# ENVIRONMENTAL AND SOCIAL PERFORMANCE

# ANNUAL MONITORING REPORT (AMR)

**MONTANA EXPLORADORA DE GUATEMALA, S. A.**
**MARLIN MINE**

**REPORTING PERIOD: 2007**

**AMR COMPLETION DATE: MAY 15, 2008**

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**ACRONYMS AND ABBREVIATIONS**

| | |
|---|---|
| AG | Acid Generating |
| AG | Silver |
| AGP | Acid Generation Potential |
| AMAC | Asociación de Monitoreo Ambiental Comunitario |
| AMR | Annual Monitoring Report |
| ANP | Acid Neutralizing Potential |
| APROSAMI | Asociación de Promotores de Salud de San Miguel Ixtahuacán |
| AQV | family planning |
| ASOREMA | Association of Guatemalan Environmental NGOs |
| ASOTRAMÓN | Asociación Solidarista de Trabajadores de Montana |
| AU | Gold |
| CADEC | Community Advisory Councils |
| CDC | Citizens Development Corps |
| CN | Cyanide |
| CO | Carbon Monoxide |
| $CO_2$ | Carbon Dioxide |
| COCODE | Local Development Councils |
| CODI | Guatemalan Health Care NGO |
| Com | Community |
| Cont. | Contents |
| CPI | Critical Performance Indicator |
| CuM | Cubic Meters |
| dB | decibel |
| DGI | Dirección General de Energía |
| DGH | Dirección General de Hidrocarburos |
| DPM | Diesel Particulate Matter |
| EIA&S | Environmental and Social Impact Study |
| EKG | Electrocardiogram |
| EMP | Environmental Management Plan |
| EMS | Environmental Management System |
| Env | Environmental |
| EPA | Environmental Protection Agency (United States) |
| FAFIDESS | Fundación de Asesoría Financiera a Instituciones de Desarrollo y Servicio Social |
| MFI | Micro-Finance Institution |
| FSM | Fundación Sierra Madre |
| FUNSIN | Foundation for the Advancement of Engineering |
| g/t | Grams per Ton |
| GETSA | Gestión y Tecnología en Salud |
| GUAPA | Guatemala Poverty Assessment Program |
| ICDP | Integrated Community Development Program |

| | |
|---|---|
| IFC | International Finance Corporation |
| IGSS | Social Security Tax |
| INAB | Instituto Nacional del Bosque |
| INTECAP | Instituto Técnico de Capacitación y Productividad |
| INTECAP | Instituto Técnico de Capacitación y Productividad |
| INTERVIDA | US Humanitarian Aid NGO |
| IRTRA | Instituto de Recreación de Trabajadores de la Empresa Privada de Guatemala |
| IUSI | Property Tax |
| IVA | Value Added Tax |
| M | Meters |
| MARN | Ministry of the Environment and Natural Resources |
| MEM | Ministry of Energy and Mines |
| Montana | Montana Exploradora de Guatemala, S. A. |
| MSHA | Mine Safety and Health Administration (United States) |
| MSME | Micro, Small and Medium Enterprises |
| MSPAS | Ministry of Public Health and Social Assistance |
| NAG | Non Acid Generating |
| NGO | Non Governmental Organization |
| No. | Number |
| $O_2$ | Oxygen |
| OH&S | Occupational Health and Safety |
| OP | Operating Principles |
| OSHA | Occupational Safety and Health Administration (United States) |
| PAG | Potentially Acid Generating |
| PAP | Pap Smear |
| PCDP | Public Consultation and Disclosure Program |
| PCS | Petroleum Contaminated Soil |
| $PM_{10}$ | Particulate Matter with an Aerodynamic Diameter Less Than 10 Microns |
| PRODEC | Proyecto Desarrollo Comunitario |
| Q | Quetzales |
| Res | Resolution |
| SAG | Semi Autogenous Grinding |
| SDMP | Sustainable Development Management Plan |
| SDMS | Social/Sustainable Development Management System |
| Sus | Sustainable |
| TLV–TWA | Threshold Limit Value-Time Weighted Average |
| TPH | Total Petroleum Hydrocarbons |
| TSF | Tailings Storage Facility |
| US$ | United States Dollars |
| USG | Ultrasound |
| WAD CN | Weak Acid Dissociable Cyanide |
| WAD | Weak Acid Dissociable |

## 1.0 INTRODUCTION AND BACKGROUND

This 2007 Annual Monitoring Report (AMR) has been prepared to confirm compliance of the Marlin Mine with the applicable Guatemalan requirements and the Environmental and Social Impact Study approved for the mine. The AMR follows International Finance Corporation/Equator Principle environmental guidelines and social policies. Montana Exploradora de Guatemala, S. A. (Montana) has contracted for preparation of AMRs since 2004, at first for compliance with the provisions of the company's IFC loan and on a voluntary basis since 2006 when the loan was repaid. Every AMR has been made available to the public as a method for communicating with stakeholders and promoting transparency. Specific components of the AMR include the following:

- A detailed description of all significant health & safety, environmental and social activities and events that occurred during the reporting period.

- Provision of additional information about activities (i.e., status of permits or other approvals, ongoing public consultation during operations, etc.).

- Quantitative performance monitoring data summaries in comparison to appropriate national requirements and international guidelines.

- An explanation of any cases of non-compliance with national requirements and international guidelines or applicable regulatory limits that have occurred, identifying the cause and the corresponding corrective measures planned or underway to prevent future occurrences.

## 1.1 Annual Monitoring Report Certification

Montana Exploradora de Guatemala, S. A.
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Guatemala, Guatemala
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The 2007 AMR was prepared by Blankenship Consulting LLC, an independent consulting firm. The social portions were based on information provided by Montana Exploradora de Guatemala, S.A. and Fundación Sierra Madre. The environmental sections were prepared from information provided by Montana and were reviewed by Consultoría y Tecnología Ambiental, S.A., an independent environmental consulting firm. Health and safety sections of the report were prepared from information provided by Marlin Mine staff.

The undersigned certify that the data contained in this AMR completely and accurately represent environmental and social issues for the Marlin Mine during this reporting period and further certify that analytical data summaries incorporated into this report are based upon data collected and analyzed in a manner consistent with the World Bank Group's *Pollution Prevention and Abatement Handbook, Monitoring*.

| | |
|---|---|
| *Montana Exploradora de Guatemala, S. A.,*<br>*Milton Estuardo Saravia* | MAY 10, 2008<br>*Signature/Date* |
| *Blankenship Consulting LLC*<br>*George Blankenship* | May 13, 2008<br>*Signature/Date* |
| *Consultoría y Tecnología Ambienta, S. A.I*<br>*Dr.- Ing. Adrián Juárez Pineda* | May 10, 2008<br>*Signature/Date* |

## 2.0 MINE STATUS

The Marlin Mine was commissioned in 2005; 2007 was the second full year of commercial production.

### 2.1 Mining

Mining activities occurred at both surface and underground mining locations during 2007.

Surface Mine

A total of 5,098,630 tonnes of material was mined by the surface mine fleet during 2007; 1,254,459 tonnes were ore, at an average grade of 3.00 g/t vs. the 2.23 g/t budgeted grade. Additionally, 3,539,211 tonnes of waste were mined from the Marlin Pit and 304,960 tonnes of non-production rock were mined for construction purposes. Table 1 summarizes the material movement from the pit in 2007

**Table 1. Marlin Mine 2007 Surface Mine Production & Material Movement**

| | Actual | Plan | Variance |
|---|---|---|---|
| Ore Tonnes Mined | 1,254,459 | 943,319 | 311,140 |
| Grade Au (g/t) | 3.00 | 2.23 | 0.77 |
| Grade Ag (g/t) | 50.52 | 35.28 | 15.24 |
| Cont. Oz Au. | 120,890 | 67,754 | 53,136 |
| Cont. Oz. Ag | 2,037,475 | 1,070,041 | 967,434 |
| Waste Tonnes Mined | 3,539,211 | 4,721,776 | (1,182,565) |
| Non Production Tonnes | 304,960 | 0 | 304,960 |
| **Total Material Movement** | **5,098,630** | **5,665,095** | **(566,465)** |

Underground

As shown in Table 2, A total of 358,689 tonnes of ore were mined from the underground mine, with an average gold grade of 12.5 g/t and 276.9 g/t of silver. A total of 213,303 tonnes of waste were also mined in 2006 and 105,533 $M^3$ of backfill placed in mined-out stopes. Advance in lineal meters in ore was 5,625 meters and 3,065 lineal meters in waste.

**Table 2. Marlin Mine 2007 Underground Production & Material Movement**

| | Actual | Plan | Variance |
|---|---|---|---|
| Ore (Tonnes) | 358,689 | 321,206 | 37,483 |
| Au (g/t) | 12.5 | 14.5 | (2.0) |
| Ag (g/t) | 276.9 | 308.6 | (31.7) |
| Au (Ounces) | 144,349 | 149,957 | (5,608) |
| Ag (Ounces) | 3,192,850 | 3,186,461 | 6,389 |
| Waste (Tonnes) | 213,303 | 272,095 | (58,792) |
| Ore Advance (M.) | 5,625 | 5,665 | (40) |
| Waste Advance (M.) | 3,065 | 3,839 | (774) |
| Backfill Cu.M | 105,533 | 126,959 | (21,426) |
| **Total Material Movement*** | **571,992** | **593,301** | **(21,309)** |

*Excludes backfill

## 2.2 Production

- A total of 1,772,598 tonnes of ore were processed during 2007, at an average gold grade of 4.55 g/t and 84.31 g/t of silver.

- A total of 227,233 ounces of gold and 2,837,204 ounces of silver were produced during the year.

## 2.3 Ongoing Construction

- New office and dormitory facility construction continued during 2007 to accommodate most non-local staff and key contractors previously staying in the town of San Miguel Ixtahuacán or Huehuetenango. Some non-resident contractor personnel continue to reside off-property.

- Phase II of the Tailings Storage Facility continued throughout 2007, some minor design changes were done to reach final elevation by 2008 in order to avoid discharges of process water into the environment until water treatment plant construction is completed.

- A new contractor, Montgomery Watson Harza is now performing all TSF (Tailings Storage Facility) engineering, construction management and oversight.

- All construction is done with Hergo (contractor) trucks and mine equipment. Hergo will increase number of trucks during 2008 to accelerate construction at the Dam.

- An additional leaching tank was constructed at the process plant to increase gold and silver recovery.

- A new cyanide destruction tank was installed in parallel with the existing tank to allow continued operations during cyanide destruction tank maintenance or repairs.

- A new change house and small offices were built at the underground mine portal for use by underground workers and supervisors.

- The underground maintenance shop was upgraded by adding two maintenance bays.

- Airplane landing strip construction, which was initiated in 2006, was completed early in 2007 and was fully operational for the remainder of the year.

- Construction was completed on a new day care center for children of Marlin Mine employees. The center is located at the administrative area of the mine site. Equipment and furnishing for the day care center will be purchased and installed during the first semester of 2008.

## 2.4 Exploration

During 2007, Montana continued drilling in areas of geological interest around the Marlin Mine. A total of 57 core holes totaling 20,479 meters in depth were drilled on Montana-owned property and on third party private property. The majority of the drilling was accomplished using Montana-owned man-portable Hydrocore Gopher drills to minimize surface disturbance. These

portable drills are hand carried to four-meter square drill sites, eliminating the need for access roads, minimizing drill-site disturbance drill and reducing reclamation times. Exploration drilling with man-portable rigs generates more local jobs than drilling with track or truck-mounted drills, averaging 40 jobs for local residents near exploration areas.

Exploration wells were drilled in two different localities: in the Agel area in the municipality of San Miguel Ixtahuacán, and in the Cancil area of the municipality of Sipacapa. Geological mapping and soil and rock sampling occurred prior to drilling to identify new areas of interest.

In the Cancil area, approximately 21 wells were drilled totaling 7,647 meters in depth during 2007, in order to provide more detailed definition of the mineralization and to establish reserves.

A total of 24 exploration wells totaling 11,410 meters in depth were drilled for the western extension of the Marlin Mine inside mine property in the Agel area. The objective of this program was to test mineralization and establish reserves in this sector of the mine. These wells were deeper than the exploration wells and therefore required the use of two contracted caterpillar-mounted drills.

Montana also drilled 12 wells totaling 1,420 meters in depth inside the Marlin Mine property in the area of the tailings dam to define the mineral potential related to secondary structures in this zone.

Montana has conducted some mineral exploration activities in other municipalities where it has exploration licenses. Landowner permission is always obtained before exploration work commences on privately-owned property, including sampling, mapping and construction of paths and platforms. When roads and platforms are required on privately owned property, the landowner is compensated based on the amount of land that is disturbed. Entry agreements with private land owners always include reclamation provisions, and local residents remain employed by Montana for several weeks following each drilling campaign to reclaim disturbance by re-contouring drill sites, reseeding disturbed areas and planting trees.

In order to strengthen the relationship between the exploration department and the communities in which it operates, the department has contributed to some community development projects as outlined in Table 3. In addition to these projects, the Exploration Department has coordinated with the Marlin Mine Sustainable Development Department to work on community development projects in areas of interest.

**Table 3. 2007 Marlin Exploration Community Development Projects**

| Community | Project | Cost Q. | Cost US$ |
|---|---|---|---|
| Cancil, Sipacapa | Electrical plant repairs | Q.1,424 | $186 |
| Cancil, Sipacapa | Donation of an amplifier, DVD player and typewriter | 12,601 | 1,643 |
| Los Chocoyos, Sipacapa | Donation of painting for the school | 3,525 | 460 |
| Los Chocoyos, Sipacapa | Donation of protective paint for a wooden hanging bridge | 1,462 | 191 |
| Caserío La Cienaga | Donation of an erasable blackboard, bookcase, desk and chair | 2,360 | 308 |
| **TOTAL** | | **Q.21,372** | **$2,788** |

Montana follows community relations procedures when carrying out exploration activities in areas of interest. During 2007, community relations activities carried out by the Exploration Department included the following.

- The Exploration Department initiated contacts and held discussions with local officials and community leaders in the communities of La Estancia and Sipacapa, both in the municipality of Sipacapa.

- A total of 20 informational meetings were held in the communities of Los Chocoyos, Poj, Chual, Pueblo Viejo, Agua Caliente, Pie de La Cuesta, El Rincon, Xeabaj, Cancil, Quecá, Las Minas, Nueva Esperanza, Quequesiguan and Los López. A total of 616 persons attended these meetings.

- A total of 11 different groups from the communities of Los Chocoyos, Pie de La Cuesta, Queca, Agua Caliente, El Rincón, Area Suzeth, San José Ojetenam and Chiquibaj Cabricán visited the Marlin Mine. A total of 90 people in all visited the Marlin Mine with these groups.

- The Exploration Department received "Actas de Aceptación," from the local governments acknowledging their acceptance of exploration and potential mining activity in the Los Chocoyos and Cancil areas.

### 2.5 Reforestation (Forest Incentives Program)

The Marlin Mine reforestation campaign is part of the Forestry Management Plan approved by the Guatemalan INAB (Instituto Nacional de Bosques). Reforestation was described in this Plan as compensation for the direct impact of tree cutting within the mine area footprint. The compensation requirement was to reforest 190 hectares which was completed during the first two years of the reforestation campaign, 2004 and 2005. Montana has continued reforesting between ten and 20 hectares annually beyond the INAB requirements.

While reforestation is a requirement under Guatemalan law, the *Incentivos Forestales* program is a voluntary program initiated by Montana to ensure that planted trees reach maturity. Under this program, private landowners are paid incentives for planting and caring for trees. The incentives are paid for five years. In addition to cash incentives, participating landowners receive technical assistance from the company for ground preparation, fertilizing, plague control and other ongoing tree care services for the first five years. After that period the landowner is responsible for the care of the trees.

This year (2007) was the fourth reforestation year and 10 hectares were reforested. During 2007 Montana paid private land owners Q.169,890 (US$22,354) in forestry incentives. Since the inception of the *Incentivos Forestales* program, Montana has paid over Q.619,582 (US$81,523) to a total of 135 families for planting and caring for trees on their land.

In addition to the INAB reforestation program and *Incentivos Forestales*, Montana donated 5,000 fruit and ornamental trees to AMAC (the local community environmental monitoring committee, described in Section 5.2 of this AMR) in 2006 and again in 2007 for distribution to neighboring communities. In addition, a total of 2,460 fruit and ornamental trees were donated to Montana employees in 2007. Lastly, 2,020 fruit and ornamental trees were planted within the mine property by employees during 2007.

## 2.6 Employment

As of December of 2007 a total of 1,149[1] workers were employed by the Marlin Mine, about one percent higher than the December 2006 total of 1,121. A total of 937 workers were employed directly by Montana; and 212 workers were employed by mine contractors.

Figure 1 displays December 2007 employment by employee place of residence at the time the employee was hired. During 2007, 99 percent of all direct Marlin Mine employees were Guatemalan residents. Over two thirds of mine employees were from the two municipalities surrounding the mine: 56 percent were from San Miguel Ixtahuacán and 12 percent were from Sipacapa. Virtually all of the workers from San Miguel and Sipacapa were people of indigenous decent.

Of the 937 direct Montana employees at the Marlin Mine in December 2007, 88 percent were men and 12 percent were women.

**Figure 1. Marlin Mine Employees by Place of Residence: December 2007**

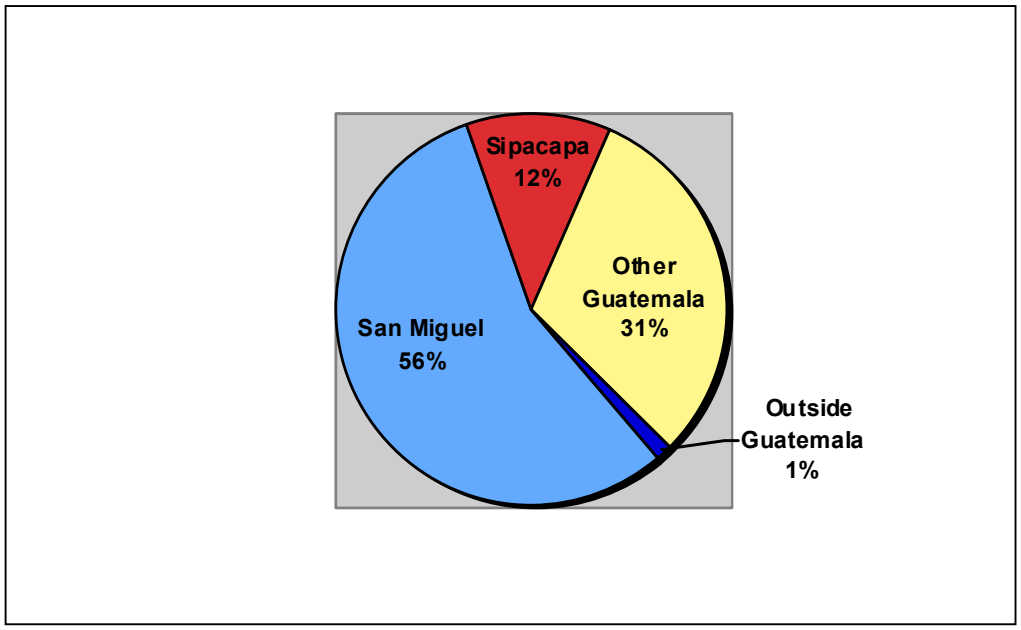
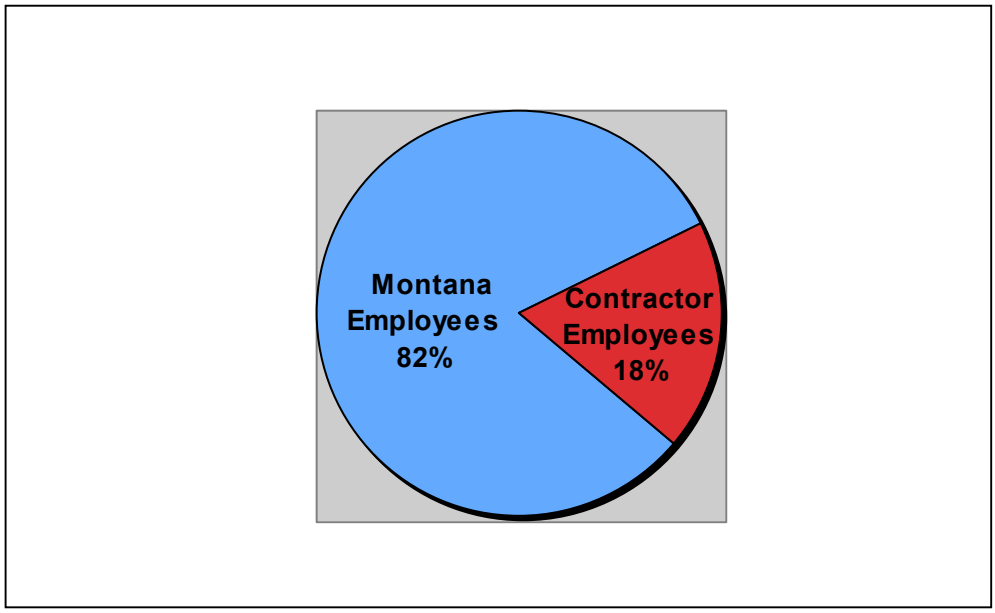



Figure 2 displays Marlin Mine workforce by type of employment. During December of 2007, 82 percent of the Marlin Mine workforce worked directly for Montana and18 percent were employed by contractors. Of the contractor employees, 98 percent were Guatemalans, and 62 percent were from San Miguel and Sipacapa.

