

Date: October 20, 2010

To: Interested Parties

From: Chris Cronin, Opencut Mining Program Supervisor

**RE: Approval of Supplemental Environmental Assessment and Amendment #2
TMC, Inc. - Nuss Site, near Gallatin Gateway, Montana
Opencut Mining Permit #1736**

To All Interested Parties:

Between August 25 and September 25, 2008, the Montana Department of Environmental Quality (DEQ) accepted public comments on the Draft Supplemental Environmental Assessment (SEA) for proposed Amendment #2 to the Opencut Mining Permit for the TMC, Inc. – Nuss Site. This gravel mining operation is located in Gallatin County on Cottontail Road, about ¾-mile west of Gallatin Gateway. The site is located in an area of relatively flat, irrigated agricultural land with several rural residences nearby. On October 5, 2010, Gallatin County approved a Zoning Compliance form confirming that the site is not zoned.

Approximately twenty-eight respondents submitted written comments and seven people provided oral comments during the public hearing that DEQ held in Gallatin Gateway on September 18, 2008. The DEQ evaluated information contained in the comments to further assess whether significant environmental impacts would result from implementation of Amendment #2. The SEA was edited, revised, and updated based on this review, and the DEQ is issuing the Final SEA dated October 20, 2010. The SEA concludes that no significant impacts are expected.

The DEQ has also determined that the amendment application is acceptable with respect to applicable provisions of the Opencut Mining Act and its implementing rules. Therefore, the DEQ is concurrently approving Amendment #2. The approved amendment and the Final SEA can be obtained at the following web link: <http://searchopencutpermits.mt.gov/>. Users should type “Nuss” into the “Site Name” text field.

Under the approved amendment, the permit area is increased from 41.2 acres to 87 acres. Major equipment at the site includes a crusher, wash plant, and asphalt plant. Normal hours of operation are 7 a.m. to 6 p.m. Monday through Friday, and 7 a.m. to 6 p.m. on Saturdays. Equipment maintenance and moving or hauling existing stockpiles can be conducted on Saturdays, but mining and processing are prohibited.

The site will be reclaimed to a 15.7-acre pond surrounded by 8.2 acres of grassland, and a 36.7-acre pond with 26.4 acres of grassland around it. The deepest pond will be approximately 75 feet deep. A reclamation bond for \$126,781 is held by DEQ to ensure that final reclamation of the site is completed by the fall of 2020.

The DEQ approval of this amendment application does not relieve the operator from the obligation to comply with any other applicable federal, state, or county statutes, regulations, or ordinances. The operator is responsible for obtaining any other permits, licenses, approvals, etc. that are required for any part of the proposed operation. Challenges to DEQ's approval of the SEA and Amendment #2 would be governed by the following statutes:

- The Montana Environmental Policy Act, which provides the legal authority for the preparation of EA's by state agencies, indicates at 75-1-201(6), MCA: "A challenge to an agency action under this part may only be brought against a final agency action and may only be brought in district court or in federal court, whichever is appropriate. Any action or proceeding challenging a final agency action alleging failure to comply with or inadequate compliance with a requirement under this part must be brought within 60 days of the action that is the subject of the challenge."
- The Opencut Mining Act, which provides the legal authority for approval of the Amendment, indicates at 82-4-427, MCA: "(1) A person who is aggrieved by a final decision of the department under this part is entitled to a hearing before the board [of Environmental Review], if a written request is submitted to the board within 30 days of the department's decision. (2) The contested case provisions of the Montana Administrative Procedure Act, Title 2, chapter 4, part 6, apply to a hearing held under this section." Requests for a hearing under this provision must be submitted to: Secretary; Board of Environmental Review; P.O. Box 200901; Helena, MT 59620-0901.

The DEQ Opencut Mining Program can be contacted at (406) 444-4970.

Sincerely,

A handwritten signature in black ink that reads "Chris Cronin". The signature is written in a cursive, flowing style.

Chris Cronin

Opencut Mining Program Supervisor

Department of Environmental Quality

P.O. Box 200901, Helena, Montana 59620-0901

Phone: (406) 444-2871; Fax: (406) 444-4988

ccronin@mt.gov

FINAL SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
OPENCUT MINING PERMIT #1736
THREEWAY MINING COMPANY, INCORPORATED NUSS-ROCK PIT
AMENDMENT #2

The Montana Department of Environmental Quality (DEQ) prepared this final supplemental Environmental Assessment (EA) in accordance with requirements of the Montana Environmental Policy Act (MEPA). An EA functions to identify, disclose, and analyze the impacts of a proposed action. This document may disclose impacts that have no legislatively required mitigation measures, or over which there is no regulatory authority.

The state law that regulates gravel mining operations in Montana is the Opencut Mining Act. This law and the rules adopted thereunder place operational guidance and limitations on a project during its lifetime, and provide for the reclamation of land affected by opencut mining operations. This law requires the operator to post a bond or other financial instrument so that DEQ has the financial capability to reclaim a mined site to its approved, post-mining land use if the operator is unable or unwilling to do so.

Local governments and other state agencies may have authority over different resources and activities under their regulations. Approval or denial of this Opencut Application will be based on a determination of whether or not the proposed operation complies with the Opencut Mining Act and the rules adopted thereunder. The DEQ approval of this application would not relieve the operator from the obligation to comply with any other applicable federal, state, or county statutes, regulations, or ordinances. The operator is responsible for obtaining any other permits, licenses, approvals, etc. that are required for any part of the proposed operation.

This document supersedes the draft EA dated August 25, 2008 that DEQ made available for public comment from August 25 through September 25, 2008. DEQ subsequently compiled and evaluated the public comments and assessed additional information received from individuals, agencies and organizations, including the operator, Threeway Mining Company (TMC, Inc.). As a result, DEQ believes this final EA is based on the best available information. This document includes DEQ's responses to public comments, and other potential permit conditions and/or mitigation measures developed by DEQ as a result of the public involvement process.

Project Name: Nuss-Rock Gravel Pit

Proponent: Threeway Mining Company, Incorporated (TMC, Inc.)

Location: The Nuss-Rock Pit includes the NE¼ of Section 9 and the NW¼ of Section 10,
Township 3 South, Range 4 East.

County: Gallatin

Type and Purpose of Action: TMC, Inc. has applied to amend an open gravel pit located in Gallatin County, about ¾ mile west of Gallatin Gateway. Access is from Gallatin County's Cottontail Road. Figures 1 and 2 (at the end of this document) provide maps of the general vicinity and the permit site, respectively.

The July 12, 2007 amendment application requests an increase in acreage to a total of 87 acres. The final reclamation plan calls for a 15.7-acre pond surrounded by 8.2 acres of grassland, and a 36.7-acre pond

with 26.4 acres of grassland around it (Figure 2). The deepest pond would reach a depth of about 89 feet from the original ground surface, or about 75 feet below the present pond surface.

Additional documentation submitted in their application by TMC, Inc. includes:

- A Montana Pollutant Discharge Elimination System (MPDES) permit for general sand and gravel operations issued October 1, 2007. Its renewal date is 2012.
- A hydrology study including MODFLOW estimates, prepared by Earth & Water, Inc. dated November 2007.
- A survey of soil amounts available for final reclamation dated August 17, 2007.
- A table of water quality tests from May 25, 2005 and August 13, 2007.
- A table of water levels in the three monitoring wells and the southeast trailer.
- A table of water temperatures measured August 13, 2007 in the four wells and in intervals at depth in the ponds.
- A revised water monitoring plan

History of the Proposed Action:

The site was originally permitted by J & S Construction; permit JSC-005, in 1998 for 13.65 acres to be reclaimed in 2001. An EA was written for the initial permit (DEQ 1998). In 2001 an amendment was approved to extend the final reclamation date to 2010. In 2003 the permit was assigned to TMC, Inc. and was given the new permit number TMC-002. In the spring of 2004, TMC, Inc. submitted an application for amendment #1 requesting to increase the permit from 13.65 acres to 41.2 acres. A supplemental EA was completed and amendment #1 was approved in November 2004. In the summer of 2007, TMC, Inc. submitted an application for amendment #2 requesting to add 45.8 acres to the permit area, have two ponds instead of one, and extend the reclamation date to 2020. If DEQ approves amendment #2, the total acreage in the permit would be 87.0 acres. Concurrent reclamation has not been conducted on this site because all the existing permitted area is still in use. Ponds currently cover approximately ten acres of the 41.2-acre site (Figure 2).

DEQ revised its permit numbering system during 2010 and changed this permit number from TMC-002 to # 1736. In August 2010, TMC, Inc. submitted an application for amendment #1A requesting to extend the reclamation date until mid-June 2011; this was approved on September 27, 2010. A Consent Decree dated February 2009 required TMC, Inc. to apply for an amendment to modify water monitoring frequency during spring high water from every 2 weeks to monthly. This was submitted by TMC, Inc. on February 26, 2009 and would be approved as part of this amendment.

During the progression of the development of this site, the following aspects of mining operations have changed (DEQ 2004):

- The original plan called for dewatering the site by drilling three dewatering wells and pumping the water into a ditch that would carry the water offsite. Mining was proposed to go to a depth of about 25 feet leaving a pond at final reclamation. The dewatering wells were never installed. The dewatering ditch was dug and connected to the Monforton ditches that were constructed starting about 1930 to drain pasture lands. The Monforton ditch system connects with Fish Creek, a water of the U.S., a mile to the north. By 2003 the ditch mouth and pond elevation were stabilized at 4,911 feet above mean sea level, or about nine feet below the estimated high water level before mining and 21 feet below original ground surface (bgs) (DEQ 2004).
- TMC, Inc. is mining in the water using excavators and a dragline as described in the plan of operations. However, the pond depth has been increased from approximately 25 feet bgs to approximately 53 feet bgs (TMC, Inc. 2007).

- Three monitoring wells were drilled in 2004 and monthly water level readings have been taken since their installation (Appendix A, Table A-1). Water quality data from these wells have been collected on May 25, 2005 and August 13, 2007 (Appendix A, Table A-3).

Description of the Proposed Action

TMC, Inc. proposes to mine the 45.8 acres covered in the amendment in three phases. In general, initial development would begin by mining out the west side of the existing tract 2C-3. Later, mining, the crusher, and the wash plant would move to the new northeast 20-acres parcel, 2C-1. Then Tract 2C-4 would be mined. A 175 to 200-foot buffer would surround the 11.25-acre mine portion of the 22-acre Tract 2C-4. Loaders would be used to mine down to the water table. Then excavators and or a dragline would be used to continue downward into the water table.

The crusher would be periodically moved and set up near the active mining area, but no closer than 500 feet from Cottontail Road. Existing 6-foot high soil berms along the south edge of Tract 2C-3 would be left along Cottontail Road, and would be extended west along Tract 2C-4 for noise mitigation (Figure 2). Existing 6-foot soil berms along the east edge of tract 2C-2 would be extended north along Tract 2C-1 (Figure 2). At least 12 inches of topsoil and overburden would be salvaged and stockpiled for reclamation or placed in berms for noise mitigation.

The wash plant would be moved to the southwest corner of the 20-acre northeastern expansion area (Tract 2C-1). Water for operations comes from groundwater. Wash water would be recycled. A 600-foot long ditch would be dug to a 3-acre settling pit for the wash water. There would be no outlet from the wash plant system. Sediment would be removed from the ditch and settling pit as necessary.

Normal operations include mining, crushing, washing, asphalt operations, maintenance, fueling, and other operations. Normal hours of operation would be from 7 a.m. to 6 p.m. Monday through Friday, and 7 a.m. to 6 p.m. on Saturdays for hauling and maintenance. Previously, maintenance was not included on Saturdays. Mining and processing would not be allowed on Saturdays. Equipment maintenance would be scheduled on Saturdays for safety reasons. Hauling or moving existing stockpiles could be done on Saturdays.

Topsoil and overburden berms about 6 feet high would be almost continuous around the site. They would be seeded. This soil is required for reclamation; the berms would not be removed during reclamation. Silt fence or other sediment control devices would be used as necessary. The permit area is currently fenced for livestock.

Please see Figures 3 and 4 at the end of this document for the locations of points of reference in the following descriptions.

Phase I: Phase I would mine areas around the west side of Tract 2C-3, and remove material down to within a few feet of the high water level as measured in 2008. The crusher would be placed in this hollow to help with noise abatement. Mining would then continue with excavators or dragline. The crusher would be located in the north central portion of Tract 2C-3, just south of the current wash plant ponds. Stockpiling would occur along the east side of this tract and on Tract 2C-2.

Phase II: After Phase I of mining is completed, a three acre pond would be excavated in the northwest corner of tract 2C-1 using loaders down to the water table (Figure 3). Once the water table is encountered excavators and a dragline would be used to bring the pond to its full depth, 89 feet below ground level. Crushing and stockpiling would occur on the south half of Tract 2C-1. The wash plant would be moved to the northeast, and a ditch would be constructed to connect the plant with the three-acre pond. The approximately 600 foot long ditch would trap much of the sediment and would be emptied of sediment as

needed. Any remaining sediment would settle to the bottom of sediment pond one. There would be no outlet from sediment pond one. It is anticipated that pond one would hold over 40 times the volume of water produced by the wash plant in an eight-hour shift. If or when fine sediment deposition seals the pond, another settling pond would be excavated to the south.

Phase III: As the gravel ore from Phase II is depleted, mining would begin on tract 2C- 4. The tract to be mined in this phase has been divided into four rectangles of 2.8 acres each (Figure 4). Mining down to the water table would begin on the southeast rectangle (“A” in Figure 4). Mining would proceed in a counterclockwise direction through the northeast and northwest rectangles. Last to be mined would be the rectangle to the southwest where the owner's current residence is located. When all areas of this tract are mined down to the water table, a dragline would excavate down to the full depth of 89 feet (75 feet below average water surface). Dragline mining would proceed in reverse order, clockwise beginning in the southwest rectangle (“D” in Figure 4). After each rectangle is mined to depth, the slopes along the exterior sides of the permit area would be graded, topsoil, and seeded.

Continuing Aspects of the Project: The existing access road and scale area would remain in their current location throughout the life of the permit. The road would be extended within the permit boundary as needed. No changes in types of equipment are proposed with this amendment request. Normal hours of operation would continue to be 7:00 am to 6:00 pm Monday through Friday. Hours would be extended to Saturdays from 7 a.m. to 6 p.m. for hauling, stockpile relocation and maintenance.

Type and Quantity of Material: This amendment #2 application requests an additional 45.8 acres for a total permit area of 87.0 acres. The proponent would mine, crush, wash, transport and stockpile approximately 4.4 million cubic yards of gravel from the proposed site. The material would be sold locally. Twelve inches of topsoil and overburden would be salvaged and placed in berms along all edges of the site.

Surrounding Land Use: Residential properties ten acres and larger as well as agricultural lands surround the mine site.

Traffic: The entrance would remain the same. Truck traffic on public roads presently uses two main routes. Trucks making local or north-valley deliveries exit the site and head east through Gallatin Gateway to Highway 191. The Gallatin County road department requested trucks hauling through Gallatin Canyon toward Big Sky exit the site onto Cottontail Road and then turning south onto Gallatin South Road. This route would reduce truck traffic going through Gallatin Gateway. Gallatin South Road intersects with Highway 191 about five miles south of the permit site at the mouth of the canyon. Approximately 10,000 annual off-site deliveries of product would be made each year. This is 10,000 empty trips in and 10,000 loaded trips out of the site. Typical commercial traffic includes 20 cubic yard belly or side dump trucks, 12 cubic yard end dump trucks, and 24 cubic yard dump truck/trailer combinations.

Hazardous Waste: Fuel is contained in mobile tanker trucks that do not require secondary containment. There is no permanent fuel storage on site. Asphalt truck cleanout would be conducted on an inwardly graded pad filled with sand to absorb the fluids. When saturated the sand would be properly disposed of and replaced with clean material.

Reclamation: The final reclamation plan calls for a 15.7-acre pond surrounded by 8.2 acres of grassland, and a 36.7-acre pond with 26.4 acres of grassland around it (Figure 2). The deepest pond would extend about 89 feet from the original ground surface, or about 75 feet below the present pond surface. The reclaimed surface surrounding the ponds would be sloped from the undisturbed surrounding ground into the pasture. Backslopes would be scarified or disked if needed and topsoil would be disked prior to

seeding. The access road would remain for the landowner to get into the site after reclamation. At final reclamation, a landscaped berm approximately six-feet high would remain along Cottontail Road. Final reclamation would be in the year 2020. TMC, Inc. does not include information regarding future uses of the site after reclamation. The reclamation bond for this permit has been increased to \$126,781 (TMC 2007a).

Scoping Comments and Concerns: TMC, Inc. mailed resident notification letters on July 5, 2007 to landowners located within 1,000 feet of the proposed permit site. Several letters, comments, and complaints have been sent or phoned in to DEQ and are summarized in the sections below. Comments regarding potential impacts that would be addressed in this document are noted, and the reader is directed to the appropriate section. Comments related to issues that are beyond the scope of this Proposed Action or are outside of the jurisdiction of DEQ are summarized at the end of the scoping section.

Section II: Agency Responses to Public Comments on the Draft EA

This section provides a summary of the comments received from 31 individuals, groups, or agencies during the public involvement period of August 25, 2008 through September 24, 2008. This section also presents DEQ's Responses to these public comments. Appendix B provides a compilation of the written public comments and Appendix C provides the written transcript of the public meeting.

General Comments

Aesthetics – Section 8

Air quality – Section 3

Economics – Section 21

Health and Safety – Section 11

Historic and Archaeological Sites – Section 7

Hours of Operation – Description of the Proposed Action

Noise – Section 8

Recreation – Section 17

Traffic – Section 11

Vegetation – Section 4

Water Quality and Quantity – Section 2

Wetlands and Unique Habitats – Section 6

General Comments

- a. COMMENT: Neighbors are generally concerned about noise, traffic, air quality, and property values and urge DEQ to use its authority to protect nearby land owners and the surrounding community, and provide for a clean and healthful environment.
COMMENTERS: Allen, Brekke, Derham, Jarrett, Morse, Parsch, Ross, Shennum, Schockley, Stein, Steinmuller, Taylor
RESPONSE: Comment noted.
- b. COMMENT: Some nearby landowners are in support of the Nuss Pit expansion. They see it as a beneficial and reasonable use of the land, and only request that regulations be followed and the land be appropriately reclaimed. They feel that the property rights of owners who want to develop gravel pits on their property should be respected.
COMMENTERS: Allsop, Fluke, Hiebert, Weidenaar
RESPONSE: Comment noted.
- c. COMMENT: Some nearby landowners expressed their support for the comments submitted by GOMAG (Gallatin Opencut Mining Group). Their view is that the overall impacts of the operating gravel pit would have a combined deleterious impact on the neighborhood.
COMMENTERS: Brekke, Jarrett, Minter, Rabatin, Steinmuller, Taylor
RESPONSE: Comment noted.
- d. COMMENT: Phases and expansions of permitted projects should be reviewed by the public. Continual pushing out of the date of mine closure and reclamation creates problems for nearby land owners. Plans already established and permit guidelines should be honored before expansions and extensions are granted. Neighbors had expected that land would be reclaimed and there would be a water body with a residential neighborhood around it by 2010 (based on the original permit). Several comments were submitted regarding emergency zoning and county zoning.

COMMENTERS: Conrad, Derham, GOMAG, Jarrett, Morse, Parsch, Lee-Roark, Steinmuller

RESPONSE: MEPA is a procedural statute that does not dictate a certain result when an EA is produced, nor does it directly regulate permitting and enforcement. Under MEPA the public is allowed and encouraged to submit substantive comments on amendments, just as they were on original applications. For example, this Morgan Family original application and the Nuss amendment application are going through the same EA processes.

The Opencut Mining Act allows amendments to the plan of operations so that adjustments can be made based upon changing environmental, economic and social conditions. Mines and their plans of operation must comply with all local planning and zoning regulations.

- e. COMMENT: DEQ has not enforced its authority when there have been permit violations. Items that have not been appropriately enforced include operating hours. Extracting gravel below the level allowed in the permit occurred, and instead of enforcing the permit regulations, an-extension in the depth of mining was granted.

COMMENTERS: Hapcic, Jarrett, Parsch

RESPONSE: DEQ exercises its enforcement discretion on a case-by-case basis in determining whether to assess a penalty or assist the operator in coming into compliance when violations are observed.

DEQ has taken enforcement action against TMC for violations at the Nuss Pit. An Administrative Order on Consent (consent order) was signed in January 2009.

- f. COMMENT: Reclamation should be appropriately described - when it would begin and be completed, what kind of landscaping would be completed.

COMMENTERS: Hapcic

RESPONSE: The plan states that the site would be resoiled and reclaimed to a pond and grassland. There is no requirement that it be "landscaped." Final reclamation would be completed in the year 2020. As land in the permit area is no longer needed for mining purposes, it would be concurrently reclaimed.

- g. COMMENT: The property is not the entire NE ¼ or NW ¼ of each Section, put part of each.

COMMENTERS: Rice, GOMAG

RESPONSE: Comment noted.

- h. COMMENT: The application does not state that magnesium chloride would be used on the access road.

COMMENTER: Rice

RESPONSE: Comment noted.

- i. COMMENT: ARM17.24.218(d) state "...A complete and accurate log that lists general on-site activities and the dates and times they occurred must be maintained for an opencut operation subject to restricted hours. Log information must be presented to the department upon request;..." when people have requested review of this log, DEQ opencut Mining Division had no knowledge of such a log and stated that such a thing does not exist.

COMMENTER: GOMAG

RESPONSE: The Department has not requested to see such a log to date, but the operator will be reminded of the obligation to maintain such a log for future reference.

- j. COMMENT: A concrete or asphalt plant is not appropriate at this agricultural/rural residential location; or not enough information has been supplied regarding the asphalt plant.
COMMENTERS: Conrad, GOMAG, Jarrett
RESPONSE: DEQ has previously issued a permit for an asphalt plant at this site, and that plant was addressed in a prior EA. An asphalt plant has been used at this site in the past.
- k. COMMENT: It should be made clear to all parties if the dates of the application are lagged to the date of permit approval or if the applicant will be held to the dates in the application.
COMMENTER: GOMAG
RESPONSE: The application is based upon a business plan that incorporates the stated timeframes and best estimates of future economic conditions. On August 13, 2008, TMC filed a request to extend the date of final reclamation for the Nuss Pit to December 21, 2018. The applicant's request for this extension is reasonable given that processing this application has exceeded the OMA's statutory deadlines. The delay has been caused mainly by compliance with MEPA and public involvement, and a change in local zoning regulations. DEQ recognizes the request by TMC to extend the reclamation date to 10 years after signing the permit.
- l. COMMENT: A complete history of the action and permitting should include a history of Notices of Violation.
COMMENTER: GOMAG
RESPONSE: The purpose of an EA prepared pursuant to MEPA is to identify environmental impacts that potentially could result from the requested action if the Department issues the permit. A discussion of prior Notices of Violation is not required by MEPA and is outside the scope of the EA.
- m. COMMENT: There has not been adequate assessment of cumulative impacts to air quality, noise, traffic or social mores/economics. The alternatives considered for DEQ action concerning the Nuss Family Pit permit application should be examined in the setting of the cumulative impact of opencut mining permits on the community, with particular attention to traffic and property values.
COMMENTERS: GOMAG, Hapcic, Parsch, Steinmuller
RESPONSE: Under MEPA rules DEQ considers cumulative impacts. The other nearby action currently being considered is the permitting of the amendment to the Nuss Pit. DEQ believes this EA sufficiently describes potential cumulative impacts. It is not within the scope of MEPA to assess cumulative impacts to property values because as stated elsewhere, DEQ has no jurisdiction over property values. Cumulative impacts to economics would include a slight increase in local jobs and a slight increase in the local tax base. Cumulative impacts to traffic on the highway would be negligible. In response to the comment, additional responses on cumulative impacts are found under the 'Air Quality' comments and responses section.
- n. COMMENT: In general it should be noted that impacts have an actual duration as opposed to using phrases such as 'short-lived'.
COMMENTERS: GOMAG
RESPONSE: Gravel pits are considered temporary uses of the land and therefore have reclamation plans. It is expected that all impacts, other than the changed topography, would cease when the operation is finally reclaimed.
- o. COMMENT: Please include a summary statement of additional mitigation requirements and monitoring requirements in the Final EA
COMMENTERS: Derham, GOMAG, Lee-Roark

RESPONSE: The company's proposed mitigation/monitoring and other possible mitigation/monitoring are discussed in the appropriate sections of the EA. DEQ enforceable mitigation and monitoring requirements will be included in the plan of operation if or when the permit is issued by DEQ.

- p. COMMENT: The bond is too small.
COMMENTERS: Derham, Parsch

RESPONSE: The reclamation bond covers the cost to the State of Montana to reclaim the site and is adequate for that purpose.

Aesthetics

- a. COMMENT: Several comments were made regarding the appearance of the current pit as undesirable, or not consistent with surrounding agricultural lands and rural residences. Comments were made that the view shed has deteriorated for people with guest houses/vacation rentals.
COMMENTER: GOMAG

RESPONSE: One nearby landowner (Heibert) with vacation rentals commented during the public hearing on the Draft EA that he hears no deleterious comments about the view of Nuss Pit from his vacation rentals, but rather comments that many people would prefer to live in the general area compared to where they live now. (See full comment in Appendix C.)

- b. COMMENT: There are currently no clear rules as to how high stockpiles can be; at some times they will need to be located at valley level. Perhaps the best mitigation is to require location of stockpiles below valley level as much as possible.
COMMENTER: Rice

RESPONSE: Comment noted.

- c. COMMENT: Previous shielding of the mine site has been ineffective, and 6 foot high berms will be ineffective. Consideration should be given to 20 foot conifers spaced 12 feet apart, two rows deep plant[ed] around the entire periphery to moderate visual aesthetics and noise.
COMMENTERS: Hapcic, Parsch

RESPONSE: Comment noted.

Air Quality

Air Quality Monitoring

- a. COMMENTS: The three Gallatin County air quality monitoring stations do not represent the air quality of nearby home owners, especially since the 24-hour PM_{2.5} ambient concentration is close to the regulatory limit and there is potential that a single day of operation for this site could result in a violation of the federal standard. An air quality station should be located adjacent to the site.

COMMENTERS: GOMAG, Hapcic, Hoffman, Lee-Roark, MEIC, Rabatin

RESPONSE: National Ambient Air Quality Standards (NAAQS) have been established for pollutants considered harmful to public health and the environment. These standards have been established to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly (40 CFR 50). Six primary pollutants have NAAQS limits – Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone, Particulate Matter, and Sulfur Dioxide. The Air Resources Management Bureau of the Montana Department of Environmental Quality (ARMB) locates air monitoring stations throughout the state based on USEPA specifications for location, type of equipment and

sampling frequency. The objective is to characterize **community** impacts from regional sources of air pollution.

Fence line limits are defined by ARMB in order to ensure compliance with the ambient standards. The most common tools used to determine whether a facility would comply with fence line limits is air dispersion modeling as established by the USEPA in Subpart W of 40 CFR 51. The modeling considers the specific sources of emissions at the facility, the distance from equipment to property boundaries, regional meteorological conditions such as wind speed and direction, and adjacent receptors (e.g. neighbors). Modeling must be conducted as part of the air quality permit application and is reviewed by ARMB staff. An air quality permit **may not** be issued by ARMB unless the modeling demonstrates compliance with the fence-line limits thereby protecting public health. One of the advantages of modeling is that it can identify impacts from a large variety of meteorological (e.g. wind speed and direction) conditions at every point along the fence line. One disadvantage is that it does not provide real time results, but USEPA has demonstrated to the satisfaction of the scientific community that air dispersion modeling correlates well with real-time monitoring.

- b. COMMENTS: Please add distances from the Nuss Pit to these air monitoring stations: Belgrade – 12.8 miles; Bozeman -- 10.9 miles; West Yellowstone – 76 miles. [Ref. Page 13, Table 2]

COMMENTER: GOMAG

RESPONSE: Comment noted.

Complaints/investigation

- c. COMMENTS: Please provide additional information on the three complaints submitted regarding the open cut mining operations at Nuss pit. What was the nature of these complaints? [Ref. Page 13, Para 5, Line 1]

COMMENTERS: GOMAG, Hapcic

RESPONSE: According to DEQ's files, three complaints specifically related to the Nuss Pit were filed for air quality concerns. The air quality complaints were regarding odor on 4/4/2007 and airborne dust on 8/30/2007 and 4/30/2008. A DEQ staff member--was assigned to investigate these complaints. However, the complaints don't address potential future impacts and are thus outside the scope of the EA.

- d. COMMENTS: You also mention that the pit was meeting reasonable precautions during your inspection. What are reasonable precautions? Are your inspections announced? If your inspections are announced it is reasonable to assume that the Nuss pit operators would be on their best behavior during the inspection. This does not correlate with the neighborhood daily experience. Hence, the complaints.

COMMENTERS: GOMAG, Hapcic

RESPONSE: Reasonable precautions for controlling dust include use of tackifiers, water sprays, and berms. Inspections at mining operations are not normally announced and as such the operators would not be able to prepare unless they were already informed of the complaint by the public or ARMB.

Dust Mitigation

- e. COMMENTS: Neighbors are concerned about dust mitigation. What precautions has DEQ put into place to provide protection to surrounding neighbors during wind storms? The hours of operation, noise and dust levels proposed under the extension are excessive and indeed of a

duration and intensity level that is intolerable for neighbors. COMMENTERS: Hapcic, Jarrett, Morse, Rabatin, GOMAG, MEIC

RESPONSE: To control windblown dust, a vegetated soil berm has been proposed around the site and magnesium chloride or water spray will be used on the unpaved roads and the base of the stockpiles. Also, the crushing plant would be located a minimum of 500-feet from Cottontail Road.

- f. COMMENTS: Please include additional potential mitigation [Ref. Page 14, Para 3, Line 5], including:

- Reduced stockpile height
- Higher berms in both upwind and downwind directions
- Windbreak trees including mature conifers planted on the berms and maintained by irrigation
- Reducing the amount of area that is unvegetated at any one time
- Monitoring dust and/or weather conditions so that additional mitigation may be employed when conditions exceed health and/or nuisance standards, both during and after operating hours

COMMENTERS: GOMAG, Morse, Parsch

RESPONSE: Comment noted.

Air Quality Compliance

- g. COMMENTS: How is DEQ accounting for the impacts of anticipated population growth, climate change, and demand for construction materials on the air quality in the Gallatin Valley to ensure that the PM2.5 standard is met?

COMMENTER: MEIC

RESPONSE: The gravel removed from the pit would be used largely for local construction projects. The pit may reduce travel distances for future regional projects, thereby reducing regional air quality emissions.

- h. COMMENTS: Increased particulate pollution due to forest fires can have a negative impact on public health. DEQ should make clear in permitting these operations that it will require polluting activities to cease operations during periods of intense particulate pollution caused by regional forest fires.

COMMENTER: MEIC

RESPONSE: The opencut mining operation is not expected to emit any more particulates when the air quality is diminished by forest fires than during other periods, and the contribution to particulate pollution from the opencut mining operation would be minimal in comparison to that resulting from major forest fires. Dust suppression activities would continue during periods of forest fires.

- i. COMMENTS: There is no mention of how frequent and intense winter inversions in the Gallatin Valley could affect short term ambient air quality. The air impacts from this operation during winter months should be specifically addressed.

COMMENTER: MEIC

RESPONSE: If TMC complies with the required dust mitigation measures in the plan of operation, and with other permit conditions, there should not be enough fugitive dust to cause a problem during winter inversions.

- j. COMMENTS: DEQ must analyze how the burning of tires and Asarco slag at the Holcim Cement Plant could impact air quality in the Valley. Holcim's burning of these additional wastes is reasonably foreseeable and will impact air quality.

COMMENTER: MEIC

RESPONSE: Proposed operations must demonstrate that they would not cause an exceedance of the air quality standards based on existing air quality rather than anticipating future operations. If Holcim Cement makes such a proposal to change its fuel sources, then it would prepare and submit an application to revise its air quality permit and the application would have to demonstrate the ability to meet air quality standards at that time.

- k. COMMENTS: Cumulative and secondary environmental impacts analysis must include air quality data and meteorological data, in order to adequately address the full impact of permitting any additional sources in the Gallatin Gateway Planning Area.

COMMENTER: GOMAG

RESPONSE: Any air permit application to install new or to modify existing equipment must incorporate an inventory of potential emissions into an air dispersion model to characterize the impact of the proposed equipment and the air dispersion model would incorporate air quality data and meteorological data. The proposed expansion of the Nuss Pit does not include any equipment that was not previously permitted. Emissions due to additional land clearing would be addressed by the additional dust mitigation plans which include extending the soil berm and reclaiming disturbed areas.

- l. COMMENTS: Characterization of the existing environment concerning air quality should include some discussion of the common wind conditions and implications of local weather patterns for the siting of a major industrial facility such as the Nuss Pit. [Ref: Page 12, Para 7]

COMMENTER: GOMAG

RESPONSE: If they use the required dust mitigation measures set forth in the plan of operation and permit conditions, ambient air quality standards should be met, regardless of which direction the wind blows.

COMMENTS: The description of the existing environment should include some indication of the duration and time period that the surrounding fields were subject to "plows, discs, seed drill, swathers, combines, balers, etc."

COMMENTER: GOMAG

RESPONSE: The purpose of this section is simply to identify how the land was used historically. The specific impact of the historical operations on the particulate levels is inherent to the particulate matter concentrations as documented through the ambient air monitoring stations. The time period during which those activities took place is not relevant to this EA, only the fact that the land has historically been subject to these activities.

- m. COMMENTS: Text states: "Criteria pollutants are particulate matter with an aerodynamic diameter of 10 microns or less (PM10),..." [Ref. Page 13, Para 2, Line 3]. Please revise / correct to "(PM10 and PM2.5)." In following sentences, add sources of PM2.5 or generalize the discussion to PM.

COMMENTER: GOMAG

RESPONSE: The text will be revised to reflect that the criteria pollutant particulate matter is regulated as both PM10 and PM2.5.

- n. COMMENTS: In the upstream area that was the source from which the Quaternary alluvium was derived there are geologic formations bearing asbestos and erionite in commercial volumes. Discuss potential air quality impacts of excavating, handling and crushing gravel bearing these fibrous minerals. [Ref. Page 13, following paragraph 2]

COMMENTER: GOMAG

RESPONSE: Erionite is located in the eastern part of the state, not in the Gallatin Canyon according to John Podolinsky of the Asbestos Control Program at the DEQ (Phone conversation January, 2009). During the geologic time that the gravel resource has washed downstream, any Karstolite (asbestiform amphibole) would probably have been broken up and washed out of the gravel. The EPA tested down-gradient materials near the W.R.Grace Mine at Libby, MT for residual asbestos and found nothing in those gravels

- o. COMMENTS: Please change the first sentence of the Potential Impacts to: “The air quality in the area would be degraded due to the emissions from the proposed site...”

COMMENTER: GOMAG

RESPONSE: Since there is only minimal new sources of emissions from those reviewed under the previous EAs, it is not definitive that the air quality would be degraded. Nonetheless, we will modify the statement to stipulate “The air quality in the area may be degraded due to emissions from the proposed project...”

- p. COMMENTS: Text states: “No new sources of emissions are expected from the facilities..” [Ref. Page 14, Para 5, Line 1]

Although an asphalt plant was included in the previous permit, it has never been included on the site. An asphalt plant would be a new source of emissions. Additionally, the proposed expansion of the mine would create an 111% increase in unvegetated area that would be a source of fugitive dust. There is no existing asphalt drum mixing location.

COMMENTERS: Derham, GOMAG, Parsch

RESPONSE: The asphalt plant was addressed in a previous EA and is not a new source. A portable asphalt plant has been used at this site and could be again whether this amendment is approved or not. Portions of the amended area would be unvegetated. However, 60 percent would be ponded, and there is a 175-foot undisturbed buffer area around the western part of the amendment area. The soil berm around the site would also be vegetated. Other reclamation is covered in Section 4 of the EA “Vegetative Cover, Quantity and Quality,”

- q. COMMENTS: Text states: “Truck emissions and road dust would continue to be generated but the quarry may reduce travel distances for future regional projects.” [Ref. Page 14, Para 5, Line 7]

Please revise sentence to clarify that local emissions would continue to impact the site and adjacent properties, and that the potential reduction in emissions due to reduced truck haul would be disseminated throughout the service area. It is important to clearly identify the trade-off that is being considered between high local cost and dilute regional benefit.

COMMENTER: GOMAG

RESPONSE: The request for clarification is reasonable and the statement will be amended as follows “Truck emissions and road dust would continue to be generated **at the current rate**, but the pit may reduce travel distances for future regional projects, **thereby reducing regional air quality emissions.**”

- r. COMMENTS: Text states: “Its use as a road and highway de-icer in winter in place of sanding has also reduced air-borne particulate matter.” [Ref. Page 14, Para 8, Line 4]

This sentence is irrelevant to the subject environmental analysis, please strike.

COMMENTER: GOMAG

RESPONSE: The possible use of magnesium chloride as a de-icer at the facility is an emission control measure and impacts air quality since the alternative, sanding, would leave sand on the roads and contribute to airborne particulate matter during high winds. The sentence will stay but be worded to the present tense.

- s. COMMENTS: This section does not quantify or thoroughly investigate and explain the Nuss Pit contribution to cumulative air quality. [Ref. Page 15, Para 6]

COMMENTER: GOMAG

RESPONSE: Since no new sources of air pollutants are included in the proposed project, the specific contribution of the Nuss Pit project to cumulative air quality is minimal.

Administrative

- t. COMMENTS: Text states: “Agricultural activities are exempt from the requirements to control or reduce air emissions created by these activities.” [Ref. Page 12, Para 8, Line 2]

This statement is irrelevant to the description of existing environment and the subject environmental analysis. Please strike.

COMMENTER: GOMAG

RESPONSE: This statement is relevant to defining the existing environment as far as permitting and controls measures are concerned and will remain.

- u. COMMENTS: Text states: “The closest active quarries are located 5 miles north near Four Corners (Simpson & Storey) and 8 miles southeast (Huttinga). [Ref. Page 13, Para 1, Line 4]

Please revise / correct this information, which is critical for analysis of cumulative impacts, via the following table:

Pit	Distance	Comment
Fluke	1.00 mile S	permitted through 2010
Morgan	1.75 miles NE	proposed through 2018
Baden	2.25 miles ESE	private
Huttinga	3.75 miles SE	permitted through 2020
Storey	4.14 miles N	permitted through 2028
Simpson	4.40 miles NNE	

COMMENTER: GOMAG

RESPONSE: The distances in the Draft EA were estimates based upon road mileages. Thank you for supplying your distances “as the crow flies”.

- v. COMMENTS: Text states: “Primary air quality impacts from the proposed project would relocate mining...” [Ref. Page 13, Para 2, Line 5]

Strike “relocate”.

COMMENTER: GOMAG

RESPONSE: The proposed project is specifically related to relocation of equipment rather than new equipment or new air quality sources. The wording will be revised to clarify that the sources of particulate emissions are only being moved, not newly created.

- w. COMMENTS: Text states: “Permits and permit conditions have been established for this site to promote compliance with all applicable air quality rules and standards, and to ensure that properties beyond the plant boundaries (e.g. houses, rivers) would be protected.” [Ref. Page 14, Para 3, Line 3]

This is not a complete presentation of the potential impacts. There is no documentation, monitoring or evidence that air quality rules and standards are being met at the property boundaries. The only available data is that air quality conditions are being met at the three monitoring sites in Gallatin County that are listed in Table 2 of the Draft EA (10.9 to 76 miles from the site).

It is technically incorrect to use the word “ensure” without any data, monitoring, or modeling. Even then, this statement would only be correct for existing uses. The permits and permit conditions are not at all protective of any potential change in land use that adjacent property owners may consider (i.e., construction of a new home).

It would be useful public communication to include a discussion that discloses that compliance with air quality rules and standards does not “ensure health protection.” Obviously, “no dust” is healthier than “some dust,” and standards have been set by the government to limit adverse health impacts on the national scale to those that are considered by the rule-makers to be “tolerable.” These standards are not always protective of sensitive receptors.

COMMENTERS: GOMAG

RESPONSE: The potential air quality impacts are quantitatively defined in the air permit applications which include emissions inventories and air dispersion modeling. The air permit was developed based on a licensed engineer’s review of the application and specific operating conditions were imposed in the air permit to document compliance. Compliance files document periodic inspections, complaints, and operating conditions. Existing compliance strategies and air quality standards have been developed to protect public health. Nonetheless, it is possible that the facility would not maintain all conditions of the air permit and as such not ensure public health. The sentence will be modified such that “Permits and permit conditions have been established for this site to promote compliance with all applicable air quality rules and standards, and to **protect** properties beyond the plant boundaries (e.g. houses, rivers).”

- x. COMMENTS: Text states: “Operational conditions have also been established within the associated air permits to ensure that the source complies with existing air quality rules and regulations.” [Ref. Page 14, Para 7, Line 1]

Please clarify / state / differentiate between sources that require air permits and operational conditions, and those that do not require air permits and are therefore subject only to mitigation or operational conditions that may be included in the Opencut Mining Permit (i.e., what sources are covered by an Air Emissions Permit to comply with air quality rules and regulations).

COMMENTER: GOMAG

RESPONSE: Defining Montana Air Resources Management Bureau’s regulations is beyond the scope of this EA. Rules defining which sources must be permitted are available in Subchapter 7 of Title 17 of Chapter 8 of the Administrative Rules of Montana.

- y. COMMENTS: Text states: “Fugitive dust is normally managed with water spray and regulated at mine sites by gauging opacity – measuring visibility through the dust plume.” [Ref. Page 14, Para 8, Line 1]

Opacity measures are only appropriate and applicable (via regulation) for point sources of air pollution. Monitoring is the only viable measurement for non-point air pollution such as the combined fugitive dust emissions from an 87-acre industrial site that is predominantly unvegetated.

COMMENTER: GOMAG

RESPONSE: The USEPA has defined procedures for measuring opacity from point sources including crushing plant equipment in 40 CFR 60, Appendix A, Method 9 and from fugitive sources in 40 CFR 60, Appendix A, Method 22. Opacity is used for compliance determination according to federal regulations (40 CFR 60, Subpart OOO) and state permits.

- z. COMMENTS: The asphalt plant should not be approved as a component of this site.

COMMENTERS: Derham, Jarrett

RESPONSE: Installation of an asphalt plant at this site was approved under the 1998 permit. The current project amendment is for an expansion of the mining area.

Economics

- a. COMMENT: The Rygg study commissioned by DEQ is outdated and flawed and should not be used in EAs. There are other approaches which should be used. Neighbors have significant concerns regarding property values. The Gallatin Association of Realtors should be approached for data regarding listing prices and sales.

COMMENTERS: Bach, Conrad, Fiddaman, GOMAG, Morse, Lee-Roark, Steinmuller

RESPONSE: Property values can be reduced for any number of reasons as we have recently found out at local and national levels. As stated in the draft EA, under the Opencut Mining Act DEQ has no authority or jurisdiction over **property value** issues. The Legislature has specifically limited DEQ's authority to issues relating to **taxable value through reclamation**. Under Montana law, an administrative agency, such as DEQ, has only those powers granted to it by the Legislature through enactment of statutes. The Legislature has given DEQ two means of mitigating the effects of gravel operations on adjacent property. First, DEQ has authority to protect air quality; to minimize noise and visual impacts to the degree practicable through use of berms, vegetation screens, and limits on hours of operation; and to otherwise prevent significant physical harm to adjacent land. Second, in order to protect and perpetuate the taxable value of property, land on which operations are completed must be graded and revegetated or reclaimed to a locally approved land use.

Because DEQ has no jurisdiction over property values, it is not within the scope of this MEPA analysis to commission a new study. We have however, included information from other studies in the Final EA. It is beyond the scope of this EA to conduct an original study of property values using information from the Gallatin Association of Realtors.

Six local residents have applied to the Department of Revenue to reassess their property values based upon this gravel mine. No decision on that has been rendered as of October 8, 2010

- b. COMMENT: DEQ should be familiar with and cite other studies concerning the impact of environmental disamenities on property values.

COMMENTERS: GOMAG, Morse

RESPONSE: We reviewed a number of the studies cited in the comment letters (Bhattarai et al. 2005; Boyle and Kiel 2001; Erickcek 2006a, 2006b; Hite 2006a, 2006b). Most of these studies are based on mathematical models. Two local Gallatin Valley

studies, one submitted to and accepted by Gallatin County during the CUP process (Petersen, 2008) and findings of the Gravel Task Force (Minutes, 2008) are also included. Based on this review, we modified Section 21 of the Final EA.

- c. COMMENT: There has not been adequate assessment of cumulative impacts to property values.

COMMENTER: GOMAG

RESPONSE: It is not within the scope of MEPA to assess cumulative impacts to property values because, as stated above, DEQ has no jurisdiction over property values.

- d. COMMENT: Please discuss / evaluate the potential increase in taxes (agricultural to industrial) for 12 years versus the loss of 5 potential homesites (residential tax rate) from 2010 to perpetuity.

COMMENTER: GOMAG

RESPONSE: This comment is speculating about future actions or alternative uses of the land and economics. DEQ has not been informed about any plans to develop 5 homesites on the subject land. Under MEPA, “related future actions may only be considered when these actions are under concurrent consideration by any agency” (MCA 75-1-208). Other possible land uses are not known and could increase or decrease tax revenues based upon numerous unknown factors.

- e. COMMENT: Please change text to state that the change in land use will make mining/industrial land use of this parcel for 22 years, and discuss the impact of this land use on the social and economic circumstances and impact on potential types of growth in Gallatin Gateway and the Gallatin Gateway Planning Area.

COMMENTERS: GOMAG, Jarrett

RESPONSE: As with the previous comment, this comment is speculating about unknown future impacts in the Gallatin Gateway area. The pit has been mined for 10 years, so it is very likely that existing conditions are indicative of the types of growth one may see in the area if the mine continues to operate for an additional 10 years. However, discussion of the types of growth Gallatin Gateway and the Planning Area might expect in the next 10 years, and the factors driving such growth is outside the scope of MEPA due to the highly speculative nature of such a discussion.

Health and Safety

- a. COMMENTS: The Nuss operations have not been required to incorporate dust mitigation sufficient to be protective of sensitive receptors. It is well-documented that dust exacerbates respiratory conditions. Carol has asthma, and is exposed to the fugitive dust from the Nuss Pit. Because Carol has a home office, she is exposed to this dust for 24 hours a day, 7 days a week, 365 days per year. This is not a complaint about the nuisance of fugitive dust – it is a real and serious concern about an adverse health impact.

COMMENTERS: Rabatin, Lee-Roark

RESPONSE: Particulate matter is recognized as harmful to public health and the environment which is why the National Ambient Air Quality Standards (NAAQS) were established for particulate matter less than 10 microns (PM10) and particulate matter less than 2.5 microns (PM2.5). The Montana Air Resources Management Bureau is required to review changes to, or new sources of, air emissions to ensure compliance with the PM10 and PM2.5 NAAQS.

