State of New Mexico
Energy, Minerals and Natural Resources Department

**Michelle Lujan Grisham**
Governor

**Sarah Cottrell Propst**
Cabinet Secretary

**Todd E. Leahy, JD, PhD**
Deputy Cabinet Secretary

**Mike Tompson, Interim Director**
Mining and Minerals Division

January 6, 2019

Diamond Bar Minerals LLC
Attn: Gerald Graham
5070 Mark IV Pkwy
Fort Worth, TX 76106

**RE: Agency Review Comments and Request for Additional Information, Palm Park Doña Ana 2019 Minimal Impact Exploration Project, Permit No. DA004EM – Doña Ana County, New Mexico**

Mr. Graham:

The New Mexico Mining and Minerals Division ("MMD") has reviewed the Permit Application Package ("PAP"), for a minimal impact exploration permit, submitted by Diamond Bar Minerals LLC ("DBM") on October 4, 2019, under Subpart 3 of the New Mexico Mining Act Rules ("Rules"). MMD has also received agency comments on the PAP.

Enclosed with this letter are the reviewing agency comment letters submitted by the following state agencies: the New Mexico Environment Department ("NMED"), the New Mexico Office of the State Engineer ("NMOSE"), the New Mexico Department of Game and Fish ("NMDG&F"), and the New Mexico Department of Cultural Affairs - Historic Preservation Division ("NMDCA/HPD").

In addition to State and Federal agencies the Ysleta del Sur Pueblo, Navajo Nation, and White Mountain Apache Tribe have commented on the Permit No. DA004EM PAP. Please take the tribal comments into consideration during this process. Additionally, please find general comments from MMD based on review of this application. Attached to this letter are all comments from State and Tribal agencies.

**General Comments:**

MMD has reviewed the PAP and deemed it administratively complete, pursuant to §19.10.3.302.G of the New Mexico Administrative Code ("NMAC"). **However, MMD has reviewed the PAP and has found it to be *technically incomplete* pending receipt of acceptable supplemental information identified in this letter. Please respond no later than 30 days of receipt of this letter, to the information requested below.**

## MMD Comments:

Please respond to the following items:

1. During the site inspection on December 4, 2019, DBM, the Bureau of Land Management ("BLM"), NMED, and MMD discussed the excess disturbance that would be required to access all proposed boreholes, especially boreholes JD-6, JD-7, JD-8, JD-15, JD-17, and JD-18 which are located within or directly adjacent to ephemeral streams and borehole JD-20 which cannot be accessed via overland travel. Please submit a detailed plan, including additional schematics, maps, etc. to describe and delineate how all proposed boreholes will be accessed and update the acreage to be disturbed and associated cost estimate. This should include all areas to be graded/bladed and identify where vegetation will be grubbed.

2. Section 3 on Page 7 of the PAP locates borehole JD-2 inaccurately. Please address the typo associated with this borehole. This comment is echoed in the attached NMOSE letter.

3. The mud/fluid drilling method identified in Section 4, Page 9 of the PAP is a closed loop system, and provided supplemental information to the PAP from DBM to MMD on November 1, 2019 describes the drilling method as using a stream of water to plaster the walls of the boreholes without using mud in the drilling fluid. Please provide to MMD a detailed description and specifications of this fluid drilling process, including an estimate of how much water will be used. Additionally, how will DBM prevent water from discharging onto the surface?

4. Section 4.D on Page 11 of the PAP indicates that the drill cuttings will be used as aggregate on the access county road, and that borehole abandonment will be accomplished by Dry Hole Abandonment (option 1) in Section 6.D, Page 16 of the PAP. However, the DBM response to MMD's initial comments dated November 1, 2019 contradicts this, stating that drill cuttings will be used for borehole abandonment instead of bentonite sealant. These findings are echoed in the attached NMOSE letter.

   As a requirement of Section §19.10.3.302.L of the NMAC for a minimal impact exploration project: *each drill hole shall be plugged from total depth to within 2 feet of the original ground surface or the collar of the hole, whichever is lower, with a column of cement, high-density bentonite clay or other materials specified in the permit. If the approved plugging material is not cement, then the top ten feet of the column must be a cement plug. The hole shall be backfilled with topdressing or topsoil from above the cement plug to the original ground surface. The hole shall be plugged as soon as practicable and satisfy the requirements of the state engineer and the New Mexico environment department for proper plugging of such holes.*

   MMD has not previously approved of the exclusive use of drill cuttings in borehole abandonment of exploration projects due to the potential for preferential vertical flow, bridging of native materials, subsidence, and contaminated drill cuttings. Other exploration project permittee's have been approved to use a hybrid system where a

bentonite plug is placed at the bottom of each hole, followed by tamped cuttings and intervals of bentonite plugs to at least 12 feet below surface level followed by 10 feet of cement and two feet of topsoil. Please submit to MMD a clarification, including a schematic, of how the boreholes will be abandoned and a description of how excess drill cuttings will be discarded.

5. Drilling is reported to not be within channels or within 100 feet of any perennial, intermittent, or ephemeral stream on Page 18 of the PAP. However, based on the NMOSE and NMED/SWQB comment letters and field observations, boreholes JD-6, JD-7, JD-8, JD-15, JD-17, and JD-18 are located either within ephemeral channels or within 100 feet of ephemeral channels. Please respond to NMOSE's comment letter, *III. Surface Water*, and NMED/SWQB's comment letter, *Relevant State and Federal Water Quality Regulations*, regarding this issue.

