

## MONTH END REPORT - ENVIRONMENT - AUGUST, 1988

## FARO

Plans for the raising of the Intermediate Dam were presented to the Water Board and to the government agencies. The plans were presented in the context of abandonment and concerns expressed by the agencies about spillway capacity were dealt with. Approval for the project was received in time to start construction on schedule.

A schedule for research and monitoring associated with the Faro Mine Abandonment Plan was prepared and submitted to the Water Board. This schedule was approved by the Board and will be incorporated into the Water Licence.

The second part of the Rose Creek fisheries study, scheduled for this month, has been postponed until next summer due to exceptionally high water levels. Agencies concerned with this have been informed.

The first part of the benthic invertebrate/stream water quality monitoring study in Rose and Anvil Creeks, a requirement of the Water Licence, was completed. The remainder of this work will be carried out in September.

## VANGORDA

Little progress was made on the Initial Environmental Evaluation due to other commitments. This will be top priority for September.

Benthic invertebrate monitoring was initiated in lower Vangorda Creek to provide background data for longterm assessment of impact on the fish habitat.

## DY

Background water quality and benthic invertebrate monitoring was initiated on Blind Creek.

## SKAGWAY

A preliminary assessment was made of the environmental impact of the ore terminal and of the potential for problems resulting from dust during ship loading and deposition of concentrate on the ground in the terminal area. A study program was initiated to assess the situation. Site visits were made during two ship loading periods. Further site visits and meetings with U.S. government officials will be required during September, as the site is currently under investigation by the U.S. Environmental Protection Agency.

MONTH END REPORT - ENVIRONMENT - JULY, 1988

FARO

Most of the month was occupied with matters associated with the Water Board hearing (July 20 and 21). The hearing dealt with the Faro Pit abandonment plan and associated research and monitoring, with the plan for stabilization of the tailings facilities in case of a temporary shutdown and with the Trusteed Environmental Fund. These plans were required to be submitted to the Board as an outcome of the March, 1987 hearing.

Preparation of plans for the raising of the Intermediate Dam for submission to the Water Board was initiated.

VANGORDA

The Vangorda and Grum dump plans were reviewed inhouse and by Andy Robertson (SRK). Site plans and dump plans were drafted for submission as part of the Initial Environmental Evaluation.

The first draft of "A Management Plan for Sheep Mountain near Faro and its Fannin sheep population " was completed. This plan is being coauthored by Curragh Resources and the Department of Renewable Resources, YTG, and contains descriptions of the monitoring and mitigation measures related to the Vangorda Plateau development, as well as proposals for measures the YTG intends to take to conserve this sheep population.

June / 88

ENVIRONMENT

FARO

-The spring field work for the Rose Creek fisheries study was completed. The study indicated that there are healthy resident populations of Arctic grayling in the upper reaches of the North and South Forks of Rose Creek. The implications of this are:

1. The habitat lost by construction of the Haul Road Causeway is limited to the stretch of grayling spawning habitat immediately upstream of the Causeway--Curragh will not be required to compensate for loss of the entire North Fork.

2. The Haul Road crossing of the South Fork of Rose Creek will not have to be constructed to allow for fish passage, as was called for in the original design. This change in the Haul Road design has been approved by Fisheries.

VANGORDA

-Water sampling and groundwater level readings were done for the Vangorda Plateau area and lower Blind Creek.

-A meeting regarding the sheep project was held in Faro with representatives of Renewable Resources. They are satisfied with progress to date. A management plan for the sheep population is being prepared jointly by the YTG and Curragh.

-A waste rock characterization program was designed for Vangorda-Grum waste. This program involves further testing of acid generation potential, including column leach tests, slake and freeze-thaw tests and is necessary because initial testing indicated that most of the Vangorda rock has the potential to produce acid. The program was passed to two Vancouver labs for bids and, once the estimates are in, a decision will be made about how much of the program to do inhouse and how much to send to a commercial lab.

MONTHLY REPORT  
FEBRUARY, 1988

1. SUMMARY OF HIGHLIGHTS AND COSTS FOR FEBRUARY

1.2 ENVIRONMENTAL AFFAIRS

High cyanide levels in the effluent continued throughout the month but reductions in cyanide addition in the mill appear to have reduced the input to the tailings and improvement is expected next month. A two-year cost-sharing agreement was reached with the Yukon Territorial Government for the Vangorda sheep study. Work continued on several aspects of the Vangorda Plateau Development. The 1987 Annual Report to the Water Board was prepared for submission on March 1. Preparation of Faro abandonment submissions continued.

2.0 STATUS OF LAST MONTH'S OBJECTIVES

2.2 ENVIRONMENTAL AFFAIRS

Time spent on the cyanide problem and the Annual Report slowed down progress on the Vangorda Initial Environmental Evaluation. The first draft should be completed by mid-March.

