CONTROL OFFICER
PIMA COUNTY AIR QUALITY
CONTROL DISTRICT
33 N. Stone Ave., St., 7th Floor
Tucson, AZ 85701-1429
(520) 724-7400

BEFORE THE CONTROL OFFICER OF THE PIMA COUNTY AIR QUALITY DISTRICT

PIMA COUNTY AIR QUALITY CONTROL DISTRICT and URSULA KRAMER NELSON, Control Officer of the Pima County Air Quality Control District, v. Freeport-McMoRan Sierrita, Inc., Respondent.	Pima County Department of Environmental Quality Case No.: PC 1810-033 **SETTLEMENT AGREEMENT**

RECITALS

A. The Pima County Air Quality Control District and Ursula Kramer Nelson, Control Officer of the Pima County Air Quality Control District and Director of the Pima County Department of Environmental Quality (collectively "PDEQ") have issued a Notice of Violation to Freeport-McMoRan Sierrita, Inc. ("Respondent"), dated November 13, 2018 alleging violations of Pima County's air quality rules set forth in Title 17 of the Pima County Code, which were adopted pursuant to A.R.S. § 49-479. The specific code violations are set forth in the Notice of Violation attached to this Settlement Agreement as Exhibit 1 (the "NOV").

B. In lieu of pursuing enforcement pursuant to A.R.S. § 49-511 or filing a lawsuit for civil penalties pursuant to A.R.S. §§ 49-511 and 49-513 for the violations set forth in Exhibit 1, PDEQ and Respondent agree to enter into this Settlement Agreement.

C. PDEQ has jurisdiction over this matter pursuant to A.R.S. § 49-513 and is authorized by A.R.S. § 49-471.01(A)(16) to enter into this Settlement Agreement. Respondent acknowledges receipt of the NOV and waives any right to appeal the violations to a hearing board or administrative law judge as allowed under A.R.S. § 49-471.01(A)(12) and (13).

D. PDEQ and Respondent wish to resolve the allegations in Exhibit 1 in the manner set forth in this Settlement Agreement.

E. Respondent knowingly and voluntarily enters into this Settlement Agreement.

PROVISIONS

1. The foregoing "Recitals" are incorporated by this reference into the "Provisions" section of this Settlement Agreement.

2. The parties agree not to contest the authority of PDEQ to enter into this Settlement Agreement ("Agreement") and Respondent hereby agrees that the NOV states a basis for a cause of action under A.R.S. § 49-513 upon which, if the allegations were proven, relief could be granted against the Respondent.

3. Respondent and PDEQ agree to abide by the provisions and conditions of this Agreement. Respondent does not admit to any of the findings or allegations in this Agreement or in the NOV, nor does Respondent admit liability or admit any issues of law or fact contained in this Agreement or in the NOV. This Agreement shall not be admissible in any other judicial or quasi-judicial proceedings except those necessary to enforce the terms of this Agreement or for the limited purpose of seeking enhanced penalties for violations of the Pima County Code alleged after November 13, 2018.

4. Respondent will pay $30,000.00 as a civil penalty as partial settlement of the alleged violations. The civil penalty is due and payable within (30) thirty days of execution of this Agreement by Respondent. Payment must be sent to PDEQ at 33 N. Stone Ave., Suite 700, Tucson, Arizona 85701-1429 and the check made out to the "Pima County Treasurer".

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5. Respondent will expend $200,000.00 for the purpose of funding a Supplemental Environmental Projects ("SEP"). The SEP is not a fine or civil penalty, but it is intended to provide restitution for the excess visible emissions alleged in the NOV. The SEP projects will be completed in accordance with Standard Flood Control District practices and procedures for the work elements included in the spreadsheet attached and conceptual rendering to this Agreement as Exhibit 2. All SEP projects are exclusively related to the Camino Del Sol Path Paving in Green Valley, Arizona. The projects will be facilitated by the Pima County Flood Control District. Respondent will provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary for the execution and completion of the work. Respondent will provide copies of invoices and any other documents requested by PDEQ to demonstrate that $200,000.00 was expended for the execution and completion of the SEP. Respondent will ensure that all materials used for the SEP are new and that both workmanship and materials are of good quality. Respondent will furnish satisfactory evidence as to the kind and quality of materials, if requested by PDEQ.

6. In the event the payment and completion of the SEP are not satisfied within the parameters of the executed Agreement, PDEQ may nevertheless execute and enforce this Agreement as a contract and shall be entitled to its court costs and reasonable attorneys' fees as provided below. Failure by Respondent to make full and timely payments and complete the SEP as agreed shall subject Respondent to interest assessed pursuant to A.R.S § 44-1201. In addition, PDEQ may pursue a complaint under A.R.S. § 49-513 and seek all civil penalties and injunctive relief available at law or in equity.

7. Respondent acknowledges that whether the civil penalty and SEP are deducted as a business expense is a matter of state and federal law and that PDEQ makes no representations concerning the deductibility of this payment. Respondent is nonetheless willing to pay the penalty to settle the alleged violations.

8. Upon timely payment, PDEQ shall accept the sum set forth above as full payment and complete satisfaction of any and all claims against, and all amounts owed by Respondent to PDEQ arising as a result of or in connection with the allegations in the NOV.

9. Respondent agrees to provide documentation to PDEQ of completion of the SEP projects.

10. PDEQ agrees not to request EPA to consider any other enforcement action under EPA authority for the violations alleged in the NOV. In no way does this Agreement limit the authority of EPA to bring an action on any violations alleged in this Agreement.

11. PDEQ declares and represents that no promises, inducements or agreements not expressed in this Agreement have been made to Respondent and that this Agreement contains the entire agreement between the Parties, and that the terms of this Agreement are contractual and not mere recitals.

12. This Agreement may not be altered, amended or modified in any way except by written agreement signed by PDEQ and Respondent.

13. This Agreement does not relieve Respondent of its legal obligation to comply with all applicable federal, state and local environmental laws, regulations, rules, and permit conditions.

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14. The persons executing this Agreement expressly represent and warrant that they are authorized to execute the Agreement. The terms, conditions and provisions of this Agreement shall be construed only according to their fair import.

15. All of the clauses of this Agreement are distinct and severable, and if any clause shall be deemed illegal, void, or unenforceable, it shall not affect the validity, legality, or enforceability of any other clause of this Agreement.

16. If at any time PDEQ believes that Respondent has breached this Agreement by failing to make a payment as set forth in paragraph 4 and 5 above, PDEQ will provide written notice to Respondent setting forth the amount PDEQ claims is owed. Within 10 days of the written notice, Respondent shall pay the amount or set forth a binding, written offer of what it believes is owed. If suit is brought successfully by PDEQ for the recovery of any payment due under this Agreement or for the breach of any provision of this Agreement, Respondent agrees to pay all reasonable costs in connection with the suit, including reasonable attorneys' fees, regardless of whether the suit proceeds to judgment. A suit is "successful" if it recovers an amount owing under this Agreement greater than the amount offered by Respondent in its binding, written offer. The amount of reasonable costs and attorneys' fees shall be determined by the Court and not by a jury.

17. PDEQ and Respondent agree that each of them shall take all further action and execute all further documents, if any, which may be necessary or appropriate to implement this Agreement according to its terms.

18. This Agreement shall be governed by the laws of the State of Arizona, and all actions under it shall be brought in Pima County, Arizona.

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19. This Settlement Agreement may be executed in multiple counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same Agreement.

IN WITNESS WHEREOF the parties have entered into this Agreement this 29 day of July, 2019.

PIMA COUNTY AIR QUALITY CONTROL DISTRICT

By Ursula Kramer Nelson
Ursula Kramer Nelson, P.E.
Control Officer

Freeport-McMoRan Sierrita, Inc.,
Respondent

By David P. Abbott
Its GENERAL MANAGER

By N/A
Its N/A

ATTACHMENT: November 13, 2018 Notice of Violation (Exhibit 1)
SEP Detailed Project Specifications (Exhibit 2)

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EXHIBIT 1

November 13, 2018 Notice of Violation

PIMA COUNTY
ENVIRONMENTAL QUALITY

33 N. Stone Avenue, Suite 700
Tucson, Arizona 85701-1429
www.pima.gov/deq

Ursula Kramer Nelson, P.E.
Director

(520) 724-7400
FAX (520) 838-7432

November 13, 2018

CERTIFIED MAIL
Return Receipt Requested

Freeport-McMoRan Sierrita Inc.
Attn: David Rhoades, General Manager – Sierrita Operations
6200 W. Duval Mine Rd.
PO Box 527
Green Valley, AZ 85622-0527

NOTICE OF VIOLATION # PC1810-033

The Pima County Department of Environmental Quality (PDEQ) has reason to believe Freeport-McMoRan Sierrita Inc. (FMSI) has violated requirements of PDEQ Air Quality Operating Permit #6067 and the Pima County Code (PCC). PDEQ discovered the violations alleged below during inspections of the Sierrita facility in Green Valley, Arizona, conducted on October 6, 7, and 11, 2018, and upon review of reports submitted by FMSI dated September 20, October 9, 10, 15, and November 1 and 8, 2018.

I. ALLEGED VIOLATIONS – APPEALABLE AGENCY ACTIONS

FINDINGS OF FACT

Alleged Violation #1

Permit Condition Attachment B, II.E.1 (PCC 17.16.050.D)
II. FACILITY-WIDE REQUIREMENTS
E. Visibility Limiting Standard
1. The Permittee shall not cause, suffer, allow, or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become airborne. Sources may be required to cease temporarily the activity or operation which is causing or contributing to the emissions until reasonably necessary and feasible precautions are taken.

Findings

Freeport-McMoRan Sierrita, Inc. allowed visible fugitive dust emissions generated from the Sierrita Tailings Impoundment to cross northward across Duval Mine Road on September 18, 2018, northeast across Duval Mine Road and Continental Road on October 6, 7, 11, and 30, 2018, and northward across Duval Mine Road on November 6, 2018.

Requested Corrective Actions

Take adequate precautions to prevent visible emissions of fugitive dust generated from the Sierrita Tailing Impoundment from crossing property boundaries.

Propose additional dust control measure(s) to address potential future dust generation from the Sierrita Tailings Impoundment surfaces that have been damaged and cannot be controlled by all-track vehicles or wet tailings application.

Alleged Violation #2

Permit Condition Attachment B, XIX.B.1.a (PCC 17.16.050.B)
XIX. REQUIREMENTS FOR FUGITIVE DUST SOURCES
B. Open Areas, Roadways and Streets, Material Handling, Storage Piles
1. Emission Limitations/Standards
a. The Permittee shall not cause, allow or permit visible emissions from any fugitive dust source in excess of 20% opacity measured in accordance with EPA Reference Method 9.

Findings

Freeport-McMoRan Sierrita, Inc. allowed visible fugitive dust emissions generated from the Sierrita Tailings Impoundment of 37% (10:38 am – 10:44 am), 21% (10:47 am – 10:53 am), 27% (11:00 am – 11:06 am), 23% (11:10 am – 11:16 am), 24% (11:18 am – 11:23 am), 25% (11:18 am – 11:24 am), 24% (11:25 – 11:31), 21% (11:37 am – 11:42), 44% (11:49 am – 11:55 am), 41% (11:57 am – 12:03 pm), 45% (2:55 pm – 3:01 pm), 61% (3:14 pm – 3:19 pm), 40% (3:23 pm – 3:29), and 38% (3:31 pm – 3:37 pm) opacity on October 11, 2018, as measured by EPA Alternative Test Method ALT-082.

Requested Corrective Actions

Take adequate precautions to prevent visible emissions of fugitive dust generated from the Sierrita Tailing Impoundment from exceeding 20% opacity as measured by EPA Reference Method 9 or EPA Alternative Test Method ALT-082.

II. CITATION OF AUTHORITY

Arizona Revised Statutes (ARS) § 49-513

Pima County Code § 17.28.070

III. REQUESTED COMPLIANCE DOCUMENTATION

Freeport-McMoRan Sierrita Inc. shall submit a written response to PDEQ within **thirty (30)** calendar days of receipt of this notice. The response shall include:

- A thorough explanation of those actions that led to the violations
- The corrective actions taken to meet compliance

- The corrective measures taken to prevent future violations of this type

The above documentation shall be deemed "submitted" when received by PDEQ at the following address:

Pima County Department of Environmental Quality
33 N. Stone Avenue, Suite 700
Tucson, AZ 85701-1429
Attention: Dustin Fitzpatrick

Or via email: Air.Permits@pima.gov with Subject: NOV PC1810-033

IV. STATEMENT OF CONSEQUENCES

Failure to achieve compliance or enter into a Consent Order will result in PDEQ initiating a unilateral enforcement action. Achieving compliance does not preclude PDEQ from seeking civil penalties. A unilateral enforcement action may result in a civil penalty. A civil penalty may be imposed for each violation for the entire non-compliance period.

PDEQ believes the alleged violations identified in the Notice of Violation (NOV) are significant and advises you they may be used to determine a pattern of non-compliance or used to determine civil penalties pursuant to ARS § 49-513. As such, PDEQ believes that NOV violations are appealable agency actions as defined in ARS § 49-471(4).

A person whose legal rights, duties or privileges were determined by an appealable agency action or who will be adversely affected by an appealable agency action and who exercised any right to comment on the action provided by law, rule or ordinance may appeal the action to the air pollution hearing board established pursuant to ARS § 49-478.

V. ADMINISTRATIVE INFORMATION

OFFER TO MEET

PDEQ personnel are willing to schedule a meeting to discuss the NOV and corrective actions. If you would like to meet, please contact me at (520) 724-7400. Before meeting, please submit the following:

- An agenda that specifies the objectives you wish to discuss.
- The names and affiliations of the participants that will be accompanying you.

COMPLIANCE ASSISTANCE

PDEQ personnel are also willing to help you achieve and maintain compliance. If you need assistance complying with the regulations please contact our department at (520) 724-7400.

NOTICE OF NON-DISCRIMINATION

The Pima County Department of Environmental Quality does not discriminate on the basis

of race, color, national origin, sex, disability religion, or age in its programs or activities in accordance with applicable laws and regulations. Further, any person who is in need of special services (e.g., written material in large type, signer for the hearing impaired, or for free assistance in Spanish), please contact PDEQ's Environmental Justice Program Manager, Beth Gorman, 33 N. Stone Avenue, Suite 700, Tucson, Arizona, 85701, Phone (520) 724-7446, email beth.gorman@pima.gov.

AVISO DE NO DISCRIMINACIÓN

El Departamento del Condado de Pima de Calidad Ambiental no discrimina en base de la raza, el color, el origen nacional, el sexo, la religión, discapacidad, o la edad en sus programas o actividades de acuerdo con leyes y regulaciones aplicables. Además, cualquie persona que esté necesitando los servicios especiales (e.g., material escrito en letra grande, intérpretes de lenguaje con señas, o para obtener assistencia gratuita en español), por favor contacte a la encargada del Programa de Justicia Ambiental del Departamento Calidad Ambiental del Condado de Pima, Beth Gorman, 33 N. Stone Avenue, Suite 700, Tucson, Arizona, 85701, teléfono (520) 724-7446, email beth.gorman@pima.gov.

Sincerely,

Dustin Fitzpatrick
Air Compliance Manager

Attachment: Compliance Determination Report dated November 13, 2018

cc: PDEQ File #: PC1810-033

PIMA COUNTY
ENVIRONMENTAL QUALITY

Compliance Determination Report

Tracking ID: PC1810-033

Permit #: 6067
Source: Freeport-McMoRan Sierrita Inc.
Location: 6200 W. Duval Mine Rd., Green Valley, AZ
Date: November 13, 2018
Compliance Status: Non-compliant

Excess Emissions and Permit Deviation Reports

Freeport-McMoRan Sierrita Inc. (FMSI) submitted a permit deviation report, dated September 20, 2018, to the Pima County Department of Environmental Quality (PDEQ), reporting a deficiency of FMSI's Air Quality Operating Permit #6067, Attachment B, II.E.1 that occurred on September 18, 2018 (Attachment 1). The report detailed tailings dust originating from the middle and south of the tailings impoundment heading in a north direction at approximately 5:20 pm. FMSI staff conducted an EPA Reference Method 9 visible emission observation from 5:23 pm – 5:29 pm that resulted in 20% opacity, the maximum limit of Permit #6067, Attachment B, XIX.B.1.a, during which time dust emanating from the tailings impoundment crossed Duval Mine Rd. PDEQ requested and received the Visible Emission Observation Form dated September 18, 2018, as well as the Tailings Dam Environmental Weekly Activities Reports and Tailings Impoundment Surface Inspection records for September 3 – 21, 2018, required by the FMSI Tailings Dam Dust Control Management Plan (TDDCMP) (Attachments 2 & 3). The report stated that wind speed data from Tailings 1, Sierrita Cow, and 10M weather stations showed wind speeds between 17.5 and 17.97 mph during the event.

FMSI submitted an excess emissions and permit deviation report, dated October 9, 2018, to PDEQ, reporting deficiencies of Permit #6067, Attachment B, II.E.1 and XIX.B.1.a that occurred on October 6, 2018 (Attachment 4). The report detailed dust intermittently emanating in a northeast direction from the east side of the North and South dam of the tailings impoundment between approximately 12:30 pm – 5:00 pm. An EPA Method 9 visible emission observation was not taken due to sun position and vantage point, but FMSI staff conveyed that emissions greater than 20% opacity likely occurred for 10 minutes or more during dust events at approximately 12:30 pm, 1:30 pm, and 4:50 pm. The dust emissions were also reported to have emanated from the northeast side of the impoundment and crossed Duval Mine Rd. and emanated from the southeast side of the impoundment and crossed Continental Rd. into Green Valley. The report stated that sustained winds in excess of 25 mph occurred for a half hour period and a two hour and twenty minute period within the timeframe of 12:30 pm – 5:00 pm according to the Sierrita Tailings_"Cow" weather station report. The National Weather Service (NWS) recorded wind speeds below 25 mph with wind gusts to 25 mph on Saturday, October 6, 2018, at the Tucson International Airport (Attachment 5).

FMSI submitted an excess emission report, dated October 10, 2018, to PDEQ, reporting a deficiency of Permit #6067, Attachment B, XIX.B.1.a that occurred on October 7, 2018 (Attachment 6). The report detailed dust intermittently emanating in a northeast direction from the east side of the North and South dam tailings impoundment between approximately 8:45 am – 1:00 pm. An EPA Method 9 visible emission observation was not taken due to sun position and vantage point, but FMSI staff conveyed that emission greater than 20% opacity likely occurred for 10 minutes or more during dust events at 8:45 am and 12:00 pm. The dust emissions were reported to have crossed Duval Mine Rd. and Continental Rd. during unspecified timeframes. The report stated that sustained wind speeds in excess of 25 mph occurred during the vast majority of the timeframe of 1:30 am – 1:45 pm, and that according to Permit #6067, Attachment B, II.E.2 the prohibition against dust crossing the property boundary does not apply. NWS recorded wind speeds below 25 mph with wind gusts to 32 mph on Sunday, October 7, 2018, at the Tucson International Airport (Attachment 7).

FMSI submitted an excess emissions and permit deviation report, dated October 15, 2018, to PDEQ, reporting deficiencies of Permit #6067, Attachment B, II.E.1 and XIX.B.1.a that occurred on October 11, 2018 (Attachment 8). The report detailed dust intermittently emanating in a north direction from the Sierrita Tailings Impoundment North dam between approximately 10:45 am – 1:30 pm. An EPA Method 9 visible emission observation was not taken due to sun position and vantage point, but FMSI staff conveyed that emissions greater than 20% opacity likely occurred for 10 minutes or more during dust events at approximately 10:45 am, 11:30 am, and 1:30 pm. The dust emissions were also reported to have emanated from the north side of the impoundment and crossed Duval Mine Rd. and Continental Rd. headed in a north direction. The report included the Tailings Dam Environmental Weekly Activities Report and Tailings Impoundment Surface Inspection records for October 6 - 12, 2018. NWS recorded wind speeds below 25 mph with wind gusts to 27 mph on Thursday, October 11, 2018, at the Tucson International Airport (Attachment 9).

FMSI submitted a permit deviation report, dated November 1, 2018, to PDEQ, reporting a deficiency of FMSI's Air Quality Operating Permit #6067, Attachment B, II.E.1 that occurred on October 30, 2018 (Attachment 10). The report detailed tailings dust originating from Phase 2, North Dam and Phase 1, South Dam of the tailing impoundment heading in a north direction between approximately 12:40 pm – 2:00 pm. FMSI staff conducted an EPA Reference Method 9 visible emission observation from 12:53 pm – 12:59 pm that resulted in 19% opacity, below the 20% limit of Permit #6067, Attachment B, XIX.B.1.a, during which time dust emanating from the tailings impoundment crossed Duval Mine Rd. and Continental Rd. The Visible Emission Observation Form dated October 30, 2018, was included with the report. The report stated that wind speed data from Tailings 1, Sierrita Cow, and 10M weather stations showed sustained wind speeds less than 25 mph and gusts in excess of 50 mph during the event. National Weather Service (NWS) recorded wind speeds below 25 mph with wind gusts to 27 mph on Tuesday, October 30, 2018, at the Tucson International Airport (Attachment 11).

FMSI submitted a permit deviation report, dated November 8, 2018, to PDEQ, reporting a deficiency of FMSI's Air Quality Operating Permit #6067, Attachment B, II.E.1 that occurred on November 6, 2018 (Attachment 12). The report detailed intermittent tailings dust emanating from Phase 1, North Dam and Phase 1, South Dam heading in a north direction between approximately

10:45 am – 1:00 pm. The intermittent tailings dust emissions were reported to have crossed Duval Mine Rd. and Continental Rd. at approximately 12:10 pm and 12:45 pm for approximately 10 minutes during each event. The report stated that wind speed data from Tailings 1, Sierrita Cow, and 10M weather stations showed sustained wind speeds less than 25 mph and gusts in excess of 24 mph during the event.

PDEQ Ambient Air Monitoring Station Data

PDEQ's Green Valley ambient air quality monitoring station, located at 601 N. La Canada Dr., Green Valley, approximately 2.4 miles northeast of the Sierrita Tailings Impoundment, measured and recorded the maximum detectable concentration for the beta attenuation monitor (BAM) of 985 $\mu g/m^3$ of particulate matter (PM_{10}) for the hours of 4:00 pm – 5:00 pm and 5:00 pm – 6:00 pm on October 6, 2018, and 8:00 am – 9:00 am and 9:00 am – 10:00 am on October 7, 2018, with winds from the southwest during the dust events (Attachment 13). Preliminary data shows that the two highest hourly $\mu g/m^3$ concentrations for fine particulate matter 2.5 micrometers or less ($PM_{2.5}$) in 2018 occurred at 4:00 pm and 5:00 pm on October 6, 2018, and seven of the highest 11 hourly $\mu g/m^3$ concentrations for particulate matter 10 micrometers or less (PM_{10}) in 2018 occurred on October 6 and 7, 2018, during the dust events. Comparative data with regional PDEQ $PM_{2.5}$ and PM_{10} data monitoring stations indicates that the high concentrations at Green Valley monitoring station were from the local dust event originating from the Sierrita Tailings Impoundment (Attachment 14). The National Ambient Air Quality Standard (NAAQS) for $PM_{2.5}$ is 35 $\mu g/m^3$ for a 24-hour averaging time and 150 $\mu g/m^3$ for PM_{10} for a 24-hour averaging time. The PDEQ Green Valley monitoring station recorded a 24-hour average PM_{10} concentration of 131 $\mu g/m^3$ on October 6, 2018, and a 24-hour average PM_{10} concentration of 118 $\mu g/m^3$ on October 7, 2018.

FMSI Community Dust Response

FMSI's Manager Strategic Community Development, Collette Brown, emailed PDEQ Public Outreach & Education Manager, Beth Gorman, on October 9, 2018, with the Subject:, "Dust Response", to provide an update and community phone number for local residents impacted by the tailings dust releases that occurred on October 6 and 7, 2018, from the Sierrita Tailings Impoundment (Attachment 15).

Inspections

PDEQ conducted an onsite inspection on September 26, 2018, in response to a dust complaint and FMSI permit deviation report for dust that occurred at the Sierrita Tailings Impoundment on September 18, 2018 (Attachment 16). An immobilized all-track and bulldozer were observed stuck in the tailings impoundment on the South dam toward the reclaim pond. The majority of the surface of Phases 2 and 3 of the South dam appeared light in color.

PDEQ conducted an offsite inspection on October 6, 2018 (Attachment 17). PDEQ staff observed visible emissions from the Sierrita Tailings Impoundment blowing northeast across Duval Mine Rd. and Continental Rd. toward Green Valley from approximately 1:49 pm – 5:46 pm.

PDEQ conducted an offsite inspection on October 7, 2018 (Attachment 18). PDEQ staff observed visible emissions from the Sierrita Tailings Impoundment blowing northeast across Duval Mine Rd. and Continental Rd. toward Green Valley from approximately 8:13 am – 11:43 am.

PDEQ conducted an onsite inspection on October 8, 2018, in response to numerous dust complaints and FMSI reports of excess emissions and permit deviations for dust that occurred on October 6 and 7, 2018, from the Sierrita Tailings Impoundment (Attachment 19). PDEQ staff observed large areas of the north and east side slopes of the tailings impoundment covered in windblown tailings material. The surface crust of the tailings impoundment appeared compromised in areas observed during the inspection and equipment remained stuck in the impoundment south of the divider.

PDEQ conducted on onsite inspection on October 10, 2018, to follow up on previously observed emissions from the Molybdenum Roaster stack and at the request of FMSI to observe actions taken at the Sierrita Tailings Impoundment (Attachment 20). PDEQ staff observed that previously stuck equipment had been removed from the tailings impoundment interior; tailings spigots were being installed on the North dam; and additional magnesium chloride ($MgCl_2$) dust suppressant had been applied to the southeast section of the South dam.

PDEQ conducted offsite surveillance and an onsite inspection on October 11, 2018 (Attachment 21). PDEQ staff observed visible emissions from the Sierrita Tailings Impoundment crossing Duval Mine Rd. and Continental Road between approximately 10:20 am – 11:40 am, and crossing Duval Mine Rd. from approximately 2:55 pm – 3:40 pm. 14 EPA Alternative Method Alt-082 visible emission observations of dust from the Sierrita Tailings Impoundment resulted in opacities of 37%, 21%, 27%, 23%, 24%, 25%, 24%, 21%, 44%, 41%, 45%, 61%, 40%, and 38%.

Records Request and Response

On October 19, 2018, PDEQ sent a letter to FMSI requesting records related to the Sierrita Tailings Impoundment (Attachment 22). FMSI provided a response to the records request on November 1, 2018 (Attachment 23).

Compliance Determination

Tailings Impoundment Surface Inspection records provided with the October 15, 2018, excess emissions and permit deviation report indicate that dust was generating from the South dam, Phases 2 and 3, and the North dam, Phases 1, 2, and 3 during the dust events that occurred on October 6 and 7, 2018. The records provided in Attachment B of the November 1, 2018, response to records request indicate that prior to the dust events of October 6 and 7, 2018, Phase 2, Sections 4 and 5, and Phase 3, Sections 1, 2, and 3 of the North dam, and Phase 2, Sections 5 and 6 of the South dam had not received tailings deposition since July 2018, and Phase 2, Sections 3 and 4, and Phase 3, Sections 1 and 2 of the South dam had not received tailings deposition since June 2018.

The TDDCPM, Section 1.3 Background, states in part, “The North and South dam are each divided into three phases for a total of six phases. Refer to Attachment A for the general configuration of the tailings dam. Typically, five phases are utilized for tailings deposition while the remaining phase goes through a construction period.” Section 2.3 Tailings Deposition – Dam Filling Operations, states in part, “When berm construction activities are not in progress, the dam shall be kept evenly wet by continual rotation of operating spigots and switching between North and South Dam pipeline”, and “After a heavy rainfall event, this rotation of operating spigots may be accelerated if necessary to reestablish the integrity of the surface crust that may have been flushed.”

Section 2.4 Berm Construction, states in part, “Prior to berm construction, the dam will go through a final fill with deposition. The dam will be filled until there is two feet of freeboard to the top of the berm. The fill will start on the west end of the respective dam phase that is being filled and work its way to the divider. Once the first phase is filled, it will go into a rest period that will last between 4-8 weeks.” The record provided in Attachment C of the November 1, 2018, response to records request indicates that final fill of tailings has been completed on all Phases of the North dam.

Section 2.8 Dust Control Plan after Heavy Rainstorms, states in part, “After a heavy rainfall event, the Sierrita tailings group will do the following to prevent fugitive dust in areas where rain has damaged the established crust and/or the $MgCl_2$ that has been previously applied on the tailings dam: If damage has been observed, the tailings group will take appropriate actions to mitigate the affected areas which include: If areas are not accessible for travel of all-track vehicles, deposition may be used to cover the area(s) of concern.” The November 1, 2018, response to records request indicated that an all-track vehicle stuck in the tailings impoundment from September 10, 2018, through October 9, 2018, prevented wet tailings application to Phases 2 and 3 of the South dam. Attachment G of the response, the FMSI Semi-annual Tailings Dam Review Dust Control Management Plan dated September 27, 2018, included the following information, “Are all procedures being followed according to the plan? Yes, except for the provision in section 2.8, stating that deposition may be used to cover the area(s) of concern, due to three pieces of equipment stuck in the impoundment. If deposition occurs in those areas, the equipment will be inundated with tailings.”

The November 1, 2018, response to records request provided diagrams highlighting areas of tailings surface damaged by the September and October heavy rainfall events that did not receive application of wet tailings or $MgCl_2$ prior to the dust event of October 6, 2018. The highlighted areas appeared to have contributed to the dust events of October 6 and 7, 2018. The response also stated in part, “Currently, there is no immediate dust suppression method to address areas of damaged tailings surfaces that are inaccessible by all-track vehicle and cannot be covered by wet tailings application prior to drying. While aerial dust suppressant application has been explored and used previously, the availability of the aerial equipment is too unpredictable for FMSI to rely upon its use. For example, during dust events in early October 2018, the next available date for aerial application, according to the vendor, was the week of November 12, 2018.”

Section 3.0 Contingency Measures, states in part, “As outlined above, Sierrita is dedicated to using all reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne from the tailings impoundment and associated berms and roadways. Despite these efforts, environmental conditions may occur that overwhelm these reasonable precautions. If so, Sierrita will undertake contingency measures that go beyond those considered reasonable to control dust. These include, be not limited to, renting an additional all-track vehicle to help apply $MgCl_2$ to the tailings dam.” The November 1, 2018, response to records request indicated that contingency measures have been taken, to include modifying the deposition schedule to cover a larger surface area in less time and modify manpower to increase magnesium chloride application from 10 hour shifts, days only, to 12 hour shifts, nights and days. Section 2.3 Tailings Deposition – Dam Filling Operations instructs that accelerating the rotation of operating spigots after a heavy rainfall event to reestablish the integrity of the surface crust may be undertaken as a reasonable precaution.

Section 2.7 High Wind Events states in part, “Sierrita has approved overtime pay for employees at the tailings dam to work late on windy days and to work longer days on weekends to assist in dust control efforts.” The response also stated in part, “In September of 2017, FMSI did receive a quote for rental of an additional all-track vehicle, however, FMSI decided not to rent an additional all-track during the recent dust events due to the inaccessibility to the areas of concern.”

The excess emission report dated October 10, 2018, for an opacity exceedance that occurred on October 7, 2018, stated that Attachment “B” Condition II.E.2 did not apply due to FMSI Cow weather station data. Permit #6067 Attachment “B” II.E.1 states, “The Permittee shall not cause, suffer, allow, or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become airborne. Sources may be required to cease temporarily the activity or operation which is causing or contributing to the emissions until reasonably necessary and feasible precautions are taken.” The ability to cease temporarily the activity or operation which is causing or contributing to the emissions implies that dust emissions are being generated from an ongoing activity that can be temporarily ceased and dust controls can be expeditiously applied to prevent dust from crossing property boundaries. Attachment “B” II.E. Permit #6067 Attachment “B” II.E.2 states, “Condition II.E.1 shall not apply when wind speeds exceed twenty-five (25) miles per hour (using the Beaufort Scale of Wind-Speed Equivalents, or as recorded by the National Weather Service). This exception does not apply if control measures have not been taken or were not commensurate with the size or scope of the emission source.” Wind data provided by FMSI was not obtained using the Beaufort Scale of Wind-Speed Equivalents or the National Weather Service. Additionally, control measures were not taken for substantial surface areas of the tailings impoundment that had been previously damaged by rainfall and control measures were not commensurate with the size and scope of the 3,200 acre Sierrita Tailings Impoundment.

PDEQ previously issued a Notices of Violation (NOVs) to FMSI on September 29, 2017, for fugitive dust emissions from the tailing impoundment in excess of 20% that occurred on August 9, 2017, and on November 6, 2017, for fugitive emissions in excess of 20% from the FMSI tailing impoundment that occurred on October 2, 2017. During that time period, PDEQ inquired as to why FMSI had not employed dust control measures outlined in the TDDCMP, such as utilizing spigot line extensions that extend 200 feet inward from the outer berm to apply wet tailings further toward the impoundment interior or employing the contingency plan for aerial application of dust suppressant, to control dust generation from damaged tailings surfaces that were not accessible by all-track vehicles. Following the issuance of the NOVs, FMSI revised the TDDCMP on January 30, 2018, to remove spigot line extensions and aerial application of dust suppressant as dust control measures. The contingency measure of aerial application of dust suppressant was replaced with measures that would include, but not be limited to, renting an additional all-track vehicle to help apply $MgCl_2$ to the tailings dam following environmental conditions that overwhelm other dust control precautions.

Following the rainfall events of September 18 and October 2, 2018, FMSI did not rent an additional all-track vehicle and did not appear to undertake contingency measures that went beyond what Sections 2.3 and 2.7 of the TDDCMP imply are reasonable precautions. FMSI has indicated that there are currently no immediate dust suppression precautions that can be taken to prevent excessive dust emissions from damaged tailings surfaces that are inaccessible by all-track and

cannot be covered by wet tailings application prior to drying. Equipment stuck in the South dam from September 10 to October 9, 2018, prevented application of wet tailings into Phases 2 and 3 of the South dam and appeared to contribute to the resulting severity of the dust events that occurred on October 6 and 7, 2018. Additionally, FMSI has completed final fill of all three Phases of the North dam prior to the start of berm construction and does not appear to be following the typical procedures outlined in Section 1.3 of the TDDCMP to utilize five of the six phases for tailings deposition.

PDEQ staff documented fugitive dust emissions in excess of 20% opacity generated from the Sierrita Tailings Impoundment on October 11, 2018, as measured in accordance with EPA Alternative Method ALT-082. EPA Alternative Method ALT-082 is a broadly applicable standard, noticed in the Federal Register for formal approval as an alternate test method that can be used in lieu of EPA Method 9[1,2]. Additionally, PDEQ staff observed visible emissions of fugitive dust generated from the Sierrita Tailings Impoundment crossing property boundaries on October 6, 7, and 11, 2018, and FMSI reported visible emissions of fugitive dust generated from the Sierrita Tailings Impoundment crossing property boundaries on September 18, October 6, 7, 11, and 30, and November 6, 2018. The repeated permit deficiencies of allowing visible fugitive dust emissions generated from the Sierrita Tailings Impoundment to exceed 20% opacity and cross property boundaries are evidence of a pattern of noncompliance and a risk to public health. Upon review of the inspection findings and submitted documents, PDEQ determined that a Notice of Violation will be issued to FMSI for deficiencies of PDEQ Air Quality Operating Permit #6067, Attachment B, II.E.1 and XIX.B.1.a.

Attachments:

1. Permit Deviation Report dated September 20, 2018
2. EPA Method 9 Visible Emission Observation Form dated September 18, 2018
3. Tailings Dam Environmental Weekly Activities Reports and Tailings Impoundment Surface Inspection Reports dated September 3 – 21, 2018
4. Excess Emissions / Permit Deviation Report dated October 9, 2018
5. National Weather Service Wind Data for October 6, 2018
6. Excess Emissions Report dated October 10, 2018
7. National Weather Service Wind Data for October 7, 2018
8. Excess Emissions / Permit Deviation Report dated October 15, 2018
9. National Weather Service Wind Data for October 11, 2018
10. Permit Deviation Report dated November 1, 2018
11. National Weather Service Wind Data for October 30, 2018
12. Permit Deviation Report dated November 8, 2018
13. PDEQ Green Valley Monitoring Station Data dated October 6 & 7, 2018
14. PDEQ Green Valley $PM_{2.5}$ & PM_{10} Tabular Data and Regional Graph Comparison
15. Inspection Report dated September 26, 2018
16. Inspection Report dated October 6, 2018
17. Inspection Report dated October 7, 2018
18. Inspection Report dated October 8, 2018

[1] https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods
[2] https://www.gpo.gov/fdsys/pkg/FR-2012-02-15/pdf/2012-3581.pdf

19. Inspection Report dated October 10, 2018
20. Inspection Report dated October 11, 2018
21. FMSI Email dated October 9, 2018
22. Records Request Letter dated October 19, 2018
23. Records Request Response dated November 1, 2018

Attachment 1

Permit Deviation Report dated September 20, 2018

FREEPORT-McMoRan

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

September 20, 2018

Via Email: Air.Notices@pima.gov and
Certified Mail: 7011 0470 0000 2359 2544

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

Re: Report of Permit Deviation and Certification of Truth, Accuracy and Completeness, Freeport-McMoRan Sierrita Inc., Permit # 6067

Dear Mr. Fitzpatrick:

This letter serves as a report of a deviation from permit requirements as required by the Freeport-McMoRan Sierrita Inc. (FMSI) Title V permit # 6067, issued January 30, 2016, Attachment "A" Condition XI.B.

Attachment "B" Condition II.E.1. states "*The Permittee shall not cause, suffer, allow, or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become airborne.*"

Description of the Event

On September 18, 2018 at approx. 5:20PM, a FMSI Environmental Department employee observed tailings dust originating from the middle and south of the tailings impoundment heading in a north direction. The employee immediately called the FMSI Tailings Supervisor and the Environmental Department on-call representative to inform them of the event. The Tailings Supervisor dispatched a water truck to the area to help mitigate the tailings dust. The employee then conducted an official Method 9 observation at the side of Duval Mine Rd near the entrance to the tailings office turn-off. The EPA Reference Method 9 observation was conducted from 5:23PM to 5:29PM. The opacity observed during the Method 9 observation was 20%, which is in compliance with FMSI's opacity limit (Attachment "B" Condition XIX.B.1.a). During the Method 9 observation, however, the dust emanating from the impoundment moved across Duval Mine Rd, a public thoroughfare, and crossed back onto FMSI property just north of the public thoroughfare. The wind speed data from the Tailings 1, Sierrita Cow and 10M weather stations showed wind speeds between 17.5 and 17.97 mph during the event.

The probable cause of the event was due to a storm approaching from the south picking up tailings material as it blew across the tailings impoundment.

As a corrective action, the Tailings Supervisor dispatched a water truck to the location to mitigate tailings dust until it started to rain.

Preceding, during, and after the event, FMSI employed reasonable precautions, as defined by Attachment B, Section XIX.B.1.b(viii) and (ix) of its Title V permit, to prevent excessive amounts of particulate matter from becoming airborne from the tailings impoundment:

- Applied water to tailings dam roads and berms, as well as, $MgCl_2$ to the top of the tailings dam as needed.
- A total of 27,250 gallons of $MgCl_2$ and 537,000 gallons of water were applied to the east side of the south dam and to areas in and around the tailings impoundment in the days prior to this event.
- Tailings supervisor adjusted the daily operating schedule by concentrating supplemental efforts on dust control.

Reasonable Precautions or preventative measures employed on an ongoing basis by Sierrita as defined by Attachment B, Section XIX.B.1.b(viii) and (ix):

- Applying wetting agents
- Maximizing the wet surface area
- Barring and controlling vehicle access
- Limiting vehicle speed
- Re-vegetating the side-slopes
- Compaction
- Encrustation
- Completed new tailings dam roads have been capped with native dirt
- Side slopes are treated with a polymer based dust suppressant
- Heavily traveled perimeter roads are treated with $MgCl_2$ dust suppressant
- Active berms were sprayed with water
- The wet dam construction method is used, maintaining the majority of the surface of the impoundment wet or encrusted while the remaining area is under construction

The event at the tailings impoundment was reported to Mr. Dustin Fitzpatrick via phone on September 19, 2018.

Please contact me at 520.393.2376 if additional information is necessary.

Sincerely,

Natalie Nunez

Natalie Nunez
Senior Environmental Scientist
20180920_001

Certification of Truth, Accuracy and Completeness

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

David Rhoades, General Manager – Sierrita Operations
Andrew Soderman, Mine Manager, Duly Authorized Representative – Sierrita Operations

Andrew Soderman 9/20/18

(Signature) (Date)

Attachment 2

EPA Method 9 Visible Emission Observation Form dated September 18, 2018

Visible Emission Observation Form

FREEPORT-MCMORAN COPPER & GOLD

Sierrita Operations

6200 W. Duval Mine Road
P. O. Box 527
Green Valley AZ 85622-0527
Tel: (520) 648-8500

Observation Date	Start Time	Stop Time
9/18/18	5:23pm	5:29 pm

PROCESS EQUIPMENT	OPERATING MODE
Tails Impoundment	24/7 operation
CONTROL EQUIPMENT	**OPERATING MODE**
All-tracks	

DESCRIBE EMISSION POINT
North Berm

HEIGHT ABOVE GROUND LEVEL	HEIGHT RELATIVE TO OBSERVER
200 ft.	200 ft
DISTANCE FROM OBSERVER	**DIRECTION FROM OBSERVER**
200 ft	NE

DESCRIBE EMISSIONS
START 5:23pm STOP 5:29 pm

EMISSION COLOR	PLUME TYPE: CONTINUOUS ☐
Off White	FUGITIVE ☒ INTERMITTENT ☐
WATER DROPLETS PRESENT: NO ☒ YES ☐	**IF WATER DROPLETS PLUME:** ATTACHED ☐ DETACHED ☐

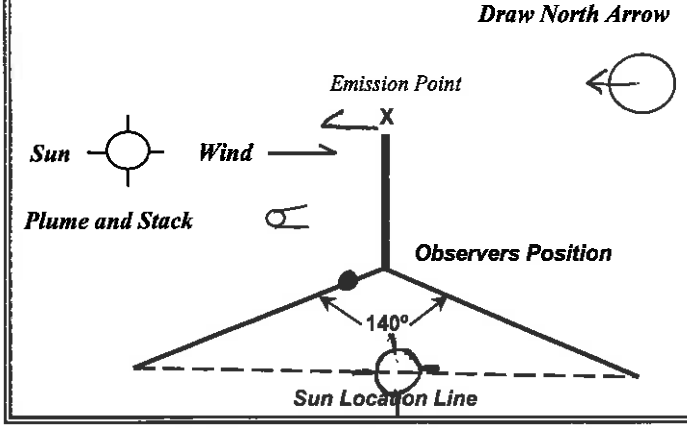
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED
5 feet above crest of berm

DESCRIBE BACKGROUND
START Dark cloudy sky STOP Dark Cloudy Sky

BACKGROUND COLOR	SKY CONDITIONS
START Dark Gray STOP Dark gray	START Cloudy STOP Cloudy
WIND SPEED	**WIND DIRECTION**
17mph	N

AMBIENT TEMPERATURE	WET BULB TEMP.	RH, (%)

Source Layout Sketch



Sec / Min	0	15	30	45	Comments
1	25	10	5	35	
2	35	45	55	80	
3	75	45	25	15	
4	0	0	0	10	
5	10	5	0	0	
6	0	5	0	5	
7					
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OBSERVERS NAME (PRINT) Natalie Nunez

OBSERVERS SIGNATURE Natalie Nunez — **DATE** 9/18/18

ORGANIZATION Freeport McMoRan Sierrita — **DATE**

CERTIFIED BY Arizona Smoke School — **DATE** 3/30/18

ADDITIONAL INFORMATION

Attachment 3

Tailings Dam Environmental Weekly Activities Reports and Tailings Impoundment Surface Inspection Reports dated September 3 – 21, 2018

Tailings Dam Environmental Weekly Activities Report

Operator: Jesus Hernandez Date: 9.7.2018

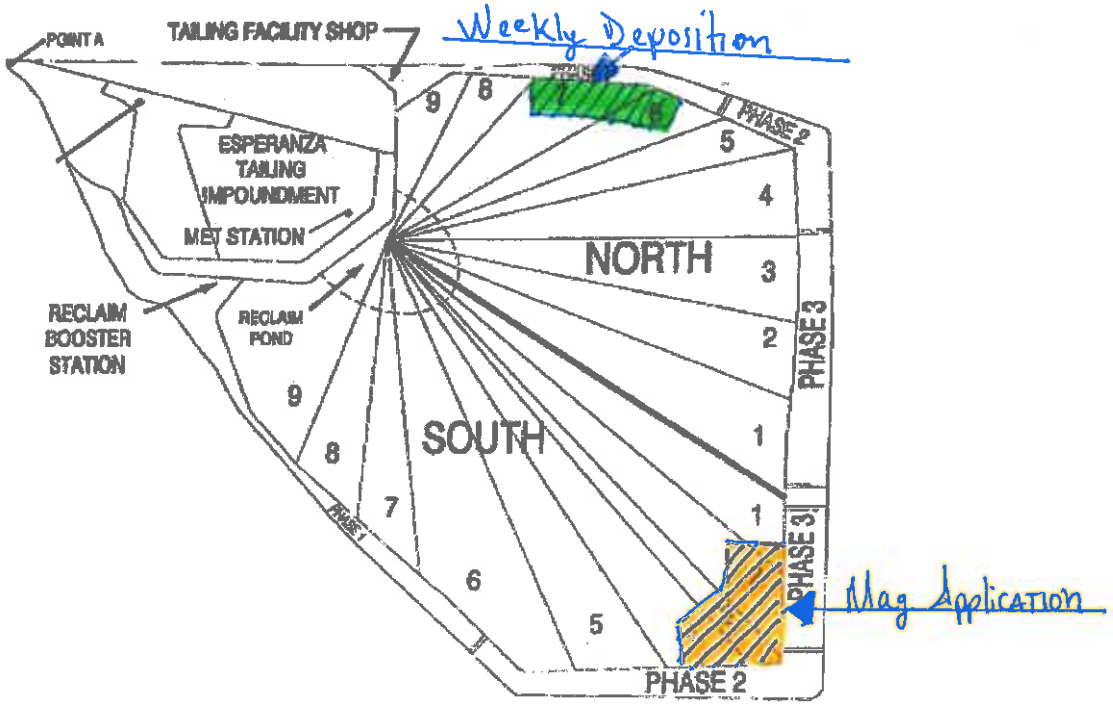
Primary Controls	N/S	Phase	Area			
Area of Deposition	North	1	7, 6			
Special Wetting Area						
Water Truck #	88	94	36	37	Rental	Rental
No. of Loads	—	—	29	22	—	—

	Gallons	N/S	Approximate Area Covered
All-track application	18,750		Phase - 3.2 - Areas 4,3,3
Mag. Chloride Applied to Rds			

