

WRITTEN FINDINGS

Prepared by:

Montana Department of Environmental Quality
Industrial and Energy Minerals Bureau
Coal and Uranium Program

for

Amendment Application 00185
Savage Coal Mine

Westmoreland Savage Corp.
Permit No. C1984002

Richland County, Montana

December 2012



D-000102

Table of Contents

I. INTRODUCTION..... 1
 Table I - Introductory Table 1
 Table II - Chronology of Events..... 2
II. EVALUATION OF COMPLIANCE..... 3
III. FINDINGS 7
IV. STIPULATION 9
V. PRIVATE PROPERTY TAKINGS 10
VI. REFERENCES CITED 11

I. INTRODUCTION

On January 10, 2010, Westmoreland Savage Corporation, LLC (WSC) submitted Permit Amendment Application 00185 proposing to expand their open pit coal mine (Savage Mine) toward the west and north (Figure 1). The amendment, if approved, would increase the permitted acres by 399 acres, from 885 acres to 1,284 acres, and extend the mine plan through 2026. The coal is mined with open pit strip mining methods and the additional acreage will allow for an additional fourteen mine passes. The additional acreage will allow the mine to continue production with no additional mine facilities being proposed.

Note: The application form makes application for an additional 408 acres. However, 9 of those proposed acres have been amended into the permit through Minor Revision 44 (incidental boundary change) in the interim.

WSC produces coal from the Pust lignite seam which is part of the Tongue River Member of the Fort Union Formation. The coal generally lies in a fairly level bedded seam of approximately 20 feet in thickness with overburden ranging from seventy to one hundred feet. Annual coal production is approximately 350,000 tons per year. The coal produced is trucked to regional customers including a power plant and sugar beet processor near Sidney, MT.

The additional permit area contains approximately 12,462,948 tons of coal. Under the proposed mine plan 4,583,353 tons will be mined. Allowing for normal production losses, recovery of the mined coal is expected to be 90%. A portion of the total reserve will be unavailable for mining due to allowances for highwall reduction and other reclamation and permitting requirements.

All the additional acreage is located within Section 21 of Township 20 North, Range 57 of Richland County. The mine permit currently includes approximately 241 acres of the east half of Section 21. The additional acreage will incorporate the balance of Section 21 within the permit area. The surface and mineral rights for the additional acreage in Section 21 are privately owned.

WSC commits to reclaim all mining-related land disturbances to a use equal to or better than what existed prior to mining. The proposed post-mine land uses are cropland and pastureland. The major reclamation steps that occur before and after mining include, but are not limited to, soil material salvage and redistribution, pit backfilling, regrading and contouring, drainage construction, re-vegetation, and post mine monitoring.

Table I - Introductory Table

Applicant	West Moreland Savage Corporation, LLC
Name of Mine	Savage Coal Mine
MSHA Number	24-00106
Type of Mine.....	Strip
Type of Application	Amendment
Area within existing permit boundary (acres)	885
Proposed Increase in Permit Area (Acres).....	399

Total proposed permit area (acres)	1,284
Anticipated Annual Production	350,000 tons

Table II - Chronology of Events

December 14, 1973	Surface Mine Permit 84002 is issued; original acreage is 345 acres.
January 12, 2010	Application 00185, Savage Amendment, is submitted to DEQ.
April 12, 2010	DEQ determines that Application 00185 is administratively complete and that an environmental impact statement is not necessary.
April 20, 2010	DEQ notifies the appropriate agencies of the receipt of a complete application.
April 18 and 25 May 8, and 9, 2010	Notice of Application published in The Sydney Herald, Sydney, Montana.
June 8, 2010	DEQ receives a request for informal conference from Earthjustice.
June 21, 2010	DEQ receives an agreement to withdraw the request for informal conference from Earthjustice.
August 10, 2010	DEQ receives supplemental objections from Earthjustice.
August 10, 2010	DEQ issues first round technical deficiencies.
September 12, 2011	DEQ received Savage's response to First Round Technical Deficiencies.
September 13, 2011	DEQ received a request for concurrence for Savage's Prime Farmland Determination.
January 10, 2012	DEQ issues second round technical deficiencies.
March 12, 2012	DEQ received Savage's response to Second Round Technical Deficiencies.
May 30, 2012	DEQ issues third round technical deficiencies.
May 31, 2012	DEQ conducted Original Applicant/Violator System check.
July 23, 2012	DEQ received Savage's response to Third Round Technical Deficiencies and Savage's complete electronic permit application.

