



Sustainable Development and Mine Closure  
Planning, A Case Study, Golden Sunlight Mine,  
Jefferson County Montana

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## ABSTRACT

The Golden Sunlight Mine (GSM) began operation in 1982 with a strong commitment to environmental stewardship and the local community. This commitment ensured the long-term physical, chemical and ecological stability of the mine site and maintained an active partnership with local stakeholders. Concerns for economic development intensify as mine closure looms on the horizon and has fostered the inception of the Community Transition Advisory Committee (CTAC). This coalition of interested area stakeholders has the primary focus to sustain current mining operations while concurrently seeking alternative post-mine economic development opportunities utilizing existing mine assets. Accomplishments include development of an Asset Re-utilization and Post-closure Plan, a community survey regarding the impending mine closure, recruiting a renewable energy company to develop a wind farm, and development of an industrial/business park.

The synergy of this strong partnership is key to meeting sustainability goals and enhancing potential future mining operations. The cooperative effort of the GSM and the local stakeholders is a success story that could be a role model for other mining operations.

## INTRODUCTION

The nature of an extractive industry like mining is the dependence on a finite resource that has a distinct economic life. The history of mining has been one of boom and bust periods that were based on available natural resources balanced with production costs and the ability to sustain profitability. This old mining culture did not fully understand, consider or comprehend the environmental, social, and economic impacts mining had during and after mine closure. In recent years, the mining industry leadership has come to realize the modern day mining business has become more complex with the advent of stricter regulations, better-informed stakeholders, and closer in-depth scrutiny of current/proposed operations. This cultural evolution has placed increased emphasis on the importance of sustainability operations focused on the key areas of environment, social, and economic impacts. The successful mining organizations of the future will fully understand and embrace the principles of sustainability and actively involve stakeholders in the process.

The successful sustainability strategy used by GSM to meet the challenges of the changing mining culture is worthy of closer examination. The GSM is an open pit gold mine located near the town of Whitehall in southwestern Montana and is owned by Placer Dome U.S. Inc. GSM has been in operation since 1982 and has produced over 2.5 million ounces of gold. During the life of the mine it has had as many as 300 well paid employees who received in excess of \$200 million in salaries and benefits. They actively support close to 300 separate

business vendors and/or contractors whose businesses benefited from the daily mine operations. GSM has contributed well over \$70 million in taxes to the federal, state, and county coffers during this period., mining activity at the GSM site has been winding down with an anticipated closure scheduled for 2004. A proposed pit expansion with continued mine life through early 2009 has been researched since 1999 and is known as Stage 5-B. A recent decision was made by the Placer Dome Inc. Board of Directors to concur with the recommendation of Placer Dome U.S. Management to implement Stage 5-B and continue existing mining operations. This welcome news for the local area reinforces the appearance that the sustainability efforts of Placer Dome and GSM are working.

Today the GSM work force consists of 130 employees. For approximately 15 months beginning in January 2004, mill operations will be curtailed while overburden is removed as part of the Stage 5B pit expansion. Some refurbishing of the mill will occur at that time so that the mill is ready to receive ore in 2005.

To fully understand the implementation and direction GSM has taken in its sustainability efforts, it is essential to review their parent company guidance and policy. The Placer Dome Inc. Board of Directors has embraced and instituted a corporate sustainability policy in recent years that has been adopted by all Placer Dome mine sites. They focused the corporate sustainability efforts into the three equally important components of environmental, social, and economic impacts. A key aspect of this policy is the active involvement and integration of area stakeholders into the decision process. The intent of the policy is to partner with the local community and area stakeholders to optimize the current advantages of mining and sustain these positive attributes associated with mining long after the mine closes.