3.0 HIGHLIGHTS AND COSTS FOR FEBRUARY

3.2 ENVIRONMENTAL AFFAIRS

3.2.1 General

A brief review of the Skagway port facility was conducted in anticipation of an inspection tour by the U.S. Environmental Protection Agency. General cleanup measures and a pond collection system for water contaminated in the maintenance area were recommended. The extent of dust problems created during loading both in Skagway and at the mine could be assessed in the summer by a simple dustfall study using Curragh personnel.

Curragh began participation in the Yukon Conservation Strategy Development Public Working Group. This is a forum for input into development of government policies related to renewable and non-renewable resources.

3.2.2 Vangorda Plateau Development

A cost-sharing agreement was reached with the Yukon Government for the sheep study. The project will be managed jointly by Curragh and the government and costs will be split on a 50:50 basis over the next two years.

A study assessing the potential for contamination of the Faro water supply was completed. The study concluded that the Faro water

Preliminary design of the Vangorda water treatment system will be completed by mid-March. The system will use lime to reduce the high levels of zinc and ammonia anticipated in the pit water.

Work continued on development of abandonment plans and the Initial Environmental Evaluation. Samples were collected for further testing on acid generating potential of the waste rock.

### 3.2.3 Faro Mine

High cyanide levels in the effluent continued all month, necessitating frequent meetings and reports to the government agencies and the Water Board. Sampling frequency was increased to daily and bench scale testing was carried out to develop an emergency treatment system. By the end of the month, cyanide levels at the top of the impoundment had dropped, but the effluent levels were still high. The government agencies are not contemplating legal action at this point.

Planning for the Water Board public hearing dealing with the Faro abandonment plans began with a meeting with the lawyer in Faro. The hearing will be in late April or May.

The 1987 Annual Report to the Water Board was prepared for submission on March 1.

## 4.0 OBJECTIVES FOR MARCH

### 4.2 ENVIRONMENTAL AFFAIRS

- Complete the Vangorda Initial Environmental Evaluation.
- Review the Faro abandonment plans being prepared by consultants and by Faro personnel and submit these along with the application for amendments to the Faro water licence.

MONTHLY REPORT  
JANUARY, 1988

1. SUMMARY OF HIGHLIGHTS AND COSTS FOR JANUARY

1.2 ENVIRONMENTAL AFFAIRS

Approval was granted by the Water Board for the development of the Zone 2 waste dump. Cyanide levels in the tailings went up sharply in the middle of January and cyanide in the final effluent continued to rise. Meetings were held in Vancouver with federal Environmental Protection regarding Faro Pit and Vangorda abandonment and with Fisheries regarding the North Fork and Rose Creek fisheries studies. Work continued on development of plans and impact assessment for Vangorda.

2.0 STATUS OF LAST MONTH'S OBJECTIVES

2.2 ENVIRONMENTAL AFFAIRS

Last month's objectives were met with the exception of the submission of the progress report for the tailings abandonment project. This report has not yet been received in Whitehorse for review.

3.0 HIGHLIGHTS AND COSTS FOR JANUARY

3.2 ENVIRONMENTAL AFFAIRS

3.2.1 Vangorda Plateau Development

Work continued on the following aspects of development of plans and impact assessment for Vangorda: 1)abandonment plans 2)Vangorda Creek hydrology and diversion design 3)assessment of the potential for contamination of the town water supply 4)design of a water treatment system for pit water 5)compilation of background data 6)design of the 1988 sheep study. A meeting was held in Vancouver with the federal Environmental Protection Service to discuss the Vangorda abandonment plan. The strong potential for acid generation of the Vangorda waste dump was a main item of concern.

3.2.2 Faro Mine

Very high levels of cyanide were detected in the tailings in the latter half of the month and levels in the effluent from the tailings system were well above the effluent standard. Plans for 1988 fisheries studies in the North Fork and Rose Creek were developed and discussed with federal Fisheries in New Westminster.

3.2.3 Zone 2

Approval was received from the Water Board to develop the Zone 2 waste dump.

4.0 OBJECTIVES FOR FEBRUARY

4.2 ENVIRONMENTAL AFFAIRS

-Complete the first draft of the Vangorda Initial Environmental Evaluation.

-Attempt to resolve the cyanide problem.

MONTHLY REPORT  
DECEMBER, 1987

1. SUMMARY OF HIGHLIGHTS AND COSTS FOR DECEMBER

1.2 ENVIRONMENTAL AFFAIRS

Plans for the development of the Zone 2 waste dump were submitted in early December and an information meeting was held December 17 with government representatives. Cyanide levels were again in excess of licence limits and steps were taken to resolve this problem. Work continued on plans for the Vangorda Plateau development.