[1] This includes 37 teachers in schools in communities near the mine whose salaries were paid by Montana.

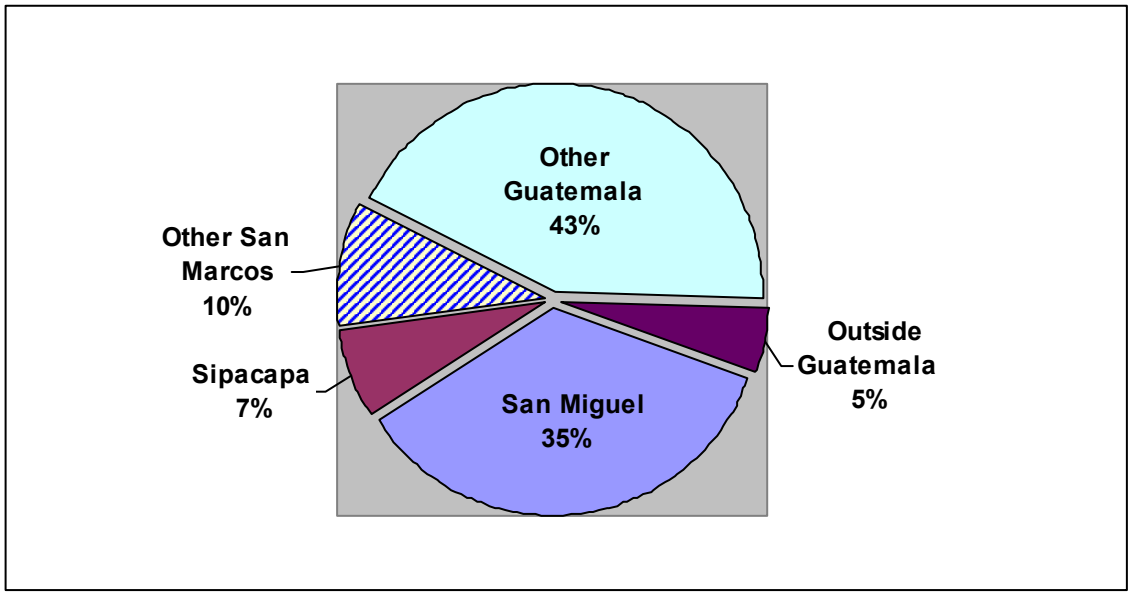
**Figure 2. Marlin Mine Employees by Employment Type: December 2000**




## 2.7 Payroll

The 2007 Marlin Mine payroll for both Montana and contractor employees totaled Q.87,562,238 (US$11,416,198). Of that amount, 95% percent or Q.82.8 million (US$10.8 million) was paid to Guatemalan workers, including 35 percent or Q.30.8 million (US$4.014 million) paid to workers from San Miguel and 7 percent or Q.6.1 million (US$0.8million) paid to workers from Sipacapa (see Figure 4). Of the total Marlin Mine payroll, 89 percent was paid to Montana employees and 11 percent was paid to contract employees.

**Figure 3. Total 2007 Marlin Mine Payroll by Employee Residence**



## 2.8 Employee Benefits

Montana full-time employees receive the benefits listed below.

- Health insurance for employees and their families.
- Employees and their families can receive free health care treatment at the health clinic located at the mine site[2].
- Life insurance.
- Accidental death and dismemberment insurance.
- Overtime pay.
- 14th salary bonus: a bonus equal to one month's salary for employees that have worked a full year (prorated for those that have worked for less than one year).
- Christmas bonus: also a bonus equal to one month's salary for employees that have worked a full year (prorated for those that have worked for less than one year), calculated from December 1 through November 30.
- 15 days vacation/year.
- Social Security.
- IRTRA (Instituto de Recreación de Trabajadores de la Empresa Privada de Guatemala), an institution which provides recreation facilities for employees of private entities.
- Transportation is provided to and from the mine site daily from San Miguel, Sipacapa, San José Nueva Esperanza, San Antonio, Máquivil, and Huehuetenango.
- Safety equipment: all Marlin Mine workers are provided with the safety equipment required for their particular job.

## 2.9 Montana Employee's Solidarity Association

In November of 2005, the employees of Montana Exploradora de Guatemala, S.A formed the Asociación Solidarista de Trabajadores de Montana (ASOTRAMÓN), which seeks to improve the quality of life for Montana employees, their families and communities. The association provides long and short-term loans to members and promotes social, sporting and economic activities to strengthen relations of solidarity and goodwill between employees and the company.

ASOTRAMÓN has the following objectives:

- Stimulate employee savings
- Facilitate acquisition to credit
- Provide access to basic goods at affordable prices
- Retirement planning
- To inculcate an entrepreneurial spirit

As of the end of 2007, ASOTRAMÓN had 464 members and total savings of Q.2,953,247 (US$385,038).

## 2.10 Employee Training

The Marlin Mine provides a variety of training for all employees. Table 4 displays training received during 2007, excluding social and environmental training, which are reported under

[2] Residents of communities near the mine also receive free health care at the clinic located at the mine site.

subsequent sections of this AMR. In addition to this training, all Marlin employees receive regular safety training including a one-half hour industrial safety meeting on a weekly basis and a five-minute safety talk is held with all workers at the beginning of each shift. Other safety training is described in the Occupational Health and Safety section of this AMR.

**Table 4. 2007 Marlin Mine Employee Training**

| Job Classification | Number Trained | | | Training Description | Certification |
|---|---|---|---|---|---|
| | Male | Female | Indigenous | | |
| Administrative Personnel | 11 | 5 | 8 | Industrial fire suppression<br>Operations<br>First aid | Y |
| Supervisor | 26 | | 9 | Contingency brigade<br>Industrial fire suppression<br>Operations,<br>First aid | |
| Operators:<br>-Plant<br>-Heavy equipment<br>-Underground<br>-Drilling | 131 | 2 | 98 | Jumbo drill<br>Bolting theory<br>Axera 5-6<br>Caterpillar AD30<br>Articulated loader<br>Marcotte<br>Robolt 5<br>Industrial Safety | Y |
| Laborers | 36 | | 36 | Industrial safety<br>New Employee Briefing<br>Regulations | Y |
| Maintenance:<br>-Plant<br>-Underground<br>-Operations | 109 | | 87 | Delta V Hydraulics<br>Delta V processes<br>Safety manual<br>Operations<br>Accident prevention<br>First aid | Y |
| Service:<br>-Residence camp<br>-Other | | 10 | 10 | New Employee Briefing<br>Accident prevention<br>First aid | Y |
| **TOTAL** | **313** | **17** | **248** | | |

## 2.11 Purchasing

Marlin Mine purchasing is divided into two categories: operations purchasing for materials equipment and supplies and contract services.

During 2007 Montana spent over $84 million for materials, equipment and supplies for operations of the Marlin Mine. Of the total, two thirds or over $55 million was spent within Guatemala. Over $475,000 in purchases were made in San Miguel and about $626,000 were made in Sipacapa. More than $704,000 in purchases were made from women-owned businesses (see Table 5). The amount purchased from indigenous-owned businesses is not known, because the businesses do

not identify themselves as indigenous-owned. It is likely however than many of the businesses from San Miguel and Sipacapa were owned by people of indigenous decent.

| Table 5. 2007 Marlin Mine Purchasing: Materials, Equipment And Supplies | | | | | | |
|---|---|---|---|---|---|---|
| | By Location of Contractor | | | | | |
| | San Miguel | Sipacapa/H | San Marcos Department | Elsewhere in Guatemala | Outside Guatemala | Total |
| 2007 Total Operations Purchases | $474,719 | $625,627 | $2,343,813 | $51,945,641 | $29,057,612 | $84,447,412 |
| Total Purchases from Women-Owned Businesses | $193,099 | $24,863 | $486,544 | N/A | N/A | $704,506 |

During 2007 Montana spent over $4.5 million for contract services. All of these expenditures were made in Guatemala (see Table 6).

| Table 6. 2007 Marlin Mine Contract Services Purchases | | | | | | |
|---|---|---|---|---|---|---|
| | By Location of Contractor | | | | | |
| | San Miguel | Sipacapa | Total in San Marcos Department | Total Elsewhere in Guatemala | Outside Guatemala | Total |
| Total Operations Contracts | N/A | N/A | $349,112 | $4,223,111 | N/A | $4,572,223 |

### 2.12 Land Acquisition

During 2007, Montana acquired an additional 801 cuerdas (approximately 86.5 acres) of land for the Marlin Mine (see Table 7).

| Table 7. Marlin Mine 2007 Land Acquisitions | | | | | | |
|---|---|---|---|---|---|---|
| Number of Parcels Purchased | Number of Owners | Number of Women Owners | Total Area | Average Parcel Size in Cuerdas | Total Paid in Quetzales | Total Paid in Dollars |
| 9 | 9 | 1 | 801 cuerdas<br>86.5 acres | 89 | Q.3,206,000 | $417,992 |

Although Montana has previously acquired all land necessary for the Marlin Mine, the company continues to purchase selected parcels from willing landowners to expand the buffer area. During 2007, Montana purchased 9 separate parcels of land from 9 separate owners. Parcel sizes ranged from 1 cuerda to 360 cuerdas; the average parcel size was 89 cuerdas. Montana paid a total of Q.3,206,000 ($417,992) for these parcels, or Q.4000/cuerda ($4,829/acre). The average amount paid per parcel was $46,415.

Montana also acquired two cuerdas of land from a private landowner in the village of Chuena for enlargement and improvement of a soccer field that had been reduced in size because of the widening and improvement of the main road from the Pan-American Highway to San Miguel Ixtahuacán. This land was conveyed to the community of Chuena as compensation for the land they gave up for the widening of the road.

Homes and Improvements

All land purchased by Montana during 2007 was raw land; no homes or improvements were purchased.

## 3.0 TAX AND ROYALTY PAYMENTS

During 2007 Montana paid over Q.132 million (US$17 million) in taxes and royalties for the Marlin Mine. Table 8 provides information on the specific taxes and payments. Since the mine began production in 2005, Montana has paid Q.25,300,736 ($3,298,662) in royalties, which have been split equally between the Municipality of San Miguel Ixtahuacán and the central government, as required by Guatemalan law. Additionally, Montana has set aside a reserve of Q.2,530,073 ($329,866) for the Municipality of Sipacapa, an amount equal to 10 percent of total royalties. This constitutes a voluntary donation and the amount was calculated on the basis of the percentage of total Marlin property that is in Sipacapa though it does not qualify for royalties under Guatemalan law since no minerals are mined in Sipacapa.

| Table 8. 2007 Marlin Mine Tax And Royalty Payments | | | | |
|---|---|---|---|---|
| **Guatemalan Tax or Royalty** | **2007Marlin Mine Tax/Royalty Payment** | | **Tax/Royalty Type** | **Comments** |
| | **Quetzales** | **Dollars** | | |
| Income Tax* | Q.73,055,919 | $9,524,892 | Tax on gross income | |
| IVA (crédito fiscal) | 35,728,634 | 4,658,231 | Value Added Tax (VAT) – 12% on all purchases | Montana is due a refund of the VAT attributable to export production |
| IUSI | 753,288 | 98,212 | Tax on land | Can accrue to the municipality where the land is located under certain conditions |
| Derechos Ancelarios | 264,263 | 34,454 | Import tax | Paid on certain non-exempt imported items |
| Regalias | 14,595,649 | 1,902,953 | Royalties on production | 50% distributed to the municipality where the ore is mined |
| IGSS Patronal | 7,729,911 | 1,007,811 | Social security tax (employer's share) | Funds health care and hospitals |
| **Total** | **Q.132,127,664** | **$17,226,553** | | |
| Employee share of IGSS | Q.2,835,276 | $369,658 | Social Security tax (employee's share) | |

* Montana was scheduled to begin paying income taxes in 2008, but voluntarily began paying the tax in July of 2006. Because of this decision, the government of Guatemala received an additional Q.98,828,618 ($12,924,642) through the end of 2007.

## 4.0 SIGNIFICANT EVENTS

The following significant events occurred during 2007:

- January 10: Protestors set up roadblocks on roads leading to the mine. The protestors, who had sold parcels of land to Francisco Gold or Montana Exploradora several years before at eight to ten times market value, wanted additional payment. Two Montana employees (Montana's Director of Risk Manager for Guatemala and the Marlin Mine Security Superintendent) were injured when attacked by rocks when they were investigating trespassers on the mine property. The Risk Manager received a large laceration on his forehead which required stitches and the Security Superintendent received facial injuries that required surgery and hospitalization.

  The attacks led to police investigation and charges being filed against those who perpetuated the violence. Subsequently ten communities near the Marlin Mine signed

"Actas" or letters of support for the mine stating that they did not support the road block or the violence.

- January 18-19: Montana was invited to make a presentation and participate in a forum with the United Nations Representative for Human Rights and Transnational Corporations in Bogota, Colombia.

- January 22: The above-reference roadblock was voluntary abandoned.

- January 24: Montana and the Ministry of Health signed an agreement to remodel the San Miguel Ixtahuacán Health Center and convert it to a 24 hour/day facility. The Ministry committed to provide the needed additional human resources to provide round-the-clock services. The agreement also included a commitment to communicate the results of the approved health baseline study and jointly participation in health monitoring (see Section 7.0).

- January: A Sr. Bianchini, an Italian national, issued a report, widely quoted in the Guatemalan press and by the Catholic Church, claiming that the Marlin Mine had caused pollution in the Tzalá River. The alleged findings of the report were subsequently discredited by several independent sources including the Guatemalan Ministry of Mining and AMAC – the local Community Environmental Monitoring Association.

- February 5: Responding to a local report of possible pollution by a Marlin Mine contractor, the local community-based environmental monitoring committee AMAC visited the Marlin Mine and verified that the drilling of a new monitoring well by contractor Daho Pozos was not polluting a local dry stream bed.

- February 15: The neighboring community of Xeabaj, in the Municipality of Sipacapa inaugurated its new water supply system which was constructed through a joint community and Marlin Mine project.

- February 14 – 20: Two of the participants in the January roadblock who were identified as committing the assaults against Marlin Mine personnel were arrested. These individuals were subsequent tried and found guilty. The guilty verdict was sustained on appeal.

- March 9: Montana, AMAC and ASOREMA (an association of Guatemalan environmental NGOs) participated in a joint workshop on Guatemalan Mining law, environmental stewardship and sustainable development at the Marlin Mine.

- March 23: The new airstrip at the Marlin Mine became operational, reducing traffic on the access road and through nearby communities.

- April 8 -11: Goldcorp's Executive Director for Central and South America held meetings with Marlin Mine workers to provide updates on company and mine operations.

- April 26: Marlin Mine personnel gave a presentation on sustainable development before the Society of Mining Engineers.

- May 9: The Marlin Mine sponsored a Mother's Day celebration event in Nueva Esperanza for members of communities around the mine.

- May 16: The Guatemalan Attorney General toured the Marlin Mine.

- June 19: Marlin Mine Sustainable Development Department personnel gave the first presentation to Marlin Mine workers on the Community Grievance Policy.

- June 19 & 20: San Miguel Ixtahuacán Health Fair organized and supported by Fundación Sierra Madre.

- September 5 -7: Mauricio Athie, Environmental Specialist with the International Finance Corporation/World Bank visits the Marlin Mine.

- September 18: The Sierra Madre Foundation celebrated its fourth anniversary

- October 18: Members of the Goldcorp Board of Directors visit the Marlin Mine.

- December 12: The Marlin Mine received a "Special and Honorary Mention" award from the Guatemalan-American Chamber of Commerce for its Neighbors for Progress initiative, which the chamber called an "excellent development program."

- December: The Marlin Mine Sustainable Development Department and the community of San José Nueva Esperanza initiated work on the new community Urban Center, which will include a new school, community meeting hall, auxiliary mayor's chambers, playground and park. Architectural drawings for the Urban Center are presented in Attachment A.

## 5.0 LIAISON WITH EXTERNAL PARTIES

### 5.1 Guatemalan Monitoring Requirements for the Marlin Mine

MEM and MARN Requirements

The Guatemalan Ministry of Energy and Mines (MEM) and Ministry of Environment and Natural Resources (MARN) are the two primary government agencies that oversee mining activities within the country. According to article 31 of the Guatemalan Mining Law, a mining exploitation license holder is required to prepare and submit an Environmental and Social Impact Statement (EIA&S) for proposed projects. Upon project approval, the license holder is required to comply with the recommendations contained in the EIA&S. Montana is also required to comply with the 13 terms of the MARN resolution 779-2003/CRMM/EM approving the EIA&S document.

The Marlin Mine EIA&S proposed an environmental monitoring program which included the stations and monitoring frequencies shown in Table 9:

| Table 9. Marlin Mine Monitoring Requirements | | | |
|---|---|---|---|
| **Resource** | **Sample ID** | **Sample Frequency** | **Standards** |
| Discharge | Pit Discharge | Quarterly | World Bank & MARN Effluent Standards |
| Discharge | Tailings Discharge | Quarterly | |
| Discharge | Waste Dump | Quarterly | |
| Discharge | Area 5 Waste Dump | Quarterly | |
| Discharge | Oil-Water Separator | Quarterly | |
| Surface Water | SW1 | Quarterly | Compare upstream to downstream and watch for trends |
| Surface Water | SW1-2 | Quarterly | |
| Surface Water | SW2 | Quarterly | |
| Surface Water | SW3 | Quarterly | |
| Surface Water | SW4 | Quarterly | |
| Surface Water | SW5 | Quarterly | |
| Streambed Sediment | SW1 Sediment | Annually | |
| Streambed Sediment | SW1-2 Sediment | Annually | |
| Streambed Sediment | SW2 Sediment | Annually | |
| Streambed Sediment | SW3 Sediment | Annually | |
| Streambed Sediment | SW4 Sediment | Annually | |
| Streambed Sediment | SW5 Sediment | Annually | |
| Ground Water | MW2 | Quarterly | Watch for trends |
| Ground Water | MW3 | Quarterly | |
| Ground Water | MW4 | Quarterly | |
| Ambient Air Quality | AQ1 | Quarterly | World Bank Guideline |
| Ambient Air Quality | AQ2 | Quarterly | |
| Ambient Air Quality | AQ4 | Quarterly | |
| Ambient Air Quality | AQ5 (AQ12) | Quarterly | |
| Ambient Air Quality | AQ6 (NA) | Quarterly | |
| Ambient Air Quality | AQ7 (AQ 12) | Quarterly | |
| Ambient Air Quality | AQ8 (AQ 7) | Quarterly | |
| Noise | Agel | Quarterly | |
| Noise | SJ Nueva Esperanza | Quarterly | |
| Noise | SJ Ixcaniche | Quarterly | |
| Noise | Tzalem | Quarterly | |
| Noise | Canzil/Poj | Quarterly | |
| Noise | Chuena | Quarterly | |
| Aquatic Life (5 pts) | SW1, SW2, SW3, SW4, SW5 | Bi-annually | Watch for trends |
| Terrestrial Biology | 3 parcels | Annually | |
| Forestry Cover | Area of Influence | Every Two Years | |
| Public Opinion | Various | Annually | |
| Socioeconomics | Various | Annually | |

A map showing the locations of environmental monitoring stations is included as Attachment B. As indicated in the table, some air quality monitoring station locations have changed. For example, Station AQ5 was to be located at Siete Platos to monitor traffic–related air quality impacts. However, Montana was unable to reach an agreement to conduct the monitoring with the landowner where electric power to run the station was available. In lieu of AQ5, a station to monitor traffic impacts was established in Chuena along the same access road. The point is labeled AQ12, although at the time of the writing of the EIS it was labeled AQ7.

Station AQ6 was located in what is now a disturbed area within the mine, well within the property boundary. For this reason this point is no longer monitored and is not representative of ambient air quality. AQ8 was located in Cancil and was an upwind monitoring location. However, access to electrical power was better in the community of Poj/Carrizal, which is also located upwind of the mine. For this reason point AQ8 was replaced with AQ7 in Poj/Carrizal. In addition to the air quality points established in the EIA&S, Marlin established an additional upwind monitoring station in the community of Salem in the Municipality of Sipacapa labeled AQ9, and two baseline and background monitoring stations in Salitre labeled AQ10 and AQ11.

The results of the Marlin Mine monitoring program must be presented to the regulatory agencies every 3 months.

Other Requirements

No other Guatemalan institutions require monitoring for the Marlin Mine; however, the Ministry of Public Health and Social Assistance (MSPAS) is authorized to conduct water quality audits and the National Institute of Forests (INAB) may conduct field inspections to assess the implementation of the Forest Management Plan.

## 5.2 Ongoing Public Consultation and Disclosure

Montana has an ongoing Public Consultation and Disclosure Program (PCDP) for the Marlin Mine. The objectives and elements of the program are described in the *Marlin Mining Project Public Consultation and Disclosure Plan*, which was submitted to IFC as a supporting document for the original loan application.