The Placer Dome sustainability program continues to evolve and define corporate social, economic and environmental responsibilities while not compromising its fiduciary responsibility to its shareholders. The corporate sustainability vision statement clearly states this intent, *“Our vision is to leave behind a better environment, social and economic future for our host communities, wherever we operate. We will achieve this by living the principles of sustainability, including increasing the capacity of our hosts by assisting them to become more self-reliant.”* This philosophy has been actively embraced by GSM General Manager Mark Isto , and sets the stage for GSM to be used as a role model for current and future mining operations. The environmental, social and economic impacts of mining in general are varied. The GSM has implemented its sustainability strategy by focusing on these three primary issues.

## ENVIRONMENTAL SUSTAINMENT

The GSM has always held environmental stewardship as a core value and principle. Embodied within this stewardship is its commitment to superior quality and timely mine land reclamation, the conservation and enhancement of hundreds of acres of wildlife habitat within the local area, and research into methods and technologies that reflect its philosophy of “continuous improvement”.

**Mine Land Reclamation:** Mine land reclamation is a key element of the GSM operation. Reclamation plans are fully engineered and implemented as soon as areas become available. These plans are routinely reviewed and updated to incorporate the latest in technologies and GSM experience and are backed up with reclamation and post-mine management surety in the amount of approximately \$54 million.

During the 22 years of operation, mining has disturbed about 972 hectares (2,402 acres) (Golden Sunlight Mines Inc. 2004). Future permitted mining operations will occur within the existing disturbance footprint. The GSM has reclaimed 443 hectares (1,095 acres) or 46% of its total disturbance. The balance is made of the open pit; the east waste rock complex, where future waste rock will be placed and reclaimed; the active east tailing impoundment; the plant site and attendant haul and access roads, all essential to the ongoing mining operation.

Waste rock and tailing at the GSM have a high potential to generate acid rock drainage. Therefore the GSM has a comprehensive program for controlling acid rock drainage as a key component of its reclamation plan. This program includes incorporation of the latest low hydraulic flux soil covers on its reclaimed waste rock and tailing areas, incorporation of site specific evidence supporting a specific soil rock mixture as a final cover to minimize erosion, and a revegetation program incorporating routine review of plantings to determine appropriate adjustments to future plantings based results measured at different elevations, slope angles and slope aspects.

To date, the GSM has spent approximately \$17 million on reclamation, of which approximately \$13 million was spent in the period 2000 through 2001. This equates to a reduction in the reclamation obligation under the surety bond of approximately \$29 million. The GSM has submitted information initiating surety bond reduction with the Montana Department of Environmental Quality.

A significant portion of the surety (approximately \$20 million) is in place to provide for the capital and operating and maintenance expenses for the long term collection and treatment of pit drainage, tailing drain down, unpredicted and unanticipated surface seepage from reclaimed waste rock and the remediation of local groundwater impacts down gradient of the west tailing impoundment.

**Wildlife Habitat Conservation:** The GSM has been a committed financial donor to habitat conservation organizations such as the National Wild Turkey

Federation, Rocky Mountain Elk Foundation, Ducks Unlimited and the Whitehall Sportsmen Association. Additionally, the GSM has been active locally in acquiring and managing hundreds of acres of land in the area. The GSM’s land holdings in the Jefferson River Valley are comprised of over 3684 hectares (9,100 acres). In addition to the 1,780 hectares (4,400 acres) of private land acquired to support the mining operation, the GSM has realized the value of conserving wildlife habitat and open space to the community and environment by acquiring additional lands having high habitat value. Included in these holdings is the consolidation of 215 hectares (530 acres) of wetland adjacent to the Jefferson River, 260 hectares (640 acres) of elk calving ground in the Bull Mountains, and the 1,425-hectare (3,520-acre) Candlestick Ranch property. The Candlestick Ranch holds leases and grazing permits on an additional 770 hectares (1,900 acres) and the ranch property provides the public with controlled access to a vast area of state and federal public land. All of GSM holdings are managed with the cooperation of state and federal wildlife and land management agencies to maintain and enhance where possible their intrinsic wildlife habitat value while supporting the mining and agricultural uses important to the local economy. Except for the land within the permitted mine area, these lands, with appropriate restrictions, are open to the general public.

