Final

2009/2010 WORK PLAN
NEW WORLD MINING DISTRICT
RESPONSE AND RESTORATION PROJECT

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1.0 INTRODUCTION

This document provides descriptions of work tasks to be completed during 2009/2010 in conjunction with response and restoration activities for the New World Mining District Response and Restoration Project in Park County, Montana (**Figure 1**). The 2009/2010 Work Plan complements the Overall Project Work Plan (Maxim, 1999a) by providing a description of specific work elements that will be completed in 2009/2010. This work plan initiates the project cycle for the tenth year of the project. Project activities conducted by the U.S. Department of Agriculture (USDA) Forest Service began in 1999. Those activities are described in the 1999, 2000, 2001, 2002/2003, 2003/2004, 2004/2005, 2005/2006, 2006/2007, 2007/2008, and 2008/2009 Work Plans (Maxim, 1999b; 2000; 2001a; 2002a; 2003a; 2004a; 2005a; 2006a; and Tetra Tech 2007 and 2008).

This year's work plan for the project crosses over into 2010 and is designated the 2009/2010 Work Plan. This period of time is covered in this document because it is more useful for the planning period to begin in the spring to accommodate field and construction activities that must be completed during a relatively short season beginning in April and ending in early October.

A general description of the site, project objectives, and project organization are provided in this introductory section. Following this introductory section is a detailed description of the work tasks that will be completed during 2009/2010, a project schedule, and project deliverables. For more detailed descriptions of the overall project, the reader can refer to the Overall Project Work Plan (Maxim, 1999a) and/or annual project summary documents produced in 2001 through 2006 (Maxim, 2001b; 2002b; 2003b, 2004b; 2005b; 2006b). These documents are available on the project website at,

http://www.fs.fed.us/r1/gallatin

and at two project information repositories located at the Gallatin National Forest Supervisor's Office in Bozeman, Montana and at the Cooke City Chamber of Commerce office in Cooke City, Montana. The reader is encouraged to review these documents to gain a better understanding of the overall project.

1.1 PROJECT BACKGROUND

On August 12, 1996, the United States signed a Settlement Agreement (Agreement) with Crown Butte Mines, Inc. (CBMI) to purchase CBMI's interest in their New World Mining District (District) holdings. This transfer of property to the U.S. government effectively ended CBMI's proposed mine development plans and provided $22.5 million to cleanup historic mining impacts in the District. In June 1998, all interested parties and CBMI signed a Consent Decree (Decree). The Decree, approved by the United States District Court, finalized the terms of the Agreement and made available the funds that are being used for mine cleanup. Monies available for cleanup will be spent first on District Property, which, as defined in the Decree, includes all property or interests in property that CBMI relinquished to the United States (**Figure 1**). As funds are available after District Property is cleaned up to the satisfaction of the United States, other mining disturbances in the District may be addressed.

The USDA Forest Service, as the lead agency responsible for implementing the cleanup, has assembled a management team and has published objectives to guide reclamation and restoration of the historic mining impacts in the District. Under their Superfund authority, the USDA Forest Service will execute the response and restoration project by following guidance provided by the Environmental Protection Agency (EPA) for non-time-critical removal actions (EPA, 1993). Non-time-critical removal actions are defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) as actions that are

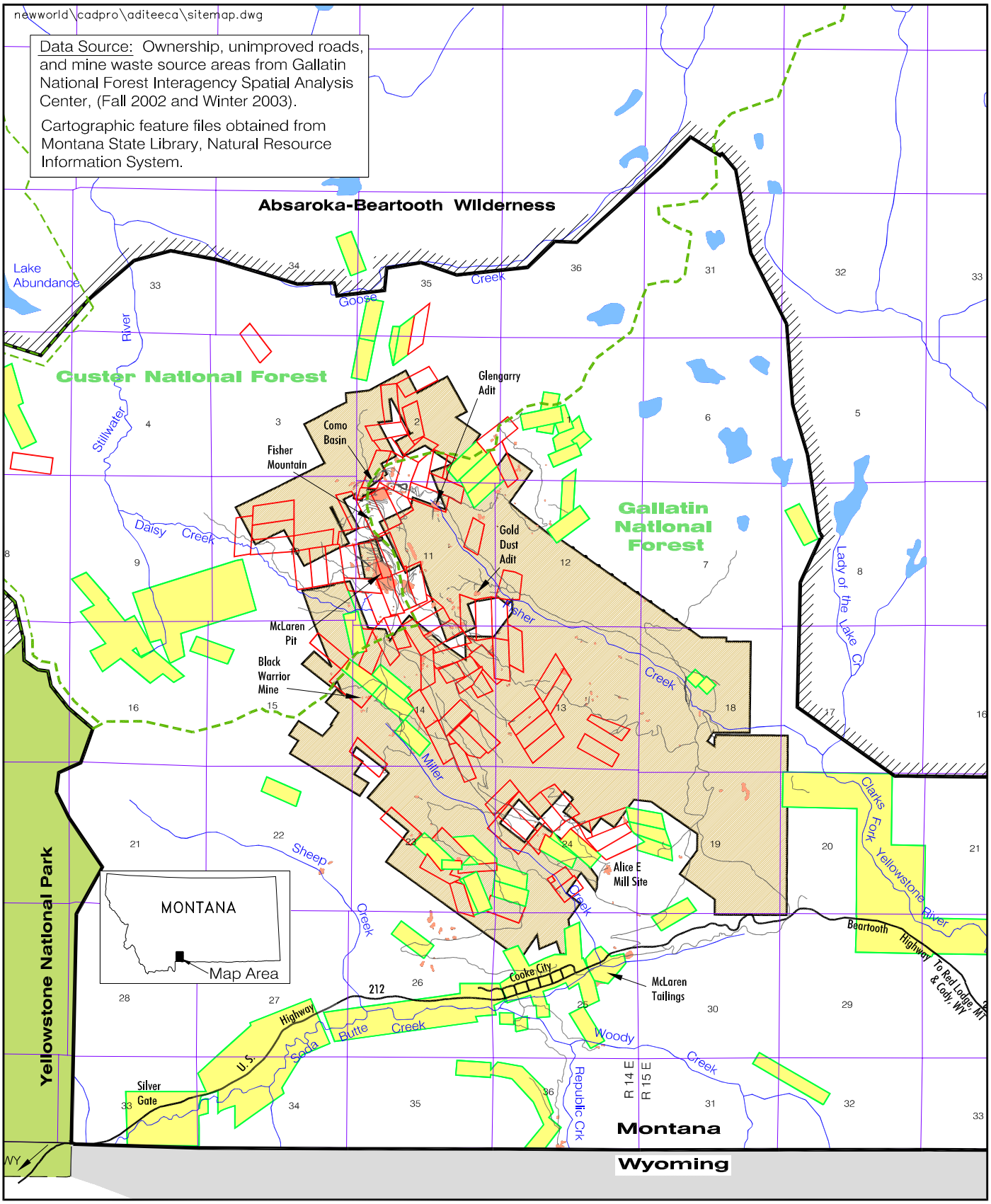
implemented by the lead agency to respond to "the cleanup or removal of released hazardous substances from the environment … as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment…" (EPA, 1993).

