K SAGE CREEK 77(9)A

ADDENDUM NUMBER 2

TO THE

STAGE I

ENVIRONMENTAL REPORT

ON THE PROPOSED

SAGE CREEK COAL PROJECT

00372 (2)

RIO ALGOM LTD.

OCTOBER 1977

TABLE OF CONTENTS

I

INTRODUCTION

I. INTRODUCTION

Due to the revision of the mine plan to 1.7 million tonnes * per year, it has been necessary to modify parts of the previously accepted Stage I Report on the Environmental Impact Assessment for this project. Many of these changes are minor and do not alter the report except for the deletion of references to such things as the railway spur line. Other sections, such as the one on "Project Description" have undergone more extensive alterations. The purpose of the Addendum Number 2, therefore, is twofold : (1) to outline those changes made necessary by the reduction in size of the proposed operation and (2) to explain plans and alternatives in more detail for those problem areas that are of greatest concern to the Coal Guidelines Committee of the British Columbia government.

Rather than reproduce the Stage I Report in every detail, it was felt that only those sections containing major modifications should be included here. To facilitate the utilization of this Addendum, title pages have been included for each section as they appeared in the first report, regardless of whether changes were necessary or not. In some instances a few words of clarification may be included with such a title page, noting the obsolete references to facilities that are no longer included in the plan. The most obvious of these is the spur railway line. It should be remembered that this Addendum is intended for use in conjunction with the Stage I Report and is not a separate work in itself.

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* All units in this report are in the S.I. (metric) system.

II

SUMMARY

II. SUMMARY

This report is the second Addendum to the Stage I Report on the Environmental Impact Assessment of the proposed Sage Creek Coal Project. Its purpose is to describe the alterations in the above mentioned Stage I Report, made necessary by a reduction in the proposed production capacity from 3 million tonnes per year to 1.7 million tonnes per year. As such, it is expected that this addendum will be used in conjunction with the Stage I Report.

The reduction in proposed mine output would have the effect of slightly altering the actual mining operation and project facilities, reducing the land requirements, and modifying some of the ecological and socioeconomic factors involved. This reduction does not alter the basic background data. Sections and paragraphs in the Stage I Report which refer to the actual coal deposit, the physical setting, water resources, climate, hydrology, environmental quality, aquatic resources, natural resources and land capability have not had to be changed, and so have not been repeated herein.

MINING OPERATION

The basic mining method would be the same, regardless of the size of the operation. Two open pits would be created by removing the

overburden to disposal sites, allowing access to the coal seams below. Proposed disposal sites are located on both sides of each hill, and would be formed by approximately 423 million cubic metres of waste rock and approximately 24.5 million cubic metres of refuse from the coal preparation plant.

The waste areas would cover an approximate area of 668 hectares as compared to approximately 850 hectares for the earlier proposal. It is presently planned that both pits would ultimately fill with water to form lakes at the end of the project life. In all other respects, the entire project area would be recontoured, revegetated and reclaimed in the manner outlined in the Stage I Report.

PROJECT FACILITIES

The movement of the coal from the mine to the ocean port would change significantly and would involve a smaller tonnage. After passing through the preparation plant, the clean coal would still be stored in a loadout silo. Seam 2 which would be washed independently would be loaded separately into the silo when a blend of Seams 4 and 5 has been removed. From this silo, the coal would be loaded into trucks for transport to a facility at the Canadian Pacific Railway's main line at Morrissey, where it would be placed in separate silos prior to being discharged to a unit train for the trip to port (probably Roberts Bank bulk loading terminal).

The utilization of truck transport to the main rail line eliminates the need for a railway corridor up the Flathead Valley. The

existing logging road up the Harvey Creek valley, over Harvey Pass and down the Lodgepole Creek valley to Morrissey, would be upgraded for use by transport trucks.

The amount of power needed by the project would be reduced although it would still be necessary to build a 230-kilowatt line to the Natal substation. The power requirements for the project and community are now estimated at 15 megawatts.

It has been established that, owing to the distance to established communities, a new town should be located in the Flathead Valley but alternatives to building such a town will be examined. Four possible townsites were identified a short distance from the mine as was documented in the main Stage I Report for this project. Since that time, a fifth townsite alternative, which is now preferred, has been identified at the junction of the Flathead River and Harvey Creek about 23 kilometres to the north. The projected workforce of the mine would be from 450 to 600 people. Based on population distribution and support personnel requirements, the town would be planned to accommodate an ultimate population of 1500.

LAND AND UTILITY REQUIREMENTS

Project land requirements for the mining operation would be about 1100 hectares. Other land requirements would be 380 hectares for the power line right-of-way, and about 36 hectares for the townsite. Water requirements are estimated at 500 litres per minute for the coal preparation plant, and 580 litres per minute for the townsite.

SOCIOECONOMIC CONSIDERATIONS

The modified mining plan would generate primary employment for 450 to 600 people and should create further jobs in support and service industries. The project would help alleviate the current high unemployment problem in the area as well as increase the area's economic base. The projected jobs and the total additional wages to the area would provide revenues from sales, income taxes and property taxes from the project facilities.

RECLAMATION

Reclamation work would be expected to begin as soon as operations have ceased in any one area. In many cases this would occur before the end of the mine life. The only variation to the Stage I Report in this respect is the provision for two lakes rather than one as noted previously. All other aspects of revegetation and reclamation remain as reported in the Stage I Report.

III

PROJECT DESCRIPTION

III. PROJECT DESCRIPTION

Many of the underlying data and proposals remain as outlined in the Stage I Report. Under the present plans, however, the coal preparation plant would have an annual production capacity of 1.7 million tonnes, rather than the 3 million tonnes used in the earlier report. The Flathead River-Harvey-Lodgepole Creeks road would be upgraded to enable the clean coal to be trucked to the Canadian Pacific Railway main line at Morrissey. A new town is still considered necessary, but it has been relocated to a site 23 kilometres north of the minesite. A more detailed description follows.

A. EXPLORATION ACTIVITIES - 1976 AND 1977

In 1976 six holes totalling 907 metres were drilled and adit bulk sampling was carried out, all to obtain additional coal quality data.

A complete evaluation of the total exploration programme at the end of 1976 revealed some anomalies which required clarification in order to develop a complete mining plan. Therefore, in the autumn of 1977 nine holes totalling approximately 1829 metres are to be drilled for additional coal quality data.

B. MINING OPERATION

Coal Deposits

The information as provided in the Stage I Report regarding the deposits is complete and correct with the following alteration. In calculating the coal reserves, it has been deemed advisable to include only coal horizons of 0.8 metres or more in thickness. Shale partings of 1.3 metres or less have also been included.

Pit Plan

The reduction in size of the operation does not alter the basic mining method. An open pit would still be created in each of North Hill and South Hill, to the depth of the lowest seam. These would now be smaller than earlier planned.

The removal and disposal of the overlying waste rock would be handled by 16.8 m^3-capacity, electrically-powered mining shovels and 150-tonne capacity off-highway haul trucks. This equipment would be assisted, as before, by smaller support equipment. After the removal of the overlying waste rock from above the coal seam the coal would be cleared with bulldozers, loaded into off-highway trucks by front-end loaders and hauled to the storage area.

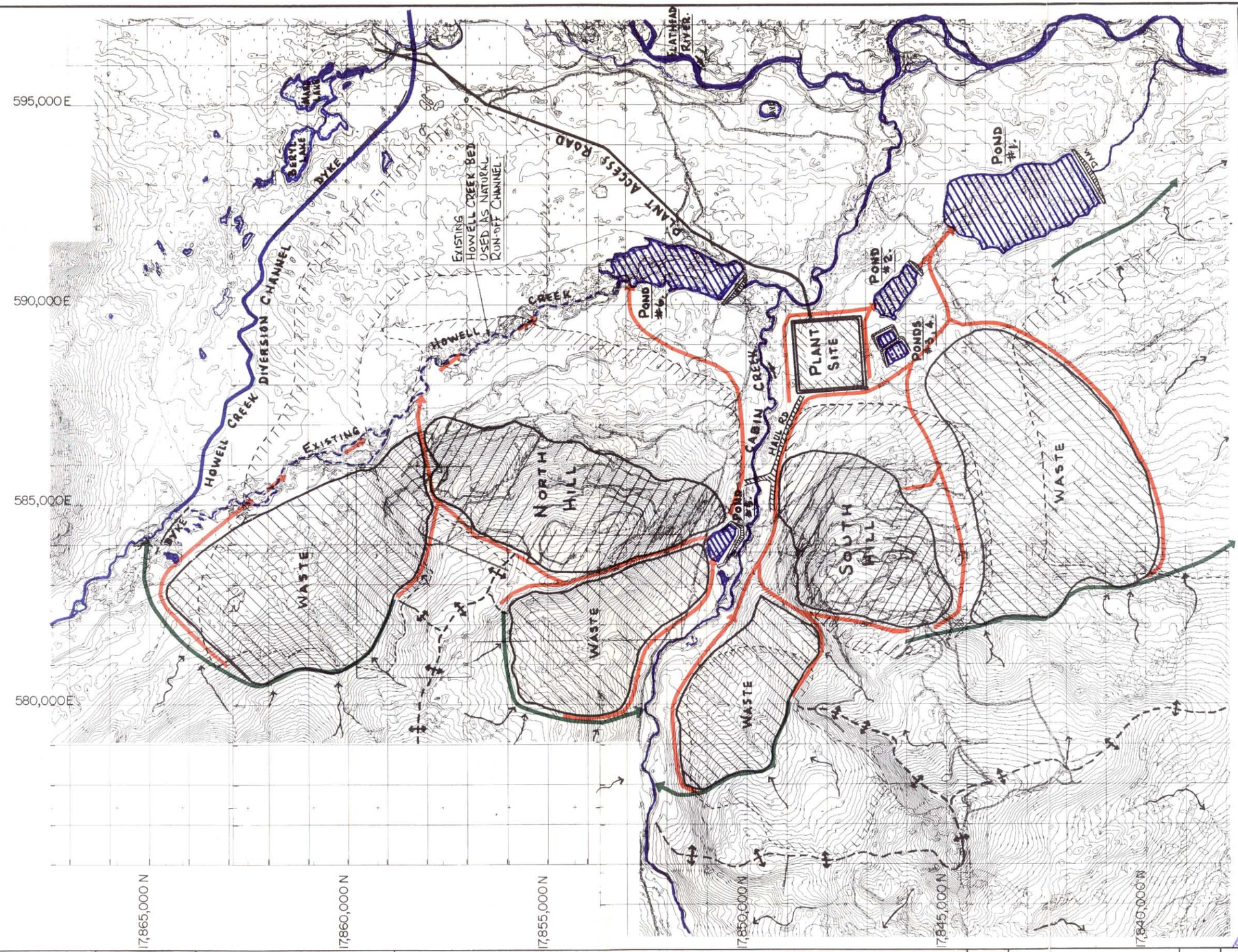
Disposal of Waste Rock and Refuse

The disposal of waste rock and refuse from the mine and preparation plant is subject to many local conditions. Efficient use of the Province's resources requires that disposal areas must be placed where there are no underlying coal seams. Other locations are limited by the topography of the area and the necessity to minimize haulage time. Figure III-1 indicates the general location of the disposal areas and shows drainage patterns. As may be seen, the reduced size of the operation would enable the use of much smaller disposal areas than was the case in the Stage I Report.

The main dump location for waste rock from the North Hill excavation would remain north of the mine area. In addition, a smaller section southwest of the proposed pit area would be used for the same purpose. Howell Creek would be diverted north of the disposal area (as outlined in the first addendum) and all drainage from the waste disposal areas would be contained and diverted to settling ponds.

Waste rock from the South Hill excavation would also be disposed of in two separate locations. A portion of it would be placed in a hollow south of Cabin Creek and west of the pit. The remainder would be located due south of South Hill.

The quantities of material from both pits that would require disposal are estimated to be 423 million m^3 of waste rock and 24.5 million m^3



LEGEND

- Contaminated Surface Runoff Collection Channel.
- Clean Natural Surface Runoff Collection Channel.
- Natural Ground Drainage.
- Natural Watershed Crest Height of Land
- Open Pit
- Overburden & Waste Dump.
- Outline of Mining Plan for 3 Million LTPY

Pond No 1 86×10^6 Cu Ft
Surface Runoff Retention from South Hill Open Pit & Waste Dumps.

Pond No 2 7×10^6 Cu Ft
Surface Runoff Retention from Plant Site including Raw & Clean Coal S'piles. (Overflows to Pond No 1)

Pond No 3, 4 (3) $\times 0.3 \times 10^6$ Cu Ft
(1) $\times 2 \times 10^6$ Cu Ft
Series of Clarification & Clear Water Ponds from Thickener U/Flow Centrifuged Liquid. (O' Flow Pumped to Plant Process)

Pond No 5 7×10^6 Cu Ft
Surface Runoff Retention from Portion of North Hill Waste Dump.

Pond No 6 33×10^6 Cu Ft
Surface Runoff Retention from North Hill Open Pit & Waste Dump.

M11

K-SAGE CREEK 77(9)A

COMPILATION NOTE
Topographic mapping from aerial photography flown in 1971 at the scale of 1:12000, planimetric update from aerial photography flown in 1975.

CONTROL NOTE
Control by field survey methods, horizontal datum is U.T.M. Zone 11. 500,000 M subtracted from all eastings. Vertical datum is geodetic

McELHANNEY SURVEYING & ENGINEERING LTD
Ref No 06245-0

MAP INDEX

LEGEND
Photo Centre, Horizontal Control, Drill Hole, Spot Elevation, Roads, Turnout, Trail, Buildings, Lakes, Creeks, Contours, Trees, Swamp

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FEET

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BY	APP.	BY	APP.	BY	APP.	BY	APP.	BY	APP.	BY	APP.	BY	APP.	BY	APP.	BY	APP.	BY	APP.	BY	APP.	BY	APP.

DRAWING No.	TITLE	BY
	REFERENCE DRAWINGS	

Rio Algom
Rio Tinto
RIO ALGOM LIMITED. ENGINEERING DEPARTMENT. TORONTO.

SAGE CREEK COAL LIMITED

1.7 MILLION (M.T.)
SITE PLAN
FIGURE III-1

SCALE 1" = 1000' | DATE MARCH 1976 | DRAWN | CH'K'D. | APP'D.

237-SK-007 — DRAWING NUMBER — REV. D

ABCO 126.003 1M-6-75

of plant refuse, occupying considerably less land area than previously expected. As originally planned, the side slopes of the discard areas would be terraced to an overall slope of 26 degrees, thereby reducing erosion and increasing the rate of revegetation. Plans remain for the removal and stockpile of topsoil from dump areas for later reclamation use. Erosion would be limited by revegetating the exposed surfaces of the mining and discard areas upon becoming inactive. The runoff water from these areas would be diverted into settling ponds to reduce siltation of the streams until new vegetative cover was established.

Reclamation would include the recontouring and revegetation of the excavation and discard areas. The reclamation of the discard areas would commence soon after completion of the excavation for which they were created. Stored topsoil would be used for restoring the areas in order to minimize the time required for the re-establishment of the vegetation.

Coal Cleaning Plant

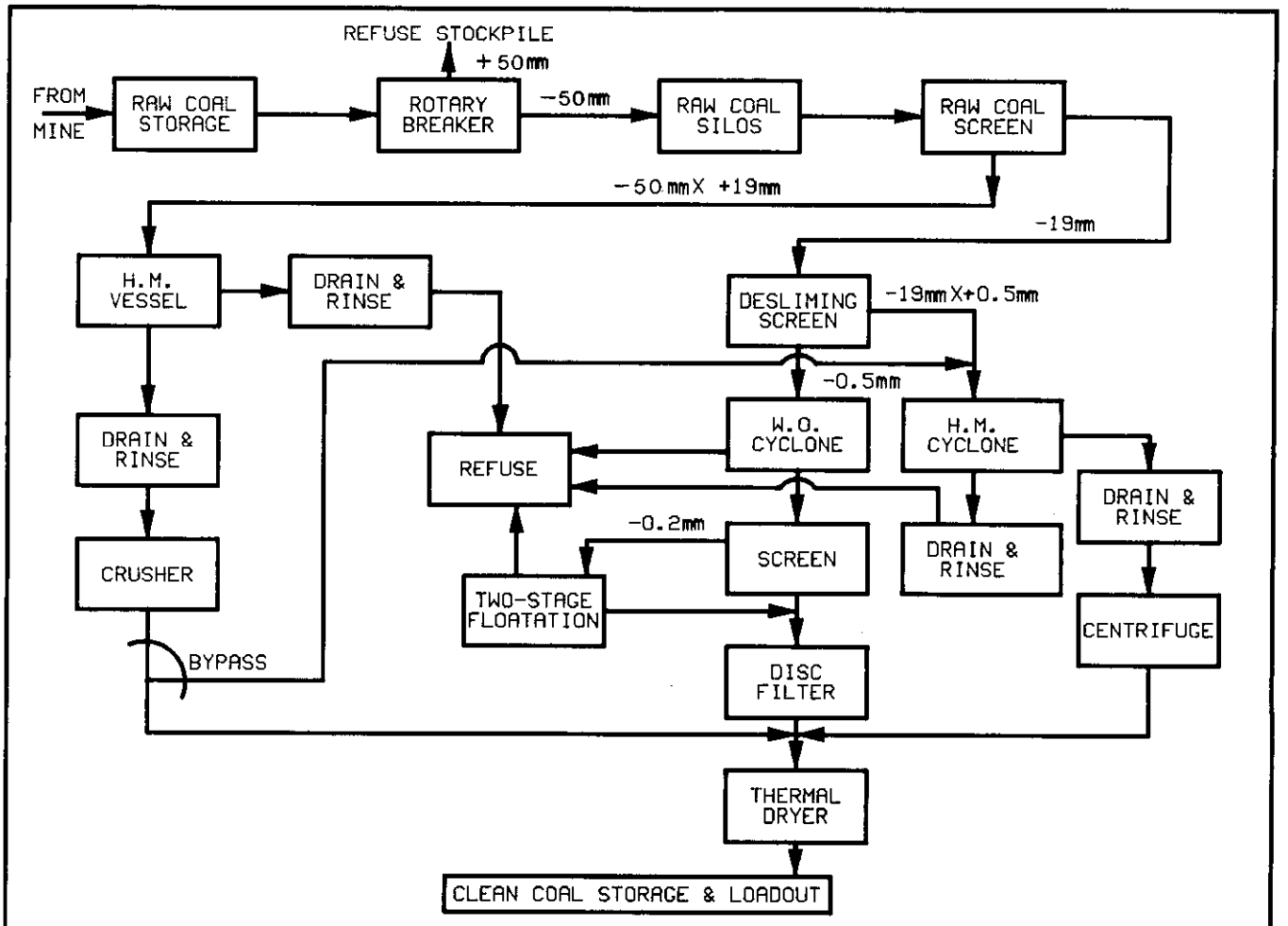
The outline of the preparation plant in the Stage I Report has been changed only slightly. After passing through the rotary breaker, raw coal less than 50 mm in size would be conveyed to the raw coal silos. Refuse from the rotary breaker which is larger than 50 mm would be sent to the refuse stockpile. Once into the preparation plant, material between 50 mm and 19 mm (- 50 mm x + 19 mm) in size would be treated by the heavy media vessel

(H.M. Vessel). The balance of the cleaning plant operation would remain as in the Stage I Report. The change noted above is also shown on the simplified flowsheet (Figure III-2).

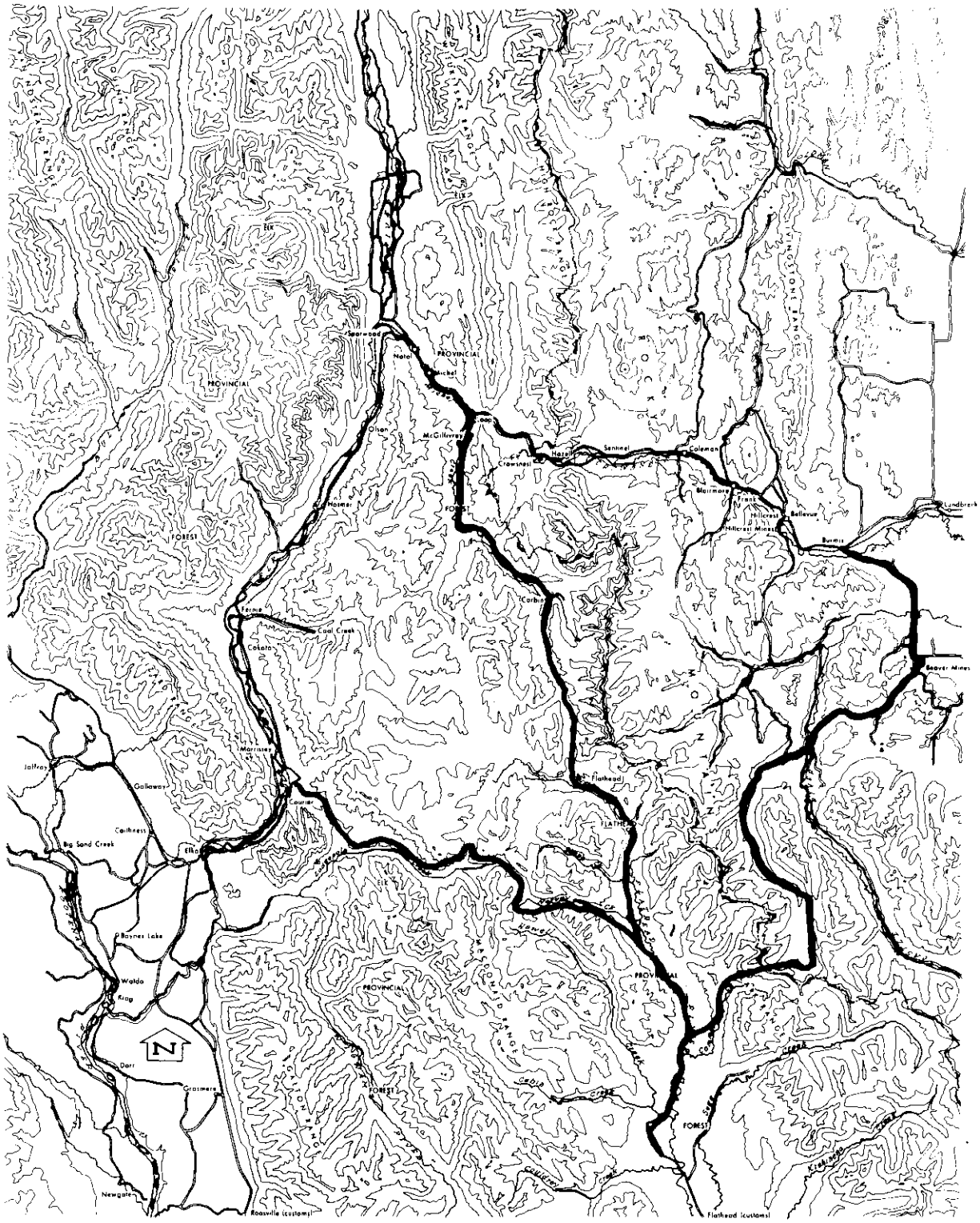
C. TRANSPORTATION

When the size of the Sage Creek project was reduced, it was necessary to reconsider the alternative methods of transportation. Of the three methods considered, railway, truck and pipeline, a system of trucking was felt to be the most dependable and economic. Clean coal would be taken by truck from the property to a convenient rail location. The route which seemed most logical was the existing logging road which crosses the C.P. mainline at Morrissey and is shown on Figure III-3.

Several trucking contractors were contacted to obtain their opinion on truck haulage of coal at a rate of 1.7 million tonnes per year over this route. All of these contractors agreed that up to 2 million tonnes per year could readily be moved in this way, provided the road is sufficiently upgraded for trucks of 30 to 75 tonne capacity. The trucking operation, including the purchase, operation and maintenance of equipment, and the construction and operation of truck maintenance facilities at Morrissey, would all be provided by an independent contractor. Loaded trucks would be sprayed to control dust.



SIMPLIFIED FLOWSHEET COAL PREPARATION PLANT
FIGURE III-2



0 20 Km

SCALE 1:500,000 (approx.)

FIGURE III-3

ROAD MAP

K-JAGE CREEK 77 (2) A.

The truck loadout facility at the mine site would have a capacity of 2,000 tonnes, with additional emergency storage on the ground for 50,000 tonnes. Drainage and dust from such storage would be controlled. The two products, Seam 2 and Seams 4 and 5 combined, would be produced, loaded and hauled at separately scheduled times and placed in separate bins at the rail loadout station.

The rail loadout station would consist of a loading loop with facilities to load a 10,000 tonne unit train in four hours. Each car would be loaded with a blend of coal from Seam 2 and Seams 4 and 5 combined to the appropriate ratio for the total tonnage.

Silos of 8,000 tonne and 12,000 tonne capacities would be located at the rail loading station for Seam 2 and Seams 4 and 5 respectively. No emergency ground storage is recommended for the Morrissey site for environmental reasons. Instead, all emergency clean coal storage would be maintained at the mine site.

D. POWER FACILITIES

Due to the reduction in the project size, the electric power requirements for the plant and townsite have been reduced to 15mW. The source of this power would still be the Natal substation No. 2 on Highway No. 3 and the location of the transmission line would remain the same.

E. THE TOWNSITE

The Preliminary Environmental Impact Assessment of the Proposed Sage Creek Coal Project Stage I Report, which was originally presented and accepted, identified four alternate townsite areas. To varying degrees, each of these locations met a series of seven criteria dealing with such things as climate, travel distance and water supply.

As the project size has been scaled down, so too has the size of the town. The estimated total land requirements would now be about 37 hectares rather than 145. This reduction in size has made it possible to include a fifth alternative which, on consideration, appears more desireable than the earlier choice. The new location is at the junction of the Flathead River and Harvey Creek, about 23 km. north of the proposed minesite. It is farther from the mining operations and the State of Montana but it is closer to Fernie than the previously selected site. There is good potential sun exposure, and other climatological factors should be favourable. In other respects, the basic assumptions used in the original report remain the same. The new location is labelled area 5, and is shown on Figure III-4.

F. ALTERNATE SITES OR SOLUTIONS

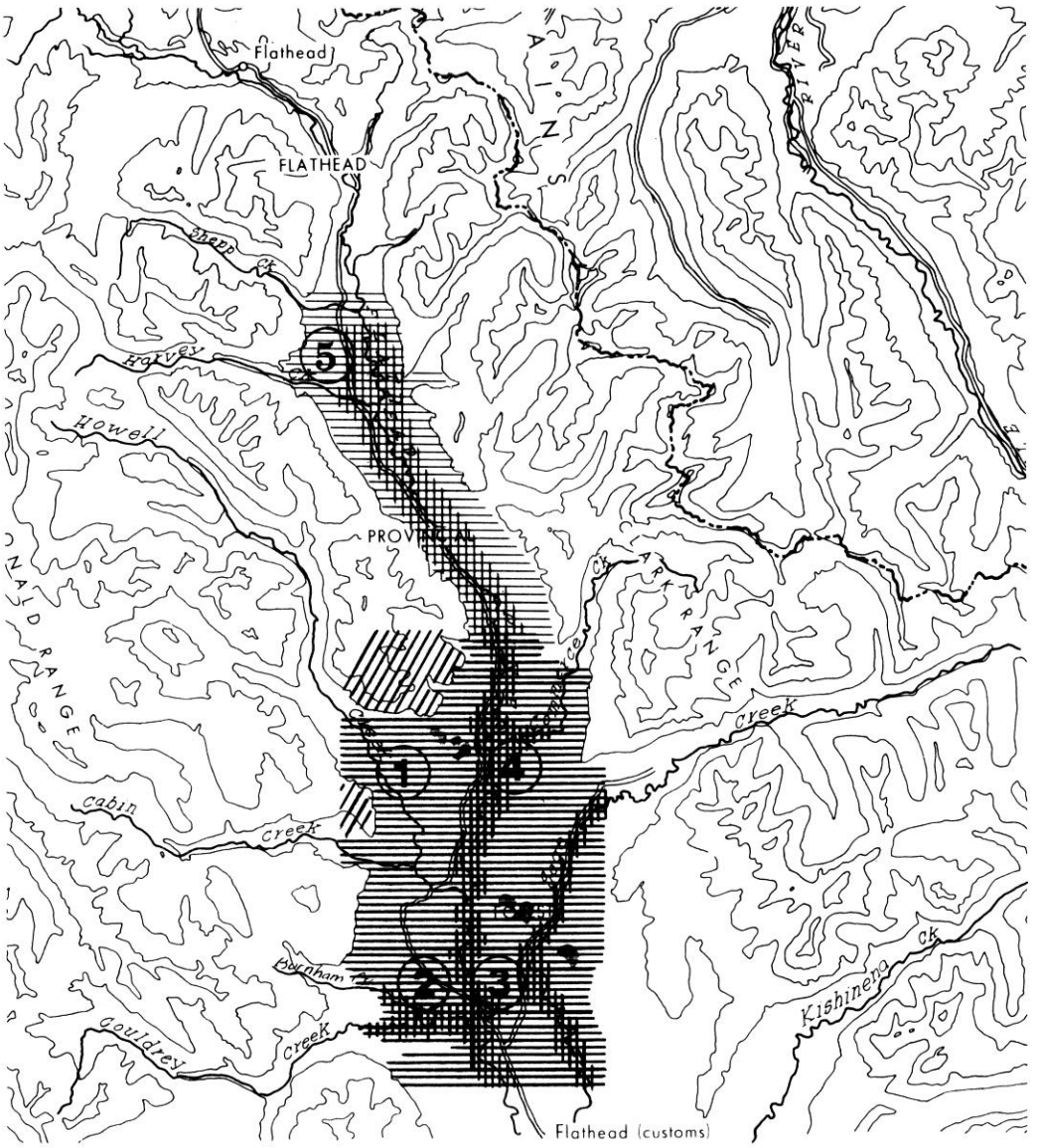
Mining Operations

The discussion of alternative mining methods from the Stage I Report is still applicable in the context of a 1.7-million-tonne-per-year study.

FIGURE III-4

TOWNSITE LOCATION MAP

WITH ENVIRONMENTALLY SENSITIVE AREAS



K-SAGE CREEK 77(9)A.

Disposal of Waste Rock and Refuse

Alternate disposal sites were investigated during the preliminary design of the facilities. Disposal sites must be located close to the mining operation because of the amount of waste rock generated. The following alternatives to the selected disposal areas were evaluated :

North Hill - a) Use one dump only, north of North Hill. This would substantially increase the haul distances involved in dumping the material that is presently allocated to the smaller dump southwest of North Hill.

b) Dispose of a portion of the waste rock between Howell Creek and the Flathead River. Such an arrangement would require bridging Howell Creek, would increase haul distances and would have severe uphill grades for transit.

South Hill - a) Use one dump only, south of South Hill. As was the case for North Hill, this alternative was rejected due to haul distance considerations.

b) Dispose of South Hill waste rock into the North Hill excavation. This was not selected because mineable coal reserves would be covered over. While the present pit plans are for a 20 year mine life, reserves are sufficient to sustain a 1.7-million-tonne-per-year operation for approximately 37

years. The coal that will remain after 20 years of mining continues downdip from the pit bottoms. If either of the planned pits were to be backfilled, a large portion of the proven reserves would be lost from future open pit mining.

Coal Cleaning Plant

Several alternatives to the present flowsheet were discussed in the Stage I Report and have not been changed. These dealt with the need for cleaning, dry plant vs. wet plant, and the thermal dryer vs. centrifuges.

Transportation

As outlined earlier, rail, truck and pipeline alternatives were considered for coal transportation. The truck haul route to Morrissey was recommended. A brief description of the other alternatives is as follows :

a) Truck Haulage

An alternate truck haul route was thought to be from the mine site south to a rail loading point in Montana. An appraisal of this possibility indicated that the haulage distance would be considerably greater and that several portions of the existing road would require major upgrading. More importantly, it would likely be next to impossible to obtain permission for this plan from the State of Montana.

b) Rail Haulage

In the Stage I Report it was established that it would be necessary to construct a spur rail line from the mine site to the Canadian Pacific main line at the McGillivray loop in the Crowsnest Pass. It was determined, however, that without government support or other financial assistance, the cost of a spur railroad could not be supported by the Sage Creek project. The reduction in production capacity simply has the effect of making such a railroad more uneconomic.

c) Coal Pipeline

The possibility of pipelining coal from the mine site to a rail loading point has also been studied, and is still under consideration. A major group of pipeline designers and contractors have expressed the opinion that dependable technology for the pipelining of metallurgical coal can be developed. All successful coal pipelines to date have handled coal of fine consistency for thermal electric powerplant use. Metallurgical coal must be pumped at a consistency of - 19 mm to maintain its metallurgical qualities and to minimize the problems of dewatering at the delivery end.

