

**RDGP Grant Application List**  
**Legislative Cycle: 2004**

<i>Sponsor</i>	<i>Project</i>	<i>Application</i>	<i>Amount Requested</i>	<i>Status</i>	<i>Abstract Rcvd</i>
Custer County CD	Yellowstone River Resource Conservation Project	5/12/2004	\$299,965.00	Received	Y
Sheridan County CD	Reclaiming Oilfield Brine-Contaminated Soils - Phase II	5/17/2004	\$206,069.00	Received	Y
Environmental Quality, Dept of	Bluebird Mine Reclamation 2	5/14/2004	\$300,000.00	Received	Y
Environmental Quality, Dept of	Buckeye Mine & Millsite Reclamation 2	5/14/2004	\$300,000.00	Received	Y
Environmental Quality, Dept of	Former Equity Co-op Bulk Plant, Harlem	5/14/2004	\$285,572.00	Received	Y
Environmental Quality, Dept of	Frohner Mine Reclamation	5/14/2004	\$300,000.00	Received	Y
Environmental Quality, Dept of	Landusky Mine – Surface & Groundwater Interactions in Swift Gulch and Landusky Pit	5/14/2004	\$300,000.00	Received	Y
Environmental Quality, Dept of	MTS Tire Recyclers Cleanup 2	5/14/2004	\$300,000.00	Received	Y
Environmental Quality, Dept of	Zortman and Landusky Mines - Supplemental Funding for Near-Term Water Treatment	5/14/2004	\$300,000.00	Received	Y
Environmental Quality, Dept of	Zortman Mine - Completion of Reclamation Alternative Z6	5/14/2004	\$300,000.00	Received	Y
MSU	Geologic Potential of Carbon Sequestration in MT	5/17/2004	\$299,166.00	Received	Y
Powell County	Wetland Reclamation and Redevelopment	5/17/2004	\$212,950.00	Received	Y
Lewistown, City of	Reclamation of Brewery Flats on Big Spring Creek	5/13/2004	\$300,000.00	Received	Y
DNRC	St. Mary Studies and Design	5/14/2004	\$300,000.00	Received	Y
Board of Oil and Gas Conservation	2005 Eastern District Orphaned Well Plug & Abandonment & Site Restoration	5/10/2004	\$300,000.00	Received	Y
Board of Oil and Gas Conservation	2005 Northern District Orphaned Well Plug & Abandonment & Site Restoration	5/10/2004	\$300,000.00	Received	Y
Toole County	2005 Plugging & Abandonment Aid to Small Independent Oil Operators	5/10/2004	\$300,000.00	Received	Y
Pondera County	Pondera County Oil & Gas Well Plug & Abandon	5/12/2004	\$100,000.00	Received	Y
Teton County	Teton County Oil & Gas Well Plug & Abandon	5/11/2004	\$50,000.00	Received	Y
Butte-Silver Bow Local Government	Belmont Shaft Failure & Subsidence Mitigation	5/17/2004	\$300,000.00	Received	Y
Butte-Silver Bow Local Government	Excelsior Reclamation 2	5/17/2004	\$129,800.00	Received	Y
			<b>\$5,483,522.00</b>		

July 19, 2004

Ex. No. 6

ENVIRONMENTAL QUALITY  
 COUNCIL. 2003-2004



## PROJECT ABSTRACT

**Applicant Name:** Board of Oil and Gas Conservation  
**Project Name:** 2005 Eastern District Orphaned Well Plug & Abandonment & Site Restoration

The purpose of this grant request is to provide funding to properly plug orphaned oil/gas wells, leaking orphaned abandoned wells, and to perform the surface reclamation on these sites. The wells are uneconomic and have the potential of causing damage and/or pollution to sub-surface formations, state waters, and the surface lands around each well.

The Board of Oil and Gas Conservation will eliminate the threat of contamination by soliciting bids to plug the wells and restore the well sites. Under the supervision of the Board of Oil and Gas Conservation's (Board) staff, the successful bidder will properly plug each well, dispose of and/or remediate contaminants and reclaim the surface location (well site).

The orphaned wells had produced oil/gas or were plugged in the past. The operators could no longer afford to produce the wells and the wells were shut in. The companies' assets will not cover the liabilities to creditors leaving the operators insolvent. Since the operators are currently insolvent or long since defunct, responsibility for the wells and any potential environmental damage rests with the Board of Oil and Gas Conservation and the State. The wells will be properly plugged and abandoned when funding is made available.

The orphaned wells are located through out Eastern and East Central Montana. By prioritizing our list of orphaned wells, in most cases, the wells that present the highest potential to do damage the environment because of leaking or loss of mechanical integrity will be plugged first.

The project is estimated to take 24 months. The work will generally begin during the first suitable field season following the availability of funding.

## PROJECT ABSTRACT

**Applicant Name:** Board of Oil and Gas Conservation

**Project Name:** 2005 Northern District Orphaned Well Plug & Abandonment & Site Restoration

The purpose of this grant request is to provide funding to properly plug orphaned oil/gas wells, leaking orphaned abandoned wells and to perform the surface reclamation on these sites. The wells are uneconomic and have the potential of causing damage and/or pollution to sub-surface formations, the state's water and air and the surface lands around each well.