- b. COMMENTS: Text states “...but plant operations are limited such that emissions levels would not cause harm to human health.” [Ref. Page 15, Para 2, Line 2]

This falls into that problematic level of emissions that do not exceed standards that have been developed to reduce health impacts to respiratory systems in the general population to a permissible or tolerable level by the decision/rule-makers. Strong odors trigger asthma attacks, exacerbate allergies, and cause headaches and nausea -- which are certainly all adverse impacts (or harm) to human health. Concentrations of pollutants that do not exceed the national air quality standards have been demonstrated to have adverse health impacts on sensitive receptors.

It is more technically correct to state: “plant operations are limited such that emissions levels would not exceed national health standards.” Or alternatively, to include a clear discussion explaining the issue to the involved and impacted public. Obviously, “no dust” is healthier than “some dust,” and it should be explained to the public that standards have been set by the government to limit adverse health impacts on the national scale to those that are considered by the rule-makers to be “tolerable.” These standards may not be protective of sensitive receptors such as children, elderly, people with cardio-pulmonary obstructive diseases, or other respiratory diseases.

COMMENTER: GOMAG

RESPONSE: The standards were developed historically in a publicly reviewed process to protect the majority of the public including children and the elderly. Nonetheless, it is recognized that scientific studies since these standards were developed demonstrate that sensitive individuals may still be impacted by the allowable exposure levels. The text will be modified such that “... but plant operations are limited such that emissions levels would not exceed limits established by statute or administrative rule to minimize adverse health impacts.”

- c. COMMENT: Please discuss the potential wildlife and human health threat presented by a 75-foot-deep pond, including the bathymetric configuration that would be required to provide maximum safety. Materials previously submitted by TMC for pond bathymetry were for a 25-foot-deep pond.

COMMENTER: GOMAG

RESPONSE: The site is fenced and gated to keep unauthorized persons and most wildlife out. The slope of the pond shoreline would not be so steep as to create any problems unique to this pond.

Historic and Archaeological Sites

- a. COMMENT: Include report of SHPO recommendations for all Nuss Mine property (1998, 2004, and 2007 applications for permit) and any subsequent cultural resource investigations. Please explain if the walkover of the amendment area during a site inspection by DEQ personnel that did not reveal any surface artifacts was conducted by a qualified historical cultural resources person.

COMMENTER: GOMAG

RESPONSE: The inspection was conducted by a qualified DEQ staff member who holds a degree in geography with an emphasis in historical geography, a minor in anthropology including college-level courses in field archeology, with additional state and federal training, and work experience in field archeological surveys.

Hours of Operation

- a. COMMENT: The hours of operation are too long, and are stressful for nearby neighbors who are disturbed by noise trying to work at home, sleep, or enjoy their yards outside in the summer.

COMMENTER: GOMAG, Parsch, Lee-Roark

RESPONSE: Noise impacts would be mitigated by a number of features; See Noise Section. DEQ may reasonably limit hours of operation to reduce impacts in residential areas. The permit issued by DEQ would specify the hours of operation.

- b. COMMENT: Trucks have lined up idling long before 7:00 am. Potential mitigation of this noise impact would be fencing the access road and making it clear to trucks that they are not permitted to idle on the county road.

COMMENTER: GOMAG

RESPONSE: TMC told all truckers 18 months ago that they would not load any trucks until 7:30. DEQ can request truckers to come later or turn off their engines while waiting, but DEQ has no authority to regulate activities outside the permitted area.

Noise

- a. COMMENT: Noise modeling did not include all of the common sources that are active at the Nuss Pit.

COMMENTER: GOMAG, Bolby, Hapcic

RESPONSE: The crusher would dominate the predicted noise levels, even if other sources, such as additional diesel-powered equipment, conveyors, pumps, asphalt plant, etc., are included in the noise modeling. The EA noise calculations included two pieces of diesel-powered equipment and the crusher, which is sufficient for noise level predictions. According to the table of potential noise sources below with all noise sources normalized to 50 feet from the source, the crusher is the dominant noise source, and has the most significant effect on the calculated noise levels of the pit.

In the table below, the combined noise level of all of the sources except the crusher would be equal to 91 dBA using logarithmic addition, and when combined with the crusher, the total of all the potential noise sources would be 98 dBA. The 1 dBA difference between the combined total noise level of all the potential sources in the table (98 dBA) and the crusher noise level (97 dBA) is typically imperceptible, and indicates that the crusher is the dominant noise source associated with the pit.

Source	Noise level at 50 ft	Combined noise level without crusher	Combined noise level of all sources
Crusher	97 dBA	97 dBA	98 dBA
Truck	88 dBA	91 dBA	
Loader	85 dBA		
Asphalt plant	85 dBA		
Pump	76 dBA		
Conveyor motor	73 dBA		
Conveyor rollers and belt	51 dBA		

- b. COMMENT: Noise modeling for potential impacts is based upon generic assumptions that may not be appropriate for this site.

COMMENTERS: GOMAG, Hapcic, Parsch

RESPONSE: The types and number of noise sources used for noise modeling was based on observed and typical operating conditions for similar gravel pits.

- c. COMMENT: There has not been adequate assessment of cumulative impacts and secondary to air quality, noise, traffic or social more/economics.
COMMENTER: GOMAG
RESPONSE: Comment noted.
- d. COMMENT: Please include evaluation and comparison of noise created by the pit versus no operations.
COMMENTER: GOMAG
RESPONSE: No operations would be similar to the calculated L_{dn} values shown in the EA (L_{dn} 40 dBA at N1; L_{dn} 37 dBA at N2), which are based on measurements of the existing baseline conditions. Although the calculated no operation noise levels are presented in the EA, evaluating the noise impact of the pit modifications should be done by comparing the existing pit noise versus the future pit noise.
- e. COMMENT: Please add to possible mitigation measures: Locate the crushing operation inside buildings or enclosures, and increase the height of the berms to eliminate line-of-sight to residences.
COMMENTERS: GOMAG, Parsch
RESPONSE: Comment noted.
- f. COMMENT: Commitment to adhere to the stated hours of operation is important, and the EA should be more specific on DEQ actions in operations that occur outside the permitted hours.
COMMENTER: Bolby
RESPONSE: Comment noted.
- g. COMMENT: The change in the Saturday noise environment due to hauling and stockpiling was not documented.
COMMENTER: Bolby
RESPONSE: Since no crushing would occur on Saturdays, two diesel-powered pieces of equipment operating simultaneously would produce approximately L_{dn} 54 dBA at $\frac{1}{4}$ mile, L_{dn} 48 dBA at $\frac{1}{2}$ mile and L_{dn} 42 dBA at 1 mile if a direct line of sight exists between the equipment and listener, and approximately L_{dn} 48 dBA at $\frac{1}{4}$ mile, L_{dn} 42 dBA at $\frac{1}{2}$ mile and L_{dn} 36 dBA at 1 mile if the line of sight was blocked.
- h. COMMENT: No mention is made of Sunday operations.
COMMENTER: Bolby
RESPONSE: Comment noted.
- i. COMMENT: Site N1 appears to be right alongside Cottontail Road, and one of the noise sources during the measurement at this site was sources was "traffic on nearby roads." Therefore traffic on Cottontail Road would overstate the sound levels at residences.
COMMENTER: Bolby
RESPONSE: Site N1 was actually northwest of the pit, and over 1,300 feet from Cottontail Road. Since the stated L_{eq} 37 dBA and L_{90} 33 dBA are similar, this indicates that no brief but high level noise source, such as a vehicle passing near the measurement location, occurred during the measurement period. Site N2 was close to Cottontail Road, but no vehicles passed by on the road during the measurement period at this location.
- j. COMMENT: Site N2 is not near the residence to the immediate north of the pit, and the location selected should be justified.
COMMENTER: Bolby

RESPONSE: Site N1 was actually northwest of the existing pit. The measurement location was not close to the residence because access to the property was not obtained prior to the first measurement after 10 p.m. on March 10, 2008. For consistency, the same location was used during measurements made the following day. The location was chosen because it was approximately the same distance from Cottontail Road as the residence, which could have been a dominant noise source since the crusher was not operational.

- k. COMMENT: The measurement periods are too short to confidently calculate the L_{dn} .
COMMENTER: Bolby
RESPONSE: Because of the rural nature of the area, short measurement periods can identify the ambient noise levels with reasonable accuracy. Even though short measurement periods were used to estimate the L_{dn} , the measured L_{90} values and the calculated L_{dn} are typical for light population density areas, as stated in the EA.
- l. COMMENT: Wind effects on the measured existing levels need to be addressed.
COMMENTER: Bolby
RESPONSE: Wind speed and direction during the daytime measurements at both locations were calm to 8 mph from the south, and during the nighttime measurements at both locations was 3 to 5 mph from the south. A wind screen was used, and ANSI Standard S12.18, Procedures for Outdoor Measurement of Sound Pressure Level, allows outdoor ambient noise level measurements in winds of less than 5 m/s (11 mph). Therefore, the effect of the wind on the measured noise levels was negligible.
- m. COMMENT: If the crusher is brought to within 500 feet of Cottontail Road, the predicted L_{dn} for the residence south of the road would be on the order of just under 61 to 67 dBA.
COMMENTER: Bolby
RESPONSE: The existing berm along the south edge of the pit would provide attenuation, and therefore, the noise levels would be closer to the stated 60 dBA.
- n. COMMENT: The EA states that the maximum noise levels for diesel-powered equipment is reached “intermittently,” a more accurate description would be “frequently.”
COMMENTER: Bolby
RESPONSE: Comment noted. However, loaders and excavators only reach maximum noise levels at conditions that require maximum throttle or maximum power, not continuously throughout the day.
- o. COMMENT: Table 4 should be revised to show 2-hours shorter existing operations compared to the proposed case to more properly portray the change from the existing situation to the proposed case.
COMMENTER: Bolby (Comment 3d)
RESPONSE: Reducing the existing daytime operations by two hours would reduce the calculated L_{dn} by 1 dBA. Therefore, the proposed action noise levels would be approximately 2 dBA higher than the existing pit operations, which is still less than the $L_{dn} +5$ dBA threshold where sporadic community complaints would begin to be anticipated due to a change in the noise environment.
- p. COMMENT: Use of L_{dn} to describe impacts is a problem, and the EA needs to go beyond the use of the L_{dn} metric.
COMMENTER: Bolby
RESPONSE: Comment noted.

- q. COMMENT: The EA should commit to limiting workday hours to 8:00 a.m. to 5:00 p.m., maintenance area must be kept at least 500 feet from the residences and shielded by noise barrier.
COMMENTER: Bolby
RESPONSE: Comment noted.
- r. COMMENT: Six-foot berms will provide very little noise reduction, and 16-20 foot berms might be required.
COMMENTER: Bolby
RESPONSE: Because of the depth of the existing and future pit, 6-foot berms may be sufficient to block the line of sight between the residences and the equipment. A 15 foot deep pit plus a 6-foot berm along the edge would effectively create a 21-foot tall barrier.
- s. COMMENT: Some type of mobile sound-absorbing noise barrier should be moved with the crusher to shield the closest residences. Neighbors would like to see the number of days that crushing is allowed restricted.
COMMENTER: Bolby, Morse
RESPONSE: Comment noted.
- t. COMMENT: Back-up alarm noise needs to be mitigated using manually adjustable alarms or “shush” alarms.
COMMENTER: Bolby
RESPONSE: Comment noted. However, recent research of broadband “shush” alarms by MSHA indicates the similarity of the broadband alarm spectrum to the noise spectrum of a crusher, which may mask the alarm sound under certain conditions and present safety hazards.
- u. COMMENT: High-grade mufflers should be installed on **all** trucks.
COMMENTER: Bolby
RESPONSE: Comment noted.
- v. COMMENT: Regular maintenance should be performed on **all** trucks.
COMMENTER: Bolby
RESPONSE: Comment noted.
- w. COMMENT: Noise should be a criterion in procurement decisions for equipment, and levels of all equipment on site should be measured, and the worst offenders quieted or replaced.
COMMENTER: Bolby
RESPONSE: Comment noted.
- x. COMMENT: The estimated 6 dBA reduction in noise level because of an earthen berm seems too low.
COMMENTER: Rice
RESPONSE: 6 dBA is the commonly accepted value for the reduction of barriers and berms if they just block the line of sight between the noise source and listener. The actual reduction provided by a barrier or berm would depend on the elevation of the source, the elevation of the listener, the horizontal distance between the source and receiver, and the height of the barrier or berm between the source and receiver. A detailed noise analysis could have predicted the noise reductions at each receptor location associated with various berm heights and pit depths versus various crusher locations, but the 6 dBA estimate was used to match the level of effort that was able to be completed for this EA.

Recreation

- a. COMMENT: There is no appreciable shoulder to Cottonwood Road or South Gateway Road, and there is frequent use of these roads by pedestrians, bicyclists, horse riders and children. The truck traffic has an adverse impact on access to and quality of recreation along these rural roadways.
COMMENTERS: GOMAG, Jarrett
RESPONSE: Because the permit amendment merely involves moving the existing operation to a different location at the same site, truck traffic is expected to remain much the same as it has been for the past ten years. Further, the Department has no authority to regulate traffic on public roads.

Traffic

- a. COMMENT: A large number of trucks are now on the highway and neighborhood roads. They increase traffic, do not always travel at safe speeds, and are a hazard traveling through a school zone.
COMMENTERS: Parsch, Rabatin, Stein, Volkersz, GOMAG, Hapcic, Jarrett
RESPONSE: DEQ does not have the authority to regulate traffic or speed limits on public roads. Trucks have a legal right to use the roads. Enforcement of speed limits is provided by the County Sheriff's office and the Montana Highway Patrol.
- b. COMMENT: Trucks have a legal right to use the roads.
COMMENTER: Rice
RESPONSE: Comment Noted.
- d. COMMENT: Please explain if the country road department was contacted, if there is and encroachment/driveway permit for the Nuss Pit access and if there is a time period associated with that permit.
COMMENTER: GOMAG
RESPONSE: The Gallatin County road department has been involved continuously with this permit since the 1990s. It has discussed the public's traffic issues with TMC, and requested the company's aid in resolving them. TMC has paved Mill Street through the town of Gallatin Gateway. It has opened its gate early to get trucks off Cottonwood Road. Further, it has informed all truckers it would not load trucks until 7:30 a.m. to dissuade them from showing up early. At the county's request, TMC has routed its trucks heading up the canyon onto Gateway South.

Vegetation

- a. COMMENT: Aerial photos show approximately 80% of the currently permitted acreage was unvegetated when the photos were taken.
COMMENTER: GOMAG
RESPONSE: Comment noted.

Reclamation

- a. COMMENT: Pg.3, p. 6 "*This soil is required for reclamation; the berms would not be removed during reclamation.*" This sentence is confusing. Do you mean to say that there is excess soil and that the 6-foot high berm would not be utilized for reclamation?
COMMENTER: Rice
RESPONSE: The sentence will be written to more accurately reflect the permit application. At final reclamation, a landscaped berm approximately 6 feet high would remain along Cottontail Road.

- b. COMMENT: Several comments were received regarding reclamation at the gravel operations. The commenters requested that the type of reclamation that would occur concurrently with mining should be clearly defined. A detailed reclamation plan for the surface topography and the pit bottom should be provided. The schedule for reclamation should be provided, including information regarding any reclamation concurrent with mining. In addition, maps currently provided with the EA are inadequate. Based on ARM17.24.219, maps showing reclamation design and proposed topography should be provided. Pre-mining water levels should be used for reclamation planning.

COMMENTERS: Hapcic; Parsch

RESPONSE: Concurrent reclamation occurs when a portion of the permit area is no longer needed for operations. This concurrent reclamation would follow the final reclamation plan for a pasture and two ponds. The application provided a map that showed the expected extent of the ponds. DEQ has pond guidelines available on its website. Reclamation was fully discussed in the EA Section 1. One of these commenters requested that mature conifers be transplanted to the site. There is very high mortality for large conifers when transplanted; thus planting such trees is not a viable way to reclaim the land.

Water Quality and Quantity

- a. COMMENT: Comments were received from the applicant requesting verification on statements in the EA. The applicant wanted to know what the purpose of monitoring groundwater elevation twice a month rather than once a month during the summer. He stated that four years of monitoring should have established an adequate baseline for groundwater. He requested the permit be issued with the requirement of groundwater monitoring once a month. In addition, the applicant wanted to know the purpose of monitoring water temperatures in the surface water and groundwater.

COMMENTER: Rice

RESPONSE: The requirement for groundwater monitoring twice a month was included in the 2004 amendment application. TMC was issued a violation for monitoring water levels monthly instead of bi-weekly during high water in the spring. This issue was resolved in the Consent Order signed in January 2009, in which DEQ agreed that monthly groundwater monitoring is sufficient.

Water temperature has direct and indirect effects on nearly all aspects of stream ecology. For example, the amount of oxygen that can be dissolved in water is partly governed by temperature. As cold water can hold more oxygen than warm water, certain species of aquatic invertebrates and fish with high oxygen demands (including trout) are found only in these waters. The discharge permit issued does not require temperature monitoring.

- b. COMMENT: Comments regarding the depth of the proposed gravel pit were received. One concern is that the Nuss pit is too close to the Monforton Ditch and the Gallatin River and is proposed to mine to a depth of 89 feet bgs. Water levels would be negatively impacted. The relationship between groundwater and the Gallatin River needs to be studied. In addition, the potential for the pit expansion and release of mine dewater and sediment to Fish Creek (trout/spring creek natural habitat) needs to be evaluated. Previous gravel pit operation without a discharge permit is an issue.

COMMENTERS: Conrad; Parsch; Rabatin

RESPONSE: The gravel pit is set back a sufficient distance from the ditch systems. Gravel operations currently operate under a discharge permit. Monitoring in wells at the Nuss Pit occurred mostly during a period of protracted drought over the last several years. Water levels appear to be stable, or gradually declining, most likely due to low rainfall over the monitoring period. Continued monitoring will show future trends.

- c. COMMENT: One comment concerned the samples for coliform and petroleum hydrocarbons having been obtained May and August 2007. The commenter recommends that any water sample looking for hydrocarbons should have been obtained in August 2005. The commenter questioned the quality of the water used for dust suppression and potential for petroleum hydrocarbon contamination.
COMMENTER: Hapcic
RESPONSE: It is not possible to go back in time two years to sample. The samples that have been taken are all free from contaminants. Water quality sampling and laboratory analysis would minimize the potential to use contaminated water for dust control.
- d. COMMENT: One commenter suggested that residents down gradient of the gravel operations have their well water sampled monthly for coliform and petroleum hydrocarbons.
COMMENTER: Hapcic
RESPONSE: Comment noted.
- e. COMMENT: One commenter stated that potential impacts to water quality from gravel pit operation includes turbidity and temperature. The temperature data presented in Tables 2 and 3 of Appendix A of the EA suggest that the temperature of the discharge to the ditch and Fish Creek is not significantly elevated. However, there does not appear to be sufficient temperature data to evaluate spatial and temporal potential affects to Fish Creek. Commenter suggests more rigorous temperature monitoring and modeling program.
COMMENTERS: AMEC Geomatrix
RESPONSE: Comment noted. Turbidity is monitored as required in the gravel operations discharge permit. Measuring temperature is not required in the discharge permit. Existing temperature data do not suggest a negative impact to the outlet drainage or Fish Creek.
- f. COMMENT: Several commenters requested the need for a comprehensive hydrogeologic study to assess hydrogeologic conditions from pre-mining through current day. Based on the history of the gravel operations permitting process, there was never a comprehensive analysis and comparison to pre-mining conditions. The commenters stated that the hydrogeology report completed by Nicklin and cited in the EA addresses only the future permit.
COMMENTERS: Derham; GOMAG, Lee-Roark, Steinmuller
RESPONSE: A comprehensive hydrogeologic investigation like that requested is outside the scope of the EA requirements. Sufficient hydrogeologic information is provided in the application and subsequent reports to make an informed decision regarding the impacts the gravel pit expansion may have on the hydrogeology.

Groundwater Monitoring

- a. COMMENT: Ground water monitoring statistics throughout the early spring runoff and summer irrigation season of 2008 were not included. At a minimum, they should have been collected at least once a week. This was a very high water year, and it's critical data to include when making an informed decision regarding the actual depth to ground water. Previous to this year, we were in drought conditions so those older statistics would not be representative of the actual water table. In general, people would like to see the mining stay out of the ground water.
COMMENTERS: Conrad, Parsch
RESPONSE: Water level data available at the time the EA was completed were used in the document. The table has been updated in this document with more recent data. Monitoring is conducted over time precisely because weather changes, and that change is accounted for in long-term monitoring. It was determined by DEQ that monitoring more frequently than

monthly would not add much value to the database. The greatest month to month change was 15 inches and the greatest annual change was 5 feet.

Water Rights

- a: COMMENT: Several comments were received regarding the need for a beneficial use permit to use groundwater for the gravel operations. It was suggested that the Gallatin County AGAI group and the DNRC needs to be actively involved regarding irrigation ditch setbacks and irrigation water rights use changes.

There appears to be an estimated 33.9 acre-feet per year of consumptive use associated with the gravel pit operation. These water uses meet the definition of “beneficial use” and appears that TMC needs a beneficial use permit for the gravel operation. Since the site is located in a closed basin, TMC would be required to file an application to change a water right for mitigation to offset net depletion to surface water.

COMMENTERS: Conrad; Morse; AMEC Geomatrix

RESPONSE: TMC would need to contact DNRC regarding a beneficial use permit.

Groundwater Model

- a: COMMENT: Several reviewers commented that the modeling completed by Nicklin provided water quantity, aquifer properties, and drawdown estimates that appear reasonable. However, more information is needed to thoroughly evaluate the model design, reproduce the results, and compare fluxes from the model to a water balance for the source aquifer. In addition, the data should be used to develop a stream depletion analysis.

COMMENTERS: Hapcic; AMEC Geomatrix, Morse

RESPONSE: The groundwater modeling completed by Nicklin provided additional information for use in evaluating the hydrogeologic conditions at the Nuss Pit site. No additional modeling is planned. If a beneficial use permit application is required by DNRC, a stream depletion analysis may be required as part of that application.

Specific Comments on Water and Reclamation

- a: COMMENT: Page 2; Paragraph 2, Line 4 (environmental analysis): *Text states: “depth of about 87 feet from the original ground surface...”* There has been no systematic or scientific environmental analysis that addresses the increase in mining depth to 89 feet below ground surface.

Previous environmental analysis was performed for the permitted excavation (TMC-002 amendment #1) to 35 feet below ground surface. DEQ files include a letter documenting request for mining to 89 feet below ground surface (75 feet below groundwater), in a letter submitted to Jo Stephen, DEQ, from Jerry Rice, TMC, dated March 26, 2007. Bathymetric data included with that letter indicate that at that time the pond had been excavated to 4,850.40 (not fully legible) feet above sea level, which was at that time 52.96 feet below the pond surface, and approximately 67 feet below the original ground surface. The TMC cover letter refers to a telephone conversation concerning a dredge bucket stuck in the ground below the pond.

Email from Jo Stephen, DEQ, to Kenai Construction and Keith Duneman (TMC) dated Thursday July 22, 2004, specifically stated under the heading “Mining Method,” in the fourth bullet, that “If the boom dredge were to be used, an amendment would be submitted so that impacts of that type of equipment could be analyzed under the Opencut Act and MEPA.”

DEQ files examined by GOMAG found no record of any response (written, email, or phone notes) from DEQ to TMC concerning the March 25, 2007, request for amendment to the Plan of Operations. It is unclear if this request was granted or permitted. No record has been found of any DEQ consideration of or issuance of a letter of violation for this 154% exceedance of permitted depth. No record has been found of the environmental analysis referred to in the July 22, 2004, email, and no specific environmental analysis of the depth or type of equipment is included in this Draft EA.

COMMENTERS: GOMAG, Parsch

RESPONSE: The text will be revised to state that the pit depth would be 89 feet below ground surface. DEQ exercises its enforcement discretion on a case-by-case basis in determining whether to issue violation letters. Also, the EA is intended to describe potential impacts from the operation if the proposed permit amendment is granted, not discuss allegations of past violations.

- b: COMMENT: Page 3, Paragraph 1, Bullet 2: Add text concerning permit requirement on amendment #1 (2004) that water be monitored every two weeks throughout high water and include also an explanation that there is only 2008 data through the high water season because this monitoring was never done previous to Letter of Violation (DEQ 9/11/2007), issued following citizen complaint.

COMMENTER: GOMAG

RESPONSE: Monitoring groundwater levels monthly is sufficient. DEQ has determined that the requirement to monitor every two weeks during high groundwater is unnecessary and also unworkable, since it would be difficult to ascertain when high groundwater is present until after the levels of groundwater have begun to drop. The Department expects TMC to submit an application to amend its permit to eliminate that requirement.

- c: COMMENT: Page 3, Paragraph 4, Line 2: *Text states: "Wash water would be recycled."* In environmental analysis sections, include a discussion of potential leaching and any potential salinity problems that may arise from intensive recycling of groundwater through the wash plant and sediment pond vicinity.

COMMENTER: GOMAG

RESPONSE: Variables such as water source, water chemistry, pond size, evaporation rates, and gravel quantities are needed for analysis. The permit would include monitoring requirements that would alert DEQ to any water quality issues.

- d: COMMENT: Page 7, Paragraph 2, Line 2: *Text states "...slopes downward to the north."* Change to state "slopes downward to the north and east toward the river."

COMMENTER: GOMAG

RESPONSE: The statement in the text is correct and does not need to be changed.

- e: COMMENT: Page 7, Paragraph 2, Line 6:: *Text states: "The Quaternary alluvium consists of cobbles and gravel intermixed with sand, clay and silt."*

The gravel resource has been derived from erosion and fluvial transport of sediment from higher in the Gallatin River drainage basin. There is at least one bedrock formation (Upper Cambrian Pre-Belt gneiss, schist and related rocks, [MBMG via NRIS interface]) in the watershed approximately 16 miles upstream of the Nuss Pit that had commercial quantities of asbestos ore. The gravel being crushed at the Nuss Pit should be analyzed for asbestos and erionite content (Steve Way, US EPA, pers. comm., 2008). (Erionite is another fibrous mineral that has been documented to cause respiratory diseases).

COMMENTER: GOMAG

RESPONSE: See response to comment 'n.' under 'Air Quality Compliance'.

- f: COMMENT: Page 7, Paragraph 4, Line 8: *Text states: “A soil survey conducted in 2007.”* It is not clear if this soil survey and determination of sufficiency of reserved topsoil for reclamation refers to the area permitted in 2004 (42.1 acres) or the full area for which the application to amend was submitted in 2007 (87 acres). Please clarify.

COMMENTER: GOMAG

RESPONSE: The soil survey was completed to evaluate available stockpiled topsoil quantities for reclamation of the current permitted area (42.1 acres).

- g: COMMENT: Page 7, Paragraph 5, Line 1: *Text states: “Irreversible and Irretrievable Commitments of Resources: Some topsoil may be lost during ground disturbance.”*

A large portion of the topsoil stockpiled from the current operations has been sold and removed from the site, which is not mentioned in this discussion (nor previous environmental analyses) of mine actions. Since the DEQ does not require topsoil for areas that would be inundated by ponds, additional topsoil resource would be removed and sold from the additional acreage addressed in this amendment application area. Please address the irreversible and irretrievable commitment of resources related to removal of that topsoil from the site, as well as the potential implications of topsoil removal for the health of the aquatic ecosystem in the ponds to be constructed in the reclaimed site.

COMMENTER: GOMAG

RESPONSE: DEQ requires that sufficient topsoil be available and used in the gravel operation reclamation. The operator is required to reclaim the land based on the DEQ approved reclamation plan. The fact that the soil has been sold does not necessarily mean that it is irretrievably lost. Persons buying topsoil are usually putting on gardens, lawns, etc.

- h: COMMENT: Page 7, Paragraph 5, Irreversible and Irretrievable Commitments of Resources Environmental analysis does not address the impact of the government action (permitting) concerning irreversible and irretrievable conversion of prime farmlands. USDA NRCS ranks Sudworth silty clay loam, 0 to 2 percent slopes, as *All areas are prime farmland*. The Meadowcreek silty clay loam, 0 to 2 percent slopes and the Soapcreek silty clay loam, 0 to 2 percent slopes are both ranked as *Prime farmland if irrigated*.

COMMENTER: GOMAG

RESPONSE: The site would be reclaimed with the native soils. Excess soils from the ponds are not being destroyed. DEQ notes that under other types of developments such as subdivisions, soil is destroyed or paved over, which is an irretrievable and irreversible impact.

- i: COMMENT: Page 7, Paragraph 7, Line 7: *Text states: “Because of the quality of the soil and the amount of available precipitation, this site should reclaim easily.”*

USDA NRCS ranks the soil found primarily in Parcel 2C-4, the Sudworth, as “poor” as a potential source of reclamation materials due to its low organic material content and susceptibility to water erosion. The Soapcreek soil unit, the previously existing topsoil in Parcels 2C-3 and 2C-2, is considered to be only “fair”, as is the Meadowcreek soil unit found in the east-central portion of Parcel 2C-1. The Draft EA should include possible mitigation measures to incorporate during operations as well as actions such as soil amendments, irrigation, or other actions in the reclamation plan that would be taken to deal with adverse impacts to topsoil.

COMMENTER: GOMAG

RESPONSE: See the comment immediately above and comment b under reclamation section. DEQ notes this comment contradicts the previous comment regarding the quality of the soils, which in Comment h. are referred to as ‘prime farmland’.

- j: COMMENT: Page 8, Paragraph 4, Existing Environment; Page 10, Paragraph 1, Groundwater Modeling; Page 11, Paragraph 7. Potential Impacts Environmental analysis does not address the impact of either the proposed or current operations *to the pre-mining environment*. Environmental analysis does not address the impact of either the proposed or current mining to the Gallatin River in the reaches of the river immediately upstream, adjacent to, and downstream of the Nuss Pit. Environmental analysis does not address the impacts of either the proposed or current operations to the pre-mining soil moisture regimes (i.e., subirrigation, depth to groundwater, etc). See also General Comment 1.
COMMENTER: GOMAG
RESPONSE: Comment noted.
- k: COMMENT: Page 8, Paragraph 5, Line 2: Change text concerning monitoring record from “since 2004” to “since December 2004”.
COMMENTER: GOMAG
RESPONSE: The text will be revised to state that groundwater monitoring began in December 2004.
- l: COMMENT: Page 8, Paragraph 6, Line 6 *Text beginning with “The graph indicates...” through the end of that paragraph on Page 9, Paragraph 1, Line 3.*
This text describes groundwater data and surface water data, and makes the statement that “low precipitation years likely contributed to this downward trend” in groundwater data. However, no scientific study has determined the relationship between groundwater and the Gallatin River throughout the year through the reaches immediately upgradient, adjacent to and downgradient of the Nuss Pit.
COMMENTER: GOMAG
RESPONSE: Comment noted.
- m: COMMENT: Page 9, Groundwater Elevations at TMC Nuss Pit: Although the data on this graph is the best data that was gathered from monitoring of groundwater monitoring wells subsequent to citizen requests for this monitoring in 2004, it does not illustrate all the data available concerning groundwater levels. There is one additional data point for groundwater level in the SE (trailer) well from the driller’s log. This graph does not include any of the pre-mining groundwater level data that is available from other well drilling records, test pit data from septic pit applications, depth to groundwater information available in USDA NRCS soil maps, nor that included in observations in the DEQ file for the Nuss Pit. It does not include any of the post-1998 data that is available from nearby well and test pit data, nor the observations in the DEQ file for the Nuss Pit.
- Additionally, as previously discussed with DEQ, although groundwater depth relative to elevation above mean sea level is the perspective needed to understand groundwater flow, it is the depth of groundwater below the ground surface that is important in this area that has historically been subirrigated. That graph is much more illustrative of the adverse impacts of the mining operation on water level in the adjacent land parcels.
COMMENTER: GOMAG
RESPONSE: Sufficient groundwater data is presented in the EA to adequately assess groundwater levels in the Nuss Pit area. Table A-1 has been revised to include depth to water.
- n: COMMENT: Page 9, Table 1: Please add a note to the table (or inset a location map) to show that the USGS gauging station 06043500 Gallatin River near Gallatin Gateway, Montana is located approximately 1500 feet downstream of the confluence of Spanish Creek with the Gallatin River, which is 7.5 river miles upstream of the bridge(s) across the Gallatin River at Gallatin Gateway.

Table 1 does not explain what the “Normal” discharge parameter means. There is no adequate scientific hydrogeologic investigation of the relationship between groundwater and the Gallatin River in the vicinity of the Nuss Pit.

COMMENTER: GOMAG

RESPONSE: The following text will be added to Table 1. “The location of this USGS stream gauging station is approximately 7.5 river miles upstream of the bridge(s) across the Gallatin River at Gallatin Gateway. Normal discharge refers to the mean of the long-term monthly discharge. Comment regarding the detailed hydrogeologic investigation is noted.

- o: COMMENT: Page 10, Paragraph 1, Line 5: *Text states: “Model input parameters were not provided to DEQ for review.”* There is not sufficient detail of input parameters and modeling details to allow duplication and review of the modeling reported in the Nicklin report. Additional information is required.

COMMENTER: GOMAG, Morse

RESPONSE: Comment noted.

- p: COMMENT: Page 10, Paragraph 2, Line 6: *Text states: “A localized drawdown of 1 to 3 feet would not be expected to adversely impact water users in the area unless the well intake is within a few feet of the water table.”*

There is no environmental analysis of potential impacts to use of groundwater by vegetation. Please address the impact of the pre-mining through proposed amendment impacts to adjacent sub irrigated hay fields and residential tree plantings.

COMMENTER: GOMAG

RESPONSE: Lowering of the water table may have an impact of vegetation that is irrigated by shallow groundwater. Water table can be lowered by factors such as drainage, overuse, drought conditions, lack of recharge, etc. The change in the water level would be one factor in determining the amount of impact, if any, on the vegetation that is benefiting from subsurface irrigation.

- q: COMMENT: Page 10, Paragraph 3, Line 1: *Text states: “Water level in the pond would be maintained at an elevation of approximately 4,911 feet msl during mining operations and would be maintained at reclamation.”*

Add text, based upon results of modeling and hydrogeologic analysis, explaining what the elevation of the pond would be if the pond had no surface water discharge/outlet. Include the likely equilibrium elevation of the surrounding groundwater table for the no discharge scenario.

COMMENTER: GOMAG

RESPONSE: If the discharge were plugged the groundwater would rise to the approximate premine elevation minus evaporation. Based upon modeling this would result in a maximum rise of 3 feet in permit area and down to 1 foot

- r: COMMENT: Page 10, Paragraph 3, Line 4: *Text states: “The variation in flow is likely due to seasonal changes in water levels, expansion of the gravel pit, and deepening of the gravel pit between 2001 and 2007.”* The available data, modeling, and explanatory text are insufficient to determine the relationship between groundwater in the unconfined alluvial aquifer, actions / excavations within the gravel pit, discharge variations from the headgate, water levels in the Monforton drain, Fish Creek and the Gallatin River.

COMMENTER: GOMAG

RESPONSE: The hydrogeologic impact analysis requested is beyond the scope of the EA.

- s: COMMENT: Page 10, Paragraph 5, Water Quality: Groundwater quality samples from two sampling events, May 24, 2005 and August 13, 2007 are not sufficient monitoring to determine if actions taken at the Nuss Pit have impacted groundwater quality. There is no consideration of potential impacts to groundwater from sediment pond infiltration or leachates from the operations. Please explain what septic / sanitary facilities or provisions are made for the “up to seven” staff anticipated for the proposed permit.
COMMENTER: GOMAG
RESPONSE: Any monitoring requirements would be included in the gravel operations permit and the discharge permit. DEQ would evaluate monitoring needs prior to issuing the permits. Regarding septic facilities and provision, a portable outhouse would be available on site. Waste would be fully contained and hauled off site for proper disposal. There would be no discharge on-site from the portable outhouse.
- t: COMMENT: Page 11, Paragraph 2, Water Use: There is no approved beneficial industrial water right use for operations at the Nuss Pit. Please explain the environmental impacts, legalities and water rights implications of digging a groundwater pond and discharging that water via an outlet to create a new surface water right in a closed basin. Include discussion of the status of the newly created surface water right after the completion of mining. See also Geomatrix / AEC comments.
COMMENTER: GOMAG
RESPONSE: TMC needs to contact DNRC regarding a beneficial use permit.
- u: COMMENT: Page 12, Paragraph 1, Line 1: *Text states: “This lower water table may require surface irrigation on land that was naturally sub-irrigated in the past. However, mining operations would not adversely impact water users in the vicinity of the mine since water is available for surface irrigation.”*

Removing subirrigation from adjacent lands without compensation is a significant adverse impact to those landowners. Removal of subirrigation impacts agriculture and residential landscaping. Regardless of sufficiency of surface water rights on those parcels, subirrigation requires no equipment or energy consumption. Removal of subirrigation from adjacent parcels is an adverse impact that requires mitigation.
COMMENTER: GOMAG
RESPONSE: Comment noted.
- v: COMMENT: Page 12, Paragraph 3, Possible Mitigation: Please include consideration of additional potential mitigation by adding the following bullets:
 - Restore groundwater to pre-mining levels for subirrigation of adjacent parcels.
 - Prohibit impacts of mining to the Gallatin River.
COMMENTER: GOMAG
RESPONSE: Restoring groundwater to pre-mining levels is beyond the scope of this EA or reclamation. Other factors beyond the control of reclaiming a gravel operation have an impact on water levels, including increased development, drought, changes to agricultural and irrigation practice, landscaping changes, etc. The final reclamation plan would be approved by DEQ.
- w: COMMENT: Page 12, Paragraph 5, Line 9: *Text states: “In fact, any development built during mining operations should be aware of water level rebounds that are expected following mining operations and take into account this potential.”*

If this statement is correct, there should be notification added to the subdivision plats and deeds of the parcels that would be impacted by the proposed amendment (and previous actions).

With respect to land parcel purchases and building through the current permit (1998-2007): The impacts of mining subsequent to 1998 to pre-mining groundwater condition have never been investigated, monitored or identified (see General Comment 1). The clear picture of the undocumented trenching in 1998 to create an un-permitted surface water discharge to the Monforton drain system was only discovered due to the persistent questions of property owners who observed the decline in groundwater from pre-mining levels. Without any documentation of the impacts to groundwater, there is no way that a property owner would have any reason to suspect that groundwater levels were artificially lowered by the mine. No mechanism exists in the Opencut Mining Act to warn adjacent landowners of changes to groundwater on their parcels. If the appropriate MEPA analysis had been done in 1998, some documentation may be available, but only with intensive research. This point in the Draft EA underlines the need for pre-mining site characterization and data – which was not gathered for the Nuss Pit.

COMMENTER: GOMAG

RESPONSE: DEQ has no authority to require local landowners to add language to existing deeds for this purpose. Comments attached to deeds regarding the potential for groundwater levels to rebound following reclamation of gravel mining operations needs to be authorized at the County level. The uncertainty on the amount water levels may rise and where changes would be expected may be an issue.

Wetlands and Unique Habitats

- a. If a jurisdictional determination was made by the US Army Corps of Engineers Montana Office for the drainage ditches and irrigation ditches throughout the proposed project area and a wetlands delineation including investigation of hydric soils and wetland vegetation communities was completed, please make this available for review. The USDA NRCS soil survey shows that portions of the site are characterized by Meadowcreek silty clay loam, 0 to 2 percent slopes; and Soapcreek silty clay loam, 0 to 2 percent slopes. Both of these are hydric soil units. If a jurisdictional determination and wetland delineation were not done, please provide some technical documentation supporting the decision to not perform that environmental analysis for public review.

COMMENTER: GOMAG

RESPONSE: DEQ and TMC are not aware of a wetlands delineation completed by the US Army Corps of Engineers in the proposed project area. The presence of hydric soils alone does not constitute a wetland. Along with hydric soils, vegetation and hydrology need to be used in classifying wetlands.

- b. COMMENT: It is more accurate to state that mitigation and/or design elements of the proposed plan reduce the likelihood that the proposed action would impact aquatic biologic resources, than that it is 'unlikely'

COMMENTER: GOMAG

RESPONSE: Comment noted.

Section III: Impacts on the Physical Environment

IMPACTS ON THE PHYSICAL ENVIRONMENT
RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES
1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:
Applicant's Proposed Action: The applicant proposes to expand gravel mining operations at the current operation west of Gallatin Gateway. The soils would be salvaged prior to mining and stockpiled along with the existing soils along Cottontail Road. The salvaged soils would be used in final reclamation at the completion of the mine operation
Existing Environment: The proposed site lies on a bench within the alluvial valley of the Gallatin River and slopes downward to the north. Quaternary alluvium, predominantly stream laid deposits, underlie the soil and overburden in the proposed project area. The unit is identified as Qa on the geology map of the Gallatin Valley (Hackett 1960). More recent mapping by the Montana Bureau of Mines and Geology has further defined these units as Quaternary alluvial terrace (Qat) deposits (Vuke 2002). The Quaternary alluvium consists of cobbles and gravel intermixed with sand, clay, and silt. The upper 20 feet is generally composed of clean and moderately well sorted cobbles and gravel. The thickness of the Qat deposits are unknown. Drillers logs indicate sand and gravel, and a heterogeneous mixture of clay, silt, sand, gravel, and cobbles is generally found at least within the top 100 feet beneath the surface in the valley. The site is located in an area of relatively flat, irrigated agricultural land. Ground surface elevation ranges from about 4932 feet mean sea level (msl) to 4920 feet msl sloping from the southwest to the northeast. In general, three main soil types were identified at the project area and include the following: 1) Meadow Creek silty clay loam, consisting of somewhat poorly drained silty clay and silt loam near the surface and very gravelly loamy sand at depth; 2) Soap Creek, somewhat poorly drained silty clay loam, a silty clay loam near the surface and stratified fine sandy loam to silty loam at depth; and 3) Sudworth silty clay loam, dominantly silty clay loam near the surface, loam at intermediate depths, and extremely gravelly sand at depth (SSURGO 2008). Thickness of soil and overburden likely varies across the site.
Potential Impacts: Topsoil and overburden would be salvaged and stockpiled along the southern permit boundaries. The topsoil and overburden could be subjected to erosion. However, these stockpiles would be seeded to control both water and wind erosion. Mining operations would occur in phases.
Reclamation: The site would be reclaimed to two ponds and pasture land for grazing livestock. Reclamation would occur concurrently with mining. After mining, the land would be reclaimed to two ponds, the southerly pond approximately 36.7 acres, and the northerly pond, approximately 15.7 acres. Topsoil would be relocated on the disturbed areas above the water table. The remaining area above the water table would be reseeded and reclaimed. The average annual precipitation in the area is 16 to 18 inches and the growing season is over 100 days per year. Because of the quality of the soil and the amount of available precipitation, this site should reclaim easily. A soil survey conducted in 2007 calculated that the existing stockpiles contain enough overburden and topsoil to cover the pasture areas with 12 inches overburden and six inches of topsoil (Kenai Engineering, Inc. 2007).
Irreversible and Irretrievable Commitments of Resources: Some topsoil may be lost during ground disturbance. About 4.4 million cubic yards of material would be mined. Gravel resources would be removed and the commitment cannot be reversed. The pre-mining landscape could not be replaced without refilling the excavation with imported material.
Cumulative Impacts: The gravel resource in Gallatin County is not particularly limited in the area. There are numerous sand and gravel operations in the Gallatin Valley. Several are located or proposed within a few miles of this proposed project area. The proposed operation would add to the cumulative and permanent removal of sand and gravel as demand for these products increase as a result of new

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subdivisions, new homes, and associated roads as well as new commercial and industrial structures. The proposed change in the land use from agriculture to a gravel pit and then reclaimed ponds is permanent.

2. WATER QUALITY, QUANTITY AND DISTRIBUTION:

Applicant's Proposed Action: The applicant proposes to expand the gravel pit operations which would modify the size and area of the ponds upon final reclamation. The existing permit allows the gravel pit operations to leave a single pond up to 24.6 acres. The proposed amendment to the existing permit would create two ponds. The existing (southerly) pond would be expanded up to 36.7 acres. A new (northerly) pond would be completed up to 15.7 acres.

Water Monitoring: The water monitoring plan which is part of the plan of operations includes:

- Construction of 2 new monitoring wells within 1 month of permit approval;
- Water quality testing at 4 of the 6 wells at annual high and low water levels;
- Water quality testing would include the domestic parameters, hydrocarbons, and E. coli;
- Monthly water elevation; and quarterly reporting to DEQ.

Existing Environment: The proposed gravel pit operation is located within the Gallatin River watershed of southwest Montana. Several surface water features are present in the general area of the project site. The Gallatin River is the main surface water body in the project area. Approximately 70 percent of the surface water flow entering the Gallatin Valley enters via the Gallatin River at the mouth of Gallatin Canyon, south of Gallatin Gateway (Hackett 1960). Other surface water flow enters from streams along the margin of the valley. Irrigation ditches and drain ditches are present in the project area. Additionally, local springs are present in the area indicating the presence of shallow groundwater. Groundwater flows generally south to north. The flow in the Gallatin River varies significantly each year since it is primarily dependent upon the amount of snowpack.

Groundwater Levels

Water levels have been monitored by the applicant in three monitoring wells and one adjacent domestic well at the current gravel pit operations since 2004 (Figures 3 and 4). The three monitoring wells were installed in 2004 and drilled to a depth of 38 feet bgs. Static water levels in the wells were measured after the wells were installed and ranged from 5 to 8 feet bgs. Water level measurements collected from December 6, 2004 through October 1, 2010 are provided in Table 1 of Appendix A.

The graph below displays the relationship of water level elevations over time. During the monitoring period, highest water levels were recorded to occur in mid summer (June-July) in all four wells. This typical summertime rise in water table results from natural snowmelt, precipitation, infiltration, and runoff, and is supplemented by flood irrigation that starts in May and June and continues until September or October. The graph indicates a general downward trend in water levels and the typical groundwater fluctuations expected in an unconfined aquifer. The flow in the Gallatin River varies from year to year depending largely on the amount of snow in the watershed. Recorded discharge from August 2004 through April 2008 for the USGS gauging station located on the Gallatin River at Gallatin Gateway is shown in Table 1. The data indicates that mean monthly discharge on the Gallatin River was generally less than normal discharge since May 2007, and appears to correlate with lower groundwater levels. Low precipitation years likely contributed to this downward trend.