It is not felt that coal pipelining can be safely considered at this time, but if this technology were to emerge as a dependable

method of moving coal from the property to the Canadian Pacific Rail main line, it could have a major impact on the economics of the project.

Power Facilities

There have been no new alternative sources of power under consideration since the Stage I Report.

Townsite

Regarding the location of mine and support service employees, it is still felt that none of the established communities adequately meets the necessary requirements of space and short commuting distance. As noted earlier, a fifth alternative site for a new town has been added, and is shown in Figure III-4. The new townsite, like the other four, is on glacial morraine and is in the ungulate winter range area. It is not, however, on the ungulate migration routes.

It is recognized that the establishment of a new townsite for a one industry operation poses many social and economic problems. Hence, a study will be made on alternative plans such as transportation of employees from existing towns by various means (eg. helicopter).

IV

POTENTIAL LAND AND UTILITY REQUIREMENTS

IV. POTENTIAL LAND AND UTILITY REQUIREMENTS

A. LAND

The land requirements of the Sage Creek Coal Project have been reduced as the production capacity has gone down. The only area which would remain the same would be the preparation plant and other buildings. The area formerly assigned to railway loading facilities would be used for a truck loading facility. The land requirements are outlined in Table IV-1 below.

Table IV-1

MINING OPERATION LAND REQUIREMENTS

Facilities	Land Requirements - Hectares
North Hill Excavation	167
South Hill Excavation	129
Waste Dumps	668
Preparation Plant and Other Buildings	36
Clarification and Thickener Emergency Dump Pond	3
Storm Runoff Retention Ponds	94
Total	1097

The amount of land required for right-of-ways is reduced by the elimination of the railway. The existing logging roads would be upgraded for use, so there would be no additional land requirements. The necessary land for the powerline would still be 380 hectares.

Land requirements for the townsite would also be reduced as a result of the smaller projected population. Requirements for the town are detailed in Table IV-2 below.

Table IV-2

TOWNSITE LAND REQUIREMENTS

Facilities	Land Requirements - Hectares
Housing	21.6
Education	1.6
Parks and Recreation	4.0
Commercial, Industrial	0.7
Municipal - Institutional	1.6
Roads and Land Losses	6.9
Total	36.4

To summarize, the total land requirement for the smaller Sage Creek Coal Project would be in the order of 1513 hectares rather than the 2774 hectares for the 3-million-tonne-per-year project.

B. WATER

The design of water utilization for the preparation plant and the water source remains the same as in the Stage I Report. The quantities of water, however, have changed. A preliminary water balance is given in Figure IV-1 and the total water requirements are shown in Table IV-3 below.

Table IV-3

WATER REQUIRMENTS

Facility	Requirements (metres^3 /min.)
Coal Preparation Plant	0.5
Townsite	0.6
Total	1.1

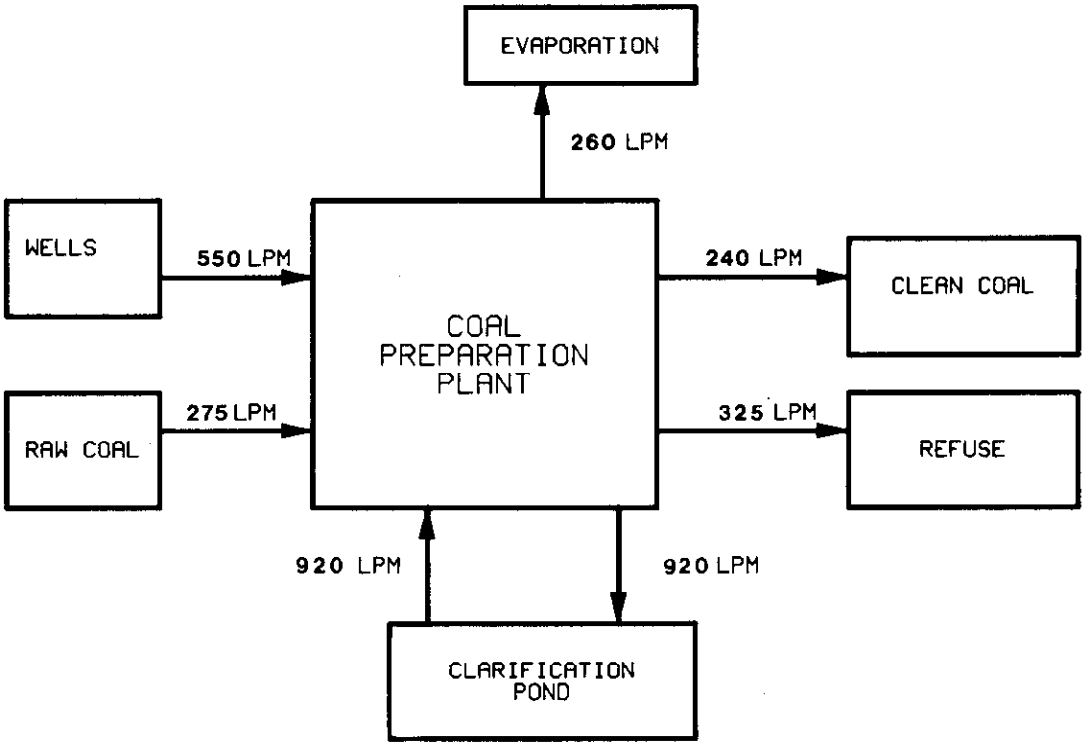


FIGURE IV-1
WATER BALANCE, COAL PREPARATION PLANT

C. POWER

Power would still come from the substation at Natal via a 230-kV transmission line. The total power requirements, however, would be lower than earlier estimated. The new requirements are shown in Table IV-4 below.

Table IV-4

ELECTRICAL POWER REQUIREMENTS

Facility	Power Demand (megawatts)
Townsite	3.7
Plant	11.3
Total	15.0

V

PHYSICAL ENVIRONMENT

V. PHYSICAL ENVIRONMENT

The information as presented in the Stage I Report is correct and essentially complete for application to the smaller operation. The main variation applies to the further studies as outlined in that volume and in the first Addendum (dated September 1, 1976). This variation involves studies of the physical characteristics for the Stage II Report which would be expanded to include Harvey Creek owing to the possibility of locating the town at the Harvey Creek/Flathead River junction.

There will also be some difference in the nature of the environmental impacts to be expected. In most cases, the impact is expected to be reduced due to the smaller scale of the project and the exclusion of a railway in the Flathead Valley. Some impacts are expected to remain as outlined in the Stage I Report.

VI

AQUATIC ECOSYSTEMS

VI. AQUATIC ECOSYSTEMS

It is intended that attention be given to the aquatic life of Harvey Creek. This will include environment, productivity, impacts and mitigating measures.

The reduction of the project size would reduce the impact on the aquatic environment. This will be investigated for the Stage II Report.

VII

TERRESTRIAL ECOSYSTEMS

VII. TERRESTRIAL ECOSYSTEMS

The background information supplied for the Stage I Report is complete and is applicable to either size of operation. It was determined that the 3-million-tonne-per-year plan would probably have very little economic effect on forest production, but that mine development and operation must inevitably effect the wildlife resources and could effect heritage resources. Such effects would logically be reduced as the size of the operation becomes smaller. The exclusion of a railway removes a potentially damaging influence. It may be expected that the smaller project will have the same type of impact on the terrestrial ecosystems as the larger one did, despite their smaller damage potential. It is felt, therefore, that the necessary mitigating measures must remain as outlined in the Stage I Report.

VIII

LAND USE AND CAPABILITIES

VIII. LAND USE AND CAPABILITIES

With the exception of removing references to the railway and modifying mention of the town from the lower to middle Flathead Valley, no changes are now necessary for this section.

IX

SOCIAL AND ECONOMIC CONSIDERATIONS

IX. SOCIAL AND ECONOMIC CONSIDERATIONS

A. PRESENT COMMUNITIES AND WAY OF LIFE

During the time since acceptance of the Sage Creek Stage I Report there have been no significant changes in the established communities.

B. POTENTIAL PROJECT IMPACTS

Population and Employment

The modified mining plan would have the effect of reducing the size of the construction labour force and reducing the number of permanent jobs in the mine and plant and in the service industries. The 1.7-million-tonne plan would require a construction labour force for a period of about two years and a permanent labour force of from 450 to 600 for the operation of the mine and plant facilities. This would generate some additional jobs in service industries. Five years after start-up (settled condition) about 425 mine employees would live in the town, providing a minimum employment base. A level of employment of this size could be expected to generate a townsite population of 1100 people as shown in Table IX-1. The projected 450 permanent jobs would generate a minimum annual total wage on the order of $7,000,000 per year.

TABLE IX-1

POPULATION SUMMARY - SETTLED CONDITION

Basic Industry Employees	425
Employees' Wives (60% of above)	255
Children (70% of married couples with 2.1 children per family)	375
Other	45
Total Population	1100

Housing and Secondary Effects

It may be expected that the secondary effects, trade services and housing needs would be of similar type as for the larger town, only on a smaller scale. Approximately 25 per cent of the project employees would likely commute from one of the neighbouring communities despite the distance. It is expected that about 22 per cent of the workforce would be housed in detached houses, 22 per cent in mobile homes, 22 per cent in apartments and 9 per cent in townhouses. The resultant distribution of housing types would be 124 detached units, 124 mobile homes, 124 apartment units and 53 townhouse units for a total of 425 units.

Schools

The projections of school age children generated by the anticipated population are shown in Table IX-2. Because of their expected small number, senior secondary school students would probably be bused to or boarded at Fernie. The provision of a 7 classroom school would be necessary to accommodate the large number of elementary and junior secondary school-aged children.

C. MITIGATING ACTIONS AND FURTHER STUDIES

It is felt that the same items will need further detailed study and analysis, regardless of project size. There is one change, however : the studies of fish capabilities would now include Harvey Creek.

X

RECLAMATION

X. RECLAMATION

Proposals for the reclamation of the area have undergone only partial modifications. Although the size of the proposed project has been scaled down, the importance of the reclamation programme has not. In the Stage I Report it was stated that the South Hill pit would be allowed to fill with natural source water to form a lake. Present plans would allow both pits to form lakes, ultimately draining into Cabin Creek. This proposal has not yet been finally decided upon, however, and will be covered in detail in the Stage II Report.

XI

ENVIRONMENTAL OVERVIEW

XI. ENVIRONMENTAL OVERVIEW

It was noted in the Stage I Report that some impacts must be expected as a result of any human intrusion in the area. In fact it may be said that as a result of logging operations much of the Flathead Valley can no longer be considered to be in a natural state. The Stage I Report expressed the conviction that many of the potential impacts caused by a mine in the valley will be either reduced or avoided through efficient environmental design and operation of the project. Being aware of the potential impacts of a 3-million tonne-per-year project, it appears most likely that such impacts can be further reduced or avoided with a smaller operation and removal of some potentially damaging features from the plan. The continuation of studies for the Stage II Report should clarify this possibility.

OPEN FILE

82-G-2

SAGE CREEK COAL LIMITED

Report
on

Field Investigations
September to November 1977.

April, 1978. O Cullingham

PREFACE

In June 1977 Mitsubishi Mining and Cement Co. Ltd. of Tokyo were engaged in a consulting capacity to respond to questions raised over the mineability of the South Hill with respect to the faulting. Their conclusion was that mining the hill would not present a problem; however, in view of demonstrated coal quality variations (a conclusion arrived at from the F.S.I. contour plans sent to Mitsubishi) maintaining a blend of seams 2, 4 and 5 would have to be demonstrated.

It was pointed out to the representatives of Mitsubishi that the F.S.I. contours were developed from all data regardless of drilling method and recovery. Following a drill coring programme (1976 drilling programme) to check low F.S.I. trends rotary hole results were found to be unreliable and were discontinued from further use for generating F.S.I.'s. Using results from core samples only it could be demonstrated that coal quality was in fact consistent throughout the deposit. The Mitsubishi representatives felt that more drilling was required to support this claim and recommended that only seam intersections of greater than 80% recovery should be used. When data from intersections of greater than 80% recovery was plotted obvious gaps in information were revealed.

Arising from these discussions agreement was reached to carry out supplementary drilling to generate sufficient data points having a maximum radius of influence of 800 feet, to adequately demonstrate consistency of coal quality. A drilling programme was subsequently planned and carried out from September to November 1977.

This report has been written to document the events and results of the supplementary drilling programme.

TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

* For analysis data, refer to Confidential Coal Analysis File.

MAPS AND ILLUSTRATIONS

Dwg. L-2692	Location Map & Property Plan.	Bar Scale
Dwg. G-3588	Surface Plan, North Hill	1"=600'
Dwg. G-3589	Surface Plan, South Hill	1"=600'

MAPS NOT INCLUDED IN REPORT. (RETAINED ON FILE ONLY)

Dwg. G4475-4	South Hill Correlation Chart of Interval between Seam 2 and Seam 4.	
Dwg. Misc. 2774	South Hill-Isopach Map of Interval Between Seam 2 and Seam 4. (Preliminary Stage only).	
Dwg. W4564-1	Washability results North Hill -	Seam 2
-2		Seam 4U
-3		Seam 4L
-4		Seam 5U
-5		Seam 5L
Dwg. W4565-1	Washability Results South Hill -	Seam 2
-2		Seam 4U
-3		Seam 5U
-4		Seam 5L
-5		

SUMMARY & CONCLUSIONS

The drilling programme was completed successfully with core recovery from 46 coal seam intersections averaging 88 percent and broken down as follows:

90-100%	26 intersections
80- 90%	12 intersections
70- 80%	7 intersections
70%	1 intersection
	46 intersections

The drilling programme generated sufficient sample points within the proposed pit limits to provide quality control for all coal seams.

The washability tests performed at each sample point indicate that washability characteristics for each seam are consistent throughout the proposed pit areas.

The drilling supported the geological interpretation as presented for North Hill and only minor adjustments to structural contours and thickness isopachs were necessary due to defining previously interpolated contacts or thicknessess. On South Hill modifications to the structural interpretation were required as a result of the drilling in two areas. The modifications necessitated do not significantly alter reserves or significantly effect the mineability of the deposit.

INTRODUCTION

The drilling programme commenced September 12 with the mobilization of drilling equipment to the property and was concluded November 10 with the completion of hole 77D 09. Ten holes, 4 on North Hill and 6 on South Hill, were drilled for a total of 6472 feet.

The drilling contract was awarded to Connors Drilling Limited of Vancouver who supplied two skid-mounted Longyear 38 drills equipped with triple tube wireline equipment to recover H.Q. core (2 3/8" diameter).

Preparation and maintenance of access roads and drill sites was carried out using a D-6C provided by Ralph Wright Construction Limited of Cranbrook, B.C. The D-6C was also used to reclaim roads and drill sites following completion of the drilling. Lopping and scattering of trees felled during construction of roads and drill sites was carried out by Ralph Wright Construction.

The contract to supply the camp and catering facilities was awarded to McMeekin Construction Limited of Rocky Mountain House, Alberta.

LOCATION AND ACCESS

The Sage Creek Coal property lies in the lower Flathead Valley in southeastern British Columbia. The centre of activity is some 6 air miles north of the border near the confluence of Howell and Cabin Creeks. Geographically this location lies at 49°06' north latitude, 114°34' west longtitude (N.T.S.: 82-G-1,2).

The centre of the property is 35 air miles southeast of the town of Fernie, B.C; the nearest settlement where supplies and services are available. (Location Map Dwg. L-2692).

Access to the property from Fernie is via paved Provincial Highway No. 3 to Morrissey and from there via gravel surfaced B.C. Forest Development Roads along Lodgepole and Harvey Creeks and Flathead Valley. An alternate route into the property is south from Highway No.3, east of Michel, B.C. , along the Flathead Road. The Flathead Road continues across the International Boundary to Columbia Falls, Montana.

The nearest railway to the property is CP's line in Crows Nest Pass area and in Elk Valley at Morrissey. Electrical power is available in Elk Valley and the Crows Nest Pass area.

DRILLING

Ten core holes were drilled to provide "good recovery" coal core for quality analysis to be used for demonstrating consistency of coal quality throughout the proposed pits areas. Four holes, 77D 01 to 77D 04 inclusive, were drilled on the North Hill and six holes, 77D 05 to 77D 10 inclusive, were drilled on the South Hill.

Drill Hole 77D 01

This hole was drilled primarily to fill a void in seam quality information for Seam 5L. Recovery of this seam was 80%.

The hole was drilled to a depth of 916 feet and intersected a normal sequence of stratigraphy.

Drill Hole 77D 02

This hole was drilled primarily to fill a void in seam

quality information for Seams 4U, 4L, 5U and 5L. The hole was successfully completed providing the following recoveries:

Seam 4U 92%

Seam 4L 84%

Seam 5U 90%

Seam 5L 84%

The hole was drilled to a depth of 430 feet and intersected a normal sequence of stratigraphy.

Seam 4L is thinner than anticipated at this location; however, the thinning is depositional and is demonstrated on the updated correlation chart for Seam 4 (DWG. G4474-2) on file.

Drill Hole 77D 03

This hole was drilled primarily to fill a void in seam quality information for Seams 4U, 5U and 5L. The hole was successfully completed providing the following recoveries:

Seam 4U 86%

Seam 5U 75%

Seam 5L 90%

The hole was drilled to a depth of 520 feet and intersected a normal sequence of stratigraphy.

Drill Hole 77D 04

This hole was drilled primarily to fill a void in seam quality information for Seams 4U, 4L, 5U and 5L. The hole was successfully completed providing the following recoveries:

Seam 4U 96%

Seam 4L 94%

Seam 5U 95%

Seam 5L 94%

The hole was drilled to a depth of 682 feet and intersected a normal sequence of stratigraphy.

Drill Hole 77D 05

This hole was drilled primarily to fill a void in seam quality information for Seams 4U, 4L and 5L. The hole was completed providing the following recoveries:

Seam 4U 73%

Seam 4L 91%

Seam 5L 77%

The recovery in Seam 4U represents a loss of 7 feet in the middle of the seam caused by equipment failure. Because the loss was concentrated in one zone it was deemed necessary to redrill this hole. A location 400 feet north was selected and hole 77D 10 drilled.

Seam 5L is in faulted contact with the basal sandstone and part of the seam is displaced. The fault is a minor fault and cannot be traced along strike. The sample recovered from this seam is considered unrepresentative because of the fault and washability information resulting from the sample should not be used in an evaluation of coal quality.

A thinning of the interval between Seam 2 and Seam 4 result in Seam 4 and stratigraphy thereafter being intersected 100 feet shallower than anticipated. The thinning is due to stratigraphy and is explained in the section dealing with geology.

The hole was drilled to a depth of 510 feet.

Drill Hole 77D 06

This hole was drilled primarily to fill a void in seam quality information for Seams 4L and 5U. The hole was successfully completed providing the following recoveries:

Seam 4L 94%

Seam 5U 95%

The hole was drilled to a depth of 730 feet. A normal sequence of stratigraphy was intersected to Seam 2 although deeper than anticipated. The interval between Seam 2 and Seam 4 was thinned and from Seam 4 to the total depth a normal sequence of stratigraphy was intersected where anticipated. The thinning between Seam 2 and Seam 4 is explained by faulting and is explained in the section on geology.

Drill Hole 77D 07

This hole was drilled primarily to fill a void in seam quality information for Seams 4U, 4L, 5U and 5L. The hole was abandoned after drilling 130 feet because of excessive down hole sloughing and the failure to drive casing. The drill was skidded 15 feet and hole 77D 07A drilled.

Drill Hole 77D 07A

This hole was successfully completed providing the following recoveries:

Seam 4U 85%

Seam 4L 87%

Seam 5U 95%

Seam 5L 91%

The hole was drilled to a depth of 778 feet and intersected a normal sequence of stratigraphy.

Drill Hole 77D 08

This hole was drilled primarily to fill a void in seam quality information for Seam 5U. The hole was successfully completed and provided a recovery of 98% for this seam.

The hole was drilled to a depth of 886 feet and intersected a normal sequence of stratigraphy to seam 5. The geologic character of Seam 5 is different in this hole from surrounding holes and is difficult to correlate. See updated correlation chart for Seam 5 South Hill (DWG. G4475-3) on file. It should be noted that washability characteristics from this intersection are also different from the norm; however, the characteristics show an improvement in the coal quality. See section on coal quality for further explanation of geologic character.

Drill Hole 77D 09

This hole was drilled primarily to fill a void in seam quality information for Seams 4U, 4L, 5U and 5L. The hole was successfully completed providing the following recoveries:

Seam 4U 94%

Seam 4L 92%

Seam 5U 94%

Seam 5L 92%

The hole was drilled to a depth of 495 feet and intersected a normal sequence of stratigraphy.

Drill Hole 77D 10

This hole was an extra hole drilled to provide quality information for Seams 4U and 5L because of the poor information generated by hole 77D 05. The hole was successfully completed providing the following recoveries:

Seam 4U 88%

Seam 5L 79%

The hole was drilled to a depth of 541 feet.

As for hole 77D 05 the interval between Seams 2 and 4 was thinner than anticipated and is explained by stratigraphic thinning (See section of geology). Seam 2 was partially displaced by a minor fault which cannot be traced along strike.

All holes were logged visually and detailed lithology logs are attached as Appendix A at the back of this report.

All holes were logged open hole with Gamma Ray/Neutron, Sidewall Density and Caliper probes. In addition holes 77D 03 and 77D 05 were logged with a Focused Beam probe. Copies of all geophysical logs are attached to this report as Appendix F. As an experiment a directional survey was run in hole 77D 04; the results are tabulated and attached to the lithology log in Appendix A.

All drill holes were surveyed and the co-ordinates and elevations are tabulated in Table 111 preceeding Appendix A. The surveyed co-ordinates and elevations of all holes drilled in 1976 are also attached.

All holes, coal seam intercepts, recoveries and analytical data for raw coal are tabulated in Tables 1 (North Hill) and Table 11 (South Hill).

Columnar sections of all holes were drawn at 1"=40' and coal sequences expanded to 1" = 2.0'. Reductions of these drawings are attached as Appendix E.,

GEOLOGY

The geological interpretation of the North Hill was supported wherever drilled and only minor adjustments to structural contours and thickness isopachs were necessary due to defining previously interpolated contacts or thicknesses.

The geological interpretation of the South Hill was supported in 3 holes; however, modifications to the structural interpretation were necessitated by drilling results from holes 77D 05, 77D 06 and 77D 10. The modifications necessitated do not significantly alter reserves or significantly effect the mineability of the deposit.

In hole 77D 05 a thinning of the stratigraphic section between Seam 2 and Seam 4 resulted in Seam 4 and stratigraphy thereafter being intersected approximately 100 feet shallower than anticipated. The same interval is thinned in hole 77D 10 to the north and SCC 24 to the east. A previous interpretation by the writer suggested the thinning to be caused by faulting; however, with completion of the recent drilling there is now evidence to suggest the thinning to be statigraphic rather than structural. In support of this a correlation chart of the

interval between Seam 2 and Seam 4 and an isopach map of the same interval have been developed and are on file in the drafting department (Dwg. G4475-4 and Dwg. Misc. 2772 respectively). To accommodate the changes fault No. 9 is assumed to have terminated south of hole SCC 19 and a flattening of the dip in holes 77D 05 and 77D 10 suggests the development of a localized roll of the strata. All sections and structural contour plans have been modified to reflect this change.

In hole 77D 06 a thinning of the strata between Seam 2 and Seam 4 is explained by faulting. A previous interpretation by the writer suggested the existence of an east dipping normal fault projected to the surface north of hole 77D 06 and cutting hole 75R 07 (fault No. 8'); however, faced with the stratigraphy intersected in hole 77D 06 the fault is now considered to be a west dipping normal fault and is probably a splay off fault No. 5. The fault is shown on the plans and sections as fault No. 5'. The fault cuts hole 75R 07 and 77D 06 causing loss of section in both holes. All sections and structural contour plans have been modified to reflect this change.

Other adjustments to structural contours and seam thickness isopachs for South Hill were made to reflect minor differences from previously interpolated contacts.

COAL QUALITY

The coal seams and horizons intersected in the drill holes were sampled on the basis of lithology usually in increments of less than 2.0 feet. Channel samples were cut from the core from each increment for field tests and the rest of the samples were sent

to Birtley Coal and Minerals Testing in Calgary.

Field tests were limited to raw coal F.S.I. and were carried out for holes 77D 01 to 77D 03. The results are tabulated at the back of this report as Appendix B.

The samples sent to Birtley Coal and Minerals Testings were tested for raw coal F.S.I., raw coal ash, and specific gravity (dry basis). Coal seam composite samples were prepared and tested for washability characteristics. In a few cases where contacts were poorly defined - where shale to shaly coal sequences separate rider seams above or below the main seam - two or more composite samples were prepared and tested for washability. This practice provided necessary information for selecting mining cutoffs and also provided information to study the effects of dilution on washability characteristics. In the case of the latter, expanding the interval to include the rider seams increased the raw ash and decreased the yield but did not significantly affect the washability characteristics. F.S.I.'s were determined for recomposited samples at each s.g. float fraction in the heavy media circuit and the water only circuit and, for a recomposited seam sample consisting of the froth flotation fraction and the float fractions from both circuits at the relevant s.g.'s selected to optimize yield while maintaining coal specifications. The additional F.S.I. determinations were made to avoid calculating F.S.I.'s on a weighted average basis because of inaccuracies inherent in calculating F.S.I.'s. A comparison between calculated F.S.I.'s and actual F.S.I.'s is shown in Appendix D attached. The differences justify the need for actual

F.S.I. determinations; however, the differences do not warrant adjusting calculated F.S.I.'s from previous samples by developing a correction factor.

All laboratory test results are attached to this report as Appendix C.

The results of the washability tests show that washability characteristics from each sample point for each seam are consistent throughout the proposed pit areas. Differences in yield are apparent between sample points and generally reflect varying raw ash content. The varying raw ash content is primarily due to the degree of rock dilution and does not reflect a change in the quality of the seams.

Washability tables for all sample points with greater than 80% recovery are shown on plans of each seam at 1" = 200 ft. on file (Dwg.W4564-1 to Dwg.W4564-5 inclusive and Dwg.W4565-1 to Dwg.W4565-5 inclusive).

Three sample points generated by the 1977 drill holes are singled out as varying from the norm. 77D 03 Seam 4U: This intersection gave a slightly lower than normal F.S.I. for Seam 4U. The intersection at this point was also approximately 10 feet thinner than anticipated from the surrounding holes which could reflect a change in maceral distribrution causing a greater concentration of inerts and thus depressing the F.S.I. 77D 05 Seam 4U: This intersection gave a higher than normal F.S.I. for Seam 4U. An interval of 7' at the top of the lower half of the seam was not recovered. This could cause a

significant weight redistribution of macerals and result in the change in F.S.I.'s.

77D 08 Seam 5: The washability characteristics for both Seam 5U and Seam 5L show an improvement in coal quality. The geologic character of the seam is also different in this hole from surrounding holes and proved difficult to correlate. The change in washability characteristics could reflect the change in geologic character. There is another possible explanation worth recording although not used in an interpretation. The geologic character of seam 5U is similar to that of 5L in surrounding holes and the washability characteristics are similar to those of 5L in surrounding holes. It is possible that 5U has in fact shaled out in this location leaving only 5L and a new seam developed in the basal sandstone. (See schematic diagram Fig. 1 following).

None of the above three sample points is considered to detract from the overall consistency of coal seam quality for each seam.

