EXPANDED CHECKLIST ENVIRONMENTAL ASSESSMENT

COMPANY NAME: Stillwater Mining Company
LOCATION: Approximately 5 miles southwest of Nye, Montana
PROPERTY OWNERSHIP: [X] Federal [ ] State [X] Private
PERMIT AMENDMENT: 12-2010

Project: Stillwater Mine
County: Stillwater
OPERATING PERMIT No.: 00118

Proposed Amendment 12 to Operating Permit No. 00118, Stillwater Mining Company, Montana

TYPE AND PURPOSE OF ACTION: The Stillwater Mining Company (SMC) proposes to add a center pivot (Pivot 7) to the existing Hertzler Ranch Land Application Disposal (LAD) system. The LAD system is designed and operated to provide secondary nitrogen treatment and land application disposal of treated Stillwater Mine adit water and waters from the Hertzler Ranch tailings impoundment. SMC has operated the existing Hertzler Ranch LAD system for nine years. The system has proven to be a reliable option for secondary nitrogen treatment and agronomic disposal of excess adit and tailings impoundment waters. The additional pivot would allow SMC to dispose of increased volumes of treated mine water over a larger area during periods of optimum evapotranspiration and agronomic uptake.

Amendment 12 would add 138 acres of land to the existing 723 acre Hertzler Ranch permit area (for a total of 861 acres) that includes the LAD storage pond, the land application disposal system, and tailings impoundment. The area that would be added by Amendment 12 is owned by SMC and is located just north of Pivot 2 and across County Road 420. The existing six-pivot LAD system at the Hertzler Ranch irrigates 253 acres with a maximum achievable application rate of 2,900 gpm over a 12-hour day, or 10.9 gpm/acre. Pivot 7 would increase the amount of land irrigated by approximately 67 acres for a total of 320 acres. The proposed seven-pivot LAD system would have a maximum achievable application rate of 3,700 gpm or 11.1 gpm/acre. The proposed pivot would allow secondary nitrogen treatment and disposal of an additional 20 to 25 million gallons of treated mine water annually, or an increase of approximately 15 percent more water to the existing six-pivot system.

The Hertzler Ranch permitted disturbance area would increase from 565 acres to about 632 acres. Water and power for Pivot 7 would be extended from the area of Pivot 2, located across the county road. Only about 0.1 acre of actual land disturbance would occur. The LAD Pivot 7 would remain post-mine as part of the Hertzler Ranch LAD System. All utilities would be buried. A county road easement would be required and secured in advance of starting the project. The area proposed for the additional pivot was included in the initial studies and analysis conducted for the Hertzler Ranch (DEQ and USFS 1998).

The Montana Department of Environmental Quality (DEQ) must review the proposed amendment and decide if it complies with the Montana Metal Mine Reclamation Act requirements for minor or major amendments in sections 82-4-337 and 342 MCA (Montana Code Annotated), and in the Administrative Rules of Montana (ARM) 17.24.119. The US Forest Service (USFS) has reviewed the amendment and finds that it complies with 43 Code of Federal Regulations 3809.

PROPOSED ACTION: SMC submitted a request to the DEQ and the USFS for an additional pivot (Pivot 7). The pivot would allow land application disposal and secondary treatment of an additional 20 to 25 million gallons of treated mine water annually, or an increase of approximately 15 percent per year. The additional pivot would increase the Hertzler Ranch permit area by 138 acres to a total of 861 acres. Approximately 67 acres of the 138 acre addition would receive LAD water. About 0.1 acre of actual land disturbance would occur. The LAD Pivot 7 would remain post-mine as part of the Hertzler Ranch LAD System. Modifications to the ground surface would include the

construction of a cement pad, an underground water and power line, and a wheel-type, center pivot irrigation system.

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

	Proposed Pivot 7	Existing Area	Proposed Total
Hertzler Ranch Permit Area	138 acres	723 acres	861 acres
Total Disturbance Area	67 acres	565 acres	632 acres
Irrigated Area	67 acres	253 acres	320 acres
Total Operating Permit 00118 Area	138 acres	2,475 acres	2,613 acres

N = Not present or No Impact will occur.
Y = Impacts may occur (explain under Potential Impacts).