Site Conditons

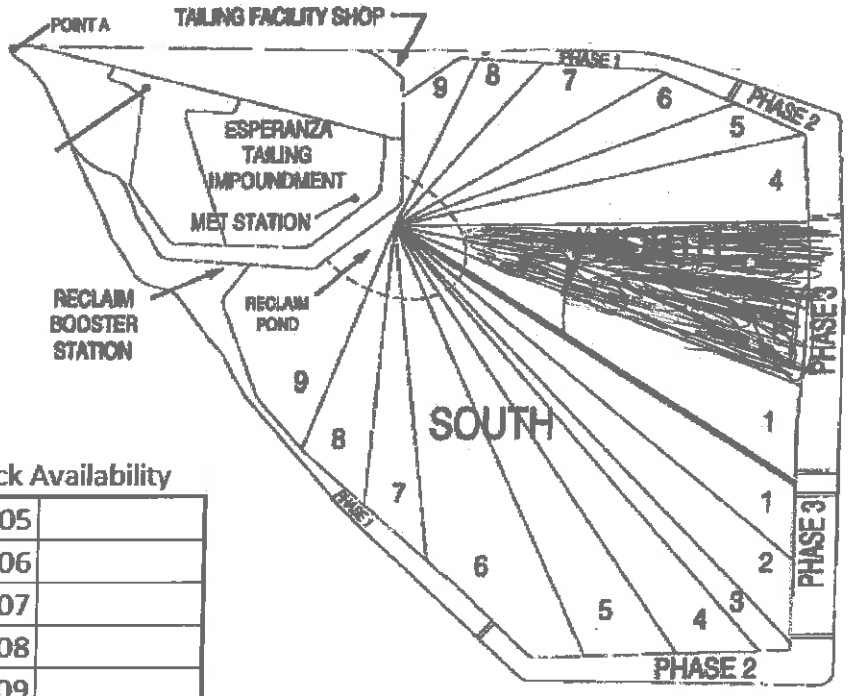
Area Under Construction		
Inches of Rain Throughout Week		

Comments: FTI / STI construction on going
Dust event was reported during week ELW was notified



Tailings Impoundment Surface Inspection

Date: 09/07/2018
Time: 0700HRS
Conditions: Clear Skys
Dam Inspected: North Phase(s) 3
Inspected By: Paul Diaz



All-track Availability

70105	
70106	
70107	
70108	
70109	

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: NO ALL Tracks Needed

Dust Suppressant Applied: NO

Operators: _____

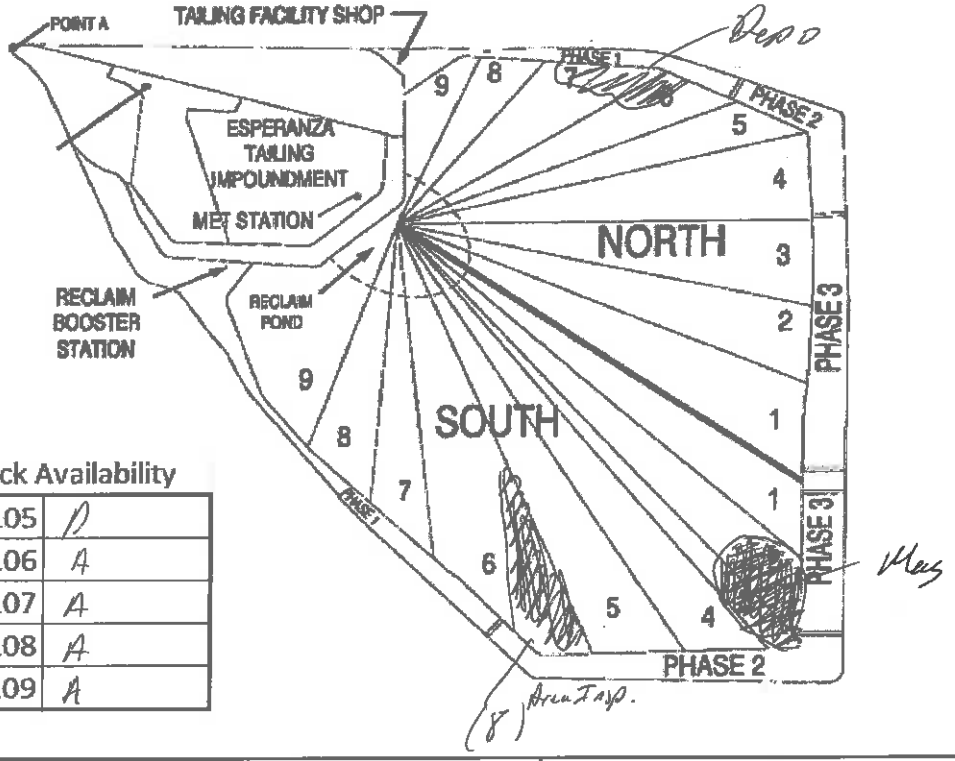
Weather Conditions:

Wind Speed: _____ Gusts up to: _____ Temp: _____

Precipitation in the last 24 hrs. _____ Inches of rain: _____

Tailings Impoundment Surface Inspection

Date: 9/6/18
Time: 9:00
Conditions: Cahoon
Dam Inspected: S Phase(s) 2
Inspected By: F. Duran



All-track Availability

70105	D
70106	A
70107	A
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
(8)	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 All tracks / 2 water trucks

Dust Suppressant Applied: V Mag / Water

Operators: Efrain / John / Rusty / Jesse

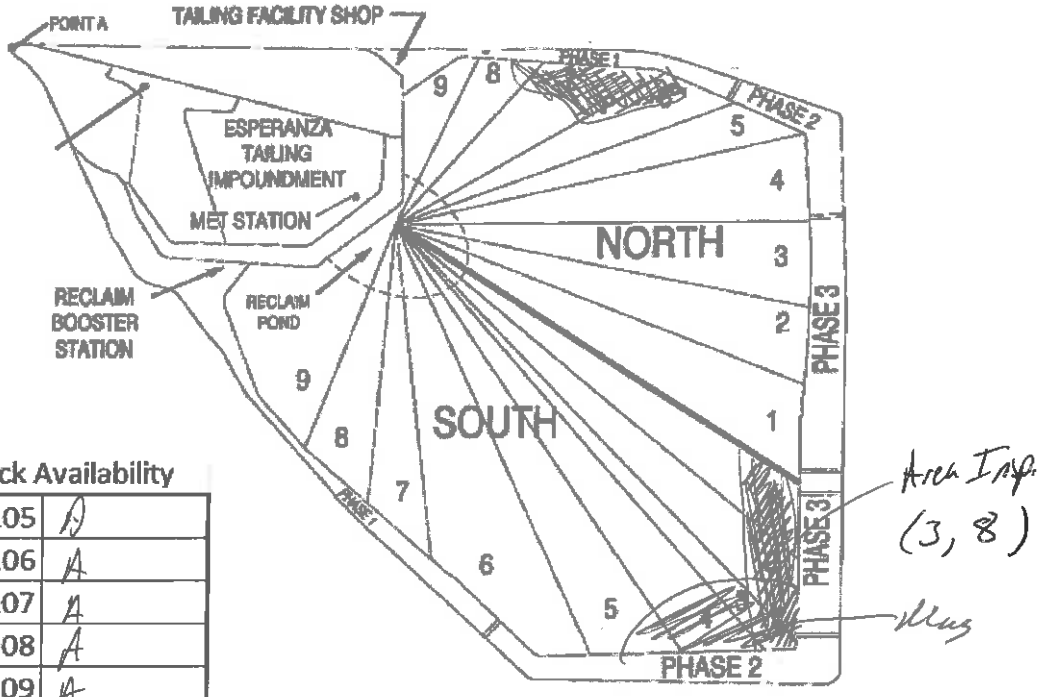
Weather Conditions:

Wind Speed: 4 Gusts up to: 9 Temp: 81

Precipitation in the last 24 hrs. — Inches of rain: —

Tailings Impoundment Surface Inspection

Date: 9/5/18
Time: 1:00
Conditions: 6 Breezy
Dam Inspected: S Phase(s) 3
Inspected By: F. Duran



All-track Availability

70105	A
70106	A
70107	A
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 All trucks / 2 water trucks

Dust Suppressant Applied: Y Water / Mag

Operators: John / Efrain / Rudy / Jaser

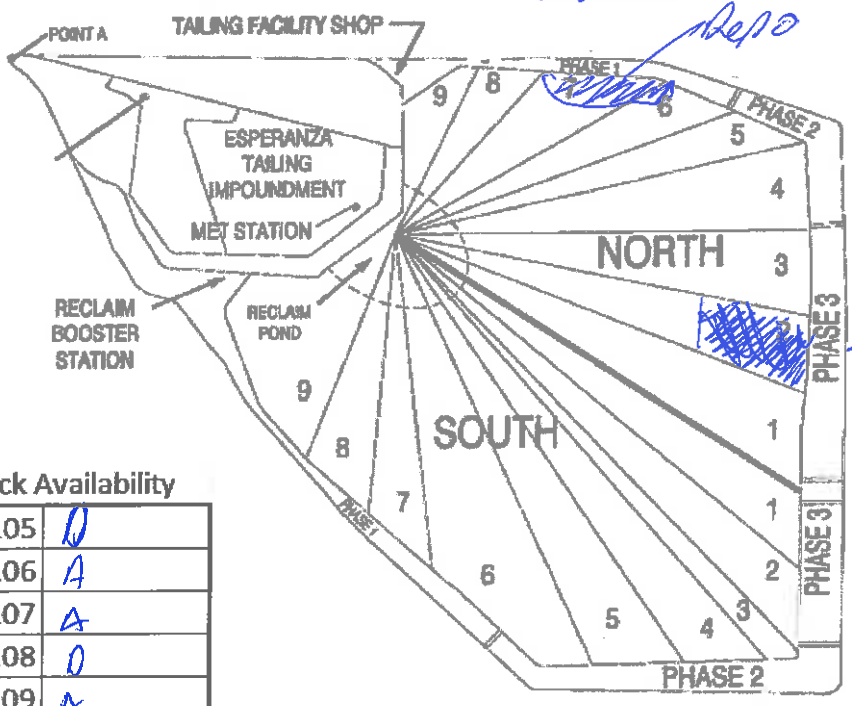
Weather Conditions:

Wind Speed: 8/12 Gusts up to: 20 Temp: 92

Precipitation in the last 24 hrs. N Inches of rain: —

Tailings Impoundment Surface Inspection

Date: 9/4/18
Time: 8.00
Conditions: Calm
Dam Inspected: N/A Phase(s) 3
Inspected By: F Duarte



Area Insp. (2/3)

Dam moist due to rain from weekend

All-track Availability

70105	D
70106	A
70107	A
70108	D
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: all tracks on standby / water trucks on standby

Dust Suppressant Applied: —

Operators: —

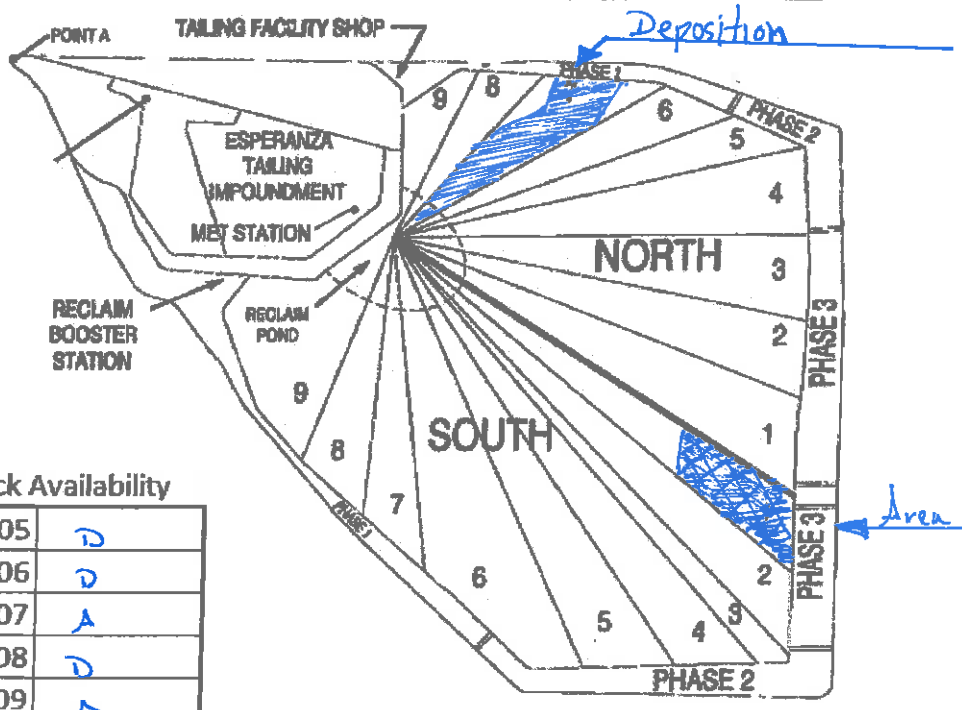
Weather Conditions:

Wind Speed: 5 Gusts up to: 8 Temp: 87

Precipitation in the last 24 hrs. Y Inches of rain: 1" from weekend

Tailings Impoundment Surface Inspection

Date: 9.3.2018
Time: 7AM-
Conditions: Clear / Calm
Dam Inspected: North Phase(s) 3 - Area 1
Inspected By: Jesus Hernandez



All-track Availability

70105	D
70106	D
70107	A
70108	D
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface Due to recent Rains	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Water Truck / All Track on standby

Dust Suppressant Applied: —

Operators: —

Weather Conditions:

Wind Speed: 3 Gusts up to: 7 Temp: 78°

Precipitation in the last 24 hrs. yes Inches of rain: 1"

Tailings Dam Environmental Weekly Activities Report

Operator: Jesus Hernandez Date: 9.14.2018

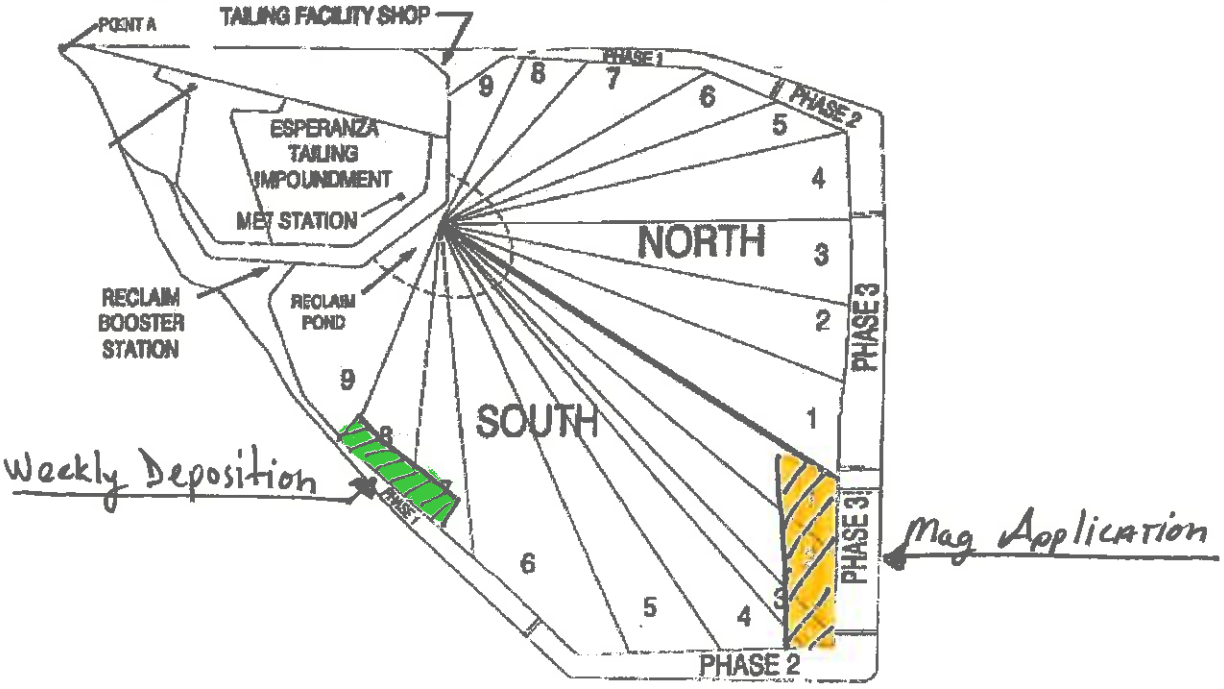
Primary Controls	N/S	Phase	Area			
Area of Deposition	South	1	Phase 1 8-7			
Special Wetting Area	—	—	—		74187	
Water Truck #	88	94	36	37	Rental	Rental
No. of Loads	21	10	50	15	3	

	Gallons	N/S	Approximate Area Covered
All-track application	13,500	South	Phase 3
Mag. Chloride Applied to Rds	—		

Site Conditons

Area Under Construction	ETI/STI	
Inches of Rain Throughout Week	—	

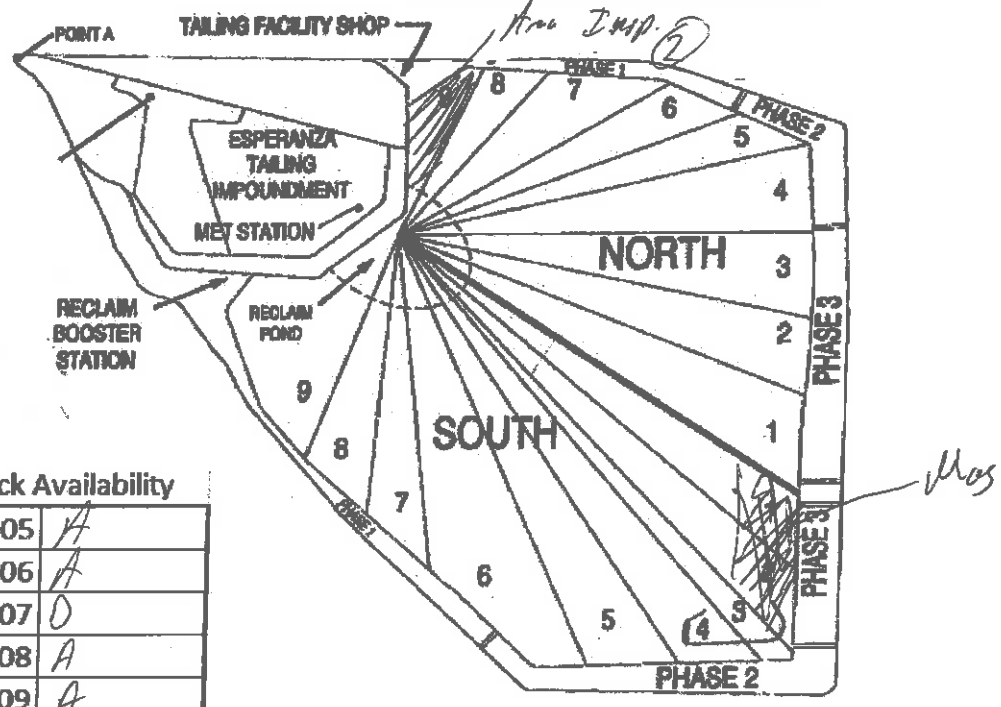
Comments: ETI/STI Construction ongoing
Dust Event on 9/12/2018 – Contact was made to ELW
Deposition on South Emergency – 9.13 - 9.14



Tailings Impoundment Surface Inspection

Date: 9/14/18
Time: 7:30
Conditions: Calm
Dam Inspected: W Phase(s) 1
Inspected By: F Duran

Depo down due to feed issues.



All-track Availability

70105	A
70106	A
70107	D
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 water trucks / 2 PU trucks

Dust Suppressant Applied: Water Mag

Operators: Jose / Jesse / Chris / JR

Weather Conditions:

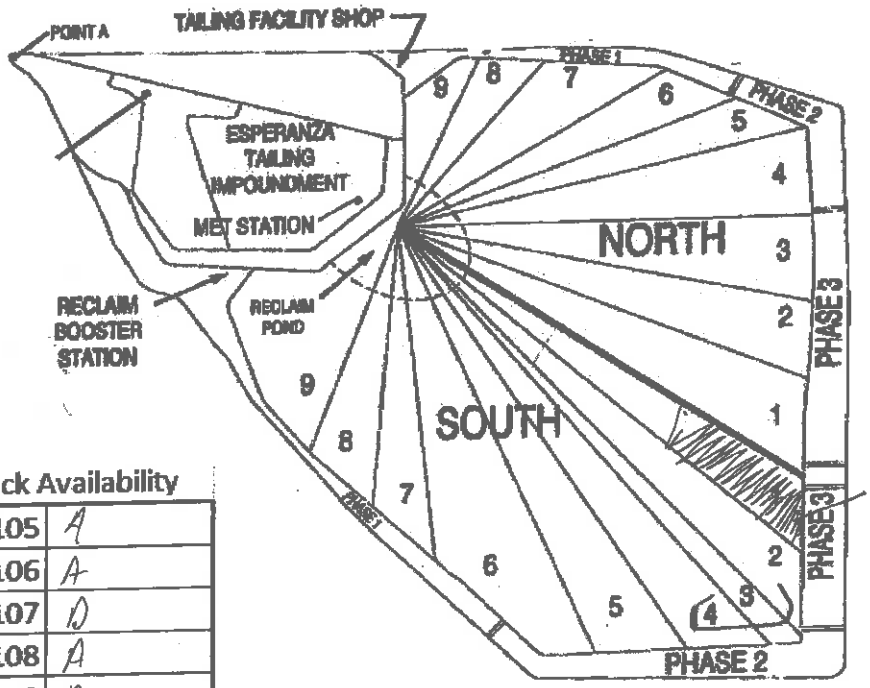
Wind Speed: 2 Gusts up to: 10 Temp: 80

Precipitation in the last 24 hrs. — Inches of rain: —

Tailings Impoundment Surface Inspection

Date: 9/13/18
Time: 1:00
Conditions: Calm
Dam Inspected: N Phase(s) 3
Inspected By: F Duenas

Depo down due to Crusher issues



Mag
Area Insp
3/4

All-track Availability

70105	A
70106	A
70107	D
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 water trucks / 2 All tracks

Dust Suppressant Applied: Water / Mag

Operators: Chris / JR / Jesse / Jose

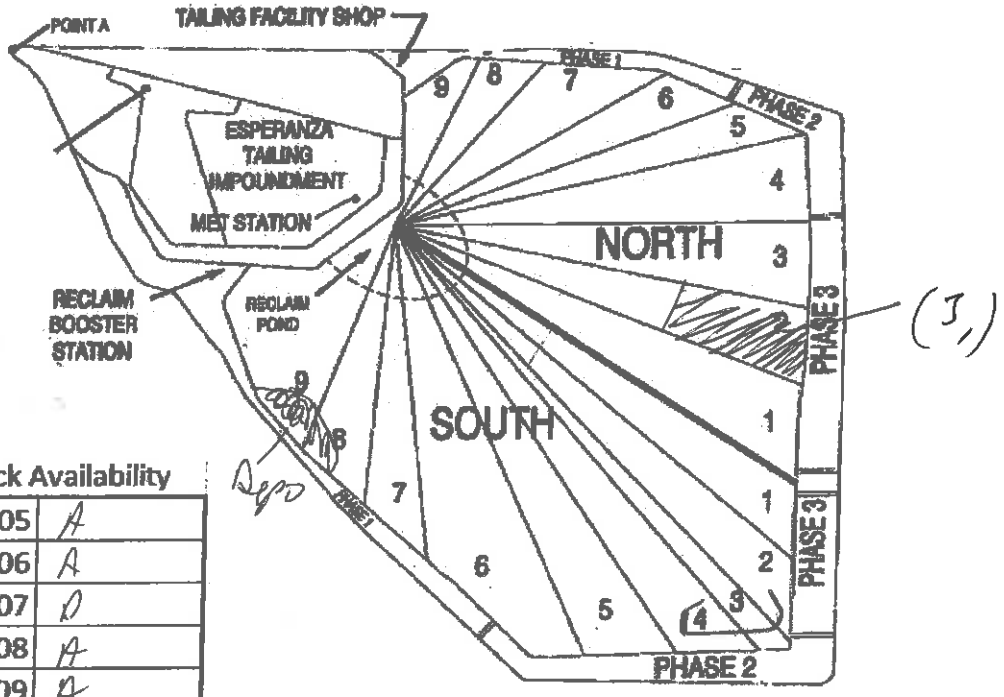
Weather Conditions:

Wind Speed: 2 Gusts up to: 4 Temp: 102

Precipitation in the last 24 hrs. — Inches of rain: ~

Tailings Impoundment Surface Inspection

Date: 2/12/18
Time: 8:00
Conditions: Clear Breezy
Dam Inspected: N Phase(s) 3
Inspected By: F. Rivera



(3,)

* Hard intermittent dust on from N. dam.

All-track Availability

70105	A
70106	A
70107	D
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 1 All tracks / 2 water trucks

Dust Suppressant Applied: Water Mag

Operators: Chris / OR / Jesse

Weather Conditions:

Wind Speed: 07 Gusts up to: 18 Temp: 86

Precipitation in the last 24 hrs. — Inches of rain: —

Tailings Impoundment Surface Inspection

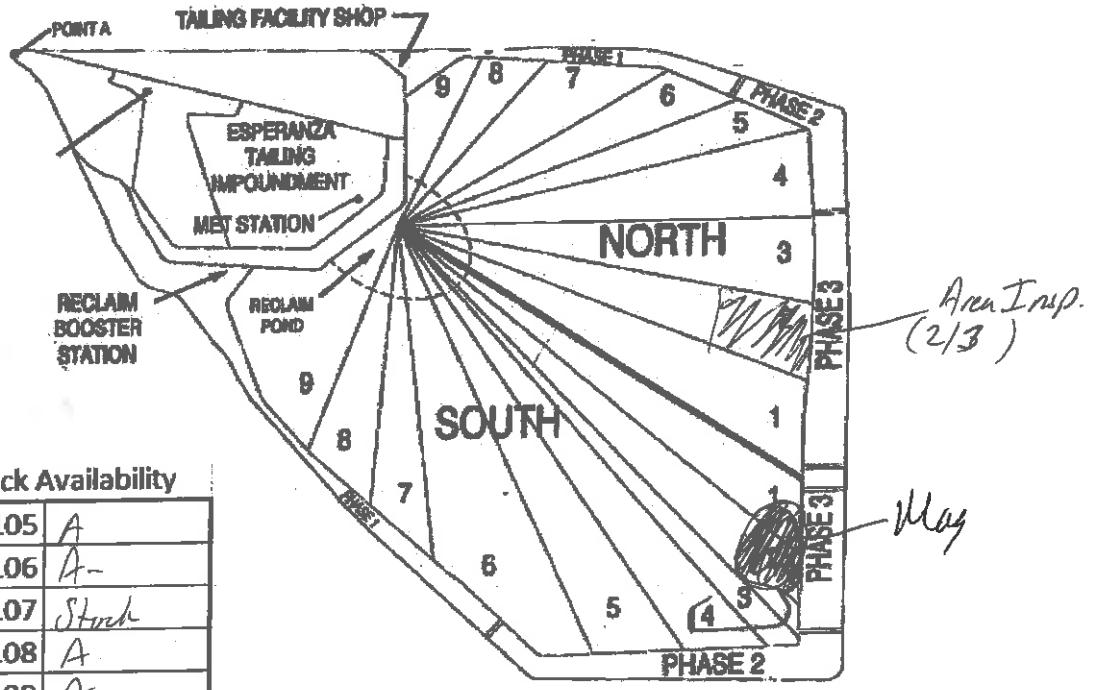
Date: 9/11/18

Time: 5:00

Conditions: Calm

Dam Inspected: N Phase(s) 3

Inspected By: F Duarte



All-track Availability

70105	A
70106	A-
70107	Stuck
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 water trucks / 1 All track

Dust Suppressant Applied: Water / Mag.

Operators: Joe / Jesse

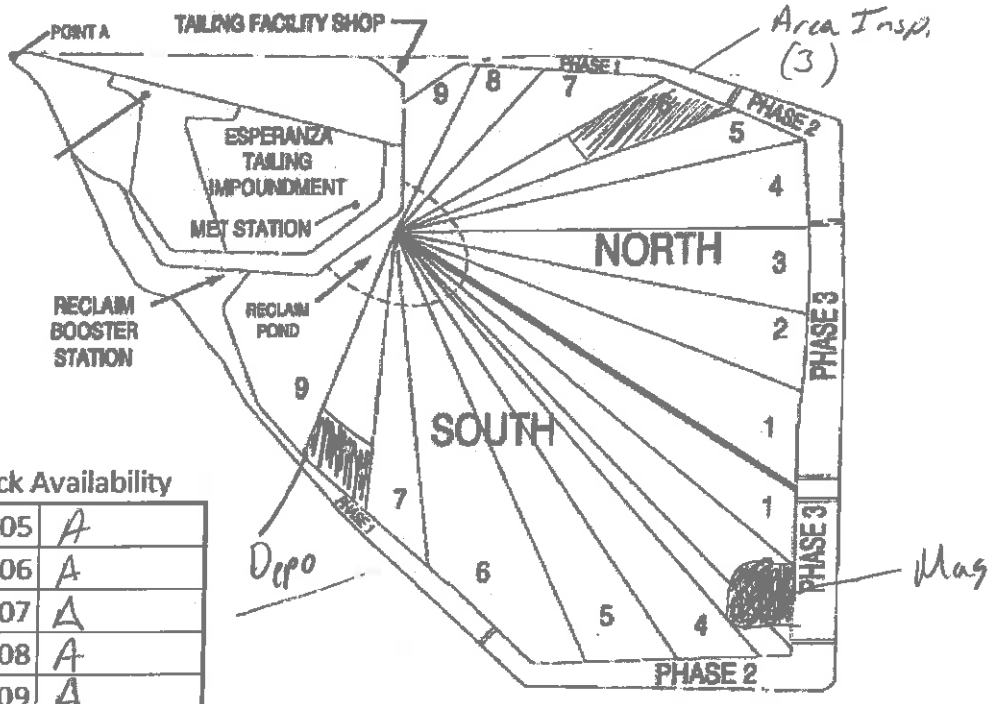
Weather Conditions:

Wind Speed: 6 Gusts up to: 12 Temp: 84

Precipitation in the last 24 hrs. — Inches of rain: —

Tailings Impoundment Surface Inspection

Date: 9/10/18
Time: 8:00
Conditions: Calm
Dam Inspected: N Phase(s) 1
Inspected By: F Duran



All-track Availability

70105	A
70106	A
70107	A
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
(3)	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 1 Water truck / 2 All trucks

Dust Suppressant Applied: Water / Mag

Operators: Jesus / Chris / JR / Efrain

Weather Conditions:

Wind Speed: 2 Gusts up to: 8 Temp: 80

Precipitation in the last 24 hrs. — Inches of rain: —

Tailings Dam Environmental Weekly Activities Report

Operator: Jesus Hernandez Date: 9.21.2018

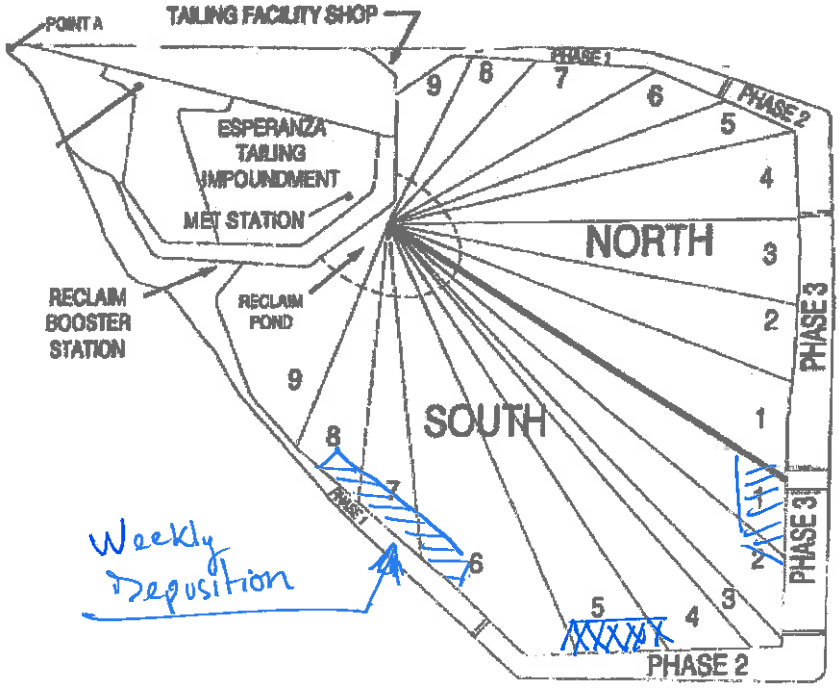
Primary Controls	N/S	Phase	Area			
Area of Deposition	S	1	87,6			
Special Wetting Area	—	—	—			
Water Truck #	88	94	36	37	Rental	Rental
No. of Loads	3	—	24	19	—	—

	Gallons	N/S	Approximate Area Covered
All-track application	12,750	S	South - Ph-2 Ph-3
Mag. Chloride Applied to Rds	15,000	N/S	North/South Pipeline Rodds

Site Conditons

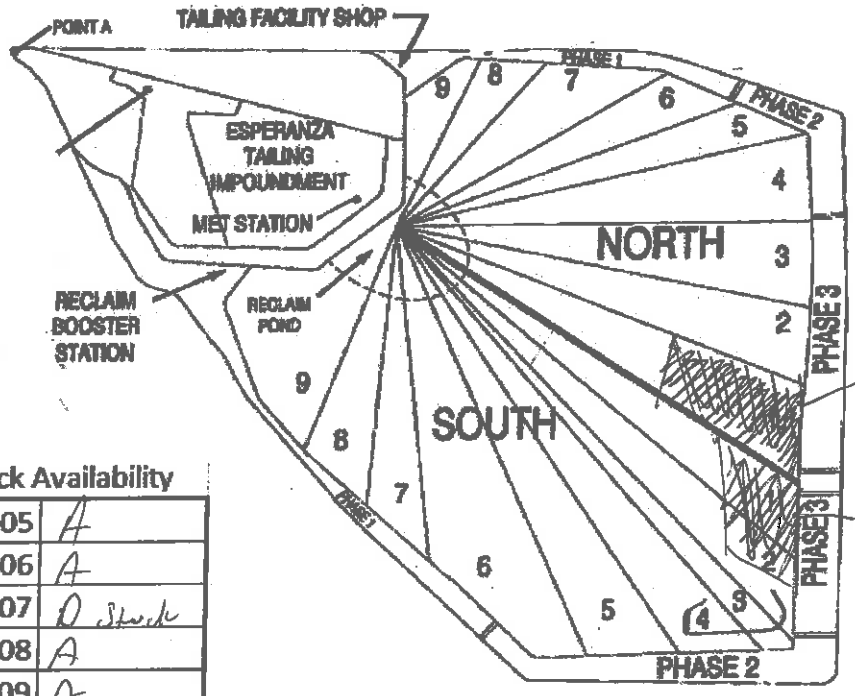
Area Under Construction	ETI/STI
Inches of Rain Throughout Week	3.5

Comments: ETI / STI Construction ongoing
Deposition on South Dam-
2 Dust Events reported
Environmental spill reported - 9/15



Tailings Impoundment Surface Inspection

Date: 9/17/18
Time: 8:00
Conditions: Breezy
Dam Inspected: N Phase(s) 3
Inspected By: F Duran



All-track Availability

70105	A
70106	A
70107	D Stuck
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 All trucks / 1 Water truck

Dust Suppressant Applied: Water / Mag

Operators: Isaiah / Efrain / Jesse

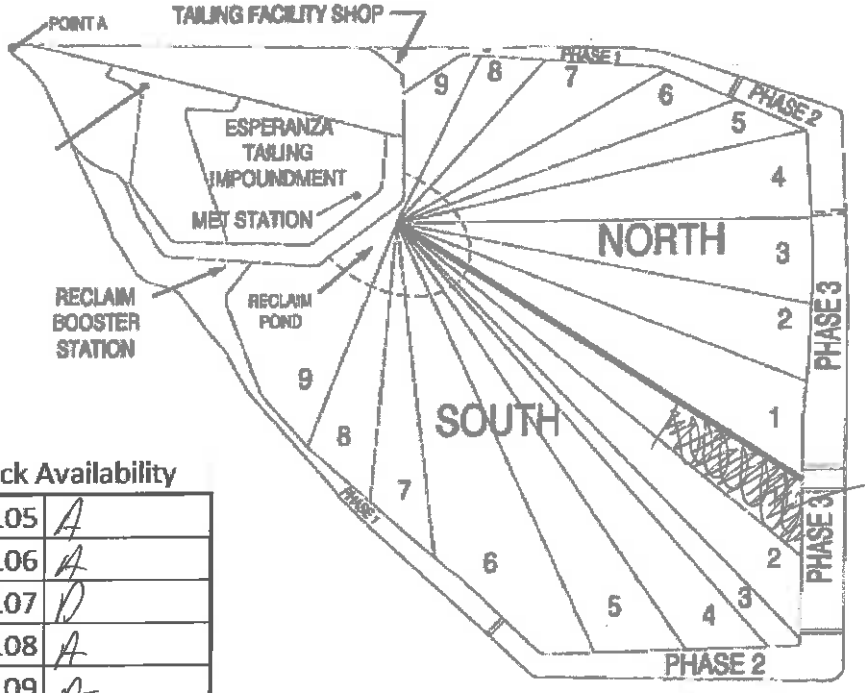
Weather Conditions:

Wind Speed: 6 Gusts up to: 14 Temp: 80

Precipitation in the last 24 hrs. N Inches of rain: —

Tailings Impoundment Surface Inspection

Date: 9/18/18
Time: 9:00
Conditions: & Calm
Dam Inspected: S Phase(s) 3
Inspected By: F. Duran



Area Insp (3, 4)
Road had fine Mag. @ the end of day

All-track Availability

70105	A
70106	A
70107	D
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Water trucks

Dust Suppressant Applied: Water

Operators: Rudy / Maranon

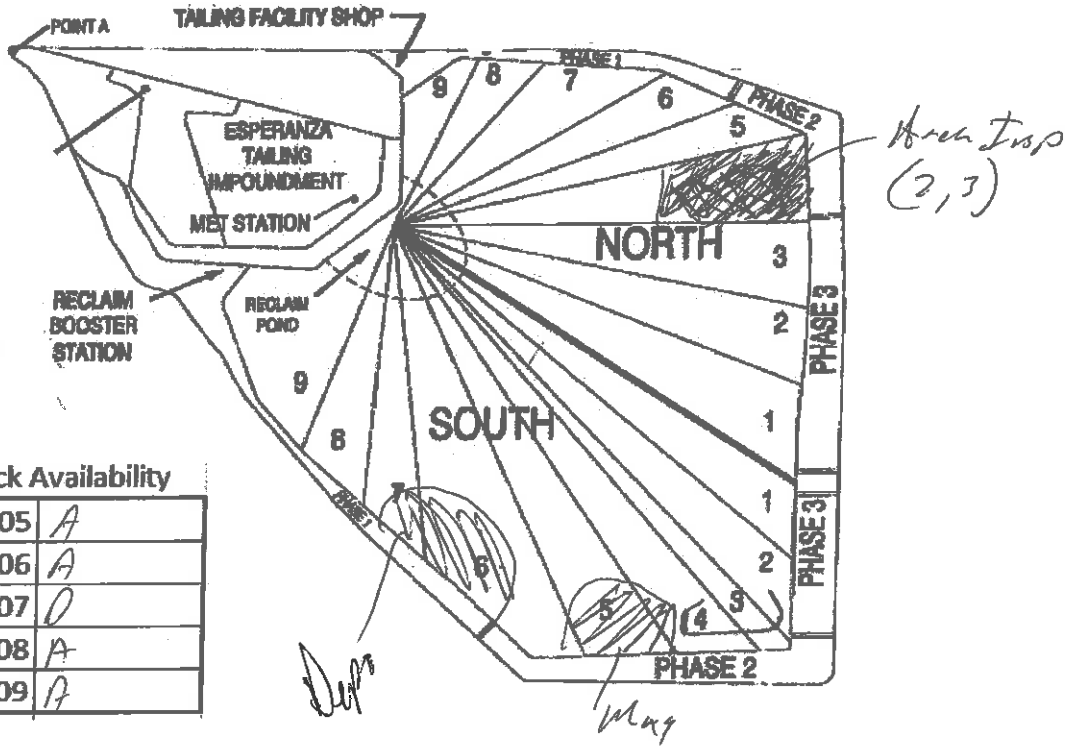
Weather Conditions:

Wind Speed: 2 Gusts up to: 6 Temp: 94

Precipitation in the last 24 hrs. — Inches of rain: —

Tailings Impoundment Surface Inspection

Date: 9/19/18
Time: 8:00
Conditions: Breezy
Dam Inspected: N Phase(s) 2
Inspected By: F Duran



All-track Availability

70105	A
70106	A
70107	O
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 Water trucks / 2 All trucks

Dust Suppressant Applied: Water Mag

Operators: Jesse / John / JR / Jose

Weather Conditions:

Wind Speed: 12 Gusts up to: 18 Temp: 79

Precipitation in the last 24 hrs. — Inches of rain: —

Tailings Impoundment Surface Inspection

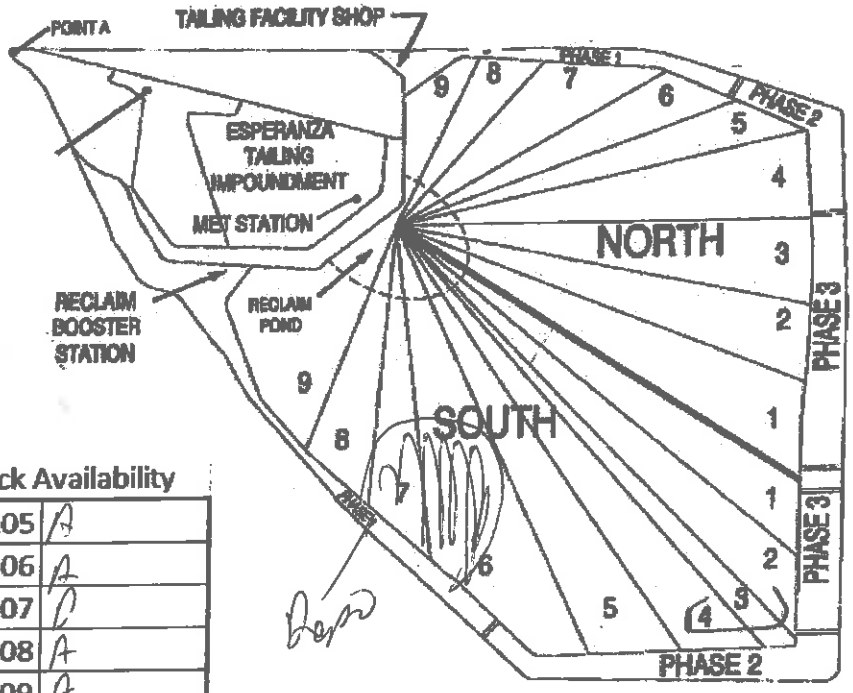
Date: 9/20/18

Time: —

Conditions: Wet

Dam Inspected: — Phase(s) —

Inspected By: F Duran



All-track Availability

70105	A
70106	A
70107	A
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Equipment on Standby

Dust Suppressant Applied: —

Operators: —

Weather Conditions:

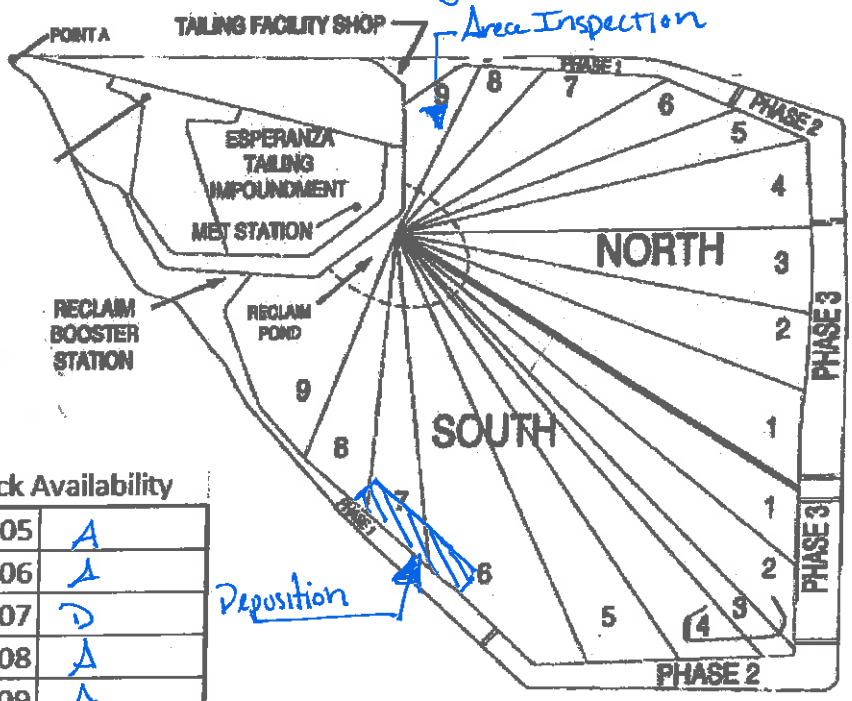
Wind Speed: 8 Gusts up to: 12 Temp: 85

Precipitation in the last 24 hrs. Y Inches of rain: 3.5"

* Received 3 1/2" of Rain

Tailings Impoundment Surface Inspection

Date: 9.21.2018
Time: 8:00 AM
Conditions: Clear
Dam Inspected: North Phase(s) 1-9
Inspected By: Jesus Hernandez



All-track Availability

70105	A
70106	A
70107	D
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
(2)	Moist Surface Due to recent rain	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Equipment on STANDBY

Dust Suppressant Applied: —

Operators: —

Weather Conditions:

Wind Speed: 5 Gusts up to: 8 Temp: 68

Precipitation in the last 24 hrs. .10 Inches of rain: 0

Attachment 4

Excess Emissions / Permit Deviation Report dated October 9, 2018

FREEPORT-McMoRan

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

October 9, 2018

Via Email: Air.Notices@pima.gov and
Certified Mail: 7015 1520 0002 5365 8741

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

Re: Excess Emissions/Deviation Report
Certification of Truth, Accuracy and Completeness,
Freeport-McMoRan Sierrita Inc., Permit # 6067

Dear Mr. Fitzpatrick:

In accordance with Attachment "A" Conditions XI.A and XI.B of Class I Permit # 6067, this letter serves as detailed written follow-up notification of excess emissions and prompt reporting of a deviation from permit requirements. Freeport-McMoRan Sierrita Inc. (FMSI) provided initial notification to the Pima County Department of Environmental Quality (PDEQ) via telephone notification to Mr. Dustin Fitzpatrick on October 7, 2018.

Attachment "B" Condition II.E.1. states "The Permittee shall not cause, suffer, allow, or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become airborne."

Attachment "B" Condition XIX.B.1.a states that "Permittee shall not cause, allow or permit visible emissions from any fugitive dust source in excess of 20% opacity measured in accordance with EPA Reference Method 9."

Description of the Event

On October 6, 2018 between approximately 12:30PM and 5:00PM, FMSI employees observed dust intermittently emanating in a northeast direction from the east side of the North and South dam tailings impoundment. In response, three water trucks and an all track were deployed to the location to help mitigate the dust. While a formal EPA Reference Method 9 observation was not conducted due to the position of the sun and the vantage point of the observer, FMSI is reporting this event as an opacity exceedance based on the knowledge and experience of the environmental employee who was present during a portion of the event. Based on FMSI's information, the likely excess emissions may have occurred at approximately 12:30PM, 1:30PM and 4:50PM. Each event is estimated to have lasted for 10 minutes or more. During the times referenced above, the dust emanating from the northeast side of the impoundment moved across Duval Mine Road, a public thoroughfare, and crossed back onto FMSI property just north of the

public thoroughfare. In addition, dust emanating from the southeast side of the impoundment moved across Continental Road and continued into Green Valley. According to the Sierrita Tailings_"COW" weather station report (see attached), sustained winds in excess of 25 mph occurred for a half hour period and a two hour and twenty minute period within the timeframe of 12:30PM to 5:00PM.