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TABULATION OF COAL SEAM QUANTITY & RAW COAL QUALITY DATA DERIVED FROM DRILL HOLES

TABLE # I

NORTH HILL

DRILL HOLE	FOOTAGE	THICKNESS	DENSITY LOG CHECK ON FOOTAGE	DENSITY LOG CHECK ON THICKNESS	RECOVERY BY VOLUME	ACTUAL RAW ASH	LAB S. G.	DENSITY LOG READING	INSITU BULK DENSITY	RAW ASH DETERMINED FROM DENSITY LOG:	F.S.I
SEAM 2											
77D 01	398.9'-417.9	19.0'	398.0'-419.0'	21.0'	82%	25.1%	1.48	1.485	1.41	25.1%	
77D 03	69.0'-83.8'	14.8'	68.0'- 82.0'	14.0'	97%	23.0%	1.46	1.395	1.40	20.6%	7
77D 04	153.2'-174.8	21.6'	153.0-172.5'	19.5'	72%	29.3%	1.55	1.48	1.51	32.00%	4
SEAM 4U											
77D 01	583.7'-608.4'	24.7'	583.0'-607.0	24,0'	82%	19.6%	1.464	1.445	1.40	23.1%	2 1/2
77D 02	119.1'-151.9	32.8'	118.0'-151.5'	33.5'	92%	14.6%	1.38	1.34	1.33	17.6%	2 1/2
77D 03	157.0'-174.3	17.3'	156.0'-175.5'	19.5'	86%	23.0%	1.48	1.43	1.41	22.1%	1
77D 04	274.2'-309.2	35.0'	272.5'-307.5'	35.0'	96%	18.6%	1.47	1.51	1.41	26.0%	1 1/2
SEAM 4L											
77D 01	634.0'-651.3	17.3'	633.5'-650.0	16.5'	79%	27.0%	1.55	1.497	1.47	25.5%	1 1/2
77D 02	171.1'-178.1'	7.0'	170.0'-177.5'	7.5'	84%	27.0%	1.50	1.43	1.43	22.1%	
77D 03	218.8'-234.2	15.4	218.0'-234.0'	16.0'	63%	22.3%	1.48	1.46	1.42	23.6%	2 1/2
77D 04	331.0'-356.2	25.2'	328.0'-354.0'	26.0'	94%	22.5%	1.481	1.54	1.41	27.5%	1 1/2
SEAM 5U											
77D 01	856.2'-873.5	17.3'	854.0'-872.5'	18.5'	93%	26.0%	1.50	1.50	1.44	25.5%	2 1/2
77D 02	371.0'-387.2'	16.2'	370.5'-386.0'	15.5'	90%	32.2%	1.58	1.53	1.50	27.0%	
77D 03	453.6'-471.9	18.3'	451.5'-470.5'	19.0'	75%	23.7%	1.51	1.48	1.44	24.6%	2 1/2
77D 04	587.0'-608.2	21.2'	585.0'-607.0'	22.0'	95%	21.2%	1.471	1.535	1.41	27.5%	2
SEAM 5L											
77D 01	879.0'-894.4'	15.4'	877.0'-893.0	16.0'	80%	30.5%	1.57	1.52	1.49	26.5%	
77D 02	394.3'-407.8'	13.4'	394.0'-408.0'	14.0'	84%	29.0%	1.51	1.44	1.44	22.6%	
77D 03	472.6'-493.1'	20.5'	472.0'-492.0'	20.0'	90%	28.4%	1.53	1.485	1.45	25.1%	3 1/2
77D 04	642.7'-662.9'	20.2'	639.5'-661.0'	21.5'	94%	27.9%	1.53	1.552	1.45	28.0%	3 1/2

TABULATION OF COAL SEAM QUANTITY & RAW COAL QUALITY DATA DERIVED FROM DRILL HOLES

TABLE # 11

SOUTH HILL

DRILL HOLE	FOOTAGE	THICKNESS	DENSITY LOG CHECK ON FOOTAGE	DENSITY LOG CHECK ON THICKNESS	RECOVERY BY VOLUME	ACTUAL RAW ASH	LAB S. G.	DENSITY LOG READING	INSITU BULK DENSITY	RAW ASH DETERMINED FROM DENSITY LOG:	F.S.I.
SEAM 2											
77D 05	Not Recovered	--	14.0'- 30.5'	16.5'	Nil	--	--	N.A.	N.A.	N.A.	N.A.
77D 06	234.75'-251.3	16.55'	234.0'-250.0'	16.0'	90%	32.6%	1.49	1.58	1.42	29/52%	
77D 07A	192.9'-213.3'	20.4'	193.0'-213.0'	20.0'	71%	36.1%	1.59	1.635	1.51	32.5%	
77D 08	244.0'-260.5'	16.5'	243.5'-260.0'	16.5'	93%	30.6%	1.51	1.58	1.44	29.5%	
77D 10	(56.4'-62.35'?	5.95'	57.0'-62.0'	5.0'	75%	(44.36)	1.88	N.A.	1.73	N.A.	
SEAM 4U											
77D 05	206.0'-236.6'	30.6'	205.0'-235.0'	30.0'	73%	26.4%	1.543	1.46	1.46	23.6%	3 1/2
77D 06	370.3'-392.3'	22.0'	370.5'-392.0'	21.5'	86%	28.0%	1.53	1.535	1.45	27.5%	
77D 07A	459.7'-503.6'	43.9'	459.5'-503.0'	43.5'	85%	21.0%	1.463	1.535	1.40	27.5%	
77D 08	510.3'-556.8'	46.5'	510.0'-557.0'	47.0'	96%	21.6%	1.46	1.535	1.40	27.5%	1 1/2
77D 09	149.0'-187.4'	38.4'	148.0'-186.0'	38.0'	94%	25.4%	1.498	1.565	1.43	29.0%	1 1/2
77D 10	249.3'-276.9'	27.6'	249.5'-276.0'	26.5'	88%	32.1%	1.56	1.49	1.48	25.1%	
SEAM 4L											
77D 05	241.3'-247.8'	6.5'	241.0'-247.5'	6.5'	91%	27.6%	1.546	1.515	1.47	26.5%	2 1/2
77D 06	401.8'-415.2'	13.4'	399.0'-414.0'	15.0'	94%	34.1%	1.60	1.63	1.51	32.0%	
77D 07A	508.8'-525.7'	16.9'	508.5'-526.0'	17.5'	87%	33.1%	1.60	1.61	1.51	31.0%	
77D 08	562.7'-581.0'	18.3'	562.0'-585.0'	18.5'	84%	32.9%	1.58	1.615	1.49	31.5%	
77D 09	192.5'-225.3'	32.8'	192.0'-226.0'	34.0'	92%	35.1%	1.61	1.665	1.52	34.0%	1 1/2
77D 10	282.1'-296.7'	14.6'	281.5'-296.5'	15.0'	84%	33.8%	1.59	1.63	1.50	32.0%	
SEAM 5U											
77D 05	473.7'-483.2'	9.5'	474.0'-483.5'	9.5'	95%	(28.37%)	1.566	1.525	1.49	27.04%	1 1/2
77D 06	657.5'-678.2'	20.7'	657.5'-677.0'	19.5'	95%	30.8%	1.60	1.61	1.51	31.0%	
77D 07A	717.6'-729.5'	11.9'	716.0'-729.5'	13.5'	95%	26.9%	1.53	1.62	1.45	31.5%	
77D 08	825.4'-846.4'	21.0'	828.5'-845.5'	16.5'	99%	21.8%	1.45	1.505	1.39	26.0%	
77D 09	426.0'-445.6'	19.6'	425.0'-445.0'	20.0'	94%	40.6%	1.676	1.69	1.57	35.0%	
77D 10	487.5'-498.3'	10.8'	487.0'-496.5'	9.5'	90%	33.92%	1.63	1.615	1.53	31.5%	
SEAM 5L											
77D 05	486.5'-490.0	3.5'	487.0-492.0'	5.0'	77%	(53.44%)	1.87	1.65	1.72	33.00%	
77D 06	683.5'-709.3	25.8'	683.5-709.0'	25.5'	98%	33.0%	1.59	1.62	1.50	31.5%	3
77D 07A	737.3'-757.5	20.2'	735.5-756.0'	20.5'	91%	35.3%	1.60	1.68	1.51	34.5%	4
77D 08	851.8'-861.0	9.2'	852.0'-860.0'	8.0'	93%	28.4%	1.52	1.59	1.44	30.0%	
77D 09	454.5'-475.1	20.6'	454.0'-474.0'	20.0'	92%	39.9%	1.683	1.660	1.58	33.49%	
77D 10	502.2'-515.1	12.9'	502.0'-515.0'	13.0'	79%	42.6%	1.57	1.63	1.49	32.0%	

TABLE 111

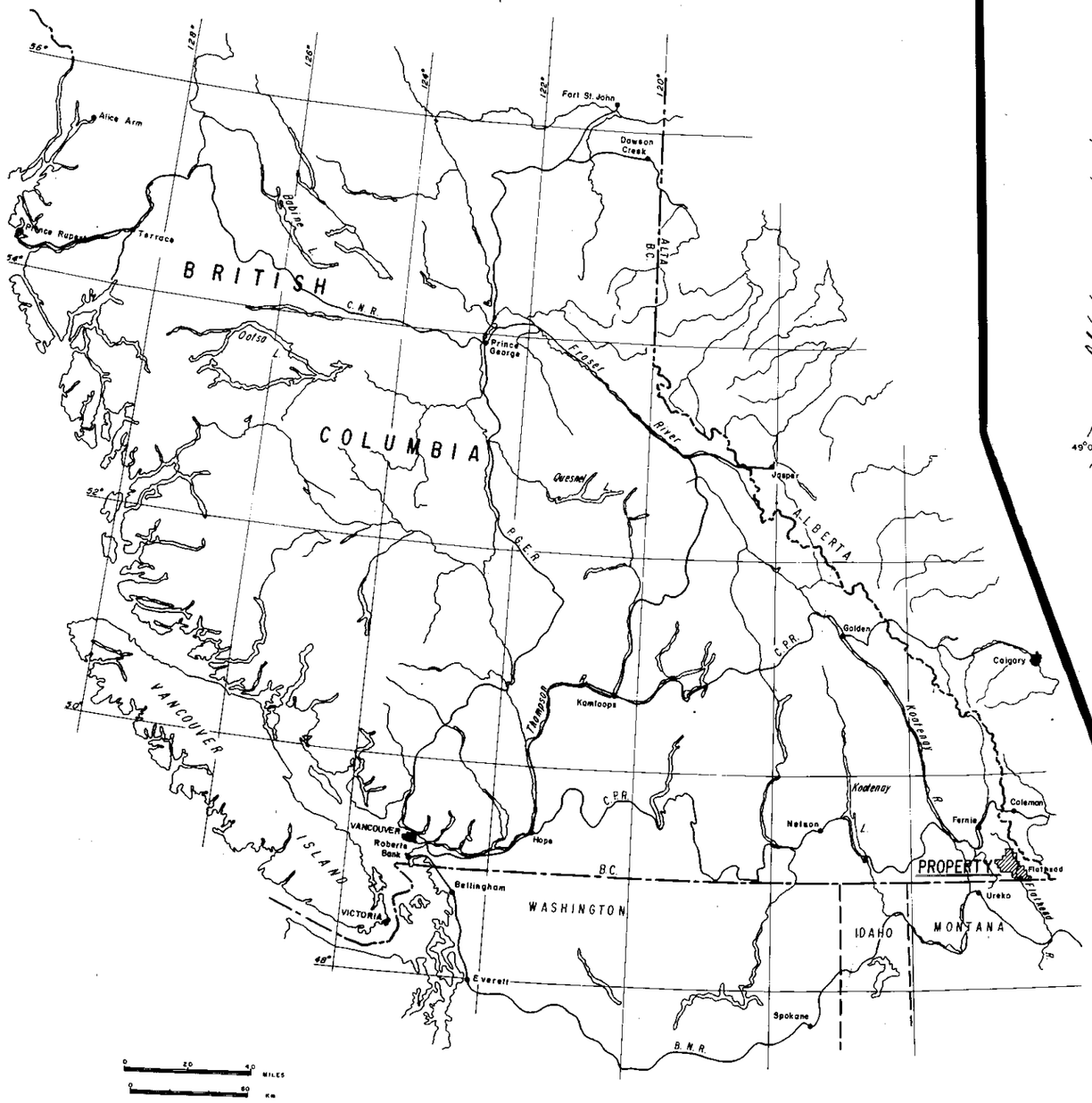
COORDINATES AND ELEVATIONS OF 1976 & 1977 DRILL HOLES

DRILL HOLE	NORTHING	EASTING	ELEVATION
	1976		
76D 01	17,853,550.6	585,210.0	5132
76D 02	17,854,636.4	585,496.3	5039
76D 03	17,851,464.9	584,897.4	4742
76D 04	17,847,413.3	585,272.0	4903
76D 05	17,845,808.7	583,065.4	5215
76D 06	17,846,672.3	583,556.4	5145
	1977		
77D 01	17,853,071.7	585,057.5	5144
77D 02	17,855,064.6	584,435.6	5317
77D 03	17,856,637.9	585,836.2	4960
77D 04	17,855,088.1	586,041.6	4841
77D 05	17,845,464.3	582,952.6	5190
77D 06	17,845,854.9	584,235.6	4991
77D 07	17,847,829.8	585,322.2	4769
77D 07A	17,847,821.0	585,328.1	4769
77D 08	17,846,676.2	585,222.4	4861
77D 09	17,847,898.5	582,968.6	5229
77D 10	17,845,795.9	582,821.8	5239

K-3 SAGE CREEK 77(2)A

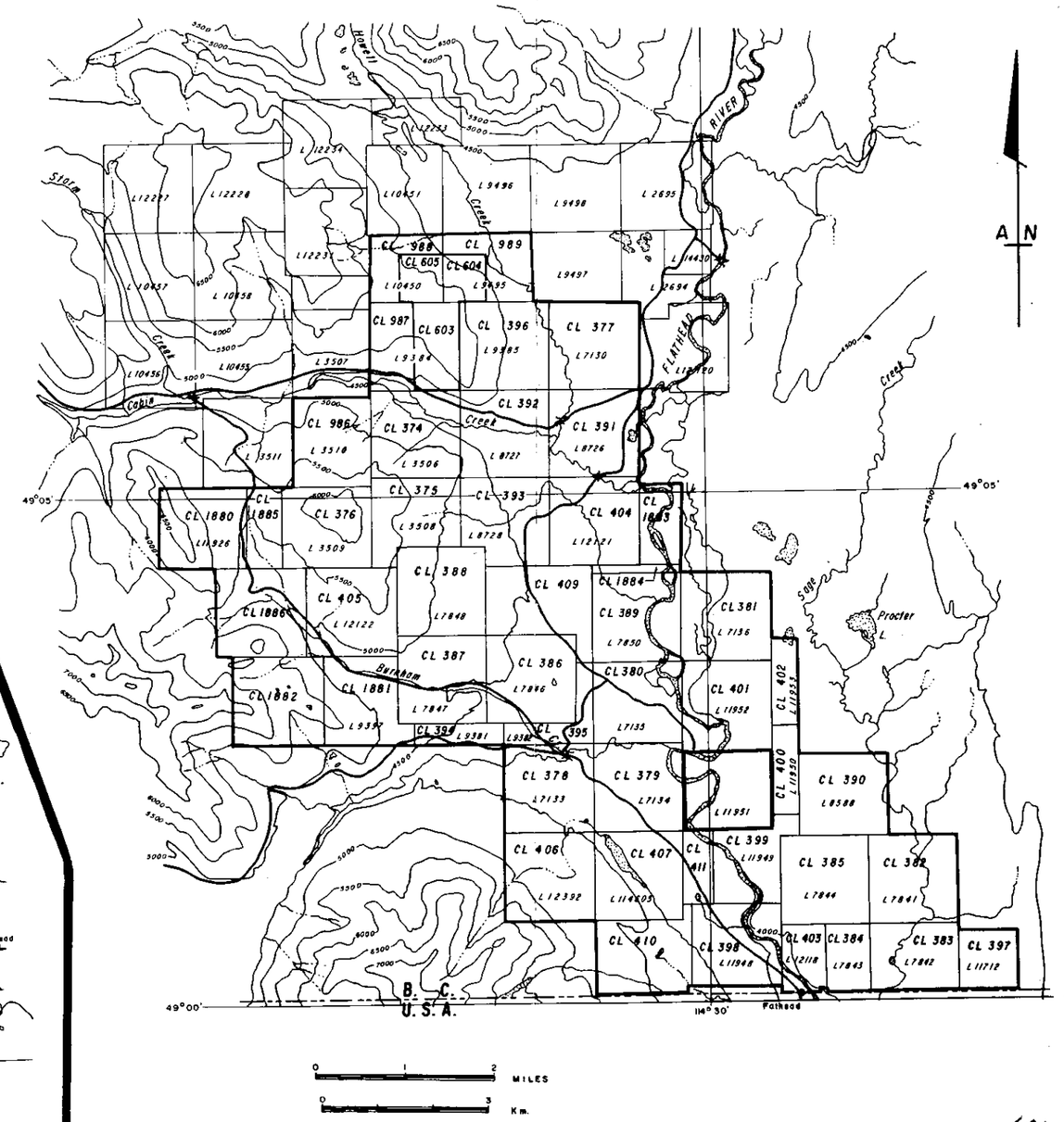
MAPS
and.
CROSS SECTION

00372 (3)



PROPERTY LOCATION MAP

SHOWING RAILWAYS TO VANCOUVER



LEGEND

———	Outline of property
L.11712	Lot number
CL.397	Coal Licence

NOTE: 603, 604 & 605 purchased from C.N.I. Nov. 1973

K-SAGE CREEK 77(1)A

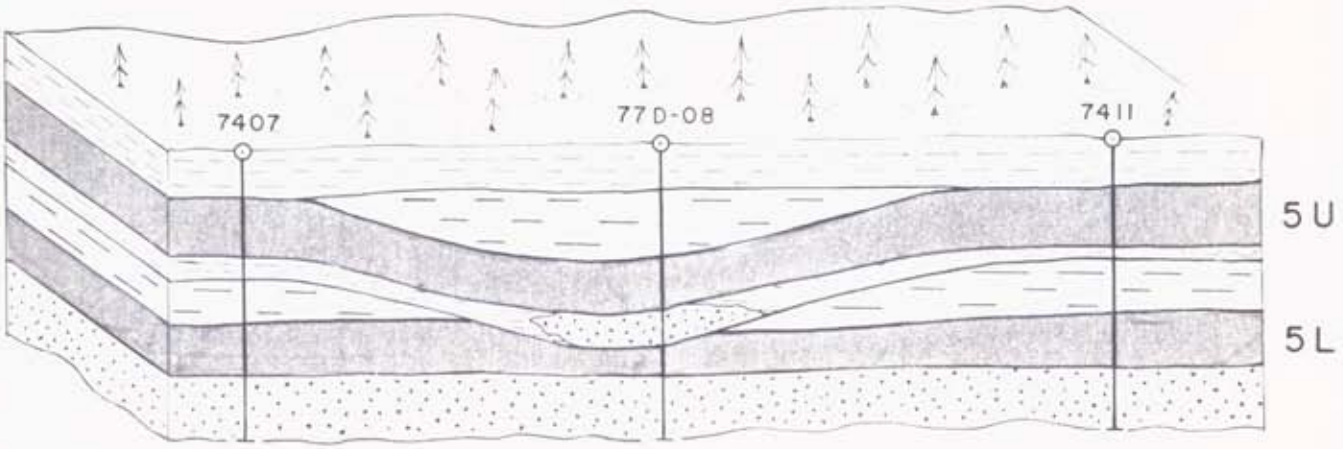
RIO TINTO CANADIAN EXPLORATION LTD.

SAGE CREEK COAL LIMITED - B.C.

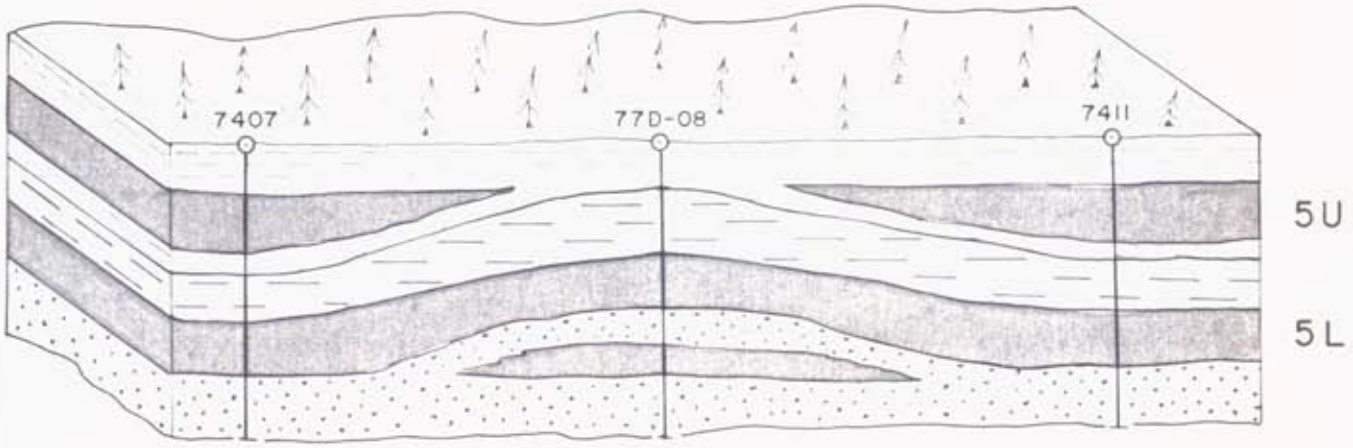
PROPERTY PLAN

FEB. 1975 | D.C. / E.S. | DWG. L 2692

"A"



"B"



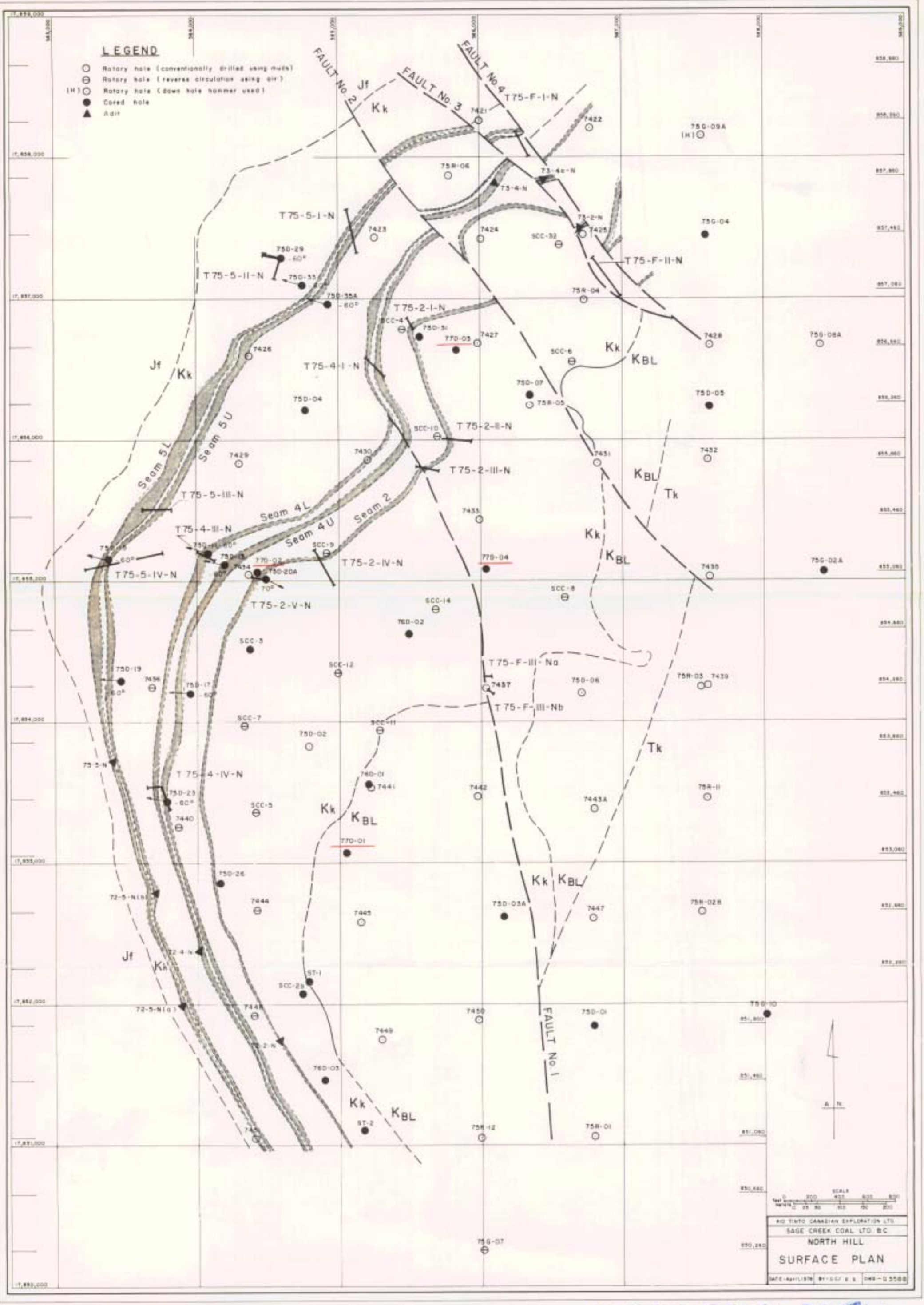
LEGEND

- Coal
- Shaly coal
- Sandstone
- Shale

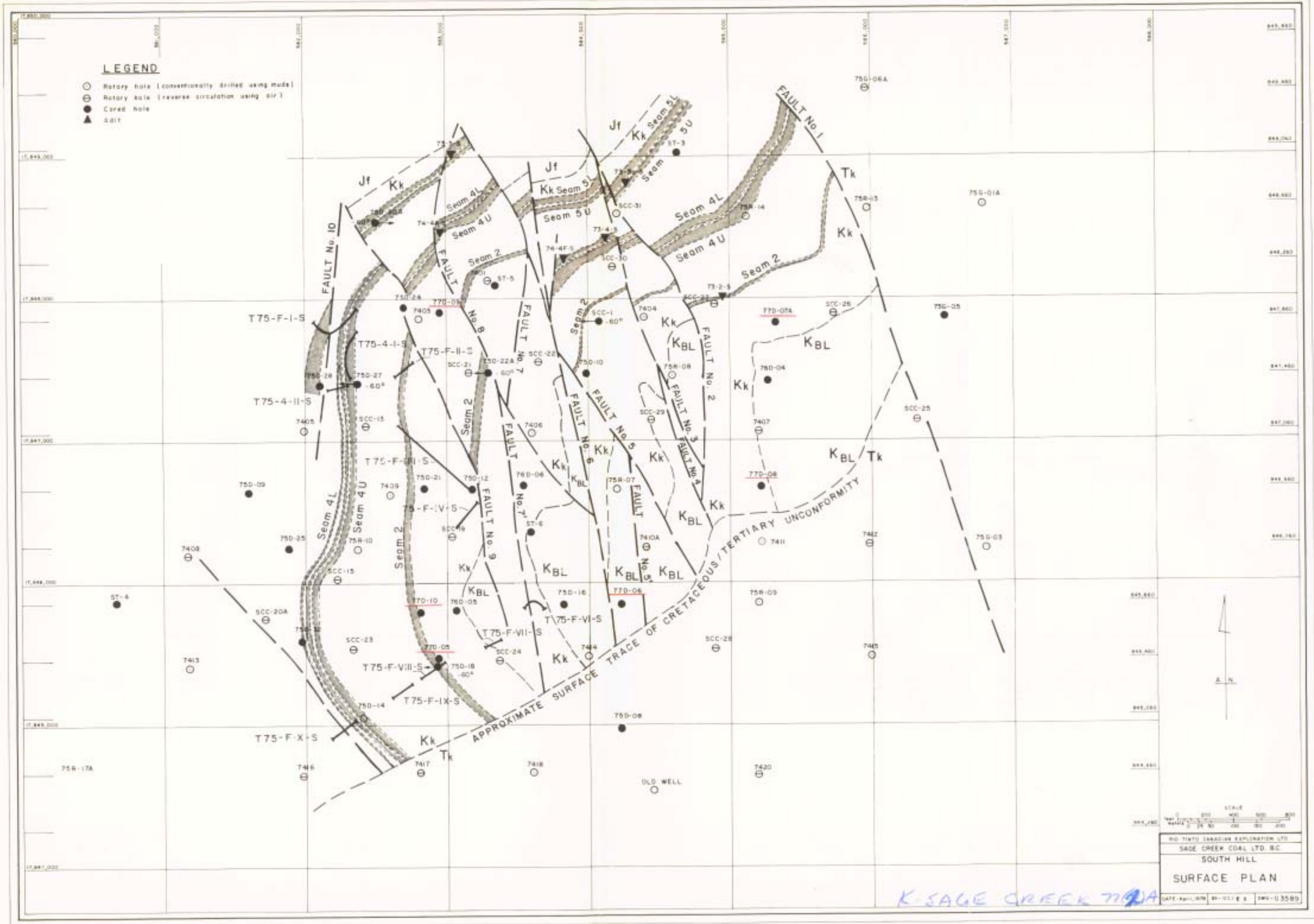
SCHEMATIC DIAGRAM ILLUSTRATING ALTERNATE DEPOSITIONAL SEQUENCES

Fig. 1

K SAGE CREEK 77 (2) A



K-SAGE CREEK 77(2)4



K-SAGE CREEK 77-2A

Figure A-3-1

LEGEND

- 7426 ○ Drill hole and number
- 73-4-N Adit and number
- 75-5-III-N Trench and number
- Coal seam trace
- Fault
- Access road

A. N.

CL 988 · CL 605 · CL 604 · CL 989 · CL 987 · CL 396 · CL 603 · CL 392 · CL 374 · CL 986 · CL 375 · CL 393 · CL 376

Fig. 3-2

Fig. 3-3

Quaternary - Recent
Till, Gravel

Kishenehn Clays

OLD DRILL HOLE

SEAM 5 · SEAM 4 L · SEAM 4 U · SEAM 2

Howell Creek

Cabin Creek

SCALE

Figure A-3-1

372

RIO TINTO CANADIAN EXPLORATION LTD.

SAGE CREEK COAL LTD. – B.C.

K-SAGE CREEK 77(2)A

M1

SURFACE PLAN

REVISED July 1978

DATE: March/76 | BY- O.C./ L. Nagy | DWG.-

K-SAGE CREEK 77(4)A

COAL ANALYSIS.
DATA

00372 (5)

K-Spar Creek 77(4)A

[redacted]

APPENDIX B

GEOLOGICAL BRANCH
ASSESSMENT REPORT

00 372 (5)

Sage Creek Coal
Hole 77 D 01

Seam	Sample No.	Footage From	Footage To	Interval	Weight (G.)	F.S.I.
'A'	C 28242	128	129	1.0	1450.5	5½
'A'	C 28243	145.5	148.6	3.1	4104.5	7
#1	C 28244	219.6	221.1	1.5	1179.8	7
1	C 28245	222.0	224.3	2.3	3603.6	1
2	C 28246	394.0	394.6	0.6	835.9	1½
2	C 28247	394.6	395.1	0.5	1529.3	
2	C 28248	395.1	396.7	1.6	2140.9	7.0
2	C 28249	396.7	397.7	1.0	2422.4	
2	C 28250	398.0	398.9	0.9	1588.7	
2	C 28251	398.9	399.7	0.8	1130.3	1
2	C 28252	399.7	402	2.3	2501.3	7½
2	C 28253	403.0	404.4	1.4	1788.3	A-1; B-9
2	C 28254	405.0	409.0	4.0	4848.7	A-6½; B-3½; C-1
2	C 28255	410.0	411.4	1.4	1735.1	A-6½; B-1
2	C 28256	412.0	415.3	3.3	4183.4	A-1; B-7½; C-1; D-2
2	C 28257	415.5	417.9	2.4	3269.3	A-1; B-5½
2	C 28258	419.0	420.3	1.3	2369.5	
2	C 28259	421.0	421.7	0.7	1053.8	1½
2	C 28260	421.7	424.5	2.8	4660.9	
4U	C 28261	583.0	583.7	0.7	1303.7	1
4U	C 28262	583.7	586.5	2.8	3657.5	A-1; B-1; C-6½
4U	C 28263	586.7	589.3	2.6	3032.7	1
4U	C 28264	589.3	590.9	1.6	2661.7	3

Sage Creek Coal
Hole 77 D 01

Seam	Sample No.	Footage From	Footage To	Interval	Weight	F.S.I.
4U	C 28265	591.2	593.7	2.5	3348.2	7
4U	C 28266	594.7	597.6	2.9	3904.8	A-1; B-1; C- ; D-1; E-1
4U	C 28267	598.2	601.1	2.9	3509.0	A-2; B-1; C-1½
4U	C 28268	601.1	604.8	3.7	3567.7	A-2½; B-4½; C-1½
4U	C 28269	605.3	607.5	2.2	2409.9	A-9; B-5; C-2½
4U	C 28270	607.7	608.4	0.7	854.2	6½
4U	C 28271	608.4	608.7	0.3	579.6	1
4L	C 28272	634.0	635.5	1.5	2.80.6	A-1; B-1; C-1; D-1; E-1
4L	C 28273	635.5	638.8	3.3	4349.2	A-1; B-1; C-1
4L	C 28274	640.0	642.8	2.8	3609.8	A-1; B-1; C-1
4L	C 28275	643.0	646.3	3.3	4132.6	A-1; B-4½; C-1
4L	C 28276	648.5	650.5	2.0	2420.9	A-4; B-4½; C-1
4L	C 28277	650.5	651.3	0.8	1300.0	A-1; B-5; C-1
4L	C 28278	651.3	652.5	1.2	2155.0	A-1; B-4
4L	C 28279	652.5	655.0	2.5	3673.2	1
'D'	C 28280	762.0	764.5	2.5	4948.6	1
'D'	C 28281	766.3	767.5	1.2	1448.0	1
'D'	C 28282	768.0	769.7	1.7	1590.0	3½
5U	C 28283	849.8	851.7	1.9	4341.0	NA
5U	C 28284	852.0	852.5	0.5	559.3	4
5U	C 28285	852.5	854.6	2.1	4494.6	1
5U	C 28286	854.6	855.9	1.3	2150.2	1
5U	C 28287	856.2	858.0	1.8	2735.4	A-1; B-2; C-1
5U	C 28288	858.0	859.9	1.9	2104.5	4½

Sage Creek Coal
Hole 77 D 01

Seam	Sample No.	Footage From	Footage To	Interval	Weight (G.)	F.S.I.
5U	C 28289	860.0	863.9	3.9	5242.4	A-3½; B-1½; C-1½; D-1½;E-1
5U	C 28290	864.6	867.1	2.5	3002.8	A-1½; B-1; C-1
5U	C 28291	867.1	871.6	4.5	5838.6	A-1; B-2½; C-1½; D-7
5U	C 28292	872.0	873.5	1.5	2053.8	A-8; B-1; C-3½; D-7
Part.	C 28293	873.5	875.0	1.5	3045.3	1
Part.	C 28294	876.0	876.9	0.9	1051.2	1
Part.	C 28295	876.9	877.5	0.6	2028.9	1
5L	C 28296	877.5	878.1	0.6	802.6	1
5L	C 28297	879.0	881.5	2.5	2646.7	1
5L	C 28298	882.0	883.9	1.9	2327.1	4
5L	C 28299	884.5	886.9	2.4	3440.5	A-6; B-0; C-1; D-1
5L	C 28300	887.0	890.3	3.3	4146.3	A-1; B-4½; C-8
5L	C 28301	892.2	894.4	2.2	2801.9	A-1; B-4; C-0

Sage Creek Coal
Hole 77 D 02

Seam	Sample No.	Footage From	Footage To	Interval	Weight (G.)	F.S.I.
4U	C 28302	119.1	121.3	2.2	2836.5	4
4U	C 28303	122.0	124.2	2.2	2587.5	5
4U	C 28304	124.5	126.5	2.0	2513.2	2
4U	C 28305	126.5	127.9	1.4	1824.3	4
4U	C 28306	128.0	130.5	2.5	3154.3	3½
4U	C 28307	130.5	133.2	2.7	3103.5	1
4U	C 28308	133.5	135.9	2.4	2466.0	1½
4U	C 28309	136.5	138.2	1.7	1783.0	1
4U	C 28310	138.2	140.5	2.3	2819.6	1½
4U	C 28311	140.5	142.2	1.7	1634.4	1
4U	C 28312	142.2	145.0	2.8	3276.1	3
4U	C 28313	145.0	147.3	2.3	3953.0	7
4U	C 28314	147.3	149.4	2.1	2354.6	6
4U	C 28315	149.8	151.0	1.2	1141.3	7½
4U	C 28316	151.0	151.9	0.9	1090.0	6½
4L	C 28317	165.1	165.8	0.7	919.3	1
4L	C 28318	167.0	167.8	0.8	1425.5	1
4L	C 28319	167.8	168.3	0.5	618.8	0
4L	C 28320	168.5	169.7	1.2	2514.5	0
4L	C 28321	171.1	172.0	0.9	1074.4	1
4L	C 28322	172.4	174.7	2.3	2700.8	3½
4L	C 28323	175.0	176.6	1.6	2122.5	1½
4L	C 28324	177.0	178.1	1.1	1366.1	1
4L	C 28325	178.1	178.7	0.6	858.4	0
4L	C 28326	179.0	179.8	0.8	1422.5	0