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?	[N] The upper reaches of the Robinson Creek drainage consist of highly erodible volcanic and glacial deposits in a constricted basin. As a result, an active fluvial fan has developed at the mouth of Robinson Creek and is continually affected by annual run-off, flooding, and cloud-bursts. As a result, the residual deposits on the alluvial fan consist of large angular materials deposited when annual run-off rates are high, or from cloud-bursts. Finer alluvial materials are deposited by Robinson Creek and vary by yearly conditions. Remnant periglacial mudflows are also present on the alluvial fan area. This occasional flooding would not affect the operation of the pivot system in the area. There are no unusual or unstable geologic features or special reclamation considerations (Lahren 2010). The soils in the area consist of a fine, sandy, clay loam, which formed as residual materials in dry, meadow-grassland areas. Soils found in the proposed pivot area consist of Lolo cobbly loam (0 to 4% slopes), Nesda gravelly sandy loam (0 to 4% slopes), Absarokee – Sinnigam clay loams (8 to 15% slopes), Sebud stony loam (4 to 50% slopes), Hilger – Castner – rock outcrop complex (25 to 60 % slopes), and Winkler – Hilger – rock outcrop association, found on steep slopes. The area irrigated by Pivot 7 would be located almost entirely in Lolo cobbly loams and Nesda gravelly sandy loams. These soils are similar in nature to the soils found beneath pivots 1, 2 and 3 (Westech 1996 as cited in Lahren 2010). Minimal impacts to soils from LAD were predicted in the Hertzler Ranch 1998 EIS. The DEQ and the USFS have reviewed annual reports submitted by SMC. Minimal soil problems have been identified to date

IMPACTS ON THE PHYSICAL ENVIRONMENT	
	with the existing six-pivot LAD system (Boettcher 2010). Minimal impacts to soils are expected from operation of the proposed Pivot 7 LAD area as it would be located on soils similar to those in the current LAD area.
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?	[N] The proposed Pivot 7 is located on and adjacent to the Robinson Creek fluvial fan, located about two miles north of Nye, Montana. Robinson Creek is an ephemeral drainage that intermittently flows southwest from its headwaters within an Absaroka-Gallatin volcanic basin intermixed with Pleistocene glacial materials. The finding of driftwood in the midpoint area of the alluvial fan attests to the rapid flooding of Robinson Creek (Lahren 2010). Minimal impacts to ground water from LAD were predicted in the Hertzler Ranch 1998 EIS. The DEQ and the USFS have reviewed annual reports submitted by SMC. No ground water quality problems have been identified to date resulting from use of the existing six-pivot LAD system (Boettcher 2010). The only water quality problems with Hertzler Ranch ground water over the last decade have resulted from leaks in liners in the LAD storage pond, the tailings impoundment, and from a leak in the Hertzler Ranch impoundment underdrain system. These leaks have been repaired. Minimal impacts to ground water are expected from operation of the proposed Pivot 7 LAD area because it would be located on similar soils and operated similarly to the existing six-pivot LAD system. The Stillwater River is southwest of the proposed LAD site, with the existing Hertzler Ranch six-pivot LAD area located between them. Minimal impacts to the Stillwater River from use of the existing LAD system or from the leaks mentioned above have occurred. Minimal impacts to the Stillwater River are expected to occur from use of the proposed Pivot 7 LAD area. Development of the seventh center pivot would reduce the need for percolation of treated adit water at the mine site percolation ponds during wet years. Percolation at the mine site ponds does not provide treatment for nitrates. Development of the seventh center pivot at the Hertzler Ranch would reduce potential impacts to ground water and surface water at the Stillwater Mine where the river is much closer to the disposal site.
3. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	[N]

IMPACTS ON THE PHYSICAL ENVIRONMENT	
4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be significantly impacted? Are any rare plants or cover types present?	[Y] Vegetation in the proposed pivot area is mostly composed of native grasslands and cultivated hayland. The vegetation types are similar to those found in the area of pivots 1, 2 and 3 (Westech 1996 as cited in Lahren 2010). Minimal impacts to vegetation were predicted in the Hertzler Ranch 1998 EIS. Based on use of the Hertzler Ranch LAD system over nine years, the native vegetation type has been impacted by the application of additional water containing nitrogen. The agencies expect the vegetation to continue to change over the life of the existing LAD system as well as on the new center pivot area. Native drought tolerant species would be outcompeted by native and introduced species that can utilize the additional water and nitrogen. At the conclusion of LAD operations, if the future landowner continued to use the LAD system even without the added nitrogen, these introduced species would persist on the LAD area. If LAD is suspended by a future landowner, production would decline, but the species would persist dependent on the precipitation received. This change in species composition on the LAD is an unavoidable impact of irrigation of native rangeland. There are no rare plants or cover types present. No additional impacts are expected beyond those changes found in the existing LAD areas.
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?	[N] The proposed amendment would not impact any terrestrial, avian, aquatic life or habitats outside of those previously analyzed and approved.
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?	[N] The proposed amendment would not impact any threatened, endangered, or sensitive species or habitats outside of those previously analyzed and approved.
7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	[N] The proposed amendment would not impact any historical, archaeological, or paleontological resources outside of those previously analyzed and approved. A field cultural resource study was conducted within the proposed Pivot 7 site in March 2010. In addition, a file search was conducted at the Montana State Historic Preservation Office. The site reconnaissance and file search did not result in the finding of any prehistoric or historic cultural resources. There are no historic trails or travel routes within the proposed area (Lahren 2010).