As you know, FMSI employs a comprehensive fugitive source management plan. In addition to these normal control measures that FMSI employs at the tailings dam, additional Magnesium Chloride ($MgCl_2$) was being sprayed on top of tailings dam and additional amounts of water were being sprayed on the berms and roads prior to this event. These additional measures were necessary because of recent storm events in the Green Valley area. Specifically, on September 20, 2018, the tailings dam received approximately 3.5 inches of rain. Due to the large amount of rain, the $MgCl_2$ that had been applied to the tailings dam before the event lost its binding properties and was unable to bind to the tailings material. Additionally, on October 2, 2018, the tailings dam received another 1.5 inches of rain, which continued to contribute to the degradation of the tailings dam crust. Although FMSI was applying $MgCl_2$ to the impoundment daily and water trucks were applying water to the berms and roads, the combined storm events, in conjunction with the high winds overwhelmed FMSI's control efforts.

Information required by Attachment "A" Condition XI.A.1.b of FMSI's Class I permit are listed here:

(1) Identity of each stack or other emission point where the excess emissions occurred:

Source ID # 087 - Sierrita Tailings Impoundment.

(2) Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions:

Based on the knowledge and experience of the FMSI employee who witnessed the event, opacity exceeded the 20% permit limit during the event.

(3) The time and duration or expected duration of the excess emissions:

Excess emissions were intermittent between approximately 12:30PM and 5PM. The excess emissions occurred at 12:30PM, 1:30PM and 4:50PM. Each event may have lasted for 10 minutes or more.

(4) Identity of the equipment from which the excess emissions emanated:

Visible emissions emanated from the Sierrita Tailings Impoundment on the east side of the North and South Dam.

(5) Nature and cause of such emissions:

Visible emissions from the Sierrita Tailings Impoundment were caused by a combination of storm events and high sustained winds.

(6) The steps taken, if the excess emissions were the result of a malfunction, to remedy the malfunction and the steps being taken or planned to prevent the recurrence of the malfunction:

At this time, it does not appear that a malfunction occurred.

(7) The steps that were or are being taken to limit the excess emissions:

Preceding, during, and after the event, FMSI employed reasonable precautions, as defined by Attachment "B" Condition XIX.B.1.b(viii) and (ix) of its Class I permit, to prevent excessive amounts of particulate matter from becoming airborne from the tailings impoundment:

- *Applied water to tailings dam roads and berms, as well as, $MgCl_2$ to the top of the tailings dam that was reachable by the all tracks.*
- *A total of 28,000 gallons of $MgCl_2$ and 123,000 gallons of water were applied to areas in and around the tailings impoundment in the week prior to this event.*
- *A total of 9,750 gallons of $MgCl_2$ and 32,000 gallons of water were applied to areas in and around the tailings impoundment on the day of the event.*
- *Tailings supervisor adjusted the daily operating schedule by concentrating supplemental efforts on dust control.*

Reasonable Precautions employed on an ongoing basis by FMSI as defined by Attachment "B" Condition XIX.B.1.b(viii) and (ix):

- *Applying wetting agents*
- *Maximizing the wet surface area*
- *Barring and controlling vehicle access*
- *Limiting vehicle speed*
- *Re-vegetating the side-slopes*
- *Compaction*
- *Encrustation*
- *Completed new tailings dam roads have been capped with native dirt*
- *Side slopes are treated with a polymer based dust suppressant*
- *Heavily traveled perimeter roads are treated with $MgCl_2$ dust suppressant*
- *Active berms were sprayed with water*
- *The wet dam construction method is used, maintaining the majority of the surface of the impoundment wet or encrusted while the remaining area is under construction*

(8) If the permit contains procedures governing source operation during periods of startup or malfunction and the excess emissions resulted for startup or malfunction, a list of the steps taken to comply with the permit procedures:

The permit does not contain such procedures.

Please contact me at 520.393.2010 if additional information is necessary.

Sincerely,

Travis Behrens
Environmental Scientist II
10092018_001
1 attachment

Certification of Truth, Accuracy and Completeness

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

David Rhoades, President; General Manager – Freeport-McMoRan Sierrita Inc.

(Signature) (Date)

Tailings_COW Weather Station Data

Time Stamp	AirTempF_Avg	WS_MPH	WindDir	Sigma	Gust
10/6/2018 12:30	81.7	16.05	50.31	11.26	21.48
10/6/2018 12:31	81.8	20.55	53.4	7.961	25.21
10/6/2018 12:32	81.3	21.38	52.74	15.55	24.46
10/6/2018 12:33	80.8	22.22	56.89	9.67	24.55
10/6/2018 12:34	80.5	19.02	57.36	12.61	25.43
10/6/2018 12:35	80.9	22.44	47.04	7.981	27.14
10/6/2018 12:36	81.1	15.38	58.09	15.13	20.47
10/6/2018 12:37	81.6	17.07	46.56	9.64	20.34
10/6/2018 12:38	81.3	20.36	65.11	16.46	27.84
10/6/2018 12:39	81.8	20.74	48.87	8.8	25.6
10/6/2018 12:40	81.4	25.38	51.39	11.16	30.95
10/6/2018 12:41	80.1	26.26	51.1	6.307	31.92
10/6/2018 12:42	80.7	20.03	59.68	13.02	26.74
10/6/2018 12:43	81.2	20.41	51.54	12.32	27.44
10/6/2018 12:44	81.3	22.83	56.86	12.82	29.02
10/6/2018 12:45	81	19.68	49.55	10.64	24.55
10/6/2018 12:46	81.3	18.26	51.25	7.592	25.56
10/6/2018 12:47	81	19.71	52.07	8.33	23.41
10/6/2018 12:48	81.3	19.01	47.63	6.606	24.59
10/6/2018 12:49	81	21.58	50.37	13.66	25.03
10/6/2018 12:50	81	24.56	46.79	10.89	30.99
10/6/2018 12:51	80.7	19.11	52.78	9.65	23.85
10/6/2018 12:52	81.6	20.32	54.35	8.5	25.51
10/6/2018 12:53	80.9	18.65	50.34	6.362	22.62
10/6/2018 12:54	81.8	15.02	56.59	12.42	18.19
10/6/2018 12:55	83.4	17.97	65.28	13.69	21.22
10/6/2018 12:56	86.7	18.23	54.31	10.85	23.24
10/6/2018 12:57	85.8	16.04	52.84	8.86	18.19
10/6/2018 12:58	85.1	19.36	46.63	16	23.67
10/6/2018 12:59	84.2	18.72	53.37	17.69	24.64
10/6/2018 13:00	84.8	20.96	47.77	9.84	26.08
10/6/2018 13:01	83.9	28.28	49.64	7.866	33.32
10/6/2018 13:02	81.5	23.44	51.02	10.34	31.7
10/6/2018 13:03	82.3	19.69	58.98	13.32	25.69
10/6/2018 13:04	82.2	21.69	50.59	13.81	25.51
10/6/2018 13:05	82.1	23.86	46.38	4.605	27.71
10/6/2018 13:06	81.3	21.41	47.41	4.258	25.08
10/6/2018 13:07	81.7	18.22	47.66	7.018	20.43
10/6/2018 13:08	82	19.34	49.18	9.56	23.54
10/6/2018 13:09	82.7	20.65	55.81	4.56	24.68
10/6/2018 13:10	82.7	23.7	47.53	10.52	27.31
10/6/2018 13:11	81.6	27.16	47.99	7.136	31.39
10/6/2018 13:12	80	21.43	42.28	10.8	26.57
10/6/2018 13:13	81	15.12	57.51	13.04	22.58
10/6/2018 13:14	84.4	14.64	64.28	12.66	19.64

10/6/2018 13:15	86.2	20.75	52.58	9.64	28.58
10/6/2018 13:16	84.9	22.22	53.93	13.44	29.15
10/6/2018 13:17	85.3	23.05	54.98	8.79	27.4
10/6/2018 13:18	85.1	22.6	53.43	6.19	26.57
10/6/2018 13:19	84.7	20.85	57.62	13.68	26.35
10/6/2018 13:20	85	22.01	48.48	9.44	25.82
10/6/2018 13:21	85	21.46	52.66	7.013	26.44
10/6/2018 13:22	86.1	18.34	57.49	12.67	20.17
10/6/2018 13:23	87.4	19.37	54.01	11.52	22.88
10/6/2018 13:24	89.1	18.24	52.41	12.26	21.31
10/6/2018 13:25	88.7	17.5	53.15	11.62	21.61
10/6/2018 13:26	88.3	18.87	52.51	10.97	22.53
10/6/2018 13:27	87.9	18.53	48.82	10.02	22.31
10/6/2018 13:28	88	21.1	45.71	9.91	23.63
10/6/2018 13:29	87.9	25.67	42.32	10.73	29.86
10/6/2018 13:30	85.3	28.62	46.92	7.769	33.58
10/6/2018 13:31	84.3	28.99	49.62	6.706	32.49
10/6/2018 13:32	83.6	23.42	52.99	8.72	29.42
10/6/2018 13:33	83.6	24	45.33	4.422	28.15
10/6/2018 13:34	83.6	24.94	42.81	6.936	29.68
10/6/2018 13:35	83.2	27.39	45.13	6.476	30.99
10/6/2018 13:36	83.1	29.56	36.39	7.568	31.3
10/6/2018 13:37	83.2	23.92	33.69	9.53	28.1
10/6/2018 13:38	83.6	22.42	36.53	12.96	26.13
10/6/2018 13:39	83.8	21.13	51.61	10.4	26.08
10/6/2018 13:40	84.5	19.93	55.43	12.7	25.82
10/6/2018 13:41	84.2	21.07	57.63	5.062	27.14
10/6/2018 13:42	83.8	21.93	49.32	8.91	25.38
10/6/2018 13:43	83.7	23.59	47.02	3.943	27.49
10/6/2018 13:44	83.8	26.06	53.32	7.053	29.5
10/6/2018 13:45	83	28.84	46.11	6.331	32.44
10/6/2018 13:46	82.4	29.55	45.63	7.273	34.9
10/6/2018 13:47	82.1	31.63	46.63	8.04	35.42
10/6/2018 13:48	82.2	27.02	51.18	9.43	29.94
10/6/2018 13:49	82.5	25.27	52.75	9.71	30.12
10/6/2018 13:50	82.7	21.47	50.47	8.1	24.42
10/6/2018 13:51	82.7	19.98	47.14	7.238	22.84
10/6/2018 13:52	83.1	19.89	52.74	14.97	22.97
10/6/2018 13:53	83.7	20.7	48.52	13.03	24.99
10/6/2018 13:54	83.2	23.18	46.79	7.536	26.57
10/6/2018 13:55	82.4	28.9	50.05	11.07	32.79
10/6/2018 13:56	81.9	28.34	43.94	6.656	30.95
10/6/2018 13:57	81.5	27.3	46.28	8.34	30.29
10/6/2018 13:58	81.9	22.2	55.45	7.23	27.36
10/6/2018 13:59	82.5	23.73	47.34	6.93	31.52
10/6/2018 14:00	81.8	24.18	44.31	5.249	26.44
10/6/2018 14:01	81.6	17.13	46.37	15.14	22.31

10/6/2018 14:02	83.5	15.37	55.96	11.78	17.58
10/6/2018 14:03	84.4	18.72	53.94	11.43	22.4
10/6/2018 14:04	84.1	15.85	39.38	8.25	19.6
10/6/2018 14:05	84.4	19.19	52.24	13.67	25.03
10/6/2018 14:06	84.4	24.28	50.79	14	28.01
10/6/2018 14:07	83.9	26.82	41.56	12.01	30.25
10/6/2018 14:08	83.1	28.28	34.25	6.801	30.69
10/6/2018 14:09	82.8	22.25	32.82	9.5	26.96
10/6/2018 14:10	83.2	24.67	38.19	6.386	28.85
10/6/2018 14:11	82.9	23.58	35.42	6.536	26.65
10/6/2018 14:12	82.9	23.78	32.44	12.42	27.88
10/6/2018 14:13	82.6	20.2	48.45	12.27	23.76
10/6/2018 14:14	81.8	20.34	42.61	4.147	24.9
10/6/2018 14:15	81	17.73	43.17	13.28	21.79
10/6/2018 14:16	81.1	18.22	43.61	12.06	20.43
10/6/2018 14:17	81.2	18.65	38.45	9.08	21.22
10/6/2018 14:18	82.1	17.9	48.1	10.93	24.9
10/6/2018 14:19	82.5	23.13	50.44	10.95	27.05
10/6/2018 14:20	82.1	26.63	47.6	6.648	30.03
10/6/2018 14:21	82	21.31	52.4	9.94	24.59
10/6/2018 14:22	81.9	21.82	53.25	9.56	24.2
10/6/2018 14:23	82.1	19.88	46.39	7.82	25.43
10/6/2018 14:24	82.3	19.25	49.44	6.217	25.12
10/6/2018 14:25	82.2	21.78	47.31	10.63	24.77
10/6/2018 14:26	82.4	22.23	45.17	6.236	29.24
10/6/2018 14:27	82.7	24.21	47.2	7.447	29.02
10/6/2018 14:28	82.7	22.93	49.6	7.05	25.73
10/6/2018 14:29	82.3	26.77	52.18	9.3	28.98
10/6/2018 14:30	81.5	29.69	43.74	6.772	33.49
10/6/2018 14:31	81.1	22.63	49.12	14.58	31.65
10/6/2018 14:32	82.3	19.26	58.95	13.89	26.92
10/6/2018 14:33	82.6	22.62	49.4	11.65	24.68
10/6/2018 14:34	81.9	19.94	42.66	9.16	22.31
10/6/2018 14:35	81.9	20.42	44.73	9.69	24.51
10/6/2018 14:36	82.4	19.89	53.83	9.93	25.21
10/6/2018 14:37	82.3	21.84	53.76	7.469	26.35
10/6/2018 14:38	82.4	24.47	49.65	12.81	28.72
10/6/2018 14:39	82.4	22.64	45.39	7.496	29.07
10/6/2018 14:40	84	22.6	58.62	13.41	30.25
10/6/2018 14:41	83.7	28.21	51.29	14.46	34.55
10/6/2018 14:42	83.2	27.3	51.68	11.92	30.6
10/6/2018 14:43	83.3	29.63	39.26	9.89	37.83
10/6/2018 14:44	82.7	30.81	44.2	7.074	37.79
10/6/2018 14:45	82.8	27.48	48.48	7.23	30.69
10/6/2018 14:46	82.7	30.19	44.24	11	35.34
10/6/2018 14:47	82.7	27.46	39.98	8.42	33.76
10/6/2018 14:48	82.8	31.08	40.58	9.57	35.16

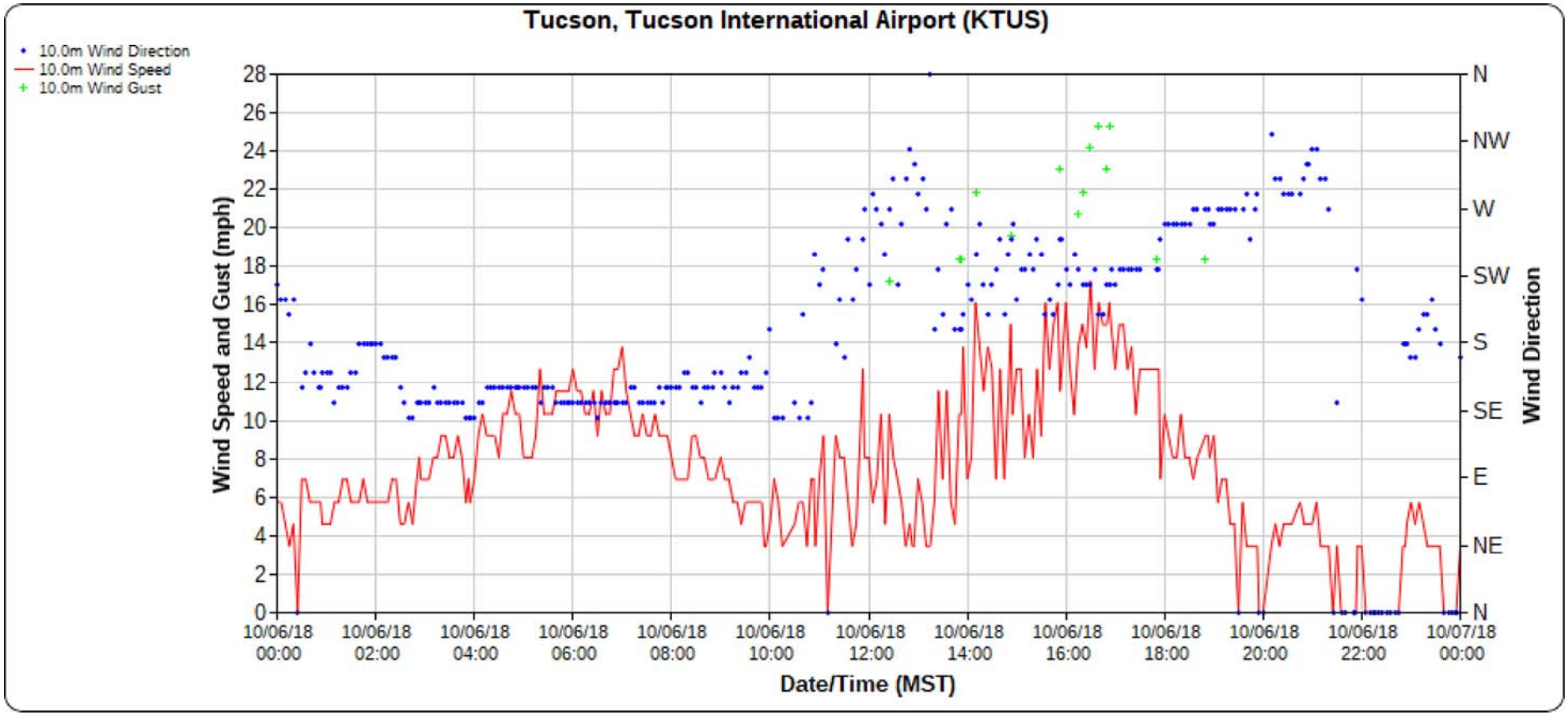
10/6/2018 14:49	82.5	26.28	34.71	7.833	31.43
10/6/2018 14:50	82.8	26.57	42.36	9.07	30.56
10/6/2018 14:51	82.8	23.14	45.85	13.89	25.69
10/6/2018 14:52	82.8	29.31	42.17	10.72	36.56
10/6/2018 14:53	82.4	24.77	47.86	6.593	26.87
10/6/2018 14:54	82.7	24.84	44.85	7.565	30.12
10/6/2018 14:55	82.7	21.6	44.36	9.83	25.47
10/6/2018 14:56	82.6	28.39	43.97	7.149	34.94
10/6/2018 14:57	82.2	27.79	40.54	12.65	32.66
10/6/2018 14:58	82.5	23.34	39.74	12.1	30.56
10/6/2018 14:59	82.8	27.84	39.38	11.53	32.88
10/6/2018 15:00	82.3	32.06	41.69	6.955	35.69
10/6/2018 15:01	82.3	22.64	44.31	13.12	28.63
10/6/2018 15:02	82.8	26.49	45.7	9.32	34.72
10/6/2018 15:03	82.8	25.15	45.67	13.76	28.45
10/6/2018 15:04	82.6	29.37	39.08	12.07	34.15
10/6/2018 15:05	82.4	28.86	49.77	12.83	34.63
10/6/2018 15:06	82.4	26.54	51.13	11.57	29.99
10/6/2018 15:07	82.2	30.3	49.73	11.78	34.06
10/6/2018 15:08	81.9	30.96	45.99	7.747	33.71
10/6/2018 15:09	81.7	29.82	45.8	7.328	33.49
10/6/2018 15:10	81.7	33.53	47.25	5.261	38.18
10/6/2018 15:11	81.7	31.18	50.57	11.74	36.56
10/6/2018 15:12	82.2	26.99	46.47	5.695	31.21
10/6/2018 15:13	82	33.08	46.12	8.69	35.51
10/6/2018 15:14	81.8	28.36	48.27	6.341	33.36
10/6/2018 15:15	82.1	27.75	47.07	9.16	31.65
10/6/2018 15:16	82	30	44.02	4.562	35.47
10/6/2018 15:17	81.9	25.74	51.33	6.541	31.74
10/6/2018 15:18	82.4	25.69	45.38	7.258	29.81
10/6/2018 15:19	82.2	26.97	42.67	4.405	34.46
10/6/2018 15:20	82.3	21.67	47.71	10.28	25.38
10/6/2018 15:21	82.3	27.27	49.46	9.78	37.92
10/6/2018 15:22	82.3	30.32	48.18	7.104	36.21
10/6/2018 15:23	82	27.64	51.27	11.08	29.5
10/6/2018 15:24	81.8	30.46	47.91	9.6	35.03
10/6/2018 15:25	81.8	26.41	47.48	7.101	31.56
10/6/2018 15:26	81.7	30.01	46.08	7.903	33.32
10/6/2018 15:27	82.1	23.82	52.95	7.249	27.97
10/6/2018 15:28	82.1	27.98	56.74	9.91	33.32
10/6/2018 15:29	81.7	26.78	50.69	13.02	31.65
10/6/2018 15:30	81.9	26.15	46.57	11.3	31.65
10/6/2018 15:31	82.2	24.85	53.01	19.9	33.98
10/6/2018 15:32	82.3	29.79	49.34	9.58	40.68
10/6/2018 15:33	81.8	34.12	46.78	7.598	40.33
10/6/2018 15:34	81.7	33.61	44.39	10.82	38.36
10/6/2018 15:35	81.7	31.23	42.03	9.69	34.55

10/6/2018 15:36	82.1	22.13	50.1	12.15	28.93
10/6/2018 15:37	82.3	29.3	44.03	8.99	37.35
10/6/2018 15:38	81.7	33.21	51.33	8.69	36.69
10/6/2018 15:39	81.7	27.5	44.77	5.367	31.61
10/6/2018 15:40	81.7	26.91	54.29	11.34	30.38
10/6/2018 15:41	82	23.25	48.72	7.898	29.5
10/6/2018 15:42	81.8	30.43	51.3	9.6	34.33
10/6/2018 15:43	81.9	23.76	51.65	9.1	30.03
10/6/2018 15:44	82.1	22.97	54.72	9.59	28.67
10/6/2018 15:45	81.8	27.21	47.89	8.03	30.16
10/6/2018 15:46	81.8	21	50.89	12.12	23.32
10/6/2018 15:47	82	23.04	56.82	15.41	28.28
10/6/2018 15:48	82.4	20.67	62.6	10.6	25.73
10/6/2018 15:49	82.3	22.8	55.23	10.9	29.46
10/6/2018 15:50	82.3	21.84	51.26	9.3	26.22
10/6/2018 15:51	81.8	26.21	45.89	6.551	31.61
10/6/2018 15:52	82	22.91	56.23	10.44	28.41
10/6/2018 15:53	82	24.48	60.14	13.31	31.65
10/6/2018 15:54	82	22.39	50.36	14.56	29.37
10/6/2018 15:55	82.2	25.86	48.21	9.66	33.19
10/6/2018 15:56	81.7	23.88	53.2	9.31	31.92
10/6/2018 15:57	82.2	21.36	48.37	10.3	28.76
10/6/2018 15:58	81.8	23.47	56.73	15.01	28.72
10/6/2018 15:59	81.8	20.66	54.8	12.93	24.77
10/6/2018 16:00	81.8	25.66	47.98	11.18	32
10/6/2018 16:01	81.6	25.66	48.67	11.21	30.91
10/6/2018 16:02	81.5	20.28	53.04	10.01	22.88
10/6/2018 16:03	81.5	24.23	48.57	7.336	30.25
10/6/2018 16:04	81.3	24.32	47.89	5.525	28.63
10/6/2018 16:05	80.9	27.58	46.26	5.614	35.16
10/6/2018 16:06	80.8	25.46	44.6	7.351	29.99
10/6/2018 16:07	80.9	24.95	51.82	10.11	29.94
10/6/2018 16:08	80.8	23.73	47.56	10.76	30.82
10/6/2018 16:09	80.8	19.26	54.88	13.06	30.03
10/6/2018 16:10	80.9	19.65	53.01	9.77	26.22
10/6/2018 16:11	80.9	22.84	48.34	9.08	27.93
10/6/2018 16:12	81	20.58	54.77	9.64	24.2
10/6/2018 16:13	81.1	22.97	49.1	5.746	29.81
10/6/2018 16:14	81	21.18	47.52	11.82	28.63
10/6/2018 16:15	81.1	22.34	50.48	10.24	25.21
10/6/2018 16:16	80.8	22.68	48.99	11.51	31.43
10/6/2018 16:17	80.9	18.62	55.46	15.22	26.04
10/6/2018 16:18	80.8	23.47	46.3	6.712	28.89
10/6/2018 16:19	80.7	21.88	57.67	11.21	29.02
10/6/2018 16:20	80.7	23.92	52.05	10.71	29.33
10/6/2018 16:21	80.5	28.58	46.76	7.12	34.15
10/6/2018 16:22	80.2	27.69	54.19	11.62	32.97

10/6/2018 16:23	80.2	27.77	54.05	11.15	33.36
10/6/2018 16:24	79.82	27.37	54.93	9.28	32
10/6/2018 16:25	79.63	30.74	51.49	9.56	35.34
10/6/2018 16:26	79.54	23.67	53.74	5.945	30.6
10/6/2018 16:27	79.59	22.75	52.58	14.83	29.07
10/6/2018 16:28	79.44	22.97	53.22	8.69	28.98
10/6/2018 16:29	79.55	21.84	55.7	8.44	26.39
10/6/2018 16:30	79.62	22.42	59.5	10.14	26.74
10/6/2018 16:31	79.6	26.57	49.43	13.15	30.38
10/6/2018 16:32	79.66	28.05	52.31	8.39	31.17
10/6/2018 16:33	79.58	26.82	52.39	10.75	32.7
10/6/2018 16:34	79.62	24.07	48.94	9.38	27.18
10/6/2018 16:35	79.59	26.7	50.63	11.36	33.27
10/6/2018 16:36	79.59	25.43	56.12	14.63	28.63
10/6/2018 16:37	79.46	26.33	50.5	8.86	35.16
10/6/2018 16:38	79.37	23.48	53.2	10.03	32.84
10/6/2018 16:39	79.28	25.09	50.64	12.93	34.33
10/6/2018 16:40	79.54	29.8	51.76	11.99	34.2
10/6/2018 16:41	79.68	29.31	48	7.472	34.98
10/6/2018 16:42	79.45	26.09	49.74	10.05	30.95
10/6/2018 16:43	79.42	27.33	50.78	6.926	32.88
10/6/2018 16:44	79.7	26.99	53.08	8.31	31.39
10/6/2018 16:45	79.87	25.41	49.59	9.06	30.95
10/6/2018 16:46	80.1	24.68	48.19	9.3	31.96
10/6/2018 16:47	80	22.93	52.86	11.77	30.86
10/6/2018 16:48	80	24.59	49.81	9.66	27.22
10/6/2018 16:49	80.1	24.46	50.42	6.264	31.56
10/6/2018 16:50	80.3	22.34	51.43	7.197	28.76
10/6/2018 16:51	80.4	22.78	51.02	9.04	28.45
10/6/2018 16:52	80.4	27.31	46.17	7.929	33.06
10/6/2018 16:53	80.1	26.37	50.94	8.13	32.22
10/6/2018 16:54	80.3	21.96	52.4	12.72	27.79
10/6/2018 16:55	80.5	22.46	55.45	9.15	27.09
10/6/2018 16:56	80.5	24.89	49.95	12.99	31.26
10/6/2018 16:57	80.2	29.15	47.79	7.424	32.31
10/6/2018 16:58	80.3	28.27	46.41	7.893	31.92
10/6/2018 16:59	80.3	24.51	51.97	11.53	28.85

Attachment 5

National Weather Service Wind Data for October 6, 2018


Tucson, Tucson International Airport (KTUS)
10.0m Wind Direction
10.0m Wind Speed
10.0m Wind Gust
Wind Speed and Gust (mph)
Wind Direction
Date/Time (MST)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
N
NW
W
SW
S
SE
E
NE
N
10/06/18 00:00
10/06/18 02:00
10/06/18 04:00
10/06/18 06:00
10/06/18 08:00
10/06/18 10:00
10/06/18 12:00
10/06/18 14:00
10/06/18 16:00
10/06/18 18:00
10/06/18 20:00
10/06/18 22:00
10/07/18 00:00

Weather Conditions for KTUS

Observations Prior to: 10/07/2018 00:00 MST

Weather Conditions at: 10/07/2018 0:00 MST

Graphical Links	0:00	Max Since 0:00 (MST)	Min Since 0:00 (MST)	24 Hour Maximum	24 Hour Minimum
2.0m Temperature	71.6° F	71.6 at 0:00	71.6 at 0:00	86.0 at 14:50	59.0 at 6:20
2.0m Dew Point	46.4° F	46.4 at 0:00	46.4 at 0:00	51.8 at 1:40	33.8 at 17:20
2.0m Wet bulb temperature	56.6° F	56.6 at 0:00	56.6 at 0:00	60.3 at 13:35	52.7 at 6:20
2.0m Relative Humidity	41%	41 at 0:00	41 at 0:00	69 at 5:53	17 at 17:20
10.0m Wind Speed	3.5 mph	3.5 at 0:00	3.5 at 0:00	17.3 at 16:30	0.0 at 23:55
10.0m Wind Direction	S	-	-	-	-
Pressure	27.12 in	27.12 at 0:00	27.12 at 0:00	27.27 at 8:15	27.11 at 19:45
Altimeter	29.76 in	29.76 at 0:00	29.76 at 0:00	29.92 at 8:15	29.75 at 19:45
Weather conditions	Clear	-	-	-	-
Visibility	10.00 miles	10.00 at 0:00	10.00 at 0:00	10.00 at 0:00	10.00 at 0:00

* The maxima/minima values above are calculated from the available observations and may not be official. More information is available here.

ASOS/AWOS Station Summary (Help)	Last Reported	Max/Min Values Last 24 Hours
Station 6 Hr High Temperature	82.9° F (22:53 MST 10/06)	86.0° F (16:53 MST 10/06)
Station 6 Hr Low Temperature	72.0° F (22:53 MST 10/06)	59.0° F (10:53 MST 10/06)
Station 24 Hr High Temperature	86.0° F (23:53 MST 10/06)	-
Station 24 Hr Low Temperature	59.0° F (23:53 MST 10/06)	-
Station Peak Wind Speed	-	25.3 mph (16:53 MST 10/06)

** The report times listed are when the value was reported by the station, not necessarily the time the value was actually measured.

***Note:** Observations above in **yellow** indicate that they are older than the last row of observations below.

Tabular Listing of 327 Observations from 10/05/2018 23:00 MST to 10/07/2018 0:00 MST:

Time (MST)	2.0m Temperature ° F	2.0m Dew Point ° F	2.0m Wet bulb temperature ° F	2.0m Relative Humidity %	10.0m Wind Speed mph	10.0m Wind Gust mph	10.0m Wind Direction	Pressure in	Sea level pressure in	Altimeter in	Weather conditions	Visibility miles	6 Hr High Temperature ° F	6 Hr Low Temperature ° F	24 Hr High Temperature ° F	24 Hr Low Temperature ° F	Quality Control
0:00	71.6	46.4	56.6	41	3.5		S	27.12		29.76	Clear	10.00					OK
23:55	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00					OK
23:53	71.1	46.0	56.3	41	0.0		N	27.12	29.63	29.76	Clear	10.00			86.0	59.0	OK
23:50	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00					OK
23:45	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00					OK
23:40	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00					OK
23:35	71.6	46.4	56.6	41	3.5		S	27.12		29.76	Clear	10.00					OK
23:30	71.6	46.4	56.6	41	3.5		S	27.12		29.76	Clear	10.00					OK
23:25	71.6	44.6	55.8	38	3.5		SSW	27.12		29.76	Clear	10.00					OK
23:20	71.6	44.6	55.8	38	3.5		SSW	27.12		29.76	Clear	10.00					OK
23:15	73.4	44.6	56.5	36	4.6		SSW	27.12		29.76	Clear	10.00					OK
23:10	73.4	46.4	57.3	38	5.8		S	27.12		29.76	Clear	10.00					OK
23:05	73.4	44.6	56.5	36	4.6		S	27.12		29.76	Clear	10.00					OK
23:00	71.6	46.4	56.6	41	5.8		S	27.13		29.77	Clear	10.00					OK
22:55	71.6	46.4	56.6	41	4.6		S	27.13		29.77	Clear	10.00					OK
22:53	72.0	46.0	56.6	40	3.5		S	27.13	29.65	29.77	Clear	10.00	82.9	72.0			OK
22:50	73.4	46.4	57.3	38	3.5		S	27.13		29.77	Clear	10.00					OK
22:45	71.6	46.4	56.6	41	0.0		N	27.13		29.77	Clear	10.00					OK
22:40	71.6	46.4	56.6	41	0.0		N	27.13		29.77	Clear	10.00					OK
22:35	71.6	46.4	56.6	41	0.0		N	27.13		29.77	Clear	10.00					OK

22:30	71.6	44.6	55.8	38	0.0		N	27.13		29.77	Clear	10.00	OK
22:25	71.6	46.4	56.6	41	0.0		N	27.13		29.77	Clear	10.00	OK
22:20	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00	OK
22:17	72.0	45.0	56.1	38	0.0		N	27.12		29.76	Clear	10.00	OK
22:15	71.6	44.6	55.8	38	0.0		N	27.12		29.76	Clear	10.00	OK
22:10	71.6	46.4	56.6	41	0.0		N	27.13		29.77	Clear	10.00	OK
22:05	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00	OK
22:00	73.4	44.6	56.5	36	3.5		SSW	27.12		29.76	Clear	10.00	OK
21:55	73.4	44.6	56.5	36	3.5		SW	27.12		29.76	Clear	10.00	OK
21:53	73.0	45.0	56.5	37	0.0		N	27.12	29.64	29.76	Clear	10.00	OK
21:50	73.4	44.6	56.5	36	0.0		N	27.12		29.76	Clear	10.00	OK
21:45	71.6	44.6	55.8	38				27.12		29.76	Clear	10.00	OK
21:40	73.4	44.6	56.5	36	0.0		N	27.12		29.76	Clear	10.00	OK
21:35	73.4	44.6	56.5	36	0.0		N	27.12		29.76	Clear	10.00	OK
21:30	73.4	44.6	56.5	36	3.5		SE	27.12		29.76	Clear	10.00	OK
21:25	73.4	44.6	56.5	36	0.0		N	27.12		29.76	Clear	10.00	OK
21:20	73.4	44.6	56.5	36	3.5		W	27.12		29.76	Clear	10.00	OK
21:15	73.4	44.6	56.5	36	3.5		WNW	27.12		29.76	Clear	10.00	OK
21:10	73.4	44.6	56.5	36	3.5		WNW	27.13		29.77	Clear	10.00	OK
21:05	73.4	44.6	56.5	36	5.8		NW	27.12		29.76	Clear	10.00	OK
21:00	73.4	44.6	56.5	36	4.6		NW	27.12		29.76	Clear	10.00	OK
20:55	73.4	44.6	56.5	36	4.6		WNW	27.12		29.76	Clear	10.00	OK
20:53	73.9	45.0	56.8	36	4.6		WNW	27.12	29.65	29.76	Clear	10.00	OK
20:50	73.4	44.6	56.5	36	4.6		WNW	27.12		29.76	Clear	10.00	OK
20:45	73.4	44.6	56.5	36	5.8		W	27.12		29.76	Clear	10.00	OK
20:40	73.4	44.6	56.5	36				27.12		29.76	Clear	10.00	OK
20:35	73.4	44.6	56.5	36	4.6		W	27.12		29.76	Clear	10.00	OK
20:30	73.4	44.6	56.5	36	4.6		W	27.12		29.76	Clear	10.00	OK
20:25	73.4	44.6	56.5	36	4.6		W	27.12		29.76	Clear	10.00	OK
20:20	73.4	44.6	56.5	36	3.5		WNW	27.12		29.76	Clear	10.00	OK
20:15	73.4	42.8	55.7	33	4.6		WNW	27.12		29.76	Clear	10.00	OK
20:10	73.4	42.8	55.7	33	3.5		NW	27.12		29.76	Clear	10.00	OK
20:05	73.4	42.8	55.7	33				27.12		29.76	Clear	10.00	OK
20:00	73.4	42.8	55.7	33	0.0		N	27.12		29.76	Clear	10.00	OK
19:55	75.2	42.8	56.4	31	0.0		N	27.12		29.76	Clear	10.00	OK
19:53	75.0	42.1	56.0	31	3.5		W	27.12	29.65	29.76	Clear	10.00	OK
19:50	75.2	42.8	56.4	31	3.5		W	27.12		29.76	Clear	10.00	OK
19:45	73.4	42.8	55.7	33	3.5		WSW	27.11		29.75	Clear	10.00	OK
19:40	73.4	42.8	55.7	33	3.5		W	27.12		29.76	Clear	10.00	OK
19:35	73.4	42.8	55.7	33	5.8		W	27.12		29.76	Clear	10.00	OK
19:30	75.2	41.0	55.7	29	0.0		N	27.11		29.75	Clear	10.00	OK
19:25	75.2	41.0	55.7	29	4.6		W	27.11		29.75	Clear	10.00	OK
19:20	75.2	41.0	55.7	29	4.6		W	27.11		29.75	Clear	10.00	OK
19:15	75.2	41.0	55.7	29	6.9		W	27.11		29.75	Clear	10.00	OK
19:10	75.2	41.0	55.7	29	6.9		W	27.11		29.75	Clear	10.00	OK
19:05	75.2	39.2	55.0	27	5.8		W	27.11		29.75	Clear	10.00	OK
19:00	77.0	39.2	55.7	26	9.2		W	27.11		29.75	Clear	10.00	OK
18:55	77.0	39.2	55.7	26	8.1		W	27.11		29.75	Clear	10.00	OK
18:53	77.0	39.9	56.0	26	9.2		W	27.11	29.65	29.75	Clear	10.00	OK
18:50	77.0	39.2	55.7	26	9.2	18.4	W	27.12		29.76	Clear	10.00	OK

18:45	77.0	39.2	55.7	26				27.11		29.75	Clear	10.00			OK
18:40	77.0	39.2	55.7	26	8.1		W	27.11		29.75	Clear	10.00			OK
18:35	77.0	39.2	55.7	26	6.9		W	27.11		29.75	Clear	10.00			OK
18:30	77.0	39.2	55.7	26	8.1		W	27.11		29.75	Clear	10.00			OK
18:25	78.8	39.2	56.4	24	8.1		W	27.11		29.75	Clear	10.00			OK
18:20	78.8	37.4	55.7	23	10.4		W	27.11		29.75	Clear	10.00			OK
18:15	78.8	37.4	55.7	23	8.1		W	27.12		29.76	Clear	10.00			OK
18:10	78.8	37.4	55.7	23	8.1		W	27.12		29.76	Clear	10.00			OK
18:05	78.8	39.2	56.4	24	9.2		W	27.12		29.76	Clear	10.00			OK
18:00	78.8	39.2	56.4	24	10.4		W	27.12		29.76	Clear	10.00			OK
17:55	80.6	39.2	57.0	23	6.9		WSW	27.12		29.76	Clear	10.00			OK
17:53	80.1	39.9	57.1	24	12.7		SW	27.12	29.65	29.76	Clear	10.00			OK
17:50	80.6	39.2	57.0	23	12.7	18.4	SW	27.12		29.76	Clear	10.00			OK
17:45	80.6	37.4	56.4	21				27.12		29.76	Clear	10.00			OK
17:40	80.6	35.6	55.8	20				27.12		29.76	Clear	10.00			OK
17:35	80.6	35.6	55.8	20				27.12		29.76	Clear	10.00			OK
17:30	82.4	35.6	56.5	19	12.7		SW	27.12		29.76	Clear	10.00			OK
17:25	82.4	35.6	56.5	19	10.4		SW	27.12		29.76	Clear	10.00			OK
17:20	82.4	33.8	55.9	17	13.8		SW	27.12		29.76	Clear	10.00			OK
17:15	82.4	33.8	55.9	17	12.7		SW	27.12		29.76	Clear	10.00			OK
17:10	82.4	33.8	55.9	17	15.0		SW	27.12		29.76	Clear	10.00			OK
17:05	82.4	35.6	56.5	19	15.0		SW	27.12		29.76	Clear	10.00			OK
17:00	82.4	35.6	56.5	19	12.7		SW	27.12		29.76	Clear	10.00			OK
16:55	82.4	37.4	57.1	20	15.0		SW	27.12		29.76	Clear	10.00			OK
16:53	82.9	37.0	57.1	19	16.1	25.3	SW	27.12	29.65	29.76	Clear	10.00	86.0	77.0	OK
16:50	84.2	37.4	57.7	19	15.0	23.0	SW	27.12		29.76	Clear	10.00			OK
16:45	82.4	37.4	57.1	20	15.0		SSW	27.12		29.76	Clear	10.00			OK
16:40	84.2	37.4	57.7	19	16.1	25.3	SSW	27.12		29.76	Clear	10.00			OK
16:35	84.2	37.4	57.7	19	12.7		SW	27.12		29.76	Clear	10.00			OK
16:30	84.2	37.4	57.7	19	17.3	24.2	SW	27.12		29.76	Clear	10.00			OK
16:25	84.2	37.4	57.7	19	13.8		SW	27.12		29.76	Clear	10.00			OK
16:20	84.2	37.4	57.7	19	15.0	21.9	SW	27.13		29.77	Clear	10.00			OK
16:15	84.2	39.2	58.3	20	13.8	20.7	SW	27.12		29.76	Clear	10.00			OK
16:10	84.2	39.2	58.3	20	10.4		WSW	27.13		29.77	Clear	10.00			OK
16:05	84.2	39.2	58.3	20	12.7		SW	27.13		29.77	Clear	10.00			OK
16:00	84.2	39.2	58.3	20	16.1		SW	27.13		29.77	Clear	10.00			OK
15:55	84.2	37.4	57.7	19	12.7		WSW	27.13		29.77	Clear	10.00			OK
15:53	84.9	37.9	58.1	19	11.5	23.0	WSW	27.13	29.65	29.77	Clear	10.00			OK
15:50	84.2	37.4	57.7	19	16.1		SW	27.13		29.77	Clear	10.00			OK
15:45	84.2	37.4	57.7	19	15.0		SSW	27.13		29.77	Clear	10.00			OK
15:40	84.2	39.2	58.3	20	12.7		SSW	27.13		29.77	Clear	10.00			OK
15:35	84.2	39.2	58.3	20	16.1		SSW	27.13		29.77	Clear	10.00			OK
15:30	84.2	42.8	59.6	23	9.2		WSW	27.13		29.77	Clear	10.00			OK
15:25	84.2	39.2	58.3	20	12.7		WSW	27.13		29.77	Clear	10.00			OK
15:20	84.2	41.0	58.9	22	8.1		SW	27.13		29.77	Clear	10.00			OK
15:15	84.2	41.0	58.9	22	10.4		WSW	27.14		29.78	Clear	10.00			OK
15:10	84.2	41.0	58.9	22	8.1		SW	27.14		29.78	Clear	10.00			OK
15:05	84.2	39.2	58.3	20	12.7		SW	27.14		29.78	Clear	10.00			OK
15:00	84.2	39.2	58.3	20	12.7		SSW	27.14		29.78	Clear	10.00			OK
14:55	84.2	37.4	57.7	19	10.4		W	27.15		29.79	Clear	10.00			OK

14:53	84.9	39.0	58.5	20	15.0	19.6	WSW	27.15	29.67	29.79	Clear	10.00	OK
14:50	86.0	39.2	58.9	19	11.5		WSW	27.15		29.79	Clear	10.00	OK
14:45	84.2	39.2	58.3	20	6.9		SSW	27.15		29.79	Clear	10.00	OK
14:40	84.2	39.2	58.3	20	12.7		WSW	27.15		29.79	Clear	10.00	OK
14:35	84.2	39.2	58.3	20	6.9		SW	27.16		29.80	Clear	10.00	OK
14:30	84.2	39.2	58.3	20	12.7		SW	27.16		29.80	Clear	10.00	OK
14:25	84.2	39.2	58.3	20	13.8		SSW	27.16		29.80	Clear	10.00	OK
14:20	84.2	39.2	58.3	20	11.5		SW	27.16		29.80	Clear	10.00	OK
14:15	84.2	39.2	58.3	20	13.8		W	27.16		29.80	Clear	10.00	OK
14:10	84.2	41.0	58.9	22	16.1	21.9	WSW	27.16		29.80	Clear	10.00	OK
14:05	84.2	42.8	59.6	23	8.1		SSW	27.17		29.81	Clear	10.00	OK
14:00	84.2	42.8	59.6	23	6.9		SW	27.17		29.81	Clear	10.00	OK
13:55	84.2	41.0	58.9	22	13.8		SSW	27.17		29.81	Clear	10.00	OK
13:53	84.9	41.0	59.2	21	10.4	18.4	S	27.17	29.69	29.81	Clear	10.00	OK
13:50	84.2	41.0	58.9	22	10.4	18.4	S	27.17		29.81	Clear	10.00	OK
13:45	84.2	42.8	59.6	23	4.6		S	27.17		29.81	Clear	10.00	OK
13:40	82.4	42.8	59.0	25	5.8		W	27.18		29.82	Clear	10.00	OK
13:35	84.2	44.6	60.3	25	11.5		W	27.18		29.82	Clear	10.00	OK
13:30	82.4	44.6	59.7	27	6.9		SSW	27.18		29.82	Clear	10.00	OK
13:25	82.4	44.6	59.7	27	11.5		SW	27.18		29.82	Clear	10.00	OK
13:20	82.4	44.6	59.7	27	5.8		S	27.18		29.83	Clear	10.00	OK
13:15	82.4	44.6	59.7	27	3.5		N	27.18		29.83	Clear	10.00	OK
13:10	80.6	44.6	59.1	28	3.5		W	27.18		29.83	Clear	10.00	OK
13:05	80.6	46.4	59.8	30	5.8		WNW	27.19		29.84	Clear	10.00	OK
13:00	80.6	46.4	59.8	30	6.9		W	27.19		29.84	Clear	10.00	OK
12:55	80.6	46.4	59.8	30	3.5		WNW	27.19		29.84	Clear	10.00	OK
12:53	81.0	46.0	59.8	29	3.5			27.19	29.73	29.84	Clear	10.00	OK
12:50	80.6	46.4	59.8	30	4.6		NW	27.20		29.85	Clear	10.00	OK
12:45	80.6	46.4	59.8	30	3.5		WNW	27.20		29.85	Clear	10.00	OK
12:40	80.6	46.4	59.8	30	5.8		W	27.20		29.85	Clear	10.00	OK
12:35	80.6	46.4	59.8	30	6.9		SW	27.21		29.86	Clear	10.00	OK
12:30	80.6	46.4	59.8	30	8.1		WNW	27.21		29.86	Clear	10.00	OK
12:25	80.6	46.4	59.8	30	10.4	17.3	W	27.21		29.86	Clear	10.00	OK
12:23	81.0	46.0	59.8	29	6.9			27.21		29.86	Clear	10.00	OK
12:20	80.6	46.4	59.8	30	4.6		WSW	27.22		29.87	Clear	10.00	OK
12:15	80.6	46.4	59.8	30	10.4		W	27.22		29.87	Clear	10.00	OK
12:10	80.6	44.6	59.1	28	6.9		W	27.22		29.87	Clear	10.00	OK
12:05	80.6	44.6	59.1	28	5.8		W	27.22		29.87	Clear	10.00	OK
12:00	80.6	44.6	59.1	28	8.1		SW	27.22		29.87	Clear	10.00	OK
11:55	80.6	46.4	59.8	30	8.1		W	27.23		29.88	Clear	10.00	OK
11:53	81.0	46.0	59.8	29	12.7		WSW	27.22	29.76	29.87	Clear	10.00	OK
11:50	80.6	44.6	59.1	28				27.22		29.87	Clear	10.00	OK
11:45	78.8	44.6	58.4	30	4.6		SW	27.22		29.87	Clear	10.00	OK
11:40	78.8	44.6	58.4	30	3.5		SSW	27.22		29.87	Clear	10.00	OK
11:35	80.6	44.6	59.1	28	5.8		WSW	27.22		29.87	Clear	10.00	OK
11:30	80.6	42.8	58.3	26	8.1		S	27.23		29.88	Clear	10.00	OK
11:25	80.6	42.8	58.3	26	8.1		SSW	27.23		29.88	Clear	10.00	OK
11:20	80.6	42.8	58.3	26	9.2		S	27.23		29.88	Clear	10.00	OK
11:15	78.8	42.8	57.7	28				27.23		29.88	Clear	10.00	OK
11:10	78.8	42.8	57.7	28	0.0		N	27.23		29.88	Clear	10.00	OK