Sage Creek Coal
Hole 77 D 02

Seam	Sample No.	Footage From	Footage To	Interval	Weight (G.)	F.S.I.
5U	C 28327	370.0	371.0	1.0	2563.0	0
5U	C 28328	371.0	372.9	1.9	2504.9	1
5U	C 28329	372.9	373.7	0.8	1745.0	0
5U	C 28330	373.7	375.2	1.5	1936.6	2½
5U	C 28331	376.0	379.1	3.1	3813.0	1½
5U	C 28332	379.5	383.2	3.7	4780.3	2½
5U	C 28333	383.2	384.3	1.1	1518.5	3½
5U	C 28334	384.5	386.6	2.1	2804.9	2½
5U	C 28335	386.8	387.2	0.4	686.6	1
5L	C 28336	387.2	390.1	2.9	4795.0	0
5L	C 28337	390.8	393.2	2.4	3692.6	1
5L	C 28338	393.8	394.4	0.6	1144.1	0
5L	C 28339	394.4	395.8	1.4	1702.5	3
5L	C 28340	396.8	398.3	1.5	2615.7	1
5L	C 28341	398.3	401.2	2.9	3673.9	1
5L	C 28342	401.3	403.6	2.3	2836.9	4½
5L	C 28343	404.0	405.0	1.0	1238.7	5½
5L	C 28344	405.3	406.4	1.1	1606.7	1
5L	C 28345	406.8	407.8	1.0	1327.4	6
5L	C 28346	408.8	409.8	1.0	2095.0	0

Sage Creek Coal
Hole 77 D 03

Seam	Sample No.	Footage From	Footage To	Interval	Weight (G.)	F.S.I.
2	C 28347	68.5	69.0	0.5	721.4	0
2	C 28348	69.0	71.8	2.8	3533.1	5
2	C 28349	72.0	74.2	2.2	2794.0	6
2	C 28350	74.2	76.9	2.7	3402.7	4½
2	C 28351	77.0	79.0	2.0	2065.2	7
2	C 28352	79.0	81.8	2.8	3693.0	5
2	C 28353	82.0	83.8	1.8	2666.7	6
4U	C 28354	153.0	154.2	1.2	2085.4	0
4U	C 28355	157.0	160.4	3.4	3984.2	1½
4U	C 28356	162.0	165.0	3.0	4288.4	1
4U	C 28357	165.0	167.9	2.9	3306.6	1
4U	C 28358	167.9	169.1	1.2	1444.6	1
4U	C 28359	169.5	171.4	1.9	2251.5	3½
4U	C 28360	171.4	173.0	1.6	1641.5	5
4U	C 28361	173.5	174.3	0.8	746.3	2
4U	C 28362	174.3	175.6	1.3	2109.4	0
4U	C 28363	176.0	176.7	0.7	1298.3	0
4U	C 28364	176.7	178.0	1.3	2601.4	0
4U	C 28365	178.0	179.4	1.4	2740.4	0
4L	C 28366	218.8	220.0	1.2	1379.6	1
4L	C 28367	220.5	221.9	1.4	1602.3	1½
4L	C 28368	224.1	225.8	1.7	1812.0	4
4L	C 28369	225.8	227.3	1.5	1573.0	6
4L	C 28370	228.8	230.9	2.1	2473.9	4

Sage Creek Coal
Hole 77 D 03

Seam	Sample No.	Footage From	Footage To	Interval	Weight (G.)	F.S.I.
4L	C 28371	231.2	232.5	1.3	1677.1	1
4L	C 28372	233.7	234.2	0.5	503.2	1
4L	C 28373	234.2	235.3	1.1	2018.0	0
5U	C 28374	450.2	451.0	0.9	1502.3	1
5U	C 28375	452.0	453.6	1.6	2851.2	0
5U	C 28376	453.6	455.9	2.3	3389.7	1½
5U	C 28377	457.0	459.6	2.6	3209.8	5
5U	C 28378	460.0	461.1	1.1	1600.6	1
5U	C 28379	461.1	463.3	2.2	2853.8	1
5U	C 28380	464.4	466.8	2.4	3085.2	3
5U	C 28381	467.4	468.1	0.7	869.5	3½
5U	C 28382	468.1	470.2	2.1	2268.0	4½
5U	C 28383	471.6	471.9	0.3	389.4	1½
Part.	C 28384	471.9	472.6	0.7	1381.8	0
5L	C 28385	472.6	474.0	1.4	2095.6	1
5L	C 28386	474.2	475.7	1.5	1775.1	1
5L	C 28387	475.9	477.6	1.7	2183.0	6½
5L	C 28388	477.6	479.1	1.5	2109.0	1
5L	C 28389	479.5	482.2	2.7	3650.5	4
5L	C 28390	482.2	485.1	2.9	3691.5	4
5L	C 28391	485.1	488.5	3.4	3820.9	7
5L	C 28392	489.2	491.4	2.2	2778.2	5
5L	C 28393	492.0	493.1	1.1	1280.3	5
5L	C 28394	493.1	493.8	0.7	893.8	0

APPENDIX C

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D01

SEAM NO: 2

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28246	394	394.6	0.6'	9462	690.6	1.73	46.4	1 1/2
C28247	394.6	395.1	0.5	9463	1280.9	2.58	91.3	N.A.
C29248	395.1	396.7	1.6	9464	1791.8	1.51	27.5	5 1/2
C28249	396.7	397.7	1.0	9465	2057.4	2.62	92.2	N.A.
C28250	398	398.9	0.9	9466	1365.9	2.42	85.9	N.A.
C28251	398.9	399.7	0.8	9467	902.6	1.74	50.1	2
C28252	399.7	402	2.3	9468	2109.0	1.33	9.1	8
C28253	403	404.4	1.4	9469	1459.5	1.41	17.6	7
C28254	405	409	4.0	9470	4205.0	1.40	17.3	4
C28255	410	411.4	1.4	9471	1338.7	1.62	36.1	4 1/2
C28256	412	415.3	3.3	9472	3357.4	1.59	35.1	4
C28257	415.5	417.9	2.4	9473	2961.0	1.50	26.6	4
C28258	419	420.3	1.3	9474	2093.4	2.19	75.1	1/2
C28259	421	421.7	0.7	9475	945.0	2.02	65.8	1 1/2
C28260	421.7	424.5	2.8	9476	4120.0	2.44	87.1	N.A.

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D01

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28261	583	583.7	0.7	9477	1171.2	2.22	74.0	N.A.
C28262	583.7	586.5	2.8	9478	3342.8	1.51	26.6	3
C28263	586.7	589.3	2.6	9479	2550.0	1.39	12.5	3
C28264	589.3	590.9	1.6	9480	2317.0	1.54	27.3	2
C28265	591.2	593.7	2.5	9481	2948.8	1.47	22.9	5 1/2
C28266	594.7	597.6	2.9	9482	3394.0	1.56	26.7	1
C28267	598.2	601.1	2.9	9483	3061.0	1.44	14.1	2
C28268	601.1	604.8	3.7	9484	3268.1	1.42	14.5	4
C28269	605.3	607.5	2.2	9485	2026.4	1.39	13.7	6 1/2
C28270	607.7	608.4	0.7	9486	657.6	1.53	30.7	7
C28271	608.4	608.7	0.3	9487	497.0	2.23	78.3	1

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D01

SEAM NO: 4L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28272	634	635.5	1.5	9488	1911.8	1.94	58.2	1
C28273	635.5	638.8	3.3	9489	3887.7	1.54	26.2	1 1/2
C28274	640.0	642.8	2.8	9490	3133.7	1.52	28.2	1 1/2
C28275	643	646.3	3.3	9491	3452.7	1.48	22.9	4 1/2
C28276	648.5	650.5	2.0	9492	2181.7	1.45	19.7	3
C28277	650.5	651.3	0.8	9493	1057.5	1.58	32.8	2 1/2
C28278	651.3	652.5	1.2	9494	1893.2	2.14	71.8	1/2
C28279	652.5	655	2.5	9495	3303.3	2.38	84.4	N.A.

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D01

SEAM NO: "D" Horizon

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28280	762	764.5	2.5	9496	4467.0	2.21	79.6	N.A.
C28281	766.3	767.5	1.2	9497	1323.9	1.73	45.7	1
C28282	768	769.7	1.7	9498	1446.3	1.75	51.5	1 1/2

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D01

SEAM NO: 5U + Parting

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28283	849.8	851.7	1.9	9499	4046.0	2.56	91.9	N.A.
C28284	852	852.5	0.5	9500	483.0	1.57	34.6	4 1/2
C28285	852.5	854.6	2.1	9501	4120.0	2.45	87.4	N.A.
C28286	854.6	855.9	1.3	9502	1903.6	1.96	60.0	1
C28287	856.2	858	1.8	9503	2494.0	1.60	37.7	1
C28288	858	859.9	1.9	9504	1973.9	1.35	14.9	4
C28289	860	863.9	3.9	9505	4605.0	1.57	30.9	1
C28290	864.6	867.1	2.5	9506	2662.0	1.43	17.9	1
C28291	867.1	871.6	4.5	9507	5311.0	1.49	23.7	2 1/2
C28292	872	873.5	1.5	9508	1755.3	1.55	29.7	4
C28293	873.5	875	1.5	9509	2743.0	2.46	86.0	N.A.
C28294	876	876.9	0.9	9510	916.2	2.14	69.8	1/2
C28295	876.9	877.5	0.6	9511	1827.2	2.33	80.1	N.A.

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D01

SEAM NO: 5L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28296	877.5	878.1	0.6	9512	6932	2.04	64.4	1/2
C28297	879	881.5	2.5	9513	2230.0	1.66	40.1	1
C28298	882	833.9	1.9	9514	1928.8	1.48	23.0	5 1/2
C28299	884.5	886.9	2.4	9515	2877.0	1.75	44.0	1
C28300	887	890.3	3.3	9516	3577.8	1.44	20.1	4 1/2
C28301	892.2	894.4	2.2	9517	2485.0	1.52	24.8	3 1/2

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D02

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28302	119.1	121.3	2.2	9541	2512.3	1.35	12.0	5 1/2
C28303	122.0	124.2	2.2	9542	2335.6	1.37	15.9	6
C28304	124.5	126.5	2.0	9543	2219.9	1.49	25.3	1 1/2
C28305	126.5	127.9	1.4	9544	1543.5	1.45	24.4	3
C28306	128.0	130.5	2.5	9545	2731.9	1.43	21.5	4
C28307	130.5	133.2	2.7	9546	2790.4	1.42	19.4	1
C28308	133.5	135.9	2.4	9547	2173.0	1.41	18.6	1
C28309	136.5	138.2	1.7	9548	1649.1	1.36	14.8	1 1/2
C28310	138.2	140.5	2.3	9549	2602.6	1.28	5.2	1 1/2
C28311	140.5	142.2	1.7	9550	1413.6	1.33	10.1	1 1/2
C28312	142.2	145.0	2.8	9551	2896.9	1.36	14.9	4 1/2
C28313	145.0	147.3	2.3	9552	3430.1	1.33	11.4	7
C28314	147.3	149.4	2.1	9553	2076.0	1.32	8.6	7
C28315	149.8	151.0	1.2	9554	908.0	1.31	6.3	8
C28316	151.0	151.9	0.9	9555	869.0	1.47	24.8	7 1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D02

SEAM NO: 4L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28317	165.1	165.8	0.7	9556	819.8	1.86	55.6	1/2
C28318	167	167.8	0.8	9557	1285.4	2.03	66.7	1/2
C28319	167.8	168.3	0.5	9558	544.6	2.42	86.5	0
C28320	168.5	169.7	1.2	9559	2296.7	2.34	82.8	0
C28321	171.1	172.0	0.9	9560	935.4	1.49	24.7	1
C28322	172.4	174.7	2.3	9561	2202.7	1.51	26.2	1/2
C28323	175.0	176.6	1.6	9562	1728.3	1.49	24.9	2 1/2
C28324	177.0	178.1	1.1	9563	1138.4	1.52	27.0	1
C28325	178.1	178.7	0.6	9564	751.2	2.11	71.3	0
C28326	179	179.8	0.8	9565	1255.2	2.31	81.7	0

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D02

SEAM NO: 5U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28327	370.0	371.0	1.0	9566	2439.9	2.49	86.3	0
C28328	371.0	372.9	1.9	9567	2226.4	1.57	29.0	1 1/2
C28329	372.9	373.7	0.8	9568	1593.7	2.56	91.1	0
C28330	373.7	375.2	1.5	9569	1709.6	1.70	47.1	2
C28331	376.0	379.1	3.1	9570	3285.0	1.43	19.0	4
C28332	379.5	383.2	3.7	9571	4203.0	1.47	21.9	1
C28333	383.2	384.3	1.1	9572	1257.7	1.46	21.6	4
C28334	384.5	386.6	2.1	9573	2289.0	1.54	31.2	4
C28335	386.8	387.2	0.4	9574	526.6	1.78	47.1	1

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D02

SEAM NO: 5L + parting

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28336	387.2	390.1	2.9	9575	4265.0	2.01	62.5	1/2
C28337	390.8	393.2	2.4	9576	3191.2	1.80	50.2	1
C28338	383.8	394.4	0.6	9577	885.6	1.81	52.8	1
C28339	394.4	395.8	1.4	9578	1397.5	1.49	26.0	3 1/2
C28340	396.8	398.3	1.5	9579	2256.6	1.82	54.2	1
C28341	398.3	401.2	2.9	9580	3118.5	1.52	28.0	2
C28342	401.3	403.6	2.3	9581	2272.2	1.43	17.6	5
C28343	404	405	1.0	9532	891.3	1.35	12.0	6
C28344	405.3	406.4	1.1	9583	1228.4	1.53	32.2	3
C28345	406.8	407.8	1.0	9584	1065.2	1.40	16.9	5 1/2
C28346	408.8	409.8	1.0	9585	1958.8	2.31	85.2	0

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 02, SEAM 4U
119.1' - 151.9'

LAB. NO.: 9753

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28 Mesh	63.1	16.2	1 1/2	63.1	16.2
28M x 100M	21.3	12.7	4 1/2	84.4	15.3
100M x 0	15.6	10.7	7	100.0	14.6
HEAD RAW	100.0		2 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	29.2	3.3	6 1/2	29.2	3.3	--	39.6	2.1	8 1/2	39.6	2.1	--
1.30-1.35	16.5	5.5	1	45.7	4.1	3	7.7	4.1	7	47.3	2.4	8
1.35-1.40	13.9	8.3	1	59.6	5.1	2 1/2	16.7	7.2	1 1/2	64.0	3.7	6 1/2
1.40-1.45	12.6	12.8	1	72.2	6.4	2	8.3	9.8	1	72.3	4.4	6
1.45-1.50	5.2	18.6	1	77.4	7.2	2	7.6	13.5	1	79.9	5.2	5
1.50-1.60	6.7	22.9	1/2	84.1	8.5	1 1/2	7.6	22.0	1	87.5	6.7	4
+ 1.60	15.9	53.7	1/2	100.0	15.7	1 1/2	12.5	50.4	1/2	100.0	12.2	4

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10%P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	90.3	7.8	5	90.3	7.8	
TAILS	9.7	34.7	1 1/2	100.0	10.4	
CLEANER						10%P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	83.4	5.8	7	83.4	5.8	
TAILS	16.6	17.8	3	100.0	7.8	

* 120 grams/metric ton

Birtley Engineering
Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 02, SEAM 4L

LAB. NO.: 9754 171.1' - 178.1'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28 Mesh	66.1	30.9		66.1	30.9
28M x 100M	17.3	23.1	2	83.4	29.3
100M x 0	16.6	15.5	5 1/2	100.0	27.0
HEAD RAW	100.0				

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	16.4	5.0	6 1/2	16.4	5.0	N.S.S.	32.5	6.4	7 1/2	32.5	6.4	--
1.30-1.35	11.7	8.9	2 1/2	28.1	6.6	N.S.S.	7.2	9.5	1 1/2	39.7	7.0	7
1.35-1.40	13.4	11.8	1	41.5	8.3	N.S.S.	16.0	12.6	1 1/2	55.7	8.6	5 1/2
1.40-1.45	11.4	18.1	1	52.9	10.4	N.S.S.	6.8	16.9	1	62.5	9.5	4 1/2
1.45-1.50	9.4	22.2	1/2	62.3	12.2	N.S.S.	6.9	24.3	1	69.4	11.0	4
1.50-1.60	4.2	30.9	1/2	66.5	13.4	N.S.S.	7.1	30.4	1	76.5	12.8	3
+ 1.60	33.5	65.6	N.A.	100.0	30.9	N.S.S.	23.5	55.0	1/2	100.0	22.7	1 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10%P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH						
TAILS						
CLEANER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH						
TAILS						

* 120 grams/metric ton

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 02, SEAM 5U

LAB. NO.: 9755 371.0' - 387.2'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	68.5	37.7	1	68.5	37.7
28M x 100M	19.8	21.5	4 1/2	88.3	34.1
100M x 0	11.7	18.2	5 1/2	100.0	32.2
HEAD RAW	100.0				

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	8.1	4.3	7 1/2	8.1	4.3	--	14.9	3.9	8 1/2	14.9	3.9	--
1.30-1.35	10.2	7.8	4	18.3	6.3	5 1/2	21.0	5.5	8	35.9	4.8	8
1.35-1.40	11.9	10.5	1	30.2	7.9	4	15.6	9.0	2 1/2	51.5	6.1	7 1/2
1.40-1.45	10.9	14.4	1	41.4	9.6	3	12.5	12.9	1	64.0	7.4	7
1.45-1.50	6.1	19.5	1	47.2	10.9	2 1/2	6.5	18.8	1	70.5	8.5	6
1.50-1.60	5.5	26.2	1	52.7	12.5	2	6.6	25.1	1	77.1	9.9	5 1/2
+ 1.60	47.3	64.7	1/2	100.0	37.2	1	22.9	60.7	1/2	100.0	21.5	4 1/2

FROTH FLOTATION: 100M x 0							
				CUMULATIVE			
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS	
ROUGHER						10% P.D.: 0.24 lb./T	
STAGE I	49.0	9.1	6	49.0	9.1	½ min.	4:1=k:M1BC*
STAGE II	12.0	12.9	4½	61.0	9.8	½ min.	1 min. cond.time
STAGE III	10.2	16.7	3½	71.2	10.8	1 min.	4 min. froth
STAGE IV	5.9	21.1	3	77.1	11.6	1 min.	
STAGE V	4.0	23.9	2	81.1	12.2	1 min.	
TAILS	18.9	41.9	1½	100.0	17.8		
CLEANER						10% P.D.: 0.24 lb./T	
STAGE I	64.3	8.2	6	64.3	8.2	1 min.	4:1=k:M1BC*
STAGE II	16.6	13.0	4	80.9	9.2	1 min.	1 min. cond.time
TAILS	19.1	24.7	2	100.0	12.1	2 min. froth	

*120 grams/metric ton

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 02, SEAM 5L

LAB. NO.: 9757 394.3' - 407.8'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	60.3	34.7	1 1/2	60.3	34.7
28M x 100M	21.0	22.7	5 1/2	81.3	31.6
100M x 0	18.7	17.5	7	100.0	29.0
HEAD RAW	100.0				

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	10.6	6.9	8	10.6	6.9	--	33.9	7.3	8	33.9	7.3	--
1.30-1.35	10.1	8.1	6	20.7	7.5	7	17.7	9.2	6 1/2	51.6	8.0	7 1/2
1.35-1.40	13.5	12.1	3 1/2	34.2	9.3	6	8.7	12.1	5	60.3	8.6	7
1.40-1.45	10.4	14.8	3	44.6	10.6	5 1/2	5.4	16.1	3	65.7	9.2	7
1.45-1.50	4.7	20.8	1 1/2	49.3	11.6	5	4.9	18.9	1	70.6	9.8	7
1.50-1.60	4.8	23.3	1	54.1	12.6	4 1/2	5.4	24.3	1	76.0	10.9	6 1/2
+ 1.60	45.9	59.4	1/2	100.0	34.1	1 1/2	24.0	57.8	1/2	100.0	22.1	5 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10% P.D.:0.24lb/T 4:1=K:MIBC*: 1 min. cond.time 4 min. froth
FROTH	86.1	13.2	7 1/2	86.1	13.2	
TAILS	13.9	40.5	1 1/2	100.0	17.0	
CLEANER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	87.4	11.0	8	87.4	11.0	
TAILS	12.6	30.5	3	100.0	13.5	

* 120 grams/metric ton

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 01, SEAM 2

LAB. NO.: 9746 398.9' - 417.9'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28 Mesh	60.8	31.0	3	60.8	31.0
28M x 100M	21.6	16.8	7 1/2	82.4	27.3
100M x 0	17.6	15.1	8	100.0	25.1
HEAD RAW	100.0				

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	23.7	3.0	8 1/2	23.7	3.0	--	47.2	2.2	8 1/2	47.2	2.2	--
1.30-1.35	12.0	6.4	4	35.7	4.1	7	12.9	5.2	7	60.1	2.8	8 1/2
1.35-1.40	11.2	9.9	2 1/2	46.9	5.5	6 1/2	7.1	9.2	2	67.2	3.5	8
1.40-1.45	7.8	15.6	2	54.7	7.0	6	5.6	12.8	1 1/2	72.8	4.2	8
1.45-1.50	3.9	19.1	1 1/2	58.6	7.8	6	3.6	18.6	1 1/2	76.4	4.9	8
1.50-1.60	6.5	27.3	1	65.1	9.7	5	5.2	26.6	1	81.6	6.3	8
+ 1.60	34.9	68.7	1/2	100.0	30.3	2	18.4	62.2	1/2	100.0	16.6	7 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10% P.D.:0.24lb/T 4:1=K:MIBC*: 1 min. cond.time 4 min. froth
FROTH	73.2	9.5	7 1/2	73.2	9.5	
TAILS	26.8	29.3	4 1/2	100.0	14.8	
CLEANER						10%P.D.: 0.24lb/T 4:1=K:MIBC*: ~~1 min.~~ cond.time 2 min. froth
FROTH	64.7	6.8	8	64.7	6.8	
TAILS	35.3	15.5	6 1/2	100.0	9.9	

* 120 grams/metric ton

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 01, SEAM 4U

LAB. NO.: 9747 583.7' - 608.4'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	80.2	20.8	1 1/2	80.2	20.8
28M x 100M	12.1	14.9	4 1/2	92.3	20.0
100M x 0	7.7	15.1	5	100.0	19.6
HEAD RAW	100.0		2 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	22.4	2.9	7 1/2	22.4	0.6	--	45.8	3.2	8 1/2	45.8	3.2	--
1.30-1.35	17.8	5.6	3	40.2	4.1	5	10.2	5.0	5 1/2	56.0	3.5	7 1/2
1.35-1.40	13.7	10.2	1 1/2	53.9	5.6	4	8.6	8.3	1	64.6	4.2	6 1/2
1.40-1.45	9.4	15.7	1	63.3	7.1	3 1/2	7.1	13.0	1	71.7	5.0	6 1/2
1.45-1.50	5.2	20.5	1	68.5	8.2	3	5.2	16.5	1	76.9	5.8	5 1/2
1.50-1.60	6.4	27.5	1	74.9	9.8	2 1/2	8.3	22.7	1	85.2	7.5	4 1/2
+ 1.60	25.1	52.6	1/2	100.0	20.5	1 1/2	14.8	52.7	1/2	100.0	14.2	3

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10%P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	75.2	10.6	4	75.2	10.6	
TAILS	24.8	27.0	2 1/2	100.0	14.7	
CLEANER						10%P.D.:0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	73.8	7.8	6	73.8	7.8	
TAILS	26.2	17.9	3	100.0	10.4	

* 120 grams/metric ton

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 01, SEAM 4L

LAB. NO.: 9748 634.0' - 651.3'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28 Mesh	78.9	29.2	1	78.9	29.2
28M x 100M	13.1	19.9	4 1/2	92.0	27.9
100M x 0	8.0	16.4	6 1/2	100.0	27.0
HEAD RAW	100.0		1 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	9.3	4.5	8 1/2	9.3	4.5	--	27.9	2.6	9	27.9	2.6	--
1.30-1.35	11.0	7.8	3 1/2	20.3	6.3	7 1/2	14.5	6.1	6 1/2	42.4	3.8	8 1/2
1.35-1.40	16.4	11.0	1	36.7	8.4	4 1/2	15.1	8.6	1	57.5	5.1	8
1.40-1.45	13.5	15.6	1	50.2	10.3	3	9.9	13.8	1	67.4	6.3	7 1/2
1.45-1.50	10.1	20.5	1	60.3	12.3	1 1/2	5.5	18.5	1	72.9	7.3	7
1.50-1.60	9.5	26.6	1	69.8	14.0	1 1/2	7.4	26.7	1	80.3	9.1	6
+ 1.60	30.2	63.2	1/2	100.0	28.9	1	19.7	59.5	1/2	100.0	19.0	4

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10%P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	76.4	10.4	7	76.4	10.4	
TAILS	23.6	35.5	2	100.0	16.3	
CLEANER						10% P.D. 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	79.5	7.8	7	79.5	7.8	
TAILS	20.5	20.6	3	100.0	10.2	

* 120 grams/metric ton

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 01, SEAM 5U

LAB. NO.: 9750

856.2-873.5

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28 Mesh	85.5	27.3	1 1/2	85.5	27.3
28M x 100M	9.2	18.4	5 1/2	94.7	26.4
100M x 0	5.3	18.7	6	100.0	26.0
HEAD RAW	100.0		2 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	7.5	4.4	8 1/2	7.5	4.4	--	28.2	3.8	9	28.2	3.8	--
1.30-1.35	10.8	6.6	6	18.3	5.7	7 1/2	14.2	6.0	8	42.4	4.5	8 1/2
1.35-1.40	22.3	10.7	1 1/2	40.6	8.4	4	16.0	9.3	2 1/2	58.4	5.8	8
1.40-1.45	13.7	15.5	1	54.3	10.2	3 1/2	9.7	13.6	1	68.1	6.9	7 1/2
1.45-1.50	6.7	20.5	1	61.0	11.4	3	6.6	18.2	1	74.7	7.9	6 1/2
1.50-1.60	8.8	27.7	1	69.8	13.4	2 1/2	7.5	25.7	1	82.2	9.6	6
+ 1.60	30.2	56.9	1/2	100.0	26.5	1 1/2	17.8	55.2	1/2	100.0	17.7	5 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10%P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	85.2	13.9	5	85.2	13.9	
TAILS	14.8	44.0	1	100.0	18.4	
CLEANER						10% P.D.:0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
ROUGH	79.1	10.8	5 1/2	79.1	10.8	
TAILS	20.9	25.6	3	100.0	13.9	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 01, SEAM 5L

LAB. NO.: 9751 879.0'-894.4'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	62.4	31.6	3	62.4	31.6
28M x 100M	19.2	31.6	4 1/2	81.6	31.6
100M x 0	18.4	25.6		100.0	30.5
HEAD RAW	100.0				

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	6.6	5.1	9	6.6	5.1	--	17.4	5.7	9	17.4	5.7	--
1.30-1.35	8.9	7.9	8 1/2	15.5	6.7	7 1/2	9.4	8.5	8 1/2	26.8	6.7	8 1/2
1.35-1.40	16.6	12.0	5 1/2	32.1	9.4	4	15.4	14.1	4 1/2	42.2	9.4	8
1.40-1.45	15.0	16.4	2	47.1	11.7	3 1/2	8.1	17.0	2 1/2	50.3	10.6	7 1/2
1.45-1.50	7.0	21.1	1 1/2	54.1	12.9	3	8.4	23.8	1	58.7	12.5	6 1/2
1.50-1.60	6.3	26.8	1	60.4	14.3	2 1/2	5.8	29.8	1	64.5	14.1	6
+ 1.60	39.6	55.8	1/2	100.0	30.8	1 1/2	35.5	61.6	1/2	100.0	30.9	5 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10%P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	71.1	16.4	5	71.1	16.4	
TAILS	28.9	45.1	1	100.0	24.7	
CLEANER						10%P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	75.9	13.3	6	75.9	13.3	
TAILS	24.1	28.4	2 1/2	100.0	16.9	

* 120 grams/metric ton

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D01

SEAM NO: "A" Horizon
No. 1 Horizon

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28242	128	129	1.0'	9458	1217.7	1.50	29.5	5 1/2
C28243	145.5	148.6	3.1'	9459	3461.9	1.57	37.0	5
C28244	219.6	221.1	1.5'	9460	931.9	1.37	12.3	6
C28245	222	224.3	2.3'	9461	2908.8	1.99	66.0	1

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES rec'd October 24, 1977

HOLE NO: 77 D03

SEAM NO: 2

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	(GM) WEIGHT	S.G.	ASH%	F.S.I.
C28347	68.5	69.0	0.5	9636	658.1	1.83	55.1	1/2
C28348	69.0	71.8	2.8	9637	3232.3	1.43	19.9	6
C28349	72.0	74.2	2.2	9638	2534.8	1.48	23.2	5
C28350	74.2	76.9	2.7	9639	3092.1	1.37	13.3	5 1/2
C28351	77.0	79.0	2.0	9640	1801.7	1.37	13.1	7
C28352	79.0	81.8	2.8	9641	3265.5	1.40	16.4	6
C28353	82.0	83.8	1.8	9642	2346.1	1.78	52.5	3 1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES rec'd October 24, 1977

HOLE NO: 77 D03

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	(GM) WEIGHT	S.G.	ASH%	F.S.I.
C28354	153	154.2	1.2	9643	1894.2	2.55	89.9	1
C28355	157	160.4	3.4	9644	3490.1	1.47	22.5	1
C28356	162	165	3.0	9645	3779.8	1.63	36.9	1
C28357	165	167.9	2.9	9646	2808.1	1.45	17.8	1 1/2
C28358	167.9	169.1	1.2	9647	1297.1	1.36	8.8	3
C28359	169.5	171.4	1.9	9648	1949.8	1.39	12.9	5 1/2
C28360	171.4	173.0	1.6	9649	1411.7	1.49	25.1	5
C28361	173.5	174.3	0.8	9650	575.5	1.37	12.5	4
C28362	174.3	176.0	1.3	9651	1794.8	1.93	60.4	N.A.
C28363	176.0	176.7	0.7	9652	1155.5	2.50	88.5	N.A.
C28364	176.7	178.0	1.3	9653	2318.0	2.37	83.3	N.A.
C28365	178.0	179.4	1.4	9654	2521.3	2.28	76.1	N.A.

