Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

CHECKLIST ENVIRONMENTAL ASSESSMENT

COMPANY NAME: Golden Sunlight Mines, Inc.
PROJECT: Golden Sunlight Mine
LOCATION: 7 miles northeast of Whitehall, MT
COUNTY: Jefferson
PROPERTY OWNERSHIP: [x] Federal [x] State [x] Private
OPERATING PERMIT No.: 00065
PERMIT AMENDMENT: 12-009
Amendment 12 to Operating Permit No. 00065, Golden Sunlight Mine, Montana

TYPE AND PURPOSE OF ACTION: The Golden Sunlight Mines, Inc. (GSM) permitted disturbance boundary was 2,967 acres after approval of Amendment 10. Amendment 11 did not increase the permitted disturbance boundary. A number of minor revisions to the permit allowed for an increase in the disturbance boundary up to a total of 3,017.7 acres. Amendment 12 would increase the permitted disturbance boundary to 3,101.0 acres. The permit boundary has remained constant and would not increase beyond 6,125 acres.

The proposed increases in the permitted disturbance boundary would be as follows:

- Update the permitted disturbance boundary due to mapping irregularities over the years (1.2 acres);
- Reconfigure the currently approved East Buttress Dump Extension to enhance the Sunlight Block Stability (30.8 acres);
- Add an East Buttress Dump Extension buffer zone (30.3 acres);
- Add a borrow pit buffer zone and area for future East Buttress Dump Extension access (14.9 acres); and
- Add a 5B Optimized Northeast Dump buffer zone (6.1 acres).

The total area added to the permitted disturbance boundary would be 83.3 acres, all within the approved permit boundary. Approximately 2,236 of the 3,017.7 acres permitted for disturbance have been disturbed to date.

On September 10, 2009 GSM submitted a request for an amendment to the Montana Department of Environmental Quality (DEQ) and the Bureau of Land Management (BLM) (GSM 2009). The amendment, referred to as the East Buttress Dump Extension (EBDE), represents a change in the configuration of the East Buttress Dump from the currently approved overall north/south direction to a more east/west direction creating additional stability. While the thickness of the EBDE would be increased from 150-200 feet to 380 feet the actual height would only be increased by 50 feet due to the configuration of the land beneath the proposed dump. The approved disturbance footprint of the EBDE would be reduced from 200 acres to approximately 114 acres. The remaining 86 acres may be disturbed for other uses such as roads, soil stockpiles, monitoring wells, borrow sources, power lines, etc.

DEQ must review the proposed amendment and decide if it complies with the Montana Metal Mine Reclamation Act requirements for major amendments in sections 82-4-337 and 342 (MCA), and in the Administrative Rules of Montana 17.24.119. The BLM must review the amendment to see if it complies with 43 CFR 3809.

PROPOSED ACTION: GSM requested Golder Associates to review the stability analysis previously performed on the EBDE. Golder Associates submitted a report to GSM in 2009 (Golder Associates 2009). As part of the stability analysis, Golder Associates recommended that only six inches of soil be removed from the EBDE footprint. Additional soil would be obtained from the borrow area located near the head of the Sunlight Block. A natural regrade design would be implemented in reclaiming the EBDE. A channel, referred to as the West Buttress Diversion Channel (channel) would be constructed west of the EBDE to convey storm water runoff to the West Diversion ditch (Figure 1). The channel would accommodate the 164-acre basin, with a design capacity equal to half of the Probable Maximum Precipitation (PMP) event.

All of the proposed disturbances associated with Amendment 12 would be located within the existing permit. Mine operations would not change, including operation of the mill facility; delivery, storage, consumption and disposal of materials associated with mine and mill operations; operation of air emissions controls on mine equipment, fugitive dust sources, and milling equipment; and maintenance and monitoring functions.

Current employment levels would remain the same, as would the various taxes paid by GSM to local, state, and federal jurisdictions. Goods and services purchased by GSM to operate the mine would also remain the same.

CHECKLIST ENVIRONMENTAL ASSESSMENT

Environmental Assessment Legend:
N = Not present or No Impact will occur.
Y = Impacts may occur (explain under Potential Impacts).
NA = Not Applicable

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are soils present which are fragile, erosive, susceptible to compaction, or unstable? Are there unusual or unstable geologic features? Are there special reclamation considerations?	[Y] *Potential soil impacts:* Based on Golder Associates' geotechnical recommendation GSM would reduce the amount of soil salvaged from the footprint of the EBDE located on the Sunlight Block from 36 inches to 6 inches. The reduction is to prevent unpredictable temporary destabilizing affects caused by unloading the toe of the Sunlight Block. Additional soil would be salvaged from the head of the Sunlight Block. All other soils would be salvaged and replaced based on approved salvage and replacement plans as approved in Amendment 010. GSM has successfully reclaimed other waste rock dumps with borrow materials. *EBDE stability*: GSM proposes to increase the thickness of the EBDE from 150-200 feet to approximately 380 feet, however the actual height of the dump would only be increased by 50 feet due to the configuration of the land beneath the proposed dump area.