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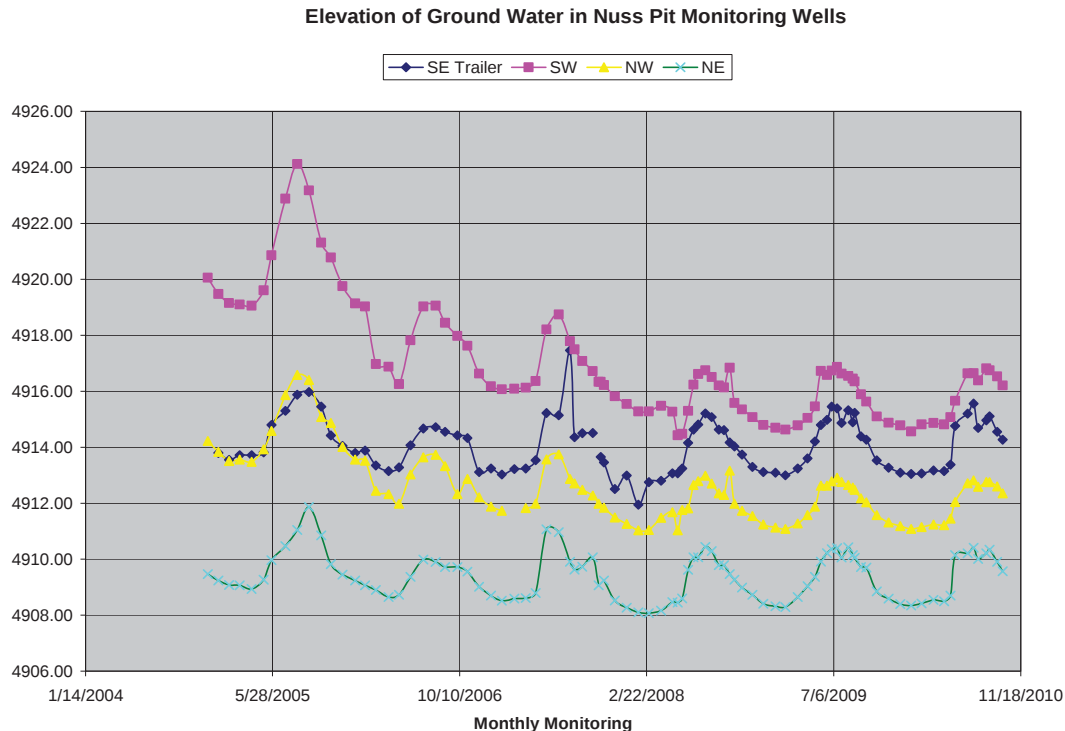


Table 1. Monthly mean discharge in cubic feet per second (CFS) for USGS gauging station 06043500 Gallatin River. The location of this USGS stream gauge is approximately 7.5 river miles upstream of the bridge(s) across the Gallatin River at Gallatin Gateway.

	2004	2005	2006	2007	2008	Normal
Jan		255	268	276	255	266
Feb		248	244	269	237	253
Mar		262	257	351	232	290
Apr		386	592	559	313	512
May		1725	2621	2018	1865	2120
Jun		2688	2710	1825	4057	2410
Jul		1086	865	630	2293	860
Aug	480	540	470	419	737	477
Sep	437	399	393	355	512	396
Oct	387	390	425	390	433	400
Nov	321	340	405	301	393	355
Dec	274	272	286	255	305	277

1. Source: USGS Surface Water Data for Montana, National Water Information system: Web Interface, <http://waterdata.usgs.gov/mt/nwis>
2. Values in *italics* indicate mean monthly discharge less than normal discharge for that month
3. Flow data from October 2007 to April 2008 are provisional and are subject to revision by the USGS

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Groundwater Modeling:

Rock Pit, LLC, owner of the gravel pit, contracted with Nicklin Earth & Water, Inc. to complete a hydrologic study that included 1) quantifying changes in groundwater levels in the vicinity of the gravel pit for current and future gravel pit operations and 2) estimating pond evaporation (Nicklin 2007). The change in water levels was modeled using the United States Geological Survey groundwater flow model MODFLOW. Model input parameters were not provided to DEQ for review.

Both transient and steady-state simulation tests were modeled and produced similar flow rates resulting from gravel pit dewatering. Drawdown resulting from the proposed actions is predicted to be primarily in a westerly direction from the gravel pit. The model simulation predicted that the maximum relative off-site drawdown comparing the amendment expansion with current water levels would be from less than 1 foot to about 3 feet. The rate of drawdown would decline as the distance from the pit increased. A localized drawdown of 1 to 3 feet would not be expected to adversely impact water users in the area unless the well intake is within a few feet of the water table. However, water would still be available for use if the well intake was extended deeper. At the closest residence with a domestic well, located immediately south and west of the existing pond and gravel pit operation, has a predicted drawdown of 1.4 feet from the proposed amendment activity when compared to existing conditions.

Water level in the pond would be maintained at an elevation of approximately 4,911 feet msl during mining operations and would be maintained at reclamation. Discharge measurements were collected at the pond outlet on May 7 and 8, 2001, and April 17, 2003, and ranged from 3.22 to 3.68 cubic feet per second (cfs). On October 10, 2007, discharge was measured at 8.7 cfs. The variation in flow is likely due to seasonal changes in water levels, expansion of the gravel pit, and deepening of the gravel pit between 2001 and 2007. It is expected that the relative magnitude of the groundwater sink (where the pond is acting like a groundwater drain) would continue to vary as groundwater levels fluctuate (Nicklin 2007).

Estimates of water loss from pond evaporation were calculated (Nicklin 2007). The current permit includes 24.6 acres with an estimated average annual evaporation loss of 43 acre feet. With the increase in acreage to 52.4 acres from the proposed expansion, the estimated evaporation loss is 92 acre feet per year. This amount of consumption (or evaporation loss) is equivalent to the evaporation loss from a 65 acre irrigated alfalfa field.

Water Quality: Under state regulations, the quality of state waters cannot be degraded. "State waters" means a body of water, irrigation system, or drainage system, either surface or underground. Sewage lagoons or land application disposal systems are not included (75-5-103(29), MCA). Two water samples were collected from the four monitoring wells in 2005 and 2007. Water samples were collected during two sampling events and analyzed for general water quality parameters, coliform, and petroleum hydrocarbons. Petroleum hydrocarbons were analyzed in samples collected during both sampling events, May 25, 2005 and August 13, 2007. Coliform was analyzed only during the August sampling event. One water sample was collected from the pond outlet in 2007. In addition, water temperatures were recorded in the wells and at various pond depths and the pond outlet on August 13, 2007. Water quality and temperatures are presented in Tables 2 and 3 in Appendix A.

Water quality sample results indicate that the groundwater was of good quality. No coliform or petroleum hydrocarbons were reported in the analytical results.

Local water temperatures measured in August 2007 were slightly higher near the surface of the pond than at depth in the pond and at the pond outlet. Water temperature variations ranged from 1 to 5 degrees and are comparable to water temperatures recorded in groundwater. A table showing water temperatures at depth in the gravel pit ponds as well as other selected locations is provided in Appendix A.

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Water Use: The crusher would use about 10 gallons per minute (gpm). Maximum daily water use for the crusher would be about 6,600 gallons per day (gpd). About 20,000 gpd would be used for dust suppression during dry weather in the facility area and the entrance road. This water would be supplied from the ponds.

The major water consumer would be the wash plant. A wash plant uses water to remove fine material less than sand grain size from gravel. The cleaned materials are screened by size and carried by conveyor belts to stockpiles of different sized products including washed sand for mortar, clean rock for concrete, patio rock bedding, sized rocks for drain fields, and other products. The wash water flows by gravity through the plant and drains to a series of settling ponds, carrying the fine silts and clays with it. Ultimately the fine dirt settles in the ponds and the clear water is recycled through the wash plant. Because a wash plant utilizes flowing water, it cannot be operated when temperatures are below freezing. It is estimated that this proposed wash plant would operate about 6 months per year.

The wash plant uses about 500 gpm. Water is pumped to the top of the plant and infiltrates through the gravel, picking up the fines as it goes. After moving through the washing process and the settling pond, water from the pond would be recycled back to the wash plant to start the loop over again. About 335 gpm of the initial 500 gpm would recycle. Approximately 165 gpm would be consumed by remaining in the products (67,000 gpd), evaporating (8,000 gpd) or infiltrating into the ground (4,000 gpd). The 165 gpm would be made up from fresh water from the canal.

A wash plant would be scheduled to operate and stockpile material during the spring, summer and fall, about 6 months a year. The wash plant's annual consumption is calculated below (DEQ 2003).

165 gpm x 60 min/hr. x 8 hr/day x 5 days/week x 26 weeks = 10,296,000 gallons of
makeup water per year, or approximately 30 acre feet.

Potential Impacts: Water for the mining operations comes from groundwater and the wash water is recycled. Water samples indicate that temperatures were slightly higher near the surface of the pond and at the pond outlet when compared to temperatures deeper in the pond. If water temperatures were substantially elevated, the potential to impact salmonid species would exist. However, water temperature is only slightly increased as it leaves the pond, and the water would have sufficient time to equilibrate with other surface water and groundwater prior to flowing into fish habitat. Sediment control ponds would be installed to minimize the potential for sediment to flow downstream during excavation. There would be no outlet from the wash plant system. No permanent on-site fuel storage is proposed.

Increase in drawdown due to mining operations is shown in the groundwater model to lower the water table beneath adjacent properties. This lower water table may require surface irrigation on land that was naturally sub-irrigated in the past. However, mining operations would not adversely impact water users in the vicinity of the mine since water is available for surface irrigation.

Continued monitoring water levels and temperatures and collection of water quality samples on a regular basis would provide additional data that would be important to document potential impacts to groundwater and surface water from mining operations.

Water flow measurement is required by the discharge permit. Water temperature measurements are not required.

Possible Additional Mitigation:

- Continue to measure water temperature in surface water and groundwater

Irreversible and Irretrievable Commitments of Resources: The maximum predicted three feet of groundwater drawdown would continue.

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Cumulative Impacts: Water levels are predicted to be drawn down only a maximum of three feet during mining. This predicted drawdown depth would not have an adverse impact on surrounding water rights holders. The Gallatin Valley continues to grow as new subdivisions and commercial developments are proposed and built. If development continues in the immediate area of the gravel pit operations, additional stresses would be placed on the aquifer. However, given the high permeability of the aquifer material underlying the area, overall water level declines should not exceed the predicted drawdown or impact water users in the area. In fact, any development built during mining operations should be aware of water level rebounds that are expected following mining operations and take into account this potential.

3. AIR QUALITY:

Applicant's Proposed Action: TMC, Inc. intends to expand mining activities an additional 45.8 acres on this site located in Gallatin County immediately west of the city of Gallatin Gateway, and to relocate existing portable rock crushing, gravel washing, and/or an asphalt plant to the expanded mining areas. In addition, stockpiles of aggregate, crushed stone, and concrete and asphalt material for recycle may be stored throughout the current mine and the proposed mine. No additional equipment is anticipated based on the current scope.

Existing Environment: The air quality in Gallatin County is in attainment with federal ambient air quality standards, which were set at levels that would protect public health and welfare, (<http://www.deq.state.mt.us/AirQuality/Planning/AirNonattainment.asp>). Furthermore, the only Class 1 designated protection area in this county is Yellowstone National Park, at the southeast corner of the county, approximately 50 miles south of Gallatin Gateway.

Historical use of the agricultural land by plows, discs, seed drills, swathers, combines, balers, etc. have always contributed to the dusty conditions in the area during summer months. Agricultural activities are exempt from the requirements to control or reduce air emissions created by these activities. Existing gravel pit operations occur adjacent to the proposed location. Five quarries are currently active within 20 miles of Nuss Pit and four more have been sited 17 to 25 miles away. The closest active quarries are located 5 miles north near Four Corners (Simpson & Storey) and 8 miles southeast (Huttinga).

The Clean Air Act requires EPA to set National Ambient Air Quality Standards for six common air pollutants. These commonly found air pollutants (also known as "criteria pollutants") are found all over the United States. Criteria pollutants are particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀ and PM_{2.5}), carbon monoxide (CO), oxides of nitrogen (NO_x), sulfur dioxide (SO₂), ozone (O₃), and lead (Pb). Primary air quality impacts from the proposed project would relocate mining (PM₁₀ and PM_{2.5}), crushing (PM₁₀ and PM_{2.5}), screening (PM₁₀ and PM_{2.5}), material transfer (PM₁₀ and PM_{2.5}), unloading (PM₁₀ and PM_{2.5}), fueling (VOC), vehicles (CO, NO_x, PM₁₀ and PM_{2.5}), windblown dust from roads and storage piles (PM₁₀ and PM_{2.5}), and asphalt drum mixing (CO, NO_x, SO_x, VOC plus hazardous air pollutants) from the existing locations in Tract 2C-2 and 2C-3 to Tracts 2C-1 and 2C-4 at the north and west of the current project location (Figure 2).

DEQ maintains three air monitoring stations for particulate matter in Gallatin County – Bozeman City Building, Belgrade ConAgra, and West Yellowstone. According to a 2007 presentation of air monitoring data (http://www.deq.state.mt.us/AirQuality/WhatsNew/BJ_Gallatin_General_Talk.pdf), airborne particulate matter less than 10 microns (PM₁₀) has consistently been less than 60 percent of the annual and daily federal regulatory standards since 1996. The Environmental Protection Agency (EPA) established PM_{2.5} standards (particulate matter less than 2.5 microns) in 1997 and revised them in 2006. According to the available data, airborne PM_{2.5} concentrations (the particulate matter most likely to be inhaled) have been approximately 65 percent or less of the annual standard and 86 percent or less of the daily standard that allows evaluation at the 98th percentile values as summarized below [Ref: http://www.deq.state.mt.us/AirQuality/WhatsNew/PM25_NAAQS_MT_Review_Mar_2008.pdf]

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Table 2. Air quality monitoring stations results for PM2.5 for Gallatin County 2005-2008.

Monitoring Site	% 24-Hour Limit	% Annual Limit
Belgrade	86	65 ⁽¹⁾
Bozeman	63 ⁽²⁾	43 ⁽²⁾
West Yellowstone	34	28

- (1) Failed 75% data recovery requirements for calendar year 2005 at Belgrade monitoring site, so annual average is not valid for EPA determination.
- (2) Bozeman monitoring site started operation in 2005 so there is not enough data for a valid 3-year average.

Volatile organic compounds (VOC) are the primary emissions from the asphalt operations (many of which are regulated as Hazardous Air Pollutants (HAPS)). VOCs combine with oxides of nitrogen to produce ozone, which is a criteria pollutant and many HAPS have specific health affects. There is currently no EPA approved monitoring site for ozone in Gallatin County so no specific information is available on the existing environment.

Three complaints have been filed regarding the open cut mining operations at Nuss Pit. All three were investigated by DEQ's enforcement division; no violations were observed. The facility was meeting reasonable precautions during the inspections in response to the two dust complaints and the third complaint was closed with no violation as ARMB does not regulate odors.

Potential Impacts: The air quality in the area may be degraded due to emissions from the proposed project, but the activities and ambient air impact would be limited by DEQ's Air Resources Management Bureau (ARMB).

DEQ has an EPA approved air quality program that meets federal standards. Permits and permit conditions have been established for this site to promote compliance with all applicable air quality rules and standards, and to protect properties beyond the plant boundaries (e.g. houses, rivers). These rules and standards are designed to be protective of human health and the environment and crushing plants and asphalt manufacturing plants operating in the pit must have an air quality permit to operate.

Emissions ARMB evaluates plant emissions, based on accepted emission inventory factors obtained from Federal and State guidance documents, and establishes appropriate limitations to ensure compliance with the National Ambient Air Quality Standards (NAAQS) and Montana Ambient Air Quality Standards for these types of operations. The NAAQS are set at levels that are protective of human health and the environment.

No new sources of emissions are expected from the facility although stockpiles and mining activities would be relocated during the project. Air quality impacts from the proposed project would relocate mining (PM), crushing (PM), screening (PM), material transfer (PM), unloading (PM), fueling (VOC), vehicles (CO, NOx, PM), windblown dust from roads and storage piles (PM), and asphalt drum mixing (CO, NOx, SOx, VOC plus hazardous air pollutants) from the existing locations in Tract 2C-2 and 2C-3 to Tracts 2C-1 and 2C-4 at the north and west of the current project location (Figure 2). Truck emissions and road dust would continue to be generated at the current rate but the quarry may reduce travel distances for future regional projects, thereby reducing regional air quality emissions.

Emissions Control Best Available Control Technology (BACT) must be utilized on equipment operations. BACT for crushing/screening operations typically includes the use of water and water spray bars. BACT for asphalt drum mix and batch mix asphalt plants typically includes the use of baghouses, wet scrubbers, and/or condensers.

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Operational conditions have also been established within the associated air permits to ensure that the source complies with existing air quality rules and regulations. ARMB would be responsible for assuring compliance with the conditions of the air permit.

Fugitive dust is normally managed with water spray and regulated at mine sites by gauging opacity - measuring visibility through the dust plume. The application also states that magnesium chloride would be used on the access road. Magnesium chloride has been approved for, and is widely used for dust control on graveled roads, parking lots, etc. Its use as a road and highway de-icer in winter in place of sanding reduces air-borne particulate matter. Additional mitigation could include:

- Apply Magnesium chloride in the stockpile area.
- Use tackifiers on the topsoil stockpiles prior to vegetation establishment.
- Plant topsoil stockpiles that would remain longer than one year would be vegetated to reduce both water and wind erosion.
- Tackifiers could also be used on product stockpiles. (DEQ 2004).

Odors Some of these associated emissions produce odors that may not be considered pleasant and many of the HAPS are known to cause cancer but plant operations are limited such that emissions levels would not cause harm to human health. The steam (water) part of the plume from the asphalt plants is not regulated because it dissipates rapidly due to the seasonally warm temperatures.

Regulatory Oversight ARMB operates an air quality program that includes permitting, compliance, and enforcement staff. The air quality program staff members are available to answer any specific questions of interested parties including questions in regard to operations of a facility in a particular area, inspections and testing that may be required for the facility, and the compliance history of a facility.

The ARMB responds to complaints about excessive dust and smoke, and enforces compliance with the requirements of the permits that it issues. Any failure on the company's part to comply with required permits issued by ARMB could result in enforcement actions and possible penalties under one or more statutes.

Irreversible and Irretrievable Commitments of Resources: None

Cumulative Impacts: Particulate emissions are the primary air pollutant of concern due to its affect on respirator health in high risk individuals. Existing sources of particulate matter include upwind fugitive and process emissions from 10 regional quarries, industrial sources, commercial development, unpaved roads, an undefined number of wood stoves, smoke from forest fires, and vehicle emissions.

4. VEGETATION COVER, QUANTITY AND QUALITY:

Applicant's Proposed Action: Topsoil and vegetation would be removed and the topsoil would be stockpiled as lands are moved into active mining. Two ponds would remain when reclamation is completed and the stockpiled soil would be used to grade and improve the shorelines of the ponds. The reclamation plan calls for a 15.7-acre pond surrounded by 8.2 acres of grassland, and a 36.7-acre pond with 26.4 acres of grassland around I (Figure 2).

Existing Environment: The lands included in this amendment are used for pasture, outbuildings, and a home site. Existing vegetation is a mix of native and non-native pasture grasses and a small lawn is maintained in front of the home. Non-native spruce (*Picea* sp.), Russian olive (*Elaeagnus angustifolia*) and several other tree species are along the fenceline and in the yard. There are some unvegetated areas near the barn and the smaller livestock pens.

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Two noxious weeds, Canada thistle (*Cirsium arvense*) and spotted knapweed (*Centaurea biebersteinii*), are known to occur in and around the project area, but have been controlled successfully with herbicide. The site has an approved weed control plan and would be periodically sprayed for control of noxious weeds.

An approved wheatgrass seed mix would be reseeded on the areas not reclaimed to cropland. No rare plants, cover types, or species of special concern were discovered during a literature search conducted by the Montana National Heritage Program (MNHP 2008). No rare plants, cover types, or species of special concern were identified during a ground search.

Potential Impacts: The potential for weed seeds to be transported to the area and grow on disturbed lands is of concern. However, the proponent has filed, and gained approval for, a weed control plan and the plan of operations includes measures to prevent the spread of noxious weeds.

Irreversible and Irretrievable Commitments of Resources: Some topsoil may be lost during ground disturbance and berm construction. However, the proponent has committed to a reclamation plan that would return some of the lands to its previous condition as pasture when the gravel resource has been depleted. The ponds would represent a change in the land use and a 52.4 acre loss of the existing vegetated lands is anticipated.

Cumulative Impacts: The lands surrounding the proposed amendment to the existing gravel pit are primarily a mix of cultivated and pasture lands interspersed with housing on larger (>1 acre) lots. The vegetative community within a five mile radius of the project is a mix of native and non-native plants, but does not include rare or sensitive plants or plant communities (MNHP 2008). Given that the lands would be mined and reclaimed concurrently, the surface disturbance and changes to the vegetation where the lands would be returned to pasture do not represent a long term change to the overall vegetative community of the area surrounding Gallatin Gateway and no measurable cumulative impacts to the vegetative community are likely to occur as a result of the Proposed Action. The replacement of 52.4 acres of surface vegetation with ponds would change the character of the surrounding landscape, but would not contribute significantly to cumulative impacts to vegetation resources in the Gallatin Valley.

5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

Applicant's Proposed Action: The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use. After reclamation, two large ponds would remain.

Existing Environment:

Wildlife and Avian Resources: The location of the proposed operation precludes the significant use of wildlife, although it would be expected to receive transient use by various avian species, deer, and small mammals. The site of the Proposed Action is adjacent to subdivisions, the existing gravel operation, and ranch/pastureland.

Aquatic Resources: No waters of the U.S or natural waterways exist on the site. The outflow from the dewatering ditch was dug and connected to the Monforton ditches that were constructed starting about 1930 to drain surrounding pasture lands. The Monforton ditch system connects with Fish Creek, a water of the U.S., a mile to the north. Fish, including trout, have been observed in the ditch near the outflow of the pond (J. Rice, TMC, pers. comm. 2008).

Potential Impacts:

Wildlife and Avian Resources: The Proposed Action is not expected to have significant impacts to wildlife resources. Creation of the ponds associated with reclamation of the site would likely serve to attract waterfowl, shorebirds, and aquatic wildlife such as muskrat; thus providing some additional habitat. Shorebirds and waterfowl currently use the existing pond.

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Aquatic Resources: The Proposed Action should not affect the flows of the outflow ditch or Fish Creek as the project plan of operations intends to maintain the current practice of allowing water to flow into the canal unimpeded. The proponent's plan of operations includes sediment control measures to reduce the potential for fine sediments to enter the canal. It is unlikely that this Proposed Action has any potential to impact aquatic resources in the short or long term. The fish observed in the outflow canal enter the canal at its confluence with Fish Creek. The augmentation of Fish Creek may serve as an attractant flow to spawning fish moving upstream. Fish that reach the outflow ditch on the mine site may be lost to the fishery. The entrance to the outflow ditch could be screened to prevent fish moving into the ditch, but TMC does not have the authority to screen the ditch outside of their permit boundaries. Fish have been observed in the existing pond, but it is not known if they are year-round residents. No permits are required for establishing a pond unless fish are stocked into the pond from an outside source (M. Vaughn pers. comm. 2008)

Waterfowl and shorebirds presently use the pond. After reclamation, two large ponds would remain and may provide some habitat for fish and other aquatic organisms. The 15.7 acre pond would not be connected to the outflow ditch at any time. Therefore, it would most likely not support a fishery unless a stocking permit is secured.

Irreversible and Irretrievable Commitments of Resources: No irreversible or irretrievable impacts to fish or wildlife resources are anticipated as a result of the Proposed Action.

Cumulative Impacts: The Proposed Action would not contribute to cumulative impacts to aquatic resources in the Gallatin Gateway area.

6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

Applicant's Proposed Action: The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use. After reclamation, two large ponds would remain.

Existing Environment: The lands are primarily used as pasture and are surrounded by open fields, actively-grazed lands and dispersed home sites. No threatened or endangered species, species of special concern, or identified habitat were found on the site (MNHP 2008). No wetlands are present.

Potential Impacts: No unique, endangered, fragile or limited environmental resources were identified in the review of the existing environment. Therefore, there is no potential for resources of these kinds to be impacted by the Proposed Action.

Irreversible and Irretrievable Commitments of Resources: The Proposed Action would not result in any irreversible or irretrievable commitments of unique, endangered, or fragile environmental resources.

Cumulative Impacts: The Proposed Action would not contribute to cumulative impacts to unique, endangered, or fragile environmental resources in and around the project area.

7. HISTORICAL AND ARCHAEOLOGICAL SITES:

Applicant's Proposed Action: The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use. After reclamation, two large ponds would remain.

Existing Environment: A Class I study involved a file search at the Montana State Historic Preservation Office (MT SHPO). No Class III cultural resources inventories have been conducted within the project area. Hence, it is currently not known if any prehistoric or historic period cultural properties are located within the proposed project area.

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The amendment area has been disturbed over the years through construction of buildings, corrals, drainage ditches, irrigation ditches, and landscaping, plowing and vegetation to hayland.

Potential Impacts: A walkover of the amendment area during a site inspection by DEQ personnel did not reveal any surface artifacts. No artifacts have been seen in the topsoil stockpiles or along the drainage ditch or irrigation ditches. The buildings do not qualify for listing under the national Historic Preservation Act. Because the surface soil layers have been disturbed many times the integrity of a possible surficial site probably has been destroyed.

If significant cultural resources are found to exist within the project area they would be subjected to adverse impacts through the gravel pit excavation and operation, unless they could be avoided. If, during the course of project operations, cultural resources are inadvertently discovered, the SHPO would be notified and mining operations would be shifted to another area for a reasonable length of time to allow for assessment of the new discoveries and determine appropriate mitigation.

No paleontological resources have been found at this site. Some paleontological objects have been found during mining operations in other parts of the county. These were reported and appropriate mitigation was implemented.

Irreversible and Irretrievable Commitments of Resources: If cultural resources were not recognized, disturbance to sites would result in irreversible and irretrievable loss of such resources.

Cumulative Impacts: Cumulative impacts to cultural resources would not occur.

8. AESTHETICS:

Applicant's Proposed Action: The site is currently an open gravel pit, with an amendment application request to increase the acreage to a total of 87 acres with two ponds. The deepest pond would reach a depth of about 89 feet from the original ground surface, or about 75 feet below the present pond surface. The ponds would be mined in the water using excavators and a dragline. The mobile crusher (approximately 17 feet in height) would be periodically moved and set up on a pad a few feet above the high water level near the active mining area, but no closer than 500 feet from Cottontail Road. The overburden berms on the south and east site boundaries would be extended to include the east, south, west and northwest proposed permit boundaries, surrounding approximately three-quarters of the site.

Hours of operation would be 7:00 a.m. to 6:00 p.m. Monday through Friday, and 7:00 a.m. to 6:00 p.m. on Saturdays for hauling and maintenance. Normal operations would include mining, crushing, washing, asphalt operations, maintenance, and fueling. The primary noise sources would be the mobile crusher, the asphalt plant, and diesel heavy equipment (e.g., front end loaders and haul trucks).

Visual Resources: The appearance of the proposed project area is consistent with the surrounding lands. This site is a flat pasture with a few farm buildings, fences and a single home.

Existing Environment: The existing areas around the site are agricultural and pasture land with scattered 10+ acre residential properties. The site is accessed from the south off of Cottontail Road and US 191 is located about 0.75 miles to the east. The closest residences are approximately 150 feet north of the existing north permit boundary, and approximately 270 feet south of the existing south permit boundary (south of Cottontail Road) (**Figure 5**). The terrain is generally flat with hills to the west.

Noise Terminology

Noise is generally defined as unwanted sound, and can be intermittent or continuous, steady or impulsive, stationary or transient. Noise levels heard by humans and animals are dependent on several variables, including distance and ground cover between the source and receiver and atmospheric conditions.

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Perception of noise is affected by intensity, frequency, pitch and duration. Noise can influence people by interfering with normal activities or diminishing the quality of the environment.

Noise levels are quantified using units of decibels (dB). Decibels are logarithmic values, and cannot be combined using normal algebraic addition. Humans typically have reduced hearing sensitivity at low frequencies compared with their response at high frequencies, and the “A-weighting” of noise levels, or A-weighted decibels (dBA), closely correlates to the frequency response of normal human hearing.

For environmental noise studies, noise levels are typically described using A-weighted equivalent noise levels, L_{eq} , during a certain time period. The L_{eq} uses a single number to describe the constantly fluctuating instantaneous ambient noise levels at a receptor location during a period of time, and accounts for all of the noises and quiet periods that occur during that time period. The L_{eq} is similar to the average noise level during a given time period. The L_{max} noise metric describes the highest instantaneous noise level during a period of time.

The L_{90} metric indicates the single noise level that is exceeded during 90% of a measurement period, although the actual instantaneous noise levels fluctuate continuously. The L_{90} noise level is typically considered the ambient noise level, and is often near the low end of the instantaneous noise levels during a measurement period. It typically does not include the influence of discrete noises of short duration, such as car doors closing, bird chirps, dog barks, car horns, etc. If a continuously operating piece of equipment is audible at a measurement location, typically it is the noise created by the equipment that determines the L_{90} of a measurement period even though other noise sources may be briefly audible and occasionally louder than the equipment during the same measurement period.

The day-night average noise level, L_{dn} , is a single number descriptor that represents the constantly varying sound level during a continuous 24-hour period. The L_{dn} can be determined using 24 consecutive one-hour L_{eq} noise levels, or calculated using measured L_{eq} noise levels during shorter time periods. The L_{dn} includes a 10 decibel penalty that is added to noises that occur during the nighttime hours between 10:00 p.m. and 7:00 a.m., to account for people’s higher sensitivity to noise at night when the background noise level is typically low. The L_{dn} does not provide specific information about the number of noise events or the noise level at any particular time, but rather it represents the total sound environment during a 24-hour period.

Noise Regulations

No state or county noise regulations exist to govern environmental noise levels or noise that generated by the Proposed Action, however, federal noise guidelines apply. As a result of the Noise Control Act of 1972, the EPA developed acceptable noise levels under various conditions that would protect public health and welfare with an adequate margin of safety. The EPA identified outdoor L_{dn} noise levels less than or equal to 55 dBA are sufficient to protect public health and welfare in residential areas and other places where quiet is a basis for use (EPA 1979). Although the EPA guideline is not an enforceable regulation, it is a commonly accepted target noise level for environmental noise studies.

In addition to the EPA’s L_{dn} 55 dBA limit, an increase in ambient noise levels can also be used to gage community response to a new noise. If a project-related noise does not significantly increase the community’s existing L_{dn} , then little or no community reaction is expected. If a project causes an increase in the L_{dn} of 5 to 10 dBA, sporadic to widespread complaints should be anticipated. An increase of more than 10 dBA may result in strong negative community reaction (FTA 1995).

Noise Level Measurements

The existing ambient noise levels were measured in March 2008 at two representative residential locations around the Nuss-Rock pit to determine the general conditions (**Figure 5**); however, a crusher was not on site. One set of measurements was made during the day and another was made during the nighttime hours.

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Each measurement period at each location was approximately 5 to 10 minutes in duration, and the equivalent noise level, L_{eq} , and the 90th percentile exceeded level, L_{90} , for each measurement period were recorded to help quantify the general ambient noise conditions. The measured L_{eq} data were used to calculate the existing day-night average noise level, L_{dn} (FTA 1995). The noise level measurements are summarized in **Table 3** on the following page. The measured L_{90} and calculated L_{dn} levels are typical for light population density areas (Harris 1998). As noted in the table, a loader was operating in the pit during the daytime measurements, but the crusher was not on site.

Table 3: Summary of Existing Ambient Noise Levels without Crusher Operating

Measurement Location	Date and Time (hours)	Noise Sources During Measurements	Measured L_{eq}	Measured L_{90}	Calculated L_{dn}
N1	3/11/08 1018 to 1023	Loader and backup alarm in gravel pit, traffic on nearby roads, tractor in NW field, birds, and wind in grass.	37	33	40
	3/10/08 2221 to 2232	Wind, dog barking in distance, commercial jet in distance, and US 191 traffic.	35	27	
N2	3/11/08 1036 to 1042	Loader and backup alarm in gravel pit, US 191 traffic, tractor in SW field, dog barking, cows and birds.	35	32	37
	3/10/08 2242 to 2252	Geese and cows in distance and US 191 traffic.	32	27	

Existing Pit Noise Levels:

Since the existing pit is operational but the crusher was not on site during the measurements, the L_{dn} due to the crusher was calculated. In gravel pits, the typical dominant noise source that determines the L_{dn} is the crusher, and typically, there are two loaders operating with the crusher (BSA 2008). Noise levels were predicted at various distances from the typical crusher location for general information since the crusher can be moved around the pit. Noise level calculations included the estimated effects of distance, ground attenuation and attenuation resulting from air absorption per international standards (ISO 1996). Although the calculations conservatively assume that atmospheric conditions are favorable for noise propagation, the estimated noise levels can vary significantly due to atmospheric conditions, and should be considered average noise levels, since temporary significant positive and negative deviations from the averages can occur (Harris 1998). Typically, favorable atmospheric conditions for noise propagation means that the wind is blowing from a source to a receiver at approximately 2 to 10 miles-per-hour, and a well-developed temperature inversion is in place, which typically occurs between approximately 2 hours after sundown to 2 hours after sunrise.

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Diesel-powered equipment, such as loaders and excavators, intermittently reach maximum noise levels, L_{max} , 85 dBA at a distance of 50 feet from the equipment (FTA 1995). Mobile crushers have been measured at L_{eq} 66 dBA at 1,050 feet away from the equipment with a direct line of site from the listener to the equipment (BSA 2008). However, equipment noise can vary considerably depending on age, condition, manufacturer, use during a time period, changing distance and whether a direct line of sight is available between the equipment to a listener location. Please note that the source L_{max} and L_{eq} data are used to determine the L_{dn} based on the times of day and duration that the equipment operates. Based on a sign at the entrance to the existing pit, the hours of operation are currently 8:00 a.m. to 5:00 p.m.

The estimated noise levels of the crusher operations in the existing Nuss-Rock Pit at varying distances are summarized in **Table 4**. If the line of sight is blocked due to topography, depth of the pit, or constructed berms, the estimated noise levels would be reduced by 6 dBA or more due to shielding. As shown, the noise levels with a crusher operating and with a direct line of sight to a listener are currently within the EPA L_{dn} 55 dBA guideline at approximately 0.5 miles (2,640 feet) of the equipment, and within approximately 0.25 miles (1,320 feet) if the line of sight to the equipment is blocked.

Table 4: Estimated Noise Levels at Various Distances for an Existing Typical Crusher Location

Project Equipment Assumptions/ Primary Noise Source(s)	Condition	Noise Level at Receiver		
		0.25 mile (1,320 feet)	0.5 mile (2,640 feet)	1 mile (5,280 feet)
- Crusher operating continuously between 7 a.m. and 7 p.m. - Two loaders that reach L_{max} 40% of time between 7 a.m. and 7 p.m. (EPA 1971)	Direct line of sight between sources and listener	L_{dn} 59 dBA	L_{dn} 53 dBA	L_{dn} 45 dBA
	Line of sight between sources and listener blocked	L_{dn} 53 dBA	L_{dn} 47 dBA	L_{dn} 39 dBA

Potential Impacts:

Noise: For human health impacts of noise please see Section 11 – Human Health and Safety

Proposed Operations

The estimated Proposed Action noise levels at varying distances are summarized in **Table 5**. If the line of sight is blocked due to topography, depth of the pit, or constructed berms, the estimated noise levels would be reduced by 6 dBA or more due to shielding. As shown, the L_{dn} values of the Proposed Action are approximately 1 dBA higher than those for existing crusher operations, with the difference due to a 2-hour increase in operating time for the Proposed Action. The predicted project noise levels with a direct line of sight to a listener are predicted to be within the EPA L_{dn} 55 dBA guideline within approximately 0.5 miles (2,640 feet) of the equipment, and within approximately 0.25 miles (1,320 feet) if the line of sight to the equipment is blocked.

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Table 5: Estimated Noise Levels at Various Distances for a Proposed Action Typical Crusher Location

Project Equipment Assumptions/ Primary Noise Source(s)	Condition	Noise Level at Receiver		
		0.25 mile (1,320 feet)	0.5 mile (2,640 feet)	1 mile (5,280 feet)
- Crusher operating continuously between 7 a.m. and 7 p.m. - Two loaders that reach L_{max} 40% of time between 7 a.m. and 7 p.m. (EPA 1971)	Direct line of sight between sources and listener	L_{dn} 60 dBA	L_{dn} 54 dBA	L_{dn} 46 dBA
	Line of sight between sources and listener blocked	L_{dn} 54 dBA	L_{dn} 48 dBA	L_{dn} 40 dBA

The nearest residence to the north is approximately 600 feet from the proposed central crusher location. The predicted L_{dn} 54-60 dBA (**Table 5**) at 0.25 miles (1,320 feet) from the crusher is approximately 1 dBA higher than the noise of the existing crusher (**Table 4**), which would not be a noticeable increase. However, the proposed project L_{dn} 54-60 dBA at 0.25 miles would equal or exceed the estimated existing L_{dn} 40 dBA at Location N1 (**Table 3, Figure 5**) without the crusher operating by up to 20 dBA, and therefore, the crusher operations would continue to be the dominant ambient noise source during the day on Monday through Friday when the crusher is operating. Based on the L_{dn} 54 to 60 dBA at 0.25 miles (1,320 feet), the predicted levels at 600 feet from the crusher would be L_{dn} 61 to 67 dBA, which exceeds the EPA L_{dn} 55 dBA guideline whether the line of sight is blocked or not.

The nearest residence to the south is approximately 0.2 miles (1,050 feet) from the typical crusher location. The predicted L_{dn} 54-60 dBA (**Table 4**) at 0.25 miles (1,320 feet) from the crusher is approximately 1 dBA higher than the noise of the existing crusher (**Table 5**), which would not be a noticeable increase. However, the proposed project L_{dn} 54-60 dBA at 0.25 miles would equal or exceed the estimated existing L_{dn} 37 dBA at Location N2 (**Table 3, Figure 5**) without the crusher operating by up to 23 dBA, and therefore, the crusher operations would continue to be the dominant ambient noise source during the day on Monday through Friday when the crusher is operating. Based on the L_{dn} 54 to 60 dBA at 0.25 miles (1,320 feet), the predicted levels at 1,050 feet from the crusher would be L_{dn} 56 to 62 dBA, which exceeds the EPA L_{dn} 55 dBA guideline whether the line of sight is blocked or not.

Back-up alarms

Because of their intermittent, high-pitched, impulsive sound, back-up alarms can cause high levels of annoyance and numerous complaints even at low noise levels, but have little influence on L_{eq} or L_{dn} values. Federal regulations indicate that backup alarms shall be audible above the surrounding background noise level behind the equipment, but does not specify a particular noise level (MSHA 2008). In general, back-up alarm sound levels can vary between L_{max} 87 and 112 dBA at 4 feet away, depending on their volume setting, and whether the listener is to the side or directly behind a directional backup alarm. Directional back-up alarms are being considered for Nuss Pit equipment.

The estimated back-up alarm noise levels are summarized in **Table 6**. In **Table 6**, the low number of the stated noise level range indicates the noise to the side of the directional alarm, and the high number

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indicates the noise level directly behind the alarm. The directional back-up alarms being considered for the proposed gravel pit could be between L_{max} 31 and 62 dBA at 0.25 miles away. Compared to the measured existing daytime ambient (L_{90}) noise level of 33 dBA at Location N1 northwest of the site and 32 dBA at Location N2 south of Cottontail Road (**Table 3**), the back-up alarms could be equal to the L_{90} when a listener is to the side of the equipment, which would likely be inaudible, or up to 30 dBA over the L_{90} in the area when the back of the equipment is directed at a listener, which could be clearly audible.

Table 6: Estimated Noise Levels at Various Distances from Back-up Alarms

Equipment / Noise source(s)	Condition	Noise Level at Receiver		
		0.25 mile (1,320 feet)	0.5 mile (2,640 feet)	1 mile (5,280 feet)
• Back-up alarm	Direct line of sight between sources and listener	L_{max} 37-62 dBA	L_{max} 31- 56 dBA	L_{max} 25- 50 dBA
	Line of sight between sources and listener blocked	L_{max} 31- 56 dBA	L_{max} 25- 50 dBA	L_{dn} 19-44 dBA

Possible Mitigation

The following measures could be considered to reduce the noise of the project:

- Restrict the crusher and asphalt plant operation to workday hours (8:00 a.m. to 5:00 p.m.).
- Add berms or barriers along the north and northeastern permit boundaries, in order to completely surround the site (see **Tables 4-6**).
- Locate the crushing operation as far from residences as is possible.
- Replace standard back-up alarms with Mine Safety and Health (MSHA)-approved, manually adjustable, ambient-sensitive, directional sound technology, or strobe light alarms. Adjustable and ambient-sensitive alarms typically limit the alarm noise to 5 to 10 dBA above the background noise, which would still typically be audible behind the equipment.
- Install high-grade mufflers on all diesel-powered equipment.
- Implement a regular maintenance schedule to ensure that equipment is operating properly.
- Use new equipment rather than older equipment.

Visual Resources: Once the overburden berms are established and seeded, mining operations would be shielded from view. However, the berms would continue to be noticeable from the roadway. The berms would not be high enough to block the view of the nearby hills, and should not represent an appreciable impact on the visual resources of the surrounding area. The gravel stockpiles should be maintained at a height such that they do not obstruct or conflict with views of the hills and surrounding mountains. The proposed “Good neighbor” provisions suggest that stockpiles should not exceed 24 feet (GCC 2008).

Irreversible and Irretrievable Commitments of Resources:

Noise: The change in noise due to the Proposed Action would not represent any irreversible or irretrievable commitments of resources.

Visual Resources Changes to the visual resources and scenery during active mining should be partially shielded by the proposed overburden berms. Once reclamation is completed the lands not committed to ponds would be graded and seeded to resemble the surrounding pasture lands. Therefore, any impacts to visual resources would be short-lived and do not represent an irreversible or irretrievable commitment of resources.

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Cumulative Impacts:

Noise: Cumulative effects from the construction and operation of the Proposed Action include the combination of noise sources from the existing Nuss-Rock Pit operations and other noise sources. In addition to the mine operations and equipment, other noises, such as wildlife, traffic noise from Cottontail Road, US 191 and nearby roads, and noise from residential and ranching activities, are also present in the vicinity of the project area, and would remain into the future. However, the noise due to the Proposed Action would continue to be the dominant noise source in the area on weekdays when the crusher is operating.

Visual Resources: The character of the lands near Gallatin Gateway has evolved from primarily open pasture and agriculturally cultivated lands to include small industrial and retail businesses, and dispersed home sites. Because the proposed change in land use to an active gravel pit is a temporary action, and the lands would be reclaimed to resemble their current topography outside of the areas committed to ponds when the mine closes, the Proposed Action would not contribute to the cumulative impacts to visual resources in the Gallatin Valley.

9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

Applicant's Proposed Action: The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use. If granted, this amendment would increase the total area of the Nuss-Rock pit to 87 acres. After reclamation, the edges of the permit area would be graded, and two large ponds totaling 52.4 acres would remain.

Existing Environment: The appearance of the proposed project area is consistent with the surrounding lands. This site is a flat pasture with a few farm buildings, fences and a single home. Gravel resources in Gallatin County are not particularly limited in the area. However, some of the gravel resources are located in floodplains and development of those deposits could pose environmental problems. Also, subdivisions are expanding so that quickly it is becoming difficult to locate a gravel operation that does not abut some residences, and thus generate complaints. When gravel is used from pits located at a distance from the point of use, public complaints are registered about increased traffic and air pollution from trucks on the roads, wasting resources because of increased travel distances and increased costs of gravel products.

Potential Impacts: Impacts to the geology, other than the removal of gravel resources, were not identified. Water table would be lowered approximately 3 feet near the gravel pit pond and not measurable a short distance from the ponds. This lowering of the water table would not have an adverse impact on the water rights users.

Irreversible and Irretrievable Commitments of Resources: About 4.4 million cubic yards of material would be mined and removed from the site. Gravel resources would be lost and the commitment cannot be reversed without refilling the excavation with imported material.

The mining and removal of gravel is irreversible. According to figures submitted to the Opencut Program in annual reports, in 2002, the Gallatin County Road Department operated 9 pits and mined 25,350 cubic yards of gravel from them, mostly for maintenance of the county road system. The road department also purchased gravel materials such as asphalt, sand and some gravel, and contracted chip sealing from the private sector. The private sector operated 32 pits and mined 2,110,502 cubic yards in 2002. With an estimated population in Gallatin County of 72,000 people the average gravel usage per person was 29.3 cubic yards in 2002.

Gallatin County is one of the fastest growing counties in the state with a 2006 population estimate of 81,000 people (U.S. Census 2006). Gravel operators reported that a total of 2.7 million cubic yards of aggregate was mined in Gallatin County in 2006. That is an increase of 600,000 cubic yards annually

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between 2002 and 2006 and an average of 31 cubic yards for every person in Gallatin County. In 2006 the average gravel use statewide in Montana was 18 cubic yards per person per year. The Storey Pit and the proposed Nuss-Rock Pit expansions are approximately eight and four miles from the Morgan Pit, respectively. When combined, these three pit applications are requesting permission to mine approximately 8.0 million cubic yards of material over the next 9 to 20 years. If these three pits attempted to service the complete gravel needs of Gallatin County, they would be depleted in less than three years.

Cumulative Impacts: The gravel resource in Gallatin County is not particularly limited in the area. There are numerous sand and gravel operations throughout the Valley. Several are located or proposed for location within a few miles of this proposed project area. The proposed operation would add to the cumulative and permanent removal of sand and gravel in the valley as demand for these products increase as a result of new subdivisions, new homes, and associated roads as well as new commercial and industrial structures. The proposed change in the land use from agriculture to a gravel pit and then reclaimed ponds is permanent.

10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:

Applicant's Proposed Action: The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use. If granted, this amendment would increase the total area of the Nuss-Rock pit to 87 acres. After reclamation, the edges of the permit area would be graded, and two large ponds totaling 52.4 acres would remain.

Existing Environment: There are no known studies, plans or projects on this tract at this time.

Potential Impacts: There would be no known impacts to other resources.

Irreversible and Irretrievable Commitments of Resources: The Proposed Action would not result in any irreversible or irretrievable commitments of environmental resources in addition to the previously stated impacts to gravel resources.

Cumulative Impacts: The Proposed Action would not contribute to cumulative impacts to other environmental resources in and around the project area.

11. HUMAN HEALTH AND SAFETY:

Applicant's Proposed Action: The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use. If granted, this amendment would increase the total area of the Nuss-Rock pit to 87 acres. After reclamation, the edges of the permit area would be graded, and two large ponds totaling 52.4 acres would remain.

Existing Environment:

Noise: Please see the "Existing Environment" description under Section 8: Aesthetics.

Potential Impacts:

For a discussion of impacts to water quality related to human health issues please refer to Section 2: Water Quality. For impacts to air quality, see Section 3: Air Quality.

Noise: The primary human effect due to noise is annoyance. The degree of annoyance due to a noise is subjective and can vary dramatically from person to person based on the level, duration and frequency content of the noise, and other non-acoustic factors, such as prior exposure to similar noises, the age and health of a listener, attitude toward the noise source, the time of day that the noise occurs, etc. Other effects

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on humans may include speech interference, stress reactions, sleep interference, lower morale, efficiency reduction, and fatigue (Harris 1998). However, the EPA guideline of L_{dn} 55 dBA or less was determined as sufficient to protect public health and welfare in residential areas (EPA 1979). The noise from the Proposed Action is not expected to exceed the EPA guideline beyond 0.5 miles (2,640 feet) from the crusher location, but residences are located within this 0.5 mile radius.