6. Please revise Section 7 – *Reclamation & Operation Plan* of the PAP to reflect all recalculated disturbance anticipated as a result of MMD comment 1 above. Section §19.10.3.302.D and §19.10.3.302.K of the NMAC states that the minimal impact exploration project will be reclaimed to meet the requirements of reclamation, as defined in 19.10.1.7 and

   *Topsoil or topdressing material removal and stockpiling shall precede any excavation within the drill site area.*

   *Where vegetation has been removed or destroyed within the permit area, vegetative cover shall be reestablished by seeding, planting, transplanting, or other adequate methods.*

   Please provide a detailed plan on how the operation will stockpile and save topsoil or topdressing prior to drilling, how best management practices ("BMP"s) will be implemented during and after drilling, how surface topography will be reestablished, and propose a seed mix and mulching method (with application rates).

7. As a future permit condition, plastic will be required to be placed over the ground before drilling begins to contain any leaks and spills from drilling rig fluids and reduce damage to soils and vegetation.

**NMED Mining Environmental Compliance Section, Ground Water Quality Bureau Comments ("MECS")**

Please review the comment letter received by NMED MECS Ground Water Quality.

**NMED Surface Water Quality Bureau Comments ("NMED/SWQB")**

Please review the comment letter received by NMED/SWQB and respond to all elements that are not also addressed in MMD's comments.

**NMED Air Quality Bureau Comments ("NMED/AQB")**

Please review the comment letter received by NMED/AQB.

**NMDCA/HPD Comments:**

Please review the comment letter received by NMDCA/HPD.

**NMOSE Comments:**

Please review the comment letter received by NMOSE and respond to all elements that are not also addressed in MMD's comments.

**NMDG&F Comments:**

Please review the comment letter received by NMDG&F.

Should you have any questions, comments, or require additional information concerning this letter or any enclosures, please contact me at (505) 476-3423 and/or carmen.rose@state.nm.us.

Sincerely,

Carmen Rose, Permit Lead
Mining Act Reclamation Program ("MARP")
New Mexico Mining and Minerals Division

**Enclosures:**
December 6, 2019 Letter to MMD from the White Mountain Apache Tribe
December 11, 2019 Letter to MMD from the Ysleta del Sur Pueblo
December 11, 2019 Letter to MMD from NMDCA/HPD
December 12, 2019 Letter to MMD from NMDGF
December 19, 2019 E-mail to MMD from the Navajo Nation Heritage and Historic Preservation Department
December 23, 2019, Letter to MMD from NMED
December 23, 2019 Letter to MMD from NMOSE

**Cc w/o enclosures:**
Holland Shepherd, Program Manager, MARP/MMD
Jeronimo Weber, President, Diamond Bar Minerals LLC
Mine File (DA004EM)

# White Mountain Apache Tribe

**Office of Historic Preservation**
**PO Box 1032**
**Fort Apache, AZ 85926**
**Ph: (928) 338-3033 Fax: (928) 338-6055**


**To:** Mike Tompson, Interim Director Mining and Minerals Division

**Date:** December 06, 2019

**Re:** *Minimal Impact Exploration Permit Application, Palm Park Permit No. DA004EM*

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the project dated; November 25, 2019 . In regards to this, please attend to the following statement below.

Thank you for allowing the White Mountain Apache tribe the opportunity to review and respond to the above proposed Minimal Exploration Permit Application for the Palm Park Dona Ana 2019 Project, to explore for barite in Dona Ana County, New Mexico. Upon reviewing the project proposed plans, we've determined the proposed project changes will ***"Not have Adverse Effect"*** on any known White Mountain Apache tribe's historic properties and/or traditional cultural properties. .

Thank you for your continued collaborations in protecting and preserving places of cultural and historical importance.

Sincerely,

Mark T. Altaha

White Mountain Apache Tribe – THPO
Historic Preservation Office

# Ysleta del Sur Pueblo

Tribal Council – Javier Loera (War Captain/Tribal Historic and Preservation Officer) E-mail jloera@ydsp-nsn.gov

117 South Old Pueblo Road * P.O. Box 17579 * El Paso, Texas 79917 * (915) 859-8053 * Cell (915) 497-3853




December 11, 2019

Mr. Mike Tompson
Interim Director Mining and Minerals Division
State of New Mexico
Energy, Minerals and Natural Resources Dept.
1220 South St. Francis Drive
Santa Fe, NM 87505

Dear Mr. Tompson:

This letter is in response to the correspondence received in our office in which you provide the Ysleta del Sur Pueblo the opportunity to comment on **Request for Consultation on Minimal Impact Exploration Permit Application, Palm Park, Doña Ana 2019 Exploration Project, Doña Ana County, New Mexico, Permit No. DA004EM.**

While we do not have any comments on the proposed undertaking and believe that this project will not adversely affect traditional, religious or culturally significant sites of our Pueblo and have no opposition to it; we would like to request consultation should any human remains or artifacts unearthed during this project be determined to fall under the Native American Graves Protection and Repatriation Act (NAGPRA) guidelines. Copies of our Pueblo's **Cultural Affiliation Position Paper** and **Consultation Policy** are available upon request.

Thank you for allowing us the opportunity to comment on the proposed project.

Sincerely,

Javier Loera

Javier Loera
Tribal Council/Tribal Historic Office
E-mail: jloera@ydsp-nsn.gov
for
Gov. E. Michael Silvas
119 S. Old Pueblo Rd.
Ysleta del Sur Pueblo, TX 79917

Michelle Lujan
Grisham
Governor

STATE OF NEW MEXICO
**DEPARTMENT OF CULTURAL AFFAIRS**
**HISTORIC PRESERVATION DIVISION**

BATAAN MEMORIAL BUILDING
407 GALISTEO STREET, SUITE 236
SANTA FE, NEW MEXICO 87501
PHONE (505) 827-6320 FAX (505) 827-6338



December 5, 2019

Carmen Rose
Permit Lead, Mining Act Reclamation Program
Mining and Minerals Division
1220 South Saint Francis Drive
Santa Fe, NM 87505

Re: HPD Log# 112039, New Minimal Impact Exploration Permit Application, Palm Park Dona Ana 2019 Project, Dona Ana County, New Mexico, Permit No. DA004EM

Dear Ms. Rose:

I am writing in response to your request for comment on the above referenced exploration project received at this office November 27, 2019.

