

Troilus

is an open pit gold and copper mine in northwestern Quebec.



Type of mine	Open pit gold and copper
Ownership	100 percent
Inmet's revenue	15 percent
Opened	1995
Expected closure	2010
Land owned	1,365 hectares
Land disturbed	737 hectares
Distance from nearest town	120 km north of Chibougamau, Quebec, Canada and 170 km northwest of Mistissini, Quebec, Canada.
Main activities in surrounding area	Recreation, wilderness, fishing, subsistence hunting.
Employees	243
Unionized employees	0
National employees	243
Female employees	13
Donations to the local community	\$67,650
Proportion of spending locally ¹	21 percent
Methods of waste disposal	Tailings disposal in an engineered containment facility. Waste rock and overburden stored in surface containment facilities.
Emergency Preparedness and Response Plan	Yes (working to meet MAC ² guidelines).
Tailings management system	Being improved to meet MAC TSM standards.
Tailings Operations, Maintenance and Surveillance (OMS) Manual	Under development to meet MAC TSM standards. Best practices in place with daily inspection.
Status of closure plan	Revised in 2007, approved. Update planned for 2009.
Community relations committee	Yes, Implementation Committee with Cree Mistissini Band meets quarterly.
Foundation (community development)	No

¹ Contributions to the local economy include the local purchase of goods and services, and total payroll (G3 Indicator EC6).

² MAC is the Mining Association of Canada.

Troilus focused on keeping workers safe, ensuring the remaining months of mining were completed responsibly with regard to both risk and profit and preparing for closure in 2010. The site also successfully managed the challenges of maintaining a sufficiently experienced workforce during the mining boom of early 2008 and the economic downturn in the latter part of the year.

Troilus' performance

TROILUS' 2008 PERFORMANCE AT A GLANCE

	2008 target	2008 results	2009 objective
Lost Time Injury Frequency (LTIF)	1.0	0.6	0.6
Accident Severity	67	124	25
Reportable environmental incident intensity	0.10	0.29	0.15
Notices of Violation or warnings	0	0	0
Percentage of after-tax profits for community support	0.5	0.2	0.5
Ore production (000s tonnes)	6,600	5,800	6,200
Net income (\$000s)		29,697	

Operate safely

After excellent safety performance in 2007, Troilus performance slipped in 2008 in terms of our key trailing performance indicators. LTIF increased more than 200 percent to 0.9 injuries per 200,000 hours, DIF increased 108 percent and TIF increased 46 percent. On the positive side, injury severity decreased 57 percent, indicating that, despite the increase in injury frequency, the injuries were relatively minor. The increase in both DIF and TIF was the direct result of the significant increase in LTIF.

Troilus worked on implementing three HCPs that it judged were the most important at its operation; working at heights, vehicular energy and energy isolation.

Safety performance at a glance

- Troilus performed better than its 2008 LTIF goal of 1.0, achieving an LTIF of 0.9
- TIF increased 46 percent, the result of increases in medical aid and LTIF cases
- Contractor safety performance was excellent

SAFETY MANAGEMENT

Troilus continued to apply its 'Formule de Supervision' safety program to emphasize the importance of safety at the site (see *Values in action* in this sidebar).

Values in action

The Formule de Supervision program is a work site risk safety control system that helps a worker and supervisor participate in four simple steps prior to starting work:

- Inspect the work site
- Plan and discuss the work
- Decide on and agree to the work methods
- Execute the work plan according to the agreed methods

This system is similar to the risk-based approach developed by the Inmet Mining Safety Task Force and focuses on helping all workers to complete a field-based risk assessment prior to starting work.

Troilus employees were once again recognized by the Association Minière du Québec (AMQ) for their safety leadership in 2008, including:

- Sylvain Tremblay (Maintenance) – 100,000 hours accident-free supervision
- Regis Boivin (Mining Department) – 100,000 hours accident-free supervision
- Alvin Fallu (Mechanical Maintenance) – 150,000 hours accident-free supervision

We are very proud of the leadership demonstrated by these employees and their respective crews.



Troilus pit wall continuous stability monitoring during the final months of mining. The radar unit detects millimetre scale movements during its eight minute scan of the entire pit wall.

Protect the environment

Troilus environmental performance highlights

- Troilus received two notices of violation for total suspended solids exceedances, late water quality sampling and late report submissions to regulatory authorities
- Ten incidents of effluent discharge, permit, and regulatory monitoring and reporting incidents were reported
- The number of reportable petroleum spills increased by 33 percent

Troilus' environmental performance in 2008 was disappointing and was not up to the standards that we expect. In total there were 29 environmental incidents during the year, including 11 permit exceedances or violations and 18 spills. The 11 permit exceedances and violations were all related to water, principally exceeding the grab sample and monthly average values for total suspended solids in various discharge points around the property. This is the highest number of exceedances Troilus has had in any single year and was the result of heavy rains and an elevated snowpack in spring 2008. In addition, Troilus received two Notices of Violation from the Québec Ministère du Développement durable, de l'Environnement et des Parcs relating to the water-related permit exceedances. Troilus has worked to better define the water level that it should maintain in its tailings management facility over the winter months to ensure that it has sufficient water for the milling process, while not causing water quality issues in the discharge. This is a difficult balance and Troilus will strive to improve its performance in 2009. The site has eliminated its other two effluent discharges to simplify its water management. Mine water effluent was rerouted from the settling pond to the inactive open pit. In addition, treatment plant operating strategy and procedures, as well as the monitoring and reporting schedules, were changed and additional personnel were assigned to environmental protection activities.