September 14, 2012	DEQ issues fourth round technical deficiencies.
September 26, 2012	DEQ received Savage's response to Fourth Round Technical Deficiencies.
November 2, 2012	DEQ determines the application to be acceptable, published the Notice of Acceptability in the Sidney Herald and completes the Environmental Assessment for Application 00185.
November 21, 2012	Final Applicant/Violator report obtained from OSM.
November 24, 2012	Public comment period ends for acceptability determination.
November 26, 2012	DEQ receives and written comment requesting an informal conference from Gary Jackson on behalf of Robert Lange, Inc.
November 29, 2012	DEQ receives a withdrawal request for the informal conference from Gary Jackson on behalf of Robert Lange, Inc.
November 30, 2012	DEQ sends Gary Jackson an e-mail addressing Robert Lange's concerns.

II. EVALUATION OF COMPLIANCE

Various portions of the text in the environmental assessment of application 00185 (MDEQ, November, 2012) have been liberally utilized in the preparation of this section of the written finding.

A. Coal Reserves and Coal Conservation

Savage produces coal from the Pust lignite seam which is part of the Tongue River Member of the Fort Union Formation. The coal generally lies in a fairly level bedded seam of approximately 20 feet in thickness with overburden ranging from seventy to one hundred feet. Annual coal production is approximately 350,000 tons per year. The coal produced is trucked to regional customers including a power plant and sugar beet processor near Sidney, MT.

The additional permit area contains approximately 12,462,948 tons of coal. Under the proposed mine plan 4,583,353 tons will be mined. Allowing for normal production losses, recovery of the mined coal is expected to be 90%. A portion of the total reserve will be unavailable for mining due to allowances for highwall reduction and other reclamation and permitting requirements.

B. Overburden, Soils, and Engineering

Overburden would undergo pulverization and mixing during the excavating process, followed by backfilling and grading to post-mine topography; thereby, homogenizing the overburden strata physical-chemical characteristics. Undesirable characteristics such as high salinity and sodicity

would be diluted.

Overburden quality in the mine area varies among the strata. Where overburden is deemed "unsuitable" as defined by DEQ's Soil, Overburden, and Regraded Spoil Guidelines (MDEQ, 1998), elevated SAR, salinity, and silty clay or clay texture are often the culprits. Overburden quality is generally good for use as plant root zone media. Suitable materials would be handled by truck/shovel operation and direct-placed upon a graded surface. Where unsuitable overburden is encountered above the dragline bench, it would also be handled by truck/shovel and placed in the backfill with a minimum of four feet of suitable cover.

Soils would be tested for suitability parameters and the test results would be submitted to DEQ for verification of suitability and salvage depth approvals.

Soils associated with the proposed area are the same as in the permit area and are described in appendix H of the Permit: A soils survey was completed on September 24, 1973, covering the Knife River Coal Mining Company lands at the Savage Mine, Richland County, Montana. This survey included all lands presently leased by SCC in Township 20 north, Range 57 east, sections 21, 22, 23, 26, 27, and 28. The soils of the entire area to be ultimately affected by mining were studied and the immediate permit area was sampled. Results indicate that the area is overlain by three basic soil types: the Williams loam, Vida clay loam, and Zahill soils.