**Continuous Improvement:** Committed to programs that will challenge its reclamation and closure plans with new technologies that could improve performance the GSM has engaged in a number of research projects many in partnership with leading research and academic institutions. GSM is faced with a number of water quality issues related to the high acid generating potential of its mine wastes (waste rock and tailing) and its use of sodium cyanide in its processes. Much of this research has been directed at testing and evaluating alternative methods to control acid rock drainage (ARD) in the open pit and reclaimed waste rock piles and the treatment of cyanide, cyanide by-products and other constituents used in GSM’s processes.

Acid rock drainage research includes a partnership effort among the U.S. EPA (EPA), MSE Technology Applications, Inc. (MSE) and the GSM to apply and evaluate the effectiveness of a bioreactor as a treatment for a naturally occurring low pH, high sulfate and metals bearing spring covered by waste rock at the GSM. In the initial stage of the bioreactor effluent from the spring is mixed with effluent from the bioreactor in a settling basin to provide initial neutralization and metals precipitation. Methanol is then added to the basin overflow to the bioreactor. Sulfate reducing bacteria use the methanol as a food source and sulfate as an electron acceptor and produce bicarbonate and sulfide needed to neutralize the spring effluent. Results have been encouraging with the bioreactor functioning for several months at internal temperatures between 0 and 1 degree Centigrade (32 and 34 degrees Fahrenheit).

Other research efforts directed at ARD control involve the field scale testing of passivation technologies, one of which is patented (Wilmoth, July and August 2003). The GSM has been testing the passivation of broken waste rock using a University of Nevada –Reno (UNR) proprietary passivation technology. The GSM is also participating with EPA, MSE and UNR on field scale demonstration projects directed at pit highwall passivation.

The passivation process precipitates a protective layer over sulfide surfaces. This is accomplished by contacting exposed sulfide surfaces with passivation solution after increasing the pH of the material to 12 using calcium and magnesium oxide and sodium hydroxide. The resulting inert layer precludes or reduces sulfide oxidation and resulting ARD. Results of the passivation projects vary but all have demonstrated an increase in pH of effluents from passivated material and areas with corresponding reductions in sulfates and certain metals when compared to controls.

The GSM staff have been testing and evaluating treatment technologies for residual cyanide, nitrate, ammonia and thiocyanate that can be expected to be encountered in the longer term in the tailing drain down solutions and impacted groundwater being extracted by pumpback wells located in the immediate vicinity of the west tailing impoundment (Golden Sunlight Mines Inc., 2003). The technologies being evaluated include a pilot scale activated sludge circuit and a Whitlock Bio-oxidation Pilot Plant. Both have had favorable results with the Whitlock technology (Whitlock, February 2001) having lower operating costs. The activated sludge technology has been converted to a .4 -hectare (1acre) test pad inoculated with sludge from the pilot plant. Initial sludge circuit has been discontinued while the Whitlock flows to the test were limited. However, no freezing problems were observed over the winter. The test pad media has recently been replaced to allow for an increase in treatment flow rate to 378 liters per minute (100 gpm) or higher.

## SOCIAL SUSTAINMENT

The GSM has had a tremendous effect on the social environment and culture of the local area since its inception. The employees of the GSM are an active part of the local area and have had a significant role in shaping the local culture. The value of the personal and company time, efforts, and contributions to support the myriad of on-going activities cannot easily be measured. GSM employees serve as members of local civic and non-profit organizations, economic development committees and groups, help with coaching local sports programs, are involved in local government, are members of the local emergency services such as fire, ambulance and search and rescue, are involved in all levels of school activities and functions, work with boy and girl scout organizations, are active with the rodeo and 4-H program, and support many other volunteer projects in the area. Their involvement throughout the community has a major impact on setting

the community values and ideals. Environmental stewardship, safety, work ethic and community integration are key areas that have permeated the local culture as a direct result of the GSM corporate philosophy.