11:05	78.8	42.8	57.7	28	9.2	SW	27.24		29.89	Clear	10.00			OK
11:00	78.8	44.6	58.4	30	6.9	SW	27.24		29.89	Clear	10.00			OK
10:55	77.0	44.6	57.8	32	3.5	WSW	27.24		29.89	Clear	10.00			OK
10:53	77.0	46.0	58.4	33	6.9		27.24	29.78	29.89	Clear	10.00	77.0	59.0	OK
10:50	77.0	46.4	58.6	34	6.9	SE	27.24		29.89	Clear	10.00			OK
10:45	77.0	46.4	58.6	34	3.5	SE	27.24		29.89	Clear	10.00			OK
10:40	77.0	46.4	58.6	34	5.8	SSW	27.25		29.90	Clear	10.00			OK
10:35	77.0	46.4	58.6	34	5.8	SE	27.25		29.90	Clear	10.00			OK
10:30	75.2	46.4	57.9	36	4.6	SE	27.25		29.90	Clear	10.00			OK
10:20	75.2	46.4	57.9	36			27.25		29.90	Clear	10.00			OK
10:15	75.2	46.4	57.9	36	3.5	SE	27.25		29.90	Clear	10.00			OK
10:10	75.2	46.4	57.9	36	5.8	SE	27.25		29.90	Clear	10.00			OK
10:05	75.2	46.4	57.9	36	6.9	SE	27.25		29.90	Clear	10.00			OK
10:00	73.4	46.4	57.3	38	4.6	S	27.25		29.90	Clear	10.00			OK
9:55	73.4	48.2	58.1	41	3.5	SSE	27.25		29.90	Clear	10.00			OK
9:53	73.0	46.9	57.4	40	3.5		27.25	29.79	29.90	Clear	10.00			OK
9:50	73.4	46.4	57.3	38	5.8	SSE	27.25		29.90	Clear	10.00			OK
9:45	73.4	48.2	58.1	41	5.8	SSE	27.25		29.90	Clear	10.00			OK
9:40	73.4	48.2	58.1	41	5.8	SSE	27.25		29.90	Clear	10.00			OK
9:35	71.6	48.2	57.5	43	5.8	S	27.25		29.90	Clear	10.00			OK
9:30	71.6	48.2	57.5	43	5.8	SSE	27.25		29.90	Clear	10.00			OK
9:25	71.6	48.2	57.5	43	4.6	SSE	27.26		29.91	Clear	10.00			OK
9:20	71.6	48.2	57.5	43	5.8	SSE	27.25		29.90	Clear	10.00			OK
9:15	71.6	48.2	57.5	43	5.8	SSE	27.25		29.90	Clear	10.00			OK
9:10	71.6	48.2	57.5	43	6.9	SE	27.25		29.90	Clear	10.00			OK
9:05	69.8	48.2	56.8	46	6.9	SSE	27.25		29.90	Clear	10.00			OK
9:00	69.8	48.2	56.8	46	8.1	SSE	27.26		29.91	Clear	10.00			OK
8:55	69.8	48.2	56.8	46			27.26		29.91	Clear	10.00			OK
8:53	69.1	48.0	56.5	47	6.9	SSE	27.26	29.80	29.91	Clear	10.00			OK
8:50	69.8	48.2	56.8	46	6.9	SSE	27.26		29.91	Clear	10.00			OK
8:45	68.0	48.2	56.1	49	6.9	SSE	27.26		29.91	Clear	10.00			OK
8:40	68.0	48.2	56.1	49	8.1	SSE	27.26		29.91	Clear	10.00			OK
8:35	66.2	48.2	55.5	52	8.1	SE	27.26		29.91	Clear	10.00			OK
8:30	66.2	48.2	55.5	52	9.2	SSE	27.26		29.91	Clear	10.00			OK
8:25	66.2	48.2	55.5	52	9.2	SSE	27.26		29.91	Clear	10.00			OK
8:20	66.2	48.2	55.5	52	6.9	SSE	27.26		29.91	Clear	10.00			OK
8:15	64.4	48.2	54.8	56	6.9	SSE	27.27		29.92	Clear	10.00			OK
8:10	64.4	48.2	54.8	56	6.9	SSE	27.26		29.91	Clear	10.00			OK
8:05	64.4	48.2	54.8	56	6.9	SSE	27.26		29.91	Clear	10.00			OK
8:00	64.4	48.2	54.8	56	8.1	SSE	27.25		29.90	Clear	10.00			OK
7:55	62.6	48.2	54.1	59	9.2	SSE	27.25		29.90	Clear	10.00			OK
7:53	63.0	48.0	54.2	58	9.2	SSE	27.25	29.80	29.90	Clear	10.00			OK
7:50	62.6	48.2	54.1	59	9.2	SE	27.25		29.90	Clear	10.00			OK
7:45	62.6	48.2	54.1	59	9.2	SSE	27.25		29.90	Clear	10.00			OK
7:40	62.6	48.2	54.1	59	10.4	SE	27.25		29.90	Clear	10.00			OK
7:35	62.6	48.2	54.1	59	9.2	SE	27.25		29.90	Clear	10.00			OK
7:30	62.6	48.2	54.1	59	9.2	SE	27.24		29.89	Clear	10.00			OK
7:25	60.8	48.2	53.4	63	10.4	SE	27.24		29.89	Clear	10.00			OK
7:20	60.8	48.2	53.4	63	9.2	SE	27.24		29.89	Clear	10.00			OK
7:15	60.8	48.2	53.4	63	9.2	SSE	27.24		29.89	Clear	10.00			OK

7:10	60.8	48.2	53.4	63	10.4	SSE	27.24		29.89	Clear	10.00			OK
7:05	60.8	48.2	53.4	63	11.5	SE	27.24		29.89	Clear	10.00			OK
7:00	60.8	48.2	53.4	63	13.8	SE	27.24		29.89	Clear	10.00			OK
6:55	60.8	48.2	53.4	63	12.7	SE	27.24		29.89	Clear	10.00			OK
6:53	60.1	48.0	53.0	64	12.7	SE	27.24	29.79	29.89	Clear	10.00			OK
6:50	60.8	48.2	53.4	63	12.7	SE	27.24		29.89	Clear	10.00			OK
6:45	60.8	48.2	53.4	63	10.4	SE	27.24		29.89	Clear	10.00			OK
6:40	60.8	48.2	53.4	63	10.4	SE	27.24		29.89	Clear	10.00			OK
6:35	60.8	48.2	53.4	63	11.5	SE	27.24		29.89	Clear	10.00			OK
6:30	60.8	48.2	53.4	63	9.2	SE	27.24		29.89	Clear	10.00			OK
6:25	60.8	48.2	53.4	63	11.5	SE	27.24		29.89	Clear	10.00			OK
6:20	59.0	48.2	52.7	67	10.4	SE	27.24		29.89	Clear	10.00			OK
6:15	59.0	48.2	52.7	67	10.4	SE	27.24		29.89	Clear	10.00			OK
6:10	59.0	48.2	52.7	67	11.5	SE	27.24		29.89	Clear	10.00			OK
6:05	59.0	48.2	52.7	67	11.5	SE	27.24		29.89	Clear	10.00			OK
6:00	59.0	48.2	52.7	67	12.7	SE	27.24		29.89	Clear	10.00			OK
5:55	59.0	48.2	52.7	67	11.5	SE	27.24		29.89	Clear	10.00			OK
5:53	59.0	48.9	53.1	69	11.5	SE	27.24	29.78	29.89	Clear	10.00			OK
5:50	59.0	48.2	52.7	67	11.5	SE	27.23		29.88	Clear	10.00			OK
5:45	60.8	48.2	53.4	63	11.5	SE	27.23		29.88	Clear	10.00			OK
5:40	60.8	48.2	53.4	63	11.5	SE	27.23		29.88	Clear	10.00			OK
5:35	60.8	48.2	53.4	63	10.4	SSE	27.23		29.88	Clear	10.00			OK
5:30	60.8	48.2	53.4	63	10.4	SSE	27.23		29.88	Clear	10.00			OK
5:25	60.8	48.2	53.4	63	10.4	SSE	27.23		29.88	Clear	10.00			OK
5:20	59.0	48.2	52.7	67	12.7	SE	27.23		29.88	Clear	10.00			OK
5:15	59.0	48.2	52.7	67	9.2	SSE	27.23		29.88	Clear	10.00			OK
5:10	59.0	48.2	52.7	67	8.1	SSE	27.23		29.88	Clear	10.00			OK
5:05	60.8	48.2	53.4	63	8.1	SSE	27.23		29.88	Clear	10.00			OK
5:00	60.8	48.2	53.4	63	8.1	SSE	27.23		29.88	Clear	10.00			OK
4:55	60.8	48.2	53.4	63	10.4	SSE	27.23		29.88	Clear	10.00			OK
4:53	61.0	48.9	53.9	64	10.4	SSE	27.23	29.77	29.88	Clear	10.00	66.9	60.1	OK
4:50	60.8	48.2	53.4	63	10.4	SSE	27.23		29.88	Clear	10.00			OK
4:45	60.8	48.2	53.4	63	11.5	SSE	27.23		29.88	Clear	10.00			OK
4:40	60.8	50.0	54.4	68	10.4	SSE	27.24		29.89	Clear	10.00			OK
4:35	60.8	50.0	54.4	68	10.4	SSE	27.24		29.89	Clear	10.00			OK
4:30	60.8	50.0	54.4	68	8.1	SSE	27.24		29.89	Clear	10.00			OK
4:25	60.8	50.0	54.4	68	9.2	SSE	27.24		29.89	Clear	10.00			OK
4:20	60.8	50.0	54.4	68	9.2	SSE	27.24		29.89	Clear	10.00			OK
4:15	60.8	50.0	54.4	68	9.2	SSE	27.24		29.89	Clear	10.00			OK
4:10	60.8	50.0	54.4	68	10.4	SE	27.24		29.89	Clear	10.00			OK
4:05	60.8	48.2	53.4	63	9.2	SE	27.24		29.89	Clear	10.00			OK
4:00	60.8	48.2	53.4	63	6.9	SE	27.25		29.90	Clear	10.00			OK
3:55	60.8	48.2	53.4	63	5.8	SE	27.24		29.89	Clear	10.00			OK
3:53	61.0	48.9	53.9	64	6.9	SE	27.24	29.78	29.89	Clear	10.00			OK
3:50	60.8	48.2	53.4	63	5.8	SE	27.24		29.89	Clear	10.00			OK
3:45	60.8	48.2	53.4	63	8.1	SE	27.24		29.89	Clear	10.00			OK
3:40	60.8	48.2	53.4	63	9.2	SE	27.24		29.89	Clear	10.00			OK
3:35	60.8	48.2	53.4	63	8.1	SE	27.24		29.89	Clear	10.00			OK
3:30	60.8	50.0	54.4	68	8.1	SE	27.25		29.90	Clear	10.00			OK
3:25	60.8	50.0	54.4	68	9.2	SE	27.24		29.89	Clear	10.00			OK

3:20	60.8	50.0	54.4	68	9.2	SE	27.25		29.90	Clear	10.00			OK
3:15	60.8	50.0	54.4	68	8.1	SE	27.24		29.89	Clear	10.00			OK
3:10	60.8	50.0	54.4	68	8.1	SSE	27.25		29.90	Clear	10.00			OK
3:05	60.8	50.0	54.4	68	6.9	SE	27.25		29.90	Clear	10.00			OK
3:00	60.8	48.2	53.4	63	6.9	SE	27.25		29.90	Clear	10.00			OK
2:55	60.8	48.2	53.4	63	6.9	SE	27.25		29.90	Clear	10.00			OK
2:53	61.0	50.0	54.4	67	8.1	SE	27.25	29.78	29.90	Clear	10.00			OK
2:50	60.8	50.0	54.4	68	6.9	SE	27.25		29.90	Clear	10.00			OK
2:45	62.6	50.0	55.1	63	4.6	SE	27.25		29.90	Clear	10.00			OK
2:40	60.8	50.0	54.4	68	5.8	SE	27.25		29.90	Clear	10.00			OK
2:35	60.8	50.0	54.4	68	4.6	SE	27.25		29.90	Clear	10.00			OK
2:30	62.6	50.0	55.1	63	4.6	SSE	27.25		29.90	Clear	10.00			OK
2:25	62.6	50.0	55.1	63	6.9	S	27.25		29.90	Clear	10.00			OK
2:20	62.6	50.0	55.1	63	6.9	S	27.25		29.90	Clear	10.00			OK
2:15	62.6	50.0	55.1	63	5.8	S	27.25		29.90	Clear	10.00			OK
2:10	62.6	50.0	55.1	63	5.8	S	27.25		29.90	Clear	10.00			OK
2:05	62.6	50.0	55.1	63	5.8	S	27.25		29.90	Clear	10.00			OK
2:00	62.6	50.0	55.1	63	5.8	S	27.25		29.90	Clear	10.00			OK
1:55	62.6	50.0	55.1	63	5.8	S	27.25		29.90	Clear	10.00			OK
1:53	62.1	50.0	54.8	65	5.8	S	27.25	29.79	29.90	Clear	10.00			OK
1:50	62.6	50.0	55.1	63	5.8	S	27.25		29.90	Clear	10.00			OK
1:45	62.6	50.0	55.1	63	6.9	S	27.25		29.90	Clear	10.00			OK
1:40	62.6	51.8	56.0	68	5.8	S	27.25		29.90	Clear	10.00			OK
1:35	62.6	51.8	56.0	68	5.8	SSE	27.25		29.90	Clear	10.00			OK
1:30	62.6	51.8	56.0	68	5.8	SSE	27.25		29.90	Clear	10.00			OK
1:25	62.6	51.8	56.0	68	6.9	SSE	27.25		29.90	Clear	10.00			OK
1:20	62.6	51.8	56.0	68	6.9	SSE	27.25		29.90	Clear	10.00			OK
1:15	62.6	51.8	56.0	68	5.8	SSE	27.25		29.90	Clear	10.00			OK
1:10	62.6	51.8	56.0	68	5.8	SE	27.25		29.90	Clear	10.00			OK
1:05	62.6	51.8	56.0	68	4.6	SSE	27.25		29.90	Clear	10.00			OK
1:00	62.6	51.8	56.0	68	4.6	SSE	27.25		29.90	Clear	10.00			OK
0:55	62.6	51.8	56.0	68	4.6	SSE	27.25		29.90	Clear	10.00			OK
0:53	63.0	51.1	55.8	65	5.8	SSE	27.25	29.79	29.90	Clear	10.00			OK
0:50	62.6	51.8	56.0	68	5.8	SSE	27.25		29.90	Clear	10.00			OK
0:45	62.6	51.8	56.0	68	5.8	SSE	27.26		29.91	Clear	10.00			OK
0:40	64.4	51.8	56.7	64	5.8	S	27.26		29.91	Clear	10.00			OK
0:35	64.4	51.8	56.7	64	6.9	SSE	27.26		29.91	Clear	10.00			OK
0:30	62.6	51.8	56.0	68	6.9	SSE	27.26		29.91	Clear	10.00			OK
0:25	64.4	51.8	56.7	64	0.0	N	27.26		29.91	Clear	10.00			OK
0:20	64.4	51.8	56.7	64	4.6	SSW	27.26		29.91	Clear	10.00			OK
0:15	64.4	51.8	56.7	64	3.5	SSW	27.26		29.91	Clear	10.00			OK
0:10	64.4	51.8	56.7	64	4.6	SSW	27.26		29.91	Clear	10.00			OK
0:05	64.4	50.0	55.7	60	5.8	SSW	27.26		29.91	Clear	10.00			OK
0:00	64.4	50.0	55.7	60	5.8	SW	27.26		29.91	Clear	10.00			OK
23:55	64.4	50.0	55.7	60	5.8	SW	27.26		29.91	Clear	10.00			OK
23:53	64.0	50.0	55.6	60	6.9	SW	27.26	29.80	29.91	Clear	10.00	84.0	59.0	OK
23:50	64.4	50.0	55.7	60	5.8	SSW	27.26		29.91	Clear	10.00			OK
23:45	64.4	50.0	55.7	60	6.9	SSW	27.26		29.91	Clear	10.00			OK
23:40	64.4	50.0	55.7	60	5.8	SW	27.26		29.91	Clear	10.00			OK
23:35	66.2	50.0	56.4	56	5.8	SSW	27.26		29.91	Clear	10.00			OK

23:30	66.2	50.0	56.4	56	5.8	SSW	27.26	29.91	Clear	10.00	OK
23:25	66.2	50.0	56.4	56	5.8	SSW	27.26	29.91	Clear	10.00	OK
23:20	66.2	50.0	56.4	56	5.8	SSW	27.26	29.91	Clear	10.00	OK
23:15	66.2	50.0	56.4	56	5.8	S	27.26	29.91	Clear	10.00	OK
23:10	66.2	50.0	56.4	56	4.6	SSW	27.26	29.91	Clear	10.00	OK
23:05	66.2	50.0	56.4	56	4.6	SSW	27.26	29.91	Clear	10.00	OK
23:00	66.2	50.0	56.4	56	4.6	SSW	27.27	29.92	Clear	10.00	OK

University of Utah MesoWest

Attachment 6

Excess Emissions Report dated October 10, 2018

FREEPORT-McMoRan

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

October 10, 2018

Via Email: Air.Notices@pima.gov and
Certified Mail: 7015 1520 0002 5365 8901

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

Re: Report of Excess Emissions and Certification of Truth, Accuracy and Completeness, Freeport-McMoRan Sierrita Inc., Permit # 6067

Dear Mr. Fitzpatrick:

In accordance with Attachment "A" Conditions XI.A and XI.B of Class I Permit # 6067, this letter serves as detailed written follow-up notification of excess emissions from permit requirements. Freeport-McMoRan Sierrita Inc. (FMSI) provided initial notification to the Pima County Department of Environmental Quality (PDEQ) via telephone notification to Mr. Dustin Fitzpatrick on October 8, 2018.

Attachment "B" Condition XIX.B.1.a states "Permittee shall not cause, allow or permit visible emissions from any fugitive dust source in excess of 20% opacity measured in accordance with EPA Reference Method 9."

Description of the Event

On October 7th, 2018 between approximately 8:45AM and 1:00PM, FMSI employees observed dust intermittently emanating in a northeast direction from the east side of the North and South dam tailings impoundment. In response, three water trucks and two all track were deployed to the location to help mitigate the dust. While a formal EPA Reference Method 9 observation was not conducted due to the deployment of dust mitigation activities, FMSI is reporting this event as an opacity exceedance based on the description of the event by the tailings operator. Based on FMSI's information, the excess opacity may have occurred at 8:45AM and 12:00PM. Each event may have lasted for 10 minutes or more.

Before and during the opacity event, sustained winds were in excess of 25 mph (See attached Tailings_COW weather station report demonstrating the vast majority of the timeframe between 1:30AM to 1:45PM winds exceeded 25 mph). As a result, although some dust moved across Duval Mine Road, a public thoroughfare, and crossed back onto FMSI property just north of the public thoroughfare, and some dust moved across Continental Road, according to Attachment "B" Condition II.E.2 the prohibition agains dust crossing the property boundary does not apply.

As you know, FMSI employs a comprehensive fugitive source management plan. In addition to these control measures that FMSI employs at the tailings dam, additional Magnesium Chloride ($MgCl_2$) was being sprayed on top of tailings dam and additional amounts of water were being sprayed on the berms and roads prior to this event. On September 20, 2018, a storm approached and the tailings dam received approximately 3.5 inches of rain. Due to the large amount of rain, the $MgCl_2$ that has recently applied to the tailings dam lost its binding properties and was unable to bind to the tailings material. Beginning September 24, 2018, $MgCl_2$ was being applied to the tailings dam on a daily basis. Additionally, On October 2, 2018, the tailings dam received another 1.5 inches of rain, which continued to contribute to the degradation of the tailings dam crust. Although FMSI was applying $MgCl_2$ to the impoundment daily and water trucks were applying water to the berms and roads, the combined storm events, in conjunction with the high winds overwhelmed FMSI's control efforts.

Information Required by Attachment "A" Condition XI.A.1.b of the Title V permit:

(1) Identity of each stack or other emission point where the excess emissions occurred:

Source ID # 087 - Sierrita Tailing Impoundment.

(2) Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions:

Based on the description of the event by the tailings operator, opacity exceeded the 20% permit limit during the event.

(3) The time and duration or expected duration of the excess emissions:

Excess emissions were intermittent between approximately 8:45AM and 1:00PM. Based on FMSI's information, the excess emissions may have occurred at 8:45AM and 12:00PM. Each event may have lasted for 10 minutes or more.

(4) Identity of the equipment from which the excess emissions emanated:

Visible emissions emanated from the Sierrita Tailings Impoundment on the east side of the North and South Dam.

(5) Nature and cause of such emissions:

Visible emissions from the Sierrita Tailings Impoundment were caused by a combination of storm events and high sustained winds.

(6) The steps taken, if the excess emissions were the result of a malfunction, to remedy the malfunction and the steps being taken or planned to prevent the recurrence of the malfunction:

At this time it does not appear that a malfunction occurred.

(7) The steps that were or are being taken to limit the excess emissions:

Preceding, during, and after the event, Sierrita employed reasonable precautions, as defined by Attachment B, Section XIX.B.1.b(viii) and (ix) of its Title V permit, to prevent excessive amounts of particulate matter from becoming airborne from the tailings impoundment:

- *Applied water to tailings dam roads and berms, as well as, $MgCl_2$ to the top of the tailings dam that was reachable by the all tracks.*
- *A total of 28,000 gallons of $MgCl_2$ and 123,000 gallons of water were applied to areas in and around the tailings impoundment in the week prior to this event*
- *A total of 9,750 gallons of $MgCl_2$ and 95,000 gallons of water were applied to areas in and around the tailings impoundment on the day of the event.*
- *Tailings supervisor adjusted the daily operating schedule by concentrating supplemental efforts on dust control.*

Reasonable Precautions employed on an ongoing basis by Sierrita as defined by Attachment B, Section XIX.B.1.b(viii) and (ix):

- *Applying wetting agents*
- *Maximizing the wet surface area*
- *Barring and controlling vehicle access*
- *Limiting vehicle speed*
- *Re-vegetating the side-slopes*
- *Compaction*
- *Encrustation*
- *Completed new tailings dam roads have been capped with native dirt*
- *Side slopes are treated with a polymer based dust suppressant*
- *Heavily traveled perimeter roads are treated with $MgCl_2$ dust suppressant*
- *Active berms were sprayed with water*
- *The wet dam construction method is used, maintaining the majority of the surface of the impoundment wet or encrusted while the remaining area is under construction*

(8) If the permit contains procedures governing source operation during periods of startup or malfunction and the excess emissions resulted for startup or malfunction, a list of the steps taken to comply with the permit procedures:

The permit does not contain such procedures.

Please contact me at 520.393.2010 if additional information is necessary.

Sincerely,

Travis Behrens
Environmental Scientist II

20181010_001
1 attachment

Certification of Truth, Accuracy and Completeness

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

David Rhoades, General Manager – Sierrita Operations

David Rhoades 10/10/18

(Signature) (Date)

Tailings_COW Weather Station				
Time Stamp	**AirTempF_Avg**	**WS_MPH**	**WindDir**	**Gust**
10/7/2018 1:30	68.02	24.69	51.03	27.36
10/7/2018 1:31	68.24	26.9	40.23	29.99
10/7/2018 1:32	68.52	27.02	46.42	29.99
10/7/2018 1:33	68.31	25.82	46.95	28.67
10/7/2018 1:34	68.31	26.9	44.25	30.64
10/7/2018 1:35	68.19	25.03	41.11	27.01
10/7/2018 1:36	67.87	25.09	43.87	27.4
10/7/2018 1:37	67.85	25.77	45.36	30.12
10/7/2018 1:38	68.14	27.96	43.72	31.65
10/7/2018 1:39	68	27.17	41.28	31.92
10/7/2018 1:40	68.08	27.46	48.77	31.92
10/7/2018 1:41	68.08	28.99	39.43	33.49
10/7/2018 1:42	68.27	28.71	45.07	32.22
10/7/2018 1:43	68.07	27.75	39.3	31.21
10/7/2018 1:44	67.97	28.38	45.92	32.57
10/7/2018 1:45	68.18	26.93	41.8	30.42
10/7/2018 1:46	67.92	25.76	39.66	28.19
10/7/2018 1:47	67.85	25.28	48.29	29.07
10/7/2018 1:48	67.86	27.39	38.27	32.4
10/7/2018 1:49	67.91	28.99	44.79	33.45
10/7/2018 1:50	68.11	28.5	41.73	33.93
10/7/2018 1:51	67.92	28.95	42.4	32.44
10/7/2018 1:52	67.86	30.75	40.14	37.35
10/7/2018 1:53	68.18	31.51	39.65	37.61
10/7/2018 1:54	68.3	32.08	39.8	39.76
10/7/2018 1:55	68.18	31.04	37.97	35.6
10/7/2018 1:56	68.22	30.28	45.85	33.71
10/7/2018 1:57	68.1	31.11	44.03	33.27
10/7/2018 1:58	68.08	31.62	40.46	35.86
10/7/2018 1:59	68.18	30.49	43.99	36.34
10/7/2018 2:00	68.18	31.14	41.5	34.59
10/7/2018 2:01	68.13	31.18	39.17	36.87
10/7/2018 2:02	68.29	31.8	42.79	37.53
10/7/2018 2:03	68.21	28.75	40.29	33.71
10/7/2018 2:04	68.11	29.65	41.55	34.24
10/7/2018 2:05	67.98	29.01	43.88	33.71
10/7/2018 2:06	67.97	30.09	45.11	32.92
10/7/2018 2:07	68.06	29.86	44.28	36.47
10/7/2018 2:08	67.98	31.39	43.06	38.8
10/7/2018 2:09	68	29.41	40.75	32.84
10/7/2018 2:10	67.88	29.3	42.54	31.7
10/7/2018 2:11	67.83	32.47	40.94	36.3
10/7/2018 2:12	67.97	31.2	43.19	35.77
10/7/2018 2:13	68.09	33.34	40.77	37.09

10/7/2018 2:14	68.03	31.92	38.07	37.44
10/7/2018 2:15	68.07	32.01	39.45	38.36
10/7/2018 2:16	67.89	32.31	38.92	38.1
10/7/2018 2:17	67.94	32.87	42.29	37.09
10/7/2018 2:18	67.84	33.58	38.06	36.91
10/7/2018 2:19	67.8	31.9	42.53	38.36
10/7/2018 2:20	67.73	32.32	37.8	35.16
10/7/2018 2:21	67.71	30.37	39.03	35.47
10/7/2018 2:22	67.57	31.7	46.33	37.26
10/7/2018 2:23	67.82	34.75	36.1	37.83
10/7/2018 2:24	67.82	33.64	38.23	38.75
10/7/2018 2:25	67.87	33.28	40.21	38.01
10/7/2018 2:26	67.78	34	36.35	38.36
10/7/2018 2:27	67.97	33.63	39.96	39.06
10/7/2018 2:28	67.71	31.1	35	33.58
10/7/2018 2:29	67.74	33.67	38.4	40.16
10/7/2018 2:30	67.83	32.34	45.34	35.42
10/7/2018 2:31	67.92	33.53	41.87	37.48
10/7/2018 2:32	67.8	32.4	32.44	38.58
10/7/2018 2:33	67.83	31.61	38.48	34.46
10/7/2018 2:34	67.75	28.58	36.62	31.61
10/7/2018 2:35	67.56	30.38	45.94	36.39
10/7/2018 2:36	67.61	33.54	40.91	38.75
10/7/2018 2:37	67.55	32.27	37.85	38.49
10/7/2018 2:38	67.47	30.74	36.86	33.93
10/7/2018 2:39	67.36	30.72	40.94	34.55
10/7/2018 2:40	66.8	29.52	40.21	33.8
10/7/2018 2:41	66.58	31.6	38.47	37.53
10/7/2018 2:42	66.67	34.14	43.02	41.38
10/7/2018 2:43	66.83	35.31	41.39	38.36
10/7/2018 2:44	66.66	35.52	39.95	38.84
10/7/2018 2:45	66.58	32.25	34.69	35.86
10/7/2018 2:46	66.54	32.81	38.81	38.27
10/7/2018 2:47	66.32	29.45	42.29	32.75
10/7/2018 2:48	65.98	30.23	30.95	36.91
10/7/2018 2:49	65.97	30.79	40.43	34.28
10/7/2018 2:50	65.91	29.71	38.19	35.38
10/7/2018 2:51	65.96	32.72	34.88	40.55
10/7/2018 2:52	66.01	33.35	38.57	36.83
10/7/2018 2:53	66.02	33.33	43.32	38.23
10/7/2018 2:54	65.95	30.76	34.91	37.04
10/7/2018 2:55	65.95	30.53	40.4	37.7
10/7/2018 2:56	65.88	32.22	43.35	36.04
10/7/2018 2:57	65.8	31.71	42.04	34.98
10/7/2018 2:58	65.92	30.91	35.62	34.9
10/7/2018 2:59	65.84	31	38.26	36.17
10/7/2018 3:00	65.84	31.98	36.94	35.86

10/7/2018 3:01	65.88	30.19	36.98	33.49
10/7/2018 3:02	65.83	31.61	41.02	33.89
10/7/2018 3:03	65.94	31.2	37.15	38.54
10/7/2018 3:04	65.85	27.25	35.62	33.41
10/7/2018 3:05	65.72	28.7	37.82	33.67
10/7/2018 3:06	65.89	30.59	37.77	34.55
10/7/2018 3:07	65.89	28.19	42.4	32.31
10/7/2018 3:08	65.92	28.28	43.76	33.93
10/7/2018 3:09	65.96	27.89	41.8	31.83
10/7/2018 3:10	65.98	27.98	41.47	30.03
10/7/2018 3:11	66.15	31.36	44	34.63
10/7/2018 3:12	66.11	28.97	42.5	32.44
10/7/2018 3:13	66.16	28.02	47.88	30.69
10/7/2018 3:14	66.19	29.84	47.72	33.1
10/7/2018 3:15	66.35	30.51	48.21	36.34
10/7/2018 3:16	66.32	29.79	45.1	32.13
10/7/2018 3:17	66.22	29.83	47.75	33.84
10/7/2018 3:18	66.26	28.68	39.46	32.13
10/7/2018 3:19	66.13	27.32	45.72	29.94
10/7/2018 3:20	66.26	28.89	49.89	32.88
10/7/2018 3:21	66.26	28.5	45.44	32.31
10/7/2018 3:22	66.13	27.72	43.15	31.61
10/7/2018 3:23	65.97	30.11	44.46	35.29
10/7/2018 3:24	66.21	31.24	38.02	34.5
10/7/2018 3:25	66.29	31.77	38.7	36.69
10/7/2018 3:26	66.37	30.51	41.76	35.47
10/7/2018 3:27	66.33	31	46.84	36.52
10/7/2018 3:28	66.21	30.84	46.3	34.28
10/7/2018 3:29	66.18	30.67	41.74	32.7
10/7/2018 3:30	66.2	29.95	42.05	34.15
10/7/2018 3:31	66.25	31.79	40.61	34.98
10/7/2018 3:32	66.22	29.07	44.29	33.06
10/7/2018 3:33	66.01	27.57	41.7	29.86
10/7/2018 3:34	66.03	29.6	43.87	33.01
10/7/2018 3:35	65.99	26.3	48.72	30.78
10/7/2018 3:36	65.99	29.55	46.95	32.22
10/7/2018 3:37	66.08	30.47	46.21	33.49
10/7/2018 3:38	66.1	29.83	49.22	34.15
10/7/2018 3:39	66.06	30.82	47.06	36.78
10/7/2018 3:40	66.14	31.85	43.82	36.61
10/7/2018 3:41	66.11	30.58	44.79	33.58
10/7/2018 3:42	66	27.71	40.8	31.17
10/7/2018 3:43	66.02	29.31	43.94	32.75
10/7/2018 3:44	66.1	29.35	49.37	35.77
10/7/2018 3:45	65.86	28.38	45.92	31.56
10/7/2018 3:46	65.68	28.27	43.09	31.96
10/7/2018 3:47	65.71	29.11	41.81	36.12

10/7/2018 3:48	65.33	29.69	49.08	32.13
10/7/2018 3:49	65.36	31.34	47.68	36.47
10/7/2018 3:50	65.44	29.19	46.12	33.1
10/7/2018 3:51	65.37	25.69	49.38	30.38
10/7/2018 3:52	65.26	28.45	48.76	33.98
10/7/2018 3:53	65.2	28.08	50.01	34.15
10/7/2018 3:54	65.2	29.57	47.38	33.84
10/7/2018 3:55	65.34	27.6	50.07	32.88
10/7/2018 3:56	65.35	28.47	49.42	33.67
10/7/2018 3:57	65.34	28.85	47.62	30.73
10/7/2018 3:58	65.26	26.33	53.04	30.42
10/7/2018 3:59	65.15	28.31	42.58	31.92
10/7/2018 4:00	65.03	27.44	48.47	29.59
10/7/2018 4:01	65.18	27.47	46.72	32.22
10/7/2018 4:02	65.15	25.39	46.73	30.25
10/7/2018 4:03	65.21	26.39	50.73	33.54
10/7/2018 4:04	65.52	27.03	48.06	30.95
10/7/2018 4:05	65.55	25.69	46.24	29.94
10/7/2018 4:06	65.52	25.76	45.36	28.85
10/7/2018 4:07	65.62	27.67	47.56	31.43
10/7/2018 4:08	65.76	30.26	43.73	33.63
10/7/2018 4:09	65.72	25.58	45.75	31.92
10/7/2018 4:10	65.55	26.63	53.87	31.13
10/7/2018 4:11	65.71	29.12	44.88	33.23
10/7/2018 4:12	65.7	27.65	48.39	31.13
10/7/2018 4:13	65.72	24.93	47.01	28.54
10/7/2018 4:14	65.59	25.83	41.24	30.12
10/7/2018 4:15	65.61	27.67	45.77	31.04
10/7/2018 4:16	65.61	28.46	47.52	34.55
10/7/2018 4:17	65.62	27.05	48.54	31.3
10/7/2018 4:18	65.61	26.93	48.64	29.59
10/7/2018 4:19	65.64	27.59	45.51	31.87
10/7/2018 4:20	65.69	28	45.88	30.51
10/7/2018 4:21	65.63	28.39	41.29	32.97
10/7/2018 4:22	65.69	27.92	44.6	33.01
10/7/2018 4:23	65.55	26.36	47.05	29.81
10/7/2018 4:24	65.51	24.73	46.55	27.31
10/7/2018 4:25	65.69	28.43	42.11	32.97
10/7/2018 4:26	65.7	26.76	41.63	29.15
10/7/2018 4:27	65.79	29.22	40.19	32.53
10/7/2018 4:28	65.69	25.4	40.85	27.53
10/7/2018 4:29	65.55	25.22	46.18	27.79
10/7/2018 4:30	65.53	26.59	42.77	28.5
10/7/2018 4:31	65.52	26.41	40.09	29.81
10/7/2018 4:32	65.67	26.32	41.41	29.5
10/7/2018 4:33	65.6	26.42	39.66	32.18
10/7/2018 4:34	65.67	26.35	43.62	31.39

10/7/2018 4:35	65.8	28.25	45.03	32.97
10/7/2018 4:36	65.73	26.84	43.12	31.04
10/7/2018 4:37	65.82	26.14	48.47	28.72
10/7/2018 4:38	65.66	27.59	44.03	32.35
10/7/2018 4:39	65.77	26.66	43.79	30.42
10/7/2018 4:40	65.89	29.51	40.8	33.84
10/7/2018 4:41	66.02	26.31	41.59	29.64
10/7/2018 4:42	65.81	26.29	39.85	30.69
10/7/2018 4:43	65.86	28.54	39.22	32.35
10/7/2018 4:44	66.1	30.92	47.23	38.18
10/7/2018 4:45	66.16	28.09	39.63	33.98
10/7/2018 4:46	66.09	27.79	44	35.99
10/7/2018 4:47	66.29	29.45	35.73	34.24
10/7/2018 4:48	66.29	26.04	46.28	28.98
10/7/2018 4:49	66.18	27.8	46.12	30.73
10/7/2018 4:50	66.1	25.4	48.88	30.64
10/7/2018 4:51	66.11	27.1	41.77	29.11
10/7/2018 4:52	66.1	29.23	46.34	34.72
10/7/2018 4:53	66.23	26.59	52.5	32.79
10/7/2018 4:54	66.19	25.09	45.88	27.66
10/7/2018 4:55	66.13	23.02	53.74	27.14
10/7/2018 4:56	65.96	22.78	49.53	27.49
10/7/2018 4:57	65.89	23.63	47.5	26.96
10/7/2018 4:58	65.69	22.66	49.13	25.47
10/7/2018 4:59	65.79	22.99	46.65	26
10/7/2018 5:00	65.7	21.16	53.06	23.59
10/7/2018 5:01	65.53	19.14	53.03	22.58
10/7/2018 5:02	65.7	22.53	49.95	27.09
10/7/2018 5:03	65.61	21.76	53.63	26.13
10/7/2018 5:04	65.63	22.78	47.49	30.16
10/7/2018 5:05	65.7	23.56	49.32	27.09
10/7/2018 5:06	65.82	26.15	47.31	30.34
10/7/2018 5:07	65.89	24.59	47.58	27.79
10/7/2018 5:08	65.81	25.16	47.17	30.38
10/7/2018 5:09	65.73	23.47	50.35	29.11
10/7/2018 5:10	65.73	21.23	49.63	23.45
10/7/2018 5:11	65.65	23.1	55.48	28.32
10/7/2018 5:12	65.64	22.52	51.85	26.74
10/7/2018 5:13	65.54	20.59	53.2	23.24
10/7/2018 5:14	65.55	19.63	46.23	22.31
10/7/2018 5:15	65.43	20.52	51.23	22.1
10/7/2018 5:16	65.45	20.94	46.57	25.69
10/7/2018 5:17	65.44	21.65	45.61	25.21
10/7/2018 5:18	65.7	23.26	48.7	27.79
10/7/2018 5:19	65.68	22.42	47.26	26.74
10/7/2018 5:20	65.67	22.64	44.11	26.96
10/7/2018 5:21	65.91	24.33	48.11	27.22

10/7/2018 5:22	65.82	24.39	43.72	27.31
10/7/2018 5:23	65.9	21.91	45.16	26.39
10/7/2018 5:24	65.79	21.77	44.16	25.43
10/7/2018 5:25	65.88	21.99	48.02	24.33
10/7/2018 5:26	66.03	23.14	45.23	26.39
10/7/2018 5:27	65.97	22.63	38.52	27.05
10/7/2018 5:28	66.02	21.87	40.07	25.3
10/7/2018 5:29	66.03	20.73	44.52	24.86
10/7/2018 5:30	66.09	22.83	41.48	25.47
10/7/2018 5:31	66.04	20.88	38.89	22.75
10/7/2018 5:32	65.99	19.79	38.56	22.45
10/7/2018 5:33	65.99	20.57	34.84	22.23
10/7/2018 5:34	66.03	21.97	49.35	25.87
10/7/2018 5:35	66.26	23.14	42.11	26.48
10/7/2018 5:36	66.21	23.56	40.66	25.91
10/7/2018 5:37	66.23	23.18	45.55	26.04
10/7/2018 5:38	66.17	22.29	42.59	24.02
10/7/2018 5:39	66.32	21.61	41.47	25.56
10/7/2018 5:40	66.28	23.13	41.19	26.17
10/7/2018 5:41	66.35	21.04	38.66	24.51
10/7/2018 5:42	66.36	22.6	45.47	26.35
10/7/2018 5:43	66.33	26.71	40.05	29.86
10/7/2018 5:44	66.41	28.44	39.86	31.26
10/7/2018 5:45	66.4	25.05	35.02	28.76
10/7/2018 5:46	66.42	28.05	44.81	31.56
10/7/2018 5:47	66.42	27.37	44.94	31.87
10/7/2018 5:48	66.47	27.95	31.23	33.1
10/7/2018 5:49	66.42	25.56	46.9	29.59
10/7/2018 5:50	66.48	27.52	39.13	30.16
10/7/2018 5:51	66.42	25.35	33.29	28.76
10/7/2018 5:52	66.47	25.44	40.59	29.81
10/7/2018 5:53	66.43	30.17	39.83	32.75
10/7/2018 5:54	66.49	26.24	38.18	31.52
10/7/2018 5:55	66.37	25.79	39.14	29.77
10/7/2018 5:56	66.39	23.74	35.87	29.46
10/7/2018 5:57	66.21	25.02	43.25	29.64
10/7/2018 5:58	66.35	25.35	40.99	29.99
10/7/2018 5:59	66.27	24.77	36.98	28.06
10/7/2018 6:00	66.26	24.32	45.66	26.48
10/7/2018 6:01	66.28	22.7	36.31	26.35
10/7/2018 6:02	66.19	24.58	41.97	29.02
10/7/2018 6:03	66.14	21.67	40.4	23.94
10/7/2018 6:04	66.02	20.02	37.24	22.45
10/7/2018 6:05	65.91	20.47	47.02	24.33
10/7/2018 6:06	65.87	20.84	39.83	24.77
10/7/2018 6:07	65.84	23.1	36.75	25.87
10/7/2018 6:08	65.93	21.84	40.05	24.46

10/7/2018 6:09	65.89	25.5	44.37	30.6
10/7/2018 6:10	66.15	29.33	42.76	33.67
10/7/2018 6:11	66.41	34.38	42.96	40.33
10/7/2018 6:12	66.44	30.98	37.29	33.71
10/7/2018 6:13	66.46	28.99	38.01	32.7
10/7/2018 6:14	66.41	26.14	35.11	29.99
10/7/2018 6:15	66.19	30.75	35.41	36.39
10/7/2018 6:16	66.24	29.47	43.17	32.75
10/7/2018 6:17	66.1	27.39	41.12	30.86
10/7/2018 6:18	66.25	31.31	42.14	35.29
10/7/2018 6:19	66.27	27.96	35.61	32.62
10/7/2018 6:20	66.04	28.22	43.79	31.39
10/7/2018 6:21	66.15	31.78	37.78	35.42
10/7/2018 6:22	66.17	28.02	44.46	31.87
10/7/2018 6:23	66.03	29.88	41.9	33.71
10/7/2018 6:24	66.2	28.92	44.21	33.49
10/7/2018 6:25	66.02	28.85	40.34	30.78
10/7/2018 6:26	66.12	32.48	47.07	35.2
10/7/2018 6:27	66.06	30.38	47.02	34.06
10/7/2018 6:28	66.12	30.67	46.69	38.14
10/7/2018 6:29	66.09	33.64	51.17	37
10/7/2018 6:30	66.15	32.14	51.2	35.51
10/7/2018 6:31	66.03	31.87	48.14	38.54
10/7/2018 6:32	66.22	33.16	50.36	40.16
10/7/2018 6:33	66.31	35.72	44.29	40.51
10/7/2018 6:34	66.37	33.61	48.94	37.88
10/7/2018 6:35	66.24	32.41	49.53	39.72
10/7/2018 6:36	66.24	34.18	49.81	39.5
10/7/2018 6:37	66.31	33.24	46.36	39.41
10/7/2018 6:38	66.14	30.96	49.98	35.12
10/7/2018 6:39	66.05	33.45	48.43	38.8
10/7/2018 6:40	66.22	33.63	45.96	38.93
10/7/2018 6:41	66.19	31.73	44.9	37.4
10/7/2018 6:42	66.14	33.69	47.23	37.26
10/7/2018 6:43	66.24	33.23	46.46	38.62
10/7/2018 6:44	66.17	30.09	49.84	34.2
10/7/2018 6:45	66.06	30.41	52.12	33.93
10/7/2018 6:46	66.11	33.97	50.97	43.75
10/7/2018 6:47	66.13	32.93	46.01	36.96
10/7/2018 6:48	65.98	29.95	45.17	34.77
10/7/2018 6:49	65.91	31.62	49.41	37.44
10/7/2018 6:50	65.82	30.85	44.5	34.15
10/7/2018 6:51	65.98	30.9	47.63	38.01
10/7/2018 6:52	65.79	28.24	50.07	35.73
10/7/2018 6:53	65.77	30.25	46.82	33.36
10/7/2018 6:54	65.64	28.27	48.7	32.31
10/7/2018 6:55	65.58	29.83	44.25	36.78

10/7/2018 6:56	65.72	30.14	46.26	34.24
10/7/2018 6:57	65.62	29.99	43.76	32.79
10/7/2018 6:58	65.68	31.23	46.74	33.71
10/7/2018 6:59	65.62	28.62	50.54	34.02
10/7/2018 7:00	65.85	32.22	44.59	37.48
10/7/2018 7:01	65.81	30.52	47.41	34.81
10/7/2018 7:02	65.73	30.3	48.66	34.59
10/7/2018 7:03	65.77	31.52	38.17	35.99
10/7/2018 7:04	65.63	31.6	46.11	36.43
10/7/2018 7:05	65.72	31.39	54.4	37.75
10/7/2018 7:06	65.73	33.4	47.89	38.67
10/7/2018 7:07	65.73	31.34	42.69	35.86
10/7/2018 7:08	65.77	30.17	49.23	36.56
10/7/2018 7:09	65.62	31.16	50.85	33.84
10/7/2018 7:10	65.85	29.06	49.81	32.62
10/7/2018 7:11	65.84	29.74	50	34.55
10/7/2018 7:12	65.92	29.45	49.78	37.83
10/7/2018 7:13	66.02	28.89	57.3	36.65
10/7/2018 7:14	65.98	33.57	48.03	38.05
10/7/2018 7:15	66.11	35.94	48.74	42.57
10/7/2018 7:16	66.2	31.71	46.48	34.81
10/7/2018 7:17	66.22	27.14	49.62	35.16
10/7/2018 7:18	66.16	32.74	50.87	40.68
10/7/2018 7:19	66.14	34.44	45.83	38.49
10/7/2018 7:20	66.08	36.14	50.69	42.17
10/7/2018 7:21	66.05	33.04	51.44	39.76
10/7/2018 7:22	65.91	30.39	49.75	36.17
10/7/2018 7:23	65.89	31.49	46.09	35.12
10/7/2018 7:24	65.75	28.5	52.47	35.16
10/7/2018 7:25	65.71	28.97	53.45	35.34
10/7/2018 7:26	65.72	30.4	46.06	36.34
10/7/2018 7:27	65.67	26.42	51.62	34.33
10/7/2018 7:28	65.67	32.7	47.19	39.63
10/7/2018 7:29	65.74	32.59	46.56	36.47
10/7/2018 7:30	65.64	30.38	50.7	34.68
10/7/2018 7:31	65.57	32.81	46.76	46.73
10/7/2018 7:32	65.73	33.71	51.14	44.37
10/7/2018 7:33	65.74	33.01	49.97	36.83
10/7/2018 7:34	65.73	29.31	48.82	34.41
10/7/2018 7:35	65.63	26.97	55.7	30.69
10/7/2018 7:36	65.55	26.37	51.95	29.9
10/7/2018 7:37	65.5	30.07	48.27	39.15
10/7/2018 7:38	65.46	31.68	50.48	36.04
10/7/2018 7:39	65.49	28.44	49.04	35.55
10/7/2018 7:40	65.54	29.59	52.43	33.01
10/7/2018 7:41	65.52	31.2	47.72	34.94
10/7/2018 7:42	65.56	29.96	54.31	35.9

