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ABERFORD RESOURCES LTD.

BONNET PLUME

1982 ENVIRONMENTAL PROGRAMMES

This report has been examined; declared acceptable as Representation Work under Section 32 and Sched 10 B of the Canada Mining Regulations and valued <sup>in part</sup> in the amount of \$127,320.52

for Chief, *J.H. Laine*

Date: *Feb. 14, 1983.*

Glenn Brown  
Environmental Affairs  
January, 1983

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## Introduction

In 1982 we worked on the four continuing environmental programmes described in the 1981 annual report: the caribou survey, weather station, stream hydrology measurement and water chemistry sampling projects. We also considered initiating studies of large mammals, limnology and precipitation acidity. By mid-summer Canadian economic conditions and hence project prospects had deteriorated, and our emphasis was refocused. The mammal and limnology programmes were cut during early budget revisions, and acidity studies focused upon pH of snow at the end of the season. We addressed the continuing programmes with the goal of bringing them to an organized completion. The work done, and the principle results, are outlined below, by project. The continuing evolution of government regulatory affairs is described in Section 2 of the Bonnet Plume Summary Report.

## Wildlife

The Yukon Territorial Government completed the caribou survey work begun in 1980 and is now completing its final report on the programme. We did not begin site specific studies on birds or mammals in the area, as planned in 1981, although the Wildlife Branch of the Department of Renewable Resources did indicate a willingness to cooperate, similarly as on the caribou program. Casual observations confirmed the summertime presence of swans, with young, on lakes of the property, and the October movement of sheep from the Illyd Range to the mountains northeast of the Wind River camp.

## Weather Station

The weather station continued to have mechanical and logistical problems, but nonetheless produced apparently sound data for much of the year. Early in 1982, the arrival of the data reader permitted us to examine the data collected on our cassetts. At that time inspection of

both chart records and casset print-outs showed two sets of problems: some data was apparently not being recorded correctly onto the chart, and other data, recorded correctly on the chart, was not being recorded correctly on the casset tape (located downstream from the chart recorder).

On the first visit thereafter, in May, the casset recorder was brought out for examination. Since the chart recorder had also broken down, it was brought out for repair, and the sensors were also brought back for testing. The sensors and chart recorder were re-installed in June by Rick Fader and Rod Weibe; the casset recorder was checked out by Applied Microsystems of Victoria, B.C. and re-installed in July by Rick Fader. In October the thermo-electric generator was discovered to have gone out because of a plugged fuel line. It was restarted, but about a month of data had not been recorded. In December the heater was not working but was relit and left running. Data had been recorded, however.

The casset tape has sufficient space to record from four to five months of data. Bi-monthly water sampling is no longer necessary, so the next visit is not scheduled until March or April of 1983. Since Aberford changed its computer system recently, the programme to convert our casset data into a printed output has been lost. A new programme cannot be written until the work load in the computer department has reduced somewhat. Visual inspection shows that data are still been recorded.

#### Stream Hydrology

We planned to re-install the water level recorder on Illyd Creek after ice break-up in 1982, to continue gathering stream flow data. The support structure had been completely destroyed by ice, however, and DIAND Water Survey staff were not available to build a new one. Therefore, that programme was not carried out.

### Water Chemistry

The sampling programme continued through the winter, summer and fall of 1982 but terminated before freeze-up, there being no reason for gathering another winter of data at this time. The sample locations and parameters analyzed for were the same as in 1981, except for the additional measurement of aluminum. The program is described in more detail in Environmental Report 4, in the Bonnet Plume file.

### Precipitation Acidity

As a first step in determining the acidity of predevelopment precipitation, we determined the pH of snow at the end of winter - the time of most significant acidity build-up. Simple measurements of melted snow (Report 4) showed a pH of about 5.5. This is a normal value, and suggests no unusual acidity in the snowfall of the area.

### Limnology

Early in 1982 we planned a limnology study of the lakes near the proposed thermal plant. Consultants were interviewed and Jack Taylor of LGL in Sidney, B.C. was selected for the study, with Lynda Corkum of RLL in Edmonton considered as an alternate. Restricted funding prevented the study from being completed.

### Programmes for 1983

The only programme that is still underway is the maintenance of the weather station. Since it seems to be operating well now, it appears efficient to continue to collect data as long as this can be done without major additional expenditures. The system will probably operate until the end of the summer using the propane that is now on site.

Cost of Environmental Programmes

The table below summarizes the environmental costs for 1982, as compiled for the assessment submission for Bonnet Plume exploration licences 129 and 132-154. The total \$127,320.52 is substantially higher than that submitted for 1981. This difference reflects the inclusion of staff costs, a more detailed water survey and a more careful compilation of minor expenditures.

BONNET PLUME PROPERTY: 1982 ENVIRONMENTAL EXPENDITURES

Support for In-House Studies:

Water Chemistry Analysis (Chemex) .....	\$ 24,091.60
Weather Station Repair (Western Research) .....	1,572.50
Weather Station Repair (Precision Airborne) .....	67.50
Weather Station Repair (Applied Microsystems) .....	325.00
Anemometer Purchase (Hemisphere Systems) .....	244.50
Psychrometer Purchase (Can-Tech) .....	59.55
Propane (Western Research) .....	1,457.05
Helicopter Fuel (White Pass Petroleum) .....	2,159.20
Propane and Tank Rental (ICG Canadian Propane) .....	744.58
Propane and Tank Fill (Tintina Expediting) .....	738.80
Nitrogen Tank Rental (Northern Metallic Sales) .....	92.78
TOTAL .....	<u>\$ 31,553.06</u>

Staff Time:

R. B. Bauman	\$200. x 15 days .....	\$ 3,000.00
G. R. Brown	\$200. x 71 days .....	14,200.00
R. R. Fader	\$150. x 20 days .....	3,000.00
G. T. Richmond	\$175. x 4 days .....	700.00
W. J. Stephen	\$225. x 5 days .....	1,125.00
R. K. Wiebe	\$150. x 5 days .....	750.00
TOTAL .....		<u>\$ 22,775.00</u>

Transportation & Travel:

Otter Transportation - JP-4 & Propane (Air North Charter and Training) .....	\$ 6,380.25
Helicopter Charter (Keystone Helicopters) .....	12,231.16
Helicopter Charter (Trans North Turbo Air) .....	26,629.87
Commercial Aircraft (C.P. Air, TNTA & Pacific Western) .....	6,270.00
Hotel Accommodations (T & M, Sheffield, Chateau Mayo) .....	1,216.00
Vehicle Rental (Tilden & Avis) .....	2,035.91
Groceries (Danny's Dept. Store) .....	124.44
Freight (C.P. Air Cargo) .....	150.00
Meals, Supplies & Other Miscellaneous Expenses .....	2,595.44
TOTAL .....	<u>\$ 57,633.07</u>

Contracted Studies:

Helicopter Time (in lieu of cash for Caribou Study by Yukon Wildlife Branch) .....	\$ 6,663.64
Caribou Study (Yukon Wildlife Branch) .....	8,690.75
TOTAL .....	<u>\$ 15,359.39</u>

TOTAL EXPENDITURES .....

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\$127,320.52