Pursuant to 19.10.5.505 NMAC, Permit Modifications and Revisions, the Director shall determine whether a permit modification would have an adverse impact on cultural resources listed on either the National Register of Historic Places or the State Register of Cultural Properties or be located in a known cemetery or other burial ground.

According to our files, there are no cultural resources listed on either the National Register of Historic Places or the State Register of Cultural Properties in the permit area. There are also no known cemeteries or other burial grounds. Based on this information, this permit will have no adverse impacts to cultural resources listed on the National or State Registers.

Although there are no cultural resources listed on either the National Register of Historic Places or the State Register of Cultural Properties, our records indicate that the permit area has never been archeologically surveyed; therefore this office recommends that a cultural resources survey be conducted on any portions of mine property where proposed new ground disturbance will occur for this permit.

This survey should be performed by a qualified professional to determine if any historic or archaeological properties are present and if so, to provide documentation of those resources to our office. This information can then be used to evaluate the National Register of Historic Places eligibility of any resources identified during the survey and determine project effects on those resources. A list of state permitted archaeologists and archaeological firms are available from this office upon request or can be downloaded from our web site at:

http://www.nmhistoricpreservation.org/documents/consultants.html

Also, the mine application states that the surface estate owner is the U.S. Bureau of Land Management (BLM) land and therefore, we recommend that you also consult with the BLM to ensure that the project meets their cultural resource and other environmental requirements.

If you have any questions concerning these comments, please do not hesitate to contact me by phone at (505)-452-6115 or e-mail me at richard.reycraft@state.nm.us

Sincerely,

*Richard Reycraft*

Richard. Reycraft
Staff Archaeologist

GOVERNOR
Michelle Lujan Grisham

DIRECTOR AND SECRETARY
TO THE COMMISSION
Michael B. Sloane

# STATE OF NEW MEXICO
# DEPARTMENT OF GAME & FISH

One Wildlife Way, Santa Fe, NM 87507

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For information call: (888) 248-6866

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STATE GAME COMMISSION

JOANNA PRUKOP
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ROBERTA SALAZAR-HENRY
Vice-Chair
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Albuquerque

GAIL CRAMER
Mayhill

TIRZIO J. LOPEZ
Cebolla

DAVID SOULES
Las Cruces

JEREMY VESBACH
Placitas

12 December 2019

Carmen Rose, Permit Lead
Mining Act Reclamation Program
Mining and Minerals Division (MMD)
1220 South St. Francis Drive
Santa Fe, NM 87505

***RE: Minimal Impact Exploration Permit, Palm Park Doña Ana Project, Doña Ana County, Permit No. DA004EM; NMDGF No. 19605***

Dear Ms. Rose,

The New Mexico Department of Game and Fish (Department) has reviewed the project referenced above. Diamond Bar Minerals, LLC (DBM) is proposing to drill 20 exploratory holes up to 160 feet deep, in Township 18S, Range 3W, Sections 10, 14, and 15. The New Mexico Environment Department, MMD, DBM, and the Department conducted a site inspection on 4 December 2019.

The exploration project area has been impacted from historic mining activity and has significant erosion features adjacent to the arroyo. To minimize the potential for additional excess soil erosion impacting native vegetation, the Department recommends that DBM maintain a 100 foot buffer from the arroyo at drill sites JD-6, JD-7, JD-8, and JD-17. If buffer distances cannot be achieved at these sites, DBM should locate alternate drill sites that are not immediately adjacent to the arroyo.

Thank you for the opportunity to review and comment on the proposed exploration project. If you have any questions, please contact Ron Kellermueller, Mining and Energy Habitat Specialist, at (505) 476-8159 or ronald.kellermueller@state.nm.us.

Sincerely,

Charles Hayes

Chuck Hayes, Assistant Chief
Ecological and Environmental Planning Division

cc: USFWS NMES Field Office

**From:** Timothy Begay
**To:** Rose, Carmen, EMNRD
**Subject:** [EXT] MINIMAL IMPACT EXPLORATION PERMIT APPLICATION
**Date:** Thursday, December 19, 2019 3:15:59 PM

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Dear Ms. Rose:

The Navajo Nation Heritage and Historic Preservation Department's (NNHPD) Traditional Culture Program is (TCP) in receipt of your letter dated November 25, 2019, regarding a Minimal Impact Exploration Permit application submitted by Diamond Bar Minerals LLC, in Dona Ana County, New Mexico.

After reviewing your letter and cross referencing our Traditional Cultural Properties (TCP's) database, NNHHPD-TCP has determined that there are No Navajo TCP's in the project area and you may proceed without further consultation for this project.

If you have any additional questions, concerns or would like to discuss these issues further, please don't hesitate to contact our office at (928) 871-7198 or (928) 871-7152. Thank you for your cooperation and understanding.

