Deloitte.

Anvil Range Mine
INAC Site Tour

Thursday, June 8, 2006

Audit . Tax . Consulting . Financial Advisory.

Day's Itinerary – Thursday, June 8, 2006

8:00 AM	Depart Whitehorse airport for Faro, Yukon
9:00	Depart Faro airport for Mine Site
10:00	Arrive Anvil Range Security Guardhouse
10:30 – 12:00	Tour FWSD and Down Valley Tailings Impoundment
12:00 – 12:45	Lunch
12:45 – 1:30	Tour of Faro Water Treatment Plant
1:30 – 2:30	Tour of Faro side of property
2:30 – 4:00	Tour of Vangorda side of property
4:00	Return to Faro airport
5:00	Flight to Whitehorse

Questions and discussions throughout the day on the tour bus.

Deloitte.

Deloitte & Touche LLP
79 Wellington Street West
Suite 1900
P.O. Box 29 TD Centre
Toronto ON M5K 1B9
Canada

Tel: 416 601-6150
www.deloitte.ca

Memo

Date: June 2006

To: DIAND Attendees - Anvil Range Mine Site Tour June 8, 2006

From: Deloitte & Touche

Subject: Overview Memo

This information package is being provided so that you will have some appreciation of the size and complexities of this mine site prior to commencing today's tour. On behalf of the Interim Receiver's staff and those working at the mine site, we welcome you and hope that you have a most enjoyable day.

The Anvil Range Mining Complex is located in the central Yukon approximately 200 km NNE of Whitehorse. It takes approximately one hour to fly from Whitehorse to Faro. From the Faro Airport, you will be driven up the mine access road to the mine site which will take just under 1 hour. You will be arriving at the Anvil Range guard house where there are washroom facilities and after a brief stop, the site tour will commence.

Included in this information package are a number of aerial slides which are referred to in this outline and which will provide some insight on mine structures which you will see during your tour.

HISTORY AND DEVELOPMENT OF THE MINE SITE

The Faro and Vangorda Plateau mine sites were in production from 1969 to 1992 and from 1986 to 1998 respectively. Production was halted at several times due to low metal prices or changes in ownership. The most recent owner, Anvil Range Mining Corporation (Anvil Range) was placed into Interim Receivership in April 1998. The mine site has been under the management of Deloitte & Touche Inc., acting as the court-appointed Interim Receiver, since that time. Mining and ore processing activities have never been restarted and the mine is considered to be permanently closed. Care and maintenance activities at the Faro and Vangorda Plateau mine sites are regulated under a water licence issued in March 2003 and it runs to February 2009. The water licence, in general, allows for the continuation of care and maintenance activities and the development of final closure and reclamation plan (FCRP).

DIAND and YG have the responsibility for preparing a FCRP and have established the Faro Mine Closure Planning Office (FMCPO) to oversee this process. During the past three years, more than 75 investigative studies have been carried out. It is generally viewed that sufficient technical work has been completed to develop and design a FCRP. While the FCRP is being developed, further studies will be carried out which will provide additional support for selected options and further advance the process. You will be receiving a separate update from the FMCPO's director Mr. Roger Payne.

Since Deloitte's appointment in 1998, the Interim Receiver has successfully maintained compliance with the terms of the water licence by implementing a broad scope of tasks related to environmental protection and environmental monitoring. A Comprehensive Risk Assessment program was established and is continually evaluated each year. A framework was developed to identify, assess and mitigate risk associated with the management of the Anvil Range mine site. It allows the Interim Receiver to maintain discipline around a very complicated, multi-dimensional process of organization, analysis and decision-making and to communicate priorities to DIAND. In fact, the risk management framework developed by Deloitte for Anvil Range served as the basis of DIAND's corporate risk management framework. This past year, we wrote an article which describes this process for the Annual Review of Insolvency Law and a copy of the paper is included with this information package.

The first exploration work was conducted on the Vangorda deposit between 1953 and 1955 by Prospector Airways, a predecessor of Kerr Addison Mines. The deposit was considered to be too small and remote to be mined at that time. The Faro deposit was discovered in 1964 and brought into production in 1969 by Anvil Mining Corporation, initially producing 5,000 tonnes per day.

The Faro open pit mine was first operated by Anvil Mining Corporation in 1969 which was later reorganized to form Cyprus Anvil Mining Corporation ("CAMC") in 1975. CAMC terminated its mining operations in June of 1982.

Ownership changed again when Curragh Resources restarted operations in 1986 after approximately four years of inactivity. Production totaled approximately 13,500 tonnes per day. In addition to open pit mining, some underground mining was undertaken starting in 1989. Curragh Resources initiated development of the Grum and Vangorda ore deposits in 1988. In 1992, Curragh Resources was placed into Receivership.

Anvil Range purchased the Faro mining assets from the court appointed Interim Receiver in 1994. Operations commenced in 1995, however, falling metal prices forced the company to shut down mining in late 1996 and milling operations in the spring of 1997. Although operations were reactivated in the fall of 1997 for a very short period, Anvil Range applied for and obtained CCAA protection in January 1998 and shortly thereafter was placed into receivership. All mining operations ended in Faro in February 1998 and as previously mentioned there has been no mining operations since that time.

Development of the Vangorda Plateau mine site began in the late 1980's and production began in 1992. All ore was hauled by truck to the mill at the Faro mine site (approximately 15 km) and all milling activities (including tailings deposition) took place at the Faro mine site.

GENERAL LAYOUT OF FACILITIES

The mine complex consists of two mine sites, Faro and Vangorda Plateau (Slides 4, 5, 23 and 24). The original open pit mining (1969 to 1992) and all milling and tailings deposition have taken place on the Faro mine site (Slides 4 and 5). Two additional open pits are located on the Vangorda Plateau mine site (Slides 23 and 24) but no milling or tailings deposition have taken place there. The two mine sites are connected by a heavy haul road (Slide 22), which was used to truck ore from the Vangorda Plateau to the Faro mill. Lead and zinc concentrates were produced which included economic quantities of silver and gold, that were shipped to International smelters via Skagway, Alaska.

At its peak production, the Anvil Range mine site produced approximately 15% of the world's zinc and lead output and accounted for 20% of the Yukon's economy.

The Faro mine site consists of two open pits (one back-filled), rock dumps, the Rose Creek tailings facility, a number of watercourse diversions, a pumphouse, a mill, administration and maintenance buildings and water treatment facilities (Slides 10 and 21).

The Faro Main pit was mined from 1969 to 1992 (Slides 18 and 19). At the end of the mine life, underground mining was carried out via a portal near the pit bottom. Beginning in 1992, mill tailings were deposited into the Faro pit. The pit contains non-compliant water and a seasonal pumping program is undertaken to maintain the water level within the desired range. The northeast wall of the pit has a documented history of instability and continues to undergo progressive failure. This jeopardizes the stability and longevity of a clean water diversion channel (Faro creek) that runs generally across the top of this pit wall.

The Faro Zone II pit is located southeast of the Main pit and was mined to capture a small satellite portion of the ore body (Slide 20). Following mining, the pit was back-filled with waste rock. The pit serves as a collection point for rock dump infiltration and a dewatering well is used to pump the non-compliant water to surface and into the main pit. The low point in the pit perimeter is in the southeast area such that uncontrolled filling would result in an overflow of non-compliant water into the North Fork of Rose Creek.

The Faro rock dumps were generally developed on the basis of operating expediency as was common practice in that time period. As a result, acid generating rock was neither segregated nor uniformly blended with other materials but was deposited generally throughout the dumps. A sulphide cell area was established in the late 1980's to segregate sulphides during the final phase of mining. An estimated total of 260 million tones of waste rock are contained in the Faro rock dumps (Slide 17).

