

**From:** sherlock sherlock  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Grant County  
**Date:** Friday, September 15, 2017 11:41:01 AM

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Mr. James Hollen  
Mining Act and Reclamation Program  
Mining and Minerals Division  
1220 South St. Francis Drive  
Santa Fe, NM 87505

Dear Mr Hollen:

You have heard the arguments for and against the Freeport-McMoRan Cobre Mine operations. I urge you to err on the side of caution. Once damaged or lost, there is little change to recoup optimal environmental and health status.

I do not know you, but I do know our governor prefers to promote business--and money talks. Freeport is known worldwide for its abuse of land and people. I beg of you to enforce industry standards requiring Freeport to do the right thing in Grant County.

Dr G Campbell  
Silver City

**From:** Marilyn Alcorn  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Cobre Continental Mine  
**Date:** Wednesday, September 13, 2017 11:57:06 PM

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Dear Mr. Hollen,

As a concerned citizen of Grant County NM and a member of the Grant County Community Health Council I am worried about the resumption of mining at the Cobre mine here in Grant County. I feel that all available safety measures and technological controls currently available to the mining industry should be implemented in the start up of mining operations at Cobre. I am not opposed to Freeport-McMoRan profiting from their mining operation but I am opposed to polluting of air and water resources in the mining area. I am also opposed to Grant County residents picking up the tab in the future for any clean up or reclamation costs that might be incurred in closing the mine.

Please ensure when granting permits to Freeport-McMoRan that they are required to follow industry best practice in all aspects of their mining operation to ensure a safe, environmentally friendly extraction of these commodities and a good quality of life for those residents of Grant County who will be directly impacted by the resumption of mining operations at the Cobre mine.

Below is a detailed accounting of the areas of concern and the requests for conditions around the permitting process for Freeport-McMoRan.

- **Require that Freeport-McMoRan follow industry best practice for environmental management at its Cobre Mine operations.**
- Compel Freeport to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.
- Direct Freeport to implement a blasting plan that meets industry standards to protect public safety and structures during blasting for the haul road and mining of Hanover Mountain.
- Require the company implement a noise and light mitigation plan.
- **Minimize air quality impacts to nearby residents by requiring air quality monitoring and maximum dust mitigation.** Cobre mining operations will cause air quality impairment due to fugitive dust emissions from blasting, transport of ore on the haul road, and materials handling. Residents of Fierro and Hanover live very close to these operations and could experience poor air quality.
  - Freeport should install air quality monitors to ensure that public health is protected from fugitive dust from its mining activities.
  - The state Air Quality Bureau should require Freeport to implement all applicable dust control measures to minimize fugitive emissions, including watering of or surfactant application to haul roads, dust suppression during materials handling such as bulldozing, scraping and materials loading, covering of haul truck beds, wind speed reduction measures, truck speed control, and cessation of operations when winds exceed 25 mph.
- **Ensure that ground and surface water quality will be protected through implementation of adequate reclamation and containment of groundwater contamination.** Regulators should strictly enforce the NM Mining Act and state Water Quality Act to protect ground and surface water quality. Strong state regulatory oversight is needed for implementation of engineering controls at the South Waste Rock

Disposal Facility.

- **Require Freeport-McMoRan to put up adequate financial assurance so taxpayers and the community don't bear the costs of clean up should the company go bankrupt.** Freeport won't agree to industry best practice for estimating indirect costs associated with mine reclamation. If the company wins this fight and doesn't post a bond or other financial instrument sufficient to cover the full cost of clean up, the public could be left holding the bag if the company defaults before the mine is decommissioned.

Regards,  
Marilyn J Alcorn  
Grant County Community Health Council

Marilyn4GrantCounty

"Justice will not be served until those who are unaffected are as outraged as those who are."

**Benjamin Franklin**

Sent from my I phone

**From:** Nanda Currant  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Cobre-Continental Mine  
**Date:** Friday, September 15, 2017 10:26:18 AM

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We need in place an assessment for potential failure of the Main Tailings Impoundment before operations are started again, there needs to be a blasting plan that meets industry standards for public safety and places for the haul road and mining of Hanover Mtn. There needs to be a noise and light plan that works for those around the mine and the town.

I am concerned about air quality and there needs to be monitoring and dust control measures. Also ground and surface water quality can be protected with reclamation and contain more of ground water contamination with engineering controls.

Lastly it is important there are financial assurances in place so taxpayers don't bear the costs of clean up if the company goes bankrupt.

Thanks for support in these matters for a safe and kind future for the area and its inhabitants.

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Nanda Currant  
[hearth@cruzio.com](mailto:hearth@cruzio.com)

**From:** Joanie Connors  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** comments on Cobre-Continental Mine Proposal to Resume Operations  
**Date:** Friday, September 15, 2017 3:07:05 PM

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**Mr. James Hollen**

**Mining Act and Reclamation Program**

**Mining and Minerals Division**

**1220 South St. Francis Drive**

**Santa Fe, NM 87505**

**Dear Mr. Hollen,**

**As a long time resident of Grant County in New Mexico, I am writing to demand that Freeport-McMoRan Cobre Mining Company's operations in the Cobre mine don't pollute ground and surface water, impair air quality, damage nearby buildings from blasting, and cause noise and light impacts. Freeport must follow industry best practices for responsible environmental management at the Cobre mine and not get a pass as they frequently do.**

**I also ask that you make sure they minimize air quality impacts to nearby residents by requiring air quality monitoring and maximum dust mitigation. Please also ensure that ground and surface water quality will be protected through implementation of adequate reclamation and containment of groundwater contamination.**

**Lastly, everyone knows that FMM is in serious financial trouble and may file for bankruptcy. Because of this, it is imperative that you require Freeport-McMoRan to put up adequate financial assurance so taxpayers and the community don't bear the costs of clean up should the company go bankrupt.**

**Thank you for protecting New Mexico residents from mining pollution!**

**Sincerely,**

**JV Connors, Ph.D.**

**12 Shale Drive**

**Silver City, NM 88061**

**From:** Azima Lila Forest  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Comments on Cobre-Continental Mine Proposal to Resume Operations  
**Date:** Thursday, September 14, 2017 4:52:27 PM

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Dear Mr. Hollen,

I have grave concerns over the proposal to resume operations at the Cobre-Continental Mine on the part of Freeport-McMoRan

Here are my concerns, which i hope will be seriously considered and included in any permissions and agreements:

- **Freeport-McMoRan must be required to follow industry best practice for environmental management at its Cobre Mine operations.**
  - Compel Freeport to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.
  - Direct Freeport to implement a blasting plan that meets industry standards to protect public safety and structures during blasting for the haul road and mining of Hanover Mountain.
  - Require the company implement a noise and light mitigation plan.
  
- **Minimizing air quality impacts to nearby residents must be achieved by requiring air quality monitoring and maximum dust mitigation.** Cobre mining operations will cause air quality impairment due to fugitive dust emissions from blasting, transport of ore on the haul road, and materials handling. Residents of Fierro and Hanover live very close to these operations and could experience poor air quality.
  - Freeport should install air quality monitors to ensure that public health is protected from fugitive dust from its mining activities.
  - The state Air Quality Bureau should require Freeport to implement all applicable dust control measures to minimize fugitive emissions, including watering of or surfactant application to haul roads, dust suppression during materials handling such as bulldozing, scraping and materials loading, covering of haul truck beds, wind speed reduction measures, truck speed control, and cessation of operations when winds exceed 25 mph.
  
- **Ground and surface water quality mustll be protected through implementation of adequate reclamation and containment of groundwater contamination.**Regulators should strictly enforce the NM Mining Act and state Water Quality Act to protect ground and surface water quality. Strong state regulatory oversight is needed for implementation of engineering controls at the South Waste Rock Disposal Facility.
  
- **Freeport-McMoRan must be requiered to put up adequate financial assurance so taxpayers and the community don't bear the costs of clean up should the company go bankrupt.** Freeport won't agree to industry best practice for estimating indirect costs associated with mine reclamation. If the company wins this fight and doesn't post a bond or other financial instrument sufficient to cover the full cost of clean up, the public could be left holding the bag if the company defaults before it reclaims Cobre.

Thank you for your serous consideration of these important issues.

Yours truly,  
Azima Lila Forest  
Grant Count Resident

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Azima Lila Forest  
410 W San Vicente St  
Silver City NM 88061  
575-574-7805  
[azima@zianet.com](mailto:azima@zianet.com)

May all beings be well & happy & peaceful & free

**From:** Gendron  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** cobre continental mine proposal to resume operations  
**Date:** Wednesday, September 13, 2017 7:58:21 PM

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Dear Mr. Hollen,

As a grant county resident living in the lower Mimbres valley for 42 years, I travel to Silver City often for our necessities and community involvement. The haul road will impact us during its construction and I am especially concerned about the impact on the environment around Fierro. The blasting, impact on local wells, air and water quality are concerns for the present and future residents of this entire area. I hear that there will be trucks weighing up to 860,000 pounds going across the 124 foot wide haul road every two minutes ,24/7 for 5 years after this road is constructed.

This is a huge impact, so industry standard environmental practices must be implemented including a blasting plan, a noise and light mitigation plan and an assessment of the main tailing impoundment. Air quality monitoring and dust mitigation measures must be to high standards to protect nearby residents. Regulators should enforce the State Mining act and Water Quality Act especially at the South Waste Rock disposal facility through reclamation and containment of groundwater contamination. Since Freeport McMoRan are obligated to comply with their permitting they must limit dust emissions.

Freeport McMoRan must follow best practices for estimating indirect costs of reclamation and post bonds and financial assurances so that taxpayers and the community do not end up having to pay for reclamation if they go bankrupt.

As a regulator, the public is counting on you to protect the health of our environment for ourselves, our children and grandchildren who will live with the results of these changes. Thank you for your work with mining and minerals.

Sincerely, Marilyn Gendron  
San Lorenzo, NM 88041

**From:** Alice Jones  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Freeport McMoran mining of Hannover Mountain in Grant Co.  
**Date:** Wednesday, September 13, 2017 11:31:40 AM

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Dear Mr. Hollen: I was born and have lived in mining communities most of my life and am intensely aware of the health and environmental impacts of copper mining. As you review Freeport's requests for permits for expanded mining operations, please take into consideration the safeguards needed to protect air and water quality, and to prevent particulate and toxic pollution hazards. Specifically:

- **Require that Freeport-McMoRan follow industry best practice for environmental management at its Cobre Mine operations.**
- Compel Freeport to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.
- Direct Freeport to implement a blasting plan that meets industry standards to protect public safety and structures during blasting for the haul road and mining of Hanover Mountain.
- Require the company implement a noise and light mitigation plan.
- **Minimize air quality impacts to nearby residents by requiring air quality monitoring and maximum dust mitigation.** Cobre mining operations will cause air quality impairment due to fugitive dust emissions from blasting, transport of ore on the haul road, and materials handling. Residents of Fierro and Hanover live very close to these operations and could experience poor air quality.
  - Freeport should install air quality monitors to ensure that public health is protected from fugitive dust from its mining activities.
  - The state Air Quality Bureau should require Freeport to implement all applicable dust control measures to minimize fugitive emissions, including watering of or surfactant application to haul roads, dust suppression during materials handling such as bulldozing, scraping and materials loading, covering of haul truck beds, wind speed reduction measures, truck speed control, and cessation of operations when winds exceed 25 mph.
- **Ensure that ground and surface water quality will be protected through implementation of adequate reclamation and containment of groundwater contamination.** Regulators should strictly enforce the NM Mining Act and state Water Quality Act to protect ground and surface water quality. Strong state regulatory oversight is needed for implementation of engineering controls at the South Waste Rock Disposal Facility.
- **Require Freeport-McMoRan to put up adequate financial assurance so taxpayers and the community don't bear the costs of clean up should the company go bankrupt.**

Alice Jones  
Silver City, NM

**From:** KATE BROWN  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Public Comment on Cobre Mine  
**Date:** Friday, September 15, 2017 12:00:38 PM

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Dear Mr Hollen,

I am a 37 yr resident of the Mimbres Valley, which lies due east of the Cobre Mine site.

I gave testimony recently to the MMD and the ED in Silver City. My comments were reported in the Silver City Daily Press and slo appear in the record of testimony, but I want to be sure you also see them.

I am asking for an air quality monitor to be placed on the grounds of San Lorenzo Elementary School. When my now 36 yr old daughter was a 4th grader at San Lo, she wondered if all the dust blowing in the Valley, from the tailing piles at Chino Mine, had an affect on children's health.

From this question, she designed a science project: compare the date from air quality monitors and school attendance records of area schools and see if any correlation can be determined.

She didn't get very far with this:

-the school principle at Hurley Elementary refused to give her any attendance records. Other principles were more cooperative

-the local officials in the ED office in Silver City told her the air quality data from the monitors was buried in a computer in North Carolina

I don't know if any study has been done on the health of our youngest citizens and our air quality from the mines, but I do know there are many days when the wind blows hard, and we all breathe in particles of what has been dug, placed in trucks, and driven over our public road to a site to be covered with acid which drains down into the surface water.

All best practices must be followed. I know we depend on copper, but we depend more on the health of our citizens, especially the young ones, who are our future.

thank you,

Kate Brown  
147 Hot springs Canyon Rd.  
San Lorenzo, NM 88041  
575 536 9935

**From:** Lora Lisbon  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Cobre Mine near Silver City, NM  
**Date:** Friday, September 15, 2017 9:28:43 AM

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Dear Mr Hollen,

I understand that the Cobre mine is expanding on Hwy 152 between Silver City and the Mimbres Valley. This causes me a lot of concern. During 2006 - 2008 I experienced respiratory problems while living in Silver City. I was hospitalized on two occasions and no real source could be found for these problems although mining activity was suspected to be part of the issue. I was then in my mid 40s and left the area due to my health problems. I now reside in the Mimbres Valley and naturally, I'm very worried about this expansion of mining activities. Please, please can you do all that you can to protect our beautiful communities from blowing dust, contaminated water, as well as the smell? I find the smell of the existing mine (chlorine?) is very strong on days when we have any precipitation. I do not smell it out here in the Mimbres but I certainly do notice it when I drive by on my way to Silver City. We need to balance commerce with people's health and ensure that proper measures are taken before there is a problem and not after. Thanking you in advance.

Respectfully,

Lora Lisbon  
Mimbres, NM  
505 310 1377



# Gila Resources Information Project

Promoting Healthy Communities by Protecting Our Environment Since 1998

September 15, 2017

James Hollen  
Mining Act and Reclamation Program  
Mining and Minerals Division  
1220 South St. Francis Drive  
Santa Fe, NM 87505

## **RE: Public Comments on Freeport-McMoRan Cobre Mining Company Request to End Standby Status and Update the Closure/Closeout Plan for Cobre Mine - GR002RE Revision 15-1**

Dear Mr. Hollen:

Thank you for the opportunity to submit public comments on Freeport-McMoRan Cobre Mining Company's request to end standby status for the Cobre Mine and update the associated Closure/Closeout Plan (CCP) under GR002RE Revision 15-1.

GRIP is concerned that resuming operations at the Cobre Mine will have the potential for significant impacts that could affect public health and the environment if not appropriately mitigated. We ask regulators at the Mining and Minerals Division and the NM Environment Department to continue to strictly enforce rules under the NM Mining Act, the Water Quality Act, Air Quality Act and other programs in order to protect our environment and public health.

The following specific comments augment GRIP's oral testimony at the Mining and Minerals Division hearing on August 29. Additionally, technical comments from GRIP's consultant, mining engineer Jim Kuipers, are attached.

**Require that Freeport-McMoRan follow industry best practice for environmental management at its Cobre Mine operations.** GRIP consultant Jim Kuipers has more than 30 years of experience with mine engineering and is very familiar with the latest developments in industry best practices for environmental management at mining operations. His assessment from review of the Cobre CCP and other plans for Cobre's operation is that there are a number of areas in which the company is not following industry best practice. His recommendations are summarized as follows and are discussed in more detail in his attached comments:

- *Compel Cobre Mine to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.*
- *Direct Cobre Mine to implement a blasting plan that meets industry standards to protect public safety and structures during blasting for the haul road and mining of Hanover Mountain. See attached PowerPoint presentation for suggested mitigation measures.*
- *Require Cobre Mine to implement a noise and light mitigation plan.*

- *Update stormwater design objectives for the CCP.* Current best professional design standards typically recommended by firms throughout the U.S. and Canada are to use a 200-year/24-hour storm event, although 500-year storm events have occurred within the past year.

**Minimize air quality impacts to nearby residents by requiring air quality monitoring and maximum dust mitigation.** Cobre mining operations will cause air quality impairment due to fugitive dust emissions from blasting, transport of ore on the haul road, and materials handling. Residents of Fierro and Hanover live very close to these operations and could experience poor air quality. GRIP recommends the following actions be taken to mitigate potential for air quality degradation:

- *Require Cobre Mine to install air quality monitors to ensure that public health is protected from fugitive dust from its mining activities.*
- *Work with the state Air Quality Bureau to require Cobre mine to implement all applicable dust control measures to minimize fugitive emissions, including watering of or surfactant application to haul roads, dust suppression during materials handling such as bulldozing, scraping and materials loading, covering of haul truck beds, wind speed reduction measures, truck speed control, and cessation of operations when winds exceed 25 mph.*

**Ensure that ground and surface water quality will be protected through implementation of adequate reclamation and containment of groundwater contamination.** Regulators should strictly enforce the NM Mining Act and state Water Quality Act to protect ground and surface water quality. Specific recommendations include the following:

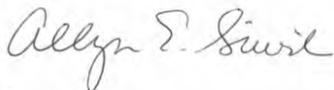
- *Additional consideration needs to be given to the adequacy of the proposed seepage monitoring and stormwater collection programs.* Additional consideration should be given to requirements for the characterization of groundwater hydrology, as well as the effectiveness of existing mitigation measures, and that additional groundwater mitigation is likely to be required to ensure protection of groundwater quality consistent with the New Mexico Water Quality Act. In particular we believe it is important to ensure adequate monitoring to measure performance of proposed waste management mitigation measures in addition to reclamation and to ensure over the long-term that water resources are protected.
- *The design of the South Waste Rock Disposal Facility to address PAG should be further described and confirmed in terms of design, operation and closure.* In particular, the use of a 1.25 ANP:AGP ratio should be further considered, and the thickness of the underlying and overlying neutral layers should be specified. Unless justification is otherwise provided, we recommend a neutralizing layer thickness and width of at least 10 m (30 ft) and that any areas not covered with at least that thickness require an engineered (double liner) cover.
- *Implement strong state regulatory oversight for implementation of engineering controls at the South Waste Rock Disposal Facility.* MMD and ED should exercise their regulatory authority to the fullest extent and should conduct site visits and review data so as to ensure the proposed programs to manage waste and protect groundwater are conducted as proposed.