Traffic: Haul trucks would access the site from Cottontail Road. To get to US 191 north, trucks would travel east on Cottontail Road through Gallatin Gateway, or turn onto Gallatin South Road which intersects with US 191 near the mouth of Gallatin Canyon. This route would be used primarily for loads servicing Big Sky. The existing route through Gallatin Gateway speed limit is 25 mph for cars and 15 mph through a school zone. The closest residences along Gallatin South Road are approximately 40 feet from the centerline of the road. The proposed pit would add 13 haul trucks to the a.m. peak hour traffic and 10 haul trucks to the p.m. peak hour traffic based on studies for similar gravel pits (Morrison Maierle 2008).

Table 7 summarizes the predicted traffic noise levels. The predicted traffic noise $L_{eq}(h)$ levels due to truck traffic from the gravel pit do not exceed the Montana Department of Transportation (MDT) $L_{eq}(h)$ 66 dBA traffic noise impact criteria (MDT 2001).

Table 7: Summary of predicted traffic noise levels at 40 feet from centerline of Gallatin South Road.

a.m. Peak Hour $L_{eq}(h)$	p.m. Peak Hour $L_{eq}(h)$
57	56

Possible Mitigation

The following measures could be considered to reduce the impacts to human health and safety of the project:

- Restrict truck traffic through Gallatin Gateway during school hours (8 a.m. to 4 p.m.)

Irreversible and Irretrievable Commitments of Resources:

Noise: The change in noise due to the Proposed Action would not represent any irreversible or irretrievable commitments of resources.

Truck Traffic: The changes in the truck and highway traffic due to the Proposed Action would not represent any irreversible or irretrievable commitments of resources.

Cumulative Impacts:

Noise: Cumulative effects from the construction and operation of the Proposed Action include the combination of noise sources from the mine and other noise sources. In addition to the mine operations and equipment, other noises, such as natural sources, traffic noise from Cottontail Road, and noise from recreational and residential activities, are also present in the vicinity of the project area, and would remain into the future. However, the noise due to the Proposed Action would become the dominant noise source in the area when the crusher is operating, and would increase the noise above existing levels up to 1 mile from the site.

Truck Traffic: The proposed Nuss-Rock Pit is not likely to increase truck traffic on US 191 because the rate of gravel extraction is not anticipated to change. The number of additional average weekday trips would be spread across the workday and would not significantly contribute to an increase in overall traffic on this highway.

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12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:

Applicant's Proposed Action: **Applicant's Proposed Action:** The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use. If granted, this amendment would increase the total area of the Nuss-Rock pit to 87 acres. After reclamation, the edges of the permit area would be graded, and two large ponds totaling 52.4 acres would remain.

Existing Environment: The area covered in the proposed permit amendment is used for gravel mining and for agricultural production in the form of livestock pasture.

Potential Impacts: There would be a loss of grazing and cropping on about 45.8 acres of land as the area is rotated from undisturbed to active mining. The site would be fully reclaimed by the year 2020. The reclamation plan would permanently convert 52.4 acres of the 87 acre area to ponds with the surrounding area in grassland.

Irreversible and Irretrievable Commitments of Resources: Once the area is fully reclaimed, it would be changed from open lands to a large pond or ponds. Removal of the gravel would make it impossible to return the land to its current use as pasture and cropland without filling in the gravel pits. Therefore, there would be irreversible and irretrievable commitments of industrial, commercial, or agricultural resources as a result of this Proposed Action.

Cumulative Impacts: There are several gravel pits in operation or proposed for permitting within Gallatin County. The Nuss-Rock pit would contribute to the cumulative impact of the removal of gravel, a nonrenewable resource, in the Gallatin Valley. The reclamation plan would convert approximately 52 acres of agricultural lands to ponds. This conversion of land use would contribute to cumulative impacts of loss of agricultural production in and around the project area. However, as the lands are not currently managed for production of crops or livestock, the contribution is not likely to be substantial.

13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

Applicant's Proposed Action: Although the Proposed Action would expand the total area to be mined, the rate of gravel extraction would remain unchanged. Therefore, the Nuss-Rock pit would continue to support approximately the same number of jobs associated with the existing gravel operation.

Existing Environment: The number of jobs supported by the Nuss-Rock Pit areas throughout the year varies, and is related to the local demand for gravel. On average, approximately seven full-time employees are supported by the pit. This number does not include truck drivers contracted by customers of TMC, Inc.

Potential Impacts: The Proposed Action would likely maintain jobs associated with the existing operation, including contracted truck drivers. There may be potential for indirect job creation due to continued industrial resource development.

Irreversible and Irretrievable Commitments of Resources: No irreversible or irretrievable commitments of employment resources are associated with the Proposed Action.

Cumulative Impacts: There are no cumulative impacts to employment associated with the Proposed Action.

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14. LOCAL AND STATE TAX BASE AND TAX REVENUES:	
Applicant's Proposed Action: Applicant's Proposed Action: The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use. If granted, this amendment would increase the total area of the Nuss-Rock pit to 87 acres. After reclamation, the edges of the permit area would be graded, and two large ponds totaling 52.4 acres would remain. Existing Environment: The lands covered in this amendment are currently used as pasture land. These lands are taxed at agricultural rate. The areas covered under the existing permit are considered industrial. Potential Impacts: A slight increase in tax revenue could occur because of this project. Gravel pits are generally appraised in the industrial category, which is a higher rate than the present agricultural rate. Also, some jobs would be supported by this pit, thus increasing both income and payroll taxes. Irreversible and Irretrievable Commitments of Resources: There are no irreversible or irretrievable commitments of resources relative to tax revenue from the Proposed Action. Cumulative Impacts: There are no cumulative impacts associated with the Proposed Action.	
15. DEMAND FOR GOVERNMENT SERVICES:	
Applicant's Proposed Action: Applicant's Proposed Action: The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use. If granted, this amendment would increase the total area of the Nuss-Rock pit to 87 acres. After reclamation, the edges of the permit area would be graded, and two large ponds totaling 52.4 acres would remain. Existing Environment: The Nuss-Rock pit currently operates under conditions stipulated in the 2004 supplemental environmental assessment (DEQ 2004). The primary demands on governmental services for the pit are related to use of county and state highways. Potential Impacts: Although the Proposed Action would expand the total area to be mined, the rate of gravel extraction would remain unchanged. Therefore, the Nuss-Rock pit would continue to generate approximately the same amount of truck traffic associated with the existing gravel operation. Please see Section 11: Human Health and Safety for a discussion of impacts due to traffic. No additional government services are anticipated as a result of this Proposed Action. Irreversible and Irretrievable Commitments of Resources: The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to government services. Cumulative Impacts: The Proposed Action would not contribute to the need for local government services.	
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:	
Applicant's Proposed Action: The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use. If granted, this amendment would increase the total area of the Nuss-Rock pit to 87 acres. After reclamation, the edges of the permit area would be graded, and two large ponds totaling 52.4 acres would remain.	

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

Existing Environment: The land being proposed for mining is un-zoned. Initially, the Gallatin County Planning Department approved TMC's Zoning Compliance form (Vaushan 2007). In response to public outcry about several proposed opencut operations, the Gallatin County Commissioners considered imposing site-specific zoning, but decided against that option at their November 2007 meeting. However, on May 7, 2008 the commissioners instead voted to enact interim zoning covering all unincorporated and undeveloped areas of Gallatin County (Sullivan 2008). This action effectively voided TMC's Zoning Compliance form, thereby requiring the company to obtain a CUP from the county. The interim zoning program was in effect for more than two years during which time a variety of zoning actions and lawsuits occurred. In the end, the interim program was ended and the Gallatin County Planning Department approved TMC's Zoning Compliance form on October 5, 2010 (Vaushan 2010).

Potential Impacts: The proposed site is un-zoned and zoning compliance has been obtained. Therefore, the proposed operation would be in compliance with local requirements.

Irreversible and Irretrievable Commitments of Resources: The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to county planning. The lands would be converted temporarily to an industrial use.

Cumulative Impacts: The number of gravel pit permits pending before DEQ initiated the current discussions of county-wide and specific-use zoning within Gallatin County. The operation of the Nuss-Rock pit may contribute to the overall direction and scope of planning within Gallatin County.

17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

Applicants Proposed Action: The Proposed Action does not address any recreational potential within the tract. The current and proposed uses of the lands are agriculture and industrial, respectively. There are no wilderness areas in the general vicinity of the proposed project.

Existing Environment: Cottontail Road, the primary access point for the Nuss-Rock pit connects to US 191. As described in Section 11, gravel trucks currently used US 191 as part of their route to and from the Nuss-Rock pit. US 191 is the primary route from the Four Corners area south to Big Sky, the Gallatin National Forest, and Yellowstone National Park. There are numerous access points to National Forest Lands, campgrounds, and other recreational areas off US 191 south of the proposed permit area. There is no recreational potential within this tract.

Potential Impacts: Other than a slight increase in truck traffic during operation of the pit, there should be no effect on people using the highway to access recreational areas in the Gallatin Valley or to the south in Gallatin Canyon.

Irreversible and Irretrievable Commitments of Resources: The Proposed Action would not result in any irreversible or irretrievable commitments of recreational resources or impinge upon access to those resources.

Cumulative Impacts: None

18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

Applicant's Proposed Action: Mining would eventually encompass the area in Tract 2C-4. The plan of operations includes removing the existing home in that tract.

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

Existing Environment: One single-family home exists, and is currently occupied on Tract 2C-4. The area surrounding the Nuss-Rock pit includes several homes on larger lots and acreages.

Potential Impacts: The plan of operations states that the home would be razed and not replaced.

Irreversible and Irretrievable Commitments of Resources: Although, the site owner's home would be lost, the loss does not constitute an irreversible or irretrievable commitment of housing resources. It is possible that the lands surrounding the proposed ponds would be developed as homesites after reclamation is completed.

Cumulative Impacts: None

19. SOCIAL STRUCTURES AND MORES:

Applicant's Proposed Action: The Proposed Action does not address any social structures or mores. The current and proposed uses of the lands are agriculture and industrial, respectively.

Existing Environment: The project area is situated within an area that is currently known for its rural residential and agricultural activities; however, the character of the area in and around Gallatin Gateway is under increasing development pressure. The existing surface mining activities are evident and cover approximately one-half of the total lands

Potential Impacts: Development of the Nuss-Rock Pit would impact the existing rural/agricultural setting by increasing a non-traditional industrial/surface mining operation. A change in the intensity of land use with heavy equipment, increased road traffic, noise, and dust, would adversely impact the rural/agricultural scene of the area. These impacts would occur throughout the life of the project, but would cease with the completion of gravel mining operations.

Irreversible and Irretrievable Commitments of Resources: None.

Cumulative Impacts: None.

20. CULTURAL UNIQUENESS AND DIVERSITY:

Applicant's Proposed Action: The Proposed Action does not address any aspects of existing cultural diversity.

Existing Environment: The current and proposed uses of the lands are agriculture and industrial, respectively.

Potential Impacts: The Proposed Action would not result in a shift to any unique quality of the area.

Irreversible and Irretrievable Commitments of Resources: The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to the areas cultural diversity.

Cumulative Impacts: None

21. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Applicant's Proposed Action: The Proposed Action would convert 45.8 acres of agricultural, land to a temporary industrial use. If granted, this amendment would increase the total area of the Nuss-Rock pit to 87 acres. After reclamation, the permit area would be graded, and two ponds totaling 52.4 acres would remain.

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

Existing Environment: The current and proposed uses of the lands are agriculture and industrial, respectively. The project area is surrounded by open lands and scattered homesites on larger tracts.

Potential Impacts: Under the Opencut Mining Act DEQ has no authority or jurisdiction over property value issues. The Legislature has specifically limited DEQ's authority to issues relating to taxable value. Under Montana law, an administrative agency, such as DEQ, has only those powers granted to it by the Legislature through enactment of statutes. The Legislature has given DEQ two means of mitigating the effects of gravel operations on adjacent property. First, DEQ has authority to protect air quality; to minimize noise and visual impacts to the degree practicable through use of berms, vegetation screens, and limits on hours of operation; and to otherwise prevent significant physical harm to adjacent land. Second, in order to protect and perpetuate the taxable value of property, land on which operations are completed must be graded and revegetated or reclaimed to a locally approved land use.

In 1998, DEQ hired Mr. Philip Rygg, Member of the Appraisal Institute, to conduct a study on the effect of two open pit gravel mining operations near Bigfork, Montana on neighborhood property values. The purpose of the study was to assess if there was a measurable adverse effect on the property values within a one half mile radius of the active gravel pits. The following restrictions applied: neighborhood water quality and quantity would be protected; pit operations were limited to a gravel crusher, wash plant, cement batch mill, and pug mill; hours of operation were restricted to 6 A.M. to 7 P.M. Monday through Saturday; size of open mining area was not to exceed 33.7 acres; fueling areas were lined and bermed to contain spills; and reclamation would be completed by 2008.

Rygg employed a sales comparison technique to compare actual sales values of six properties adjacent to, or within 1/8 mile, of the gravel pits (subject sales), to comparable sales of 25 similar properties (in the Flathead Valley in economically similar neighborhoods with physically similar improvements) located outside the influence of the gravel pits (comp sales). The subject properties were influenced by noise, dust, traffic, fumes and/or views of the pits; all sales occurred while gravel pits were active. If there was a difference between the price of the influenced property and the price of the uninfluenced property that could not be attributable to other causes (e.g. size, age, land value or physical condition), the difference may be attributable to economic depreciation caused by the gravel pits.

Rygg concluded that, assuming continuation of the same level of gravel pit activity as in 1994-1996 (in 1997 there was a peak level of gravel pit activity), the presence of the gravel pits had not adversely affected the value of the subject properties, and therefore would not adversely affect the other properties in the neighborhood. Rygg stated that *"a continuation of this peak level of operation [1997 level] could eventually erode neighborhood property values, although existing market evidence is insufficient to validate such a hypothesis"*.

Rygg's analysis was reviewed by Jim Fairbanks, Region 3 Manager of the Property Assessment Division of the Montana Department of Revenue (Fairbanks 1998). Fairbanks concluded that Rygg's approach was valid, and stated that in his experience with arguments of Missoula County taxpayers asserting negative property value impacts from gravel pits, power lines, traffic etc.; there were no measurable impacts in virtually all cases. He stated that *"potential purchasers accept newly created minor nuisances that long-time residents consider value diminishing."* (Fairbanks 1998).

Based on Rygg's analysis and Fairbanks' review, sale or market value of adjacent property has not been shown to be negatively affected by the presence of a gravel pit and associated operations.

As part of the Huttinga CUP application to Gallatin County, Joel Peterson, Montana Certified Residential Appraiser # 163, was hired to analyze the impacts of the Huttinga operation on adjacent and neighboring monetary property values (Peterson 2008). It was completed in October 2008 which is during the "housing

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

slump.” In general, the Peterson study attempted to compare individual home sales. Because of the low number of sales he also compared sales in Little Bear Subdivision to several subdivisions, particularly Mystic Heights Subdivision, and explained why prices would be similar or dissimilar. He compared the number of sales, value range, average price, and median sales prices. He also developed these costs for what he said was “basically the heart of the Gallatin Valley.”

Peterson determined “the best comparability analysis is in comparing the subdivisions statistics against each other and the overall data. In reviewing the preceding data I would have to agree with Mr. Ryggs and Mr. Fairbanks that the subject gravel pit has not adversely affected the surrounding real property.”

Mr. Orville Bach presented comments to the Gallatin County Commission regarding gravel pits near Cameron Bridge Road, and makes the argument that there most likely will be negative effects on property values (Bach 2008). Mr. Bach taught college level economics for 33 years and is a Gallatin County Resident. In his comments he states there is excellent economic research available that provides data on economic damage resulting from gravel pit operations, and he includes nine citations to support this statement. He includes a figure from one of the citations showing the impact on residential property values based on distance of the property from the gravel mine – the closer the property, the greater the impact. Based on this figure, properties less than a quarter mile from the mine experienced up to a 32% decline in value. The impact on property value declined with increased distance from the gravel mine. Properties three miles away (the furthest distance in the analysis) experienced a 5% decline. Mr. Bach points out that declining property values could eventually translate into decreased property tax revenue for the County and that this decreased revenue may not be offset by property taxes paid by the gravel operation.

Researchers have used the hedonic estimation method to evaluate impacts to housing prices from environmental “disamenities” (factors considered undesirable). Using this multivariate statistical approach, many characteristics of a purchased good (house) are regressed on the observed price, and thus, one can extract the relative contribution of the environmental variables to the price of the house (Boyle and Kiel 2001). Research has been conducted in many locations in the country, and on many types of disamenities (landfills, power plants, substations, hazardous waste sites, gravel mines, etc.). The study cited by Mr. Bach (Erickcek 2006) uses techniques and data developed by Dr. Hite to evaluate potential effects on property values of a proposed gravel mine in Richland Township, Michigan. Dr. Hite’s study evaluated effects of a gravel mine in Ohio. Both the Erickcek and Hite studies showed decreases in property values resulting from proximity of the property to the mine (Erickcek 2006). The figures cited by Mr. Bach result from Dr. Hite’s research.

It is very difficult to compare modeling results from other states to the Montana scene because it is unknown what parameters were used, and what the local conditions, regulations and laws are. It is unknown if Ohio or Michigan have reclamation laws or attempt to mitigate any impacts.

If homeowners believe their property values are decreased because of a gravel operation, they may appeal to the County and the State for tax adjustment. Impact-mitigating restrictions such as hours of operations, dust control, water testing and visual berms on operations of this nature have been successful elsewhere in the state. Formal tax appeals have not generated a reduction in taxable values of land affected by aggregate mining. In responding to valuation challenges of ad valorem tax appraisals, Montana Department of Revenue did not find measurable negative impacts to property values due to gravel pits and other “nuisances” (Fairbanks 1998). Six nearby residents have applied to the State for a reduction in their taxes because of the gravel pit. No decision on these applications has been made as of October 8, 2010

Irreversible and Irretrievable Commitments of Resources: The Proposed Action would not result in any irreversible or irretrievable commitments of resources related to the area’s social and economic circumstances.

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

Cumulative Impacts: Development of the Nuss-Rock Pit amendment would contribute to the overall development progression in Gallatin Valley. However, the change in land use on this parcel is temporary, and does not constitute a significant contribution to cumulative impacts to social and economic circumstances in the county.

22. Public Involvement, Agencies, Groups or Individuals contacted:

- Gallatin County Planning Department
- Gallatin County Weed Control Board
- Montana State Historical Preservation Office
- Montana Department of Transportation
- Resident notification letters sent to landowners within 1,000 feet of permit area
- Gallatin County Health Department
- Montana Natural Heritage Program

23. Other Governmental Agencies with Jurisdiction, List of Permits Needed:

Agency	Permit
Montana Department of Natural Resources and Conservation	Water rights conversion
Air Resources Management Bureau of the MT Department of Environmental Quality	Air quality permit
Gallatin County Weed Board	Weed control plan
Gallatin County Planning Office	Zoning clearance
Montana Department of Environmental Quality	Temporary Discharge Permit

24. Magnitude and Significance of Potential Impacts: The potential impacts related to the general environment are not likely to be significant based on the lack of sensitive or critical vegetation, wildlife or their habitats. Water usage for the proposed operation would not result in any decrease of available water supply to the Gallatin Valley as the quantity of the water right would not change. In addition, water would be recycled on site. There are no identified water quality impacts that have the potential to adversely impact human health and safety. The Plan of Operations includes measures such as locating soil berms along some of the site boundaries and placing the crusher on the floor of the pit to reduce noise, visual, and light impacts. DEQ would also enforce state and federal air guidelines and standards to ensure the protection of human health and welfare.

25. Regulatory Impact on Private Property: The Private Property Assessment Act requires the Department to analyze whether or not the department's decision would constitute a "taking" of the landowner's or operator's property rights. The Private Property Assessment Act Checklist, attached below, would be completed when the permitting decision is made.

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27. Recommendation for Further Environmental Analysis:

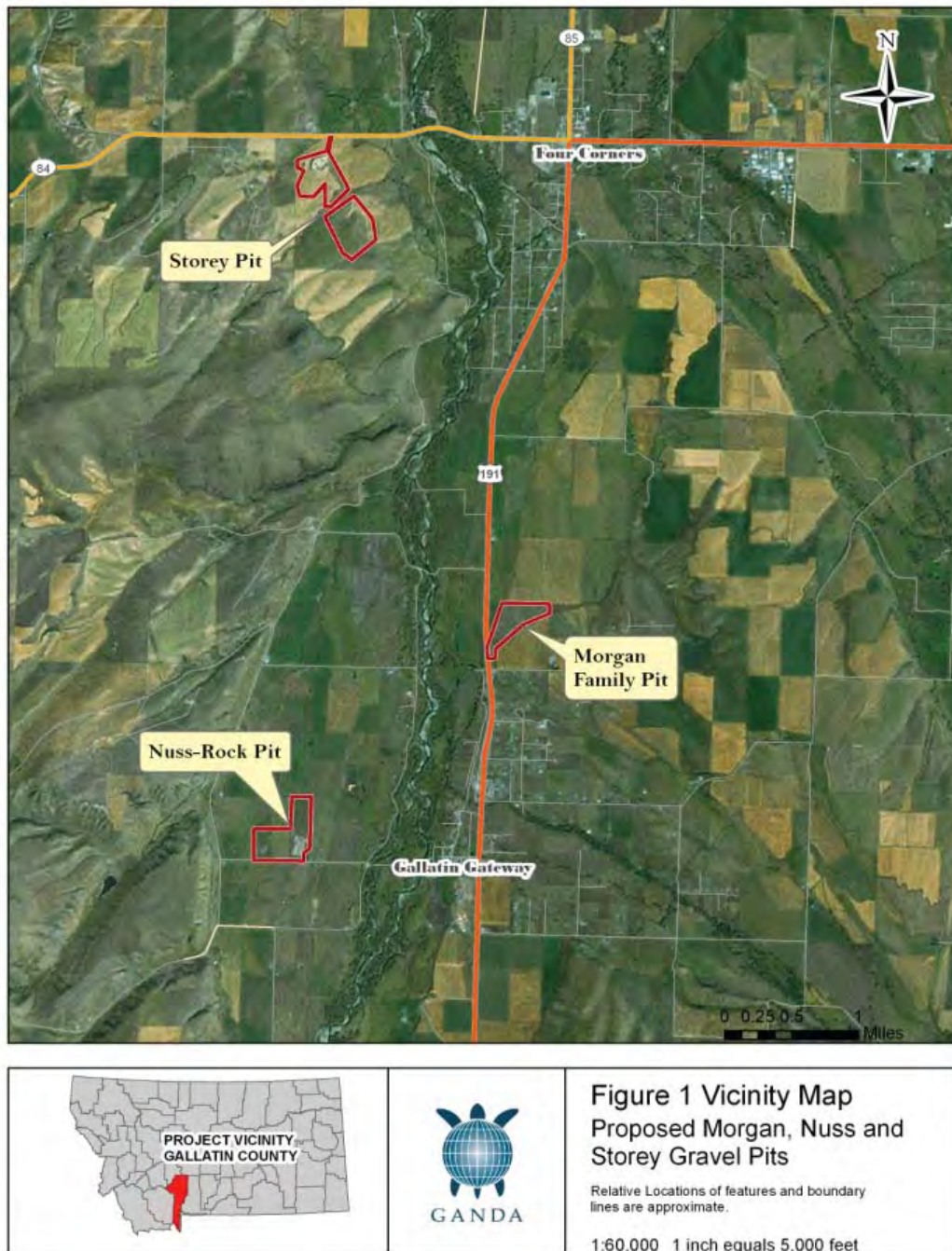
[] EIS [] More Detailed EA [X] No Further Analysis

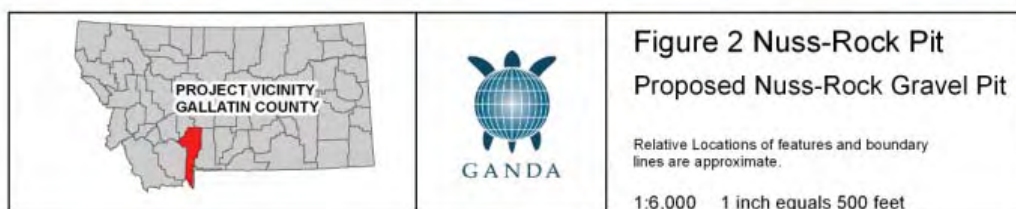
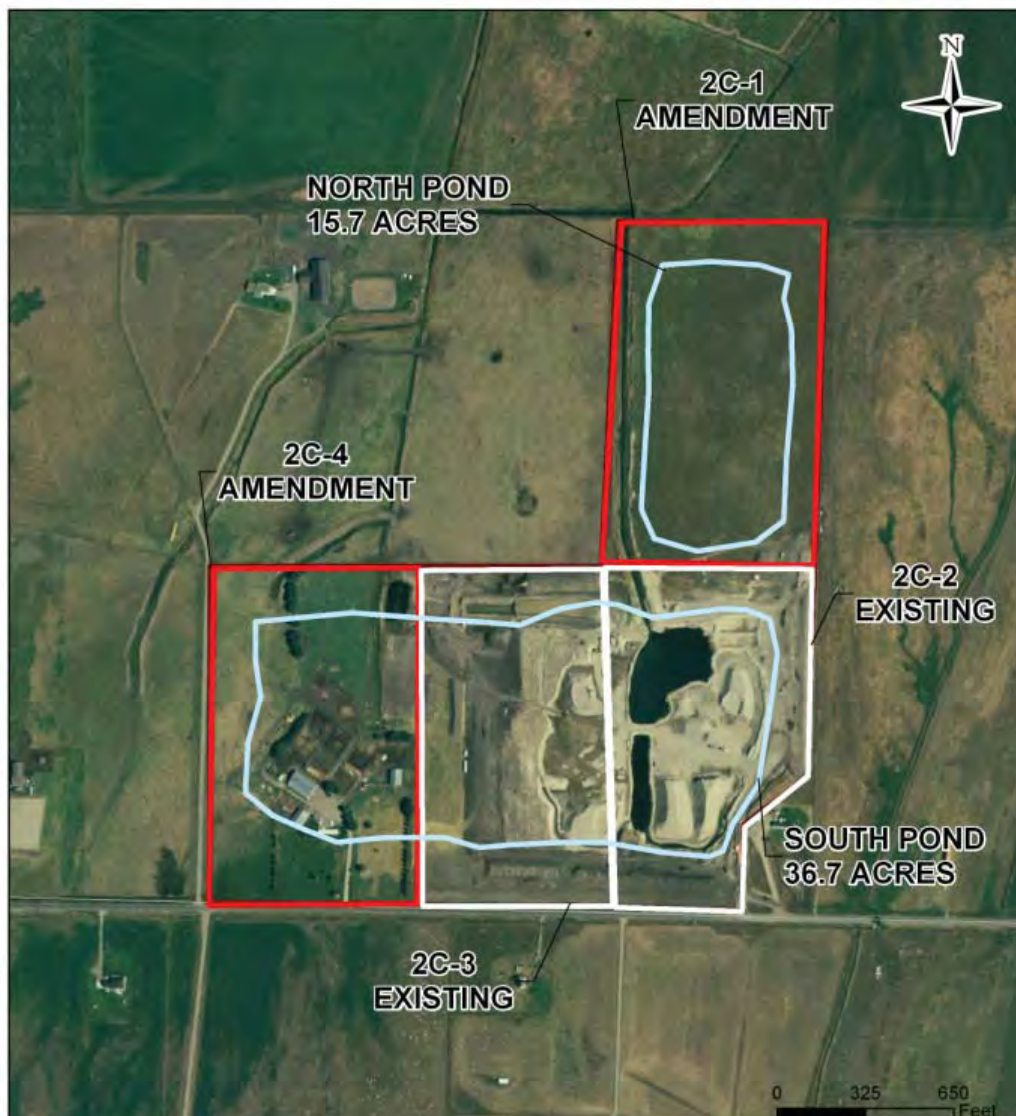
28. EA Prepared By: Garcia and Associates, Third party Contractor

<u>Jo Stephen</u>	<u>DEQ Opencut Mining Program Environmental Specialist</u>
Name	Title

29. EA Reviewed By: Tom Ellerhoff DEQ Environmental Program Manager

PROJECT MAPS





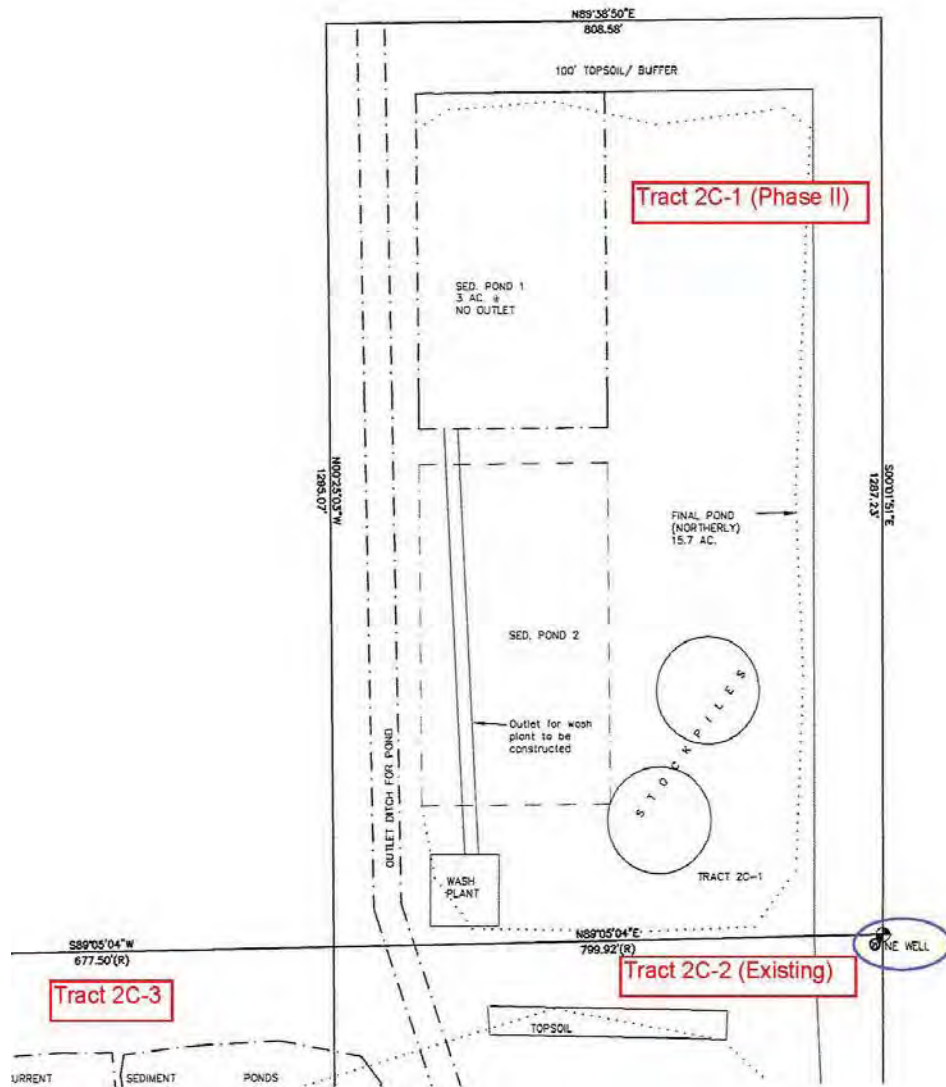


Figure 3. Points of reference for Tract 2C-1 and Tract 2C-2 of the Nuss-Rock pit near Gallatin Gateway, Montana.



Figure 5. Ambient noise measurement locations near the Nuss-Rock pit near Gallatin Gateway, Montana.

APPENDICES
APPENDIX A: Water Resources Information for the Nuss-Rock Pit.

Table A-1: Groundwater Elevations at the TMC Nuss-Rock Pit

DATE	SE (trailer)	SW	NW	NE
12/6/2004	-	4920.06	4914.22	4909.47
1/3/2005	4913.80	4919.48	4913.83	4909.24
2/1/2005	4913.55	4919.15	4913.51	4909.08
3/1/2005	4913.72	4919.10	4913.56	4909.07
4/2/2005	4913.72	4919.06	4913.48	4908.94
5/4/2005	4913.82	4919.61	4913.93	4909.27
5/25/2005	4914.80	4920.86	4914.58	4909.97
7/1/2005	4915.30	4922.88	4915.86	4910.47
8/2/2005	4915.88	4924.12	4916.58	4911.05
9/2/2005	4915.97	4923.18	4916.40	4911.87
10/5/2005	4915.45	4921.31	4915.08	4910.85
10/31/2005	4914.42	4920.78	4914.87	4909.82
12/1/2005	4914.05	4919.76	4914.01	4909.45
1/4/2006	4913.80	4919.14	4913.56	4909.24
1/30/2006	4913.88	4919.03	4913.52	4909.07
2/28/2006	4913.35	4916.97	4912.44	4908.90
4/3/2006	4913.15	4916.88	4912.33	4908.65
5/1/2006	4913.28	4916.26	4911.98	4908.73
6/1/2006	4914.07	4917.82	4913.03	4909.37
7/5/2006	4914.67	4919.03	4913.64	4909.99
8/7/2006	4914.72	4919.06	4913.73	4909.90
9/1/2006	4914.55	4918.45	4913.33	4909.72
10/4/2006	4914.42	4917.98	4912.33	4909.72
10/31/2006	4914.33	4917.63	4912.87	4909.56
12/1/2006	4913.11	4916.63	4912.21	4909.02
1/2/2007	4913.24	4916.18	4911.88	4908.70
1/31/2007	4913.03	4916.07	4911.73	4908.52
3/5/2007	4913.22	4916.09	-	4908.59
4/5/2007	4913.24	4916.13	4911.83	4908.61
5/1/2007	4913.54	4916.37	4911.98	4908.79
5/30/2007	4915.22	4918.21	4913.57	4911.07
7/2/2007	4915.14	4918.74	4913.75	4910.97
8/1/2007	4917.46	4917.79	4912.87	4909.91
8/13/2007	4914.36	4917.50	4912.71	4909.63
9/3/2007	4914.50	4917.08	4912.48	4909.73
10/1/2007	4914.51	4916.72	4912.28	4910.07

Table A-1: Groundwater Elevations at the TMC Nuss-Rock Pit

DATE	SE (trailer)	SW	NW	NE
10/17/2007	-	4916.34	4911.98	4909.07
10/22/2007	4913.65	4916.34	-	-
10/31/2007	4913.46	4916.22	4911.84	4909.24
11/29/2007	4912.51	4915.82	4911.49	4908.53
12/31/2007	4912.99	4915.55	4911.26	4908.27
1/31/2008	4911.95	4915.28	4911.03	4908.10
2/28/2008	4912.75	4915.28	4911.05	4908.07
4/1/2008	4912.80	4915.48	4911.48	4908.17
5/1/2008	4913.07	4915.27	4911.68	4908.47
5/15/2008	4913.07	4914.43	4911.03	4908.45
5/27/2008	4913.24	4914.48	4911.76	4908.60
6/12/2008	4914.16	4915.30	4911.82	4909.62
6/26/2008	4914.63	4916.24	4912.65	4910.07
7/9/2008	4914.81	4916.62	4912.79	4910.07
7/28/2008	4915.21	4916.75	4912.98	4910.44
8/14/2008	4915.08	4916.51	4912.70	4910.29
9/2/2008	4914.63	4916.21	4912.36	4909.79
9/16/2008	4914.61	4916.14	4912.30	4909.79
10/1/2008	4914.17	4916.84	4913.16	4909.47
10/14/2008	4914.03	4915.58	4911.98	4909.27
11/3/2008	4913.74	4915.35	4911.73	4908.99
12/1/2008	4913.30	4915.08	4911.54	4908.73
12/30/2008	4913.11	4914.80	4911.24	4908.41
1/31/2009	4913.09	4914.70	4911.13	4908.32
2/27/2009	4913.00	4914.63	4911.08	4908.29
4/1/2009	4913.24	4914.78	4911.28	4908.65
4/27/2009	4913.60	4915.05	4911.58	4909.04
5/17/2009	4914.21	4915.46	4911.88	4909.37
6/2/2009	4914.80	4916.73	4912.63	4909.92
6/18/2009	4914.98	4916.58	4912.63	4910.22
7/1/2009	4915.45	4916.74	4912.78	4910.36
7/15/2009	4915.39	4916.87	4912.91	4910.40
7/27/2009	4914.87	4916.63	4912.76	4910.06
8/14/2009	4915.32	4916.55	4912.65	4910.43
8/26/2009	4914.89	4916.45	4912.56	4910.15
8/31/2009	4915.23	4916.35	4912.48	4910.05
9/17/2009	4914.39	4915.89	4912.18	4909.72
10/1/2009	4914.27	4915.63	4912.03	4909.7
10/29/2009	4913.53	4915.1	4911.58	4908.85
11/30/2009	4913.27	4914.88	4911.31	4908.59
12/31/2009	4913.09	4914.78	4911.18	4908.4
1/29/2010	4913.05	4914.57	4911.08	4908.35

Table A-1: Groundwater Elevations at the TMC Nuss-Rock Pit

DATE	SE (trailer)	SW	NW	NE
2/26/2010	4913.06	4914.82	4911.15	4908.42
3/30/2010	4913.17	4914.87	4911.24	4908.55
4/27/2010	4913.15	4914.82	4911.22	4908.50
5/14/2010	4913.38	4915.08	4911.45	4908.70
5/27/2010	4914.76	4915.66	4912.05	4910.15
6/29/2010	4915.20	4916.64	4912.72	4910.21
7/15/2010	4915.56	4916.65	4912.82	4910.41
7/27/2010	4914.69	4916.39	4912.59	4910.01
8/18/2010	4914.96	4916.82	4912.76	4910.21
8/27/2010	4915.11	4916.75	4912.75	4910.34
9/16/2010	4914.55	4916.53	4912.60	4909.91
10/1/2010	4914.27	4916.21	4912.36	4909.57

Table A-2: Nuss-RockGravel Pit Water Quality as Measured at Monitoring Wells and Pond Outlet

		Well #1 (SE)		Well #2 (SW)		Well #3 (NW)		Well #4 (NE)		Pond Outlet
Sampling Event		1	2	1	2	1	2	1	2	1
PHYSICAL PROPERTIES	Units									
pH	s.u.	7.6	7.4	7.6	7.4	-	7.4	7.7	7.9	-
Conductivity	umhos/cm	286	343	252	395	-	405	337	151	-
Total Dissolved Solids	mg/L	141	198	139	214	-	217	197	60	195
INORGANICS										
Alkalinity (CaCO3)	mg/L	90	135	83	130	-	130	114	73	-
Bicarbonate (HCO3)	mg/L	110	165	101	158	-	158	139	89	-
Carbonate (CO3)	mg/L	ND	ND	ND	ND	-	ND	ND	ND	-
Chloride	mg/L	2	2	2	21	-	28	2	2	-
Sulfate	mg/L	39	34	34	31	-	28	42	ND	-
Hardness as CaCO3	mg/L	131	162	112	161	-	148	161	64	-
A/C Balance Sigma		1.65	0.31	-0.56	0.96	-	0.27	-1.50	0.09	-
NUTRIENTS										
Nitrogen (nitrate + nitrite)	mg/L	ND	0.40	ND	0.19	-	0.30	0.22	ND	-
METALS, TOTAL										
Calcium	mg/L	32	45	26	43	-	38	45	10	-
Magnesium	mg/L	13	12	11	13	-	13	12	9	-
Potassium	mg/L	3	2	3	3	-	3	2	2	-
Sodium	mg/L	5	4	4	17	-	21	4	4	-
EXTRACTABLE PETROLEUM HYDROCARBONS - SCREEN										
Total EPH	mg/L	ND	ND	ND	ND	-	ND	ND	ND	ND
COLIFORM										
Coliform, total	Per 100ml		A			-	A		A 9/4	-

Note: Sampling event #1 occurred on 5/25/05 and sampling event #2 took place on 8/13/2007
A= Absent ND = Non Detect

Table A-3: TMC/ Nuss-Rock Gravel Pit
AUGUST 13, 2007 - WATER TEMPERATURES

<u>Westerly Pond</u>		<u>Easterly Pond</u> South of culverts		<u>Easterly Pond</u> North of culverts	
Depth (ft)	Temp. (deg. F.)	Depth (ft)	Temp. (deg. F.)	Depth (ft)	Temp. (deg. F.)
1.0	52.5	1.0	49.0	1.0	51.5
2.0	51.0	2.0	49.0	2.0	51.0
3.0	50.8	3.0	49.0	3.0	50.5
4.0	50.5	4.0	49.0	4.0	50.1
5.0	49.8	5.0	48.8	5.0	49.8
10.0	49.2	8.3	48.5	6.3	49.8
15.0	48.8	Total depth = 8.4'		Total depth = 6.4'	
20.0	48.2				
25.0	48.0				
30.0	47.8				
35.0	47.8				
40.0	47.6				
Total depth = 40.4'					

<u>Outlet to Pond</u>		<u>Wells</u>	
Depth (ft)	Temp. (deg. F.)	Wells	Temp. (deg. F.)
1.0	49.5	SW	45.5
		SE	53.0
		NW	49.0
		NE	52.5

Notes: At the time of sampling the crusher and wash plant were running and an excavator was digging inside of the dyke in the westerly pond. The air temperature was 75 degrees F., wind south then north at 5 mph, sunny and smokey. Work was done between 8:50 a.m and 1:32 p.m. on August 13 2007. Water samples were taken and sent to the lab.

Private Property Assessment Act Checklist

DOES THE PROPOSED AGENCY ACTION HAVE TAKINGS IMPLICATIONS UNDER THE PRIVATE ASSESSMENT ACT?

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deprive the owner of all economically viable uses of the property?
	X	4. Does the action deny a fundamental attribute of ownership?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? (If answer is NO, skip questions 5a and 5b and continue with question 6.)
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property?
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally? (If the answer is NO, skip questions 7a-7c)
		7a. Is the impact of government action direct, peculiar, and significant?
		7b. Has the government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?
		7c. Has the government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?

Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b.

If taking or damaging implications exist, the agency must comply with § 5 of the Private Property Assessment Act, to include the preparation of a taking or damaging impact assessment. Normally, the preparation of an impact assessment will require consultation with agency legal staff..

**APPENDIX B: Comments Submitted by the Public on the Draft EA, and Responses
from DEQ**

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:58 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: Nuss Pit

From: Flallen3@aol.com [mailto:Flallen3@aol.com]
Sent: Tuesday, September 23, 2008 10:56 AM
To: Stephen, Jo
Subject: Nuss Pit

Dear DEQ,

We own approximately 165 acres in the old Day Ranch, now known as Ladigo Ranch, near the Nuss gravel pit. We are very concerned about our property value if the pit is expanded and we are concerned about noise, air pollution, and other quality of life issues. Beyond our own concerns, it is our view that the Gallatin Gateway community is a very attractive area with the potential for high quality development, all of which is in jeopardy if we allow a gravel operation to dominate the landscape. Finally, we are frequent commuters on Highway 191 to Big Sky, and we have had more encounters with dangerous gravel trucks than the law should allow. My wife's windshield was shattered by gravel from an uncovered load just last week.

We urge the DEQ to protect us.

Thanks,

Linda and Rick Allen

Box 160958

Big Sky MT 59716

cell: 406-570-2006

Looking for simple solutions to your real-life financial challenges? Check out WalletPop for the latest news and information, tips and calculators.

Hello Jo Stephen,

We just wanted to drop a quick note to you to let you know that we are in support of the Nuss pit. We live on Gateway South Rd, and are just under a mile directly south of the pit. We were both born and raised in Gallatin Gateway. We have lived at our current location for 8 years.

If we listen we can hear the crusher when it is running, but this doesn't bother us. There are also farmers and other businesses as neighbors that make noise. Our neighbors dogs, and sometimes our own, tend to make more noise than the pit. The wind blows to the East or to the North so we don't get dust from the pit. The farmland on the hill and the gravel road in front of the house create more dust anyway.

If we do have any concerns about the pit we would go to the operators and talk to them to see if we could get them resolved. We haven't had any issues and do not foresee any.

We also have not had any issues with the truck traffic. Our only concern there is that Gateway South Road is going to need a lot of fixing. There are at least 15 canal and ditch culverts and bridges that are going to have to be replaced.

There were a lot of comments made at the public meeting that we could respond to, but we could go on forever debating the GOMAG group and never get anywhere. We were happy to see some of the neighbors come up with some ideas for mitigation that could actually be helpful, like trying taller berms and shorter stock piles, not working weekends, and trying a different type of back up beepers.

Thank You for your time,
Charlie and Debbie Allsop
allsops@q.com

A dewatering trench at the northern end of the pit collects water from the pit and routes it to a ditch, which eventually discharges in Fish Creek.

The MPDES permit for the gravel pit requires the operator to measure the turbidity of the water that they discharge. The potential for an increase in the temperature of water in the ditch and Fish Creek, downstream, is addressed in the EA. No other significant water quality impacts would be expected from a gravel pit operation, with the exception of the potential for accidental spills of chemicals used at the facility. The temperature data presented in Tables 2 and 3 of Appendix A of the EA suggest that the temperature of the discharge to the ditch/Fish Creek is not significantly elevated, but there does not appear to be sufficient data (both spatially and temporally) to adequately evaluate potential affects on Fish Creek. Therefore, a more rigorous temperature monitoring and modeling program would more adequately address the potential for temperature affects on fish habitat downstream of the pit.

Water Quantity

GOMAG asked us to compare the aquifer properties presented in the Morrison-Maierle report with the values used by Nicklin Earth & Water, Inc. (Nicklin) in the groundwater model that they developed as part of Hydrologic Assessment. The Morrison-Maierle report does not present aquifer properties such as transmissivity (T), hydraulic conductivity (K), or storativity (S) based on the aquifer testing that they performed. They performed several aquifer tests with a number of observation wells, but present no aquifer property estimates based on the drawdown responses observed during these tests. This is out of the ordinary for a "Groundwater Availability Assessment" and would be considered deficient by DNRC if this report were submitted in support of a current water right application.

Rather than present site-specific aquifer property estimates, the Morrison-Maierle report references the Hackett (1960) report and presents a range of T values from that work (~23,000-51,000 ft²/day). Nicklin references the Hackett report but also mentions a test "conducted to the immediate north of the project"; saying that analysis of that test data yields a T estimate of 38,000 ft²/day. It is unclear whether or not Nicklin is referring to the tests conducted by Morrison-Maierle discussed above. While neither the Morrison-Maierle nor Nicklin reports provide the drawdown response data necessary to evaluate the quality of site-specific T estimates, they report the use of similar T values, and these values are reasonable for this hydrogeologic environment.

The predicted drawdown response presented by Nicklin is reasonable for the aquifer properties used in the model, and the general approach that Nicklin uses seems sufficient for the purpose of predicting drawdown around the pit. There is enough documentation and discussion of the modeling provided to understand how the model was set up and how it was “calibrated”. However, there is not enough information to thoroughly evaluate the model design, to reproduce the results, or to compare fluxes from the model to a water balance for the source aquifer. Aside from a statement that the model generally tends to predict water levels about 1 foot below observed water levels, there is no quantification of how accurately the model predicts drawdown or how sensitive the results are to the various model parameters.