2.0 STATUS OF LAST MONTH'S OBJECTIVES

2.2 ENVIRONMENTAL AFFAIRS

Objectives were met, with the exception of the submission of the progress report on the tailings abandonment project. This report will be submitted to the Water Board in January.

3.0 HIGHLIGHTS AND COSTS FOR DECEMBER

3.2 ENVIRONMENTAL AFFAIRS

3.2.1 Vangorda Plateau Development

Research related to the Vangorda Creek diversion, the chemical stability of the waste dumps and Vangorda background water quality was carried out.

A meeting was held with Renewable Resources (Yukon government) to discuss plans for monitoring and mitigating effects of the Vangorda Plateau development on mountain sheep.

3.2.2 Faro Mine

Cyanide levels in the tailings effluent were above licence standards for part of the month. A program to control cyanide addition in the mill and research emergency treatment in case of spills was instituted. A meeting was held with government agencies--analytical methods, fluctuations in cyanide levels and control methods were discussed.

3.2.3 Zone 2 and Abandonment

The report on the development of the Zone 2 waste dump was submitted to the Water Board and an information meeting was held in the Whitehorse office, attended by representatives from the Water Board, Northern Affairs and Environment Canada. A decision on this matter is expected in late January.

3.3.4 Tailings Abandonment Project

The progress report on the project was completed and will be submitted in January to the Water Board.

#### 4.0 OBJECTIVES FOR JANUARY

#### 4.2 ENVIRONMENTAL AFFAIRS

- Submit the progress report for the tailings abandonment project to the Water Board.
- Work on Vangorda-Grum plans and reports.
- Collect information and prepare data tables for the Annual Report to the Water Board.
- Develop plans for 1988 field studies.

MONTHLY REPORT  
NOVEMBER, 1987

1. SUMMARY OF HIGHLIGHTS AND COSTS FOR NOVEMBER

1.2 ENVIRONMENTAL AFFAIRS

Most of the month was spent preparing plans for the development of the Zone 2 waste dump. As this development has the potential to affect abandonment, its relation to the Faro pit abandonment plan was addressed. The plans will be submitted to the Water Board in early December. Computerized data bases were prepared for water quality data for both the Vangorda and Rose Creek watersheds. Tailings placement to the test pits for the tailings abandonment project was completed; problems were encountered with leakage of tailings into the tanks.

2.0 STATUS OF LAST MONTH'S OBJECTIVES

2.2 ENVIRONMENTAL AFFAIRS

The objectives for November were met.

3.0 HIGHLIGHTS AND COSTS FOR ~~OCTOBER~~ NOVEMBER

3.2 ENVIRONMENTAL AFFAIRS

3.2.1 Vangorda Plateau Development

Preliminary reports were received from the fisheries and wildlife consultants regarding the Vangorda fisheries assessment and the sheep study. A letter approving the 1987 program on the Plateau was received from the Regional Environmental Review Committee.

Water quality monitoring to assess the effects of the 1987 program continued through November. The results indicated that there was minimal environmental impact during Doal Lake drainage. Monitoring will resume in the early spring.

Background water quality data for the Vangorda watershed was entered onto a data base. This information will be used for the environmental evaluation and for the water licence application.

3.2.2 Faro Mine

Cyanide levels were lower this month. Split sampling indicated that the analytical results are very unreliable. Tests on potential treatment methods have not yet been completed.

A system to monitor the stability of dams and the Rose Creek diversion channel has been instituted.

A meeting was held with the Water Resources Division of Northern Affairs to review the water licence and discuss items that Curragh has not yet

complied with. Some of the concerns have been resolved; others will be dealt with in the 1987 annual report or in applications for amendments to the licence. The development of abandonment plans remains the primary concern of the government agencies.

Water quality data was entered onto a data base and data entry and retrieval procedures were developed to allow better access to water quality information. This was necessary in order to evaluate the monitoring system and to produce data summaries for the annual report to the Water Board.

### 3.2.3 Zone 2 and Abandonment

The submission on the Zone 2 waste dump development was completed in draft form. It will be submitted to the Water Board in early December. Because of the tie-in of this issue to abandonment, the submission contains proposals for abandonment measures. A meeting will be held in December with government agencies to discuss the Zone 2 submission.

Research for the Faro Pit abandonment plan was carried out this month in conjunction with the development of the Zone 2 plan.

