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ENVIRONMENTAL QUALITY
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September 26, 2014

Sent via email to dplmont@aol.com
Hard copy sent via US Mail

Gateway Village LLC
Attn: David Loseff
P.O. Box 850
Bozeman, MT 59771-0850

RE: Deficiency Notice
Application for Opencut Mining Permit
Gateway Pit Site
Gallatin County

Dear Mr. Loseff:

The Department of Environmental Quality reviewed the above-referenced application in accordance with requirements of the Opencut Mining Act (Title 82, chapter 4, part 4, MCA) and it's implementing rules (ARM Title 17, chapter 24, subchapter 2). This letter identifies deficiencies in your application materials that you must respond to before Department can perform any further processing of the application.

Please submit revised application materials that address all the deficiencies to the Opencut Program in Helena as one package. The contents of an application constitute legal documents and become part of the permit; therefore all required certifications and approvals must be signed and dated.

Upon receipt of all required materials, the Department will review your revised application and notify you whether it is acceptable or if deficiencies remain. In accordance with Sections 82-4-439(2)(b) & (c), MCA (i.e. Extended review), the Department will notify you of its determination within 30 days from the date all your revised materials are received. The Department may extend this review period by another 30 days if it notifies you of the extension prior to the end of the original review period.

Based on review of the application materials received to date, Department has identified the deficiencies listed below. Please provide the revised documents the Department is requesting in type-written form. Creating electronic versions now will make it easier for you to update the documents in the future. Electronic versions of Opencut Program forms are available on the internet at http://www.Department.mt.gov/opencut/opencutPermitForms.mcpx.

Note: Submit complete versions of any forms you revise, but do not resubmit the whole application package. For example, if you make changes to the Plan of Operation and Application resubmit that entire form but do not resubmit unchanged documents attached to it.

Opencut Mining Plan of Operation and Application: Please submit an updated form that includes detailed responses to the deficiencies below. The most current form can be obtained at the following web link http://www.Department.mt.gov/opencut/opencutPermitForms.mcpx.

1. **General Deficiency Regarding Protection of Water Resources:** The Opencut Mining Act (Act) stipulates that the Department may not accept a Plan of Operation (Plan) unless the Plan provides that:
   - **a.** Surface water and ground water will be given appropriate protection, consistent with state law, from deterioration of water quality and quantity that may arise as a result of the Opencut operation [82-4-434(3)(l), MCA]; and,
   - **b.** Any additional procedures, including monitoring, that are necessary will be implemented to prevent significant physical harm to the affected land or adjacent land, structures, improvements, or life forms [82-4-434(3)(n), MCA].

   In addition, the Act's implementing rules [ARM 17.24.218(1)(e)] stipulate that:
   - **c.** The operator must take appropriate measures to:
     - **i.** Protect on- and off-site surface water and ground water from deterioration of water quality and quantity that could be caused by Opencut operations.
     - **ii.** Prevent, minimize, or mitigate adverse impacts to on- and off-site surface water and ground water systems and structures that could be caused by Opencut operations.
     - **iii.** Appropriately establish, use, and reclaim Opencut-operation-related hydrologic systems and structures.
   - **d.** The Department may require on- and off-site surface water and ground water quality and quantity monitoring before, during, and after Opencut operations.
   - **e.** The Plan must describe measures to be used to:
     - **i.** Prevent, minimize, or mitigate on- and off-site impacts on surface water and ground water systems and structures.
     - **ii.** Protect the water rights of other parties.
     - **iii.** Replace an adversely affected water source that had a beneficial use.

   Furthermore, in accordance with ARM 17.24.216(2), if in its review, the Department identifies additional information pursuant to ARM 17.24.222(1) that must be submitted, the application is deficient until that information is submitted. As a result, the Department may require an operator to provide additional information including, but not limited to, surface water and ground water information.

   More than 50 water supply wells are located within 1,000 feet of the proposed Gateway pit. Equipment, product plants, and maintenance operations at the proposed Opencut site would use petroleum fuel and other hazardous substances (e.g. lubricants, solvents, antifreeze, product additives, etc.) and mining would reduce the buffer of earth materials overlying ground water from approximately 37 feet at present, down to 3 feet (based on current answers in section C-1 of the Plan).

As a result, the operation has the potential to adversely impact the shallow ground water aquifer that numerous nearby residents, businesses, and the Gallatin Gateway School rely on for drinking water and domestic needs. Having proposed Opencut mining and material processing operations at this site, it is your responsibility to demonstrate that it would comply with the water protection requirements of the Act and rules, including those elements listed above. Further details and information about specific requirements are provided in additional deficiencies below.