In 1995, EPA began a site investigation after initial announcement of the property transfer from CBMI. The EPA investigation involved installation of monitoring wells, surface water sampling, groundwater monitoring, and completion of a groundwater tracer study. In October 1998, the USDA Forest Service assisted CBMI in completing and submitting a Support Document and Implementation Plan to support the CBMI petition for temporary modification of water quality standards. Under the Decree and Agreement, CBMI is required to submit petitions regarding temporary standards if requested by the USDA Forest Service. The Support Document and Implementation Plan (Stanley and Maxim, 1998) was submitted to the State of Montana Board of Environmental Review (Board) on January 22, 1999. The petition for the adoption of temporary standards for Fisher Creek, Daisy Creek, and a portion of the upper Stillwater River was accepted by the Board and noticed for public hearing. The proposed rule was modified to reflect public comment and the temporary water quality standards were approved and adopted by the Board on June 4, 1999. The goal of the temporary standards is to allow the project to proceed so that water quality in Fisher Creek, Daisy Creek, and the Stillwater River improves to the point where these streams meet uses for waters classified B-1 under classification standards established by the State of Montana.

The temporary standards are subject to change as improvements in water quality are realized. They are reviewed every three years to determine if changes are desirable, and the first review was required in 2002. The Board held a hearing on July 26, 2002, to review the long-term water quality data collected since the standards became effective in June 1999, and compared project progress with that presented in the implementation plan (Maxim, 2002c). As a result of this review, the Board took no action to modify the temporary standards as originally defined in June 1999. A second tri-annual review hearing on temporary water quality standards was held by the Board on June 3, 2005, with the same result. A third tri-annual review was held before the Board on May 30, 2008, and again resulted in no adjustment to the existing temporary water quality standards.

In March 1999, the USDA Forest Service initiated the planning process for the project. Planning documents were in place in June 1999, and work began on the project with the monitoring of surface water and groundwater quality at selected monitoring points. Activities that have been conducted to date include the following:

- Establishing a database management system for the project.
- Cataloging existing information available for the site.
- Conducting public meetings and annual technical meetings to distribute relevant project information to interested parties.
- Completing a technical evaluation of existing information and data.
- Developing a suitable base map to support engineering design.
- Conducting annual surface water and groundwater monitoring at select locations in the District.
- Obtaining data to fill identified data gaps for proposed response actions including installing monitoring wells, collecting environmental samples, and collecting other environmental data.
- Identifying unrecorded mine waste dumps, adits, and boreholes, and developing a database of site characteristics.



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Project Vicinity Map
New World Mining District
Response and Restoration Project
Cooke City Area, Montana
FIGURE 1

Figure 1- back page

- Improving portions of the Daisy Pass and Lulu Pass roads to accommodate construction traffic.
- Improving a previously constructed surface water diversion around the Como Shaft.
- Completing a repository siting evaluation report and collecting hydrogeologic data on two prospective repository sites.
- Completing a surface water tracer study by the U.S. Geological Survey on Daisy Creek and Miller Creek to determine surface water inputs of metal contaminants.
- Ranking mine waste sources according to a modified Hazard Ranking System to aid in the prioritization of sites slated for clean up.
- Identifying unrecorded cultural features.
- Reopening the Glengarry Adit and Como Raise to more fully characterize underground sources of water within the mine.
- Evaluating water quality treatment alternatives for acid mine discharges.
- Preparing a Selective Source Response Action Engineering Evaluation/Cost Analysis (EE/CA) for potential response alternatives (Maxim, 2001c).
- Removing approximately 25,000 cubic meters (32,700 cubic yards) of mine waste rock and mill tailings (nine percent of the total District waste) from seven mine waste areas, disposing of these wastes in an engineered repository, and revegetating about 1.9 hectares (4.6 acres) of the former waste areas for the Selective Source Response Action.
- Preparing a McLaren Pit Response Action EE/CA (Maxim, 2001d).
- Consolidating and capping waste rock dumps from the Daisy Creek headwaters into the McLaren Pit. These waste source areas account for about 67% of the District's total waste rock volume on District Property. Construction activities were initiated in 2002 with the consolidation of the wastes, and concluded with capping the consolidated wastes with an impermeable cover in 2003.
- Preparing a report for the Board of Environmental Review with respect to their review of the temporary water quality standards.
- Preparing a Como Basin/Glengarry Adit/Fisher Creek Response Action EE/CA (Maxim, 2002d).
- Closing the Glengarry Adit to eliminate contaminated outflows.
- Reopening and evaluating the McLaren Adit, and grouting an exploration boring that intersected the adit tunnel.
- Preparing the Miller Creek Response Action EE/CA (Maxim, 2004c).
- Monitoring reclaimed and revegetated sites in the District.
- Completing construction of surface controls at select sites in the Miller Creek and Fisher Creek drainages.
- Consolidating and capping mineralized disturbed soils in the Como Basin.
- Removing approximately 23,000 cubic meters (30,000 cubic yards) of mine waste rock from four waste rock dumps located in the Fisher and Miller Creek drainages and disposing of these wastes in the New World Waste Repository.
- Characterizing the distribution of sediment in Fisher Creek and Daisy Creek.

- Preparing an Adit Discharge EE/CA to evaluate alternatives that could reduce the flow or improve water quality discharging from historic adits in the District.
- Plugging and abandoning 53 former monitoring wells.
- Studying ferricrete deposition in Fisher Creek and Daisy Creek.
- Studying the effects of reclamation work on grizzly bear activity in the District.
- Studying the occurrence of metal contaminated sediment in the Stillwater wetland.
- Preparing documentation to list the District on the National Register of Historic Places.
- Preparing Project Summary documents to succinctly describe project activities over the years.
- Completing white bark and lodgepole pine tree planting at reclaimed site.
- Closure and reclamation of select road segments.
- Reconstruction of the Glengarry Channel
- Reconstruction of the Wolverine Trail on the north side of Daisy Pass
- Planting willows at the Glengarry and Black Warrior Mines
- Abandonment of nine neutron probe access tubes in the McLaren Pit
- Closing the Glengarry Millsite Adit

1.2 SITE LOCATION AND DESCRIPTION

The District falls within the Gallatin and Custer National Forests and abuts Yellowstone National Park's northeast corner. The Absaroka-Beartooth Wilderness Area bounds the District to the north and east, with the Montana-Wyoming state line forming the southern boundary of the District. The District lies entirely within Park County, Montana (**Figure 1**).

The communities of Cooke City and Silver Gate, Montana, are the only population centers near the District. The neighboring communities of Mammoth, Wyoming, and Gardiner, Montana, are located about 80 kilometers (50 miles) to the west. Red Lodge, Montana, is located about 105 kilometers (65 miles) to the northeast via the Beartooth Highway, and Cody, Wyoming, is located 95 kilometers (60 miles) to the southeast.

The District is located at an elevation that ranges from 2,400 meters (7,900 feet) to over 3,170 meters (10,400 feet) above sea level. The site is snow-covered for much of the year and only one route of travel is open on a year-round basis -- the highway between Mammoth and Cooke City. The Sunlight Basin road accesses the District from northwestern Wyoming during the spring, summer, and fall but only allows access to within a few miles of the District in winter. The Beartooth Highway allows access to the District from the east but is closed during winter.

The District covers an area of about 10,360 hectares (25,600 acres). Historic mining disturbances affect about 20 hectares (50 acres) located on District Property. Mining disturbances on non-District Property include the McLaren Tailings and McLaren Millsite, which cover an additional 6.9 hectares (17 acres).