A large portion of infiltration into the rock dumps reports as seepage in the old Faro creek channel at the toe of the main rock dump where it is collected into the tailings facility.

From 1969 to 1992, mill tailings were deposited into three surface impoundments in the Rose Creek valley: the Original, Second and Intermediate Impoundments (Slides 12, 13 and 14). In total, these surface impoundments hold an estimated 55 million tones of tailings. The tailings are up to 25 meters thick and overlie native soils consisting largely of sand and gravel. A dam breach occurred in 1975 that released an estimated 247,000 cubic meters of frozen slurry, containing approximately 12,300 cubic meters of tailing solids, into Rose Creek. Residual tailings from this breach remain exposed downstream of the Cross Valley dam.

Only one impoundment, the Intermediate, retains water. The Intermediate pond collects runoff water from portions of the mill site and rock dumps as well as runoff over the exposed tailings beach. Pond water is treated with lime prior to release to Rose Creek via the Cross Valley pond which acts as a polishing pond.

The Faro mill, a conventional concentrating plant that involved crushing, grinding, flotation and dewatering processes, operated at 13,500 tonnes per day of ore during its final stages. Some equipment in the mill was converted in 2001 for use as a water treatment plant. Cost of this conversion was approximately $1.5 million. An administration, warehouse building, maintenance shops for heavy equipment and ancillary buildings are located around the mill site.

Two contractor-owned buildings were located in a small yard upstream of the Rose Creek tailings facility. These buildings were plants for the production of bulk explosives and copper sulphate. As part of ongoing remediation, the facilities have been dismantled and over 8,000 cubic meters of contaminated soils have been removed (Slides 10 and 11).

Power is provided to the mine site from the Yukon hydroelectric power grid. Primary transformers and distribution lines are located at the Faro mill site.

Lime treatment in the Intermediate and Cross Valley ponds has been required since 1992 to treat water from the Intermediate pond. The current water treatment system consists of agitated mixing of lime with influent water and sediments in the Cross Valley pond (Slide 15). During the winter of 2006 over 18,000 cubic meters of treatment sediments (sludge) was removed from this pond.

A seasonal pumping/treatment program at the Faro pit was initiated in 1998 that utilizes the previous recycle water system to provide water for treatment and discharge. In 2001, the mill was converted for use as a lime treatment system. The mill system has worked well since inception and is going to be part of today's tour.

Fresh water is diverted around various mine facilities in four diversion channels: the Faro Creek/Faro valley diversion channel, the North Wall Interceptor ditch, the North Fork diversion and the Rose Creek diversion canal. These channels were constructed to various design parameters. The largest channel is the Rose Creek diversion channel that passes Rose Creek around the tailings facility and has a 1 in 500 year capacity.

Contaminated run off and seepage from the mill site as well as from some rock dumps pass into the Intermediate Impoundment in two channels: an open ditch that starts just south of the mill, and Guardhouse creek just north of the mill site. The water then undergoes treatment prior to release to Rose Creek.

Currently there are three water retaining dams at the Faro mine site: the Intermediate dam retains tailings solids and non-compliant runoff water, the Cross Valley dam retains compliant water and lime treatment sediments (polishing pond) and the Pumphouse Pond dam retains clean water for pump intake (the Pumphouse is no longer operational).

When the mine was operating, a fourth water retaining dam existed at this site: the Fresh Water Supply dam (FWSD) was a fresh water reservoir that provided water for operational purposes in the winter. The FWSD was constructed in 1968 on the south fork of Rose Creek. The FWSD was a zoned earth filled dam approximately 400 meters long, 20 meters high at its highest point and 6-7 meters wide at the crest. This dam was enlarged on 3 occasions to provide further storage capacity as the mill size was increased. At the peak of operations, the mill required 1,500 gallons of water a minute, 24 hours a day and it was reported that only once during the mine’s operational history, was the mill shut down due to a lack of water.

When the FWSD was constructed, a 42 inch outlet pipe was installed in the base of the dam and a valve house regulated the flow of water through the pipe. In 2001 the pipe was inspected and it was discovered that the pipe had deteriorated significantly and there was an unexplained slump in the pipe within the dam structure. As a result of these concerns and in view of the fact that this was considered the highest risk element at the mine site because the reservoir of water was above the downstream tailings facilities. The dam was breached in a controlled manner in November/December 2003. A separate water licence governed the breach and there is a 5 year monitoring and reporting requirement on the structure. Slide 6 shows the reservoir in 2001 when it was partially full (at his point 40% of the water had been released) and Slide 7 is a picture after the breach. The reservoir basin has been reseeded which has prevented erosion of the basin sediments. The constructed channel through the dam breach contains five ripples which were installed for fish habitat. (Slides 8 and 9)

Upon leaving the FWSD, you will travel along the mine access road to the tailings impoundment (Slide 10). At this point, your tour will go along the tailings impoundment road along the first tailings impoundment, second impoundment, and the Intermediate tailings impoundment, where you’ll see a cover test program which is ongoing and then you will travel down across the base of the Cross Valley dam which is the last dam structure in the Rose Creek tailings impoundment area. From there, you will travel up the north side of the valley and stop at the Intermediate water treatment facility to have a brief viewing of this water treatment operation (Slide 15). After this stop you’ll return to the Guardhouse at which time there will be a brief stop for lunch.

Following the lunch break, there will be a coordinated tour of two groups through the Faro water treatment facility (Slide 16). As previously noted this plant was converted to a water treatment operation in 2001. Following the mill tour, there will be a tour of the Faro side of the property with a viewing of the Faro pit and then you will travel along the mine dump road over the Zone II pit. Upon completion of the Faro site tour, you will travel by way of the Vangorda haul road to the Vangorda side of the property.

The Vangorda Plateau mine site consists of two open pits, rocks and overburden dumps, settlement and collection ponds, a number of watercourse diversions, and water treatment facilities.

The Vangorda open pit (Slide 28) was developed following mining operations in the Faro mine and was depleted of economic reserves by 1998. Since 1998 runoff has been allowed to accumulate in the pit and the water level reached the desired maximum pit level in 2001. A watering system was installed in 2001 and was started up in 2002 and an annual seasonal pumping and treatment program has been commenced to maintain the pit water level in the desired range. During 2005, an aggressive water pumping and treatment program was carried out reducing the water level by a significant amount thus allowing sufficient capacity within the pit so that there is no need to pump and treat the water in 2006.

The Grum open pit (Slide 25) was scheduled to be mined in 3 to 4 phases and Phase 1 was nearly complete at the time of the mine shutdown in 1998. The Grum pit has a larger storage capacity and lower influent rates than the Vangorda open pit and the water level is not scheduled to reach the maximum desired range for a number of years. The southeast wall of the Grum open pit consists of approximately 100 million tones of till soil that is progressively sloughing into the pit.

The Vangorda Rock dump contains approximately 16 million tones of waste rock mined from the Vangorda open pit. All of the waste rock is potentially acid generating. The dump is surrounded by a perimeter till berm that directs seepage to one of six cross drains. Seepage flow is very poor quality and acidic in one location. Runoff and seepage water is pumped from the Little Creek dam, which captures this runoff, to the Vangorda open pit. A small portion of the dump was re-sloped and covered with till in 1994 as a DIAND reclamation project and again in 2004/2005 additional cover test areas were completed (Slide 35).