2. **Page 1, boxes 6n, o and u – Water Resources:** Numerous water supply wells are located near the proposed pit and insufficient data and information was submitted for the Department to assess current ground water conditions and potential impacts of the proposed operation on water quality and quantity at and near the site. In addition, no water monitoring or site-specific water resources protection measures were proposed.

   As a result, the Department will require the submittal of a comprehensive "Water Resources Assessment and Protection Plan" for the purpose of characterizing current water resources at and near the site, and describing in detail how water resources would be protected and monitored. (Re-title the checked box at item 6u on page 1 "Water Resources Assessment and Protection Plan," and incorporate the previously submitted ground water data table into that report).

   The Water Resources Assessment and Protection Plan must respond to, address, and include the information below. Note that your assessment may identify additional information needed to ensure compliance with requirements of the Act and rules.

   a. Hydrogeologic Assessment - Provide thorough, complete, and well substantiated documentation (text, tables, maps, figures, cross-sections, and graphs) characterizing current hydrologic and hydrogeologic conditions at and near the site. The data and information must be gathered, analyzed, and presented according to current professionally accepted standards and practices. All field data must be accompanied by the names and addresses of the parties that collected and analyzed the data, and by a description of the methodologies used to gather and analyze the data [ARM 17.24.222(2)]. Information required to characterize current conditions must include, but is not limited to:

      i. A summary of hydrologic and hydrogeologic information available for the site and vicinity from the scientific literature and other public sources, as well as pertinent data collected at the site. Information regarding lithology, hydraulic conductivity, and transmissivity of the aquifer(s) underlying the site vicinity must be included.

      ii. Results of a field inventory conducted to physically locate each water well located within 1,000 feet of the proposed permit boundary; show each well on the Local Well Locations Map. (It is unclear whether the well locations displayed on the submitted Local Well Locations Map were physically located. If so, describe the methods used and results of the inventory.)

      iii. Hydrogeologic cross-sections and interpretive text describing the ground water system(s) at and near the site, including discussion of ground water

flow beneath the site and across the downgradient area. Initial cross-sections must be based on the lithologic and completion logs for the wells listed below. Be sure to identify and correlate any intervals that were reported to contain clay since these may function as perching layers or confining beds in the hydrogeologic system. Cross-sections must include topography, well depths, screened intervals, lithology, and depth to ground water.

1. North-South: 122052, 166424, 147972, 139607, 139608, 230759, 187138
2. East-West: 230894, 170517, 230757, 99150, 166424, 147972, 156632, 153859, 153632,169486, 153163
3. East-West: 239353, 99142, 230754, 230763, 268968, 230759, 139608

iv. Currently available ground water flow direction and gradient data in the form of tables, graphs, and representative maps, as well as written interpretations of historic trends and seasonal variations in ground water elevations. Also include information on operation and uses of the irrigation ditch bounding the east side of the site and interpretations regarding its effect on ground water elevations over time and how it would be affected by Opencut operations. (Whereas Plan section D2-1b indicates the ditch would be used as a water source, the "Site Plan" indicates it would be abandoned.)

v. Tables and laboratory reports for currently available ground water analytical data from the site, as well as text, figures, and diagrams as necessary to characterize the existing water quality.

b. Ground Water Monitoring - The Department will require surface and ground water monitoring to assess water quality, quantity, and flow direction at and near the site before, during, and after Opencut operations. As a result, you must submit a "Ground Water Monitoring Plan" to be approved by the Department prior to implementation. (Check the box at item 6o on page 1.) The monitoring plan must identify and describe:

i. The wells to be included in the monitoring program and the rationale and justification for their selection. Describe how all wells to be used in the monitoring program would be protected and maintained before, during, and after Opencut operations.

ii. The methods and procedures to be used to collect ground water elevation data and water samples for field and laboratory analysis. For the first year, ground water levels must be measured monthly and ground water samples collected quarterly. Thereafter, monitoring must be conducted semiannually during the approximate high and low seasonal water levels. The plan must also provide for additional monitoring as warranted based on findings of the water resources assessment, and in the event of a spill of petroleum or other hazardous substance at the site. The presence or absence of water in the irrigation ditch must be noted during each monitoring event.

iii. Field and laboratory parameters to be analyzed consistent with current professionally accepted standards and practices as necessary to characterize general ground water quality. The laboratory analyses proposed must also include parameters selected based on an inventory of petroleum and other hazardous substances to be used at the site (see Spill Prevention and Response Plan below).