**MMD and NMED should take a more conservative approach with respect to water quantity and quality of the pit lake.** MMD and NMED should be aware of the inherent certainties of water quality models such as for pit lakes that have been noted by numerous experts including Schafer and Eary<sup>1</sup>, Kempton<sup>2</sup>, Vandenberg et al<sup>3</sup> who have also suggested that this uncertainty needs to be considered by regulators as well as policy makers.

**Require Freeport-McMoRan to put up adequate financial assurance so taxpayers and the community don't bear the costs of clean up should the company go bankrupt.** With over 30 years of experience in the area of engineering cost estimation and financial assurance for hardrock mines, GRIP consultant Jim Kuipers reviewed MMD's indirect cost guidance and determined that it is consistent with other state and federal regulatory agencies using cost percentages and accounting for economies of scale. GRIP believes that MMD should stand firm on its guidance and require Freeport to put up enough financial assurance to cover the reclamation cost estimate incorporating MMD's indirect cost guidance.

We thank you for consideration of comments.

Sincerely,



Allyson E. Siwik  
Executive Director

Cc: Jim Kuipers, Kuipers and Associates  
Holland Shepherd, Mining and Minerals Division  
David Ennis, Mining and Minerals Division  
Kurt Vollbrecht, NM Environment Department  
Ann Maurer, NM Environment Department

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<sup>1</sup> W.M. Schafer and L.E. Eary. 1999. Approaches for Developing Predictive Models of Pit Lake Geochemistry and Water Quality. In *Mine Pit Lakes: Characteristics, Predictive Modeling, and Sustainability* edited by Devin N. Castendyk, L. Edmond Eary.

<sup>2</sup> Houston Kempton. 2002. Dealing with the Legacy of Mine Pit Lakes. In *Southwest Hydrology* September/October 2002, pp 24-26.

<sup>3</sup> Vandenberg JA, Lauzon N, Prakash S, Salzsauler K. 2011. Use of water quality models for design and evaluation of pit lakes. In: McCullough CD, *Mine Pit Lakes: Closure and Management*. Australian Centre for Geomechanics, Perth, Australia. pp. 63-82.

September 12, 2017

To: Allyson Siwik, Gila Resources Information Project

From: Jim Kuipers PE, Kuipers & Associates

Re: **Comments on FMCMC Request to End Standby and Return to Active Operating Status for Cobre/Continental Mine**

Please find the following comments on the request to end standby-status and return to active operating status for the Cobre/Continental Mine by Freeport-McMoRan Cobre Mining Company (FMCMC).

### **1. Waste Material Characterization and Management**

The report titled *Aquifer Evaluation and Management of the South Waste Rock Disposal Facility at the Continental Mine* by Telesto Solutions Inc. for FMCMC dated January 2017 provides information on the existing groundwater conditions, waste rock characterization, and the design requirements related to the Copper Mine Groundwater Rules (Section 20.6.7.21 B) as well as a proposed material handling plan intended to address the potential for acid generation from waste materials.

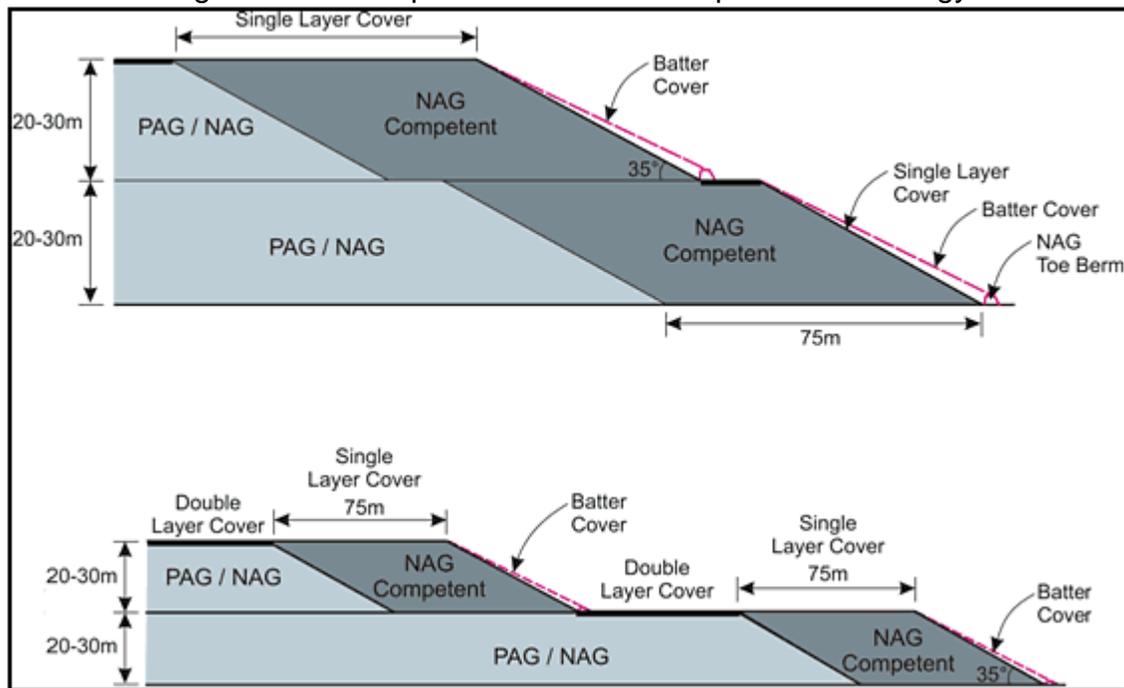
The report identifies the need for engineering controls to limit constituent loading to groundwater and to capture any discharges to groundwater that exceed groundwater standards as well as to address stormwater. It also identifies that as a result of mining Hanover Mountain, approximately 5 million tons of waste rock that has acid generation potential will be produced, as compared to approximately 41 million tons of waste rock that has low to no potential to be acid generating. In addition, rock identified in existing waste rock facilities within the proposed South Waste Rock Disposal Facility is primarily acid neutralizing. They propose to undertake a waste rock handling plan that segregates and isolates the potentially acid forming waste rock and locates it in an area that is underlain by neutralizing waste rock as well as covering it with neutralizing waste rock, as depicted by Figures 4-5 and 4-6 of the report.

We believe the report is reasonably accurate and agree with the proposed approach to deal with potentially acid generating (PAG) waste rock. The site conditions and in particular the relatively high ratio of greater than 8:1 of neutral and/or alkaline waste rock to PAG waste rock should make the approach technically feasible. Where this approach has been used, particularly in semi-arid climates, I believe it has a good chance of succeeding as intended. It has become a standard approach to addressing PAG material in Nevada and elsewhere and, is both best practice as well as a required regulatory component in many cases.

As noted by the report, the goal will be accomplished if the PAG material is encapsulated by alkaline rock. The report describes a target ANP:AGP ratio of greater than 1.25 but does not address the thickness of rock that will be used to ensure encapsulation. However, if Figure 4-6 is taken as an example, the carbonate layer underneath the PAG material might be relatively thin in some places, which is not consistent with typical practice.

According to the Global Acid Rock Drainage (GARD) Guide (INAP 2009)<sup>1</sup> Section 6.6.3.5 “The effectiveness of the encapsulation and layering is governed by availability of materials, the general balance between acid producing and acid neutralizing materials, the type and reactivity of acid-consuming material, deposit geometry, the nature and flow of water through the deposit, and chemical armoring of alkaline materials (MEND, 1998a and 2001; Miller et al., 2003 and 2006).” In addition, the GARD Guide provides the following illustration of waste rock encapsulation.

Figure 6-7: Example Waste Rock Encapsulation Strategy



While the availability of materials appears to be sufficient at 8:1 neutralizing to acid generating, it is not clear to us that sufficient material is available if a ratio of equal to or greater than 1.25:1 ANP:AGP is to be obtained. We are also concerned that the use of a 1.25 ratio is not adequately conservative given the nature of the acid generating and acid consuming materials/minerals as well as the potential for chemical armoring of alkaline materials, which in many cases has been shown to be much more significant than originally estimated. However, of most concern to us is that the approach relies upon an unspecified thickness of neutral rock below any PAG rock, as well as an unspecified thickness of neutral cover material above the PAG rock. As illustrated by Figure 6-7 from the GARD Guide, it is typical to specify the thickness, and in most cases, it is significant. The example from the GARD Guide suggests a thickness of 20 – 30 meters (60 – 90 ft) and a width of 75 meters, with a double layer cover for those areas that are not overlain by a thick cover of neutral material.

The key to carrying out the best practice for waste management also requires both confirmation and execution. It is likely the existing waste rock piles will require some regrading and potentially some relocation to ensure an adequate NAG layer is provided. During operations, the material characterization must be confirmed as part of a regular/routine program by the mine operators who must then be willing to undertake the necessary steps in the operation to ensure that any PAG waste is

<sup>1</sup> [http://www.gardguide.com/index.php?title=Main\\_Page](http://www.gardguide.com/index.php?title=Main_Page)

identified and properly handled, regardless of potential implications to those operations. This can sometimes require prioritization of waste management over ore production, which is contrary to most mining operation's approach. Therefore, proper execution ultimately requires both buy-in at the highest corporate and management levels, as well as a reasonable level of oversight by the regulatory agencies.

**Recommendation:** The design of the waste rock facility to address PAG should be further described and confirmed in terms of design, operation and closure. In particular, the use of a 1.25 ANP:AGP ratio should be further considered, and the thickness of the underlying and overlying neutral layers should be specified. Unless justification is otherwise provided, we recommend a neutralizing layer thickness and width of at least 10 m (30 ft) and that any areas not covered with at least that thickness require an engineered (double liner) cover. FCMC management should provide assurances as to their willingness to adhere to and conduct the waste management program and identify it as a corporate priority. MMD and ED should exercise their regulatory authority to the fullest extent and should conduct site visits and review data so as to ensure the proposed programs to manage waste and protect groundwater are conducted as proposed.

## 2. Seepage and Stormwater Collection

Telesto (2017) also addresses seepage and stormwater collection for the waste rock facility. According to the report "...no changes to the existing designs or operations of the seep and ephemeral perched groundwater collection systems are expected..." and suggest that "Any increase in constituent concentrations in the South Paleozoic Flow System associated with SWRDF expansion would be addressed through a corrective action program."

While we intend to address this matter at length in comments on the discharge permit we believe that additional consideration should be given as to requirements for the characterization of the groundwater hydrology as well as the effectiveness of the existing mitigation measures, and that additional groundwater mitigation is likely to be required to ensure protection of groundwater quality consistent with the New Mexico Water Quality Act. In particular we believe it is important to ensure adequate monitoring to measure performance of proposed waste management mitigation measures in addition to reclamation and to ensure over the long-term that water resources are protected.

The design and CCP use a 100-year/24-hour storm event "per Freeport-McMoRan Chino Mines Company." As we have mentioned previously, MMD and the Environment Department should both be aware the current best professional design standards, which are typically recommended by firms throughout the U.S. and Canada, are to use a 200-year/24-hour storm event.

**Recommendation:** Additional consideration needs to be given as to the adequacy of the proposed seepage monitoring and collection programs. As this is a requirement under the New Mexico Environment Department's purview, it will be undertaken in more extensive comments to NMED as part of the discharge permit (DP) process, prior to their determination to MMD that the application meets their requirements.

## 3. Revised CCP – Main Tailings Impoundment

The CCP notes that the construction of the MTI began in 1967 and continued until 1999. This suggests it was designed and constructed based on engineering practices circa 1960. The CCP also mentions that

stability buttresses to reinforce the embankments were added in 2005. The CCP references a stability analysis by Golder but does not provide any information from that document but does suggest that the MTI meets or exceeds all of the regulatory criteria required by the New Mexico Office of State Engineer.

The potential for catastrophic failure of tailings storage facilities has been re-emphasized in the recent past by the Mount Polley and Samarco tailings failures. Since that time additional information has been produced which recommends specific Best Available Practices (BAP) and Best Available Technology (BAT). The Mount Polley Independent Expert Review Panel (IERP), consisting of three leading experts in the geotechnical stability of mine tailings facilities, was convened by the BC Government to address the minimization and elimination of the risk of similar failures from tailings facilities. The Panel Report<sup>2</sup> was issued in January 2015 and included recommendations that are grouped into the following seven areas and discussed in the sections below:

1. Implement BAP and BAT using a phased approach,
2. Improve corporate governance,
3. Expand corporate design commitments,
4. Enhance validation of safety and regulation of all phases of a Tailings Storage Facility (TSF)
5. Strengthen current regulatory operations,
6. Improve professional practice, and
7. Improve dam safety guidelines

Implement BAP and BAT using a phased approach. The Panel recommended using BAPs to address existing TSFs, and recommended using BAT. They further recommended applying BAT principles to closure of active impoundments to eliminate risk. The Panel identified the three principles of BAT, as: no surface water; unsaturated conditions, and; achieve dilatant conditions by compaction. The Panel further identified backfilling of mined out pits or underground workings as being the most direct method, but otherwise identified “filtered tailings” technology as the primary BAT. In doing so, the Panel suggested, “There are no overriding technical impediments to more widespread adoption of filtered tailings technology” and “While economic factors cannot be neglected, neither can they continue to preempt best technology.”

Improve corporate governance. The Panel recommended that corporations operating TSFs should be required to be a member of the Mining Association of Canada (MAC) or be obliged to commit to an equivalent program for tailings management, including the audit function. The MAC, in response to issues presented by TSFs worldwide owned by Canadian based corporations, developed guidelines for tailings management that are considered worldwide as best management practice (BMP). This includes: A Guide to the Management of Tailings Facilities; Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities, and; A Guide to the Audit and Assessment of Tailings Facility Management.

Expand corporate design commitments. The Panel recommended that new TSFs “should be based on a bankable feasibility study and consider all technical, environmental, social and economic aspects of the project in sufficient detail to support an investment decision” and should contain failure modes and

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<sup>2</sup> Morgenstern, Norbert R., Steven G. Vick, and Dirk Van Zyl. 2015. Independent Expert Engineering Investigation and Review Panel, Report on Mount Polley Tailings Storage Facility Breach. Province of British Columbia. January 30. <https://www.mountpolleyreviewpanel.ca/final-report>

effects analysis, cost/benefit analysis of BAT tailings and closure options with the caveat the cost/benefit should not supersede safety considerations, and detailed and declared Quantitative Performance Objectives (QPOs).

Enhance validation of safety and regulation of all phases of a TSF. The Panel recommended that Independent Expert Review Panels (IERPs) be utilized together with QPOs to improve safety and regulation of all phases of TSFs.

Strengthen current regulatory operations. The Panel recommended that inspections be performed at all existing TSFs to ascertain whether they may be a risk and require appropriate actions due to specific failure modes: filter adequacy; water balance adequacy; undrained shear failure of silt and clay foundations.

Improve professional practice. The Panel encouraged the Association of Professional Engineers and Geoscientists of BC to develop guidelines that would lead to improved site characterization for tailings dams with respect to the geological, geomorphological, hydrogeological and possibly seismo-tectonic characteristics.

Improve dam safety guidelines. The Panel, recognizing limitations of current Canadian Dam Association guidelines, recommended that dam safety guidance be developed specific to the conditions encountered with TSFs in BC and incorporated as a statutory requirement.

As a result of the Mt. Polley Panel findings the Province of British Columbia significantly revised its regulations and guidance. The revised regulations<sup>3</sup> address the seven recommendations from the Mt. Polley Independent Expert Engineering Review Panel's investigation and the Chief Inspector of Mines investigations into the Mt. Polley breach intended to strengthen health and safety requirements in the Code. It includes regulatory standards that address all stages of a mine's life; from exploration through to mine development, and includes mine closure and reclamation. The guidance document<sup>4</sup> provides guidance and context to owners, engineers of record, regulators, consultants and auditors on applying Part 10 of the Code. It also provides an overview of the elements of a tailings management system. Additionally, the State of Montana, as part of a bipartisan effort in which the writer participated, is the only U.S. regulatory agency to have enacted regulations that recognize the Mt. Polley Panel recommendations. The regulations address the duties of the engineer of record, require an independent review panel, address quality assurance during construction, require a tailings operation, maintenance and surveillance manual, and require periodic as well as annual reviews.<sup>5</sup>

**Recommendation:** It is our expert opinion that the present regulatory requirements for tailings storage facilities in the State of New Mexico are not consistent with current best practice, and as such reliance

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<sup>3</sup> Province of British Columbia. 2017. Health, Safety and Reclamation Code for Mines in British Columbia. Mines Act, [RSBC 1996] Chapter 293. Updated to February 28, 2017.

[http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/code-review/health\\_safety\\_and\\_reclamation\\_code\\_2017.pdf](http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/code-review/health_safety_and_reclamation_code_2017.pdf)

<sup>4</sup> Province of British Columbia. 2016. Guidance Document, Health, Safety and Reclamation Code for Mines in British Columbia, Version 1.0

[http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/part\\_10\\_guidance\\_doc\\_10\\_20july\\_2016.pdf](http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/part_10_guidance_doc_10_20july_2016.pdf)

<sup>5</sup> MCA TITLE 82. MINERALS, OIL, AND GAS CHAPTER 4. RECLAMATION Part 3. Metal Mine Reclamation 82-4-375 through 82-4-381. [http://leg.mt.gov/bills/mca\\_toc/82\\_4\\_3.htm](http://leg.mt.gov/bills/mca_toc/82_4_3.htm)

on the existing Office of State Engineer (OSE) or MMD requirements and oversight is inadequate to protect public health and safety, as well as the environment from the risk of catastrophic failure. While this matter should be undertaken by MMD and OSE as a matter of priority including revisions to regulations and guidance as required to be consistent with current practice, in the meantime they should exercise their regulatory powers to the greatest extent to ensure the present situation be evaluated and regulated to the extent possible consistent with the regulations and guidance issued by Montana and British Columbia. In addition, we recommend that FMCMC and their corporate owner adopt a tailings policy consistent with the International Council on Mining and Metals (ICMM) recommendations to tailings management.<sup>6</sup>

Specifically, we recommend that the following be undertaken prior to resuming operations to address the potential for catastrophic failure: address the duties of the engineer of record, conduct a failure run-out and inundation analysis to determine the potential consequences of failure, require an independent review panel, address quality assurance during construction, require a tailings operation, maintenance and surveillance manual, require an emergency response plan, and require periodic as well as annual reviews.

#### **4. Revised CCP – Pit Lake**

According to the CCP, FMCMC does not plan to pump water from the Continental Pit but instead will allow a pit lake to form suggesting “the ground water quality standards of 20.6.2.3103 NMAC will not apply to water within the “area of open pit hydrologic containment.” 20.6.7.33.D NMAC.