Sincerely,

Timothy C. Begay, Navajo Cultural Specialist
Navajo Nation Heritage and Historic Preservation Department
P.O. Box 4950
Window Rock, AZ 86515
tbegay@navajo-nsn.gov

**NEW MEXICO**
**ENVIRONMENT DEPARTMENT**

Ground Water Quality Bureau

1190 Saint Francis Drive / PO Box 5469
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Lieutenant Governor

*James C. Kenney*
Cabinet Secretary

*Jennifer J. Pruett*
Deputy Secretary

**MEMORANDUM**

Date: December 23, 2019

To: Holland Shepherd, Program Manager, Mining Act Reclamation Program

Through: Jeff Lewellin, Mining Act Team Leader, Mining Environmental Compliance Section

From: John Moeny, Surface Water Quality Bureau
Rhett Zyla, Air Quality Bureau

Subject: **NMED Comments, Palm Park Dona Ana 2019 Project, Minimal Impact Exploration Project, Dona Ana County, New Mexico, New Mexico Mining Act Permit No. DA004EM**

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The New Mexico Environment Department (NMED) received correspondence from the Mining and Minerals Division (MMD) on November 25, 2019 requesting NMED review and provide comments on the above-referenced MMD permitting action. In accordance with 19.10.3.302.G NMAC, NMED is providing comments within the 20-day comment period prescribed in the regulation. NMED has the following comments.

## Background

Mr. Gerald Graham (Applicant) proposes a minimal impact exploration project to advance up to twenty, six-inch diameter borings to depths of 15 to 160 feet below ground surface. The project is on land managed by the Bureau of Land Management and two private leaseholders in Sections 10, 14, and 15, T18S, R3W. The purpose of the proposed exploration project is to evaluate potential reserves of barium sulfate (barite). The Applicant indicates less than one acre of land will be disturbed during this minimal impact exploration project.

## Air Quality Bureau

The Air Quality Bureau comments are attached under separate letterhead.

**Surface Water Quality Bureau**

The Surface Water Quality Bureau comments are attached under separate letterhead.

**Mining Environmental Compliance Section (MECS)**

MECS personnel reviewed the Office of the State Engineer (OSE) Points of Diversion (POD) database to evaluate the presence of ground water production wells in the area of the proposed project. No ground water production wells were listed in the OSE database in the vicinity of the proposed project. The total dissolved solids (TDS) concentration of ground water is not stated in the application. The Applicant indicates the drill cuttings that will be produced during advancement of borings will be returned to the borings as a component of the plugging and abandonment procedures for borings that may have a total depth of 160 feet below ground surface. According to New Mexico Mining Act rules, all borings shall be plugged with bentonite or cement unless other materials are approved. In the unlikely instance ground water is encountered while advancing the borings to the potential total depth of 160 feet below ground surface, all plugging, and abandonment of the borings should comply with OSE regulations for wet holes. Otherwise, the borings should be abandoned in accordance with the OSE regulations for dry holes. The Applicant indicates a minimal amount of water will be used to advance borings with no discharge of water to the ground surface.

**NMED Summary Comment**

NMED finds that the exploration project is likely to have a minimal impact to the environment if operated and reclaimed with the approved permits, pollution controls, and the comments above.

If you have any questions, please contact Jeff Lewellin at (505) 827-1049.

cc: Shelly Lemon, Bureau Chief, SWQB
Liz Bisbey-Kuehn, Bureau Chief, AQB
Mike Tompson, Interim Director, EMNRD-MMD
Carmen Rose, Lead Staff, EMNRD-MMD
Kurt Vollbrecht, Program Manager, MECS
George Llewellyn, MECS

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Deputy Secretary

**MEMORANDUM**

DATE: December 12, 2019

TO: Jeff Lewellin, Mining Act Team Leader
Mining Environmental Compliance Section
Ground Water Quality Bureau (GWQB)

FROM: John Moeny
Watershed Protection Section
Surface Water Quality Bureau (SWQB)

RE: **Request for Comments, Minimal Impact Exploration Project, Palm Park Dona Ana 2019 Project, Dona Ana County, Mining Act Permit No. DA004EM**

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On November 25, 2019, NMED received a request for comments regarding a minimal impact exploration project in Dona Ana County by Diamond Bar Minerals LLC (the Applicant). The project is located approximately 5 miles north of Hatch on public lands managed by the Bureau of Land Management.

*Summary of Proposed Action*

The Applicant seeks to drill up to twenty, six-inch diameter test holes to a depth of 160 feet, targeting barium sulfate (barite). The drill rig will utilize existing roads to gain access to drill sites where 450 sq foot drill pads will be created. Total new disturbance is estimated to be under 1 acre. Drilling fluids consist solely of water that will be trucked into the site by the drilling contractor in a closed loop system that obviates the need for fluid pits. Drill cuttings will be reused as road base for the county road which provides access to the site. Drill pad topography is variable with some locations on upland benches while others (JD-5, JD-8) lie in or adjacent to an unnamed ephemeral drainage (see photo below).

*Relevant State and Federal Water Quality Regulations*

Intermittent water quality standards under 20.6.4.98 NMAC apply to all unclassified waters of the state including ephemeral drainages in the project area, until a hydrology protocol (HP) survey is conducted and a Use Attainability Analysis (UAA) is approved by the Water Quality Control Commission (WQCC) in accordance with 20.6.4.15 NMAC.

Construction activities in support of the drilling, mining or hauling in ephemeral drainages may require a federal Clean Water Act Section 404 Dredge and Fill Permit and the corresponding Section 401 State of New Mexico Certification of the federal permit. For details contact the US Army Corps of Engineers Las Cruces Regulatory Office at 575.268.8612.

In addition to the regulations above, the following best management practices are recommended to protect surface water quality.

- Fuel, oil, hydraulic fluid, lubricants, and other petrochemicals must have a secondary containment system to prevent spills.

- If feasible, set-back drill pads and storage areas a minimum of 100 feet from ephemeral drainages.