iv. Laboratory results must be evaluated relative to applicable standards presented in the most recent version of DEQ Circular 7 – Montana Numeric Water Quality Standards, which is currently available at: http://deq.mt.gov/wqinfo/Circulars.mcpx

v. Monitoring reports must be submitted after each sampling event within 30 days after receipt of the laboratory analytical results. Each report must include field notes and sampling logs; comprehensive data tables, graphs, and maps; interpretive text; and supporting lab documentation consistent with current professionally accepted standards and practices.

c. Monitoring Well Installation - Topography of the site and vicinity slopes to the west-northwest, suggesting that ground water flows in a similar direction. While there are reportedly 5 monitoring wells on-site (based on the Area Map), none are located along its west side or northwest corner. As a result, you must submit a "Monitoring Well Installation Plan" for these presumed downgradient areas to determine lithology, hydraulic conductivity, ground water levels, seasonal variations in flow direction, and ground water quality before, during, and after Opencut operations. (Check the box at item 6n on page 1). The well installation plan must be approved by the Department prior to implementation and must respond to, address, and include the following:

i. Monitoring wells must be proposed at representative locations downgradient of areas where fuel or other hazardous substances would be used, stored, transferred, or handled, and where runoff would be concentrated (i.e. northwest corner). The intended monitoring purpose and function of each well must be described. The proposed wells must be shown on a map, and be at locations where they would not be disturbed by Opencut operations so as to remain accessible throughout the mine life and reclamation.

ii. The proposal must also describe the well drilling, installation, and construction materials and methods to be used; procedure for logging lithology; and well development protocols. Drilling/logging methods must be capable of identifying clayey intervals that could function as perching or confining layers. (The Department notes that clay-bearing intervals were previously reported in all on-site wells, except 230759 (a.k.a. TW-3), whereas clayey intervals were reported at nearby wells 139607 and 139608.) Each well must be constructed using factory-slotted screen such that the screen extends across the full range of water table fluctuations in order to monitor for petroleum or other hazardous substances that float on water.

iii. Issues with existing monitoring wells may call into question the utility and/or accuracy of data collected from some of them with respect to

monitoring ground water quality and quantity for the proposed Opencut operations. As a result, provide explanation and justification for each existing well to be used in the monitoring program. In some cases it may be necessary to install additional wells to adequately serve the purposes of the Opencut water monitoring program. Specific topics of concern to be addressed and appropriately resolved include:

1. The log for well 230757 (a.k.a. TW-2) located at the northeast edge of the site indicates that there is no well completion data (i.e. the construction materials and screened interval are unknown).
2. The log for well 230754 (a.k.a. TW-1) located at the southeast edge of the site indicates the well is screened from 300-360 feet below grade in bedrock (siltstone), unlike the other monitoring wells which are screened in gravel at much shallower depths (i.e. <112'). (This is the only existing monitoring well in the presumed upgradient area. As a result, installation of an appropriately constructed monitoring well completed in gravel may also be necessary.)
3. The log for well 268968 (a.k.a. TW-5) located at the south edge of the site indicates the well belongs to the Gallatin Gateway Water and Sewer District (WSD). As a result, the Department requires documentation from the WSD that it intends the well to remain accessible before, during, and after Opencut operations.
4. Well 230763 (a.k.a. TW-4) is located in an area that is proposed for mining and facility operations. As a result, the Department requires an explanation of how the well would be maintained and protected during Opencut operations.
5. It appears that none of the existing monitoring wells are screened across the water table, which is essential if they are to be used to detect releases of petroleum or other hazardous substances that float on water.

iv. Field notes and well construction and lithologic logs must be provided, and the wells must be included in the cross-sections required above.

d. Water Protection Planning - In order to ensure appropriate protection of ground water resources used by nearby residents, businesses, and the Gallatin Gateway School, the water protection plan must include the following information:

i. A detailed description of the source, quantity, use, and potential discharge of water at the Opencut operation.

ii. A detailed analysis of potential migration pathways of potential contaminants to earth materials and water resources, resulting risks to human health and the environment, and any appropriate mitigation measures, including how the risks associated with any release of petroleum or other hazardous substances at the site would be monitored, managed, and mitigated.

iii. Commensurate means, measures, and procedures you propose to ensure that the operation would protect human health and the environment in accordance with requirements of the Act and rules.

iv. Any special measures necessary to protect on- and off-site surface water and ground water from deterioration of water quality and quantity. For example, identify on the site map where concrete trucks would be washed out and explain measures that would be used to prevent the alkaline washwater from adversely affecting ground water quality.

v. Any special measures needed to prevent, minimize, or mitigate on- and off-site impacts on surface water and ground water systems and structures, including the irrigation ditch.

vi. A detailed description of how and when you would go about replacing any adversely affected water sources, which at this site could include numerous water supply wells.

vii. Note that findings of the hydrogeologic and ground water assessment activities required above may result in the identification of additional information needed to ensure compliance with water protection requirements of the Act and rules.

e. Spill Prevention and Response Plan - The Department notes that spillage of fuel or other hazardous substances is the most likely way for an Opencut operation to impact soil and water quality. Therefore, the Department will require you to submit a "Spill Prevention and Response Plan" for the proposed operation. (Check the "other" box at item 6v on page 1 and identify the spill plan.)