As we will address in more detail in comments to NMED on the DP, MMD should be aware of the inherent uncertainties of water quality models such as for pit lakes that have been noted by numerous experts including Schafer and Eary<sup>7</sup>, Kempton<sup>8</sup>, Vandenberg et al<sup>9</sup> whom have also suggested that this uncertainty needs to be considered by regulators as well as policy makers. The only form of mitigation to address that uncertainty is taking a more conservative approach with respect to water quantity and quality.

#### **5. Revised CCP – Cost Estimate**

The CCP and corresponding cost estimate assumes what is essentially a walk-away scenario for the Cobre/Continental mine. In terms of water management, they do not anticipate management of the pit lake that will form after mining, even though it will present an unreasonable and perpetual risk to human health and the environment regardless of whether it meets applicable ground water standards.

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<sup>6</sup> Golder Associates. 2016. Review of Tailings Management Guidelines and Recommendations for Improvement. The International Council on Mining and Metals (ICMM). December.  
[https://www.icmm.com/website/publications/pdfs/environment/161205\\_golder-associates\\_review-of-tailings-management-guidelines.pdf](https://www.icmm.com/website/publications/pdfs/environment/161205_golder-associates_review-of-tailings-management-guidelines.pdf)

<sup>7</sup> W.M. Schafer and L.E. Eary. 1999. Approaches for Developing Predictive Models of Pit Lake Geochemistry and Water Quality. In Mine Pit Lakes: Characteristics, Predictive Modeling, and Sustainability edited by Devin N. Castendyk, L. Edmond Eary.

<sup>8</sup> Houston Kempton. 2002. Dealing with the Legacy of Mine Pit Lakes. In Southwest Hydrology September/October 2002, pp 24-26.

<sup>9</sup> Vandenberg JA, Lauzon N, Prakash S, Salzsauler K. 2011. Use of water quality models for design and evaluation of pit lakes. In: McCullough CD, Mine Pit Lakes: Closure and Management. Australian Centre for Geomechanics, Perth, Australia. pp. 63-82.

Similarly, they do not anticipate that water management will be necessary with a period of 11 years following cessation of mining, even though the assumptions and evaluations they provide are not consistent with either typical practice or experience in dealing with long-term water management at mine sites involving major waste rock and tailings facilities, as well as pit lakes. While FMCMC's CCP and corresponding cost estimate suggest an almost idealistic situation and outcome, MMD and NMED both know this is never the case.

**Recommendation:** The financial assurance costs estimate should be updated to reflect current (2017) dollars. While this matter is addressed in the NMED discharge permit we recommend that MMD defer its consideration of either the plan or cost estimate until the NMED discharge permit is issued.

We recommend the agencies assume a realistic scenario similar to that of Chino and Tyrone for long-term water management and other site monitoring and maintenance requirements rather than the unrealistic scenario portrayed in FMCMC's CCP. A conservative outcome should be assumed until monitoring results indicate no long-term water quality issues, which given the geochemical characteristics of tailings and waste rock could entail hundreds of years before peak concentrations are identified. According to an investigation of seepage associated with waste rock and dump leach piles for the Tyrone mine, predictive modeling suggests that the concentration of sulfate in seepage will increase and peak in from 100-300 years in the various piles if not reclaimed, and that if they are reclaimed the concentration of sulfate will steadily increase over the 500-yr period modeled. Similar modeling should be performed for the Cobre/Continental tailings and waste rock.

We would also reiterate comments previously provided to MMD regarding indirect rates and discount rates as they apply to financial assurance estimation. As we stated in detail in comments on MMD's Indirect Cost Guidance dated May 20, 2017, it is our conclusion based on extensive evaluation of indirect costs as used by regulatory agencies throughout the U.S. that their requirements for a total of approximately 35% in indirect costs is reasonable and justifiable based on the data. If anything, we believe MMD would be justified in requiring a higher amount for large projects, closer to 40% rather than 35% indirect costs, and under certain site-specific circumstances would be justified in requiring an even higher amount.

We also recommend that MMD reconsider its guidance on determining net present value for financial assurance. The U.S. Office of Management and Budget (OMB) has issued guidance for discount rates that should be used in the determination of FA by the EPA and should be considered by the New Mexico agencies as it is a more conservative approach than that presently contained in MMD guidance and in our professional experience more consistent with other federal and state agencies. 2016 Discount Rates for OMB Circular No. A-94<sup>10</sup> recommends that a "real" discount rate be used for discounting constant-dollar flows, and specifies a current 30-year rate of 1.5% suggesting that programs with durations longer than 30 years use the 30-year interest rate. Given the significance of the Questa site FA requirements, together with precedent for a similar conservative approach in determination of long-term FA, a net (e.g. real interest rate) discount rate of at a minimum 2.84%, and preferably using a rate of 1.5% should be used in determining the net present value of the Cobre site long-term monitoring and O&M FA.

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<sup>10</sup> [https://www.whitehouse.gov/sites/default/files/omb/memoranda/2016/m-16-05\\_0.pdf](https://www.whitehouse.gov/sites/default/files/omb/memoranda/2016/m-16-05_0.pdf)

## 6. Blasting Plan

In response to permit condition 9.11 of Revision 14-1 to permit GR002RE, FMCMC submitted a “Cobre Haul Road Blasting Plan” to MMD on May 2, 2017. The plan consisted of a two-page document identifying that the blasting would be performed by a licensed contractor and will follow Alcohol, Tobacco, Firearms, and Explosives (ATF) regulations and identifies measures to be taken to prevent injury to persons or damage to property, and a plan to control and confine fly rock to the Cobre permit area.

While the provided plan might be intended to satisfy MMD requirements, and might in fact do so, it is clear that FMCMC has not prevailed themselves of best practice or provided a blasting plan that residents should take confidence in to address potential issues to both their safety and property. Current best practice recognizes that this is a significant issue and that to address public concerns and perceptions is an important part of being a responsible corporation and requires a reasonable and dedicated effort that is not evident in the plan provided by FMCMC.

McKown<sup>11</sup> addresses the subject in great detail and provides the principals of blasting as well as identifying the impacts of blasting. He notes that blasting has multiple side effects other than flyrock including vibrations, blast pressure, and permanent ground deformations, such as cracks or slides. He addresses the adequacy of the U.S. Bureau of Mines safe limits referenced in FMCMC’s plan, and addresses a number of protective measures and mitigations which might be used that are not contained in FMCMC’s plan. This includes the need to provide for a public relations plan that includes meetings with residents to review blast impacts, mitigation measures, likely things they will notice when blasting takes place, and answer any questions or address concerns they might have. In addition, he recommends that pre-blast condition surveys take place and that there be periodic progress meetings with residents.

**Recommendation:** FMCMC, whether it is required from a regulatory standpoint or not, should provide a blasting plan that addresses public concerns, which the present plan fails to do. A more robust, detailed and complete blasting plan consistent with current best practice for construction and similar industries should be produced and required if the intent is to address public concerns and perceptions with respect to blasting impacts from FMCMC’s proposed operations on nearby residents or others such as businesses or services that might be impacted.

## 7. Noise and Lights

While we are not able to identify a regulatory requirement to do so, FMCMC at the very least from a public relations aspect should undertake to address public concerns with respect to noise and lighting impacts from the proposed operations. Similar to our comments on the blasting plan, current best practice recognizes that noise and lighting are significant issues and that addressing these public concerns is something a responsible corporation takes seriously. We have developed mitigation plans for mine sites to address these specific issues, and like blasting plans, it starts with meeting with, explaining, and listening to residents. An effective mitigation plan using modern technology and practices can then be developed to address those concerns in a manner that benefits all parties.

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<sup>11</sup> <http://www.brooklinema.gov/DocumentCenter/View/6563>

**Recommendation:** We recommend FMCMC develop a mitigation plan for noise and lighting issues for the proposed operations that is robust, detailed and complete and consistent with current best practice for construction and similar industries.

## 8. Dust Mitigation and Monitoring

The dust mitigation and monitoring plans provided by FMCMC are inadequate and not consistent with current industry practice. Fugitive dust emissions can be reduced through application of BMPs. Control measures to reduce fugitive dust emissions must take into account: a) identification and classification of fugitive dust emission sources; b) identification of the sources of fugitive dust emissions; c) fugitive dust characterization; d) development and implementation of the BMP plan; plus training and inspection/maintenance.

**Recommendation:** FMCMC should develop and submit a formal dust mitigation and monitoring plan utilizing best practices as suggested by Reed and Organiscak<sup>12</sup> and as identified by the Centre for Excellence in Mining Innovation's *Fugitive Dust Best Practices Manual*.<sup>13</sup>

We also recommend FMCMC install portable air monitors in areas where the public lives in close proximity to the mine site. I have found the Met One portable E-BAM PM monitor to be one of the most effective, accurate, and easy to operate portable particulate monitors and have used it successfully for tailings fugitive dust monitoring in Montana. The E-BAM system offers the user real-time data reporting capability and links to EPA's AIRNOW website to provide the public with near real-time air quality information. <http://metone.com/air-quality-particulate-monitors/>

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<sup>12</sup> W.R. REED AND J.A. ORGANISCAK, Haul Road Dust Control: Fugitive dust characteristics from surface mine haul roads and methods of control. [https://stacks.cdc.gov/view/cdc/8897/cdc\\_8897\\_DS1.pdf](https://stacks.cdc.gov/view/cdc/8897/cdc_8897_DS1.pdf)

<sup>13</sup> <http://www.cemi.ca/SustainMine/fugitive-dust-best-practices-manual/>

**Testimony of Allyson Siwik, Gila Resources Information Project  
Mining and Minerals Division Hearing on  
Cobre Mine Request to End Standby and Return to Active Operating  
Status for Cobre/Continental Mine  
August 29, 2017**

Good evening, my name is Allyson Siwik. I'm executive director of the Gila Resources Information Project, otherwise known as GRIP.

Thank you for the opportunity to provide testimony tonight on Cobre Mine's request to end standby status and return to active operating status for the Cobre/ Continental Mine.

GRIP was founded in 1998 and has worked on mining issues for nearly 20 years.

Our mission is to promote community health by protecting the environment and natural resources in southwestern New Mexico. GRIP's role in the community has been to facilitate informed public participation in natural resource use decisions that will have profound and long-lasting impacts on the region's environmental and economic health.

Acknowledging that copper is important to our economy and modern lives, we advocate for responsible mining that complies with regulations that protect our surface and groundwater, air quality, land, and environment.

Since its creation, GRIP has been actively involved in copper mining issues in southwest New Mexico. GRIP has participated in proceedings related to operational discharge permits, discharge permits for closure, variance proceedings, reclamation permitting, mine reclamation financial assurance, federal NEPA processes, and other permitting activities associated with hardrock mines. GRIP is a partner in the NM Mining Act Network that serves mining-impacted communities across the state in Mining Act proceedings and related environmental permitting decisions.

GRIP communicates regularly with its nearly 1000 supporters who are citizens that care about environmental protection in SW NM and statewide and want environmental safeguards in place at Freeport-McMoRan's three Grant County mines.

GRIP is concerned that resuming operations at Cobre will have the potential for significant impacts that could affect public health and the environment.

We ask state regulators at the Mining and Minerals Division and the NM Environment Department to continue to strictly enforce rules under the NM Mining Act, the Water Quality Act, Air Quality Act and other programs in order to protect our environment and public health here in SWNM from the harmful impacts of resuming mining operations at Cobre.

For Freeport-McMoRan, the operator of the Cobre/Continental Mine and the largest publicly traded copper company in the world, we ask that you fulfill your commitment to sustainable development moving forward with Cobre operations.

Freeport says on its webpage:

“We fully understand that our performance on the ground, from sound environmental stewardship to shared value through strategic community investment, is critical to addressing societal ambition for responsibly sourced materials. We must get this right to continue to serve the global marketplace with products that significantly contribute to sustainable development.”

To us at GRIP, this means that Freeport should be doing more than the bare minimum that may be required by regulation in order to realize “sound environmental stewardship”. It means embracing industry best practice instead of fighting it, and it means engaging the public rather than trying to avoid public input on activities at the mine that have the potential to cause an environmental impact.

The people who live in Hanover and Fierro adjacent to the Cobre mine will directly bear the public health impacts from mining operations. Contamination of surface and groundwater supplies affects all of us in Grant County and will pose a huge burden to future generations if Freeport doesn't "get it right" by cleaning up and reclaiming its mines properly, so our kids, grandkids and beyond aren't stuck with a huge mess to clean up.

Freeport makes **millions of dollars** every year off the natural resources here in Grant County and leaves us with contaminated groundwater, air quality degradation, impacts to wildlife, scars on the landscape, and in the case of Cobre, will remove a sacred mountain – Hanover Mountain -- from our landscape forever.

We demand that the company follow through on their commitment to "sustainable development" rather than just paying lip service to it.

### Air Quality Impacts

GRIP is very concerned about the increased dust caused by blasting, transport of ore on the haul road, and materials handling. Residents of Fierro and Hanover live very close to these operations and could experience poor air quality from these activities.

Freeport must **minimize air quality impacts to nearby residents by installing air quality monitoring and implementing maximum dust mitigation during operations and in response to air quality measurements.**

Freeport should go above and beyond in its responsibility to local residents by installing air quality monitors with real-time reporting to ensure that public health is protected from fugitive dust from its mining activities.

The state Air Quality Bureau should require Freeport to implement all applicable dust control measures to minimize fugitive emissions, including watering of or surfactant application to haul roads, dust suppression during materials handling such as bulldozing, scraping and materials loading, covering of haul truck beds, wind speed reduction

measures, truck speed control, and cessation of operations when winds exceed 25 mph.

Dust-producing activities should cease if air quality measurements exceed health based standards.

### Blasting

It is clear that Freeport has not prevailed themselves of best practice or provided a blasting plan that residents should take confidence in to address potential issues to both their safety and property. Current best practice recognizes that this is a significant issue and that addressing public concerns and perceptions is an important part of being a responsible corporation and requires a reasonable and dedicated effort that is not evident in the plan provided by Freeport. The blasting plan lacks any detail as to whether or how the company proposes to protect structures from vibrations from blasting or how it proposes to protect public safety. Just because the company has hired a licensed blasting contractor doesn't mean that public safety and structures will be protected.

GRIP is submitting to MMD as part of its public comment a presentation from Andrew McKown, a drilling, blasting, and rock engineering expert, on recommended mitigation measures for blasting.

**GRIP strongly encourages Freeport to revise its blasting plan to meet industry best practice and protect the public safety and structures adjacent to its operations that could be impacted.**

### Water Quality

**We are concerned that ground and surface water quality are protected through implementation of adequate reclamation and containment of groundwater contamination.**

- Plans for the South Waste Rock Disposal Facility employ engineering controls to limit constituent loading to groundwater and to capture any discharges to groundwater that exceed groundwater standards

as well as to address stormwater. According to GRIP's consultant, Jim Kuipers, who has over 30 years of experience in mine engineering, the key to carrying out this approach requires both confirmation and execution. The material characterization must be confirmed as part of a regular/routine program by the mine operators who must then be willing to undertake the necessary steps in the operation to ensure that any potentially acid generating waste is identified and properly handled, regardless of potential implications to those operations. This can sometimes require prioritization of waste management over ore production, which is contrary to most mining operations approach. Therefore, proper execution ultimately requires both buy-in at the highest corporate and management levels, as well as a reasonable level of oversight by the regulatory agencies.

**GRIP recommends that Freeport** management provide assurances as to their willingness to adhere to and conduct the waste management program and identify it as a corporate priority. MMD and ED should exercise their regulatory authority to the fullest extent and should conduct site visits and review data so as to ensure the proposed programs to manage waste and protect groundwater are conducted as proposed.

- GRIP is very concerned that the stormwater design objectives do not meet industry best practice. The reclamation plan and other plans such as the Stormwater Pollution Prevention Plan use minimal 100-year storm events as required by regulations rather than more conservative 200-year storm events as suggested by engineering best practice. This is done not only as a more conservative measure, but also in recognition of the fact that National Oceanic and Atmospheric Administration data is outdated, as evidenced by repeated occurrences of storm events greater than 100-yr recurrence interval on a much greater frequency as has occurred in the Silver City area over the past 30 years. It is also being

recommended as a measure to address the predicted impacts of climate change.

Here in the southwest, climate modeling suggests both more frequent and severe storm events. In fact, the Chino mine area (Bayard, NM) reported a 4.1-inch rain event on November 4, 2016. This depth of rainfall in less than a 24-hour period for Fort Bayard, NM has an average recurrence interval of 500-years according to the National Weather Service. We strongly recommend that MMD require stormwater designs for the Cobre Mine to withstand the 200-year to 500-year storm event in order to protect public safety, ensure mining facilities are not impacted by un-diverted stormwater resulting in property loss, potential water quality impacts, and impacts to reclamation work post-closure.

### Cost Estimate for Financial Assurance

The NM Mining Act requires that mine operators hold sufficient financial assurance to cover the cost of cleanup and reclamation should the operator go bankrupt. This ensures that the state has enough funding for a 3<sup>rd</sup> party to reclaim the mine.

In 2016, the Mining and Minerals Division issued guidance on estimation of indirect costs, because it realized that the indirect costs being used for financial assurance were significantly underestimated. MMD was worried that if there wasn't sufficient financial assurance in place and a company defaulted, there wouldn't be enough money available to fully cover the reclamation work.

The agency reviewed other states' guidance and industry best practice and combined this information with its own years of expertise to develop a guidance document specific to New Mexico. GRIP's mine consultant, Jim Kuipers with over 30 years of experience in the area of engineering cost estimation and financial assurance for hardrock mines, reviewed the guidance for us and determined that it is consistent with

other state and federal regulatory agencies using cost percentages and accounting for economies of scale. He said “The guidance very importantly reflects both MMD experience and practice specific to New Mexico. The agency and staff should be congratulated and complimented on having produced one of the few specific indirect cost guidance documents and having added considerably to financial assurance practice.”

However, as described in its response to comments, Freeport continues to oppose the indirect cost guidance. **GRIP strongly supports MMD’s indirect cost guidance as it reflects industry best practice and results in financial assurance that reduces the financial risk to the state and taxpayers.**

One final issue that I would like to include in the record today is the issue of including mine facilities in this mine permit revision that won’t be constructed for 5 years. These facilities are the PLS/Raffinate pipeline, Fierro Leach Pad, Humbolt Leach Pad, Fierro SX/EW, North Waste Rock Facility. These are facilities that have the potential for significant environmental impact and likely high cost for reclamation. Cobre states that no financial assurance will be included for these facilities at this time, although they are expecting them to be permitted as part of this revision. This is not appropriate. We ask the question of Freeport whether this is an attempt to move forward with these facilities when the time is right through a permit modification rather than a revision and circumvent public participation provisions in the Mining Act under NMAC 19.10.9. GRIP strongly opposes this approach and we’ll request that the MMD Director process any changes to this permit for these mine facilities as revisions that require a public hearing.