Appropriate spill clean-up materials such as absorbent pads must be available on-site at all times during road construction, site preparations, drilling and reclamation to address potential spills.

Report all spills immediately to the NMED as required by the New Mexico Water Quality Control Commission regulations (20.6.2.1203 NMAC). For non-emergencies during normal business hours, call 505-428-2500. For non-emergencies after hours, call 866-428-6535 or 505-428-6535 (voice mail, twenty-four hours a day). For emergencies only, call 505-827-9329 twenty-four hours a day (NM Dept of Public Safety).
Impacts to Surface Water Quality

The SWQB finds the Applicant's proposed exploration is likely to have a minimal impact to surface waters if operated and reclaimed with the approved permits and pollution controls and the comments above.

If you have any questions, please phone me at (575) 956-1545.

*Figure 1. One of twenty proposed drill locations. This location lies within an unnamed ephemeral drainage.*

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# MEMORANDUM

DATE: December 2, 2019

TO: Jeff Lewellin, Mining Act Team Leader
Mining Environmental Compliance Section, Ground Water Quality Bureau

FROM: Rhett Zyla, Environmental Scientist & Specialist
Planning Section, Air Quality Bureau

RE: Request for Comments, Minimal Impact Exploration Project, Palm Park Dona Ana 2019 Project, Dona Ana County, Mining Act Permit No. DA004EM

The New Mexico Air Quality Bureau (AQB) has completed its review of the above-mentioned mining exploration project. Pursuant to the New Mexico Mining Act Rules, the AQB provides the following comments.

## Air Quality Permitting History

The AQB has not issued any air quality permits for this operation.

## Details

Diamond Bar Minerals, LLC (Palm Park Claim Group) – "Applicant", is requesting a new minimal impact exploration permit for Sections 10, 14, and 15, Township 18 South, Range 3 West, in Doña Ana County, New Mexico, approximately 10 kilometers North-northeast of Hatch, New Mexico. The area is on BLM land. Applicant is requested to address dust-mitigation efforts, described below, pertaining to the Dust Mitigation Plan for Doña Ana and Luna Counties.

Applicant is seeking to explore for barium sulfate ($BaSO_4$) "barite", with the initially-planned time period to have begun 12/1/2019 and ended 12/8/2019.

Applicant proposes 20 mud/fluid drilling holes, 6" in diameter, on 20 pads, from 15' to 160' deep. The initial drill pad dimensions indicated by the Applicant were to be 15' by 30'; however, the dimensions will be increased to 30' by 50', per request from the New Mexico Mining and Minerals Division (MMD). Total area to be disturbed by the project is 0.83 acres.

**Air Quality Requirements**

The *New Mexico Mining Act* of 1993 states that "Nothing in the *New Mexico Mining Act* shall supersede current or future requirements and standards of any other applicable federal or state law." Thus, the applicant is expected to comply with all requirements of federal and state laws pertaining to air quality. Current requirements which may be applicable in this mining project include, but are not limited to the following:

Paragraph (1) of Subsection A of 20.2.72.200 NMAC, *Application for Construction, Modification, NSPS, and NESHAP - Permits and Revisions*, states that air quality permits must be obtained by:

"Any person constructing a stationary source which has a potential emission rate greater than 10 pounds per hour or 25 tons per year of any regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard. If the specified threshold in this subsection is exceeded for any one regulated air contaminant, all regulated air contaminants with National or New Mexico Ambient Air Quality Standards emitted are subject to permit review."

Further, Paragraph (3) of this subsection states that air quality permits must be obtained by:

"Any person constructing or modifying any source or installing any equipment which is subject to 20.2.77 NMAC, *New Source Performance Standards*, 20.2.78 NMAC, *Emission Standards for Hazardous Air Pollutants*, or any other New Mexico Air Quality Control Regulation which contains emission limitations for any regulated air contaminant."

Also, Paragraph (1) of Subsection A of 20.2.73.200 NMAC, *Notice of Intent*, states that:

"Any owner or operator intending to construct a new stationary source which has a potential emission rate greater than 10 tons per year of any regulated air contaminant or 1 ton per year of lead shall file a notice of intent with the department."

In addition, pursuant to Subsection A of 19.10.3.302 NMAC, *Minimal Impact Exploration Operations*:

"A minimal impact exploration operation will not exceed 1000 cubic yards of excavation per permit. Disturbances for constructed roads, drill pads and mud pits shall be no more than 5 acres total and will not be counted in the excavated materials. The type of road construction, the number and type of drill pads, and other disturbances when considered with site specific conditions will be major factors in determining eligibility for minimal impact status which is in the discretion of the director."

The above is not intended to be an exhaustive list of all requirements that could apply. The applicant should be aware that this evaluation does not supersede the requirements of any current federal or state air quality requirement.

**Fugitive Dust**

Fugitive dust is a common problem at mining sites and this project will temporarily impact air quality as a result of these emissions. However, with the appropriate dust control measures in place, the increased levels should be minimal. Disturbed surface areas, within and adjacent to the project area, should be reclaimed to avoid long-term problems with erosion and fugitive dust. EPA's *Compilation of Air Pollutant Emission Factors, AP-42, "Miscellaneous Sources"* lists a variety of control strategies that can be included in a comprehensive facility dust control plan. A few possible control strategies are listed below:

Paved roads: covering of loads in trucks to eliminate truck spillage, paving of access areas to sites, vacuum sweeping, water flushing, and broom sweeping and flushing.

Material handling: wind speed reduction and wet suppression, including watering and application of surfactants (wet suppression should not confound track out problems).

Bulldozing: wet suppression of materials to "optimum moisture" for compaction.