Environmental stewardship and high quality land reclamation have been priorities for GSM since it began operation. The mine site is adjacent to a major interstate and is highly visible to the public. The history of mining in Montana has been one of mine until the resource is depleted then close operations with minimal concern about the land. GSM has the opportunity to have a tremendous impact on forming the ideas and standards expected by the public of the mining industry and what their expectations are for reclamation. Its superior reclamation efforts combined with its ongoing innovative research in mine land reclamation, acid rock drainage prevention and control and water treatment involving researchers from government, academia and the public sectors are indicative of its environmental leadership in the mining community. Its positive influence on the social expectations has created a sense of trust with the local community in that the GSM is mining responsibly and doing reclamation right. As recently retired GSM Manager Doug Bailey put it , “They know we’ll do the right thing. They are our goodwill ambassadors.”

The safety record at GSM has been outstanding and is ingrained into the culture. It translates into the daily lives of the local residents as GSM employees become involved in various community organizations and activities. GSM actively supports area emergency ambulance and fire services. Their employees supplement both the ambulance service and the fire departments in their off time as fire fighters, ambulance drivers, and medical assistants. GSM donated a defibrillator to the ambulance service, jaws-of-life to the fire department, and several used mine vehicles to the local Search and Rescue unit. The GSM has been actively involved during times of emergency and has provided material and labor support. They assisted with riprap and flood control when heavy flooding occurred in the valley. During a recent fire season they provided water trucks and graders to assist with fire suppression efforts in the local area.

GSM’s support for education is an on-going activity. The staff conducts annual outdoor educational classes that are agriculture related with workshops on geology, weeds and plants, and wildlife. The GSM provides thousands of dollars annually for continuing education scholarships to graduating Whitehall High School seniors. It purchased and donated computers and musical instruments for the local schools in both Whitehall and Cardwell to enhance the educational opportunities of students. When the school needed a new roof and local funds were unavailable the GSM stepped forward and accomplished the task. GSM donated \$15,000 for the construction of an addition on the local library. This allowed the library to expand its usable space and add additional computer work stations to better support the community. The GSM provided materials and support to construct a school playground in Whitehall. It

also purchased new weight equipment and machines for the local school, which are also available for community use.

GSM has hundreds of acres of prime recreational property for hunting and fishing. It allows free public access to the property for recreational use, which amounts to thousands of recreational use days annually. This free access equates to a public donation equivalent to thousands of dollars since it could have placed these lands under a recreational Block Management program and received payments from the program. The GSM works closely with the Montana Fish and Game Department and has participated in a wild turkey introduction program in the area. The turkey-stocking project has been a great success that has allowed for an active turkey-hunting season to be established in the local area. It supports area-sporting organizations with donations to the National Wild Turkey Federation, Rocky Mountain Elk Foundation, and Whitehall Sportsman's Association.

The GSM is active in improving the quality of life in the local area. It donated two houses to the Habitat for Humanity program in the Whitehall area. It provided the initial seed money of \$10,000 to assist with establishing the Whitehall Community Endowment Foundation. This fund assists worthwhile projects of non-profit organizations from around the area. The fund to date has funded equipment for the local Rural Fire Department and the Jefferson Valley Search and Rescue.

The Metal Mine tax balance paid by GSM currently has in excess of \$850,000 and funds an annual grant program of \$75,000 and a Revolving Loan Fund (RLF) program of \$250,000 (Jefferson County, 2001). The grant program is designed to assist local non-profit organizations in implementing community enhancement projects. To date, the grant fund has assisted the local library with new construction, funded a local outdoor theater group infrastructure improvements, assisted with the funding of a new swimming pool, developed two youth soccer fields, upgraded the baseball/softball facilities, renovated the local fair grounds with new bleachers, stock pens, and corrals, and has funded the upgrade of roads and infrastructure at the recreation complex. The RLF is designed to loan money to local area small businesses to enhance economic development. One loan has been completed that facilitated a new business moving to Whitehall and creating two new positions.