The topography of the District is mountainous with dominant glacial features, and is situated at the headwaters of three river systems that all flow into the Yellowstone River. The three tributaries are the Clarks Fork of the Yellowstone, the Stillwater, and the Lamar. The Lamar River flows through Yellowstone Park. The major tributary streams in the District include Daisy, Miller, Fisher, Goose, Sheep, Lady of the Lake, Republic, Woody, and Soda Butte creeks.

1.3 PURPOSE AND OBJECTIVES

The primary purpose of this work plan is to guide project activities that will be conducted in the 2009/2010 planning year. Objectives for the 2009/2010 Work Plan are consistent with those detailed in the Overall Project Work Plan (Maxim, 1999a) and those described in the Revised Support Document and Implementation Plan for Temporary Water Quality Standards (Maxim, 2003c). Primary objectives for work done in 2009/2010 include: conducting response actions; collecting sufficient information to support engineering analyses and designs for response actions; monitoring water quality and revegetation success to document the results of response and restoration actions; and, satisfying the requirements of the rule allowing adoption of temporary water quality standards.

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2.0 SCOPE OF WORK

To meet the objectives for 2009/2010, the following activities will be performed:

- Maintain community relations in accordance with the Community Relations Plan (Maxim, 1999c).
- Maintain the project database and project website.
- Continue monitoring surface water and groundwater in the District including closely monitoring surface water and groundwater conditions downstream of the closed Glengarry Adit and Glengarry Millsite Adit and downstream and within the capped McLaren Pit.
- Continue to monitor the New World Waste Repository and associated surface water and groundwater locations.
- Monitor reclamation, including white bark pine survival, at the New World Waste Repository, Como Basin, Little Daisy Adit, Black Warrior waste dump, Glengarry waste dump, Gold Dust Adit, Miller Creek, and the McLaren Pit Cap Area, Triangle, and Borrow Area.
- Monitor additional reclamation at the Lower Tredennic and Black Warrior Adits.
- Finalize Adit Discharge EE/CA.
- Prepare the 2010/2011 Work Plan.
- Prepare the 2009 Project Summary.

Final road maintenance, including road surfaces, culvert, and cut-and-fill slopes, may be conducted this year.

A more complete description of each of these activities is presented below.

2.1 COMMUNITY RELATIONS

A Community Relations Plan (Maxim, 1999c) was developed for the project and is included in the Overall Project Work Plan (Maxim, 1999a). This plan describes community relation strategies that will be used to share information with the public and obtain timely input on proposed project activities. Community relation techniques include preparing news releases, preparing project summaries, conducting technical workshops and public meetings, making project documents readily available to interested parties, and accepting and responding to public comment on project activities.

Community relation activities described in the plan will be used in 2009/2010 to keep the public informed of project activities. Events expected for 2009/2010 with the anticipated timing of the events are listed in **Table 1**. As other events arise during the year, the public will be informed in a timely manner in accordance with the Community Relations Plan.

TABLE 1
COMMUNITY RELATION ACTIVITIES
2008/2009 Work Plan

Event/Task	Timing
Public Meeting	August/September 2009 - Cooke City
Technical Meeting Presenting 2009 Monitoring Results	January 2010 – Bozeman

2.2 MAINTAIN PROJECT WEBSITE AND DATABASE

The USDA Forest Service has maintained a project website since project inception. The website address is:

http://www.fs.fed.us/r1/gallatin

The project website contains general information on the project as well as a library of archived information specific to the work that has been conducted over the past eight years. The library contains downloadable versions of all documents that have been made available to the public in addition to a list of historic documents produced by various authors during the 1990's. Project information stored at the New World Response and Restoration Project document repository in Bozeman is also listed on the website. Environmental data that have been collected at the New World site are cataloged in a Microsoft Access® database, and analytical data for surface water and mine waste samples are available for downloading from this database.

The project website will be maintained to disseminate information, reports, and data related to the project. Relevant reports prepared during 2008/2009 will be posted to the website after hard copy documents are made available to the public. Other reports, such as technical memoranda, will also be available on the project website. The project water quality database will continue to be updated as new project information is collected during 2008/2009.

2.3 SURFACE WATER QUALITY MONITORING

This section of the work plan describes long-term and supplemental surface water monitoring activities that will be completed in 2009. In addition, surface water samples will be collected from selected adit discharges and stations below the New World Waste Repository.

2.3.1 Long-Term Surface Water Quality Monitoring

Surface water quality monitoring will be conducted in 2009 at the 12 sampling stations identified in the Long-Term Surface Water Quality Monitoring Plan (Maxim, 1999d). Long-term surface water sampling sites are shown on **Figure 2** and listed in **Table 2**. Samples will be collected before the onset of snowmelt (April), during high flow conditions (June), and during low flow conditions in the fall (September/October).

Surface water samples will be collected and analyzed in accordance with procedures and methods described in the Site-Wide Sampling and Analysis Plan (SAP) (Maxim, 1999f). In addition to the analytical methods described in the Site-Wide SAP, analysis of dissolved metals will be added to the parameter list for selected sites. Analysis of dissolved metals will allow further evaluation of reclamation success,

particularly in the McLaren Pit area, as dissolved metals analysis removes the contribution of metals present in suspended sediment. Sites selected for dissolved metals analysis are identified in **Table 2**.

Table 3 lists surface water field parameters and standard operating procedures (SOPs) from the Site-Wide SAP. **Table 4** lists preservation and bottle requirements and **Table 5** lists surface water analytical requirements and practical quantitation limits (PQLs).

2.3.2 Supplemental Water Quality Monitoring

Supplemental surface water stations will be monitored in Daisy Creek, Fisher Creek, and Miller Creek (**Table 2**). The monitoring objectives for each of the supplemental stations are listed in **Table 6**.

Samples will be collected from all supplemental surface water stations in conjunction with other long-term monitoring events (**Table 2**). Supplemental stations will be sampled and analyzed in accordance with procedures and methods described in the Site-Wide SAP (Maxim, 1999f). **Tables 3, 4, and 5** list field parameters, sampling requirements, and analytical requirements.