The Grum overburden dump contains approximately 24 million tones of soil that was stripped from the Grum open pit. The Grum rock dump was designed to contain approximately 150 million tones of waste rock at completion of the Grum pit. Only a portion of the waste rock mined in the Grum open pit was considered to be acid generating and this rock was segregated into a sulphide cell area, designed to be reclaimed separately from the remainder of the dump. A conventional lime treatment plant is located near the eastern side of the Grum open pit (Slide 26). This plant has been operated to treat the Vangorda pit water and was reactivated in 2002. The plant consists of a lime silo, lime mixing and distribution system, flocculant mixing and distribution system, three agitated reactor tanks, automated lime control circuits and a settlement pond. Treatment sediments have been removed from the Vangorda clarification pond and deposited on the Grum overburden sump. Currently treatment sediments from the 2005 production year are being stored in the clarification pond allowing for further compaction.

A pair of settlement ponds (the Sheep Pad ponds) (Slide 27) were constructed in 1995 as a means of mitigating elevated concentrations of total suspended solids entering Vangorda Creek. The ponds allow settlement of solids from natural runoff water and effluent released from the water treatment plant prior to entry into Vangorda Creek. In recent years, water from the Sheep Pad ponds has been diverted into the Vangorda open pit during the spring freshet when suspended solids levels exceed the water licence criteria.

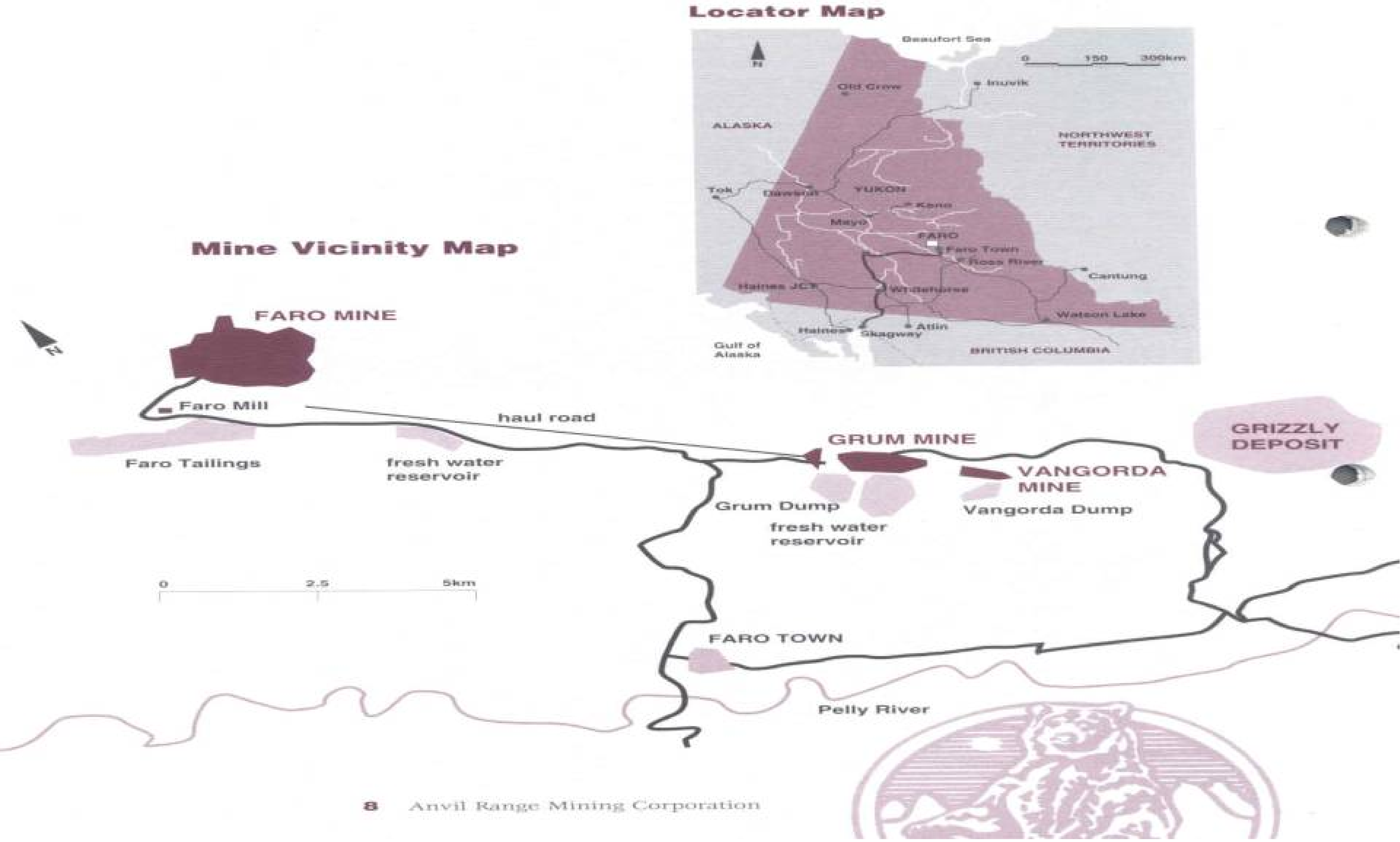
There are two primary clean water diversions on the Vangorda Plateau: the Vangorda Creek Diversion Flume and the Grum Interceptor Ditch. The Vangorda Creek Diversion passes clean water of Vangorda Creek around the north side of the Vangorda Open pit in an open half flume. Slide 29 shows the flume as it normally runs during the year. During 2004 and 2005 there have been significant storm events and on June 8, 2004 a storm event which has been determined to be greater than 1 in 100 years took place. Slides 30 to 34 shows the power of such a storm and the resulting damage. During the evening of June 7, 2004 a heavy rainstorm started on the Vangorda Plateau and during the 6:00 a.m. site inspection tour, staff noticed that a significant amount of water was flowing in the flume. Within an hour, it was beyond the capacity of the headworks dam culvert to pass all of the flow and in accordance with the site's emergency response program an emergency was declared. Site mobile equipment (Slide 33) was immediately mobilized and over the next hour the water started to rise behind the headworks dam to a level that the dam would have been breached had it not been for the rapid action of site staff to build an emergency spillway thus relieving the pressure and having some of the water flow into the Vangorda Pit. The rapid rise in water took less than 2 hours and normal flows within the flume returned within 12 hours from the initial inspection time. By following the emergency response program, the entire flume installation survived this event and it clearly demonstrates the need to have programs in place to handle unexpected events similar to this event.

If time allows, a tour of the Vangorda Rock Dump may take place where various covers have been placed on the Vangorda Rock dump in the fall of 2004 with completion in early 2005. These covers have various instruments installed and are being monitored on a regular basis.