IMPACTS ON THE PHYSICAL ENVIRONMENT	
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 site would have the same appearance as the existing LAD area directly across the county road. The site would consist of an irrigation system similar to those found in the area. Visual impacts would be consistent with those found under normal agricultural practices. There would not be excessive noise or any change in light.
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] There would be additional demands on electrical usage when the irrigation system is run. There are no other activities in the area that would be affected.
10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other activities nearby that will affect the project?	[N] There are no other activities in the area that would affect the proposed project.

IMPACTS ON THE HUMAN POPULATION	
11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	[N] There would be no human health or safety impacts resulting from the proposed change.
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[N] The proposed amendment would not change the projected life of the mine. The additional irrigation system should increase vegetation productivity.
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.	[N] The proposed amendment would not add to the 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 amendment would not extend the length of time for the current tax base. The project would be inconsequential to the existing tax revenue.
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 amendment would not add to traffic or government services already being provided.

IMPACTS ON THE HUMAN POPULATION	
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[N] The site is on private land owned by SMC. There are no known zoning or management plans. The Proposed Action is consistent with the Stillwater 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 proposed amendment would not impact any wilderness or recreational areas outside of those previously analyzed.
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N] The proposed amendment would not impact the density or distribution of population and housing outside of those previously analyzed.
19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N] The proposed amendment would not impact social structures and mores outside of those previously analyzed.
20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N] The proposed amendment would not impact cultural uniqueness and diversity outside of those previously analyzed.
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 amendment 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 amendment would enable SMC to implement its proposed use for the property.

IMPACTS ON THE HUMAN POPULATION	
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 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. Alternatives Considered:

No Action: The No-Action Alternative would not allow the addition of pivot 7. There would be no changes to current operations. SMC would continue to use the mine site percolation ponds in wet years to dispose of excess water that could not be land applied at the Hertzler Ranch.

Approval: The Proposed Action would allow SMC to dispose of additional water through the proposed LAD Pivot 7. SMC would not have to use the mine site percolation ponds for disposal of excess water in wet years.

Approval with modification: The agencies have not identified any modifications to the proposed plan.

26. Public Involvement: A public news release will be issued on the results of the EA as it has been determined to be a minor amendment to the operating permit.

27. Other Governmental Agencies with Jurisdiction: US Forest Service

28. 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, ground water, and surface water. The native grassland vegetation type would change over the life of the proposed pivot system. Vegetation production would decline if LAD stops after mine life, but the species composition would be permanently altered. This is an unavoidable impact of irrigation on native rangeland.

29. Cumulative Effects: There are no other proposals in the area that would add to cumulative effects from this proposal.

Recommendation for Further Environmental Analysis:

[ ] EIS [ ] More Detailed EA [X] No Further Analysis

The proposed Pivot 7 is a: [X] Minor Amendment [ ] Major Amendment

The DEQ and USFS have selected the Applicant's Proposed Action as the preferred alternative.

EA Checklist Prepared By:
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This EA was reviewed by:
Warren McCullough, DEQ, Environmental Management Bureau, Chief

Approved By:

Warren D. McCullough 7/22/10

Signature Date

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

REFERENCES:

DEQ and USFS. 1998. Final Environmental Impact Statement for the Stillwater Mine Revised Waste Management Plan and Hertzler Tailings Impoundment. DEQ and USFS, Helena, Montana. 307 pages + appendices.

Lahren, L. 2010. Anthro Research, Inc. Final Report: Cultural Resource Evaluations of the Robinson Flat Pivot Area, Stillwater County, Montana. March 2010. 8 pages + maps.

Boettcher, L. M. 2010. Stillwater Mining Company, Operating Permit 00118, 2009 Hertzler Ranch LAD Annual Report Review. DEQ Interoffice Memorandum. April 28, 2010. 7 pages.

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