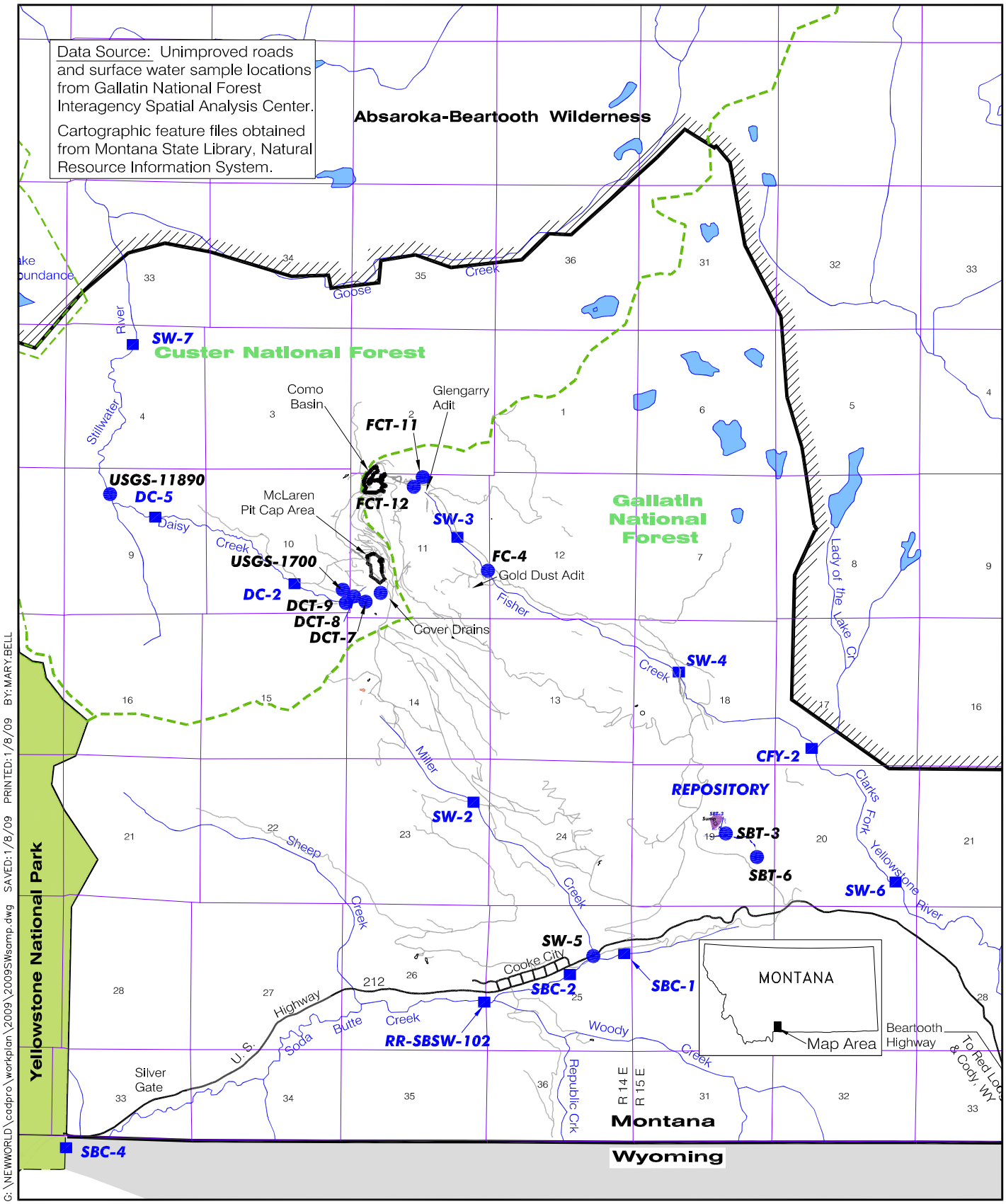
2.3.3 New World Repository Monitoring

Surface water monitoring will be conducted at the New World waste repository in accordance with the methods and procedures described in the New World Waste Repository Long-Term Monitoring Plan (Maxim, January 2006). Surface water monitoring includes monitoring water quality in surface water tributaries SBT-3 and SBT-6 downstream of the repository. Monitoring will be conducted in April prior to snowmelt, during high flow conditions in May, and during low flow conditions in the fall. Samples will be collected for both dissolved and total recoverable metals analysis as well as field parameters, physical parameters, and common ions.

TABLE 2
2009 SURFACE WATER SAMPLE SITES
2009/2010 Work Plan

Site Name	Location	April	May	June	Sept/ Oct
Daisy Creek Drainage					
DCT-7*	Daisy Cr. tributary south of McLaren Pit	--	--	X	X
DCT-8*	Daisy Cr. tributary south of McLaren Pit	--	--	X	X
DCT-9*	Daisy Cr. tributary south of McLaren Pit	--	--	X	X
USGS-1700*	Daisy Cr. tributary south of McLaren Pit	--	--	X	X
Cover Drains*	McLaren Pit drains beneath cover (DCSW-101, -102, -103)	--	--	X	X
DC-2*	Daisy Creek below confluence of McLaren tributaries	X	--	X	X
DC-5*	Daisy Creek above confluence with Stillwater River	X	--	X	X
SW-7*	Stillwater River at Stillwater Trail Crossing	X	--	X	X
Fisher Creek Drainage					
FCT-12*	Tributary south of former Glengarry Adit	--	--	X	X
FCT-11*	Tributary below Como Basin	--	--	X	X
SW-3	Fisher Creek below former Glengarry Adit	X	--	X	X
SW-4*	Fisher Creek at Lulu Pass Road Crossing	X	--	X	X
CFY-2*	Fisher Creek above Clarks Fork confluence	X	--	X	X
Clarks Fork River Drainage					
SW-6*	Clarks Fork Yellowstone River at Saw Mill Road	X	--	X	X
Miller Creek Drainage					
SW-2*	Miller Creek below Miller Mountain Road Crossing	X	--	X	X
SW-5*	Miller Creek near mouth	X	--	X	X
Soda Butte Creek Drainage					
SBT-3*	Soda Butte Creek Tributary below Repository Site	X	X	--	X
SBT-6*	Soda Butte Creek Tributary below Repository Site	X	X	--	X
SBC-1*	Soda Butte Creek above confluence with Miller Creek	X	--	X	X
SBC-2*	Soda Butte Creek below McLaren Tailings	X	--	X	X
RR-SBSW-102	Soda Butte Creek below Woody Creek	X	--	X	X
SBC-4*	Soda Butte Creek at Park Boundary	X	--	X	X

Note: * Indicates sample will be analyzed for both total and dissolved metals.



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- District Boundary
- Unimproved Road
- National Forest Boundary
- Wilderness Boundary
- Long-Term Monitoring Station
- Supplemental Monitoring Station

2009 Surface Water Monitoring Stations
New World Mining District
Response and Restoration Project
Cooke City Area, Montana
FIGURE 2

TABLE 3
SURFACE WATER FIELD PARAMETERS
2009/2010 Work Plan

Parameter	SOP Number(1)	SOP Title	Event
Specific Conductance	SOP-05	Field Measurement of Specific Conductance	All
pH	SOP-06	Field Measurement of pH	All
Water Temperature	SOP-07	Field Measurement of Water Temperature	All
Flow	SOP-01	Streamflow Measurement; Wading Technique	All

1 Maxim Standard Operating Procedures (Appendix A, Site-Wide SAP)
2 Field analysis will be conducted using a Hach DR 2000 Spectrophotometer following the procedures in Hach Water Analysis Handbook (1991)

TABLE 4
SURFACE WATER SAMPLING REQUIREMENTS
2009/2010 Work Plan

Parameter	Preservation(1)	Bottle Size/Type
Total Recoverable Metals	HNO3 to pH < 2; Iced to 4°C	250 milliliter polyethylene
Dissolved Metals	Filtered through 0.45 micron filter; HNO3 to pH < 2; Iced to 4°C	250 milliliter polyethylene
Common Ions/Physicochemical	Iced to 4°C	500 milliliter polyethylene

1 HNO_3 = nitric acid

TABLE 5
SURFACE WATER ANALYTICAL REQUIREMENTS
2009/2010 Work Plan

Parameter	PQL (mg/L)[1]	EPA Method No.	Max. Holding Time
Physicochemical			
Specific Conductivity	None	2310B	28 days
pH	None	150.1	Upon arrival at lab
Total Dissolved Solids	None	2340C	7 days
Total Suspended Solids	None	160.2	7 days
Hardness	None	2340B	6 months
Acidity	None	305.1	14 days
Metals[2]			
Aluminum	0.05	200.8/200.7	6 months
Cadmium	0.0001	200.8/200.7	6 months
Copper	0.001	200.8/200.7	6 months
Iron	0.01	200.8/200.7	6 months
Lead	0.001	200.8/200.7	6 months
Manganese	0.003	200.8/200.7	6 months
Zinc	0.01	200.8/200.7	6 months
Common Cations[2]			
Calcium	1.0	200.8/200.7	6 months
Magnesium	1.0	200.8/200.7	6 months
Potassium	1.0	200.8/200.7	6 months
Sodium	1.0	200.8/200.7	6 months
Common Anions[2]			
Sulfate	None	375.2	28 Days
Bicarbonate	None	2320B	14 Days
Carbonate	None	2320B	14 Days
Chloride	None	325.3	28 Days

1 PQL = Practical Quantitation Limit in milligrams per liter (mg/L)
2 Surface water parameters will be analyzed as total recoverable (unfiltered); for the select stations shown in Table 2, both total and dissolved metals will be analyzed.