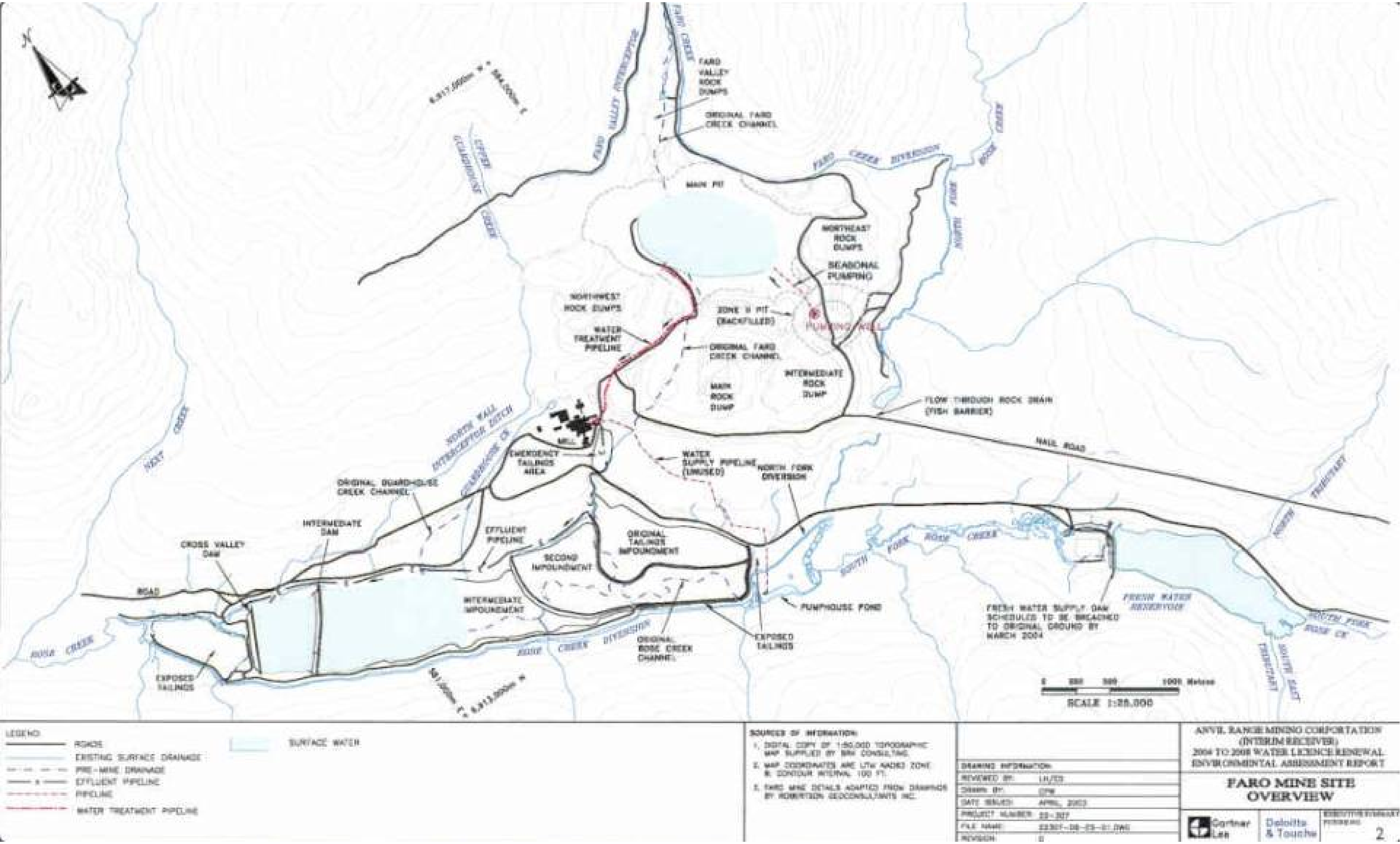
This will complete your tour of the Anvil Range Mine site and you will be driven back to the guard house and from there to the Faro Airport.

We hope that you have had an enjoyable day.