### 3.3.4 Tailings Abandonment Project

By the beginning of November, tailings placement into the six test pits was complete. Substantial window seal leakage during the fill period resulted in tailings fines being deposited inside the solids from the tanks and attempts were made to slurry and pump the solids from the tanks. These pumping events were not successful due to the cold weather, unsuitable pumps and the lack of a fresh water supply. Four labourers were retained from November 5 to 14 for the purpose of manually mucking out the tanks. Work remaining to be done on the test facility is scheduled for the late spring period of 1988.

Work on the progress report for the tailings project began. This report is due to the Water Board in December.

## 4.0 OBJECTIVES FOR DECEMBER

### 4.2 ENVIRONMENTAL AFFAIRS

- Submit the Zone 2 waste dump development plan and proceed with any follow-up necessary as top priority until approval has been received.
- Continue with the Vangorda environmental evaluation, focussing on development of a water treatment system for pit water.
- Submit the progress report for the tailings abandonment project to the Water Board.

MONTHLY REPORT  
OCTOBER, 1987

1.0 SUMMARY OF HIGHLIGHTS AND COSTS FOR OCTOBER

1.2 ENVIRONMENTAL AFFAIRS

Approval was received from the Regional Environmental Review Committee for the 1987 work on the Vangorda Plateau. Cyanide levels in the final effluent slightly exceeded Water Licence standards this month and water pumped to Faro Creek as part of the pit dewatering was found to have unacceptably high zinc levels. Both problems have been reported to the appropriate authorities and are being investigated.

2.0 STATUS OF LAST MONTH'S OBJECTIVES

2.2 ENVIRONMENTAL AFFAIRS

Progress was made on both the Initial Environmental Evaluation and the Zone 2 submission, but neither have been completed.

3.0 HIGHLIGHTS AND COSTS FOR OCTOBER

3.2 ENVIRONMENTAL AFFAIRS

3.2.1 Vangorda Plateau Development

The response to the Initial Environmental Evaluation was received from the Regional Environmental Review Committee and a letter was prepared to reply to questions raised by the committee. No changes were made to the plans. Verbal approval to proceed with the 1987 program was received on October 8.

Data collection and compilation of information for the next stage of this process continued. Samples of waste rock types from Vangorda and Grum pits were collected and sent to a laboratory for acid generation potential analysis.

Water quality monitoring to assess the impact of the 1987 program on Vangorda Creek fish habitat was started when Doal Lake drainage began (October 15) and continued all month. Results showed that the water was clear every day.

3.2.2 Faro Mine

Cyanide levels in the tailings pond effluent exceeded the licence standard on several occasions and steps were taken to deal with this problem. The accuracy of our data is being checked; use of cyanide in the mill is being reduced where possible; treatment

methods are being researched in case this step is required. Government agencies have been very cooperative on this matter and no major problems are anticipated.

It was discovered that the zinc levels in the water being pumped to the Faro diversion ditch as part of pit dewatering were unacceptably high. This was reported to the Water Board and the discharge has been stopped. Further testing was conducted to isolate the source of the problem and methods of reducing the zinc level will be considered.

### 3.2.3 Zone 2 and Abandonment

The data collected on surface water inflows to the Zone 2 pit were compiled and sent to SRK consultants along with the engineering plans for the use of Zone 2 as a dump. The consultant will review the material and comment on long-term and short-term environmental implications.

## 4.0 OBJECTIVES FOR NOVEMBER

### 4.2 ENVIRONMENTAL AFFAIRS

- Complete the submission to the Water Board regarding the use of Zone 2 as a waste dump.
- Continue with the next stage of the Vangorda Environmental Evaluation.
- Enter all water quality data for Rose and Vangorda systems on databases and extract data summaries.

CURRAGH RESOURCES  
WHITEHORSE DIVISION  
TECHNICAL SERVICES  
MONTHLY REPORT  
SEPTEMBER 1987

1.0 SUMMARY OF HIGHLIGHTS AND COSTS FOR SEPTEMBER

1.1 GEOLOGY

Fillin drilling started at Vangorda with 212 feet drilled at month end in one hole. Faro pit fillin drilling amounted to 2222 feet in six holes, in general the structure was confirmed. A drill program was designed and carried out at Ross River in conjunction with Nadahini Mining; 15 holes totaling 712 metres were drilled. The continuity of coal downdip from the current pit was confirmed. A small reduction to the claim block near Faro was made without significantly affecting the land value. Preliminary work shows that the Champ zone could add another 1 million tonnes to the open pit reserves at Grum but that careful design work will have to be done to evaluate the benefit of enlarging the overall pit.

1.2 ENVIRONMENTAL AFFAIRS

Stage One of the Initial Environmental Evaluation for the Vangorda Plateau Development was submitted to the government and discussed with government representatives. A survey of mountain sheep distribution and migration routes on the Plateau was conducted. A Technical Advisory Committee meeting was held in Faro to update government agencies on the Tailings Abandonment Development Plan. A survey was conducted of all seeps and surface flows in the pit and waste dumps. This information is needed for the plan to use Zone 2 as a waste dump and for the Faro pit abandonment plan.