IMPACTS ON THE PHYSICAL ENVIRONMENT	
	The Golder Associates geotechnical analyses submitted by GSM evaluated the waste rock dump. These analyses indicated that the proposed EBDE would increase stability, with a resultant change in the Factor of Safety (FOS) of 1.05 to 1.28 based on 3-D analyses (Golder Associates 2009). GSM committed to further analyses of the final natural regrade designs to ensure that waste rock dump stability objectives are obtained. GSM has also agreed to implement all stability and monitoring recommendations made by Golder Associates (Golder Associates 2009).
2. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?	[Y] *Surface water quantity and/or quality from the waste rock dumps and tailings impoundments:* GSM proposes a natural regrade of the EBDE. The regrade would enhance the approved storm water management plan. Surface water run-on and run-off would report to the proposed channel and subsequently to drainage structures approved in the current plan. *Ground water quantity reporting to the mine pit and pit water quality:* There would be no changes to mine pit water and pit water quality. *Quantity and/or quality of leachate from waste rock dumps:* Leachate quality would not change from that analyzed in previous environmental analyses. Leachate water quantity should decrease as the area of the EBDE footprint would be reduced from 200 acres to 114 acres. The additional height of the EBDE and proposed reclamation would reduce the amount of water infiltrating into the waste rock dump. *Amount of time it takes to generate leachate from the EBDE :* The amount of time that it would take for leachate to move through the waste rock dump would increase by approximately 36 years for every 50 feet of increased waste rock dump height (Hydro Solutions, Inc. 2009). If the EBDE is raised from the approved 150-200 feet to the proposed 380 feet it would take approximately an additional 130 to 165 years for leachate to reach the bottom of the dump. The agencies agree with this conclusion made by GSM. This delay would not change the conclusions in previous environmental analyses. *Time it takes to transport leachate from beneath the EBDE :* The length

IMPACTS ON THE PHYSICAL ENVIRONMENT	
	of the ground water flow path from beneath the EBDE would not change from previous analyses and would continue to be about 70 years quicker than that calculated for the entire East Waste Rock Dump Complex (EWRDC), which includes the EBDE, since it is located closer to the Jefferson River. The total travel time for leachate to flow from the EWRDC through the aquifer to the Jefferson River would be about 250 to 575 years. The travel time from the EBDE, a component of the EWRDC, would be about 180 to 450 years. The time of transport was analyzed in previous environmental documents. GSM is required to pumpback and treat contaminated ground water if needed. *Ground water quality beneath the waste rock dumps.* No change in leachate quality would be anticipated as a result of the placement of additional lifts on the EBDE. No change would be expected in the quality of the ground water beneath and down-gradient of the dump. *Beneficial uses of water.* There would be no change to the current beneficial uses of water in the vicinity of the Golden Sunlight Mine. All water management activities associated with the current approved plan would be implemented under the Proposed Action.
3. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	[N] GSM operates the Golden Sunlight Mine under Air Quality Permit No. 1689-06. Production limits contained in the air quality permit would not change in response to this amendment.
4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be significantly impacted? Are any rare plants or cover types present?	[N] The amendment would not impact vegetation outside previously analyzed and approved areas.
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?	[N] The amendment would not impact any terrestrial, avian, and aquatic life and habitats outside previously analyzed and approved areas.
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified	[N] The amendment would not impact any threatened, endangered, or sensitive species or habitats outside previously analyzed and approved areas.

IMPACTS ON THE PHYSICAL ENVIRONMENT	
habitat present? Any wetlands? Species of special concern?	
7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	[N] The amendment would not impact any historical, archaeological, or paleontological resources outside previously analyzed and approved disturbance areas.
8. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	[N] The proposed change would increase the visibility of the approved waste rock dump design by increasing the height of the dump (Tetra Tech, 2009). GSM would minimize the aesthetic effects of the EBDE by using natural regrade designs on the waste rock dump and minimize the flat bench appearance of the waste rock dump top. In addition, GSM proposes to save oxidized waste rock to address aesthetic stipulations in the ROD for the 2007 SEIS (MDEQ and BLM 2007).
9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	[N]
10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other activities nearby that will affect the project?	[N] No other activities in this area would affect this project.

IMPACTS ON THE HUMAN POPULATION	
11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	[N] No human health and safety impacts would result from the proposed change.
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[Y] The amendment would not change the projected life of the mine.

IMPACTS ON THE HUMAN POPULATION	
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.	[Y] The amendment would not add to mine life or extend employment.
14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	[N] The Proposed Action would not extend the length of time for the current tax base.
15. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?	[N] The Proposed Action would not impact government services.
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[N] The Proposed Action is consistent with the BLM's Headwaters Resource Management Plan and the Jefferson County Weed Management Plan.
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	[N] The amendment would not impact any wilderness or recreational areas outside previously analyzed and approved disturbance areas.
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N] The amendment would not impact the density and distribution of population and housing outside previously analyzed and approved disturbance areas.
19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N] The amendment would not impact social structures and mores outside previously analyzed and approved disturbance areas.