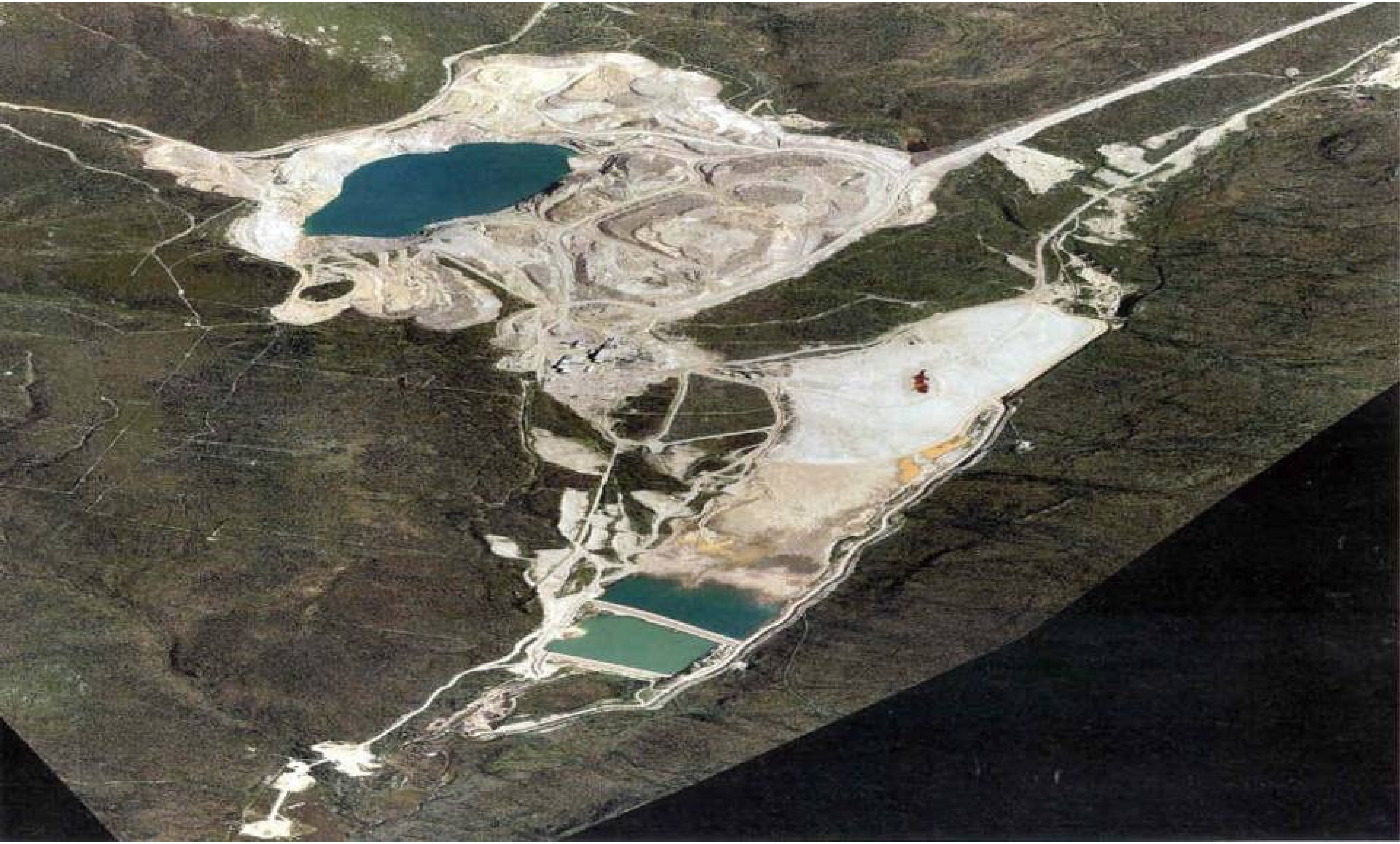
Mine Vicinity Map



Faro Mine Site Overview



Faro Mine Site



Fresh Water Supply Dam – August, 2003

Fresh Water Supply Reservoir – June 2, 2005

Fresh Water Supply Dam – Breach Project December 2003

Fresh Water Dam Beach Channel – June 2, 2005

Faro Valley – Tailings and Water Impoundments – August, 2003

BXL – Stanchem Location – June 2, 2005

First & Second Tailing Impoundments – August, 2003

Intermediate Tailings Impoundment – August, 2003

Down Valley Tailings Impoundment and Rose Creek Diversion

Cross Valley Pond (Polishing Pond) – June 2, 2005

Faro Mill

Faro Main Rock Dump – August, 2003

Faro Pit

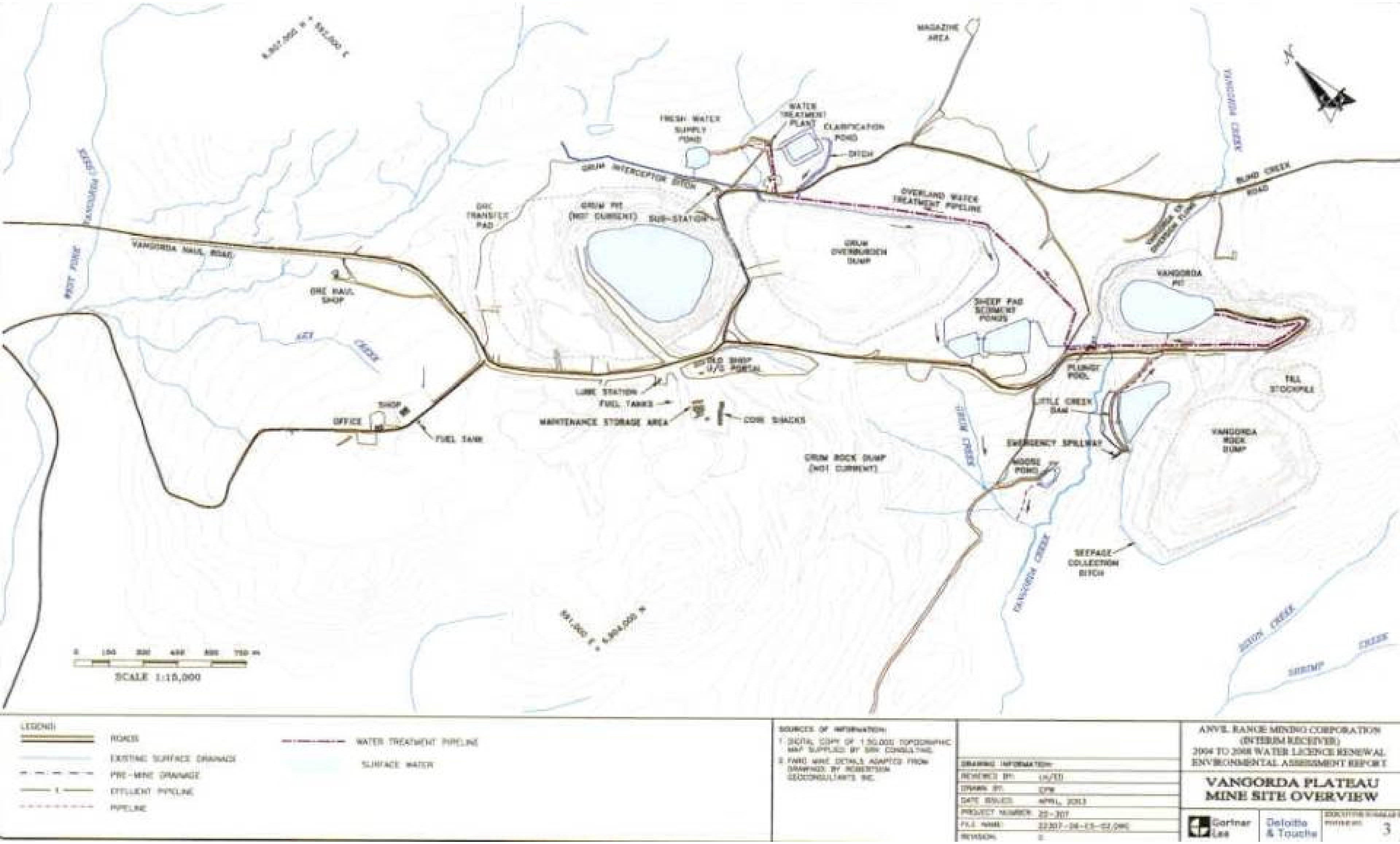
Faro Pit Pumping Barge – August, 2003

Faro Zone II Pit – August, 2003

Rock Drain / North Fork of Rose Creek – May, 2003

Vangorda Haul Road – May, 2003

Vangorda Plateau Mine Site Overview



Grum / Vangorda Plateau

Grum Pit – June 2, 2005

Vangorda Plateau Water Treatment Plant – August, 2003

Vangorda Plateau

Vangorda Pit – August, 2003

Vangorda Flume – Fall 2004

Vangorda Flume – June 8, 2004

Vangorda Flume – June 8, 2004

Headworks Calvert – June 8, 2004

Vangorda Headwork – June 8, 2004

Above Vangorda Headwork – June 8, 2004

Vangorda Dump Covers – June 2, 2005

Faro Mine Complex – August, 2003

The attached paper was written by Wes Treleaven and Valerie Chort, partners in Deloitte & Touche who have both been involved with the anvil Range administration. The paper was prepared for the Annual Review of Insolvency Law conference held at the UBC Law School in January 2006. The paper provides an overview of the risk assessment approach taken at the mine site.

Incorporating Risk Assessment into a Receivership Administration

*Wes Treleaven**
*Valerie Chort**

INTRODUCTION

Risk management is a systematic way to manage the risk of unanticipated problems that could pose a real danger to a business. It provides a framework to create an inventory of potential risks, analyze the likelihood and severity of those risks, and then proactively manage them. Although these risks may not present an immediate concern, they have the potential to develop into large scale, expensive problems if left unaddressed.

Comprehensive risk assessment, the formal assessment of all risks to a business, is frequently used to evaluate projects being developed as well as ongoing operational risks. It addresses risks that could affect the performance of a business, including financial, operational and environmental ones. But it is not commonly used in insolvency administrations, largely because insolvency practitioners usually base their planning on short-term issues. Most, if not all, insolvency professionals will intuitively evaluate risk, which may be a practical approach if one is managing a short-term insolvency that lasts only a few weeks. Yet in today's complex and litigious environment, and in longer term engagements, this intuitive approach is not sufficient. Practitioners should be more explicit in the management of risk and adopt a formal, methodological approach.

The insolvency professional's typical short-term planning process was challenged by the complexity and scale of the Anvil Range receivership in the Yukon. Anvil Range Mining Corporation operated a zinc and lead mine that went into receivership in 1998, shutting down an operation that was once the powerhouse of Yukon's economy and the supplier of 15% of the world's zinc and lead concentrate. After the mine closed, Deloitte & Touche, as Interim Receiver, faced a series of complex environmental issues, largely related to the management and treatment of contaminated water and the management of dams, diversions and tailings. Given the scale of these problems, regulators and key stakeholders recognized that a proactive long-term perspective was essential to manage environmental issues in a fiscally responsible manner. Deloitte & Touche therefore used a comprehensive risk assessment approach, a method to evaluate the risk of each element on the mine site, based on the likelihood of a problem and the potential severity of its consequences. This assessment created a framework for a multi-year risk-based management plan for larger scope projects and reclamation work.

This paper will describe how and why risk assessment has been a valuable tool in the management of the Anvil Range receivership. It will show how risk assessment helped the Interim Receiver to determine which projects to address first. Risk management also provided Deloitte & Touche with the basis on which to form requests for funding from the federal government for projects to manage the site and protect the environment. What's more, risk management helped to show the federal government that it is receiving value for the tax dollars being spent to ensure the mine site does not develop unanticipated and expensive problems, with long-term repercussions. The federal government's Department of Indian Affairs and Northern Development (DIAND) has recognized the value of this risk assessment approach and DIAND is using this approach to manage on a proactive basis other contaminated sites in the North.