GSM supports various youth programs and have contributed \$500 annually to the local youth baseball program. It actively supports the local youth 4-H program by spending several thousand dollars annually to purchase 4-H market animals at the Madison County fair. It is currently in the process of donating 8 hectares (20 acres) of land to the Montana Fish, Wildlife, and Parks Department for the development of a family fishing pond in the Whitehall area.

GSM has actively pursued training and skill development opportunities for their employees as mine downsizing has occurred. They co-sponsored seven *NxLevel* entrepreneurial training programs for employees who were being laid off and paid the tuition for any current employees who wanted to participate in the training. The training opportunity was well attended and resulted in eight new businesses being started in the local area by former mine employees.

The Golden Sunlight Mine has been an integral part of the community and local area for many years. Employees and family members also are a good testimony to the mining industry. Their networking with others outside the mining community contributes to educating the public on mining opportunities, practices, and challenges. This has a positive effect on the future mining operations as more people become educated and aware of what mining entails. Miners are hearty individuals accustomed to working in all types of weather conditions. They have a strong work ethic and adapt well to changing conditions. These traits coupled with the legacy they have established of partnership, cooperation, and teamwork set the stage well for future area economic development and prosperity.

The Community Transition Advisory Committee (CTAC) was formed in the spring of 2000 through the vision of then GSM General Manager Doug Bailey. In his words, "One of the most successful things we have done in preparing for closure is involving the community. Any time you do that, you generate a lot more trust. Through this committee, the community of Whitehall gives this mine its license to operate." He realized this cooperative effort between the Golden Sunlight Mine, the local community, and the Jefferson Local Development Corporation (JLDC) was a way to undertake a comprehensive planning process that could focus on how to mitigate the negative economic impact the local area would encounter with the pending closure of the Golden Sunlight Mine.

The committee composition was designed to be a coalition of interested local area stakeholders who were attuned to the wants, needs, and desires of the local population. The committee membership consists of ten members from throughout the area: Three members are from the Golden Sunlight Mine management team, one member represents the local Chamber of Commerce, one member heads the local financial institution, one member represents local government and is the Mayor of Whitehall, one member is a local business owner and is also a member of the Montana Fish and Game Commission, one member is a Jefferson County Commissioner, one member is a JLDC board member and owns an environmental engineering firm, and two members are from the JLDC management staff. The committee meets on a monthly basis to review current project implementation progress, plan future strategies, and discuss new ideas.

GSM and CTAC wanted to validate that the direction, goals, objectives, and project focus were in concert with the local populations desires. A public input strategy and plan was undertaken by CTAC that included public meetings, newspaper articles, and a formal input procedure. Four public meetings have been held to date to provide information to the community about closure time frames; reclamation plans and progress; potential post-mining uses of the mine's assets and to receive public input. CTAC established a post-office box and has received many recommendations and ideas from the community on potential post-mining uses of the mine facility.

In 2003, a survey was commissioned by Montana State University – Billings survey research lab to get the views of local area residents on various aspects of the pending GSM closure (Floyd and Wilson, 2003) The survey also provided another avenue to receive input from the local area stakeholders and involve them in the process of mine reutilization and shaping future community development. The survey validated that CTAC was very attuned to the local residents desires for on GSM post-mining asset reutilization. It also reinforced that the focus and direction of CTAC was on track and was a result of having a good cross section membership from the local community. It also indicated there was a high awareness of the projected closure of the GSM with the primary concerns being the economic impact from the loss of employment and the overall tax implications. The loss of tax revenue was of particular concern as it related to future school funding. The wind energy project and the Industrial/business Park rated very well and were endorsed as good projects for the area. Maintaining outdoor recreation opportunities rated high with the survey respondents and is directly related to the area demographics and culture. It is also a function of the past GSM policy to allow public access to prime recreational land it owns and the desire by the public to maintain these opportunities into the future. A public meeting was held in April 2003 to present the survey results and to hold a public discussion on proposed projects. The meeting was well attended and included presentations by the GSM leadership on current and future mine operations as well as a presentation by a Jefferson County Commissioner on expected employment, revenue and tax impacts of the pending closure. The meeting culminated in breakout sessions on the following topics: Current GSM reclamation projects and status; GSM land trades that were being developed with the BLM; family fish pond proposal; County tax issues and concerns; and Economic development opportunities. The meeting proved to be an excellent information exchange medium between CTAC and local residents.