10/7/2018 7:43	65.67	33.21	44.72	37.13
10/7/2018 7:44	65.65	30.36	44.9	36.65
10/7/2018 7:45	65.55	33.32	47.15	43.05
10/7/2018 7:46	65.65	31.3	46.19	36.17
10/7/2018 7:47	65.47	27.62	52.57	33.98
10/7/2018 7:48	65.44	26.99	53.47	32.57
10/7/2018 7:49	65.45	29.53	43.53	39.11
10/7/2018 7:50	65.55	29.38	53.36	32.31
10/7/2018 7:51	65.51	27.48	50.1	33.84
10/7/2018 7:52	65.4	30.98	48.19	37.04
10/7/2018 7:53	65.5	32.37	44.04	40.33
10/7/2018 7:54	65.47	31.08	50.86	36.26
10/7/2018 7:55	65.64	31.13	50.44	38.8
10/7/2018 7:56	65.64	30.69	50.48	36.83
10/7/2018 7:57	65.77	34.63	43.45	39.5
10/7/2018 7:58	65.93	30.03	48.27	35.9
10/7/2018 7:59	66.08	29.35	54.45	34.63
10/7/2018 8:00	66.32	31.31	52.5	38.89
10/7/2018 8:01	66.4	29.99	51.76	34.72
10/7/2018 8:02	66.34	36.5	46.66	42.22
10/7/2018 8:03	66.23	35.2	47.86	39.37
10/7/2018 8:04	66.17	35.5	48.35	42.22
10/7/2018 8:05	66.13	39.44	47.63	42.35
10/7/2018 8:06	66.25	30.13	50.46	38.62
10/7/2018 8:07	66.44	33.69	52.71	41.34
10/7/2018 8:08	66.73	32.88	50.67	38.36
10/7/2018 8:09	66.97	36.04	52.76	42.83
10/7/2018 8:10	67.06	30.46	52.25	37.18
10/7/2018 8:11	67.24	33.27	51.99	38.14
10/7/2018 8:12	67.22	29.93	50.43	37.13
10/7/2018 8:13	67.39	31.35	50.99	35.42
10/7/2018 8:14	67.47	30.17	54.45	36.78
10/7/2018 8:15	67.5	33.53	53.75	39.85
10/7/2018 8:16	67.43	29.29	54.41	36.08
10/7/2018 8:17	67.94	34.77	51.48	39.11
10/7/2018 8:18	68.09	31.98	48.16	37.53
10/7/2018 8:19	68.63	27.29	49.23	33.8
10/7/2018 8:20	69.72	24.07	53.67	28.98
10/7/2018 8:21	69.79	30.42	49.97	39.81
10/7/2018 8:22	69.34	33.66	51.89	37.97
10/7/2018 8:23	69.67	22.75	52.25	29.37
10/7/2018 8:24	69.27	29.07	52.81	33.49
10/7/2018 8:25	69.03	32.33	53.74	41.43
10/7/2018 8:26	68.92	32.76	55.11	36.96
10/7/2018 8:27	69.2	25.72	50.94	33.93
10/7/2018 8:28	69.05	23.53	59.19	27.44
10/7/2018 8:29	68.83	23.46	57.67	26.44

10/7/2018 8:30	68.52	27.75	49.8	32.97
10/7/2018 8:31	68.36	26.91	54.72	33.36
10/7/2018 8:32	68.3	26.73	51.49	35.73
10/7/2018 8:33	68.57	24.39	57.59	29.42
10/7/2018 8:34	68.08	27.43	56.83	31.39
10/7/2018 8:35	67.93	27.89	52.74	35.29
10/7/2018 8:36	68.25	26.42	52.57	35.12
10/7/2018 8:37	68.16	28.53	56.97	33.36
10/7/2018 8:38	68.15	29.44	52.89	32.49
10/7/2018 8:39	68.09	26.06	56.94	32.84
10/7/2018 8:40	68.23	35.23	50.11	40.99
10/7/2018 8:41	68.16	29.21	53.13	36.69
10/7/2018 8:42	68.42	29.03	47.94	33.49
10/7/2018 8:43	68.27	31.93	52.3	40.9
10/7/2018 8:44	67.86	30.73	51.34	35.51
10/7/2018 8:45	68.19	27.2	50.69	31.35
10/7/2018 8:46	68.03	26.99	53.34	32.57
10/7/2018 8:47	67.9	30.95	51.28	34.94
10/7/2018 8:48	67.64	31.58	51.13	37.92
10/7/2018 8:49	67.6	30.61	52.13	35.64
10/7/2018 8:50	67.62	29.54	48.17	38.23
10/7/2018 8:51	67.79	28.04	51.7	32.22
10/7/2018 8:52	68.02	27.59	53.01	33.32
10/7/2018 8:53	68.28	26.66	53.28	36.3
10/7/2018 8:54	68.26	27.83	51.44	30.86
10/7/2018 8:55	67.83	30.82	49.5	36.47
10/7/2018 8:56	67.87	27.99	50.96	32.62
10/7/2018 8:57	67.54	29.61	47.23	36.17
10/7/2018 8:58	67.15	29.93	52.32	34.59
10/7/2018 8:59	67.11	27.67	60.8	36.3
10/7/2018 9:00	67.68	25.83	48.73	30.82
10/7/2018 9:01	67.68	33.81	50.19	37.61
10/7/2018 9:02	67.81	27.92	57.01	31.96
10/7/2018 9:03	67.73	29.28	55.45	36.69
10/7/2018 9:04	67.46	28.67	48.15	32.62
10/7/2018 9:05	67.85	29.67	49.8	34.63
10/7/2018 9:06	67.75	30.12	48.51	35.34
10/7/2018 9:07	67.92	23.75	56.24	31.43
10/7/2018 9:08	68.4	26.25	54.69	30.73
10/7/2018 9:09	68.33	22.29	51.74	27.58
10/7/2018 9:10	68.09	25.28	54.01	30.64
10/7/2018 9:11	68.47	22.89	48.7	27.01
10/7/2018 9:12	69.21	19.45	54.32	22.8
10/7/2018 9:13	69.26	23.98	56.48	28.1
10/7/2018 9:14	68.84	27.66	50.25	31.96
10/7/2018 9:15	68.79	26.38	55.23	31.08
10/7/2018 9:16	69.33	24.29	56.17	34.77

10/7/2018 9:17	68.97	28.96	51.66	32.62
10/7/2018 9:18	68.74	28.45	51.51	35.6
10/7/2018 9:19	68.76	29.22	50.42	33.84
10/7/2018 9:20	68.54	30.52	48.65	35.69
10/7/2018 9:21	68.45	33.27	48.87	38.84
10/7/2018 9:22	68.43	31.63	48.37	39.72
10/7/2018 9:23	68.7	28.53	46.1	34.94
10/7/2018 9:24	69.16	27.84	54.62	37.7
10/7/2018 9:25	68.89	31.53	44.19	34.5
10/7/2018 9:26	68.52	29.25	45.26	35.25
10/7/2018 9:27	68.58	27.34	58.36	33.67
10/7/2018 9:28	68.72	28.52	51.41	34.72
10/7/2018 9:29	68.74	28.27	58.86	39.94
10/7/2018 9:30	68.66	31.83	52.84	35.51
10/7/2018 9:31	68.78	28.09	49.81	36.17
10/7/2018 9:32	69.01	29.79	44.72	37.26
10/7/2018 9:33	68.3	32.35	50.32	40.29
10/7/2018 9:34	68.06	37.8	51.46	40.11
10/7/2018 9:35	67.89	35.28	49.86	41.91
10/7/2018 9:36	67.36	37.17	49.71	45.55
10/7/2018 9:37	67.04	32.37	50.74	34.94
10/7/2018 9:38	67.39	33.81	44.51	37.4
10/7/2018 9:39	67.27	31.78	41.68	35.77
10/7/2018 9:40	67.39	26.39	48.12	31.78
10/7/2018 9:41	67.66	26.67	45.54	30.56
10/7/2018 9:42	67.75	30.02	48.32	33.58
10/7/2018 9:43	68.23	32.19	42.35	35.99
10/7/2018 9:44	68.12	34.76	41.42	41.74
10/7/2018 9:45	68.23	36.9	46.42	41.47
10/7/2018 9:46	68.09	32.22	45.27	39.19
10/7/2018 9:47	68.71	31.61	42.58	36.65
10/7/2018 9:48	68.81	32.69	49.08	37.79
10/7/2018 9:49	68.44	34.43	44.14	45.94
10/7/2018 9:50	68.47	34.27	42.12	39.37
10/7/2018 9:51	69.06	26.25	47.39	30.91
10/7/2018 9:52	69.36	31.68	46.59	35.16
10/7/2018 9:53	69.34	30.36	43.95	36.3
10/7/2018 9:54	69.5	28.59	40.78	33.93
10/7/2018 9:55	69.63	31.15	45.67	34.98
10/7/2018 9:56	69.72	33.18	48.1	36.43
10/7/2018 9:57	69.72	31.31	45.85	36.17
10/7/2018 9:58	69.84	32.28	46.33	40.86
10/7/2018 9:59	70.2	28.14	49.79	35.16
10/7/2018 10:00	70.24	35.44	51.99	44.76
10/7/2018 10:01	69.73	32.64	49.5	37.88
10/7/2018 10:02	69.83	28.43	49.39	31.92
10/7/2018 10:03	70.18	30.51	42.39	34.85

10/7/2018 10:04	69.95	38.14	43.83	48
10/7/2018 10:05	69.47	36.14	46.36	39.68
10/7/2018 10:06	69.24	39.66	41.23	47.04
10/7/2018 10:07	69.61	41.22	39.92	45.86
10/7/2018 10:08	69.62	42.24	41.42	45.86
10/7/2018 10:09	69.39	34.56	28.13	43.49
10/7/2018 10:10	69.89	34.09	43.41	37.79
10/7/2018 10:11	69.85	38.1	43.9	47.79
10/7/2018 10:12	69.22	36.1	36.84	41.3
10/7/2018 10:13	69.58	34.22	39.49	46.21
10/7/2018 10:14	69.44	40.45	44.21	44.32
10/7/2018 10:15	69.63	31.87	36.24	36.17
10/7/2018 10:16	71.8	30.95	43.2	37.04
10/7/2018 10:17	72.44	31.29	46.24	35.82
10/7/2018 10:18	74.81	30.62	42.32	33.84
10/7/2018 10:19	75.31	29.9	46.01	35.25
10/7/2018 10:20	74.92	32.2	37.99	36.39
10/7/2018 10:21	73.9	36.58	39.97	40.73
10/7/2018 10:22	74.27	32.31	39.54	40.33
10/7/2018 10:23	74.15	31.21	47.92	36.26
10/7/2018 10:24	74.04	31.47	46.12	36.34
10/7/2018 10:25	74.22	33.44	43.59	38.23
10/7/2018 10:26	74.16	35.85	53.06	42.74
10/7/2018 10:27	74.13	35.37	43.08	41.78
10/7/2018 10:28	73.8	35.47	44.07	40.77
10/7/2018 10:29	73.66	34.7	47.26	39.5
10/7/2018 10:30	74.04	32.84	51.18	40.03
10/7/2018 10:31	73.96	36.11	43.7	41.82
10/7/2018 10:32	73.64	35.77	38.84	40.11
10/7/2018 10:33	73.97	33	37.39	39.28
10/7/2018 10:34	73.68	33.02	49.06	36.26
10/7/2018 10:35	73.6	34.03	44.99	39.76
10/7/2018 10:36	74.06	31.81	36.88	35.69
10/7/2018 10:37	74.1	24.14	42.17	32.27
10/7/2018 10:38	74.64	28.32	45.5	32.22
10/7/2018 10:39	74.99	29.63	45.26	33.14
10/7/2018 10:40	74.59	29.77	51.48	32.84
10/7/2018 10:41	74.01	35.47	42.93	41.91
10/7/2018 10:42	73.68	32.01	50.6	38.62
10/7/2018 10:43	73.99	31.02	50.12	34.68
10/7/2018 10:44	73.84	31.47	48.28	39.11
10/7/2018 10:45	74.07	31.67	40.27	37.48
10/7/2018 10:46	73.29	36.54	41.6	40.03
10/7/2018 10:47	73.24	32.59	35.31	38.23
10/7/2018 10:48	73.77	30.71	41.96	39.02
10/7/2018 10:49	74.19	33.28	37.59	37.04
10/7/2018 10:50	74.52	32.28	48.88	35.73

10/7/2018 10:51	74.3	36.76	42.66	42.22
10/7/2018 10:52	73.51	32.95	46.08	37.66
10/7/2018 10:53	72.39	33.39	46.5	39.54
10/7/2018 10:54	71.8	31.09	47.4	37.31
10/7/2018 10:55	72.14	30.72	45.42	33.89
10/7/2018 10:56	72.27	31.9	43.03	38.14
10/7/2018 10:57	71.77	33.35	46.24	39.94
10/7/2018 10:58	72.18	28.57	56.06	37.48
10/7/2018 10:59	72.45	34.64	46.45	36.56
10/7/2018 11:00	71.88	32.37	45.43	37.48
10/7/2018 11:01	71.43	32.38	42.13	37.48
10/7/2018 11:02	71.27	30.74	42.3	36.74
10/7/2018 11:03	71.21	31.81	42.66	37.22
10/7/2018 11:04	71.45	29.03	42.45	32.92
10/7/2018 11:05	71.38	28.94	46.62	35.29
10/7/2018 11:06	71.85	28.59	39	35.86
10/7/2018 11:07	71.79	29.61	44.57	32.92
10/7/2018 11:08	72.15	29.3	54.54	34.55
10/7/2018 11:09	72.06	31.32	44.4	36.52
10/7/2018 11:10	71.75	32.04	43.81	36.47
10/7/2018 11:11	71.86	27.69	40.07	36.08
10/7/2018 11:12	72.35	30.91	47.29	37.04
10/7/2018 11:13	72.18	32.62	44.46	35.73
10/7/2018 11:14	72.2	31.57	44.75	37.26
10/7/2018 11:15	71.75	33.02	42.15	37.53
10/7/2018 11:16	71.32	30.68	37.32	36.08
10/7/2018 11:17	71.24	32.87	49.83	38.1
10/7/2018 11:18	71.09	35.21	43.78	38.36
10/7/2018 11:19	71.7	31.83	42.08	36.78
10/7/2018 11:20	72.2	27.35	46.41	32.7
10/7/2018 11:21	72.42	25.88	39.71	28.98
10/7/2018 11:22	72.85	24.88	33.33	28.45
10/7/2018 11:23	73.87	29.74	37.02	33.58
10/7/2018 11:24	73.84	26.6	41.33	30.42
10/7/2018 11:25	73.84	28.37	44.65	33.67
10/7/2018 11:26	78.24	25.47	53.92	29.72
10/7/2018 11:27	78.36	26.76	51.18	31.87
10/7/2018 11:28	78.14	33.22	48.38	37.61
10/7/2018 11:29	78.42	28.8	50.18	36.08
10/7/2018 11:30	77.69	30.59	42.45	34.2
10/7/2018 11:31	77.53	31.77	47.64	38.01
10/7/2018 11:32	77.76	31.17	49.29	35.99
10/7/2018 11:33	78.39	26.17	53.33	35.69
10/7/2018 11:34	78.82	29.19	48.2	31.39
10/7/2018 11:35	78.64	29.63	42.62	36.26
10/7/2018 11:36	78.2	31.29	49.24	37.7
10/7/2018 11:37	77.29	30.2	43.36	32.35

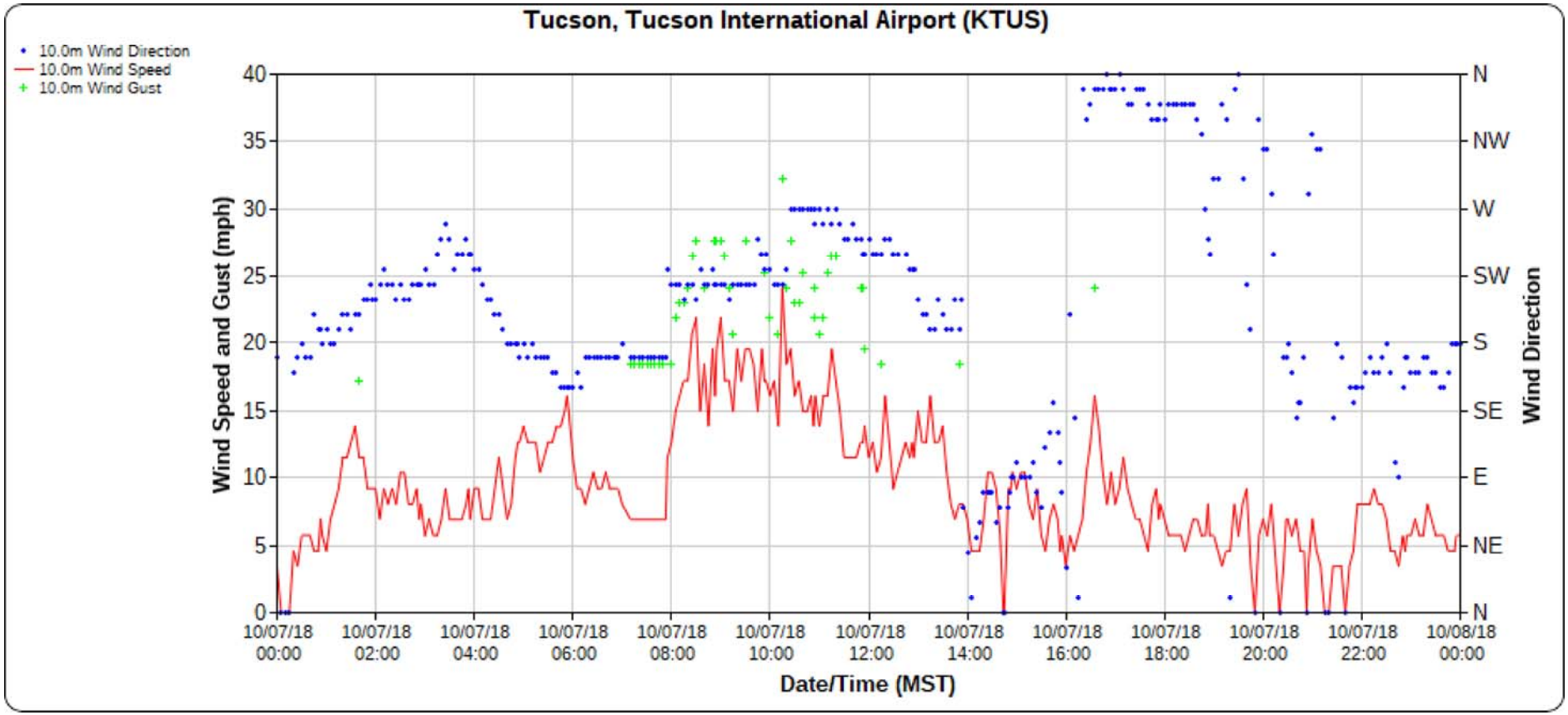
10/7/2018 11:38	77.44	33.12	43.57	39.19
10/7/2018 11:39	77.23	24.12	36.58	37.22
10/7/2018 11:40	78.17	33.72	37.12	46.73
10/7/2018 11:41	77.79	26.26	25.14	36.34
10/7/2018 11:42	78	37.7	34.37	44.63
10/7/2018 11:43	77.26	37.77	31.29	41.56
10/7/2018 11:44	77.23	37.3	44.87	40.51
10/7/2018 11:45	77.07	30.98	39.34	35.38
10/7/2018 11:46	77.07	27.07	36.76	33.41
10/7/2018 11:47	77.42	34.14	32.06	41.38
10/7/2018 11:48	76.84	30.71	39.91	41.56
10/7/2018 11:49	77.77	30.45	35.5	38.97
10/7/2018 11:50	77.04	30.7	25.58	40.6
10/7/2018 11:51	75	36.75	43.15	44.72
10/7/2018 11:52	74.07	33.23	43.96	39.46
10/7/2018 11:53	74.34	32.95	43.37	38.49
10/7/2018 11:54	74.29	30.45	35.28	39.85
10/7/2018 11:55	73.97	30.27	29.36	40.07
10/7/2018 11:56	73.53	35.96	39.99	41.21
10/7/2018 11:57	73.81	27.97	30.09	36.3
10/7/2018 11:58	73.64	18.78	22.37	25.3
10/7/2018 11:59	73.76	25.35	44.38	31.74
10/7/2018 12:00	73.99	23.95	40.37	33.54
10/7/2018 12:01	73.62	32.28	43.13	35.34
10/7/2018 12:02	73.46	33.82	35.78	38.49
10/7/2018 12:03	73.2	29.19	35.58	36.61
10/7/2018 12:04	72.98	30.78	34.09	36.96
10/7/2018 12:05	72.96	25.36	36.89	31.61
10/7/2018 12:06	72.86	31.43	32.1	38.4
10/7/2018 12:07	73.65	30.25	26.33	36.43
10/7/2018 12:08	73.9	32.13	33.92	36.96
10/7/2018 12:09	73.9	29.15	40.05	32.35
10/7/2018 12:10	73.99	22.17	49.41	26.79
10/7/2018 12:11	73.9	27.92	46.42	31.7
10/7/2018 12:12	73.83	26.29	44.66	32.92
10/7/2018 12:13	73.61	29.26	46.11	34.41
10/7/2018 12:14	73.34	26.15	38.78	32.09
10/7/2018 12:15	73.66	16.66	63.58	27.4
10/7/2018 12:16	73.54	15.82	55.46	18.94
10/7/2018 12:17	71.72	14.58	63.98	18.98
10/7/2018 12:18	72.75	15.45	58.51	20.34
10/7/2018 12:19	73.43	14.71	56.03	19.07
10/7/2018 12:20	71.87	15.18	61.31	21.88
10/7/2018 12:21	71.02	15.61	60.83	23.41
10/7/2018 12:22	71.07	14.16	55.27	16.92
10/7/2018 12:23	71.03	13.42	65.01	16.88
10/7/2018 12:24	71.1	17.19	59.74	20.96

10/7/2018 12:25	70.91	15.7	62.13	22.23
10/7/2018 12:26	71.07	16.66	57.11	19.77
10/7/2018 12:27	70.94	12.65	57.63	17.23
10/7/2018 12:28	70.68	14.99	40.76	19.9
10/7/2018 12:29	70.74	12.19	50.52	16.97
10/7/2018 12:30	71.09	15.82	61	20.69
10/7/2018 12:31	71.11	17.2	54.09	24.73
10/7/2018 12:32	71.04	14.77	66.13	23.06
10/7/2018 12:33	70.71	19.94	68.95	25.6
10/7/2018 12:34	70.22	20.13	76.89	22.31
10/7/2018 12:35	70.03	18.25	70.42	25.12
10/7/2018 12:36	69.48	26.12	83.3	29.77
10/7/2018 12:37	68.55	27.32	76.24	30.03
10/7/2018 12:38	67.48	29.11	88.5	33.1
10/7/2018 12:39	66.2	36.56	89.2	38.89
10/7/2018 12:40	65.55	31.33	90.1	34.55
10/7/2018 12:41	65.89	32.42	87.1	36.65
10/7/2018 12:42	66.19	28.33	89	32.84
10/7/2018 12:43	66.1	26.17	83.1	31.35
10/7/2018 12:44	66.14	29.11	82.4	33.45
10/7/2018 12:45	66.22	25.75	85.2	32.79
10/7/2018 12:46	66.12	29.79	82.8	35.25
10/7/2018 12:47	65.3	32.31	84	35.82
10/7/2018 12:48	65.18	30.59	81.2	35.99
10/7/2018 12:49	65.19	26.68	81.2	33.14
10/7/2018 12:50	65.24	22.84	79.28	24.81
10/7/2018 12:51	65.01	31.25	85.4	37.7
10/7/2018 12:52	64.34	26.71	82.9	30.12
10/7/2018 12:53	64.54	28.34	79.13	34.2
10/7/2018 12:54	64.74	30.45	85.4	34.2
10/7/2018 12:55	64.73	28.54	79.92	31.74
10/7/2018 12:56	64.64	28.21	77.47	31.13
10/7/2018 12:57	64.63	27.36	83.6	29.72
10/7/2018 12:58	64.88	25.56	82.7	29.77
10/7/2018 12:59	65.22	25.73	81.8	28.19
10/7/2018 13:00	65.32	24.04	76.88	29.37
10/7/2018 13:01	65.57	24.18	80.4	27.44
10/7/2018 13:02	66.2	29.42	79.88	33.67
10/7/2018 13:03	66.05	27.11	78.71	32.31
10/7/2018 13:04	66.38	27.59	75.02	32.53
10/7/2018 13:05	66.76	27.03	81.8	33.45
10/7/2018 13:06	66.36	28.73	82.4	30.78
10/7/2018 13:07	66.45	28.31	74.93	30.34
10/7/2018 13:08	66.91	27.15	79.65	31.21
10/7/2018 13:09	66.57	26.49	76.15	30.12
10/7/2018 13:10	66.49	25.21	80.3	28.54
10/7/2018 13:11	66.39	24.19	80.8	27.36

10/7/2018 13:12	66.57	27.87	80.8	33.36
10/7/2018 13:13	66.91	29.43	77.2	32.75
10/7/2018 13:14	67.47	25.73	80.8	27.53
10/7/2018 13:15	67.9	25.01	83.2	29.99
10/7/2018 13:16	67.13	32.15	89.2	34.24
10/7/2018 13:17	66.35	24.24	82.3	27.97
10/7/2018 13:18	66.35	25.57	82.4	28.54
10/7/2018 13:19	66.04	27.61	81.5	34.41
10/7/2018 13:20	65.7	31.29	85.2	36.65
10/7/2018 13:21	65.43	27.87	85.7	31.3
10/7/2018 13:22	65.43	25.32	81.9	28.15
10/7/2018 13:23	65.33	26.69	83.7	33.45
10/7/2018 13:24	65.4	29.45	79.67	34.63
10/7/2018 13:25	65.35	24.03	82.2	30.38
10/7/2018 13:26	65.52	25.76	75.8	29.77
10/7/2018 13:27	65.12	27.42	82.2	30.56
10/7/2018 13:28	64.53	24.53	80.4	26.65
10/7/2018 13:29	64.48	26.33	82.1	29.2
10/7/2018 13:30	64.06	27.63	78.43	31.83
10/7/2018 13:31	63.78	25.75	85	29.68
10/7/2018 13:32	63.83	25.09	80.5	29.11
10/7/2018 13:33	63.99	25.26	83.9	28.98
10/7/2018 13:34	63.9	24.4	84.2	27.93
10/7/2018 13:35	63.75	25.59	80.8	31.48
10/7/2018 13:36	63.53	24.88	78.69	27.44
10/7/2018 13:37	64.48	26.75	77.21	31.39
10/7/2018 13:38	64.83	28.71	81.9	32.7
10/7/2018 13:39	65.2	28.43	77.8	31.48
10/7/2018 13:40	68.62	32.24	76.97	35.29
10/7/2018 13:41	67.85	33.98	80.9	37.66
10/7/2018 13:42	65.5	33.99	82	37.13
10/7/2018 13:43	62.48	33.35	76.91	36.91
10/7/2018 13:44	59.66	28.17	77.28	32

Attachment 7

National Weather Service Wind Data for October 7, 2018


Tucson, Tucson International Airport (KTUS)
10.0m Wind Direction
10.0m Wind Speed
10.0m Wind Gust
Wind Speed and Gust (mph)
Wind Direction
Date/Time (MST)
0
5
10
15
20
25
30
35
40
N
NW
W
SW
S
SE
E
NE
N
10/07/18 00:00
10/07/18 02:00
10/07/18 04:00
10/07/18 06:00
10/07/18 08:00
10/07/18 10:00
10/07/18 12:00
10/07/18 14:00
10/07/18 16:00
10/07/18 18:00
10/07/18 20:00
10/07/18 22:00
10/08/18 00:00

Weather Conditions for KTUS

Observations Prior to: 10/08/2018 00:00 MST

Weather Conditions at: 10/08/2018 0:00 MST

Graphical Links	0:00	Max Since 0:00 (MST)	Min Since 0:00 (MST)	24 Hour Maximum	24 Hour Minimum
2.0m Temperature	55.4° F	55.4 at 0:00	55.4 at 0:00	75.2 at 10:00	55.4 at 0:00
2.0m Dew Point	51.8° F	51.8 at 0:00	51.8 at 0:00	57.9 at 14:53	44.6 at 3:40
2.0m Wet bulb temperature	53.3° F	53.3 at 0:00	53.3 at 0:00	61.0 at 12:50	53.0 at 20:15
2.0m Relative Humidity	88%	88 at 0:00	88 at 0:00	94 at 22:05	38 at 10:20
10.0m Wind Speed	5.8 mph	5.8 at 0:00	5.8 at 0:00	24.2 at 10:15	0.0 at 21:40
10.0m Wind Direction	S	-	-	-	-
Weather conditions	Clear	-	-	-	-
Visibility	10.00 miles	10.00 at 0:00	10.00 at 0:00	10.00 at 0:00	1.75 at 14:50

* The maxima/minima values above are calculated from the available observations and may not be official. More information is available here.

ASOS/AWOS Station Summary (Help)	Last Reported	Max/Min Values Last 24 Hours
Station 6 Hr High Temperature	64.9° F (22:53 MST 10/07)	75.0° F (10:53 MST 10/07)
Station 6 Hr Low Temperature	57.0° F (22:53 MST 10/07)	57.0° F (22:53 MST 10/07)
Station 24 Hr High Temperature	75.0° F (23:53 MST 10/07)	-
Station 24 Hr Low Temperature	55.9° F (23:53 MST 10/07)	-
Station Peak Wind Speed	29.9 mph (11:53 MST 10/07)	32.2 mph (10:15 MST 10/07)

** The report times listed are when the value was reported by the station, not necessarily the time the value was actually measured.

Estimated Accumulated Precipitation	Since 0:00 (MST)	24 Hours
Precipitation 1hr	0.00 in	0.41 in
Precipitation 6hr	0.00 in	0.41 in

***Note:** Observations above in **yellow** indicate that they are older than the last row of observations below.

Tabular Listing of 332 Observations from 10/06/2018 23:00 MST to 10/08/2018 0:00 MST:

Time (MST)	2.0m Temperature ° F	2.0m Dew Point ° F	2.0m Wet bulb temperature ° F	2.0m Relative Humidity %	10.0m Wind Speed mph	10.0m Wind Gust mph	10.0m Wind Direction	Pressure in	Sea level pressure in	Altimeter in	Weather conditions	Visibility miles	Ceiling feet	Precipitation 1hr in	Precipitation 3hr in	Precipitation 6hr in	Peak Wind Speed mph	Peak Wind Direction	6 Hr High Temperature ° F	6 Hr Low Temperature ° F	24 Hr High Temperature ° F	24 Hr Low Temperature ° F	Quality Control
0:00	55.4	51.8	53.3	88	5.8		S				Clear	10.00											OK
23:55	55.4	51.8	53.3	88	5.8		S				Clear	10.00											OK
23:53	55.9	52.0	53.6	87	4.6		S				Clear	10.00									75.0	55.9	OK
23:50	55.4	51.8	53.3	88	4.6		S				Clear	10.00											OK
23:45	55.4	51.8	53.3	88	4.6		SSE				Clear	10.00											OK
23:40	55.4	51.8	53.3	88	5.8		SSE				Clear	10.00											OK
23:35	55.4	51.8	53.3	88	5.8		SSE				Clear	10.00											OK
23:30	55.4	51.8	53.3	88	5.8		SSE				Clear	10.00											OK
23:25	57.2	51.8	54.0	82	6.9		SSE				Clear	10.00											OK
23:20	57.2	53.6	55.0	88	8.1		S				Clear	10.00											OK
23:15	57.2	53.6	55.0	88	5.8		S				Clear	10.00											OK
23:10	57.2	53.6	55.0	88	5.8		SSE				Clear	10.00											OK
23:05	57.2	53.6	55.0	88	6.9		SSE				Clear	10.00											OK
23:00	57.2	53.6	55.0	88	5.8		SSE				Clear	10.00											OK
22:55	57.2	53.6	55.0	88	5.8		S				Mostly Clear	10.00											OK
22:53	57.0	54.0	55.2	89	4.6		S				Mostly Clear	10.00				0.17			64.9	57.0			OK
22:50	57.2	53.6	55.0	88	5.8		SSE				Mostly Clear	10.00											OK
22:45	57.2	53.6	55.0	88	3.5		E				Partly Cloudy	10.00											OK
22:40	57.2	53.6	55.0	88	4.6		E				Mostly Cloudy	10.00	12000										OK
22:35	57.2	51.8	54.0	82	4.6		SSE				Mostly Cloudy	10.00	12000										OK
22:30	57.2	53.6	55.0	88	6.9		S				Overcast	10.00	11000										OK
22:25	57.2	53.6	55.0	88	8.1		S				Overcast	10.00	11000										OK
22:20	57.2	53.6	55.0	88	8.1		SSE				Overcast	10.00	9000										OK
22:15	57.2	53.6	55.0	88	9.2		SSE				Overcast	10.00	9000										OK
22:10	57.2	53.6	55.0	88	8.1		S				Overcast	10.00	10000										OK
22:05	57.2	55.4	56.1	94	8.1		SSE				Overcast	10.00	10000										OK
22:00	57.2	53.6	55.0	88	8.1		SSE				Overcast	10.00	7500										OK
21:55	57.2	53.6	55.0	88	8.1		SSE				Mostly Cloudy	10.00	9500										OK

21:53	57.9	53.1	55.0	84	6.9	SSE				Mostly Cloudy	10.00	10000	0.01		OK
21:50	57.2	53.6	55.0	88	4.6	SE				Mostly Cloudy	10.00	10000	0.01		OK
21:45	57.2	51.8	54.0	82	3.5	SSE				Mostly Cloudy	10.00	10000	0.01		OK
21:40	57.2	51.8	54.0	82	0.0	N				Mostly Cloudy	10.00	10000	0.01		OK
21:35	57.2	51.8	54.0	82	3.5	S				Light Rain	10.00	9000	0.01		OK
21:30	57.2	53.6	55.0	88	3.5	S				Light Rain	10.00	9000	0.01		OK
21:25	57.2	53.6	55.0	88	3.5	SE				Overcast	10.00	6500	0.01		OK
21:20	57.2	53.6	55.0	88	0.0	N				Mostly Cloudy	10.00	6500	0.01		OK
21:15	57.2	53.6	55.0	88	0.0	N				Mostly Cloudy	10.00	6500	0.01		OK
21:10	57.2	53.6	55.0	88	3.5	NW				Overcast	10.00	6500	0.01		OK
21:05	57.2	53.6	55.0	88	4.6	NW				Light Rain	10.00	6500	0.01		OK
21:00	57.2	53.6	55.0	88	6.9	NW				Light Rain	10.00	6500			OK
20:55	57.2	51.8	54.0	82	3.5	W				Light Rain	10.00	6000			OK
20:53	59.0	52.0	54.8	78	0.0	N	27.18	29.68	29.83	Light Rain	10.00	6500	0.11		OK
20:50	59.0	51.8	54.7	77	4.6	S	27.18		29.83	Light Rain	10.00	6000	0.11		OK
20:45	59.0	51.8	54.7	77	4.6	SE	27.18		29.83	Light Rain	10.00	7000	0.11		OK
20:43	59.0	51.8	54.7	77	5.8	SE	27.18		29.83	Thunder, Light Rain	10.00	7000	0.11		OK
20:40	59.0	51.8	54.7	77	6.9	SE	27.18		29.83	Light Rain	10.00	7000	0.11		OK
20:35	59.0	51.8	54.7	77	5.8	SSE	27.18		29.83	Light Rain	7.00	6500	0.11		OK
20:30	57.2	51.8	54.0	82	6.9	S	27.18		29.83	Heavy Rain	4.00	6500	0.10		OK
20:28	59.0	51.8	54.7	77	6.9	S	27.18		29.83	Heavy Rain	5.00	7000	0.09		OK
20:25	59.0	51.8	54.7	77	3.5	S	27.18		29.83	Heavy Rain	6.00	7000	0.07		OK
20:20	57.2	51.8	54.0	82	0.0	N	27.18		29.83	Light Rain	10.00	6500	0.06		OK
20:15	57.2	50.0	53.0	77			27.18		29.83	Light Rain	7.00	6000	0.06		OK
20:13	59.0	50.0	53.7	72	5.8	WSW	27.18		29.83	Thunderstorm	6.00	6000	0.05		OK
20:10	59.0	51.8	54.7	77	8.1	W	27.18		29.83	Rain	5.00	6000	0.03		OK
20:05	60.8	48.2	53.4	63	5.8	NW	27.18		29.82	Rain	6.00	6500	0.02		OK
20:00	60.8	50.0	54.4	68	6.9	NW	27.18		29.82	Light Rain	10.00	6500			OK
19:55	60.8	51.8	55.4	72	5.8	NNW	27.18		29.82	Light Rain	10.00	6500			OK
19:53	60.1	52.0	55.2	75	3.5		27.17	29.72	29.81	Light Rain	8.00	7000	0.05	0.05	OK
19:50	60.8	51.8	55.4	72	0.0	N	27.18		29.82	Rain	7.00	7000	0.05		OK
19:45	60.8	51.8	55.4	72	3.5	S	27.18		29.82	Light Rain	7.00	7500	0.04		OK
19:40	60.8	53.6	56.4	77	9.2	SW	27.18		29.82	Light Rain	10.00	7500	0.04		OK
19:35	60.8	48.2	53.4	63	8.1	WNW	27.18		29.82	Light Rain	10.00	7500	0.04		OK
19:30	60.8	48.2	53.4	63	5.8	N	27.17		29.81	Light Rain	10.00	8000	0.04		OK
19:25	60.8	53.6	56.4	77	8.1	N	27.17		29.81	Light Rain	10.00	10000	0.04		OK
19:20	60.8	53.6	56.4	77	4.6	N	27.17		29.81	Light Rain	10.00	7500	0.04		OK
19:15	60.8	53.6	56.4	77	4.6	NNW	27.17		29.81	Mostly Cloudy	10.00	7500	0.04		OK
19:10	60.8	53.6	56.4	77	3.5	NNW	27.17		29.81	Mostly Cloudy	10.00	11000	0.04		OK
19:05	60.8	53.6	56.4	77	4.6	WNW	27.16		29.80	Light Rain	9.00	6500	0.04		OK
19:00	60.8	51.8	55.4	72	5.8	WNW	27.16		29.80	Light Rain	6.00	6000			OK
18:55	62.6	48.2	54.1	59	5.8	WSW	27.16		29.80	Rain	6.00	6000			OK
18:53	63.0	48.9	54.6	60	8.1	WSW	27.16	29.71	29.80	Overcast	9.00	6000			OK
18:50	62.6	48.2	54.1	59	5.8	W	27.16		29.80	Overcast	10.00	6000			OK
18:45	62.6	48.2	54.1	59	5.8	NW	27.16		29.80	Overcast	10.00	6000			OK
18:40	64.4	48.2	54.8	56	6.9	NNW	27.16		29.80	Overcast	10.00	6000			OK
18:35	62.6	48.2	54.1	59	6.9	NNW	27.15		29.79	Overcast	10.00	6000			OK
18:30	62.6	48.2	54.1	59	5.8	NNW	27.15		29.79	Overcast	10.00	6000			OK
18:25	62.6	48.2	54.1	59	4.6	NNW	27.15		29.79	Mostly Cloudy	10.00	6000			OK
18:20	62.6	48.2	54.1	59	5.8	NNW	27.15		29.79	Mostly Cloudy	10.00	6000			OK
18:15	62.6	50.0	55.1	63	5.8	NNW	27.15		29.79	Mostly Cloudy	10.00	5500			OK
18:10	62.6	48.2	54.1	59	5.8	NNW	27.15		29.79	Mostly Cloudy	10.00	6500			OK
18:05	62.6	48.2	54.1	59	5.8	NNW	27.15		29.79	Mostly Cloudy	10.00	6000			OK
18:00	62.6	48.2	54.1	59	6.9	NNW	27.14		29.78	Mostly Cloudy	10.00	6000			OK
17:55	62.6	48.2	54.1	59	8.1	NNW	27.14		29.78	Mostly Cloudy	10.00	6000			OK
17:53	63.0	48.9	54.6	60	6.9	NNW	27.15	29.69	29.79	Mostly Cloudy	10.00	10000			OK
17:50	64.4	50.0	55.7	60	9.2	NNW	27.14		29.78	Partly Cloudy	10.00				OK
17:45	64.4	51.8	56.7	64	8.1	NNW	27.14		29.78	Partly Cloudy	10.00				OK
17:40	64.4	51.8	56.7	64	4.6	NNW	27.14		29.78	Mostly Clear	10.00				OK
17:35	64.4	51.8	56.7	64	5.8	N	27.14		29.78	Clear	10.00				OK

17:30	64.4	51.8	56.7	64	6.9		N	27.14		29.78	Clear	10.00							OK
17:25	64.4	51.8	56.7	64	6.9		N	27.13		29.77	Clear	10.00							OK
17:20	64.4	51.8	56.7	64	8.1		NNW	27.13		29.77	Mostly Clear	10.00							OK
17:15	64.4	51.8	56.7	64	9.2		NNW	27.13		29.77	Mostly Clear	10.00							OK
17:10	64.4	53.6	57.7	68	11.5		N	27.13		29.77	Mostly Clear	10.00							OK
17:05	64.4	53.6	57.7	68	9.2		N	27.12		29.76	Partly Cloudy	10.00							OK
17:00	64.4	53.6	57.7	68	8.1		N	27.12		29.76	Mostly Cloudy	10.00	6500						OK
16:55	64.4	53.6	57.7	68	10.4		N	27.12		29.76	Mostly Cloudy	10.00	6500						OK
16:53	64.9	54.0	58.1	68	9.2		N	27.12	29.66	29.76	Mostly Cloudy	10.00	6500	0.00		0.24		68.0	61.0		OK
16:50	64.4	53.6	57.7	68	8.1		N	27.12		29.76	Mostly Cloudy	10.00	6500						OK
16:45	64.4	53.6	57.7	68	10.4		N	27.12		29.76	Mostly Cloudy	10.00	6000						OK
16:40	64.4	53.6	57.7	68	13.8		N	27.12		29.76	Mostly Cloudy	10.00	4900						OK
16:35	64.4	53.6	57.7	68	16.1	24.2	N	27.12		29.76	Mostly Cloudy	10.00	4900	0.00					OK
16:30	64.4	53.6	57.7	68	12.7		NNW	27.12		29.76	Mostly Cloudy	10.00	4900						OK
16:25	64.4	53.6	57.7	68	10.4		NNW	27.12		29.76	Mostly Cloudy	10.00	4900						OK
16:20	64.4	57.2	59.8	77	6.9		N	27.11		29.75	Mostly Cloudy	10.00	4900						OK
16:15	62.6	57.2	59.2	83	5.8		N	27.11		29.75	Mostly Cloudy	10.00	4200						OK
16:10	64.4	57.2	59.8	77	4.6		SE	27.11		29.75	Light Rain	10.00	4500						OK
16:05	62.6	57.2	59.2	83	5.8		SSW	27.12		29.76	Light Rain	10.00	4600						OK
16:00	62.6	57.2	59.2	83	3.5		NNE	27.11		29.75	Overcast	10.00	4800						OK
15:55	62.6	57.2	59.2	83	5.8		E	27.11		29.75	Overcast	10.00	5000						OK
15:53	63.0	57.0	59.2	81	4.6		E	27.11	29.65	29.75	Overcast	10.00	4700	0.03					OK
15:50	62.6	57.2	59.2	83	6.9		ESE	27.11		29.75	Overcast	10.00	5500	0.03					OK
15:45	62.6	57.2	59.2	83	8.1		SE	27.12		29.76	Light Rain	10.00	6000	0.03					OK
15:40	62.6	57.2	59.2	83	6.9		ESE	27.12		29.76	Light Rain	10.00	6000	0.03					OK
15:35	62.6	57.2	59.2	83	4.6		ESE	27.12		29.76	Light Rain	10.00	6000	0.03					OK
15:30	62.6	57.2	59.2	83	5.8		ENE	27.11		29.75	Light Rain	10.00	6000	0.03					OK
15:25	62.6	57.2	59.2	83	9.2		E	27.10		29.74	Overcast	10.00	6000	0.03					OK
15:20	62.6	57.2	59.2	83	6.9		E	27.11		29.75	Light Rain	9.00	6000	0.03					OK
15:15	62.6	57.2	59.2	83	8.1		E	27.11		29.75	Rain	8.00	6500	0.03					OK
15:10	62.6	57.2	59.2	83	10.4		E	27.11		29.75	Rain	8.00	6000	0.02					OK
15:05	62.6	57.2	59.2	83	10.4		E	27.11		29.75	Rain	9.00	6000	0.01					OK
15:00	62.6	57.2	59.2	83	9.2		E	27.11		29.75	Light Rain	10.00	5000						OK
14:55	62.6	57.2	59.2	83	10.4		E	27.11		29.75	Light Rain, Mist	4.00	4600						OK
14:53	62.1	57.9	59.4	86	9.2		E	27.11	29.65	29.75	Light Rain, Mist	3.00	4800	0.17					OK
14:51	62.6	57.2	59.2	83	9.2		E	27.11		29.75	Rain, Mist	2.00	4800	0.17					OK
14:50	62.6	57.2	59.2	83	9.2		ENE	27.10		29.74	Rain	1.75	4600	0.17					OK
14:45	60.8	57.2	58.6	88	0.0		N	27.11		29.75	Heavy Rain, Mist	1.75	3900	0.12					OK
14:44	61.0	57.0	58.5	87	0.0		N	27.11		29.75	Thunder, Heavy Rain, Mist	1.75	3900	0.10					OK
14:40	62.6	57.2	59.2	83	5.8		ENE	27.11		29.75	Heavy Rain	3.50	4700	0.02					OK
14:35	64.4	57.2	59.8	77	9.2		ENE	27.10		29.74	Light Rain	9.00	4700						OK
14:30	64.4	55.4	58.7	73	10.4		E	27.09		29.73	Overcast	10.00	4700						OK
14:27	64.9	55.9	59.2	73	10.4		E	27.09		29.73	Thunder	10.00	4700	0.00					OK
14:25	64.4	55.4	58.7	73	10.4		E	27.09		29.73	Light Rain	10.00	4700						OK
14:20	66.2	55.4	59.3	68	6.9		E	27.09		29.73	Light Rain	10.00	4700						OK
14:15	66.2	55.4	59.3	68	4.6		ENE	27.09		29.73	Light Rain	10.00	4900						OK
14:10	66.2	55.4	59.3	68	4.6		NE	27.09		29.73	Overcast	10.00	4600						OK
14:05	66.2	55.4	59.3	68	4.6		N	27.09		29.73	Overcast	10.00	5000						OK
14:00	66.2	55.4	59.3	68	6.9		NE	27.08		29.72	Overcast	10.00	5500						OK
13:55	66.2	55.4	59.3	68	8.1		ENE	27.09		29.73	Overcast	10.00	5000						OK
13:53	66.0	57.0	60.2	73	8.1		SSW	27.09	29.62	29.73	Overcast	10.00	4800	0.01	0.04				OK
13:50	66.2	57.2	60.4	73	8.1	18.4	S	27.08		29.72	Overcast	10.00	5500	0.01					OK
13:45	66.2	57.2	60.4	73	6.9		SSW	27.08		29.72	Overcast	10.00	5500	0.01					OK
13:40	66.2	55.4	59.3	68	8.1		S	27.08		29.72	Overcast	10.00	5500	0.01					OK
13:35	66.2	55.4	59.3	68	10.4		S	27.08		29.72	Light Rain	10.00	5500	0.01					OK
13:30	66.2	55.4	59.3	68	13.8		SSW	27.09		29.73	Light Rain	8.00	7000	0.01					OK
13:25	66.2	53.6	58.3	64	12.7		SSW	27.09		29.73	Light Rain	8.00	9000						OK
13:20	68.0	53.6	58.9	60	12.7		S	27.09		29.73	Overcast	10.00	9500						OK
13:15	68.0	55.4	60.0	64	16.1		S	27.09		29.73	Overcast	10.00	9500						OK

