if production is reduced or stopped.
- (b) The British Columbia (B.C.) Confirmation Test or kinetic tests for acid generation potential shall be performed by the Approval Holder on samples which demonstrate a potential for net acid generation.
- (c) The Approval Holder shall be required to increase the scope of the above testing protocol and/or submit a report on prevention and mitigation of acid mine drainage if so directed by the Department.
- (d) The Approval Holder shall be required to implement a plan to mitigate acid mine drainage, if so directed by the Department.
- (e) As a contingency, the Approval Holder shall have immediate access to adequate neutralizing agents, and associated equipment to deal with the treatment of acid mine drainage.

11. Groundwater

- (a)
 - (i) The Approval Holder shall maintain the seven (7) groundwater monitoring stations along the perimeter of the Site.
 - (ii) The location of the seven (7) groundwater monitoring stations are as identified on the Site Plan, Pioneer Coal Limited, Stellarton Mine, December 2000.
 - (iii) Four (4) of the seven (7) groundwater monitoring stations identified in 11(a)(i) shall consist of two piezometers, one driven to meet bedrock and a second located within the bedrock. The three (3) remaining groundwater monitoring stations identified in 11(a)(i) shall consist of a minimum of one piezometer driven within the bedrock.
- (b) The Approval Holder shall maintain records of all domestic wells situated along the perimeter of the Site including; Foster Avenue, Foster Avenue Extension, MacGregor Avenue, LeHigh Street, and Water Street. The survey shall include the ten (10) domestic wells identified in the Application to determine the current usage of well water.
- (c) The Approval Holder shall maintain records for the baseline survey of well water for all groundwater monitoring stations identified in 11(a).

- (d) (i) All groundwater monitoring stations and domestic water wells shall be evaluated by the Approval Holder for the parameters listed in Table 1 plus static water levels prior to any ground disturbance.
- (ii) Well yield tests shall be conducted by the Approval Holder on domestic wells prior to any ground disturbance using the method outlined in Appendix 1.
- (i) All groundwater monitoring stations including piezometers shall be monitored by the Approval Holder on a bi-monthly basis for the parameters listed in Table 1.
- (ii) Static water levels shall be measured by the Approval Holder on a weekly basis.
- (f) The Approval Holder shall be required to conduct monitoring of well water quality and/or quantity if so directed by the Department to verify any claims of well water degradation as a result of surface mining or associated activities.
- (g) (i) Any degradation of well water which is suspected to be as a result of the surface mining project shall be immediately replaced with a temporary water supply by the Approval Holder.
- (ii) If the degradation is found to be as a result of surface mining activity the Approval Holder shall provide a permanent replacement for the affected water supply within a time frame acceptable to the Department.
- (iii) The quality and quantity of the replacement water supply shall meet as a minimum that established during baseline monitoring. In the absence of adequate baseline monitoring, water shall meet the Canadian Drinking Water Quality Guidelines for quality and the criteria specified in Appendix 1 for yield.
- (h) The Approval Holder shall maintain records of the groundwater monitoring program associated with the Surface Mine and submit an annual report by April 1st of each year of operation summarizing and interpreting the data for background and operating conditions.

12. **Dispute Resolution**

The Approval Holder shall address environmental problems associated with this Approval which could arise during the construction, operation and reclamation of this Surface Mine. If situations should occur, it shall be the policy of the Approval Holder to discuss problems with the parties involved and attempt to resolve the problem to the satisfaction of both parties. If both parties are not in agreement and cannot resolve the dispute, the Approval Holder shall engage the services of an independent arbitrator to resolve the dispute. The arbitrator shall be agreeable to both parties and the process binding.

13. Public Consultation

The Approval Holder shall maintain the Community Liaison Committee (CLC), in accordance with Condition 1.0 of the Stellarton Pit Mine Project, Pioneer Coal Limited, Environmental Assessment, Conditions of Approval, (November, 1995).

14. Reclamation and Abandonment

- (a) The Site shall be progressively reclaimed and rehabilitated by the Approval Holder to the satisfaction of the Nova Scotia Department of Environment and Labour.
- (b) The Approval Holder shall post a reclamation security with the Nova Scotia Department of Natural Resources in a form and an amount satisfactory to both the Nova Scotia Department of Environment and Labour, and the Nova Scotia Department of Natural Resources.
- (c)
 - (i) In consultation with the Community Liaison Committee, the Approval Holder shall submit to the Department, for approval, a final reclamation plan for each pit including the Foord Pit, Cage/Third Pit, and Fleming/MacGregor Pit.
 - (ii) The final reclamation plan for each pit shall be submitted six (6) months prior to the abandonment date of the pit. The plan is to include schedules for completion of each stage of final reclamation.
- (d) Final reclamation and rehabilitation of the Site shall meet the approval of the Nova Scotia Department of Environment and Labour, and the Nova Scotia Department of Natural Resources at which time the Approval Holder shall be released from its security obligations.

TABLE 1

Parameters for Water Analysis

Sodium	Aluminum
Potassium	Arsenic
Calcium	Antimony
Magnesium	Barium
Hardness	Beryllium
Alkalinity	Boron
Bicarbonate	Cadmium
Carbonate	Chromium
Sulphate	Cobalt
Chloride	Lead
Silica	Lithium
Nitrate-Nitrite	Molybdenum
Ammonia	Nickel
Ortho-phosphorus	Selenium
Total Organic Carbon	Strontium
Total Suspended Solids	pH
Thallium	Colour
Tin	Turbidity
Vanadium	Conductivity
Uranium	Iron
Manganese	Field pH
Copper	Field Temperature
Zinc	

- Note: (i) All metal analysis shall be total acid extractable for surface water and filtered for groundwater.
- (ii) Surface water analysis shall include flow measurement.
- (iii) Groundwater analysis shall include: fecal coliform, total coliform, static water level, and field conductivity.

