Proposed Plans of Study for Biological Resources, Elkhorn Project

For:

Elkhorn Goldfields, Inc.
P.O. Box 41
1098 S. Main
Boulder, MT 59632

By:

WESTECH Environmental Services, Inc.
P.O. Box 6045
3005 airport Road
Helena, MT 59601

June 2006

CONTENTS

Page

INTRODUCTION 1

VEGETATION 1
- Previous investigations 1
- Proposed work 2

WETLANDS AND WATERS OF THE U.S. 3
- Previous investigations 3
- Proposed work 3

FISHERIES 4
- Previous investigations 4
- Proposed work 5

AQUATICS 5
- Previous investigations 5
- Proposed work 5

WILDLIFE 6
- Previous investigations 6
- Proposed work 7

INTRODUCTION

WESTECH Environmental Services, Inc. (WESTECH) has prepared the following plans of study (POS) for five biological disciplines (vegetation, wetlands/Waters of the U.S., fisheries, aquatics and wildlife) for a hard rock mine (for the purposes of this document called the Elkhorn Project) located near the community of Elkhorn in the Elkhorn Mountains in Jefferson County, Montana. The objective of these POS is to provide information to characterize the biological resources of the project vicinity in support of an application for a hard rock mine operating permit.

These POS are based on the following assumptions and caveats:

- The project would be an underground mine comprised of several portals and associated surface facilities located on privately owned land near Elkhorn. Total surface disturbance would be small (approximately 20-30 acres; Eric LeLacheur, geologist, Elkhorn Goldfields, personal communication, May 22, 2006) and would be limited to waste dumps, portal patios, mine buildings, roads and associate features such as turnouts and parking areas. Elkhorn Goldfields has obtained regulatory permission to use an existing access/haul road across public land administered by the U.S. Forest Service (USFS).

- No ore would be processed on site, but would be transported to operating mines elsewhere in western Montana.

- No regulatory agencies were contacted for their input into matters such as the adequacy of past studies or changes in regulatory requirements for future projects. Consequently the conclusions and recommendations of these POS should not be considered final until review and approval by the appropriate regulatory agencies.

VEGETATION

Previous investigations

WESTECH initiated a vegetation baseline inventory of the project vicinity in August 1989 for Gold Fields Mining Corporation (Gold Fields). Additional field work was conducted in August-September 1990 and August-September 1993 for Gold Fields and Santa Fe Pacific Gold Corporation (Santa Fe). The 1989 inventory focused on the mine area north of Elkhorn (including the proposed Elkhorn Project area) while the 1990 and 1993 inventories covered a large area addressing potential project alternatives and access roads. Reports generated were:

Scow, K.S. and L.D. Culwell. 1993. Baseline vegetation inventory, Elkhorn Project Area, Jefferson County, Montana - Interim Report. Unpubl. tech. rep. for Gold Fields Mining Corp. by Western Technology and Engineering, Inc., Helena, MT. 37pp + appendices and exhibit.

Scow, K.S. and L.D. Culwell. 1994. Baseline vegetation inventory, Elkhorn Project Area, Jefferson County, Montana - Draft Report. Unpubl. tech. rep. for Santa Fe Pacific Gold by Western Technology and Engineering, Inc., Helena, MT. 56pp + tables, appendices and exhibit.

Inventory methods followed study plans developed in consultation with the Montana Department of State Lands (now Montana Department of Environmental Quality, MDEQ) and the USFS. The inventories were designed to map and describe vegetation types; provide quantitative data on canopy cover, frequency and woody plant density; search for potentially sensitive plant species; and record noxious weeds.

Forty-two vegetation types were identified in the study area, including six grassland types, seven shrub/grassland types, 10 forest and savannah types, 16 bottomland (riparian) types and three miscellaneous types. A total of 524 plant taxa were identified in the study area of which one, flat-topped broomrape (*Orobanche corymbosa*), was listed by the Montana Natural Heritage Program (MTNHP) as sensitive at the time; it has subsequently been deleted as a listed sensitive plant since it was found to be more common than previously known. Four state-listed noxious weed species were identified including Canada thistle (*Cirsium arvense*), whitetop (*Cardaria draba*), spotted knapweed (*Centaurea maculosa*) and Dalmatian toadflax (*Linaria dalmatica*). Weeds were common in disturbed area with populations expanding into adjacent undisturbed areas.

Proposed work

Vegetation data collected in 1989, 1990 and 1993 were comprehensive. State and federal requirements for vegetation baseline information have not changed significantly since the data were collected.

Gaps in the original data base would probably be related to changes in vegetation (logging, fire, additional disturbances or expansion of noxious weeds). Sensitive plant species lists change frequently with species added or deleted, and sensitive plants should be reevaluated. The baseline inventory did not address timber volumes and any clearing on USFS administered land may require a timber inventory.