Anvil Range is a large scale, complex and long-term engagement for the Interim Receiver and the funder, the federal government. This paper will suggest that risk assessment should not be confined, however, to insolvencies of this scale. Rather, the risk assessment approach can be used whenever an insolvency becomes long and complicated. In these cases, the formal, methodological approach that this article describes – or even an abbreviated version of it – may help insolvency practitioners to identify, assess and mitigate various risks, such as pollution, malfunctioning equipment, or staff issues. Some of these risks may not be obvious at first glance, but if a problem arises, it may cause serious physical, financial and/or reputational damage to the insolvent company. This can potentially derail efforts to restructure a company and lead to a liquidation that is a disaster for all stakeholders.

This paper will begin with a brief description of the Anvil Range mine and its Interim Receivership, a legal saga that has lasted seven years so far. It will describe the environmental legacy left by the Anvil Range mine after its most recent owner filed for CCAA protection. The next section will explain why Deloitte & Touche decided to apply a risk assessment approach to the management of this administration. It will explain how risk assessment works and how it was successfully used in this case, the impact of the analysis, and how it influenced the management of the site and its environmental issues. The final section will discuss the value of this approach for any long and complicated insolvency. Comprehensive risk assessment is a useful and prudent method to assess the risks of various elements in an insolvent company, reduce those risks in a fiscally responsible manner, and ultimately protects the assets of creditors, affected regulators and other stakeholders.

ANVIL: THE SHORT LIFE AND EXTENDED DEATH OF A MINE

The Anvil Range mine, first operated by the Anvil Mining Corporation in 1969, is located about 300 kilometres northeast of Whitehorse in the Yukon Territory. In its prime, the site was one of the world's largest producers of zinc and lead concentrate, used for galvanized steel and many other industrial products. It was also one of Canada's largest silver mines. The mine was so busy producing over 500,000 tonnes of concentrate each year that trucks loaded with zinc or lead left the site en route to Skagway, Alaska, every 20 minutes. In its prime, during the 1980s, the Anvil Range mine accounted for more than 20% of the Yukon's economy and employed 600 people. The mine consisted of three deep open-pit mines on a 41,500 hectare site. The Faro pit on one side of the site was linked to the Vangorda and Grum pits on the other side by a 14 km highway wide enough to land a 747 jet.

There was also a mill at the Faro site where the rock was crushed into sand and immersed in water that was treated with chemicals to extract the zinc and lead. The mill processed 12,500 tonnes of ore per day, 10% of which became concentrate. The crushed rock left over from the process, called tailings, was transferred and stored in a valley nearby. The mining company dammed the river near the Faro mill to create a large fresh-water lake to supply the water required to extract the lead and zinc from the rock. It required a huge volume of water – 1,500 gallons of fresh water per minute. The mine's operator built an enormous infrastructure to support the mine – the town of Faro, 25 km from the mine, had enough housing for 2,500 people, plus a school, and a complete municipal infrastructure.

The plan was to run the mine until 2015, with the hope of further exploration finds, however the falling price of the metals shortened its lifespan. Anvil, reorganized in 1975 to form Cypress Anvil Mining Corporation and stopped mining in June 1982. Four years later, it was started up again by a new owner, Curragh Resources. Curragh expanded the operation to make it one of the largest producers of zinc and lead concentrate in the world, and yet six years later, Curragh was placed into receivership after a failed CCAA restructuring. Two years after that, in late 1994, Anvil Range bought the mining assets and operations for approximately $30 million. Anvil Range invested $75 million in a pre-stripping of the mine and refurbishing the mill, but falling metal prices killed the financial rationale for the mine, and once again, it failed. On April 21, 1998, Deloitte & Touche Inc. (Deloitte) was appointed Interim Receiver of the property by an order of the Ontario Court of Justice General Division (now the Superior Court of Justice) after another failed attempt at a CCAA restructuring.

During the next several years, the Anvil mine was the focus of a complex and litigious battle that led adversaries to the Supreme Court of Canada to seek leave to appeal on two occasions. (The Court denied both requests.) At first, the Yukon government and the union, the United Steelworkers of America, hoped that a buyer would be found for the mine. Yet no prospective buyers came forward, despite all the publicity about the mine's closing, so in its June 1998 report, the Interim Receiver recommended that "no funds be spent on marketing the mine."

That summer, the Interim Receiver went to court with a request to sell the mobile equipment, but that recommendation was delayed by a ruling from Justice Robert A. Blair. In his widely quoted ruling, Justice Blair said the sale should be delayed "for a period of time" because the "social consequences of an immediate sale are too severe." [1] As a result, the Interim Receiver delayed the sale, and when no buyer emerged by the following summer, it finally sold the mobile equipment.

It took two more years of legal action and negotiations to resolve a series of complex priority disputes. Finally, in March 2001[2], the Ontario Superior Court approved a plan of arrangement giving the federal government the mine and the mill in return for assuming responsibility for the costs of ongoing necessary environmental maintenance and security programs. The federal government took charge of the site because it was crown land and the mining company had disappeared. The mine's owners had left only $14 million in a fund for the reclamation and cleanup of the site. The other affected creditors, as defined under the plan of arrangement, received the proceeds of the sale of the remaining assets, such as the mobile equipment. The plan was implemented in April 2003.

Since then, the Department of Indian Affairs and Northern Development (DIAND) has assumed responsibility for funding the entire Interim Receivership. The Interim Receiver is in charge of care and maintenance of the mine, while DIAND and the Yukon government, along with First Nations, are developing a long-term closure plan for the site. The process of developing and implementing a closure plan will take several more years. The plan is to be filed in December 2006, but then it has to go through an environmental assessment and a hearing before the Yukon Water Board to obtain a licence covering the approval of the closure plan and the use of water as the mine is closed. The current water licence, which covers only the care and maintenance of the mine, not the closing, expires at the end of 2008. The plan to close the mine, and the funds to finance it, has to receive federal government approval.

---

[1] Re Anvil Range Mining Corp. (1998), 7 C.B.R. (4th) 51 (Ont. Gen. Div. [Commercial List])
[2] Re Anvil Range Mining Corp. (2001), 25 C.B.R. (4th) 1, 2001 Carswell-Ont 1325 (Ont. S.C.J. [Commercial List]); affirmed (2002), 2002 Carswell Ont 2254 (Ont. C.A.)

The cost of maintaining and cleaning the site is significant. The care and maintenance of the site – which aims to ensure that the water flowing from the site meets the environmental standards the Yukon Water Board sets– costs $5 million a year. Studies preparing for the closure of the mine have cost nearly $25 million so far. The total cost of overseeing the mine since the receivership began adds up to $60 million. The potential cost of the cleanup is far greater. According to an initial scoping study, the cost of closing the mine is estimated at between $170 and $230 million. That plan would cover the tailings, but if the stakeholders decide instead to move the tailings, the cost would increase substantially. As of the summer of 2005, no decision or proposal has been made.

ANVIL'S LEGACY: THE ENVIRONMENTAL FALLOUT

The environmental problems caused by the gigantic pits are so immense that the site is considered one of the largest contaminated sites in Canada under DIAND's supervision. The chief problem is the enormous volume of water contaminated by zinc and other metals exposed by the mine. Although the contaminated water poses little or no danger to humans – the nearest town is 25 kilometres away – it threatens marine life, particularly salmon in Yukon rivers. It therefore needs to be treated: About three and one half million cubic meters of contaminated water is treated at the Anvil site each year.