The Board of Oil and Gas Conservation will eliminate the threat of contamination by soliciting bids to plug and restore these wells. Under the supervision of the Board of Oil and Gas Conservation's (Board) staff, the successful bidder will properly plug and abandon each well, dispose of and/or remediate contaminants, and reclaim the surface location.

The wells had produced oil/gas or were plugged according to the existing rules at that time. The operators could no longer afford to produce the wells and so the wells were shut in or were plugged according to the existing rules at that time. The companies' assets will not cover the liabilities to creditors leaving the operators insolvent. Since the operators are currently insolvent or long since defunct, responsibility for the wells and any potential environmental damage rests with the Board of Oil and Gas Conservation and the State. The wells will be properly plugged and abandoned when funding is made available.

The orphaned wells are located throughout Montana. By prioritizing our list of orphaned wells, in most cases the wells that present the highest potential to damage the environment because of leaking or loss of mechanical integrity will be plugged first.

The project is estimated to take 24 months. The work will generally begin during the first suitable field season following the availability of funding.

## PROJECT ABSTRACT

**Applicant Name:** Butte-Silver Bow Local Government  
**Project Name:** Belmont Shaft Failure & Subsidence Mitigation

Problems with underground subsidence have been persistent throughout Butte's history as "The Mining City": imminent public safety hazards; damage to private property and public infrastructure; reduced land values and restricted development. Underground mining essentially ceased in Butte in 1978 when Atlantic Richfield Company (ARCO) bought Anaconda Copper Mining (ACM). Until this change, the ACM had a program of filling shafts as they failed and opened at ground surface.

In the 1980s, the Montana Department of State Lands, Abandoned Mines Reclamation Bureau (AMRB) reclaimed several serious "abandoned" mines in Butte and Walkerville. The standard design to fix deep shafts generally consisted of constructing a gravel pad around the surface opening (i.e., the mine shaft collar), followed by placement of reinforced concrete panels slightly wider than the shaft to "cap" the hole.

Of the shafts AMRB capped, four have failed and need to be replaced, which is the project goal. Most notable is the Belmont shaft, approximately 4,300 feet deep and located directly adjacent to the new Butte Central Gymnasium under construction and the Butte Seniors Center. Further deterioration of the shaft will eventually destroy the historic Belmont headframe and result in serious injury and damage to adjacent properties. Other shafts failing are the Buffalo, Orphan Boy and Otisco. All are greater than 1,000-feet deep.

If awarded, Butte-Silver Bow would complete a detailed engineering design for permanently capping these shafts in winter 2005, solicit bids and choose a qualified contractor to complete construction during the summer of 2005. In addition to the failed AMRB caps, Butte-Silver Bow would also like to continue its current subsidence mitigation program. Since 1998, the Project Sponsor has effectively mitigated over 50 subsidence hazards in the Butte/Walkerville area. Funds remaining in the current program can be used to complete time critical tasks in this project as well.

## PROJECT ABSTRACT

**Applicant Name:** Butte-Silver Bow Local Government  
**Project Name:** Excelsior Reclamation

The principal purpose of this project is to reclaim approximately four acres of land impacted by mineral development in the urban corridor of Butte, Montana. Although the property surrounding the project site has been reclaimed in the past decade, primarily through the Superfund cleanup program, the subject property has not been addressed. The RIT/RDGP grant, as part of a cooperative effort, would be a vital, instrumental component to a successful project.

The project site has been clearly impacted by mineral development, yet the impacted acres have been excluded from previous reclamation actions. The land immediately adjacent to the east of the site is the Travona Mineyard, a 16.6-acre area that was reclaimed under the Superfund program in 1990. The soils were impacted by heavy metals, and also contributed to surface water contamination during storm events. The site was reclaimed with a standard, clean-soil cap and revegetation, and has generally performed well since the installation. The west border of the site is Excelsior Street, a main arterial road from the Interstate to the westside neighborhoods in Butte. The project site is a sliver of land between the reclaimed mineyard and the public roadway.

The main challenge of the reclamation project will be to address the steep topography that characterizes the land and establish erosion control vegetation. The project will involve changing the contours and importing clean topsoil, and then adding compost to existing soils to enhance plant growth. The re-grading and vegetation work should result in a stable landscape that will reduce erosion, particularly during storm events. The reclamation will also be designed to minimize costs for long-term maintenance of the project site.

The reclamation of this property will have tremendous positive impact in the neighborhood and an area that is adjacent to one of the primary gateways to the urban area in Butte.

## PROJECT ABSTRACT

**Applicant Name:** Custer County CD

**Project Name:** Yellowstone River Resource Conservation Project

The Yellowstone River has increasingly been the focus of growing ecological, economic, social, and political concerns. These concerns are evident in a number of recent events and activities, including; the floods of 1996, and 1997, debate over the impact of stabilization activities on the river and its habitats and species, challenges to permitted actions and more recently, legal actions. In October of 1998, representatives of the eleven adjacent conservation districts formed the Yellowstone River Conservation District Council (Council), in response to public concern and the attention focused on the river.

By accomplishing the objectives in the "Yellowstone River Resource Conservation Project" the Council will accomplish a major step in the compilation of the necessary baseline information and initiation of public information and education activities, necessary to develop effective resource conservation best management practices. Because the project depends on, contributes to, and exercises local leadership in a partnership with the federal government, it is a critical step in ensuring that local and state entities play a major role in the long-term management of this great resource.