We would like to submit our more detailed comments to MMD by September 15 which I believe is when the hearing record closes.

Thank you for the opportunity to provide comments to you this evening.

**Drilling and Blasting Issues  
and Recommended Mitigation  
Measures for  
Residences at South Brookline  
(Hancock Village)**

**by**

**Andrew McKown, P.E.**

**McKown Associates, LLC**

# **Summary of Qualifications**

## **Andrew McKown, P.E.**

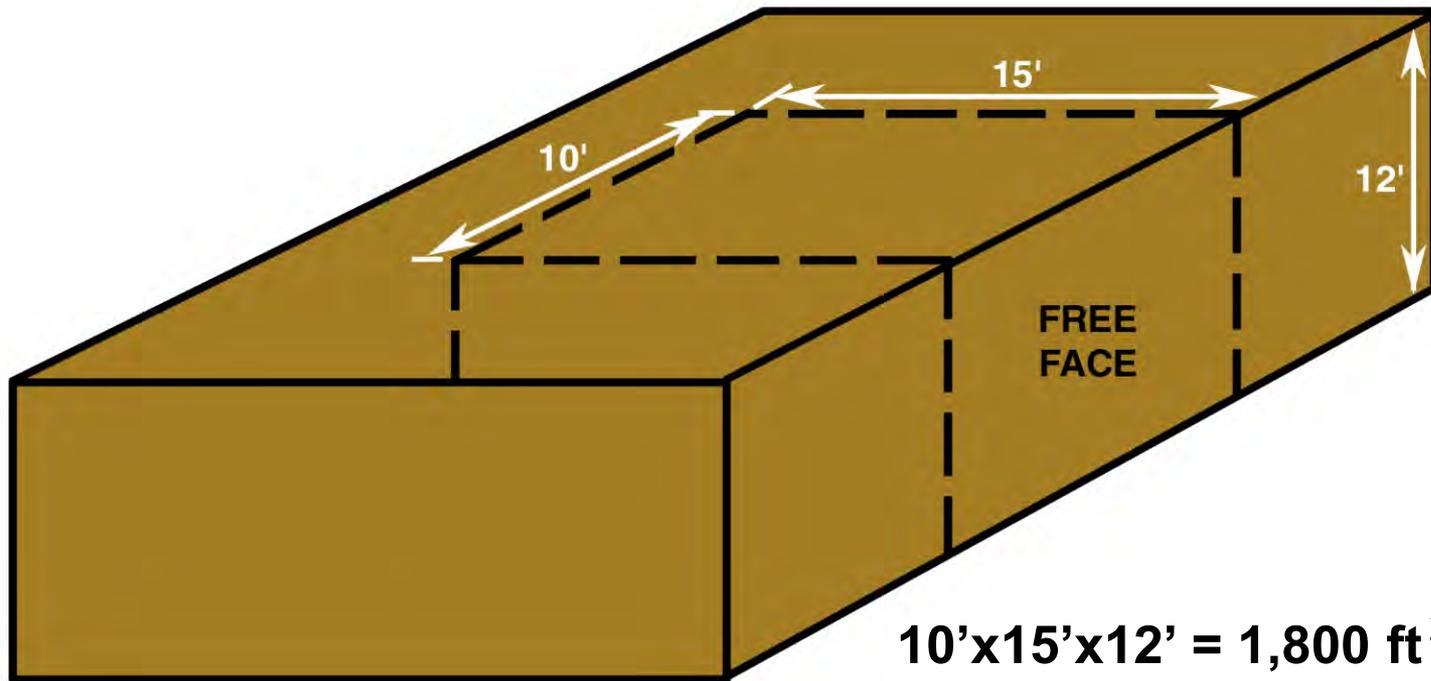
- **B.S. Civil Engineering, Tufts University**
- **M.S. Civil Engineering, MIT**
- **Professional Engineering License, MA**
- **Authored over 20 Professional papers on Blasting and Rock Engineering**
- **Over 35 Years Consulting on Drilling and Blasting and Rock Engineering projects.**

# **OUTLINE OF PRESENTATION**

- **Principals of Multiple Hole Delay Blasting (Blasting Primer)**
- **Impacts of Blasting**
- **Important Issues and Solutions**
- **Summary and Recommendations**

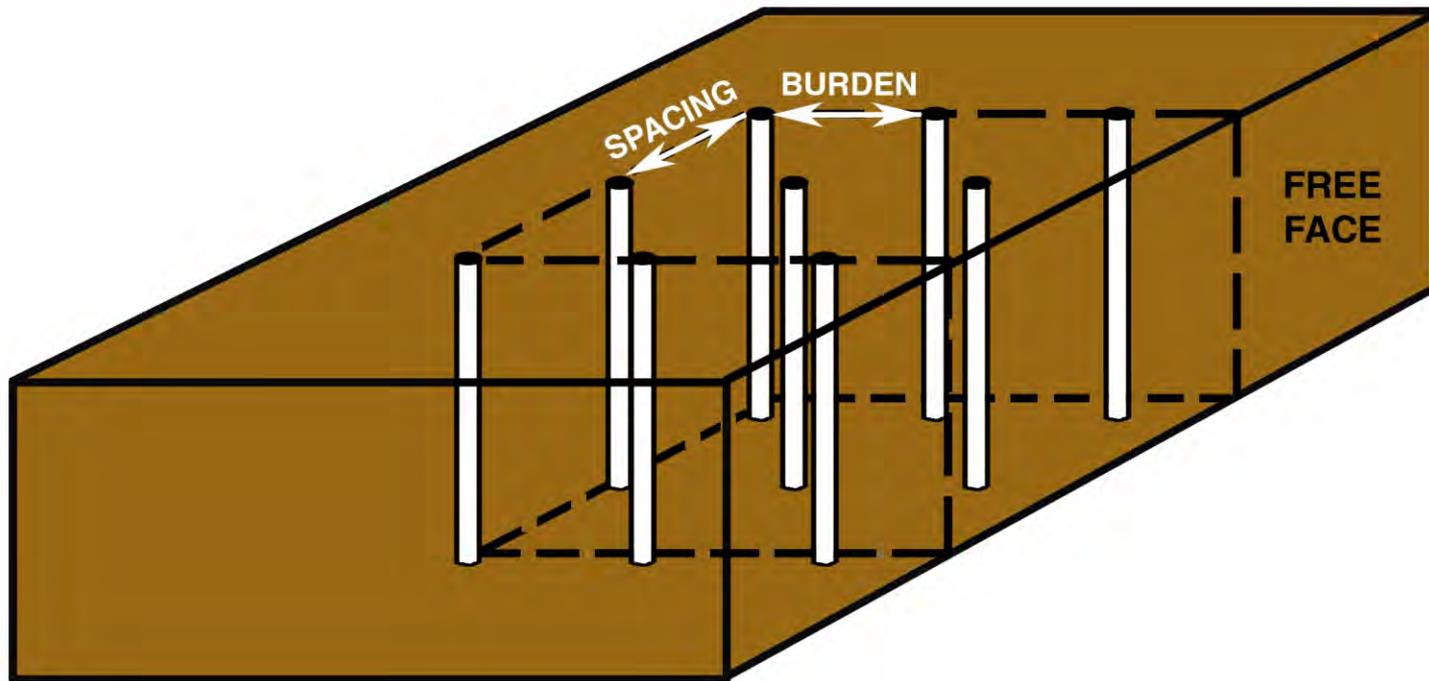
# Blasting Primer

# Three Dimensional View of Rock to be Removed - Bench Blasting

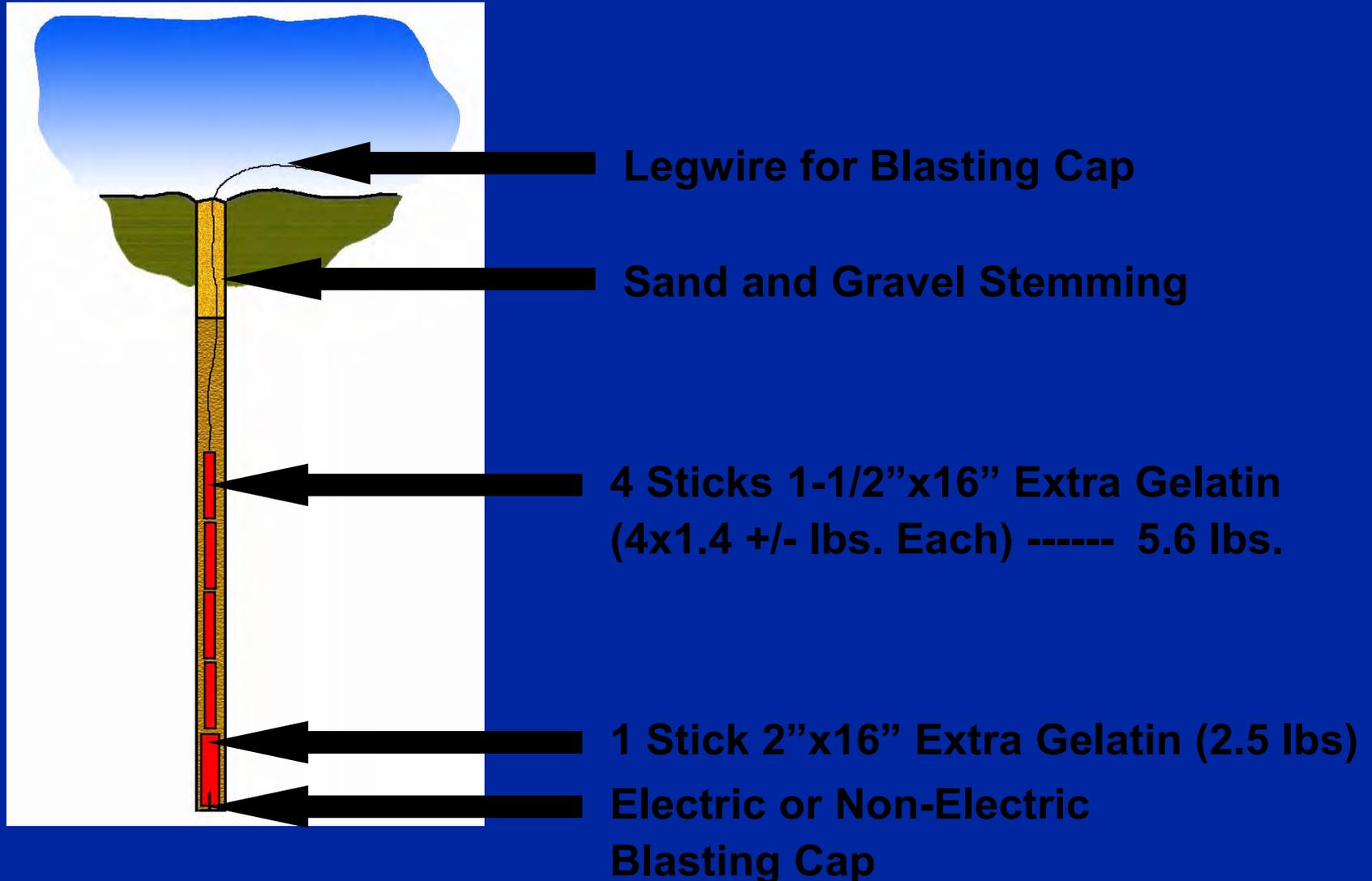


$$10' \times 15' \times 12' = 1,800 \text{ ft}^3$$
$$= 67 \text{ yd}^3$$

# Three Dimensional View of Drill Holes for - Bench Blasting

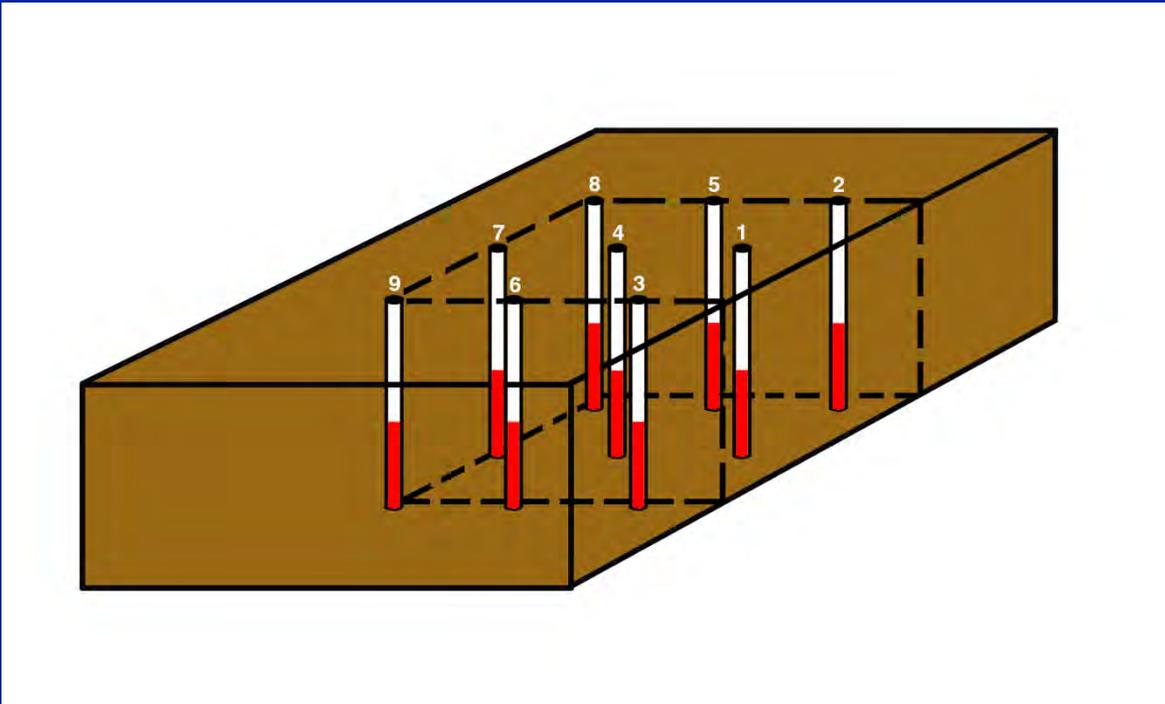


# Typical Hole Loading



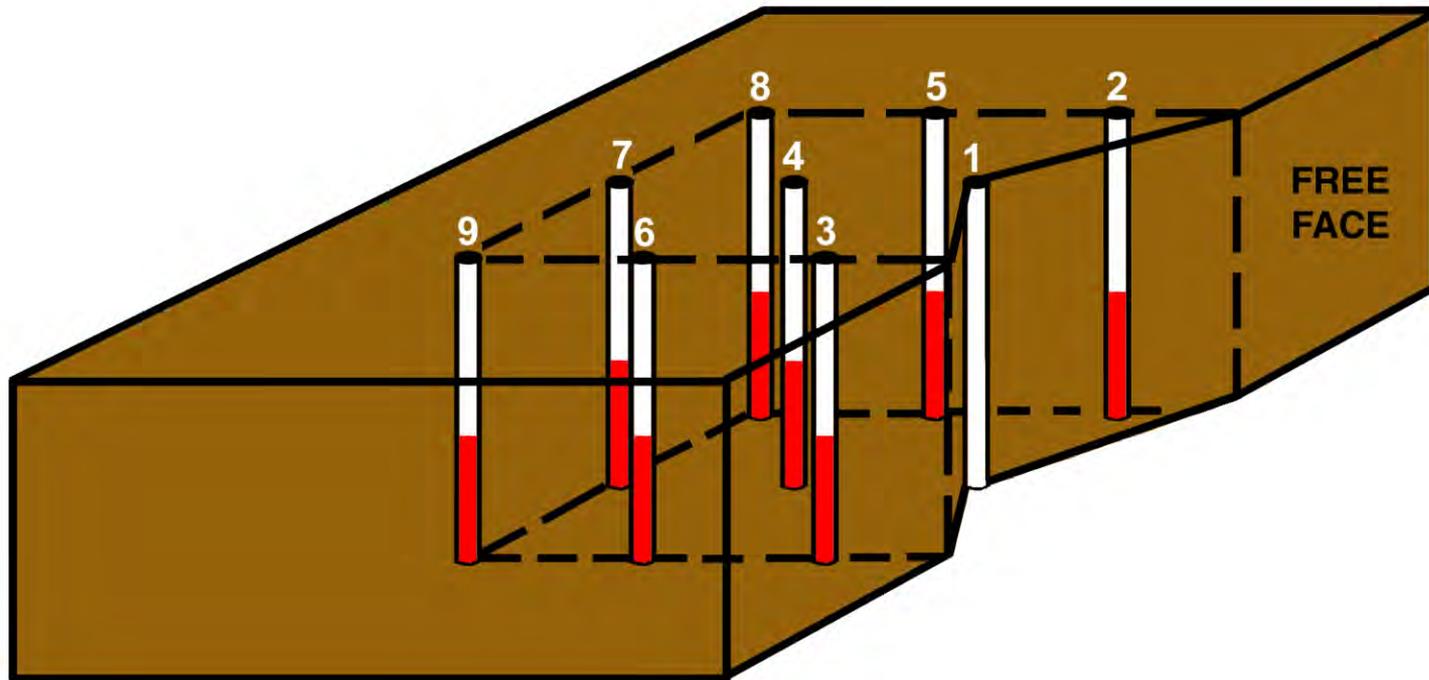
# Typical Bench Blast Round Design

- 8.1 lbs. Per hole x 9 holes = 72.9 lbs.
- Powder Factor =  $72.9\text{lbs} / 67\text{cy} = 1.08\text{lbs/cy}$
- Each hole on separate delay (1 thru 9)