Marlin Community Relations Unit

One of the key elements of the PCDP is the Community Relations Unit of the Marlin Mine Sustainable Development Department, made up of Mam and Sipakapense-speaking residents of the municipalities of San Miguel Ixtahuacán and Sipacapa and headed by a community relations specialist. The Community Relations Unit has been trained to provide information about the mine and to conduct meetings and facilitate participation of indigenous peoples at the community, organization and individual level. The initial focus was on the directly affected communities, but the public consultation and disclosure work of the Community Relations Unit has been expanded over time to include many other communities in the municipalities of San Miguel and Sipacapa as well as communities in the Departments of Huehuetenango and Quetzaltenango that are along the access road to the Marlin Mine from the Pan American Highway.

During 2007, the Marlin Mine Community Relations Unit made 796 visits to individual communities and held a total of 1,696 meetings within those communities, which were attended by a total of 17,276 people. As shown in Table 10, during 2007 a total of 628 people also toured the Marlin mine.

| Table 10. Public Consultation Summary: Community Relations Unit | | | | | |
|---|---|---|---|---|---|
| Consultation Type | Number of Consultations | | | | |
| | 2003/2004 | 2005 | 2006 | 2007 | TOTAL |
| Community Visits | 179 | 163 | 727 | 796 | 1,865 |
| Number of persons attending meetings | 11,609 | 4,357 | 10,722 | 17,726 | 44,414 |
| Number of Persons visiting the mine | 3,389 | 2,414 | 459 | 628 | 6,890 |

Also during 2007, a total of 1,260 people visited Montana's offices in San Miguel and Sipacapa. Montana also held a number of information workshops for community officials, which were attended by a total of 1,084 community officials.

Montana Staff Contacts

In addition to these visits, a variety of Montana personnel held numerous formal, informal and ad hoc meetings with community, departmental and national government officials, NGOs and individuals. These meetings occurred frequently and addressed a variety of topics.

Public Communications

Montana has an ongoing public communications program that includes the following elements:

- *Periódico Horizontes:* This is a magazine distributed to interested audiences, primarily in Guatemala City. One issue of *Horizontes* was published during 2007. It was distributed to businesses, public officials, government agencies and key organizations

- *Volantes Informativos (Flyers):* These are short papers - often one page - on specific topics that are widely distributed in communities near the Marlin mine. During 2007 Montana published and circulated five *Volantes Informativos,* to 1) discuss mine operations, 2) to provide information about the January roadblock and explain the company's position regarding the protestor's demand, i.e., that Montana was not required to pay for the land twice, particularly when the landowner's original compensation was substantially above fair market value, and 3) to respond to accusations of contamination in the Tzalá and Cuilco Rivers. During 2007 Montana published and circulated five separate *Volantes Informativos*. An average of 2,000 copies of each flyer were published and circulated.

- *Boletín El Ingeniero:* *El Ingeniero* is the Marlin Mine's major print medium for ongoing communications with neighboring communities. It has a circulation of about 2000. *El Ingeniero* provides in-depth stories of mine and community events and milestones, community projects, aspects of mining, profiles of mine employees, and occupational health, safety and environmental programs. Two issues of *El Ingeniero* were published during 2007.

- *Folletos (Pamphlets)*: Illustrated pamphlets are used to provide more detailed information about the Marlin Mine, such as aspects of mining, mining benefits, environmental protection and social responsibility. These pamphlets are available at the Montana Exploradora de Guatemala offices in San Miguel Ixtuahuacán and Sipacapa, at the Marlin

Mine offices and at Montana's offices in Guatemala City. About 2,000 *Folletos* were distributed during 2007.

- *Posters*: The content-information from pamphlets is also presented by placing posters in public places in the communities. Usually the Auxiliary Maryor's offices are where these are located for best public access. In the 2007, the Community Relations Unit posted 2 documents, related to 1) provide information about the January roadblock and to explain the company's position regarding the protestors' demands, and 2) to respond to accusations of contamination in the Tzalá and Cuilco Rivers. A total of 150 posters were distributed.

- *Radio Announcements:* Announcements are made on a variety of local, regional and national radio stations covering topics such as technical, environmental, social, economic and legal aspects of Marlin Mine activities. Radio announcements placed on local radio station are translated in to Mam and Sipakapense as well as Spanish. During 2007, radio announcements communicated the payment of royalties to national and local governments and one human interest story during one week every month. Radio announcements were also used to communicate the payment of reforestation incentives and Montana's response to unsubstantiated allegations by interest groups and organizations.

- *Newspaper Announcements:* Announcements are published in local, regional and national newspapers to communicate significant events and technical, environmental, social, economic and legal aspects of the Marlin Mine that might not be otherwise covered by the press. As with the radio announcements, 2007 newspaper announcement focused on payment of royalties to national and local governments, the payment of reforestation incentives and Montana's response to unsubstantiated allegations by special interest groups. Montana published twice-monthly ads in four national newspapers.

- *Magazine Announcements:* Similar to newspaper announcements, Montana published informative advertisements in four national magazines on a monthly basis.

- *Television Announcements:* Montana placed announcements on two national broadcast channels and one San Marcos Department cable television channel.

- *Issue/Briefing Documents:* Montana prepares and circulates documents on a variety of aspects of mining in general and the Marlin Mine in specific. These documents are circulated to interested government and private sector representatives.

- *Video presentations:* Montana has developed a number of video presentations on aspects of the Marlin Mine. These presentations are circulated to television stations and other interested groups and individuals in DVD format.

- *Briefings:* Montana has held a number of briefings for representatives of the banking, commerce, industrial and governmental sectors.

Another method for communicating with the public is through the Goldcorp website, which contains information on the Marlin Mine including Goldcorp press releases. Goldcorp also publishes Marlin Mine annual monitoring reports on the website. The 2006 Annual Monitoring

Report for the Marlin Mine is available to the public on the Goldcorp website; the 2004 and 2005 AMRs were available in English and Spanish on the Glamis Gold website.

Grievance Redress

Montana has established responsibility and resources for addressing community-based grievances within the Marlin Mine Sustainable Development Department. The institutional grievance system allows for improved tracking and documentation of local inquiries, grievances and complaints. Montana implemented the new grievance system in early 2007. The Sustainable Development Department presented the policy and procedures to company employees – most of whom are residents of nearby communities – stressing that the community grievance policy is not a system for labor issues, and then presented the grievance policy and procedures to communities. The system provides a formal, documented system to respond to inquiries from members of neighboring communities. The system takes into account that some community members do not read or write and that their native language may be Mam or Sipakapense rather than Spanish.

The community grievance redress process was invoked only once during 2007. A landowner found that his horse had been hit by a vehicle and killed on the road that provides access to the Marlin Mine from the Pan American Highway. The 27 kilometer-long segment of the road from La Cal to the mine entrance road also provides access to a number of communities and rural residences as it travels through the municipalities of Malacantancito, Sipacapa, and San Miguel, and mine-related traffic is only a fraction of total truck and passenger vehicle traffic on the road. Consequently Montana denied the landowner's claim for compensation because there was no indication that a vehicle traveling to the Marlin Mine struck his horse.

Community Environmental Monitoring Association (AMAC)

*Asociación de Monitoreo Ambiental Comunitario* or AMAC was established in September 2005 to conduct an independent community-based environmental monitoring program in the area around the Marlin Mine. Information for this section was provided by Avanzar, an independent consulting firm that provides facilitation services to AMAC. In addition to Avanzar, AMAC is supported by two technical representatives: a civil engineer/geologist and a chemist from the Faculty of Engineering of the University of San Carlos in Guatemala.

***Legal Status and Decision Making***

AMAC is independent and community-based; each of the participating communities chose their representative in a community assembly. Although AMAC has not yet obtained its registered legal status, the association has established internal regulations that require decisions to be taken in assemblies that follow local traditions, under the direction of the association committee that includes a president, vice president, secretary and treasurer.

***Funding***

AMAC has an agreement with FUNSIN (Foundation for the Advancement of Engineering – a foundation with headquarters in the Guatemala School of Engineering) for the management of funds. FUNSIN manages funds obtained from any source to enable AMAC to retain its independent status. To date the IFC and Montana have contributed funds to support AMAC's activities. IFC's funding commitment ends in July of 2008 and AMAC has worked during the year to diversify its funding sources.

***Training***

AMAC members have received training in conflict resolution, communication and negotiation, water sampling procedures and techniques, introduction to cyanide, introduction to the chemistry, concepts and practical examples of variables analyzed in surface and groundwater sampling, and in the uses, applications and toxicity of metals and non-metals. Previously, at the request of AMAC members, the technical support team provided training on the chemistry of the elements and components considered in the laboratory analysis of the water samples. AMAC also expanded its water sampling training program, including review of the role of preservatives, the selection of the location of sampling points, comparison of laboratory sampling results with World Bank water quality standards, and revision of the sampling protocols. AMAC continued its training program during 2007 with the introduction of other training sessions related to positive communication, teamwork, meeting organization and practical mathematics relative to the understanding of water sampling reports.

***Water Sampling***

AMAC collected water samples four times during 2007, during the months of February, May, August and November. Samples were taken at different sampling points during each session. The samples obtained were sent to a laboratory chosen by AMAC (ALS Laboratory Group in Canada, an internationally certified laboratory).

Shortly after mine opposition groups released the November 2006 Bianchini Report alleging contamination in the Tzalá River, AMAC took samples from the same sampling point used by the opposition groups. Laboratory results from samples taken by AMAC at this site showed water quality to be in accordance with Guatemalan and World Bank standards, refuting the findings of the Bianchini Report.

***Analysis of Laboratory Results***

Upon receipt of laboratory results, AMAC meets to compare the laboratory results between upstream and downstream monitoring points, as well as to review water quality trends over time. AMAC then meets with technical staff from the Marlin mine to discuss results. The laboratory results from all samples taken during 2007 by both AMAC and by the mine personnel were consistent and did not show any significant, negative impacts related to mining activity.

***Communications***

AMAC has developed a plan for communicating its activities to the participating communities and to external groups. Shortly after AMAC obtains and reviews the laboratory results, association members visit participating communities to present the results. During 2006 and 2007, AMAC members also met with the Catholic and Evangelical churches, other local municipalities, Mayan groups, the Guatemalan Ministry of Energy and Mines, selected embassies and other Guatemala City-based agencies and organizations. During 2007, AMAC made 43 presentations to communities and 5 presentations to other interested organizations.

AMAC developed a process of periodic community consultations to effectively engage members of participating communities. AMAC representatives visit their neighbors each month and these visits are evaluated by community consultations every three months.

***AMAC Interactions with Marlin Mine Officials***

During 2007 AMAC interacted with Marlin Mine officials regarding the following committee and community concerns.

- AMAC asked for information concerning charter airplanes landing and taking off on mine property. Marlin officials explained the purpose of the flights and took AMAC representatives on a tour of the runway.

- As noted in the Significant Events Section of this AMR (Section 4.0), AMAC responded to local reports of pollution by a Marlin Mine contractor by visiting the drilling site and verifying that the drilling of a new monitoring well was not polluting a dry stream bed.

- AMAC developed a reforestation plan and received 5,000 seedlings to plant on land near the Marlin Mine.

- AMAC negotiated an agreement with Marlin mine officials to observe the air-sampling program for areas near the mine.

- AMAC secured a commitment from Montana to provide information on the Marlin mine's contingency plan during AMAC's next training session.

- AMAC organized and Montana authorized a number of mine tours for local officials and community members to examine and receive information about the underground and open pit mines and the processing plant.

Fundación Sierra Madre Community Advisory Councils

Fundación Sierra Madre (FSM – described in Section 8.2 of this AMR) has established Community Advisory Councils (CADEC) in the municipalities of San Miguel, Sipacapa and Máquivil, and has developed rules, procedures and structures for the CADEC. The CADEC are intended to engage the communities in the formulation and implementation of the Foundation's plans and strategies.

## 6.0 SCHOOLS

Montana coordinates with local communities, national, departmental and local educational institutions, FSM and other NGOs and organizations to strengthen and improve educational resources in communities near the Marlin Mine. Montana's educational initiatives include construction and improvement of school facilities through the work of the Marlin Mine Community Development Program (see Section 8.1), funding of school equipment and supplies and funding of the salaries of teachers. During 2007, Montana funded the salaries of 37 teachers including 24 in various communities in the Municipality of San Miguel, 11 in communities the Municipality of Sipacapa and 1 in the Municipality of Malacatancito.

A collateral benefit of the Marlin Mine project is that school enrollment is increasing, in part because of the increased availability of year-round work in communities near the mine. Information about school enrollment is collected from schools in each directly affected community. Table 11 contrasts 2002 and 2007 enrollment for schools in villages near the mine site.

| Table 11. Enrollment In Schools Near The Marlin Mine: 2002 – 2006 | | | | | |
|---|---|---|---|---|---|
| Community/ School | 2002 Ending Enrollment | 2007 Beginning Enrollment | 2007 Ending Enrollment | Change in Number From 2002 | Percent Change From 2002 |
| Agel | 208 | 229 | 216 | 8 | 4% |
| San José Ixcaniche | 97 | 162 | 133 | 36 | 37% |
| San Jose Nueva Esperanza | 57 | 93 | 84 | 27 | 47% |
| Salitre | 208 | 354 | 281 | 73 | 35% |
| Siete Platos | 129[3] | 161 | 144 | 15 | 12% |
| Salem | 58 | 94 | 82 | 24 | 41% |

School enrollment has increased between 2002 and 2007 in every community near the mine site. Fewer families are traveling to the coast for work and more children are completing the school year. It is also clear from discussions with teachers that fewer children are dropping out of school each year, although the dropout rate in some schools continues to be relatively high.

## 7.0 HEALTH

Montana's health care strategies for communities near the Marlin Mine have evolved over time. Initially the company supported development of health care facilities and services through Fundación Sierra Madre in partnership with other health care NGOs.[4] During the past several years, the company sponsored the health baseline study described below and participated in numerous discussions with the Guatemalan Ministry of Health. Also during this period, the emphasis shifted from immediate delivery of health care services to sustainability of the local health care delivery system.

GETSA (Gestión y Tecnología en Salud) completed a baseline health study that included communities within the municipalities of San Miguel and Sipacapa. The Health Baseline Study has been reviewed and approved by the Ministry of Health of Guatemala effective October 27, 2006. Part of an agreement between Montana and the Ministry of Health is the sharing of the baseline study information in communities in the area near the Marlin Mine. This work is pending implementation as part of a regular health monitoring program.

The Health Baseline study provides information about the health conditions and services prior to the development and operation of the Marlin Mine. It also provides technical information to better plan Montana's support of the local health system in coordination with the Ministry of Health, and a platform to implement a health monitoring system that will be useful for Montana and the Ministry of Health during the life of the Marlin Mine. Montana is currently in discussions with a Guatemalan university about the possibility of conducting a longitudinal health study, which will monitor health conditions described in the GETSA Health Baseline study. As currently conceived, university researchers would conduct the study under guidance from the Guatemalan Ministry of Health with financial support from Montana.

[3] The Siete Platos enrollment number is from 2004. The 2002 enrollment was not available.
[4] See Section 8.2 for a description of Fundación Sierra Madre.

The information developed in the initial baseline study also justified a higher level of health care and the development of a Level I[5] health center in San Miguel. In January of 2007, the Ministry of Health and Montana signed an agreement for 1) the sharing of results from the Health Baseline study, 2) a joint effort to implement a health monitoring program to build on the Health Baseline study and 3) improvement of the San Miguel Health Center to a provide 24 hour/day integrated health care. Montana has an on-going process to procure equipment for the center; during 2007 the company purchased an ambulance, x-ray equipment and other equipment and supplies. This equipment is in storage until it can be integrated with the remodeling of the San Miguel Health Center.

## 8.0 MARLIN MINE ROLE IN POVERTY REDUCTION

The IFC's mission is to "*promote sustainable private sector investment in developing countries, helping to reduce poverty and improve people's lives*." The Marlin Mine Social and Community Development Program, described in the *Indigenous Peoples Development Plan* submitted as part of the IFC loan application, includes activities intended to ensure that residents of communities near the mine site will share in the benefits of the mine in a manner that substantially reduces poverty and improves their lives. This section of the AMR demonstrates Marlin Mine progress in achieving that goal.

In February of 2003, the World Bank released "*Poverty in Guatemala*,[6]" a five-year comprehensive analysis of poverty in Guatemala conducted through the Guatemala Poverty Assessment Program (GUAPA). The study's three main objectives were to 1) conduct a multi-dimensional analysis of poverty in Guatemala using both quantitative and qualitative data; 2) examine the policies of government spending and policies on the poor; and 3) use the empirical findings of the report to identify options and priorities for poverty reduction in the future.[7]

The Priority Actions for poverty reduction contained in the study include the following:

1. *Promoting economic growth*: The study notes that "In this context, the main engine of growth is likely to come from the private sector" and that priority actions should include "promoting growth with special emphasis on sectors that are likely to generate substantial employment for the poor." Activities which could support growth in non–farm activities in rural areas include:

    a. increasing and improving the targeting of investments in education and technical training;

    b. increasing investments in transport and basic infrastructure, which are crucial for the diversification, growth and inclusion of the poor in the rural economy; and,

    c. policies that promote micro, small and medium-enterprises (MSMEs), a segment of the private sector that tends to generate a lot of employment.

[5] This health center categorization has been superseded by one developed by the new central government administration.
[6] Poverty in Guatemala, Report No. 24221-GU. World Bank. February 20, 2003.
[7] Ibid, Executive Summary, p.i.

2. *Investing in education, with priority actions to improve quality and access to pre-primary and primary education.*

3. *Investing in health, with an emphasis on expanding access and usage using both supply- and demand-side interventions.*

4. *Integrating actions to reduce malnutrition into the basic health-care package.*

5. *Reducing isolation and improving communications by investing in rural transport and roads.*

6. *Improving governance and the effectiveness of the public sector.*

The study also identifies priority target groups for poverty reduction, including (a) poor and malnourished children; (b) poor women and girls; (c) poor indigenous households; (d) the rural poor; and (e) specific geographic areas including the Department of San Marcos.[8]

The following provides brief highlights of Marlin Mine 2007 social and community development activities and outcomes that correspond to each of the GUAPA priority actions for poverty reduction. Each aspect of the Marlin Mine and its Sustainable/Community Development Program is presented in detail in other sections of this AMR.

*1. Promoting Economic Growth*

The Marlin Mine has promoted economic growth in the following ways:

a. **Payroll**: The 2007 payroll for the Marlin Mine totaled US$11.4 million, including Montana direct and contract employees. Of that amount, 95% percent (over $10.8 million) was paid to Guatemalan employees, including 35 percent ($4 million) paid to employees from San Miguel and 7 percent ($0.8 million) paid to employees from Sipacapa. Employees from San Miguel and Sipacapa are virtually all indigenous and most were in poverty at the time of hire. In all, 52 percent of the Marlin Mine payroll was paid to employees from San Marcos Department.

b. **Purchasing**: During 2007 Montana spent about $475,000 in for materials and supplies in San Miguel and about $626,000 in Sipacapa. Including both direct and contract purchase, Montana spent almost $4 million in San Marcos Department in 2007.

c. **Land Acquisition**: During 2007, Montana paid Q.3,206,000 ($417,992) for land. Virtually all of the landowners who received payments were indigenous. Payments for this land were substantially above market value.

d. **Training**: Montana has provided vocational and technical training to a many local indigenous residents to qualify them for technical jobs at the mine. In 2007, Over 340 employees received vocational training for operations jobs, not including the annual health and safety training.

[8] Ibid, Executive Summary, pp.x – xiii

Fundación Sierra Madre (FSM, described in Section 8.2 of this AMR) has aligned with the Guatemalan government vocational training agency, INTECAP, to provide vocational training for a variety of MSME enterprises. During 2007, over 350 local residents attended FSM-sponsored training sessions and workshops. Virtually all of these attendees were indigenous and more than half were women.

2. *Investing in education, with priority actions to improve quality and access to pre-primary and primary education.*

   The Marlin Mine has contributed to education in the following ways:

   a. During 2007 Montana has funded salaries, benefits and supplies for 37 teachers in San Miguel, Sipacapa and Malacatancito. Teacher salaries and benefits alone were approximately US$ 120,000.

   b. In coordination with Departmental and Municipal education officials, FSM developed and implemented a teaching theory and teacher skills improvement program for its new teachers, the program included training sessions, classroom evaluations and teacher feedback components. The Foundation carries out teacher training with teachers funded by the Marlin Mine as part of its Education component.

   c. The 2007 Marlin Community Development program included substantial funding for construction or improvements for schools in 13 communities, including Nueva Esperanza, El Salitre, Siete Platos, Chuen, Canoj, Màquivil, La Cal, Cùcal, La Estancia, Subchal, Nueva Victoria and Carrizal.

   Perhaps the most significant contribution to education in communities near the Marlin Mine has been the stability provided by employment, which has allowed families to keep children in school. Since 2002, both school enrollment and the number of students who remain in school for the entire school year has increased substantially in most communities near the mine.

3. *Investing in health, with an emphasis on expanding access and usage using both supply- and demand-side interventions*.

   Marlin Mine health care activities include the following:

   a. During 2007 FSM provided health care consultation services to 734 people in communities surrounding the Marlin Mine.

   b. Two health fairs were held in San Miguel, which offered consultations, health screenings (PAP, ultra-sound, eye exams, family planning, lab work and EKG) and other services to a total of 671 persons.

   c. FSM provided health education services to an average of 75 women and 160 students each month.

   d. FSM provided follow-up home visits to 284 families.

4. *Integrating actions to reduce malnutrition into the basic health-care package.*

    a. FSM's health education program for women includes training on prenatal care and early childhood nutrition.

