

Freeport-McMoRan Sierrita Inc.  
6200 W. Duval Mine Rd.  
PO Box 527  
Green Valley, Arizona 85622-0527

November 9, 2017

**Via e-mail: [air.notices@pima.gov](mailto:air.notices@pima.gov) and  
Certified Mail: 7017 0530 0000 7752 6357**



**Return Receipt Requested**

Mr. Dustin Fitzpatrick  
Air Compliance Manager  
Pima County Department of Environmental Quality  
33 N Stone Ave, Suite 700  
Tucson, Arizona 85701

**Re: Notice of Violation # PC 1709-122  
Freeport-McMoRan Sierrita Inc., Title V Air Quality Permit # 6067**

Dear Mr. Fitzpatrick:

Freeport-McMoRan Sierrita Inc. (FMSI) is in receipt of the Pima County Department of Environmental Quality (PDEQ) Notice of Violation, dated September 29, 2017, relating to a fugitive dust event at FMSI's tailings dam on August 9, 2017. As directed by that notice, FMSI is providing requested compliance documentation, including a thorough explanation of actions leading up to the event; an explanation of the decision whether or not to implement a plan for aerial application of dust suppressant before and after the event; and corrective actions and preventive measures to ensure compliance with Air Quality Permit No. 6067, Attachment "B" Conditions II.E.1 and XIX.B.1.a.

***Actions leading up to the fugitive dust event on August 9, 2017.***

FMSI employs several measures to control fugitive dust from the tailings dam as identified in Attachment "B" Condition XIX.B.1.b (viii) and (ix). These methods are largely designed to stabilize the surface area, with wetting and the use of chemical dust suppressants being the principal means of control. Given the size of the tailings dam, weather conditions, and the nature of high-wind events that can overwhelm currently available control measures, the control of windblown dust presents unique challenges.

Dependent on changing weather events, FMSI tailings dam personnel operate on average between one to three All-Track vehicles utilized to apply Magnesium Chloride ( $MgCl_2$ ) as a dust control agent. These vehicles, along with FMSI's other reasonable precautions, have largely proven effective, as FMSI has operated the tailings dam since January 31, 2016 without a reportable dust event. FMSI tailings dam personnel perform daily and weekly inspections on the tailings dam. Prior to a series of hail and rain events (1.11 inches of rain received between July 25 and August 3, 2017) and a heavy monsoon storm (1.64 inches of rain received on August 5, 2017), the daily inspections identified a stable crust across the dam as documented on the daily tailings dam inspection forms. However, heavy hail and rainfall, like that experienced in early August, can cause the crust created by  $MgCl_2$  to lose its binding properties or break apart and result in flushing of the surface crust.

The monsoon storm also caused major damage to the mill and slurry pumps, which delayed deposition to the tailings dam. Typically, deposition is run from the west end of a dam towards the divider. A whole cycle of a dam may take between 1-2 months. During this time, the opposite end of the dam – i.e., that not receiving slurry – establishes a crust. When we do not have deposition to continue the cycle, we allow areas to dry that have not seen recent deposition. Even though crust is dry, the under-layer may still be too saturated to allow for All-Track vehicles to travel on these areas. The crust may allow for hot spots that do not allow for immediate mitigation.

After a rain event, tailings dam personnel evaluate areas on the dam that could potentially pose an issue. These inspections are completed as soon as practicable based on weather conditions and safety precautions. Dependent on amount of rain, tailings dam personnel will typically give it one to two days after a rain event before implementing the application of  $MgCl_2$  via All-Track vehicles to allow for proper application. If the dam is too wet on the surface, this will dilute the  $MgCl_2$  and cause it to be ineffective.

Following the August 5, 2017 monsoon storm, tailings dam personnel conducted an inspection on August 7, 2017, during the morning inspection, it was determined that the dam was sufficiently stable to safely release an All Track onto the surface of the dam in the afternoon. On the afternoon of August 7<sup>th</sup> one All Track vehicle was released onto the dam. Due to stability issues on the dam, only 1500 gallons of  $MgCl_2$  was applied that day. On August 8<sup>th</sup> the dam stability increased which allowed three All-Tracks to start a campaign to re-apply 12,000 gallons of  $MgCl_2$  to areas affected by the previous rains. On August 9, one All Track was sent to an identified area where  $MgCl_2$  was previously applied for a reapplication of 750 gallons. There were still some areas of the tailings dam, however, that remained inaccessible by the all-track vehicles due to safety reasons. Moisture on these areas was too great and attempting to travel over them would have caused the all-track vehicles to sink. As a result, the all-tracks

were unable to apply  $MgCl_2$  towards the center of Phase 2 and Phase 3 of the North tailings dam. When high-sustained winds, with wind gusts up to 37 miles per hour, hit this area, visible emissions resulted.