Under this proposal, the Council will:

- conduct a detailed geomorphic analysis to identify and describe river channel stability, erosion, and sedimentation and compare historic and current channel processes for select reaches;
- assemble and process historic aerial photography in a consistent geographical information system (GIS) for use in the geomorphic analysis and other study components; and
- conduct a cumulative effects assessment to develop an interdisciplinary scientific characterization of relationships between human activities and associated river system response.

The Council's purpose is to provide local leadership, assistance, and guidance for the wise use and conservation of the Yellowstone River's natural resources. This purpose was founded on three fundamental precepts: 1) the need for sound scientific information on which to base management decisions; 2) the need for broad based local, regional, and national input; and 3) the need for technical and financial assistance to address sustainable use issues on the Yellowstone River.

This project is a key step in completing the cumulative effects study, which will be the guiding document for all future planning in the Yellowstone corridor.

## PROJECT ABSTRACT

**Applicant Name:** Environmental Quality, Department of  
**Project Name:** Bluebird Mine Reclamation

The purpose of this project is to address human health and safety hazards associated with exposed and accessible heavy metals and acid mine drainage originating from the Blue Bird Mine. The Blue Bird mine site contains 70,000 cubic yards of waste rock that is currently deposited in the Curtain Creek drainage and eroding into Spring Creek and ultimately Prickly Pear Creek. Eroded waste rock is visible along the Curtain Creek stream bank for a distance of 2,500 feet below the mine site, and dissolved metals and acid water can be detected several miles downstream from the mine. The site wastes contain significantly elevated levels of arsenic, lead, mercury, zinc, copper and manganese. Site surface and groundwater degradation have been documented. Site water sampling clearly indicates contaminant migration offsite. Contaminated soil and waste have affected trees, grasses and shrubs, much of which has succumbed to heavy metal poisoning and acidity. The Bluebird Mine ranks at 23 of 270 in the Abandoned Hardrock Mine Priority Sites 1995 Summary Report.

The primary objective of this project is to remove solid media contaminant sources located at the Blue Bird mine site and eroded into Curtain Creek, and dispose of these wastes in a constructed repository. Site surface water would be isolated from contact with contaminate mine wastes and all disturbed areas would be re-graded, top-soiled and re-vegetated. When the above tasks are completed, heavy metals exposure and migration will be significantly reduced or eliminated. Water quality will be improved, and the site and lower stream areas will again be able to support a native stand of vegetation species.

The Montana Department of Environmental Quality, Mine Waste Cleanup Bureau will be the organization responsible for conducting this reclamation project.

The Blue Bird Mine is located approximately three and a half miles west of the townsite of Wickes, Montana, in the Colorado Mining District, Jefferson County. Specifically, the Blue Bird Mine occupies approximately 5 acres in the headwaters of Curtain Creek in Section 13, Township 7 North, Range 5 West.

All environmental and investigation tasks for this project have been completed. Engineering design, the bid package and bidding process are currently in process and will be completed by fall, 2004. Once construction is implemented, the project should be completed in 120 consecutive calendar days. Following construction, a final report would be completed in two months.



## PROJECT ABSTRACT

**Applicant Name:** Environmental Quality, Department of  
**Project Name:** Buckeye Mine & Millsite Reclamation

The Buckeye Mine site is an inactive mine site currently ranked 19<sup>th</sup> on the Department of Environmental Quality's (DEQ) abandoned/inactive priorities list. The Buckeye Mine and Millsite is located near the town of Brandon, Montana, approximately three miles east-northeast of the town of Sheridan in Madison County, Montana. The site is situated within the E $\frac{1}{2}$ , SE  $\frac{1}{4}$  of Section 19, Township 4 South, Range 4. The Buckeye is located within the Mill Creek drainage, a tributary of the Ruby River. The Buckeye Mine and Millsite is located primarily on patented mining claims within public lands administered by the Bureau of Land Management. The site is comprised of four tailings ponds (including tailings from the former Brandon Millsite), five waste rock dumps, a small building, an ore chute/load out, and the former Millsite. Three of the tailings ponds and four of the waste rock piles are located near an unnamed ephemeral drainage. The other tailings pond and waste rock are situated on the banks of the Mill Creek. Preliminary waste volume estimates for the site includes 10,000 cubic yards of tailings and 4,350 cubic yards of waste rock.

The Montana Department of Environmental Quality/Mine Waste Cleanup Bureau (MWCB) has been working with the Ruby Valley Conservation District and the primary landowner to address problems associated Buckeye Mine and Millsite. Mine reclamation would be conducted by the MWCB and would most likely consist of mine waste consolidation into a single mine waste repository with an impermeable cap to be placed over the repository area, thereby eliminating receptor contact with the contaminated mine wastes. Upon completion of reclamation activities, the site will be revegetated with native plant species. In addition, the primary landowner and the Ruby Valley Conservation District have expressed a desire to provide public access for fishing upon completion of the reclamation. The DEQ will work cooperatively with the landowner and conservation district to facilitate this access. Project construction is estimated to take 60 days.