For this proposed operation, the following site circumstances pose particular concerns:

i. Soil and subsurface materials at the site appear to include highly permeable sand and gravel.

ii. Ground water reportedly lies at the relatively shallow depth of approximately 35 to 44 feet below grade, while the operation proposes to mine to a depth of 37 feet.

iii. The operation would be near more than 50 water wells that provide drinking water and supply domestic needs for numerous homes, businesses, and the Gallatin Gateway School.

As a result, any petroleum or other hazardous substances (e.g. lubricants, solvents, antifreeze, product additives, etc.) released at the site would quickly soak into unprotected ground with the potential to migrate to ground water and adversely affect the wells used by many local citizens. In addition, if the irrigation ditch along the eastern proposed boundary is flowing at the time of a spill, environmental impacts to surface water off-site would result if released materials passed laterally into the ditch and flowed to adjoining parcels or Wortman Creek.

Having chosen this site for the proposed operation, it is your responsibility to inventory all petroleum products and other hazardous substances that would be used at the site; conduct a detailed analysis of all potential migration pathways and resulting risks; and design and describe in detail the commensurate means, measures, structures, and procedures that would be implemented to protect citizens and the environment.

The Department offers the following to assist with the development of a suitable spill prevention and response plan:

iv. Liquids spilled on unprotected ground would quickly soak into the subsurface. Therefore, the design, construction, and maintenance of impermeable barriers, containment, and collection devices would be necessary. Such structures must be composed of materials that are physically and chemically resistant to the liquids they are intended to contain.

v. Spill response supplies (i.e. pads, pigs, booms, etc.) must be located wherever fuel or chemicals would be stored, transferred, or used.

vi. Use of spill prevention pallets for storage of petroleum, solvents, and chemicals helps contain small spills and keep personnel aware of any leaks before they become a problem. Often a significant problem with the use of these compounds is incremental small leaks that accumulate to cause a significant problem over time.

vii. At Opencut operations, the highest risk of releasing a large quantity of a hazardous substance usually involves the transfer of petroleum fuel from a mobile delivery truck through temporary hoses and nozzles to a storage or process tank located in or on a piece of equipment or facility.

viii. Establishing a culture of preventing and cleaning up spills of any size is a critical aspect of every Opencut operation.

ix. Regarding initial spill reporting and cleanup requirements, see the most recent versions of the DEQ *Spill Management and Reporting Policy* and the *Standardized Cleanup Report for Spills or Releases that Impact Soil* which are currently available at http://deq.mt.gov/enf/spill.mcpx.

Note that the spill prevention and response plan must be consistent with the Plan of and all other application materials, and must be developed in full consideration of the other information and data contained in the water resources report that must be prepared for the site. Also note that costs to investigate and remediate spills are often substantial, so in addition to protecting human health and the environment, a thorough, well thought-out spill prevention and response plan also helps reduce an operator's potential for liability and financial loss.

3. **A1-10:** From the site map it appears that almost the entire site would be mined out, with the exception of the soil stockpile areas. Therefore, it appears that the entire permit acreage should be designated as "Mine-Level Acres." If this is the case, revise all related acreages accordingly. If the operator will designate some area as facility area (i.e. area that would not be mined), ensure facility acreages are accurate and show the facility area and mine area on the site map.

4. **A1-11:** The total bonded acres has not displayed in the "Bonded Acres" column. As stated in the note in this section of the plan, "To ensure that the totals display, use the tab key after entering each acreage amount."

5. **B9-1:** Many of the static water levels of nearby wells and on-site wells are 37 feet or shallower. The on-site ground water monitoring wells indicate water has been documented as shallow as 35 feet. As the operator is proposing a mining depth of 37 feet, explain in C1-1c how the operator would maintain at least three feet of separation between mining and ground water, and/or adjust the proposed mining depth to ensure ground water is not encountered during mining operations.