5. *Reducing isolation and improving communications by investing in rural transport and roads.*

    a. During 2004, Montana built a bridge and developed a road that leads from the Marlin Mine to Highway CA1, also known as the Pan American Highway. The bridge has been formally given to the municipality of San Miguel Ixtahuacán to allay any fear that the company would remove this bridge. In the aftermath of Hurricane Stan in 2006, this road and bridge provided the only access to many communities in the area surrounding the mine. Similarly a bridge constructed by Montana to provide access to Sipacapa withstood the hurricane and provided the only access for Sipacapa to Montana's access road and the rest of the country after the storm. The primary access road to Tejutla was severely damaged by the storm and Montana reconstructed and reopened the road to provide access to and from that community.

    b. In response to a request from the Guatemalan Government and the Mayor of San Miguel, Montana is investing approximately US$5 million to significantly upgrade and pave 20 kilometers of road providing access between San Miguel Ixtahuacán and the road that connects Concepción Tutuapa and Tejutla and eventually San Marcos. This important road is used by residents to move people and products throughout the region. The improvement and paving of this road will substantially reduce travel time from San Miguel to San Marcos, the departmental capitol, provide access to the road from a number of communities not currently served, reduce wear and tear on vehicles and most importantly, provide a much safer roadway for local residents.

        In addition to the 20 kilometers of road between San Miguel Ixtahuacán and the turn-off to Concepción Tutuapa and Tejutla that will be paved, there are a number of communities off to one side of the road that insisted that a loop road connecting their communities also be paved. The national government and the mayor of San Miguel Ixtahuacán negotiated with them and agreed to include this as part of the project. The additional cost is being paid for by the national government in part and also by the San Miguel Ixtahuacán municipality which is dedicating a portion of the royalties it receives from the Marlin Mine to the project.

        The road paving project is currently underway after having been inaugurated in September of 2005 by Guatemalan President Oscar Berger, San Miguel Ixtahuacán Mayor Oswaldo Avila Perez and Glamis Gold Ltd. President and CEO Kevin McArthur. The asphalt plant for the project is located near the community of Siete Platos.

c. Montana's Community Development program provided funds for road improvement and maintenance projects in four communities during 2007, including La Peña, Chilive, Baljetre and La Florida.

6. *Improving governance and the effectiveness of the public sector.*

Montana's contribution to improving governance and the effectiveness of the public sector has proceeded on two fronts.

a. Montana has promoted transparency by communicating the Marlin Mine tax and royalty payments in newspaper and radio announcements and on a large billboard in front of the Marlin Mine entrance.

b. Montana was scheduled to begin paying income taxes in 2008, but voluntarily began paying the tax in July of 2006. Because of this decision, the government of Guatemala received an additional Q.98,828,618 (US$12,924,642) through the end of 2007.

c. FSM held workshops in the communities of Horcones and Cancil for Auxiliary Mayors, COCODE (local development councils) members and community leaders on Development Council law. The workshops were attended by 22 persons in Horcones and 15 persons in Cancil.

7. *Priority target groups for poverty reduction, including indigenous households and women*.

Montana's achievements in this area include:

a. During 2007, an average of 636 residents of local communities worked at the Marlin Mine, most of these residents were indigenous.

b. The residents of the area around the Marlin Mine who received health care services from FSM in 2007 were virtually all indigenous and many were women who received prenatal and maternal care and training.

c. The participants in the FSM vocational training courses in 2007 were virtually all indigenous and more than half were women.

d. The Marlin Mine, through FSM/FAFIDESS, supported 38 communal banks and solidarity groups during 2007, which had a total of 611 members, all of whom are indigenous women. Along with the micro-credit program, training in leadership and management of the communal banks has led to greater participation of women in commercial activities in the area.

# 9.0 COMMUNITY/SUSTAINABLE DEVELOPMENT

## 9.1 Community Development Projects

Montana funds selected community development initiatives in communities near the Marlin Mine and along the access road to the mine through the Organizational Development Unit of the Sustainable Development Department.

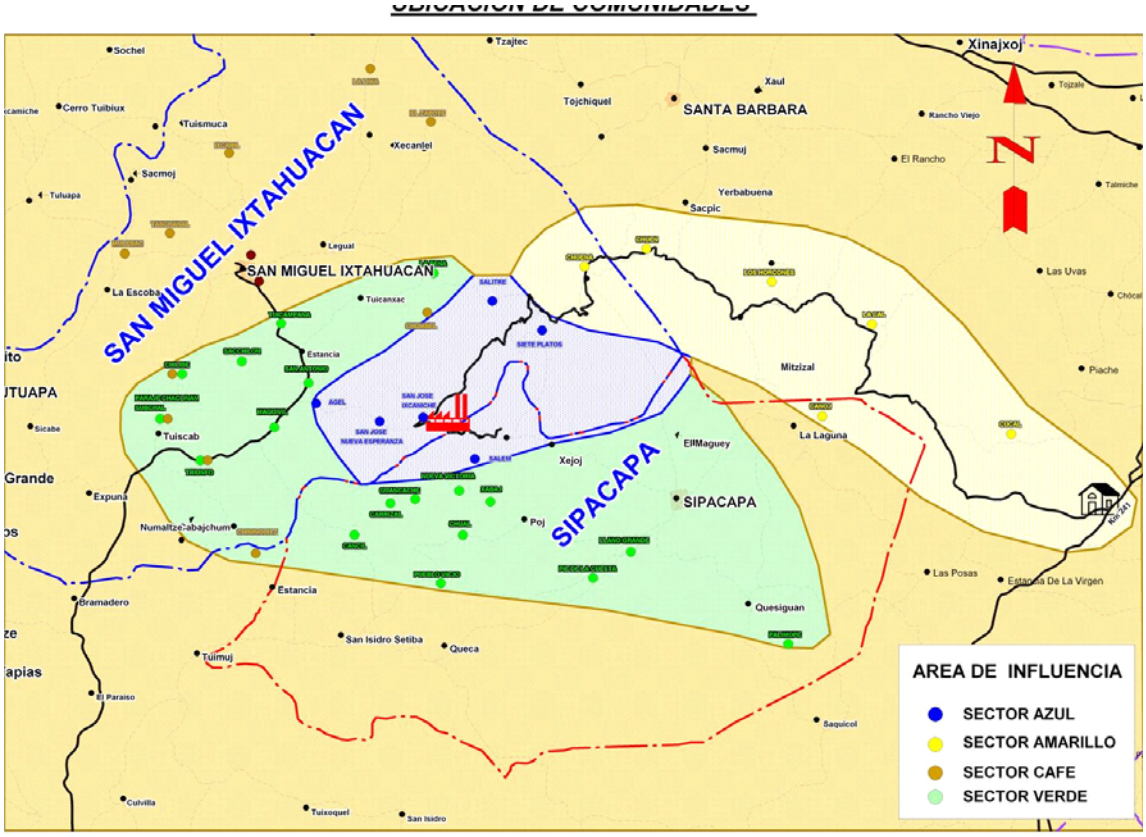
Marlin Organizational Development Unit and Community Development Funding

During 2007 the Marlin Organizational Development Unit conducted its second community grant cycle. Established in 2005, the unit engages communities in the identification, prioritization and implementation of community development projects in the context of available resources including those from the Marlin Mine.

Montana and the communities near the Marlin mine use a geography-based system for allocating company support for community development projects based on the intensity and types of potential impacts. The system also has some flexibility so that the company can consider and support emerging and urgent community development projects if the need arises.

The structure of the community development system is based on four zones of potential impact which are color-coded (Blue, Green, Yellow and Brown) on a map as shown in Figure 4.

**Figure 4. Marlin Mine Zones of Potential Impact**



- The Blue Zone is the area of direct influence, which includes six communities that are located adjacent to the Marlin mine and its activities: Agel, San Jose Nueva Esperanza, San Jose Ixcaniche, Salitre and Siete Platos in the municipality of San Miguel Ixtahuacán and Salem in the municipality of Sipacapa. These communities receive 40 percent of the annual community development budget for this geographic strategy.

- The Green Zone includes a second ring of communities located around the Marlin Mine that are indirectly affected by the mine and its activities. These communities receive 30 percent of the annual community development budget for the geographic strategy.

- The Yellow Zone includes communities located along the transportation route between the Marlin mine and the Pan American Highway. These communities receive 20 percent of the annual community development budget for the geographic strategy.

- The Brown Zone includes the remaining communities in the municipalities of San Miguel Ixtahuacán and Sipacapa that may or may not be affected by the Marlin Mine and its activities. Development needs in these communities are identified in coordination with the municipal governments. These communities receive 10 percent of the annual community development budget for the geographic strategy. In 2007 Brown Zone projects were identified in discussions between the Organizational Development Unit and the Municipality of San Miguel Ixtahuacán. In Sipacapa, Brown Zone funding was redirected to the Green Zone for 2007.

During 2007 Montana met with communities in the Blue, Yellow and Green zones to get input on the community organizational development process. The elements of the process include:

- The COCODES (local development councils) and auxiliary mayors of each community identify, prioritize and select community projects.

- General guidelines establish the types of development projects Montana will fund.

- The community organizational development program is ongoing and phased multi-year projects are allowed and encouraged.

- Montana provides a set amount of funding each year for community development. It is up to the COCODES and Auxiliary Mayors to determine the distribution of that funding. Communities are encouraged to use Marlin Mine funding to leverage additional funding from the municipality and other sources. The funding level for the 2007 program was approximately US$300,000 for all zones. Additional community development funds are separately allocated.

- A diagnosis process (involving the community from the beginning) is key element of the Marlin Mine community development program. A total of 12 community diagnosis processes were carried out with the direct assistance of the Organizational Development Unit. Eight additional diagnosis processes were carried out by Fundación Sierra Madre. The main purpose is to prepare communities to make community development decisions and to strengthen their ability to manage development processes.

The community organizational development process is intended to foster sustainable community development by strengthening local community planning, financing and implementation capacities. In the initial round, the communities identified a set of projects that would cost more than the available funding for 2006. Through internal negotiations between communities, one community agreed to scale back its project to a first phase of a school building on the promise that the other communities would give first priority status to the second phase of the school in the 2007 funding cycle. This commitment was honored during 2007 and the village of Siete Platos constructed a second level on its school building with support from the community development program.

Also during the final quarter of 2007, the Organizational Development Unit began training community officials in preventative maintenance and corrective action skills for maintaining capital projects in their communities. This training is an element of the Montana's Organizational Development Plan for the Marlin Mine.

Table 12 displays 2007 community development projects selected by the COCODES and auxiliary mayors in participatory community processes. These projects are funded by Montana, the communities and in some cases, material and funding contributions from the respective municipalities.

**Table 12. Marlin Mine 2007 Community Development Projects**

| No. | Community | Project Type | Status | % |
|---|---|---|---|---|
| | | Blue Zone Projects | | |
| | Agel, SMI | Construction of a retaining wall | Completed | 100% |
| | San José Nueva Esperanza, SMI | Construction of a new urban center (Auxiliary Mayor's office, meeting hall, school, playground and park) (see Attachment A) | Under construction | 5% |
| | San José Ixcaniche, SMI | Improvement and expansion of electric power system and extension of electricity to 18 previously un-served homes | Completed | 100% |
| | El Salitre, SMI | Construction of a school with two classrooms | Under construction | 80% |
| | Siete Platos, SMI | Construction of a second level of the primary school with two classrooms (first level completed last year) | Completed | 100% |
| | | | | |
| | | **Yellow Zone Projects** | | |
| | Chuena, SMI | Installation of 162 electrical supply posts, electrical lines and connection to residences | Completed | 100% |
| | Chuen, SMI | Construction and improvements to school kitchen, cabinets, sink and stove | Completed | 100% |
| | Horcones, SMI | Construction of 54 efficient stoves | Completed | 100% |

| Table 12. Marlin Mine 2007 Community Development Projects | | | | |
|---|---|---|---|---|
| **No.** | **Community** | **Project Type** | **Status** | **%** |
| | Canoj, SMI | Circulation improvements at the institute | Completed | 100% |
| | La Cal, SMI | Construction of a school classroom | Completed | 100% |
| | Cùcal, SMI | 2nd phase school construction including new classroom and latrines | Completed | 100% |
| **Green Zone Projects** | | | | |
| | Màquivil, SMI | Construction of a community storage room at the school | Completed | 100% |
| | La Peña, SMI | Construction of a bridge | In process | 10% |
| | La Estancia[1] | School retaining wall | Completed | 100% |
| | Chiquililà,[2] SMI | Drainage improvements, channels and gutter covers for soccer field | Completed | 100% |
| | Ixchol | Drinking water study | Completed | 100% |
| | Tui Campana, SMI | Construction of a basketball court | Completed | 100% |
| | Sícabe[1] | Materials for the construction of 4 commercial areas | Completed | 100% |
| | Subchal | School retaining wall | Completed | 100% |
| | Sacchilón[1] | Materials for the construction of a community meeting room | Completed | 100% |
| | El Triunfo, SMI | Materials for placement of a pump and elevated water storage tank for the school and institute | In process | 80% |
| | Chilive, SMI | Replace road base on a 2.1 km section of road, installation of 10 drainage ditches and 2 culverts | Completed | 100% |
| | Cancil, Sipacapa | Remodel water distribution tank | Completed | 100% |
| | Nueva Victoria, Sipacapa | Construction of a school with two classrooms | Completed | 100% |
| | Chual, Sipacapa | Furniture for auxiliary mayor's meeting hall | Completed | 100% |
| | Pueblo Viejo, Sipacapa | Construction of a computer center with 15 computers | Completed | 100% |
| | Pié de La Cuesta, Sipacapa | Placement of water storage tanks and connecting PVC pipe. | Completed | 100% |
| | Xeabaj, Sipacapa | Construction of a communal meeting room | Completed | 100% |
| | Carrizal, Sipacapa | Construction of 35 m of school walkway | Completed | 100% |
| | Aldea La Estancia | Construction of a computer center with 15 computers | | |
| **Brown Zone Projects**[3] | | | | |
| | Cabajchun | Remodel auxiliary mayor's meeting room | Completed | 100% |
| | Baljetre | Access to the Talshanal Highway | Completed | 100% |

| Table 12. Marlin Mine 2007 Community Development Projects | | | | |
|---|---|---|---|---|
| **No.** | **Community** | **Project Type** | **Status** | **%** |
| | El Colmito | Reconstruction of an aqueduct | Completed | 100% |
| | El Edén | Construction of a auxiliary mayor's meeting room | Completed | 100% |
| | Tierra Colorada | Expansion of auxiliary mayor's meeting room | Not initiated | 0% |
| | La Florida | Access road to the Carrizal Highway | Completed | 100% |

[1] Materials only provided. [2] Co-financed by the municipality. [3] Carried out by the municipality with support from Montana.

2007 Education Funding

Montana also participates in education initiatives in communities near the Marlin Mine. During 2007, Montana funded the salaries and benefits of 37 teachers (24 in the Municipality of San Miguel, 12 in the Municipality of Sipacapa and 1 in the Municipality of Malacatancito). This ongoing initiative was initiated during 2006 in response to request from the mayors of San Miguel and Sipacapa, who are using municipal funds to pay for additional teachers. Table 13 displays the 2007 distribution of Montana-funded teachers and the total amount paid.

| Table 13. 2006 Montana Teacher Funding | | | |
|---|---|---|---|
| **Municipality** | **Number of Teachers** | **Montana Contributions/ Quetzales** | **Montana Contributions/ Dollars** |
| San Miguel Ixtahuacán | 24 | | |
| Sipacapa | 12 | | |
| Malacatancito | 1 | | |
| **Total** | **37** | **Q.919, 579** | **US$ 119,893** |

### 9.2 Sustainable Development: Fundación Sierra Madre[9]

In July 2003, Montana hired Citizens Development Corps (CDC) to design and implement an integrated community development program (ICDP) for the communities adjoining the Marlin Mine. The primary goal of the ICDP program was to create the foundation for sustainable multi-sectoral development that would improve the quality of life of residents of these communities in the immediate future and beyond the life of the mine.

Until 2007, the ICDP was managed by CDC and implemented through the Fundación Sierra Madre, a Guatemalan NGO set up specifically to help create local ownership for the program. During 2007, FSM assumed management of the ICDP. Also during 2007, the FSM director's position became vacant and at the end of the year a recruitment process was underway. Since FSM is managed by Guatemalans, it is part of the local community and plays an integral role in building local capacity and promoting program sustainability. FSM is based in San Miguel Ixtahuacán and also has an office in Sipacapa.

[9] Much of the information in this section is excerpted from FSM annual and quarterly reports and other foundation documents.

CDC has forged partnerships with other organizations in order to execute specific objectives of the ICDP. The main ICDP partners for 2007 included:

- INTECAP (Instituto Técnico de Capacitación y Productividad), a state-run entity that offers vocational trainings; and

- FAFIDESS (Fundación de Asesoría Financiera a Instituciones de Desarrollo y Servicio Social), a Guatemalan micro-finance institution (MFI) that coordinates the program's communal banks.

These partnerships, which were formalized in 2004 and have continued through 2007, were created as a way to bring an integrated strategy to program implementation while maximizing the results of each program component.

The FSM Integrated Community Development Program (ICDP) has four main objectives:

1. Improve access to and quality of health services for men, women and children.
2. Increase economic opportunities by strengthening family/micro economic production.
3. Promote environmental awareness.
4. Develop institutional capacity and visibility of Foundation Sierra Madre, its partners and strategic public institutions.

During 2007, FSM focused on four types of community development activities:

- Health Services including:
  - Health education
  - Community Health Assistance
  - Health Care Coordination

- Economic Development including:
  - Business development
  - Business Fair of Life, Color and Flavor
  - Systematization of business tools and contents
  - Micro-credit and lending

- Education and Training
  - Teaching theory and skills training
  - Vocational training

- Community Capacity Building
  - Participatory rural needs assessments

<u>Health Care</u>

FSM's health care objective for 2007 was to improve access to health care education and clinical attention for at least 10 communities in San Miguel and 4 communities in Sipacapa.

FSM's health care strategy changed considerably during 2007, due in large part to changes in the municipal health care delivery system. Initially, FSM and its partner NGO APROSAMI delivered a selected range of essential health care services to residents of communities near the Marlin mine. In recent years, the San Miguel Health Center has established itself as the primary health

care provider in the area and received additional support from the municipality and the Ministry of Health. The San Miguel center has added employees and contracted with two NGOs, CODI and PRODEC, which has improved access to health care for area residents. During 2007, FSM concentrated its health care activities on education and, as is mentioned in Section7, Montana and the Ministry of health agreed to jointly upgrade the existing Health Center into a 24 hour/day permanent health center with additional services.

In the interest of sustainability and to void duplication of services, FSM refocused its activities from the direct delivery of selected essential health care services to health education and community support. These services are oriented primarily toward mothers and children under five years of age, with the objective of reducing maternal and early childhood mortality, a substantial problem in the area. FSM also focused on health care education in area schools, with the objective of instilling good health care habits at an early age.

FSM's 2007 health care services were organized in two areas.

***Community Health Assistance***

These services included health care consultations and health fairs. Health consultations included pre-natal consultations and consultations with infants, children and men, in coordination with community officials, midwives and other community leaders. Monthly consultation visits occurred in Chuena, Siete Platos, Salitre, Agel, San Antonio, Máquivil, Tierra Blanca Mubel, La Peña, San José Ixcaniche y San José Nueva Esperanza. Table 14 lists the community health assistance services provided in 2007 and the number of patients seen in each category.

**Table 14. 2007 FSM Community Health Assistance Services and Patients Seen**

| CONSULTATION SERVICES | 1st Quarter* | 2nd Quarter | | 3rd Quarter | | 4th Quarter | | Total |
|---|---|---|---|---|---|---|---|---|
| | | M | F | M | F | M | F | |
| Children less than 1 year | 25 | 14 | 22 | 3 | 6 | 8 | 8 | 86 |
| Children 1- 5 years | 30 | 22 | 24 | 3 | 3 | 10 | 9 | 101 |
| General | 60 | 21 | 118 | 6 | 46 | 10 | 52 | 313 |
| Prenatal exams | 39 | 0 | 62 | 0 | 14 | 0 | 28 | 143 |
| Postnatal exams | 37 | 0 | 9 | 0 | 4 | 0 | 5 | 55 |
| Consultations in FSM offices | 16 | 0 | 0 | 1 | 1 | 6 | 12 | 36 |
| **Total** | **207** | **57** | **235** | **13** | **74** | **34** | **114** | **734** |

* First quarter data not tabulated by sex.

The majority of the community assistance consultations involved women and children. The primary health concerns involved colds, respiratory and intestinal infections, skin problems and intestinal parasites.

FSM continued its tradition of holding health fairs in the area by hosting two fairs during 2007, which provided access to a variety of health care services not routinely available in communities near the mine site including ophthalmology, laboratory analysis and electrocardiograms. The results for each of the two fairs are displayed in Table 15.

| Table 15. 2007 FSM/APROSAMI Health Fair Services And Patients Seen | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location** | **Date** | **General Consultation** | **Dental** | **Eye Exam** | **Ultrasound** | **PAP** | **AQV** | **Family Planning** | **EKG** | **Lab Work** | **Vaccination** | **Total** |
| San Miguel | Dec 19-20 | 135 | 38 | 96 | 46 | 42 | 09 | 02 | 10 | 36 | 5 | 419 |
| San Miguel | Dec 05 | 126 | 23 | 39 | 17 | 23 | 05 | 02 | 01 | 16 | 0 | 252 |
| **Total** | | **261** | **61** | **135** | **63** | **65** | **14** | **4** | **11** | **52** | **5** | **671** |

Note: PAP=Pap Smear; USG=Ultrasound; AQV=family planning; EKG=Electrocardiogram.
** The educational talks addressed varied health issues, based on the diseases prevalent in the area. Other services were also available, such as medicinal plants, immunization, pregnancy tests, and pharmaceutical sales.