IMPACTS ON THE HUMAN POPULATION	
20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N] The amendment would not impact cultural uniqueness and diversity outside previously analyzed and approved disturbance areas.
21. PRIVATE PROPERTY IMPACTS: Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required.	[N] The Proposed Action would not impact private property use.
22. PRIVATE PROPERTY IMPACTS: Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required.	[N] The Proposed Action section above identifies the objectives of this EA. The Proposed Action would enable GSM to implement its proposed use for the property.
23. PRIVATE PROPERTY IMPACTS: Does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives.	[NA] The Type and Purpose of Action section above identifies the objectives of this EA. No modifications are proposed that would restrict private property rights.
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:	[N]
25. SPECIAL BLM CONCERNS:	[N] The amendment would not impact areas of critical environmental

IMPACTS ON THE HUMAN POPULATION	
Areas of Critical Environmental Concern (ACEC), Floodplains, Native American Religious Concerns, Hazardous waste, Wetlands, Wild and Scenic Rivers, Environmental Justice and Invasive Non-native Species.	concern, floodplains, Native American religious concerns, hazardous waste, wetlands, wild and scenic rivers, environmental justice and invasive non-native species outside previously analyzed and approved disturbance areas.

26. ALTERNATIVES CONSIDERED: NO-ACTION ALTERNATIVE (DENY THE APPLICANT'S PROPOSED ACTION): The No-Action Alternative would not allow the amendment. This would mean the waste rock dump would disturb additional acres for waste rock and stability of the East Buttress Dump would be slightly less.

27. APPROVE THE APPLICANT'S PROPOSED ACTION: The Proposed Action would reduce the number of acres disturbed with waste rock and increase the stability of the EBDE. The agencies have not identified any changes to the Proposed Action.

28. APPROVE THE AGENCY MODIFIED PLAN: The agencies have not identified any modifications to the proposed plan.

29. PUBLIC INVOLVEMENT: The agencies' interdisciplinary team had an internal scoping meeting on 10/13/09. A legal notice on the submittal of the EBDE amendment application was published in the *Whitehall Ledger* (9/23/09 and 9/30/09), the *Independent Record* (9/24/09, 10/1/09 and 10/8/09), The *Montana Standard* (9/23/09, 9/30/09 and 10/07/09), the *Missoulian* (9/23/09, 9/30/09 and 10/7/09), the *Billings Gazette* (9/22/09, 9/29/09 and 10/6/09) and the *Great Falls Tribune* (9/24/09, 10/1/09 and 10/8/09). The legal notice was also sent to the State of Montana *Newslinks* service which distributes information to subscriber newspapers in Montana. The *Whitehall Ledger*, *Independent Record, Montana Standard, Missoulian*, and the *Great Falls Tribune* all ran separate news stories on the submittal of the amendment application. No public comments were submitted to the agencies in response to the legal notice or press releases.

30. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION: BLM

31. MAGNITUDE AND SIGNIFICANCE OF POTENTIAL IMPACTS: There would be no significant impacts associated with this proposal. As noted, there would be minimal impacts to soil, and no impacts to ground water, and socioeconomic issues.

32. CUMULATIVE EFFECTS: No other proposals in the area would add to cumulative effects from this proposal.

33. RECOMMENDATION FOR FURTHER ENVIRONMENTAL ANALYSIS AND/OR TENTATIVE DECISION: [ ] EIS [ ] More Detailed EA [X] No Further Analysis.

The DEQ has selected the Applicant's Proposed Action as the preferred alternative.

34. PREPARERS AND REVIEWERS: This EA was prepared by:
Herb Rolfes, DEQ Operating Permits Section Supervisor
Patrick Plantenberg, DEQ Reclamation Specialist

This EA was reviewed by:

Warren McCullough, DEQ, Environmental Management Bureau, Chief

35. EA APPROVED BY:

Warren D. McCullough 1/8/2010

Signature Date
Warren D. McCullough, Chief, Environmental Management Bureau, DEQ

36. REFERENCES

Golder Associates 2009. Geotechnical Review of Buttress Dump Design, Golden Sunlight Mine, Whitehall, Montana

GSM 2009. Amendment 12 Submittal. Permit Amendment to Operating Permit 00065 Golden Sunlight Mine. September 2009.

Hydro Solutions 2009. Evaluation of Hydrogeology and Acid Rock Drainage Attenuation from Proposed East Buttress Extension Dump, Golden Sunlight Mine, Whitehall, Montana

MDEQ and BLM 2007. Record of Decision for the Supplemental Environmental Impact Statement, Golden Sunlight Mine Pit Reclamation, 2007.

Tetra Tech 2009. Visuals study of the proposed EBDE from highway 69, Cottonwood Hill and I-90. December 16, 2009.

OP\Revisions&Amendments\GSM00065\Amendment12\DraftEAHRPP