Troilus reported 18 spills during the year, all of which involved petroleum and most of which were caused by hose breakages on heavy mining equipment. Ten of these spills exceeded 100 litres in size and were therefore reportable to provincial regulatory authorities. In all cases operations personnel responded immediately to such spills and recovered and disposed of any contaminated material in the proper manner. Most of the spills took place in the open pit. Of particular note was a spill of 3,000 litres of hydraulic fluid that occurred when a rock fell from the wall and struck the oil reservoir on a hydraulic shovel. Troilus has had several such incidents in the past and had been successful in reducing their frequency by minimizing exposure of the reservoir to the wall.

Ongoing efforts to raise awareness of the need to prevent spills and exceedances, review and improvement of its preventive maintenance programs and further coaching efforts by all employees succeeded in improving Troilus' environmental performance by year end.

Fugitive dust has been a challenge at Troilus. The mine's secondary and tertiary crushing circuits result in the production of fine material that can be carried by the prevailing winds at the site. The use of dust control systems including truck sprays, conveyor sprays and an ore stockpile telescopic chute was increased in 2008.

Troilus conducted an environmental audit consistent with our SECA Standards. The site initiated a corrective action plan to address all of the audit findings, the most important of which involved water management, dust control, and petroleum product systems monitoring and documentation.

The Quebec Ministry of Natural Resources accepted the closure plan submitted in 2007 on condition that it be revised in 2009, as required prior to cessation of operations. By the end of 2008 Troilus developed an action plan for revising the closure plan and accelerating progressive rehabilitation in 2009.



Troilus is a remote mine and although accessible by road from Chibougamau, Quebec, required the use of this float plane for completing the 2008 environmental effects monitoring survey. The survey team's efforts were rewarded with an ample catch of fish.

Treat people and communities well

Responsibly managing activities as Troilus approaches closure is a priority. Troilus needs to retain a productive, skilled workforce that is decreasing as workers begin to seek other, longer-term employment opportunities. Troilus also needs to continue to actively engage the local residents around the mine.

In 2008, Troilus continued to consult with the Cree of Mistissini, whose traditional lands the site occupies. As in 2007, the two meetings of the Troilus Agreement Implementation Committee (IC) focused primarily on mine closure and building job skills during the remaining mine life. The IC is comprised of leaders from the community of Mistissini and senior personnel from Troilus and Inmet. The committee meets regularly on activities at the mine and interests of the community. Troilus also discussed the environmental performance of the site with a focus on the reclamation activities required to implement the closure plan.

A case study report regarding the Troilus impact and benefit agreement was drafted and reviewed in 2008 for public release in 2009. We are proud of this report, because it will stand as a legacy to the mutual hard work and vision of the local Cree leaders and Inmet to create a mutually beneficial relationship out of Troilus. We hope this report will assist others as they seek to develop partnerships in the future.

In November, 2008 Troilus received top ranking for community affairs practices among 15 Quebec mines as assessed by Groupe Investissement Responsable (GRI). Troilus was ranked number two overall in its combined sustainability practices.

An enhanced severance program for all mine employees is in effect as the site transitions to closure. The program gives Troilus the best possible chance to retain the skilled workers needed until operations cease in mid-2010 and to provide workers with an opportunity to transition to other employment as activity winds down. Troilus plans to hire outside contractors and consultants to fill skill gaps where needed.

As part of closure activities, Troilus has agreed to train two members of the nearby Cree families on whose traditional lands the mine is located. Troilus looks forward to continuing its working relationship with the families and learning together while reclaiming the mine site.

Site management decided not to undertake a formal socio-economic assessment since the Troilus impact and benefit agreement and its implementation address the impacts of activities on the site's primary stakeholders.

Troilus' performance on 2008 SECA objectives

2008 SECA OBJECTIVES	2008 PERFORMANCE
1. Complete High Consequence Protocols (HCPs) and develop implementation plans.	<input checked="" type="checkbox"/> Protocols were developed and translated into French. A site implementation plan was developed and implementation of Working at Heights protocol began.
2. Develop implementation plans for the SECA Standards at our majority-owned operations.	<input checked="" type="checkbox"/> Developed an implementation plan to ensure that three priority Standards will be met prior to closure.
3. Increase community affairs resources at our majority-owned operations.	<input type="checkbox"/> Troilus maintained its working relationship with local Cree families, the Cree Nation of Mistissini, and Cree Regional Authority; Jointly drafted the <i>Implementing the Troilus Agreement</i> report.
4. Conduct a socio-economic assessment at each majority-owned operation.	<input type="checkbox"/> Troilus did not initiate a socio-economic assessment because mining was scheduled to cease as of April, 2009 and the Troilus impact and benefit agreement addresses site impacts.
5. Develop energy and water conservation plans at each majority-owned operation.	<input type="checkbox"/> Troilus did not draft energy and water conservation plans. Troilus continues to work on controlling its water consumption; water recycled is approximately 75 percent and the highest among our operations.