Health fair attendance was less than in previous years in part because transportation was not provided.

***Health Education Services***

The illnesses most prevalent in communities near the Marlin mine such as diarrhea, respiratory and intestinal infections, skin problems, anemia and others can often be prevented through health education. During 2007 FSM assembled a team that included two health educators, a nurse and a doctor to deliver health education services to communities near the Marlin Mine. From early 2007, this team began visiting communities to organize groups of women, to coordinate with community officials, community leaders and directors of the educational establishments to implement health education services.

FSM combined health education services with patient consultations by taking advantage of the time women spent waiting for health care consultations to conduct conversations about health care topics such as reproductive health, methods of family planning, maternal lactation, indications of complications during pregnancy, labor and postpartum concerns, early childhood nutrition, personal hygiene, diarrhea, oral re-hydration, methods of solar water purification and first aid. An average of 75 women per month participated in these health education conversations.

In March of 2007 FSM expanded its community health care services to include home visits for certain types of patients. Home visits were provided to patients that have previously attended consultations and subsequently could not travel to a community health center. This category includes women who have recently given birth and need post partum or infant care support; and families with health care issues that would benefit from health education services to address the causes of the illness. During 2007 a total of 284 families received home visits for delivery of the above-referenced services.

During the last seven months of 2007, FSM initiated health care education and training for students in area schools. The program was initiated with third grade students and served an average of 160 students each month. Topics covered in the sessions include personal hygiene, dental hygiene and first aid. The program appears to have been well received by teachers and students alike.

***Health Care Coordination***

The initiation of community health assistance services required intensive coordination between the municipal health centers, community officials and other health care NGOs. The organization of the health education programs with women and students required frequent communication and coordination with community, church and school officials and with the families who participated in the educational services.

FSM also coordinated its activities with the Departmental and Municipal Health Councils, supporting the national campaign to eradicate measles and rubella, the national vaccination campaign, and providing records of the foundation's community health visits and vaccinations to the community health center.

FSM provided ongoing education and training for health care professionals including staff of the municipal health center and of NGOs including PRODEC, INTERVIDA AND CODI. These workshops were developed and delivered in close coordination with the director of the health center and appear to have been well received. Table 16 below lists the topics covered in the workshop and the number of attendees.

**Table 16. 2007 FSM Health Care Providers Workshops**

| Workshop Topics | Participants | Coordination |
|---|---|---|
| Interpersonal relationships and working in groups | 32 | San Marcos Departmental Health Headquarters |
| Reduction of infant mortality, subtopics included the four delays, danger signs, newborn care and contingency plans | 25 | |

Education and Training

The objectives of FSM's program in this area are to increase teacher skills in communities near the Marlin Mine and to expand the productive capacities of residents of those communities.

***Teacher Skills Improvement and Training***

The 2007 work program focused on improving the skills of the 37 teachers whose salaries are funded by Montana while providing them access to information on learning theory.

FSM's 2007 education program was conducted in four phases.

Phase I included coordination with the Marlin Mine Community Development Department to plan the program, ongoing review of program implementation, inventory of the school facilities, staff and educational capacity of schools in communities near the mine site, evaluation of the program and planning of the 2008 program.

Phase II included coordination with national, departmental and local school officials and institutions to gain their approval and support and to ensure that the skills training program fit within their objectives and guidelines.

Phase III involved coordination with the directors and teachers at the school to discuss the program and obtain their support.

Phase IV involved the actual delivery of the teacher education and training workshops. These included:

- An introductory workshop on teaching responsibilities and learning theory;
- A mathematics teaching workshop;
- A communications and language teaching workshop;
- Classroom observation and teacher evaluation
- Preparation and presentation of observation results and discussion of future teacher capacity-building activities.

***Vocational Education***

Analysis of the results of training courses conducted in previous years has shown that relatively few participants that enrolled in a FSM-planned training used what they learned to generate income through production, commerce or rendering of services. However, people who requested support to begin a specific kind of business or to improve one they already had generally did apply the learned training.

Training is a key component of the FSM Enterprise Development Program and fostering an entrepreneurial attitude and basic business skills development are important elements of success. The development of basic knowledge and abilities is essential in health, environment, commerce, agricultural and livestock production. Vocational training continued to be an important element of FSM's visibility and connection to the community.

A total of 58 people participated in 9 different vocational courses during 2007 as shown in Table 17. About 72 percent of participants were women.

Post-training follow up identified the following results:

- One of the tailors from Máquivil and one from Cabajchún who attended the tailoring began making suits to order for clients.
- One woman from Sipacapa and one from Quequesiguán who attended the embroidery class began embroidering hats for customers.
- Three attendees of the haircutting class in Sipacapa, set up haircutting businesses from their homes.
- One woman from the haircutting class in San Miguel opened a hair styling shop, one gives haircuts in her home and one gives haircuts on market days.

| Table 17. FSM 2007 Vocational Training Classes | | | | |
|---|---|---|---|---|
| Course | Location | Participants | | No. of Classes |
| | | Men | Women | |
| Tailoring: suit-making for men | Máquivil, Chilive & Cabajchun in San Miguel | 7 | 0 | 2 |
| Hand embroidery | Saquimblaj & Quequesiguan in Sipacapa | 0 | 10 | 1 |
| Hair cutting | Sipacapa | 3 | 5 | 2 |
| | San Miguel | 3 | 8 | 1 |
| Colorimetría | Sipacapa | 2 | 3 | 1 |
| Peinados y colorimetría | San Miguel | 0 | 3 | 1 |
| Diversification of bakery products | Pie de la Cuesta, Sipacapa | 1 | 13 | 1 |
| | **TOTAL** | 16 | 42 | 9 |

Economic Development

***Business Development***

FSM sponsored 8 business workshops that had an average of 24 attendees each. These workshops focused on improvement in product quality and customer service and such topics as business plan development, marketing, accounting and record keeping. Table 18 displays work shop topics, locations and number of attendees. A total of 50 business persons attended these workshop and subsequent evaluations identified 14 businesses that are continuing the process of business formation.

| Table 18. 2007 FSM Business Development Workshops and Participants | | | |
|---|---|---|---|
| Workshop Topic | Number of Participants | | |
| | Sipacapa | San Miguel | Total |
| Business Success | n/a | n/a | 21 |
| Decision Making | n/a | n/a | 14 |
| Business Plans | 12 | 8 | 20 |
| Basic Accounting | 8 | 10 | 18 |
| Marketing and Sales | 8 | 16 | 24 |
| Company legal and fiscal aspects | 19 | 10 | 29 |
| Business administration | 4 | 14 | 18 |
| Marketing | 9 | 35 | 44 |

***Technical assistance***

FSM 2007 technical assistance activities included seven directed efforts to strengthen existing businesses. Four bakeries in San Miguel and another four in Sipacapa were assisted in the area of product diversification. Businessmen in Salem were assisted in the development of a business to grow and sell mushrooms. Table 19 lists the Technical Assistance activities and locations.

**Table 19. 2007 FSM Business Development Technical Assistance Activities**

| Economic Activity | New Products and Improvements | Municipality | No. of Businesses |
|---|---|---|---|
| Mushroom production | Pleurotus mushrooms | Sipacapa | 17 |
| Video production | Video-graphic production | Sipacapa | 1 |
| Bakeries | New varieties of pastries and bread | San Miguel Ixtahuacán (Chilive, Estancia, Baljetre y San Miguel) | 8 |
| | | Sipacapa (Sipacapa) | 3 |
| Agroindustry | Salsa production | Legual | 1 |

***Micro-lending***

The partnership between FSM and FAFIDESS resulted in 14 new communal banks during 2007, which served 210 new women members, providing access to credit services and capital of Q.1,454.666. Since its inception, the FSM/FAFIDESS micro-lending program has established a cumulative total of 38 communal micro-lending banks serving 611 women and providing access to Q.3,254.333 in capital.

Communal bank members also have access to training and technical support in livestock management breeding. During 2007, a total of 203 communal bank members received training and technical support and 172 members receive on-site technical support.

The combined communal bank micro-lending program and training in leadership and management has led to greater participation of women in commercial activities in the area. Table 20 below displays information about the FSM/FAFIDESS communal micro-lending banks, organized by lending cycle.

| Table 20. 2007 Status, Communal Micro-lending Banks | | | | | |
|---|---|---|---|---|---|
| **No. of Banks** | **Communal Banks** | **Women Associates** | **Municipality** | **Bank Development Cycle** | **Current Capital** |
| 7 | G.S. Las Montañitas,* Rosas de Saron, La Estancia, El Frutal, El Mirador, Flor de Orquídea, El Cipresal | 111 | San Miguel Ixtahuacán | I | Q.525,833.00 |
| 4 | La Libertad, Las Manzanas, Cabajchun, Loma Linda | 63 | San Miguel Ixtahuacán | II | Q.335,500.00 |
| 3 | Tierra Blanca Múbel, Las Esperanzas, La Cúspide | 46 | San Miguel Ixtahuacán | III | Q.212, 500.00 |
| 1 | El Plan Subchal | 20 | San Miguel Ixtahuacán | IV | Q.128,000.00 |
| 2 | El Centro de Chílive y Mujeres de Legual | 31 | San Miguel Ixtahuacán | V | Q.154,000.00 |
| 7 | El Centro de la Lima, El Arenal, El Centro de Máquivil, Ciénega, La Patria, Mujeres de Sibinal y El Ladrillero | 126 | San Miguel Ixtahuacán | VII | Q.738,000.00 |
| 4 | Socias de Chílive, Máquivil, Bethania y La Peña | 82 | San Miguel Ixtahuacán | VIII | Q.540,500.00 |
| **28** | **San Miguel Subtotal** | **479** | | | **Q.2,421,833.00** |
| **No. of Banks** | **Communal Banks** | **Women Associates** | **Municipality** | **Bank Development Cycle** | **Current Capital** |
| 5 | Bella vista, El Duraznal, Mujeres de San Antonio, El Valle y Flor de Durazno | 54 | Sipacapa | I | Q.197,000.00 |
| 2 | El manantial y El Jardín | 35 | Sipacapa | II | Q.185,000.00 |
| 1 | Buena Vista | 13 | Sipacapa | IV | Q.69,000.00 |
| 2 | Mujeres de Tres Cruces, Pueblo Viejo | 30 | Sipacapa | V | Q.169,000.00 |
| **10** | **Sipacapa Subtotal** | **132** | | | **Q.620,000.00** |
| **38** | **TOTAL** | **611** | | | **Q.3,254,333.00** |

*Solidarity group, which is another micro-credit lending method.

Table 21 displays information about workshops offered by FSM and FAFIDESS to strengthen the associate's business abilities and motivation.

| Table 21. 2007 Communal Micro-Lending Bank Workshops | | | |
|---|---|---|---|
| | **Date** | **No. of Participants** | **Communal Banks** |
| Seminar: Are Women Leaders Born or Made? | 04/10/2007 | 18 | Community Micro-lending Banks of San Miguel and Sipacapa |
| Training Course: Commercialization and Administration | 17, 18/10/2007 | 55 | |
| Communal Bank Leader Associates: "The opportunity that micro-lending gives to my family," and "I am a positive woman leader." | 06/11/2007 | 19 | |

***Enterprise Fair***

During December of 2007, FSM sponsored and organized the Fifth Annual Enterprise Fair of Life, Color and Taste in San Miguel Ixtahuacán. The planning and organization of the fair allowed for the interaction of different sectors of the community including entrepreneurs, institutions, communities, suppliers, the media and others. A total of 64 businesses (52 from San Miguel and 12 from Sipacapa) participated in the fair offering food, syrups, pastries, bread, coffee, furniture, medicines and beauty products.

Community Development

FSM initiated its community development activities in July of 2007, with meetings with community leaders and coordination with the Marlin Mine Community Development Department to avoid duplication of efforts. This resulted in a plan in which the Foundation would perform participatory rural diagnostic processes (needs assessments) in some of the nearby communities and the Marlin Mine Sustainable Development Department would perform diagnostic processes in other communities. The plan then called for joint review of the results of the participatory diagnostic processes.

The participatory rural diagnostic process included coordination with local officials (Auxiliary Mayors and COCODES) to gain approval and support for the process, meetings with local officials to plan the process, holding community meetings to conduct the needs assessment and reviewing the results of the needs assessments with local officials.

Community Advisory Councils

In 2007, FSM continued to focus on expanding and strengthening membership in the Community Advisory Councils (CADEC) and integrating them into the planning and program evaluation processes. FSM held two CADEC meetings in each municipality during 2007.

FSM Role in Marlin Mine Closure and Disposition of Mine Properties and Installations

- Montana has committed publicly to donating the Marlin Mine lands to the Sierra Madre Foundation as part of the mine closure.

- While the process plant and tanks will be removed, the electrical line to the property, the offices, workshops, cafeteria and housing on the Marlin Mine property will be given to the Sierra Madre Foundation.

- Consideration and planning with the people of San Miguel Ixtahuacán and Sipacapa regarding the best uses for the installations will take place well in advance of mine closure.

## 10.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT CAPABILITY

### 10.1 Environmental and Social Management Systems

Marlin Mine Environmental Management System

The Marlin Mine Environmental Management System (EMS) is intended to promote continuous improvement in environmental management. The EMS implementation is concentrated into four phases including:

1. Policy & Planning,
2. Implementation,
3. Evaluation, and
4. Review & Improvement.

***Phase I – Policy & Planning***

Phase I of the Marlin EMS has been completed and includes a Policy Statement signed by the General Manager. Under the EMS, environmental management plans (EMPs) for the following subjects have been completed:

1. Flora and fauna,
2. Sediment & erosion control,
3. Dust control,
4. Materials and waste management,
5. Environmental monitoring.

***Phase II - Implementation***

Phase II of the Marlin EMS has also been completed. The Policy Statement was reviewed and approved by the management team and has been clearly posted in the applicable areas of the mine. Additionally, drafts of the various EMPs were submitted to the affected area managers for their comments. After addressing the comments, the EMPs were finalized and distributed to the management team. The EMPs have become part of the contract documents for significant work that will be done at Marlin by third parties. Standard contract language specifies that third party contractors are expected to comply with the EMPs.

***Phase III - Evaluation***

An internal inspection system was implemented to review each operating area for compliance with the EMPs using agreed-upon critical performance indicators (CPIs) for each department. These inspection reports are kept on file within the Marlin Mine Environmental Department.

***Phase IV – Review and Improvement***

Phase IV of the Marlin EMS was discussed in late 2007 and was determined to occur through two principle mechanisms: inclusion of environmental CPIs into the production bonus system, and a quarterly environmental performance review by the management team. Both mechanisms will be implemented in early 2008.

Marlin Mine Sustainable Development Management System

Montana is developing a Social/Sustainable Development Management System (SDMS) intended to promote continuous improvement in the sustainable development efforts of the Marlin Mine. The SDMS is concentrated into four phases including:

1. Policy & Planning
2. Implementation
3. Monitoring
4. Evaluation, Review & Improvement

***Phase I***

Phase I of the Marlin SDMS is being drafted. It will include a Policy Statement signed by the General Manager. The sustainable development management plans (SDMPs) are under preparation. SDMPs for the following subjects will be prepared:

1. Community Relations,
2. Organizational Development and Community Projects,
3. Liaison with the Sierra Madre Foundation,
4. Liaison with external organizations such as national & international NGOs, national and foreign governmental agencies and other interested groups and organizations.

***Phase II***

The final Policy Statement will be signed and clearly posted in the applicable areas of the mine. This statement will be reviewed and approved by the management team. Additionally, drafts of the various SDMP will be submitted to the area managers and supervisors for their comments. After addressing the comments, the SDMPs will be finalized and distributed to the management team. The SDMPs will become part of the commitment of Montana to the surrounding communities. Works undertaken by contractors for the Sustainable Development Department will be expected to comply with the SDMPs and will be stated in the standard contract language.

***Phase III***

Phase III of the Marlin S/SDP will be implemented in 2008.

***Phase IV***

Phase IV of the Marlin SDMP will be implemented in the first quarter 2009. This will include regular meeting of the senior management to review sustainable development performance, issues and concerns. Discussions will be conducted concerning problem areas and methods of improvement.

Both during and after the completion of the four phases, the Sustainable Development Department will consult with local community leaders, independent consultants and others on the performance of the Sustainable Development Department. It is anticipated that the SDMS will undergo continuous development and improvement over the life of the Marlin Mine.

### 10.2 Marlin Mine Environmental and Sustainable Development Staffing

Environmental Department Staffing

The 2007 status of the Marlin Environmental Department staff is shown in Table 22.

**Table 22. 2007 Marlin Mine Environmental Department Staff**

| Position | Individual | Reports To |
|---|---|---|
| Regional Environmental Director – Central & South America | Lisa Wade | Regional Vice President |
| Environmental Coordinator | Peter Hughes | Regional Environmental Director |
| Environmental Coordinator | Gustavo Gomez | Regional Environmental Director |
| Environmental Coordinator | Eversson Ordonez | Regional Environmental Director |
| Environmental Supervisor | Werner Valiente | Regional Environmental Director |
| Environmental Supervisor | Oliver Cano | Env Coordinator |
| Environmental Supervisor | Cesar Gonzalez | Env Coordinator |
| Environmental Technician | One Employee | Env Supervisor |

Goldcorp increased its interests in Central and South America significantly in 2007 and subsequently created a regional structure. Central and South American operations are headquartered in Guatemala City and a regional environment director position was added to the organization as a new resource. The Environment Director reports directly to the regional Vice President and is responsible for guiding and advising all properties on environmental management.

Sustainable Development Department Staffing

The 2007 status of the professional staff within Marlin's Sustainable Development Department is shown in Table 23.

| Table 23. 2007 Marlin Mine Sustainable Development Department Staff | | |
|---|---|---|
| **Position** | **Individual** | **Reports To** |
| **Sustainable Development Department** | | |
| Sustainable Development Manager – Guatemala | James Schenck | General Mine Manager |
| Superintendent | Alan Ovalle | Sus. Dev Manager |
| Infrastructure Supervisor | Jorge Mario Godinez | Superintendent |
| Community Relations Supervisor | Fausto Rodriguez | Superintendent |
| Organizational Development Supervisor | Flora Emidia Macario | Superintendent |
| Information and Communications | One Employee | Superintendent |
| Administrative Assistant | One Employee | Superintendent |
| Community Relations Supervisor – Sipacapa | Francisco Ambrosio | Com Relations Supervisor |
| Community Relations Supervisor – San Miguel Ixtahuacán | Nelson Mejia | Com Relations Municipal Supervisor |
| Municipal Office Promoters Sipacapa & San Miguel Ixtahuacán | Two Employees | Com Relations Supervisors |
| Community Relations Promoters | Six Employees | Com Relations Municipal Supervisors |
| Maintenance & Logistical Support | One Employee | Administrative Assistant |

### 10.3 Sustainable Development Department Training

Table 24 displays Marlin Mine 2007 Sustainable Development Department staff training.

| Table 24. 2007 Marlin Sustainable Development Department Training | | |
|---|---|---|
| **Date** | **Subject** | **Attendees** |
| June-November | Industrial Fire fighting | Community Relations General Coordinator, Municipal Coordinators (4). |

# 11.0 ENVIRONMENTAL PROGRAM MONITORING

## 11.1 2007 Environmental Permit Status

The 2007 status of Marlin Mine permits are shown in Table 25.

**Table 25: 2007 Status of Marlin Mine Permits**

| Description | Ministry | Approval Date |
|---|---|---|
| EIA&S Marlin (Res. No. 779-2003/CRMM/EM) | MARN | September, 2003 |
| Exploitation License (Res. No. 3329) | MEM | November, 2003 |
| Forestry Resolution (No. DR-VI-016-M-2-2004) | INAB | June, 2005 |
| EIA for Hydrocarbon Storage Tanks (Res. No. 1215-2007/MAGC/LL) | MARN | June, 2005 |
| Construction & Operation of the Electrical Substation (Res. No. 1191-2007/MAGC/GO) | MARN | May, 2005 |
| Importation of Cyanide (Res. No. 1790-2007/MAGC/KC) | MARN | July, 2005 |
| Transport, Use & Storage of Explosives (Oficio No. 6259) | Defense Ministry | September, 2005 |
| Tank Farm Use License (Resolution No. 1110) | DGH (MEM) | April, 2007 |
| EIA for Power line Project (Res. No. 1133-2007/MAGC/EM) | MARN | October, 2004 |
| Use of Radioactive Equipment License (Res. No. 663-2007) | DGE (MEM) | November, 2005 |
| Environmental License (No. 0002-06/DIGARN) | MARN | January, 2006 |
| Environmental Control & Vigilance License | MARN | August, 2007 |
| Exportation License (EXPORT-NTI-TI-07-05) | MEM | November, 2005 |
| Runway Permit | Civil Aviation | April, 2007 |
| EIA&S La Hamaca (Res. No. 1114-2007/ECM/KC) | MARN | June, 2007 |

## 11.2 Sampling and Measurement Reports

The following sections present specific environmental sampling and measurement information. A map showing the location of monitoring stations for air quality, aquatic biology, surface water quality, and ground water quality is included as Attachment B. Monitoring measurements for air quality, surface water quality and ground water quality are contained in Attachment C. Marlin submits the monitoring results in quarterly reports to the MARN with a copy to the MEM.