Water Rights:

All water rights in the DNRC database with “TMC, Inc.” listed as an owner are presented in the following table (Table 1):

Table 1. Summary of Water Rights Owned by TMC Identified on DNRC Database

Water Right	WR Type	Purpose	Source Name	Means of Diversion	Owner	Flow Rate	Volume	Acres
41H 95564 00	GROUND WATER CERTIFICATE	COMMERCIAL	GROUND WATER	WELL	TMC INC	12.00 GPM	1	
41H 95485 00	GROUND WATER CERTIFICATE	COMMERCIAL	GROUNDWATER	WELL	TMC INC	12.00 GPM	1	
41H 15837 00	STATEMENT OF CLAIM	IRRIGATION	W GALLATIN RIVER	HEADGATE	TMC INC	5.00 CFS		221.5

The first two water rights in the table are for commercial use (like gravel washing), but they total only 24 gpm and 2 acre-feet per year. The third is an irrigation water right, and is presumably not associated with the gravel operation. According to information presented by DEQ in the EA, the wash plant uses a flow rate of 500 gpm to pump water from the pit for the washing and crushing of gravel, and that there is an annual consumption of 30 acre-ft per year.

The following table (Table 2) summarizes the water use values presented by DEQ in the EA and provides an estimate of the annual consumptive use of the operation. The consumptive use is the volume of water that is not returned to the pit or to groundwater. This is the annual volume

of water that is considered by DNRC to be stream depletion. In this case, this predicted stream depletion is in the form of pre-stream capture of groundwater that is tributary to the Gallatin River.

Table 2. Summary of Water Use Estimates

Water Use	Diverted Rate		Period of Diversion	Annual Diverted Volume	Annual Consumptive Use Volume
	(gpd)	(gpm)			
Dust Suppression	20,000	unknown	65 ¹	4.0	4.0
Crusher					
Average	4,800	10	130	1.9	unknown
Maximum	6,600	unknown		--	
Wash Plant					
Remaining in Products	67,000	140	130.00	26.7	26.7
Evaporating	8,000	17		3.2	3.2
Infiltrate into Groundwater	4,000	8		1.6	0.00
Runoff Directly Back to Pond	161,000	335		64.2	0.00
Total	240,000	500	--	95.7	33.9

Note:

(1) The period of diversion for the water diverted for dust suppression was estimated based on the assumption that dust suppression is necessary during the months of June, July, and August.

There appears to be an estimated 33.9 acre-feet per year of consumptive use associated with the gravel operation as described by DEQ. These water uses meet the definition of "beneficial use" as defined in MCA §85-2-102(4). As such, it appears that TMC needs a beneficial use permit for this gravel operation. Because this site is located in a basin closure area, that the applicant would also be required (ARM, 36.12.1704(1)) to file an Application to Change a Water Right for mitigation to cover the amount of water consumed under the permit application. Mitigation is needed to offset net depletion to surface water.

Written comments to DEQ September 15, 2008

My name is Orville Bach and I have taught college sophomore level of Principles of Economics for 33 years. I recognize the gravel pit issue in Gallatin County as what is referred to in Economics as a “Spillover Cost” or “Market Failure.” It occurs when a producer does harm to a Third Party or Society, and there is no compensation. **(1)**

Our free market system is great, but it is not perfect. The existence of market failures provides a reason for occasional government intervention in the marketplace such as regulations and zoning.

The damage to citizens caused by air and noise pollution, dangerous traffic, and possible water contamination from the proposed gravel pits is being addressed by others. I want to be certain that you clearly understand the economic damage these mines would do to the several hundred citizens who live in close proximity to the proposed mines, as well as the overall community.

Before I go any further, please understand that I, and I’m sure all of the folks in the affected area, understand the need for gravel and gravel pit mines. However, it makes absolutely no sense to locate heavy industry, such as mining, right in an area intended for orderly residential and business development.

Gallatin County is not the only county that has considered making such a mistake. There is excellent economic research available from prominent economists and research institutes that provide data on the economic damage resulting from gravel pit operations being placed in inappropriate locations.

I have provided copies of tables and graphs obtained from the August, 2006 report by the Upjohn Institute for Employment Research. **(2)** You will note that the methodology in this report has been used since 1974, and the report highlights the work by Professor Diane Hite, an economist who, while at Ohio State University and Auburn University, has published widely in the area of property value impact analysis. She is considered to be a leading authority on this topic, and has performed the most rigorous study to date of gravel mine impacts on property values. **(2)**

As you can see from Figure 1, property values are reduced anywhere from 32% to 5% depending on the distance from the gravel pit. There are documented cases where gravel pits have diminished property values by 40% and more. **(3)**

However, let's focus on the conservative numbers on the graph in Figure 1. A residential property closer than one-half mile would lose about 30% in value; a property 1 mile away (such as my house) would lose 15%; a house 2 miles away would lose 8.9%, and so forth.

Using this data and the number of homes within 2 miles of the proposed pits, we are looking at a significant loss in property values. Individually, many homeowners would face a drop in property value of \$30,000 to \$50,000. Imagine how you would feel if someone broke into your home and robbed you of \$30,000 to \$50,000!

Figure 2 depicts the long-term damage that occurs once a gravel pit goes in next to residential property. Some might say, “Well, I bought a house next to a gravel pit ten years ago and my property value has steadily gone up.” Of course that argument makes no sense, because the mine existed prior to purchasing the house. The steep loss in property values will occur within a short period of time following the establishment or announcement of the mine.

Obviously, the extensive loss in property values would eventually translate into a substantial decrease in property tax revenues to Gallatin County. According to the Gallatin County Assessor’s Office, property is taxed at about 1% of value. Therefore, we would be looking at an annual loss in property tax revenues to the county of several thousand dollars. Some may say that the state reappraises real estate rather infrequently, and that is true. However, you can be sure that the homeowners in the affected area will not be waiting around for the state to reappraise their homes once the residents know their property value has fallen.

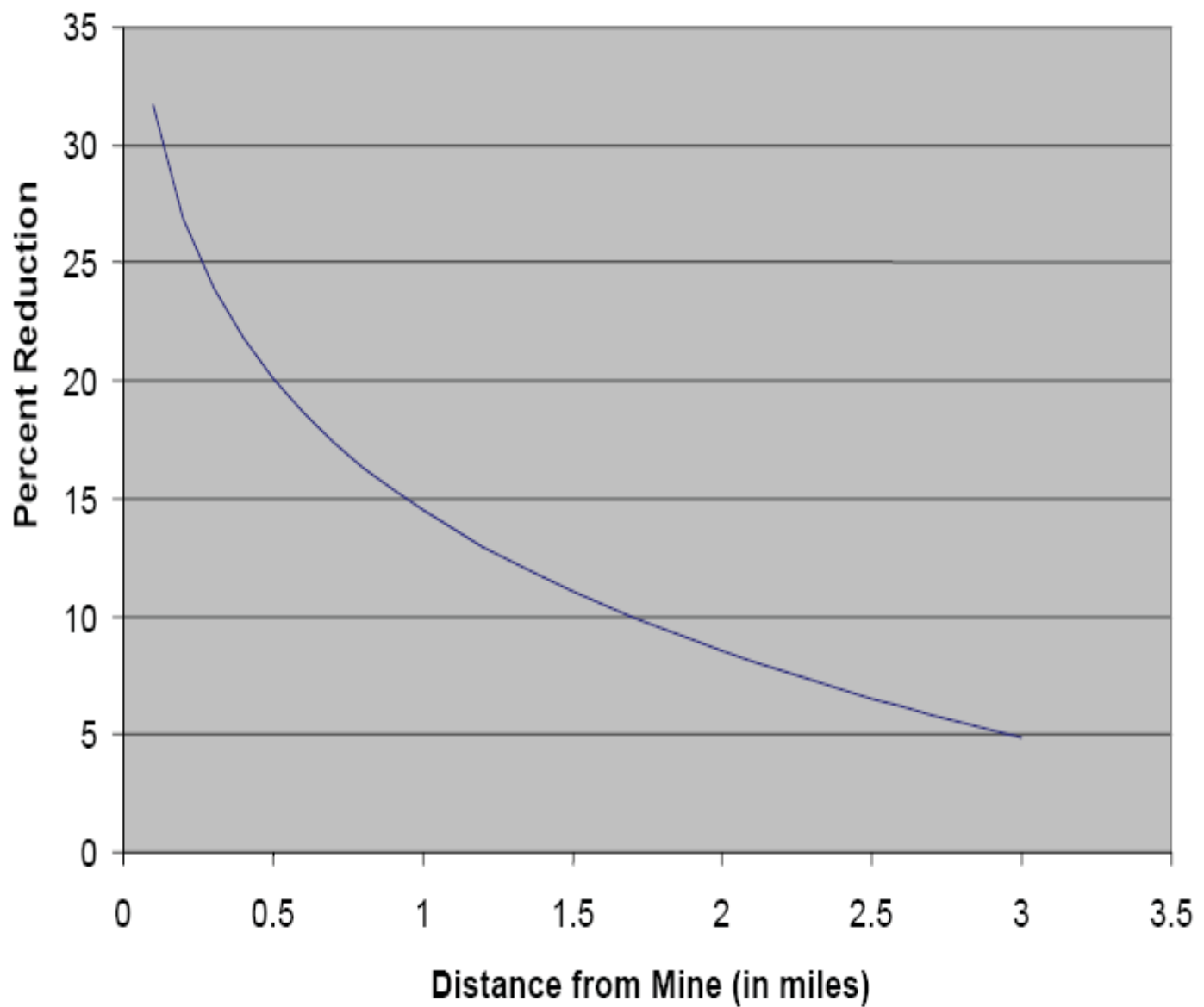
Research reveals that a gravel pit operation pays property taxes equivalent to only about 10 residential homes. Gravel mines tend to have low assessed land values, typically only 41% of the value of residential properties. **(4)**

Please note that the figures I have used do not even consider the fact that gravel mine operations are intensive road users, which puts an additional burden on the county roads in the proposed area.

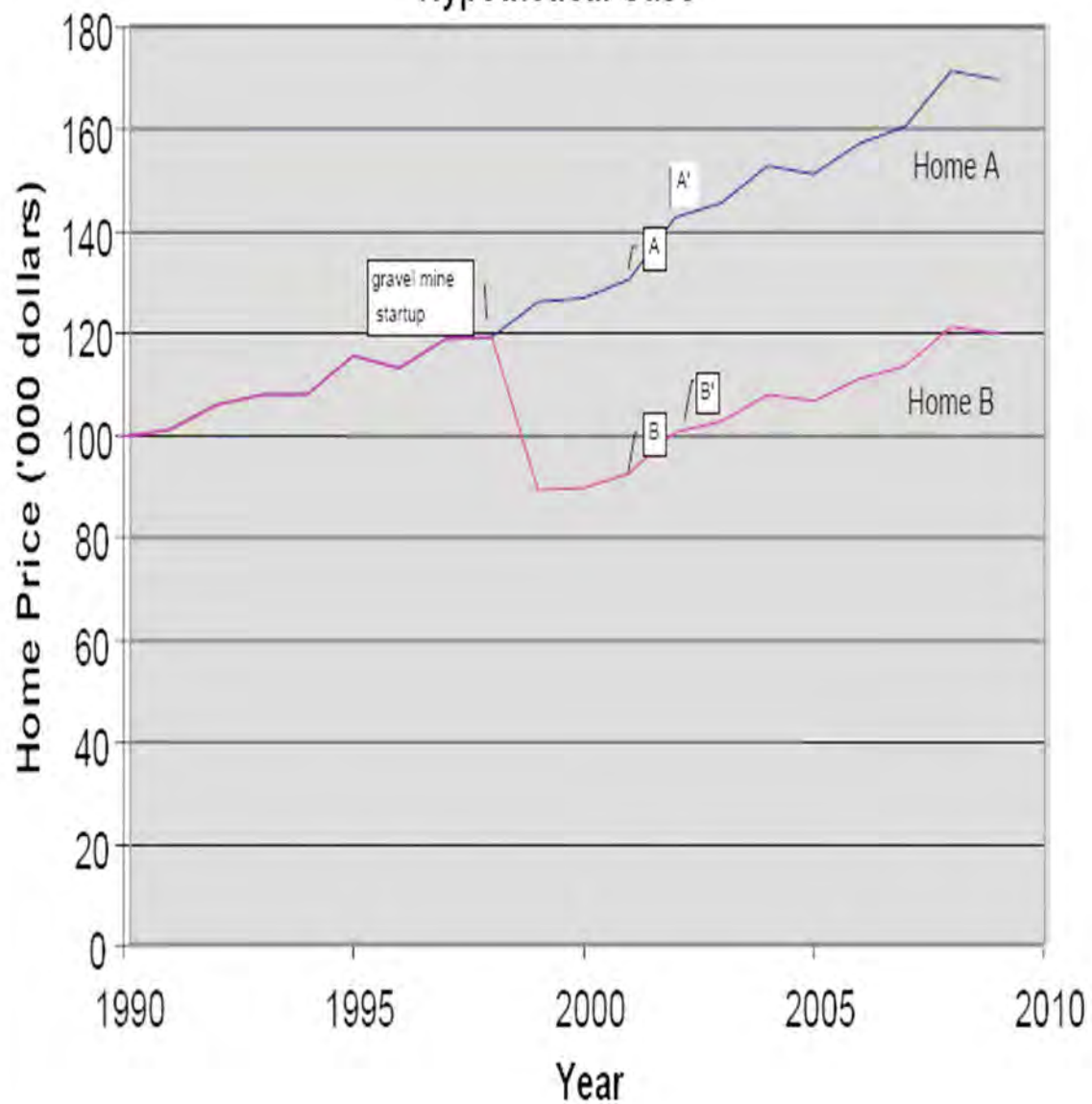
Finally, in order for Gallatin County to achieve the type of quality growth and standard of living desired by its citizens, it is imperative that DEQ and other regulatory agencies and commissions insure that gravel pit mines are located in the appropriate locations, and that the operations are conducted in a manner that is environmentally safe and friendly to any nearby neighbors. Clearly, this has certainly not been the case to date in Gallatin County.

Orville Bach, 197 Lamplight Lane, Bozeman, MT 59718

**Figure 1: Impact of Gravel Pit on Residential
Property Values:
(Percent Reduction by Distance from Mine)**



**Figure 2: Methodology for Evaluating Gravel Mine Impact on House Prices:
Hypothetical Case**



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Bowlby & Associates, Inc.



504 Autumn Springs Court, #11
Franklin, Tennessee 37067-8278
(615) 771-3006, Fax (615) 771-3406
wbowlby@bowlbyassociates.com

September 23, 2008

Montana Department of Environmental Quality
Rimtop Drive
Billings, MT 59105

1520 E. Sixth Avenue
Helena, MT 59620-0901

Dear Madam or Sir:

Subject: Comments on Noise Section of “Draft Supplemental Environmental Assessment, Permit TMC-002, Threeway Mining Company, Inc., Nuss-Rock Pit Amendment,” dated August 25, 2008

In response to a request from the Gateway Opencut Mining Action Group, I have reviewed the noise section of the subject Draft Supplemental Environmental Assessment (EA), and request that you consider the following technical comments. As relayed to me by the Gateway Opencut Mining Action Group, Jo Stephen of DEQ has indicated that there was no formal report on the noise analysis beyond what is contained in the EA. As a result, please note that I would like to reserve the right to expand upon or revise my comments as needed later in the comment-gathering phase of the Conditional Use Permit process.

As background, I have worked in the field of environmental noise analysis and control since the 1970's, with employment at the New York State Department of Transportation, the Federal Highway Administration, Vanderbilt University, and, currently, Bowlby & Associates. Work in Montana has included a statewide traffic noise research study and a Great Falls highway project noise study for Montana Department of Transportation. Our firm was also involved in collecting and analyzing snow machine noise in Yellowstone and Grand Tetons for the National Park Service.

Comments on the Noise Section of the EA:

1. Operating Hours – The EA states, “Normal operations include mining, crushing, washing, asphalt operations, maintenance, fueling, and other operations. Normal hours of operation would be from 7 a.m. to 6 p.m. Monday through Friday, and 7 a.m. to 6 p.m. on Saturdays for hauling and maintenance. Previously, maintenance was not included on Saturdays. Mining and processing would not be allowed on Saturdays.

Equipment maintenance would be scheduled on Saturdays for safety reasons. Hauling or moving existing stockpiles could be done on Saturdays.”

- a. A commitment to adhere to these hours of operation is important. Any reasons for outside of these hours should be addressed, as well as any needed permissions for doing so and any limitations on such work. For example, if evening or night operations are to be allowed later on a long-term basis, then this EA has not properly documented the impacts associated with the that work. Nighttime operations, especially between 10 p.m. and 7 a.m., can greatly increase the Day-Night Level (DNL) at the residences and, therefore, the resultant noise impacts.
- b. The proposed action adds to the current noise exposure by allowing previously precluded maintenance to occur on Saturdays. I do not believe that this change in the Saturday noise environment was described in the EA as one of the impacts of the project; that change should be documented. Going from a DNL in the high-30 to low-40 dB range up to the upper 50's or lower 60's is a substantial change of the Saturday noise environment, and is an impact of the proposed action.
- c. No mention is made of operations on Sunday. If none are to be allowed, that commitment should be specifically stated in the EA. If they are to be allowed, even if short-term, that possibility and its impact should be documented. As noted above in point (b), the increase above the ambient would be substantial.
- d. The EA states that “Hauling or moving existing stockpiles could be done on Saturdays.” Elsewhere, on page 4 it states “Normal hours of operation would continue to be 7:00 am to 6:00 pm Monday through Friday. Hours would be **extended to Saturdays** from 7 a.m. to 6 p.m. for hauling and maintenance.” [my emphasis]. It appears that hauling is currently not done on Saturdays. The EA does not state how often such operations would likely occur with the project, making it impossible to gauge the potential noise impact of the proposed Saturday operations.
- e. On page 6 of the EA, in response to a comment, the document states, “DEQ does have authority to set the hours of operation, and can enforce violations of permitted hours of operation. In September 2007, DEQ issued a violation letter to TMC, Inc. documenting two occurrences when the mine was operating outside of its permitted hours of operation, both on weekend days.” First, this statement implies that operations are currently **not** permitted on

weekends. Second, the EA should be more specific on the actions that DEQ will be able to take – and will take – if operations occur outside the permitted hours.

2. Noise Level Measurements – Sound level measurements were made at two sites, N1 and N2.
 - a. According to Figure 5, Site N1 appears to be right alongside Cottontail Road, while the nearby residence is over 200 feet from the road. The measurement notes state that one of the noise sources was “traffic on nearby roads.” The measured sound level of the traffic on Cottontail Road will be much louder right adjacent to it compared to over 200 feet away. This measurement thus overstates the existing sound level at the residence, and therefore understates the sound level increase at the residence due to the project.
 - b. Site N2 was at the northwest corner of Tract 2C-3. However, this location is not near the residence to the immediate north of Tract 2C-3, nor the residence farther to the north. A reason justifying the choice and the representativeness of the measured level at these residences needs to be included in the EA. If the site is not representative, then other measurement sites should be used.
 - c. The sound level measurements were too short in duration to allow confident calculation of a 24-hour Day Night Level (Site N1: 5 minutes during the day and 11 minutes at night; Site N2: 6 minutes during the day, 10 minutes at night). In other words, extrapolating a 5-minute or 6-minute sample to represent fifteen hours of daytime ambient is likely to misrepresent the actual time-varying level during those fifteen hours; the same applies for 10 or 11 minutes adequately representing nine hours of nighttime noise. Sound level monitors should be left out at sites close to the nearby residences for full 24-hr periods. Alternatively, longer-duration spot samples (e.g., an hour) should be conducted for more than just one period during the day and one at night.
 - d. Table 3 notes that “wind in grass” and “wind” were noise sources at Site N1 (day) and N1 (night). There is no mention of the direction of the wind. Wind direction can have a great influence on measured sound levels, with downwind levels being higher than in calm conditions and upwind levels being lower. The EA specifically acknowledges this fact in the text on modeling on page 21 beneath Table 3, “...noise levels can vary significantly due to atmospheric conditions...temporary significant positive and negative deviations from the

averages can occur.” Wind effects on the measured existing levels need to be addressed.

3. Modeling of Existing and Future Levels

- a. On page 18, the EA notes, “The mobile crusher (approximately 17 feet in height) would be periodically moved and set up on a pad a few feet above the high water level near the active mining area, **but no closer than 500 feet from Cottontail Road.**” [my emphasis added] However, Table 5 on page 22 which shows proposed sound levels; indicates that the crusher is no closer than 1,320 feet from a receiver. Page 23 also notes that “The nearest residence to the south is approximately 0.2 miles (1,050 feet) from the typical crusher location.” If the crusher is brought within 500 feet of Cottontail Road, it would be only about 700 feet from this residence, increasing the level substantially over that stated in Table 5. The predicted DNL for this residence would be closer to that described for the residence to the north of the facility – a DNL on the order of just under 61 to 67 dBA.
- b. The second paragraph on page 21 notes, “Diesel-powered equipment, such as loaders and excavators, **intermittently** reach maximum noise levels, L_{max}, 85 dBA at a distance of 50 feet from the equipment.” [my emphasis added] Rather than “intermittently,” a more accurate and descriptive word of the actual operations and associated impacts would be “frequently.” As described in Table 4, the modeled results are based on the loaders at maximum noise level for 40% of the 12 hours from 7 a.m. to 7 p.m., or nearly 5 hours per day. Indeed, the loader noise will be produced for 12 hours per day.
- c. The calculated DNL for the proposed action only includes the crusher and loader. Other noise sources, especially the excavators, loading of trucks, hauling by the trucks, use of other trucks for maintenance and fueling, the wash plant and the asphalt plant, should be included. Indeed, on page 18, the EA notes, “The primary noise sources would be the mobile crusher, the asphalt plant, and diesel heavy equipment (e.g., front end loaders and haul trucks).” Special focus should be made on any changes in the number of operations over the existing case (such as haul trucks) and/or the proximity of these sources to the residences.
- d. The text on page 22 notes a “...2-hour increase in operating time for the Proposed Action...” Yet, Tables 4 and 5 show the same times (7 a.m. to 7 p.m.) for the existing and proposed operations. Table 4 should be revised to

show the shorter existing operating hours compared to the proposed case to more properly portray the change from the existing situation to the proposed case.

- e. The EA states on pages 21-22 that the DNL for the proposed action is approximately 1 dB higher than existing, "...which would not be a noticeable increase." Yet, in reality, the facility would be operating for two more hours per day than at the present, a 20% increase in time exposed to facility noise (12 hours up from 10 hours). Such an increase in time of exposure is likely to be very noticeable to residents, and should be addressed. The small increase in DNL due to a 20% increase in operating time is one of the problems with DNL in describing impacts. If one were to assume for the moment that the EA's noise measurements were adequate to describe the ambient level, the increase in operating time means that for the two hours of extra operation a day, the sound level would increase from the mid-30 dB range up into the 50-60 dB range, which is a substantial increase that would clearly be noticed.
 - f. In part because of the above point, the EA needs to go beyond the sole use of DNL and the change in DNL to discuss: (1) increase in time of operation, (2) related time above some sound level threshold (such as 55 dB), and (3) increase in maximum sound levels over ambient.
4. Impacts – Despite the above concerns that the proposed sound levels may have been underestimated, I agree with the finding that the proposed DNL at the residences will exceed the 55 dB EPA guideline, that the increases in DNL of up to 20-23 dB over ambient DNL are very substantial (and would be depicted as even more substantial if maximum sound levels were used in addition to DNL), and that mitigation should be implemented.
5. Mitigation –
- a. The EA states: "The following measures could be considered to reduce the noise of the project:
 - i. Restrict the crusher and asphalt plant operation to workday hours (8:00 a.m. to 5:00 p.m.).
 - ii. Add berms or barriers along the north and northeastern permit boundaries, in order to completely surround the site (see Tables 4-6).

- iii. Locate the crushing operation as far from residences as is possible.
 - iv. Replace standard back-up alarms with Mine Safety and Health (MSHA)-approved, manually adjustable, ambient-sensitive, directional sound technology, or strobe light alarms. Adjustable and ambient-sensitive alarms typically limit the alarm noise to 5 to 10 dBA above the background noise, which would still typically be audible behind the equipment.
 - v. Install high-grade mufflers on all diesel-powered equipment.
 - vi. Implement a regular maintenance schedule to ensure that equipment is operating properly. Use new equipment rather than older equipment.”
[I replaced bullets with numbers for ease of reference.]
- b. The EA should **commit** to mitigation, not simply state that the measures “could be considered.” My comments on each strategy follow:
- i. I agree that the crusher and asphalt plant operation should be limited to workday hours (8:00 a.m. to 5:00 p.m.). Further, the impact of hauling and maintenance on Saturday needs to be quantified. If maintenance is to be done on Saturdays, the maintenance area must be kept a considerable distance of the residences, say 500 feet, and should be shielded from them by a noise barrier wall of a reasonable height, such as 10-12 feet.
 - ii. I agree that berms or barriers should be required. However, the 6-ft height that is discussed in the EA will mostly likely provide very little noise reduction. Heights of 16-20 feet or greater might be required depending on the source location and source height above ground. The correct needed heights can be modeled with noise modeling software. A noise reduction goal for the barrier/berm design should be no less than 10 dB.

Related to heights, the EA section on Visual Resources states, “Once the overburden berms are established and seeded, mining operations would be shielded from view. However, the berms would continue to be noticeable from the roadway. The berms would not be high enough to block the view of the nearby hills, and should not represent an appreciable impact on the visual resources of the surrounding area.

The gravel stockpiles should be maintained at a height such that they do not obstruct or conflict with views of the hills and surrounding mountains. The proposed “Good neighbor” provisions suggest that stockpiles should not exceed 24 feet (GCC 2008).” There is obviously a trade-off that needs to be considered regarding the need for height to block the noise and the blocking of view caused by that height. The fact that stockpile heights of up to 24 feet are discussed suggests that berms or walls much taller than six feet can also be implemented.

- iii. I agree fully that the crushing operation should be located as far from residences as is possible. Additionally, some type of mobile sound-absorbing noise barrier shield should be developed to be able to be moved with the crusher and oriented to shield the closest residences from the noise.
- iv. Back-up alarms can be highly annoying. The EA states on page 23, “Because of their intermittent, high-pitched, impulsive sound, back-up alarms can cause high levels of annoyance and numerous complaints even at low noise levels, but have little influence on Leq or Ldn values.” I totally concur with this statement, especially when the background ambient level is low, as is the case for the project area. The EA suggests consideration of manually adjustable or ambient-sensitive alarms. I also call attention to the use of a newer alarm developed in Europe that has seen limited usage in the US. It produces a directional “shush” noise instead of the purer-tone “beep”, making it much less distinguishable at great distances than the beeping. I will try to provide a reference. In any case, back-up alarm noise needs to be mitigated. At a minimum, any fixed-level alarms should be replaced with manually adjustable alarms and then the level should be adjusted to be as low as possible without compromising safety.
- v. I agree that high-grade mufflers should be installed on all diesel-powered equipment. This measure should include **all** haul trucks.
- vi. I also agree that maintenance of these mufflers and all other equipment in proper working order should always be a priority maintenance item. This measure should include **all** haul trucks.
- vii. I agree with the use of newer equipment rather than older equipment, with noise being a criterion in the procurement decisions. The sound

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levels of all equipment used on the site – or planned for use – should be measured, and the worst offenders identified and either quieted or replaced.

Thank you very much for your consideration of these comments.

Sincerely yours,

A handwritten signature in blue ink that reads "William Bowlby". The signature is written in a cursive style with a large, stylized 'W' and 'B'.

William Bowlby, Ph.D., P.E.
President, Bowlby & Associates, Inc.

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:52 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: Nuss and Morgan EA

-----Original Message-----

From: Kathy Brekke [mailto:kathykitchel@yahoo.com]
Sent: Wednesday, September 24, 2008 8:23 AM
To: Stephen, Jo
Subject: Nuss and Morgan EA

Please seriously consider the GOMAG comments on the draft EA documents. It is vital that the decisions about these mining operations ensure strong vital communities. Just hoping these kinds of industrial operations don't do harm or damage is not acceptable any longer. We must look forward and safeguard what has been entrusted to us, rather than looking back after the damage is done and wishing we had done things differently.

Thank you for your time and effort regarding these applications.

Kathy Brekke
406-581-3909
321 Garnet Mtn Way
Bozeman MT 59718

Betty Conard

1891 STAGECOACH TRAIL RD. MANHATTAN, MT 59741
TEL 406 282-7573 FAX 406-282-7573

scriptcasting@aol.com

RECEIVED**SEP 24 2008****DEQ BILLINGS**

September 24, 2008

Jo Stephen
Reclamation Specialist
DEQ-Opencut Mining Program
Airport Business Park
1371 Rimtop Dr.
Billings, MT 59105-1978

Dear Jo,

I reviewed both of the draft Environmental Assessments for the **Morgan Family, LLC pit and the Nuss-Rock pit**. In my opinion, there are some additional considerations which need to be addressed. They are as follows:

1. Ground water monitoring statistics throughout the early spring runoff and summer irrigation season of 2008 were not included. At a minimum, they should have been collected at least once a week. This was a very high water year and it's critical data to include when making an informed decision regarding the actual depth to ground water. Previous to this year, we were in drought conditions so those older statistics would not be representative of the actual water table.
2. The Gallatin county AGAI group needs to be actively involved in the consultation and review segment in the decision making process regarding irrigation ditch setbacks and irrigation water rights use changes. This is in addition to the involvement of the DNRC. Additionally, I have heard it mentioned that irrigation ditch setbacks should be much larger than the 75 ft. mentioned in the EA.
3. The changing of agricultural irrigation water rights to large industrial complex use requires in depth scrutiny because it has the potential for enormous impact throughout the State of Montana. Surface and Groundwater rights are linked according to Montana law. This area is a closed basin regarding water rights. Nationally, other states are looking for additional water from the upper Missouri river basin.
4. Water Concerns - The Nuss-Rock pit is extremely close to the Gallatin River and expects to mine to a depth of 89 ft. The river water/hydrology relationship needs to be revealed, studied and addressed in depth. And, the pit expansion will definitely have an impact on Fish Creek (trout/spring creek natural habitat). Both of these issues need to be thoroughly examined with extensive hydrology and groundwater flow studies as well as an Environmental Impact Study. These studies will answer the unanswered questions left by the draft EA. The public, trout/fish habitat supporters, agricultural irrigators and Gallatin River advocates/users deserve to have their concerns answered completely.
5. Specific engineering plans showing the exact layout for each of the expansion phases is a valuable tool for the public to visualize the changes & impacts of these large industrial complexes. One of the EA's had some information regarding this while the other one did not supply such plans. Asphalt plants also need to be shown on the plans.
6. Asphalt Plants - There is no real specific information provided regarding this component for both of the operations. The asphalt plants will have very significant impacts to each and every neighbor as well as traffic on the state and county roads. More information needs to be provided to the public regarding what company, # of employees, # of trucks, stockpiling of old materials, manufacturing on site, safety & compliance records, road impacts, etc.

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7. Neighbor's Home & Land Values - The data provided from 1998 is absolutely outdated and does not pertain to the Gallatin Valley's situation. It would be helpful to approach the GAR - Gallatin Association of Realtors, to do a study which would provide accurate information regarding accurate housing current listing prices and sold values for homes and land nearby. This could be broken down into areas closer to the proposed pits and then expanded out to a 3 mile radius. Additionally, the GAR could provide financial information regarding what those same homes will list for if the gravel pit is permitted and becomes active. The obvious loss of value will then be documented in order to reconsider tax basis, evaluate the true "cost" to the area for the gravel pit, and determine what financial responsibility the gravel pit owners may have in trying to mitigate the negative impacts for the neighbors. It may well be that areas where gravel pits are approved may need to simultaneously apply for area zoning changes to industrial/commercial use because of the financial losses to neighbors, etc.

8. Phases & Expansions - Phases and expansions need to go through review as each one is implemented. It is not desirable to approve projects that last 10 or 20 years without a thorough in depth public review for each phase. Specific compliance and/or violation records need to be presented to the public at the time of review. Some people have requested that earlier phases need to be reclaimed prior to the approval of expansion phases. The public and county need to have some input at the time of each expansion because of the rapid pace of changes in the area.

Thank you for your time. I look forward to seeing each of these issues specifically addressed and resolved.

Sincerely,



Betty Conard

To: Montana DEQ, DOR
Re: Nuss Site draft EA, Rygg study, Fairbanks review
From: Tom Fiddaman
Date: 9/22/2008

I was recently made aware of an analysis that the DEQ and DOR have been citing to claim that gravel pits, power lines and other nuisance land uses have no effect on property values. Since this contention defies common sense and the peer-reviewed literature on the topic, I thought it would be useful to review the analysis to determine whether it had merit.

The analysis in question is *Gravel Pits: The Effect on Neighborhood Property Values*, prepared by Philip J. Rygg in 1998 for DEQ. The analysis was reviewed by DOR, as documented in a memo from Jim Fairbanks to Randy Wilke, April 6, 1998. The study and review have been cited in the Lake Helena-Valley Drive Gravel Pit draft environmental assessment, January 2008, and the Keller Site final environmental assessment, July 2007, among other places.¹ Most recently, it appears in draft EA for the Nuss-Rock Gravel Pit application, to which this memo specifically pertains.

My background is in mathematical modeling for public policy and business strategy. I have a PhD in System Dynamics from the MIT Sloan School of Management. In 2006 I won the Forrester Prize, the highest honor in my field, for work on economy-environment interactions. Most relevant to the topic at hand, I am a co-inventor of the patented technology behind the RPX index of residential real estate prices, against which major financial firms write on the order of a billion dollars in contracts.² That technology involves mass appraisal of diverse properties, and careful discrimination of market price movements from noise. I am acting purely as a concerned citizen and not on the behalf of any individual, firm, or other organization.

¹ http://deq.mt.gov/ea/opencut/HS&Gextended_LHVDEA.pdf ,
www.deq.state.mt.us/ea/opencut/KellerFinalEA.doc

² <http://radarlogic.com>

In my review I found the following:

- The Rygg study contains multiple technical problems that preclude its use as a valid measurement of property value effects, including:
 - The method of selection of comparable properties is not documented and is subject to selection bias, exacerbated by the small sample
 - The study neglects adverse economic impacts from land that remains undeveloped
 - The measure of value used by the study, price per square foot, is incomplete and yields results that are contradicted by absolute prices
 - Valuation adjustments are not fully documented and appear to be ad hoc
 - The study does not use accepted statistical methods or make any reference to the uncertainty in conclusions
 - Prices are not adjusted for broad market appreciation or inflation, though it spans considerable time
 - The study does not properly account for the history of operation of the pit
- The Fairbanks review fails to consider the technical content of the Rygg study in any detail, and adds general conclusions that are unsupported by the Rygg study, data, original analysis, or citation.
- Citations of the Rygg study and the Fairbanks review in environmental assessments improperly exaggerate and generalize from its conclusions.

These issues are not minor technicalities. They are major, debilitating problems that should lead a reasonable person to conclude that no confidence can be placed in the findings. No reputable academic journal would accept the Rygg study or Fairbanks review for publication.

By analogy, suppose that I am attempting to count woodpeckers. I scan the trees. No woodpeckers. Can I assume that there are none? Not necessarily. First, I must ask whether anything else is visible. If I can see only a blur, because my glasses are broken, then I remain in the dark about the woodpeckers. If I can see squirrels and pine needles, then it's fair to assume that, had there been any woodpeckers, I had a chance of seeing

one. But that is still not conclusive. Next, I must consider whether I've properly selected a study area that might contain woodpeckers, whether I've looked long enough and at the right time of day and year to see one, whether I know what a woodpecker looks like, and so forth.

The Rygg study, in effect, concludes "no woodpeckers" without performing these due diligence steps. Without adequate documentation it is hard to be sure after the fact, but it would appear that the study involved peering through the wrong end of the binoculars, in a wheat field, at night, and thus had little hope of detecting the effect it sought to measure. The Fairbanks review and EA citations uncritically repeat the rumor that the woodpeckers have gone missing, without ever wondering what the "tap tap tap" noise in the background might be.

While the legislature may have restricted the ability of DEQ to consider real estate values in its decision making, it did not require use of spurious evidence to falsely alleviate citizen concerns and mollify industrial interests. DEQ's continued citation of studies that contain no reliable information erodes its credibility and my faith in its will to protect the environment and public health.

Given the multiple problems with the Rygg analysis and its subsequent use, DEQ and DOR should cease all reference to the Rygg and Fairbanks documents, remove their citations from the Nuss-Rock environmental assessment, and for future reference commission a proper study of the economics of land use impacts of gravel pits.

Respectfully,

Tom Fiddaman
1070 Bridger Woods Rd
Bozeman MT 59715
tom@metasd.com

Review of the Rygg report, Fairbanks assessment, and EA citations

Tom Fiddaman

9/2008

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The literature on nuisance land use impacts

There is an extensive academic literature documenting impacts of various land use. It is beyond the scope of this memo to report on all of the findings, so I will merely provide two citations to review articles and a comment:

Melissa A. Boyle and Katherine A. Kiel (2001) “A Survey of House Price Hedonic Studies of the Impact of Environmental Externalities” *Journal of Real Estate Finance* 9(2)³

Stephen Farber (1998) “Undesirable facilities and property values: a summary of empirical studies” *Ecological Economics* 24(1)⁴

A common feature of most such studies is proper use of econometric and experimental methods, including use of adequate sample sizes and control of selection bias and other potential problems. While gravel pits have not been widely reviewed in the literature, results for other undesirable land uses (e.g., hazardous waste sites) and environmental

³ http://cbeweb-1.fullerton.edu/finance/jrel/papers/pdf/past/2001vol9n2/JREL9.2Review02.117_144.pdf

⁴ [http://dx.doi.org/10.1016/S0921-8009\(97\)00038-4](http://dx.doi.org/10.1016/S0921-8009(97)00038-4)

attributes (e.g., water quality) do show consistent negative effects, though the magnitude of those effects varies widely.

Orville Bach's 2008 memo, cited in the Nuss and Morgan Family Site draft EAs, identifies additional research specifically relevant to gravel pits.

The Rygg analysis

The Rygg analysis uses the comparable sales method typical of pre-sale appraisals of residential real estate. The goal of a pre-sale appraisal is to establish the plausibility of a price to be paid, in order to protect buyers and lenders. To establish plausibility, an appraisal need only identify a few comparable sales, which after adjustment yield similar value. Unfortunately, this method is not up to the task of measuring effects of environmental changes like a gravel pit, especially over time, for reasons that are described below.

The method of selection of comparable properties is not documented and is subject to selection bias, exacerbated by the small sample

In general, appraisal methods of real estate valuation are subject to bias in the selection of properties. For example, when appraisers know the sale price of a property, they tend to select for comparables that justify a higher price, to ensure a sale.⁵ The problem in the Rygg study is not so much that there might be a general upward bias, but that knowledge of prices and conditions in the area of the gravel pit may have consciously or unconsciously influenced the selection of comparables elsewhere.

Unfortunately, the comparable selection process is not documented in any detail, so it is impossible to determine how much effect selection bias might have had. However, there is cause for concern. Rygg notes (pg. 10) "each subject sale is compared to a grouping of comp sales that reflect a high degree of similarity to the subject sale, but which are located in neighborhoods without gravel pits" and that comparable sales "are located in unzoned areas of Flathead County that, in terms of economic forces, are reasonably similar to the neighborhood of the subject." This raises two opportunities for bias:

- Areas with similar "economic forces" may be affected by other undesirable land uses or land quality attributes.
- "Similarity to the subject sale" may inadvertently select for low-value properties elsewhere. This is especially problematic if FNMA appraisal guidelines were followed, which state that "The sales price of each comparable sale should be within the general range of the estimate of market value for the subject property."⁶

The problem of selection bias is exacerbated by the small sample size of the study – six subject properties with three to seven comparables each. This is not trivial compared to a typical pre-sale appraisal, but is quite small in a statistical sense. The small sample

⁵ Wolverton & Diaz (1996) "An investigation into price knowledge induced comparable sale selection bias" http://www.rics.org/Practiceareas/Property/Valuation/investigation_into_price_knowledge_19960901.html

Andrew Leventis (2006) "Removing Appraisal Bias from a Repeat-Transactions House Price Index: A Basic Approach" OFHEO Working Paper 06-01, February 2006.

⁶ See for example <http://www.dallasappraisal.com/images/fnma.pdf>

renders it easier to inadvertently select non-representative properties and increases the uncertainty of the results (as described below).

The study neglects adverse economic impacts from land that remains undeveloped or underdeveloped

As a thought experiment, consider a gravel pit surrounded by run-down mobile homes and vacant lots (this should not be difficult to imagine). Using Rygg's criteria, one might select comps from mobile home parks in other disadvantaged areas, neglecting 5-bedroom homes in nearby high-value neighborhoods. The comparison would likely yield similar per-square-foot values for the mobile homes, while ignoring huge differences in total values of land and improvements, even though a portion of that difference would likely be attributable to the fact that few sensible builders would locate expensive homes adjacent to an opencut mine. Similarly, the lost value of undeveloped lots, caused by the location of the pit, would also be entirely neglected.

It is not hard to see that a milder version of the situation above could apply to the study area. Of the six subject properties considered, two are mobile homes and none is as large as the average American home (unless basement areas are considered).

The measure of value used by the study, price per square foot, is incomplete and yields results that are contradicted by absolute prices

The goal of the study, as Rygg notes, is to measure economic obsolescence, the loss of market value from adverse environmental factors. Rygg cites *The Appraisal of Real Estate*, "Since economic obsolescence is not inherent in the improvements, its adverse effect on value may affect the land value, the improvement value, or both."⁷ Price per square foot fails to take full account of possible effects, particularly on the land value component.

Valuation adjustments are not fully documented and appear to be ad hoc

Ordinarily, adjustments to comparable property values are reported on appraisal forms.⁸ Unfortunately, Rygg does not report adjustments to comparables in his table of property attributes, and does not state detailed values or rationale for most comparisons in the text. Thus it is impossible to determine, after the fact, whether any of the choices are justifiable.

The study does not use accepted statistical methods or make any reference to the uncertainty in conclusions

Because Rygg does not report a comprehensive set of adjusted property values, it is not possible to draw any formal inference about the relationship between the subject properties adjacent to the pit and the adjusted comps. Statistical tests using the reported values fail to reliably distinguish between subject and comparable properties. For example, simple two-sample tests for difference of means with unequal variance yield null results for both price and price per square foot.

⁷ American Institute of Real Estate Appraisers, Chicago IL, pg 258

⁸ Ibid.

In an attempt to fully exploit the Rygg data that is available, I experimented with several linear and nonlinear regressions of price and price per square foot against property attributes. None yielded a statistically significant, or even sensible, result for the effect of location on value. For example, the simplest model (a linear regression against price) yields a gravel pit effect of -\$7300 to +\$25,500 (i.e., the measurement indicates that the mine is a benefit, but not reliably different from zero).

The conclusion one should draw from this is not that mines may be a benefit. When confronted with results that contradict common sense and economic theory, one should first ask whether the study is correctly measuring the effect in question. Are there opportunities for bias? (Yes.) Is the sample large enough? (No.) Do alternate measures, like price and price per square foot, yield consistent results? (No.) In this case, we must conclude that we remain uninformed about the effect.

Prices are not adjusted for broad market appreciation or inflation, though the study spans considerable time

Transactions cited span the period from 1993 to 1997. It is not clear what rate of appreciation prevailed in the area over that interval, but it is quite possible that timing of sales could significantly bias prices.

The study does not properly account for the history of operation of the pit

The causal effect of a gravel pit on property values is not a simple step response (open pit, drop values). It results from a complex interplay of factors that evolve over time. For example, the opening of a pit may cause an initial drop in value for existing properties, which subsequently grows over time as surrounding properties are developed to lower standards, or as owners fail to maintain their properties (because it isn't worth it to do so, given their diminished values). To some extent, the decline in value may precede the opening of the pit, if neighbors anticipate expanded operations.

To properly treat such interactions (and others, known as endogeneity bias) requires consideration of the timing of home and pit development. Unfortunately, no such consideration has been taken in the Rygg study.

The Fairbanks review

The actual substance of the Fairbanks memo consists of a single paragraph, which simply restates the boundaries of the Rygg study, determines that it was complete, considers that price per square foot is an appropriate metric, and approves the adjustments made for lot size and improvements. It cannot be determined whether Fairbanks verified any of the data reported, except that it is noted that none of the properties were actually inspected. In particular, there is no evidence that Fairbanks checked the selection of comparable properties for bias.

In concluding comments Fairbanks quotes Rygg,

“Mr. Rygg determined that “None (of the sales within the environment of the gravel pit) were influenced by the presence of an operating gravel pit.”

So far as I can determine, this is not in fact an exact quote from Rygg’s analysis, but it captures the essence of Rygg’s conclusions. However, Fairbanks fails to note the limitations stated by Rygg on page 24, which are crucial to the interpretation of the results. An especially critical observation is that pit operations were transient:

“The buyers said that they did not anticipate the possibility that the permits could be extended and the operations expanded *and would not have bought had they been aware of this possibility.*” (emphasis added)

This suggests that a possible reason for no adverse finding is the expected brevity of pit operations. It also clearly invalidates generalizations from the experience at the subject pits to other situations with longer duration of operation.

Rygg goes on to say,

“The scope of this study is confined to the market’s expectation of the level of pit activity and length of continued pit operation as of the date each subject transaction occurred. Underlying the conclusions of this report is the assumption that the operation of the gravel pits will revert to their 1994-1996 level of activity, that they will not continue to be as active as they were during the highway construction of 1997. *A continuation of this peak level of operation could eventually erode neighborhood property values, although existing market evidence is insufficient to validate such a hypothesis.*” (emphasis added)

Again, it is clearly incorrect to conclude from this study that other pit operations would have no influence on property values – in fact, Rygg suggests the opposite, though he correctly notes that the study is not informative on the topic.

Nevertheless, Fairbanks goes on to comment,

"In the course of responding to valuation challenges of ad valorem tax appraisals, your reviewer has encountered similar arguments from Missoula County taxpayers regarding the presumed negative influence of gravel pits, BPA power lines, neighborhood character change, and traffic and other nuisances. In virtually ALL cases, negative value impacts were not measurable. Potential purchasers accept newly created minor nuisances that long-time residents consider value diminishing."

It is crucial to realize that this is merely Fairbanks’ opinion. It is not supported by the Rygg report or any other cited evidence. If other attempts to measure negative impacts were as flawed as the Rygg study, it is not surprising that impacts were not found. However, failure to detect impacts using inferior methods does not prove that impacts do not exist (and extensive literature using proper methods indicates that they do, as above).

Citations in environmental assessments

As discussed in the previous section, it is incorrect to generalize from the Rygg study to circumstances elsewhere in Montana. Rygg himself pointed out a key limitation, unlikely to hold elsewhere: that buyers expected operations to be transient. Equally important, a study of a single locale is an absurdly small sample from which to draw statewide

conclusions. In any event, given the potential for selection bias and other technical issues, the most one should conclude from the study is that it failed to measure an effect (not that it measured a zero effect).