## PROJECT ABSTRACT

**Applicant Name:** Department of Environmental Quality  
**Project Name:** Former Equity Co-Op Bulk Plant

The former Equity Co-op Bulk Plant is abandoned petroleum storage and dispensing facility that operated from 1969 to 1999. It is located adjacent to US Highway 2, just inside the Harlem City limits (Lots 1 – 12, Block P, Alonzo Smith Addition), between residential and agricultural properties in Blaine County. The legal description for the site is as follows: NE quarter of the SW quarter of Section 18, Township 32 North, Range 23 East, Principle Montana Meridian.

In March 1997, a release of gasoline and diesel fuel was discovered. Equity Co-op's investigation revealed significant soil and groundwater contamination and off-site migration of the petroleum-hydrocarbon plume. Equity Co-op discontinued investigation and cleanup in 1999 due to financial insolvency. This contamination threatens public health through potential migration to residential properties and utility corridors, and hinders redevelopment of the property. The petroleum release is not eligible for monies from either the Montana Petroleum Tank Release Cleanup Fund or the federal Leaking Underground Storage Tank Trust Fund.

The project goal is to clean up the site by reducing the mass of petroleum contamination by removing approximately 12,000 cubic yards of contaminated soil and treating it at a nearby one-time land farm or licensed facility. Continued groundwater monitoring will be necessary to document the natural degradation of residual dissolved-phase petroleum hydrocarbons and to ensure that petroleum-contaminated groundwater is not impacting any potential receptors.

The Department of Environmental Quality (DEQ) Remediation Division will be the lead agency for this project. All work will be coordinated with the city of Harlem and Blaine County. The soil removal phase of the project is scheduled for September 2005 and should be completed within one month. The groundwater-monitoring phase of the project will continue for up to 3 years.

## PROJECT ABSTRACT

**Applicant Name:** Environmental Quality, Department of  
**Project Name:** Frohner Mine Reclamation

The Frohner Mine Site is an abandoned hard rock mine that consists of seven waste rock dumps, one mill tailings pile, numerous streamside tailings deposits, and two discharging adits, near a small perennial stream (Frohner Meadows Creek) which flows adjacent to the lower portion of the site. The waste rock and tailings are contaminated with heavy metals, which have eroded and leached into the surrounding soil, ground water and surface water.

The goals of the cleanup of the Frohner Mine Site Reclamation Project will be to improve the human health and the environment of the area by isolating the wastes and contamination from the natural elements and the general public. Reclamation will be accomplished by removal of the wastes from the waterways and adjacent areas and placement of the wastes in a capped offsite repository located at the Luttrell Pit.

The Department of Environmental Quality, Mine Waste Cleanup Bureau's Abandoned Mine Section (DEQ) has completed 23 hard rock mine reclamation projects similar to the Frohner Mine Site since 1995. A number of the projects have been completed in cooperation with other agencies such as the US Bureau of Land Management, the US Forest Service and the Montana Department of Fish Wildlife and Parks.

The Frohner Mine Site is located in the Lump Gulch portion of the Clancy-Lump Gulch Mining District in Jefferson County, Montana (Chessman Reservoir USGS 7.5 Minute Quadrangle). The site consists of 12 patented mining claims, on privately owned land, within and bordered by lands administered by the Helena National Forest, Helena Ranger District. Elevation at the Frohner Mine Site is 7,200 feet above mean sea level and greater. The legal description of the Frohner Mine Site is Township 8 North, Range 5 West, SE  $\frac{1}{4}$  of the NW  $\frac{1}{4}$  of the SE  $\frac{1}{4}$  of Section 15 and the SW  $\frac{1}{4}$  of Section 14 of the Montana Principle Meridian.

The construction project is estimated to take approximately 60 days to complete, which will include road improvements, removal and transportation of the wastes and regrading and reconstruction of the removal areas and reseeding of these areas.

## PROJECT ABSTRACT

**Applicant Name:** Environmental Quality, Department of  
**Project Name:** Landusky Mine – Surface and Groundwater Interactions in Swift  
Gulch and Landusky Pit Complex

Pegasus Gold Corporation (PGC) conducted open pit mining at the Landusky Mine between 1979 and 1996. PGC declared bankruptcy in 1998, and the Department of Environmental Quality (DEQ) now operates the site's water treatment systems using funds from short-term water treatment bonds. Significant deterioration of water quality in Swift Gulch was first noted in 1999. Because water quality impairment in Swift Gulch became evident after the bankruptcy of PGC, no reclamation or water treatment bonds had been established to address conditions in that drainage.

The DEQ and the U.S. Department of the Interior's Bureau of Land Management (BLM) modified the mine reclamation plans to improve water quality in Swift Gulch. Despite efforts to that end, no improvements have been observed. Additional studies are needed to better characterize groundwater flow systems adjacent to Swift Gulch to determine the best course for further remedial actions.

The goal of this project is to improve water quality in Swift Gulch. The objective is to characterize groundwater flow in the vicinity of Swift Gulch and the adjacent Landusky pit complex sufficiently enough that the relative effectiveness of various remedial options can be accurately assessed and appropriate actions can then be implemented.

The DEQ, in cooperation with the BLM, is responsible for implementing the reclamation program at the Landusky Mine.

The Landusky Mine is located 50 miles southwest of Malta, adjacent to the southern boundary of the Fort Belknap Indian Reservation. The Landusky Mine is located in Sections 14, 15, 22 and 23, Township 25 North, Range 24 East, Phillips County, Montana. The Swift Gulch study area is located in Sections 10, 11, 14, and 15 of Township 25 North, Range 24 East.