When the Interim Receiver arrived at the mine in the spring of 1998, it found that all the water released from the property met the requirements of the Yukon Water Board. Yet the ongoing challenge to contain the environmental damage caused by the mine has been significant. The oldest and largest pit, named Faro, is 420 metres deep from top to bottom, approximately one kilometer long and half a kilometer wide. It contains a lake 120 metres deep that is fed largely by water leaking out of the original Faro creek that once ran over the site. (The creek was diverted around the pit when the mine was developed.) The water in the pit also comes from rain and snow. The water in the pit is contaminated with metals, zinc in particular, which are released from the rock when it comes in contact with water. The level of contamination is significant. The water in the

Faro pit contains approximately 10 milligrams of zinc per litre – well above the 0.5 milligram/litre level required by the Yukon Water Board to release the water into the environment.

But the pits – there were two others on the mine site – were only the beginning of the problem. Digging the pits created mountains of rock, the height of a 25-storey office tower. Testing in one of the rock dumps indicated that temperatures had risen to 50C. The heat was generated by water acidifying when the rock was exposed for the first time to air and water. The water seeping from these dumps is contaminated. In some areas, the water has as much as 10,000 milligrams of zinc per litre. Down the valley from the pit were large tracts of tailings – 55 million tons of leftovers from the process that extracted the zinc and lead from the rock. These tailings, once exposed to air and water, continue to release contaminants. The regulators are concerned that water from precipitation will migrate through the tailings and eventually pollute the streams that lead to the Pelly and Yukon Rivers.

To clean this contaminated water, the mill at Faro was converted to a water treatment plant, which uses lime to extract zinc from the water. The zinc in the water sticks to the lime and falls to the bottom, creating a lime sludge – and plenty of it. The water treatment operation at Faro, just one of the three pits, has created enough lime sludge to fill a football field two metres deep – in less than three years. And yet the scars from the mining did not end with deep pits, the man-made mountains, the tailings and the football field of sludge. About two kilometers from the Faro pit was a huge man-made lake, nearly 1.5 kilometers long and 18 metres deep. It was created by damming the river in the late 1960s. A huge pipe installed in the base of the dam funneled water from the lake to the former mill – fresh water that was used in the process of extracting zinc and lead from the rock. The dam raised a series of questions for the Interim Receiver: Would the dam hold? What would happen if it failed? At the outset, the Interim Receiver had no way of answering these questions.

The problems the Interim Receiver faced at Faro were, of course, only part of the problem. There were two other pits to contend with, plus the town of Faro, once the second largest town in the Yukon with 2,500 residents, a school, a curling rink and a hockey arena. Now Faro was mostly empty, despite efforts by the town to market itself as "Yukon's best kept secret." Only 350 people remain, including a few Swiss and Germans who came to the town to enjoy the wilderness and the 24-hour summer sunshine at rock bottom housing prices.

A LONG AND COMPLICATED RECEIVERSHIP REQUIRES A NOVEL APPROACH – RISK MANAGEMENT

After being appointed Interim Receiver, Deloitte started out with a traditional short-term approach. For most receiverships, this short-term planning approach makes sense, since properties are usually sold – as a going concern or in pieces – within a few months. But the Anvil receivership turned out to be a much longer assignment than anticipated, partly because the Yukon government was eager to find ways to keep the mine open while creditors fought in court over the assets. By 2000, two years after the receivership began, the Interim Receiver realized that the short-term approach wouldn't work. The Interim Receiver was in the business of treating contaminated water, while lacking the basic equipment to do the task. The operation didn't have the necessary mobile equipment to do the job, such as a bulldozer. The water treatment system deployed by the former mine operator was crude and rudimentary. The Interim Receiver became increasingly concerned that contaminated water would flow into the streams in the valley below the mine.

The Interim Receiver had to develop a more effective way of treating contaminated water in order to meet the criteria of the water licence. But first, the Interim Receiver had to figure out where to start. What posed the bigger danger: the failure of the fresh water supply dam or the inability to pump water from the pits? And what if Faro creek burst into the pit? It would fill up the pit in 4 to 5 days, sending contaminated water into the valley and the streams below. With so many elements to deal with on the site – including a dozen dams, 10 water diversions and 15 ponds –it was hard to tell what to do first to reduce the environmental risk.

Deloitte advised the federal government that long term planning was essential to handle the care and maintenance of this site. The Interim Receiver proposed to tap into Deloitte's expertise in risk management to assess the risks of each element on the site and tackle the most dangerous problems first. Only by approaching the risks of each element in a methodical way could the Interim Receiver assess which risks were the ones that were intolerable and needed to be mitigated. The federal government agreed, and in 2001, DIAND approved the funding for a risk assessment and a five-year management plan for the entire mine complex.

RISK MANAGEMENT: HOW DELOITTE APPLIED IT TO THE ANVIL SITE

STEP ONE: Establish the risk assessment context

1. Establish the scope of the inquiry. In this case, it was environmental, health and safety.
2. Determine the phase of the project to be assessed. In this case, Deloitte focused on the care and maintenance of the site – not the cleanup and closure plan.
3. Determine the level of rigor required for the assessment. In this case, Deloitte relied on both quantitative and qualitative information.
4. Set out the criteria of the risk assessment. For the Anvil site, Deloitte decided to study the impact on the environment, on First Nations, as well as legal implications, remediation costs, media interest, and injury and disease. Deloitte also needed to decide how it would determine whether the likelihood of an adverse event was "very low" or "very high" or in between. It also needed to define the criteria for acceptable risk, and the degree of confidence in assessing the risk.
5. Set up a team with the appropriate skills to do this analysis.

STEP TWO: Identify the hazards

Deloitte developed an inventory of the elements considered to be important to this mine site. We described each one, and its key issues, according to the available information. We defined events, such as an earthquake, that could potentially cause adverse consequences to people, the environment, property or the plant, or all of these. Then we developed a matrix to group the hazards – dams, diversions, tailings, etc. We also included historical information and stated the level of confidence in the findings, based on the available information.

STEP THREE: Analyze risks

After identifying the hazards and the potential events that could cause a problem, Deloitte analyzed the risk by looking at it in two ways. First, how severe would the consequences be? To assess the potential consequences, we looked at environmental impacts, First Nations implications, legal problems, remediation costs, community and media reaction and injury and disease. The severity of the potential consequence would be considered "very low" if there were no lasting effect on the environment, no impact on traditional lands, if fines were unlikely and remediation costs were under $100,000, if there were no local complaints or press coverage, and if no medical treatments were required. Alternatively the severity of potential consequences would be rated "very high", if there were long-term effects on the environment and permanent damage to traditional lands, if major fines were expected and remediation costs were over $10 million, if CNN were broadcasting the story worldwide or if there were multiple fatalities.

The analysis of risk includes another factor: The likelihood of a problem in the next five years, given existing controls and treatment measures. Deloitte rated the likelihood from "very low" to "very high." A "very low" likelihood would mean the event may occur in the next five years, but only under exceptional circumstances since such an event occurs once every 1,000 years. A "very high" likelihood, on the other hand, would mean the event is considered to be imminent since it occurs more than once a year. A third element in the analysis of risk is the degree of confidence. A judgment on the likelihood and consequences of an event varies substantially according to the amount of information available and the understanding of the hazard. If the confidence in the judgment was rated low, because of too little information, the risk rating was raised by one category – from moderate to high, for example.

These three elements – the severity of a problem, its likelihood, and the degree of confidence in the assessment – form the basis of the risk assessment.