6. **B9-3:** Two of the submitted well logs (Buffalo Station & Gallatin Gateway School) indicate they are used for public water supply (PWS). However, on the submitted *Additional Well Data*, Buffalo Station has a "Domestic" use indicated in error. The Act and rules indicate that surface water and ground water must be given appropriate protection from deterioration of water quality and quantity that may arise as a result of the Opencut operation [MCA 82-4-434(3)(l) & ARM 17.24.218(1)(e)(i)]. Therefore, the Department will require the operator to verify that the location of the PWS wells on the Local Well Locations map is correct [ARM 17.24.221(5)], and if the proposed permit boundary is located closer than 100 feet from either of the existing PWS wells, the operator must provide written approval from DEQ's Source Water Protection section that the proposed site would not adversely impact the PWS well's control zone/zone of exclusion (i.e. 100 foot buffer). Revise the *Additional Well Data* accordingly and incorporate any setbacks and/or restrictions into the application if appropriate.

7. **B10-1:** Provide additional information if/as warranted, or answer "none."

8. **C1:** The estimated maximum depth of mining is stated as 37 feet below ground surface. However, the ground water monitoring history of on-site wells indicates static water levels can be as shallow as 35 feet. The operator will need to provide an explanation of how they would maintain a minimum of three feet of separation between the seasonal high water table and the reclaimed ground surface to achieve a postmining land use of rangeland/pasture. Alternatively, the operator can adjust the proposed mining depth to ensure a minimum of three feet of separation would be maintained between mining activities and ground water. Provide an explanation in C1-4c [ARM 17.24.217(1)(c)].

9. **C1-4:** The text has been cut-off in this section. Ensure all pages print clearly when resubmitting.

10. **C2-1:** See deficiency C2-2 below and revise the soil data in this table accordingly.

11. **C2-2:** Soil is defined as the "dark or root-bearing surface material, which is typically the O, A, E, and B horizons" (ARM 17.24.202(9)). According to the submitted test pit logs, soils ranged from 11 inches to 26 inches. The soil information provided in this section is not consistent with the additional soil data provided with the application or observations made during the Department's June 4, 2014 site inspection. Revise this section to indicate that 18 inches of soil and 0 inches of overburden would be saved for reclamation for mine areas and facility areas. As no access roads would be permitted, omit the soil and overburden depths from this line. The *Reclamation Bond Spreadsheet* must also be

revised to be consistent with this section [MCA 82-4-434(3)(c), ARM 17.24.217(1)(d) & ARM 17.24.219(1)(b)].

12. **C3:** As this site is adjacent to a public road, no access roads are proposed to be permitted. In addition, the Landowner Consultation from states that an access road is not applicable. Therefore, leave this section blank.

13. **C4:** The Plan of Operation received on May 14, 2014, proposes hours of operation from 7 am to 8 pm, Monday through Saturday, and proposes to allow short duration projects that require the pit to be open from 6:00 am to 10:00 pm, with a duration of less than 90 days.

    In accordance with MCA 82-4-434(3)(m), the Department may not accept a Plan of Operation unless it provides that noise and visual impacts on residential areas will be minimized to the degree practicable through berms, vegetation screens, and reasonable limits on the hours of operation. Based on 2013 aerial photography and field reconnaissance by the Department in July 2014, there are at least 40 residences within 1,000 feet of the proposed permit boundary. Due to the proximity of residential areas, the Department will limit the hours of operation to be as follows:

    a. Monday through Friday, 7 am to 7 pm (all permitted activities allowed)
    b. Saturday 8 am to 5 pm (loading, hauling, and maintenance only).
    c. In addition, the Department will limit the short duration specific projects as follows:
    d. Temporary extended hours may be from 6 am to 8 pm, Monday through Friday (all permitted activities allowed); and Saturday 8 am to 5 pm (loading, hauling, and maintenance only).
    e. Temporary extended hours cannot exceed 15 consecutive days, with no more than four weeks of extended hours in any six month period.
    f. At least 30 days must elapse between periods of extended hours.
    g. Unused days are not cumulative and cannot be used in the future.
    h. At least seven days prior to commencing operations in temporary extended hours, the operator must provide written notice to property owners within 1,000 feet from the edge of the permitted area, the DEQ Opencut Mining Program, and the Gallatin County commissioners, and also publish notice in the local newspaper.
    i. In accordance with ARM 17.24.218(1)(d), for each day of temporary extended operations, the operator must keep a complete and accurate log that lists on-site activities (e.g. mining, loading, hauling, crushing, asphalt plant operation, etc.) and the dates and times each activity occurred. Log information must be submitted to the Opencut Mining Program upon request.
    j. Lighting may be needed for operations conducted before dawn or after dusk. To mitigate aesthetic impacts on nearby homes, work lights must be shielded and point downward.
    k. The Department understands that, in the interest of public safety, some paving and construction projects must be conducted outside 6 am to 8 pm, Monday through Friday, and 8 am to 5 pm Saturday. Therefore, for such projects the operator may

request a temporary variance to operate the asphalt or concrete plant beyond these limits. To do so the operator must:

- **i.** Submit a written request for the variance to the DEQ Opencut Mining Program and the Gallatin County Commissioners at least 30 days prior to the project dates for which the variance is being requested.
- **ii.** The request must describe the activities, the proposed temporary hours of operation, and the duration of the variance.
- **iii.** At least seven days prior to commencing operations in temporary extended hours, the operator must provide written notice to property owners within 1,000 feet from the edge of the permitted area and publish notice in the local newspaper.