Lake Helena-Valley Drive & Keller Site

Citations of the study in the Lake Helena-Valley Drive Gravel Pit draft environmental assessment and the Keller Site final environmental assessment give a different impression. The Lake Helena draft EA states:

5. Property Values (EA Section 15)

COMMENT: The operation will decrease property values in the surrounding residential area.

RESPONSE: Sale or market value of adjacent property has not been shown to be negatively affected by the presence of a gravel pit and associated operations (Rygg 1998). In any case, under the Opencut Mining Act DEQ has no authority or jurisdiction over property value issues.

This gives the reader the impression that a concrete finding was reached, when the result should in fact be regarded as “no information”. It also fails to note that the Rygg study is likely of no relevance to the Keller Site.

The Keller Site EA goes farther:

14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?
Sale or market value of adjacent property may be negatively affected by the presence of a gravel pit, but DEQ has no specific information on this issue at this site. ...

So far, so good. Continuing a few sentences later,

Several years ago, DEQ contracted a study to determine “whether the existence of a gravel pit and gravel operation impacts the value of surrounding real property.” The study (Rygg, February 1998) involved some residential property near two gravel operations in the Flathead Valley. Rygg concluded that the above-described mitigating measures were effective in preventing decrease in taxable value of those lands surrounding the gravel pits.

Not so fast. Rygg assumed that mitigation measures would be taken as specified in the permit, but drew no conclusions about whether it was mitigation, transient operation, scale of operations, or any other feature of the pit or study methods that lead to an unmeasured decrease in value.

The EA goes on to quote the unsubstantiated Fairbanks memo (see previous section):

In his review of the study, Jim Fairbanks, Region 3 Manager of the Montana Department of Revenue, Property Assessment Division said:

"In the course of responding to valuation challenges of ad valorem tax appraisals, your reviewer has encountered similar arguments from Missoula County taxpayers regarding the presumed negative influence of gravel pits, BPA power lines, neighborhood character change, and traffic and other nuisances. In virtually ALL cases, negative value impacts were not measurable. Potential purchasers accept newly created minor nuisances that long-time residents consider value diminishing."

Finally, the EA adds its own conclusions, free of evidence and contradicted by basic economics:

The proposed Keller mine and crushing facility and other operations in the area (Schellinger Tutvedt 2, Beasley Silverstone) create the possibility of reducing the attractiveness of home sites to potential homebuyers seeking a quiet, rural/residential type of living environment. These operations could also affect the marketability of existing homes, and therefore cause a reduction in the number of interested buyers and may reduce the number of offers on properties for sale. This reduction in property turnover could lead to a loss in realtors' fees, but should not have any long-term effect on taxable value of property. If homeowners believe their property values are decreased because of a gravel operation, they may appeal to the county and the state for tax adjustments.

The first half of this paragraph identifies the possibility of reduced attractiveness of homesites and marketability of existing homes, therefore reducing buyer turnover and offers. So far, this is consistent with common sense. It goes on to conclude, though, that somehow diminished attractiveness and demand "should not have any long-term effect on taxable value of property." This is uneconomic nonsense. All else equal, a reduction in demand and offers for any product will force a seller to either accept a lower bid or endure a longer waiting time (thus receiving less value in discounted terms). The best one could possibly hope for is that the decrease in value would be small.

Nuss Site & Morgan Family Site

The recent Nuss and Morgan Family Site draft EAs are a little more balanced, as they also cite Orville Bach's 2008 memo detailing impact findings of higher quality than the Rygg study.

However, like earlier EAs, they also state, "Based on Rygg's analysis and Fairbanks' review, sale or market value of adjacent property has not been shown to be negatively affected by the presence of a gravel pit and associated operations." While this is technically correct, the reader may draw the inference that, since no effect was found,

whatever true effect exists must be small. In drawing this inference, one presumes that the seeker has made a proper search. However, in this case, the nature of the search is likely to have involved looking in the wrong location for the wrong item.

Since the Rygg study is in fact deeply flawed, is not generalizable to other geographic areas and circumstances, and could easily fail to detect even a large effect, it should not be mentioned at all. Similarly, citations to the Fairbanks review, which is entirely unsubstantiated and contradicts common sense and a considerable body of literature, should simply be stricken from the draft.

A suggestive counterexample, and options for proper study

Because the conclusions of the Rygg report, Fairbanks memo, and EAs contradict common sense and a large body of literature, I wondered whether obvious effects of gravel pits could be detected using a more comprehensive survey of properties. As an experiment, I downloaded aerial photos and cadastral data (parcel boundaries and tax appraisals) from NRIS. I visually inspected several gravel pits in semi-rural areas of Gallatin County, looking for a suitable natural experiment, where a group of properties with similar physical attributes (e.g., lot size) were located at varying distances from a pit.

I quickly found the Rainbow Subdivision, which straddles Highway 191, south of Cobb Hill. Within that subdivision are two groups of twenty lots, identical in size. One block is located next to a gravel pit; the other lies on similar terrain across the highway. The median assessed value of improvements adjacent to the pit is \$97,000. The corresponding improvements across the highway have a median assessed value of \$120,000.

It is tempting to say that the effect of the pit is a \$23,000 decline in property values over about half a mile. However, the actual situation is not that simple. The values used are computerized mass appraisals for tax purposes, and may not be reliable. Home values in the area no doubt coevolved with the operation of the pit over time, so timing should be taken into account. Other attributes, not evident from aerial surveys, may be important. Nevertheless, the Rainbow Subdivision strongly suggests that the real effects of gravel pits may differ dramatically from their portrayal in the Rygg and Fairbanks documents.

To properly evaluate the effect of gravel pits, one ought to take advantage of as much data as possible, by studying areas around a number of pits (avoiding the risk of generalizing from a single instance). Metrics, including land value, should be sought to complement price per square foot. Hedonic methods should be used to account for differing property attributes.⁹ To disentangle time series effects, one would ideally seek natural experiments, where property values for repeat sales of homes could be compared before and after the opening of a pit. Survey methods could be used to capture amenity

⁹ See for example EPA environmental economics research, at <http://yosemite.epa.gov/ee/Epalib/ord1.nsf/be2a2fc6b757efdf8525655800003c00/db7c31617b004cd8852565a5006bfa6!OpenDocument>

and health effects, not fully reflected in real estate prices, which nevertheless may be significant.

Whatever method is chosen, it should include “ground verification.” The fact that neighbors are vocally opposed to gravel pits, and expend substantial time and money to oppose them, should be taken as a clear sign of economic value at stake. A study that ignores, or fails to account for, the experience of neighbors hasn’t really measured the full societal effect of gravel pits.

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:50 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: Nuss Pit

From: MontW00@aol.com [mailto:MontW00@aol.com]
Sent: Wednesday, September 24, 2008 12:31 PM
To: Stephen, Jo
Subject: Nuss Pit

Hi Jo, It was nice to get to meet you in Gateway the other night. It's great to have a face to put with the name.

In regards to the Nuss Pit, I have known Terry Nuss for 35 years. I don't know of anyone who has worked harder than she has just to try to make ends meet. I think the people who are doing most of the complaining are more jealous that anything else. The ones complaining about their property being devalued have not even tried to sell, so they really don't know. There is a very expensive house being built near the pit, and they don't seem to be worried. As for the traffic, the trucks have been going by my house for the past week headed for Big Sky, and I really don't notice them. I have been watching them when they go through Gateway, and they are being very careful.

For the most part, I don't have many concerns about the Nuss Pit and I would like to see Terry be able to extend it. The only concern I have is about the reclamation process. I think everyone out here (me included) wants some guarantee that it will be reclaimed well and not just abandoned. When the whole place is dug up, it becomes much easier for the owner to just walk off and leave it. If that happens, it makes it much harder for someone in the future to argue in favor of a new gravel pit.

What these people don't realize or just don't care about is the expense of maintaining open space for their benefit. Most of them live on small parcels, but they want a few of us to keep open space and protect their view shed. A prime example is Margaret Jarrett who spoke at the meeting. She and her husband live directly across from me. Ted Turner and I provide their view. I really don't think my pit caused them as much discomfort as she let on at the meeting. I lived next to it also, and I didn't hear or smell much of anything. Margaret and her group just have a vendetta against any gravel pit. What they don't care about is that my gravel pit project helped me to be able to pay the expenses associated with that open space that they all want. Everyone including the commissioners want to call it agricultural land, but anyone who has tried to eek out a living on 100 or fewer acres know it is almost impossible. The truth is, what they really want is open space at the expense of a few, and they don't care if it has cows, pigs, corn or anything else.

Again, my only concern is the reclamation of the pit so that it won't adversely effect others down the road.

Thanks Jo for all you do for all of us.

Sincerely,

Terry Fluke
2900 Gateway So. Rd.
Gallatin Gateway, MT 59730
(406)763-4594

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**Comments from
Gateway Opencut Mining Action Group (GOMAG)
on:
DEQ Draft Environmental Assessment Dated August 25, 2008 for
Permit TMC-002, Threeway Mining Company, Incorporated,
Nuss-Rock Pit Amendment**

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Summary of General Comments

Although, as described at length below, the Draft Environmental Assessment (EA) contains an inadequate analysis of impacts and cumulative impacts from the proposed actions, what information is already available indicates that there may be significant impacts to the natural and human environment requiring the preparation of an Environmental Impact Statement, rather than an EA. Moreover, even in preparing an EA, DEQ must include a cumulative and secondary impact analysis, which is deficient in this Draft EA [see ARM17.4.609(3)(d) and (e), and ARM17.4.603(7)]

1. Missing Hydrogeological Investigation -- Investigation of the relationship between operations at the Nuss Pit, surrounding groundwater, and the Gallatin River, is inadequate. There is no analysis and comparison to pre-mining conditions.
2. Need Air Quality Data – There are no site-specific air quality data to determine air quality on adjacent land parcels.
3. Noise Modeling Does Not Include All Nuss Pit Sources – Numerous sources of noise related to the daily operations at the Nuss Pit are not included in the noise analysis.
4. Adverse Impacts to Property Values Have Not Been Properly Addressed – Application of the Rygg study to the Nuss Pit is inappropriate since, among other things, it is out of date and otherwise seriously flawed. The large body of peer-reviewed academic and business research available to address impacts to property values has not been used.
5. Insufficient Data and Monitoring – There is insufficient site-specific data for this environmental analysis and insufficient monitoring included in the proposed plan of operations associated with the permit application to ensure compliance.
6. Lacking Cumulative and Secondary Impacts Analysis -- Cumulative and secondary impact analysis, particularly for air quality, water quality and quantity, transport of aggregate and human environment (social mores and economic / property value) impacts is missing..
7. Log of Operations Not Provided – Requests by citizens to review the log of operations at the Nuss Pit have been ignored.

8. **Concrete or Asphalt Plant is Inappropriate** – Concrete or asphalt plants are not appropriate on this mine site.

Part 1: General Comments

1. There has been no systematic or scientific environmental analysis that addresses the hydrogeologic impacts of the current operations versus pre-mining conditions.

The impact of current mining operations to the groundwater on surrounding land parcels or surfacewater / groundwater interactions with the Gallatin River has never been analyzed. Sometime between issuance of Permit JSC-005, on June 9, 1998, and the surveyed conditions dated May 17, 2004, that were included in the application for permit TMC-002 Amendment 1, there was an un-documented and un-permitted change in the operations at the Nuss Pit without any hydrogeologic analysis of potential adverse impacts or potential mitigation of those impacts.

TMC was requested to provide this analysis and has not yet done so. As stated in a memo from Susan Hellier, Kenai Engineering, Inc., to Jo Stephen, DEQ, and Jerry Rice, TMC, dated 8-17-07, item number two: “With regards to hydrology Jo is looking for three things: characterizing the environment prior to mining, the impact of the current permit and the impact of the amendment (enlarged pond).” Only the impact of the current amendment (enlarged pond) has been addressed.

The only DEQ record available concerning the change in operations from groundwater wells with discharge to a swale for re-infiltration (1998) to trenching a pond to discharge at the elevation 4911 feet above mean sea level (2004) is Opencut Mining field comments from Jo Stephen dated September 10, 2007, reporting a conversation with Jerry Krushensky, the site manager for J&S Construction when the change (violation?) was made in 1998. The Nuss Pit discharged illegally with no Montana Pollution Discharge Elimination System (MPDES) permit from 1998 through September of 2007, so that there is no MPDES monitoring data concerning the discharge for that period.

Analysis of the potential impacts to groundwater and surfacewater should have been performed in 1998 before the change in operations was made. It is a decade overdue and must be completed before DEQ can consider issuing a permit for extending and expanding the Nuss Pit operations.

2. There is no air quality data or monitoring to show that air quality standards are being met at the property boundaries of the Nuss Pit site.

Information included in the Draft EA shows that at the nearest air quality monitoring stations are at 86% and 63% of their 24-hour limit of PM_{2.5}, and 65 % and 43% of the annual limit of PM_{2.5}. Since only 100% of the standard is allowed, future activities and attendant economic development could be seriously constrained by activities such as the operation of the Nuss Pit, which is already producing a substantial amount of particulate matter. This is another area that requires cumulative and secondary impact analyses.

Site-specific data are needed to ensure that these standards, as well as PM₁₀ and Total Suspended Particulate (TSP) standards are not being exceeded at the property boundaries and on parcels adjacent to the gravel operations due to the proposed actions at the Nuss Pit.

Adjacent and downwind residents are very concerned that the cumulative impacts of the air quality are not being appropriately considered. Their concerns include cumulative long-term exposure to particulate matter (Total Suspended Particulate, PM₁₀, PM_{2.5}), and crystalline silica as well as particular concerns for sensitive receptors.

There are many home-based businesses (farms, ranches, small manufacturing, artisan, and offices) in the vicinity of the Nuss Pit, so that residents are exposed to air impacts from the industrial site for twenty-four hours per day, seven days a week, three hundred and sixty-five days a year and for as much as twenty-two years, if the proposed permit is granted.

The Agency for Toxic Substances and Disease Registry (ATSDR) concurs with EPA that the current air quality standards are protective of the general population. However, ATSDR believes that EPA standards may not be entirely adequate to protect sensitive populations like people with asthma/bronchitis or chronic obstructive pulmonary disease (COPD) from exposures to short-term peak levels that could cause respiratory difficulty. Children in particular are susceptible to adverse health impacts from air quality that meets the national health standards.

Recent monitoring data from areas adjacent to gravel roads in Flathead County and health studies to determine the potential adverse health impacts of concentrations found by that monitoring showed that road dust was produced along gravel roads in concentrations that far exceeded national standards and lead to damaged lungs and emphysema in lab animals, similar to the impacts of cigarette smoke. Generalized particle size distributions developed by EPA to determine emissions factors show that 15 percent (7% standard deviation) of the dust created by material handling and processing of aggregate and unprocessed ore (Category 3 Dust Source) is PM_{2.5}. Without monitoring data, it is not possible to determine if there are either exceedances of national standards or short-term peak levels that may cause respiratory difficulty in sensitive receptors.

At levels below those documented to cause adverse health impacts, dust (TSP as well as PM₁₀ and PM_{2.5}) can cause nose, throat, mucous membrane and respiratory tract irritation. Respiratory disorders and allergies are aggravated by exposure to dust. The impacts of these nuisances are not addressed by health-based threshold-derived standards, which are based upon society-level trade-offs between cost and benefit. The local burden of impacts that are below triggering air quality standards should be evaluated. Particularly during fire season, it is likely that ambient PM_{2.5} levels are high enough that any additional emissions from the mine site would exceed air quality standards.

3. Noise modeling did not include all of the common sources that are active at the Nuss Pit.

The noise modeling included a crusher and two loaders. There was no inclusion of the wash plant, sorters, excavators, on-site haul, truck traffic into and out of the pit and associated loading, or any of the long extents of conveyors that commonly operate at the Nuss Pit. Additional episodic (versus continuous) noise sources include fueling, pumping, and maintenance.

4. Impacts to property values of land in the vicinity of the Nuss Pit have not been fully or correctly analyzed.

Property values are a very significant portion of the human environment for which potential impacts must be analyzed under MEPA [ARM17.4.206(3)(3)]. As included in specific detailed comments below, the Rygg study conducted in 1998 for DEQ, and its application in the Nuss Pit Draft EA, are outdated and seriously flawed. The applicability of such a small study (six properties) on a potentially very different area is statistically invalid. The large body of peer-reviewed, published, academic and research literature concerning the impacts of an environmental disamenity such as a gravel pit (or multiple gravel pits) has not been included in the Draft EA analysis of the potential impacts of the Nuss Pit permit to the human environment. There are further ramifications of these property value impacts to taxes as well, as property owners in the vicinity of these gravel pits become more savvy to the issues and will be requesting property tax re-assessments and re-evaluations.

5. There is insufficient data and monitoring to either document the potential impacts, calibrate modeled potential impacts, or review / enforce actions at the Nuss Pit.

Due to the history of violations of requirements at the Nuss Pit that would have produced environmental data (MPDES permit and associated monitoring, lack of groundwater data and monitoring 1998-2004, insufficient monitoring through high groundwater 2005-2007), there are significant gaps in the groundwater and surfacewater data available for environmental analysis of potential impacts of the proposed actions. There has never been any noise monitoring of typical full-scale summer operations, so that the noise modeling for potential impacts had to be based upon generic assumptions that are not appropriate for this site. There is no air quality monitoring data to assess the citizen complaints that there has been insufficient mitigation of air quality impacts from the Nuss Pit in the past,. There will be no way to evaluate the adequacy of any mitigation proposed as conditions to the proposed permit without monitoring. Data collection and monitoring need to be included for the siting, permitting, and regulation of this major industrial facility.

6. The DEQ's and this EA's assessment of cumulative and secondary impacts to groundwater, surfacewater, air quality, noise, traffic or social mores/economics is inadequate or non-existent.

As stated previously, in General Comment 1, there has never been analysis of the impacts of the cumulative actions at the Nuss Pit on groundwater and subirrigation of the area surrounding the pit and interaction between the groundwater / surfacewater and impacts to the Gallatin River. Cumulative and secondary impacts assessment of water issues should include assessment of the Nuss Pit, including those permitted and un-permitted actions taken since initiation of mining.

Cumulative and secondary environmental impacts analysis must include air quality data and meteorological data, in order to adequately address the full impact of their action in permitting any additional sources in the Gallatin Gateway Planning Area, regardless of DEQ authority over any of these other sources. DEQ is responsible for permitting the gravel operation, and therefore defining the incremental increase in air quality degradation that action would permit. In a manner analogous to the TMDL concept of addressing water quality issues, non-point air pollution sources and the cost/benefit trade-offs of alternative locations for these sites cannot be assessed without fully developed environmental analysis.

There are particular concerns about cumulative impacts of this and other gravel pit permits to the development and community of Gallatin Gateway. There are very real concerns in the community that the area is becoming industrial and/or a gravel mining district. The alternatives considered for DEQ action concerning the Nuss Pit Permit Application for Amendment 2 to Permit TMC-002 should be examined in the setting of the cumulative impact of opencut mining permits on the community with particular attention to traffic and property values.

7. DEQ does not require or review an operations log and does not have knowledge of such a log or ability to provide this log to citizens upon request in violation of requirements of ARM 17.24.218(d)

ARM 17.24.218(d) states: "...A complete and accurate log that lists general on-site activities and the dates and times they occurred must be maintained for an opencut operation subject to restricted hours. Log information must be presented to the department upon request;..."

When citizens/neighbors requested review of this log, DEQ Opencut Mining Division had no knowledge of such a log, and stated that such a thing does not exist.

If this log were kept, the actions concerning trenching and illegal discharge of pond water to the Monforton drain could be tracked, and perhaps would even have been noticed sooner than a decade after-the-fact. It should be routine DEQ Opencut Mining Division procedure to review these logs, at least when reviewing operations and considering an

application or amendment to the permit or plan of operations. The maintenance and review of this log is key to enforcement of the conditions of the permit.

Inability to review this law restricts public review of the permitted operations. Lack of DEQ enforcement of this requirement is a violation of state law. Moreover, it has seriously impeded our ability to analyze the likely incremental and cumulative impacts of the proposed expansion in light of the historical operation and attendant impacts.

8. A concrete or asphalt plant is not appropriate at this agricultural / rural residential location.

Concrete and asphalt plants require bringing additional raw materials onto the site. This is a manufacturing process that should not be included within the mining permit. The presence of those facilities would create a large industrial manufacturing site, in addition to the large industrial mine site. There should be a separate process required for permitting these facilities, particularly the asphalt plant, because they have a completely different set of requirements and emissions, technology and mitigation.

Asphalt plants are sources of air pollution that may emit significant levels of both particulate matter and gaseous volatile organic compounds (VOCs). These pollutants are considered to be dangerous to human health, and include numerous carcinogens. While the chemical makeup of asphalt depends on the chemical content of the original crude petroleum from which it is made, pollutants typically found at various levels in emissions from asphalt plants include hydrogen sulfide, benzene, chromium, formaldehyde, polycyclic aromatic hydrocarbons (PAHs), cadmium and arsenic. A simple Medline search reveals that there is a large body of published research on asphalt fumes.

The operating requirements associated with asphalt production often include 24-hour generators and lights, additional staff and trucks importing petroleum products into the site as well as hauling the manufactured product off-site. It would be reasonable for the asphalt and concrete plant to be considered under a separate Draft EA, or at least as an alternative – including a “no asphalt or concrete plant alternative” added to consideration in the Draft EA.

Part 2: Detailed Comments

Detailed comments in this section refer to the pages, paragraphs and line numbers of the electronic version of the Draft Environmental Assessment posted on the DEQ website at <http://www.deq.state.mt.us/ea/opencut/NussDraftEAAug2508.pdf> on August 28, 2008.

Detailed Comments Relevant Throughout the Draft EA:

- There is a pervasive failure throughout the Draft EA to properly include cumulative and secondary impacts analysis as required by ARM17.4.609(3)(d) and (e), and ARM17.4.603(7).
- Throughout the Draft EA text, disturbances associated with current and proposed mining are described as “short-term” and “temporary.” In appropriate environmental analyses, these phrases are reserved for something such as the single-season disturbance of re-construction of a highway. The phrase is not defined in the Draft EA and certainly incorrect relative to many scales of comparison. Please replace all phrases such as “short-term”, “temporary”, or “long-term” with anticipated ranges of time, including both the shortest possible and longest possible duration.
- There has been over a year passed since the original permit amendment application, yet the Draft EA cites the original dates from the permit application. It should be made absolutely clear to all parties if the dates of the application are lagged to the date of the potential permit approval, or if the applicant will be held to the dates in the application.

Page 1, Paragraph 6, Line 1:

Text states: “The Nuss-Rock Pit includes the NE1/4 of Section 9 and the NW1/4 of Section 10...”

Figures 2 through 5 show that this is not correct. Suggested change to text to state “portions of” or some alternatively correct statement.

Page 2; Paragraph 2, Line 4 (typo):

Text states: “depth of about 87 feet from the original ground surface...”

Application (TMC, 2007) states: “The estimated maximum depth of mining in the permit and amendment areas will now be 89 feet.”

Page 2; Paragraph 2, Line 4 (environmental analysis):

Text states: “depth of about 87 feet from the original ground surface...”

There has been no systematic or scientific environmental analysis that addresses the increase in mining depth to 89 feet below ground surface.

Previous environmental analysis was performed for the permitted excavation (TMC-002 Amendment No. 1) to 35 feet below ground surface. DEQ files include a letter documenting request for mining to 89 feet below ground surface (75 feet below groundwater), in a letter submitted to Jo Stephen, DEQ, from Jerry Rice, TMC, dated March 26, 2007. Bathymetric data included with that letter indicate that at that time the pond had been excavated to 4,850.40 (not fully legible) feet above sea level, which was at that time 52.96 feet below the pond surface, and approximately 67 feet below the original ground surface. The TMC cover letter refers to a telephone conversation concerning a dredge bucket stuck in the ground below the pond.

Email from Jo Stephen, DEQ, to Kenai Construction and Keith Duneman (TMC) dated Thursday July 22, 2004, specifically stated under the heading “Mining Method,” in the fourth bullet, that “If the boom dredge were to be used, an amendment would be submitted so that impacts of that type of equipment could be analyzed under the Opencut Act and MEPA.”

DEQ files examined by GOMAG found no record of any response (written, email, or phone notes) from DEQ to TMC concerning the March 25, 2007, request for amendment to the Plan of Operations. It is unclear if this request was granted or permitted. No record has been found of any DEQ consideration of or issuance of a letter of violation for this 154% exceedance of permitted depth. No record has been found of the environmental analysis referred to in the July 22, 2004, email, and no specific environmental analysis of the depth or type of equipment is included in this Draft EA.

Page 2-3, History of the Proposed Action:

A complete history of the action and permitting of that action should also include history of Notices of Violation for the permitted site and at least a mention of history of complaints, as evidence of previous impacts of the actions of the proposed site/applicant to human health and the environment that have required government regulatory or citizen actions.

Page 2, Paragraph 6, Line 9:

Text states: “...or about nine feet below the estimated high water level before mining...”

The documented static water level from April 1996 completion drillers well log of the well in the southeast corner of the parcel (at the single-wide modular home) is four feet below ground surface. This groundwater elevation is not influenced by leakage from the Noble Ditch, since it was taken in April, before the ditch was flowing. That data point indicates a 12-foot drop in groundwater due to the dewatering ditch outlet from the pond. See General Comment 1 concerning hydrogeology.

Page 3, Paragraph 1, Bullet 1, Line 2:

Text states: "...pond depth has been increased from approximately 25 feet bgs to approximately 53 feet bgs..."

See previous comment concerning missing environmental analysis of increased depth of mining. See also General Comment 1 concerning hydrogeology.

Page 3, Paragraph 1, Bullet 2:

Add text concerning permit requirement on Amendment 1 (2004) that water be monitored every two weeks throughout high water and include also an explanation that there is only 2008 data through the high water season because this monitoring was never done previous to Letter of Violation (DEQ 9/11/2007), issued following citizen complaint.

Page 3, Paragraph 3, Line 2:

Text states: "Existing 6-foot high soil berms along the south edge of Tract 2C-3 would be left along Cottontail Road..."

Six-foot high berms are insufficient mitigation of noise, dust and viewshed. Minimum twenty-foot high vegetated berms, with irrigated windbreak trees including mature conifers would be more appropriate mitigation.

Page 3, Paragraph 3, Line 5:

Text states: "At least 12 inches of topsoil and overburden would be salvaged..."

Reclamation topsoil layer should, as a minimum, be equal to the original topsoil depth. NRDC Soil Survey descriptions of the topsoil layers in the area to be mined (reclamation properties) indicate that this may not be sufficient for establishment of vegetation.

Page 3, Paragraph 4, Line 2:

Text states: "Water for operations comes from groundwater."

There is no industrial beneficial use water right for this site.

Page 3, Paragraph 4, Line 2:

Text states: "Wash water would be recycled."

In environmental analysis sections, include a discussion of potential leaching and any potential salinity problems that may arise from intensive recycling of groundwater through the wash plant and sediment pond vicinity.

Page 3, Paragraph 5, Line 3:

Text states: "...and 7 a.m. to 6 p.m. on Saturdays for hauling and maintenance... [continued on Line 5]..Hauling or moving existing stockpiles could be done on Saturdays."

Include noise analysis of potential hauling, maintenance, and moving existing stockpiles (likely all noise sources except the crusher and wash plant) for Saturday operations in the noise discussion in the environmental analysis section. Please discuss projected Saturday operations noise in comparison to that noise present if no operations were allowed on Saturdays.

Page 3, Paragraph 6, Line 1:

Text states: "Topsoil and overburden berms about 6 feet high..."

Please see previous comment concerning berm height and vegetation. Berms for mitigation during operations would not necessarily be the same berm height that is appropriate for reclamation.

Page 3, Paragraph 8, Phase I:

Later comments in this Draft EA mention that reclamation will be concurrent with mining. Please explain what potential reclamation and revegetation would be performed in Tracts 2C-2 and 2C-3 during this phase, with acreages of areas reclaimed.

Page 3, Paragraph 8, Line 2:

Text states: "The crusher would be placed in this hollow to help with noise abatement."

Include noise analysis of this crusher placement for homes on the northwest, west and southwest of the operations.

Page 4, Paragraph 1, Phase II:

Later comments in this Draft EA mention that reclamation will be concurrent with mining. Please explain what potential reclamation and revegetation would be performed in Tracts 2C-2, 2C-3, and 2C-4 during this phase, with acreages of areas reclaimed and a schedule for achievement of that reclamation.

Page 4, Paragraph 2, Phase III:

Later comments in this Draft EA mention that reclamation will be concurrent with mining. Please explain what potential reclamation and revegetation would be performed in Tracts 2C-1, 2C-2, 2C-3, and 2C-4 during this phase, with acreages of areas reclaimed.

Page 4, Paragraph 3, Line 1:

Text states: "The existing access road and scale area would remain in their current location throughout the life of the permit."

Track-out from the site creates dust on the road sufficient to raise dust clouds from normal, non-pit related traffic. Paving the access road for at least 200 feet into the site would mitigate this air quality impact.

Page 4, Paragraph 3, Line 4:

Text states: "Normal hours of operation would continue to be 7:00 am to 6:00 pm Monday through Friday. Hours would be extended to Saturdays from 7 a.m. to 6 p.m. for hauling and maintenance."

In previous summers, particularly in 2006, there have been trucks lined up and idling long before 7:00 AM. Potential mitigation of this noise impact would be fencing the access road and making it clear to trucks that they are not permitted to idle on the county road. This would encourage trucks to arrive after the gates were opened, after 7:00 AM.

Page 4, Paragraph 5, Line 1:

Text states: "Surrounding Land Use: Residential properties ten acres and larger as well as agricultural lands surround the mine sites."

There are numerous residential tracts smaller than 10 acres between Cottontail and South Gateway Road, including: one 1.5-acre tract; two 2-acre tracts; one 4.6-acre tract; and six 5-acre tracts.

Page 4, Paragraph 6, Line 7:

Please review these projected trips against the volumes produced that are reported in the previous Nuss Pit Annual Reports to DEQ (particularly 2006). These projections could be compared to the operations log of the Nuss Pit if such a log were kept and submitted to DEQ upon request, as specified by law (see General Comment 7).

Page 4, Paragraph 7, Hazardous Waste:

Please discuss if fueling from the mobile tanker trucks to mobile and/or stationary equipment is located on a containment pad or any other precautions taken for over-fill and other fuel spills and leaks.

Page 5, Paragraph 2, Line 2:

Please discuss the potential wildlife and human health threat presented by a 75-foot-deep pond, including the bathymetric configuration that would be required to provide maximum safety. Materials previously submitted by TMC for pond bathymetry were for a 25-foot-deep pond.

Page 6, Paragraph 6, Line 4:

Text states: "Gravel consumption is high in this area as a result of increasing population in general and denial of this application would simply move the demand for this gravel, and thus any impacts into other nearby gravel pit sources."

More appropriate, neutral phrasing of this alternative would be: "If this permit were denied, gravel demand would need to be fulfilled by other existing and proposed gravel operations."

1. Geology and Soil Quality, Stability and Moisture
--

Page 7, Paragraph 2, Line 2:

Text states "...slopes downward to the north."

Change to state "slopes downward to the north and east toward the river."

Page 7, Paragraph 2, Line 6::

Text states: “The Quaternary alluvium consists of cobbles and gravel intermixed with sand, clay and silt.”

The gravel resource has been derived from erosion and fluvial transport of sediment from higher in the Gallatin River drainage basin. There is at least one bedrock formation (Upper Cambrian Pre-Belt gneiss, schist and related rocks, [MBMG via NRIS interface]) in the watershed approximately 16 miles upstream of the Nuss Pit that had commercial quantities of asbestos ore. The gravel being crushed at the Nuss Pit should be analyzed for asbestos and erionite content (Steve Way, US EPA, pers. comm, 2008). (Erionite is another fibrous mineral that has been documented to cause respiratory diseases.)

Page 7, Paragraph 3, Line 1:

Text state: “Potential Impacts: Topsoil and overburden would be salvaged and stockpiled along the southern permit boundaries.”

Discuss environmental analysis of potential impacts related to excavation and stockpiling to topsoil structure, mineralogy / chemistry and microfauna. Mitigation of potential adverse impacts of excavation and stockpiling topsoil are commonly required on mine sites and should be required here.

Page 7, Paragraph 4, Line 2:

Text states: “Reclamation would occur concurrently with mining.”

It is not at all clear, particularly given Figure 2, how reclamation will be concurrent to mining. As per this document, Page 2, paragraph 4, line 9: “concurrent reclamation has not been conducted on this site.”

Page 7, Paragraph 4, Line 8:

Text states: “A soil survey conducted in 2007.”

It is not clear if this soil survey and determination of sufficiency of reserved topsoil for reclamation refers to the area permitted in 2004 (42.1 acres) or the full area for which the an application to amend was submitted in 2007 (87 acres). Please clarify.

Page 7, Paragraph 5, Line 1:

Text states: “Irreversible and Irretrievable Commitments of Resources: Some topsoil may be lost during ground disturbance.”

A large portion of the topsoil stockpiled from the current operations has been sold and removed from the site, which is not mentioned in this discussion (nor previous

environmental analyses) of mine actions. Since the DEQ does not require topsoil for area that will be inundated by ponds, additional topsoil resource will be removed and sold from the additional acreage addressed in this amendment application area. Please address the irreversible and irretrievable commitment of resources related to removal of that topsoil from the site, as well as the potential implications of topsoil removal for the health of the aquatic ecosystem in the ponds to be constructed in the reclaimed site.

Page 7, Paragraph 5, Irreversible and Irretrievable Commitments of Resources

Environmental analysis does not address the impact of the government action (permitting) concerning irreversible and irretrievable conversion of prime farmlands. USDA NRCS ranks Sudworth silty clay loam, 0 to 2 percent slopes, as *All areas are prime farmland*. The Meadowcreek silty clay loam, 0 to 2 percent slopes and the Soapcreek silty clay loam, 0 to 2 percent slopes are both ranked as *Prime farmland if irrigated*.

Page 7, Paragraph 7, Line 7:

Text states: "Because of the quality of the soil and the amount of available precipitation, this site should reclaim easily."

USDA NRCS ranks the soil found primarily in Parcel 2C-4, the Sudworth, as "poor" as a potential source of reclamation materials due to its low organic material content and susceptibility to water erosion. The Soapcreek soil unit, the previously existing topsoil in Parcels 2C-3 and 2C-2, is considered to be only "fair", as is the Meadowcreek soil unit found in the east-central portion of Parcel 2C-1. The Draft EA should include possible mitigation measures to incorporate during operations as well as actions such as soil amendments, irrigation, or other actions in the reclamation plan that will be taken to deal with adverse impacts to topsoil.

2. Water Quality, Quantity and Distribution

- Additional comments concerning water issues will be submitted separately by Geomatrix / AEC.

Page 8, Paragraph 4, Existing Environment; Page 10, Paragraph 1, Groundwater Modeling; Page 11, Paragraph 7. Potential Impacts

Environmental analysis does not address the impact of either the proposed or current operations *to the pre-mining environment*. Environmental analysis does not address the

impact of either the proposed or current mining to the Gallatin River in the reaches of the river immediately upstream, adjacent to, and downstream of the Nuss Pit. Environmental analysis does not address the impacts of either the proposed or current operations to the pre-mining soil moisture regimes (i.e., subirrigation, depth to groundwater, etc). See also General Comment 1.

Page 8, Paragraph 5, Line 2:

Change text concerning monitoring record from “*since 2004*” to “since December 2004”.

Page 8, Paragraph 6, Line 6

Text beginning with “The graph indicates...” through the end of that paragraph on Page 9, Paragraph 1, Line 3.

This text describes groundwater data and surfacewater data, and makes the statement that “low precipitation years likely contributed to this downward trend” in groundwater data. However, no scientific study has determined the relationship between groundwater and the Gallatin River throughout the year through the reaches immediately upgradient, adjacent to and downgradient of the Nuss Pit.

Page 9, Groundwater Elevations at TMC Nuss Pit:

Although the data on this graph is the best data, that gathered from monitoring of groundwater monitoring wells subsequent to citizen requests for this monitoring in 2004, it does not illustrate all the data available concerning groundwater levels. There is one additional data point for groundwater level in the SE (trailer) well from the drillers log.

This graph does not include any of the pre-mining groundwater level data. that is available from other well drilling records, test pit data from septic pit applications, depth to groundwater information available in USDA NRCS soil maps, nor that included in observations in the DEQ file for the Nuss Pit. It does not include any of the post-1998 data that is available from nearby well and test pit data, nor the observations in the DEQ file for the Nuss Pit.

Additionally, as previously discussed with DEQ, although groundwater depth relative to elevation above mean sea level is the perspective needed to understand groundwater flow, it is the depth of groundwater below the ground surface that is important in this area that has historically been subirrigated. That graph is much more illustrative of the adverse impacts of the mining operation on water level in the adjacent land parcels.

Page 9, Table 1:

Please add a note to the table (or inset a location map) to show that the USGS gauging station 06043500 Gallatin River near Gallatin Gateway, Montana is located approximately 1500 feet downstream of the confluence of Spanish Creek with the Gallatin River, which is 7.5 river miles upstream of the bridge(s) across the Gallatin River at Gallatin Gateway.

Table 1 does not explain what the “Normal” discharge parameter means. There is no adequate scientific hydrogeologic investigation of the relationship between groundwater and the Gallatin River in the vicinity of the Nuss Pit.

Page 10, Paragraph 1, Line 5:

Text states: “Model input parameters were not provided to DEQ for review.”

There is not sufficient detail of input parameters and modeling details to allow duplication and review of the modeling reported in the Nicklin report. Additional information is required.

Page 10, Paragraph 2, Line 6:

Text states: “A localized drawdown of 1 to 3 feet would not be expected to adversely impact water users in the area unless the well intake is within a few feet of the water table.”

There is no environmental analysis of potential impacts to use of groundwater by vegetation. Please address the impact of the pre-mining through proposed amendment impacts to adjacent subirrigated hay fields and residential tree plantings.

Page 10, Paragraph 3, Line 1:

Text states: “Water level in the pond would be maintained at an elevation of approximately 4,911 feet msl during mining operations and would be maintained at reclamation.”

Add text, based upon results of modeling and hydrogeologic analysis, explaining what the elevation of the pond would be if the pond had no surface water discharge/ outlet. Include the likely equilibrium elevation of the surrounding groundwater table for the no discharge scenario.

Page 10, Paragraph 3, Line 4:

Text states: “The variation in flow is likely due to seasonal changes in water levels, expansion of the gravel pit, and deepening of the gravel pit between 2001 and 2007.”

The available data, modeling, and explanatory text are insufficient to determine the relationship between groundwater in the unconfined alluvial aquifer, actions / excavations within the gravel pit, discharge variations from the headgate, water levels in the Monforton drain, Fish Creek and the Gallatin River.

Page 10, Paragraph 5, Water Quality:

Groundwater quality samples from two sampling events, May 24, 2005 and August 13, 2007 are not sufficient monitoring to determine if actions taken at the Nuss Pit have impacted groundwater quality. There is no consideration of potential impacts to groundwater from sediment pond infiltration or leachates from the operations. Please explain what septic / sanitary facilities or provisions are made for the “up to seven” staff anticipated for the proposed permit.

Page 11, Paragraph 2, Water Use:

There is no approved beneficial industrial water right use for operations at the Nuss Pit. Please explain the environmental impacts, legalities and water rights implications of digging a groundwater pond and discharging that water via an outlet to create a new surface water right in a closed basin. Include discussion of the status of the newly created surface water right after the completion of mining. See also Geomatrix / AEC comments.

Page 12, Paragraph 1, Line 1:

Text states: “This lower water table may require surface irrigation on land that was naturally sub-irrigated in the past. However, mining operations would not adversely impact water users in the vicinity of the mine since water is available for surface irrigation.”

Removing subirrigation from adjacent lands without compensation is a significant adverse impact to those landowners. Removal of subirrigation impacts agriculture and residential landscaping. Regardless of sufficiency of surfacewater rights on those parcels, subirrigation requires no equipment or energy consumption. Removal of subirrigation from adjacent parcels is an adverse impact that requires mitigation.

Page 12, Paragraph 3, Possible Mitigation:

Please include consideration of additional potential mitigation by adding the following bullets:

- Restore groundwater to pre-mining levels for subirrigation of adjacent parcels.
- Prohibit impacts of mining to the Gallatin River.

Page 12, Paragraph 5, Line 9:

Text states: “In fact, any development built during mining operations should be aware of water level rebounds that are expected following mining operations and take into account this potential.”

If this statement is correct, there should be notification added to the subdivision plans and deeds of the parcels that will be impacted by the proposed amendment (and previous actions).

With respect to land parcel purchases and building through the current permit (1998-2007): The impacts of mining subsequent to 1998 to pre-mining groundwater condition have never been investigated, monitored or identified (see General Comment 1). The clear picture of the un-documented trenching in 1998 to create an un-permitted surfacewater discharge to the Monforton drain system was only discovered due to the persistent questions of property owners who observed the decline in groundwater from pre-mining levels. Without any documentation of the impacts to groundwater, there is no way that a property owner would have any reason to suspect that groundwater levels were artificially lowered by the mine. No mechanism exists in the Opencut Mining Act to warn adjacent landowners of changes to groundwater on their parcels. If the appropriate MEPA analysis had been done in 1998, some documentation may be available, but only with intensive research. This point in the Draft EA underlines the need for pre-mining site characterization and data – which was not gathered for the Nuss Pit.

3. Air Quality

- Additional comments on Air Quality will be submitted by the Montana Environmental Information Center.

Page 12, Paragraph 7, Existing Environment:

Characterization of the existing environment concerning air quality should include some discussion of the common wind conditions and implications of local weather patterns for the siting of a major industrial facility such as the Nuss Pit.

Page 12, Paragraph 8, Line 1:

Text states: “Historical use of the agricultural land by plows, discs, seed drill, swathers, combines, balers, etc., have always contributed to the dusty conditions in the area during summer months.”

The description of the existing environment should include some indication of the duration and time period that the surrounding fields are subject to these agricultural operations. All of the fields surrounding the Nuss Pit are hay fields / pasture. Hay field or pasture is tilled and re-planted infrequently – usually less often than once per eight years. Cutting and baling is performed, at most, two times a summer. None of the adjacent fields are planted with grains requiring combines. Only a few of the adjacent fields require spraying for noxious weeds by large-scale farm equipment.

Page 12, Paragraph 8, Line 2:

Text states: “Agricultural activities are exempt from the requirements to control or reduce air emissions created by these activities.”

This statement is irrelevant to the description of existing environment and the subject environmental analysis. Please strike.

Page 13, Paragraph 1, Line 4:

Text states: “The closest active quarries are located 5 miles north near Four Corners (Simpson & Storey) and 8 miles southeast (Huttinga).

Please revise / correct this information, which is critical for analysis of cumulative impacts, via the following table:

<u>Pit</u>	<u>Distance</u>	<u>Comment</u>
Fluke	1.00 mile S	permitted through 2010
Morgan	1.75 miles NE	proposed through 2018
Baden	2.25 miles ESE	private
Huttinga	3.75 miles SE	permitted through 2020
Storey	4.14 miles N	permitted through 2028
Simpson	4.40 miles NNE	

Page 13, Paragraph 2, Line 3:

Text states: “Criteria pollutants are particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}),...”

Please revise / correct to “(PM_{10} and $PM_{2.5}$).” In following sentences, add sources of $PM_{2.5}$ or generalize the discussion to PM.

Page 13, Paragraph 2, Line 5:

Text states: “Primary air quality impacts from the proposed project would relocate mining...”

Strike “relocate”.

Page 13, following Paragraph 2:

As noted in a previous comment on Page 7, Paragraph 2, Line 6, in the upstream area that was the source from which the Quaternary alluvium was derived there are geologic formations bearing asbestos and erionite in commercial volumes. Discuss potential air quality impacts of excavating, handling and crushing gravel bearing these fibrous minerals.

Page 13, Table 2:

Please add distances from the Nuss Pit to these air monitoring stations: Belgrade – 12.8 miles; Bozeman -- 10.9 miles; West Yellowstone – 76 miles.

Page 13, Paragraph 5, Line 1:

Text states that three complaints have been filed regarding the opencut mining operations at Nuss Pit.

Neighbors certainly believe that they have filed many more than three complaints concerning air quality in the vicinity of the Nuss Pit. Many of these have been email or phone calls, with photos. Apparently DEQ personnel are not recognizing these contacts as complaints. DEQ needs to introduce systems for more thorough documentation of contacts, including routine notes concerning phone conversations (and face-to-face conversations), as well as archiving emails.

Page 13, Paragraph 5, Line 1:

Text states: “All three were investigated by DEQ’s enforcement division; no violations were observed.”

It is not known if there have been actual violations and exceedances of air quality standards because there is no monitoring in place to document the duration of dust events. Without monitoring and evidence, it is not possible to say that there are no exceedances of air quality standards, particularly on the parcels of land adjacent to the operations.

Page 13, Paragraph 5, Line 2:

Text states: “The facility was meeting reasonable precautions during the inspections in response to the two dust complaints...”

Please expand this text. The understanding that neighbors have from discussions with DEQ ARMB personnel are not the directly stated response that “reasonable precautions have been met,” but the ARMB statement that “even the Best Available Control Technology would not contain dust in large wind events.” GOMAG takes issue with the phrase that “reasonable precautions have been met”, since tackifiers have never been employed on stockpiles, there have been no stockpile height restrictions, there has been no effort to revegetate large portions of the facility, and no consideration of using higher berms with irrigated windbreak trees including mature conifers to shield the facility from winds as well as serve as a baffle to prevent some dust from leaving the facility.

The inserted photo below is a view of the dust plume from the facility during a large wind event.



The photo was taken from a location 4 miles from the Nuss Pit, and the extent of the plume from the Nuss Pit stockpiles to the edge of the photo is one-half mile. Events are difficult to photograph because those most impacted are immersed in dust, and during normal summer weather patterns, the daily high winds often occur at dusk. However, the adjacent neighbors also have concerns about the daily, un-spectacular dust that is transported onto/into their homes and land. Please also note that in Photo 1, there is no dust plume rising from the surrounding agricultural lands.

Page 14, Paragraph 2, Line 1:

Text states: “The air quality in the area may be degraded to some extent due to the emissions from the proposed site,...”

Please change this sentence to: “The air quality in the area would be degraded due to the emissions from the proposed site...”

Page 14, Paragraph 3, Line 3:

Text states: “Permits and permit conditions have been established for this site to promote compliance with all applicable air quality rules and standards, and to ensure that properties beyond the plant boundaries (e.g. houses, rivers) would be protected.”

This is not a complete presentation of the potential impacts. There is no documentation, monitoring or evidence that air quality rules and standards are being met at the property boundaries. The only available data is that air quality conditions are being met at the three monitoring sites in Gallatin County that are listed in Table 2 of the Draft EA (10.9 to 76 miles from the site).

It is technically incorrect to use the word “ensure” without any data, monitoring, or modeling. Even then, this statement would only be correct for existing uses. The permits and permit conditions are not at all protective of any potential change in land use that adjacent property owners may consider (i.e., construction of a new home).

It would be useful public communication to include a discussion that discloses that compliance with air quality rules and standards does not “ensure health protection.” Obviously, “no dust” is healthier than “some dust,” and standards have been set by the government to limit adverse health impacts on the national scale to those that are considered by the rule-makers to be “tolerable.” These standards are not always protective of sensitive receptors.