TABLE 6
SUPPLEMENTAL SURFACE WATER SAMPLE SITE MONITORING OBJECTIVE
2009/2010 Work Plan

Site Name	Location	Monitoring Objective
Daisy Creek Drainage		
DCT-7	Daisy Cr. tributary south of McLaren Pit	Establishes water quality conditions upgradient of pit influence
DCT-8	Daisy Cr. tributary south of McLaren Pit	Measure impacts from capped area
DCT-9	Daisy Cr. tributary south of McLaren Pit	Measure impacts from capped area
USGS-1700	Daisy Cr. tributary south of McLaren Pit	Impacted by McLaren Mine drainage
Cover Drains	McLaren Pit drains beneath cover (DCSW-101, -102, -103)	Drainage from beneath capped area
Fisher Creek Drainage		
FCT-12	Tributary draining unmined area below Fisher Mountain	Background condition for unmined area
FCT-11	Tributary draining the Como Basin	Como Basin contribution to Fisher Creek
Miller Creek Drainage		
SW-5	Miller Creek near mouth	Miller Creek input to Soda Butte Creek
Soda Butte Creek Drainage		
SBT-3	Soda Butte Creek Tributary below Repository Site	Measures potential impacts immediately below repository
SBT-6	Soda Butte Creek Tributary below Repository Site	Measures potential impacts further downstream of repository

Notes: 1 Data from August and September 2007 monitoring events
2 gpm = gallons per minute
3 Exceedance of water quality human health standard or guideline in 2007 samples; Cd = cadmium; Fe = iron; Mn = manganese; Pb = lead; Zn = zinc

2.4 GROUNDWATER MONITORING

Groundwater monitoring will be conducted in 2009 at the wells shown in **Tables 7 and 8**. Well locations are shown on **Figures 3 and 4**. Groundwater monitoring activities are discussed in the following subsections.

2.4.1 Fisher Creek Groundwater Monitoring

Wells scheduled for the long-term monitoring event will be monitored one time in 2009 in July (**Table 7**). These wells have generally been monitored annually since well installation. Monitoring will be

conducted in July when water levels at the higher elevation sites are typically at the highest level reached during the year. Past experience has shown that water quality is generally more mineralized and contains higher concentrations of contaminants during this high water level period. Field parameters and water level (or flow rate if well is artesian) will also be measured in well FCGW-100, the Glengarry Adit well in September.

The July long-term groundwater monitoring event will involve measuring water levels, measuring field parameters, and collecting samples for laboratory analysis. **Table 9** lists field parameters that will be measured and **Tables 10 and 11** list groundwater analytical parameters and practical quantitation limits (PQLs).

TABLE 7
FISHER CREEK AND REPOSITORY WELL MONITORING
2009/2010 Work Plan

Well No.	Year Installed	Completion Formation	Monitoring Event			
			May	July	Sep	Continuous
Fisher Creek Area						
EPA-11	1996	Tertiary Intrusive Dike	--	**X**	**F**	--
EPA-12	1996	Scotch Bonnet Diorite	--	**X**	**F**	--
FCGW-100	2004	Glengarry Adit behind plugs	--	**X**	**F**	--
MW-1	1989	Wolsey Shale	--	**X**	--	--
MW-9A	1990	Alluvium	--	**X**	--	--
MW-9B	1990	Precambrian	--	**X**	--	--
MW-10A	1990	Alluvium	--	**X**	--	--
MW-10B	1991	Precambrian	--	**X**	--	--
MW-11	1990	Precambrian	--	**X**	--	--
SB-16	1991	Precambrian	--	**X**	--	--
Tracer-5	1997	Fisher Mtn. Intrusive	--	**X**	--	--
New World Waste Repository						
SBGW-105T	1999	Till	**X**	**X**	--	**W**
SBGW-105	1999	Granite	**X**	**X**	--	--
SBGW-107T	1999	Till	**X**	**X**	--	**W**
SBGW-107	1999	Granite	**X**	**X**	--	--
SBGW-108T	1999	Till	**X**	**X**	--	--
SBGW-108	1999	Granite	**X**	**X**	--	--

Note: X Samples collected and analyzed for full suite of laboratory parameters.
F Samples collected and monitored for field parameters only.
W Continuous water level monitoring.
-- Indicates no monitoring

TABLE 8
MCLAREN PIT AREA MONITORING WELLS
SCHEDULED FOR SAMPLING IN 2009
2009/2010 Work Plan

Well No.	Year Installed	Completion Formation	Monitoring Event	
			July	September
DCGW-100	2003	Meagher Limestone	X	F
DCGW-101S	2001	Colluvium	X	F
DCGW-101D	2001	Lulu Pass Rhyodacite Porphyry	X	F
DCGW-111S	2003	Colluvium	X	F
DCGW-111D	2003	Bedrock	X	F
Tracer-2	1997	Fisher Mtn. Intrusive	X	F
MW-2	1989	Wolsey Shale	X	F
MW-3	1989	Wolsey Shale	X	--
DCGW-103S	2001	Colluvium	F	--
DCGW-103D	2001	Bedrock	F	--
DCGW-104'	2001	Waste Rock	X	F
DCGW-105'	2001	Waste Rock	X	F
DCGW-106	2002	Colluvium	F	--
DCGW-107	2002	Colluvium	X	--
DCGW-108	2002	Colluvium	X	--
DCGW-109	2002	Colluvium	F	--
DCGW-110	2002	Colluvium	F	--
DCGW-112	2002	Colluvium	F	--
DCGW-131	2002	Colluvium	F	F
DCGW-132	2002	Colluvium	X	F
DCGW-133	2002	Colluvium	X	F
DCGW-134	2002	Colluvium	F	F
DCGW-135	2002	Colluvium	F	F
DCGW-136	2002	Colluvium	X	F
DCGW-137	2002	Colluvium	X	F
DCGW-138	2002	Colluvium	X	--

Notes: X Indicates well will be sampled for full suite of laboratory parameters along with depth to water and field parameters
F Indicates only depth to water and field parameters monitored
' Continuous water level monitoring
-- Indicates no monitoring