This project would take approximately 15 months.

## PROJECT ABSTRACT

**Applicant Name:** Environmental Quality, Department of  
**Project Name:** MTS Recyclers Facility Cleanup

MTS Recyclers (MTS) is an abandoned Class III Solid Waste Management System Waste Tire Resource Recovery Facility. The owner/operator of MTS declared bankruptcy, abandoned the facility and left 300,000 waste tires.

The tires pose a great potential for a catastrophic fire. Typically tires are difficult to ignite; however, large accumulations of tires can be ignited by lightning, arson, or by a grass fire. Tire fires are difficult and costly to fight and can persist for weeks before being extinguished. Tires burn very hot and generate toxic clouds of hydrocarbon-based compounds such as benzene. The toxic smoke would affect downwind communities such as Laurel and Billings. Tire fires also produce an oily residue, which would run off and enter the Yellowstone River below via one of the several channels that originate on the site.

The tires are also an ideal habitat for skunks, mice, and mosquitoes, which can spread potentially fatal diseases such as Hanta Virus and West Nile Virus.

The Department of Environmental Quality (DEQ) proposes to reduce the risk of fire and of disease by contracting a third party to remove the tires from the site and properly dispose of them at a licensed solid waste management facility.

The DEQ, which is the licensing agency for the facility, and the Department of Natural Resources and Conservation (DNRC), which is the property owner, are responsible for proper removal and disposal of the tires.

The tires are located in the SW $\frac{1}{4}$  of the SE $\frac{1}{4}$  of Section 25, Township 2 South, Range 20 East, P.M.M., Stillwater County, Montana. The site is located approximately 7 miles east of Columbus and south of Highway 10.

The project will take 3 months to complete.

## PROJECT ABSTRACT

**Applicant Name:** Environmental Quality, Department of  
**Project Name:** Zortman & Landusky Mines – Supplemental Funding for Near-Term  
Water Treatment

Pegasus Gold Corporation (PGC) conducted open pit mining at the Zortman and Landusky Mines between 1979 and 1996. PGC declared bankruptcy in 1998, and the Department of Environmental Quality (DEQ) now operates the sites' water treatment systems using funds from short-term water treatment bonds, in the amount of \$731,321.00 per year. Annual costs for operating the systems exceed the annual bond allowance by an average of \$105,000. The DEQ does not have a guaranteed source of funding to meet this shortfall, and may have to temporarily cease water treatment.

The creeks that capture the water for treatment recharge alluvial aquifers, including one that provides domestic water for the town of Landusky. The creeks also recharge bedrock aquifers such as the Madison Limestone, which is the public water supply source for the town of Zortman, and which may be developed for public water supplies in other communities, including Hays and Lodgepole. Interruption of water capture and treatment could cause contamination in these aquifers. Additionally, access to polluted surface water could pose health risks to wildlife and livestock, and reduce suitability of the streams for aquatic life.

The goal of this project is to ensure that water pollution at the Zortman and Landusky sites will be properly remediated. The objective is to either invest the grant funds immediately, or invoice the Department of Natural Resources and Conservation (DNRC) monthly each year after depletion of the annual \$731,321 bond increment.

The DEQ is responsible for implementing the water treatment program at the Zortman and Landusky sites.

The Zortman and Landusky Mines are 50 miles southwest of Malta, adjacent to the southern boundary of the Fort Belknap Indian Reservation. The Zortman Mine is located in Sections 7, 17 and 18, Township 25 North, Range 25 East, Phillips County, Montana. The Landusky Mine is located in Sections 14, 15, 22 and 23, Township 25 North, Range 24 East, Phillips County, Montana.

A \$300,000 fund will allow for year-round operation of the water treatment systems for approximately 3 years.

## PROJECT ABSTRACT

**Applicant Name:** Environmental Quality, Department of  
**Project Name:** Zortman Mine – Completion of Reclamation Alternative Z6

Pegasus Gold Corporation (PGC) conducted open pit mining at the Zortman and Landusky Mines between 1979 and 1996. PGC declared bankruptcy in 1998, and the Department of Environmental Quality (DEQ) now oversees reclamation of the mine sites and operation of the sites' water treatment systems.

The Montana Department of Environmental Quality (DEQ), in consultation with the U.S. Bureau of Land Management (BLM), the U.S. Environmental Protection Agency (EPA), and the Fort Belknap Indian Community, initiated preparation of a Supplemental Environmental Impact Statement (SEIS) during 2000. This SEIS reevaluated reclamation options for the Zortman and Landusky heap leach gold mines, which had been abandoned after the bankruptcy of PGC and its subsidiary Zortman Mining, Inc. (ZMI) during 1998/1999.

A Record of Decision (ROD) was issued in May of 2002 that identified preferred reclamation alternatives Z6 (for the Zortman site) and L4 (for the Landusky site). In both cases, the available reclamation bonds posted by ZMI were not adequate to fully fund the selected alternatives. The BLM has contributed an additional \$4.2 million for the completion of L4.

Reclamation at the Zortman site was nearly completed under Alternative Z6, but one remaining component of that alternative has not been implemented due to insufficient funding. That project involves the removal of the upper portion of the Alder waste rock dump, backfilling this material into the North Alabama pit, and then placing reclamation covers over both facilities. A significant portion of this remaining Z6 task could be accomplished with funds from the Reclamation and Development Grants Program.