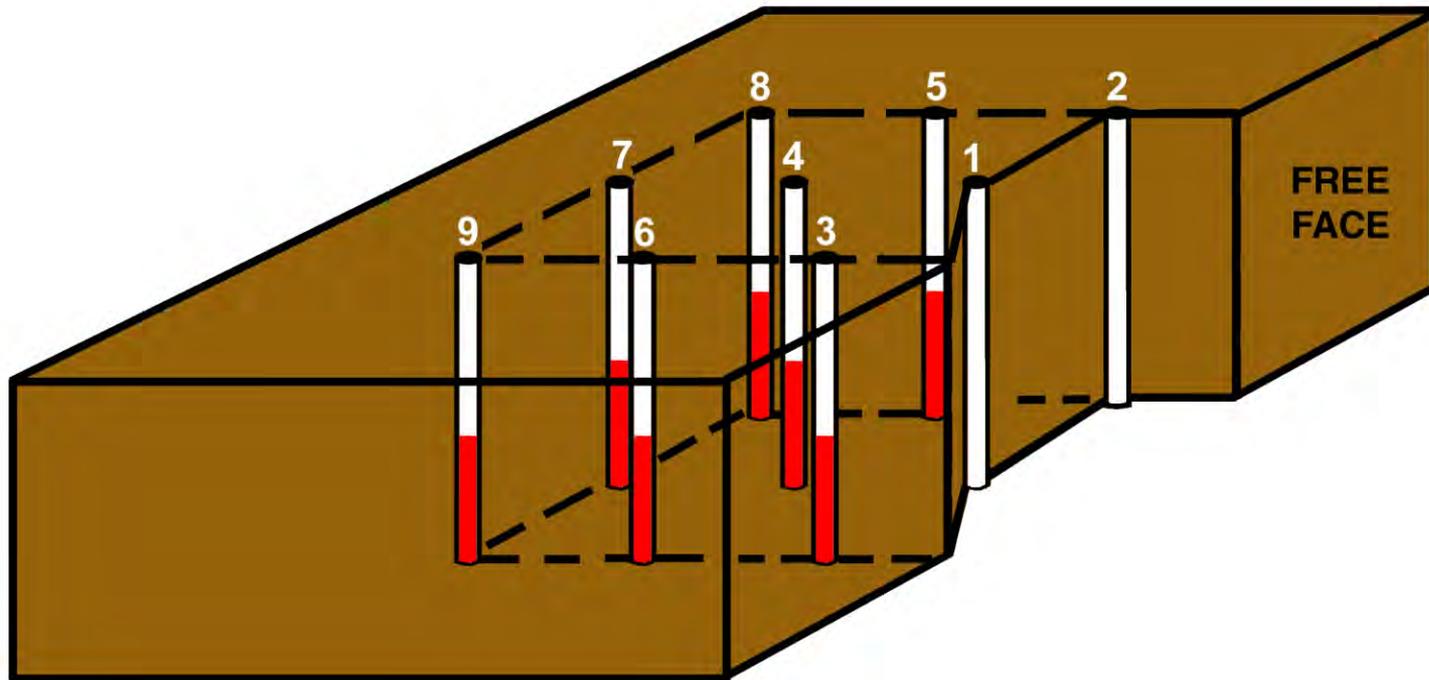


Delay Number	Average Firing Time (milliseconds)
1	25
2	50
3	75
4	100
5	125
6	150
7	175
8	200
9	225

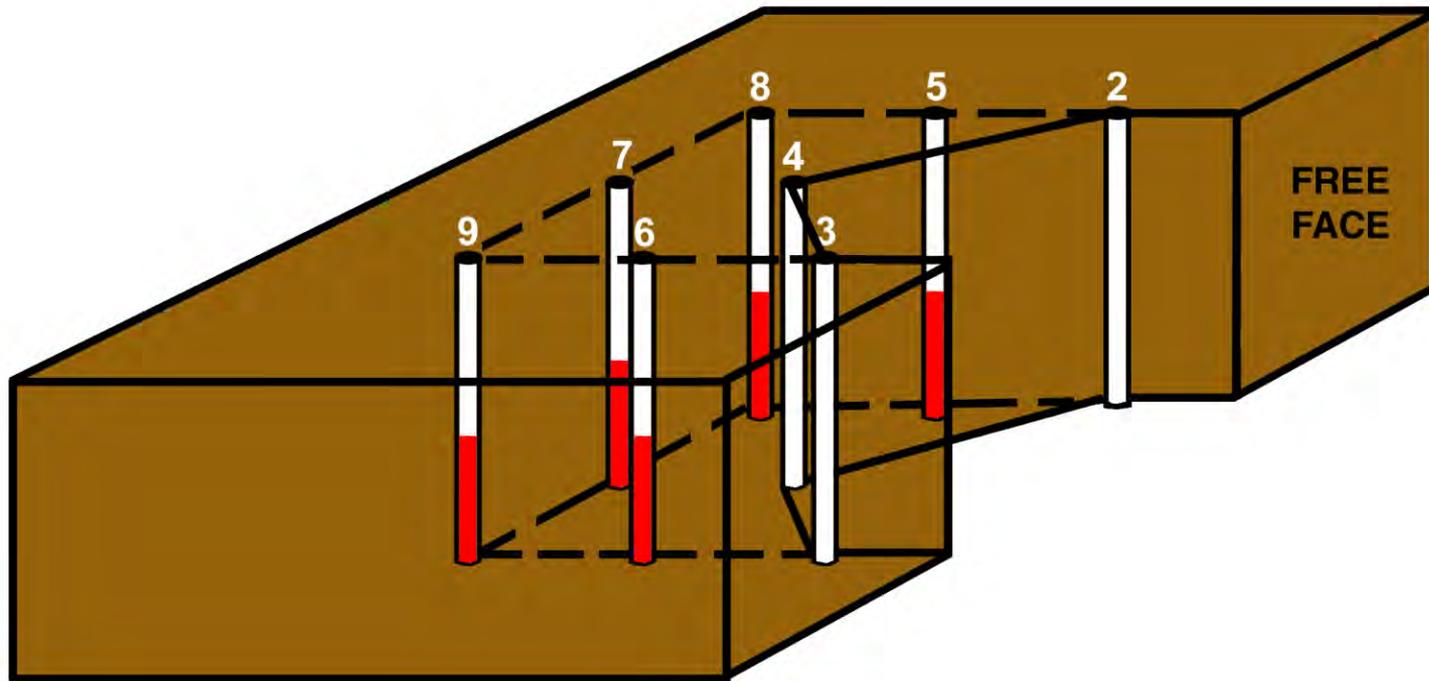
# Bench Blast Round - After Delay 1



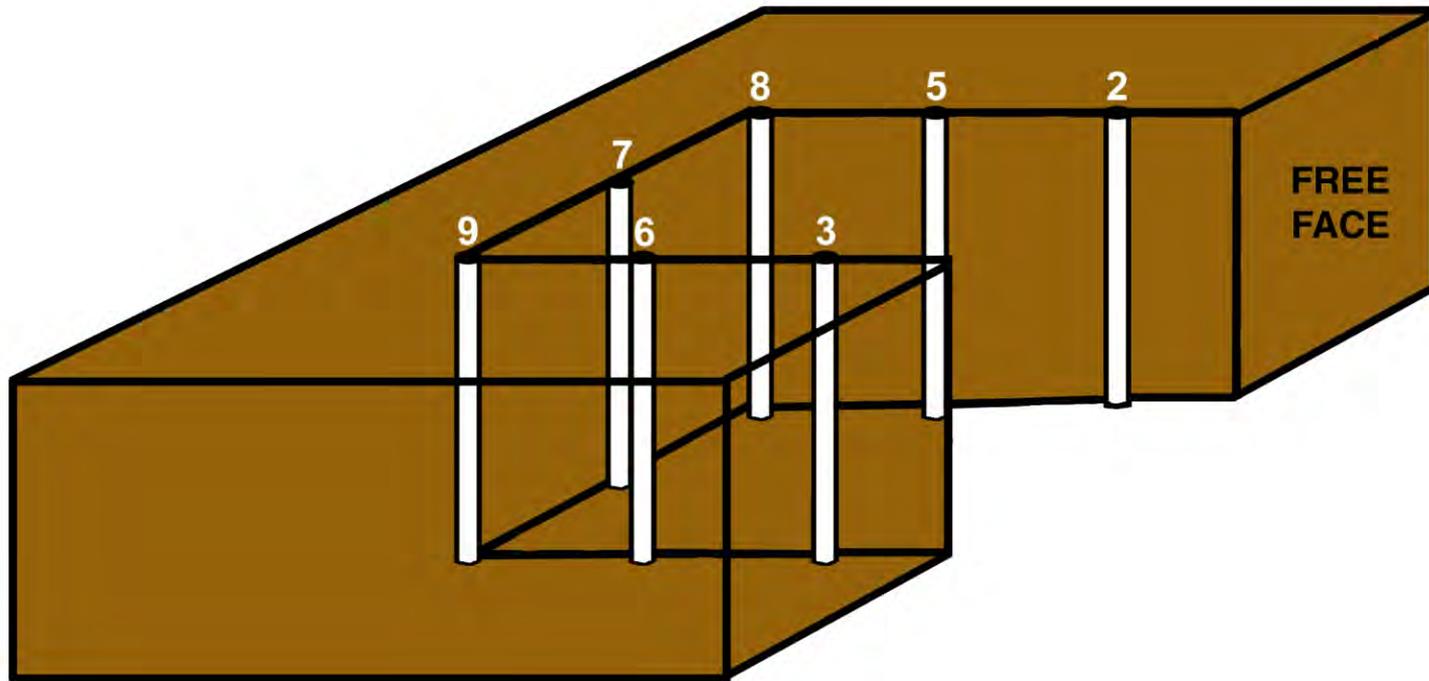
# Bench Blast Round - After Delay 2



# Bench Blast Round - After Delay 4

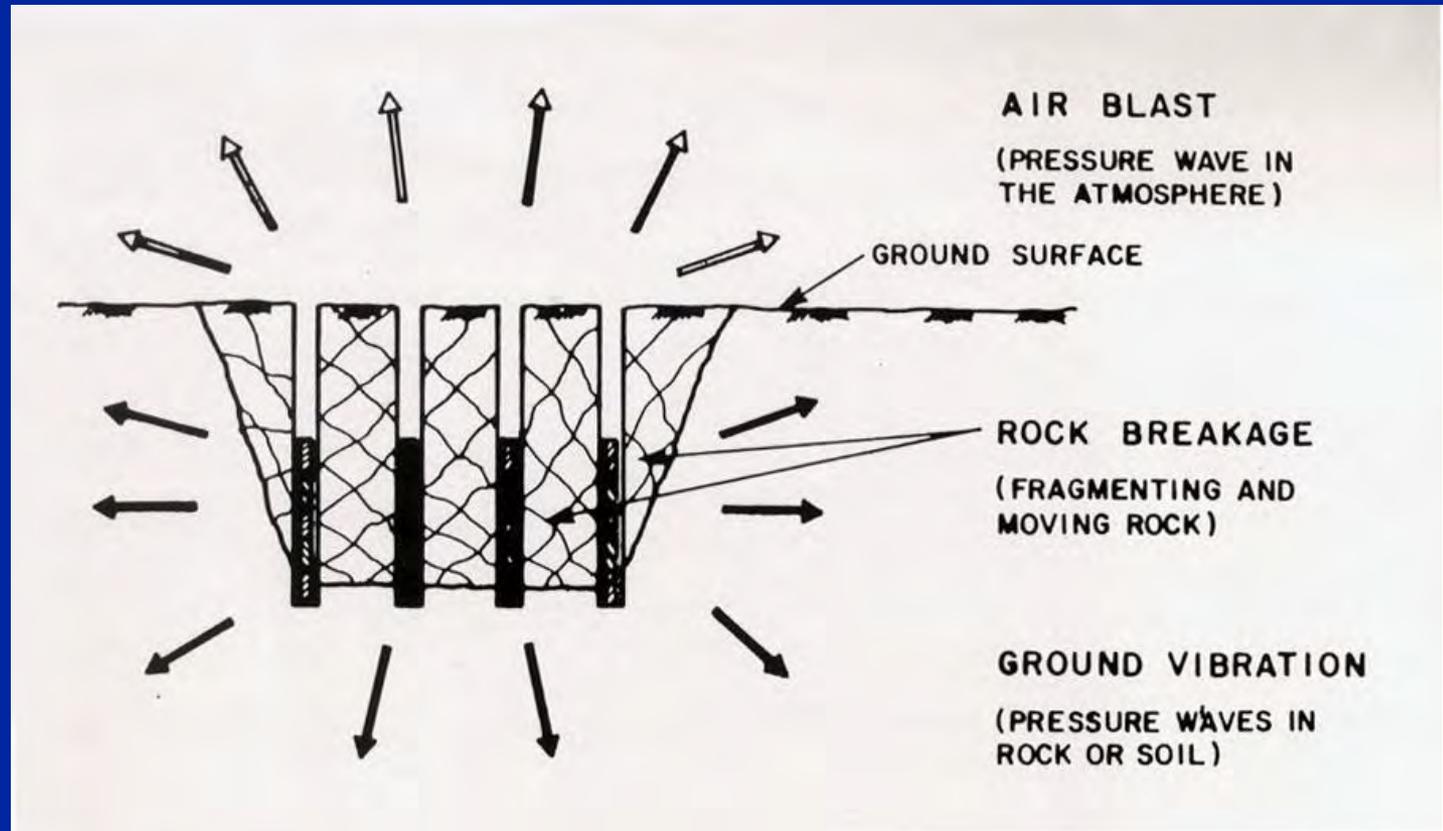


# Bench Blast Round - After Blasting Completed



# Impacts of Blasting

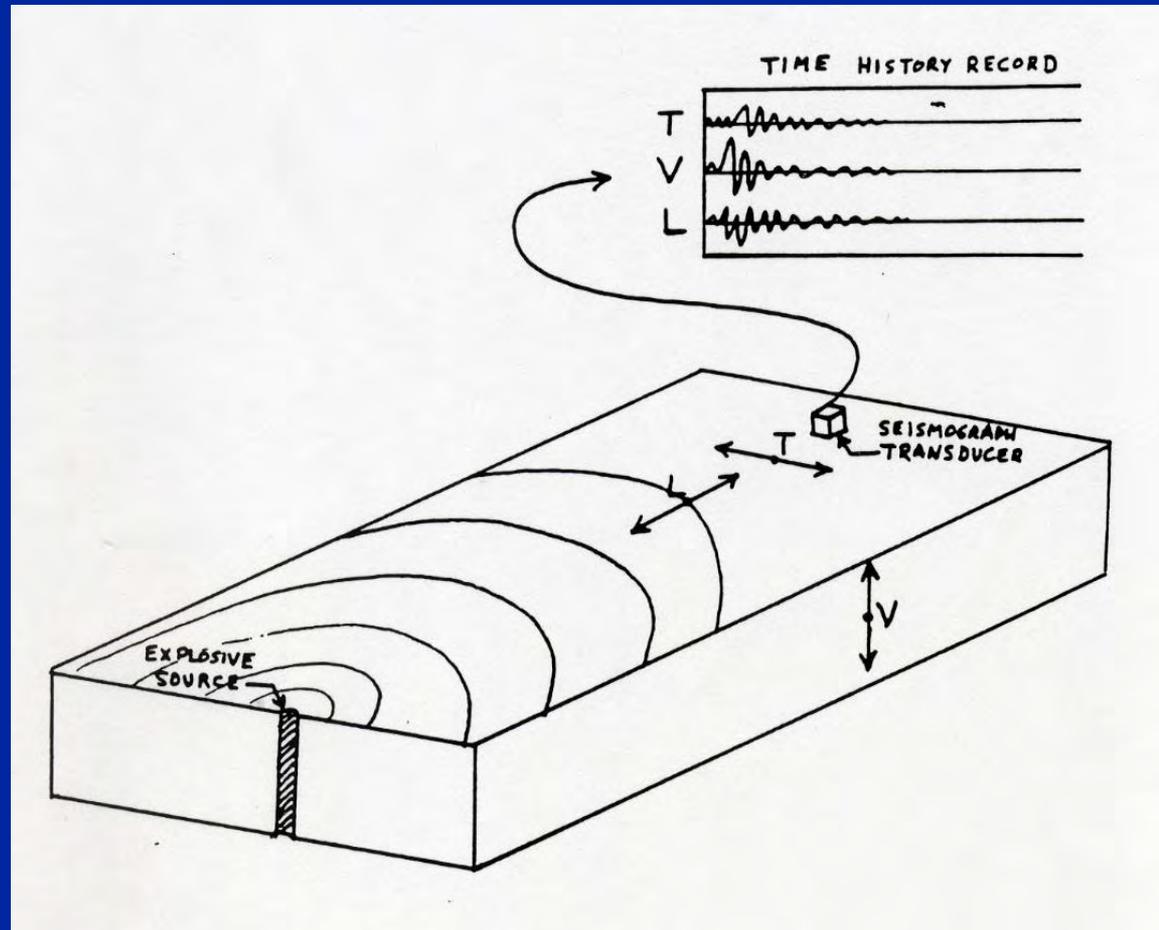
# Results of Explosive Energy Release



# Undesirable Side Effects of Blasting

- Elastic Ground Vibrations
- Airblast Overpressure
- Permanent Non Elastic Ground Deformations
- Flyrock

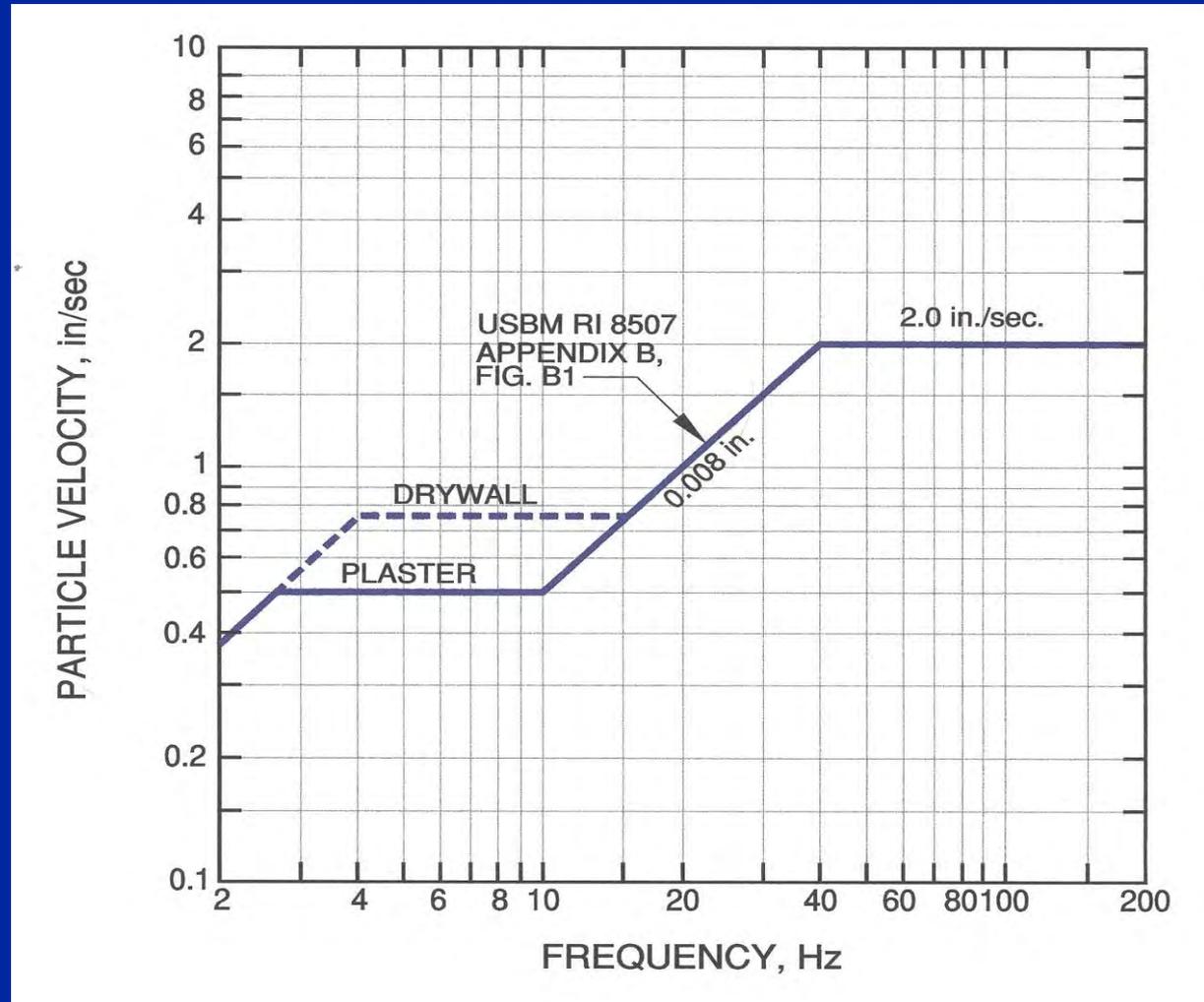
# Seismograph Monitoring of Elastic Ground Vibrations