  After contacting the county commissioners and receiving confirmation from the operator that it has completed public notice, the DEQ may approve the temporary variance extending the operating hours for the asphalt and/or concrete plant. Note that neither the concrete plant nor the asphalt plant may be operated on Sundays.

14. **C7:** Provide additional information if/as warranted, or answer "none."

15. **D1-3:** Sediment/detention ponds have been listed in this section as a best management practice (BMP) for erosion control. Detention/Retention pond has also been checked in D2 for water storage, and in D3-13 to be used in conjunction with the concrete plant. Clarify how these ponds would be used as a BMP so that sediment does not leave the permitted site. Ensure the uses listed in other sections are applicable to the mine plan. Show the locations of all BMPs to be used on the site map (ARM 17.24.218(1)(e)).

16. **D3-8a:** A 600 linear foot highwall seems impractical for such a large site. Ensure that the lineal footage of highwall you are bonding for is applicable and appropriate for your operations. Having highwalls longer than you are permitted for could result in a violation and potential enforcement action. Ensure the lineal footage of highwall in this section is consistent with the Reclamation Bond Spreadsheet [ARM 17.24.218(1)(c) & 17.24.220(1)].

17. **D3-8b:** The maximum height of highwall may need to be adjusted if ground water will be encountered at this depth. Revise this and the Reclamation Bond Spreadsheet if appropriate.

18. **D3-10:** In accordance with ARM 17.24.218(1)(h), refer to the "*Note" in section D3-10 and provide all the required answers, information, and documentation. Show the location of each setback on the site map. Keep in mind that stockpiles may not be allowed within an easement. Also ensure the location of the pit entrance(s) coincide with MDT's requirements and reflect any changes on the site map. In addition, during the June 4, 2014 site inspection, the consultant mentioned a buffer would be in place inside the entire proposed permit boundary, whereas the site map identifies "Soil Stockpile Area" along the outermost edges of the proposed permit. Identify this buffer at the *Other* box and

provide a detailed description under *Further Explanation*, and also show this buffer on the site map. (See the deficiencies for sections D-6 and D-10 for related discussion concerning the "Soil Stockpile Area".)

19. **D3-13:** A concrete plant and wash plant are proposed to be used in this operation, though little information was provided regarding the associated settling ponds' design and functionality. Therefore, in accordance with ARM 17.24.218(1)(c), provide detailed information regarding the proposed settling ponds' design including but not limited to geometry, dimensions, volume, slopes, infiltration, recycling, inlets and outlets, liners, etc. Also include a schematic of the settling ponds that incorporates these items.

20. **D-6:** The current answer indicates that all areas to be sloped for reclamation could potentially be backfilled. Since the site map identifies "3:1 sideslopes" along all edges of the proposed permit, this answer means that vertical highwalls up to 37 feet high could be mined right up to the "Topsoil Stockpile Area" that surrounds the site. This situation raises concerns regarding the stability of those highwalls. One concern is that highwall slumping could cause stockpiled soil to fall into the pit before or during the backfilling and compaction process, and thereby be lost for reclamation purposes. In a worst case scenario, collapse(s) of such highwall segments could result in adjoining land owned by other parties being damaged or even lost into the pit. If this occurred, structures, improvements, or life forms on adjoining land could be subjected to significant physical harm, contrary to the requirements of 82-4-434(3)(n), MCA.

    Therefore, the Department will require detailed information regarding the timing and placement of fill around the margins of the site, and the stability of the highwalls before and during that process [ARM 17.24.222(1)]. Alternatively, the site margins could be mined to 3:1 slopes and the fill could instead be placed on the bottom of mined-out areas away from the site margin highwalls. If placement of fill along the site margin highwalls is requested, you must respond to, address, and provide the information listed below.

21. **D8-1:** Check "Vegetative screens" to be consistent with what is stated in E8-1.

22. **D10-1:** Provide additional information in this section describing how the site would be developed and mined, including the general operation progression (timing of equipment set-up, settling pond construction, distinct mining phases, concurrent reclamation, etc.). Describe whether the soil and overburden would be stripped all at once or incrementally. Describe whether facilities would be set up at existing ground elevation, or whether they would be placed in an excavated area in an effort to reduce the noise and visual aspects of the operation. If they would be placed in an excavated area, describe at what elevation below the ground surface [ARM 17.24.218(1)(c)].