TABLE 9
GROUNDWATER FIELD PARAMETERS
2009/2010 Work Plan

Parameter	SOP Number[1]	SOP Title	Event
Specific Conductance	SOP-05	Field Measurement of Specific Conductance	All
pH	SOP-06	Field Measurement of pH	All
Water Temperature	SOP-07	Field Measurement of Water Temperature	All
Oxidation-Reduction	SOP-28	Field Measurement of Redox Potential (Eh)	All
Dissolved Oxygen	SOP-08	Field Measurement of Dissolved Oxygen	All
Depth to Water	SOP-20	Field Measurement of Groundwater Level	All

1 Maxim Standard Operating Procedures (Appendix A, Site-Wide SAP)

TABLE 10
GROUNDWATER SAMPLING REQUIREMENTS
2009/2010 Work Plan

Parameter	Preservation[1]	Bottle Size/Type
Dissolved Metals	Filtered through 0.45 micron filter; HNO3 to pH < 2	250 milliliter polyethylene
Common Ions/Physicochemical	Iced to 4°C	500 milliliter polyethylene

1 HNO_3 = nitric acid

2.4.2 McLaren Pit Groundwater Monitoring

Extensive monitoring will be conducted in the McLaren Pit area (**Table 8**), as was done in previous years, to closely monitor changes in groundwater conditions that may result from the capping of the McLaren Pit waste rock, which was conducted in 2003. McLaren Pit wells will be monitored in July, when water levels are at or near seasonal highs, and once again in September/October.

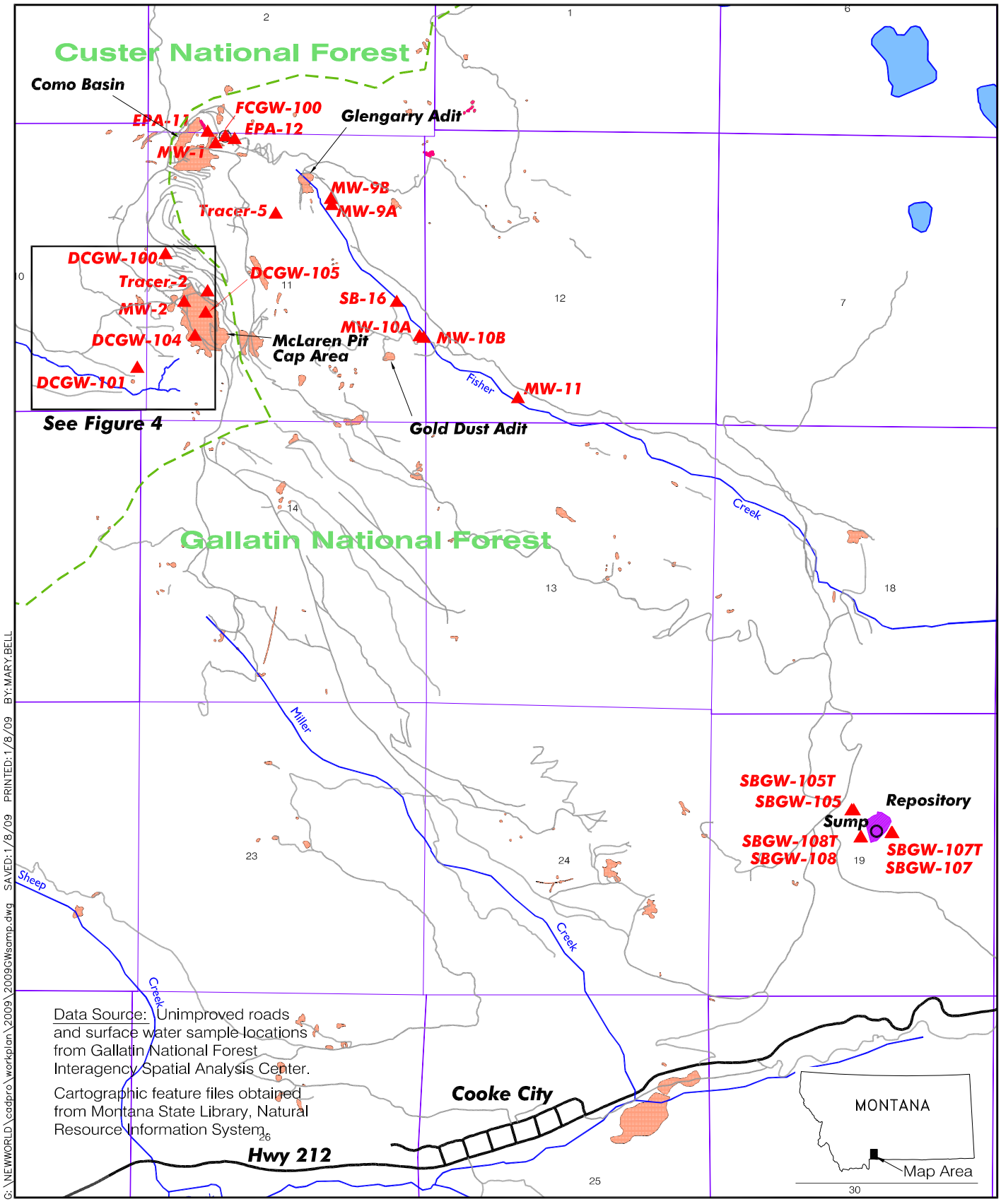
Monitoring will involve measuring water levels, measuring field parameters, and collecting samples for laboratory analysis. As shown in **Table 8**, samples will only be collected from select wells for laboratory analysis in July, with the remaining wells scheduled for measurement of field parameters only. In September, only field parameters will be measured (**Table 9**). Groundwater samples will be submitted to an analytical laboratory for analysis of parameters listed in **Table 11**.

2.4.3 New World Repository Monitoring

Groundwater monitoring will be conducted at the New World waste repository in accordance with the methods and procedures described in the New World Waste Repository Long-Term Monitoring Plan (Maxim, 2006c). Groundwater monitoring includes measuring depth to water in the repository sump and monitoring groundwater in the monitoring well network established at the site.

Monitoring will include maintaining and downloading water level data from the continuous water level instrument and collecting water quality samples. Water quality parameters are listed in **Table 5** for the sump. If the sump fills to capacity with water, water in the sump will be pumped into appropriate water trucks and disposed at the Cody, Wyoming, sewage treatment ponds. A water sample will be collected from the sump once per year prior to pumping.

Groundwater monitoring will be conducted at the three well pair locations SBGW-105, -107, and -108 and include maintaining and downloading water level data from the continuous water level instruments installed in wells SBGW-105T and SBGW-107T and collecting water quality samples. Well locations are shown on **Figure 3**. Repository wells will be sampled twice: in late May when water levels are typically at the highest level reached during the year and in July after water levels have fallen to seasonal lows. Groundwater samples will be submitted to an analytical laboratory for analysis of parameters listed in **Table 11**.



Data Source: Unimproved roads and surface water sample locations from Gallatin National Forest Interagency Spatial Analysis Center.

Cartographic feature files obtained from Montana State Library, Natural Resource Information System.