# Measurement of Elastic Ground Vibrations

- Peak Particle Velocity, inches per second (in/sec)
- Acceleration, inches per second <sup>2</sup> (in/sec<sup>2</sup>)
- Displacement, inches (in)
- Frequency, cycles per second, or Hertz (Hz)

# USBM Safe Vibration Limits for Residential Structures



# **USBM Safe Limits – What they are and What they are not**

**Safe Limit to prevent cosmetic damage to residential structures (plaster cracks, NOT structural damage)**

**Safe limit, Not damage threshold, set at < 5% probability of cosmetic damage. (3 to 5 in/sec to get 50% probability of cosmetic damage)**

# **USBM Safe Limits – What they are and What they are not**

**Not safe limit for massive engineered structures, underground structures, pipelines, etc, only residential structures. Safe Limit higher for these structures.**

# **Vibration Limits, Underground Structures, Pipes**

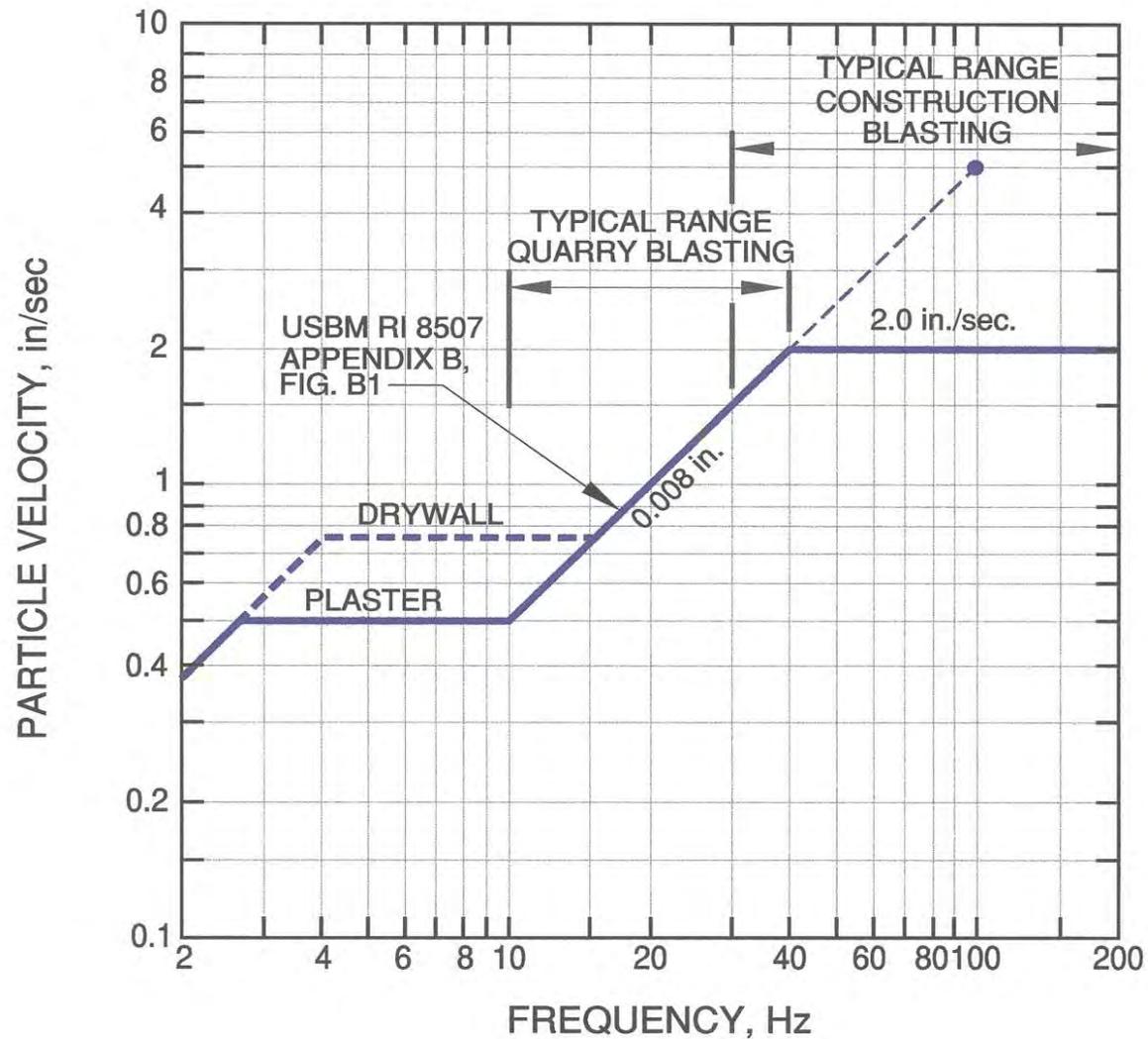
**Buried Structures: Bridge Abutments, Retaining Walls, Fdn Walls, Pipelines**

- Massive, strong materials**
- Confined By Ground**

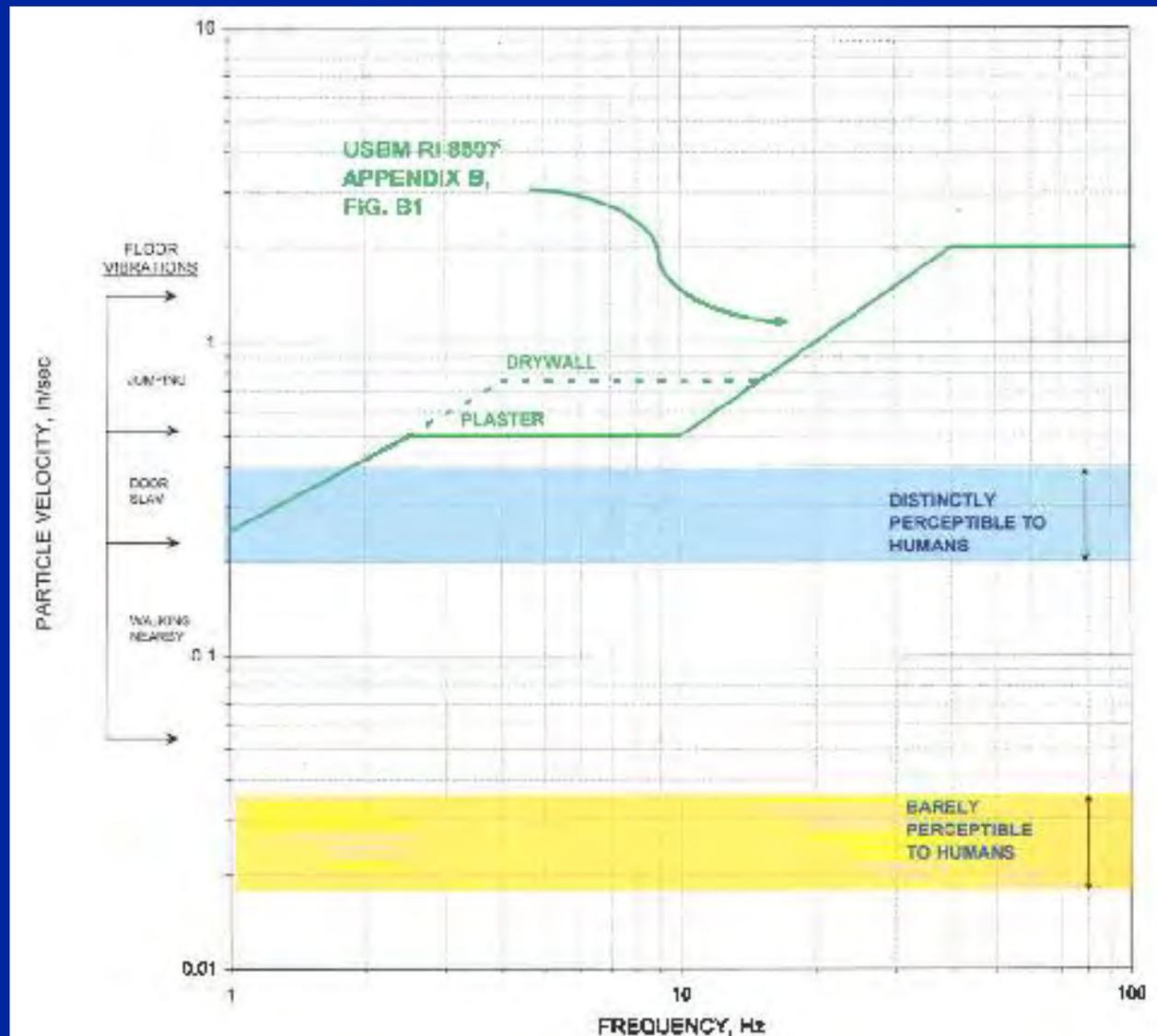
**Safe PPV: Reinf concr: 4-8 in/sec**

**Gas pipelines: 5-10 in/sec**

# USBM Safe Vibration Limits with Typical Frequency Ranges

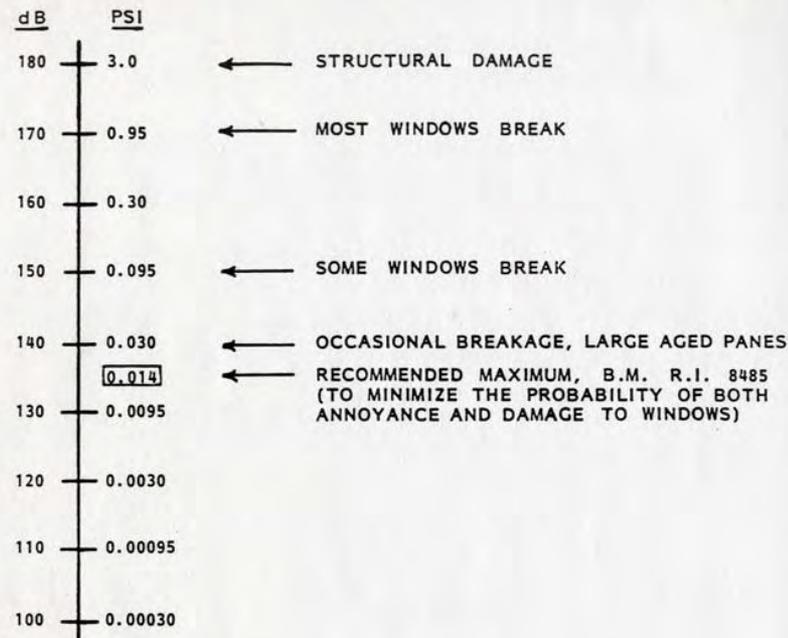


# Human Response to Vibrations, and Typical Floor Vibrations



# Air Blast Overpressure Damage Criteria

## AIR BLAST OVERPRESSURE



$$dB = 20 \text{ LOG} \left( \frac{P}{P_0} \right)$$

WHERE dB = OVERPRESSURE IN DECIBELS (LINEAR PEAK)

LOG = COMMON LOGARITHM

P = OVERPRESSURE IN POUNDS PER SQUARE INCH (PSI)

P<sub>0</sub> = 3 X 10<sup>-9</sup> PSI

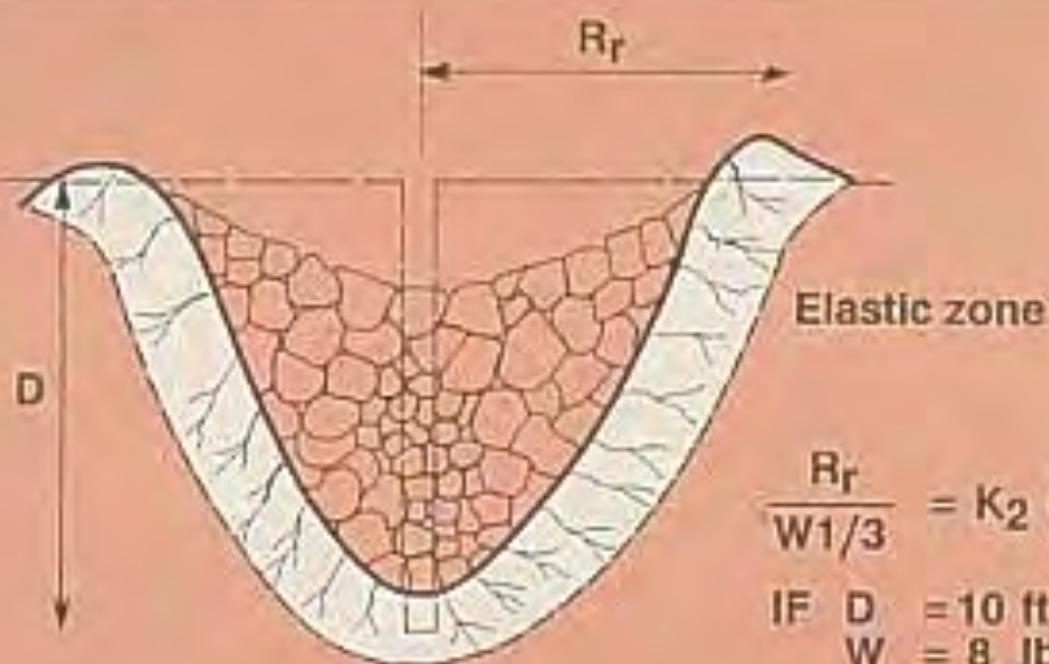
# **Permanent Non Elastic Ground Deformation**

## **For Close In Blasting**

- Below Level Of Adj. Structure**
- Within 0 To About 20 To 40 Ft**

**Permament Ground Deformations  
(Ground Heave, Block Movement)  
May Be GREATEST THREAT To  
Structure Or Utility.**

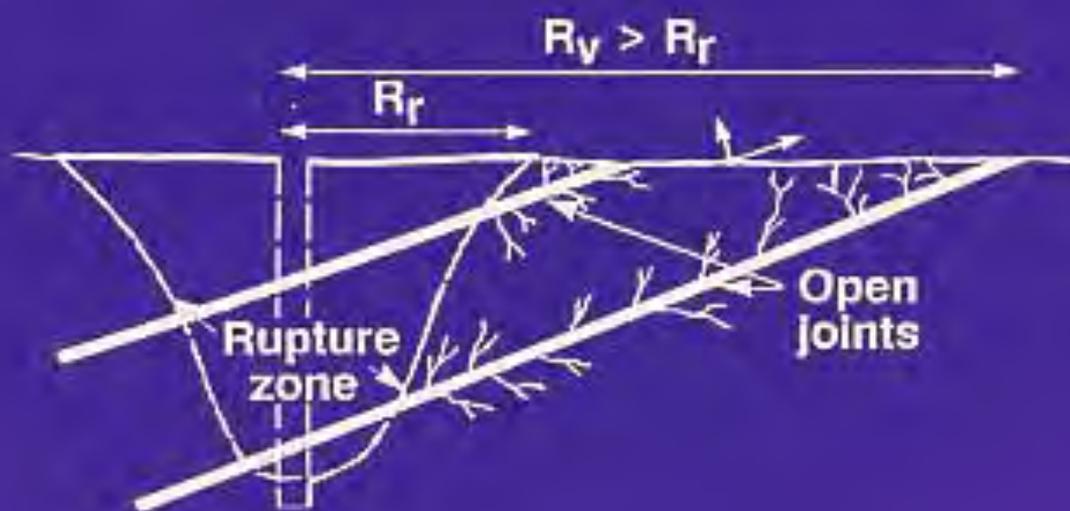
## CRATERING RUPTURE ZONE



$$\frac{R_r}{W^{1/3}} = K_2 \left( \frac{D}{W^{1/3}} \right)^{1/4}$$

IF  $D = 10$  ft  
 $W = 8$  lbs  
 $K_2 = 3 \pm$   
 $R_r = 9$  ft

## DAMAGE AND BLOCK MOVEMENT FROM GAS VENTING



# Protective Measures Against Excessive Ground Deformations

- Provide Good RELIEF
- Observe Geology
- Watch For/Monitor Ground Heave, Block Movement
- Closer Hole Spacing, Smaller Dia. Holes
- Good perimeter control blasting to minimize overbreak.