### ***Aerial application of dust suppressant***

As outlined in FMSI's Tailings Dam Dust Control Management Plan, a contingency plan for aerial application of dust suppressant may be implemented when repeated flushing of surface crusts occurs (e.g., after a heavy rainfall) and topical application of dust suppressant using All-Track vehicles proves inadequate. After the large monsoon/hail storm that caused the crust on the tailings dam to be unstable, the tailings dam superintendent spoke with the FMSI Senior Leadership Team (SLT) regarding the possibility of obtaining a contract for aerial application of  $MgCl_2$  on the tailings dam. After approval from SLT, the tailings dam Superintendent began working with Global Supply Chain (GSC) to initiate a contract to have Southwest Sealcoat (the contractor who previously performed aerial application on the tailings dam and a current vendor) to perform aerial application of  $MgCl_2$  on the tailings dam. However, GSC was informed that Southwest Sealcoat's owner and pilot had retired from the business and the plane that performed aerial application had been sold.

After GSC discovered Southwest Sealcoat could not perform the aerial application, it began to look for other quotes from other vendors who might be able to perform aerial application of  $MgCl_2$  on the tailings dam. Due to logistics, safety concerns, equipment needs, and other challenges, FMSI was unable to secure a contractor in the Southwest region to perform the aerial application of dust suppressant.

### ***Corrective actions and preventive measures***

To ensure compliance and to minimize the potential for a similar dust event, FMSI has identified the following actions that have or will be taken to improve dust control practices at the tailings dam:

#### ***Review and update FMSI's Tailing Dam Dust Control Management Plan***

FMSI is in the process of updating our "Tailings Dam Dust Control Management Plan," which will incorporate the items listed below as well as updating the entire plan to ensure current Best Management Practices (BMPs) are being used. As part of FMSI's commitment to dust control at the tailings dam, FMSI is continuously investigating new technologies and innovative control methods. For example, FMSI's tailings group is currently working with our parent corporation's newly developed "Manager Source & Migration Control Environmental Technology/Life Cycle Analysis" team, which is studying the effectiveness of various types of manufactured dust suppressants at several

Freeport-McMoRan, Inc. sites. In addition, FMSI is always looking for possible ways to improve current control measures by evaluating our practices and procedures. FMSI is in the process of evaluating other BMPs including, but not limited to, GPS units being placed on All-Tracks to assist and track dust suppression applications. Evolving technology may also include increased use of drones to assist in dam assessments.

#### *Improved Project Planning Coordination*

To evaluate stability of the tailings dam and how any future work may impact stability, FMSI hires contractors to conduct surveys (i.e., drilling projects) on various areas of the dam. In preparation for these projects, the area must be dry and stable enough to mobilize the drilling equipment. To minimize the time these areas may be susceptible to high wind events, the Tailings Dam Supervisor will coordinate with operation and environmental departments (Environmental Tailings Liaison) on project planning and implementation. As part of any such project affecting the tailings dam, contingency plans will be put in place to address high wind events predicted by weather forecasts.

#### *Personnel Scheduling*

FMSI will continue to schedule necessary personnel according to weather forecasts and surface conditions on the tailings dam. FMSI has approved overtime pay for employees at the tailings dam to work late on windy days and to work longer days on weekends as necessary to assist in dust control efforts. The availability of these employees will help ensure commensurate measures (applying  $MgCl_2$  or water, moving deposition, etc.) are taken to address high wind events.

#### *Improved Communication between Tailings and Environmental Departments*

To improve control measures and help minimize response times, FMSI will improve communication between the Tailings and Environmental Departments. Environmental Department personnel will be required at Tailings Department "line-out" meetings. The objective of these meetings is to discuss safety concerns, environmental issues, and to review the day's activities. Participation in these meetings by Environmental Department personnel will help clarify dust control procedures and practices, facilitate the identification of possible improvements, and ensure that obligations are being met (e.g., confirmation of surface inspections and any follow-up action). The Tailings Department will also designate a weekend "on call" supervisor, which will be included on the "Site Weekend Duty Personnel."

*Minimize Delays Due to Equipment Failures*

To help minimize delays from unexpected failures and malfunctions of equipment used for dust control (e.g., tracks and water trucks), FMSI will coordinate with a third party equipment maintenance contractor to be on call during high-wind days to ensure quick repairs of critical dust control equipment if necessary. FMSI is also in the process of stocking frequently used parts, along with parts that that require extended lag time, so they will be on hand for immediate repair of the All-Track vehicles. Tailings will report on the weekly "Tailings Dam Environmental Activities Report" the total amount and number of loads of dust suppressant applied to the dam. The above reporting process is split up and tracked by individual, operative All-Track vehicles. In addition, an individual operating status for each All-Track vehicle will be added to assist in tracking operation availability of each unit.

*Relocation of Tailings\_1 Weather Station*

In an effort to retrieve more accurate weather data, including wind speeds, FMSI will be moving the Tailings\_1 weather station to the top of the tailings dam. The weather station will be placed just northeast of the North/South tailings dam divider and will be properly calibrated by a third party contractor to ensure the weather station will be providing accurate data

As illustrated above, FMSI is committed to continuous improvement of its dust control measures at the tailings dam. If there are additional concerns or questions, please contact Bryce Cooke, Senior Environmental Scientist, at (520) 393-2419.

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

David Rhoades, President and General Manager

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(Signature) (date)