Savage would regrade spoils to the approved PMT following mining. The regraded spoils would be tested for suitability parameters prior to soil laydown. Test results would be submitted to DEQ for verification. Once the PMT is achieved and the spoils are determined suitable, the "B" lift soil followed by the "A" lift soil would be redistributed. The depth of redistributed soil is designated by the target vegetation type as described in section 17.24.313 Reclamation Plan of Savage's Surface Mining Permit. Following redistribution, an approved seed mix would be applied during the next suitable planting period. Any areas where the soil appears unproductive would be evaluated and an appropriate treatment would be implemented.

C. Vegetation

Vegetation communities would be removed by mining, and vegetation resources would be impacted in the short term. Long term, however, reclamation measures incorporated into the permits are designed to mitigate the community loss, and provide for the approved post-mine land uses of cropland, pastureland, and wildlife habitat. There are no rare plants or cover types listed in the amendment that would be impacted by the proposed operations.

D. Wildlife

Wildlife surveys have been conducted each year since 1973. Mining would affect existing terrestrial and avian species and their habitats; however, these resources are expected to be re-established following reclamation. Westmoreland Resources' annual wildlife reports have documented fifteen species of special concern. These species were observed within a much larger wildlife study area, not necessarily within this amendment application area. Impacts are expected to be marginal as the majority of these species are transient individuals or do not reside within this application area. Species of special concern that have been documented in the area

include: Baird's Sparrow, Black Tailed Prairie Dog, Black Tern, Brewer's Sparrow, Bobolink, Burrowing Owl, Chesnut-collared Longspur, Ferruginous Hawk, Golden Eagle, Great Blue Heron, Loggerhead Shrike, Long-billed Curlew, Plains Spadefoot Toad, Sprague's Pipit, Western Hog-nosed Snake. (sharp-tailed grouse is species of concern west of the continental divide.

Reclamation plans are designed to incorporate soil substrates, landscape and topographic diversity as mitigation measures. Vegetative resources (terrestrial and avian) would be affected for the short term; however, reclamation measures are incorporated in the permit for long term mitigation that will allow species to continue using these areas.

E. Hydrology

Detailed assessments of the cumulative hydrologic impact of the proposed revision are found in Attachments 1 (Surface Water and Groundwater).

Historic and current mining has impacted the hydrologic balance with regard to groundwater through the removal of the overburden and Pust coal. The removal of the coal has resulted in local decline in Pust coal groundwater levels by as much as 17 feet approximately a quarter mile west of the current pit. Drawdown of water levels in the Pust coal and overburden has not been observed in monitoring wells located approximately three-quarters of a mile upgradient of mining. No declines in water level have been observed in the underburden aquifer. Productive, water-bearing zones in the underburden range from 80 feet to undetermined depths and supply most of the water to private wells in the area.

With the addition of mining proposed in Amendment 185, drawdown in the Pust coal aquifer is projected to extend up to a mile and a half west and approximately a mile east of the permit boundary. This extent represents the one foot drawdown limit. The five foot drawdown limit is not expected to extend more than a mile in any direction. As coal crop limits are typically dry or nearly dry, no substantial loss of water resource is anticipated to take place down gradient of mining. The maximum drawdown from mining is expected to be 35 feet, located at the northwest permit corner in Section 21 (T20N, R57E). Two wells outside the permit area but within the groundwater cumulative impact area may experience up to 20 feet of drawdown in the Pust coal which will cause a significant drop in their levels. Drawdown associated with mining will continue to be monitored and prior to substantial drawdown in the vicinity of these wells they will be replaced by the operator in an aquifer of similar production and quality, as provided by ARM 17.24.648. Maximum drawdown in the underburden is projected to be approximately seven feet and is not expected to cause effects to any supply wells.