The goal of this project is to mitigate the effects of acid rock drainage at the Zortman Mine. This can be done through completion of Alternative Z6.

The DEQ is responsible for reclamation at the Zortman site.

The Zortman Mine is 50 miles southwest of Malta, adjacent to the southern boundary of the Fort Belknap Indian Reservation. The Zortman Mine is located in Sections 7, 17 and 18, Township 25 North, Range 25 East, Phillips County, Montana.

Completing Alternative Z6 will take approximately 6 months.

## PROJECT ABSTRACT

**Applicant Name:** Lewistown, City of

**Project Name:** Reclamation of Brewery Flats on Big Spring Creek

This proposal is submitted by the City of Lewistown to the DNRC Reclamation and Development Grants Program. The proposal seeks \$300,000 to clean up heavy metal contaminated soil and other contaminants in the Brewery Flats section of Big Spring Creek at the southeastern edge of Lewistown in Township 15N, Range 18E, Section 23 (Figure 1).

Big Spring Creek in the Brewery Flats area was straightened by the Milwaukee Railroad in the early 1900s. Brewery Flats once housed an oil refinery and has been used as a public dump site and a railroad-switching yard. None of these uses continues to exist at the site. The railroad-switching yard was covered with smelter wastes resulting in heavy metal contamination in the surface soil. There were also diesel contaminated soil and wastewater treatment system sumps present at the site. In 2003, a removal action was completed that excavated and disposed of 403 tons of diesel-contaminated soil and 1,835 tons of heavy metal contaminated soil. Approximately 5,000 tons of heavy metal contaminated soil remains on-site (Figure 2).

The Montana Department of Fish, Wildlife, and Parks recently restored meander bends of Big Spring Creek in Brewery Flats, the largest stream restoration project in Montana. Over the past several years, local citizens and Americorps volunteers constructed a hiking trail through the area to allow people from around the region to view and enjoy the newly restored stream.

Lewistown intends to use Brewery Flats as parkland for Montana citizens. The area will also be used to help teach school children from around the region about stream biology and restoration activities. However, the area remains contaminated with heavy metals that must first be cleaned up. This proposal will fund a two-year clean-up project that will be overseen by the Montana Department of Environmental Quality (DEQ).



## PROJECT ABSTRACT

**Applicant Name:** MSU

**Project Name:** Geologic Potential of Carbon Sequestration in MT

This project will focus on the potential for geologic sequestration of carbon dioxide (CO<sub>2</sub>) in formations in Montana and the associated economic benefits to communities in Montana and to the State. It will be a two-year, statewide project, conducted as a joint effort by Montana State University-Bozeman (MSU) and Montana Bureau of Mines and Geology (MBMG), which is part of Montana Tech-University of Montana.

Carbon sequestration offers the opportunity to reduce atmospheric CO<sub>2</sub> concentrations derived from fossil fuel combustion. The project will be in cooperation with the Big Sky Carbon Sequestration Partnership, which is assessing opportunities and markets for both terrestrial and geologic sequestration of CO<sub>2</sub> in Idaho, Wyoming, Montana, and South Dakota. This project will serve as a mechanism to bring the geologic expertise of the MBMG into the existing DOE regional carbon sequestration partnership in order to focus on specific geologic sequestration opportunities in Montana and undertake an analysis of the associated net economic benefits to communities in Montana and to the state of Montana. The current DOE Big Sky partnership is a multidisciplinary team of state governments, national laboratories, industry, landowners, universities, and tribal nations funded by a grant from the US Department of Energy (DOE) under Phase 1 of a CO<sub>2</sub> Sequestration Research Program. The goal of these partnerships is to form a core nationwide network to help determine the best approaches for capturing and storing gases that can contribute to global climate change. This effort on the part of DOE supports the President's Global Climate Change Initiative goal of reducing GHG intensity by 18 percent by 2012 and will help ensure that a suite of commercially-ready sequestration technologies are available for the 2021 technology assessment mandated by the Climate Change Initiative.

The geographical differences in fossil fuel use and sequestration sinks across the US dictates that regional approaches for addressing sequestration will be different and tailored to the specific areas. Because of limited resources and the large area under consideration, the Big Sky Partnership's research is ranking 111 geologic sequestration plays based on a few key pieces of site-specific data. There is a need to test sequestration models on sites that are more intensely characterized. Therefore, MBMG and MSU propose to collect more detailed data sets to determine the sequestration potential of various plays in Montana. These data will be categorized into a GIS-based format and available to other users.

The goals of the project are to 1) develop methods of screening that will lead to selection of the most favorable potential sites for geologic sequestration in Montana based on detailed geologic, political, cultural, and environmental criteria; 2) select a subset of specific sites in Montana for geologic CO<sub>2</sub> sequestration demonstration projects based on verifiable methods and criteria; 3) develop geologic project protocols and standards in response to greenhouse gas emission reduction policies; and (4) provide some initial estimates of the net benefits to the State of Montana from the deployment of sequestration technologies in the State. These benefits will arise from both the local economic development opportunities as well as the potential benefits of programs/markets for geological sequestration to offset GHG emissions.