13:10	68.0	55.4	60.0	64	12.7		SSW	27.09		29.73	Overcast	10.00	9000							OK
13:05	68.0	55.4	60.0	64	12.7		SSW	27.10		29.74	Overcast	10.00	8500							OK
13:00	68.0	55.4	60.0	64	15.0		SSW	27.10		29.74	Overcast	10.00	8500							OK
12:55	68.0	55.4	60.0	64	11.5		SW	27.10		29.74	Overcast	10.00	8500							OK
12:53	68.0	55.9	60.3	65	12.7		SW	27.10	29.63	29.74	Overcast	10.00	8000	0.01						OK
12:50	68.0	57.2	61.0	68	11.5		SW	27.10		29.74	Overcast	10.00	8000	0.01						OK
12:45	68.0	57.2	61.0	68	12.7		WSW	27.10		29.74	Overcast	10.00	8000	0.01						OK
12:40	68.0	55.4	60.0	64				27.11		29.75	Light Rain	10.00	8000	0.01						OK
12:35	68.0	55.4	60.0	64	10.4		WSW	27.11		29.75	Light Rain	10.00	8000	0.01						OK
12:30	66.2	55.4	59.3	68	9.2		WSW	27.11		29.75	Light Rain	10.00	8500	0.01						OK
12:25	66.2	55.4	59.3	68	12.7		WSW	27.12		29.76	Light Rain	9.00	8500	0.01						OK
12:20	66.2	57.2	60.4	73	16.1		WSW	27.12		29.76	Light Rain	9.00	7500	0.01						OK
12:15	66.2	57.2	60.4	73	11.5	18.4	WSW	27.12		29.76	Overcast	10.00	7000	0.01						OK
12:10	66.2	57.2	60.4	73	10.4		WSW	27.12		29.76	Overcast	10.00	7000	0.01						OK
12:05	66.2	57.2	60.4	73	12.7		WSW	27.12		29.76	Light Rain	8.00	7500	0.01						OK
12:00	64.4	57.2	59.8	77	11.5		WSW	27.13		29.77	Light Rain	5.00	7500							OK
11:55	66.2	57.2	60.4	73	13.8	19.6	WSW	27.13		29.77	Light Rain	5.00	6000							OK
11:53	66.0	57.0	60.2	73	12.7	24.2	WSW	27.13	29.67	29.77	Light Rain	8.00	6000	0.02	29.9	W				OK
11:50	66.2	57.2	60.4	73	12.7	24.2	WSW	27.13		29.77	Light Rain	10.00	6000	0.02						OK
11:45	64.4	57.2	59.8	77	11.5		WSW	27.13		29.77	Light Rain	10.00	6500	0.02						OK
11:40	64.4	57.2	59.8	77	11.5		W	27.13		29.77	Light Rain	10.00	6000	0.01						OK
11:35	64.4	57.2	59.8	77	11.5		WSW	27.13		29.77	Light Rain	10.00	6000	0.01						OK
11:30	64.4	57.2	59.8	77	11.5		WSW	27.13		29.77	Light Rain	8.00	6000	0.01						OK
11:25	62.6	57.2	59.2	83	15.0		W	27.13		29.77	Rain	6.00	6000	0.01						OK
11:20	62.6	57.2	59.2	83	17.3	26.5	W	27.13		29.77	Rain	6.00	6000	0.01						OK
11:15	64.4	53.6	57.7	68	19.6	26.5	W	27.13		29.77	Light Rain	9.00	6000							OK
11:10	64.4	55.4	58.7	73	16.1	25.3	W	27.13		29.77	Light Rain	10.00	5500							OK
11:05	64.4	53.6	57.7	68	16.1	21.9	W	27.13		29.77	Light Rain	10.00	6000							OK
11:00	66.2	53.6	58.3	64	13.8	20.7	W	27.13		29.77	Overcast	10.00	6000							OK
10:55	66.2	53.6	58.3	64	16.1	21.9	W	27.13		29.77	Overcast	10.00	6000							OK
10:53	66.0	54.0	58.5	65	13.8	24.2	W	27.13	29.66	29.77	Overcast	10.00	6000				75.0	64.9		OK
10:50	66.2	55.4	59.3	68	16.1		W	27.13		29.77	Overcast	10.00	6000							OK
10:45	66.2	55.4	59.3	68	15.0		W	27.13		29.77	Overcast	10.00	6500							OK
10:40	66.2	55.4	59.3	68	15.0	25.3	W	27.13		29.77	Overcast	10.00	6500							OK
10:35	68.0	55.4	60.0	64	17.3	23.0	W	27.13		29.77	Overcast	10.00	6500							OK
10:30	69.8	53.6	59.6	56	16.1	23.0	W	27.13		29.77	Overcast	10.00	6000							OK
10:25	71.6	48.2	57.5	43	19.6	27.6	W	27.12		29.76	Overcast	10.00	8500							OK
10:20	73.4	46.4	57.3	38	18.4	24.2	SW	27.12		29.76	Overcast	10.00	9000							OK
10:15	73.4	46.4	57.3	38	24.2	32.2	SW	27.13		29.77	Overcast	10.00	8500							OK
10:10	73.4	48.2	58.1	41	13.8	20.7	SW	27.13		29.77	Overcast	10.00	9000							OK
10:05	73.4	48.2	58.1	41	17.3		SW	27.13		29.77	Mostly Cloudy	10.00	8500							OK
10:00	75.2	48.2	58.7	39	16.1	21.9	SW	27.13		29.77	Mostly Cloudy	10.00	8500							OK
9:55	75.2	48.2	58.7	39	17.3		WSW	27.13		29.77	Mostly Cloudy	10.00	11000							OK
9:53	75.0	48.9	59.0	40	17.3	25.3	SW	27.13	29.65	29.77	Partly Cloudy	10.00								OK
9:50	75.2	48.2	58.7	39	19.6		WSW	27.13		29.77	Partly Cloudy	10.00								OK
9:45	75.2	48.2	58.7	39	15.0		WSW	27.13		29.77	Mostly Clear	10.00								OK
9:40	75.2	48.2	58.7	39	18.4		SW	27.13		29.77	Clear	10.00								OK
9:35	75.2	48.2	58.7	39	19.6		SW	27.13		29.77	Clear	10.00								OK
9:30	73.4	48.2	58.1	41	19.6	27.6	SW	27.14		29.78	Clear	10.00								OK
9:25	73.4	48.2	58.1	41	17.3		SW	27.13		29.77	Mostly Clear	10.00								OK
9:20	73.4	48.2	58.1	41	19.6		SW	27.13		29.77	Mostly Clear	10.00								OK
9:15	73.4	48.2	58.1	41	15.0	20.7	SW	27.13		29.77	Mostly Clear	10.00								OK
9:10	73.4	48.2	58.1	41	17.3	24.2	SSW	27.13		29.77	Mostly Clear	10.00								OK
9:05	73.4	48.2	58.1	41	17.3	26.5	SW	27.13		29.77	Mostly Clear	10.00								OK
9:00	73.4	48.2	58.1	41	21.9	27.6	SW	27.13		29.77	Mostly Clear	10.00								OK
8:55	73.4	48.2	58.1	41	19.6	27.6	SW	27.13		29.77	Mostly Clear	10.00								OK
8:53	73.0	50.0	58.8	44	16.1	27.6	SW	27.13	29.65	29.77	Partly Cloudy	10.00								OK
8:50	73.4	51.8	59.9	47	19.6		SW	27.13		29.77	Mostly Clear	10.00								OK
8:45	73.4	50.0	59.0	44	13.8		SW	27.13		29.77	Mostly Clear	10.00								OK
8:40	73.4	51.8	59.9	47	18.4	24.2	SW	27.14		29.78	Mostly Clear	10.00								OK

8:35	71.6	51.8	59.2	50	15.0		SW	27.13		29.77	Mostly Clear	10.00				OK
8:30	71.6	51.8	59.2	50	21.9	27.6	SSW	27.13		29.77	Clear	10.00				OK
8:25	71.6	51.8	59.2	50	20.7	26.5	SW	27.13		29.77	Clear	10.00				OK
8:20	71.6	51.8	59.2	50	17.3	24.2	SW	27.13		29.77	Clear	10.00				OK
8:15	71.6	51.8	59.2	50	17.3	23.0	SSW	27.13		29.77	Clear	10.00				OK
8:10	71.6	53.6	60.2	53	16.1	23.0	SW	27.13		29.77	Clear	10.00				OK
8:05	71.6	53.6	60.2	53	15.0	21.9	SW	27.13		29.77	Clear	10.00				OK
8:00	69.8	53.6	59.6	56	12.7	18.4	SW	27.13		29.77	Clear	10.00				OK
7:55	69.8	53.6	59.6	56	11.5		SW	27.13		29.77	Clear	10.00				OK
7:53	70.0	54.0	59.8	57	6.9		S	27.13	29.65	29.77	Clear	10.00				OK
7:50	69.8	53.6	59.6	56	6.9	18.4	S	27.12		29.76	Clear	10.00				OK
7:45	69.8	53.6	59.6	56	6.9	18.4	S	27.12		29.76	Clear	10.00				OK
7:40	69.8	53.6	59.6	56	6.9	18.4	S	27.12		29.76	Clear	10.00				OK
7:35	69.8	53.6	59.6	56	6.9	18.4	S	27.12		29.76	Clear	10.00				OK
7:30	68.0	53.6	58.9	60	6.9	18.4	S	27.12		29.76	Clear	10.00				OK
7:25	68.0	53.6	58.9	60	6.9	18.4	S	27.12		29.76	Clear	10.00				OK
7:20	68.0	53.6	58.9	60	6.9	18.4	S	27.11		29.75	Clear	10.00				OK
7:15	68.0	53.6	58.9	60	6.9	18.4	S	27.11		29.75	Clear	10.00				OK
7:10	68.0	53.6	58.9	60	6.9	18.4	S	27.11		29.75	Clear	10.00				OK
7:05	66.2	53.6	58.3	64				27.11		29.75	Clear	10.00				OK
7:00	66.2	53.6	58.3	64	8.1		S	27.11		29.75	Clear	10.00				OK
6:55	66.2	53.6	58.3	64	9.2		S	27.11		29.75	Clear	10.00				OK
6:53	66.9	54.0	58.8	63	9.2		S	27.11	29.63	29.75	Clear	10.00				OK
6:50	66.2	53.6	58.3	64	9.2		S	27.11		29.75	Clear	10.00				OK
6:45	66.2	53.6	58.3	64	9.2		S	27.11		29.75	Clear	10.00				OK
6:40	66.2	53.6	58.3	64	10.4		S	27.11		29.75	Clear	10.00				OK
6:35	66.2	53.6	58.3	64	9.2		S	27.11		29.75	Clear	10.00				OK
6:30	66.2	53.6	58.3	64	9.2		S	27.10		29.74	Clear	10.00				OK
6:25	66.2	53.6	58.3	64	10.4		S	27.10		29.74	Clear	10.00				OK
6:20	66.2	53.6	58.3	64	9.2		S	27.11		29.75	Clear	10.00				OK
6:15	64.4	51.8	56.7	64	8.1		S	27.10		29.74	Clear	10.00				OK
6:10	64.4	51.8	56.7	64	9.2		SSE	27.10		29.74	Clear	10.00				OK
6:05	66.2	51.8	57.3	60	9.2		SSE	27.10		29.74	Clear	10.00				OK
6:00	66.2	51.8	57.3	60	11.5		SSE	27.10		29.74	Clear	10.00				OK
5:55	66.2	51.8	57.3	60	15.0		SSE	27.10		29.74	Clear	10.00				OK
5:53	66.0	50.0	56.3	56	16.1		SSE	27.11	29.63	29.75	Clear	10.00				OK
5:50	66.2	50.0	56.4	56	15.0		SSE	27.11		29.75	Clear	10.00				OK
5:45	66.2	50.0	56.4	56	13.8		SSE	27.11		29.75	Clear	10.00				OK
5:40	66.2	50.0	56.4	56	13.8		SSE	27.11		29.75	Clear	10.00				OK
5:35	66.2	50.0	56.4	56	12.7		SSE	27.11		29.75	Mostly Clear	10.00				OK
5:30	66.2	50.0	56.4	56	12.7		S	27.11		29.75	Mostly Clear	10.00				OK
5:25	66.2	50.0	56.4	56	11.5		S	27.11		29.75	Mostly Clear	10.00				OK
5:20	66.2	50.0	56.4	56	10.4		S	27.10		29.74	Partly Cloudy	10.00				OK
5:15	66.2	50.0	56.4	56	12.7		S	27.10		29.74	Mostly Cloudy	10.00	7000			OK
5:10	66.2	50.0	56.4	56	12.7		S	27.10		29.74	Mostly Cloudy	10.00	7000			OK
5:05	66.2	50.0	56.4	56	12.7		S	27.10		29.74	Mostly Cloudy	10.00	7000			OK
5:00	68.0	50.0	57.0	53	13.8		S	27.10		29.74	Mostly Cloudy	10.00	6500			OK
4:55	68.0	50.0	57.0	53	12.7		S	27.10		29.74	Mostly Cloudy	10.00	6000			OK
4:53	68.0	50.0	57.0	53	12.7		S	27.10	29.62	29.74	Mostly Cloudy	10.00	6000	73.0	66.9	OK
4:50	68.0	50.0	57.0	53	11.5		S	27.10		29.74	Mostly Cloudy	10.00	6000			OK
4:45	66.2	51.8	57.3	60	8.1		S	27.10		29.74	Mostly Cloudy	10.00	6000			OK
4:40	66.2	51.8	57.3	60	6.9		S	27.10		29.74	Mostly Cloudy	10.00	5500			OK
4:35	68.0	50.0	57.0	53	9.2		S	27.10		29.74	Overcast	10.00	5500			OK
4:30	68.0	50.0	57.0	53	11.5		SSW	27.10		29.74	Overcast	10.00	5500			OK
4:25	68.0	50.0	57.0	53	9.2		SSW	27.10		29.74	Overcast	10.00	5500			OK
4:20	66.2	48.2	55.5	52	6.9		SSW	27.10		29.74	Mostly Cloudy	10.00	5500			OK
4:15	66.2	48.2	55.5	52	6.9		SSW	27.10		29.74	Mostly Cloudy	10.00	5500			OK
4:10	66.2	48.2	55.5	52	6.9		SW	27.10		29.74	Mostly Cloudy	10.00	5500			OK
4:05	68.0	48.2	56.1	49	9.2		SW	27.10		29.74	Partly Cloudy	10.00				OK
4:00	68.0	46.4	55.3	46	9.2		SW	27.10		29.74	Mostly Clear	10.00				OK

3:55	68.0	46.4	55.3	46	6.9		WSW	27.10		29.74	Clear	10.00			OK
3:53	68.0	46.9	55.5	47	9.2		WSW	27.10	29.61	29.74	Clear	10.00			OK
3:50	68.0	46.4	55.3	46	8.1		WSW	27.10		29.74	Clear	10.00			OK
3:45	66.2	46.4	54.6	49	6.9		WSW	27.10		29.74	Clear	10.00			OK
3:40	66.2	44.6	53.8	46	6.9		WSW	27.10		29.74	Clear	10.00			OK
3:35	68.0	44.6	54.5	43	6.9		SW	27.10		29.74	Clear	10.00			OK
3:30	68.0	44.6	54.5	43	6.9		WSW	27.10		29.74	Clear	10.00			OK
3:25	68.0	44.6	54.5	43	9.2		W	27.10		29.74	Clear	10.00			OK
3:20	68.0	44.6	54.5	43	6.9		WSW	27.10		29.74	Clear	10.00			OK
3:15	68.0	44.6	54.5	43	5.8		WSW	27.10		29.74	Clear	10.00			OK
3:10	68.0	44.6	54.5	43	5.8		SW	27.10		29.74	Clear	10.00			OK
3:05	68.0	44.6	54.5	43	6.9		SW	27.10		29.74	Clear	10.00			OK
3:00	68.0	44.6	54.5	43	5.8		SW	27.10		29.74	Clear	10.00			OK
2:55	68.0	44.6	54.5	43	8.1		SW	27.10		29.74	Clear	10.00			OK
2:53	69.1	45.0	55.0	42	6.9		SW	27.10	29.61	29.74	Clear	10.00			OK
2:50	69.8	44.6	55.2	40	9.2		SW	27.10		29.74	Clear	10.00			OK
2:45	69.8	44.6	55.2	40	8.1		SW	27.10		29.74	Clear	10.00			OK
2:40	69.8	44.6	55.2	40	8.1		SSW	27.10		29.74	Clear	10.00			OK
2:35	69.8	44.6	55.2	40	10.4		SSW	27.11		29.75	Clear	10.00			OK
2:30	69.8	44.6	55.2	40	10.4		SW	27.11		29.75	Clear	10.00			OK
2:25	69.8	46.4	56.0	43	8.1		SSW	27.11		29.75	Clear	10.00			OK
2:20	69.8	46.4	56.0	43	9.2		SW	27.11		29.75	Clear	10.00			OK
2:15	69.8	46.4	56.0	43	8.1		SW	27.11		29.75	Clear	10.00			OK
2:10	69.8	46.4	56.0	43	9.2		SW	27.11		29.75	Clear	10.00			OK
2:05	69.8	46.4	56.0	43	6.9		SW	27.10		29.74	Clear	10.00			OK
2:00	69.8	46.4	56.0	43	9.2		SSW	27.11		29.75	Clear	10.00			OK
1:55	69.8	46.4	56.0	43	9.2		SSW	27.11		29.75	Clear	10.00			OK
1:53	70.0	46.9	56.3	44	9.2		SW	27.11	29.62	29.75	Clear	10.00			OK
1:50	69.8	46.4	56.0	43	9.2		SSW	27.11		29.75	Clear	10.00			OK
1:45	69.8	46.4	56.0	43	11.5		SSW	27.10		29.74	Clear	10.00			OK
1:40	69.8	46.4	56.0	43	11.5	17.3	SSW	27.10		29.74	Clear	10.00			OK
1:35	69.8	46.4	56.0	43	13.8		SSW	27.10		29.74	Clear	10.00			OK
1:30	69.8	46.4	56.0	43	12.7		S	27.10		29.74	Clear	10.00			OK
1:25	69.8	46.4	56.0	43	11.5		SSW	27.10		29.74	Clear	10.00			OK
1:20	69.8	46.4	56.0	43	11.5		SSW	27.10		29.74	Clear	10.00			OK
1:15	68.0	48.2	56.1	49	9.2		S	27.10		29.74	Clear	10.00			OK
1:10	69.8	48.2	56.8	46	8.1		S	27.10		29.74	Clear	10.00			OK
1:05	69.8	46.4	56.0	43	6.9		S	27.10		29.74	Clear	10.00			OK
1:00	69.8	46.4	56.0	43	4.6		S	27.11		29.75	Clear	10.00			OK
0:55	69.8	46.4	56.0	43	5.8		S	27.11		29.75	Clear	10.00			OK
0:53	69.1	46.9	55.9	45	6.9		S	27.11	29.62	29.75	Clear	10.00			OK
0:50	69.8	46.4	56.0	43	4.6		S	27.11		29.75	Clear	10.00			OK
0:45	69.8	46.4	56.0	43	4.6		SSW	27.11		29.75	Clear	10.00			OK
0:40	69.8	46.4	56.0	43	5.8		S	27.11		29.75	Clear	10.00			OK
0:35	71.6	46.4	56.6	41	5.8		S	27.11		29.75	Clear	10.00			OK
0:30	71.6	46.4	56.6	41	5.8		S	27.11		29.75	Clear	10.00			OK
0:25	69.8	46.4	56.0	43	3.5		S	27.11		29.75	Clear	10.00			OK
0:20	71.6	46.4	56.6	41	4.6		SSE	27.11		29.75	Clear	10.00			OK
0:15	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00			OK
0:10	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00			OK
0:05	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00			OK
0:00	71.6	46.4	56.6	41	3.5		S	27.12		29.76	Clear	10.00			OK
23:55	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00			OK
23:53	71.1	46.0	56.3	41	0.0		N	27.12	29.63	29.76	Clear	10.00	86.0	59.0	OK
23:50	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00			OK
23:45	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00			OK
23:40	71.6	46.4	56.6	41	0.0		N	27.12		29.76	Clear	10.00			OK
23:35	71.6	46.4	56.6	41	3.5		S	27.12		29.76	Clear	10.00			OK
23:30	71.6	46.4	56.6	41	3.5		S	27.12		29.76	Clear	10.00			OK
23:25	71.6	44.6	55.8	38	3.5		SSW	27.12		29.76	Clear	10.00			OK

23:20	71.6	44.6	55.8	38	3.5	SSW	27.12	29.76	Clear	10.00	OK
23:15	73.4	44.6	56.5	36	4.6	SSW	27.12	29.76	Clear	10.00	OK
23:10	73.4	46.4	57.3	38	5.8	S	27.12	29.76	Clear	10.00	OK
23:05	73.4	44.6	56.5	36	4.6	S	27.12	29.76	Clear	10.00	OK
23:00	71.6	46.4	56.6	41	5.8	S	27.13	29.77	Clear	10.00	OK

University of Utah MesoWest

Attachment 8

Excess Emissions / Permit Deviation Report dated October 15, 2018

FREEPORT-McMoRan

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

October 15, 2018

Via Email: Air.Notices@pima.gov and
Certified Mail: 7017 0530 0000 7752 5791

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

Re: Excess Emissions/Deviation Report
Certification of Truth, Accuracy and Completeness,
Freeport-McMoRan Sierrita Inc., Permit # 6067

Dear Mr. Fitzpatrick:

In accordance with Attachment "A" Conditions XI.A and XI.B of Class I Permit # 6067, this letter serves as detailed written follow-up notification of excess emissions and prompt reporting of a deviation from permit requirements. Freeport-McMoRan Sierrita Inc. (FMSI) provided initial notification to the Pima County Department of Environmental Quality (PDEQ) via telephone notification to Mr. Dustin Fitzpatrick on October 12, 2018.

Attachment "B" Condition II.E.1. states "The Permittee shall not cause, suffer, allow, or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become airborne."

Attachment "B" Condition XIX.B.1.a states that "Permittee shall not cause, allow or permit visible emissions from any fugitive dust source in excess of 20% opacity measured in accordance with EPA Reference Method 9."

Description of the Event

On October 11, 2018 between approximately 10:45AM and 1:30PM, FMSI employees observed dust intermittently emanating in a north direction from the Sierrita tailings impoundment. In response, three water trucks and three all tracks were deployed to the location to help mitigate the dust. While a formal EPA Reference Method 9 observation was not conducted due to the position of the sun and the vantage point of the observer, FMSI is reporting this event as an opacity exceedance based on the knowledge and experience of the environmental employee who was present during a portion of the event. Based on FMSI's information, the likely excess emissions may have occurred at approximately 10:45AM, 11:30AM and 1:30PM. Each event is estimated to have lasted for 10 minutes or more. During the times referenced above, the dust emanating from the north side of the impoundment moved across Duval Mine Road, a public thoroughfare, and crossed back onto FMSI property just north of the public thoroughfare. In addition,

dust emanating from the north side of the impoundment moved across Continental Road and headed in a north direction towards Twin Buttes.

As you know, FMSI employs a comprehensive fugitive source management plan. In addition to these normal control measures that FMSI employs at the tailings dam, additional Magnesium Chloride ($MgCl_2$) was being sprayed on top of tailings dam and additional amounts of water were being sprayed on the berms and roads prior to this event. These additional measures were necessary because of recent storm events in the Green Valley area. Specifically, on September 20, 2018, the tailings dam received approximately 3.5 inches of rain. Due to the large amount of rain, the $MgCl_2$ that had been applied to the tailings dam before the event lost its binding properties and was unable to bind to the tailings material. Additionally, on October 2, 2018, the tailings dam received another 1.5 inches of rain, which continued to contribute to the degradation of the tailings dam crust. Although FMSI was applying $MgCl_2$ to the impoundment daily and water trucks were applying water to the berms and roads, the combined storm events, in conjunction with the high winds overwhelmed FMSI's control efforts. The efforts to build a crust by applying dust suppressants is ongoing and deposition has been adjusted to mitigate any areas that were previously not reachable due to the moisture content of the tailings material.

Information required by Attachment "A" Condition XI.A.1.b of FMSI's Class I permit are listed here:

(1) Identity of each stack or other emission point where the excess emissions occurred:

Source ID # 087 - Sierrita Tailings Impoundment.

(2) Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions:

Based on the knowledge and experience of the FMSI employee who witnessed the event, opacity exceeded the 20% permit limit during the event.

(3) The time and duration or expected duration of the excess emissions:

Excess emissions were intermittent between approximately 10:45AM and 1:30PM. The excess emissions occurred at 10:45AM, 11:30AM and 1:30PM. Each event may have lasted for 10 minutes or more.

(4) Identity of the equipment from which the excess emissions emanated:

Visible emissions emanated from the Sierrita Tailings Impoundment on the north side of the North Dam.

(5) Nature and cause of such emissions:

Visible emissions from the Sierrita Tailings Impoundment were caused by winds from an oncoming storm.

(6) The steps taken, if the excess emissions were the result of a malfunction, to remedy the malfunction and the steps being taken or planned to prevent the recurrence of the malfunction:

At this time, it does not appear that a malfunction occurred.

(7) The steps that were or are being taken to limit the excess emissions:

Preceding, during, and after the event, FMSI employed reasonable precautions, as defined by Attachment "B" Condition XIX.B.1.b(viii) and (ix) of its Class I permit, to prevent excessive amounts of particulate matter from becoming airborne from the tailings impoundment:

- *Applied water and gorilla snot to tailings dam roads and berms, as well as, $MgCl_2$ to the top of the tailings dam that was reachable by the all tracks.*
- *On October 8^{th} – 10^{th}, a total of 38,250 gallons of $MgCl_2$, 169,000 gallons of water and 4,400 gallons of gorilla snot were applied to areas in and around the tailings impoundment.*
- *On the day of the event, a total of 15,750 gallons of $MgCl_2$ and 525,000 gallons of water were applied to areas in and around the tailings impoundment on the day of the event.*
- *On October 10^{th}, deposition was switched from South Dam, Phase 1 and Phase 2 to North Dam, Phase 2 to mitigate the blown-on dust on the North Dam.*
- *Tailings Management called in resources from the Mine to assist with the application of water, $MgCl_2$ and gorilla snot. The shifts were changed from 10 hour shifts to 12 hour shifts.*

Reasonable Precautions employed on an ongoing basis by FMSI as defined by Attachment "B" Condition XIX.B.1.b(viii) and (ix):

- *Applying wetting agents*
- *Maximizing the wet surface area*
- *Barring and controlling vehicle access*
- *Limiting vehicle speed*
- *Re-vegetating the side-slopes*
- *Compaction*
- *Encrustation*
- *Completed new tailings dam roads have been capped with native dirt*
- *Side slopes are treated with a polymer based dust suppressant*
- *Heavily traveled perimeter roads are treated with $MgCl_2$ dust suppressant*
- *Active berms were sprayed with water*
- *The wet dam construction method is used, maintaining the majority of the surface of the impoundment wet or encrusted while the remaining area is under construction*

(8) If the permit contains procedures governing source operation during periods of startup or malfunction and the excess emissions resulted for startup or malfunction, a list of the steps taken to comply with the permit procedures:

The permit does not contain such procedures.

Please contact me at 520.393.2376 if additional information is necessary.

Sincerely,

Natalie Nunez
Senior Environmental Scientist
10152018_003
1 attachment

Certification of Truth, Accuracy and Completeness

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

David Rhoades, President; General Manager – Freeport-McMoRan Sierrita Inc.
Andrew Soderman, Mine Manager, Duly Authorized Representative - Freeport-McMoRan Sierrita Inc.

Andrew Soderman — 10/15/18

(Signature) (Date)

Tailings Dam Environmental Weekly Activities Report

Operator: Jesus Hernandez Date: 10-12-2018

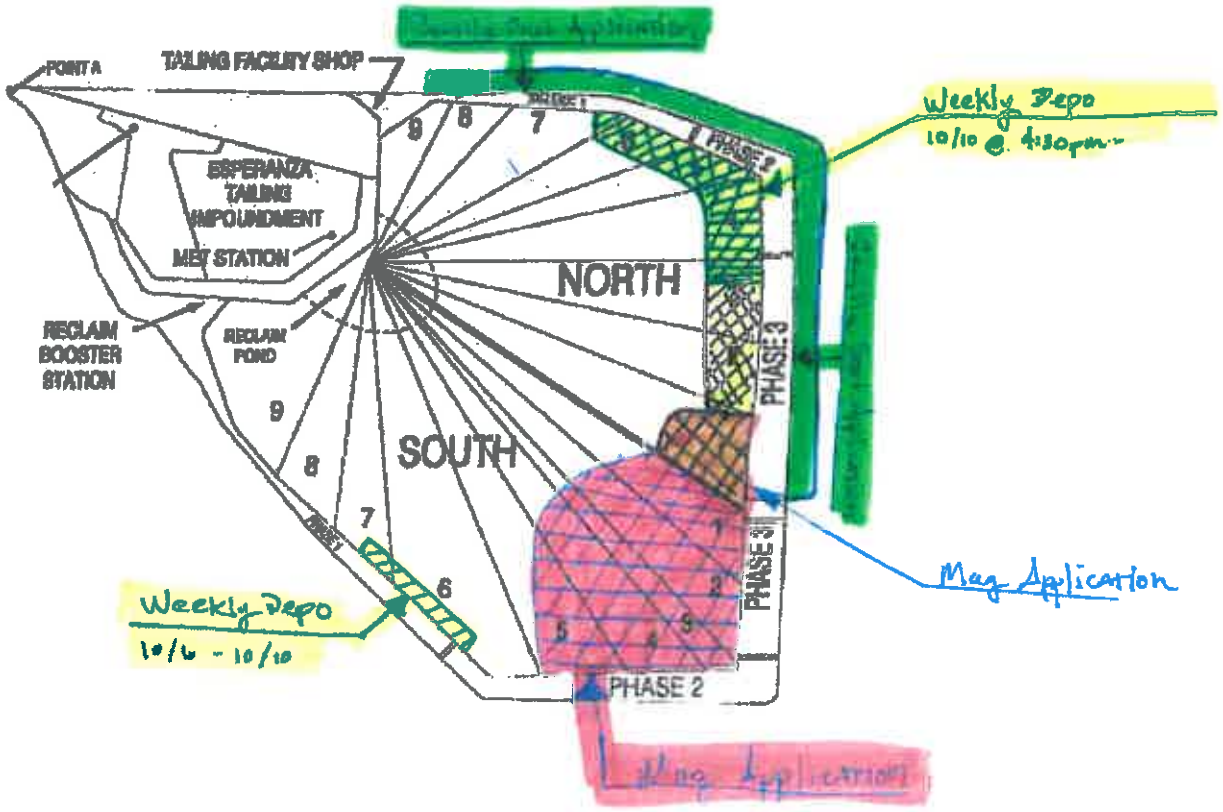
Primary Controls	N/S	Phase	Area			
Area of Deposition	North	2&3	4,3,2			
Special Wetting Area	—	—	—			
Water Truck #	88	94	36	37	Rental	Rental
No. of Loads	6	22	27	42		

	Gallons	N/S	Approximate Area Covered
All-track application	67,500	South	PH - 2&3 - Area - 1,2,3,4
Gorilla snot	4,400	North	PH - 1,2,3 - (Berm)

Site Conditons

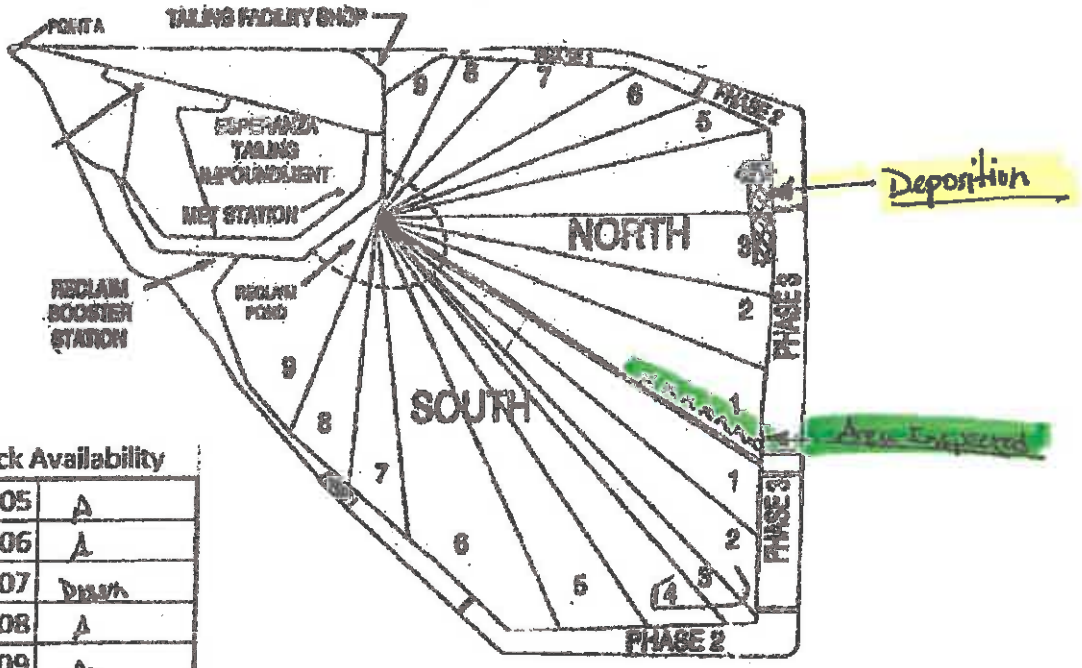
Area Under Construction	ETI/STI	
Inches of Rain Throughout Week	.5	

Comments: ETI / STI Construction ongoing
Deposition on North Dam continuing, to move towards divider
Dust events reported to Environmental on: 10/6, 10/7, 10/10, 10/11
Spill @ #2 drop box reported to Environmental on 10/11



Tailings Impoundment Surface Inspection

Date: 10-12-2018
Time: 7:20 am
Conditions: Rain
Dam Inspected: North Phase(s) 3
Inspected By: Jesus Hernandez



All-track Availability

70105	A
70106	A
70107	Down
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface - Due to Rain	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Water Trucks / All Tracks on Standby

Dust Suppressant Applied: —

Operators: —

Weather Conditions:

Wind Speed: 3 Gusts up to: 5 Temp: 68°

Precipitation in the last 24 hrs. yes Inches of rain: .5

Tailings Impoundment Surface Inspection

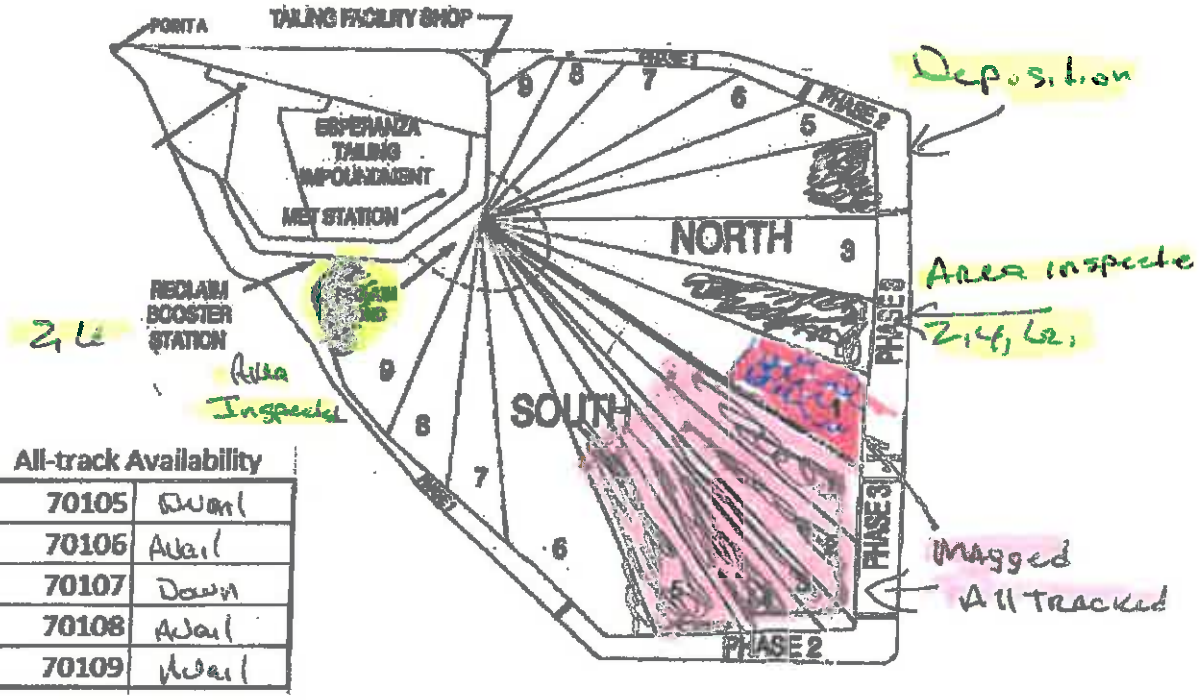
Date: 10-11-18

Time: 2:30-4:30 PM

Conditions: Windy Partly Cloudy

Dam Inspected: S/N Phase(s) 1, 3

Inspected By: Granado J



All-track Availability

70105	Down
70106	Avail
70107	Down
70108	Avail
70109	Avail

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: All Tracking Phase 2, South and phase 3 North Dam

Dust Suppressant Applied: Mag

Operators: Mine Support with Jose and Jesse

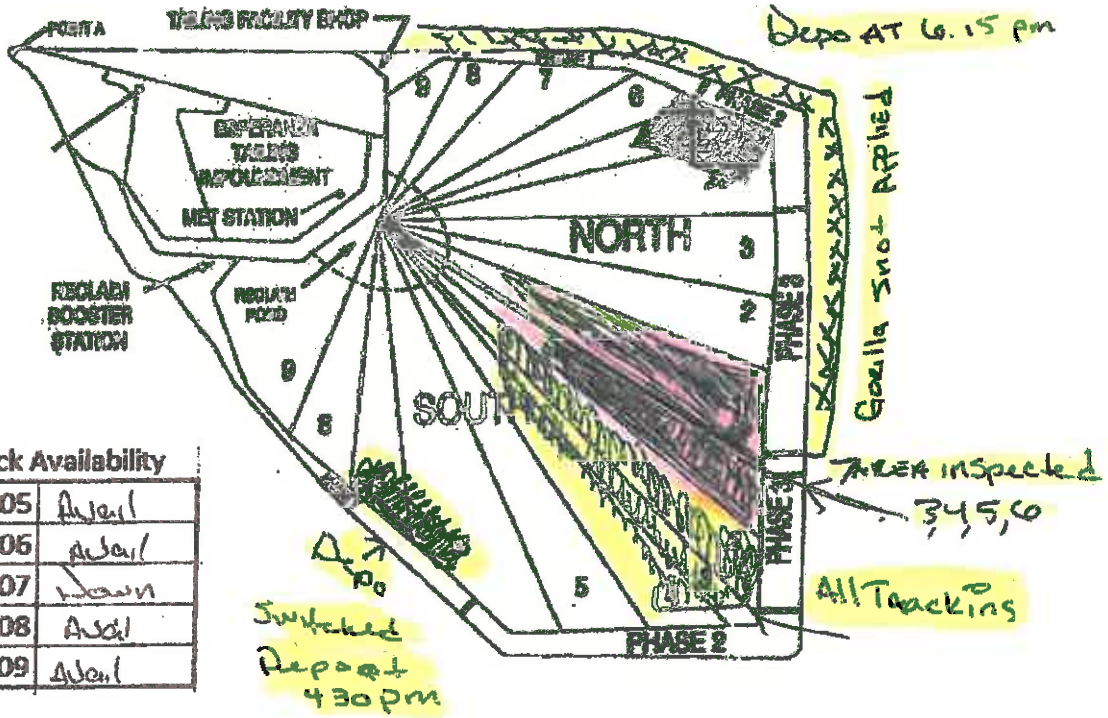
Weather Conditions:

Wind Speed: 20 Gusts up to: 30 Temp: 73

Precipitation in the last 24 hrs. 0 Inches of rain: 0

Tailings Impoundment Surface Inspection

Date: 10-10-18
Time: 5:00 pm
Conditions: light winds Cloudy Partly
Dam Inspected: N/S Phase(s) 3
Inspected By: Granillo Joe



All-track Availability

70105	Avail
70106	Avail
70107	Down
70108	Avail
70109	Avail

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: All Trackings, Gorilla Snot Applied on North Berm

Dust Suppressant Applied: Mag, Gorilla Snot

Operators: Mine Support

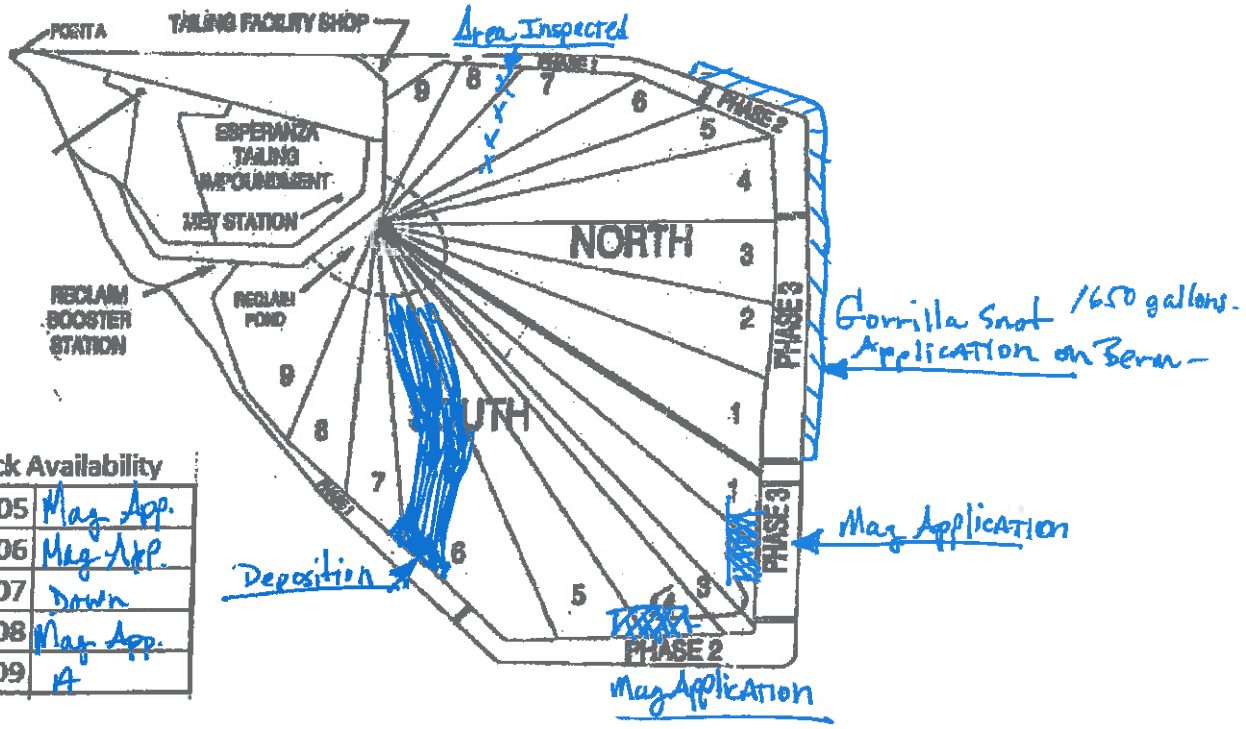
Weather Conditions:

Wind Speed: 9 Gusts up to: ____ Temp: 74

Precipitation in the last 24 hrs. 0 Inches of rain: 0

Tailings Impoundment Surface Inspection

Date: 10-9-2017
Time: 5:30pm-
Conditions: Clear
Dam Inspected: North Phase(s) 8
Inspected By: Jesus Hernandez



All-track Availability

70105	Mag App.
70106	Mag App.
70107	Down
70108	Mag App.
70109	A

1	Recent Deposition (14 days or less)	No Action Required
(2)	Moist Surface	No Action Required
(3)	Established Salt Crust	No Action Required
(4)	Crusted with [redacted] surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
(6)	Piles of standing sands - Againts Beren	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Water Truck / All Track

Dust Suppressant Applied: H_2O / $MgCl_2$

Operators: Jay R Cody W,

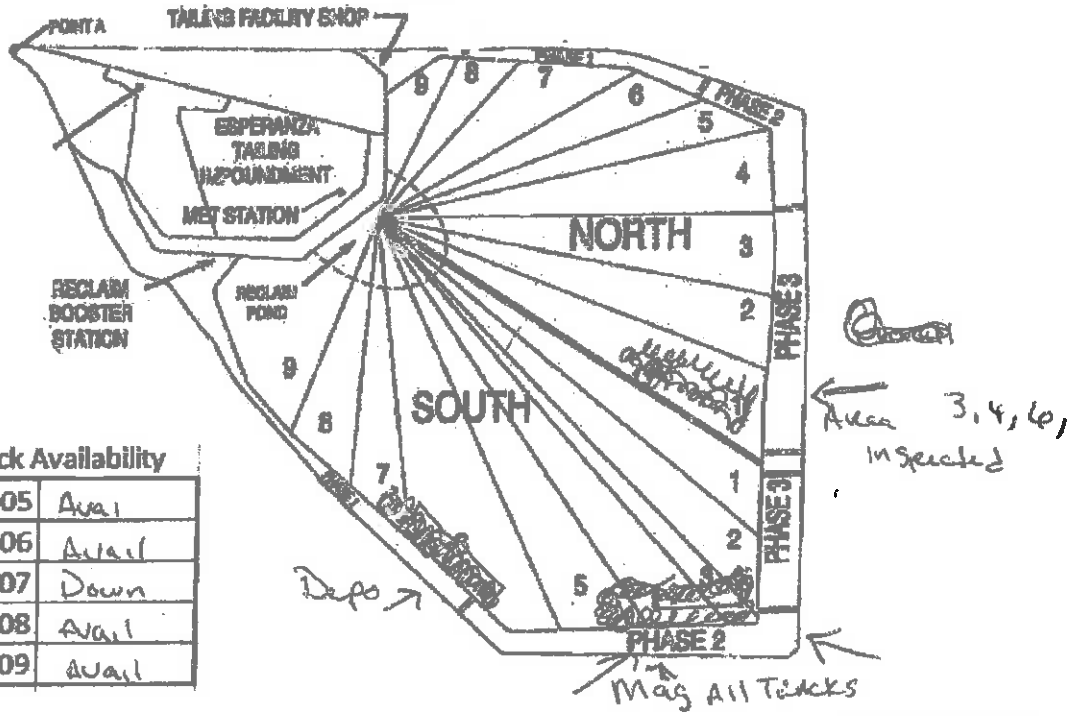
Weather Conditions:

Wind Speed: 4 Gusts up to: 7 Temp: 72°

Precipitation in the last 24 hrs. N/A Inches of rain: N/A

Tailings Impoundment Surface Inspection

Date: 10-9-18
Time: 11:00
Conditions: Sunny/Cloudy
Dam Inspected: All Phase(s) 3
Inspected By: Granillo Joe



All-track Availability

70105	Avail
70106	Avail
70107	Down
70108	Avail
70109	Avail

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
(3)	Established Salt Crust	No Action Required
(4)	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
(6)	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: All Tracks water Trucks

Dust Suppressant Applied: Scheduled 10-10-18

Operators: Mine Support

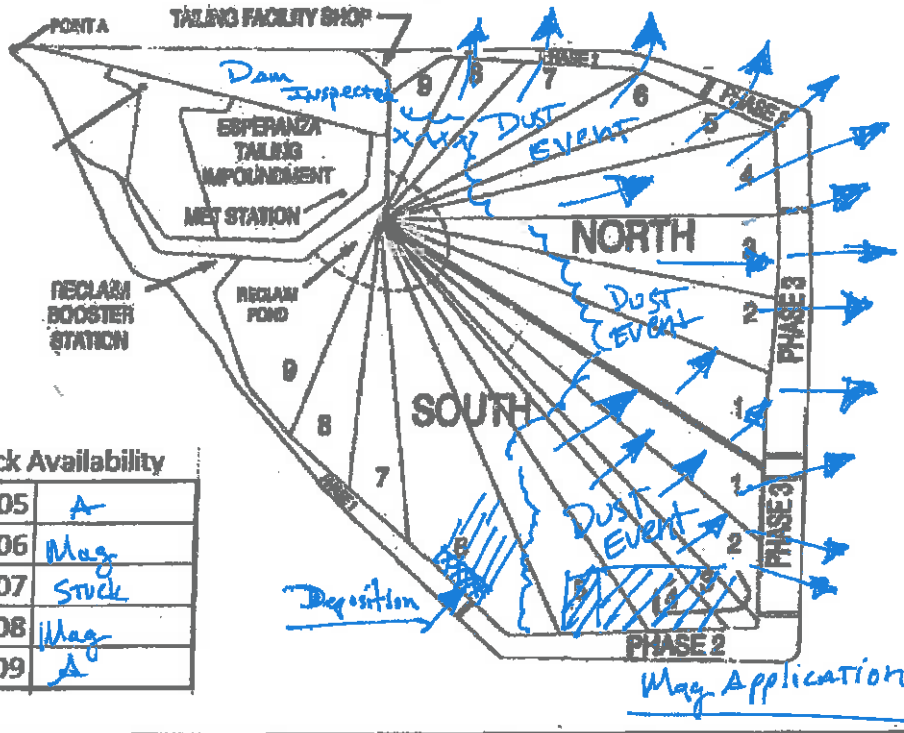
Weather Conditions:

Wind Speed: 7 Gusts up to: 10 Temp: 70

Precipitation in the last 24 hrs. 0 Inches of rain: 0

Tailings Impoundment Surface Inspection

Date: 10-7-2018
Time: 8:00am
Conditions: High Winds
Dam Inspected: North Phase(s) 1
Inspected By: Jesus Hernandez



All-track Availability

70105	A
70106	Mag
70107	Stuck
70108	Mag
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Water Trucks / All Track

Dust Suppressant Applied: H_2O / MgCl2

Operators: Art G, JJ Murphy, Jay R, Bob S, Jesse P.