    Describe the locations and dimensions (i.e. height, width, and length) of the soil berms to be placed in the "Soil Stockpile Area" surrounding the perimeter of the site. Note that: **a)** you must maintain a 10-foot wide buffer stripped of soil between the edge of highwalls and the soil stockpiles or any unstripped soil [ARM 17.24.219(1)(b)(i)]; **b)** the volume of soil in the berms must comport with the volume of topsoil soil to be stripped from the

site; and **c)** sufficient space must separate the outer edge of the stockpiles from the surrounding property lines such that equipment can conduct maintenance and weed control, and access the berms for reclamation purposes. Describe the berms' distance from the property lines, irrigation ditch, power lines, and underground utilities, and also show the actual berm locations on the site map.

The Department notes that an incomplete summary containing some of the additional information required above is currently provided in section E-8. Such information must instead be provided in section D-10, and E-8 should be revised to provide the additional information about reclamation that is requested below at the deficiency for section E-8.

23. **E2:** Provide a separate reclamation map that shows the locations of all the listed postmining land uses, including the items identified in E2-1 & 2 [ARM 17.24.219(1)(a) & ARM 17.24.221(2)] . Note that an access road is not applicable for this site, though an internal road may be. Additionally, the Landowner Consultation form and section E7 state that landowner mine material stockpiles would not be left at the conclusion of opencut operations. Revise for consistency.

24. **E4-3:** Describe the "buffer strip" in this section in more detail, i.e. where it would be located, how wide it would be, whether there would be room to cut/fill the highwall, or if backfill would be required, etc. Show this buffer strip and label its width on the site map.

25. **E8-1:** The answer currently states mining would begin by stripping topsoil and overburden from the SE corner, then says mining would progress from the SW corner to the NE corner. Is this intentional or a typographical mistake? (As discussed above, such information must be provided at section D-10.)

    In section E-8, describe how reclamation of the site would take place concurrently with mining activities when the facilities area would be located at the south end of the site, and the mining would progress over 1800 feet northward over time. For example, would a haul road or conveyors passing through reclaimed land be used to move mined material from the advancing highwall to the facility area?
    - **a.** Describe the maximum height and length of site margin highwall that would be mined and remain without backfill at any given time (i.e. the duration at less than 3:1 slope).
    - **b.** Describe the maximum duration until any such highwall segment would be backfilled and compacted to 3:1 slope (referred to below as "open duration").
    - **c.** Explain the recordkeeping, documentation, and operational methods that would be used to ensure that the maximum height, length, and open duration would not be exceeded.
    - **d.** Identify the methods and procedures that would be used to determine the actual maximum highwall height and length in the field, and the frequency with which such measurements would be collected and recorded, and by whom.
    - **e.** Item D6-1c indicates imported backhaul as well as a wide range of on-site materials may be used as backfill (pit run, gravel, oversize rock, reject fines). Describe the sampling/testing program that would be used to establish the

standard proctor density for each type of material to be placed; the equipment and procedures to be used to compact these materials; and the testing methods and frequency to be used to confirm the stated compaction is achieved (i.e. 90 percent of the standard proctor density).

f. Provide a detailed slope stability analysis prepared by a qualified professional documenting that the site margin highwall slopes would remain stable under the operational conditions you describe above.

Note that the data and information provided must be gathered, analyzed, and presented according to current professionally accepted standards and practices. All field data must be accompanied by the names and addresses of the parties that collected and analyzed the data, and by a description of the methodologies used to gather and analyze the data [ARM 17.24.222(2)].

Accompanying Forms

26. Landowner Consultation Form – The legal description shown is not consistent with the legal description shown on the *Opencut Mining Plan of Operation and Application*. Submit a revised form.

27. Well Logs -- GWIC ID 156632 is found on the "Local Well Locations" map though no associated well log was submitted. In addition, two identical well logs were submitted for Richard Hargrove, GWIC ID 153632. Ensure all available well logs are submitted for all wells located in and within 1,000 feet of the main permit area, and that all are identified on the map [ARM 17.24.217(1)(b&c) & ARM 17.24.221(5)].

Maps: If changes are made to the application that affects the map(s), submit a revised map(s). Map requirements can be found at ARM 17.24.221 (1-7) and in the Map Guideline at http://deq.mt.gov/opencut/forms/MapGuideline.pdf.