1.3 COSTS

Technical services costs were negative by \$18,120 for the month because:

- a) costs were reallocated to the Vangorda Plateau AFE (\$9,000)
- b) budgeted costs for the Tailings Abandonment study (\$7,000 budgeted) are being charged in Faro to a capital account rather than operating
- c) no costs are being charged to Engineering (\$3,000 budgeted).

2.0 STATUS OF LAST MONTHS OBJECTIVES

2.1 GEOLOGY

All objectives for September except those related to exploration outside of the Anvil District claim block were met although progress

on the Vangorda Plateau drilling is not as advanced as planned due to the late start.

## 2.2 ENVIRONMENTAL AFFAIRS

All objectives for September were met, although less time was devoted to Stage 2 of the Initial Environmental Evaluation for the Vangorda Development than had been anticipated. This was due to the need to complete field work for the seep survey before freeze-up.

### 3.0 HIGHLIGHTS AND COSTS FOR SEPTEMBER

#### 3.1 GEOLOGY

##### 3.1.1 Faro Mine Related Activity

Approximately ten percent of Whitehorse geology time was spent on Faro mine related work.

###### 3.1.1.1 Faro Model

The F8701A model was used at Faro only. No changes to the model were made but the pit elevation and design surfaces were updated using programs written in previous months. No further work can be carried out on this model until the 1987 drill core is logged and the holes plotted but this work has been delayed by production related duties.

###### 3.1.1.2 Pit fill-in Drilling

The drilling was completed during the month. Six holes totaling 2222 feet were completed. Logging of the holes had not been completed by monthend. The results of the drilling generally supported the structural interpretation used as the basis for the reserve calculation. The top of the ore was within a reasonable error from the expected position. One hole intersected a much thinner ore section than expected but the tonnage loss due to this hole is not expected to be severe.

A proposal to advance the remaining fillin drilling will be submitted next month. Moving this drilling forward will allow sufficient time to make better use of the data than has been possible by delaying the drilling to the last possible moment as has been the practice to date.

##### 3.1.2 Vangorda Plateau

###### 3.1.2.1 General

Several meetings were attended at Faro to coordinate Vangorda Plateau planning. All engineering activities formerly undertaken from this office are now carried out at Faro. The overall perimeter of the proposed minesite surface leases was cut.

###### 3.1.2.2 Vangorda

The Vangorda drilling started towards the end of the month, one hole totaling 212 feet was completed. In order to core this material it was necessary to use a great deal of mud, the result was better core recovery than has been achieved in the past but with questions remaining as to whether the core can be used for metallurgical testing. Close cooperation with mill metallurgical personnel is continuing in order to resolve this problem.

New sections showing the computer assisted "manual" composites was prepared. These sections will allow a check to be made on the

machine calculated reserves as well as a visual check on the data. This check will be carried out by Kilborn.

### 3.1.2.3 Grum

The Grum drilling has not yet started but a second drill will move onto the property next month.

Using the enlarged model of the Grum deposit finished last month an attempt was made to incorporate the Champ zone into the Grum pit. An economic pit can be developed for the Champ zone but it is not as contiguous with the main Grum pit as expected. The viability of treating the main Grum deposit and the Champ zone as one pit thus rests on the reductions in main pit waste volumes due to redesigning the ramps in the main pit to take advantage of the larger pit; this will have to await detailed redesign of the overall Grum pit by Faro engineering. The last pit envelope worked out contained 1.1 million tonnes averaging 9.1% Pb+Zn (undiluted at a 4% cutoff), the stripping ratio was 13.8 to 1 however considerable refinement would be possible to reduce this ratio.

Bench plan plots of the enlarged model showing grade, ore type and the current design limits were plotted to aid future planning.

### 3.1.3 Cirque

There was no activity on Cirque this month from the Whitehorse office.

### 3.1.4 Land

All corrections to the land database were entered.

A trenching program to provide assessment for the MM claims was laid out and will commence in early October.

The Urn barite property was reduced to a smaller block of core claims covering the potential quarry site following a field check of the claim location.

Geological mapping to provide assessment for the RR claims was carried out and a report will be prepared when Vangorda Plateau drilling is completed.