Pumping of surface and groundwater inflow from the pits into sediment ponds located in the North Drainage is providing some recharge to the spoil aquifer and remaining coal in the north part of the reclaimed pit. Widespread recovery of groundwater levels downgradient of the pit will be delayed until final pit reclamation restores the natural flow gradient. Recovery of water levels in the backfill spoil and adjacent aquifer is expected to be nearly complete 50 years after mining. No decreases in Pust coal or underburden water level is anticipated to affect uses and cause material damage.

The return of overburden to the pit as backfill is creating a spoil aquifer. Water quality in the developing spoil aquifer is considerably poorer than that of the coal aquifer it replaced. Total dissolved solids in spoil aquifer water are on average 2.5 times greater than the coal aquifer it replaces. The average dissolved solids concentration in the spoil aquifer is approximately 2,000 mg/L, with the greatest increase attributable to a rise in sulfate, calcium, magnesium, and sodium ion concentrations. Although detected in background water quality samples in coal and overburden aquifers, trace metal concentrations above detection levels are increased in spoil water. Arsenic is the metal of greatest concern as it is persistent in samples from the south backfill area and has been reported in concentrations 10 to 20 times above the human health standard of 0.01 mg/L in one monitoring well. There is ongoing study of the source of arsenic and monitoring to determine the extent of the arsenic in groundwater. Mitigation will be implemented if necessary to prevent material damage. The arsenic concentration in groundwater must be below the human health criteria prior to release of the mine from final bond release. Spoil water is not expected to infiltrate into the underburden aquifer due to low conductivity in the 100 foot thick intervening strata between the base of the spoil and the underburden aquifer. Thus, no quality impacts that could create material damage are expected in the underburden aquifer.

There is a high probability that the three surface water rights (42M 163291 00, 42M 163292 00, and 42M 165287 00) immediately downstream of the Savage Mine's permit boundary have been impacted by a reduction in water availability because of the use of the sediment ponds. However, these water rights are on an ephemeral tributary, and a comparison to undisturbed drainages of similar size indicates that these drainages likely rarely saw flow in the premine landscape. Similarly, water rights holders at the mouth of Peabody Coulee may have already experienced a slight reduction in stream water quantity from the capture of approximately 17% of the upstream drainage basin by the North Drainage ponds. In contrast, only 6% of Garden Coulee is captured by WSC's sediment ponds, and this amount is unlikely to be noticeable at the mouth of this drainage.

ARM 17.24.648 requires operators to replace a water supply that has been affected by "contamination, diminution, or interruption" due to mining operations. WSC has committed to the replacement of any water supply that has been significantly impacted as a result of their mining operations. The replacement source would likely be groundwater. Water right holders downstream of the mine are protected by the commitment of WSC to replace any water right that has been significantly impacted. To date, none of the surface water rights owners have applied to WSC for a replacement source.

The beneficial uses of the C-3 ephemeral streams are protected during mining by sediment ponds and adherence to the approved MPDES discharge permit. The addition of the amendment area would not increase the impact to downstream users or beneficial uses. The amendment area is within catchments that are already intercepted by mine sediment ponds so the addition of the area would not result in a further reduction of surface water flow to downstream users. Analysis of spring and pond water does not show any evidence to date that surface water quality has been impacted by mining. Proposed postmine drainages and vegetation sufficiently approximate the premine condition that runoff from well-established reclaimed lands would be almost identical to premine volumes. From this analysis, the DEQ's Coal and Uranium program finds that impacts to surface water from the expansion of the Savage mine would be negligible and no material

damage to surface water is predicted to result from the approval of the amendment.

F. Cultural and Historic Resources

There are no public parks or historic places that will be adversely affected by the proposed operations. Cultural and historic resource surveys of the Savage Mine area were conducted in 1973, 1985, and 2007. No prehistoric cultural resource sites were found during either of the studies. Four historic cultural resource sites within the permit and adjacent areas were discovered during the 1985 survey; however, none of the sites are considered to be significant. During the 2007 survey, one historical cultural site (historic farmstead) was discovered and recommended as ineligible for the NRHP and no further work was recommended.