APPENDIX 1

Well Yield Test

All testing must be done by qualified persons (such as a well driller, hydrogeologist, etc.) to ensure compliance with Departmental requirements.

Residential Well

1. If the well head is accessible, measure static water level in the well, relative to top of casing, or other fixed point. Note the point from which relative measurements are made.
2. Pump the well at 4 IGPM for one hour. Pumping is to be conducted through the domestic water supply system.
3. Measure draw down at 1 minute intervals for the first 10 minutes, followed by 10 minute intervals throughout the pumping period.
4. Calculate well yield.
5. If the well cannot supply water over the entire hour, stop the test immediately and record the number of minutes into the test at which water loss occurred.
6. Measure the water level in the well for a minimum of 30 minutes after the test to obtain an accurate recovery rate.

The following alternative would be acceptable, with the homeowner's permission, for wells not equipped with a pitless adaptor.

1. Open taps in house to achieve a flow rate of 4 IGPM. (May require opening two or more taps).
2. Monitor flow rate throughout testing process to ensure it remains constant. Any discrepancies must be recorded.
3. Allow flow to continue for one hour. A minimum volume of 240 imperial gallons must be produced in this time period.
4. Repeat 1 - 3 (incl) 24 hours later. Provided a minimum of 240 imperial gallons is again produced, the well would meet departmental standards.
5. Ensure water flows are not discharged near the well.

Institutional Well

- 1) If the well head is accessible, measure static water level in the well, relative to top of casing, or other fixed point. Note the point from which relative measurements are made.
- 2) Pump the well for one hour, at a rate that is approximately equal to the peak demand on the well. Pumping is to be conducted through the existing water supply system.
- 3) Measure draw down at 1 minute intervals for the first 10 minutes, followed by 10 minute intervals throughout the pumping period.
- 4) Calculate well yield.
- 5) If the well cannot supply water over the entire hour, stop the test immediately and record the number of minutes into the test at which water loss occurred.
- 6) If the well head is inaccessible, conduct steps 2 and 5 above..
- 7) Measure the water level in the well for a minimum of 30 minutes to obtain an accurate recovery rate.



OCT 24 2003

John W. Chisholm
Pioneer Coal Limited
P.O. Box 1328
Antigonish, NS
B2G 2L7

Dear Mr. Chisholm:

RE: Stellarton Surface Coal Mine

I have reviewed your requests to mine coal at the Stellarton Surface Coal Mine during July and August, and extend the Stellarton Surface Coal Mine east of MacGregor Avenue.

Pioneer Coal Limited's proposal to extract coal during July and August will not be required to register for an environmental assessment; however, an amendment to the existing Industrial Approval will be required before you can proceed with this activity. Please contact Penny McLeod, District Manager, Pictou District Office at 396-4194 for further information.

With regard to the proposed extension, the information presented indicates that the mine increase will be approximately 50 hectares in area and take six years to mine. As this proposed work will be an extension of the existing surface mine and has potential to cause environmental impacts, it is considered an extension and declared a Class 1 undertaking pursuant to the *Environmental Assessment Regulations* and the *Environment Act*. A registration fee of \$8,400 will be required at the time of environmental assessment registration.

The extension will also require amendments to the Industrial Approval pursuant to the *Activities Designation Regulations*, and may be subject to other approvals and permits. Please contact Penny McLeod, District Manager, Pictou District Office at 396-4194 for further information.

If you have any questions regarding the required environmental assessment please contact Chris Daly, Manager, Environmental Assessment, at 424-4936. Thank you.

Sincerely yours,

Kerry Morash
Minister

P. O. BOX 1390,
STELLARTON, N. S.
B0K 1S0

JUNE 24, 2003

MR. CHRIS DALY,
MANAGER, ENVIRONMENTAL REVIEW,
ENVIRONMENTAL ASSESSMENT BRANCH,
N. S. DEPARTMENT OF ENVIRONMENT AND LABOUR,
P. O. BOX 697,
HALIFAX, N. S.
B3J 2T8

RE: STELLARTON SURFACE COAL MINE
CONTINUING OPERATIONS EAST OF MACGREGOR AVE.

DEAR MR. DALY:

The CLC for the Stellarton Surface Coal Mine operated by Pioneer Coal Limited met yesterday, June 23, 2003. We toured the existing site and the proposed continuation area east of MacGregor Ave.

Papers written by your Department entitled "Stellarton Pit Mine Project, Environmental Assessment, Conditions of Approval" 1995 and the "Report and Recommendations on the Stellarton Pit mine, 1995 were reviewed.

All Committee members were in agreement with Pioneer Coal's requests. It appears that all the necessary environmental requirements are completed. If not, the mining would not have proceeded in the first instance. The original environmental assessment included the entire mining area, not just the present mining block. Any further assessment would be redundant.

Permission was requested from you in a letter dated Jan. 29, 2003. At this time, no reply has been received.

The CLC kindly requests, from the Dept. of Environment and Labour, the reasons for the delay in granting the approval to proceed with mining the eastern block.

Thanking you in advance for a speedy reply, I remain,

YOURS TRULY,



LINDA S. MACDONALD
CHAIRPERSON,
STELLARTON SURFACE COAL MINE
COMMUNITY LIAISON COMMITTEE

c.c.: RONALD S. RUSSELL
MINISTER OF ENVIRONMENT AND LABOUR

RON E. L'ESPERANCE, DEPUTY MINISTER
OF ENVIRONMENT AND LABOUR

JOHN CHISHOLM
PIONEER COAL LIMITED