Scraping: wet suppression of scraper travel routes.

Storage piles: enclosure or covering of piles, application of surfactants.

Miscellaneous fugitive dust sources: watering, application of surfactants or reduction of surface wind speed with windbreaks or source enclosures.

**Recommendation**

The AQB has no objection to the current request for a minimal impact exploration permit from MMD.

The applicant is expected to comply with all requirements of federal and state laws pertaining to air quality. This written evaluation does not supersede the applicability of any forthcoming state or federal regulations.

If you have any questions, please contact me at 505.476.4304.

**MEMORANDUM**
**OFFICE OF THE STATE ENGINEER**
***Hydrology Bureau***

DATE: December 23, 2019

TO: Carmen Rose, Permit Lead, Mining Act Reclamation Program (MARP)/MMD
Holland Shepherd, Program Manager, MARP/MMD

THROUGH: Ghassan Musharrafieh, Ph.D., P.E., Hydrology Bureau Chief GRM
Rob Pine, Hydrology Bureau Supervisor RP

FROM: Jose A. Solis, Ph.D., Hydrologist, Hydrology Bureau GRM for JAS

SUBJECT: Review and Comments, Minimal Impact Exploration Permit Application, Palm Park Dona Ana 2019 Project, Dona Ana County, New Mexico, Permit No. DA004EM

## I. Introduction and Conclusions

On November 25, 2019, the State of New Mexico Energy, Minerals and Natural Resources Department (EMNRD) requested of the New Mexico Office of the State Engineer (NMOSE) Hydrology Bureau to review and comment on the MMD DA004EM Part 3 Minimal Impact Exploration Operation Permit Application for the Palm Park Dona Ana 2019 Project and an amendment to the application. The project will consist of the drilling and evaluation of up to 20 boreholes, ranging between 15 and 160 feet deep (6 inch diameter boreholes), exploring for barium sulfate BaSO4 (barite).

The locations of the proposed boreholes[1] are within Sections 10, 14 and 15 of Township 18 South, Range 3 West and will be approximately 6 miles north of the town of Hatch and 7 miles northwest of the town of Rincon within Dona Ana County. The surface elevation of the proposed boreholes range from approximately 4,686 to 5,297 feet NGVD.

I did not attend the joint pre-permitting- initial site inspection for the proposed project on December 4, 2019.

**Comment Summary**

1. Discrepancies within application and attached amendment
    a. Incorrect GPS coordinates of borehole JD-2
    b. What will be done with the excess cuttings
    c. How the boreholes will be plugged (abandoned)

[1] GPS coordinates for Borehole with I.D. Number "JD-2"are incorrect within Section 3 subsection A (page 7) of the submitted application. The Easting/Longitude indicates 107° 7' 3.45"and should be 107° 7' 34.5" as shown within the attached Maps of the project site location.

2. Surface Water
    a. 6 boreholes are within 100 feet of an ephemeral stream
    b. 3 boreholes appear to be within the actual ephemeral stream bed

3. Groundwater
    a. Evaluation of groundwater within the project area with limited available data suggests that the boreholes may or may NOT encounter groundwater
    b. If no water is encountered, MMD regulations (19.10.3 NMAC) supersede NMOSE regulations (19.27.4 NMAC)
    c. If water is encountered then Applicant will be required to file a *Permit to Drill a Well with No Water Right* and a *Well Plugging Plan of Operations* with NMOSE and follow the NMAC 19.27.4 regulations

4. Borehole Abandonment
    a. If water is not encountered, MMD regulations for plugging (Subsection L of 19.10.3.302 NMAC) will prevail over NMOSE regulations for plugging (Subsection C of 19.27.4.30 NMAC)
    b. If non-artesian water is encountered, NMOSE well plugging regulations (Subsection C of 19.27.4.30 NMAC) should be followed under the conditions set forth by a *Permit to Drill a Well with No Water Right* and where necessary, an associated *Well Plugging Plan of Operations*.

## II. Discrepancies within application and attached amendment

It appears that there are some discrepancies within the submitted application and the attached amendment in regards to Section 4 (Exploration Description; pages 9-11), Section 5 (Chemical Use; pages 14-15) and Section 6 (Groundwater/Surface water Information; pages 16-18) of the application.

- Within Section 4 subsection D "Disposal of drill cuttings" (page 11) the applicant states that *"cuttings will be used for aggregate on county road"* and within comment No. 6 of the attached amendment the applicant states *"All cuttings will be disposed back into the bore hole. There will be no excess cuttings."* These two statements contradict each other. The NMOSE does not have any regulations regarding the use of cuttings as road aggregate, but would suggest appropriate environmental agency input regarding the proposed surface spreading of cuttings that may contain ancillary concentrations of hazardous minerals. NMOSE regulations disallow the use of drill cuttings as plugging material if groundwater is encountered (see Subsection C of 19.27.4.30 NMAC regulations).
- Another discrepancy is seen within Section 5 subsection E, "Identify spill cleanup materials that will be kept on-site", and Section 6 subsection D, "Exploration Borehole Abandonment", where the applicant initially states in both that they will use Bentonite Clay and will choose Option 1 for Dry hole abandonment; later in the amendment applicant states that no Bentonite will be used and that the borehole will be abandoned by placing the cuttings back

into the borehole(recall that if water is not encountered then MMD regulation 19.10.3.302.L NMAC specifying MMD plugging process prevails over NMOSE regulations).