The following tasks are proposed:

1. Conduct a field reconnaissance to evaluate changes in community types, noxious weeds and sensitive plants.

2. Determine, in consultation with Elkhorn Goldfields, whether clearing on USFS land will be necessary and assess the need for a timber inventory.

3. Update the 1994 report with based on the 2006 field reconnaissance.

WETLANDS AND WATERS OF THE U.S.

Previous investigations

An inventory (including wetlands) of Waters of the U.S. (WUS) was conducted during the 1993 field season for Santa Fe. Results were presented in a draft report:

Hydrometrics, Inc. and Western Technology and Engineering, Inc. 1994. Waters of the U.S. and Wetlands, Santa Fe Pacific Gold, Elkhorn Project, Jefferson County, Montana, Environmental Baseline Report. Unpubl. tech. rep. for Santa Fe Pacific Gold Corp. by Hydrometrics, Inc. and Western Technology and Engineering, Inc., Helena, MT. 47pp + appendices and exhibit.

WUS were evaluated using the 1987 Wetland Delineation Manual prepared by the U.S. Army Corps of Engineers (COE) Environmental Laboratory. Wetland hydrology and hydric soils were investigated by Hydrometrics, Inc. (Hydrometrics) while hydrophytic vegetation was evaluated by WESTECH. WUS were identified along ephemeral, intermittent and perennial streams, and at springs, seeps, adits and localized areas that collected run-on and were poorly drained.

The Section 404 process (which regulates activities in WUS) has evolved since the 1993 baseline inventory. The COE might consider the 1993 inventory inadequate due to these potential deficiencies:

The COE usually consider work older than five years to be outdated and requires that the identification and delineation of WUS (including wetlands) be updated.

1. COE now requires field data on their approved forms. These were not completed in 1993.

2. COE prefers to see photographs of WUS attached to the report. None were included.

3. Accurate delineations showing the dimensions and acreages of each site were not shown on the map.

4. Functional assessments were not completed for each wetland.

5. Wetlands were not mapped by vegetation type.

Proposed work

The footprint of the proposed Elkhorn Project is considerably smaller than earlier iterations examined in the 1980s and 1990s. Hydrometrics has proposed a surface water

sampling program for the proposed Elkhorn Project in some of the drainages sampled in earlier years. Proposed wetlands/WUS work would include the following tasks:

1. Conduct a field reconnaissance/wetland delineation of the proposed Elkhorn Project footprint and adjoining areas according to currently accepted protocols.

2. Confer with Elkhorn Goldfields to determine if it would be possible to completely avoid placement of any fill in WUS. In this case, there would be no need to continue the 404 process.

3. If impacts to WUS cannot be avoided, confer with Elkhorn Goldfields to minimize the acreage impacted and attempt to receive authorization from COE under the Nationwide Permit program. In this case, only impacted sites would have to be evaluated.

FISHERIES

Previous investigations

Prior to 1993, the most recent sampling of fisheries in the Elkhorn Project vicinity had been conducted by the Montana Department of Fish, Wildlife and Parks (MDFWP) in 1981. In 1993, at the request of various agencies, Santa Fe agreed to conduct a qualitative survey of fish species composition and distribution in the streams of the Elkhorn Project area, and a rudimentary analysis of fish habitat in streams potentially affected by the Project. A report was prepared and submitted to the client:

Western Technology and Engineering, Inc. 1994. Elkhorn Project Fisheries Inventory. Unpubl. draft tech. rep. for Santa Fe Pacific Gold Corp. by Western Technology and Engineering, Inc., Helena, MT. 27pp + appendices.

Field work revealed that the streams of the Elkhorn Project area supported generally low quality fisheries dominated by brook trout. However, regulatory agencies advised at the time that future monitoring efforts should include quantitative fish population estimates from two study area streams, as well as a reference stream located beyond any potential effects from the project, and should include sampling of baseline metals concentrations in fish from all three streams, to compare pre-, concurrent and post-mining conditions.

The Montana Fisheries Resource Information System (MFISH) was reviewed as part of the development of this POS. Although the MFISH data base may not be complete, it appears that no additional sampling of the study area streams has occurred since 1993.

Proposed work

Based on the reduced size of the proposed Elkhorn Project, it appears that no streams containing or tributary to an existing fishery would be affected by development of the project. Therefore the following tasks are proposed:

1. Contact MDFWP and USFS biologists to determine if there has been any additional sampling of potentially affected streams, or if there have been any changes in fisheries management plans for the area encompassing the Project since the 1994 report.

2. Conduct a field reconnaissance to evaluate whether known fisheries would potentially be affected by the proposed new design of the Elkhorn Project.

AQUATICS

Previous investigations

WESTECH conducted comprehensive sampling of aquatic biological resources, particularly macroinvertebrates, for Goldfields and Santa Fe in the late 1980s and early 1990s. All of the potentially affected perennial streams were sampled, usually at or near surface water sampling stations.