STEP FOUR: Evaluate the risk and determine the acceptability

By putting together the consequences of an event and its likelihood, along with a consideration of the degree of confidence, Deloitte could evaluate the risk. The next step was to determine how acceptable that risk was. Deloitte used a principle commonly used in industry – as low as reasonably practicable, or ALARP. An intolerable risk would be one with a level that is so high that it requires significant and urgent actions to reduce its magnitude. In the middle ground of risk, in the ALARP range, efforts would be made to reduce risk further, without spending money that is grossly disproportionate to the benefit gained. A tolerable risk is so low that it does not require actions to reduce its magnitude. Such a risk just requires ongoing management and monitoring. The characterization of the risk – intolerable, in the middle ground, or low – will depend on the point of view of each insolvency professional or company. A risk that may be intolerable for one individual could be acceptable for another.

STEP FIVE: Decide to accept or treat risk

If the risk is deemed to be intolerable, then a decision must be made about treatment options to bring the risk down to the acceptable ALARP level. If the risk is in the ALARP range, then one must decide to accept the risk and monitor and review it. A third option in some cases is to not take a risk – and, for example, sell the asset or buy insurance to cover the risk.

STEP SIX: Treat the risk

If a decision is made to treat a risk then a number of steps should be taken:

1. Identify, evaluate and select potential treatment options. They include: Removing the hazard; using the hazardous material, process or activity in a safer form; ensuring that if an incident occurs, its consequences are limited and controlled; and reducing the opportunities for incidents.
2. Do a cost/benefit analysis
3. Prepare and implement treatment plans
4. Re-evaluate the risk remaining after implementing the treatment plan.
5. Continue to monitor the risk.

STEP SEVEN: Monitor and review the risks

This needs to be done at each step in the process – from the risk assessment context, the inventory of hazards, the incident trends and their impacts, the risks and treatment plans, and the management systems in identifying and managing risk.

Risk assessment is not a one-time event. It’s a dynamic process, and time needs to be set aside each year to re-evaluate the situation, based on new information or changes in the landscape.

THE HAZARDS THAT THE RISK ASSESSMENT REVEALED: A DANGEROUS DAM

As part of this process, Deloitte created a matrix that illuminated the risk of the dams, tailings, creek diversions, ponds and other elements on the mine site (Exhibit 1). The Interim Receiver quickly found that the highest risk rating went to the fresh water supply dam that supplied the Faro mill with water to process the rock. This 40-metre-high earth dam, built in 1969, received a poor report in the risk analysis: "Cracking and generally poor condition of crest, lack of fish access from downstream area, integrity of low-level outlet pipe." The report was referring to the pipe at the bottom of the man-made lake that funneled the fresh water two km to the mill. The concern was that the dam could fail, "resulting in a rapid release of reservoir water." The likelihood of this happening was "very high," although the report noted that it was hard to assess because no one had actually inspected the pipe under the water. The consequences of such a flood were considered to be "very high" in terms of severity. If the water from the dam flowed over the tailings and into the creeks below, it would cause long-term damage to the environment. There would be major fines, remediation costs exceeding $10 million and even unfavorable coverage on CNN, as all of the water eventually flows to Alaska.

But no one had seen the pipe, so the Interim Receiver couldn't tell whether it would collapse and undermine the earth dam. Knowing that it was dealing with a "very high" risk, the Interim Receiver decided to spend $100,000 to check the exact condition of the pipe. It was 15 metres under frigid water when divers plunged in and swam into the one-metre-wide pipe to do ultrasound tests all along the 100 metre pipe from the dam to the valve house at the bottom of the dam. It was a dark and dangerous job for the divers, and they emerged with disturbing results: The pipe had deteriorated significantly and it also had an unexplained slump in the dam structure. If the pipe failed, the dam would fail, and the lake full of water would rush down the valley, over the tailings, and into the creeks. When the regulators heard the news, they agreed the Interim Receiver should breach the dam, at a cost of $4 million. In 2002, the water was siphoned out of the lake and the dam was breached – one of the largest events of its kind in the world. The water returned to its original creek bed, eliminating the highest risk at the mine.

The risk matrix has been an extraordinarily useful tool in terms of deciding what to do first. The matrix has provided the Interim Receiver the basis on which to ask DIAND for money for specific projects to cut the risk – and to set annual budgets. The elements with the highest risk are in red boxes on the matrix, so the receiver pays special attention to anything in a red box [while the matrix is colour coded, for the article it has been reproduced in black and white shading] and either investigates further, or decides what can be done to mitigate the risk. For example, a copper sulphate pond on the property was a significant risk, so the Interim Receiver eliminated it and removed the soil. Another problem was the telephone system, which consisted of a telephone line on a series of rickety polls. The risk of losing communication on a giant site like Anvil was higher than one might expect. Without telephone communication, how would a worker call for help if a creek suddenly overflowed or if a worker had a heart attack – two incidents which have happened in the past seven years. Cell phones don't work in the region, so the Interim Receiver installed a microwave phone system that also provides highspeed access to the Internet. The risk matrix led us to make other changes – like installing an emergency generator and giving more safety training to workers.

A comprehensive risk assessment is not only a way to prioritize work on a complicated job, but it is also a vital tool to assess where one is in a project. By tracking the changes year by year to this risk assessment, the Interim Receiver can show the client – in this case the government – that it is getting value for its money. That's an important consideration for the federal government, considering how much it has spent on the Anvil site to date.

CONCLUSION: RISK ASSESSMENT SHOULD BE INTEGRATED INTO ANY INSOLVENCY THAT IS LONG AND COMPLICATED – AND NOT JUST MINES

In conclusion, a risk assessment is an extraordinarily valuable tool for professionals and administrators who find themselves in long and complex insolvencies. By using a formal, methodological approach to rate the risks according to consequence and likelihood, the insolvency practitioner can make rational decisions to prioritize the tasks at hand. The tool allows insolvency practitioners to tackle the hazard that poses the highest risk first, rather than using intuition to guess which job to start first. By laying out the facts in a logical manner, the risk assessment will also help the receiver to obtain the funds from the client to do the job.

Fully understanding the risks of an insolvent operation has many advantages. By studying the risks, and mitigating intolerable ones, the receiver may shield it and the firm from the legal repercussions of a disaster. But stakeholders in a long and complicated insolvency also have much to gain from a thorough investigation of the risks of running an insolvent company. All stakeholders will feel pain in an insolvency, but if the insolvent company suffers a disaster while it's under a receivership or CCAA protection, the pain will be far worse. A disaster can undercut any hope of a successful sale and/or restructuring, resulting in a liquidation that kills jobs and the value of the assets to be distributed to stakeholders. A comprehensive risk assessment, therefore, is a way to protect those assets, benefiting all stakeholders.

* Wes Treleaven CA • CIRP is a Senior Partner in the Financial Advisory Group in the Toronto office of Deloitte & Touche LLP. Mr. Treleaven has over 25 years experience in administering corporate restructurings, estate insolvencies and advising clients on restructuring and insolvency related business problems.

* Valerie Chort is a partner in Deloitte & Touche LLP and is the firm's National Leader of its Environment, Health & Safety (EHS) and Risk Services practice.

Summary Risk Assessment Classification Matrix

		Consequence Severity				
		Low	Minor	Moderate	Major	Critical
Likelyhood of the Event	Almost Certain			Main Dump		Fresh Water Supply Dam
	Likely		Pit Pumping System			Emergency Tailings and Sediments
	Possible		Above Ground Tanks		Buildings & Yards	
	Unlikely	Interceptor Ditch			Rock Dump	
	Very Unlikely	Pond Dyke	Mine Access Road			

Risk Ranking Legend:

- Very High
- High
- Moderately High
- Moderate
-