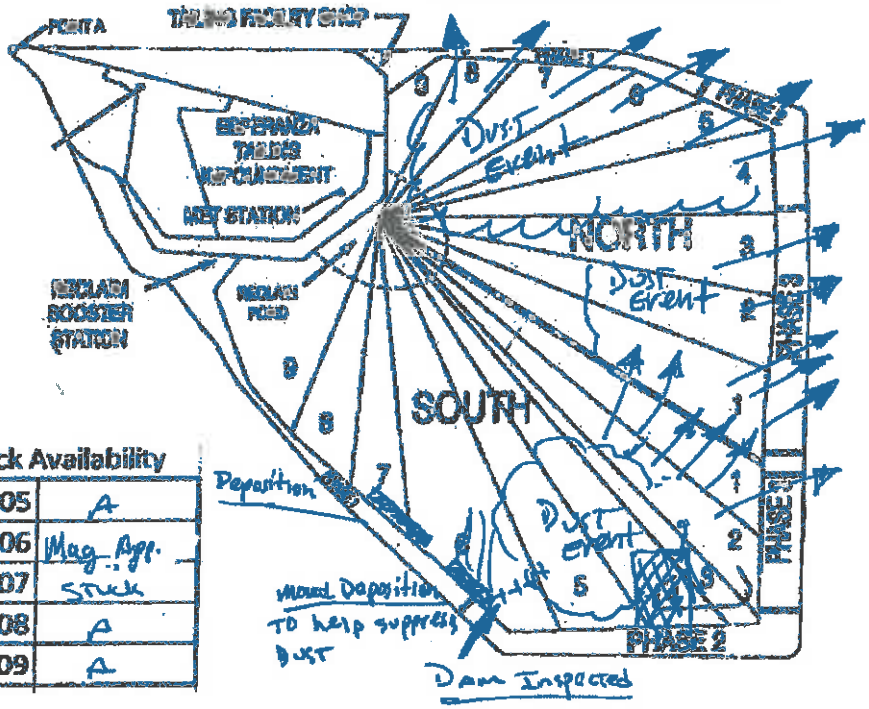
Weather Conditions:

Wind Speed: 25 Gusts up to: 33 Temp: 70's

Precipitation in the last 24 hrs. N/A Inches of rain: N/A

Tailings Impoundment Surface Inspection

Date: 10 · 6 · 2018
Time: 1:00 pm-
Conditions: High Winds
Dam Inspected: South Phase(s) 1 (1a-5)
Inspected By: Jesus Hernandez



All-track Availability

70105	A
70106	Mag. Appl.
70107	Stuck
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Running All Track WATER TRUCKS

Dust Suppressant Applied: H_2O / $MgCl_2$

Operators: Chris L, Paul, Jesus

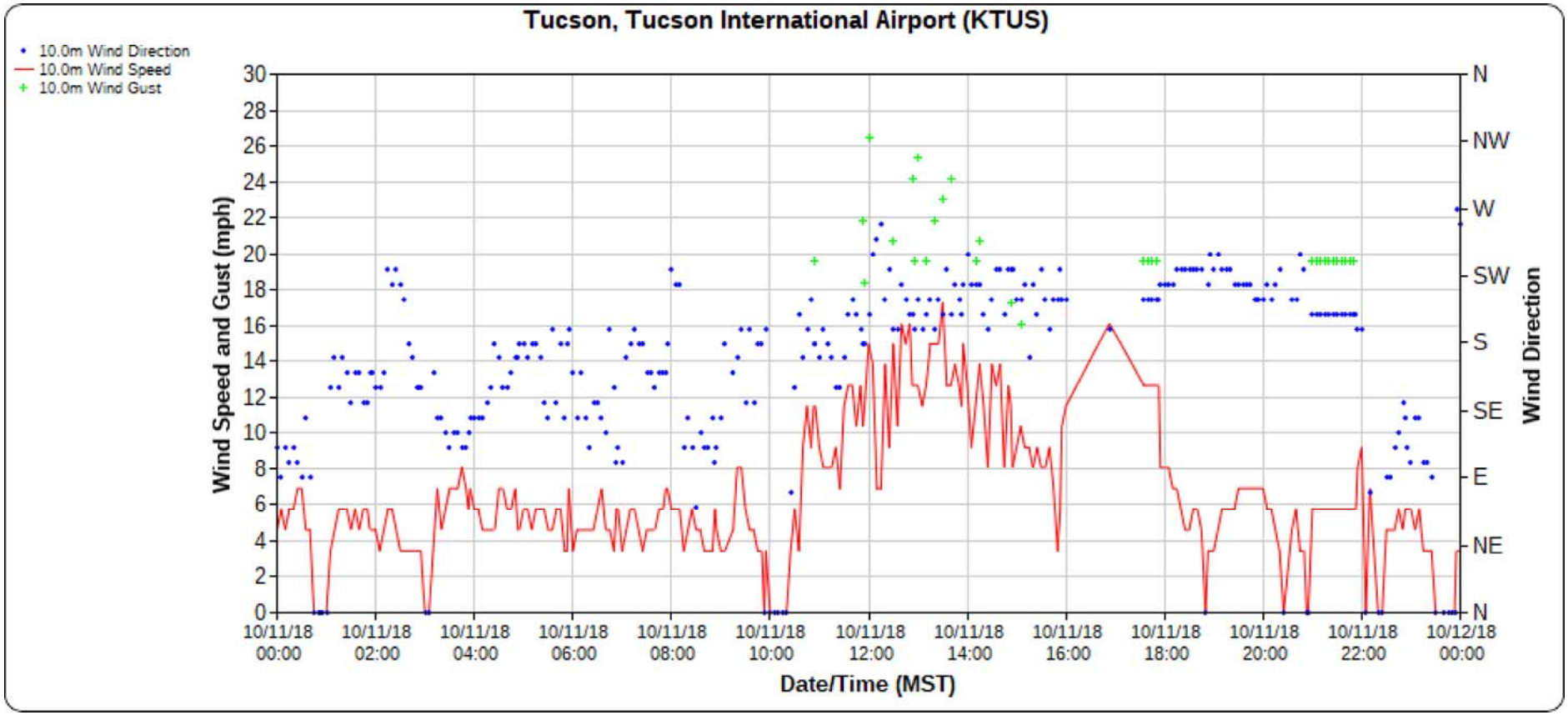
Weather Conditions:

Wind Speed: 30 Gusts up to: 40+ Temp: 80s

Precipitation in the last 24 hrs. n/a Inches of rain: n/a

Attachment 9

National Weather Service Wind Data for October 11, 2018


Tucson, Tucson International Airport (KTUS)
10.0m Wind Direction
10.0m Wind Speed
10.0m Wind Gust
Wind Speed and Gust (mph)
Wind Direction
Date/Time (MST)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
N
NW
W
SW
S
SE
E
NE
N
10/11/18 00:00
10/11/18 02:00
10/11/18 04:00
10/11/18 06:00
10/11/18 08:00
10/11/18 10:00
10/11/18 12:00
10/11/18 14:00
10/11/18 16:00
10/11/18 18:00
10/11/18 20:00
10/11/18 22:00
10/12/18 00:00

Weather Conditions for KTUS

Observations Prior to: 10/12/2018 00:00 MST

Weather Conditions at: 10/12/2018 0:00 MST

Graphical Links	0:00	Max Since 0:00 (MST)	Min Since 0:00 (MST)	24 Hour Maximum	24 Hour Minimum
2.0m Temperature	68.0° F	68.0 at 0:00	68.0 at 0:00	80.6 at 16:20	57.2 at 5:00
2.0m Dew Point	57.2° F	57.2 at 0:00	57.2 at 0:00	57.2 at 0:00	44.6 at 14:40
2.0m Wet bulb temperature	61.0° F	61.0 at 0:00	61.0 at 0:00	62.3 at 16:20	52.0 at 5:00
2.0m Relative Humidity	68%	68 at 0:00	68 at 0:00	72 at 5:00	30 at 15:15
10.0m Wind Speed	3.5 mph	3.5 at 0:00	3.5 at 0:00	17.3 at 13:30	0.0 at 23:53
10.0m Wind Direction	W	-	-	-	-
Pressure	27.28 in	27.28 at 0:00	27.28 at 0:00	27.29 at 10:40	27.22 at 17:40
Altimeter	29.94 in	29.94 at 0:00	29.94 at 0:00	29.95 at 10:40	29.87 at 17:40
Weather conditions	Overcast	-	-	-	-
Visibility	10.00 miles	10.00 at 0:00	10.00 at 0:00	10.00 at 0:00	10.00 at 0:00
Ceiling	6000 feet	6000 at 0:00	6000 at 0:00	11000 at 22:35	5500 at 4:50

* The maxima/minima values above are calculated from the available observations and may not be official. More information is available here.

ASOS/AWOS Station Summary (Help)	Last Reported	Max/Min Values Last 24 Hours
Station 6 Hr High Temperature	78.1° F (22:53 MST 10/11)	81.0° F (16:53 MST 10/11)
Station 6 Hr Low Temperature	70.0° F (22:53 MST 10/11)	57.9° F (10:53 MST 10/11)
Station 24 Hr High Temperature	81.0° F (23:53 MST 10/11)	-
Station 24 Hr Low Temperature	57.9° F (23:53 MST 10/11)	-
Station Peak Wind Speed	-	26.5 mph (12:00 MST 10/11)

** The report times listed are when the value was reported by the station, not necessarily the time the value was actually measured.

Estimated Accumulated Precipitation	Since 0:00 (MST)	24 Hours
Precipitation 1hr	0.00 in	0.00 in

***Note:** Observations above in **yellow** indicate that they are older than the last row of observations below.

Tabular Listing of 326 Observations from 10/10/2018 23:00 MST to 10/12/2018 0:00 MST:

Time (MST)	2.0m Temperature ° F	2.0m Dew Point ° F	2.0m Wet bulb temperature ° F	2.0m Relative Humidity %	10.0m Wind Speed mph	10.0m Wind Gust mph	10.0m Wind Direction	Pressure in	Sea level pressure in	Altimeter in	Weather conditions	Visibility miles	Ceiling feet	Precipitation 1hr in	6 Hr High Temperature ° F	6 Hr Low Temperature ° F	24 Hr High Temperature ° F	24 Hr Low Temperature ° F	Quality Control
0:00	68.0	57.2	61.0	68	3.5		W	27.28		29.94	Overcast	10.00	6000						OK
23:55	68.0	57.2	61.0	68	3.5		W	27.28		29.94	Overcast	10.00	6000						OK
23:53	68.0	57.0	60.9	68	0.0		N	27.28	29.82	29.94	Overcast	10.00	7500	0.00			81.0	57.9	OK
23:50	68.0	57.2	61.0	68	0.0		N	27.28		29.94	Light Rain	10.00	7500						OK
23:45	69.8	55.4	60.6	60	0.0		N	27.28		29.94	Light Rain	10.00	10000						OK
23:40	69.8	55.4	60.6	60	0.0		N	27.28		29.94	Light Rain	10.00	10000						OK
23:35	69.8	53.6	59.6	56				27.28		29.94	Mostly Cloudy	10.00	10000						OK
23:30	69.8	53.6	59.6	56	0.0		N	27.28		29.93	Partly Cloudy	10.00							OK
23:25	69.8	53.6	59.6	56	3.5		E	27.28		29.94	Mostly Clear	10.00							OK
23:20	69.8	53.6	59.6	56	3.5		E	27.28		29.93	Clear	10.00							OK
23:15	69.8	53.6	59.6	56	3.5		E	27.28		29.94	Mostly Clear	10.00							OK
23:10	69.8	53.6	59.6	56	5.8		SE	27.28		29.94	Mostly Clear	10.00							OK
23:05	69.8	53.6	59.6	56	4.6		SE	27.28		29.94	Mostly Clear	10.00							OK
23:00	69.8	53.6	59.6	56	5.8		E	27.28		29.94		10.00							OK

											Partly Cloudy					
22:55	69.8	53.6	59.6	56	5.8		ESE	27.28		29.93	Partly Cloudy	10.00				OK
22:53	70.0	54.0	59.8	57	5.8		SE	27.28	29.82	29.93	Partly Cloudy	10.00		78.1	70.0	OK
22:50	69.8	53.6	59.6	56	4.6		SE	27.28		29.93	Partly Cloudy	10.00				OK
22:45	69.8	53.6	59.6	56	5.8		ESE	27.28		29.93	Mostly Cloudy	10.00	10000			OK
22:40	69.8	53.6	59.6	56	4.6		ESE	27.28		29.94	Mostly Cloudy	10.00	10000			OK
22:35	69.8	53.6	59.6	56	4.6		E	27.28		29.93	Mostly Cloudy	10.00	11000			OK
22:30	71.6	53.6	60.2	53	4.6		E	27.28		29.93	Mostly Cloudy	10.00	7500			OK
22:25	71.6	53.6	60.2	53	0.0		N	27.28		29.93	Mostly Cloudy	10.00	7500			OK
22:20	71.6	53.6	60.2	53	0.0		N	27.28		29.93	Overcast	10.00	7500			OK
22:15	71.6	53.6	60.2	53				27.28		29.93	Overcast	10.00	7500			OK
22:10	71.6	53.6	60.2	53	6.9		E	27.28		29.93	Overcast	10.00	7500			OK
22:05	71.6	53.6	60.2	53	0.0		N	27.27		29.92	Overcast	10.00	8000			OK
22:00	71.6	53.6	60.2	53	9.2		S	27.27		29.92	Overcast	10.00	7500			OK
21:55	71.6	53.6	60.2	53	8.1		S	27.27		29.92	Overcast	10.00	7500			OK
21:53	71.1	54.0	60.2	55	5.8		SSW	27.27	29.80	29.92	Overcast	10.00	7500			OK
21:50	71.6	53.6	60.2	53	5.8	19.6	SSW	27.27		29.92	Overcast	10.00	7500			OK
21:45	71.6	53.6	60.2	53	5.8	19.6	SSW	27.27		29.92	Overcast	10.00	7500			OK
21:40	71.6	53.6	60.2	53	5.8	19.6	SSW	27.27		29.92	Overcast	10.00	7500			OK
21:35	71.6	53.6	60.2	53	5.8	19.6	SSW	27.27		29.92	Overcast	10.00	7500			OK
21:30	71.6	53.6	60.2	53	5.8	19.6	SSW	27.27		29.92	Overcast	10.00	7500			OK
21:25	71.6	53.6	60.2	53	5.8	19.6	SSW	27.27		29.92	Overcast	10.00	7500			OK
21:20	71.6	53.6	60.2	53	5.8	19.6	SSW	27.27		29.92	Overcast	10.00	7500			OK
21:15	71.6	53.6	60.2	53	5.8	19.6	SSW	27.27		29.92	Overcast	10.00	8000			OK
21:10	71.6	53.6	60.2	53	5.8	19.6	SSW	27.27		29.92	Mostly Cloudy	10.00	8000			OK
21:05	71.6	53.6	60.2	53	5.8	19.6	SSW	27.26		29.91	Mostly Cloudy	10.00	8000			OK
21:00	71.6	53.6	60.2	53	5.8	19.6	SSW	27.26		29.91	Mostly Cloudy	10.00	10000			OK
20:55	71.6	53.6	60.2	53	0.0		N	27.26		29.91	Mostly Cloudy	10.00	10000			OK
20:53	72.0	54.0	60.5	53	0.0		N	27.26	29.80	29.91	Mostly Cloudy	10.00	10000			OK
20:50	71.6	53.6	60.2	53	3.5		SW	27.26		29.91	Partly Cloudy	10.00				OK
20:45	71.6	53.6	60.2	53	3.5		WSW	27.26		29.91	Partly Cloudy	10.00				OK
20:40	71.6	53.6	60.2	53	5.8		SSW	27.26		29.91	Mostly Clear	10.00				OK
20:35	71.6	53.6	60.2	53	4.6		SSW	27.26		29.91	Mostly Clear	10.00				OK
20:30	71.6	53.6	60.2	53				27.26		29.91	Mostly Clear	10.00				OK
20:25	71.6	53.6	60.2	53	0.0		N	27.26		29.91	Mostly Clear	10.00				OK
20:20	71.6	53.6	60.2	53	3.5		SW	27.26		29.91	Clear	10.00				OK
20:15	71.6	53.6	60.2	53	4.6		SW	27.26		29.91	Clear	10.00				OK

20:10	71.6	53.6	60.2	53	5.8		SSW	27.26		29.91	Clear	10.00				OK
20:05	71.6	53.6	60.2	53	5.8		SW	27.25		29.90	Clear	10.00				OK
20:00	71.6	53.6	60.2	53	6.9		SSW	27.25		29.90	Clear	10.00				OK
19:55	71.6	51.8	59.2	50	6.9		SSW	27.25		29.90	Clear	10.00				OK
19:53	73.0	52.0	59.8	48	6.9		SSW	27.25	29.80	29.90	Clear	10.00				OK
19:50	73.4	51.8	59.9	47	6.9		SSW	27.25		29.90	Clear	10.00				OK
19:45	71.6	51.8	59.2	50	6.9		SW	27.25		29.90	Clear	10.00				OK
19:40	71.6	51.8	59.2	50	6.9		SW	27.25		29.90	Clear	10.00				OK
19:35	71.6	51.8	59.2	50	6.9		SW	27.25		29.90	Clear	10.00				OK
19:30	71.6	51.8	59.2	50	6.9		SW	27.25		29.90	Clear	10.00				OK
19:25	71.6	51.8	59.2	50	5.8		SW	27.25		29.90	Clear	10.00				OK
19:20	71.6	51.8	59.2	50	5.8		SW	27.24		29.89	Clear	10.00				OK
19:15	71.6	51.8	59.2	50	5.8		SW	27.24		29.89	Clear	10.00				OK
19:10	73.4	51.8	59.9	47	5.8		SW	27.24		29.89	Clear	10.00				OK
19:05	73.4	51.8	59.9	47	4.6		WSW	27.24		29.89	Clear	10.00				OK
19:00	73.4	51.8	59.9	47	3.5		SW	27.24		29.89	Clear	10.00				OK
18:55	73.4	51.8	59.9	47	3.5		WSW	27.24		29.89	Clear	10.00				OK
18:53	73.9	52.0	60.1	46	3.5		SW	27.24	29.78	29.89	Clear	10.00				OK
18:50	73.4	51.8	59.9	47	0.0		N	27.23		29.88	Clear	10.00				OK
18:45	73.4	51.8	59.9	47	4.6		SW	27.23		29.88	Clear	10.00				OK
18:40	73.4	51.8	59.9	47	5.8		SW	27.23		29.88	Clear	10.00				OK
18:35	73.4	51.8	59.9	47	5.8		SW	27.23		29.88	Clear	10.00				OK
18:30	73.4	51.8	59.9	47	4.6		SW	27.23		29.88	Clear	10.00				OK
18:25	73.4	51.8	59.9	47	4.6		SW	27.23		29.88	Clear	10.00				OK
18:20	73.4	51.8	59.9	47	5.8		SW	27.23		29.88	Clear	10.00				OK
18:15	73.4	51.8	59.9	47	6.9		SW	27.23		29.88	Clear	10.00				OK
18:10	75.2	51.8	60.5	44	6.9		SW	27.23		29.88	Clear	10.00				OK
18:05	75.2	51.8	60.5	44	8.1		SW	27.23		29.88	Clear	10.00				OK
18:00	75.2	51.8	60.5	44	8.1		SW	27.23		29.88	Clear	10.00				OK
17:55	75.2	51.8	60.5	44	8.1		SW	27.23		29.88	Clear	10.00				OK
17:53	75.0	51.1	60.0	43	12.7		SSW	27.23	29.78	29.88	Clear	10.00				OK
17:50	75.2	51.8	60.5	44	12.7	19.6	SSW	27.23		29.88	Clear	10.00				OK
17:45	75.2	51.8	60.5	44	12.7	19.6	SSW	27.23		29.88	Clear	10.00				OK
17:40	75.2	51.8	60.5	44	12.7	19.6	SSW	27.22		29.87	Clear	10.00				OK
17:35	75.2	51.8	60.5	44	12.7	19.6	SSW	27.22		29.87	Clear	10.00				OK
17:30	75.2	51.8	60.5	44				27.22		29.87	Clear	10.00				OK
17:25	77.0	50.0	60.2	39				27.22		29.87	Clear	10.00				OK
17:20	77.0	50.0	60.2	39				27.22		29.87	Clear	10.00				OK
17:15	77.0	50.0	60.2	39				27.22		29.87	Clear	10.00				OK
17:10	77.0	50.0	60.2	39				27.22		29.87	Mostly Clear	10.00				OK
17:05	78.8	50.0	60.8	37				27.23		29.88	Mostly Clear	10.00				OK
17:00	78.8	50.0	60.8	37				27.22		29.87	Mostly Clear	10.00				OK
16:55	78.8	50.0	60.8	37				27.23		29.88	Partly Cloudy	10.00				OK
16:53	78.1	50.0	60.6	37	16.1		S	27.23	29.77	29.88	Partly Cloudy	10.00		81.0	75.0	OK
16:50	78.8	50.0	60.8	37				27.23		29.88	Partly Cloudy	10.00				OK
16:45	78.8	50.0	60.8	37				27.23		29.88	Mostly Cloudy	10.00	9500			OK

16:40	78.8	50.0	60.8	37				27.22		29.87	Mostly Cloudy	10.00	10000	OK
16:35	78.8	50.0	60.8	37				27.22		29.87	Mostly Cloudy	10.00	10000	OK
16:30	78.8	50.0	60.8	37				27.22		29.87	Mostly Cloudy	10.00	9500	OK
16:25	78.8	50.0	60.8	37				27.22		29.87	Mostly Cloudy	10.00	9500	OK
16:20	80.6	51.8	62.3	37				27.22		29.87	Overcast	10.00	10000	OK
16:15	78.8	51.8	61.7	39				27.22		29.87	Overcast	10.00	8500	OK
16:10	78.8	51.8	61.7	39				27.22		29.87	Overcast	10.00	6500	OK
16:05	78.8	51.8	61.7	39				27.22		29.87	Overcast	10.00	6500	OK
16:00	78.8	50.0	60.8	37	11.5		SSW	27.22		29.87	Overcast	10.00	7000	OK
15:55	78.8	48.2	60.0	34	10.4		SSW	27.22		29.87	Overcast	10.00	7000	OK
15:53	79.0	48.9	60.4	35	5.8		SW	27.22	29.76	29.87	Overcast	10.00	7000	OK
15:50	78.8	48.2	60.0	34	3.5		SSW	27.22		29.87	Overcast	10.00	7000	OK
15:45	78.8	48.2	60.0	34	6.9		SSW	27.22		29.87	Overcast	10.00	7000	OK
15:40	78.8	48.2	60.0	34	9.2		S	27.22		29.87	Overcast	10.00	7000	OK
15:35	78.8	48.2	60.0	34	8.1		SSW	27.22		29.87	Overcast	10.00	7000	OK
15:30	78.8	48.2	60.0	34	8.1		SW	27.22		29.87	Overcast	10.00	7000	OK
15:25	78.8	48.2	60.0	34	9.2		SSW	27.22		29.87	Overcast	10.00	7500	OK
15:20	78.8	46.4	59.2	32	8.1		SW	27.22		29.87	Mostly Cloudy	10.00	7500	OK
15:15	80.6	46.4	59.8	30	9.2		S	27.22		29.87	Mostly Cloudy	10.00	8000	OK
15:10	78.8	46.4	59.2	32	9.2		SW	27.22		29.87	Mostly Cloudy	10.00	9000	OK
15:05	78.8	46.4	59.2	32	10.4	16.1	SSW	27.22		29.87	Mostly Cloudy	10.00	8500	OK
15:00	80.6	46.4	59.8	30	9.2		SSW	27.22		29.87	Mostly Cloudy	10.00	8500	OK
14:55	78.8	46.4	59.2	32	8.1		SW	27.23		29.88	Partly Cloudy	10.00		OK
14:53	79.0	46.0	59.1	31	11.5	17.3	SW	27.23	29.77	29.88	Partly Cloudy	10.00		OK
14:50	78.8	46.4	59.2	32	12.7		SW	27.23		29.88	Partly Cloudy	10.00		OK
14:45	80.6	46.4	59.8	30	8.1		SSW	27.23		29.88	Partly Cloudy	10.00		OK
14:40	78.8	44.6	58.4	30	13.8		SW	27.23		29.88	Mostly Clear	10.00		OK
14:35	80.6	46.4	59.8	30	12.7		SW	27.23		29.88	Mostly Clear	10.00		OK
14:30	80.6	46.4	59.8	30	13.8		SSW	27.23		29.88	Partly Cloudy	10.00		OK
14:25	80.6	46.4	59.8	30	8.1		S	27.23		29.88	Mostly Cloudy	10.00	8500	OK
14:20	78.8	48.2	60.0	34	11.5		SSW	27.23		29.88	Mostly Cloudy	10.00	8500	OK
14:15	78.8	48.2	60.0	34	13.8	20.7	SW	27.23		29.88	Mostly Cloudy	10.00	8500	OK
14:10	78.8	48.2	60.0	34	11.5	19.6	SW	27.23		29.88	Overcast	10.00	9000	OK
14:05	78.8	48.2	60.0	34	9.2		SW	27.23		29.88	Mostly Cloudy	10.00	9000	OK
14:00	78.8	48.2	60.0	34	12.7		WSW	27.23		29.88		10.00	8500	OK

										Mostly Cloudy			
13:55	78.8	48.2	60.0	34	15.0		SW	27.23		29.88	Mostly Cloudy	10.00	8500	OK
13:53	79.0	48.0	60.0	34	11.5		SSW	27.23	29.77	29.88	Mostly Cloudy	10.00	8500	OK
13:50	78.8	48.2	60.0	34	12.7		SSW	27.23		29.88	Mostly Cloudy	10.00	9000	OK
13:45	80.6	46.4	59.8	30	13.8		SW	27.23		29.88	Partly Cloudy	10.00		OK
13:40	80.6	48.2	60.6	32	12.7	24.2	SSW	27.24		29.89	Partly Cloudy	10.00		OK
13:35	80.6	48.2	60.6	32	12.7		SW	27.24		29.89	Mostly Cloudy	10.00	8500	OK
13:30	80.6	46.4	59.8	30	17.3	23.0	SSW	27.24		29.89	Mostly Cloudy	10.00	8500	OK
13:25	80.6	46.4	59.8	30	15.0		SSW	27.25		29.90	Mostly Cloudy	10.00	8500	OK
13:20	80.6	46.4	59.8	30	15.0	21.9	S	27.25		29.90	Mostly Cloudy	10.00	8500	OK
13:15	80.6	46.4	59.8	30	15.0		SSW	27.25		29.90	Partly Cloudy	10.00		OK
13:10	80.6	48.2	60.6	32	12.7	19.6	SSW	27.25		29.90	Partly Cloudy	10.00		OK
13:05	78.8	46.4	59.2	32	11.5		S	27.25		29.90	Partly Cloudy	10.00		OK
13:00	80.6	46.4	59.8	30	12.7	25.3	SSW	27.25		29.90	Partly Cloudy	10.00		OK
12:55	78.8	46.4	59.2	32	12.7	19.6	S	27.25		29.90	Mostly Clear	10.00		OK
12:53	79.0	46.9	59.5	32	12.7	24.2	SSW	27.25	29.79	29.90	Mostly Clear	10.00		OK
12:50	80.6	46.4	59.8	30	16.1		SSW	27.26		29.91	Mostly Clear	10.00		OK
12:45	80.6	46.4	59.8	30	15.0		SSW	27.26		29.91	Partly Cloudy	10.00		OK
12:40	80.6	46.4	59.8	30	16.1		SW	27.25		29.90	Partly Cloudy	10.00		OK
12:35	80.6	46.4	59.8	30	10.4		S	27.25		29.90	Partly Cloudy	10.00		OK
12:30	78.8	48.2	60.0	34	15.0	20.7	S	27.25		29.90	Mostly Cloudy	10.00	8000	OK
12:25	78.8	48.2	60.0	34	9.2		SW	27.26		29.91	Mostly Cloudy	10.00	8000	OK
12:20	78.8	50.0	60.8	37	13.8		SSW	27.26		29.91	Mostly Cloudy	10.00	6000	OK
12:15	77.0	51.8	61.1	41	6.9		W	27.26		29.91	Mostly Cloudy	10.00	6500	OK
12:10	77.0	51.8	61.1	41	6.9		WSW	27.26		29.91	Mostly Cloudy	10.00	6000	OK
12:05	78.8	51.8	61.7	39	13.8		WSW	27.26		29.91	Partly Cloudy	10.00		OK
12:00	78.8	51.8	61.7	39	15.0	26.5	SSW	27.27		29.92	Mostly Clear	10.00		OK
11:55	77.0	51.8	61.1	41	11.5	18.4	S	27.27		29.92	Mostly Clear	10.00		OK
11:53	77.0	52.0	61.2	42	10.4	21.9	S	27.27	29.81	29.92	Mostly Clear	10.00		OK
11:50	78.8	51.8	61.7	39	12.7		S	27.27		29.92	Mostly Clear	10.00		OK
11:45	77.0	51.8	61.1	41	10.4		SSW	27.27		29.92	Mostly Clear	10.00		OK

11:40	77.0	51.8	61.1	41	12.7		SSW	27.27		29.92	Mostly Clear	10.00				OK
11:35	77.0	51.8	61.1	41	12.7		SSW	27.28		29.93	Mostly Clear	10.00				OK
11:30	75.2	53.6	61.4	47	11.5		S	27.28		29.93	Mostly Clear	10.00				OK
11:25	75.2	53.6	61.4	47	6.9		SSE	27.28		29.93	Clear	10.00				OK
11:20	75.2	53.6	61.4	47	9.2		SSE	27.28		29.93	Mostly Clear	10.00				OK
11:15	75.2	53.6	61.4	47	8.1		S	27.28		29.93	Mostly Clear	10.00				OK
11:10	75.2	53.6	61.4	47	8.1		S	27.28		29.94	Mostly Clear	10.00				OK
11:05	75.2	53.6	61.4	47	8.1		S	27.28		29.93	Mostly Clear	10.00				OK
11:00	75.2	53.6	61.4	47	9.2		S	27.28		29.94	Mostly Clear	10.00				OK
10:55	75.2	53.6	61.4	47	11.5		S	27.28		29.94	Mostly Clear	10.00				OK
10:53	75.0	54.0	61.5	48	11.5	19.6	S	27.28	29.83	29.94	Mostly Clear	10.00	75.0	57.9		OK
10:50	75.2	53.6	61.4	47	9.2		SSW	27.28		29.94	Mostly Clear	10.00				OK
10:45	75.2	53.6	61.4	47	11.5		S	27.28		29.94	Mostly Clear	10.00				OK
10:40	73.4	53.6	60.8	50	9.2		S	27.29		29.95	Mostly Clear	10.00				OK
10:35	75.2	53.6	61.4	47	3.5		SSW	27.29		29.95	Mostly Clear	10.00				OK
10:30	73.4	53.6	60.8	50	5.8		SSE	27.29		29.95	Mostly Clear	10.00				OK
10:25	73.4	53.6	60.8	50	3.5		E	27.29		29.95	Mostly Clear	10.00				OK
10:20	73.4	53.6	60.8	50	0.0		N	27.29		29.95	Mostly Clear	10.00				OK
10:15	73.4	53.6	60.8	50	0.0		N	27.29		29.95	Mostly Clear	10.00				OK
10:10	71.6	53.6	60.2	53	0.0		N	27.29		29.95	Mostly Clear	10.00				OK
10:05	71.6	53.6	60.2	53	0.0		N	27.29		29.95	Mostly Clear	10.00				OK
10:00	71.6	53.6	60.2	53	0.0		N	27.29		29.95	Mostly Clear	10.00				OK
9:55	71.6	53.6	60.2	53	3.5		S	27.29		29.95	Partly Cloudy	10.00				OK
9:53	71.1	53.1	59.7	53	0.0		N	27.29	29.85	29.95	Mostly Clear	10.00				OK
9:50	71.6	53.6	60.2	53	3.5		S	27.29		29.95	Mostly Clear	10.00				OK
9:45	71.6	53.6	60.2	53	3.5		S	27.29		29.95	Mostly Clear	10.00				OK
9:40	71.6	53.6	60.2	53	4.6		SE	27.29		29.95	Mostly Clear	10.00				OK
9:35	71.6	53.6	60.2	53	4.6		S	27.29		29.95	Mostly Clear	10.00				OK
9:30	71.6	53.6	60.2	53	5.8		SE	27.29		29.95	Clear	10.00				OK
9:25	71.6	53.6	60.2	53	8.1		S	27.29		29.95	Clear	10.00				OK
9:20	71.6	53.6	60.2	53	8.1		S	27.29		29.95	Clear	10.00				OK
9:15	71.6	53.6	60.2	53	4.6		SSE	27.29		29.95	Clear	10.00				OK
9:10	71.6	53.6	60.2	53				27.29		29.95	Clear	10.00				OK
9:05	71.6	51.8	59.2	50	3.5		S	27.29		29.95	Clear	10.00				OK
9:00	71.6	53.6	60.2	53	3.5		SE	27.29		29.95	Clear	10.00				OK
8:55	71.6	53.6	60.2	53	4.6		ESE	27.29		29.95	Clear	10.00				OK
8:53	71.1	53.1	59.7	53	5.8		E	27.29	29.84	29.95	Clear	10.00				OK
8:50	69.8	53.6	59.6	56	3.5		SE	27.29		29.95	Clear	10.00				OK
8:45	69.8	53.6	59.6	56	3.5		ESE	27.29		29.95	Clear	10.00				OK
8:40	69.8	51.8	58.6	53	3.5		ESE	27.29		29.95	Clear	10.00				OK
8:35	69.8	53.6	59.6	56	4.6		ESE	27.29		29.95	Clear	10.00				OK
8:30	68.0	51.8	58.0	56	4.6		ENE	27.29		29.95	Clear	10.00				OK
8:25	66.2	51.8	57.3	60	5.8		ESE	27.29		29.95	Clear	10.00				OK
8:20	66.2	51.8	57.3	60	4.6		SE	27.29		29.95	Clear	10.00				OK
8:15	64.4	51.8	56.7	64	3.5		ESE	27.29		29.95	Clear	10.00				OK
8:10	62.6	51.8	56.0	68	5.8		SW	27.29		29.95	Clear	10.00				OK
8:05	62.6	51.8	56.0	68	5.8		SW	27.29		29.95	Clear	10.00				OK
8:00	62.6	51.8	56.0	68	5.8		SW	27.29		29.95	Clear	10.00				OK
7:55	62.6	51.8	56.0	68	6.9		S	27.29		29.95	Clear	10.00				OK

7:53	62.1	51.1	55.4	67	6.9	SSE	27.29	29.85	29.95	Clear	10.00				OK
7:50	60.8	50.0	54.4	68	5.8	SSE	27.28		29.94	Clear	10.00				OK
7:45	60.8	50.0	54.4	68	5.8	SSE	27.28		29.94	Clear	10.00				OK
7:40	60.8	50.0	54.4	68	4.6	SSE	27.28		29.94	Clear	10.00				OK
7:35	60.8	50.0	54.4	68	4.6	SSE	27.28		29.94	Clear	10.00				OK
7:30	60.8	50.0	54.4	68	4.6	SSE	27.28		29.94	Clear	10.00				OK
7:25	60.8	50.0	54.4	68	3.5	S	27.28		29.93	Clear	10.00				OK
7:20	60.8	50.0	54.4	68	4.6	S	27.28		29.93	Clear	10.00				OK
7:15	60.8	50.0	54.4	68	5.8	S	27.28		29.93	Clear	10.00				OK
7:10	60.8	50.0	54.4	68	5.8	S	27.28		29.93	Clear	10.00				OK
7:05	62.6	50.0	55.1	63	4.6	S	27.28		29.93	Mostly Clear	10.00				OK
7:00	62.6	50.0	55.1	63	3.5	E	27.28		29.93	Mostly Clear	10.00				OK
6:55	60.8	50.0	54.4	68	5.8	ESE	27.28		29.93	Mostly Clear	10.00				OK
6:53	61.0	50.0	54.4	67	5.8	E	27.28	29.83	29.93	Mostly Clear	10.00				OK
6:50	60.8	50.0	54.4	68	3.5	SSE	27.28		29.93	Mostly Clear	10.00				OK
6:45	60.8	50.0	54.4	68	4.6	S	27.27		29.92	Clear	10.00				OK
6:40	60.8	50.0	54.4	68	4.6	ESE	27.27		29.92	Clear	10.00				OK
6:35	60.8	50.0	54.4	68	6.9	SE	27.27		29.92	Clear	10.00				OK
6:30	62.6	50.0	55.1	63	5.8	SE	27.27		29.92	Clear	10.00				OK
6:25	62.6	50.0	55.1	63	4.6	SE	27.27		29.92	Clear	10.00				OK
6:20	62.6	50.0	55.1	63	4.6	ESE	27.27		29.92	Clear	10.00				OK
6:15	60.8	48.2	53.4	63	4.6	SE	27.26		29.91	Clear	10.00				OK
6:10	60.8	48.2	53.4	63	4.6	SSE	27.26		29.91	Clear	10.00				OK
6:05	60.8	48.2	53.4	63	4.6	SE	27.26		29.91	Clear	10.00				OK
6:00	60.8	48.2	53.4	63	3.5	SSE	27.26		29.91	Clear	10.00				OK
5:55	60.8	48.2	53.4	63	6.9	S	27.26		29.91	Clear	10.00				OK
5:53	60.1	48.9	53.5	67	3.5	S	27.26	29.80	29.91	Clear	10.00				OK
5:50	60.8	48.2	53.4	63	3.5	SE	27.26		29.91	Clear	10.00				OK
5:45	60.8	48.2	53.4	63	5.8	S	27.26		29.91	Clear	10.00				OK
5:40	60.8	48.2	53.4	63	5.8	SE	27.25		29.90	Clear	10.00				OK
5:35	59.0	48.2	52.7	67	4.6	S	27.25		29.90	Clear	10.00				OK
5:30	59.0	48.2	52.7	67	4.6	SE	27.26		29.91	Clear	10.00				OK
5:25	59.0	48.2	52.7	67	5.8	SE	27.26		29.91	Clear	10.00				OK
5:20	60.8	48.2	53.4	63	5.8	S	27.26		29.91	Clear	10.00				OK
5:15	59.0	48.2	52.7	67	5.8	S	27.26		29.91	Clear	10.00				OK
5:10	59.0	48.2	52.7	67	4.6	S	27.26		29.91	Mostly Clear	10.00				OK
5:05	60.8	48.2	53.4	63	5.8	S	27.26		29.91	Mostly Clear	10.00				OK
5:00	57.2	48.2	52.0	72	5.8	S	27.26		29.91	Partly Cloudy	10.00				OK
4:55	57.2	48.2	52.0	72	4.6	S	27.26		29.91	Partly Cloudy	10.00				OK
4:53	57.9	48.9	52.7	72	4.6	S	27.26	29.80	29.91	Partly Cloudy	10.00		66.9	57.9	OK
4:50	59.0	48.2	52.7	67	6.9	S	27.26		29.91	Mostly Cloudy	10.00	5500			OK
4:45	60.8	48.2	53.4	63	5.8	SSE	27.26		29.91	Mostly Cloudy	10.00	5500			OK
4:40	60.8	48.2	53.4	63	5.8	SSE	27.26		29.91	Mostly Cloudy	10.00	5500			OK
4:35	60.8	48.2	53.4	63	6.9	SSE	27.26		29.91	Mostly Cloudy	10.00	5500			OK

4:30	60.8	48.2	53.4	63	6.9	S	27.26		29.91	Partly Cloudy	10.00		OK
4:25	60.8	48.2	53.4	63	4.6	S	27.26		29.91	Partly Cloudy	10.00		OK
4:20	60.8	48.2	53.4	63	4.6	SSE	27.26		29.91	Partly Cloudy	10.00		OK
4:15	60.8	48.2	53.4	63	4.6	SE	27.26		29.91	Mostly Clear	10.00		OK
4:10	60.8	48.2	53.4	63	4.6	SE	27.26		29.91	Clear	10.00		OK
4:05	60.8	48.2	53.4	63	5.8	SE	27.26		29.91	Clear	10.00		OK
4:00	60.8	48.2	53.4	63	5.8	SE	27.26		29.91	Clear	10.00		OK
3:55	60.8	48.2	53.4	63	6.9	SE	27.26		29.91	Mostly Clear	10.00		OK
3:53	61.0	48.0	53.4	62	5.8	ESE	27.26	29.80	29.91	Mostly Clear	10.00		OK
3:50	60.8	48.2	53.4	63	6.9	ESE	27.25		29.90	Mostly Clear	10.00		OK
3:45	62.6	48.2	54.1	59	8.1	ESE	27.25		29.90	Mostly Clear	10.00		OK
3:40	62.6	48.2	54.1	59	6.9	ESE	27.25		29.90	Partly Cloudy	10.00		OK
3:35	62.6	48.2	54.1	59	6.9	ESE	27.25		29.90	Mostly Cloudy	10.00	6000	OK
3:30	62.6	48.2	54.1	59	6.9	ESE	27.25		29.90	Mostly Cloudy	10.00	6000	OK
3:25	62.6	48.2	54.1	59	5.8	ESE	27.25		29.90	Mostly Cloudy	10.00	6000	OK
3:20	62.6	48.2	54.1	59	4.6	SE	27.26		29.91	Mostly Cloudy	10.00	6000	OK
3:15	60.8	48.2	53.4	63	6.9	SE	27.26		29.91	Mostly Cloudy	10.00	6000	OK
3:10	60.8	48.2	53.4	63	3.5	SSE	27.26		29.91	Partly Cloudy	10.00		OK
3:05	62.6	46.4	53.2	55	0.0	N	27.26		29.91	Partly Cloudy	10.00		OK
3:00	60.8	48.2	53.4	63	0.0	N	27.26		29.91	Mostly Clear	10.00		OK
2:55	60.8	48.2	53.4	63	3.5	SSE	27.26		29.91	Mostly Clear	10.00		OK
2:53	61.0	48.0	53.4	62	3.5	SSE	27.26	29.80	29.91	Mostly Clear	10.00		OK
2:50	60.8	48.2	53.4	63	3.5	SSE	27.26		29.91	Mostly Clear	10.00		OK
2:45	60.8	48.2	53.4	63	3.5	S	27.27		29.92	Partly Cloudy	10.00		OK
2:40	60.8	48.2	53.4	63	3.5	S	27.27		29.92	Mostly Cloudy	10.00	7000	OK
2:35	60.8	48.2	53.4	63	3.5	SSW	27.27		29.92	Mostly Cloudy	10.00	6500	OK
2:30	60.8	48.2	53.4	63	3.5	SW	27.27		29.92	Mostly Cloudy	10.00	6500	OK
2:25	60.8	48.2	53.4	63	4.6	SW	27.27		29.92	Mostly Cloudy	10.00	6500	OK
2:20	60.8	48.2	53.4	63	5.8	SW	27.27		29.92	Overcast	10.00	6000	OK
2:15	60.8	48.2	53.4	63	5.8	SW	27.27		29.92	Overcast	10.00	6000	OK
2:10	62.6	48.2	54.1	59	4.6	SSE	27.26		29.91	Overcast	10.00	6000	OK
2:05	62.6	48.2	54.1	59	3.5	SSE	27.26		29.91	Mostly Cloudy	10.00	6000	OK
2:00	62.6	48.2	54.1	59	4.6	SSE	27.27		29.92	Mostly Cloudy	10.00	6000	OK
1:55	62.6	48.2	54.1	59	4.6	SSE	27.27		29.92	Mostly Cloudy	10.00	6000	OK

1:53	62.1	48.0	53.8	60	4.6	SSE	27.27	29.81	29.92	Partly Cloudy	10.00				OK
1:50	60.8	48.2	53.4	63	5.8	SE	27.27		29.92	Partly Cloudy	10.00				OK
1:45	60.8	48.2	53.4	63	5.8	SE	27.27		29.92	Mostly Clear	10.00				OK
1:40	60.8	48.2	53.4	63	4.6	SSE	27.26		29.91	Clear	10.00				OK
1:35	60.8	46.4	52.5	59	5.8	SSE	27.26		29.91	Clear	10.00				OK
1:30	62.6	46.4	53.2	55	4.6	SE	27.26		29.91	Clear	10.00				OK
1:25	62.6	46.4	53.2	55	5.8	SSE	27.26		29.91	Clear	10.00				OK
1:20	62.6	46.4	53.2	55	5.8	S	27.26		29.91	Clear	10.00				OK
1:15	62.6	46.4	53.2	55	5.8	SSE	27.26		29.91	Clear	10.00				OK
1:10	62.6	46.4	53.2	55	4.6	S	27.26		29.91	Clear	10.00				OK
1:05	64.4	46.4	53.9	52	3.5	SSE	27.26		29.91	Clear	10.00				OK
1:00	64.4	46.4	53.9	52	0.0	N	27.26		29.91	Clear	10.00				OK
0:55	64.4	46.4	53.9	52	0.0	N	27.26		29.91	Clear	10.00				OK
0:53	64.0	46.9	54.0	54	0.0	N	27.26	29.80	29.91	Clear	10.00				OK
0:50	64.4	46.4	53.9	52	0.0	N	27.26		29.91	Clear	10.00				OK
0:45	64.4	46.4	53.9	52	0.0	N	27.26		29.91	Clear	10.00				OK
0:40	64.4	46.4	53.9	52	4.6	E	27.25		29.90	Clear	10.00				OK
0:35	64.4	46.4	53.9	52	4.6	SE	27.25		29.90	Clear	10.00				OK
0:30	64.4	46.4	53.9	52	6.9	E	27.25		29.90	Clear	10.00				OK
0:25	64.4	46.4	53.9	52	6.9	E	27.25		29.90	Clear	10.00				OK
0:20	64.4	46.4	53.9	52	5.8	ESE	27.25		29.90	Clear	10.00				OK
0:15	64.4	46.4	53.9	52	5.8	E	27.25		29.90	Clear	10.00				OK
0:10	64.4	46.4	53.9	52	4.6	ESE	27.26		29.91	Clear	10.00				OK
0:05	64.4	46.4	53.9	52	5.8	E	27.25		29.90	Clear	10.00				OK
0:00	64.4	46.4	53.9	52	4.6	ESE	27.25		29.90	Clear	10.00				OK
23:55	64.4	46.4	53.9	52	4.6	ESE	27.25		29.90	Clear	10.00				OK
23:53	64.9	46.0	54.0	50	4.6	ESE	27.25	29.80	29.90	Clear	10.00		81.0	53.1	OK
23:50	64.4	46.4	53.9	52	4.6	ESE	27.25		29.90	Clear	10.00				OK
23:45	64.4	46.4	53.9	52	3.5	ESE	27.26		29.91	Clear	10.00				OK
23:40	66.2	46.4	54.6	49	4.6	E	27.26		29.91	Clear	10.00				OK
23:35	66.2	46.4	54.6	49	5.8	E	27.26		29.91	Clear	10.00				OK
23:30	64.4	46.4	53.9	52	6.9	ESE	27.26		29.91	Clear	10.00				OK
23:25	64.4	46.4	53.9	52	4.6	ESE	27.26		29.91	Clear	10.00				OK
23:20	66.2	44.6	53.8	46	4.6	ESE	27.26		29.91	Clear	10.00				OK
23:15	66.2	44.6	53.8	46	5.8	ESE	27.26		29.91	Clear	10.00				OK
23:10	66.2	44.6	53.8	46	5.8	SE	27.26		29.91	Clear	10.00				OK
23:05	66.2	44.6	53.8	46	6.9	ESE	27.27		29.92	Clear	10.00				OK
23:00	66.2	46.4	54.6	49	8.1	ESE	27.26		29.91	Clear	10.00				OK

Attachment 10

Permit Deviation Report dated November 1, 2018

FREEPORT-McMoRan

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

November 1, 2018

Via Email: Air.Notices@pima.gov and
Certified Mail: 7017 3380 0000 0803 5748

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

Re: Report of Permit Deviation and Certification of Truth, Accuracy and Completeness, Freeport-McMoRan Sierrita Inc., Permit # 6067

Dear Mr. Fitzpatrick:

This letter serves as a report of a deviation from permit requirements as required by the Freeport-McMoRan Sierrita Inc. (FMSI) Title V permit # 6067, issued January 30, 2016, Attachment "A" Condition XI.B.