Air Emissions

The EIA&S evaluated the potential for air quality impacts resulting from operations. Based on conclusions from the air quality study, it was determined that air quality impacts would not be significant. The most apparent potential air quality impacts from mining operations result from fugitive dust emissions from the roads, occurring primarily during the dry season (November – April). Marlin conducts an aggressive dust suppression program (road watering and dust suppression additives) to mitigate potential fugitive dust emissions. The ambient monitoring program calls for the quarterly measurement of particulate levels around the site using $PM_{10}$

(particulate with mean aerodynamic diameter of 10 microns or less) monitoring stations. Additionally, visual inspections are performed to ensure that management practices are implemented as required to minimize fugitive dust emissions. In addition to quarterly monitoring, Marlin conducts monthly monitoring at selected stations.

Table 26 summarizes the $PM_{10}$ ambient air quality monitoring data for 2007. All monitoring results at both the upwind and downwind stations were below the IFC guideline of 500 µg/m$^3$ for the 24 hour maximum and 100 µg/m$^3$ for the annual arithmetic mean. In addition to the IFC guideline the EPA ambient air quality standard for $PM_{10}$ is 150 µg/m$^3$ for the 24 hour maximum and 50 µg/m$^3$ for the annual arithmetic mean. On four sampling events the $PM_{10}$ levels were above the EPA 24 hour maximum standard and in six of the eight stations the annual arithmetic mean EPA standard was exceeded. This is indicative of the area as a whole as this occurred at stations both upwind and downwind of the mine, as well as the two stations located in the La Hamaca area where no mining activity was conducted in 2007. All exceedances occurred during the dry season.

**Table 26. Marlin Mine 2007 $PM_{10}$ Monitoring Data**

**PM10 (ug/m$^3$) - Marlin 2007**

| Monitoring Stations | | | Month, 2007 | | | | | | | | | | | | Annual Arithmetic Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | |
| Area and Wind Location | | IFC Guideline | 500 ug/m$^3$ (24 hour maximum) & 100 ug/m3 (annual arithmetic mean) | | | | | | | | | | | | |
| | | EPA Standard | 150 ug/m$^3$ (24 hour maximum) & 50 ug/m$^3$ (annual arithmetic mean) | | | | | | | | | | | | |
| Marlin | Downwind | AQ1a (Agel) | | 14 | 10 | 7 | 51 | 112 | 21 | 33 | 14 | 57 | | | 35 |
| | Downwind | AQ2 (San José NE) | | 143 | | | 196 | | 25 | | | 8 | | | 93 |
| | Downwind | AQ4 (San José Ixcaniche) | | 68 | 167 | 52 | 113 | 40 | 17 | 11 | 79 | 11 | | | 62 |
| | Upwind | AQ7 (Carrizal) | | 32 | 154 | 157 | 104 | 30 | 20 | 50 | 32 | 7 | | | 65 |
| | Upwind | AQ9 (Salem) | | 25 | | | 81 | | 24 | | | 7 | | | 34 |
| Road to Marlin | Not Applicable | AQ12 (Chuena) | | 47 | | | 149 | | 20 | | | 9 | | | 56 |
| La Hamaca | Background | AQ10 (Salitre) | | 46 | | | 89 | | 22 | | | 91 | | | 62 |
| | Background | AQ11 (Salitre Northwest) | | 67 | | | 100 | | 32 | | | 7 | | | 52 |

## Ambient Noise

Ambient noise is monitored in the communities around the mine. The 2007 ambient noise levels in decibels were compared to those recorded as baseline values during 2003 and 2004 and this analysis indicated no negative noise impacts. Station AQ1a is very near to the original station of AQ1 and therefore the results are compared to the AQ1a baseline information. The baseline and 2007 results are included in Tables 27 and 28 and Figures 5 through7.

## Table 27: 2007 Marlin Mine Ambient Noise Levels

| Quarter | Parameter | AQ1a | AQ2 | AQ4 | AQ7 | AQ9 | AQ10 | AQ11 | AQ12 |
|---|---|---|---|---|---|---|---|---|---|
| | | Agel | SJNE | SJIx | Poj | Salem | Salitre | Salitre | Chuena |
| First Qtr 07 | LEQ | 46.1 | 61.3 | 58.7 | 58.3 | 51.1 | 50.7 | 54.3 | 49.7 |
| | LDN | 51.4 | 67.9 | 63.2 | 66.1 | 53.3 | 55 | 58.6 | 55.2 |
| | Day Avg | 45.3 | 60.4 | 57.4 | 55.3 | 50.3 | 50.8 | 53.7 | 48.9 |
| | Night Avg | 44.4 | 61.6 | 53.4 | 51.3 | 42.5 | 46.2 | 49.3 | 46 |
| Second Qtr 07 | LEQ | 42.9 | 62.2 | 57.2 | 54.5 | 47.9 | 56 | 59.2 | 46.5 |
| | LDN | 48.6 | 66 | 63.2 | 59.1 | 54.6 | 56.8 | 63 | 50.2 |
| | Day Avg | 43.1 | 62.8 | 56.4 | 53.1 | 45.6 | 55.5 | 57.7 | 46.9 |
| | Night Avg | 41.6 | 55.2 | 53.4 | 46.4 | 44 | 41.9 | 49.8 | 38.9 |
| Third Qtr 07 | LEQ | 51.2 | 60.1 | 59.8 | 54.7 | 52 | 50 | 59.1 | 50.4 |
| | LDN | 53.4 | 62.7 | 62.9 | 56.7 | 56.5 | 54.7 | 62.1 | 58.3 |
| | Day Avg | 48.6 | 60 | 60.3 | 53.5 | 50.4 | 49.1 | 57.9 | 47.7 |
| | Night Avg | 42.9 | 51.4 | 53.1 | 42.1 | 44.7 | 44.3 | 48.8 | 43.1 |
| Fourth Qtr 07 | LEQ | NS | 59.8 | 58.5 | 70.2 | 56.1 | 49.8 | 56.2 | 57.5 |
| | LDN | | 64.7 | 63.1 | 78.3 | 61.7 | 54.9 | 60.8 | 59.8 |
| | Day Avg | | 58.4 | 57.8 | 62.2 | 54.4 | 49 | 56 | 57.5 |
| | Night Avg | | 52.5 | 52.8 | 67.3 | 51.8 | 44.6 | 43.1 | 46.3 |

Notes: All values reported in decibels, scale A and in Slow Response Level.

LEQ Equivalent continuous sound level

CNEL Level of noise exposure of the community measured in decibel scale A.

LDN Day/night sound level

NS Not sampled.

## Table 28. Baseline Marline Mine Ambient Noise Levels

| Quarter | Parameter | AQ1 | AQ2 | AQ4 | AQ5 | AQ6 | AQ7 | AQ9 | AQ10 | AQ11 | AQ12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Agel | SJNE | SJIx | | | Poj | Salem | Salitre | Salitre | Chuena |
| First Quarter 04 (Baseline) | LEQ | 60.1 | 58.8 | 62.8 | 56.8 | 61.9 | 59.8 | NS | NS | NS | NS |
| | CNEL | 65.8 | 62.8 | 67.7 | NS | NS | NS | NS | | | NS |
| | LDN | 65.7 | 62.6 | 66.9 | 60.9 | 67.9 | 63.0 | NS | NS | NS | NS |
| Second Quarter 03 (Baseline) | LEQ | 64.0 | 63.3 | 63.1 | NS | NS | NS | NS | NS | NS | NS |
| | CNEL | NS | 63.3 | 63.1 | NS | NS | NS | NS | NS | NS | NS |
| | LDN | 64.0 | 63.3 | 63.1 | NS | NS | NS | NS | NS | NS | NS |
| Third Quarter 03 (Baseline) | LEQ | 56.7 | 36.6 | 54.3 | 34.5 | NS | 52.6 | NS | NS | NS | NS |
| | CNEL | 61.6 | 39.5 | 57.0 | NS | NS | 56.5 | NS | NS | NS | NS |
| | LDN | NS | 39.4 | 56.8 | 38.3 | NS | 56.3 | NS | NS | NS | NS |
| Fourth Quarter 03 (Baseline) | LEQ | 42.8 | 45.1 | 57.9 | 52.3 | 44.9 | 55.1 | NS | NS | NS | NS |
| | CNEL | NS | | | NS | NS | | NS | NS | NS | NS |
| | LDN | 47.8 | 49.5 | 60.3 | 55.9 | 50.3 | 57.4 | NS | NS | NS | NS |

Notes: All values reported in decibels, scale A and in Slow Response Level.

LEQ Equivalent continuous sound level

CNEL Level of noise exposure of the community measured in decibel scale A.

LDN Day/night sound level

NS Not sampled.

**Figure 5. 2007 Noise Monitoring Agel**

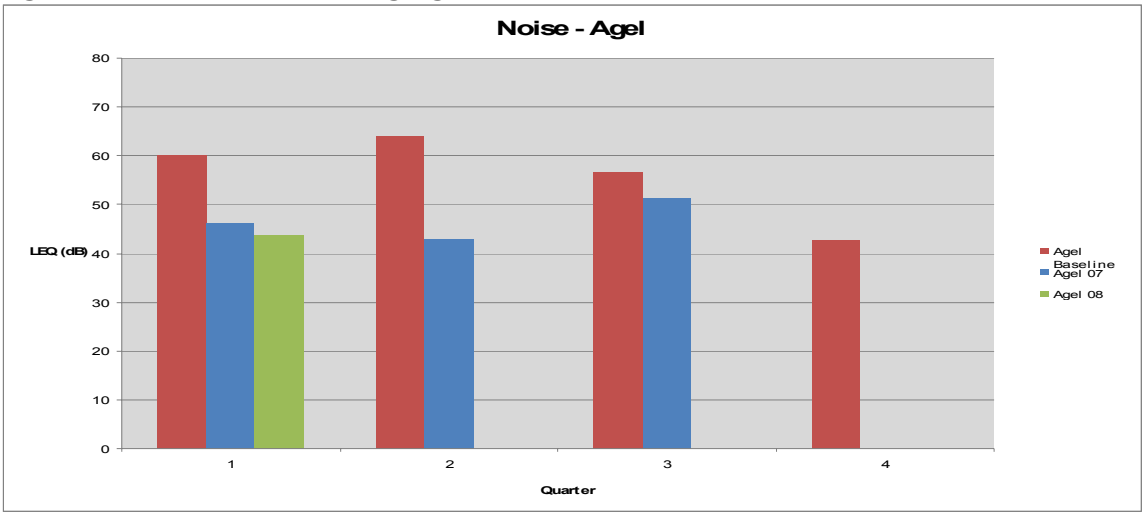



**Figure 6. 2007 Noise Monitoring Ixcaniche**

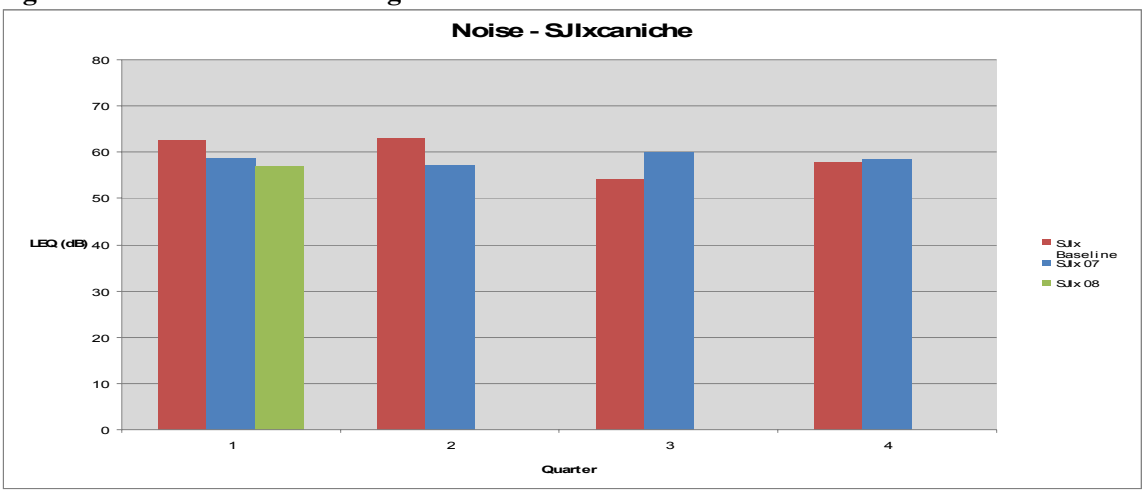
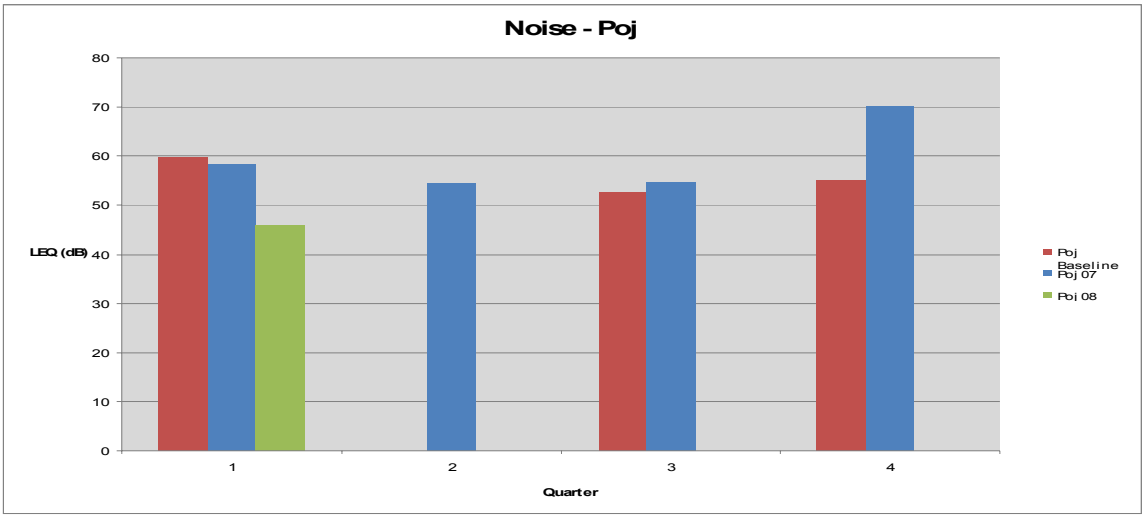



**Figure 7. 2007 Noise Monitoring Poj**



Groundwater

Groundwater in the area of the Marlin mine is fracture controlled and follows a general south-north flow pattern. Data from the ground water sampling program is compared to historical data to analyze for any changes in water quality. Data from the wells downgradient of the TSF are also reviewed for any indicator parameters related to the water stored in the TSF. The monitoring wells included in the sampling program and their location descriptions are listed in Table 29.

**Table 29. Marlin Mine Groundwater Monitoring Wells & Well Locations**

| Groundwater Quality Monitoring Point | Location Description |
|---|---|
| MW8 | Upgradient of the TSF, near Agel. New well installed in 2007. |
| MW3B | Downgradient of the TSF. |
| MW10 | Downgradient of the TSF. New well installed in 2007. |
| MW11 | Downgradient of TSF. New well installed in 2007. |
| MW5/PSA-1 | Production Well – South of Marlin Pit, near Río Tzalá |

***New Wells – MW8, MW10, and MW11***

Three new groundwater monitoring wells were installed in 2007. Two of these wells were installed downgradient of the TSF to improve the ground water monitoring program. None of the results of this monitoring indicated seepage from the TSF to ground water. Well MW10 indicates arsenic levels at approximately 0.2mg/L; however arsenic is not present at these levels in the TSF or in Marlin process waters. For these reasons the arsenic levels in MW10 are thought to be background concentrations. The third well, MW8, was installed near the Agel community and may ultimately be used as a water source for this community as well as a monitoring point. Water quality data from these wells is included in Worksheets MW8, MW10 and MW11 in Attachment C.

***MW3B***

Well MW3B is located downgradient of the TSF; the 2007 data does not indicate any seepage from the TSF to ground water. Water quality data from this well is included in Worksheet MW3B in Attachment C.

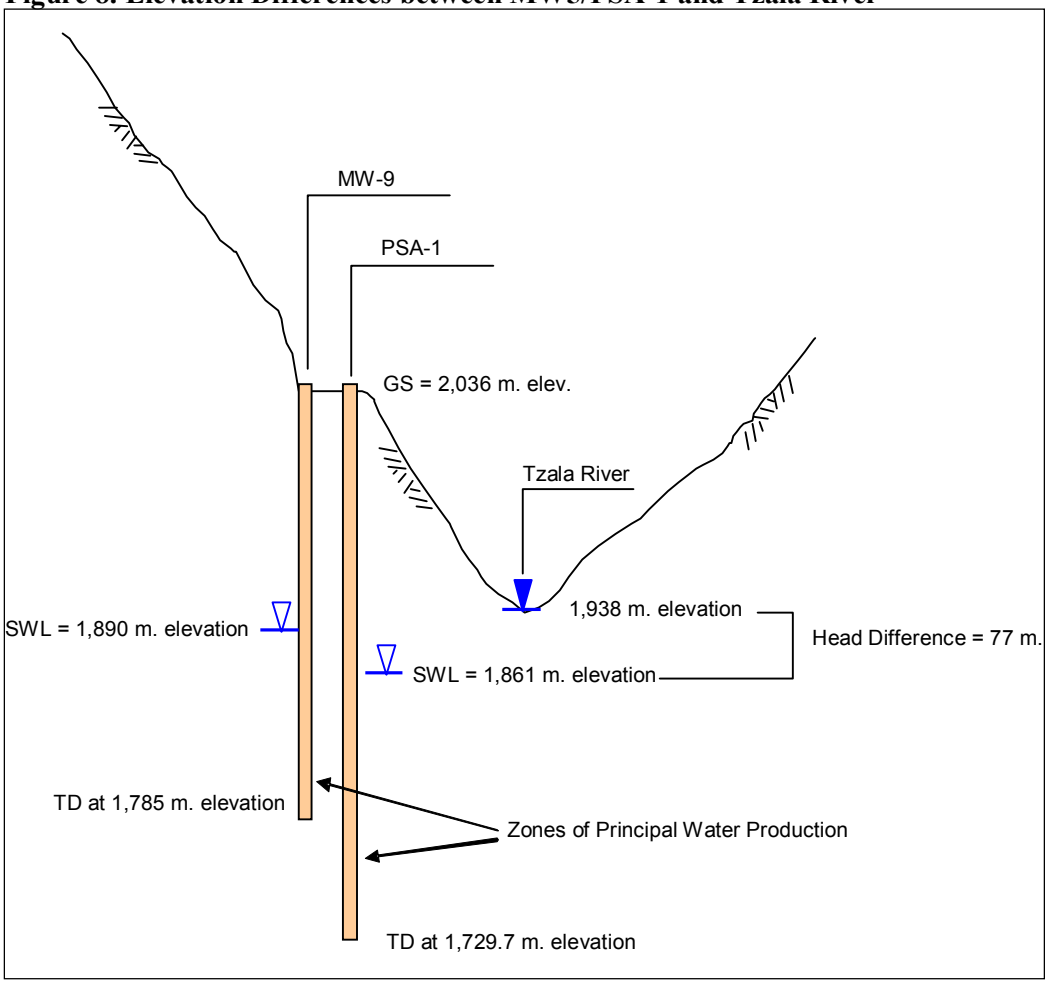
***MW5***

The MW5 well is the production well (PSA-1). The water from this well is used for makeup water in the process plant, water supply for the mine camp and administration buildings, and for underground mining equipment. It is not considered potable water. The water quality data for MW5 is included in Worksheet MW5 in Attachment C.

Water consumption from this well is monitored continually. The process plant requires large amounts of water and the majority is recycled from the TSF. During 2007 the process plant used 127 L/s, or 10,971 $m^3$/day of water. Of this total, 87 percent was supplied by reclaimed water from the TSF (111 L/s, or 9,561 $m^3$/day) and only 13 percent was supplied by well MW5/PSA-1. The well has a total depth of approximately 300 m which is approximately 200 m below the bed

of the nearby Río Tzalá. The head difference in water surface elevation between the well and the river is almost 80 m. The water chemistry in MW5/PSA-1 is different than the water quality in the Río Tzalá, indicating the two are not likely to have a direct, hydrogeologic connection. The diagram below illustrates the elevation differences. Well MW-9 shown in the diagram is the observation well adjacent to MW5/PSA-1.

**Figure 8. Elevation Differences between MW5/PSA-1 and Tzalá River**




***PWs***

In addition to the ground water quality monitoring, there are five wells along the east embankment of the TSF. These PW wells were installed as part of the geotechnical and hydro-geological assessments of the Marlin Mine's TSF, and were completed on the east abutment ridge of the impoundment. The wells were primarily installed to allow insitu measurement on the permeability of the materials comprising the abutment. The abutment consists of a low permeability pyroclastic/ash unit underlain by a volcanoclastic unit. The wells penetrated between these units and are completed with a well screen in the first 40 m from the bottom. The water depths in the wells were generally at the contact level and ranged from approximately 60 m in PW12 (the shallowest well) to 90 m in PW5.