It is not known at this time whether there has been additional aquatic sampling in or near the project area. MDEQ has developed a long-term sampling program for the state of Montana, and some of these sampling sites may be in or near the study area. In addition, the USFS may have sponsored sampling in the area.

Proposed work

The baseline data were comprehensive. Any changes in the baseline conditions of streams would likely be due to changes in adjoining vegetation (fire, timber harvest). However, based on the reduced size of the proposed Elkhorn Project, it appears that no perennial streams or springs would be affected by development of the project. Therefore the following tasks are proposed:

1. Contact MDEQ and USFS to determine if there has been any additional sampling of potentially affected streams since the early 1990s.

2. Conduct a field reconnaissance to evaluate whether perennial streams or springs would potentially be affected by the proposed new design of the Elkhorn Project.

WILDLIFE

Previous investigations

The Elkhorn Project terrestrial wildlife baseline study began in August 1989, but was postponed by Gold Fields shortly thereafter and field work did not resume until January 1990. The study plan was developed in consultation with the Montana Department of State Lands (now MDEQ) and the USFS. Field work continued through October 1990, then was postponed again until March 1993, after Santa Fe acquired the project. Field work was completed by mid-September 1993. The study was again postponed until March 1995, when a draft report was prepared and submitted to Santa Fe for internal review. Reports generated were:

Farmer, P. 1993. Summary of the terrestrial wildlife baseline study for Gold Fields' Elkhorn Project. Unpubl. tech. rep. for Gold Fields Mining Corp. by Western Technology and Engineering, Inc., Helena, MT. 5pp.

Western Technology and Engineering, Inc. 1995. Elkhorn Project Wildlife Baseline Study. Unpubl. draft tech. rep. for Santa Fe Pacific Gold Corp. by Western Technology and Engineering, Inc., Helena, MT. 101pp + appendices and exhibit (uncompleted).

Objectives of the baseline study were to conduct a literature review of wildlife resources in the project vicinity; develop a list of all wildlife species that could potentially occur in the project area; document as many of these potential species as possible; map wildlife habitats in the study area and qualitatively assess wildlife use of them; to the extent possible within the methods and parameters of the study plan, determine seasonal distribution of socially or economically important wildlife species in the study area; and to the extent possible, document the occurrence of Federally listed or proposed threatened or endangered species and/or their habitats in the area.

One hundred twenty-four wildlife species were documented in the study area, supported by a good diversity of wildlife habitats. Elk, mule deer, white-tailed deer, moose, mountain goat, pronghorn, black bear and mountain lion were all present in the study area, but the proposed mine footprint at that time did not intrude on known critical habitats for any of them. The only threatened or endangered species documented within the study area was the bald eagle, which did not nest there.

In addition to the baseline study, MDFWP included the study area within its Elkhorn Mountains elk study, which at the time was the longest continually running elk study in the U.S. Similarly, the USFS, BLM and MDFWP also include the study area in their Elkhorn Cooperative Management Area, and management plans for public lands within this area, including portions that overlap the potential Elkhorn Project, may have changed since the terrestrial wildlife draft baseline report was written.

Proposed work

The POS for the Elkhorn project wildlife baseline study was negotiated with the regulatory agencies in 1990. Since then, some changes have occurred in the emphasis for wildlife studies that were not covered fully in the baseline study, such as:

1. The occurrence and composition of bat species in a study area has become an increasing concern of all the regulatory agencies. This is particularly true if a potential project might affect old mine adits, which are recognized as potentially critical bat habitat. No bat surveys were conducted as part of the Elkhorn Project baseline study.

2. Similarly, since 1990 there has been an increased regulatory emphasis on amphibians and reptiles, some of which have been added to the Montana state list of sensitive species. No inventory for these species was conducted in the baseline study.

3. Progress reports from other wildlife study/management activities by MDFGWP and USFS would have to be updated.

4. At the time of the baseline report (1995), the only endangered species known to occur in the Elkhorn Project study area was the bald eagle. It is now accepted that, due to expanding populations within Montana, grizzly bears gray wolves and Canada lynx may occur at least occasionally in the Elkhorn Mountains. Information about these two species in the project vicinity would have to be obtained form appropriate state and federal agencies. It is possible that potential lynx habitat would have to be mapped

5. Any activities that have created a change in available wildlife habitats within the study area, such as prescribed burning by USFS to improve big game winter range, would have to be updated.

The following tasks are proposed:

1. Conduct a field reconnaissance to evaluate changes in wildlife habitat types, and to search for potential critical sites for amphibians and reptiles.

2. Conduct a survey for bat species occurrence and potential critical habitats in the potential project area.

3. Update the information on Montana state sensitive species, federally listed or proposed endangered or threatened species, and other wildlife species through reconnaissance and agency contacts.

4. Update the 1995 report with any additional information obtained during this effort.