### 3.1.5 Exploration

A drilling program was carried out at the Ross River coal mine. Fourteen holes totaling 712 m were put down. Twelve holes hit the coal seams. The persistence of the coal down dip from the existing pit was demonstrated. Most of the drilling was designed to confirm reserves towards the lake and highway. Some unexpected faulting was encountered in that area but the coal seams were intersected in most holes and the thickness is about the same as that mined to date. Once environmental hurdles are surmounted this area will supply about as much coal as has been mined to date at a comparable stripping ratio. Better estimates of quantities will be made once detailed

hole locations are available and sections are plotted. Two wildcat holes were drilled well downdip from the open pit to test possible underground potential, these failed to intersect coal.

### 3.1.6 Operating Costs

Geology was over budget for the month. Actual expenditures of \$13,354 compare to \$5,540 in the budget; this was due to postponed expenditures from previous months related to the late start of field activity and reallocation of geology costs from previous months mistakenly coded to engineering due to incorrect home accounts for geology job numbers. Engineering was under budget for two reasons; primarily because costs in operating were reallocated to capital and to geology operating resulting in a negative operating cost for the month, the second reason is that no charges are being allocated to Engineering since that group has moved to Toronto but there are still budgeted amounts.

### 3.1.7 Capital Costs

The amount allocated to the Vangorda Plateau AFE at the end of September was \$96,500 this compares to projected expenditures of \$15,500 at this time. The variance is due to late start on ditching (\$136,000) and drilling (\$250,000). Most of the expenditure was for various small items preliminary to the start up of drilling and for consultants working on both environmental and geological/geotechnical aspects of the project.

## 3.2 ENVIRONMENTAL AFFAIRS

### 3.2.1 General

A meeting was held in Faro with all mine personnel involved in matters related to the environment in order to coordinate efforts and improve communications. It was decided to hold these meetings on a monthly basis.

### 3.2.2 Vangorda Plateau Development

#### 3.2.2.1 Initial Environmental Evaluation

The Initial Environmental Evaluation, Stage 1, was submitted to the Regional Environmental Review Committee. Discussions were held with representatives from the agencies and additional information provided as required. A list of information required for the Initial Environmental Evaluation, Stage 2, was prepared and distributed to the planning engineers.

#### 3.2.2.2 Fisheries

Field work for the fisheries study on Vangorda Creek was completed. The Interim Report on the North Fork fisheries study was received from P.A. Harder Associates.

#### 3.2.2.3 Sheep

A helicopter and ground survey of mountain sheep distribution and migration routes was conducted. The sheep migrate mainly through the Grum pit area. The consultant (Brian Horesji) recommended that we maintain a corridor for sheep migration between the two pit areas as the sheep will not likely move through the area east of the Vangorda pit. Two trails were constructed to improve access for the sheep in this corridor. Further work will be required in the spring if we are to determine the best course of action.

#### 3.2.2.4 Water Quality

A water quality monitoring program for the 1987 ditching and de-watering was set up. It will be carried out during and after construction this fall and during the 1988 freshet.

### 3.2.3 Faro Minesite

#### 3.2.3.1 Abandonment and Zone 2

Discussions were held with mine personnel and with Andy Robertson of SRK Consultants regarding the Faro pit abandonment plan and the use of Zone 2 as a waste dump. It was decided that we require information about water movement and acid generation in the pits and waste dumps. A seep survey was conducted to obtain this information. Andy Robertson recommends three further seep surveys be conducted next spring and summer.

### 3.2.3.2 Tailings Abandonment

A Technical Advisory Committee meeting was held in Faro, attended by representatives of government agencies and by Andy Robertson of SRK Consultants. This was primarily an information meeting for the tailings program, but matters related to the Faro pit abandonment plan were also discussed.

Preparation for tailings deposition continued this month. Work included assembly and testing of monitoring instruments, preparation of the pits and tanks and instrument installation system.

### 3.2.3.3 Impoundment Stability

Golder Consultants inspected the dams and assisted mine personnel to set up a monitoring program for stability. A report is expected in October.

## 4.0 OBJECTIVES FOR OCTOBER

### 4.1 GEOLOGY

- Continue drilling on Grum and Vangorda.
- Draw up sections for Ross River coal.
- Organize Yukon and BC data for exploration planning.
- Start plexiglas model of Grum and Vangorda.
- Lay out new claims acquisitions in the Anvil District.
- Prepare summary of needed exploration in Anvil District.

### 4.2 ENVIRONMENTAL AFFAIRS

- Interpret data from the seep survey and prepare a submission regarding environmental consequences of the use of Zone 2 as a waste dump.
- Continue work on the Initial Environmental Evaluation Stage 2.