Design analysis for the potential seepage through the east abutment, during TSF operations suggested that seepage rates would be low; however, it identified an increase in the phreatic surface in the abutment which could potentially result in seepage daylighting in the drainage to the east. In order to monitor for and mitigate this potential impact, the installation of seepage recovery/dewatering pumps in the wells was proposed. In case of significant increases in water levels, or water quality evidence indicative of negative impacts to ground water, pumping could be performed as indicated and additional wells could be installed.

Water level monitoring has been conducted since the TSF was commissioned in early October 2005. The historical water level information in the PW wells is shown in Worksheet PWs in Attachment C. One well, PW7 has shown a slowly increasing water surface elevation, however, the water quality data from this well does not indicate seepage from the TSF. The reason for the water level increase is uncertain; however, exploration wells were drilled nearby and may have created a change in the hydrogeologic inflow at well PW7. Water quality in this well will continue to be monitored regularly. The other four wells have maintained consistent water surface elevation. The water depth and quality data for PW7 is included in Worksheets PWs and PW7 in Attachment C.

Surface Water Monitoring

Marlin mine personnel conduct surface water monitoring at upstream and downstream points where mining impacts can be shown. Surface water sampling locations are listed in Table 30.

**Table 30. Marline Mine Surface Water Sampling Locations**

| Surface Water Monitoring Point | Location Description |
|---|---|
| SW1 | Upstream Monitoring – Río Tzalá |
| SW1-2 | Between SW1 and SW2 |
| SW2 | Downstream Monitoring – Río Tzalá |
| SW3 | Riachuelo Quivichil – downstream of the TSF |
| SW4 | Upstream – Río Cuilco (upstream of Quivichil confluence) |
| SW5 | Downstream – Río Cuilco (downstream of Quivichil confluence) |
| SW8 | Quebrada Seca - Downstream of TSF, upstream of SW3 |
| SW11 | Upstream – Río Cuilco (upstream of Tzalá confluence) |
| SW12 | Downstream – Río Cuilco (downstream of Tzalá confluence) |

All points have perennial flow with the exception of SW8, which is within the upper, ephemeral reaches of the drainage below the TSF. Point SW8 is further upstream than SW3.

Review of surface water data includes a comparison between upstream and downstream parameters, as well as changes in water quality. There were no concerns with the surface water quality data for 2007 which is shown in Worksheets SW1, SW1-2, SW2, SW3, SW4, SW5, SW8, SW11 and SW12 in Attachment C.

A historical summary of parameters common in the region between the upstream (SW1) and downstream (SW2) points in the Río Tzalá, are shown below. Typically there is no significant difference between the water quality at the two points; however a difference was noted in November of 2007 for sediment load and total metals. The difference is likely related to the

heavy sediment load that the Río Tzalá carries during the rainy season. These parameters will be monitored closely in the 2008 rainy season and additional sediment control measures will be taken in the Marlin pit area during that season. Runoff from the Marlin pit area will only report to the Río Tzalá in the event of large storm events, normally the runoff will be contained within the pit footprint in 2008 and onward.

**Figure 9. 2007 Río Tzalá Fe Content between SW1 & SW 2**

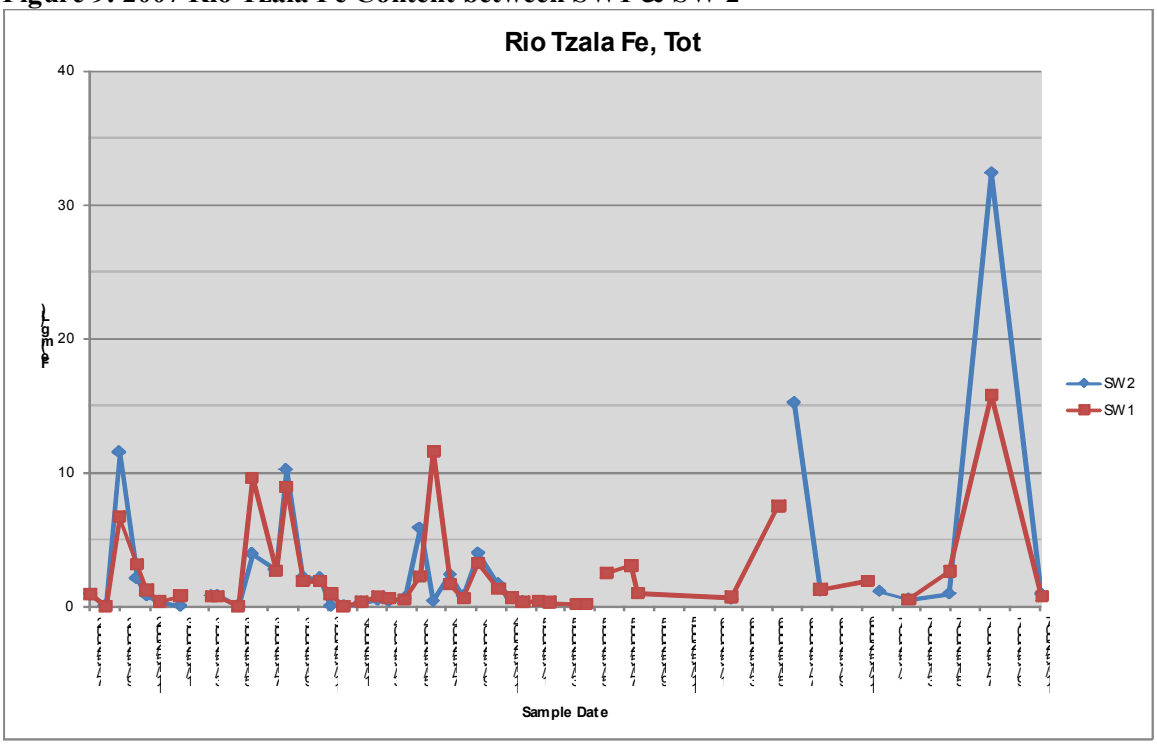


**Figure 10. 2007 Río Tzalá Al Content between SW1 & SW**

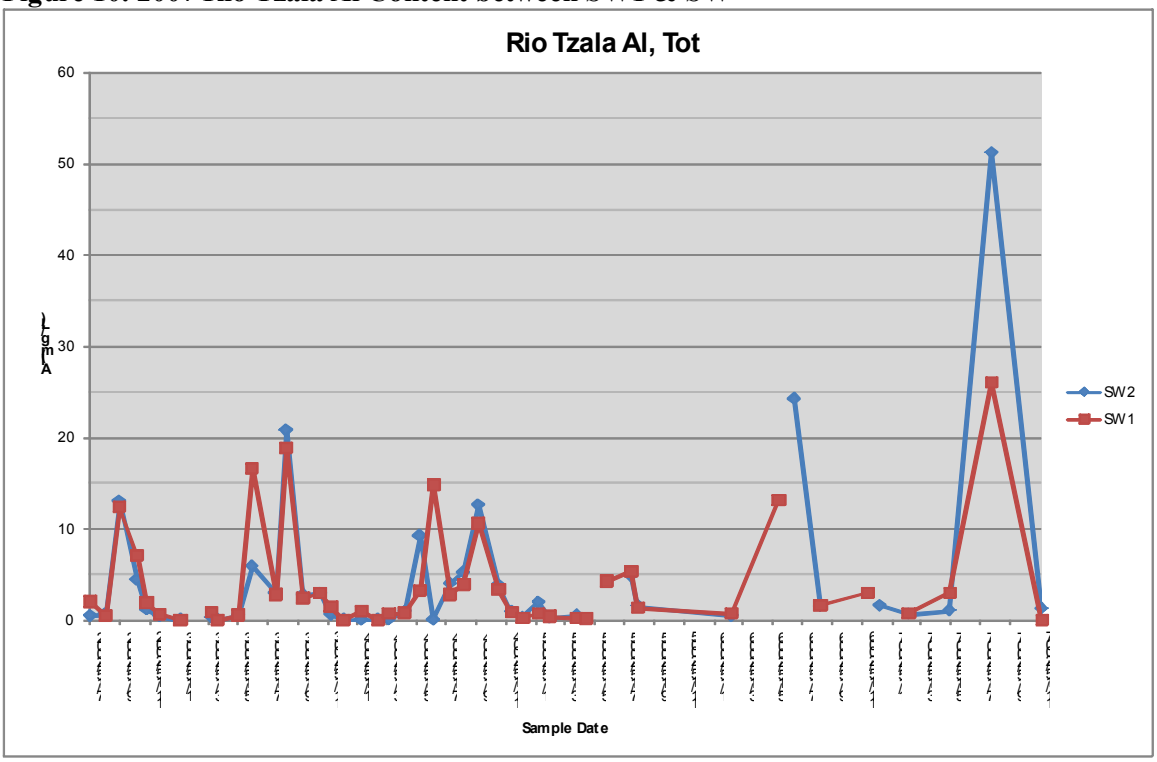
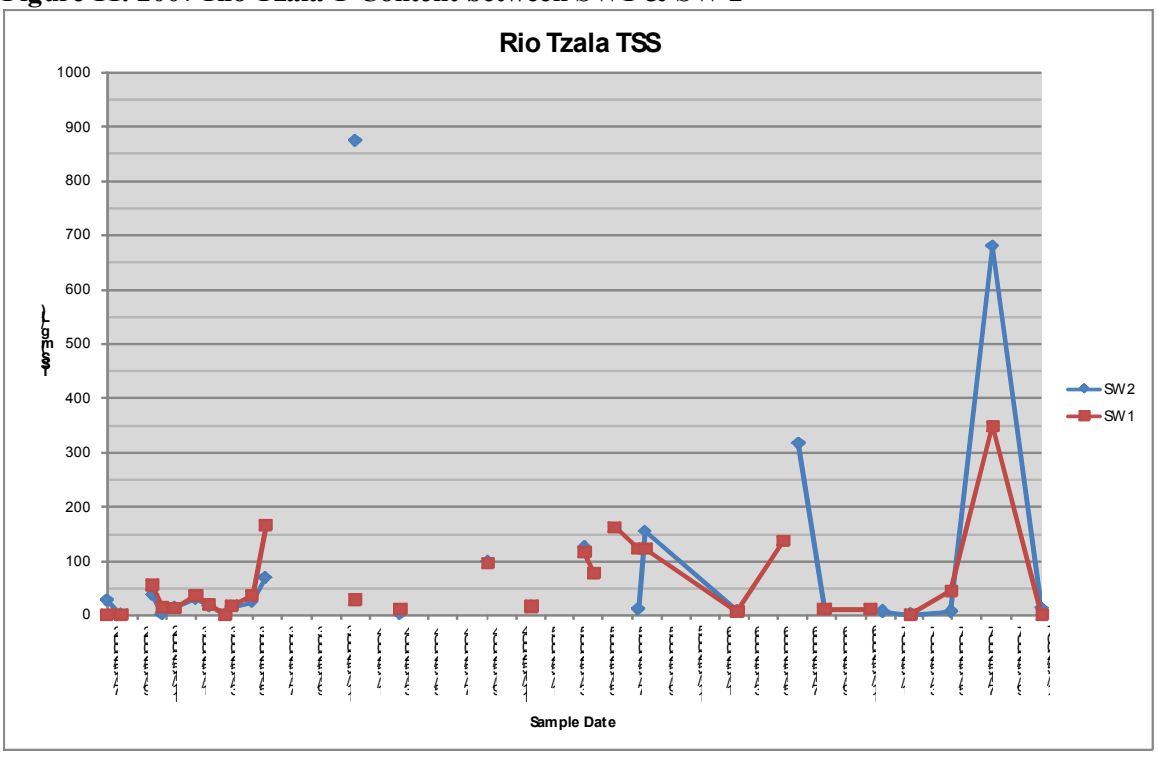



**Figure 11. 2007 Río Tzalá T Content between SW1 & SW 2**



Liquid Effluent Discharges

The Marlin Mine did not have any end-of-pipe discharges during 2007. The first end-of-pipe discharge from the TSF is expected to be late in the 2008 rainy season or during the rainy season of 2009. If the embankment height of the tailings dam is raised ahead of the current schedule, or if the rainy season results in less than average precipitation, discharge is not expected until 2009. During discharge events, water quality will be monitored and flow measured regularly and reported quarterly to both the MARN and the MEM. Discharged water quality is required to comply with the IFC effluent guidelines and with the new MARN requirements for discharges, residual water use and sludge disposal ("articulo 5 Reglamento de Descarga y uso de Aguas Residuales y la Disposición de Lodos Acuerdo 236-2006").

Water Treatment Plant

Monitoring in the TSF water indicates that to comply with the IFC effluent guidelines and the 2006 MARN regulation, water treatment prior to discharge may be required for mercury, and cyanide.

The INCO plant is very effective treating tailings for WAD cyanide significantly below 50 ppm as required by the IFC guidelines for open waters. The WAD cyanide levels in the TSF are typically below all effluent standards, but the total cyanide levels range from 1 ppm to 5 ppm, where the standard is 1 ppm. To further reduce the total cyanide levels as required for discharge, a water treatment plant is currently under construction. The plant will include an oxidation step to ensure that future discharge from the TSF to the environment complies with the 1 ppm total cyanide standard, as well as a clarification/filtration step for mercury removal. Finally the water treatment plant contemplates a carbon adsorption process, however according to the test work conducted this will be only used as a contingency or polishing step when necessary. The water treatment plant is expected to be operational by the end of 2008.

Operational Monitoring

The seepage from Area 5 waste dump (D9) currently discharges to surface water and not to the TSF. Although the water does not discharge into a pipe network, the effluent appears at the downstream toe of the dump. The toe of this waste dump has been visually inspected for seepage which was first detected in late 2007. The seepage was sampled for the first time in November of 2007 and was compared against the IFC and MARN effluent guidelines. The seepage complies with both standards. This point will continue to be monitored on a quarterly basis. The water quality data for point D9 is included in Worksheet D9 in Attachment C.

Aquatic Life Monitoring

In addition to water quality monitoring, Montana is required to conduct aquatic biology monitoring twice per year, corresponding to the dry and rainy seasons. This monitoring occurs in the Río Tzalá at points SW1 and SW2, the Riachuelo Quivichil at point SW3, and in the Río Cuilco at points SW4 and SW5. An additional point for aquatic monitoring has been added in the Río Cuilco upstream of the confluence with the Río Tzalá (SW10). All aquatic monitoring was conducted as required in 2007.

As of the end of 2007, five rainy season sampling events had occurred, beginning with the baseline monitoring in third quarter of 2002. Additionally four dry season sampling events had occurred, beginning with the baseline monitoring in the first quarter of 2003.

Fish populations in the dry season appear to be fluctuating in a natural way, and do not show any concerning trends. Fish populations in the rainy season also appear to be fluctuating in a natural way with one exception of a decreasing trend in the Riachuelo Quivichil (point SW3) below the TSF. Ongoing construction in the TSF area may be causing temporary impacts to the fish population in the Quivichil due to sediment loads in the rainy season. Additionally there is a community bridge construction project near the area that could also be causing temporary impacts. Continued improvement of practices during construction is important. Reclamation of some disturbance areas should also cause gradual increases in the fish population in the Quivichil. The Río Cuilco which receives drainage from the Riachuelo Quivichil does not appear to have had any resultant impacts. Results of the sampling are shown in Tables 31 and 32 and Figures 12 and 13.

## Table 31. 2007 Marlin Mine Aquatic Biology: Dry Season

| Station | Family | Species | Number of Individuals | | | | | IBI | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Feb, 2003 | Mar, 2005 | Mar, 2006 | March, 2007 | | Mar, 2003 | Mar, 2005 | Mar, 2006 | March, 2007 |
| | | | | | | Net | Electric | | | | |
| SW1 | Profundulidae | *Profundulus spp.* | 12 | no access | 0 | 0 | 0 | 16 | no access | 0 | 0 |
| SW2 | Profundulidae | *Profundulus spp.* | 26 | 3 | 0 | 0 | 0 | 17 | 15 | 0 | 0 |
| SW3 | Profundulidae | *Profundulus spp.* | 78 | 27 | 256 | 0 | 64 | 21 | 17 | 35 | 0 |
| | Pimelodidae | *Rhamdia laticauda* | 0 | 0 | 0 | 0 | 2 | | | | |
| SW4 | Profundulidae | *Profundulus spp.* | 24 | 20 | 33 | 37 | 16 | 17 | 17 | 18 | 18 |
| | Pimelodidae | *Rhamdia laticauda* | 0 | 0 | 0 | 1 | 0 | | | | |
| SW5 | Profundulidae | *Profundulus spp.* | 45 | 46 | 22 | 10 | 28 | 19 | 19 | 17 | 10 |
| | Pimelodidae | *Rhamdia laticauda* | 0 | 0 | 0 | 0 | 1 | | | | |
| SW10 | Profundulidae | *Profundulus spp.* | NS | NS | 82 | 0 | 1 | NS | NS | 22 | 0 |
| | Pimelodidae | *Rhamdia laticauda* | NS | NS | 0 | 0 | 3 | | | | |

Notes:

| | |
|---|---|
| IBI | Index of Biotic Integrity |
| SW1 | Rio Tzala - upstream of pit & road disturbance |
| SW2 | Rio Tzala - downstream of pit & road disturbance |
| SW3 | Riachuelo Quivichil - downstream of tailings construction |
| SW4 | Rio Cuilco - upstream of confluence with Riachuelo Quivichil |
| SW5 | Rio Cuilco - downstream of confluence with Riachuelo Quivichil |
| SW10 | Rio Cuilco - upstream of confluence with Rio Tzala |
| NS | Not Sampled |

## Table 32. 2007 Marlin Mine Aquatic Biology: Rainy Season

| Station | Family | Species | Number of Individuals | | | | | | | IBI | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Jul, 2002 | Sep, 2004 | Sep, 2005 | Sep, 2006 | | Sep, 2007 | | Jul, 2002 | Sep, 2004 | Sep, 2005 | Sep, 2006 | Sep, 2007 |
| | | | | | | Net | Electric | Net | Electric | | | | | |
| SW1 | Profundulidae | *Profundulus spp.* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW2 | Profundulidae | *Profundulus spp.* | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 |
| SW3 | Profundulidae | *Profundulus spp.* | 62 | 14 | 7 | 9 | 11 | 0 | 1 | 20 | 16 | 16 | 16 | 0 |
| SW4 | Profundulidae | *Profundulus spp.* | 21 | 30 | 261 | 1 | 27 | 1 | 15 | 17 | 17 | 36 | 15 | 15 |
| SW5 | Profundulidae | *Profundulus spp.* | 14 | 47 | 31 | 5 | 9 | 5 | 21 | 31 | 19 | 32 | 15 | 15 |
| | Pimelodidae | *Rhamdia laticauda* | 0 | 0 | 1 | 0 | 0 | 0 | 0 | | | | | |
| SW10 | Profundulidae | *Profundulus spp.* | NS | NS | NS | 15 | 17 | 0 | 12 | NS | NS | NS | 16 | 0 |
| | Pimelodidae | *Rhamdia laticauda* | NS | NS | NS | 0 | 0 | 0 | 1 | | | | | |

Notes:

| | |
|---|---|
| IBI | Index of Biotic Integrity |
| SW1 | Rio Tzala - upstream of pit & road disturbance |
| SW2 | Rio Tzala - downstream of pit & road disturbance |
| SW3 | Riachuelo Quivichil - downstream of tailings construction |
| SW4 | Rio Cuilco - upstream of confluence with Riachuelo Quivichil |
| SW5 | Rio Cuilco - downstream of confluence with Riachuelo Quivichil |
| SW10 | Rio Cuilco - upstream of confluence with Rio Tzala |