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES rec'd October 24, 1977

HOLE NO: 77 D03

SEAM NO: 4L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	(GM) WEIGHT	S.G.	ASH%	F.S.I.
C28366	218.8	220	1.2	9655	1302.3	1.67	37.7	1
C28367	220.5	221.9	1.4	9656	1451.5	1.51	23.6	1 1/2
C28368	224.1	225.8	1.7	9657	1656.4	1.44	17.4	3 1/2
C28369	225.8	227.3	1.5	9658	1327.2	1.39	15.2	7
C28370	228.8	230.9	2.1	9659	2037.4	1.45	20.8	4
C28371	231.2	232.5	1.3	9660	1450.8	1.49	20.0	1
C28372	233.7	234.2	0.5	9661	414.7	1.46	19.9	1 1/2
C28373	234.2	235.3	1.1	9662	1934.1	2.03	64.7	1/2

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES rec'd October 24, 1977

HOLE NO: 77 D03

SEAM NO: 5U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	(GM) WEIGHT	S.G.	ASH%	F.S.I.
C28374	450.2	451.0	0.9	9663	1306.2	1.85	54.6	1
C28375	452.0	453.6	1.6	9664	2581.4	2.16	69.1	1/2
C28376	453.6	455.9	2.3	9665	2970.9	1.55	27.6	2
C28377	457	459.6	2.6	9666	2937.3	1.44	17.3	4 1/2
C28378	460.0	461.1	1.1	9667	1436.5	1.63	35.5	1
C28379	461.1	463.3	2.2	9668	2504.1	1.46	18.4	1 1/2
C28380	464.4	466.8	2.4	9669	2885.0	1.50	23.1	2 1/2
C28381	467.4	468.1	0.7	9670	711.3	1.47	20.5	2 1/2
C28382	468.1	470.2	2.1	9671	1909.8	1.47	21.5	4
C28383	471.6	471.9	0.3	9672	327.8	1.65	40.7	1

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES rec'd October 24, 1977

HOLE NO: 77 D03

SEAM NO: Parting 5L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	(GM) WEIGHT	S.G.	ASH%	F.S.I.	
C28384	471.9	472.6	0.7	9673	1240.2	2.47	84.0	N.A.	Parting
C28385	472.6	474.0	1.4	9674	1740.1	1.62	36.6	2	
C28386	474.2	475.7	1.5	9675	1484.2	1.59	34.5	1	
C28387	475.9	477.6	1.7	9676	1778.9	1.55	31.0	5 1/2	
C28388	477.6	479.1	1.5	9677	1814.2	1.77	47.7	1	
C28389	479.5	482.2	2.7	9678	3110.0	1.54	30.0	3	
C28390	482.2	485.1	2.9	9679	3119.7	1.44	20.5	3 1/2	
C28391	485.1	488.5	3.4	9680	3353.8	1.44	20.0	6	
C28392	489.2	491.4	2.2	9681	2414.6	1.52	28.3	4	
C28393	492.0	493.1	1.1	9682	1160.4	1.43	18.8	5	
C28394	493.1	493.8	0.7	9683	786.3	2.21	73.7	1	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 03, SEAM 2

LAB. NO.: 9921 69.0' - 83.8'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28 Mesh	81.5	25.3	4	81.5	25.3
28M x 100M	13.2	13.5	8	94.7	23.7
100M x 0	5.3	11.5	8	100.0	23.0
HEAD RAW	100.0		7		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	30.0	2.4	8 1/2	30.0	2.4	--	39.9	1.9	9	39.9	1.9	--
1.30-1.35	14.2	5.7	5	44.2	3.5	7 1/2	21.9	4.1	7 1/2	61.8	2.7	8
1.35-1.40	8.9	9.9	2	53.1	4.5	7	12.1	9.6	3	73.9	3.8	8
1.40-1.45	9.1	14.7	1 1/2	62.2	6.0	6 1/2	6.8	13.2	1 1/2	80.7	4.6	8
1.45-1.50	3.8	21.0	1	66.0	6.9	6	4.5	19.4	1 1/2	85.2	5.4	8
1.50-1.60	5.4	27.8	1	71.4	8.5	5 1/2	3.3	26.3	1	88.5	6.2	7 1/2
+ 1.60	28.6	68.1	1/2	100.0	25.5	4	11.5	65.3	1/2	100.0	13.0	7 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10% Pulp Density: 0.24lb/T 4:1= K:MIBC*: 1 min. cond. time: 4 min froth
FROTH	78.8	8.0	7 1/2	78.8	8.0	
TAILS	21.2	22.6	5	100.0	11.1	
CLEANER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	71.8	6.1	8	71.8	6.1	
TAILS	28.2	13.0	6 1/2	100.0	8.0	

* 120 grams/metric ton

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 03, SEAM 4U

LAB. NO.: 9922 157' - 174.3'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28M	61.4	27.0	1	61.4	27.0
28M x 100M	20.2	18.6	2 1/2	81.6	24.9
100M x 0	18.4	14.7	3 1/2	100.0	23.0
HEAD RAW	100.0		1		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	12.6	3.2	6 1/2	12.6	3.2	--	24.7	3.0	7 1/2	24.7	3.0	--
1.30-1.35	13.2	4.3	2	25.8	3.8	3 1/2	21.7	7.4	2 1/2	46.4	5.1	5 1/2
1.35-1.40	13.6	7.4	1 1/2	39.4	5.0	2 1/2	8.6	7.6	1	55.0	5.5	4 1/2
1.40-1.45	11.1	12.0	1	50.5	6.6	1 1/2	8.8	11.0	1	63.8	6.2	3 1/2
1.45-1.50	4.8	16.4	1	55.3	7.4	1 1/2	6.9	15.7	1	70.7	7.1	3
1.50-1.60	9.1	23.7	1	64.4	9.7	1/2	8.2	24.4	1	78.9	8.9	2 1/2
+ 1.60	35.6	55.4	1/2	100.0	26.0	1	21.1	52.8	1/2	100.0	18.2	2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	85.9	11.7	3	85.9	11.7	
TAILS	14.1	32.6	1 1/2	100.0	14.6	
CLEANER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	85.8	9.7	3 1/2	85.8	9.7	
TAILS	14.2	22.4	1	100.0	11.5	

* 120 grams/ metric ton

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 03, SEAM 4L

LAB. NO.: 9923 218.8' - 234.2'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28 Mesh	74.0		1	74.0	25.6
28M x 100M	14.6	13.8	6	88.6	23.7
100M x 0	11.4	11.4	7	100.0	22.3
HEAD RAW	100.0		2 1/2		

(61) SINK-FLOAT ANALYSES (21.5)

	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	12.8	3.2	8 1/2	12.8	3.2	--	30.0	1.8	9	30.0	1.8	--
1.30-1.35	10.9	6.0	4	23.7	4.5	7 1/2	16.8	4.8	7	46.8	2.9	8
1.35-1.40	12.9	9.0	2 1/2	36.6	6.1	6 1/2	19.9	8.1	1 1/2	66.7	4.4	7
1.40-1.45	12.8	13.5	1	49.4	8.0	4 1/2	9.2	12.7	1	75.9	5.4	6 1/2
1.45-1.50	8.6	18.5	1	58.0	9.6	3 1/2	5.7	17.8	1	81.6	6.3	6 1/2
6.5 1.50-1.60	13.6	24.9	1	71.6	12.5	2	6.6	22.3	1	88.2	7.5	6
+ 1.60	28.4	58.7	1/2	100.0	25.6	1 1/2	11.8	55.2	1/2	100.0	13.1	5 1/2

12.87

(17.5) FROTH FLOTATION : 100M x 0

				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
10.42 ROUGHER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	91.5	8.1	6 1/2	91.5	8.1	
TAILS	8.5	41.8	1 1/2	100.0	11.0	
CLEANER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	82.1	5.9	7 1/2	82.1	5.9	
TAILS	17.9	19.3	2	100.0	8.3	

* 120 grams/metric ton

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 03, SEAM 5U

LAB. NO.: 9924 453.6' - 471.9'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	72.2	25.3	2	72.2	25.3
28M x 100M	16.3	20.1	4 1/2	88.5	24.3
100M x 0	11.5	18.6	5 1/2	100.0	23.7
HEAD RAW	100.0		2 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	9.8	3.6	8	9.8	3.6	--	18.3	2.5	8 1/2	18.3	2.5	--
1.30-1.35	10.2	6.1	5	20.0	4.9	7 1/2	21.8	7.8	7	40.1	5.4	8
1.35-1.40	18.0	9.9	2	38.0	7.3	5	14.9	9.8	3 1/2	55.0	6.6	7 1/2
1.40-1.45	14.0	14.4	1 1/2	52.0	9.2	4	8.9	13.4	1	63.9	7.5	7
1.45-1.50	7.2	19.6	1	59.2	10.4	3 1/2	6.4	18.6	1	70.3	8.5	6 1/2
1.50-1.60	11.3	27.0	1	70.5	13.1	3	9.0	27.0	1	79.3	10.6	5 1/2
+ 1.60	29.5	55.5	1	100.0	25.6	2	20.7	54.2	1/2	100.0	19.7	4 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER	77.6	13.3	7	77.6	13.3	10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond.time 4 min. froth
FROTH	22.4	36.9	1	100.0	18.6	
TAILS						
CLEANER	84.1	9.8	7 1/2	84.1	9.8	10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond.time 2 min. froth
FROTH	15.9	28.8	2	100.0	12.8	
TAILS						

* 120 grams/metric ton

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 03, SEAM 5L

LAB. NO.: 9925 472.6' - 493.1'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	61.4	34.4	1 1/2	61.4	34.4
28M x 100M	23.3	20.5	5 1/2	84.7	30.6
100M x 0	15.3	16.1	7	100.0	28.4
HEAD RAW	100.0		3 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	6.0	4.4	8 1/2	6.0	4.4	--	18.0	2.7	9	18.0	2.7	--
1.30-1.35	8.4	7.9	7	14.4	6.4	8	19.8	6.3	8	37.8	4.6	8 1/2
1.35-1.40	12.1	11.3	5	26.5	8.7	7	15.3	10.8	6 1/2	53.1	6.4	8 1/2
1.40-1.45	12.0	15.8	2	38.5	10.9	6	10.0	14.9	2	63.1	7.7	8
1.45-1.50	7.9	20.2	1	46.4	12.5	5	8.9	21.4	1	72.0	9.4	8
1.50-1.60	11.2	26.5	1	57.6	15.2	4	8.1	25.2	1	80.1	11.0	7 1/2
+ 1.60	42.4	60.4	1/2	100.0	34.4	1 1/2	19.9	57.5	1/2	100.0	20.3	6

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10% P.D.: 0.241b/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	89.0	12.6	7	89.0	12.6	
TAILS	11.0	44.5	1 1/2	100.0	16.1	
CLEANER						10% P.D.: 0.241b/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	81.9	9.6	7 1/2	81.9	9.6	
TAILS	18.1	25.3	3	100.0	12.4	

* 120 grams/metric ton

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D04

SEAM NO: 2

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28456	153.2	153.6	0.4'	9844	197.5	1.83	46.2	1
C28457	156.0	157.9	1.9	9845	1485.4	1.49	19.0	5 1/2
C28458	158.0	159.7	1.7	9846	1497.5	1.48	19.1	6
C28459	159.8	160.2	0.4	9847	414.4	1.51	22.6	7
C28460	161.2	162.7	1.7	9848	1352.7	1.36	12.0	7 1/2
C28461	162.9	165.0	2.1	9849	2386.7	1.36	16.0	6 1/2
C28462	165.0	166.0	1.0	9850	880.0	1.34	10.5	8
C28463	166.0	166.8	0.8	9851	1133.3	2.28	79.8	N.A.
C28464	166.8	167.5	0.7	9852	1107.7	2.29	80.1	N.A.
C28465	167.5	170.9	3.4	9853	3538.9	1.61	35.8	4
C28466	172.0	172.6	0.6	9854	531.5	1.42	14.5	3 1/2
C28467	174.0	174.8	0.8	9855	504.8	1.35	10.0	7 1/2
C28468	174.8	175.2	0.4	9856	603.1	1.16	73.6	N.A.
C28469	175.2	176.0	0.8	9857	687.9	2.26	78.3	1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D04

SEAM NO: 3

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28470	187.9	190.8	2.9	9858	2855.5	1.58	35.3	7
C28471	192.0	192.9	0.9	9859	1767.8	2.15	74.0	1/2
C28472	192.9	195.8	2.9	9860	2970.5	1.92	60.5	2 1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D04

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28473	272.6	273.4	0.8	9861	964.2	2.22	75.6	N.A.
C28474	274.2	278.5	4.3	9862	4530.0	1.44	18.8	4 1/2
C28475	278.7	281.8	3.1	9863	3130.2	1.44	18.3	3 1/2
C28476	281.9	284.7	2.8	9864	3120.1	1.61	32.4	1
C28477	284.7	286.4	1.7	9865	1625.7	1.40	16.2	4
C28478	286.4	290.7	4.3	9866	4720.0	1.48	21.1	1
C28479	290.7	294.2	3.5	9867	3965.0	1.48	20.2	1
C28480	294.5	298.1	3.9	9868	3740.2	1.45	14.2	1/2
C28481	298.1	299.9	1.8	9869	1833.9	1.52	25.0	1
C28482	300.0	302.2	2.2	9870	2194.1	1.44	16.9	1 1/2
C28483	302.9	306.0	3.1	9871	3083.1	1.36	10.1	7
C28484	306.3	308.4	2.1	9872	2403.7	1.60	27.9	5 1/2
C28485	308.4	309.2	0.8	9873	1875.4	1.48	25.2	7
C28486	309.2	309.4	0.2	9874	410.5	2.23	75.7	1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77004

SEAM NO: 4L

SAMPLE NO.	FOOTAGE. FROM	FOOTAGE. TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28487	317.4	321.3	3.9	9875	6361.0	2.29	76.5	N.A.
C28488	327.7	328.8	1.1	9876	2065.6	2.44	84.7	N.A.
C28489	329.0	330.6	1.6	9877	2698.4	2.45	85.6	N.A.
C28490	331.0	333.5	2.5	9878	2920.4	1.54	27.5	1 1/2
C28491	334.0	336.0	2.0	9879	1639.9	1.54	29.0	1 1/2
C28492	336.0	336.7	0.7	9880	514.4	1.53	25.3	1 1/2
C28493	337.5	340.3	2.8	9881	2550.0	1.40	15.3	2 1/2
C28494	340.5	344.1	3.6	9882	3740.0	1.39	13.5	5
C28495	344.2	347.7	3.5	9883	3297.0	1.46	20.8	3 1/2
C28496	347.7	351.2	3.5	9884	3914.3	1.54	26.2	1
C28497	351.2	353.7	2.5	9885	2674.6	1.54	26.3	1
C28498	353.7	356.2	2.5	9886	2564.7	1.47	22.8	1

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D04

SEAM NO: 5U

SAMPLE NO.	FOOTAGE. FROM	FOOTAGE. TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28499	585.4	585.7	0.3	9887	606.2	2.48	86.0	N.A.
C28500	585.7	586.2	0.5	9888	608.3	1.95	58.4	1/2
C29051	587.0	588.2	1.2	9889	1233.5	1.58	30.9	1
C29052	588.2	591.3	3.1	9890	3525.4	1.43	17.8	4
C29053	591.4	592.2	0.8	9891	802.9	1.38	12.9	4
C29054	592.3	594.0	1.7	9892	1807.4	1.54	28.4	3
C29055	594.2	598.3	4.1	9893	4500.0	1.45	19.1	1 1/2
C29056	598.3	600.9	2.6	9894	2667.4	1.44	16.6	1 1/2
C29057	600.9	603.7	2.8	9895	3049.4	1.51	25.3	2
C29058	604.0	605.0	1.0	9896	1025.7	1.54	27.9	3
C29059	604.0	606.7	1.7	9897	1644.7	1.46	20.4	2 1/2
C29060	607.0	608.2	1.2	9898	1094.7	1.43	16.6	2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D04

SEAM NO: 5L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29061	640.5	641.3	0.8	9899	1114.7	2.34	82.4	N.A.
C29062	642.7	644.0	1.3	9900	1183.9	1.48	22.7	2
C29063	644.0	644.8	0.8	9901	663.0	1.53	28.0	2
C29064	644.8	645.9	1.1	9902	76.0	1.36	13.8	8
C29065	645.9	646.1	0.2	9903	144.7	1.76	49.9	2
C29066	646.1	647.0	0.9	9904	972.9	2.27	76.2	N.A.
C29067	647.0	647.6	0.6	9905	936.8	1.67	41.2	1 1/2
C29068	647.7	649.8	2.1	9906	1733.3	1.63	31.7	2
C29069	649.9	652.0	2.1	9907	1870.4	1.50	23.9	1
C29070	652.3	653.4	1.1	9908	985.9	1.51	25.1	2 1/2
C29071	653.7	655.3	1.6	9909	1282.5	1.40	14.7	6 1/2
C29072	655.4	656.9	1.5	9910	904.8	1.41	16.3	6 1/2
C29073	656.9	658.7	1.8	9911	666.7	1.40	14.8	6 1/2
C29074	658.8	660.6	1.8	9912	1246.3	1.54	28.2	3 1/2
C29075	660.6	661.4	0.8	9913	620.8	1.65	37.9	1
C29076	661.6	662.9	1.3	9914	1106.7	1.46	21.8	4 1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D04

SEAM NO: 5L Cont.

SAMPLE NO.	FOOTAGE. FROM	FOOTAGE. TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29077	662.9	663.1	0.2	9915	387.2	2.29	82.2	N.A.

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D04 , SEAM 2

LAB. NO.: 273 153.2' - 174.8'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28M	56.3	40.3	1 1/2	56.3	40.3
28M x 100M	19.3	19.2	6 1/2	75.6	34.9
100M x 0	24.4	11.9	7 1/2	100.0	29.3
HEAD RAW	100.0	29.3	4		

F.S.I 6

(49.0) SINK-FLOAT ANALYSES (26.9)

	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	18.7	4.7	8	18.7	4.7	8	39.2	4.3	8	39.2	4.3	8
1.30-1.35	10.1	6.0	5	28.8	5.2	7 1/2	15.2	5.8	7 1/2	54.4	4.7	8
1.35-1.40	7.7	10.7	3	36.5	6.3	7	11.0	7.8	6	65.4	5.2	7 1/2
1.40-1.45	5.0	14.4	2	41.5	7.3	7	5.3	11.8	3 1/2	70.7	5.7	7 1/2
1.45-1.50	4.4	18.2	1 1/2	45.9	8.3	6	3.8	17.1	2	74.5	6.3	7
1.50-1.60	4.2	24.1	1	50.1	9.7	5 1/2	5.3	23.1	1	79.8	7.4	6 1/2
+ 1.60	49.9	71.0	N.A.	100.0	40.3	1 1/2	20.2	65.5	1/2	100.0	19.2	6 1/2

.2. 15.4.

24.1. FROTH FLOTATION : 100M x 0

				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						0.24 lb/T of 4:1=K:MIBC 4 min. frothing
CONC. 1	76.9	8.0	7 1/2	76.9	8.0	
TAILS 1	23.1	25.1	5	100.0	12.0	
CLEANER						same dosage but 2 min. frothing
CONC. 11	74.3	5.1	8	74.3	5.1	
TAILS 11	25.7	14.1	7	100.0	7.4	

13.94

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D04, SEAM 4U

LAB. NO.: 274 274.2' - 309.2'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28M	56.0	21.6	1	56.0	21.6
28M x 100M	20.2	16.5	2 1/2	76.2	20.2
100M x 0	23.8	13.3	3	100.0	18.6
HEAD RAW	100.0	19.5	1 1/2		

F.S.I 2

(54.6) SINK-FLOAT ANALYSES (22.6)

	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	19.4	2.8	6 1/2	19.4	2.8	6 1/2	31.1	2.5	7 1/2	31.1	2.5	7 1/2
1.30-1.35	13.0	4.9	1 1/2	32.4	3.6	4 1/2	14.4	5.3	2 1/2	45.5	3.4	6 1/2
1.35-1.40	14.5	8.2	1 1/2	46.9	5.1	3	16.6	9.7	1 1/2	62.1	5.1	5
1.40-1.45	6.9	11.9	1	53.8	5.9	2 1/2	6.1	11.1	1	68.2	5.6	4
1.45-1.50	6.6	16.9	1	60.4	7.1	2	6.1	14.6	1	74.3	6.4	3 1/2
1.50-1.60	9.9	22.7	1	70.3	9.3	1 1/2	5.9	21.1	1	80.2	7.4	3 1/2
+ 1.60	29.7	52.4	1/2	100.0	22.1	1	19.8	49.8	1/2	100.0	15.8	2 1/2

39.2. 16.2.

(22.8) FROTH FLOTATION : 100M x 0

				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
CONC. 1	85.0	10.0	3 1/2	85.0	10.0	as for 273
TAILS 1	15.0	30.7	2	100.0	13.1	
CLEANER						
CONC. 11	81.2	7.9	4 1/2	81.2	7.9	as for 273
TAILS 11	18.8	19.9	2 1/2	100.0	10.2	

16.38.

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D04 , SEAM 4L

LAB. NO.: 275 331.0' - 356.2'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28M	52.5	27.8	1	52.5	27.8
28M x 100M	21.9	17.8	3	74.4	24.9
100M x 0	25.6	13.9	5	100.0	22.1
HEAD RAW	100.0	22.5	1 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	8.5	4.4	7 1/2	8.5	4.4	7 1/2	19.6	3.2	7 1/2	19.6	3.2	7 1/2
1.30-1.35	7.5	6.3	2 1/2	16.0	5.3	5 1/2	20.5	5.3	6 1/2	40.1	4.3	7 1/2
1.35-1.40	14.2	9.2	1	30.2	7.1	2 1/2	14.8	8.9	1 1/2	54.9	5.5	6 1/2
1.40-1.45	9.6	12.1	1	39.8	8.3	1 1/2	6.0	12.0	1 1/2	60.9	6.2	6 1/2
1.45-1.50	10.6	16.7	1	50.4	10.1	1	8.1	15.3	1 1/2	69.0	7.2	6
1.50-1.60	12.1	23.2	1	62.5	12.6	1	9.7	20.8	1 1/2	78.7	8.9	4 1/2
+ 1.60	37.5	57.1	1/2	100.0	29.3	1	21.3	48.9	1/2	100.0	17.4	3

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
CONC. 1	83.0	10.6	5	83.0	10.6	as for 273
TAILS 1	17.0	30.6	2	100.0	14.0	
CLEANER						
CONC. 11	81.9	8.3	6	81.9	8.3	as for 273
TAILS 11	18.1	20.4	2 1/2	100.0	10.5	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D04, SEAM 5U

LAB. NO.: 276 587.0' - 608.2'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28M	81.8	22.4	1 1/2	81.8	22.4
28M x 100M	11.0	15.4	5	92.8	21.6
100M x 0	7.2	16.4	4 1/2	100.0	21.2
HEAD RAW	100.0	20.9	2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	4.9	3.1	8 1/2	4.9	3.1	8 1/2	26.5	4.0	8	26.5	4.0	8
1.30-1.35	18.6	6.7	5 1/2	23.5	5.9	7	17.4	5.9	7	43.9	4.8	8
1.35-1.40	24.2	10.3	1 1/2	47.7	8.2	4 1/2	19.3	10.1	1 1/2	63.2	6.4	7
1.40-1.45	13.6	14.7	1	61.3	9.6	4	9.9	13.8	1	73.1	7.4	6
1.45-1.50	8.3	19.2	1	69.6	10.8	3	6.6	18.2	1	79.7	8.3	5 1/2
1.50-1.60	8.3	25.5	1	77.9	12.3	3	7.0	24.5	1	86.7	9.6	5
+ 1.60	22.1	54.1	1	100.0	21.6	1 1/2	13.3	52.1	1/2	100.0	15.2	5

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
CONC. 1	57.1	13.5	5 1/2	57.1	13.5	as for 273
TAILS 1	42.9	19.8	3	100.0	16.2	
CLEANER						
CONC. 11	46.5	11.2	5 1/2	46.5	11.2	as for 273
TAILS 11	53.5	14.7	4 1/2	100.0	13.1	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D04, SEAM 5L

LAB. NO.: 277 642.7' - 662.9'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28M	58.0	35.4	1	58.0	35.4
28M x 100M	19.1	20.7	5 1/2	77.1	31.8
100M x 0	22.9	14.9	7	100.0	27.9
HEAD RAW	100.0	27.9	3 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	2.3	3.2	9	2.3	3.2	9	20.2	4.9	8 1/2	20.2	4.9	8 1/2
1.30-1.35	11.4	6.8	7	13.7	6.2	7 1/2	17.5	6.8	8	37.7	5.8	8 1/2
1.35-1.40	15.7	10.2	4	29.4	8.3	5 1/2	14.4	10.9	5	52.1	7.2	8
1.40-1.45	8.8	14.7	1	38.2	9.8	5	10.3	14.7	2	62.4	8.4	7 1/2
1.45-1.50	6.3	17.7	1	44.5	10.9	4	8.2	18.2	1	70.6	9.6	7
1.50-1.60	8.5	23.8	1	53.0	13.0	3 1/2	8.4	23.7	1	79.0	11.1	6 1/2
+ 1.60	47.0	59.8	1/2	100.0	35.0	1	21.0	54.0	1/2	100.0	20.1	5 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
CONC. 1	81.2	12.4	7	81.2	12.4	as for 273
TAILS 1	18.8	25.4	4 1/2	100.0	14.8	
CLEANER						
CONC. 11	75.9	8.4	7 1/2	75.9	8.4	as for 273
TAILS 11	24.1	19.1	4 1/2	100.0	11.0	

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES rec'd October 24, 1977

HOLE NO: 77 D05

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	(GM) WEIGHT	S.G.	ASH%	F.S.I.
C28395	205	205.3	0.3	9684	588.3	1.82	51.8	1
C28396	206	207.6	1.6	9685	2012.4	1.63	37.6	1 1/2
C28397	207.6	209.5	1.9	9686	2161.9	1.47	21.3	3
C28398	211.0	212.3	1.3	9687	2057.7	2.22	75.2	N.A.
C28399	212.3	215.8	3.5	9688	3991.3	1.44	18.0	6
C28400	216.0	218.2	2.2	9689	2375.4	1.49	23.8	2 1/2
C28401	218.2	220.5	2.3	9690	2946.8	1.50	22.2	3 1/2
C28402	221.0	223.0	2.0	9691	2226.7	1.49	23.8	3
C28403	223.0	225.9	2.9	9692	3351.7	1.42	15.9	7
C28404	226.0	227.9	1.9	9693	2197.7	1.49	22.2	4 1/2
C28405	232.0	233.0	1.0	9694	973.8	1.49	26.4	6 1/2
C28406	233.0	233.2	0.2	9695	202.8	1.49	26.4	7 1/2
C28407	235.0	236.6	1.6	9696	2032.9	1.75	43.6	2
C28408	236.6	237.4	0.8	9697	1171.6	2.13	70.8	1/2
C28409	237.4	238.1	0.7	9698	1433.2	2.37	82.3	N.A.
C28410	238.1	238.7	0.6	9699	885.4	2.30	79.0	N.A.

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES rec'd October 24, 1977

HOLE NO: 77 D05

SEAM NO: Parting & Seam 4L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.	
C28411	238.7	241.2	2.5	9700	5096.2	2.59	93.1	N.A.	Parting
C28412	241.3	242.9	1.6	9701	1725.8	1.56	29.0	1	
C28413	243.3	245.4	2.1	9702	2230.0	1.47	22.5	4	
C28414	245.6	247.8	2.2	9703	2594.0	1.58	32.7	5 1/2	
C28415	248.0	250.3	2.3	9704	3424.5	1.99	65.1	1/2	
C28416	250.3	252.2	1.9	9705	2968.1	2.06	69.4	1/2	
C28417	252.2	254.2	2.0	9706	2927.6	1.74	47.2	1	
C28418	254.2	255.1	0.9	9707	1488.9	2.12	71.4	1/2	
C28419	255.1	258.0	2.9	9708	5629.2	2.59	93.1	N.A.	
C28420	258.0	260.1	2.1	9709	2388.5	1.57	30.7	1 1/2	
C28421	260.1	261.5	1.4	9710	2463.6	2.23	75.9	N.A.	
C28422	261.5	262.0	0.5	9711	832.1	2.15	72.9	1/2	
C28423	262.0	263.1	1.1	9712	1420.6	1.73	45.6	1	
C28424	263.1	264.9	1.8	9713	2254.2	1.53	28.7	5	

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES rec'd October 24, 1977

HOLE NO: 77 D05

SEAM NO: "D" HORIZON

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28425	370.2	372	1.8	9714	2364.8	1.69	40.6	1
C28426	372.0	373.8	1.8	9715	2309.3	1.76	47.6	3
C28427	374.0	374.4	0.4	9716	253.5	1.37	12.2	8

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES rec'd October 24, 1977

HOLE NO: 77 D05

SEAM NO: 5

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28428	458.0	458.2	0.2	9717	552.8	2.45	85.5	N.A.
C28429	458.2	458.6	0.4	9718	342.3	1.58	32.9	2
C28430	458.6	459.0	0.4	9719	680.0	2.16	71.6	N.A.
C28431	459.0	461.6	2.6	9720	5377.6	2.55	88.5	N.A.
C28432	462.0	464.6	2.6	9721	5215.2	2.55	89.2	N.A.
C28433	464.6	465.1	0.5	9722	666.5	1.74	45.6	1 1/2
C28434	465.1	466.9	1.8	9723	1768.7	1.44	16.3	3 1/2
C28435	466.9	467.1	0.2	9724	589.3	2.20	75.2	N.A.
C28436	467.1	467.3	0.2	9725	268.4	1.87	57.7	1
C28437	467.3	469.2	1.9	9726	2982.0	2.10	69.2	N.A.
C28438	469.2	469.5	0.3	9727	386.0	1.75	47.0	1
C28439	469.5	472.5	3.0	9728	5298.3	2.26	77.4	1
C28440	472.5	472.8	0.3	9729	347.2	1.67	41.5	N.A.
C28441	472.8	473.2	0.4	9730	531.4	2.06	67.1	4 1/2
C28442	473.5	473.7	0.2	9731	307.4	2.02	64.5	1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES rec'd October 24, 1977

HOLE NO: 77 D05

SEAM NO: 5

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C28443	473.7	474.5	0.8	9732	914.1	1.45	18.8	4
C28444	474.5	475.5	1.0	9733	1350.7	1.93	53.9	1/2
C28445	475.5	477.0	1.5	9734	1834.5	1.52	23.1	1
C28446	477.0	479.0	2.0	9735	1714.9	1.46	19.5	1
C28447	479.0	479.5	0.5	9736	673.9	1.54	27.8	1 1/2
C28448	480.0	480.3	0.3	9737	3293.0	1.75	44.4	1
C28449	480.3	481.8	1.5	9738	1644.5	1.55	28.3	1
C28450	481.8	483.2	1.4	9739	1688.0	1.56	30.8	5
C28451	483.3	484.7	1.4	9740	842.3	2.28	75.3	N.A.
C28452	484.7	485.2	0.5	9741	696.5	1.63	36.3	1
C28453	485.2	486.5	1.3	9742	2347.4	2.35	78.3	N.A.
C28454	486.8	487.4	0.6	9743	922.9	1.95	57.8	1/2
C28455	487.9	490.0	2.1	9744	2831.4	1.85	52.2	1/2

14.9

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 05, SEAM 4U

LAB. NO.: 9927 206' - 236.6'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	82.0	29.4	2 1/2	82.0	29.4
28M x 100M	14.6	18.0	7	96.6	27.7
100M x 0	3.4	21.9	7	100.0	27.5
HEAD RAW	100.0	26.4	3 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	16.7	3.3	8 1/2	16.7	3.3	--	30.1	2.1	9	30.1	2.1	--
1.30-1.35	14.8	6.8	3 1/2	31.5	4.9	7	14.8	4.4	8	44.9	2.9	8 1/2
1.35-1.40	11.6	10.7	2	43.1	6.5	6	15.6	8.3	3 1/2	60.5	4.3	8 1/2
1.40-1.45	9.4	15.8	1 1/2	52.5	8.2	5 1/2	11.6	12.4	1 1/2	72.1	5.6	8
1.45-1.50	4.4	21.9	1	56.9	9.2	5	4.7	19.0	1	76.8	6.4	7 1/2
1.50-1.60	7.3	28.0	1	64.2	11.4	4	5.1	26.2	1	81.9	7.6	7
+ 1.60	35.8	64.6	1/2	100.0	30.4	2	18.1	63.3	1/2	100.0	17.7	6 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	84.2	10.9	7 1/2	84.2	10.9	
TAILS	15.8	45.3	1 1/2	100.0	16.3	
CLEANER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	83.3	7.7	7 1/2	83.3	7.7	
TAILS	16.7	25.6	3 1/2	100.0	10.7	

* 120 grams/metric ton

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 05, SEAM 4L

LAB. NO.: 9928 241.3' - 247.8'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	78.4	29.6	2	78.4	29.6
28M x 100M	14.7	21.2	6 1/2	93.1	28.3
100M x 0	6.9	19.0	6 1/2	100.0	27.6
HEAD RAW	100.0		2 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	17.6	2.9	9	17.6	2.9	--	28.1	2.1	9	28.1	2.1	--
1.30-1.35	10.8	6.0	4	28.4	4.1	8	14.8	4.3	7 1/2	42.9	2.9	9
1.35-1.40	8.5	9.5	2 1/2	36.9	5.3	7	8.8	8.6	2 1/2	51.7	3.8	8 1/2
1.40-1.45	9.2	13.7	1	46.1	7.0	6 1/2	8.4	12.4	1 1/2	60.1	5.0	8
1.45-1.50	5.4	19.5	1	51.5	8.3	5 1/2	5.8	18.5	1	65.9	6.2	7 1/2
1.50-1.60	10.8	26.2	1	62.3	11.4	4 1/2	7.2	24.1	1	73.1	8.0	7
+ 1.60	37.7	59.6	1/2	100.0	29.6	2	26.9	57.2	1/2	100.0	21.2	6