Should any previously unrecorded cultural resource materials be discovered during mining, all further disturbance of the area will be halted pending consultation with the Montana DSL and SHPO.

There are no public parks in the vicinity of the Savage Mine.

G. Bond

The current bond for the Savage Mine is \$6,348,213. The amount determined by DEQ to adequately cover the estimated cost of reclamation including the additional acreage within the amendment area is \$7,936,457. Savage submitted the additional bond on December 5, 2012.

III. FINDINGS

- A. DEQ has determined that the Savage Coal Company's Amendment submitted on January 10, 2010 and revised through November 2, 2012 is complete and accurate, subject to stipulation, and the applicant has complied with Montana's permanent regulatory program 82-4-222, MCA.
- B. The applicant has demonstrated that reclamation, as required by the Montana Strip and Underground Mine Reclamation Act and regulations, can be accomplished under the proposed reclamation plan (82-4-227(1), MCA), subject to stipulation.
- C. DEQ has determined that the Amendment Area of the Savage Coal Mine is:
 - 1. Not within an area under study or administrative proceedings under a petition to have an area designated as unsuitable for strip or underground coal mining operations (82-4-227(9), MCA).
 - 2. Not included in an area designated unsuitable for strip or underground coal mining operations pursuant to 82-4-227(9), MCA.
 - 3. Not on any lands subject to the prohibitions or limitations of 82-4-227, MCA, to include national parks, refuges, forests, etc.; nor where adverse

impacts to publicly owned parks or places included in the National Register of Historic Places, and buildings, occupied dwellings and cemeteries would occur (subject to a stipulation (see Chapter IV)).

4. Not proposing disturbance within 100 feet, horizontally, of the outside right-of-way line of a public road.
 5. Not mining within 300 feet, horizontally, of any occupied dwelling.
 6. Not mining within 300 feet, horizontally, of any public building, church, school, community or institutional building, or public park.
 7. Not mining within 100 feet, horizontally, of a cemetery where human bodies are interred.
- D. Savage has obtained all surface and mineral rights to conduct mining and reclamation operations as proposed within the proposed amendment area.
- E. DEQ has made an assessment of the probable cumulative impacts of all anticipated coal mining on the hydrologic balance of the cumulative impact area. See Attachments 1 (Surface Water and Ground Water) for detailed assessment.
- F. No existing structures in the proposed revision area will be disturbed. All existing and proposed mine facilities are located in the permit area and are in compliance with 82-4-222(2)(i), MCA and ARM 17.24.1302.
- G. Savage has paid all reclamation fees from previous and existing operations as required by 30 CFR Chapter VII, Subchapter R, as per information received on Applicant Violator System (AVS check of 11/21/12).
- H. There are no special categories of mining applicable to the proposed amendment.
- I. There is no proposal for an intensive agricultural post-mining land use within the amendment area.
- J. The proposed amendment would not affect the continued existence of threatened or endangered species or result in the destruction or adverse modification of their critical habitats, as determined under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (Notice of Application was sent to US Fish and Wildlife Service on April 20, 2010, no response was received).
- K. There are no private family burial grounds within the amendment area (82-4-227(7), MCA).
- L. Savage has obtained all required air and water quality permits.
- M. There are no pending violations for WMC at the Savage Coal Mine.

No strip or underground coal mining and reclamation operations owned or controlled by Savage or related entities currently has a violation of Public Law 95-87, as amended, any state law required by Public Law 95-87, as amended, or any law, rule or regulation in the

United States pertaining to air or water environmental protection that has not been or is not in the process of being resolved (82-4-227(11), MCA) (AVS check of 11/21/12).