## III. Surface water

Two USGS 7.5-minute Topo maps (Hatch and McLeod Tank Quadrangles) were used in the evaluation of surface water features near the proposed project drill sites (see web links in the references). The project site is approximately between 5.4 and 6 miles north of the Rio Grande. Within the project site there are several ephemeral drainages that may discharge toward the Rio Grande during high precipitation events. Out of the 20 proposed boreholes, 6 of them (JD-6, JD-7, JD-8, JD-15, JD-17and JD-18) appear to be within 100 feet of an ephemeral drainage. Three of the boreholes (JD-6, JD-8 and JD-18) appear to be within the actual drainage channel.

According to Subsection F of Section 6-*Grounwater/Surface Water Information* (page 16) of the MMD's "Part 3 Minimal Impact Exploration Operation PERMIT APPLICATION INSTRUCTIONS" (2012), drilling in or near water courses - even if they are dry for most of the year is not preferred and will likely result in some drilling restrictions by the MMD. NMOSE regulation 19.27.4.29.P.(2) NMAC notes that drilling fluids and cuttings shall not be allowed to migrate or be discharged off property under the control of the well owner, and that no drilling fluid or cuttings be discharged into any waters of the State. It is recommended to avoid drilling in or within 100 feet of any drainages.

## IV. Groundwater

The applicant stated that they have a well near the proposed project site and conducted a measurement providing a depth to water of over 100 feet from the surface (there is no well record or information on the referenced well within OSE records). According to the New Mexico Water Right Reporting System (NMWRRS), there are four wells within approximately 4 miles from the proposed drilling sites. Below is a list of the four OSE wells including their permit type, diversion amount, approximate surface elevation, approximate distance to nearest borehole and well information such as depth to water (DTW) and depth of well if information is available.

**LRG-16531 POD1** (PLS; Diversion of 3AFY; approx. Surface Elev. 4,567 NGVD; approx. distance to nearest borehole = 1.69 miles ESE of JD-12; No well information available)

**LRG-12256** (Closed File; No Diversion amount; approx. Surface Elev. 4,256 feet; approx. distance to nearest borehole = 3.21 miles SSE of JD-20; DTW = Not provided; Depth of Well = 40 feet)

**LRG-06392** (MUL; No Diversion amount; approx. Surface Elev. 4,188 feet; approx. distance to nearest borehole = 3.84 miles SSW of JD-20; DTW =120 feet; Depth of well = 150 ft)

**LRG-12349** (Expired Permit; no Diversion amount; approx. Surface Elev. 4,635 feet; approx. distance to nearest borehole = 2.8 miles NW of JD-16; No well information available)

According to the USGS National Water Information System, there are three wells within approximately 4 miles from the proposed drilling sites. Below is a list of the three USGS wells including their Site Name, surface elevation, DTW and approximate distance to the nearest borehole.

**324418107075901** (Site Name: 18S.03W.15.432; Surface Elev. 4,455 feet; DTW= 95.76 feet; approx. distance to nearest borehole = 0.77 miles SSW of JD-18)

**324637107101001** (Site Name: 18S.03W.5.124; Surface Elev. 4,640 feet; DTW= 115.39 feet; approx. distance to nearest borehole = 2.7 miles NW of JD-16)

**324215107062401** (Site Name: 18S.03W.36.144; Surface Elev. 4,256 feet; DTW= 15.23 feet; approx. distance to nearest borehole = 3.84 miles SSE of JD-20)

There is very limited groundwater data in the surrounding area of the proposed project area. Only four nearby wells had available groundwater data. An extrapolation was done using ArcGIS Pro and with the available data to predict the groundwater table elevation at the proposed borehole locations. Results from the extrapolation showed that the shallowest depth to groundwater from the surface was predicted to be approximately 244 feet. The deepest proposed borehole is to a depth of 160 feet. From this analysis with the limited amount of available data, it may seem unlikely that all of the proposed boreholes will reach groundwater.

Mineral exploration borings (NMOSE's "mine drill holes") that do not encounter water were specifically exempted from the NMOSE's Title 19 Chapter 27 Part 4 regulations regarding well driller licensing and construction, repair and plugging of (water) wells as of June 30, 2017. Although it may seem unlikely that groundwater will be reached, there is still a possibility that groundwater could be intercepted. In the event the proposed drilling was to encounter groundwater, the NMOSE would share jurisdiction of the drilling and plugging proposed. Under these circumstances, a *Permit to Drill a Well with No Water Right* for each of the proposed borings (that encounter water) would be required, as would the services of a New Mexico-licensed well driller.

## V. Exploratory borehole abandonment

MMD regulations (19.10.3 NMAC) prevail over those of NMOSE (19.27.4 NMAC) if groundwater is not encountered during exploratory drilling. For exploratory borings that do not encounter a water-bearing stratum, MMD plugging regulation Subsection L of NMAC 19.10.3.302, appears to never-the-less require a sealant-based plugging, or will likely address MMD-preferred plugging alternatives under the terms of their project permit (see item 6 of the notes section of Figure 1 within the "Guidance Document for Part 3 Permitting Under the New Mexico Mining Act (2011)). In the event that drilling does encounter groundwater, pluggings would be administered in part under either pre-approved plugging conditions attached to the NMOSE drilling permits, or would be

separately conditioned by a *Well Plugging Plan of Operations*, as dictated by NMOSE Water Rights District 4 (Las Cruces District Office). Additional details regarding well plugging requirements under 19.27.4 NMAC are included in the attached document ("General Concerns Related to NMOSE Regulation of Exploratory Borehole Drilling Encountering Groundwater and Associated Plugging of these Borings").