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	79.0	12.5	7	79.0	12.5	
TAILS	21.0	41.0	2	100.0	18.5	
CLEANER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	81.1	9.5	7 1/2	81.1	9.5	
TAILS	18.9	26.9	4	100.0	12.8	

* 120 grams/metric ton

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D 05, SEAM 5U

LAB. NO.: 9930 473.7' = 483.2'

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	82.7	31.9	1	82.7	31.9
28M x 100M	13.1	20.2	5	95.8	30.3
100M x 0	4.2		6	100.0	
HEAD RAW	100.0		1 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	2.6	3.0	9	2.6	3.0	--	21.0	2.5	9	21.0	2.5	--
1.30-1.35	6.4	6.1	6 1/2	9.0	5.2	7 1/2	11.7	6.1	8	32.7	3.8	9
1.35-1.40	13.5	9.7	2	22.5	7.9	4 1/2	12.8	9.0	5 1/2	45.5	5.3	8 1/2
1.40-1.45	16.8	13.9	1	39.3	10.5	2 1/2	7.2	13.1	1 1/2	52.7	6.3	8
1.45-1.50	8.2	18.8	1	47.5	11.9	2	19.5	16.8	1	72.2	9.2	7
1.50-1.60	11.0	25.8	1	58.5	14.5	1 1/2	8.7	25.5	1	80.9	10.9	6 1/2
+ 1.60	41.5	56.5	1/2	100.0	31.9	1	19.1	59.4	1/2	100.0	20.2	5

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth
FROTH	82.4	13.0	6	82.4	13.0	
TAILS	17.6	46.5	/	100.0	18.9	
CLEANER	N.S.S.					10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH						
TAILS						

* 120 grams/metric ton

N.S.S. = not sufficient sample

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 06

SEAM NO: 2

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29078	232.8	233.5	0.7	9987	658.6	1.57	33.2	1
C29079	233.5	234.75	1.25	9988	1769.6	2.18	76.0	0
C29080	234.75	236.9	2.15	9989	2408.9	1.43	22.9	5 1/2
C29081	237.0	238.1	1.1	9990	1554.0	2.10	72.0	1/2
C29082	239.0	240.35	1.35	9991	1384.9	1.60	38.0	4
C29083	240.35	241.1	0.75	9992	1509.7	2.36	84.1	0
C29084	241.1	241.3	0.3	9993	990.6	1.42	19.2	7 1/2
C29085	242.0	243.0	1.0	9994	729.6	1.50	27.8	7
C29086	243.0	246.6	3.6	9995	2323.9	1.33	7.6	7
C29087	246.7	250.1	3.4	9996	3206.5	1.42	16.9	6
C29088	250.1	251.3	1.2	9997	1276.4	1.47	25.6	7
C29089	251.3	253.0	1.7	9998	2685.6	1.93	61.5	1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 06

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29090	370.3	370.5	0.2	9999	99.3	1.88	56.5	1
C29091	372.0	373.9	1.9	10,000	1485.9	1.57	31.8	1 1/2
C29092	373.9	376.7	2.8	001	2492.8	1.41	15.5	3
C29093	377.0	378.8	1.8	002	3861.8	1.55	30.3	1
C29094	380.0	382.0	2.0	003	1736.6	1.77	44.9	1/2
C29095	382.0	385.6	3.6	004	1931.6	1.45	19.1	1/2
C29097	385.6	388.0	2.4	005	2479.6	1.42	17.9	2
C29098	388.0	391.25	3.25	006	3173.5	1.54	29.9	2
C29099	391.25	392.3	1.05	007	1044.0	1.68	45.6	3
C29100	392.3	393.3	1.0	008	1472.2	2.08	70.6	1/2
C29101	393.6	394.4	0.8	009	1286.2	2.24	77.3	0

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 06

SEAM NO: 4L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29102	401.8	403.2	1.4	010	1433.5	1.56	29.1	1
C29103	403.5	406.75	3.25	011	4100.0	1.49	23.0	4 1/2
C29104	406.75	408.25	1.5	012	1448.3	1.49	24.2	3
C29105	408.4	411.2	2.8	013	3260.0	1.67	41.6	3 1/2
C29106	411.2	413.65	2.45	014	2720.0	1.70	42.6	1
C29107	414.0	415.2	1.20	015	1722.1	1.73	47.3	0
C29108	415.2	417.65	2.45	016	4530.0	2.52	88.0	3
C29109	417.65	418.25	0.6	017	905.5	2.20	74.6	0
C29110	418.25	420.3	2.05	018	2275.0	1.50	24.5	2
C29111	420.3	420.65	0.35	019	532.8	1.81	52.1	1
C29112	421.5	422.5	1.0	020	1721.8	2.23	76.7	0

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 06

SEAM NO: "D" HORIZON

SAMPLE NO.	FOOTAGE		THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
	FROM	TO						
C29113	529.6	530.3	0.7	021	764.7	1.59	33.6	2 1/2
C29114	530.5	532.3	1.8	022	2470.0	1.96	63.7	1
C29115	523.0	524.7	1.7	023	2280.0	1.65	38.4	1

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 06

SEAM NO: 5U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29116	657.5	661.0	3.5	024	4565.0	1.72	44.9	1
C29117	661.3	663.1	1.8	025	1935.0	1.50	23.3	1 1/2
C29118	663.3	664.9	1.6	026	1847.7	1.50	26.5	3 1/2
C29119	664.9	666.45	1.55	027	1643.2	1.81	46.7	1
C29120	666.45	669.9	3.45	028	3960.0	1.46	17.9	1
C29121	670.2	675.1	4.9	029	5840.0	1.50	21.8	1 1/2
C29122	675.4	677.0	1.6	030	2650.0	1.71	42.3	3
C29123	677.0	678.2	1.2	031	1019.1	1.94	56.7	1

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 06

SEAM NO: Parting and 5L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29124	678.2	680.0	1.8	032	3335.0	2.32	76.1	1/2
C29125	680.0	683.5	3.5	033	6650.0	2.49	83.3	0
C29126	683.5	685.1	1.6	034	1897.1	1.71	40.1	1
C29127	685.1	689.4	4.3	035	5515.0	1.72	42.6	2
C29128	689.6	692.0	2.4	036	2930.0	1.61	33.3	1 1/2
C29129	692.0	694.0	2.0	037	2390.0	1.59	32.1	2 1/2
C29130	694.0	696.2	2.2	038	2760.0	1.59	31.3	1
C29131	696.4	698.6	2.2	039	2890.0	1.72	42.5	1
C29132	698.6	702.0	3.4	040	3635.0	1.45	20.0	7
C29133	702.0	705.75	3.75	041	4340.0	1.49	24.1	3 1/2
C29134	705.75	708.4	2.65	042	2965.0	1.56	30.8	4 1/2
C29135	708.4	709.3	0.9	043	1184.0	1.48	26.4	7

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-06 , SEAM #2 234.75' - 251.3'

LAB. NO.: 331

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	72.0	39.0	2 1/2	72.0	39.0
28M x 100M	16.4	17.3	7	88.4	35.0
100M x 0	11.6	14.3	7 1/2	100.0	32.6
HEAD RAW		32.6			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	21.7	3.7	8	21.7	3.7	8	53.8	2.5	8 1/2	53.8	2.5	8 1/
1.30-1.35	12.9	5.7	6	34.6	4.4	7 1/2	3.6	5.1	7	57.4	2.7	8 1/
1.35-1.40	7.8	10.9	3	42.4	5.6	7 1/2	8.9	7.3	4	66.3	3.3	8 1/
1.40-1.45	2.7	16.3	3	45.1	6.3	7	4.8	9.7	3 1/2	71.1	3.7	8
1.45-1.50	3.3	19.4	2 1/2	48.4	7.2	7	4.3	13.3	2	75.4	4.3	8
1.50-1.60	4.1	26.4	2	52.5	8.7	7	4.8	21.9	2	80.2	5.3	8
+ 1.60	47.5	72.6	1/2	100.0	39.0	2 1/2	19.8	63.1	1/2	100.0	16.8	7

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	90.9	10.0	7 1/2	90.9	10.0	
TAILS	9.1	53.8	2	100.0	14.0	
CLEANER						
FROTH	52.4	7.1	8	52.4	7.1	
TAILS	47.6	13.5	6	100.0	10.2	

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-06, SEAM 4U 370.3' - 392.3'

LAB. NO.: 333

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	67.3	32.3	1	67.3	32.3
28M x 100M	19.6	20.5	2 1/2	86.9	29.6
100M x 0	13.1	17.1	4	100.0	28.0
HEAD RAW		28.0			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	14.4	2.9	7	14.4	2.9	7	31.2	2.3	8	31.2	2.3	8
1.30-1.35	15.1	5.1	2	29.5	4.0	5	13.5	6.1	2 1/2	44.7	3.4	7 1/2
1.35-1.40	12.4	9.1	1	41.9	5.5	3 1/2	11.3	8.9	1	56.0	4.5	7
1.40-1.45	4.3	13.6	1	46.2	6.3	3	6.5	12.7	1	62.5	5.4	6
1.45-1.50	3.6	17.5	1	49.8	7.1	2 1/2	5.4	16.4	1	67.9	6.3	5 1/2
1.50-1.60	4.8	24.3	1	54.6	8.6	2	6.8	21.7	1	74.7	7.7	4
+ 1.60	45.4	60.0	N.A.	100.0	31.9	1	25.3	55.9	1/2	100.0	19.9	2 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	90.8	12.7	4	90.8	12.7	
TAILS	9.2	53.2	1 1/2	100.0	16.4	
CLEANER						
FROTH	64.7	9.5	4 1/2	64.7	9.5	
TAILS	35.3	18.8	3 1/2	100.0	12.8	

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-06 , SEAM 4L 401.8' - 415.2'

LAB. NO.: 334

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	68.0	37.9	2	68.0	37.9
28M x 100M	18.3	27.7	6 1/2	86.3	35.7
100M x 0	13.7	23.5	7	100.0	34.1
HEAD RAW		34.1			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	10.1	3.0	8 1/2	10.1	3.0	8 1/2	23.8	1.8	9	23.8	1.8	9
1.30-1.35	6.6	6.0	8	16.7	4.2	8 1/2	16.3	8.2	8	40.1	4.4	8 1/2
1.35-1.40	9.9	10.1	5	26.6	6.4	8	6.1	10.4	6 1/2	46.2	5.2	8 1/2
1.40-1.45	6.0	14.4	2 1/2	32.6	7.9	7 1/2	5.6	15.7	2 1/2	51.8	6.3	8 1/2
1.45-1.50	5.4	18.6	2	38.0	9.4	7	5.4	17.1	2	57.2	7.3	8 1/2
1.50-1.60	8.0	25.5	1	46.0	12.2	6	5.6	22.0	1 1/2	62.8	8.7	8 1/2
+ 1.60	54.0	58.1	1/2	100.0	37.0	2	37.2	57.8	1/2	100.0	26.9	6 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	86.3	17.5	7 1/2	86.3	17.5	
TAILS	13.7	59.0	1 1/2	100.0	23.2	
CLEANER						
FROTH	55.4	10.6	8 1/2	55.4	10.6	
TAILS	44.6	26.5	4	100.0	17.7	

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-06, SEAM 5U 657.5' - 678.2'

LAB. NO.: 335

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	86.6	32.2	1 1/2	86.6	32.2
28M x 100M	8.5	22.1	4 1/2	95.1	31.3
100M x 0	4.9	21.1	5 1/2	100.0	30.8
HEAD RAW		30.8			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	2.8	2.7	8 1/2	2.8	2.7	8 1/2	30.0	5.9	8 1/2	30.0	5.9	8 1/2
1.30-1.35	6.9	6.3	7	9.7	5.3	7 1/2	11.3	7.6	6 1/2	41.3	6.4	8
1.35-1.40	17.9	9.6	2	27.6	8.1	4 1/2	11.9	9.8	2 1/2	53.2	7.1	7 1/2
1.40-1.45	10.5	13.7	1	38.1	9.6	4	9.5	13.6	1	62.7	8.1	6 1/2
1.45-1.50	8.2	18.0	1	46.3	11.1	3	6.1	18.3	1	68.8	9.0	6
1.50-1.60	10.0	24.9	1	56.3	13.6	2 1/2	7.0	25.2	1	75.8	10.5	5 1/2
+ 1.60	43.7	57.5	1/2	100.0	32.8	1 1/2	24.2	57.8	1/2	100.0	22.0	4 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	91.4	17.0	5 1/2	91.4	17.0	
TAILS	8.6	61.7	1/2	100.0	20.8	
CLEANER						
FROTH	63.5	12.3	7	63.5	12.3	
TAILS	36.5	24.7	3	100.0	16.8	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-06, SEAM 5L 683.5' - 709.3'

LAB. NO.: 337

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	72.6	38.0	1 1/2	72.6	38.0
28M x 100M	15.8	22.3	6 1/2	88.4	35.2
100M x 0	11.6	18.4	7	100.0	33.2
HEAD RAW		33.0	3		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	5.2	3.4	8 1/2	5.2	3.4	8 1/2	34.5	6.1	8 1/2	34.5	6.1	8 1/2
1.30-1.35	6.6	6.9	8	11.8	5.4	8 1/2	10.1	6.6	8 1/2	44.6	6.2	8 1/2
1.35-1.40	13.5	11.0	5	25.3	8.4	7	7.3	9.7	6 1/2	51.9	6.7	8 1/2
1.40-1.45	6.0	15.4	2 1/2	31.3	9.7	6 1/2	9.6	13.6	2 1/2	61.5	7.8	8
1.45-1.50	10.0	19.2	1	41.3	12.0	6	6.5	18.2	1	68.0	8.8	7 1/2
1.50-1.60	9.2	25.5	1	50.5	14.5	5	7.1	24.0	1	75.1	10.2	7 1/2
+ 1.60	49.5	60.9	1/2	100.0	37.5	1 1/2	24.9	58.1	1/2	100.0	22.1	6 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	91.6	15.0	7 1/2	91.6	15.0	
TAILS	8.4	55.0	1 1/2	100.0	18.4	
CLEANER						
FROTH	68.7	10.7	8	68.7	10.7	
TAILS	31.3	22.8	3 1/2	100.0	14.5	

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 07A

SEAM NO: 2

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29226	192.9	193.2	0.3	109	604.9	1.77	49.2	1
C29227	193.8	195.1	1.3	110	165.7	1.56	32.7	5
C29228	195.7	196.7	1.0	111	1344.0	1.76	49.6	2 1/2
C29229	197.0	197.6	0.6	112	1035.0	1.82	53.1	1
C29230	198.1	198.8	0.7	113	1943.4	1.84	55.6	1 1/2
C29231	199.7	200.2	0.5	114	630.8	1.51	25.6	4
C29232	201.0	201.8	0.8	115	1392.6	2.29	80.3	0
C29233	202.0	203.6	1.6	116	1902.3	1.49	24.9	6
C29234	204.1	204.8	0.7	117	919.1	1.85	56.1	1
C29235	205.1	206.4	1.3	118	1407.8	1.46	21.2	5 1/2
C29236	207.1	209.9	2.8	119	3091.8	1.49	23.2	2 1/2
C29237	209.9	211.4	1.5	120	1785.5	1.50	24.6	5
C29238	212.0	213.3	1.3	121	1713.4	1.34	11.0	8
C29239	215.3	216.4	1.1	122	1184.6	1.82	53.8	1
C29240	216.9	217.4	0.5	123	591.8	2.27	77.0	0

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 07A

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C30789	459.7	460.3	0.6	222	475.0	1.66	42.1	4
C30790	460.5	463.5	3.0	223	3121.9	1.45	19.0	4
C30791	463.5	466.0	2.5	224	1920.0	1.48	23.3	1 1/2
C30792	466.0	467.2	1.2	225	1702.6	1.87	55.6	1
C30793	467.2	470.5	3.3	226	3829.5	1.43	17.0	2 1/2
C30794	471.0	473.8	2.8	227	2658.1	1.49	23.8	3 1/2
C30795	474.3	475.3	1.0	228	1524.6	1.75	45.7	1
C30796	477.0	478.0	1.0	229	1251.9	1.41	14.9	3
C30797	478.0	479.2	1.2	230	1294.7	1.47	19.5	4
C30798	480.5	481.9	1.4	231	2876.8	1.49	22.8	1 1/2
C30799	482.2	483.3	1.1	232	1131.4	1.37	11.7	7
C30800	483.5	485.0	1.5	233	1590.0	1.43	18.8	4

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 07A

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
A00001	485.1	488.7	3.6	9947	4458.0	1.43	20.9	1
A00002	489.2	491.8	2.6	9948	3067.1	1.42	17.5	1
A00003	492.0	494.8	2.8	9949	2801.5	1.41	16.1	1
A00004	495.0	495.9	0.9	9950	995.0	1.42	18.2	1
A00005	496.2	498.4	2.2	9951	2532.5	1.38	13.1	2 1/2
A00006	498.8	501.7	2.9	9952	3337.7	1.40	15.9	6 1/2
A00007	502.0	503.0	1.0	9953	946.8	1.35	11.3	8
A00008	503.0	503.6	0.6	9954	782.3	1.79	35.2	4 1/2

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 07A

SEAM NO: Parting and 4L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
A00009	504.3	508.8	4.5	9955	7940.0	2.39	83.8	0
A00010	508.8	510.7	1.9	9956	2186.6	1.74	45.9	1
A00011	510.7	511.9	1.2	9957	1482.8	1.42	15.6	1
A00012	512.0	515.2	3.2	9958	3484.2	1.47	20.8	1
A00013	515.7	517.2	1.5	9959	1720.0	1.49	23.6	6 1/2
A00014	517.6	519.8	2.2	9960	1473.5	1.62	35.1	1
A00015	521.0	522.1	1.1	9961	1576.1	2.20	74.6	1/2
A00016	522.1	525.7	3.6	9962	4276.0	1.55	28.8	3 1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 07A

SEAM NO: "D" HORIZON

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
A00017	570.0	571.3	1.3	9963	1396.0	1.67	39.2	1
A00018	572.0	572.7	0.7	9964	853.3	1.45	21.3	6
A00019	603.5	605.4	1.9	9965	2544.5	1.54	28.0	1
A00020	624.5	626.6	2.1	9966	2654.6	1.64	38.2	1 1/2
A00021	627.0	627.5	0.5	9967	787.5	1.69	43.0	4

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 07A

SEAM NO: 5U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
A00022	715.2	715.7	0.5	9968	752.6	2.22	75.7	1/2
A00023	716.0	716.7	0.7	9969	1350.4	2.52	88.1	0
A00024	716.7	717.2	0.5	9970	937.2	2.24	76.6	0
A00025	717.6	718.6	1.0	9971	1403.1	1.86	52.6	1
A00026	718.6	720.8	2.2	9972	2343.2	1.45	18.5	3 1/2
A00027	721.0	722.1	1.1	9973	1518.9	1.46	20.8	2
A00028	722.1	726.2	4.1	9974	5143.0	1.50	23.0	1 1/2
A00029	726.6	729.5	2.9	9975	3554.3	1.55	27.2	1 1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 07A

SEAM NO: 5L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
A00030	729.9	736.0	6.3	9976	9300.0	2.25	75.7	0
A00031	736.6	737.3	0.7	9977	1374.2	2.17	71.6	0
A00032	737.3	740.1	2.8	9978	5351.0	1.67	40.8	1 1/2
A00033	740.1	741.6	1.5	9979	2300.0	1.84	53.2	1
A00034	741.9	743.2	1.3	9980	1692.7	1.44	18.9	3 1/2
A00035	743.2	744.1	0.9	9981	1260.0	1.91	57.1	1
A00036	744.5	748.0	3.5	9982	3964.0	1.54	29.4	2
A00037	748.4	749.2	0.8	9983	1314.0	2.17	71.5	1/2
A00038	749.2	751.6	2.4	9984	2918.7	1.42	17.5	7
A00039	752.0	755.2	3.2	9985	3751.3	1.55	31.1	3 1/2
A00040	755.6	757.5	1.9	9986	2062.1	1.46	23.6	4 1/2

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-07A SEAM 2 192.9' - 213.3'

LAB. NO.: 339

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	76.9	38.0	2	76.9	38.0
28M x 100M	14.7	30.5	6 1/2	91.6	36.8
100M x 0	8.4	28.2	5 1/2	100.0	36.1
HEAD RAW		36.1			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	21.3	3.5	8 1/2	21.3	3.5	8 1/2	28.6	2.7	8 1/2	28.6	2.7	8 1/
1.30-1.35	9.0	6.1	6	30.3	4.3	8 1/2	17.6	4.8	8	46.2	3.5	8 1/
1.35-1.40	7.5	10.0	3 1/2	37.8	5.4	7 1/2	5.1	7.4	7	51.3	3.9	8 1/
1.40-1.45	4.9	15.4	2 1/2	42.7	6.6	7 1/2	3.7	10.3	6	55.0	4.3	8 1/
1.45-1.50	3.5	19.9	2	46.2	7.6	7	4.6	12.0	2 1/2	59.6	4.9	8 1/
1.50-1.60	5.4	26.6	1 1/2	51.6	9.6	5	5.6	18.4	2	65.2	6.1	8 1/
+ 1.60	48.4	68.4	N.A.	100.0	38.0	2	34.8	71.9	N.A.	100.0	29.0	6 1/

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						10% P.D.: 0.48lb/T 4:1=K:MIBC*: 1 min. cond. time 4 min. froth.
FROTH	79.7	18.6	6	79.7	18.6	
TAILS	20.3	64.1	1 1/2	100.0	27.8	
CLEANER						10% P.D.: 0.24lb/T 4:1=K:MIBC*: 1 min. cond. time 2 min. froth
FROTH	49.8	11.2	8	49.8	11.2	
TAILS	50.2	24.9	5	100.0	18.1	

*120 grams/metric ton

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-07A SEAM 4U 459.7' - 503.6'

LAB. NO.: 340

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	75.0	22.5	1 1/2	75.0	22.5
28M x 100M	13.6	17.2	3 1/2	88.6	21.7
100M x 0	11.4	15.3	5	100.0	21.0
HEAD RAW		21.0			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	17.2	2.5	7 1/2	17.2	2.5	7 1/2	22.1	1.3	8 1/2	22.1	1.3	8 1/2
1.30-1.35	21.9	5.0	1 1/2	39.1	3.9	4 1/2	33.1	4.8	5	55.2	3.4	7 1/2
1.35-1.40	15.7	9.4	1 1/2	54.8	5.5	3	9.4	7.0	1 1/2	64.6	3.9	6 1/2
1.40-1.45	7.9	14.8	1	62.7	6.7	3 1/2	7.0	10.8	1	71.6	4.6	6
1.45-1.50	5.6	20.0	1	68.3	7.7	2	4.4	15.6	1	76.0	5.2	5 1/2
1.50-1.60	6.4	23.5	1	74.7	9.1	1 1/2	5.0	21.6	1	81.0	6.2	4
+ 1.60	25.3	59.0	1/2	100.0	21.7	1 1/2	19.0	61.9	1/2	100.0	16.8	3 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	91.3	10.9	5 1/2	91.3	10.9	
TAILS	8.7	56.4	1/2	100.0	14.9	
CLEANER						
FROTH	62.9	6.7	6 1/2	62.9	6.7	
TAILS	37.1	17.2	3 1/2	100.0	10.6	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-07A, SEAM 4L 508.8' - 525.7'

LAB. NO.: 341

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	76.0	36.5	1	76.0	36.5
28M x 100M	14.5	24.3	3 1/2	90.5	34.5
100M x 0	9.5	19.0	4 1/2	100.0	33.1
HEAD RAW		33.1			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	9.4	3.2	8 1/2	9.4	3.2	8 1/2	26.3	2.6	9	26.3	2.6	9
1.30-1.35	10.1	5.2	3	19.5	4.2	7	16.9	5.4	3 1/2	43.2	3.7	8
1.35-1.40	12.6	8.5	1 1/2	32.1	5.9	4	8.9	8.4	1	52.1	4.5	7 1/
1.40-1.45	7.6	13.3	1	39.7	7.3	3	8.7	11.0	1	60.8	5.4	6 1/
1.45-1.50	5.5	18.8	1	45.2	8.7	2 1/2	5.0	16.1	1	65.8	6.2	6
1.50-1.60	8.2	26.5	1	53.4	11.5	2	5.7	23.8	1	71.5	7.6	5 1/
+ 1.60	46.6	63.9	1/2	100.0	35.9	1	28.5	63.2	1/2	100.0	23.5	3 1/

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	87.1	13.9	4 1/2	87.1	13.9	
TAILS	12.9	52.6	1 1/2	100.0	18.9	
CLEANER						
FROTH	81.4	9.4	5	81.4	9.4	
TAILS	18.6	30.0	1	100.0	13.3	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-07A, SEAM 5U 717.6' - 729.5'

LAB. NO.: 343

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	85.9	28.3	1 1/2	85.9	28.3
28M x 100M	9.4	18.7	4 1/2	95.3	27.4
100M x 0	4.7	17.9	4	100.0	26.9
HEAD RAW		26.9			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	3.6	2.9	9	3.6	2.9	9	23.5	2.6	8 1/2	23.5	2.6	8 1/2
1.30-1.35	10.5	5.9	6 1/2	14.1	5.1	7 1/2	14.1	5.9	7 1/2	37.6	3.8	8 1/2
1.35-1.40	17.1	9.5	1 1/2	31.2	7.5	4 1/2	13.4	9.2	1 1/2	51.0	5.2	8
1.40-1.45	13.6	14.3	1 1/2	44.8	9.6	3 1/2	8.4	12.7	1	59.4	6.3	7 1/2
1.45-1.50	10.5	19.5	1	55.3	11.5	3	7.4	16.7	1	66.8	7.5	7
1.50-1.60	10.8	26.8	1	66.1	14.0	2 1/2	11.6	22.3	1	78.4	9.6	6
+ 1.60	33.9	56.1	1/2	100.0	28.3	1 1/2	21.6	51.4	1/2	100.0	18.7	4 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	90.3	14.2	4 1/2	90.3	14.2	
TAILS	9.7	52.6	1/2	100.0	17.9	
CLEANER						
FROTH	61.3	9.1	7	61.3	9.1	
TAILS	38.7	22.2	1 1/2	100.0	14.2	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-07A, SEAM 5L 737.3' - 757.5'

LAB. NO.: 344

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	79.8	38.2	2	79.8	38.2
28M x 100M	14.0	24.9	5 1/2	93.8	36.2
100M x 0	6.2	20.7	4 1/2	100.0	35.3
HEAD RAW		35.3	4		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	3.0	3.4	9	3.0	3.4	9	19.5	3.2	8 1/2	19.5	3.2	8 1/2
1.30-1.35	9.3	6.6	7 1/2	12.3	5.8	8	9.5	5.5	8	29.0	4.0	8 1/2
1.35-1.40	11.3	10.8	6 1/2	23.6	8.2	7	11.8	8.2	7 1/2	40.8	5.2	8 1/2
1.40-1.45	8.6	15.1	3 1/2	32.2	10.0	6 1/2	10.9	11.0	5 1/2	51.7	6.4	8
1.45-1.50	6.1	19.8	2	38.3	11.6	6	7.4	14.5	2 1/2	59.1	7.4	7 1/2
1.50-1.60	7.2	25.6	1	45.5	14.0	5	9.7	21.0	1	68.8	9.3	6
+ 1.60	54.5	62.4	1/2	100.0	40.4	2	31.2	57.5	1/2	100.0	24.4	5 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	92.6	16.8	6 1/2	92.6	16.8	
TAILS	7.4	66.4	1/2	100.0	20.5	
CLEANER						
FROTH	62.5	10.1	8	62.5	10.1	
TAILS	37.5	28.0	3 1/2	100.0	16.8	

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 08

SEAM NO: 2

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29136	241.25	241.95	0.7	044	858.7	1.42	20.7	5
C29137	241.95	243.3	1.35	045	3115.0	2.49	87.9	5
C29138	244.0	247.0	3.0	046	3235.0	1.41	18.0	7
C29139	247.0	249.3	2.3	047	2830.0	1.66	42.5	2 1/2
C29140	249.6	251.5	1.9	048	3040.0	2.13	72.3	0
C29141	252.0	256.7	4.7	049	5065.0	1.38	14.5	5 1/2
C29142	257.0	260.5	3.5	050	4145.0	1.35	12.1	7 1/2
C29143	260.5	261.9	1.4	051	2250.0	2.08	69.3	1/2
C29144	261.9	263.1	1.2	052	1839.4	2.49	87.3	0
C29145	263.1	264.9	1.8	053	3060.0	2.20	75.7	0
C29146	265.1	266.1	1.0	054	1237.7	1.50	26.8	4 1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 08

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29147	510.3	513.75	3.45	055	4020.0	1.45	21.0	2 1/2
C29148	513.75	516.55	2.8	056	3100.0	1.45	20.4	3
C29149	516.9	518.2	1.3	057	1770.0	1.66	44.2	2 1/2
C29150	518.2	522.0	3.8	058	4950.0	1.43	18.6	1 1/2
C29151	522.0	523.9	1.9	059	1905.0	1.38	12.2	3
C29152	523.9	527.4	3.5	060	3840.0	1.46	21.5	2 1/2
C29153	527.5	531.2	3.7	061	3470.0	1.46	21.2	2
C29154	532.0	535.1	3.1	062	3320.0	1.47	21.2	4 1/2
C29155	535.1	538.8	3.7	063	4040.0	1.44	19.0	2 1/2
C29156	538.8	542.0	3.2	064	3550.0	1.45	17.9	1
C29157	542.0	543.9	1.9	065	1996.2	1.64	36.2	1
C29158	544.0	547.9	3.9	066	4417.4	1.49	22.8	1/2
C29159	548.0	551.8	3.8	067	3994.9	1.36	10.5	2 1/2
C29160	552.0	556.8	4.8	068	5047.5	1.43	18.4	3 1/2
C29161	557.0	558.7	1.7	069	2288.2	1.94	61.6	1

4.55

Birtley Engineering
Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 08

SEAM NO: Parting and 4L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29162	558.7	562.7	4.0	070	7500.0	2.33	82.8	0
C29163	562.7	566.3	3.6	071	1074.1	1.54	27.2	3 1/2
C29164	566.4	570.6	4.2	072	4485.8	1.52	24.0	2
C29165	571.2	575.4	4.2	073	5006.0	1.59	32.1	2 1/2
C29166	575.6	577.8	2.2	074	2760.8	1.74	45.7	1
C29167	579.8	581.0	1.2	075	1263.8	1.64	38.0	6
C29168	581.0	583.2	2.2	076	3253.0	2.40	81.3	0
C29169	583.2	585.1	1.9	077	2410.0	1.57	28.5	3
C29170	585.1	586.0	0.9	078	1071.0	1.61	31.9	1 1/2
C29171	586.0	587.1	1.1	079	1625.8	2.11	66.1	1/2
C29172	587.1	588.8	1.1	080	2429.0	1.87	56.4	1

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 08

SEAM NO: "D" HORIZON

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29173	682.0	682.8	0.8	081	1345.9	1.92	59.1	1
C29174	687.0	688.5	1.5	082	2043.2	1.59	31.9	1
C29175	696.6	698.6	2.0	083	3627.0	1.90	57.7	1

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 08

SEAM NO: 5U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29176	807.0	807.6	0.6	084	873.3	2.04	66.7	1/2
C29177	807.6	808.5	0.9	085	1941.5	2.50	87.1	0
C29178	808.5	809.5	1.0	086	3889.9	2.04	63.7	1/2
C29179	809.5	810.7	1.2	087	1447.1	1.96	57.9	1/2
C29180	810.9	812.1	1.2	088	1501.6	2.35	78.8	0
C29181	812.1	812.7	0.6	089	913.7	1.84	52.1	1
C29182	812.7	815.0	2.3	090	4371.9	2.46	83.2	0
C29183	815.0	816.9	1.9	091	2919.1	1.71	41.3	1 1/2
C29184	816.9	817.6	0.7	092	786.8	1.92	55.5	1
C29185	817.6	818.2	0.6	093	1167.1	2.24	72.4	1/2
C29186	818.2	820.6	2.4	094	2561.8	1.52	26.9	4 1/2
C29187	820.8	821.9	1.1	095	1674.5	1.79	48.4	1
C29188	821.9	822.6	0.7	096	841.9	2.11	65.4	1/2
C29189	822.6	824.4	1.8	097	2057.9	1.52	24.6	3
C29190	824.4	825.0	0.6	098	874.4	2.31	74.6	1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 08