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N

DCGW-100 Groundwater Monitoring Location

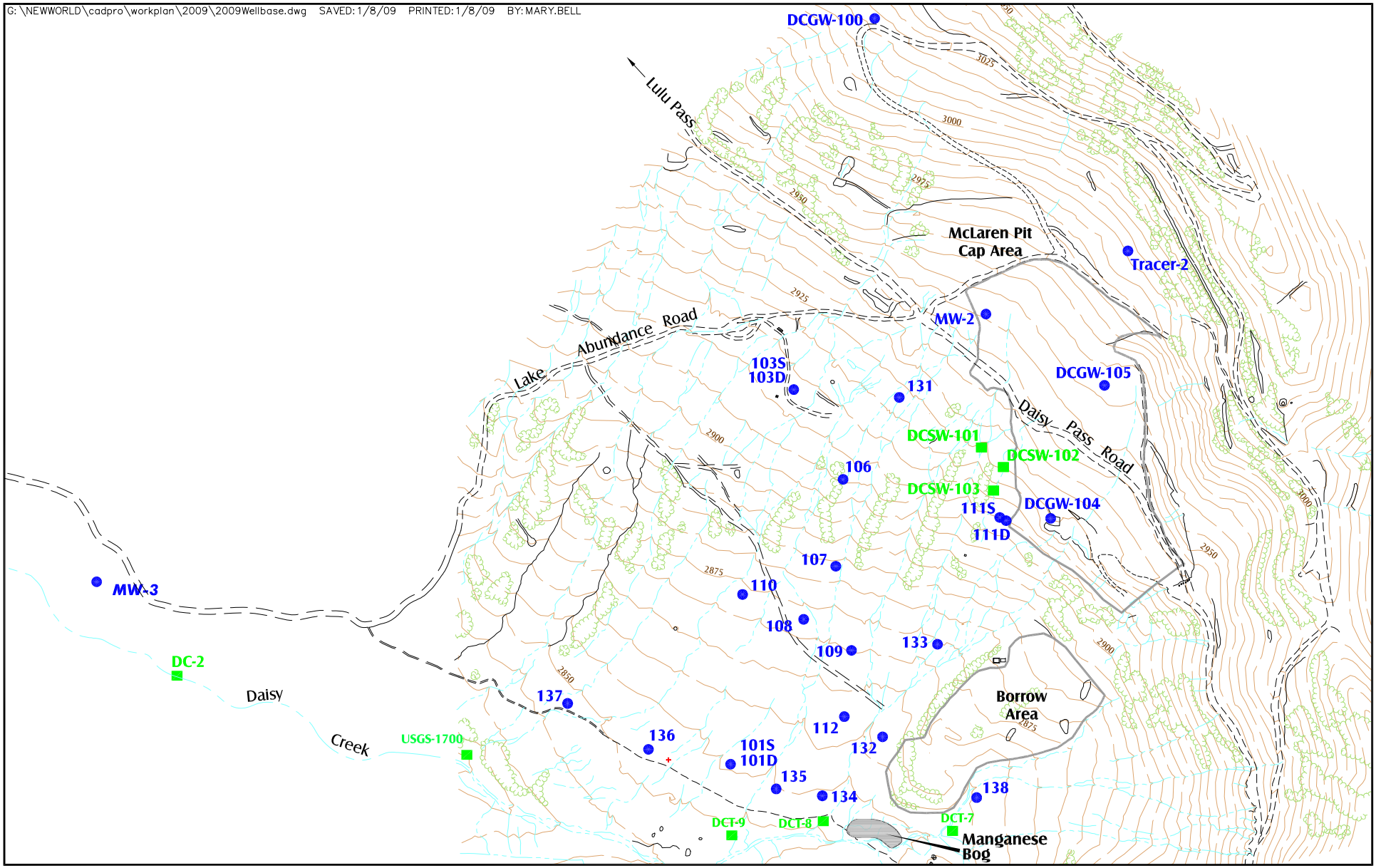
National Forest Boundary

Mine Waste Source Area

Unimproved Road

7561506.101

2009 Groundwater Monitoring Stations
New World Mining District
Response and Restoration Project
Cooke City Area, Montana
FIGURE 3



2009 McLaren Pit Area Monitoring Stations
New World Mining District
Response and Restoration Project
Cooke City Area, Montana
FIGURE 4

7561506.101

TABLE 11
GROUNDWATER ANALYTICAL REQUIREMENTS
2009/2010 Work Plan

Parameter	PQL (mg/l)[1]	EPA Method No.	Max. Holding Time
Physicochemical			
Specific Conductivity	None	2310B	28 days
pH	None	150.1	Upon arrival at lab
Total Dissolved Solids	None	2340C	7 days
Hardness	None	2340B	6 months
Acidity	None	305.1	14 days
Metals[2]			
Aluminum	0.05	200.8/200.7	6 months
Cadmium	0.0001	200.8/200.7	6 months
Copper	0.001	200.8/200.7	6 months
Iron	0.01	200.8/200.7	6 months
Lead	0.001	200.8/200.7	6 months
Manganese	0.003	200.8/200.7	6 months
Zinc	0.01	200.8/200.7	6 months
Common Cations[2]			
Calcium	1.0	200.8/200.7	6 months
Magnesium	1.0	200.8/200.7	6 months
Potassium	1.0	200.8/200.7	6 months
Sodium	1.0	200.8/200.7	6 months
Common Anions[2]			
Sulfate	None	375.2	28 Days
Bicarbonate	None	2320B	14 Days
Carbonate	None	2320B	14 Days
Chloride	None	325.3	28 Days

1 PQL = Practical Quantitation Limit in milligrams per liter (mg/L)
2 Groundwater parameters will be analyzed as dissolved constituents as filtered through a 0.45 micron filter

2.5 RECLAMATION MONITORING

Cover monitoring in 2009 will involve documenting percent cover values, species composition, and species diversity of vegetation at select sites reclaimed in the Daisy, Miller, and Fisher Creek drainages. The purpose of cover monitoring at these sites is to determine if revegetation cover is meeting the project objectives. Sites that received area-wide monitoring in 2008 were successfully reestablished and

therefore will not be revisited in 2009. The ten reference areas established in 2008 will be revisited annually. **Table 12** lists the sites that will be monitored and the type of monitoring that will be conducted. Reclamation monitoring will be conducted in accordance with monitoring procedures that are described in the Long-Term Revegetation Monitoring Plan (Maxim, 1999e).

If bare or eroded areas are observed during cover monitoring, soil samples will be collected for laboratory analysis. Samples will be collected from a depth interval of 0-15 cm and placed in one-gallon polyethylene bags. Samples will be labeled by location and returned to a qualified laboratory for selected analyses in accordance with the parameters and methods in the Site-Wide SAP for native soil collection. Laboratory parameters may include USDA soil texture, coarse fragment content, organic matter, pH, electrical conductivity, nutrients, and total metals (aluminum, arsenic, cadmium, copper, lead, and zinc). Sample collection and parameter selection will be performed at the discretion of the field investigator to ensure site-specific conditions are being addressed. Following receipt of the laboratory analysis, recommendations will be made to amend soils or reseed barren areas.

TABLE 12
RECLAMATION MONITORING SITES
2009/2010 Work Plan

Site	Year Reclaimed	Monitoring Type	Site	Year Reclaimed	Monitoring Type
Black Warrior	2005	Cover	Glengarry Waste Dump	2006	Cover
Little Daisy	2005	Cover	Gold Dust	2006	Cover
Como Basin	2006	Cover	New World Repository	2006	Cover
McLaren Pit Borrow Area	2003	Cover	New World Repository Borrow Area	2006	Cover
			Miller Creek	2005	Cover

2.6 ADDITIONAL CONSTRUCTION ACTIVITY AT THE LOWER TREDENNIC AND BLACK WARRIOR ADITS

The Lower Tredennic site was cleaned-up under the Selective Source Response Action (Maxim, 2001c) in 2002 and the Black Warrior site was cleaned-up under the Miller Creek Response Action (Maxim, 2004c) in 2006. Activities at both sites included removal of waste rock to an on-site repository, construction of a subsurface infiltration basin for adit discharges, re-contouring, and revegetation of the site. Subsequent to this work, these adits were identified in the Adit EE/CA (Tetra Tech 2006).