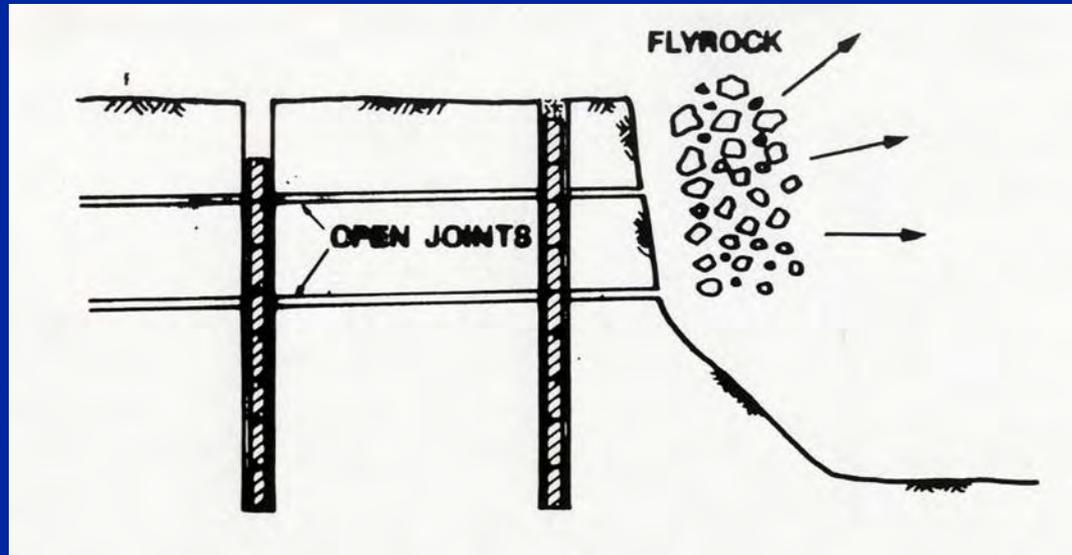
**Flyrock** - Undesirable throw of rock fragments from a blast round

- Throw of blasted rock beyond the safe blasting area

**Why Flyrock Undesirable**

1. Causes real damage
2. Injury potential

# Some Causes of Flyrock



- Rock discontinuities (open joints, seams, cavities)
- Overloading of holes
- Insufficient stemming
- Inadequate burden
- Improper timing
- Lack of blasting mats

Flyrock

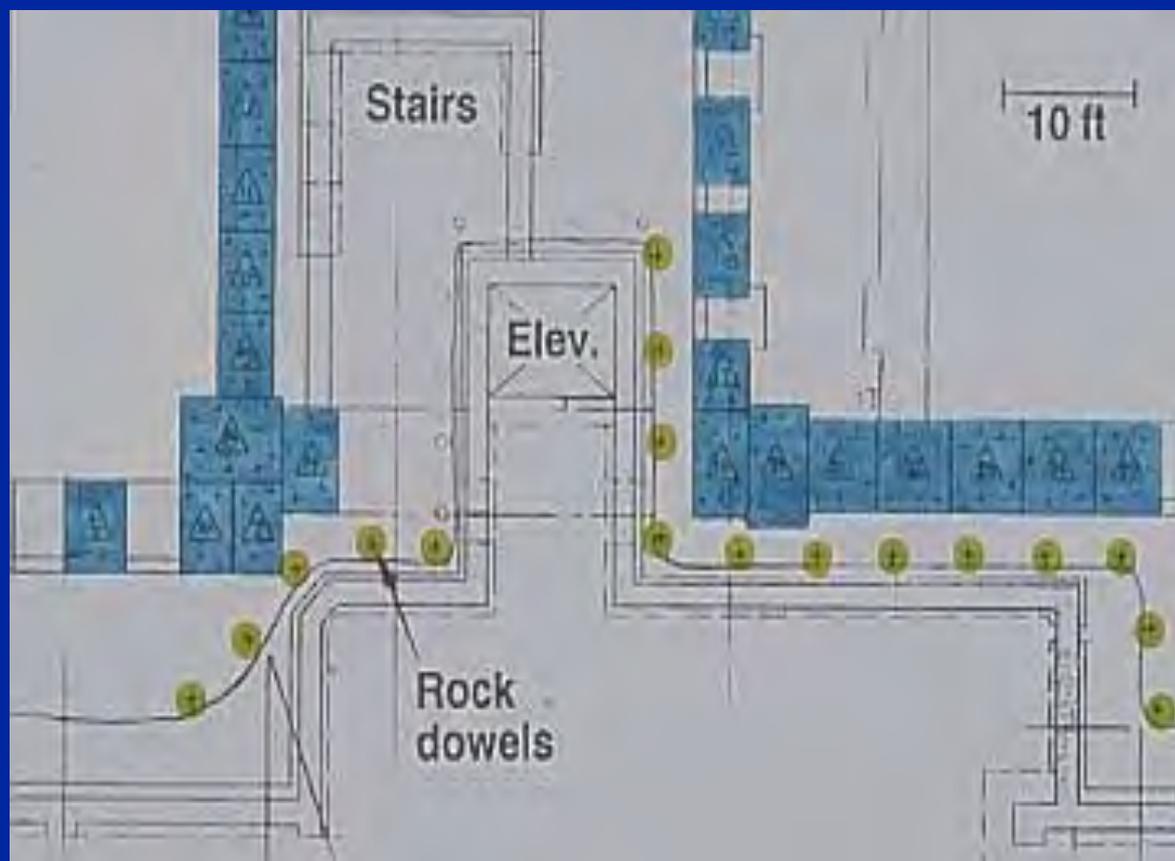
# Measures to Prevent Flyrock

- **Use Blasting Mats**
- **Observe Geology, look for open seams**
- **Videotape blast rounds – watch for little problems, prevent bigger problems**
- **Closer Hole Spacing, Smaller Dia. Holes**
- **Don't use ANFO in built up areas (free pouring, produces more gasses)**

# **CLOSE IN BLASTING CASE HISTORYS**

- **Cornell Underground Library**
- **Maine Statehouse**
- **Charles River Park (Adjacent to Mass General Hospital)**





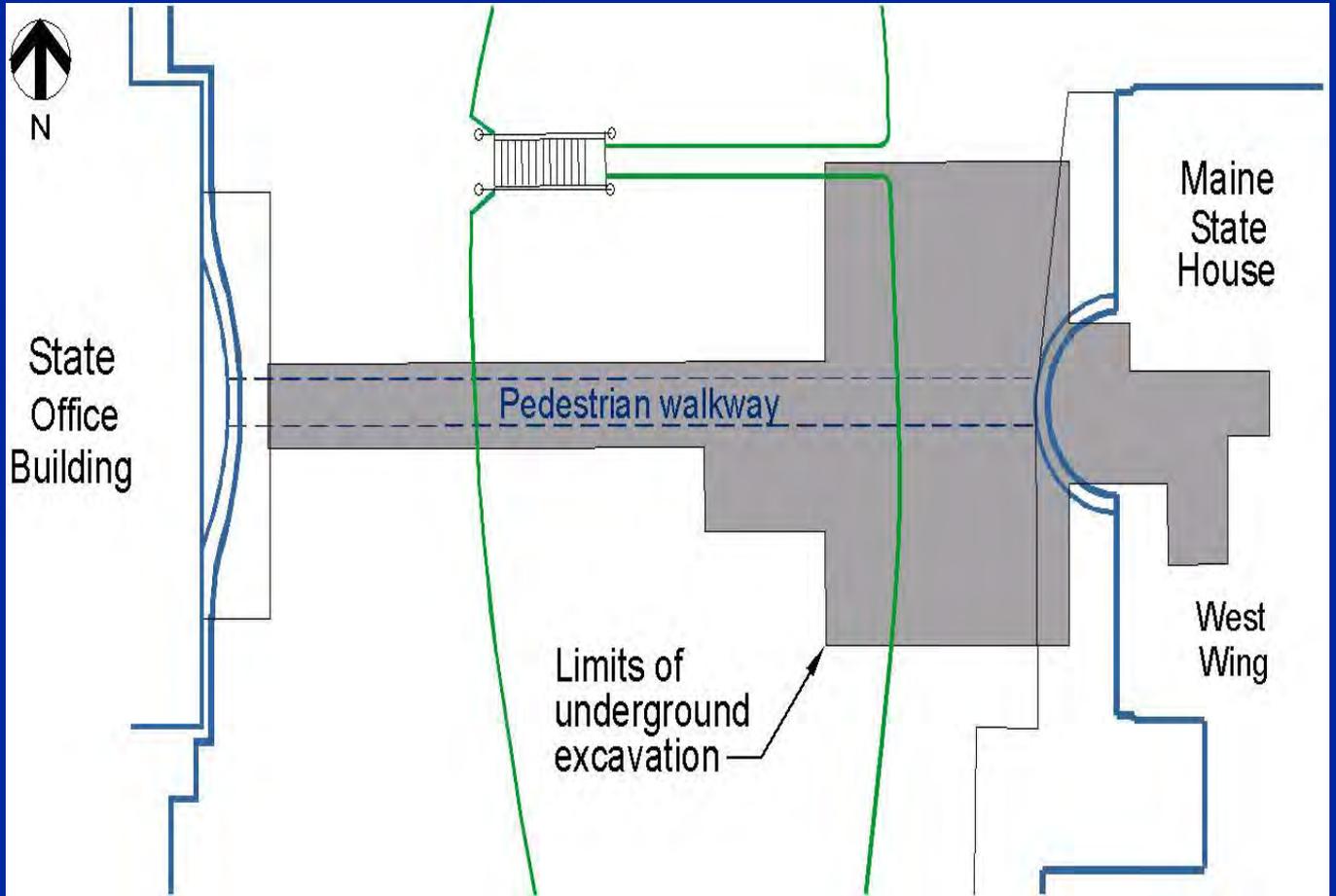






# Maine Statehouse Addition Blasting













# Charles River Park High Rise Project: Blasting 80 ft from Mass. General Hospital



# Up to 35 ft rock cuts, Blasting 80 ft from Hospital with Spinal Surgery on Second Floor, Sensitive Equipment throughout



# Protecting Against Claims Resulting from Blasting

## Public Relations Program

### Key Elements:

- Pre-blast Information Meeting with Neighbors
  - Review Blast Impacts, Mitigations Measures
  - Will Feel vibrations, doesn't mean damage
  - Answer Questions
- Pre-blast condition surveys
  - Opportunity for public relations
  - Point out there are existing cracks
- Periodic Progress Meetings with Neighbors

# Minimizing Impacts from Drilling and Blasting

## Controlled Blasting Specification

### Key Elements:

- Pre-blast condition survey
- Reasonable Blast Vibration Limits
- Pre-Qualification of Blasting Contractor
- Good blasting plan
- Use of blasting mats, Videotaping of Blasts
- Monitoring of Vibrations, Airblast, Crack Gages, Heave

# Pre-Blast Condition Survey

- Document structure condition: Photos and comments, or videotape with comments
- Alert home owners to existing cracks
- Provide information to alleviate fears and concerns

# Set Reasonable Blast Vibration Limits for Project and Site

- Houses: Use USBM Safe Limits
- Close in Engineered Structures (Massive reinforced concrete Bldg), consider higher levels
- Close in pipelines, consider higher levels
- Set settlement, heave criteria at close in structures, utilities

# Pre-Qualification of Blasting Contractor

- **Min 5 yrs of experience with similar type of blasting.**
- **Experience with blasting close to pipelines, structures.**
- **Min \$5,000,000 XCU Liability Insurance.**

# Blasting Plan

- Well thought out blast round design
- Use of scaled distance relationships to set conservative initial max. charge wt. per delay
- Develop rock excavation using:
  - Free surface if available
  - Start at furthest point to buildings
- Good Perimeter Control Blasting design

# Vibration, Heave, Crack Gage Monitoring

- **Vibration Monitoring at nearest structures for every round**
- **At other critical structures, if required**
- **Heave monitoring if close in structures, utilities**
- **Crack gage monitoring on selected existing cracks in structures.**
- **Complete blast monitoring reports, keep on file with time history tapes.**

# Summary

- **Ground Vibration, Airblast Overpressure generally produce most concern to Engineers and the Public, but almost never produce any real damage. Human perception is issue. Good Public Relations is Solution**
- **USBM Safe Limits prevent COSMETIC damage to RESIDENTIAL structures. NOT structural damage limit, NOT threshold damage limit.**
- **Engineered structures, underground structures, pipelines, can and should have higher vibration limits.**
- **Flyrock is single biggest threat from blasting.**

## Summary (cont.)

- Displacements important for close-in blasting
  - Elastic displacement  $< 0.008$  in.
  - Non elastic displacement. Can be  $> 1$  in.
    - Block movement
    - Ground heave
- Protect against non-elastic displacement
  - Look for open joints/seams
  - Prevent excessive confinement
  - Adequate powder factor
  - Line drilling/cushion blasting at perimeter

# Recommended conditions for Special Permit Decision

- **Independent Blasting Consultant for Town of Brookline- McKown Associates**
  - Review Qualls of Blasting Contractor
  - Review Blasting Plan
  - Check seismograph placement, calibration
  - Ongoing review of Blast vibration data.
  - Consult with Brookline Fire Deptardment
- **Preblast Surveys to 300 ft from blasting; except 400 ft around Building 10 (30 ft rock cuts)**

# Recommended conditions for Special Permit Decision

- **Insurance Coverage: \$5,000,0000.**  
comprehensive Liability Insurance for damage to structures caused by underground explosion and collapse hazard.
- **Blasting Vibration Limits: State (USBM) Safe Limits**
- **Airblast Overpressure Limits: State (USBM) Safe Limits**
- **Notification: Not less than 72 hours prior to commencement of any blasting, hand written notifications to all properties entitled to pre blast condition surveys**

# Recommended conditions for Special Permit Decision

- Road Closures of adjacent streets kept to a minimum and coordinated with Police, Fire, and Engineering Departments.
- Detailed Blast Plan for Review by Town Blasting Consultant
- Blast Vibration Monitoring for each blast, minimum 5 locations around blast area
- Hours of Drilling and Blasting Limited to 9 AM to 4 PM
- Warning Signals to alert residents prior to each blast (Horn or Whistle)

# Recommended conditions for Special Permit Decision

- **Flyrock Protection Measures:**
  - **Blasting Mats to cover all blasts**
  - **Drillers Logs kept, reviewed by blaster**
  - **No ANFO use on site**
  - **Videtape of each blast (See little problems and correct before they become bigger)**

# Recommended conditions for Special Permit Decision

- **Noise Reduction Measures**
  - **Mufflers on Drills**
  - **Max Noise Levels at nearest residence**  
**86dBA**
  - **Measurements periodically with A weighted**  
**Sound Level Meter.**

# Recommended conditions for Special Permit Decision

- **Dust Protection Measures:**
  - No Rock Crushers on Site
  - Dust Collectors on all Drill rigs
  - Wetting down blast muck
  - Covers on Trucks transporting rock muck
  - Dust Level Limits at Property Lines: 150 micrograms per cubic meter of air (PM10 Breathable particulate matter)
  - Continuous monitoring at 5 locations.

# Recommended conditions for Special Permit Decision

- **Stability of Rock Cut Slopes**
  - **At Parking Garage, other permanent rock cuts 10 ft or greater, utilize perimeter control blasting procedures (Presplitting, Trim Blasting, Line drilling) to provide safe and stable final slope.**

**QUESTIONS?**

**From:** Patrice Mutchnick  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** COMMENTS-COBRE-CONTINENTAL MINE PROPOSAL-RESUMPTION OF OPERATIONS  
**Date:** Thursday, September 14, 2017 6:18:02 PM

---

Dear Mr. Hollen

It is critical that Freeport-McMoRan Cobre Mining Company take care of the health of the citizens in the area of its operations in Grant County. Freeport should be compelled to install air quality monitors and guarantee local residents that they plan to use the best practices possible at controlling dust emissions. Freeport should be under the supervision of the state Air Quality Bureau and follow all applicable guidelines.

Water protection is also important to all of us in southwest New Mexico and regulators should make sure that Freeport follows all guidelines and policies of the NM Mining Act and the state Water Quality Act.

Freeport should be held accountable to control, noise and light pollution during its blasting operations. We urge you to hold Freeport to the highest industry standards and compel them to submit a comprehensive blasting plan.

In conclusion, please consider the financial health of residents in Grant County and make sure that Freeport has adequate financial resources and commits those as an assurance that they will fully comply with comprehensive clean-up obligations in the event of a company bankruptcy.

Thank you for upholding citizen interests as your highest priority and requiring Freeport to adhere to the best industry standards to protect the

health and safety of NM residents and to protect our environment.

Thank you,

Patrice Mutchnick

10 Airstrip Road

Gila Hot Springs,

Silver City, NM 88061 and

**From:** owen  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Public Comments on Re-Opening of Cobre Mine  
**Date:** Friday, September 15, 2017 9:18:40 PM

---

Dear Mr. Hollen,

- **Require that Freeport-McMoRan follow industry best practice for environmental management at its Cobre Mine operations.**
- Compel Freeport to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.
- Direct Freeport to implement a blasting plan that meets industry standards to protect public safety and structures during blasting for the haul road and mining of Hanover Mountain.
- Require the company implement a noise and light mitigation plan.
- **Minimize air quality impacts to nearby residents by requiring air quality monitoring and maximum dust mitigation.** Cobre mining operations will cause air quality impairment due to fugitive dust emissions from blasting, transport of ore on the haul road, and materials handling. Residents of Fierro and Hanover live very close to these operations and could experience poor air quality.
  - Freeport should install air quality monitors to ensure that public health is protected from fugitive dust from its mining activities.
  - The state Air Quality Bureau should require Freeport to implement all applicable dust control measures to minimize fugitive emissions, including watering of or surfactant application to haul roads, dust suppression during materials handling such as bulldozing, scraping and materials loading, covering of haul truck beds, wind speed reduction measures, truck speed control, and cessation of operations when winds exceed 25 mph.
- **Ensure that ground and surface water quality will be protected through implementation of adequate reclamation and containment of groundwater contamination.** Regulators should strictly enforce the NM Mining Act and state Water Quality Act to protect ground and surface water quality. Strong state regulatory oversight is needed for implementation of engineering controls at the South Waste Rock Disposal Facility.
- **Require Freeport-McMoRan to put up adequate financial assurance so taxpayers and the community don't bear the costs of clean up should the company go bankrupt.** Freeport won't agree to industry best practice for estimating indirect costs associated with mine reclamation. If the company wins this fight and doesn't post a bond or other financial instrument sufficient to cover the full cost of clean up, the public could be left holding the bag if the company defaults before it reclaims Cobre.

**From:** Patrick Gendron  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Do the right thing  
**Date:** Wednesday, September 13, 2017 8:54:46 AM

---

Cmon James. We are watching. We will not give up. You know what is right for NM!

- **Require that Freeport-McMoRan follow industry best practice for environmental management at its Cobre Mine operations.**
- Compel Freeport to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.
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Sent from my iPhone

**From:** Morgan Paige  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Public Comments on Re-Opening of Cobre Mine  
**Date:** Thursday, September 14, 2017 4:34:13 PM

---

Hello, James.

**I thank you in advance for taking the time to read my email, and for your service to the public good. As a resident Grant County, I am concerned about the reopening of the Cobre Mine, and I am writing to make the following pleas:**

- **Require that Freeport-McMoRan follow industry best practice for environmental management at its Cobre Mine operations.**
- Compel Freeport to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.
- Direct Freeport to implement a blasting plan that meets industry standards to protect public safety and structures during blasting for the haul road and mining of Hanover Mountain.
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- **Minimize air quality impacts to nearby residents by requiring air quality monitoring and maximum dust mitigation.** Cobre mining operations will cause air quality impairment due to fugitive dust emissions from blasting, transport of ore on the haul road, and materials handling. Residents of Fierro and Hanover live very close to these operations and could experience poor air quality.
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**From:** Max Yeh  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Public Comment on the Re-opening of Continental Mine near Silver City  
**Date:** Friday, September 15, 2017 10:15:33 AM

---

Dear Mr. Hollen,

I write to ask that NMMMD hold Freeport McMoran Cobre to strict best practices in the proposed re-opening of the Continental Mine. In particular, I am most concerned with the bond FMcMC will post for environmentally sound closure. In the past, the company has offered land to the state as assurance. However, often these were properties that the company had bought for their water rights. Once stripped of the rights, the land remains worthless. The MMD should be wary of such manoeuvres and insist that the bond be valid and sufficient. It should also be aware that as a large and powerful player in New Mexico politics the company has tried in the past to redefine the laws so that effectively closure never happens, for example, by allowing unlimited “temporary closure.” The MMD should hold to a limited term for interim closure specified in the terms of its permit.