SEAM NO: 5U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29191	825.4	827.3	1.9	099	4400.0	1.56	28.3	1
C29192	827.3	829.7	2.4	100	2010.0	1.46	20.1	3
C29193	829.8	833.9	4.1	101	4650.0	1.39	14.1	7 1/2
C29194	833.9	837.8	3.9	102	3940.0	1.40	14.9	6 1/2
C29195	837.8	842.0	4.2	103	4695.0	1.47	22.0	5
C29196	842.0	845.0	3.0	104	3700.0	1.50	25.2	4 1/2
C29197	845.0	846.4	1.4	105	1490.0	1.48	24.5	4 1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 08

SEAM NO: 5L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29198	851.8	856.5	4.7	106	5500.0	1.52	27.9	6
C29199	857.0	860.7	3.7	107	4340.0	1.52	27.5	4 1/2
C29200	860.8	861.0	0.2	108	242.6	1.52	28.5	4 1/2

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-08, SEAM 2 244' - 260.5'

LAB. NO.: 346

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	81.5	33.0		81.5	33.0
28M x 100M	14.6	20.1	7 1/2	96.1	31.0
100M x 0	3.9	18.9	7	100.0	30.6
HEAD RAW		30.6			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	27.9	3.0	8	27.9	3.0	8	35.8	2.2	8 1/2	35.8	2.2	8 1/2
1.30-1.35	11.4	6.8	7	39.3	4.1	8	20.3	4.4	8	56.1	3.0	8 1/2
1.35-1.40	8.7	11.5	4	48.0	5.4	8	8.8	9.4	6	64.9	3.9	8
1.40-1.45	5.9	16.4	2	53.9	6.6	7 1/2	4.6	13.2	3	69.5	4.5	8
1.45-1.50	3.9	20.9	1 1/2	57.8	7.6	7	3.1	17.6	2	72.6	5.0	8
1.50-1.60	5.0	27.0	1	62.8	9.1	7	4.5	23.5	1 1/2	77.1	6.1	8
+ 1.60	37.2	73.3	0	100.0	33.0	4 1/2	22.9	63.5	1/2	100.0	19.3	7 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	90.2	13.8	7 1/2	90.2	13.8	
TAILS	9.8	59.3	1 1/2	100.0	18.3	
CLEANER						
FROTH	59.3	8.0	8	59.3	8.0	
TAILS	40.7	20.3	5	100.0	13.0	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-08, SEAM 4U 510.3' - 556.8'

LAB. NO.: 347

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	74.8	23.1	1	74.8	23.1
28M x 100M	15.9	15.1	3 1/2	90.7	21.7
100M x 0	9.3	14.0	5	100.0	21.0
HEAD RAW		21.6	1 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	16.7	5.7	7 1/2	16.7	5.7	7 1/2	34.4	3.0	8	34.4	3.0	8
1.30-1.35	19.7	8.1	1 1/2	36.4	7.0	4	16.7	4.8	5	51.1	3.6	7 1/2
1.35-1.40	12.8	9.4	1	49.2	7.6	3	11.3	7.9	1	62.4	4.4	6 1/2
1.40-1.45	10.3	14.2	1	59.5	8.8	2 1/2	7.8	11.2	1	70.2	5.1	6
1.45-1.50	6.9	19.3	1	66.4	9.9	1 1/2	6.4	14.8	1	76.6	5.9	6
1.50-1.60	7.9	26.2	1	74.3	11.6	1 1/2	6.6	22.3	1	83.2	7.2	5 1/2
+ 1.60	25.7	57.3	1/2	100.0	23.3	1	16.8	51.3	1/2	100.0	14.6	3 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	94.9	11.3	5	94.9	11.3	
TAILS	5.1	52.2	1/2	100.0	13.4	
CLEANER						
FROTH	67.5	8.0	6	67.5	8.0	
TAILS	32.5	19.9	3	100.0	11.9	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-08, SEAM 4L 562.7' - 581'

LAB. NO.: 348

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	82.7	34.6	1 1/2	82.7	34.6
28M x 100M	12.7	25.5	4	95.4	33.4
100M x 0	4.6	22.9	5	100.0	32.9
HEAD RAW		32.9			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	16.2	3.0	8	16.2	3.0	8	26.7	2.3	9	26.7	2.3	9
1.30-1.35	7.9	6.7	6	24.1	4.2	7 1/2	12.0	6.0	7	38.7	3.4	8
1.35-1.40	8.1	10.3	2 1/2	32.2	5.7	7	9.8	9.2	1 1/2	48.5	4.6	8
1.40-1.45	7.1	15.7	1 1/2	39.3	7.5	6 1/2	7.8	12.5	1	56.3	5.7	7 1/2
1.45-1.50	6.3	21.1	1	45.6	9.4	5	6.1	17.2	1	62.4	6.8	7 1/2
1.50-1.60	8.5	27.7	1	54.1	12.3	4 1/2	6.2	25.7	1	68.6	8.5	7
+ 1.60	45.9	61.0	1/2	100.0	34.6	1 1/2	31.4	62.6	1/2	100.0	25.5	4

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	56.4	11.6	7	56.4	11.6	
TAILS	43.6	36.2	3	100.0	22.3	
CLEANER *						
FROTH						
TAILS						

* Not sufficient sample

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-08, SEAM 5U 825.4' - 846.4'

LAB. NO.: 351 & 351B (RECHECK)

LAB. NO.: 351 SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	65.1	25.1	---	65.1	25.1
28M x 100M	21.5	17.0	7	86.6	23.1
100M x 0	13.4	13.7	7 1/2	100.0	21.8
HEAD RAW		21.8			

SINK-FLOAT ANALYSES												
	LAB. NO.:351 1/4" x 28M						LAB. NO.:351B 28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	9.2	3.9	8 1/2	9.2	3.9	8½	13.1	2.3	9	13.1	2.3	9
1.30-1.35	17.9	7.3	7 1/2	27.1	6.1	8	21.8	6.2	8 1/2	34.9	4.7	8½
1.35-1.40	16.9	11.0	3	44.0	8.0	7½	15.5	10.2	7	50.4	6.4	8½
1.40-1.45	12.9	16.2	1 1/2	56.9	9.9	6	14.4	13.4	5	64.8	8.0	8
1.45-1.50	7.3	20.3	1	64.2	11.1	5½	11.2	19.0	3 1/2	76.0	9.6	8
1.50-1.60	6.3	26.7	1	70.5	12.5	5	9.4	22.9	1 1/2	85.4	11.1	7½
+ 1.60	29.5	55.4	1/2	100.0	25.1	2½	14.6	51.8	1 1/2	100.0	17.0	7

LAB. NO.: 351 FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	95.9	12.4	8	95.9	12.4	
TAILS	4.1	45.4	1 1/2	100.0	13.8	
CLEANER						
FROTH	80.4	10.1	8 1/2	80.4	10.1	
TAILS	19.6	21.5	5	100.0	12.3	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-08, SEAM 5L 851.8' - 861'

LAB. NO.: 353

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	84.9	29.4	4 1/2	84.9	29.4
28M x 100M	10.3	23.8	7 1/2	95.2	28.8
100M x 0	4.8	21.4	7	100.0	28.4
HEAD RAW		28.4			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	6.7	3.9	8 1/2	6.7	3.9	8 1/2	29.2	5.0	9	29.2	5.0	9
1.30-1.35	16.9	7.7	8	23.6	6.6	8 1/2	16.5	6.6	8 1/2	45.7	5.6	9
1.35-1.40	18.3	12.3	7	41.9	9.1	8	11.4	11.5	7 1/2	56.1	6.8	8 1/2
1.40-1.45	11.8	16.9	4	53.7	10.8	7 1/2	8.0	15.7	5 1/2	65.1	7.9	8 1/2
1.45-1.50	6.5	21.8	3 1/2	60.2	12.0	7	5.6	20.6	2 1/2	70.7	8.9	8 1/2
1.50-1.60	5.4	28.0	2	65.6	13.3	7	5.9	27.4	1 1/2	76.6	10.3	8
+ 1.60	34.4	60.2	1	100.0	29.4	5 1/2	23.4	64.6	1/2	100.0	23.0	7 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	90.3	17.1	7 1/2	90.3	17.1	
TAILS	9.7	58.1	1 1/2	100.0	21.1	
CLEANER						
FROTH	62.8	11.6	8 1/2	62.8	11.6	
TAILS	37.2	26.3	4 1/2	100.0	17.1	

Birtley Engineering

Subsidiary of Great West Steel Industries

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 09

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C30586	149.0	149.2	0.2	169	286.6	1.59	34.2	1
C30587	149.2	150.2	1.0	170	865.8	1.50	23.7	1 1/2
C30588	151.3	153.3	2.0	171	1928.6	1.45	21.9	3
C30589	153.3	156.9	3.6	172	2710.5	1.37	11.7	4
C30590	156.9	160.0	3.1	173	3234.8	1.42	16.3	1 1/2
C30591	160.3	162.9	2.6	174	1684.4	1.45	18.3	1
C30592	163.0	166.6	3.6	175	4169.0	1.53	26.1	4
C30593	166.8	170.2	3.4	176	4100.0	1.48	23.2	2 1/2
C30594	170.2	172.0	1.8	177	2556.0	1.46	22.3	2
C30595	172.0	173.7	1.7	178	1635.0	1.40	14.4	1
C30596	173.7	174.9	1.2	179	1398.8	1.61	34.1	1/2
C30597	175.3	179.3	4.0	180	4610.4	1.46	18.6	1
C30598	179.3	181.7	2.4	181	2665.9	1.57	28.8	1
C30599	182.0	186.0	4.0	182	4799.0	1.53	24.7	1
C30600	186.0	187.4	1.4	183	2307.6	2.06	68.4	4 1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 09

SEAM NO: Parting and 4L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C30751	187.4	188.1	0.7	184	1099.0	2.14	73.2	1/2
C30752	188.1	192.5	4.4	185	7556.0	2.46	86.3	0
C30753	192.5	193.6	1.1	186	1248.3	1.47	20.8	1 1/2
C30754	193.8	197.3	3.5	187	4140.5	1.53	26.4	1
C30755	197.8	201.6	3.8	188	4721.0	1.52	26.4	2
C30756	201.6	203.0	1.4	189	1272.5	1.37	11.3	4 1/2
C30757	204.3	208.8	4.5	190	5150.0	1.56	29.1	3
C30758	209.0	211.5	2.5	191	2799.1	1.54	28.3	3
C30759	211.5	215.6	4.1	192	4713.0	1.62	32.7	3 1/2
C30760	215.6	216.9	1.3	193	2739.1	2.14	72.9	0
C30761	216.9	218.7	1.8	194	2054.2	1.54	37.8	3
C30762	219.0	221.7	2.7	195	3294.8	1.64	37.8	2
C30763	222.0	225.3	3.5	196	4932.4	1.79	48.4	1
C30764	230.6	231.5	0.9	197	971.2	2.03	64.7	1/2
C30765	231.5	233.7	2.2	198	3705.9	2.08	66.9	1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 09

SEAM NO: 4L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C30766	233.7	236.0	2.3	199	2930.9	1.70	41.0	1
C30767	236.0	236.8	0.8	200	915.4	1.65	39.3	3 1/2
C30768	254.2	256.8	2.6	201	2955.3	1.45	20.1	3 1/2

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 09

SEAM NO: Parting and 5U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C30769	426.0	427.4	1.4	202	1735.8	1.73	43.2	1
C30770	427.6	431.3	3.7	203	3970.8	1.48	22.6	3 1/2
C30771	431.3	433.7	2.4	204	2055.7	1.61	33.8	1
C30772	434.0	436.7	2.7	205	2211.5	1.66	38.7	1
C30773	437.0	438.8	1.8	206	2045.2	1.73	42.6	1
C30774	438.8	440.4	1.6	207	3077.5	2.28	74.3	0
C30775	440.4	442.9	2.5	208	2433.6	1.56	28.7	1
C30776	443.2	445.6	2.4	209	2794.2	1.71	40.1	1 1/2
C30777	445.6	446.0	0.4	210	717.3	1.99	62.2	1
C30778	446.2	452.0	5.8	211	7564.0	2.23	73.2	1/2
C30779	452.0	454.5	2.5	212	3790.0	1.94	58.1	1

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 09

SEAM NO: 5L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C30780	454.5	455.4	0.9	213	1027.4	1.92	57.1	1
C30781	455.5	456.7	1.2	214	1550.0	1.89	56.3	1
C30782	456.7	458.9	2.2	215	2615.3	1.70	40.0	1
C30783	459.4	462.4	3.0	216	3834.0	1.65	37.6	4
C30784	462.5	464.5	2.0	217	1748.1	1.60	33.1	2
C30785	464.5	467.7	3.2	218	3806.5	2.06	64.9	1/2
C30786	467.7	469.6	1.9	219	1504.5	1.44	17.3	6 1/2
C30787	470.2	473.4	3.2	220	3186.4	1.51	25.7	4 1/2
C30788	473.7	475.1	1.4	221	1537.8	1.45	19.6	6

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-09, SEAM 4U 149' - 187.4'

LAB. NO.: 354

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	70.5	29.2	1	70.5	29.2
28M x 100M	14.9	17.6	2 1/2	85.4	27.2
100M x 0	14.6	14.8	3	100.0	25.4
HEAD RAW		25.4	1 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	10.1	2.9	7 1/2	10.1	2.9	7 1/2	20.3	1.7	8	20.3	1.7	8
1.30-1.35	19.0	5.8	1 1/2	29.1	4.8	3 1/2	34.4	5.6	2 1/2	54.7	4.2	5 1/2
1.35-1.40	13.6	9.1	1/2	42.7	6.2	2 1/2	7.2	7.8	1	61.9	4.6	4 1/2
1.40-1.45	6.9	14.8	1/2	49.6	7.4	2	7.2	10.0	1/2	69.1	5.1	3 1/2
1.45-1.50	3.8	19.4	1/2	53.4	8.2	1 1/2	5.0	13.3	1/2	74.1	5.7	3 1/2
1.50-1.60	5.5	24.3	1/2	58.9	9.7	1 1/2	5.0	20.3	1/2	79.1	6.6	2 1/2
+ 1.60	41.1	55.9	1/2	100.0	28.7	1	20.9	56.8	1/2	100.0	17.1	2 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	91.6	11.5	3	91.6	11.5	
TAILS	8.4	55.1	1/2	100.0	15.2	
CLEANER						
FROTH	69.6	7.4	4 1/2	69.6	7.4	
TAILS	30.4	19.2	2 1/2	100.0	11.0	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-09, SEAM 4L 192.5' - 225.5'

LAB. NO.: 355

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	77.2	36.8	1	77.2	36.8
28M x 100M	13.4	30.4	3	90.6	35.9
100M x 0	9.4	28.0	4 1/2	100.0	35.1
HEAD RAW		35.1	1 1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.
-1.30	9.1	3.3	8 1/2	9.1	3.3	8 1/2	19.7	2.5	9	19.7	2.5	9
1.30-1.35	11.4	6.2	6	20.5	4.9	7 1/2	12.8	6.2	8	32.5	4.0	8 1/2
1.35-1.40	9.0	10.7	1 1/2	29.5	6.7	6 1/2	9.9	9.6	2 1/2	42.4	5.3	8
1.40-1.45	6.8	12.5	1	36.3	7.8	5	8.3	13.2	1	50.7	6.6	7
1.45-1.50	5.3	21.5	1	41.6	9.5	4 1/2	5.6	18.8	1	56.3	7.8	7
1.50-1.60	8.8	27.8	1	50.4	12.7	3 1/2	6.5	25.5	1	62.8	9.6	7
+ 1.60	49.6	62.3	1/2	100.0	37.3	1	37.2	63.8	1/2	100.0	29.8	3

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	82.5	19.5	4 1/2	82.5	19.5	
TAILS	17.5	66.0	1/2	100.0	27.6	
CLEANER						
FROTH	58.5	11.9	7	58.5	11.9	
TAILS	41.5	30.4	2 1/2	100.0	19.6	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-09, SEAM 5U 426' - 445.6'

LAB. NO.: 356

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	85.6	42.8	1	85.6	42.8
28M x 100M	8.1	27.3	4	93.7	41.5
100M x 0	6.3	27.5	3 1/2	100.0	40.6
HEAD RAW		40.6			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	2.0	4.1	8 1/2	2.0	4.1	8 1/2	11.7	2.9	8 1/2	11.7	2.9	8 1/2
1.30-1.35	8.8	6.2	7	10.8	5.8	7 1/2	19.0	5.4	8 1/2	30.7	4.4	8 1/2
1.35-1.40	9.5	9.8	1 1/2	20.3	7.7	5 1/2	11.5	9.1	4 1/2	42.2	5.7	8
1.40-1.45	7.3	14.7	1	27.6	9.5	4 1/2	11.3	12.5	1	53.5	7.1	7 1/2
1.45-1.50	5.7	20.6	1	33.3	11.4	4	7.4	20.0	1	60.9	8.7	6 1/2
1.50-1.60	7.6	26.5	1	40.9	14.2	3	7.4	23.8	1/2	68.3	10.3	6 1/2
+ 1.60	59.1	65.3	1/2	100.0	44.4	1	31.7	62.1	1/2	100.0	26.8	4

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	77.7	19.4	4 1/2	77.7	19.4	
TAILS	22.3	55.8	1/2	100.0	27.5	
CLEANER						
FROTH	58.6	12.6	6 1/2	58.6	12.6	
TAILS	41.4	28.2	2	100.0	19.1	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-09, SEAM 5L 454.5' - 475.1'

LAB. NO.: 357

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	77.0	44.1	1	77.0	44.1
28M x 100M	13.1	27.8	6	90.1	41.7
100M x 0	9.9	23.3	7	100.0	39.9
HEAD RAW		39.9			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.
-1.30	1.9	3.3	9	1.9	3.3	9	8.8	3.8	9	8.8	3.8	9
1.30-1.35	5.3	8.1	8	7.2	6.8	8 1/2	25.7	8.6	8 1/2	34.5	7.4	8 1/2
1.35-1.40	11.4	11.5	6	18.6	9.7	7 1/2	13.5	11.9	7 1/2	48.0	8.6	8
1.40-1.45	8.7	16.3	4	27.3	11.8	6 1/2	8.7	17.0	5 1/2	56.7	9.9	8
1.45-1.50	5.9	20.4	2	33.2	13.3	6 1/2	5.2	19.1	4 1/2	61.9	10.7	8
1.50-1.60	9.1	29.7	1	42.3	16.8	5	6.8	24.8	2	68.7	12.1	7 1/2
+ 1.60	57.7	64.0	1/2	100.0	44.1	1	31.3	61.2	1/2	100.0	27.5	6

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	88.5	17.5	7 1/2	88.5	17.5	
TAILS	11.5	65.0	1/2	100.0	23.0	
CLEANER						
FROTH	76.1	11.9	8 1/2	76.1	11.9	
TAILS	23.9	36.2	2	100.0	17.7	

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 10

SEAM NO: 2

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29241	56.4	59.6	3.2	124	3591.4	1.89	45.7	0
C29242	61.0	62.35	1.35	125	1534.9	1.88	41.2	0

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 10

SEAM NO: 4U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C29243	248.6	249.3	0.7	126	1095.0	2.33	81.5	0
C29244	249.3	251.5	2.2	127	2034.6	1.41	15.4	7
C29245	252.0	253.5	1.5	128	1744.1	1.78	47.7	1
C29246	253.5	254.8	1.3	129	1615.2	2.08	68.2	1/2
C29247	254.8	256.6	1.8	130	1533.1	1.45	19.1	4
C29248	257.0	260.1	3.1	131	2876.8	1.44	18.5	4
C29249	260.3	262.8	2.5	132	2206.3	1.41	15.9	3 1/2
C29250	263.4	266.0	2.6	133	1556.9	1.50	24.4	1 1/2
C30551	266.2	267.3	1.1	134	1262.5	1.58	29.3	2
C30552	267.3	270.1	2.8	135	2855.1	1.53	24.9	1 1/2
C30553	270.5	273.25	2.75	136	1640.0	1.53	26.9	1 1/2
C30554	273.25	274.45	1.0	137	1188.2	1.57	31.9	3 1/2
C30555	275.25	276.9	1.65	138	1778.8	1.88	56.9	1
C30556	276.9	277.7	0.8	139	1747.9	2.30	79.6	0

30-55

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 10

SEAM NO: Parting and 4L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C30557	277.7	281.25	3.55	140	5975.0	2.68	94.4	0
C30558	281.25	282.1	0.85	141	1230.0	2.01	63.6	0
C30559	282.1	283.25	1.15	142	1053.6	1.50	24.3	1 1/2
C30560	284.25	285.95	1.70	143	1665.8	1.55	27.0	1 1/2
C30561	286.5	289.2	2.7	144	2774.8	1.64	36.6	1
C30562	290.0	292.0	2.0	145	2384.6	1.58	32.7	1 1/2
C30563	292.0	295.0	3.0	146	1444.6	1.55	30.2	2 1/2
C30564	295.0	296.9	1.7	147	3670.0	1.66	41.9	1 1/2
C30565	296.9	297.6	0.9	148	931.6	2.26	78.5	0
C30566	305.0	307.0	2.0	149	2132.3	1.55	30.3	3 1/2
C30567	307.0	309.4	2.4	150	4000.0	2.23	74.0	0
C30568	309.4	310.1	0.7	151	1068.2	1.82	51.3	1
C30569	310.3	311.8	1.5	152	2020.1	1.90	58.6	1

24.5

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 10

SEAM NO: Parting and 5U

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C30570	479.0	480.0	1.0	153	1095.5	1.42	15.8	2 1/2
C30571	480.0	481.5	1.5	154	2890.1	2.44	83.4	0
C30572	481.5	486.8	5.3	155	7428.0	2.11	69.5	0
C30573	486.8	487.5	0.7	156	1508.5	2.30	79.0	0
C30574	487.5	491.0	3.5	157	4340.0	1.62	33.4	1
C30575	491.9	494.4	2.5	158	2878.6	1.48	21.5	2 1/2
C30576	494.4	495.0	0.6	159	2270.0	2.24	73.5	0
C30577	495.2	497.0	1.8	160	2293.2	1.66	39.1	2 1/2
C30578	497.0	498.3	1.3	161	520.7	1.60	33.8	1 1/2
C30579	498.3	500.1	1.8	162	3257.3	2.47	84.0	0
C30580	500.2	501.7	1.5	163	2894.2	2.44	83.1	0

CLIENT: SAGE CREEK COAL LTD.

PROJECT: DRILL CORE SAMPLES

HOLE NO: 77D 10

SEAM NO: 5L

SAMPLE NO.	FOOTAGE FROM	FOOTAGE TO	THICKNESS	CS&MT LAB. NO.	WEIGHT	S.G.	ASH%	F.S.I.
C30581	502.2	506.2	4.0	164	5040.0	1.67	41.2	1
C30582	507.0	508.1	1.1	165	2000.0	2.22	74.5	1/2
C30583	508.8	510.8	2.0	166	2353.3	1.62	36.2	2 1/2
C30584	512.0	515.1	3.1	167	3253.5	1.52	28.0	4
C30585	515.1	515.8	0.7	168	1074.3	2.49	92.4	1/2

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-10, SEAM 4U 249.3' - 276.9'

LAB. NO.: 358

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	65.1	39.4	1	65.1	39.4
28M x 100M	17.9	20.8	3	83.0	35.4
100M x 0	17.0	16.3	4 1/2	100.0	32.1
HEAD RAW		32.1			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	12.9	4.0	7 1/2	12.9	4.0	7 1/2	24.1	2.6	8 1/2	24.1	2.6	8 1/2
1.30-1.35	7.3	6.3	3	20.2	4.8	6 1/2	15.7	4.7	6 1/2	39.8	3.4	8
1.35-1.40	11.3	9.7	1 1/2	31.5	6.6	7 1/2	12.2	7.3	1 1/2	52.0	4.3	7
1.40-1.45	7.3	13.9	1	38.8	8.0	3 1/2	11.3	10.6	1	63.3	5.5	6 1/2
1.45-1.50	4.4	18.3	1	43.2	9.0	2	6.0	15.5	1/2	69.3	6.3	5 1/2
1.50-1.60	8.7	28.0	1	51.9	12.2	1 1/2	6.6	20.6	1/2	75.9	7.6	4 1/2
+ 1.60	48.1	69.7	0	100.0	39.9	1	24.1	61.4	1/2	100.0	20.5	3

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	88.5	11.9	5 1/2	88.5	11.9	
TAILS	11.5	51.0	1 1/2	100.0	16.4	
CLEANER						
FROTH	55.4	8.1	6 1/2	55.4	8.1	
TAILS	44.6	17.0	4 1/2	100.0	12.1	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-10, SEAM 4L 282.1' - 296.7'

LAB. NO.: 359

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	76.7	36.1	1	76.7	36.1
28M x 100M	11.6	27.1	4	88.3	34.9
100M x 0	11.7	25.7	4 1/2	100.0	33.8
HEAD RAW		33.8			

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	9.4	2.7	8 1/2	9.4	2.7	8 1/2	16.8	2.6	9	16.8	2.6	9
1.30-1.35	11.8	6.0	3 1/2	21.2	4.5	7	18.7	4.2	8	35.5	3.4	8 1/2
1.35-1.40	10.6	10.7	1 1/2	31.8	6.6	5	9.3	8.3	3	44.8	4.5	8 1/2
1.40-1.45	7.5	16.2	1	39.3	8.4	4	8.4	13.3	1 1/2	53.2	5.8	8
1.45-1.50	6.1	21.7	1	45.4	10.2	3	5.5	18.7	1	58.7	7.1	7 1/2
1.50-1.60	8.4	28.3	1	53.8	13.0	2 1/2	6.6	25.9	1	65.3	9.0	7
+ 1.60	46.2	61.1	1/2	100.0	35.2	1	34.7	59.5	1/2	100.0	26.5	4

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	71.7	17.7	5	71.7	17.7	
TAILS	28.3	46.3	1 1/2	100.0	25.8	
CLEANER						
FROTH	45.7	10.7	7 1/2	45.7	10.7	
TAILS	54.3	23.1	3 1/2	100.0	17.4	

CLIENT: SAGE CREEK COAL

SAMPLE: COMPOSITE CORE FROM HOLE NO. 77D-10, SEAM 5U 487.5' - 498.3'

LAB. NO.: 360

SIZE & RAW ANALYSES					
				CUMULATIVE	
SIZE FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%
1/4" x 28Mesh	82.4	64.6	1/2	82.4	64.6
28M x 100M	9.5	41.7	1 1/2	91.9	62.2
100M x 0	8.1	35.0	3 1/2	100.0	60.0
HEAD RAW		60.0	1/2		

SINK-FLOAT ANALYSES												
	1/4" x 28M						28M x 100M					
				CUMULATIVE						CUMULATIVE		
FRACTION	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I.	WT.%	ASH%	F.S.I
-1.30	0.9	3.0	8 1/2	0.9	3.0	8 1/2	8.3	2.3	9	8.3	2.3	9
1.30-1.35	4.0	6.6	6 1/2	4.9	5.9	7	11.2	4.7	8 1/2	19.5	3.7	8 1/2
1.35-1.40	5.0	10.3	1 1/2	9.9	8.1	5	12.4	8.6	5	31.9	5.6	7 1/2
1.40-1.45	5.2	14.6	1	15.1	10.4	3	7.3	13.8	1 1/2	39.2	7.1	7 1/2
1.45-1.50	3.2	19.5	1	18.3	12.0	2 1/2	6.8	18.2	1	46.0	8.8	7
1.50-1.60	4.0	27.1	1	22.3	14.7	2 1/2	4.5	24.9	1	50.5	10.2	7
+ 1.60	77.7	78.3	N.A.	100.0	64.1	1/2	49.5	73.5	N.A.	100.0	41.5	1 1/2

FROTH FLOTATION : 100M x 0						
				CUMULATIVE		
PRODUCT	WT.%	ASH%	F.S.I.	WT.%	ASH%	REMARKS
ROUGHER						
FROTH	74.0	20.9	5	74.0	20.9	
TAILS	26.0	72.3	0	100.0	34.3	
CLEANER						
FROTH	57.8	12.3	7 1/2	57.8	12.3	
TAILS	42.2	32.9	1 1/2	100.0	21.0	

APPENDIX D

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 2

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	8 1/2	--	8 1/2	--	8.1/2	--			
	1.35	6.98 (7)	7	8.17 (8)	8 1/2					
77D 01	1.40	5.92 (6)	6 1/2	7.52(7 1/2)	8					
	1.45	5.36(5 1/2)	6	7.06 (7)	8					
	1.50	5.10(5)	6	6.80 (7)	8					
	1.60	4.69(4 1/2)	5	6.43(6 1/2)	8	5.23 (5)		5.57(5 1/2)	6 1/2	
	1.30	8 1/2	--	9	--			--		
	1.35	7.37 (7 1/2)	7 1/2	8.47(8 1/2)	8					
	1.40	6.47 (6 1/2)	7	7.57(7 1/2)	8					
	1.45	5.74(5 1/2)	6 1/2	7.06(7)	8					
	1.50	5.47 (5 1/2)	6	6.77 (7)	8					
77D 03	1.60	5.14 (5)	5 1/2	6.55 (6 1/2)	7 1/2	5.38(5 1/2)		5.48 (5 1/2)	5. 1/2	
	1.30	8	--	8	--	8				
77D 04	1.35	6.94 (7)	7 1/2	7.86 (8)	8					
	1.40	6.2 (6)	7	7.54(7 1/2)	7 1/2					
	1.45	5.62(5 1/2)	7	7.24 (7)	7 1/2					
	1.50	5.23 (5)	6	6.98 (7)	7					
	1.60	4.87 (5)	5 1/2	6.58(6 1/2)	6 1/2	5.47 (5 1/2)		6.10 (6)	6 1/2	

F.S.I. COMPARISON TABLE:WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 2

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	8	8	8 1/2						
	1.35	6.74(6 1/2)	7 1/2	8.05 (8)	8 1/2					
	1.40	6.00 (6)	7	7.54(7 1/2)	8					
77D 06 241.-251.3	1.45	5.74(5 1/2)	7	7.24 (7)	8					
	1.50	5.54(5 1/2)	6 1/2	7.07 (7)	8					
	1.60	5.30(5 1/2)	6	6.85 (7)	7 1/2	5.74 (5 1/2)		6.07 (6)	6	
	1.30	8	8	8 1/2	8 1/2					
	1.35	7.25 (7 1/2)	7 1/2	8.41(8 1/2)	8 1/2					
	1.40	6.47(6 1/2)	7 1/2	7.81 (8)	8 1/2					
77D 06 234.75-251.3	1.45	6.26(6 1/2)	7	7.52(7 1/2)	8					
	1.50	6.01 (6)	7	7.21 (7)	8					
	1.60	5.69 (5 1/2)	7	6.90 (7)	8	6.00 (6)		6.20 (6)	6 1/2	
	1.30	8 1/2	8 1/2	8 1/2	8 1/2					
	1.35	7.59 (7 1/2)	8	8.38(8 1/2)	8 1/2					
77D 07A 202-213.3	1.40	7.66 (7 1/2)	7 1/2	8.24 (8)	8 1/2					
	1.45	7.09 (7)	7 1/2	7.83 (8)	8					
	1.50	6.73 (6 1/2)	7	7.48(7 1/2)	8					
	1.60	6.38(6 1/2)	7	7.23 (7)	8	6.54(6 1/2)		6.70(6 1/2)		