## ECONOMIC SUSTAINMENT

While actively engaged in sustaining existing mining operations the CTAC also focuses their efforts on the development of a working outline that would result in a comprehensive yet directed approach to planning for the

post-mining sustainable uses of the mine site. Coined the *Asset Re-utilization & Post-closure Plan*, the plan included committee member education/briefing plans, partnership role/responsibility definitions, time-frames, public input processes, GSM asset description/inventory, goals/objectives development, application processes for asset re-use ideas, and project resource analysis/identification.

This process resulted in a formal study and report being conducted by an outside engineering firm that analyzed the available assets at the GSM and the potential for future reutilization. The permitted mine area consists of over 6,000 acres and includes extensive mine infrastructure that is required for mining operations and processing ore. This represents a tremendous fixed cost and also presents an opportunity to offer low cost business development opportunities for new businesses that could use the existing infrastructure. CTAC developed a process to review and evaluate all potential mine reutilization ideas that considered existing environmental regulations, current GSM sustainability policies, and community desires. The intent was for the committee to be easily accessible to the public and be a sounding board for potential ideas. To facilitate open communications flow and foster input from area individuals, several public meetings were held to present information on the past, present and future operations of the GSM. This medium, along with periodic news articles, provided updated information to area residents and served as a conduit for receiving public input on mine asset reutilization. The results indicated strong support for development of a well-planned Industrial/Business Park and a wind energy facility at the site.

Industrial/Business Park. The Industrial/Business Park Project has been in the development stage for 24 months and is a cooperative endeavor of the GSM, CTAC, and the Heavy Industry Team (JLDC sub-committee). A major factor that influenced the pursuit of this project on the GSM property was the availability of an 81-hectare (200-acre) tract along a main frontage road with excellent interstate access. The Whitehall area is well situated as a transportation hub with major arteries that transect the major North-South and East-West transportation corridors in Montana. The selected site is also centrally located to the major Montana cities of Bozeman, Butte, and Helena. Dedicated volunteers from these JLDC organizations, in conjunction with the GSM leadership, developed the initial concept plan for the Industrial/Business Park. The existing industrial-capacity infrastructure on the GSM property includes a power substation, electrical transmission lines, redundant power supply system, water rights and supply system, and adjacent buried fiber optic cable. The estimated replacement value of these assets exceeding \$5 million and presents a potential low cost development opportunity. Senior business students at the Small Business Institute located at Montana Tech - University of Montana, located in Butte, Montana conducted an initial industrial-park feasibility study. A second stage *Industrial Park Site Study and Transition Plan* was commissioned by

the JLDC via an outside consulting firm (Handl, 2000). Additionally, volunteer committee members have contributed personal expertise in various areas of construction, environmental engineering, business management, and project development to augment these studies and help keep the project concept moving forward. The intent of the park is to develop facilities within the industrial park that meet specific business requirements that can be built to individual business specifications. The industrial park tenants will be selected in conjunction with the GSM staff that will best contribute to employment opportunities, existing property tax base, and established community values. A conceptual park layout of the Industrial/business Park was developed and information on the project is periodically addressed in the local newspaper to sustain project visibility.

A part of the industrial park plan was the submission of a grant application through the U.S. Department of Commerce for Economic Development Assistance (EDA) to complete an Architectural and Engineering (A&E) design study. This would include surveying the proposed 81-hectare (200-acre) site and completing the infrastructure engineering and land planning. The property will be initially leased to the JLDC while the mine operates with eventual ownership being transferred upon mine closure. Placer Dome, the GSM, and the JLDC are currently drafting lease agreements for the industrial park. The grant has been approved and will be partnered with the Jefferson County Commissioners who have agreed to provide the necessary matching fund commitment of \$120,000.