## PROJECT ABSTRACT

**Applicant Name:** Natural Resources & Conservation, Department of  
**Project Name:** St. Mary Facilities Studies and Design

The USBR-owned St. Mary Facilities, located on the Blackfeet Indian Reservation, transfers water from the St. Mary River Basin to the Milk River Basin. The facilities have been in operation for over 85 years with only minor repairs and improvements since initial construction. Most of the structures have exceeded their design life and critically in need of major repairs or replacement. Major structures consist of a Sherburne Dam, St. Mary Diversion Dam and headworks, 29 miles of canal, St. Mary and Hall Coulee steel siphons, and five concrete drop structures. The siphons are plagued with slope stability problems, metal fatigue, concrete deterioration, and leaks. The concrete drop structures are severely deteriorated. Landslides along the canal route and numerous structural deficiencies make the canal unstable and restricted, and most of the wasteways are inoperable. The canal capacity has declined from its 850 cfs design to 670 cfs. The economy and culture of the entire Hi Line region was built around, and dependent upon this water supply. Without accelerated local, state, and federal action to rehabilitate these facilities, the aging system may soon suffer catastrophic failure.

State and local efforts, spearheaded by the Lt. Governor and Governor's office, are aggressively seeking federal funding for preplanning, design, and construction activities at these facilities.

Success of the overall project hinges on federal appropriations from Congress. The State-formulated proposal is separated into two phases:

Phase I: Planning and Design (\$9.5 million) and Phase II: Construction (estimated \$100 million)

The Phase I appropriation request has been drafted and submitted to Montana's three Congressional delegates. RDGP funds would provide state match contribution for Phase I. The Phase II proposal will be drafted and submitted to Congress upon completion of Phase I.

Phase I will be managed by the DNRC; Phase II is expected to be managed by the USBR/DNRC, either of whom could assume the lead agency role. Both agencies have the full complement of necessary staff and expertise to manage the overall project. An aggressive five-year completion schedule for Phases I & II has been initiated by the State in an effort to avert a catastrophic failure.

## PROJECT ABSTRACT

**Applicant Name:** Pondera County

**Project Name:** Pondera County Oil & Gas Well Plug & Abandon

Pondera County has a significant number of stripper and/or non-productive oil and gas wells in oilfields throughout the County. Many of these wells were drilled prior to the establishment of the Board of Oil and Gas Conservation and the development of regulations governing well and field spacing for the economic extraction of oil and gas. Due to the age of the fields in Pondera County, a large number of these wells are marginally profitable even during periods of increased oil and gas prices. In some cases, wells are now experiencing down hole problems which can potentially cause contamination to the aquifers, ground surface areas and atmospheric contamination from hydrogen sulfide (H<sub>2</sub>S), carbon dioxide (CO<sub>2</sub>), and hydrocarbon (CH<sub>4</sub>) emissions venting from idle wells.

This project will assist small, independent producers in the plugging and abandonment of non-productive, problem wells utilizing a cost-sharing program. Wells will be cost effectively plugged utilizing the producers' knowledge and equipment. The number of problem, non-productive wells in Pondera County will be reduced. Potential environmental risks will be mitigated and eliminating casing stubs and oil field junk will reduce hazards in cultivated fields and to agricultural equipment.

The project area includes all of Pondera County: the Ballantine field, near Interstate 15 between Conrad and Brady; the Ledger field near Ledger; the Gypsy Basin field near Dupuyer and the Pondera and Gallup City fields, southwest of Conrad.

## PROJECT ABSTRACT

**Applicant Name:** Powell County

**Project Name:** Wetland Reclamation and Redevelopment

This project will enable Powell County to reclaim and redevelop the former Garrison Phosphate mill site as a wetlands habitat, viewing area, and outdoor classroom. Enhancing wetland surface waters at the 43-acre site will create a significant public benefit by enhancing habitat for various wildlife species. The project is located along US Interstate 90 and US Highway 12 at the confluence of the Clark Fork and Little Blackfoot rivers.

The site improvements completed with these DNRC funds will reclaim land impacted by mineral development activities and address a crucial state need for wetlands habitat improvement.

Preliminary mitigation work has been completed through private and public efforts at the former phosphate mill. Additional redevelopment tasks are needed to develop the site as a viable wetlands habitat and wildlife viewing area. The requested funds will be used by Powell County for following specific tasks:

1. Removal of surface debris, limestone waste, and physical hazards.
2. Conceptual design of trails, access, parking, habitat, viewing areas.
3. Engineering design of trails, access, parking, habitat, viewing areas.
4. Re-vegetation with appropriate plant species.
5. Trail reconstruction.
6. Road access and parking construction.
7. Project marketing and website development

These tasks will restore wetland habitat, provide public viewing areas, and complete walking trails at the Garrison Wetlands. The project addresses the need for wildlife viewing as identified by regional tourism studies, and wetland habitat where scientific study shows it to be much threatened. State and national administrations over the last 12 years have pledged a "no net loss" or actual increase in wetland habitat. President Bush has recently reiterated the "crucial need for wetlands". In addition, strong economic data indicates that tourism is dramatically enhanced by wetland preservation.

DNRC funding of this project will enhance the State of Montana's efforts to increase wildlife habitat, walking trails, and clean waters. This will be an exemplary project for both mineral development reclamation and wetland restoration in the Clark Fork valley and create a tourism site where it will most benefit the state economy.