NMMMD needs to insure that during operation, best practices are followed relative to the structures of the tailing impoundment and the waste water storage.

Dust storms are frequent at the mining sites near Silver City, and abatement of some kind must be offered.

Respectfully,

Max Yeh  
Hillsboro, NM



Virus-free. [www.avast.com](http://www.avast.com)

**From:** drnachoq@yahoo.com  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Cobre Mining Permit  
**Date:** Friday, September 15, 2017 3:50:14 PM

---

Dear Mr. Hollen,

Please include my comments in regards to the permit process of the Cobre Continental Mine:

I am opposed to the granting of a permit to Freeport-McMoran for the Cobre Continental Mine to resume operations. Mining has created serious pollution issues for Grant County. Groundwater pollution is an ever increasing problem for the health of Grant Countians, especially in the mining district. Air quality & pollution due to dust, chemicals, etc., also impact our citizens. The pollution and toxic waste from decades of mining is very evident in Grant County. I grew up less than 30 yards from Whitewater Creek, which runs through Bayard. I saw first-hand the toxic pollution that was dumped by the mines into this creek as a child into adulthood. It would be a mistake to allow the Cobre Continental Mine to re-open. The destruction of Hanover Mtn, the added pollution to our water, the added pollution to our air, the problems associated with mining, roadways to & from, plus the over-consumption of water to meet the mines' insatiable thirst, all this must be considered to reject this permit.

Thank you.

Luis I. Quiñones, Ph.D.

*Sent from my Boost Mobile Phone.*

**From:** Carol Sassaman  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Fwd: Take action today! Public comments on reopening of Cobre mine due Friday  
**Date:** Wednesday, September 13, 2017 3:52:58 PM

---

Since I can't say this any better than Allyson Siwik, I'm forwarding what she wrote and just saying "ditto."

Thankyou,  
Carol Sassaman  
Hanover, NM

----- Forwarded message -----

**From:** **Gila Resources Information Project** <[grip@gilaresources.info](mailto:grip@gilaresources.info)>  
**Date:** Wed, Sep 13, 2017 at 7:14 AM  
**Subject:** Take action today! Public comments on reopening of Cobre mine due Friday  
**To:** [carol.sassaman@gmail.com](mailto:carol.sassaman@gmail.com)

Having trouble viewing this email? [Click here](#)



Speak up for Grant County's water supplies and environment!

***Speak Up for Grant County's  
Water Supplies & Environment!***  
**Cobre-Continental Mine  
Proposal to Resume  
Operations**  
**Public comments due Friday**

Freeport-McMoRan Cobre Mining Company has proposed to take the Continental Mine off of standby status and resume operations. Because Freeport needs its state permits, now is



A bridge like this one will be built over Hwy 152 so that copper ore can be

the public's chance to demand that Freeport's operations don't pollute ground and surface water, impair air quality, damage nearby buildings from blasting, and cause noise and light impacts.

hailed from Cobre Mine to Chino for processing.

**Please speak up on behalf of Grant County's water supplies and environment by submitting public comments to MMD by Friday, September 15.**

Although reopening the Cobre mine will bring economic benefit to Grant County, Freeport shouldn't make millions of dollars in profit at the expense of our environment and public health. **We need to demand that Freeport follow industry best practices for responsible environmental management at the Cobre mine!**

#### Background

Inactive since 1999, the company must obtain permits under the NM Mining Act and Water Quality Act to cover operations and reclamation for closure/closeout, including construction of the 3.6 mile-long Cobre Haul Road that will transport copper ore from the Continental Pit and Hanover Mountain to Chino Mine for processing.

There will be a significant amount of blasting to construct the haul road and to mine Hanover Mountain, causing air quality, noise, and vibration impacts. Industry best practices should be followed to mitigate these negative impacts to nearby residents.

Because the Main Tailings Impoundment was constructed from 1967 to 1999, it was designed and constructed using outdated technology. Indeed, Freeport was forced to stabilize the impoundment in 2005. It is critical that an evaluation of potential catastrophic failure of the impoundment be conducted prior to resumption of mining operations.

The new South Waste Rock Disposal Facility will require engineering controls to contain and capture contaminated groundwater. Ongoing oversight of implementation of this system will be crucial to ensuring that groundwater is protected.

#### Comments you could make to MMD:

- **Require that Freeport-McMoRan follow industry best practice for environmental management at its Cobre Mine operations.**
  - Compel Freeport to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.
  - Direct Freeport to implement a blasting plan that meets industry standards to protect public safety and structures during blasting for the haul road and mining of Hanover Mountain.
  - Require the company implement a noise and light mitigation plan.

- **Minimize air quality impacts to nearby residents by requiring air quality monitoring and maximum dust mitigation.** Cobre mining operations will cause air quality impairment due to fugitive dust emissions from blasting, transport of ore on the haul road, and materials handling. Residents of Fierro and Hanover live very close to these operations and could experience poor air quality.
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- **Require Freeport-McMoRan to put up adequate financial assurance so taxpayers and the community don't bear the costs of clean up should the company go bankrupt.** Freeport won't agree to industry best practice for estimating indirect costs associated with mine reclamation. If the company wins this fight and doesn't post a bond or other financial instrument sufficient to cover the full cost of clean up, the public could be left holding the bag if the company defaults before it reclaims Cobre.

**Send your comments by Friday, September 15 at 5pm to:**

Mr. James Hollen  
Mining Act and Reclamation Program  
Mining and Minerals Division  
[1220 South St. Francis Drive](#)  
[Santa Fe, NM 87505](#)  
[james.hollen@state.nm.us](mailto:james.hollen@state.nm.us)

**For More Information:**

[End Standby Status Application and Continental Mine and Mill Closeout Plan](#)

[Cobre Haul Road](#)

[Blasting Plan](#) and [MMD Approval of Blasting Plan](#)

STAY CONNECTED:



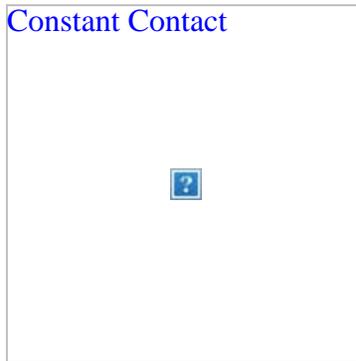
Gila Resources Information Project, [305A North Cooper Street, Silver City, NM 88061](#)

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[Constant Contact](#)



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**From:** Shirley  
**To:** [Hollen, James, EMNRD](#)  
**Cc:** [Shirley](#)  
**Subject:** Cover Mine reopening  
**Date:** Friday, September 15, 2017 4:09:49 AM

---

Mr. James Hollen  
Mining Act and Reclamation Program  
Mining and Minerals Division

Freeport is asking to reopen Cobre mine. Please require that Freeport practice industry best practice for the environment: for water quality and air quality as well as for the sound and fallout from the blasting that will take place. Freeport will make enough money off of the mining of this community natural resource that it must certainly be required to act with responsibility in regard to its practices.

Please:

1. Require implementation of sufficient containment of contaminated water so as not to hurt our groundwater and our wildlife. Freeport has a history of not doing this sufficiently, so strong oversight is needed! Please enforce the NM mining act and other state water quality requirements.
2. Require that Freeport post bond for cleanup if something goes wrong or they leave the area. It is not okay for our community to be left paying for clean up if something does go wrong. This has happened over and over again around our country and it is not okay to ask our citizens to subsidize a wealthy mining company.
3. Require Freeport to install air quality monitors so the residents of the area are protected from the dust from mining activities and construction of roads. Also, steps should be taken to ensure residents of the area are not overwhelmed by the noise of these operations.
4. Please keep in mind that many people like to visit this area. People from the surrounding towns love to visit the church and walk around this area. Please ask Freeport to respect this sacred place and not leave ugly tailings in this area.

Too often your agency has only acted on behalf of the mining company, please keep in mind you actually work for the citizens of New Mexico. The goal of the mining company is to make as much money as it can, that is what corporations do. Your job as our safety protectors is to require that Freeport-McMoRan follow industry best practice for environmental management. Please!

Thank you,  
Shirley Pevarnik  
36 Eagle Nest Dr.  
Silver City, NM 88061

**From:** Shirley  
**To:** [Hollen, James, EMNRD](#)  
**Date:** Friday, September 15, 2017 9:09:00 AM

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Mr. James Hollen  
Mining Act and Reclamation Program  
Mining and Minerals Division

Freeport is asking to reopen Cobre mine. Please require that Freeport practice industry best practice for the environment: for water quality and air quality as well as for the sound and fallout from the blasting that will take place. Freeport will make enough money off of the mining of this community natural resource that it must certainly be required to act with responsibility in regard to its practices.

Compel Freeport to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.  
Direct Freeport to implement a blasting plan that meets industry standards to protect public safety and structures during blasting for the haul road and mining of Hanover Mountain.  
Require the company implement a noise and light mitigation plan.

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**From:** John T Stocke  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** concerns about Cobre Mine reopening  
**Date:** Wednesday, September 13, 2017 2:37:51 PM

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Dear Mr Hollen,

I am a resident of Grant County living in the Mimbres River Valley close to the copper mining district west of Silver City. While many of my concerns are similar to those of the general population, as an astronomer who values the dark skies of New Mexico both as a professional (I make observations at Apache Point Observatory in Sunspot NM south of Cloudcroft) and a lover of the dark night sky, I urge you to insist that Freeport-McMoRan abides by standard good lighting practices in which all outside lighting is shaded to BELOW the level of the light. This will help preserve our beautiful night sky here in New Mexico. As I am an expert in this area please feel free to contact me about any issues involving "light pollution".

Sincerely Yours,  
Professor John Stocke

I also join many other voices insisting on the following regarding the new mining at Cobre and Hanover Mountain:

- **Require that Freeport-McMoRan ("Freeport" hereafter) follow industry best practice for environmental management at its Cobre Mine operations.**
- Compel Freeport to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.
- Direct Freeport to implement a blasting plan that meets industry standards to protect public safety and structures during blasting for the haul road and mining of Hanover Mountain.
- Require the company implement a noise and light mitigation plan.
- **Minimize air quality impacts to nearby residents by requiring air quality monitoring and maximum dust mitigation.** Cobre mining operations will cause air quality impairment due to fugitive dust emissions from blasting, transport of ore on the haul road, and materials handling. Residents of Fierro and Hanover live very close to these operations and could experience poor air quality.
  - Freeport should install air quality monitors to ensure that public health is protected from fugitive dust from its mining activities.
  - The state Air Quality Bureau should require Freeport to implement all applicable dust control measures to minimize fugitive emissions, including watering of or surfactant application to haul roads, dust suppression during materials handling such as bulldozing, scraping and materials loading, covering of haul truck beds, wind speed reduction measures, truck speed control, and cessation of operations when winds exceed 25 mph.
- **Ensure that ground and surface water quality will be protected through implementation of adequate reclamation and containment of groundwater contamination.** Regulators should strictly enforce the NM Mining Act and state Water Quality Act to protect ground and surface water quality. Strong state regulatory oversight is needed for implementation of engineering controls at the South Waste Rock Disposal Facility.
- **Require Freeport-McMoRan to put up adequate financial assurance so taxpayers and the community don't bear the costs of clean up should the company go bankrupt.** Freeport won't agree to industry best practice for estimating indirect costs associated with mine reclamation. If the company wins this fight and doesn't post a bond or other financial instrument sufficient to cover the full cost of clean-up, the public could be left holding the bag if the company defaults before it reclaims Cobre.

**From:** Rebecca M Summer  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Continental/Cobre Closure/Closeout and Resume Operations  
**Date:** Wednesday, September 13, 2017 7:56:55 AM

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James Hollen  
Mining and Minerals Division  
[1220 South St. Francis Drive](#)  
[Santa Fe, NM 87505](#)  
[james.hollen@state.nm.us](mailto:james.hollen@state.nm.us)

**DATE: 09-13-17**

**TO: James Hollen, State of New Mexico Mining and Minerals Division**

**FROM: Rebecca M Summer, PhD Hydrology/Geomorphology**

**REFERENCE: Cobre/Continental Mine Closure/Closeout Plan and Resume Operations**

I live in the Silver City area and volunteer for the Gila Resources Information Project. I have worked with the US Geological Survey and Sandia National Labs. The issue that I will address is the ongoing mining contamination of the regional ground water aquifer at and surrounding the Cobre Mine facilities.

#### **Direct and Indirect Ground Water Pollution from Mining**

It is important to remember that ground water pollution can occur both directly and indirectly from mining. Direct degradation and pollution can occur to ground water downhill or down gradient from the mine due to the flow of contaminated drainage. Mine drainage can come from ponds, pits, or pollution from toxic overburden.

Indirect degradation can result from blasting, which causes temporary or permanent fractures and movement of the rock may result in new fractures near the mining area. Preexisting rock fractures can become reactivated by loosening mineral debris or cement in the fractures.

#### **Hazardous Ground Water Substances**

Hazardous and related substances in the ground water at the Cobre mining area were detected at elevated concentrations and were, in most cases, above relevant human-health-based water quality standards (Federal and State of New Mexico groundwater standards for human health and domestic water supply). Most of the alluvial aquifer have been injured from mining activity. New Mexico Office of Natural Resources (2012) reported the tailings samples from Cobre Mine were subjected to the SPLP test. These tests showed that the hazardous substances, arsenic, cadmium, copper, lead, and manganese had leached into the ground water from the source material at concentrations in excess of State of New Mexico standards for human health and domestic water supply. The SPLP leachate also contained detectable traces of cobalt and zinc. Cobalt, zinc, arsenic and cadmium are recognized as human or animal carcinogens by International Agency for Research on Cancer (IARC) and U.S. Department of Health and Human Services.

It is important to note that the chemical and physical analyses from high density monitoring wells near the mining facilities at the Cobre Mine do not exist or have not been made easily available to the public. It is imperative that the monitoring well data be made available to the public. If the density of monitoring wells indicates that more wells are needed, then this should be done immediately to provide data on the existing and changing ground water environment. Until such data are available, further work will likely continue to degrade both ground and surface waters.

#### **Ground Water Disruption from Blasting**

Construction of the 3.6 mile-long Cobre Haul Road that will transport copper ore from the Continental Pit and Hanover Mountain to Chino Mine for processing will cause fractures and rock slips that can change the flow of ground water. It will likely include a significant amount of blasting to construct the haul road and to mine Hanover Mountain. Combined, these activities may alter the flow of ground water from seeps, springs and aquifers. Monitoring ground water wells can provide useful information to stop or avoid damage to the overall ground water system. A key question is who will oversee and monitor the road construction to detect and stop any pollution of seeps, springs, and near surface ground water?

#### **Conclusions**

The following five characteristics or unknowns are related to the regional ground water aquifer where Grant County communities get their drinking water every day of the year:

- 1) Complexity of the geology and hydrology creating high uncertainty of water and waste movement
- 2) Mining extraction for ~150 years with little documentation on waste water movement
- 3) Occurrence of faults and fractures and the impact from mine blasting causing unknown pathways for liquid movement
- 4) Unknown effect of contaminated and carcinogenic water on the ground water wells serving Hanover, Bayard and surrounding towns
- 5) Unknown growth of contaminated ground water plumes from mine wastes that continue to occur today in the Mimbres River Basin (latest contamination analyses were done sometime between 1980-2006, Office of Natural Resource Trustee, 2006)

Given these considerations, it is strongly recommended to rescind the Cobre/Continental Mine Closure/Closeout proposal, rescind the Resume Operations proposal, and return the proposals to FMI to critically reassess and address the conclusions above.

**From:** linda126zat@gmail.com  
**To:** [Hollen, James, EMNRD](#)  
**Subject:** Comments on reopening of Cobre Mine  
**Date:** Wednesday, September 13, 2017 2:27:55 PM

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Dear Mr. Hollen,

The following are my comments on the possible reopening of the Cobre Mine by Freeport-McMoran. I am speaking up on behalf of Grant County's water supply and environment.

In consideration of whether to permit Freeport-McMoRan to reopen the Cobre mine, it is imperative that Freeport's operations don't pollute ground and surface water, impair air quality, damage nearby buildings from blasting, and cause noise and light impacts. The safety of our ground and surface water is critical to our community as well as healthy air quality.

It is also critical that the following be applied if the permit is granted:

- Require Freeport-McMoRan to follow industry best practice for environmental management at its Cobre Mine operations.
- Compel Freeport to assess the potential for catastrophic failure of the Main Tailings Impoundment prior to resumption of operations.
- Direct Freeport to implement a blasting plan that meets industry standards to protect public safety and structures during blasting for the haul road and mining of Hanover Mountain.
- Require the company to implement a noise and light mitigation plan.
- Require air quality monitoring and maximum dust mitigation to minimize air quality impacts to nearby residents. Cobre mining operations will cause air quality impairment due to fugitive dust emissions from blasting, transport of ore on the haul road, and materials handling. Residents of Fierro and Hanover live very close to these operations and could experience poor air quality.
  - Freeport should install air quality monitors to ensure that public health is protected from fugitive dust from its mining activities.
  - The State Air Quality Bureau should require Freeport to implement all applicable dust control measures to minimize fugitive emissions, including watering of or surfactant application to haul roads, dust suppression during materials handling such as bulldozing, scraping and materials loading, covering of haul truck beds, wind speed reduction measures, truck speed control, and cessation of operations when winds exceed 25 mph.
- Ensure that ground and surface water quality will be protected through implementation of adequate reclamation and containment of groundwater contamination. Regulators should strictly enforce the NM Mining Act and state

Water Quality Act to protect ground and surface water quality. It is imperative that strong state regulatory oversight is in place for implementation of engineering controls at the South Waste Rock Disposal Facility.

- Require Freeport-McMoRan to put up adequate financial assurance so taxpayers and the community don't bear the costs of cleanup should the company go bankrupt. Freeport won't agree to industry best practice for estimating indirect costs associated with mine reclamation. If the company wins this fight and doesn't post a bond or other financial instruments sufficient to cover the full cost of cleanup, the public could be left holding the bag if the company defaults before it reclaims Cobre. This is totally unacceptable that this cost could be borne by the public.

Thank you for your consideration of my comments.

Sincerely,  
Linda Zatopek

Linda Zatopek  
Axle Canyon Preserve, LLC  
126 Axle Canyon Rd.  
Silver City, NM 88061

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