CURRAGH RESOURCES  
WHITEHORSE DIVISION  
TECHNICAL SERVICES  
MONTHLY REPORT  
AUGUST 1987

1.0 SUMMARY OF HIGHLIGHTS AND COSTS FOR AUGUST

1.1 GEOLOGY

A new model of Grum incorporating the Champ zone was completed. The new undiluted geological reserves for the Champ are 1.4 million tonnes averaging 8.7% Pb plus Zn. The start of drilling on the Vangorda Plateau has been delayed by difficulty in getting drillers due to the busy exploration season this summer. Calculation of composites for the Vangorda deposit was completed. Several properties were visited during the month with one silver property near Faro possibly being of interest. All claims were checked against the government records. Survey checks on Grum and Vangorda drillholes and control net were completed with minimal variance from expected positions found.

1.2 ENVIRONMENTAL AFFAIRS

In response to feedback from government agencies the ditching and drainage plan prepared last month was amplified and a stage one Initial Environmental Evaluation covering the planned work was prepared. A fisheries assessment of Vangorda Creek showed that the Creek is a salmon habitat up to the town crossing but that there are no fish above that. The initial bad impression created with regulatory agencies by the ditching plan appears to have been mitigated by these actions with essentially no change to the overall program, budget or timetable. A Water Resources report on stability of fresh water and tailings impoundments was reviewed.

1.3 COSTS

Costs for all departments in Technical Services are under budget for the month and for the year. There is a large variance in Government Relations due to a large capital purchase for the tailings study. These costs have been mistakenly coded to capital rather than operating, this has been corrected. This project remains difficult to account for because of the fragmentation of responsibility for planning, costing and implementation however it will be clarified by next month.

2.0 STATUS OF LAST MONTHS OBJECTIVES

2.1 GEOLOGY

All objectives for August were met with the exception of starting the Vangorda Plateau drilling program which will be delayed until mid-September.

The shallow Vangorda ore by methods other than coring if the use of mud is ruled out.

A set of computer assisted "manual" composites was prepared in order to make a set of cross-sections showing the ore grade in a more classical sense than used for the computer generated reserves. These sections will allow a check to be made on the machine calculated reserves as well as a visual check on the data.

To facilitate more detailed mine planning, sections and maps as well as the computer mine models for the deposit were provided to Faro engineering. While the planning work is being done in Faro, liaison is being maintained with the Faro group so that details of the geology that are not written up or are not clear are not neglected.

### 3.1.2.3 Grum

Like Vangorda, the Grum drilling has not yet started. The expanded Grum mine model has been provided to the Faro engineering group but most of the original sections remain in Whitehorse as it appears as though the next Grum interpretation will have to be done here.

The Grum model has been expanded to include the Champ zone. The newly calculated geological reserves above a 4% lead plus zinc cutoff are 1.4 million tonnes (363,000 cu. m) averaging 3.81% Pb, 4.89% Zn and 49 g/t Ag. For comparison purposes the Kerr-Addison sectional data was re-calculated so that exactly the same part of the deposit was covered. The results for the Champ zone give 505,000 cu. m of +4% material amounting to 1.77 million tonnes averaging 3.35% Pb, 4.39% Zn and 44 g/t Ag. The reasons for the variance are still being investigated but much of the difference is due to a variance in volume which is at least partly due to the blocks not interpolated by the mine model because the density of drilling information is too sparse. These blocks would bring the total volume from the model up to 495,000 cu. m if the blocks were all above 4% which would compare well to the recalculated Kerr-Addison reserve. The 1987 drilling program is intended to fill in this area however some of these holes may have to be sacrificed for budget reasons and placing drilling priorities on Vangorda..

### 3.1.3 Cirque

Other than minor contact with BC Tel and Ministry of Mines personnel who called to get information for their planning purposes, this project was inactive. The special use permits for the access road were reviewed and will be filed shortly.

### 3.1.4 Land

All claims were checked against the mining recorders records in Whitehorse in order to validate and update the land database. Cheques for payment of cash-in-lieu were requested for the MM and JJ claims however an attempt will be made to perform some assessment work to hold the claims for two years rather than one. The Urn barite property will be reduced to a smaller block of core claims covering the potential quarry site.

### 3.1.5 Exploration

Three properties were examined during the month. Two of these were

## 2.3 ENVIRONMENTAL AFFAIRS

All objectives for August were met.

## 3.0 HIGHLIGHTS AND COSTS FOR AUGUST

### 3.1 GEOLOGY

#### 3.1.1 Faro Mine Related Activity

##### 3.1.1.1 Faro Model

Other than minor drafting revisions to the sections, this project was inactive for the month. A decision was made during the month to devote one of the Faro geologists to the continuation of this work thus this office will act only in an advisory capacity during this project.

##### 3.1.1.2 Pit fill-in Drilling

The expected drill did not materialize during the month thus this work is delayed until September. As much as possible the responsibility for this work will be placed in the hands of Faro Geology, with Whitehorse acting in an advisory capacity only.