Recently, GSM General Manager Mark Isto facilitated a joint GSM and CTAC project planning session following the planning process Placer Dome uses for all of its major capital projects. The session documented a collaborative effort at determining every task required to bring the industrial/business park to fruition. The work product from the session assigned responsibilities and timelines for the completion of these tasks such that an initial offering of occupancy could occur in the fall of 2004.

Wind Energy Project: CTAC members initially discussed the potential for wind energy development over two years ago. The mine site is a world-class wind resource and when coupled with existing infrastructure of high capacity transmission lines, a 70-megawatt substation, and an excellent road system, it makes the feasibility of developing a commercial wind energy farm attractive. Support for wind energy development at the site increased as energy prices began to rise and reached new high levels in 2002. A national wind energy company expressed interest in the site and submitted a bid proposal to the Montana utility firm to install a 50-megawatt wind farm at the GSM site. The initial bid was rejected by the utility provider and would have resulted in ratepayers paying considerably more for this power over the life of the contract. The JLDC, CTAC, and GSM challenged the bid process and outcome with the Public Service Commission (PSC) and were successful. Re-bidding of the wind

contracts were completed in mid-May 2003 and the default electrical supplier offered a contract for a 75-megawatt wind farm at the GSM site to the wind energy company. The wind project has gone through many challenges and the principal party has changed to a potential local developer. The teamwork and persistence of CTAC and GSM are credited with keeping this project moving forward.

GSM has worked collaboratively with CTAC to further the wind park project on the following activities: Wind Site Visit. A site visit paid for by GSM to a wind farm operation in Minnesota was made by committee members to observe first hand what a wind energy site involves.

GSM Support. Several follow-up meetings with the potential wind farm developers were held at the local and state level. A special energy meeting was hosted by CTAC with several large electrical users to discuss possible wind contracts. Routine tours were conducted at the GSM site for the prospective wind company and other interested parties. GSM cooperated with the wind developer to get an anemometer installed at the mine site to measure the wind resource. It also provided access to its extensive environmental records to augment the wind project development.

Publicity. Routine newspaper articles were published to reinforce public awareness and visibility for the project. A separate wind energy table and display was set-up during a public meeting to answer questions.

Legislative Actions: Local Representative Scott Mendenhall sponsored a bill during the 2003 Montana Legislature session that passed and encouraged the extension of the federal wind energy production tax credit. This federal legislation provides wind energy incentives that would enhance development of this project.

Outside Agency Coordination: GSM has on-going discussions with the Bureau of Land Management (BLM) on the wind turbine permitting and locating process at the mine and how the proposed project fits into the BLM Federal Wind Energy Development Policy. BLM has expressed their support of wind energy development as a productive use of the Golden Sunlight Mine. Another positive aspect is the Montana Environmental Information Center (MEIC) also supports wind development and conducted a site visit at the GSM site.

There are some positive aspects of a commercial wind energy farm located on the GSM site:

- The wind project could be developed while the GSM mining operations are on-going.
- The project will accomplish some of the economic sustainability objectives of GSM and CTAC by increasing employment opportunities and tax base.
- The GSM has entertained looking at the revenue stream from the turbines going back into community sustainable programs that could foster additional economic development.

- The prospective wind energy developer is a recognized and well-established individual in wind energy arena.
- The development of a wind energy facility at the GSM site is an excellent example of how a successful long term extractive mineral operation can be reclaimed and converted into a green renewable energy development site utilizing the existing mine infrastructure. The development of the wind facility and production of green power is strongly supported by the community and by environmental organizations.

CTAC is actively involved in several other potential projects that will enhance both social and economic sustainability of the local area.