## VI. References


Mining and Minerals Division, 2011, Guidance Document for Part 3 Permitting Under the New Mexico Mining Act. Energy, Minerals and Natural Resources Department, Mining Act Reclamation Program October 2011.
http://www.emnrd.state.nm.us/MMD/MARP/Documents/Part_3_Guidelines_October2011_.pdf

Mining and Minerals Division, 2012, Part 3 Minimal Impact Exploration Operation: PERMIT APPLICATION INSTRUCTIONS. Energy, Minerals and Natural Resources Department.
http://www.emnrd.state.nm.us/MMD/MARP/Documents/Part3_ExplorationApplication_Instructions_Feb2012.pdf

New Mexico Office of the State Engineer and New Mexico State Engineer and Interstate Stream Commission. New Mexico Water Rights Reporting System.
URL: http://nmwrrs.ose.state.nm.us/nmwrrs/index.html

U.S. Geological Survey, 20131022, USGS US Topo 7.5-minute map for Hatch, NM 2013: USGS - National Geospatial Technical Operations Center (NGTOC).
https://prd-tnm.s3.amazonaws.com/StagedProducts/Maps/USTopo/PDF/NM/NM_Hatch_20131022_TM_geo.pdf

U.S. Geological Survey, 20131101, USGS US Topo 7.5-minute map for McLeod, NM 2013: USGS - National Geospatial Technical Operations Center (NGTOC).
https://prd-tnm.s3.amazonaws.com/StagedProducts/Maps/USTopo/PDF/NM/NM_McLeod_Tank_20131101_TM_geo.pdf

**General Concerns Related to NMOSE Regulation of Exploratory Borehole Drilling Encountering Groundwater and Associated Plugging of those Borings**

Well drilling activities - including mineral exploration borehole drilling ("mine drill holes") that penetrate a water-bearing stratum - and well plugging, are regulated in part under 19.27.4 NMAC (New Mexico Administrative Code). Most recently promulgated 6/30/2017, these regulations require any person engaged in the business of well drilling within New Mexico to obtain a Well Driller License issued by the NMOSE (New Mexico Office of the State Engineer). Therefore, a New Mexico licensed Well Driller shall perform the drilling and plugging of exploratory boreholes that encounter groundwater.

Exploration drilling where a water-bearing stratum is encountered will be subject to pertinent sections of 19.27.4 NMAC, including but not limited to Sections 19.27.4.30.C NMAC for plugging and abandonment of non artesian wells / borings; 19.27.4.31 NMAC for artesian wells / borings; and 19.27.4.36 NMAC for mine drill holes that encounter water. A complete version of the NMOSE 19.27.4 NMAC regulations can be found on the NMOSE website at: http://164.64.110.134/parts/title19/19.027.0004.html . The Mining and Mineral Division (MMD) will likely place additional conditions on the drilling and plugging of all mineral exploration borings via the MMD project permit.

All onsite drilling and plugging activities where groundwater is encountered shall be conducted under the supervision of the New Mexico-licensed Well Driller or a NMOSE-registered Drill Rig Supervisor under the direction of the licensed Well Driller.

Additional NMOSE filings will be required where it is requested that an exploratory borehole be converted to a water well. The well design and construction shall be subject to the provisions of 19.27.4 NMAC Regulations. Appropriation of water from such a conversion may require a water right. **The MMD may disallow the conversions of exploratory borings to water wells if not permitted specifically in the MMD permit.**

**Use/extraction of Temporary Casing**

When drilling through caving overburden or unconsolidated geologic units, use of temporary casing may be desired. Any temporary casing should be installed with the full intention of its removal before well plugging, therefore it should be inserted into a borehole of sufficiently large diameter to allow easy extraction upon termination of drilling. NMAC 19.27.4 regulations dictate methodology for the installation of permanent well casing, including the installation of required annular seal, should that option be prudent.

If temporary casing lacking an appropriate annular seal becomes stuck in-place, the potential for commingling of aquifers or surface water drainage may occur via an unsealed annulus. In these cases, remedial casing perforation and squeeze-cementing may be required as part of the well decommissioning. Steps should be taken to prevent deleterious fall-in or drainage of cuttings/sediments into the annulus outside the temporary casing to best allow for full retrieval and proper borehole plugging.

When setting of temporary casing occurs or is expected, appropriate detail of the proposed casing extraction and borehole clean-out process prior to plugging will be required in the NMOSE *Well Plugging Plan of Operations* form.

**Exploratory Borehole Plugging**

Terms of borehole plugging will be established jointly by the evaluation of the NMOSE *Well Plugging Plan of Operations* and the review of the relevant MMD application for water-bearing boreholes. Approved high-solids bentonite abandonment-grade sealants and/or approved cement slurries will be required for plugging as deemed hydrogeologically appropriate by the agencies. If the exploratory borings do not encounter groundwater, MMD plugging regulations (19.10.3 NMAC) prevail over those of 19.27.4 NMAC.

NMOSE well plugging regulations require tremie placement of the column of well sealant, which shall extend from the bottom of the borehole to ground surface. The NMOSE defers to the discretion of the MMD for the choice of sealant versus natural fill in the uppermost portion of a borehole plug to facilitate site restoration.

Required plugging of water-bearing exploratory borings shall occur within the timeframe specified by either the NMOSE or MMD to minimize cave-in and the potential for incomplete plugging due to blockages in the borehole.

**Drill Rig Fuels, Oils and Fluids**

Drill rigs contain and consume fuels, oil, and hydraulic fluids, and are subject to leaks. Drill rigs often remain in-place longer than other pieces of exploration equipment onsite, are frequently running, and are positioned immediately above and adjacent to the open borehole. As a standard practice to prevent contamination and reduce site cleanup activities, it may be beneficial to use bermed, impermeable ground sheeting under the drill rig. Consideration of bermed containment volume sufficient to accommodate a high-intensity precipitation event is also a good practice.