28. Site Map - All required map features are not shown on the map or are inconsistent with the application documents. Submit a revised map that shows all required map features including, but not limited to the following:

a. Operator name
b. Legend
c. Facility area
d. Mine area
e. Soil stockpiles-adjust locations if needed
f. Location of all postmining land uses if more than one exists (can be shown on a separate reclamation map*)
g. Operational facilities including crusher, pug mill, screen, wash plant, asphalt plant, and concrete plant
h. Soil test hole locations (can be shown on a different map)
i. Concrete stockpile area
j. Truck washout area
k. Utilities such as power lines, fiber optic lines, etc.
l. Fuel storage areas (if applicable)

m. Landowner stockpile location and approximate area (if applicable)
n. Internal roads (postmining land use roads should be shown on a separate reclamation map)
o. Noise and visual barriers such as berms and vegetation screens
p. Erosion control measures such as ditches, berms, bales, silt fences, vegetated buffer strip, etc.
q. Setbacks or berms along utility easements, roads, ditches, property boundaries, and surface water drainages
r. Planned backfill locations identified in D6
s. Pit entrance-ensure the location coincides with MDT's requirements

*3:1 slopes should be shown on a separate reclamation map, unless the operator intends to mine at 3:1 slopes without creating a highwall.

In addition, although the site map is on an aerial photo, the aerial cannot be seen behind the drawings. Ensure it is visible through text and symbols on the map. If necessary to legibly display site information, increase font size and create a legend so that text and symbols on the map can be read easily. Furthermore, two notes on the site map need to be clarified, revised, or removed:

a. Near the southeast corner - "Freeze road extension before submitting"
b. Near the northeast corner - "Existing irrigation ditch (To be abandoned)"

29. **Area Map -** Label nearby surface water including the irrigation ditch and Wortman Creek.

30. **Test pit location map** - The map showing the test pit locations is very dark and is not legible. Revise accordingly, or show test pit locations on the site map or area map.

31. **Local Well Locations Map -** Use a lighter/more visible font as many of the well IDs are not visible on the map. If these wells were not physically located on the ground, revise the map to show their actual locations.

Reclamation Bond Spreadsheet & Bond: If the acreage, dollar amount, or other bond parameters change from the original bond submittal, you must submit a rider or revised bond.

32. **Reclamation Bond Spreadsheet -** Ensure the following items are consistent with changes made in the application:
    a. Acreages-Revise mine area and facility area acreages if applicable.
    b. Highwall height and length
    c. Reclamation Slope
    d. Soil and overburden depths- Revise soil and overburden depths to be consistent with observations made during the field inspection and provide soil depths for the facility area.
    e. Highwall backfill-Include the estimated quantity of material needed for backfill under "Highwall Backfill" as stated in D6-1d per the following. Because the bond amount must be based on a reasonable estimate of what it would cost the department to reclaim, in accordance with the plan of operation, the anticipated

maximum disturbance during the life of the opencut operation, including equipment mobilization and administrative costs [ARM 17.24.220], the operator must bond the proposed backfill in one of the following ways:

i. Option 1: If the backfill material is to be hauled in from offsite, the operator will need fill out the "Highwall Backfill" section of the *Reclamation Bond Spreadsheet*, as well as bond for the cost of purchasing and placing the material at the base of the highwall by using a separate blank field found at the bottom of the spreadsheet. If other material will be hauled into the site and used as backfill in other portions of the pit, the "Mine Material Backfill" section of the spreadsheet must be filled out.

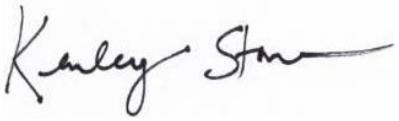
ii. Option 2: Alternatively, if the backfill material would come from the site, the operator will need to fill in the "Highwall Backfill" section on the *Reclamation Bond Spreadsheet*, and additionally bond for the cost of moving the backfill material to the base of the highwall by using a separate blank field found at the bottom of the spreadsheet.

33. **Irrevocable Letter of Credit #6356 –** Submit a revised LOC addressing the following deficiencies:
    a. The operator name shown on the bond is not consistent with the operator name on page 1 of the *Opencut Mining Plan of Operation and Application* (plan/app).
    b. **Bullet #2** – The site name shown on the bond is not consistent with the site name shown on page 1 of the plan/app.
    c. **Bullet #3** – The acreage shown on the bond is not consistent with the *Bonded Acres* in #A1-11 of the plan/app.

NOTE: The Department strongly recommends that you use the above-listed deficiencies as a checklist to confirm that your revised application materials are complete and acceptable prior to resubmittal.

If you have any questions on the above, please contact the Program at (406) 444-4970.

Sincerely,



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C: Interested parties list
Gallatin County Commissioners