#### 3.1.2 Vangorda Plateau

##### 3.1.2.1 General

Several meetings were attended at Faro to coordinate Vangorda Plateau planning. The engineering activities formerly undertaken from this office were largely taken over by Faro during the month. All relevant information has been transferred to Faro.

The simplified pit designs from the Kilborn study were digitized and surface grids were made. The 1:5000 scale topography in the area of the Vangorda dumps was digitized and enlarged to 1:2000 for use in planning dumps and surface layout.

Check surveying of Vangorda and Grum control points and an assortment of drillhole collars showed that there were no significant variances from the previous control net and minimal variance from the previous drillhole collar locations. Of the 36 holes checked the largest variance in position was 2.4 metres and in elevation was 1.1 metres; 86% of the holes were within one metre of their expected position. More checking will be carried out on additional holes later as time permits. It appears now that the surveys are within the expected range of accuracy and that this accuracy is consistent with the level of uncertainty of other drilling derived information.

##### 3.1.2.2 Vangorda

The drilling proposed for Vangorda did not start as planned. This was due to the lack of drillers because of a busy drilling season. Test work on drilling additives was undertaken by the mill and some of the materials affected the lead rougher tests badly but not the zinc. Further testing is planned. It may be necessary to obtain samples from

silver lead showings that may warrant further investigation. The best of these is across the Pelly River from the town of Faro. The veins are extensive but those exposed to date are small and could not support more than a hand cobbing operation. The property will be visited again later in the year when more trenching has been carried out. If the results of this trenching are favorable then more work may be needed.

### 3.1.6 Costs

Geology is under budget for the month. Actual expenditures of \$11,318 compare to \$14,560 in the budget; about \$3,000 was coded to engineering due to home accounts of geology work orders having been assigned to engineering however this situation is gradually coming under control. As there will be no more engineering done from Whitehorse all costs will be coded to Geology in the future.

## 3.2 ENVIRONMENTAL AFFAIRS

### 3.2.1 General

Contact was made with most government agencies concerned with environmental aspects of the mine. Most discussions centered around the proposed work on the Vangorda Plateau. Meetings were attended at Faro regarding the Vangorda-Grum development and discussions were held with mine personnel regarding water quality monitoring, the Faro Pit abandonment plan, the use of the Zone 2 pit as a waste dump and matters arising from the Water Resources report on the stability of impoundments and related structures.

### 3.2.2 Vangorda Plateau Development

#### 3.2.2.1 1987 Ditching and De-watering

Plans were drawn up in consultation with Engineering in Faro for the 1987 program.

#### 3.2.2.2 Initial Environmental Evaluation

Background information was reviewed and collated. A fisheries survey of Vangorda Creek was initiated and most of the field work completed. A report is expected in September. Stage One of the Initial Environmental Evaluation was completed in draft form. After it has been revised to include new fisheries data and new engineering plans for drainage, it will be presented to the government agencies.

### 3.2.3 Faro Minesite

#### 3.2.3.1 Minesite Abandonment

Discussions were held in Faro regarding the plan. A plan for de-watering and stabilizing the Zone 2 pit is being developed as top priority.

#### 3.2.3.2 Tailings Abandonment

Work is on schedule. The excavation of the berm and pits was completed August 5. A crew from Nilex Geotechnical Products Inc. completed installation of high-density polyethelene liners in the pits on August 28. Instrument purchasing continued.

Curragh Resources Inc. was awarded a \$72,000 IRAP-M Grant from the Federal Government, effective September 15. Another grant proposal has been submitted.

### 3.3.3.3 Impoundment Stability

A report prepared by a consultant for Water Resources was reviewed. Faro staff have completed most of the recommended maintenance measures and a consultant has been hired to assist in evaluating stability in areas of concern, advise on emergency stabilization and set up a monitoring program.

## 4.0 OBJECTIVES FOR SEPTEMBER

### 4.1 GEOLOGY

- Extend Grum pit to include the Champ zone.
- Start drilling on Grum and Vangorda.
- Carry out mapping between Grum and Faro including the RR claims.
- Framework exploration program for Ross River coal.
- Draw up grade composite sections for Vangorda.
- Continue property examinations.
- Organize Yukon and BC data for exploration planning.
- Re-check claims information and update the database.
- Start plexiglas model of Grum and Vangorda.
- Lay out new claims acquisitions in the Anvil District.
- Prepare summary of needed exploration in Anvil District.

### 4.2 ENVIRONMENTAL AFFAIRS

- Submit Stage One of the Initial Environmental Evaluation and begin work on Stage Two.
- Organize a framework for the Faro Pit abandonment plan.
- Continue work on Vangorda baseline data and monitoring programs: fisheries, sheep, benthic invertebrates and water quality.