- N. Records of DEQ and OSMRE show that the applicant does not control and has not controlled strip or underground coal mining and reclamation operations with a demonstrated pattern of willful violations of Public Law 95-87, as amended, or any state law required by Public Law 95-87, as amended, of such nature, duration, and with such resulting irreparable damage to the environment that would indicate an intent not to comply with these laws (82-4-227(12), MCA) (AVS check of 11/21/12).
- O. Savage is in compliance with all applicable federal and state cultural resource requirements, including ARM 26.4.304(2), 318, 1131 and 1137 (subject to a stipulation; see Chapter II, Section F and Chapter IV).
- P. No remining is included in the amendment application.

IV. STIPULATION

17.24.302, 318, 1131: Treatment of cultural resources within SMP C1984002 and the amendment area is covered by an MOA developed under the provisions of Section 106 of the National Historic Preservation Act and pursuant regulations (36 CFR 800). Treatment of all cultural resources, including incidental discoveries during the course of mining, must be handled according to the provisions of this MOA.

ARM 17.24.416(2), 413(1)(a), 404(3): The most recent renewal is conditioned on the completion of the ongoing public review process that, due to an oversight of DEQ, was not completed prior to the December 10, 2012, renewal date. The Notice of Acceptability was published in the Sidney Herald on December 2, 2012 and December 9, 2012, followed by a comment period ending on December 19, 2012. Following the comment period, DEQ will address any public comments and grant or deny the permit renewal.

ARM 17.24.416(4)(a), 413(1)(a), §84-4-227(3)(a), MCA: This amendment is further conditioned on the owner's voluntary cessation of mining and reclamation in pits 3 and 4 pending delineation and if necessary, remediation of arsenic concentrations above background in groundwater indicated in monitoring wells in spoil east of Pit 4. The voluntary cessation of mining does not include the load out facilities located in Section 27.

ARM 17.24.645: Within 45 days of the most recent permit renewal (January 24, 2013), the operator must submit a plan to DEQ to address the following:

1. Delineation of the extents of Pust coal and groundwater in the Pust coal inside and adjacent to the southeast portion of the permit area.
2. Installation of additional monitoring wells in spoil and coal inside and outside the permit area east and south of pits 3 and 4, to determine the extent of detectable arsenic in groundwater.

3. Installation of additional groundwater monitoring wells in spoil east of Pit 2.
4. Follow-up on recommendations in the KC Harvey arsenic investigation report to identify the source of arsenic concentrations above background in groundwater.
5. Include a schedule for drilling, monitoring, and analysis.

V. PRIVATE PROPERTY TAKINGS

The 1995 Montana state legislature passed House Bill (HB) 311, which requires a state agency to prepare an impact assessment of a proposed agency action that has private property taking or damaging implications. Part (2) of Section 5 of the Private Property Assessment Act (2-10-101, et seq. MCA) states that the assessment must include the following:

"(a) the likelihood that a state or federal court would hold that the action is a taking or damaging; and

"(b) alternatives to the action that would fulfill the agency's statutory obligations and at the same time reduce the risk for a taking or damaging; and

"(c) the estimated cost of any financial compensation by the state agency to one or more persons that might be caused by the action and the source for payment of the compensation."

Part (3) of Section 5 states:

"A copy of the impact assessment for a proposed action with taking or damaging implications must be given to the governor before the action is taken, except that an action to avoid an immediate threat to public health and safety may be taken before the impact assessment is completed and the assessment may be reported to the governor after the action is taken."

Pursuant to Section 4 of the Private Property Assessment Act, the state Attorney General has developed guidelines for agency use in evaluating agency actions with respect to the above requirements. Accordingly, DEQ prepared the responses evident in the attached narrative and checklist (Attachment 2), as they relate to the Savage amendment application. A review of the attached checklist indicates that DEQ is not required to prepare a private property takings impact assessment.

VI. REFERENCES CITED

Environmental Assessment of Application 00185 (MDEQ, November 2012)

Savage Surface Mining Permit (SMP C1984002)

Savage's 2010 Amendment Permit application and subsequent revisions.

Attachment 1
Cumulative Hydrological Impact Assessment

Attachment 2
Private Property Takings