Page 14, Paragraph 3, Line 5:

Please include additional potential mitigation, including:

- Reduced stockpile height
- Higher berms in both upwind and downwind directions
- Windbreak trees including mature conifers planted on the berms and maintained by irrigation
- Reducing the amount of area that is unvegetated at any one time
- Monitoring dust and/or weather conditions so that additional mitigation may be employed when conditions exceed health and/or nuisance standards, both during and after operating hours

Page 14, Paragraph 5, Line 1:

Text states: “No new sources of emissions are expected from the facilities..”

Although an asphalt plant was included in the previous permit, it has never been included on the site. An asphalt plant would be a new source of emissions. Additionally, the

proposed expansion of the mine would create an 111% increase in unvegetated area that would be a source of fugitive dust. There is no existing asphalt drum mixing location.

Page 14, Paragraph 5, Line 7:

Text states: “Truck emissions and road dust would continue to be generated but the quarry may reduce travel distances for future regional projects.”

Please revise sentence to clarify that local emissions would continue to impact the site and adjacent properties, and that the potential reduction in emissions due to reduced truck haul would be disseminated throughout the service area. It is important to clearly identify the trade-off that is being considered between high local cost and dilute regional benefit.

Page 14, Paragraph 7, Line 1:

Text states: “Operational conditions have also been established within the associated air permits to ensure that the source complies with existing air quality rules and regulations.”

Please clarify / state / differentiate between sources that require air permits and operational conditions, and those that do not require air permits and are therefore subject only to mitigation or operational conditions that may be included in the Opencut Mining Permit (i.e., what sources are covered by an Air Emissions Permit to comply with air quality rules and regulations).

Page 14, Paragraph 8, Line 1:

Text states: “Fugitive dust is normally managed with water spray and regulated at mine sites by gauging opacity – measuring visibility through the dust plume.”

Opacity measures are only appropriate and applicable (via regulation) for point sources of air pollution. Monitoring is the only viable measurement for non-point air pollution such as the combined fugitive dust emissions from an 87-acre industrial site that is predominantly unvegetated.

Page 14, Paragraph 8, Line 4:

Text states: “Its use as a road and highway de-icer in winter in place of sanding has also reduced air-borne particulate matter.”

This sentence is irrelevant to the subject environmental analysis, please strike.

Page 15, Paragraph 2, Line 2:

Text states “...but plant operations are limited such that emissions levels would not cause harm to human health.”

This falls into that problematic level of emissions that do not exceed standards that have been developed to reduce health impacts to respiratory systems in the general population to a permissible or tolerable level by the decision/rule-makers. Strong odors trigger asthma attacks, exacerbate allergies, and cause headaches and nausea -- which are certainly all adverse impacts (or harm) to human health. Concentrations of pollutants that do not exceed the national air quality standards have been demonstrated to have adverse health impacts on sensitive receptors.

It is more technically correct to state: “plant operations are limited such that emissions levels would not exceed national health standards.” Or alternatively, to include a clear discussion explaining the issue to the involved and impacted public. Obviously, “no dust” is healthier than “some dust,” and it should be explained to the public that standards have been set by the government to limit adverse health impacts on the national scale to those that are considered by the rule-makers to be “tolerable.” These standards may not be protective of sensitive receptors such as children, elderly, people with cardio-pulmonary obstructive diseases, or other respiratory diseases.

Page 15, Paragraph 6, Cumulative Impacts:

This section does not quantify or thoroughly investigate and explain the Nuss Pit contribution to cumulative air quality.

4. Vegetation Cover, Quantity and Quality

Page 16, Paragraph 2, Potential Impacts:

There is no mention that for as much as 22 years, the majority of the area is unvegetated. Aerial photos show approximately 80% of the currently permitted acreage was unvegetated when the photos were flown. The statement under Topic 5. Terrestrial, Avian and Aquatic Life and Habitats is more appropriate: “The Proposed Action would convert approximately 45.8 acres of agricultural, open lands to an industrial use” (Page 16, Paragraph 5, Line 1).

Page 16, Paragraph 4, Line 5:

Text states: “Given that the lands would be mined and reclaimed concurrently...”

Explain this model of the proposed operations. It is not clear where there would be revegetation / reclamation before closure of operations. Please relate this discussion with references to locations in the 2005 aerial photograph of operations, proposed ponds, and operations elements shown on Figures 2 through 5, acreages of areas to be reclaimed, and a schedule for attainment of that reclamation.

5. Terrestrial, Avian and Aquatic Life and Habitats

Page 16, Paragraph 3, Line 1:

Text states: “No waters of the US or natural waterways exist on the site.”

Please have the US Army Corps of Engineers, Montana office (Alan Steinle, Director) make a jurisdictional determination. The memo “Clean Water Act Jurisdiction Following the US Supreme Court’s Decision in Rapanos v US and Carabell v US “ (http://www.usace.army.mil/cw/cecwo/reg/cwa_guide/rapanos_guide_memo.pdf) states that non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flows at least seasonally (e.g., typically three months) are jurisdictional Waters of the US. Additional criteria, including continuous traceable stream channel tributary to Fish Creek, also support that the surfacewater discharge from the pond makes the Monforton Drain, and perhaps the pond, Waters of the US.

Page 17, Paragraph 1, Line 4:

Text states: “It is unlikely that this Proposed Action has any potential to impact aquatic resources in the short or long term.”

Please revise this text to state that mitigation and/or design elements of the proposed plan will reduce the likelihood that the Proposed Action will impact aquatic biologic resources. It is not a defensible statement to say that the Proposed Action (dredging in a pond with an outlet to potential Waters of the US that have been stated to be aquatic habitat (Page 16, Paragraph 7, Line 4) is unlikely to impact the aquatic biotic resources without some explanation and /or qualifications.

Page 17, Paragraph 1, Line 1:

Please find references / cite expert opinion that the warming of inflow to a groundwater-fed spring creek (Fish Creek) documented in temperatures in the pond surface and outlet that are higher than groundwater influx to the spring creek will have no adverse impact on the aquatic environment. See also Geomatrix / AEC comments.

Page 17, Paragraph 4, Line 1:

Text states: “The Proposed Action would not contribute to cumulative impacts to aquatic resources in the Gallatin Gateway area.”

This statement can not be made until hydrogeological investigations have determined the potential impact of the mining operations (both proposed and current) to the groundwater / surfacewater interaction in the reaches of the Gallatin River immediately upstream, adjacent to, and downstream of the Nuss Pit.

6. Unique, Endangered, Fragile or Limited Environmental Resources
--

Page 17, Paragraph 6, Line 3:

Text states: “No wetlands are present.”

If a jurisdictional determination was made by the US Army Corps of Engineers Montana Office for the drainage ditches and irrigation ditches throughout the proposed project area and a wetland delineation including investigation of hydric soils and wetland vegetation communities was completed, please make this available for review. The USDA NRCS soil survey shows that portions of the site are characterized by Meadowcreek silty clay loam, 0 to 2 percent slopes; and the Soapcreek silty clay loam, 0 to 2 percent slopes. Both of these are hydric soil units. If a jurisdictional determination and wetland delineation were not done, please provide some technical documentation supporting this decision for public review.

Page 17, Paragraph 7, Line 1:

Text states: “No unique, endangered, fragile or limited environmental resources were identified in the review of the existing environment.”

USDA NRCS ranks Sudworth silty clay loam, 0 to 2 percent slopes as “All areas are prime farmland.” The Meadowcreek silty clay loam, 0 to 2 percent slopes and the Soapcreek silty clay loam, 0 to 2 percent slopes are both ranked as “Prime farmland if irrigated.”

Page 17, Paragraph 8, Line 1:

Text states: “The proposed action would not result in any irreversible or irretrievable commitments of unique, endangered, or fragile environmental resources.”

The Draft EA does not address the impact of the government action (permitting) concerning irreversible and irretrievable conversion of prime farmlands. USDA NRCS ranks Sudworth silty clay loam, 0 to 2 percent slopes as “All areas are prime farmland.” The Meadowcreek silty clay loam, 0 to 2 percent slopes and the Soapcreek silty clay loam, 0 to 2 percent slopes are both ranked as “Prime farmland if irrigated.”

Page 17, Paragraph 9, Line 1:

See previous comment.

7. Historical and Archaeological Sites

Page 18, Paragraph 2, Line 1:

Include report of SHPO recommendation for all Nuss mine property (1998, 2004, and 2007 applications for permit) and any subsequent cultural resource investigations.

Page 18, Paragraph 4, Line 1:

Text states: “A walkover of the amendment area during a site inspection by DEQ personnel did not reveal any surface artifacts.”

Please explain if this were qualified historical / cultural resource inventory DEQ personnel such as the historian or archeologist for the Montana Department of Transportation. It is common to find lithic scatter and actual rock tool artifacts in the alluvial fill of the Gallatin Valley and it is unlikely that there are no artifacts in the topsoil stockpiles, or the floodplain alluvium. Assessment of potential sites should be made by a qualified cultural resource professional. Agricultural tilling and disturbance does not penetrate more than two or three feet into the subsurface. There is a very real possibility that the reducing conditions of the wetlands that existed in the area before agricultural drainage was imposed upon the floodplain preserved pre-historic artifacts (as shown by the presence of hydric soil units, including a peat bog /mucky peat soil unit only 930 feet from the proposed site boundary). There is a well-traveled Native American trail in the northern end of the floodplain west of Gallatin Gateway, approximately 2.3 miles north of the proposed project boundary. It would be reasonable to have a cultural resources Class III inventory performed by qualified personnel before the site is excavated.

8. Aesthetics

- Additional comment concerning noise impacts of the proposed operations and the Draft EA analysis of noise will be submitted by William Bowlby, Ph.D., of Bowlby and Associates.

Page 18, Paragraph 9, Line 1:

Text states: “The site is currently an open gravel pit, with an Amendment Application request to increase the acreage to a total of 87 acres with two ponds.”

Please note that the current open gravel pit is scheduled to begin reclamation in 2008 and be reclaimed in 2010.

Page 19, Paragraph 2, Line 1:

Text states: “The appearance of the proposed project is consistent with the surrounding land.”

See above comment. Please explain how an unvegetated 87-acre industrial site is consistent with surrounding agricultural and pasture land and rural residences. There is some confusion here about what is referred to as “site”. In text referred to in the previous comment, “the site” refers to the existing gravel pit. In this text “the site” appears to be referring to the amendment acreage adjacent to the existing gravel pit. Please clarify.

Page 19, Paragraph 3, Line 4:

Text states: “The closest residences are approximately 150 feet north of the existing north permit boundary, and approximately 270 feet south of the existing south permit boundary.”

GIS shows that the residence south of Nuss Pit is 250 feet from the existing permit boundary. There is no set-back requirement for un-zoned Gallatin County, so that the land directly adjacent to the permit boundaries has been considered as viable potential home sites by the property owners as soon as 2008-2010, except for the proposed actions being considered in this Draft EA.

The proposed project boundaries will be 860 feet from the home west of the westernmost boundary; 445 feet northeast of the home off the southwestern boundary corner, and 960 feet from the home northeast of the pit. There are existing residences 1,425 feet, 1930 feet, and 2700 feet northeast of the northeastern boundary of the proposed project. The parcel south of the western portion of the expanded project has previously been divided into parcels for homesites and septic site evaluations and engineering have already been

performed for those homesites. There are additional homes 1,020 feet, 1,675 feet, 1785 feet, and 1780 feet south of the Nuss Pit, and a home 1,590 feet and 1675 feet southeast of the Nuss Pit. The property owners of the home directly east of the boundary (2,325 feet) have been holding their land since previous to the Nuss Pit operations as potential homesites, which they have been considering as viable for 2008-2010.

Page 19, Paragraph 3, Line 5:

Text states: "The terrain is generally flat with hills to the west."

Please include additional discussion of viewshed impacts for the properties on the western bench. See photo below, taken from a Guest House that pre-dates the initiation of the Nuss Pit operations in 1998 that has suffered complaints and diminished income from the impacts (P. Rogers, personal communication, 2008). There has been adverse impact to viewshed from parcels on the western bench (C. Bryant, personal communication, 2008).



Page 21, Paragraph 1, Line 2:

Text states: “In gravel pits, the typical dominant noise source that determines the L_{dn} is the crusher, and typically, there are two loaders operating with the crusher.”

Please include evaluation of the cumulative noise of multiple conveyors (to the crusher, from the crusher to the stockpile, to the wash plant), product dumping from the conveyors (onto the conveyor to the crusher, onto the stockpiles from the crusher, onto the conveyor to the wash plant, from the wash plant), and additional truck traffic, excavators and loaders. The trips documented to the Nuss Pit in 2006/2007 ranged from 22 (February 2007) to 98 (October 2006) truck trips per day. There are additional haul trucks on site, moving materials, and associated excavators, loaders and graders. It is common for the on-site materials to be loaded into a dump truck and then dumped at the location where a loader places the material into the feed conveyor to the crusher, including the additional thump of the dump truck to knock the last amount of load out of the corners of the bed. There are fuel and maintenance vehicles, and personnel vehicles as well.

Please include evaluation and comparison of the noise created by the pit versus no operations (pasture), and include that consideration in both the background and public perception discussions.

Additional homes and home sites are listed in the previous comment.

Page 24, Paragraph 1, Possible Mitigation:

Please add to possible noise mitigation measures:

- Locate the crushing operation inside buildings or enclosures
- Increase the height of the berms to eliminate line-of-sight to residences

Page 24, Paragraph 2, Line 1:

Text states: “Once the overburden berms are established and seeded, mining operations would be shielded from view.”

Please include discussion of increasing the height of the existing berms to shield adjacent residences from line-of-sight to the crusher and other operations.

Please discuss potential mitigation of viewshed for residences on the western bench.

Page 24, Paragraph 4, Line 4:

Text states: “Therefore, any impacts to visual resources would be short-lived...”

See previous comments requesting actual duration (22 years) rather than phrases like “short-lived.”

Page 24, Paragraph 6, Line 3:

Text states: “Because the proposed change in land use to an active gravel pit is a temporary action,...”

See previous comment.

9. Demands on Environmental Resources of Land, Water, Air or Energy
--

Page 25, Paragraph 3, Line 3:

Text states: “However, some of the gravel resources are located in floodplains and development of those deposits could pose environmental problems.”

Although the Nuss Pit is not located in the FEMA-defined 100-year floodplain, the sediments of the area are fluvial deposits, evidence of deposition in the geologic area that is the floodplain of the Gallatin River. It has not been investigated / determined that the Nuss Pit is or is not within the hydrogeologic “floodplain” of the Gallatin River. It is good to see that the environmental issues associated with mining in the floodplain of the Gallatin River are recognized.

Page 25, Paragraph 4, Line 3:

Text states: “This lowering of the water table would not have an adverse impact on the water rights users.”

A three-foot decrease in an area depending upon subirrigation for agricultural production and the support of residential landscaping does not qualify as “not have an adverse impact on the water rights users”. Adjacent landowners believe that previous un-analyzed impacts to the groundwater have already removed significant portions of adjacent properties from subirrigation. See General Comment 1.

Page 25, Paragraph 5, Irreversible and Irretrievable Commitments of Resources

There has been an irreversible and irretrievable disruption of topsoil development, including removal of significant amounts of topsoil from the site. There has been and continues to be an irreversible and irretrievable expenditure of energy associated with the energy use that irrigation has required for adjacent properties that were previously subirrigated.

Page 25, Paragraphs 6 and 7:

The appropriate consideration of the No Action Alternative (not permitting this pit) would be getting the needed gravel resource from another location, not going without the needed gravel resource. The Draft EA is not the appropriate place for an apologia of the need for gravel. As stated previously in the Draft EA (for example, on Page 26, Paragraph 2, Line 1): “The gravel resource in Gallatin County is not particularly limited...” It is likewise not the appropriate discussion / linking of an action on this proposed pit (Nuss) with an action / permit application for another pit (Morgan or Storey), except as in consideration of cumulative impacts. It is recommended that the DEQ Opencut Mining Division and / or the gravel industry make a comprehensive analysis of the locations and amount of the resource, and a lifetime cost-benefit analysis of the exploitation of the resource in different locations within Gallatin County. However, this is not the role of the Draft EA for Amendment 2 to DEQ Permit TMC-002.

10. Impacts on Other Environmental Resource

Page 26, Paragraph 6, Irreversible and Irretrievable Commitments of Resources:

Septic drainfields must be placed in naturally occurring soils. The widespread disruption of the soils throughout the proposed project site will diminish the potential for home sites on this property after reclamation.

11. Human Health and Safety

Page 26, Paragraph 8, Line 1:

Delete repeated header.

Page 27, Paragraph 2, Line 6:

Text states: “The proposed pit would add 13 haul trucks to the a.m. peak hour traffic and 10 haul trucks to the p.m. peak hour traffic based on studies for similar gravel pits (Morrison Maierle 2008).

Include the actual production data from the Nuss Pit for 2006 for potential traffic impacts. Please use traffic impact statistics to convert this to equivalent passenger car / pickup trips impact / wear to the county road.

Page 27, Paragraph 4, Possible Mitigation:

Suggest potential mitigation for the home within 40 feet from the centerline of South Gateway Road, since the permitting of this pit with requirement that trucks not travel through the Gallatin Gateway School Zone will / has immensely increased truck traffic from the previous 14 passenger car / pickup trucks average daily trips (ADT) for this road.

Page 27, Paragraph 7, Line 5:

Text states: "... However, the noise due to the Proposed Action...would increase the noise above existing levels up to 1 mile from the site."

Please document how many existing residences would be impacted and the acreage / parcels/ potential homesites within that 1-mile radius from the site under the proposed Gallatin Gateway Community Plan or the proposed Gallatin County county-wide zoning.

12. Industrial, Commercial, and Agricultural Activities and Production

No comment

13. Quantity and Distribution of Employment

Explain what septic / sanitary facilities or provisions are made for the "up to seven" staff anticipated for the proposed permit.

14. Local and State Tax Base and Tax Revenues

Page 29, Paragraph 8, Line 1:

Text states: "There are no irreversible or irretrievable commitments of resources relative to tax revenue from the Proposed Action."

Please discuss / evaluate the potential increase in taxes (agricultural to industrial) for 12 years versus the loss of 5 potential homesites (residential tax rate) from 2010 to

perpetuity. See also comments under Section 21, “Other Appropriate Social and Economic Circumstances.”

15. Demand for Government Services

No comment

16. Locally Adopted Environmental Plans and Goals

Page 30, Paragraph 5, Line 2:

Misspelling / typo on citation, should be (Vaughan 2007).

Page 30, Paragraph 5, Line 3:

Petition for emergency zoning denied in November 2007 would have delayed, not prevented, the Nuss Pit from going forward (see wording on the petition in the county records).

Page 30, Paragraph 5, Line 7:

There was no revocation of the July 6, 2007 TMC compliance form, it merely became obsolete. Note that it has been the consistent legal opinion of Gallatin County (M. Lambert, Gallatin County Attorney, stated at several public hearings, 2007 and 2008) that compliance with county zoning must be determined from the date of the DEQ-issued permit, not the date of the application for permit or date of the form being filled out for the application by Planning Staff.

Page 30, Paragraph 6, Line 2:

See previous comment.

Page 30, Paragraph 7, Line 3:

Text states: “Although the lands would be converted temporarily to an industrial use, because they are not currently zoned, they do not fall under any specific county plan.”

There is an approved County Growth Plan in Gallatin County, in which the location of the proposed project site is categorized as Agricultural/Rural, not Industrial. Moreover, the Gallatin County Attorney has indicated that the recently enacted Interim Zoning does apply to any gravel mining operation that had not been permitted as of the date of the Interim Zoning enactment. Thus the permit under review would be subject to this zoning.

17. Access to and Quality of Recreational and Wilderness Activities

Page 31, Paragraph 2 and 3, Existing Environment and Potential Impacts:

There is currently no appreciable shoulder to Cottonwood Road or South Gateway Road. There is frequent use of these roads by walkers, joggers, bicyclists, and horse riders, including children traveling to school and playing after school. The truck traffic associated with the operations at the Nuss Pit has had an adverse impact on access to and quality of recreation along these rural roadways.

18. Density and Distribution of Population and Housing

Page 31, Paragraph 9, Irreversible and Irretrievable Commitments of Resources

See previous comment concerning the permanent loss of 5 potential homesites by ponds. See also the comment under Point 19, "Social Structures and Mores."

19. Social Structures and Mores

Page 32, Paragraph 4, Line 1:

Text states: "Cumulative Impacts: None"

Gallatin Gateway is experiencing rapid growth, as are many other areas in Gallatin County. The commitment of land to industrial uses for the next 13 years, will combine with other land uses in the Gallatin Gateway Planning Area to define and influence the type of growth that the area experiences. There are very real concerns within the community of becoming a mining district serving the development needs in other areas and seeing less (or none) of the positive long-term (> 5 years) effects of the county-wide growth.

20. Cultural Uniqueness and Diversity

No comment

21. Other Appropriate Social and Economic Circumstances

- Orville Bach, an economics professor, will submit additional comments directly to DEQ.
- Tom Fiddaman, Ph.D., (<http://www.metasd.com/>) an expert in system dynamics, environmental management, economics and business strategy will also submit additional comments directly to DEQ.

Page 33, Paragraph 2, Rygg Study:

- Non-matching Basic Study Assumption: Please note that the second assumption / condition listed for the Rygg study (Page 10, paragraph 1, line 6) is: “Future pit operation activity to be consistent with 1994-1996 levels until reclamation in year 2008.” The Rygg study incorporates the assumption of *no further extension or expansion* than the mining included in the currently addressed permit. Therefore, this study is, by definition of original bounding parameters, invalid for any expansion or extension of a first extension or expansion. .
- Cannot Review Location / Setting of Rygg Comparables: The locations of the Comp Sales are listed by address, but not shown via map or aerial photo, and have not been reviewed by GOMAG. Hite (2006) and Erickcek (2006) have found that the economic impact of an environmental disamenity to property values extend as far as three miles from the location of the environmental disamenity. There is no way to check that the comparables are not located near some other environmental disamenity or other difference in location that makes the comparison invalid. The lack of documentation of location characteristics in the Rygg study is an increasingly difficult obstacle to overcome, since the study is now a decade old.
- Strong Mitigation In Place Surrounding The Subject Gravel Pit: Descriptions of the properties used in the Rygg study repeatedly state things like “area is wooded” or “in a

heavily wooded area”. These homes are obviously much more effectively screened from the adverse impacts of the subject gravel pit.

- Modular Homes Not Economically Comparable to Non-Modular Homes: Several of the properties included in the Rygg study (2 of 6, or 33%) include modular homes. The depreciation of modular homes is such a strong signal that it is unlikely that any other impact to the property value is discernible.
- Range of Sale Prices Very Different than Those in Nuss Pit Vicinity: The range of sale prices does not seem to be as large as those in the vicinity of the Nuss Pit. There do not seem to be properties as valuable as some of those in the vicinity of the Nuss Pit included in the Rygg study. Buyer behaviors are different for different values of properties.
- Enforcement: Enforcement by DEQ is an additional assumption / condition for the Rygg study. As per the history, record of violations and complaints at the Nuss Pit, as well as the recent Legislative Audit Report on DEQ Opencut Mining Division effectiveness, assumption of DEQ enforcement is problematic.

These comments concerning the Rygg study are by no means comprehensive, but indicate some of the magnitude of problems inherent in generic application of this study to other circumstances, such as those at the Nuss Pit.

Page 34, Paragraph 7, Line 1:

Rather than simply relying on Orville Bach’s materials, DEQ Opencut Mining Division should become familiar with the extensive academic and business economic research that has been published in peer-reviewed journals concerning the impact of environmental disamenities on property values. Although, as noted in the Draft EA (page 32, paragraph 12), DEQ has no authority or jurisdiction over property value issues, it is a key part of the MEPA analysis of impacts to the human environment that can not be ignored.

Page 34, Paragraph 4, Line 2:

Text states: “However, the change in land use on this parcel is temporary ...”

Please change text to state that the change in land use will make mining/industrial land use of this parcel for 22 years, and discuss the impact of this land use on the social and economic circumstances and impact on potential types of growth in Gallatin Gateway and the Gallatin Gateway Planning Area. There are very real concerns that the duration and scale of mining on this parcel (22 years, 87 acres) will influence the development of Gallatin Gateway and encourage the development of the area as a mining and/or industrial area, rather than the rural / agricultural, residential and small business uses that

surveys of Gallatin Gateway Planning Area landowners and residents have revealed throughout the process of the development of the Gallatin Gateway Community Plan.

22. Public Involvement, Agencies, Groups or Individuals Contacted

Page 34, Paragraph 5, Bullet 6:

Text states: "Gallatin County Health Department"

Please explain what contact was made, what concern(s) was (were) discussed, and with whom. Please explain what septic / sanitary facilities or provisions are made for the "up to seven" staff anticipated for the proposed permit.

23. Other Governmental Agencies with Jurisdiction, List of Permits Needed:

Page 34, Paragraph 6:

Please add "US Army Corps of Engineers – Waters of the US jurisdictional determination"

Page 34, Paragraph 6:

Please explain if the county road department was contacted, if there is an encroachment / driveway permit for the Nuss Pit access and if there is a time period associated with that permit.

24. Magnitude and Significance of Potential Impacts

Page 35, Paragraph 2, Line 3:

Text states: "Water usage for the proposed operation would not result in any decrease of available water supply to the Gallatin Valley as the quantity of the water right would not change."

Please include summary statement of the impact of Nuss Pit mining to subirrigation on adjacent parcels and the Gallatin River after the appropriate hydrogeologic environmental analysis has been completed.

Page 35, Paragraph 2, Line 6:

Text states: “The Plan of Operations includes measures such as locating soil berms along some of the site boundaries and placing the crusher on the floor of the pit to reduce, noise, visual and light impacts.”

Please include summary statement of additional mitigation requirements and monitoring requirements in the Final EA.

25 Regulatory Impact on Private Property:

Please see comments above in regards to detrimental impacts to private properties other than the property being permitted, including values.

26 References

No Comment

Dear Jo,

Below is my analysis of the recent EA for the Nuss pit/Rock pit TMC in Gallatin Gateway. I have some opening comments, followed by my analysis and finally wrapped up with my conclusions.

As you are personally aware, over the past 5 years I have been vocal regarding the lack of DEQ oversight of the activities at the Nuss open cut mining pit. I am not alone. Additionally, as you are aware I have made numerous complaints regarding permit violations that have apparently fallen onto deaf ears. I say this because only a few of my complaints were ever taken seriously and registered as a formal complaint. I am not alone. The decision by DEQ to file or not file a formal complaint has resulted in what now appears to be only a few spurious permit violations when instead the violations are numerous and continue daily as evidenced by Carol Roark (neighbor directly in front of the pit). I can only assume that the DEQ is either sided with the Nuss operation or terribly understaffed.

Initial analysis of the Nuss EA demonstrates a glaring bias towards the open cut industry. To any individual that has never been subjected to having to deal with the daily noise pollution, air pollution, speeding truck traffic or water table violation, I submit that the Nuss EA represents a point in time and does not even begin to scratch the surface regarding the cumulative impacts that the above pollutants have on the health and well-being of the surrounding neighbors and livestock.

While policy exists to reduce the above pollutants, if the agency in charge lacks the manpower to daily enforce the policy it then becomes the responsibility of the surrounding neighborhood citizens to do so. This has been the case regarding the Nuss pit.

In general the Nuss EA is a biased, anecdotal, prospective study that glaringly supports the continuation of mining operations at the Nuss pit.

ANALYSIS OF EA NUSS PIT:

1). Opening remarks mention normal hours of operation will be from M-F 7:00am – 6:00pm and Saturdays for hauling.

CONCERN: It has been a constant fight to keep the operators of the Nuss pit in compliance with the hours of operation. Complaints have been filed regarding hours that begin prior to 7:00am and go beyond 6:00pm. In fact the entire summer of 2008 the Nuss pit has been in violation of the starting hours with loaded truck leaving the pit as early as 6:45am.

2). Opening remarks inform us that final reclamation will be in 2020 to include two ponds and grasslands.

CONCERN: On at least two prior occasions the nature of the reclamation, size of the ponds and reclamation date have been changed. I submit that reclamation of this site will

NEVER be appreciated and that when the time frame close to the suggested 2020 date begins to be encroached upon a new reclamation date will be applied for.

3). Page 7 reclamation occurring concurrently with mining is to be performed. The definition and type of reclamation that will occur concurrently MUST be clearly defined. To those individuals whose lives have been adversely impacted by this operation reclamation may suggest to us that 20 foot conifers will be planted 12 feet apart and two rows in depth along the perimeter of the operation. While reclamation to TMC and Nuss family may suggest a hole with water in it as the start of pond development. There also is no commitment to a date for beginning or completion of reclamation.

4). Under Cumulative Impacts: It is noted that the proposed change from agriculture to gravel pit is permanent. If the Nuss pit would be held to their prior proposal with a 2010 reclamation and upper end home sites surrounding the man made water feature one would have reduced the negative and permanent impacts of converting prime pasture land to an enormous hole in the ground all the while still providing the needed material to big sky where the majority of the gravel is being sold.

5). Under groundwater Modeling it is stated that the Model input parameters were not provided to DEQ for review. Why not? The model parameters, which ultimately provides the conclusion to cause and effect, MUST be available to DEQ and the community to allow for accurate scrutiny. I have no other choice but to think the parameters were withheld in an effort to blind any opponents to the expansion of this pit. Knowing the parameters allows concerned citizens to obtain an independent assessment by another hydrogeology practice.

6). Under Water Quality: There is mention of samples for coliform and petroleum hydrocarbons (known human carcinogens) having been obtained May, 25 2005 and August 13, 2007. I submit that any water sample looking for hydrocarbons should have been obtained in August 2005. It was during this time frame in which a SIGNIFICANT increase in mining activity and trucking activity was appreciated. As we are all aware of the any 2007 time frame was dramatically slower when compared to 2005 with regards to mining activity and trucking in and from the Nuss pit. The METHOD of collection is also not mentioned. This too may skew the findings.

7). Under water Use: there is mention that 20,000gpd would be used for dust suppression. This activity has never been performed in the past and most likely will never be performed in the future. Many calls to DEQ have been placed regarding the lack of stockpile watering as a means of dust suppression. I am suspect that this activity is avoided to prevent the possibility of stockpiles being contaminated with petroleum hydrocarbons that could adversely effect the water quality analysis.

8). Page 12 under Possible mitigation well water from residencies downstream of the pit should have their well water sampled monthly for coliform and petroleum hydrocarbons.

The concern we have after all has to do with the impact on well water safety. What could be better than to sample neighborhood wells?

9). Air quality page 13. Mention is made of three air monitoring stations for particulate matter in Gallatin County. One easily concludes that these monitoring stations, located at such great distances from the Nuss pit, would have air quality that DOES NOT represent air quality of nearby home owners to the Nuss pit. On the same page there is also mention of three complaints regarding the open cut mining operations at Nuss pit. What was the nature of these complaints? You also mention that the pit was meeting reasonable precautions during your inspection. What are reasonable precautions? Are your inspections announced? If your inspections are announced it is reasonable to assume that the Nuss pit operators would be on their best behavior during the inspection. This does not correlate with the neighborhood daily experience. Hence, the complaints. In addition what precaution has DEQ put into place to provide protection to surrounding neighbors during wind storms, after hours and on weekends?

10). The entire section on noise has enormous holes in the methodology of the findings. First and foremost is the time frame in which the information was obtained. The activity of the Nuss pi in and around March is typically low for the year. It is necessary to obtain additional data during the peak season (June-September). In addition much of the data is from a single loader and backup alarm. This is hardly ever the case. Restudy the noise levels with a minimum of 4 loaders, ongoing rock crushing, a dredging device and six trucks with loaded material, to mention a few. The method of data collection and especially the measured level of noise when one is hiding behind a berm is hardly scientific. Again, if DEQ is attempting provide assurance to the surrounding neighbors, take measurements at their respective residencies. Additionally, obtain noise level from on top of the bench where the echo amplifies the noise level.

11). Page 24. I am embarrassed to have to point this out, but this cannot slide by. Re; Visual Resources. Mention is made that once berm are seeded and established mining operations would be shielded from view. This has been EXTREMELY ineffective for the past 5 years, why would one think that suddenly this would begin to work. Consideration should be for 20 foot conifers spaced 12 feet apart, two rows deep planted around the entire periphery of the operation to alleviate the visual pollution as well as help with noise pollution. Anything less is fluff!

12).Page 27 a statement defining speed limits through Gallatin Gateway as 25 MPH is made. How is this to be enforced. All neighbors would agree that the loaded truck speeds out of the Nuss pit hit 45-55mph along Cottontail road. This past summer one of TMC trucks loaded with gravel lost control of his rig and went into the east side ditch dumping his load. Had there been a pedestrian there, they certainly would have died. Had this happened in the school zone a child may have died. Bottom line here is that the speed of these trucks cannot be managed by any method. Knowing this, such an operation has very little place in a residential neighborhood or school zone for that fact.

In conclusion: the EA study, as presented, is full of flaws from data collection, methodology of the studies, time periods of information collected, presentation of the data and conclusion of the study. The study is not a prospective review but a biased retrospective analysis designed to push through the approval for the Nuss pit to carry on their activity unencumbered, unchallenged, without adequate oversight and for an INDEFINITE time frame.

Karl Hapcic, MD
Debbie Hapcic, MSPT



September 18, 2008

BLNCS-SE

RECEIVED

SEP 23 2008

MT DEPT. OF ENVIRONMENTAL QUALITY
PERMITTING & COMPLIANCE DIVISION

Gabor Benda, M.D.
David McLaughlin, M.D.
Dávid Hoffman, M.D.
Larry Sonnenberg, M.D.
Leonard Ramsey, M.D.
Heather Wheeler, M.D.
Christy Mitchell, M.D.
Steven Roberts, D.O.
Marsha Bolin, Administrator

Dept of Environmental Quality
1371 Rimtop Drive
Billings, MT 59105

SEP 26 2008

RECEIVED

SEP 24 2008

MT Dept. of Environmental Quality
Permitting & Compliance Division / Air Resources Management

To Whom It May Concern:

This constitutes public commentary on the draft environmental assessment for the expansion/extension of the Nuss gravel pit.

I am the medical provider for a patient with severe asthma. This patient lives quite close to the Nuss open gravel pit. Please consider establishing a near site air quality monitoring station. This particular area of Gallatin County has a rather high concentration of open gravel pit operations. We need to know the local air quality. Of course, if air quality in that particular locale does not meet standards, I would encourage mitigation now and in the future should the Nuss gravel pit expansion/extension project proceed.

Sincerely,

David Hoffman, MD

DH/sw

23 September 2008

RE: Comments on Nuss Pit Draft EA

TO: Jo Stephen/DEQ

FROM: Ron & Margaret Jarrett

Thank you for the opportunity to formally state our concerns. We are members of the Gateway Opencut Mining Action Group and fully support and are grateful for the representation and expert comments the group has submitted in response to the Nuss pit EA. The following points may seem trivial as stand-alone comments, but compiled and considered as a whole picture should help you imagine the tremendous impact that this ongoing gravel pit operation has had on our lives . . . not to mention the devastating impacts that await us should this extension/expansion be granted.

- Since our home is more than 1,000 feet from the Nuss pit operations, we have never received any notice of their intentions, yet we live on the main haul-route for what will continue to be upwards of 200 gravel truck trips a day. This is on a road that was deemed to have an average of 14 vehicle trips a day just a year ago! This is a narrow, winding road that has no shoulders, side-walks or bike paths. There are 24 school-age and younger children that live in the first 2.2 miles just south of Cottontail Road. **This is an accident waiting to happen.** An industrial, commercial complex such as the Nuss opencut mining operation does not belong in a residential/agricultural neighborhood! This operation is no longer an 11-acre site with a small pond or two and a few homesites . . . it is trying to grow to an unspeakable 87 acres! An industrial operation such as this does not belong in amongst our homes!
- We are vehemently opposed to the granting of this proposed expansion! We feel that the owners & operators of the Nuss operation should first honor all mandates of their previous permits, including full reclamation of the last 41.2 acres. No new permits for extensions or expansions should be granted until the former permitted activities have been fully rectified and reclaimed.
- Because the DEQ has obviously been understaffed and unable to monitor such “pit creep”, we hope that you will not continue to “rubber stamp” one application after another – **ESPECIALLY THIS ONE.** Gravel pit owners & operators should not be rewarded for side-stepping regulations, hoping to not get caught. Yet when they do, they actually get a permit to allow their infraction(s)! We refer here to a certain piece of dredging equipment “getting stuck” at 75 feet below the ground water surface when they were only permitted to a depth of 35 feet. Amazingly, shortly thereafter, they were granted yet another permit amendment allowing greater depth extraction.
- Please note that we are not opposed to gravel extraction, but we **are** opposed to *the scope and duration* of **this** proposed expansion. We have had enough and feel we have paid our dues by living in its shadow for twelve years. Another twelve years (at a minimum) of intolerable stress and unrelenting, negative impacts is unfair and totally unacceptable. Please respect **our** property rights and our rights as Montana citizens “to a clean and healthful environment”.

Thank you for your time and attention to these matters.

Ron Jarrett
Margaret Jarrett

P. O. Box 231
2633 Gateway South Road
Gallatin Gateway, MT 59730

Phone: 406-763-4305

Home e-mail: thunderkitten@earthlink.net
Work e-mail: jarrett@physics.montana.edu

MEIC Comments on TMC Inc., Application to amend the Nuss-Rock Gravel Pit open gravel operation near Gallatin Gateway
From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:49 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: MEIC Comments on TMC Inc., Application to amend the Nuss-Rock Gravel Pit open gravel operation near Gallatin Gateway

From: Anne Hedges [mailto:ahedges@meic.org]
Sent: Wednesday, September 24, 2008 2:47 PM
To: Stephen, Jo
Subject: MEIC Comments on TMC Inc., Application to amend the Nuss-Rock Gravel Pit open gravel operation near Gallatin Gateway

September 24, 2008

Department of Environmental Quality
Jo Stephen, Reclamation Specialist
Opencut Program, Billings Regional Office
Industrial Energy and Minerals Bureau
E-mail: jostephen@mt.gov

RE: TMC Inc., Application to amend the Nuss-Rock Gravel Pit open gravel operation near Gallatin Gateway

Dear Mr. Stephen:

The Montana Environmental Information Center submits these comments in regard to the DEQ environmental assessment prepared for the Threeway Mining Company Inc.'s Nuss-Rock open cut application. MEIC is concerned that many important environmental impacts have not been adequately analyzed. The comments submitted by the Gallatin Opencut Mining Action Group adequately summarize our overarching concerns about the potential environmental impacts of this proposal. In the interest of brevity we will not duplicate those comments. However we would like to raise some additional questions and concerns regarding air quality issues.

- There is no baseline data included for this site. Reliance on air monitors in Belgrade is insufficient given the fact that the area is very close to the 24-Hour limit for PM_{2.5}.
- DEQ's air compliance staff person for the Gallatin Valley is located in Missoula. This person is unable to frequently visit the Gallatin Valley, unable to respond quickly to complaints by conducting on-site inspections, and unable to visually monitor for compliance on a regular basis. It appears that DEQ does not intend to require any actual on-site monitoring. Instead DEQ will rely upon indirect methods of compliance and visual observation. It is difficult to enforce these types of restrictions when the compliance officer is over 200 miles away. Rapid response visual monitoring is crucial to verify compliance with air pollution requirements. DEQ will be unable to enforce the primary compliance mechanism. Therefore, on-site monitoring should be required.

- Assuring compliance on a regular basis is particularly important given the fact that PM2.5 is already at 86% of the 24-Hour limit. On any given day an excess of emissions by this operation could result in a violation of the standard. Without adequate monitoring at this site violations of the standard will be impossible to verify. Instead citizens in the area will be forced to suffer the consequences of violations of public health standards without having any mechanism to hold violators accountable and avoid public health violations in the future. Furthermore, violations of the standard could result in limits to future economic development at this facility specifically but also in the entire area. These limitations should be avoided and, at the very least, disclosed.

- The mere mention of other pits in the area is insufficient to account for the cumulative impact they may have on air quality in the area. The Belgrade monitoring site shows the area is already approaching the 24-hour limit for PM2.5. This means that additional measures should be taken to protect the standard. An increase in demand for construction materials in the Valley could increase production at all pits in the area, active and inactive. DEQ must analyze the worst case scenario to determine if violations of the 24-hour standard could occur.

- Gallatin County is one of the fastest growing counties in Montana. The U.S. Census estimates a 19.3% population increase in Gallatin County between 2000 and 2006. The statewide average is 4.7%. Population growth is nearly always accompanied by increased air pollution. This population increase is reasonably foreseeable. How is DEQ accounting for the impacts population increases will have on air quality in the Gallatin Valley?

- Climate change is predicted to make summers in Montana hotter and drier. Recent years have seen increased fire activities in the region during these months. The attached study shows that increased particulate pollution due to forest fires can have a negative impact on public health. DEQ should make clear in permitting these operations that it will require polluting activities to cease operations during periods of intense particulate pollution caused by regional forest fires.

- Summer months also see a dramatic increase in construction activities in the Gallatin Valley. This could increase gravel mine operations and their related air impacts. The combination of climate change, population growth, forest fires and construction activities could have a dramatic cumulative impact on air quality. DEQ should not only make mention of these factors, DEQ should put numbers into a model to demonstrate that this operation will not result in a violation of the 24-hour PM2.5 standard.

- Winter inversions in the Gallatin Valley have been analyzed and described by Montana State University Professor Dr. Joseph Shaw. There is no mention of how frequent and intense winter inversions in the Gallatin Valley could effect short term ambient air quality. The air impacts from this operation during winter months should be specifically addressed.

- DEQ must analyze how the burning of tires and Asarco slag at the Holcim Cement Plant could impact air quality in the Valley. Holcim's burning of these additional wastes is reasonably foreseeable and will impact air quality. During winter inversions this impact will be magnified. When combined with increased gravel pit operations DEQ must ensure protection of 24-hour limit for PM2.5.

It is critical that DEQ institute appropriate preventative measure and require sufficient monitoring at the site to protect the 24-hour PM2.5 standard. Relying

on DEQ's compliance officer to determine and enforce against violations of the standard is not realistic or protective of public health or the standard. The compliance officer is 3 hours away and services a very large territory. These facts makes preventative measure essential. DEQ has spelled out very few preventative measures. In addition DEQ has given very little data proving that the 24-hour PM2.5 standard will not be violated.

Sincerely,
Anne Hedges

Anne Hedges
Program Director
Montana Environmental Information Center
P.O. Box 1184
Helena, MT 59624
(406) 443-2520
fax: (406) 443-2507
ahedges@meic.org
<http://www.meic.org>

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From: CKLR <roark@imt.net>
Date: Wed, 10 Sep 2008 17:31:05 -0600
To: Anne Hedges <ahedges@meic.org>
Subject: Re: air quality and gravel pits

thank you thank you thank you thank you...
(sorry, I know you are already super overloaded!)

carol

----- Original Message -----

From: Anne Hedges <<mailto:ahedges@meic.org>>
To: Gateway Opencut Mining Action Group <<mailto:roark@imt.net>>
Sent: Wednesday, September 10, 2008 5:06 PM
Subject: Re: air quality and gravel pits

Carol,
No one comes to mind immediately. I'm going to look at my file on DEQ notifying (repeatedly) flathead county over its road dust issues. There might be something useful in there that was generated by DEQ itself. I'll get back to you tomorrow. Ugh! I'll also ask around.

Anne

Anne Hedges
Program Director
Montana Environmental Information Center
P.O. Box 1184
Helena, MT 59624
(406) 443-2520
fax: (406) 443-2507
ahedges@meic.org
<http://www.meic.org>

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From: CKLR <roark@imt.net>
Date: Wed, 10 Sep 2008 14:29:25 -0600
To: Anne Hedges <ahedges@meic.org>
Subject: air quality and gravel pits

hi Anne:

Friggin' DEQ -- we finally have the draft EA and now have a Very Short Timeline to get our act together:
public meeting 9/18 at Gateway Community Center
public comments on Draft EA submitted to DEQ by close of business 9/24

a) can you create a letter / some noise about air things for us?

b) can you recommend an expert with many letters behind their name who could use big words and say that dust isn't good for us? (I'm pursuing the dusty road guys from Missoula as well)

At this point our best strategy is likely to make as many comments as possible so that the DEQ may do additional science (unlikely, and likely to be poorly done even if we do convince them it needs to be done) and then have tons of expertise to take with us into the CUP process for maximum mitigation.

Call me to discuss, if you wish, or email, whatever.

thanks!

Carol

Carol Lee-Roark, Ph.D.

Hyalite Environmental, LLP
P.O. Box #90
Gallatin Gateway, MT 59730

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:55 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: Nuss Pit

-----Original Message-----

From: jmaminter@zianet.com [mailto:jmaminter@zianet.com]
Sent: Tuesday, September 23, 2008 3:25 PM
To: Stephen, Jo; Sutliff, Debra
Subject: Nuss Pit

I would like to urge the DEQ to consider very seriously the GOMAG comments on the draft documents concerning the Nuss Pit on Cottontail Road in Gallatin Gateway. Thank you very much.

Jenny Minter
2385 Cottontail Road
Gallatin Gateway, MT 59730

Rich Morse
12821 Axtell Gateway Road
Bozeman, MT 59718

Montana Department of Environmental Quality
1520 E. Sixth Ave
Helena, MT 59620-0901

RE: TMC Inc. /Nuss Gravel pit draft EA comments.

September 22, 2008

DEQ, Open Cut Mining Division,

Thank you for the opportunity to comment on the TMC/Nuss draft EA. I am providing comment as an individual and as an environmental consultant. It is our position that the TMC/Nuss permit for expansion and extension should not be granted. Based on the information in the Nuss draft EA, the pit operation presently diverts approximately 96 acre-feet per year and consumes between 30 acre-feet per year (draft EA) and 34 acre-feet per year (AMEC Geomatrix estimate). This use is presently un-permitted and should cease. **The TMC/Nuss expansion permit should be denied until proper water rights have been obtained.**

The consumptive use of between thirty acre feet per year and fifty four acre feet per year, and the actual drawdown of ground water from pre-mining conditions of seventeen feet, combined with the operation's discharge of more than two million gallons per day into Fish Creek constitutes significant water use and water diversion. Credible hydraulic modeling has possibly been done for the additional drawdown of the water table at the pit for the expansion permit, however a credible hydrogeologic study has not been done to establish the influence such significant water use has on the Gallatin River. Credible sources (AMEC Geomatrix of Missoula, a national hydrogeologic consulting firm) reviewed the hydrologic study sited in the Nuss EA (Nicklin). It was their position that without seeing the input data associated with the model they could not assess if the river impacts had been addressed. It was their opinion that a Stream Depletion Analysis would be required to fully understand the relationship between the significant water use at the Nuss/TMC pit and the Gallatin River. It was also their opinion that the water use at the Nuss pit is un-permitted.

Associated with obtaining the appropriate commercial water rights required for the TMC/Nuss pit operation should be a thorough examination of the potential impacts of the consumptive use at the pit on the Gallatin River and subsequent effects of that impact. Until this has been done DEQ should not allow an expansion permit to be issued.