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 2

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	8 1/2	8 1/2	8 1/2	8 1/2					
	1.35	7.76 (8)	8 1/2	8.31(8 1/2)	8 1/2					
	1.40	6.91 (7)	7 1/2	8.18 (8)	8 1/2					
77D 07A	1.45	6.41(61/2)	7 1/2	8.03 (8)	8 1/2					
192.9-213.3	1.50	6.07 (6)	7	7.61 (7 1/2)	8 1/2					
	1.60	5.59(5 1/2)	5	7.12 (7)	8 1/2	5.89 (6)		6.02 (6)	7	
	1.30	8	8	8 1/2	8 1/2					
	1.35	7.53(7 1/2)	8	8.08 (8)	8 1/2					
77D 08	1.40	6.81 (7)	7 1/2	7.56(7 1/2)	8					
252-260.5	1.45	6.39(61/2)	7	7.23 (7)	8					
	1.50	6.14 (6)	7	7.04 (7)	7 1/2					
	1.60	5.82 (6)	7	6.70(6 1/2)	7 1/2	5.98 (6)		6.11 (6)	7	
	1.30	8	8	8 1/2	8 1/2					
	1.35	7.71(7 1/2)	8	8.32 (8 1/2)	8 1/2					
77D 08	1.40	7.04 (7)	8	8.00 (8)	8					
244-260.5	1.45	6.49(6 1/2)	7 1/2	7.67(7 1/2)	8					
	1.50	6.15 (6)	7	7.43 (7 1/2)	8					
	1.60	5.74 (5 1/2)	7	7.08 (7)	8	5.98 (6)		6.05 (6)	7	

F.S.I. COMPARISON TABLE:WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 4U

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	7 1/2	7 1/2	8 1/2	8 1/2					
	1.35	5.51(5 1/2)	5	7.95 (8)	7 1/2					
77D 01	1.40	4.49(4 1/2)	4	7.03 (7)	6 1/2	4.88 (5)		4.97 (5)		
	1.45	3.97 (4)	3 1/2	6.43(61/2)	6 1/2	4.33(4 1/2)		4.44 (4 1/2)		
	1.50	3.74 (3 1/2)	3	6.06 (6)	5 1/2	4.07 (4)		4.19 (4)		
	1.60	3.51(3 1/2)	2 1/2	5.57(5 1/2)	4 1/2	3.81 (4)		3.94 (4)		
	1.30	6 1/2	6 1/2	8 1/2	8 1/2					
	1.35	4.51(4 1/2)	3	8.26(8 1/2)	8					
	1.40	3.69(3 1/2)	2 1/2	6.49(6 1/2)	6 1/2	4.43(4 1/2)		4.91 (5)		
77D 02	1.45	3.22 (3)	2	5.86 (6)	6	3.89 (4)		4.39 (4 1/2)		
	1.50	3.07 (3)	2	5.40(5 1/2)	5	3.67(3 1/2)		4.18 (4)		
	1.60	2.87 (3)	1 1/2	5.02 (5)	4	3.42 (3 1/2)		3.93 (4)	2 1/2	
	1.30	6 1/2	6 1/2	7 1/2	7 1/2					
77D 03	1.35	4.20 (4)	3 1/2	5.16 (5)	5 1/2					
	1.40	3.27(3 1/2)	2 1/2	4.51(4 1/2)	4 1/2	3.66(3 1/2)		3.62(3 1/2)		
	1.45	2.77 (3)	1 1/2	4.03 (4)	3 1/2	3.14 (3)		3.22 (3)		
	1.50	2.61(2 1/2)	1 1/2	3.73(3 1/2)	3	2.94 (3)		3.06 (3)		
	1.60	2.39(2 1/2)	1/2	3.45(3 1/2)	2 1/2	2.69(2 1/2)		2.85 (3)	1 1/2	

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE v'S. ANALYSED COMPOSITE

SEAM 4u

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	6 1/2	6 1/2	7 1/2	7 1/2					
	1.35	4.49(4 1/2)	4 1/2	5.92 (6)	6 1/2					
77D 04	1.40	3.57(3 1/2)	3	4.74(4 1/2)	5	3.95 (4)		4.11 (4)		
	1.45	3.24 (3)	2 1/2	4.40(4 1/2)	4	3.60(3 1/2		3.85 (4)		
	1.50	2.99 (3)	2	4.12 (4)	3 1/2	3.34(3 1/2)		3.63(3 1/2)		
	1.60	2.71(2 1/2)	1 1/2	3.89 (4)	3 1/2	3.05 (3)		3.38(3 1/2)	2 1/2	
	1.30	8 1/2	8 1/2	9	9					
	1.35	6.15 (6)	7	8.67(8 1/2)	8 1/2					
77D 05	1.40	5.03 (5)	6	7.34(7 1/2)	8 1/2	5.49(5 1/2)		5.59 (5 1/2)		
	1.45	4.40(4 1/2)	5 1/2	6.40(6 1/2)	8	4.79 (5)		4.91 (5)		
	1.50	4.14 (4)	5	6.07 (6)	7 1/2	4.51(4 1/2)		4.63(4 1/2)		
	1.60	3.78 (4)	4	5.75 (6)	7	4.14 (4)		4.26(4 1/2)	5	
	1.30	7	7	8	8					
	1.35	4.44(4 1/2)	5	6.34(6 1/2)	7 1/2					
77D 06	1.40	3.42(3 1/2)	3 1/2	5.26(5 1/2)	7	3.94 (4)		4.03 (4)		
	1.45	3.19 (3)	3	4.82 (5)	6	3.65(3 1/2		3.78 (4)		
	1.50	3.04 (3)	2 1/2	4.51(4 1/2)	5 1/2	3.46(3 1/2)		3.60(3 1/2)		
	1.60	2.86 (3)	2	4.19 (4)	4	3.24 (3)		3.40(3 1/2)	2 1/2	

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 4U

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	7 1/2	7 1/2	8 1/2	8 1/2					
	1.35	4.14 (4)	4 1/2	6.40 (6 1/2)	7 1/2					
	1.40	3.38(3 1/2)	3	5.69(5 1/2)	6 1/2	3.79 (4)		4.10 (4)		
	1.45	3.08 (3)	3 1/2	5.23 (5)	6	3.45(3 1/2)		3.76 (4)		
77D 07A	1.50	2.91 (3)	2	4.98 (5)	5 1/2	3.26 (3 1/2)		3.57(3 1/2)		
	1.60	2.75 (3)	1 1/2	4.74(4 1/2)	4	3.08 (3)		3.38(3 1/2)	2 1/2	
	1.30	7 1/2	7 1/2	8	8					
	1.35	4.25(4 1/2)	4	7.02 (7)	7 1/2					
77D 08	1.40	3.41(3 1/2)	3	5.93 (6)	6 1/2	3.94 (4)		4.18 (4)		
	1.45	2.99 (3)	2 1/2	5.38(5 1/2)	6	3.47(3 1/2)		3.71(3 1/2)		
	1.50	2.78 (3)	1 1/2	4.95 (5)	6	3.21 (3)		3.45(3 1/2)		
	1.60	2.59(2 1/2)	1 1/2	4.63(41/2)	5 1/2	2.98 (3)		3.22 (3)	2 1/2	
	1.30	7 1/2	7 1/2	8	8					
77D 09	1.35	3.58(3 1/2)	3 1/2	4.54(4 1/2)	5 1/2					
	1.40	2.60(2 1/2)	2 1/2	4.13(4)	4 1/2	2.96 (3)		3.25 (3 1/2)		
	1.45	2.31(2 1/2)	2	3.75 (4)	3 1/2	2.64(2 1/2)		2.96 (3)		
	1.50	2.18 (2)	1 1/2	3.53(3 1/2)	3 1/2	2.49(2 1/2)		2.81 (3)		
	1.60	2.02 (2)	1 1/2	3.34(3 1/2)	2 1/2	2.31(2 1/2)		2.64(2 1/2)	2	

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 4U

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	7 1/2	7 1/2	8 1/2	8 1/2					
	1.35	5.87 (6)	6 1/2	7.71(7 1/2)	8					
	1.40	4.30(4 1/2)	7 1/2	6.25(6 1/2)	7	4.9 (5)		5.26(5 1/2)		
77D 10	1.45	3.68(3 1/2)	3 1/2	5.32(5 1/2)	6 1/2	4.19 (4)		4.62 (4 1/2)		
	1.50	3.41(3 1/2)	2	4.90 (5)	5 1/2	3.87 (4)		4.32 (4 1/2)		
	1.60	3.01 (3)	1 1/2	4.52(4 1/2)	4 1/2	3.44(3 1/2)		3.90 (4)	2 1/2	
	1.30									
	1.35									
	1.40									
	1.45									
	1.50									
	1.60								SEAM 4U & 4L	
	1.30	8	8	8 1/2	8 1/2					
77D 08 510.3-586	1.35	4.56 (4 1/2)	5	7.33 (7 1/2)	7 1/2					
	1.40	3.63(3 1/2)	3 1/2	6.28(6 1/2)	7	4.21 (4)		4.38 (4 1/2)		
	1.45	3.22 (3)	3 1/2	5.63(5 1/2)	7	3.73(3 1/2)		3.92 (4)		
	1.50	2.99 (3)	3	5.21 (5)	6 1/2	3.45(31/2)		3.65(3 1/2)		
	1.60	2.66(2 1/2)	2 1/2	4.89 (5)	5 1/2	3.11 (3)		3.31(3 1/2)	2 1/2	

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE v'S. ANALYSED COMPOSITE

SEAM 4L

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	8 1/2	8 1/2	9	9					
	1.35	5.79 (6)	7 1/2	8.15 (8)	8 1/2					
77D 01	1.40	3.65(3 1/2)	4 1/2	6.27(6 1/2)	8	4.19 (4)		4.52 (4 1/2)		
	1.45	2.94 (3)	3	5.49(5 1/2)	7 1/2	3.40(3 1/2)		3.73 (3 1/2)		
	1.50	2.61(2 1/2)	1 1/2	5.16 (5)	7	3.04 (3)		3.35(3 1/2)		
	1.60	2.39 (2 1/2)	1 1/2	4.77 (5)	6	2.77 (3)		3.06 (3)		
	1.30				7 1/2					
	1.35				7					
77D 02	1.40				5 1/2					
	1.45				4 1/2					
	1.50				4					
	1.60				3					
	1.30	8 1/2	8 1/2	9	9					
	1.35	6.43(6 1/2)	7 1/2	8.28(8 1/2)	8					*NOTE 1/4"X 28M @15 & 28MX100M@1.6
77D 03	1.40	5.05 (5)	6 1/2	6.26(6 1/2)	7	5.37(5 1/2)		5.77 (6)		
	1.45	4.00 (4)	4 1/2	5.62 (5 1/2)	6 1/2	4.38(4 1/2)		4.85 (5)		
	1.50	3.55(3 1/2)	3 1/2	5.30(5 1/2)	6 1/2	3.93 (4) 3.88 (4)*		4.41(4 1/2) 4.36(4 1/2) *	4 *	
	1.60	3.07 (3)	2	4.98 (5)	6	3.44(3 1/2)		3.91 (4)		

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 4L

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	7 1/2	7 1/2	7 1/2	7 1/2					
	1.35	5.16 (5)	5 1/2	6.99 (7)	7 1/2					
77D 04	1.40	3.20 (3)	2 1/2	5.51(5 1/2)	6 1/2	4.20 (4)		4.89 (5)		
	1.45	2.67(2 1/2)	1 1/2	5.11 (5)	6 1/2	3.62(31/2)		4.42(4 1/2)		
	1.50	2.32(2 1/2)	1	4.69(4 1/2)	6	3.18 (3) 3.10 (3)*		4.01 (4) 3.93 (4)*		
	1.60	2.06 (2)	1	4.30(4 1/2)	4 1/2	2.83 (3)		3.65(3 1/2)	2	
	1.30	9	9	9	9					
	1.35	7.10 (7)	8	8.48 (8 1/2)	9					
77D 05	1.40	6.04 (6)	7	7.46(7 1/2)	8 1/2	6.34(6 1/2)		6.46 (6 1/2)		
	1.45	5.03 (5)	6 1/2	6.63(6 1/2)	8	5.34(5 1/2)		5.54(5 1/2)		
	1.50	4.61(4 1/2)	5 1/2	6.14 (6)	7 1/2	4.91 (5) 4.82 (5)*		5.12 (5) 5.04 (5)*		
	1.60	3.98 (4)	4 1/2	5.63(5 1/2)	7	4.28(4 1/2)		4.50 (5)	5	
	1.30	8 1/2	8 1/2	9	9					
	1.35	8.30(8 1/2)	8 1/2	8.59(8 1/2)	8 1/2					
77D 06	1.40	7.07 (7)	8	8.32(8 1/2)	8 1/2	7.47(7 1/2)		7.67(7 1/2)		
	1.45	6.23 (6)	7 1/2	7.69(7 1/2)	8 1/2	6.67(6 1/2)		6.98 (7)		
	1.50	5.63(5 1/2)	7	7.15 (7)	8 1/2	6.07 (6) 5.94 (6)*		6.44(6 1/2) 6.33(6 1/2)*	7 1/2 *	
	1.60	4.83 (5)	6	6.65(6 1/2)	8 1/2	5.32(51/2)		5.74(5 1/2)		

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 4L

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	8 1/2	8 1/2	9	9					
	1.35	5.65(5 1/2)	7	6.85 (7)	8					
	1.40	4.02 (4)	4	5.85 (6)	7 1/2	4.45(4 1/2)		4.55 (4 1/2)		
77D 07A	1.45	3.44(3 1/2)	3	5.16 (5)	6 1/2	3.83 (4)		4.00 (4)		
	1.50	3.15 (3)	2 1/2	4.84 (5)	6	3.52(3 1/2) 3.46(3 1/2)*		3.71(3 1/2) 3.67(3 1/2)*	3 1/2*	
	1.60	2.82 (3)	2	4.53(4 1/2)	5 1/2	3.17 (3)		3.38(3 1/2)		
	1.30	8	8	9	9					
	1.35	7.34(7 1/2)	7 1/2	8.38(8 1/2)	8					
77D 08 562.7-581	1.40	6.13 (6)	7	6.99 (7)	8	6.29(6 1/2)		6.34(6 1/2)		
	1.45	5.29(5 1/2)	6 1/2	6.16 (6)	7 1/2	5.45(5 1/2)		5.54(5 1/2)		
	1.50	4.70(4 1/2)	5	5.66(5 1/2)	7 1/2	4.87 (5) 4.80 (5)*		4.98 (5) 4.92 (5)*	6 *	
	1.60	4.12 (4)	4 1/2	5.23 (5)	7	4.30(4 1/2)		4.43 (4 1/2)		
	1.30	8	8	8 1/2	8 1/2					
77D 08 562.7-586.	1.35	6.79 (7)	7 1/2	8.17 (8)	8 1/2					
	1.40	5.63(5 1/2)	7	7.01 (7)	8	5.89 (6)		5.98 (6)		
	1.45	4.66(4 1/2)	5	5.95 (6)	7 1/2	4.89 (5)		5.00 (5)		
	1.50	4.13 (4)	5	5.41(5 1/2)	7 1/2	4.35(4 1/2) 4.28(4 1/2)*		4.46 (4 1/2) 4.40 (4 1/2)*	6*	
	1.60	3.59(3 1/2)	4 1/2	4.96 (5)	7 1/2	3.81 (4)		3.92 (4)		

F.S.I. COMPARISON TABLE:WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 4L

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	8 1/2	8 1/2	9	9					
	1.35	7.11 (7)	7 1/2	8.6(8 1/2)	8 1/2					
77D 09	1.40	5.40(5 1/2)	6 1/2	7.18 (7)	8	5.75 (6)		5.93 (6)		
	1.45	4.57(4 1/2)	5	6.17 (6)	7	4.91 (5)		5.15 (5)		
	1.50	4.12 (4)	4 1/2	5.65(5 1/2)	7	4.41(4 1/2) 4.34(4 1/2)*		4.68(4 1/2) 4.61(4 1/2)*	5*	
	1.60	3.57(3 1/2)	3 1/2	5.17 (5)	7	3.85 (4)		4.13 (4)		
	1.30	8 1/2	8 1/2	9	9					NOTE # 1/4"X28M@1.45 28MX100M@1.60
	1.35	5.72(5 1/2)	7	8.47(8 1/2)	8 1/2					
77D 10	1.40	4.31(4 1/2)	5	7.34(7 1/2)	8 1/2	4.84 (5)		5.15 (5)		
	1.45	3.68(3 1/2)	4	6.42(6 1/2)	8	4.15 (4) 4.03 (4)#		4.47(4 1/2) 4.35(4 1/2)#	4 1/2#	NOTE * 1/4"X28M@1.50 28MX100M@1.60
	1.50	3.32(3 1/2)	3	5.91 (6)	7 1/2	3.74(3 1/2) 3.69(3 1/2)*		4.06 (4) 4.01 (4)*		
	1.60	2.96 (3)	2 1/2	5.41(5 1/2)	7	3.34(3 1/2)		3.64(3 1/2)		
	1.30									
	1.35									
	1.40									
	1.45									
	1.50									
	1.60									

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 5U

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	8 1/2	8 1/2	9	9					
	1.35	7.02 (7)	7 1/2	8.67(8 1/2)	8 1/2					
77D 01	1.40	3.99 (4)	4	6.98 (7)	8	4.39(4 1/2)		4.48(4 1/2)		
	1.45	3.24 (3)	3 1/2	6.12 (6)	7 1/2	3.58(3 1/2)		3.70(3 1/2)		
	1.50	2.99 (3)	3	5.67(5 1/2)	6 1/2	3.52(3 1/2)# 3.30(3 1/2)		3.64(3 1/2)# 3.43(3 1/2)		
	1.60	2.74(2 1/2)	2 1/2	5.25 (5 1/2)	6	3.28(3 1/2)* 3.02 (3)		3.40(3 1/2)* 3.15 (3))	4 1/2*	
	1.30	7 1/2	7 1/2	8 1/2	8 1/2					
	1.35	5.55(5 1/2)	5 1/2	8.21 (8)	8					
77D 02 371.0-387.2	1.40	3.76 (4)	4	6.48(6 1/2)	7 1/2	4.65(4 1/2)		4.93 (5)		
	1.45	3.00 (3)	3	5.41(5 1/2)	7	3.74(3 1/2)		4.10 (4)		
	1.50	2.76 (3)	2 1/2	5.00 (5)	6	3.58(3 1/2)# 3.44(3 1/2)		3.94 (4)# 3.80 (4)		
	1.60	2.58(2 1/2)	2	4.66(4 1/2)	5 1/2	3.37(3 1/2)* 3.20(3)		3.73(3 1/2)* 3.56(3 1/2)		
	1.30	8	8	8 1/2	8 1/2					
	1.35	6.47(6 1/2)	7 1/2	7.68(7 1/2)	8					
	1.40	4.35(4 1/2)	5	6.55(6 1/2)	7 1/2					
77D 03	1.45	3.58(3 1/2)	4	5.78 (6)	7	4.06 (4)		4.52(4 1/2)		
	1.50	3.27(3 1/2)	3 1/2	5.34(5 1/2)	6 1/2	3.91 (4)# 3.71(3 1/2)		4.37(4 1/2)# 4.17 (4)		
	1.60	2.91 (3)	3	4.85 (5)	5 1/2	3.64(3 1/2)* 3.30(3 1/2)		4.10 (4) 3.74 (3 1/2)		

F.S.I. COMPARISON TABLE:WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 5U

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	8 1/2	8 1/2	8	8					
	1.35	6.13 (6)	7	7.60(7 1/2)	8					
77D 04	1.40	3.78 (4)	4 1/2	5.74(5 1/2)	7					
	1.45	3.16 (3)	4	5.10 (5)	6	3.43 (3 1/2) 3.37 (3 1/2)#		3.49 (3 1/2) 3.43 (3 1/2)#	4#	
	1.50	2.90 (3)	3	4.76 (5)	5 1/2	3.14 (3) 3.12 (3)*		3.22 (3) 3.19 (3)*		
	1.60	2.70(2 1/2)	3	4.46(4 1/2)	5	2.93 (3)		2.99 (3)		
	1.30	9	9	9	9					
77D 05	1.35	7.22 (7)	7 1/2	8.64(8 1/2)	9					
	1.40	4.09 (4)	4 1/2	7.76 (8)	8 1/2					
	1.45	2.77 (3)	2 1/2	6.90 (7)	8	3.49(3 1/2) 3.28(3 1/2)#		3.70(3 1/2) 3.48(3 1/2)#		
	1.50	2.46(2 1/2)	2	5.31(5 1/2)	7	3.01 (3) 2.97 (3)*		3.21 (3) 3.16 (3)*		
	1.60	2.18 (2)	1 1/2	4.85 (5)	6 1/2	2.66(2 1/2)		2.84 (3)		
	1.30	9	9	8 1/2	8 1/2					
	1.35	7.52(7 1/2)	7 1/2	8.02 (8)	8 1/2					
77D 06	1.40	3.89 (4)	4 1/2	5.82 (6)	8					
661.3-675.1	1.45	2.99 (3)	3	4.61(4 1/2)	7	3.19 (3) 3.13 (3)#		3.34(3 1/2) 3.26(3 1/2)#		
	1.50	2.62(2 1/2)	2 1/2	4.14 (4)	6 1/2	2.80 (3) 2.78 (3)*		2.94 (3) 2.92 (3)*		
	1.60	2.34(2 1/2)	1 1/2	3.85 (4)	5	2.51 (2 1/2)		2.64 (2 1/2)		

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 5U

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	8 1/2	8 1/2	8 1/2	8 1/2					
	1.35	7.43(7 1/2)	7 1/2	7.95 (8)	8					
	1.40	3.86 (4)	4. 1/2	6.73(6 1/2)	7 1/2					
77D 06 657.5-678.2	1.45	3.07 (3)	4	5.86 (6)	6 1/2	3.46(3 1/2) 3.39(3 1/2)#		3.70 (3 1/2) 3.63 (3 1/2)#		
	1.50	2.70(2 1/2)	3	5.43(5 1/2)	6	3.05 (3) 3.02 (3)*		3.28 (3 1/2) 3.25 (3 1/2)*		
	1.60	2.40(2 1/2)	2 1/2	5.02 (5)	5 1/2	2.71 (2 1/2)		2.92 (3)		
	1.30	9	9	8 1/2	8 1/2					
	1.35	7.14 (7)	7 1/2	8.13 (8)	8 1/2					
	1.40	4.05 (4)	4 1/2	6.38(6 1/2)	8					
77D 07A 717.6-729.5	1.45	3.27(3 1/2)	3 1/2	5.62(5 1/2)	7 1/2	3.57(3 1/2) 3.47(3 1/2)#		3.76 (4) 3.66 (3 1/2)#		
	1.50	2.84 (3)	3	5.11 (5)	7	3.11 (3) 3.06 (3)*		3.28(3 1/2) 3.24 (3)*		
	1.60	2.54(2 1/2)	2 1/2	4.50(4 1/2)	6	2.77 (3)		2.93 (3)		
	1.30	8 1/2	8 1/2	9	9					
	1.35	7.84 (8)	8	8.69(8 1/2)	8 1/2					
77D 08 825.4-846.4	1.40	5.98 (6)	7 1/2	8.17 (8)	8 1/2					
	1.45	4.96 (5)	6	7.46(7 1/2)	8	5.64(5 1/2) 5.38(5 1/2)#		6.12 (6) 5.87 (6)#		
	1.50	4.51(4 1/2)	5 1/2	6.88 (7)	8	5.18 (5) 5.03 (5)*		5.68(5 1/2) 5.54(5 1/2)*		
	1.60	4.20 (4)	5	6.23 (6)	7 1/2	4.78 (5)		5.30(5 1/2)		

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE v'S. ANALYSED COMPOSITE

SEAM 5U

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	8 1/2	8 1/2	9	9					
	1.35	7.81 (8)	8	8.57(8 1/2)	9					
	1.40	6.18 (6)	7	8.07 (8)	8					
77D 08	1.45	5.08 (5)	6	7.43(7 1/2)	8	5.74(5 1/2) 5.54(5 1/2)#		6.27(6 1/2) 6.07(6)#	7#	
815.-846.4	1.50	4.59(4 1/2)	5 1/2	6.96 (7)	7 1/2	5.29(5 1/2) 5.17 (5)*		5.85 (6) 5.74(5 1/2)*		
	1.60	4.12 (4)	4 1/2	6.41(6 1/2)	7 1/2	4.78 (5)		5.38(5 1/2)		
	1.30	8 1/2	8 1/2	8 1/2	8 1/2					
77D 09	1.35	7.28(7 1/2)	7 1/2	8.50(8 1/2)	8 1/2					
	1.40	4.57(4 1/2)	5 1/2	7.41(7 1/2)	8					
	1.45	3.63(3 1/2)	4 1/2	6.06 (6)	7 1/2	4.00 (4) 3.88 (4)#		4.24 (4) 4.12 (4)#		
	1.50	3.18 (3)	4	5.44(5 1/2)	6 1/2	3.51(3 1/2) 3.47(3 1/2)*		3.74(3 1/2) 3.70(3 1/2)*		
	1.60	2.77 (3)	3	4.96 (5)	6 1/2	3.07 (3)		3.30(3 1/2)		
	1.30	8	8 1/2	9	9					
	1.35	6.87 (7)	7	8.71(8 1/2)	8 1/2					
77D 10	1.40	3.92 (4)	5	7.27(7 1/2)	7 1/2					
	1.45	2.91 (3)	3	6.20 (6)	7 1/2	3.66 (3 1/2) 3.50(3 1/2)#		4.34(4 1/2) 4.17 (4)#		
	1.50	2.58(2 1/2)	2 1/2	5.43(5 1/2)	7	3.22 (3) 3.17 (3)*		3.87 (4) 3.81 (4)*		
	1.60	2.30(2 1/2)	2 1/2	5.03 (5)	7	2.87 (3)		3.47(3 1/2)		

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 5L

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
	1.30	9	9	9	9					
	1.35	8.71(8 1/2)	7 1/2	8.82 (9)	8 1/2					
	1.40	7.05 (7)	4	7.24 (7)	8					
77D 01	1.45	5.44(5 1/2)	3 1/2	6.48(6 1/2)	7 1/2	5.63(5 1/2)		5.76 (6)		
	1.50	4.93 (5)	3	5.70(5 1/2)	6 1/2	5.39(5 1/2)# 5.12 (5)		5.51(5 1/2)# 5.28(5 1/2)		
	1.60	4.52(4 1/2)	2 1/2	5.28(5 1/2)	6	5.02 (5)* 4.71(4 1/2		5.20 (5)* 4.92 (5)	5 1/2*	
	1.30	8	8	8	8					
	1.35	7,02 (7)	7	7.49(7 1/2)	7 1/2					
	1.40	5.63(5 1/2)	6	7.13 (7)	7					
77D 02	1.45	5.02 (5)	5 1/2	6.79 (7)	7	5.62(5 1/2)		6.23 (6)		
	1.50	4.68(4 1/2)	5	6.39(6 1/2	7	5.39(5 1/2# 5.24 (5)		6.03 (6)# 5.91 (6)		
	1.60	4.36(4 1/2)	4 1/2	6.00 (6)	6. 1/2	5.14 (5)* 4.90 (5)		5.81 (6)* 5.60(5 1/2)		
	1.30	8 1/2	8 1/2	9	9					
	1.35	7.63(7 1/2)	8	8.48(8 1/2)	8 1/2					
	1.40	6.45(6 1/2)	7	7.91 (8)	8 1/2					
77D 03	1.45	4.68(4 1/2)	6	6.97 (7)	8	5.56(5 1/2)		6.00 (6)		
	1.50	4.06 (4)	5	6.23 (6)	8	5.13 (5)# 4.86 (5)		5.62(5 1/2)# 5.39 (5 1/2)		
	1.60	3.32(3 1/2)	4	5.70(5 1/2)	7 1/2	4.71 (4 1/2)* 4.14 (4)		5.24 (5)* 4.72(4 1/2)		

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 5L

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
77D 04	1.30	9	9	8 1/2	8 1/2					
	1.35	7.34(7 1/2)	7 1/2	8.27(8 1/2)	8 1/2					
	1.40	5.55(5 1/2)	5 1/2	7.36(7 1/2)	8					
	1.45	4.51(4 1/2	5	6.48(6 1/2)	7 1/2	5.20 (5)		5.87 (6)		
	1.50	4.01 (4)	4	5.84 (6)	7	4.84 (5) # 4.64 (4 1/2)		5.57(5 1/2)# 5.39(5 1/2)		
	1.60	3.53(3 1/2)	3 1/2	5.33(5 1/2)	6 1/2	4.50(4 1/2)* 4.12 (4)		5.27(5 1/2)* 4.92 (5)		
77D 06	1.30	8 1/2	8 1/2	8 1/2	8 1/2					
	1.35	8.22 (8)	8 1/2	8.50(8 1/2)	8 1/2					
	1.40	6.50(6 1/2)	7	8.22 (8)	8 1/2					
	1.45	5.73 (5 1/2)	6 1/2	7.33(7 1/2)	8	6.21 (6)		6.54 (6 1/2)		
	1.50	4.59(4 1/2)	6	6.37(6 1/2)	7 1/2	5.77 (6)# 5.06 (5)		6.16 (6)# 5.51 (5 1/2)		
	1.60	3.93 (4)	5	5.86 (6)	7 1/2	4.95 (5)* 4.40(4 1/2)		5.40(5 1/2)* 4.87 (5)		
77D 07A	1.30	9	9	8 1/2	8 1/2					
	1.35	7.87 (8)	8	8.34(8 1/2)	8 1/2					
	1.40	7.21 (7)	7	8.09 (8)	8 1/2					
	1.45	6.22 (6)	6 1/2	7.55(7 1/2)	8	6.51(6 1/2)		6.66(6 1/2)		
	1.50	5.55(5 1/2)	6	6.92 (7)	7 1/2	6.18 (6)# 5.84 (6)		6.35(6 1/2)# 6.02 (6)		
	1.60	4.83 (5)	5	6.08 (6)	6	5.68(5 1/2)* 5.09 (5)		5.87 (6)* 5.30(5 1/2)		

F.S.I. COMPARISON TABLE: WEIGHTED AVERAGE COMPOSITE V'S. ANALYSED COMPOSITE

SEAM 5L

HOLE #		WT. AVERAGE 1/4"X28M"	ANALYSED 1/4"X 28M	WT. AVERAGE 28M X100M	ANALYSED 28M X 100M	WT. AVERAGE 1/4" X 100M	ANALYSED 1/4" X100M	WT. AVERAGE SINK FLOAT & FROTH FLOAT	ANALYSED SINK FLOAT & FROTH FLOAT	
77D 08	1.30	8 1/2	8 1/2	9	9					
	1.35	8.14 (8)	8 1/2	8.82 (9)	9					
	1.40	7.64(7 1/2)	8	8.71(8 1/2)	8 1/2					
	1.45	6.84 (7)	7 1/2	8.18 (8)	8 1/2	7.01 (7)		7.09 (7)		
	1.50	6.48(6 1/2)	7	7.73(7 1/2)	8 1/2	6.90 (7)# 6.64(6 1/2)		6.98 (7)# 6.72(6 1/2)	8#	
	1.60	6.11 (6)	7	7.25(7 1/2)	8	6.58(6 1/2)* 6.25(6 1/2)		6.67(6 1/2)* 6.34(6 1/2)		
77D 09	1.30	9	9	9	9					
	1.35	8.26(8 1/2)	8 1/2	8.63(8 1/2)	8 1/2					
	1.40	6.88 (7)	7 1/2	8.31(8 1/2)	8					
	1.45	5.96 (6)	6 1/2	7.88 (8)	8	6.46(6 1/2)		6.85 (7)		
	1.50	5.25(5 1/2)	6 1/2	7.60(7 1/2)	8	6.28(6 1/2)# 5.82 (6)		6.69(6 1/2)# 6.26(6 1/2)		
	1.60	4.34(4 1/2)	5	7.04 (7)	7 1/2	5.72(5 1/2)* 4.92 (5)		6.17 (6)* 5.42 (5 1/2)		
77D 10	1.30	8 1/2	8 1/2	9	9					
	1.35	7.47(7 1/2)	7 1/2	8.24 (8)	8 1/2					
	1.40	5.44(5 1/2)	6	7.55(7 1/2)	8					
	1.45	4.27(4 1/2)	5 1/2	6.92 (7)	7 1/2	5.42(5 1/2)		6.13 (6)		
	1.50	3.55(3 1/2)	4 1/2	6.38(6 1/2)	7	5.03 (5)# 4.69(4 1/2)		5.81 (6)# 5.53 (5 1/2)		
	1.60	2.88 (3)	3	5.80 (6)	5 1/2	4.53(4 1/2)* 3.93 (4)		5.38(5 1/2)* 4.83 (5)		