## PROJECT ABSTRACT

**Applicant Name:** Sheridan County CD  
**Project Name:** Bluebird Mine Reclamation

Oilfield brines migrating from reserve pits and other oilfield sites have contaminated soil and ground water at many locations in Sheridan County. Landowners have reported increasing problems with contaminated soils and water resources overlying and adjacent to oilfield sites in Sheridan County. These problems include sterile soils, contaminated wells, sinkhole development, and accelerated erosion. Wetlands and wildlife habitat have also been degraded.

The Sheridan County Conservation District has been compiling locations of many of these over the past several years. Most of the problems were not as apparent during the dry climatic conditions of the 1980's but, the effects of the contamination have become obvious during the more normal climatic conditions of the 1990's. A more moist climatic cycle will likely cause greater problems than are currently observed. Wastes associated with hydrocarbon production have been typically disposed on or nearby to each drilling site in northeastern Montana. These wastes are generally buried in lined reserve pits, but commonly the liners are breached, allowing the salt-saturated mud to move into unlined trenches. Based on conservative estimates of pit volume and brine concentrations, each pit contains as much sodium chloride salt as a 260-ton salt block.

Brines are extremely mobile and only infiltrating snowmelt or rainfall dilutes the salt load. The rate of dilution is very slow and high concentrations of salt can be found both in the soil and ground water below a site for decades. Migration of brine results in salt-contaminated soil and ground water off site. Upward migration of salt is common in areas with high water tables, resulting in the movement of salt into the soil and effectively sterilizing the soil so that it cannot support vegetation. This project proposes to mitigate salt contamination by removing the source, isolating the contamination, or other means to restore soil productivity and to maintain ground-water quality.

## PROJECT ABSTRACT

**Applicant Name:** Teton County

**Project Name:** Teton County Oil & Gas Well Plug & Abandon

Teton County has a significant number of stripper and/or non-productive oil and gas wells in oilfields throughout the County. Many of these wells were drilled prior to the establishment of the Board of Oil and Gas Conservation and the development of regulations governing well and field spacing for the economic extraction of oil and gas. Due to the age of the fields in Teton County, a large number of these wells are marginally profitable even during periods of increased oil and gas prices. In some cases, wells are now experiencing down hole problems which can potentially cause contamination to the aquifers, ground surface areas and atmospheric contamination from hydrogen sulfide (H<sub>2</sub>S), carbon dioxide (CO<sub>2</sub>), and hydrocarbon (CH<sub>4</sub>) emissions venting from idle wells.

This project will assist small, independent producers in the plugging and abandonment of non-productive, problem wells utilizing a cost-sharing program. Wells will be cost effectively plugged utilizing the producers' knowledge and equipment. The number of problem, non-productive wells in Teton County will be reduced. Potential environmental risks will be mitigated and eliminating casing stubs and oil field junk will reduce hazards in cultivated fields and to agricultural equipment.

The project area includes all of Teton County with the Bannatyne Oil Field North East of Dutton, Runaway is an area and is North East of Farmington, Pondera & Pondera Coulee Fields are South West of Conrad, 2nd Guess is a small oil field North West of Bynum, Blackleaf Canyon is west of Bynum, and Highview/Bills Coulee/ Gypsy Basin are located SE of Dupuyer.

## PROJECT ABSTRACT

**Applicant Name:** Toole County

**Project Name:** 2005 Plugging & Abandonment Aid to Small Independent Oil Operators

This project is a continuation of 1999 and 2003 funded projects. The small operators of Toole County have gotten together and independently hired Health and Environmental Management Services to write and manage the application which Toole County has agreed to sponsor. The project will request the standard twenty-four month contract. This third request for funding shows the interest and efforts being put forth in addressing the problems that exist in Toole County.

Small independent operators recently defined by joint agreement between DNRC and the BOGC as those operators producing 58,000 barrels or oil or less and 100,000 cubic feet of gas per year (see Attachment 1). These small operators are unable to meet Board requirements or the financial requirements needed to plug wells that produce marginally or have down-hole mechanical problems. Allowed to go unchecked the number of non-economic, problem wells presents a growing liability to the State as operators forfeit bonds and cease doing business.

Application of RITT funds, paid into the fund by the operators, has been used to eliminate or reduce the growing numbers of sub-economic wells. The project has been accomplished with operator involvement specifically in the form of knowledge and equipment. This reduction of problem wells enhances environmental conditions by reducing emissions of hazardous gas (H<sub>2</sub>S, CO<sub>2</sub> and CH<sub>4</sub>) venting to the atmosphere, returns the land to productive agricultural use and reduces the financial burden to the State.

The Kevin-Sunburst field and a large portion of Toole County exhibit the problems associated with fields produced between 1910 and 1940. Past drilling practices created an unusually large number of what are now stripper and/or sub-economic wells. The establishment of the Board of Oil and Gas Conservation invoked regulations regarding well and field spacing for more efficient extraction, established reservoir economics and bonding requirements for reclamation. The bond required of operators, when compared to the financial burden of plugging numerous wells that aren't making money and may also have mechanical problems thus increasing the financial demand, is less so operators shut down the rigs and walk.

This project enables the operator to meet responsibilities and BOGC requirements for plugging while preserving self-esteem through the allocation of funds paid by his/her company. The success of which is self-evident in Toole County levels of participation.