In addition the permit should not be issued until the appropriate cumulative and secondary impact analyses have been done for ground water, air, traffic and the human environment.

Once these items have been obtained and performed, and should DEQ decide to permit the operation we request the following conditions be attached to the permit.

Conditions for approval:

-Provide proof of water ownership for full consumptive use as a water right for commercial/industrial purposes.

-DEQ recognize the existence of the county CUP process and local planning authorities

-Permit should require dust mitigation measures to include higher vegetated and irrigated berms, less un-vegetated acreage and active monitoring.

-Permit should require noise mitigation measures to include higher vegetated and irrigated berms w/ trees, restrictions on hours of operation and restrictions of crushing to twelve days per month.

-Permit should recognize property value impacts and mitigate the potential by restricting the duration of the permit to five years with no option for further extension and full reclamation required at that time.

Attached are AMEC Geomatrix comments on the draft EA supplied by Adam Perine Project Hydrogeologist and Campbell Stringer Senior Hydrogeologist.

Thank you for the opportunity to comment on your application materials.

Sincerely,

Rich Morse

SEP 24 2008

September 23, 2008

**COMMENTS CONCERNING THE ADEQUACY OF THE DRAFT ENVIRONMENTAL
ASSESSMENT: PROPOSED AMENDMENT TO THE NUSS GRAVEL PIT**

To whom it may concern:

I have chosen to address my comments on the Draft EA on the Nuss gravel pit on a page by page, paragraph by paragraph basis. This worked well for me except when issues were discussed in more than one location. You will find some redundancy on certain issues, but in most cases that redundancy indicates that the issue discussed is of more relative importance.

We live and own the property adjacent to the Nuss pit to the north and west. I have been affected by their operation since the day my family purchased our 50+ acres in 1999. We have literally not said a word about the operation until we were notified about their proposed expansion and extension. Until that time we believed what the Nuss' told us in 2004, that they would have the site reclaimed by 2010 and anticipated the finished product to be a lake with a residential development around its shore. We now find this to be a gross misrepresentation on their part. Your system of allowing expansions and or, extensions of gravel pit operations, promulgates this misrepresentation! Your department must address the Cumulative Impacts of gravel pits on the surrounding communities!

PAGE 1

Paragraph 1-Opening comments: DEQ can make mitigation requirements where there are no specific standards or authority. Err on the side of protecting the environment from adverse impacts, THAT'S YOUR JOB!

Paragraph 2- They did not use the best available information. They did not come to the pit and take actual crusher sound readings.

Paragraph 3- Bond levels are unreasonably low. There is no way the area to be reclaimed can be graded and reseeded for the bond amount. Superfund sites are the extreme example of the lack of realistic bonding. Also, the applicant must obtain all other permits before beginning operation. They have not done so in the past, i.e. water discharge permit from the DNRC. Now, they must go through the Gallatin Co. CUP process.

PAGE 2

Paragraphs 1&2- There are no topo maps, and the aerial photos are over 2 years old. They do not show my sister's house north of the existing operation. There must be maps included in the EA that show only the proposed amendment actions; with the required scale, north arrow, and the proposed topography for both above and below water level.

The proposed depth of 87 feet is unacceptable. The original depth was permitted to 25 feet. The operator violated that depth, and somehow, without any kind of fine or penalty has been allowed to continue mining at a depth greater than the permitted depth. Now, they are requesting a depth of 87 feet, this depth is too great for the overall scale of this pit.

Paragraph 4-History: There has been zero reclamation. At least 13.65 acres should have been reclaimed as early as 2001. The ponds in Fig. 2 do not match the aerial views. The aerial photos are over 2 years old. This gives a distorted view of the existing site.

Paragraph 5- There should be a more comprehensive explanation of the depth of mine/dewatering

history. It is full of depth violations, and 'seat of the pants' dewatering strategies. It should include that permits, particularly the permit to release groundwater into Fish Creek were obtained after the operator had been doing so for years. I would like to note, lest the Department has forgotten; as per ARM 17.24.225, the Dept. may issue an order of abatement of a violation, not amend a permit for an operator so that they can continue with a 'legalized' violation.

PAGE 3

Paragraph 2-Description: The berms proposed for the perimeter of the site are 6-feet. This height does nothing to reduce the visual or noise impacts. If I were doing this project, I would have 15-20 foot high berms. These would go a long way toward reducing complaints from surrounding land owners. The topsoil and overburden must be stockpiled on the site, not sold and somehow replaced at a future date.

Paragraph 3- Water for operations cannot come from groundwater. The 600-foot long ditch/settling pit configuration needs to be altered. The ditch and pit run next to the outlet ditch and provide a significant risk to Fish Creek water quality. (I cannot document this statement, but my wife and I observed silt-laden water from the current silt pit, flowing into Fish Creek. This was done surreptitiously via another ditch through our property, in the spring of 2007. We did not know the implications at the time.)

Paragraph 4- Normal operating hours need to be reduced to no more than 7:30am-5pm Monday through Friday. Maintenance only on Saturday, hours 9am-5pm. These hours will be less of a disruption to the lives of surrounding residents.

Paragraph 6-Phase I: This work has already been completed, except for maybe the existing siltation pit area. If you look from Cottontail Road, there is a shear drop at the western edge of the existing permit area. (How was this going to be reclaimed, had they not gotten the proposed expansion?) Again, aerial photos and the maps do not accurately represent the existing conditions. I would request new photos or a separate 'Existing Topography' map. Groundwater levels used for baseline information should be from pre-mine levels, not levels measured in 2008. The pre-mine levels were approximately 3-feet higher, and demonstrate a more significant impact.

PAGE 4

Paragraph 1-Phase II: Now the depth is 89-feet, on page 2, it's 87-feet. Both depths are too deep. This whole description makes no sense. A 3 acre 89-foot deep pond? Impossible! Or is it an 89-foot deep sedimentation pond? Regardless the sedimentation facility is too close to the Monforton ditch (outlet ditch).

Paragraph 2-Phase III: 89-feet is 9 stories down and 75-feet below the existing(altered) groundwater level. We do not know the full repercussions of delving that deep in the groundwater basin. The groundwater belongs to all of us. It flows through this site, it does not just sit there static in the hole. You must err on the side of protecting our resources when you act on a request such as this. It's your job!

Paragraph 3-Continuing: It's my understanding that the hours shown for Saturday are not a continuation, but a request for additional hours.

Paragraph 6-Traffic: If I use the 4.4 million cubic yards of material denoted in paragraph 4, and use an average load of 20 cubic yards of material per truck, I calculate 220,000 loaded trips, total. Over a ten year period, that's 22,000 trips per year. They state 10,000 loaded trips annually. That's quite a discrepancy! Additionally, that's only one-half the trips, when the unloaded trips are added in. Our roads cannot take that kind of abuse, as evidenced by on-going repairs on Mill Street through Gallatin Gateway. More importantly, it is well documented that it is a very rare truck, whether full or empty, that adheres to the 15mph speed limit in front of the Gallatin

Gateway School. I substitute teach at that school, and travel that road often, THEY DO NOT SLOW DOWN TO THE POSTED SPEED LIMIT OF 15MPH! There is no discussion of additional traffic impacts generated by the inclusion of a cement plant and asphalt plant at this site. Paragraph 7-Hazardous Waste: The only discussion of the impacts resulting from the addition of a cement or asphalt plant on the site occurs here, and is insufficient. Bringing large quantities of raw materials onto the site to mix concrete and particularly, the hydrocarbons(tar) necessary for asphalt needs to be thoroughly addressed. The environmental cost versus community benefit, need to be discussed. A major concern is the proximity of open surface and groundwater. There are sites which are conducive to the placement of cement and asphalt plants, this site is not one of them.

PAGE 5

Paragraph 1-Reclamation: The reclamation section is totally inadequate. Please review ARM 17.24.219 for requirements. There must be a specific map that shows the reclamation design with proposed topography. The slopes in and around the perimeter of the proposed ponds must be delineated on the map. If, as required for grassland, the maximum slope must be 5:1 or less and there is 14-feet of freeboard from the groundwater surface to the original ground level, there must be 70 horizontal feet available to accomplish this slope. If you look at Figure 3, there is not sufficient space around the pond to allow that slope. Particularly, with respect to the area adjacent to the outlet ditch. What is the subsurface topography of the proposed ponds? Is the depth at the water's edge proposed to be 89-feet? Or, does it slope down, and at what slope? Purely for safety reasons this needs to be shown. Assuming a 3:1 slope on the pond bottom and the approximate pond width of 550-feet, the depth could reach 89-feet only at the very middle. Conclusion, the proponents need to supply a reclamation plan map that is done by a professional civil engineer. As in the case of the 'Proposed Action' map, this map must include a scale, a north arrow, the proposed topography, and all the other elements required in ARM 17.24.221.

CONCLUSIONS

Although this Draft Environmental Assessment is, far and away, more complete than any other EA to come out of the DEQ Opencut Mining Program, it is none the less, inadequate. Please see that the issues raised in this document are addressed in the Final Environmental Assessment.

Thank you,

Brad Parsch
1685 Cottontail Rd.
P. O. Box 273
Gallatin Gateway, MT 59730

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:55 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: comment on the Nuss pit EA

-----Original Message-----

From: Susan Rabatin [mailto:azul1@ix.netcom.com]
Sent: Tuesday, September 23, 2008 5:17 PM
To: Stephen, Jo
Subject: comment on the Nuss pit EA

Jo,

I am opposed to the proposed extension of the Nuss Rock pit for the following reasons. First, the Nuss pit is currently mining below the groundwater and is operating in a manner that is deleterious the water level. This drawdown affects agricultural usage on adjoining property. Moreover, the pit has been using water from Fish Creek to wash gravel without the proper permits to do so. No extension should be granted until water usage issues are properly and legally addressed by the owner/operator and DEQ.

Second, the routes both N and S from the pit for transporting gravel disrupt the town of Gallatin Gateway as well as the neighborhoods on Jackrabbit Lane and Gateway S. Road. Several hundred trucks/day disrupts residential areas and negatively affects property values and the quality of life for residents. Gravel trucks through a school zone should be absolutely prohibited. Period.

Third, The hours of operation, noise and dust levels proposed under the extension are excessive and indeed of a duration and intensity level that is intolerable for neighbors. There is currently no dust mitigation at this pit, and it is situated where wind storms are an almost daily occurrence. The dust levels under this extension will constitute a health hazard to neighbors.

Finally I ask that you seriously consider the GOMAG comments on the draft EAS for the Nuss and Morgan pits.

Sincerely,

Susan Rabatin
16810 Bear Crossing Road
Gallatin Gateway MT 59730



MINING & CONSTRUCTION

To: Jo Stephen, DEQ Opencut Mining
From: Jerry Rice, TMC, Inc.
Date: 9-11-08
Re: Draft EA for Nuss amendment

Pg. 1, pp.4 *"Location: the Nuss-Rock Pit includes the NE ¼ of Section 9 and the NW ¼ of Section 10"* The property is not the entire NE ¼ or NW ¼, but part of each.

Pg.3, pp. 6 *"This soil is required for recalamtioin; the berms would not be removed during reclamation."* This sentence is confusing. Do you mean to say that there is excess soil and that the 6-foot high berm would not be utilized for reclamation?

Pg. 12, pp.2 What is the specific purpose of monitoring water temperatures in the surface water and groundwater? Also what is the specific purpose of monitoring groundwater elevation twice a month rather than once a month during the summer? Hasn't monitoring for almost four years established an adequate baseline for groundwater? We would like the permit to be issued with the requirement of groundwater monitoring once a month.

Pg.14, pp.8 *"The application also states that magnesium chloride would be used on the access road."* I do not find this statement in the application materials or in any of the Plans dating back to 1996.

Pg. 21, pp.2 *"Since the existing pit is operational but the crusher was not on site during the measurements, the L_{dn} due to the crusher was calculated."* No methodology was given to support calculations for interrupted line-of-sight and resultant noise levels. Did the analyst stand behind a berm at one of the active pits? How wide or how high was the berm? And was the berm uphill, downhill or on the same level as the crusher? The "estimated" 6 dBA reduction in noise level because of an earthen berm seems too low.

Pg. 24, pp. 2 *"The gravel stockpiles should be maintained at a height such that they do not obstruct or conflict with views of the hills and surrounding mountains."* At certain points in the operation of this pit, mineral stockpiles will need to be located at valley level. Also the Good Neighbor provisions discussed at the County level were never officially adopted by the Commission. (They were also drawn up with no input from the industry.) Gary Hegreberg of the Montana Contractors' Association proposed a different set of Good Neighbor provisions. To my knowledge neither of these documents has been adopted although there has been considerable discussion of the need for some guidelines. Perhaps the best mitigation at the Nuss Pit is to require location of mineral stockpiles below valley level as much as possible.

Pg. 27, pp.4 *"Restrict truck traffic through Gallatin Gateway during school hours (8 a.m. to 4 p.m.)."* Trucks have a legal right to the use of public roads.

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:56 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: Comments on Nuss Pit Draft EA

From: CKLR [mailto:roark@imt.net]
Sent: Tuesday, September 23, 2008 1:24 PM
To: Stephen, Jo
Subject: Comments on Nuss Pit Draft EA

RE: Comments on Nuss Pit Draft EA

TO: DEQ, Jo Stephen

FROM: Tim Roark and Carol Lee-Roark

We heartily congratulate and thank DEQ Opencut Mining Division for the Draft EA of the Nuss Pit. It is the most comprehensive MEPA environmental analysis that we have seen to date from the Opencut Mining Division. Since the MEPA process is the mechanism by which two important constitutional rights are implemented - the right to public participation and the right of Montana citizens to a clean and healthful environment - it is incredibly important to us.

There are three issues that we would like to bring up separate of the comments on the Draft EA that have been compiled by the Gateway Opencut Mining Action Group, because they are extremely important to us personally, more than perhaps the community at large.

1. The Nuss Pit has progressed to the scale it is today without ever being required to do the environmental analysis that should have been required before it took actions and made un-permitted changes to its operations. The largest, most blatant of these is the post-1998-permit change to the de-watering the pit without any hydrogeological environmental analysis of the impacts to surrounding groundwater, sub-irrigated fields or the Gallatin River. This environmental analysis should have been performed before the actions were taken, and must be performed in order to consider issuing a permit for the currently proposed amendment.

2. The Nuss operations have not been required to incorporate dust mitigation sufficient to be protective of sensitive receptors. It is well-documented that dust exacerbates respiratory conditions. Carol has asthma, and is exposed to the fugitive dust from the Nuss Pit. Because Carol has a home office, she is exposed to this dust for 24 hours a day, 7 days a week, 365 days per year. This is not a complaint about the nuisance of fugitive dust - it is a real and serious concern about an adverse health impact.

3. The overall process / progression of the mine plan at the Nuss Pit should not be permitted. The operations are proposing to proceed outward to the peripheral two 20-acre parcels of the Nuss land from the central, previously permitted, mined-out 40-acre parcel. The proposed sequence of mining provides the longest possible duration, greatest level of impacts upon our home, and we intensely regret the apparent lack of foresight, planning or input from the DEQ to avoid this. We would sincerely like to see the mined-out areas reclaimed as quickly as possible to minimize the impact of the operations on the surrounding neighborhood. In this case, it could be accomplished by reclamation of the central 40 acres and construction of a road through that parcel, connecting the two twenty-acre parcels to each other and the current access to Cottontail Road.

The Nuss Pit history has been an egregious example of continual growth without concurrent or "rolling" reclamation. As we have stated repeatedly, we were willing to tolerate this horrific disruption to our lives for "our share" of the time - i.e., until 2010. Extension of the time that the 40-acre moonscape, source of noise and dust 250 feet from our home and business office will continue to exist, and tolerance of the decline in the ground water table that has dropped ground water below viable depths for subirrigation for an additional decade is unreasonable and unacceptable.

Thank you,

Carol Lee-Roark

Tim Roark

P.O. Box #90
Gallatin Gateway, MT 59730

main: (406)-763-4228
cell: (406)600-9450

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:54 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: Nuss Pit

From: john ross [mailto:jross@imt.net]
Sent: Tuesday, September 23, 2008 9:55 PM
To: Stephen, Jo
Subject: Nuss Pit

Making that pit bigger and deeper is wrong, that was and still is a swamp over there. Just use some common sense for Christ sake. What are you taking kick backs Garth Sime? Lady I watch you buddy up to the gravel side you should exclude your self from any decisions made about Pits in this valley

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:57 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: NUSS PIT AND MORGAN PIT EA COMMENTS

From: DDshockley@aol.com [mailto:DDshockley@aol.com]
Sent: Tuesday, September 23, 2008 10:53 AM
To: Stephen, Jo; Sutliff, Debra
Cc: roark@imt.net
Subject: NUSS PIT AND MORGAN PIT EA COMMENTS

The comments received from GOMAG are representative of those of a very large group of Gallatin Valley residents who are concerned about the certain adverse impacts of mining those pits under the lax oversight and minimal constraints, heretofore seen with such operations.

Please perform due diligence with respect to concerns of the residents of the State of Montana, who are your employer collectively. The flag has been raised and DEQ now carries the onus to respect the State Constitution and somehow reconcile lax Montana Opencut Mining law and rules with clear provisions of the Constitution and with an overwhelming voice of the people.

Gravel mining is essential to the economy and to practical and necessary aspects of construction, but can be accomplished in a much less adverse way. Please employ your professional experience, expertise, and creativity in developing solutions to resolve the issues.

service to Montana. Thank-you for your
Dick Shockley

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From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:45 PM
To: 'Wendy Roberts'
Subject: FW: Re TMC Application for Morgan Family or Nuss Opencut Mine Permit

From: Patti Steinmuller [mailto:psteinmul@msn.com]
Sent: Wednesday, September 24, 2008 7:08 PM
To: Stephen, Jo
Cc: 'Patti Steinmuller'
Subject: Re TMC Application for Morgan Family or Nuss Opencut Mine Permit

RE: TMIC Applications: Morgan Family and Nuss Opencut Mine Permit

September 24, 2008

Jo Stephen;

I am a resident in Gallatin Gateway and live within several miles of the Nuss Pit and the Morgan Family site, I view see and hear the Nuss Pit operation from my home. I am a member of GOMAG and support the GPMAG position below. I think the DEQ has failed in its duty to protect environmental quality for property owners and other residents in the Gallatin Gateway area. For the reasons cited below I urge you to reject the application for extension of the Nuss Pit. Because of the noise, pollution, and potential hydrological impacts, I also urge you to reject the application for the Morgan Family site. The potential economic losses to property owners have not been assessed in either of these situations and this issue also needs to be considered before citing a mining operation within a residential community.

It is the position of GOMAG that there are several critical analyses missing from the Draft EA and that until these are completed this permit should not be issued. Those that are of primary concern are:

1. No analysis of hydrogeological impacts of the current operations to the groundwater and subirrigated fields or the Gallatin River, and inadequate analysis of the hydrogeological impacts of the proposed operations to the Gallatin River.

2. Inadequate analysis of cumulative and secondary impacts, particularly those for ground water / surface water interactions, air quality impacts and impacts to the human environment (traffic, social mores, community/economic development, and property values.)

The Nuss Pit has been an egregious example of "permit creep", somehow growing from a 13-acre, 3-year pit with no de-watering, to a potential 87-acre, 22-year pit with a surface water discharge for which the basic analysis of impacts to pre-mining conditions has still never been done. Until the pre-mining hydrogeologic analysis is done, it is not clear that the Nuss Pit is in compliance with the water rights laws of Montana. Based upon the record of un-permitted actions at the Nuss Pit and the current disarray of DEQ Opencut Mining, it is imperative that no permit be issued. Only after the missing MEPA analyses have been completed to thoroughly identify potential impacts can appropriate mitigations of those impacts be identified as conditions to the permit. Without those analyses and mitigations, a permit for the Nuss Pit expansion / extension should not be issued.

Sincerely,

Patti Steinmuller

14665 Spanish Breaks Trail

Gallatin Gateway, MT 59730

P: 406.763.4145

F: 406.763.4155

E; psteinmul@msn.com

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:52 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: Nuss Pit

From: Cindy Taylor [mailto:cindy@ipgconsulting.com]
Sent: Wednesday, September 24, 2008 8:49 AM
To: Stephen, Jo
Subject: Nuss Pit

I support GOMAG and urge you to give careful consideration to their comments and positions.

Cynthia Ann Taylor
The Improved Performance Group
PO Box 41
Gallatin Gateway, MT 59730

www.ipgconsulting.com

office: (406) 763-5352

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:47 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: Nuss Pit Expansion and Morgan Pit Permit Applications

-----Original Message-----

From: willem volkersz [mailto:volkersz@mcn.net]
Sent: Wednesday, September 24, 2008 3:52 PM
To: Stephen, Jo
Subject: Nuss Pit Expansion and Morgan Pit Permit Applications

Ms. Stephen:

I was unable to attend the meeting at the Gateway Community Center, but I would like to make a few comments on the applications. I live in the Gateway area, and I served on a committee that made recommendations for the 10-year update of the Greater Bozeman Area Transportation Plan. All of our recommendations have been accepted into the first draft of the plan.

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These are not abstract concerns that I have: the adult children of two of my friends have died on Highway 191, one near Mill Street and the other at Four Corners. I implore you to study this issue carefully before issuing these two permits.

Sincerely,

Diane Volkersz

9-24-08

RECEIVED

SEP 24 2008

DEQ BILLINGS

Cover sheet

DEQ

From: Carol Weidenaar - E-mail cswgrandma@
4670 Amsterdam Rd
Manhattan, Mt. 59741
AOL.com

Regarding: Morgan Family

&

Nuss

Openeut Mine Permit

RECEIVED

SEP 24 2008

TO SUBMIT PUBLIC COMMENTS

**TMC Application for Morgan Family or Nuss Opencut Mine Permit,
Gallatin County, Montana
Comment Closure Date September 24, 2008**

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The DEQ will accept written comments on this proposal postmarked by September 24, 2008. Please mail your comments to DEQ Industrial and Energy Minerals Bureau, 1371 Rintop Drive, Billings, MT 59105 or fax to (406) 247-4440, or e-mail to JoStephen@mt.gov. For additional information please contact Jo Stephen at (406) 247-4435.

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Name: Carol Weidenaar

Address: 4670 Amsterdam Rd Manhattan, MT. 59741

E-mail: CWGrandma@HOL.com

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DEQ 11/11/05

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Those who oppose gravel pits continue to use
every petty concern to the extreme. Please ^{use} your
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From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:52 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: Nuss Pit

From: Cindy Taylor [mailto:cindy@ipgconsulting.com]
Sent: Wednesday, September 24, 2008 8:49 AM
To: Stephen, Jo
Subject: Nuss Pit

I support GOMAG and urge you to give careful consideration to their comments and positions.

Cynthia Ann Taylor
The Improved Performance Group
PO Box 41
Gallatin Gateway, MT 59730

www.ipgconsulting.com

office: (406) 763-5352

From: Stephen, Jo [jostephen@mt.gov]
Sent: Friday, September 26, 2008 1:47 PM
To: 'Wendy Roberts'; Jerry Rice
Subject: FW: Nuss Pit Expansion and Morgan Pit Permit Applications

-----Original Message-----

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Sent: Wednesday, September 24, 2008 3:52 PM
To: Stephen, Jo
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APPENDIX C: Comments at the Public Hearing on the Draft EA

NUSS-ROCK GRAVEL PIT
DRAFT ENVIRONMENTAL ASSESSMENT

TRANSCRIPT OF THE PUBLIC HEARING

Gallatin Gateway Community Center
145 Mill Street
Gallatin Gateway, Montana

September 18, 2008
8:00 p.m.

REPORTED BY: CHERYL ROMSA
CHERYL ROMSA COURT REPORTING
P. O. BOX 1278
HELENA, MONTANA 59624
(406) 449-6380

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4. Margaret Jarrett.....	13
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6. Lee Derham.....	18
7. Pete Stein.....	21

1 WHEREUPON, the following proceedings were had:

2 (The meeting was opened at 8:00 p.m. and
3 introductions were made by Jane Amdahl. Ms. Amdahl
4 explained the agenda, the purpose of the hearing, and
5 governing laws. Jo Stephen explained the permitting
6 process and gave details of the permit for the gravel
7 pit.)

8 HEARING OFFICER AMDAHL: Okay, the process for
9 presenting public comments, we are going to follow the
10 same process we did with the earlier public hearing
11 tonight. Many of you were here for that, some of you
12 weren't, so I'll explain it again.

13 I'll be putting this microphone up here (indicating).
14 We will ask people -- We were originally planning on
15 asking people to line up. I know a lot of people would
16 rather sit down until it's their turn, so I'll just ask
17 that if you raise your hand, if we have 12 hands in the
18 air, I'll say, Okay, come and get in a line. But anyway,
19 we'll just take people in order.

20 We'll start off with everybody being allotted no more
21 than three minutes at one time for a comment. If you have
22 too many comments to finish up within the three-minute
23 period, please either take your seat or go to the end of
24 the line if people are lining up, and when everybody who
25 wants to make a comment has had their three minutes, you

1 can go again. If nobody else wants to make comments, you
2 can talk until 10. We have to leave by 10 at the latest.
3 But we are going to limit it at least in the beginning to
4 three minutes per person.

5 This lady here (indicating), whose name is
6 Cheryl Romsa, is a court reporter, and as you can see,
7 she's taking down everything I'm saying. That's the point
8 of the public comment. She will be taking down, word for
9 word, whatever you say with your comments, and that will
10 be the official record of your comment, and we will be
11 responding based on that written record. I'm going to ask
12 that you please state your name at the beginning of your
13 comment and spell it so that she can get it down
14 correctly. We do have a sheet there for people to sign
15 up. We would ask that you print your name so that if for
16 some reason it doesn't come out, she doesn't understand
17 what you're saying when you're spelling it, she can have a
18 written copy, as well, of a list of the people who gave
19 comments.

20 We will not be responding to comments tonight. The
21 response to the comments will be in writing at the time
22 the final EA is released. There will be answers,
23 responses to all of the comments presented at that time.
24 And if you give us your name and address on the signup
25 sheet in the back, we will send you a copy of the final EA

1 with the responses to all of the comments. So do keep
2 that in mind.

3 Now, does anybody have any questions about the process
4 here tonight?

5 MS. STEPHEN: I guess I would just add that just
6 because you speak up here doesn't mean it precludes you
7 from writing anything. E-mails are worth every bit as
8 much as snail mail is. We don't need a written signature
9 on anything. So however you get them to us, get them to
10 us, and we'll be glad to look at them.

11 HEARING OFFICER AMDAHL: And I should have said
12 that. So if you think of something tonight after you've
13 left, tomorrow, whatever, just send it to us in writing.

14 Okay, do we have anybody who would like to give a
15 comment on this particular EA? Who wants to be first?

16 (No response.)

17 HEARING OFFICER AMDAHL: I don't want to be like
18 an auctioneer and say, okay, going once, going twice,
19 we're out of here. We do have to have people talk. If
20 nobody chooses to give any comments whatsoever, that's
21 fine. There's no requirement to give oral comments
22 tonight, but if nobody is going to give them, I will
23 declare the meeting closed.

24 Here we go.

25 MR. PARSCH: My name is Brad Parsch, and I live

1 in Gallatin Gateway. It's B-R-A-D, P-A-R-S-C-H. I live
2 adjacent to the Nuss Pit.

3 Most of the things I want to say are just basically
4 mitigations that I'd like to see. It's almost a wish
5 list. And I hope that, you know, it will have some impact
6 on the EA, but I also hope that it has -- that you guys
7 can take it to heart and maybe see it from my viewpoint.

8 I'd like to see you stay out of the ground water. I
9 know you've gotten into it at this point. We don't know
10 what happens when you muck around in the ground water, and
11 I think it's -- it's all of our ground water, it belongs
12 to everybody here, and by mucking around in it, I think
13 we're asking for problems.

14 I'm a little concerned with the baseline information.
15 The original permit, from my understanding, and maybe I'm
16 wrong, that the depth was to be 35 feet, of the pit. Then
17 my understanding was there was a violation of that depth,
18 they got a dragline stuck, and they got an amendment to
19 the permit -- and I'm asking you, Jo -- to go down to a
20 greater depth?

21 MS. STEPHEN: We're not responding to comments.

22 MR. PARSCH: I'm sorry, I apologize.

23 MS. STEPHEN: That's fine. We'll try to explain
24 that better. Define the comment and we'll try to explain
25 it better in the EA.

1 MR. PARSCH: Okay, this is my understanding. Now
2 they're asking I think 89 feet. That's nine stories down.
3 It was 35 feet, now it's gotten to 79 feet -- or 75 feet
4 because of a violation. Now, I've been in business; if I
5 have a violation for doing something, I don't get an
6 amendment to my permit to do something else.

7 I think the concrete and batch plant, asphalt plant
8 are not part of a gravel pit. They should be addressed in
9 a separate document of some sort.

10 I think you could go a long ways, and I might be
11 considered a traitor for saying this, to get rid a lot of
12 the concerns of people if you had taller permanent berms
13 and shorter stockpiles. The berms would cut down on the
14 noise; the stockpiles would cut down on the dust. And
15 maybe shorten your hours of operation to 7:30 to 5.
16 People work during those hours, they aren't there to
17 listen. And if you could reclaim and have it all done by
18 2013.

19 All those mitigations, I think, would really help.
20 Again, that's my wish list. I think that's about it.

21 Thank you.

22 HEARING OFFICER AMDAHL: Thank you for your
23 comment.

24 Do we have anybody else who like to make an oral
25 comment tonight?

1 (No response.)

2 HEARING OFFICER AMDAHL: I can see a number of
3 people who look like they want to, they're just not sure
4 they want to be No. 2.

5 MS. LEE-ROARK: I'll be No. 2. My name is
6 Carol Lee-Roark.

7 Once again, I'd like to congratulate the DEQ that we
8 got a relatively reasonable environmental assessment.
9 It's very important to the neighbors that the
10 environmental assessment requirements be taken seriously,
11 and this is -- like I said, these EAs are one of the best
12 things we've ever seen come out, so we appreciate that.

13 In the meantime, there are, of course, some holes that
14 we would like to see addressed. I'll have some
15 extensive -- the GOMAG organization will have some
16 extensive technical comments that we'll send in that will
17 be written, but there's also some things that I would like
18 to state here. And that would be that similar to the
19 Morgan Pit, there are some huge holes in the current
20 system and the EA does nothing to address them as impacts
21 to the human environment.

22 Those are things like the schedule not being set in
23 stone, there not being any monitoring. Again, as with the
24 Morgan Pit, I would repeat all three of those comments.
25 It would be wonderful to have a schedule that was

1 considered to be hard and fast and monitoring that would
2 actually show -- you know, we aren't even talking
3 enforcement, but without monitoring we don't know what's
4 going on. And if there was some monitoring, such as a web
5 cam, something like that, and particularly for dust and
6 noise. And the impacts to property values are not
7 well-documented, and I'm not sure where the remedy in the
8 law is for that, but it's a serious concern for anybody
9 adjacent to one of these facilities.

10 Specific to the Nuss Pit, one of my main issues is
11 that the EA and the hydrogeologic study that has been done
12 address the interval from current day to the future for
13 the amendment, yet there has never been a full and
14 appropriate hydrogeological assessment of the conditions
15 from pre-mining to the current day. That was never done
16 because there was some change in the operations plan
17 from -- going from three dewatering wells that would just
18 dump water back down to the land to a large lake with a
19 trench buildup taken out the back side. And there was
20 never a hydrogeologic assessment done of that. The
21 hydrogeology report that's been done by Nicklin as cited
22 in the EA addresses only the future permit. There's
23 actually even in the record a written comment from
24 Susan Hellier saying that one of the things that
25 Jo Stephen requested TMC for was that hydrogeological

1 analysis from the pre-mining conditions to current, and
2 it's not been done. That's a big thing.

3 Then the last thing is that the mitigation in the EA,
4 a lot of impacts are noted and suggested mitigation, and
5 it would be useful if those mitigations were considered to
6 be a requirement of the permit instead of included with
7 nebulous language.

8 And that's it.

9 HEARING OFFICER AMDAHL: Thank you for your
10 comment.

11 Do we have another brave soul?

12 MR. MORSE: My name is Rich Morse still, and I'll
13 do my bit and then Garth can tell me how much this is
14 going to cost.

15 I think that the first thing I'd like to say, we feel
16 that opencut mining in neighborhoods do need dust
17 mitigation, they need noise mitigation, but most of all,
18 that DEQ needs to recognize that there really are property
19 value issues associated with mining -- gravel mining in
20 neighborhoods. The Rygg study that's been used in the
21 past isn't defensible, it's not applicable presently, and
22 it's not reliable. DEQ needs to look for additional
23 studies, and they're out there. And so I'd like to say
24 that property values also need mitigation. But the main
25 thing that I -- Oh, and then the fourth thing that I'd

1 like to say there is that permitting of this expansion
2 should recognize the existence of both county -- the
3 county CUP process and the local planning process.

4 But I'd like to talk about water, covenants on water.
5 The Nicklin study that was done for the EA and was
6 recognized in the EA talks about a discharge of
7 2,000,000 gallons a day from the pit, and page 11 of the
8 EA talks about a consumptive use of 30 acre-feet for the
9 pit. We reviewed the EA with the consulting firm of
10 Geomatrix in Missoula, and we came up with some comments
11 associated with water use.

12 The first one is that they would, and we would, really
13 like to see the input criteria included or made available
14 so that we can look at the influences of the pit from
15 ground water on the adjacent river. The second comment
16 that we have related to the Nicklin report is that there
17 should be -- associated with this report and with the
18 discharge permit and with the pit, there should be a
19 stream depletion analysis.

20 What we're seeing is that there is a consumptive use
21 in the pit of somewhere between the EA's estimate of
22 30 acre-feet and our figure of 53 acre-feet, and that
23 53 acres is coming from the figures in the EA. But what
24 we really need to see is that we need the applicant to
25 show that those water rights do exist. We don't see them,

1 and we feel that there needs to be, and we feel that DEQ
2 should recognize that there needs to be an industrial or
3 commercial permit associated with these water rights. And
4 that's the mitigation water rights application. And
5 that's, again, for consumptive use in the Gallatin basin,
6 Gallatin River basin. We're told that these don't exist.
7 If the legal water rights do not exist, then we request
8 that an unpermitted water use cease in this operation.

9 And I'll just make a note that the water that's
10 consumed cannot come from a number of exempt wells,
11 pumping a number of exempt wells, it can't be combined
12 from the total volume of those allowable well volumes, and
13 it can't come from unmitigated water from ditches. Again,
14 with the water rights application, there still needs to be
15 this stream depletion analysis.

16 So in review, the conditions we're requesting are,
17 first, that we see some dust mitigation. There's talk
18 about that in the EA. We'd like to see that there's noise
19 mitigation. Berms are a good start on that. Another
20 option there is to restrict the number of days that
21 crushing is allowed. TMC is doing a terrific job of this.
22 They have a large crusher that moves in and out. It will
23 be there for a couple of weeks and then it will be gone
24 and then it will reappear. And as a neighbor to a pit, I
25 can tell you that it's a terrific relief when the crusher

1 leaves and your point of ignition is much reduced.

2 We'd also like to recognize and cite -- have DEQ
3 recognize and cite other property value studies. And we
4 feel that property values need to be mitigated, and the
5 way that we feel that you can mitigate property values is
6 by restricting the duration of the permit. If it's for
7 five years, it's for five years, it's not five years and
8 maybe another five; if it's ten years, it's ten years.
9 But if it goes much beyond that, this has got to be
10 considered as a permanent installation.

11 We want you to recognize that there's countywide and
12 local planning authority in the area. And we'd like the
13 applicant to provide proof of water ownership for full
14 consumptive use as shown in the EA, the water rights for
15 commercial or industrial use. Until this is provided,
16 water use should stop and permitting should also stop for
17 this pit. We want to see unpermitted water use ceased.

18 Thanks. And thank you for coming down from Helena.

19 HEARING OFFICER AMDAHL: Thank you for your
20 comments.

21 Now, does anybody else want to give an oral comment
22 tonight?

23 MS. JARRETT: Hi, my name is Margaret Jarrett,
24 J-A-R-R-E-T-T.

25 I'm asking you, the DEQ, to consider not granting this

1 expansion/extension at all. There was little or no
2 opposition to the last expansion in 2004 because the Nuss
3 family promised the surrounding neighbors that the site of
4 41.2 acres would be reclaimed by 2010. To date no
5 reclamation efforts have been made. Now they're asking to
6 more than double this operation to 87 acres. The Nuss
7 family, we feel, has flat-out lied to their neighbors.
8 This is a gross industrial commercial operation proposed
9 in an otherwise residential/agricultural area. I'm not
10 opposed to gravel extraction, but I am opposed to the
11 scope and duration of this proposed expansion. Let's not
12 forget that this started out as an 11-acre site and is
13 trying to grow to 87 acres. Enough is enough.

14 There are several sections in the EA that mention that
15 this agricultural site will be changed to industrial use.
16 There is also a comparison between agricultural and
17 opencut mining operations, which is absolutely ludicrous.
18 You may as well be comparing apples to pennies. Farming
19 operations will cause some dust and noise, but certainly
20 not for 11 hours six days a week. And we can talk about
21 asphalt plants. I had the sobering opportunity to live
22 across from one last summer. The generators run 24/7
23 regardless of hours of operation. Huge spotlights were on
24 all night, every night, shining in our direction. And the
25 stench of the black smoke was reminiscent of a big city

1 industrial complex. The impact to the road will be
2 tremendous, as well; there's no way that road will hold up
3 to 200 truck trips a day.

4 If DEQ does grant this expansion, you must require
5 mitigation of these impacts to your fullest capability.
6 My wish list includes no Saturday hours, vegetate berms
7 that are twice as high as they are currently, no asphalt
8 or cement batch plants, tacifiers on stockpiles, and the
9 most astringent air and noise mitigation available. This
10 operation is in amongst our homes, and we would like our
11 rights to be respected for a change.

12 Thank you very much.

13 HEARING OFFICER AMDAHL: Thank you for your
14 comment.

15 Do we have any other brave souls?

16 Okay, thank you, sir.

17 MR. HIEBERT: My name is Tim Hiebert,
18 H-I-E-B-E-R-T, and I live about three-eighths of a mile
19 from the gravel quarry there. We purchased our property
20 about two years ago. We knew full well when we bought it
21 that that gravel quarry was there.

22 Excuse me, I've still got straw and hay in my eyes and
23 down my shirt, so between that and having to be here later
24 than I wanted to, it's kind of annoying.

25 But anyways, the whole point of the matter is I'm not

1 really here to discuss gravel pits, I'm here to discuss
2 personal property rights. The Constitution is pretty
3 clear. She has every right to do what she wishes on her
4 own land, and there's an entire 40-page document of an
5 environmental assessment stating that she's not hurting
6 the ground water, she's not doing anything that's
7 contaminating another person's piece of property, and,
8 therefore, she has every right to change her mind if
9 that's what she sees fit to do.

10 I knew it when I bought that property. I could have
11 chosen not to. Every day I wake up and I see it, it's
12 there. We have vacation rentals. We have people that
13 come to our property from all over the country, and never
14 once do I hear, "Damn, I wish that gravel pit wasn't
15 there." Every one of them say, "Boy, I wish we owned this
16 place. We'd love to live here." And you can hear it;
17 we're three-eighths of a mile away.

18 The simple fact of the matter is that we're trampling
19 all over the rights that make this country great, and
20 that's the crime. That's the problem. Every day that we
21 take one more person's right away to do what they wish to
22 do on their own property within the guidelines of the
23 law -- as far as I know, she's not doing anything
24 illegal -- then we're trampling all over your rights and
25 my rights. Where does it end? Does it end when my

1 neighbor paints his house pink and affects my property
2 value next door because nobody wants to live next to it?
3 Does it happen when somebody puts a trailer home next to
4 my house? Do I get to go and create an emergency zoning
5 that says no mobile homes next to my property because my
6 property value went down? That's life. We have two
7 choices, deal with it or move. I mean, it's simple. I
8 have that right. It didn't stop that gentleman from
9 building a million-dollar home across the road from it.

10 I think this is a lot of hoopla about nothing, and I
11 think we need to be careful about the rights that we're
12 trampling on, because some day this country ain't going to
13 be the same thing that it is today. And if our founding
14 fathers were standing here, and the fight that they fought
15 to give us the rights that we have -- This is a
16 foundational principle of this country, right along with
17 freedom of speech, my ability to stand here and talk to
18 you tonight.

19 So be careful what you do, be careful what you say.
20 There's no way in the world that we have the right to take
21 away one person's right for our view.

22 HEARING OFFICER AMDAHL: Thank you for your
23 comment, sir.

24 Do we have anybody else who wants to give comment
25 tonight?

1 (No response.)

2 HEARING OFFICER AMDAHL: We do have plenty of
3 time, but we're not going to stand here for 20 minutes
4 staring. Anybody at all have an oral comment?

5 MS. DERHAM: Hi, I'm Lee Derham, L-E-E, last
6 name, D-E-R-H-A-M.

7 Tim, I hear you, and I just want to know -- We bought
8 our property long before the Nuss Pit came in, so I'm
9 wondering what we're supposed to do with our property for
10 25 years that we can't make money off of our property
11 while somebody else is. So before you start thinking that
12 everybody has a right to do whatever they want, that's not
13 really what a democracy is. And there's also laws that
14 try and help govern it, and that's where the DEQ comes in.

15 And one of the things that I think is really important
16 for you all to understand is the property value issue.
17 The length of time, obviously, is a big issue, for things
18 to be able to just keep going and keep going and keep
19 going and the rest of us just have to sit back and watch
20 it and be affected by it. What people do on their
21 property does affect their neighbors, so we do not have
22 carte blanc. If you look at our Constitution -- is it
23 Article III, I think, in there? So we do have to be
24 respectful at least of neighbors. You may not want to,
25 but that's okay, that's my point of view.

1 The other thing that I think is really important, we
2 own the 200 acres right next to the Nuss Pit, and our
3 water has been affected. I am gravely concerned about the
4 fact that the monitoring was not done and not done
5 properly prior to the mining up through to the present
6 day. As Carol stated, that was supposed to be addressed.
7 So we have no cumulative impacts being looked at here.
8 All this EA is doing is addressing a new permit.

9 I think that also, the mitigations, part of the
10 problems would have been addressed if the mitigations were
11 taken seriously and if you guys really realized that the
12 people living next to the properties where these pits are,
13 we do have serious concerns about it and it does affect
14 our daily lifestyle, our animals on the property,
15 et cetera, the people that rent from us, and our potential
16 of what we could do with the property. I mean, you guys
17 come and go. You know, you're there for the day during
18 work, but we're there when you're not and we're still
19 being affected by the pit when you all leave. So if you
20 can take that into consideration and just realize that
21 it's a neighbor issue. And, you know, in my business, I
22 am certified and I have to follow guidelines. And I may
23 not like all of them, but that's what we have to do. And
24 so I think that it needs to be taken seriously by the DEQ
25 of the extensiveness of what one of these in an area like

1 this does.

2 The asphalt is industrial, and it really would be a
3 big problem, and I don't feel it should be allowed at all.

4 And, quite frankly, the reclamation bond is a pittance
5 and not very motivating to really have to follow through
6 and be sure that things are reclaimed properly. And so I
7 think that the reclamation bonds really need to be looked
8 at. And also, I think that if you can do something about
9 having some reclaiming take place before moving on,
10 reclaim part of it and then move on, I think that that
11 would show good faith to your neighbors that you do care
12 about being a good neighbor, so that we can all work
13 together on it so that we can all enjoy our property
14 rights.

15 I think that's it.

16 HEARING OFFICER AMDAHL: Thank you for your
17 comments.

18 Does anybody else want to give an oral comment
19 tonight?

20 (No response.)

21 HEARING OFFICER AMDAHL: I'm looking around, I
22 don't see anybody who is looking like they're just about
23 to stand up or wave their arm.

24 Well, last chance, does anybody else want to give an
25 oral comment tonight?

1 Okay, we have one. Thank you, sir.

2 MR. STEIN: I'm Pete Stein, and I live on the
3 main street of Gateway here.

4 HEARING OFFICER AMDAHL: Excuse me, could you
5 spell your name, please.

6 MR. STEIN: P-E-T-E, S-T-E-I-N, Pete Stein.

7 HEARING OFFICER AMDAHL: Thank you.

8 MR. STEIN: I wasn't planning on saying anything
9 tonight, but I live right on the main street in Gateway
10 here. And oftentimes here in Gallatin County we're in
11 this little node of extreme growth which is kind of unique
12 in Montana and so we're confronting some of these problems
13 and these issues. It seems like if someone is involved in
14 a commercial enterprise of any sort to make a living, you
15 hear this argument of the right to pursue my livelihood or
16 things like this.

17 And when we're in a really high growth spot like
18 Gallatin County, sometimes if you're pursuing an activity,
19 because of the density and growth, it starts to impact
20 people, unintended consequences and imposing what
21 economists call externalities. They're costs that are
22 imposed on people that are outside the relationship
23 between the people involved and the activity.

24 Anyway, I have a little copy of the Montana
25 Constitution here, and I just want -- there's just this

1 little blurb in here I want to read to you, and it's
2 Article II, Section 3, Inalienable Rights. It says: "All
3 persons are born free and have certain inalienable rights.
4 They include the right to a clean and healthful
5 environment and the rights of pursuing life's basic
6 necessities, enjoying and defending their lives and
7 liberties, acquiring, possessing and protecting property,
8 and seeking their safety, health and happiness in all
9 lawful ways. In enjoying these rights, all persons
10 recognize corresponding responsibilities."

11 Now, when I'm sitting in my office and I see over a
12 hundred gravel trucks go by a day and I see a day care --
13 person running the day care walking the little kids up and
14 down the street, and these trucks going through a school
15 zone, I just wonder if this industrial activity --
16 Something's haywire here. Because if they're operating
17 the under the laws and regulations and rules, and this
18 (indicating) is in the Montana Constitution, something's a
19 little haywire.

20 That's all I've got to say.

21 HEARING OFFICER AMDAHL: Thank you for your
22 comment, sir.

23 Do we have any more people who would like to make
24 comments tonight?

25 Anybody at all.

1 (No response.)

2 HEARING OFFICER AMDAHL: Well, not seeing anybody
3 who looks like they're on the edge of their chair, I will
4 say that I'm going to close this meeting at this time. If
5 you think of any comments you would like to make, please
6 e-mail them or send a letter; or if you happen to be in
7 Billings, you can certainly drop by Jo's office and make
8 sure she gets them. You do not need to sign them if you
9 don't want to. But make sure we have names and addresses
10 of anyone who wants to receive a copy of the final EA and
11 responses to the comments.

12 And we appreciate your patience in being here tonight.
13 Thank you very much.

14 (The proceedings were concluded.)

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STATE OF MONTANA)
) ss.
COUNTY OF LEWIS AND CLARK)

That the foregoing proceedings were reported by me in shorthand and later transcribed into typewriting; and that the -23- pages contain a true record of the proceedings to the best of my ability.

IN WITNESS WHEREOF, I have hereunto set my hand
and affixed my notarial seal this 26th day of September
2008.

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