Although there were no major problematic issues associated with the reclamation of these sites, the USDA Forest Service decided in an Action Memorandum dated July 22, 2008 (USDA Forest Service 2008), to do additional work at the portals of these adits to insure that the remaining water discharging from the portals is completely directed into the infiltration basin constructed at the site. This will likely be accomplished by construction of small rock/soil collection aprons at each portal site, that direct remaining adit discharges to the infiltration basins. Once constructed, the sites will be contoured and revegetated. In addition, willow cuttings were transplanted at the Black Warrior adit reclamation site in 2008.

2.7 FINALIZE ADIT EE/CA

The USDA-FS prepared an internal agency review draft of an Adit Discharge EE/CA in 2006 (Tetra Tech 2006). This draft, which was circulated to agency partners, the EPA, Montana DEQ, National Park Service, U.S. Fish and Wildlife Service, and the public, evaluated impacts to water quality from remaining adit discharges located on District Property. A total of 27 adit openings with discharges were inventoried in the District, with eight of these sites identified as perennial discharges with water quality that exceeds Montana's standards (**Table 13**) that require response action evaluation. In addition, a series of drains located at the reclaimed McLaren Pit site convey poor quality water from bedrock sources in the reclaimed area to Daisy Creek; as such, these drains were included in the evaluation of mining-related discharges in the EE/CA. The USDA-FS has received comments from its agency partners and the public on the EE/CA and is in the process of revising the document to incorporate comments received. The USDA-FS has continued to collect baseline data at these sites to evaluate other alternatives that may be appropriate as a result of agency and public comment.

In 2008, an Action Memorandum (USDA-Forest Service 2008) approved response actions for the Glengarry Mill Site, Tredennic and Black Warrior Adits, which were implemented at the Glengarry Mill Site and at the Black Warrior Adits (see discussion in Section 2.6). During 2009, the USDA Forest Service will make decisions with respect to response actions (including a no action alternative) and finalize the Adit Discharge EE/CA. In this process, more recent data will be assessed to verify whether these data impact the evaluation of alternatives / preferred alternatives presented in the draft report.

Table 13
Perennial Discharges Requiring Response Action Evaluation

Adit	Site identification #	Site Status	Action Memorandum Issued
Black Warrior	MCSI-96-2 (M-8)	Caved adit, site reclaimed 2005	2008
Glengarry Mill-Site	F-8B	Adit closed, site reclaimed 2008	2008
McLaren Adit	D-18	Open	
Little Daisy Adit	M-1	Caved adit, dump reclaimed 2005	
Gold Dust Adit	F-28	Holes grouted, closed adit, site reclaimed 2005	
Lower Tredennic Adit	FCSI-96-5	Collapsed adit, reclaimed, 2001	2008
Henderson Mountain Dump 7	AE-17	Adit closed, site reclaimed 2004	
Henderson Mountain Adit	M-25	Open/partially collapsed	
McLaren Subsurface Drains	DCSW-101, -102, -103	Drains open	

Note: Sites identified from Adit Discharge EE/CA (Tetra Tech, 2006).

2.8 PREPARE 2010/2011 WORK PLAN

A work plan similar to this plan will be prepared to guide specific work activities to be completed during 2010/2011. These activities will complement those performed under the long-term plans and will involve surface water, groundwater, and revegetation monitoring, and construction activities.

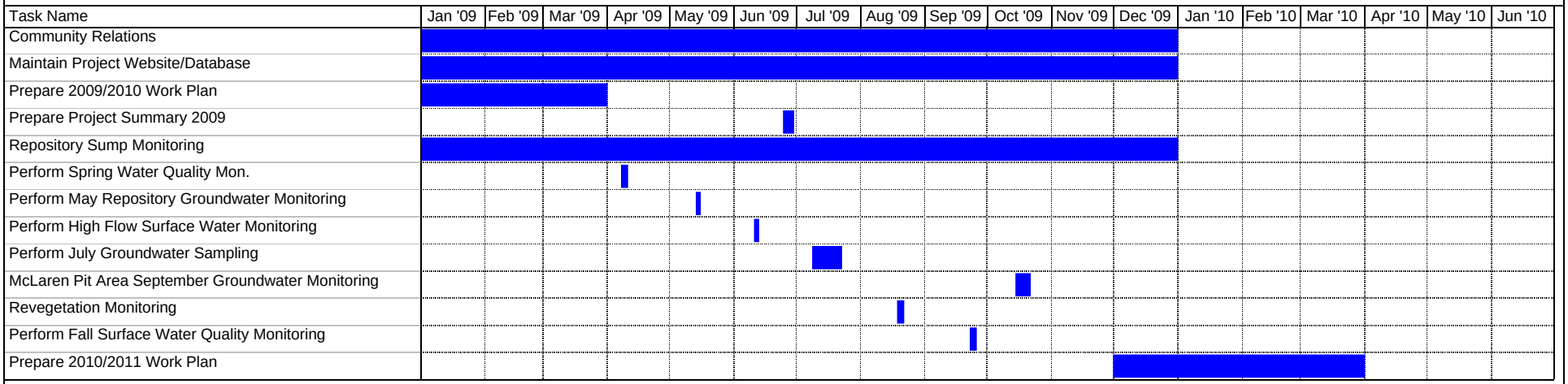
2.9 PREPARE 2009 PROJECT SUMMARY

A summary will be prepared to document project activities completed since 1999.

3.0 PROJECT SCHEDULE

Figure 5 illustrates the schedule for 2009/2010 activities.

FIGURE 5
NEW WORLD MINING DISTRICT RESPONSE AND RESTORATION PROJECT
2009/2010 PROJECT SCHEDULE



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Revised: January 7, 2009

4.0 REPORTS

Project documents will be prepared during 2009/2010 for many of the items discussed in Section 2.0. These documents are summarized in **Table 14** along with a description of the document contents and approximate delivery schedule.

TABLE 14
PROJECT DOCUMENT LIST
2009/2010 Work Plan

Deliverable Title	Contents	Delivery Schedule
2009/2010 Work Plan	This Document	Draft – January 2009 Final – March 2009
Background Groundwater Report	Evaluates groundwater quality in areas not impacted by mining	March 2009
Bio-reactor Report	Effectiveness and feasibility of treating McLaren pit underdrains using bio-reactor systems	April 2009
Pre-mining Surface Water Quality Report	Evaluates surface water quality that existed prior to mining disturbances	April 2009
Final Long Term Operations and Maintenance Plan	Describes work to be conducted during Long Term Operations and Maintenance period (2012-2032)	April 2009
Adit Discharge EE/CA	Evaluates options for remaining adit discharges	June 2009
Project Summary 2009	Summary document of project activities completed since 1999	July 2009
Reclamation Monitoring Report	Reclamation monitoring results	January 2010
2009 Surface Water and Groundwater Monitoring Report	Results and analyses of ongoing surface water and groundwater monitoring	February 2010
2010/2011 Work Plan	Proposed activities for 2010/2011	Draft – March 2010 Final – June 2010

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