**Figure 12. 2007 Dry Season Fish Count**

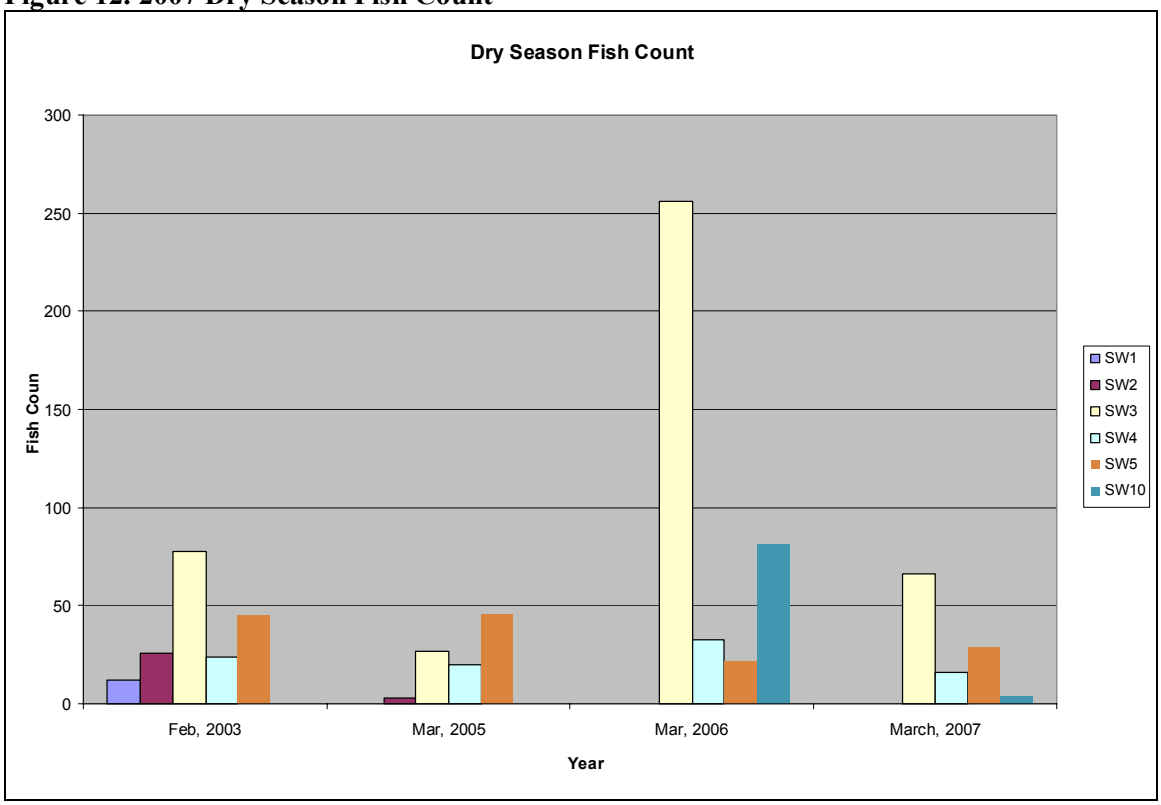
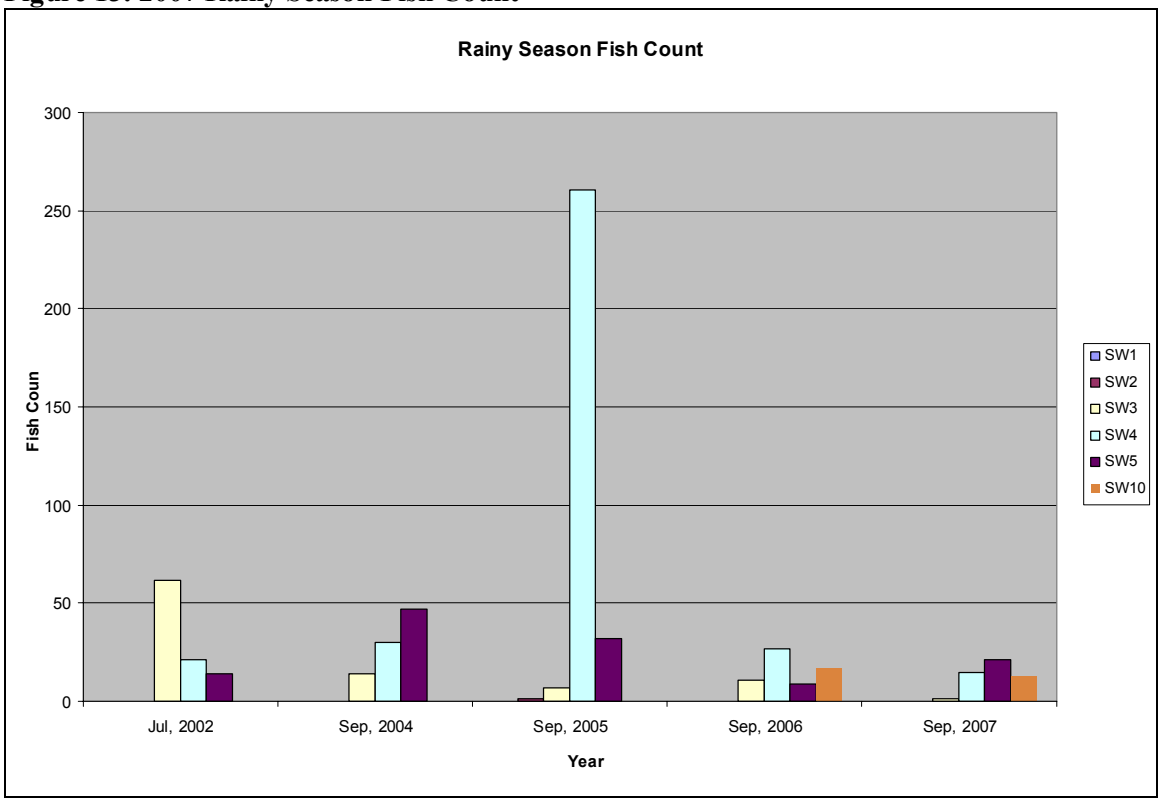



**Figure 13. 2007 Rainy Season Fish Count**



### 11.3 Waste Management

Marlin currently uses the main waste dump as a landfill facility for non-hazardous and solid waste, which mainly includes office and construction waste. Cells within the waste dump are opened, filled, and closed as the waste dump shifts and expands.

Organic wastes are disposed in a compost cell to be later used as fertilizer in revegetation or reforestation areas. The petroleum contaminated soil (PCS) is transported to the bioremediation cell where it undergoes aeration, watering and fertilizing until the total petroleum hydrocarbon (TPH) level is below 1000 ppm.

Chemicals are used consumptively at Marlin, so the chemical contaminated wastes such as empty cyanide bags and boxes are incinerated daily. The ash from the incinerator was analyzed and based on the results it was classified as a non-hazardous waste. The ash is disposed within the waste dump.

Another special waste generated by Marlin is lead-contaminated wastes from the fire assay process. This waste is comprised of spent cupels, crucibles, and slag. These wastes are re-introduced into the process circuit at the SAG mill.

Two significant waste streams are recycled at Marlin; used oil and scrap metal. The used oil is collected by an approved company who then typically sells it to *Cementos Progreso* for their cement kiln. The scrap metal is collected and typically sold to a metal foundry for re-melt.

### 11.4 Dam Safety

Tailings from the process are treated by the INCO plant for cyanide destruction prior to deposition in the TSF which is formed by a cross valley dam consisting of a rockfill shell and a low permeability core. The TSF is being raised progressively during the early years of the mine life to an approximate 80m ultimate height using mine waste rock placed in downstream staged raises. Phase I of the TSF was completed in 2005 and the facility began accepting tailings in late October of 2005.

Montana retained Robertson Geoconsultants, Inc. as an independent expert to perform a review of the TSF for the Marlin mine in compliance with the principles established in the IFC/World Bank guidance and operating principles OP 4.01 Annex D and OP 4.37. A Tailings Dam Review Board was required to review the development of the dam design, construction and initial dam filling. In this case, Dr. Andy Robertson of Robertson Geoconsultants, Inc., constituted the Review Board under the terms of this OP. Although this Board was comprised of one individual, this Board was authorized by Montana Exploradora de Guatemala, S. A. to consult with independent technical specialists as needed.

Although Montana has no formal arrangement with the IFC/World Bank at this time, Dr. Robertson continues to be contracted by Montana to conduct an annual review regarding dam safety. Dr. Robertson was on site in late 2007 for the annual review of the facility. The report is included as Attachment D.

## 11.5 Waste Rock Handling

The Marlin open pit mine initiated waste stripping in July of 2005, with ore production following in August. Previous tests have shown some rock types to be potentially acid generating in both the open pit and the underground mine. This section is a summary of the waste rock management procedures and handling.

Rock Analysis Procedures

Throughout 2007, all blastholes in the open pit waste zones were sampled and analyzed for total sulfur and total carbon content by the site SGS lab using their LECO furnace. These values are then used to calculate the acid generating potential (AGP) and acid neutralizing potential (ANP) of the rock type sampled. The ratio of ANP:AGP is then used to characterize the waste as follows:

1. Non Acid Generating (NAG): Rock with ANP/AGP > 2 and/or S< 0.1%,
2. Potentially Acid Generating (PAG): Rock with ANP/AGP < 2 and >1 and NP < 20kg/t CaCO3, and
3. Acid Generating (AG): Rock with ANP/AGP < 1 and S> 0.1%.

Once each blasthole has been categorized accordingly, blocks of NAG and AG waste are mapped out, flagged in the mine, and managed accordingly by the mine operations department. The PAG and AG wastes are treated equally, and hauled to specific areas within the waste dump for encapsulation. To be conservative all waste rock from the underground mine is assumed to be PAG waste and handled as such.

There are areas where it is impractical to separate small areas of PAG waste from NAG waste. In these cases, the PAG rock is blended with surrounding NAG rock in the waste dump. This only occurs when there is reason to believe the surrounding rock will neutralize the small amount of sulfides present, or when there is no geological evidence of sulfides (pyrite).

Conversely, if an area appears during mining that was mapped as NAG, but appears to be PAG (visible pyrite and distinct gray or green color), and there is low neutralization potential in the area, it will be marked in the field and carried to the appropriate encapsulation area.

2007 Waste Rock Data

The Marlin open pit mine produced approximately 3,500,000 tons of waste rock and the underground mine produced approximately 213,300 tons of waste rock during 2007. Details of waste rock placement are included in Table 33.

**Table 33. 2007 Marlin Mine Waste Rock Production**

**Waste Rock Production 2007**

| Open Pit Waste Rock Management | tons 2007 |
|---|---|
| To Waste Dump | 2,320,126 |
| Clay to Dam Construction | 385,702 |
| Rock to Dam Construction | 582,088 |
| Rock to Aggregua Crusher | 118,735 |
| Clay to Area 5 Cap/Closure | 47,953 |
| Organic to Area 5 Cap/Closure | 9,831 |
| PAG to Waste Dump | 71,537 |
| **Total** | **3,535,972** |

| Underground Waste Rock Management | tons 2007 |
|---|---|
| PAG to Waste Dump | 72,800 |
| Backfill | 128,000 |
| PAG to Area 5 Dump | 12,500 |
| **Total** | **213,300** |

Field Geochemical Testing

During 2007 field tests continued on three different rock types that were set up near the raw water pond. The purpose of this test is to determine long term acid generation/neutralization potential and long term metals leachability of the dominant rock types. Weekly samples are taken of rainfall that passes through the rock samples for field parameters (pH, conductivity, redox potential, etc.). Also during the rainy season a monthly sample is taken for a full suite of analytes. No significant changes in the weekly field parameters were noted during the testing conducted to date, however, it is the long term data that is more important in this case than the short term data. Each year more rock and alteration types will be added to the program. The weekly data is shown in Worksheet geochem in Attachment C.

## 12.0 HEALTH AND SAFETY MONITORING

Montana strives to provide a healthy and safe work environment, free of accidents and occupational health risks, focused on the control and prevention of all loss of human resources, company property and the environment. It is the philosophy and belief of the company that accidental loss can be controlled through the implementation and administration of an effective loss-control program, which requires the active participation of all the employees. To this end, all employees are provided health, safety and loss prevention instruction and training to help them carry out their duties and responsibilities according to the rules, policies and practices established by the company. Montana has an internal committee to perform monthly environmental and health and safety inspections.

### 12.1 Occupational Health and Safety

During 2007, the Marlin Mine had a total of 134 lost-work days resulting from 11 lost-time accidents (see Tables 34 and 35).

| Table 34. 2007 Marlin Mine Health And Safety Incident Statistics | | |
|---|---|---|
| **Occupational Health and Safety Incidents** | **Number of Incidents** | **Details** |
| Fatalities | 0 | |
| Total Lost Time Accidents | 11 | See Table 36 for a description of lost time accidents |
| Total number of lost work hours resulting from incidents | 1,072 | |
| Total man hours worked | 3,239,752 | 2007 Incidence (IFC): 0.00033089<br>2007 Incidence (US): 8.272 |

| Table 35. Details Of Marlin Mine 2007 Lost Time Accidents | | | |
|---|---|---|---|
| **Accident No.** | **Date & Time** | **Accident Description and Causes** | **Corrective or Preventative Measures** |
| 1 | 02/06, 03:30 | A jumbo operator in the underground mine slipped while pulling the electrical feed cable, fracturing his right ankle. | Revised the safety training plan and the before-work safety briefing for all personnel. |
| 2 | 04/22, 12:15 | An instrumentation technician fell in a ditch in the tailings dam area and suffered contusions in his rib cage and right knee. The technician was checking runoff below the tailings impoundment and failed to see the open ditch, which was not taped off as required. | Revised the safety training plan to include a 30-minute safety meeting on procedures of land hazard preventative measures for workers conducting excavation. |
| 3 | 05/17, 13:45 | A warehouse assistant suffered a broken thumb while trying to adjust the width of the forks on a forklift. The employee was removed from duty for 30 days by a doctor. | Revised safety training plan to emphasize training on procedures of safe operation of forklift equipment. |
| 4 | 05/20, 16:30 | An underground miner was struck on the head by a falling rock. The miner was wearing his safety equipment, but suffered injuries to his nose and neck. He was transferred to a hospital where he was kept in observation for two days, after which he came back to work on restricted duty for two days. The employee fully recovered and has since returned to his normal activities. | Extended the ceiling and wall support mesh to the front of the mine. |
| 5 | 06/14, | A pit supervisor was walking on a | Amended the safety training plan to |

| Table 35. Details Of Marlin Mine 2007 Lost Time Accidents | | | |
|---|---|---|---|
| **Accident No.** | **Date & Time** | **Accident Description and Causes** | **Corrective or Preventative Measures** |
| | 05:00 | steep slope while helping a contractor pull a bulldozer that had gotten stuck. The supervisor twisted his foot, suffering a severe sprain. | emphasize procedures for ground control. |
| 6 | 06/28, 11:00 | An underground operator running a jumbo drill got his middle finger severed while attempting to slide a PVC pipe into the hole he just finished drilling; a second operator of the jumbo was trying to pull the drill steel out of the hole, and, not realizing that the steel was completely out, decided to push it forward to dislodge it, thinking that it was hung up in the hole. The first operator had his hand around the collar of the drill hole and under water when the second operator pushed the drill pipe back in the hole; the middle finger was severed and the second and fourth fingers sustained cuts that needed stitches. | Amended the safety educational plan and provided refresher training on safe operating procedures for the Jumbo drilling machine. |
| 7 | 07/14, 07:50 | A supervisor and crew with Grupo EMO, the underground mining contractor, were unloading plastic pipe rolls by hand from a pickup. One of the rolls started rolling down the ramp and the supervisor tried to stop it. The pipe knocked him to the ground and caused a small fracture to his shoulder. He was released after a few days in the hospital. | Amended the safety training plan to provide additional training on safe work procedures and proper use of equipment during hand loading/ unloading of materials. |
| 8 | 08/03, 08:30 | A Geology assistant working in the Cancil area suffered an epileptic seizure and fell from one level of terrain to another. He received a laceration of approximately 15 centimetres in length to his head. There was no evidence of a fracture. The fall also caused a 2 centimeter laceration to his lip. The employee was treated in the clinic at the mine site and then sent to a nearby hospital where he was hospitalized for three days. After being released | Institute physical exams and take medical histories for all new employees. |

| Table 35. Details Of Marlin Mine 2007 Lost Time Accidents | | | |
|---|---|---|---|
| **Accident No.** | **Date & Time** | **Accident Description and Causes** | **Corrective or Preventative Measures** |
| | | from the hospital, he was placed on restricted duty for seven days. | |
| 9 | 10/04, 14:00 | An environmental department field foreman twisted his right foot, suffering a severe sprain. The employee was treated in the clinic at the mine site and then sent to a nearby hospital where he was x-rayed. A fracture of the ankle was found and he was placed in a cast. After being released from the hospital, he was removed from duty for 30 days for recovery. | Amended the safety education plan to emphasize procedures for ground control. |
| 10 | 11/04, 07:15 | A miner driving No. 418 Caterpillar 30-ton truck near the portal area of the underground mine hit the left rib wall and pinched his little finger of left hand between the truck and the rib wall. The employee was taken to the clinic for treatment and sent to Huehuetenango hospital for surgery. The doctor removed him from duty for 30 days for recovery. | Amended the safety training plan and provided refresher training on procedures of safe operation of mobile equipment. |
| 11 | 12/07, 12:00 | An employee was cleaning the rotating plate for the pump on the shotcrete machine. Standard procedures were not followed, which are to clean the plate with compressed air. The employee was using a spud wrench to clean the holes and did not have his hand out of the way when the operator was instructed to rotate the plate and pinched the end of the employee's finger. | Shotcrete machine operators and assistants were provided refresher training regarding the cleaning of the rotating plate and removal of obstacles. |

### 12.2 Training

Table 36 below details the Marlin Mine introductory and refresher Industrial Health and Safety training courses provided during 2007. All Montana and contractor employees receive industrial health and safety training shortly after they are employed and 48 hours of specialized and refresher training on an annual basis.

| Table 36. Marlin Mine Health And Safety Training: 2006 | |
|---|---|
| **Course** | **Number of Employees Trained** |
| Introduction to Industrial Health and Safety | All employees |
| Annual Health and Safety Training | All company and contractor employees throughout the year |

The following outlines the content of the introductory and annual refresher courses.

Introduction to Industrial Health and Safety

Each employee is given a one-day long introductory course on the industrial health and safety rights and responsibilities for miners including:

- Company health and safety policies, standards and procedures
- Industrial health and safety overview
- Rules of safety and general conduct
- Risk prevention
- Environmental preservation
- Emergency transportation and communication procedures
- Safety procedures and care of the work environment
- Emergency evacuation and escape plans
- Personal protection equipment
- Introduction to First Aid
- Land control issues
- Industrial health, safety and hygiene
- Electrical safety
- Safe use and management of explosives
- Safe use and management of chemical products
- Fire extinguisher use

Annual Refresher Training

Each employee is required to attend an annual safety refresher training course. Topics include the following:

- Contingency committee organization and training
- Emergency action plan
- Operating contingency manual
- Evacuation
- Earthquakes
- Fire prevention and suppression
- Fire suppression teams
- First aid
- Use and management of emergency equipment
- Use and management of chemical products

## 12.3 Employee Workplace Monitoring

Noise and Air Monitoring

Workplace monitoring was conducted by Marlin Mine staff in compliance with the Department of Energy and Mines (MEM) requirement specified in the report SCDM-INF-EXTNo. 236-2004f

For the assessment field sampling results are compared against MSHA for air quality in underground mines and against OSHA for surface locations. The field work consisted of in situ sampling which occurred quarterly during 2007.

Underground Mine Noise Exposure Levels

During 2007, audio measurements were conducted inside the underground mine tunnel at 14 stations and levels. OSHA dosimeter parameters used for the sampling are shown below.

TLV – TWA[10] parameters without hearing protection:

- 8 Hours Up to 85 decibels
- 4 Hours Up to 95 decibels
- 1 Hour Up to 105 decibels

The results obtained from the audio dosimetry sampling shows that sound levels in the underground mine tunnels are above OSHA standards for unprotected exposure. Consequently, auditory protection devices must be worn inside the underground mine at all times.

Underground Mine Air Quality

Measurement of oxygen ($O_2$)[11], carbon monoxide (CO) and carbon dioxide ($CO_2$) was performed quarterly during 2007 in the underground mine tunnel and refinery. A total of 14 air quality monitoring stations were established inside the Marlin under ground mine.

According to the Marlin Mine monitoring results, oxygen levels in the Marlin tunnel were above the MSHA standard contained in 30 CFR 57.5015 at every sampling station, and levels of nitrogen, hydrogen sulfide, carbon monoxide and methane were all well below allowable thresholds, which indicates that the ventilation system is adequately sized and functioning properly.

One area of concern regarding air quality in the underground mine is the level of diesel particulate matter (DPM). Diesel fuel sold in Guatemala contains high levels of sulfur. During 2007, a monitor worn by an underground mine supervisor registered 14 percent higher than total allowable level of carbon and 15 percent higher than the per-shift allowable level. In order to remedy this problem, Montana is working with the Guatemalan government to allow to importation of low-sulfur diesel fuel for use in the underground mine.

[10] TLV-TWA (Threshold Limit Value-Time Weighted Average): The time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, to which nearly all workers may be exposed, day after day, without adverse effect.

[11] % $O_2$ refers to the percentage in volume of oxygen in the air within the tunnel.

Silica Dust Monitoring

Silica dust monitoring was performed quarterly at nine stations within the Marline mine operations. Monitoring results showed exposure levels below permissible standards at all locations.

### 12.4 Fire Safety Monitoring

Table 37 presents Marlin Mine fire safety monitoring data for 2007.

**Table 37. Marlin Mine 2006 Fire Safety Activities**

| Fire Safety Verification Activities | Number Performed |
|---|---|
| Fire Drills* | See discussion below |
| Inspection and certification of fire detection and suppression electrical and mechanical systems. | 1 |
| Portable Fire Extinguisher Inspections | All fire extinguishers are inspected monthly |
| Portable Fire Extinguisher Recharging | All fire extinguishers requiring recharge are serviced bi-monthly |

Fire Drills, Emergency Exercises and Training

During 2007, the Marlin Mine OH&S Department maintained an Emergency Response Contingency Brigade that included 25 certified industrial fire fighters and 60 brigade members in training. The brigade has received specialized training for a variety of emergency rescue situations and emergency rescue techniques. Each brigade member participates in weekly training sessions. The Contingency Brigade also conducts and participates in four mock disaster exercises each year. The 2007 mock disaster exercises included:

- Execution of the evacuation plan and first aid applications;
- Contingencies and response to hazardous materials spills;
- Search and rescue in collapsed structures and elevated locations; and
- Knowledge and use of fire suppression equipment.