Golf Course. This project has had initial review and is still on the list of potential projects for the GSM property. It offers the opportunity for area tourism, seasonal work, and wildlife habitat. An independent study was conducted and revealed a golf course was marginally feasible.

Fish Pond. GSM is in the process of donating 8- hectare (20-acre) of land for the development of a family fishpond in the Whitehall area. This land is in the process of being transferred to the Montana Fish, Wildlife and Parks and will provide an additional recreation opportunity for area residents.

Jefferson Valley Presents. GSM has leased a piece of property, through the JLDC, to a local non-profit outdoor theater group. They are in their third year of presenting an original Lewis and Clark outdoor theater that capitalizes on the upcoming 200-year anniversary of the Lewis and Clark expedition. It has enhanced the cultural aspects of the area and has contributed to drawing tourism trade to local area businesses. It is noteworthy that the leased GSM property is an actual Lewis and Clark Expedition location that is referenced in the original journals.

Business Inquiries. As part of the economic sustainability process for post mine closure, CTAC and JLDC have shown the GSM property to numerous prospective businesses. Some of the projects involved multiple site visits and coordination meetings. These inquiries included a tire shredding/reclamation business; a crum-rubber operation; a battery manufacturer; an environmental remediation business; a lighting manufacturer; a manufacturer of cleaning products; and a transmission rebuilding facility. This process is on going and involves extensive coordination and research with the GSM staff.

## LESSONS LEARNED

The GSM sustainability journey has been an educational process, where some distinct lessons were learned.

Teamwork. Get the area stakeholders involved early in the process with a mechanism such as CTAC. Get this working group involved in key discussions and decisions. The use of volunteers throughout the process is essential

and is an asset in keeping open communications throughout the community.

Information. Ensure information flow up, down and across all lines of communication are functional and effective. This will enhance the decision making process and develops trust among all participants.

Publicity. Keep everyone, especially the public, informed as new information becomes available. Public meetings, newspaper articles, and accessibility of team members are essential. Periodically sampling stakeholder perceptions on how the process is working will minimize tunnel vision.

Tenacity. Nothing comes easy and commitment and dedication will increase the probability of success.

Be Positive. Always look for the good aspects and capitalize on them. Positive attitudes create a synergy that gets people wanting to be a part of the project.

## CONCLUSION

The GSM sustainability programs are an excellent example of how to develop relationships and instill a culture that will last long after mine closure. The efforts devoted to the sustainability program have also benefited it in other ways. A case in point is the on-going litigation that is directed toward backfilling the GSM open pit. The current status is a court order directing the MDEQ to implement a partial pit backfilling alternative in accordance with the requirements set forth in the Montana Metal Mine Reclamation Act. The GSM position is that backfilling presents serious risk to the environment and community and is therefore not the correct reclamation plan. GSM fully funded a study group of industry, government, and environmental experts to thoroughly research this issue and provide input to the Supplemental Environmental Impact Statement (SEIS) being worked by the Montana Department of Environmental Quality. The public and political support is ensuring the most favorable pit reclamation plan will be implemented. GSM as an operating mine with a strong sustainability program has developed excellent community trust and rapport over the years that allowed it to rally key support at all levels.

The Golden Sunlight Mine sustainability program is an outstanding working model of corporate citizenship and sustainability planning. GSM General Manager, Mark Isto, recently accepted the Placer Dome 2004 sustainability award for efforts in implementing a sustainability program that best embodies the corporate philosophy. The GSM has also been selected as the 2004 recipient of the Department of Agriculture Hardrock Mineral Award for Community Outreach that will be presented in September 2004 (Lewis, 2004). GSM also fully embodies the Western Governor's Association's *Enlibra* principal of "working towards a balance of economic, environmental and community values" (Krupp, F., 2002). These on-going efforts have had a positive impact on addressing the future economic sustainability of the local area while incorporating environmental and community interests into the plan. It has directly involved local stakeholders in the decision process and has fostered a synergy through



teamwork and at the same time assisted GSM in enhancing shareholder value.

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