Attachment "B" Condition II.E.1. states "*The Permittee shall not cause, suffer, allow, or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become airborne.*"

Description of the Event

On October 30, 2018 between approx. 12:40PM and 2:00PM, a FMSI Environmental Department employee observed intermittent tailings dust emanating from Phase 2, North Dam and Phase 1, South Dam of the tailings impoundment heading in a north direction. The FMSI Tailings Supervisor was immediately contacted, 3 water trucks and 3 all-track vehicles that were already in use on the tailings impoundment and surrounding areas were redirected to the areas of concern to help mitigate the tailings dust. The water trucks were dispatched to North Dam and the all-track vehicles were dispatched to Phase 1 South Dam. Earlier in the day, the all-track vehicles were operating in Phase 3, South Dam. An EPA Reference Official Method 9 Observation was conducted on the North Dam area as the dust was emanating over the active berm. The EPA Reference Method 9 Observation was conducted from 12:53PM to 12:59PM. The opacity observed during the Method 9 Observation was 19%, which is in compliance with FMSI's opacity limit (Attachment "B" Condition XIX.B.1.a). During the Method 9 observation, however, the dust emanating from the impoundment moved across Duval Mine Rd, a public thoroughfare, and crossed back onto FMSI property just north of the public thoroughfare. In addition, the emanating dust moved across Continental Rd, a public road and quickly dissipated. The wind speed data from the Tailings 1, Sierrita Cow and 10M weather stations showed sustained wind speeds less than 25 mph and gusts in excess of 50mph during the event.

The probable cause of the event was due to gusts of wind in excess of 50 mph picking up pieces of the crust, damaging the surface of the impoundment. This made the surface of the impoundment more susceptible for fines to be picked up by the winds averaging 15 to 20mph from the south and heading in a northwardly direction.

As a corrective action, the Tailings Supervisor dispatched 3 water trucks and 3 all-track vehicles that were already in use at the time of the event to the areas of concern to mitigate tailings dust.

Preceding, during, and after the event, FMSI employed reasonable precautions, as defined by Attachment B, Section XIX.B.1.b(viii) and (ix) of its Title V permit, to prevent excessive amounts of particulate matter from becoming airborne from the tailings impoundment:

- Applied water to tailings dam roads and berms, as well as, $MgCl_2$ to the top of the tailings dam as needed.
- A total of 12,000 gallons of $MgCl_2$ and 296,000 gallons of water were applied to areas in and around the tailings impoundment on the day of this event.
- A total of 134,250 gallons of $MgCl_2$ and 314,000 gallons of water were applied to areas in and around the tailings impoundment 2 weeks prior to this event.
- Tailings Supervisor has adjusted the daily operating schedule to include 12 hour shifts, day and night shifts, to concentrate supplemental efforts on dust control.
- Tailings Supervisor has adjusted the deposition schedule to cover a large area of the impoundment in less time by moving deposition every one and a half shifts versus every two and a half shifts.

Reasonable Precautions or preventative measures employed on an ongoing basis by Sierrita as defined by Attachment B, Section XIX.B.1.b(viii) and (ix):

- Applying wetting agents
- Maximizing the wet surface area
- Barring and controlling vehicle access
- Limiting vehicle speed
- Re-vegetating the side-slopes
- Compaction
- Encrustation
- Completed new tailings dam roads have been capped with native dirt
- Side slopes are treated with a polymer based dust suppressant
- Heavily traveled perimeter roads are treated with $MgCl_2$ dust suppressant
- Active berms were sprayed with water
- The wet dam construction method is used, maintaining the majority of the surface of the impoundment wet or encrusted while the remaining area is under construction

The event at the tailings impoundment was reported to Mr. Dustin Fitzpatrick via phone on October 31, 2018.

Please contact me at 520.393.2376 if additional information is necessary.

Sincerely,

Natalie Nunez
Senior Environmental Scientist
20181101_002
1 attachment

Certification of Truth, Accuracy and Completeness

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

David Rhoades, General Manager – Sierrita Operations

David Rhoades 11/1/18

(Signature) (Date)

Visible Emission Observation Form

FREEPORT-MCMORAN COPPER & GOLD

6200 W. Duval Mine Road
P. O. Box 527
Green Valley AZ 85622-0527
Tel: (520) 648-8500

Sierrita Operations

Observation Date	Start Time	Stop Time
10/30/2018	12:53 PM	12:59 PM

PROCESS EQUIPMENT	OPERATING MODE
Tails Impoundment	24/7 Operation

CONTROL EQUIPMENT	OPERATING MODE
All tracks/Water Trucks	

DESCRIBE EMISSION POINT
North Berm

HEIGHT ABOVE GROUND LEVEL	HEIGHT RELATIVE TO OBSERVER
200 ft	200 ft

DISTANCE FROM OBSERVER	DIRECTION FROM OBSERVER
300 ft	NW

DESCRIBE EMISSIONS
START 12:53 PM STOP 12:59 PM

EMISSION COLOR	PLUME TYPE: CONTINUOUS ☐
off-white	FUGITIVE ☒ INTERMITTENT ☐

WATER DROPLETS PRESENT:	IF WATER DROPLETS PLUME:
NO ☒ YES ☐	ATTACHED ☐ DETACHED ☐

POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED
25 feet North of the active berm on

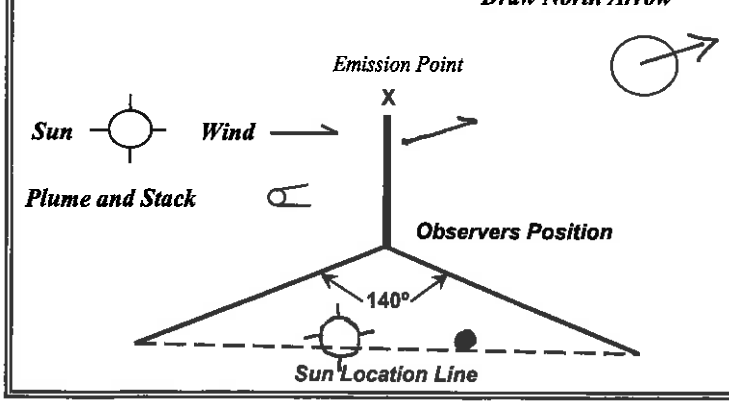
DESCRIBE BACKGROUND North Dam
START Clouds/Blue Sky STOP Clouds/Blue Sky

BACKGROUND COLOR	SKY CONDITIONS
START Grayish Blue STOP Grayish Blue	START Cloudy STOP Cloudy

WIND SPEED	WIND DIRECTION
19 mph	N

AMBIENT TEMPERATURE	WET BULB TEMP.	RH, (%)
76° F		32 %

Source Layout Sketch

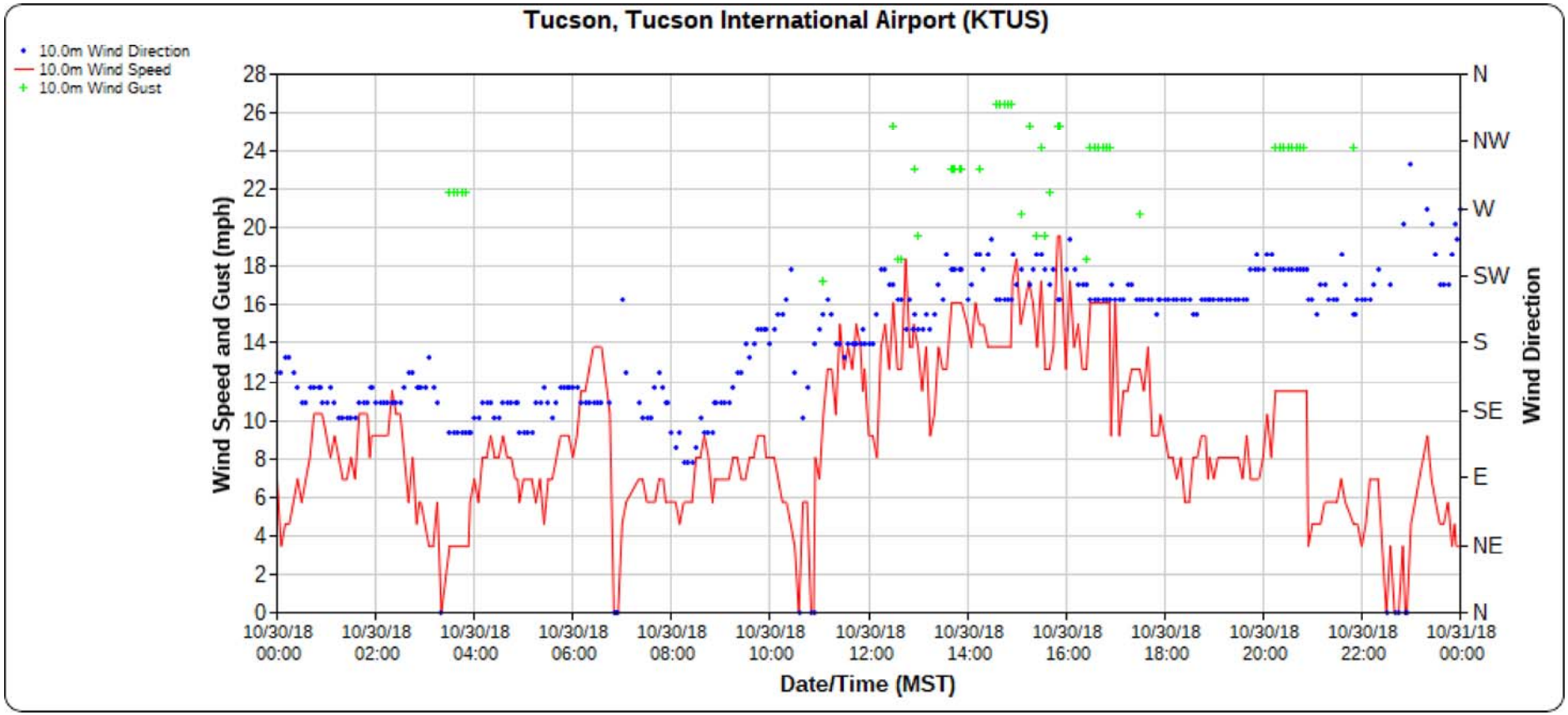


Min \ Sec	0	15	30	45	Comments
1	25	20	20	15	
2	15	15	15	15	
3	10	15	10	10	
4	15	25	30	30	
5	25	20	20	20	
6	20	25	20	20	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

OBSERVERS NAME (PRINT)	Natalie Nunez
OBSERVERS SIGNATURE	Natalie Nunez
DATE	10/30/2018
ORGANIZATION	Freeport McMoRan Sierrita
DATE	
CERTIFIED BY	Arizona Smoke School
DATE	9/20/18
ADDITIONAL INFORMATION	

Attachment 11

National Weather Service Wind Data for October 30, 2018


Tucson, Tucson International Airport (KTUS)
10.0m Wind Direction
10.0m Wind Speed
10.0m Wind Gust
Wind Speed and Gust (mph)
Wind Direction
Date/Time (MST)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
N
NW
W
SW
S
SE
E
NE
N
10/30/18 00:00
10/30/18 02:00
10/30/18 04:00
10/30/18 06:00
10/30/18 08:00
10/30/18 10:00
10/30/18 12:00
10/30/18 14:00
10/30/18 16:00
10/30/18 18:00
10/30/18 20:00
10/30/18 22:00
10/31/18 00:00

Weather Conditions for KTUS

Observations Prior to: 10/31/2018 00:00 MST

Weather Conditions at: 10/31/2018 0:00 MST

Graphical Links	0:00	Max Since 0:00 (MST)	Min Since 0:00 (MST)	24 Hour Maximum	24 Hour Minimum
2.0m Temperature	64.4° F	64.4 at 0:00	64.4 at 0:00	82.4 at 14:55	60.8 at 6:05
2.0m Dew Point	46.4° F	46.4 at 0:00	46.4 at 0:00	48.2 at 23:10	42.8 at 15:30
2.0m Wet bulb temperature	53.9° F	53.9 at 0:00	53.9 at 0:00	60.6 at 13:20	52.3 at 4:53
2.0m Relative Humidity	52%	52 at 0:00	52 at 0:00	59 at 6:05	26 at 15:30
10.0m Wind Speed	3.5 mph	3.5 at 0:00	3.5 at 0:00	19.6 at 15:53	0.0 at 22:55
10.0m Wind Direction	W	-	-	-	-
Pressure	27.29 in	27.29 at 0:00	27.29 at 0:00	27.34 at 1:20	27.22 at 16:55
Altimeter	29.95 in	29.95 at 0:00	29.95 at 0:00	30.00 at 1:20	29.87 at 16:55
Weather conditions	Clear	-	-	-	-
Visibility	10.00 miles	10.00 at 0:00	10.00 at 0:00	10.00 at 0:00	10.00 at 0:00

* The maxima/minima values above are calculated from the available observations and may not be official. More information is available here.

ASOS/AWOS Station Summary (Help)	Last Reported	Max/Min Values Last 24 Hours
Station 6 Hr High Temperature	79.0° F (22:53 MST 10/30)	82.0° F (16:53 MST 10/30)
Station 6 Hr Low Temperature	66.0° F (22:53 MST 10/30)	61.0° F (10:53 MST 10/30)
Station 24 Hr High Temperature	82.0° F (23:53 MST 10/30)	-
Station 24 Hr Low Temperature	61.0° F (23:53 MST 10/30)	-
Station Peak Wind Speed	-	26.5 mph (14:53 MST 10/30)

** The report times listed are when the value was reported by the station, not necessarily the time the value was actually measured.

***Note:** Observations above in **yellow** indicate that they are older than the last row of observations below.

Tabular Listing of 326 Observations from 10/29/2018 23:00 MST to 10/31/2018 0:00 MST:

Time (MST)	2.0m Temperature ° F	2.0m Dew Point ° F	2.0m Wet bulb temperature ° F	2.0m Relative Humidity %	10.0m Wind Speed mph	10.0m Wind Gust mph	10.0m Wind Direction	Pressure in	Sea level pressure in	Altimeter in	Weather conditions	Visibility miles	Ceiling feet	6 Hr High Temperature ° F	6 Hr Low Temperature ° F	24 Hr High Temperature ° F	24 Hr Low Temperature ° F	Quality Control
0:00	64.4	46.4	53.9	52	3.5		W	27.29		29.95	Clear	10.00						OK
23:55	64.4	46.4	53.9	52	3.5		WSW	27.28		29.94	Clear	10.00						OK
23:53	64.9	46.9	54.4	52	4.6		W	27.28	29.83	29.94	Clear	10.00				82.0	61.0	OK
23:50	64.4	46.4	53.9	52	3.5		WSW	27.28		29.94	Clear	10.00						OK
23:45	66.2	46.4	54.6	49	5.8		SW	27.28		29.94	Clear	10.00						OK
23:40	66.2	46.4	54.6	49	4.6		SW	27.28		29.94	Clear	10.00						OK
23:35	66.2	46.4	54.6	49	4.6		SW	27.28		29.94	Clear	10.00						OK
23:30	66.2	46.4	54.6	49	5.8		WSW	27.29		29.95	Clear	10.00						OK
23:25	66.2	46.4	54.6	49	6.9		W	27.28		29.94	Clear	10.00						OK
23:20	66.2	46.4	54.6	49	9.2		W	27.29		29.95	Clear	10.00						OK
23:15	66.2	46.4	54.6	49				27.28		29.94	Clear	10.00						OK
23:10	66.2	48.2	55.5	52				27.28		29.94	Clear	10.00						OK
23:05	66.2	48.2	55.5	52				27.28		29.94	Clear	10.00						OK
23:00	66.2	48.2	55.5	52	4.6		WNW	27.28		29.94	Clear	10.00						OK
22:55	66.2	48.2	55.5	52	0.0		N	27.28		29.94	Clear	10.00						OK
22:53	66.9	48.0	55.7	51	0.0		N	27.28	29.83	29.94	Clear	10.00		79.0	66.0			OK
22:50	68.0	48.2	56.1	49	3.5		W	27.28		29.94	Clear	10.00						OK
22:45	66.2	48.2	55.5	52	0.0		N	27.28		29.94	Clear	10.00						OK
22:40	66.2	48.2	55.5	52	0.0		N	27.28		29.94	Clear	10.00						OK
22:35	66.2	48.2	55.5	52	3.5		SW	27.28		29.93	Clear	10.00						OK

22:30	66.2	48.2	55.5	52	0.0		N	27.28		29.93	Clear	10.00	OK
22:25	66.2	48.2	55.5	52				27.28		29.93	Clear	10.00	OK
22:20	66.2	48.2	55.5	52	6.9		SW	27.28		29.93	Clear	10.00	OK
22:15	66.2	48.2	55.5	52	6.9		SW	27.28		29.93	Clear	10.00	OK
22:10	66.2	48.2	55.5	52	6.9		SSW	27.28		29.93	Clear	10.00	OK
22:05	66.2	48.2	55.5	52	4.6		SSW	27.28		29.93	Clear	10.00	OK
22:00	66.2	48.2	55.5	52	3.5		SSW	27.28		29.93	Clear	10.00	OK
21:55	66.2	46.4	54.6	49	4.6		SSW	27.28		29.93	Clear	10.00	OK
21:53	66.9	46.9	55.1	49	4.6		SSW	27.28	29.83	29.93	Clear	10.00	OK
21:50	66.2	46.4	54.6	49	4.6	24.2	SSW	27.28		29.93	Clear	10.00	OK
21:45	66.2	46.4	54.6	49				27.28		29.93	Clear	10.00	OK
21:40	66.2	46.4	54.6	49	5.8		SW	27.28		29.93	Clear	10.00	OK
21:35	68.0	46.4	55.3	46	6.9		WSW	27.28		29.93	Clear	10.00	OK
21:30	68.0	46.4	55.3	46	5.8		SSW	27.28		29.93	Clear	10.00	OK
21:25	68.0	46.4	55.3	46	5.8		SSW	27.27		29.92	Clear	10.00	OK
21:20	68.0	46.4	55.3	46	5.8		SSW	27.27		29.92	Clear	10.00	OK
21:15	69.8	46.4	56.0	43	5.8		SW	27.27		29.92	Clear	10.00	OK
21:10	69.8	46.4	56.0	43	4.6		SW	27.27		29.92	Clear	10.00	OK
21:05	69.8	46.4	56.0	43	4.6		SSW	27.27		29.92	Clear	10.00	OK
21:00	69.8	46.4	56.0	43	4.6		SSW	27.27		29.92	Clear	10.00	OK
20:55	69.8	46.4	56.0	43	3.5		SSW	27.27		29.92	Clear	10.00	OK
20:53	69.1	46.9	55.9	45	11.5		SW	27.27	29.82	29.92	Clear	10.00	OK
20:50	69.8	46.4	56.0	43	11.5	24.2	SW	27.27		29.92	Clear	10.00	OK
20:45	69.8	46.4	56.0	43	11.5	24.2	SW	27.27		29.92	Clear	10.00	OK
20:40	71.6	46.4	56.6	41	11.5	24.2	SW	27.27		29.92	Clear	10.00	OK
20:35	71.6	46.4	56.6	41	11.5	24.2	SW	27.26		29.91	Clear	10.00	OK
20:30	71.6	46.4	56.6	41	11.5	24.2	SW	27.26		29.91	Clear	10.00	OK
20:25	71.6	46.4	56.6	41	11.5	24.2	SW	27.26		29.91	Clear	10.00	OK
20:20	71.6	46.4	56.6	41	11.5	24.2	SW	27.26		29.91	Clear	10.00	OK
20:15	71.6	46.4	56.6	41	11.5	24.2	SW	27.26		29.91	Clear	10.00	OK
20:10	71.6	46.4	56.6	41	8.1		WSW	27.26		29.91	Clear	10.00	OK
20:05	71.6	46.4	56.6	41	10.4		WSW	27.26		29.91	Clear	10.00	OK
20:00	71.6	46.4	56.6	41	8.1		SW	27.26		29.91	Clear	10.00	OK
19:55	71.6	46.4	56.6	41	6.9		SW	27.26		29.91	Clear	10.00	OK
19:53	72.0	46.0	56.6	40	6.9		WSW	27.26	29.80	29.91	Clear	10.00	OK
19:50	71.6	46.4	56.6	41	6.9		SW	27.26		29.91	Clear	10.00	OK
19:45	73.4	46.4	57.3	38	6.9		SW	27.25		29.90	Clear	10.00	OK
19:40	73.4	46.4	57.3	38	9.2		SSW	27.25		29.90	Clear	10.00	OK
19:35	73.4	46.4	57.3	38	6.9		SSW	27.25		29.90	Clear	10.00	OK
19:30	73.4	46.4	57.3	38	8.1		SSW	27.25		29.90	Clear	10.00	OK
19:25	73.4	46.4	57.3	38	8.1		SSW	27.25		29.90	Clear	10.00	OK
19:20	73.4	46.4	57.3	38	8.1		SSW	27.25		29.90	Clear	10.00	OK
19:15	73.4	46.4	57.3	38	8.1		SSW	27.25		29.90	Clear	10.00	OK
19:10	73.4	46.4	57.3	38	8.1		SSW	27.25		29.90	Clear	10.00	OK
19:05	73.4	46.4	57.3	38	8.1		SSW	27.25		29.90	Clear	10.00	OK
19:00	73.4	46.4	57.3	38	6.9		SSW	27.24		29.89	Clear	10.00	OK
18:55	73.4	46.4	57.3	38	8.1		SSW	27.24		29.89	Clear	10.00	OK
18:53	73.0	46.0	57.0	38	6.9		SSW	27.24	29.79	29.89	Clear	10.00	OK
18:50	73.4	46.4	57.3	38	9.2		SSW	27.25		29.90	Clear	10.00	OK
18:45	73.4	46.4	57.3	38	9.2		SSW	27.25		29.90	Clear	10.00	OK

18:40	73.4	46.4	57.3	38	8.1		SSW	27.24		29.89	Mostly Clear	10.00				OK
18:35	73.4	46.4	57.3	38	8.1		SSW	27.24		29.89	Mostly Clear	10.00				OK
18:30	73.4	46.4	57.3	38	5.8		SSW	27.24		29.89	Mostly Clear	10.00				OK
18:25	73.4	46.4	57.3	38	5.8		SSW	27.24		29.89	Mostly Clear	10.00				OK
18:20	73.4	46.4	57.3	38	8.1		SSW	27.24		29.89	Mostly Clear	10.00				OK
18:15	73.4	46.4	57.3	38	6.9		SSW	27.24		29.89	Partly Cloudy	10.00				OK
18:10	73.4	46.4	57.3	38	8.1		SSW	27.24		29.89	Partly Cloudy	10.00				OK
18:05	75.2	46.4	57.9	36	8.1		SSW	27.24		29.89	Partly Cloudy	10.00				OK
18:00	75.2	46.4	57.9	36	9.2		SSW	27.24		29.89	Mostly Cloudy	10.00	8000			OK
17:55	75.2	46.4	57.9	36	10.4		SSW	27.24		29.89	Mostly Cloudy	10.00	8000			OK
17:53	75.9	46.0	58.0	35	9.2		SSW	27.24	29.78	29.89	Mostly Cloudy	10.00	8000			OK
17:50	75.2	46.4	57.9	36	9.2		SSW	27.24		29.89	Mostly Cloudy	10.00	8000			OK
17:45	75.2	46.4	57.9	36	9.2		SSW	27.24		29.89	Mostly Cloudy	10.00	8000			OK
17:40	75.2	44.6	57.1	34	13.8		SSW	27.23		29.88	Mostly Cloudy	10.00	8000			OK
17:35	75.2	44.6	57.1	34	11.5		SSW	27.23		29.88	Partly Cloudy	10.00				OK
17:30	77.0	44.6	57.8	32	12.7	20.7	SSW	27.23		29.88	Partly Cloudy	10.00				OK
17:25	77.0	46.4	58.6	34	12.7		SSW	27.23		29.88	Mostly Clear	10.00				OK
17:20	77.0	44.6	57.8	32	12.7		SW	27.23		29.88	Mostly Clear	10.00				OK
17:15	78.8	44.6	58.4	30	11.5		SW	27.23		29.88	Clear	10.00				OK
17:10	78.8	44.6	58.4	30	11.5		SSW	27.23		29.88	Clear	10.00				OK
17:05	78.8	44.6	58.4	30	9.2		SSW	27.23		29.88	Mostly Clear	10.00				OK
17:00	78.8	44.6	58.4	30	16.1		SSW	27.23		29.88	Mostly Clear	10.00				OK
16:55	78.8	44.6	58.4	30	9.2		SW	27.22		29.87	Mostly Clear	10.00				OK
16:53	79.0	45.0	58.6	30	16.1	24.2	SSW	27.22	29.76	29.87	Mostly Clear	10.00		82.0	75.0	OK
16:50	78.8	44.6	58.4	30	16.1	24.2	SSW	27.22		29.87	Mostly Clear	10.00				OK
16:45	78.8	44.6	58.4	30	16.1	24.2	SSW	27.22		29.87	Partly Cloudy	10.00				OK
16:40	78.8	44.6	58.4	30	16.1	24.2	SSW	27.22		29.87	Partly Cloudy	10.00				OK
16:35	80.6	44.6	59.1	28	16.1	24.2	SSW	27.22		29.87	Mostly Clear	10.00				OK
16:30	80.6	44.6	59.1	28	16.1	24.2	SSW	27.22		29.87	Partly Cloudy	10.00				OK
16:25	80.6	44.6	59.1	28	12.7	18.4	SW	27.23		29.88	Mostly Clear	10.00				OK
16:20	80.6	44.6	59.1	28	12.7		SW	27.23		29.88	Mostly Clear	10.00				OK
16:15	80.6	44.6	59.1	28	15.0		SW	27.23		29.88	Mostly Clear	10.00				OK
16:10	80.6	44.6	59.1	28	13.8		SW	27.23		29.88	Partly Cloudy	10.00				OK
16:05	80.6	44.6	59.1	28	17.3		WSW	27.23		29.88	Partly Cloudy	10.00				OK
16:00	80.6	44.6	59.1	28	12.7		SW	27.23		29.88	Mostly Clear	10.00				OK
15:55	80.6	44.6	59.1	28				27.23		29.88	Clear	10.00				OK
15:53	81.0	44.1	59.0	27	19.6	25.3	SSW	27.23	29.76	29.88	Mostly Clear	10.00				OK
15:50	80.6	44.6	59.1	28	19.6	25.3	SSW	27.23		29.88	Mostly Clear	10.00				OK
15:45	80.6	44.6	59.1	28	13.8		SW	27.23		29.88	Mostly Clear	10.00				OK
15:40	80.6	44.6	59.1	28	12.7	21.9	SW	27.23		29.88	Mostly Clear	10.00				OK
15:35	80.6	44.6	59.1	28	12.7	19.6	SW	27.23		29.88	Mostly Clear	10.00				OK
15:30	80.6	42.8	58.3	26	17.3	24.2	WSW	27.23		29.88	Mostly Clear	10.00				OK
15:25	80.6	44.6	59.1	28	13.8	19.6	WSW	27.23		29.88	Mostly Clear	10.00				OK
15:20	80.6	44.6	59.1	28	16.1		SW	27.23		29.88	Partly Cloudy	10.00				OK
15:15	80.6	44.6	59.1	28	17.3	25.3	SW	27.23		29.88	Partly Cloudy	10.00				OK

15:10	80.6	44.6	59.1	28				27.24		29.89	Partly Cloudy	10.00		OK
15:05	80.6	44.6	59.1	28	15.0	20.7	SW	27.24		29.89	Partly Cloudy	10.00		OK
15:00	80.6	44.6	59.1	28	18.4		SW	27.23		29.88	Partly Cloudy	10.00		OK
14:55	82.4	44.6	59.7	27	17.3		WSW	27.23		29.88	Mostly Cloudy	10.00	8000	OK
14:53	81.0	45.0	59.3	28	13.8	26.5	SSW	27.23	29.77	29.88	Mostly Cloudy	10.00	8000	OK
14:50	80.6	46.4	59.8	30	13.8	26.5	SSW	27.23		29.88	Mostly Cloudy	10.00	8000	OK
14:45	82.4	44.6	59.7	27	13.8	26.5	SSW	27.24		29.89	Mostly Cloudy	10.00	8000	OK
14:40	82.4	44.6	59.7	27	13.8	26.5	SSW	27.23		29.88	Mostly Cloudy	10.00	8000	OK
14:35	82.4	46.4	60.4	28	13.8	26.5	SSW	27.23		29.88	Mostly Cloudy	10.00	8000	OK
14:30	82.4	44.6	59.7	27	13.8		WSW	27.24		29.89	Partly Cloudy	10.00		OK
14:25	82.4	44.6	59.7	27	13.8		WSW	27.24		29.89	Mostly Cloudy	10.00	8000	OK
14:20	80.6	44.6	59.1	28	15.0		SW	27.24		29.89	Mostly Cloudy	10.00	8000	OK
14:15	80.6	44.6	59.1	28	15.0	23.0	WSW	27.24		29.89	Mostly Cloudy	10.00	8000	OK
14:10	80.6	46.4	59.8	30	16.1		WSW	27.24		29.89	Mostly Cloudy	10.00	8000	OK
14:05	82.4	44.6	59.7	27	13.8		SW	27.24		29.89	Mostly Cloudy	10.00	8000	OK
14:00	80.6	46.4	59.8	30	15.0		SSW	27.24		29.89	Mostly Cloudy	10.00	8500	OK
13:55	80.6	46.4	59.8	30				27.24		29.89	Partly Cloudy	10.00		OK
13:53	81.0	46.0	59.8	29	16.1	23.0	SW	27.24	29.77	29.89	Partly Cloudy	10.00		OK
13:50	80.6	46.4	59.8	30	16.1	23.0	SW	27.24		29.89	Partly Cloudy	10.00		OK
13:45	80.6	46.4	59.8	30	16.1	23.0	SW	27.24		29.89	Partly Cloudy	10.00		OK
13:42	81.0	46.9	60.2	30	16.1	23.0	SW	27.24		29.89	Partly Cloudy	10.00		OK
13:41	81.0	46.9	60.2	30	16.1	23.0	SW	27.25		29.90	Partly Cloudy	10.00		OK
13:40	80.6	46.4	59.8	30				27.25		29.90	Partly Cloudy	10.00		OK
13:35	80.6	46.4	59.8	30	12.7		WSW	27.24		29.89	Mostly Clear	10.00		OK
13:30	80.6	46.4	59.8	30	12.7		SSW	27.25		29.90	Mostly Clear	10.00		OK
13:25	80.6	46.4	59.8	30	13.8		SW	27.25		29.90	Mostly Clear	10.00		OK
13:20	80.6	48.2	60.6	32	10.4		SSW	27.25		29.90	Partly Cloudy	10.00		OK
13:15	80.6	46.4	59.8	30	9.2		S	27.26		29.91	Mostly Clear	10.00		OK
13:10	80.6	46.4	59.8	30	13.8		SSW	27.26		29.91	Clear	10.00		OK
13:05	80.6	46.4	59.8	30	11.5		S	27.26		29.91	Clear	10.00		OK
13:00	80.6	46.4	59.8	30	13.8	19.6	S	27.27		29.92	Mostly Clear	10.00		OK
12:55	80.6	46.4	59.8	30	15.0	23.0	SSW	27.27		29.92	Mostly Clear	10.00		OK
12:53	79.0	46.9	59.5	32	13.8		S	27.27	29.81	29.92	Clear	10.00		OK
12:50	80.6	46.4	59.8	30	13.8		SSW	27.28		29.93	Clear	10.00		OK
12:45	80.6	46.4	59.8	30	18.4		S	27.28		29.93	Clear	10.00		OK
12:40	80.6	46.4	59.8	30	12.7	18.4	SSW	27.28		29.93	Clear	10.00		OK
12:35	80.6	46.4	59.8	30	12.7	18.4	SSW	27.28		29.93	Clear	10.00		OK
12:30	80.6	46.4	59.8	30	16.1	25.3	SW	27.28		29.94	Clear	10.00		OK
12:25	80.6	46.4	59.8	30	12.7		SW	27.28		29.94	Clear	10.00		OK
12:20	78.8	46.4	59.2	32	15.0		SW	27.28		29.94	Clear	10.00		OK

12:15	78.8	46.4	59.2	32	13.8		SW	27.28		29.94	Clear	10.00			OK
12:10	78.8	46.4	59.2	32	8.1		SSW	27.29		29.95	Clear	10.00			OK
12:05	78.8	46.4	59.2	32	9.2		S	27.29		29.95	Clear	10.00			OK
12:00	78.8	46.4	59.2	32	9.2		S	27.30		29.96	Clear	10.00			OK
11:55	78.8	46.4	59.2	32	12.7		S	27.30		29.96	Clear	10.00			OK
11:53	78.1	46.9	59.2	33	11.5		S	27.30	29.85	29.96	Clear	10.00			OK
11:50	78.8	46.4	59.2	32	13.8		S	27.30		29.96	Clear	10.00			OK
11:45	77.0	46.4	58.6	34	15.0		S	27.31		29.97	Clear	10.00			OK
11:40	77.0	46.4	58.6	34	12.7		S	27.31		29.97	Clear	10.00			OK
11:35	77.0	46.4	58.6	34	13.8		S	27.31		29.97	Clear	10.00			OK
11:30	78.8	46.4	59.2	32	12.7		S	27.31		29.97	Clear	10.00			OK
11:25	78.8	46.4	59.2	32	15.0		S	27.31		29.97	Clear	10.00			OK
11:20	78.8	46.4	59.2	32	10.4		S	27.31		29.97	Clear	10.00			OK
11:15	77.0	46.4	58.6	34	12.7		SSW	27.32		29.98	Clear	10.00			OK
11:10	77.0	46.4	58.6	34	12.7		SSW	27.32		29.98	Clear	10.00			OK
11:05	77.0	46.4	58.6	34	10.4	17.3	SSW	27.32		29.98	Clear	10.00			OK
11:00	75.2	46.4	57.9	36	6.9		S	27.32		29.98	Clear	10.00			OK
10:55	75.2	48.2	58.7	39	8.1		S	27.32		29.98	Clear	10.00			OK
10:53	75.0	48.0	58.6	38	0.0		N	27.32	29.87	29.98	Clear	10.00	75.0	61.0	OK
10:50	73.4	46.4	57.3	38	0.0		N	27.33		29.99	Clear	10.00			OK
10:45	75.2	46.4	57.9	36	5.8		SSE	27.33		29.99	Clear	10.00			OK
10:40	73.4	46.4	57.3	38	5.8		SE	27.33		29.99	Clear	10.00			OK
10:35	73.4	46.4	57.3	38	0.0		N	27.33		29.99	Clear	10.00			OK
10:30	73.4	46.4	57.3	38	3.5		SSE	27.33		29.99	Clear	10.00			OK
10:25	75.2	46.4	57.9	36	4.6		SW	27.33		29.99	Clear	10.00			OK
10:20	73.4	46.4	57.3	38	5.8		SSW	27.33		29.99	Clear	10.00			OK
10:15	73.4	46.4	57.3	38	5.8		SSW	27.33		29.99	Clear	10.00			OK
10:10	73.4	46.4	57.3	38	6.9		SSW	27.33		29.99	Clear	10.00			OK
10:05	73.4	46.4	57.3	38	8.1		S	27.33		29.99	Clear	10.00			OK
10:00	73.4	46.4	57.3	38	8.1		S	27.33		29.99	Clear	10.00			OK
9:55	73.4	46.4	57.3	38	8.1		S	27.32		29.98	Clear	10.00			OK
9:53	73.9	46.0	57.3	37	9.2		S	27.32	29.88	29.98	Clear	10.00			OK
9:50	73.4	46.4	57.3	38	9.2		S	27.32		29.98	Clear	10.00			OK
9:45	73.4	46.4	57.3	38	9.2		S	27.32		29.98	Clear	10.00			OK
9:40	73.4	46.4	57.3	38	8.1		S	27.32		29.98	Clear	10.00			OK
9:35	71.6	46.4	56.6	41	8.1		S	27.32		29.98	Clear	10.00			OK
9:30	71.6	46.4	56.6	41	6.9		S	27.32		29.98	Clear	10.00			OK
9:25	71.6	46.4	56.6	41	6.9		SSE	27.32		29.98	Clear	10.00			OK
9:20	71.6	46.4	56.6	41	8.1		SSE	27.32		29.98	Clear	10.00			OK
9:15	69.8	46.4	56.0	43	8.1		SSE	27.33		29.99	Clear	10.00			OK
9:10	69.8	46.4	56.0	43	6.9		SE	27.33		29.99	Clear	10.00			OK
9:05	69.8	48.2	56.8	46	6.9		SE	27.32		29.98	Clear	10.00			OK
9:00	69.8	48.2	56.8	46	6.9		SE	27.32		29.98	Clear	10.00			OK
8:55	69.8	48.2	56.8	46	6.9		SE	27.32		29.98	Clear	10.00			OK
8:53	68.0	48.0	56.1	49	6.9		SE	27.32	29.88	29.98	Clear	10.00			OK
8:50	68.0	48.2	56.1	49	5.8		ESE	27.32		29.98	Clear	10.00			OK
8:45	66.2	46.4	54.6	49	8.1		ESE	27.32		29.98	Clear	10.00			OK
8:40	66.2	46.4	54.6	49	9.2		ESE	27.32		29.98	Clear	10.00			OK
8:35	66.2	48.2	55.5	52	8.1		SE	27.32		29.98	Clear	10.00			OK
8:30	66.2	46.4	54.6	49	8.1		ESE	27.32		29.98	Clear	10.00			OK

8:25	66.2	46.4	54.6	49	5.8	E	27.32		29.98	Clear	10.00			OK
8:20	66.2	46.4	54.6	49	5.8	E	27.32		29.98	Clear	10.00			OK
8:15	66.2	46.4	54.6	49	5.8	E	27.32		29.98	Clear	10.00			OK
8:10	64.4	46.4	53.9	52	4.6	ESE	27.32		29.98	Clear	10.00			OK
8:05	64.4	46.4	53.9	52	5.8	ESE	27.32		29.98	Clear	10.00			OK
8:00	64.4	46.4	53.9	52	5.8	ESE	27.32		29.98	Clear	10.00			OK
7:55	64.4	46.4	53.9	52	5.8	SE	27.31		29.97	Clear	10.00			OK
7:53	64.9	46.0	54.0	50	5.8	SE	27.31	29.87	29.97	Clear	10.00			OK
7:50	64.4	46.4	53.9	52	6.9	SSE	27.31		29.97	Clear	10.00			OK
7:45	64.4	46.4	53.9	52	6.9	SSE	27.31		29.97	Clear	10.00			OK
7:40	64.4	46.4	53.9	52	5.8	SSE	27.31		29.97	Clear	10.00			OK
7:35	64.4	46.4	53.9	52	5.8	SE	27.31		29.97	Clear	10.00			OK
7:30	64.4	46.4	53.9	52	5.8	SE	27.30		29.96	Clear	10.00			OK
7:25	62.6	46.4	53.2	55	6.9	SE	27.30		29.96	Clear	10.00			OK
7:20	62.6	46.4	53.2	55	6.9	SE	27.30		29.96	Clear	10.00			OK
7:05	62.6	46.4	53.2	55	5.8	SSE	27.30		29.96	Clear	10.00			OK
7:00	62.6	46.4	53.2	55	4.6	SSW	27.30		29.96	Clear	10.00			OK
6:55	62.6	46.4	53.2	55	0.0	N	27.30		29.96	Clear	10.00			OK
6:53	62.1	46.0	52.8	56	0.0	N	27.30	29.86	29.96	Clear	10.00			OK
6:50	62.6	46.4	53.2	55	0.0	N	27.30		29.96	Clear	10.00			OK
6:45	62.6	46.4	53.2	55	10.4	SE	27.30		29.96	Clear	10.00			OK
6:40	62.6	46.4	53.2	55			27.30		29.96	Clear	10.00			OK
6:35	62.6	44.6	52.4	52	13.8	SE	27.30		29.96	Clear	10.00			OK
6:30	62.6	44.6	52.4	52	13.8	SE	27.30		29.96	Clear	10.00			OK
6:25	62.6	44.6	52.4	52	13.8	SE	27.30		29.96	Clear	10.00			OK
6:20	62.6	44.6	52.4	52	12.7	SE	27.30		29.96	Clear	10.00			OK
6:15	62.6	44.6	52.4	52	11.5	SE	27.30		29.96	Clear	10.00			OK
6:10	62.6	46.4	53.2	55	11.5	SE	27.30		29.96	Clear	10.00			OK
6:05	60.8	46.4	52.5	59	9.2	SSE	27.30		29.96	Clear	10.00			OK
6:00	60.8	46.4	52.5	59	8.1	SSE	27.30		29.96	Clear	10.00			OK
5:55	60.8	46.4	52.5	59	9.2	SSE	27.30		29.96	Clear	10.00			OK
5:53	61.0	46.0	52.4	58	9.2	SSE	27.30	29.85	29.96	Clear	10.00			OK
5:50	62.6	46.4	53.2	55	9.2	SSE	27.30		29.96	Clear	10.00			OK
5:45	62.6	46.4	53.2	55	9.2	SSE	27.30		29.96	Clear	10.00			OK
5:40	62.6	46.4	53.2	55	8.1	SE	27.31		29.97	Clear	10.00			OK
5:35	60.8	46.4	52.5	59	6.9	SE	27.31		29.97	Clear	10.00			OK
5:30	60.8	46.4	52.5	59	6.9	SE	27.31		29.97	Clear	10.00			OK
5:25	62.6	44.6	52.4	52	4.6	SSE	27.31		29.97	Clear	10.00			OK
5:20	62.6	44.6	52.4	52	6.9	SE	27.31		29.97	Clear	10.00			OK
5:15	62.6	44.6	52.4	52	5.8	SE	27.31		29.97	Clear	10.00			OK
5:10	62.6	44.6	52.4	52	6.9	ESE	27.30		29.96	Clear	10.00			OK
5:05	62.6	44.6	52.4	52	6.9	ESE	27.30		29.96	Clear	10.00			OK
5:00	62.6	44.6	52.4	52	6.9	ESE	27.30		29.96	Clear	10.00			OK
4:55	62.6	44.6	52.4	52	5.8	ESE	27.30		29.96	Clear	10.00			OK
4:53	63.0	44.1	52.3	50	6.9	SE	27.30	29.85	29.96	Clear	10.00	66.0	62.1	OK
4:50	62.6	44.6	52.4	52	6.9	SE	27.31		29.97	Clear	10.00			OK
4:45	62.6	44.6	52.4	52	8.1	SE	27.31		29.97	Clear	10.00			OK
4:40	62.6	44.6	52.4	52	8.1	SE	27.31		29.97	Clear	10.00			OK
4:35	62.6	44.6	52.4	52	9.2	SE	27.30		29.96	Clear	10.00			OK
4:30	64.4	44.6	53.1	49	8.1	SE	27.30		29.96	Clear	10.00			OK

4:25	64.4	44.6	53.1	49	8.1		SE	27.30		29.96	Clear	10.00	OK
4:20	62.6	44.6	52.4	52	9.2		SE	27.30		29.96	Clear	10.00	OK
4:15	62.6	44.6	52.4	52	8.1		SE	27.30		29.96	Clear	10.00	OK
4:10	62.6	44.6	52.4	52	8.1		SE	27.31		29.97	Clear	10.00	OK
4:05	62.6	44.6	52.4	52	5.8		SE	27.30		29.96	Clear	10.00	OK
4:00	62.6	44.6	52.4	52	6.9		SE	27.30		29.96	Clear	10.00	OK
3:55	62.6	44.6	52.4	52	5.8		ESE	27.31		29.97	Clear	10.00	OK
3:53	63.0	44.1	52.3	50	3.5		ESE	27.31	29.85	29.97	Clear	10.00	OK
3:50	62.6	44.6	52.4	52	3.5	21.9	ESE	27.31		29.97	Clear	10.00	OK
3:45	62.6	44.6	52.4	52	3.5	21.9	ESE	27.31		29.97	Clear	10.00	OK
3:40	62.6	44.6	52.4	52	3.5	21.9	ESE	27.31		29.97	Clear	10.00	OK
3:35	62.6	44.6	52.4	52	3.5	21.9	ESE	27.31		29.97	Clear	10.00	OK
3:30	62.6	44.6	52.4	52	3.5	21.9	ESE	27.31		29.97	Clear	10.00	OK
3:25	62.6	44.6	52.4	52				27.31		29.97	Clear	10.00	OK
3:20	62.6	44.6	52.4	52	0.0		N	27.32		29.98	Clear	10.00	OK
3:15	62.6	44.6	52.4	52	5.8		SE	27.32		29.98	Clear	10.00	OK
3:10	62.6	44.6	52.4	52	3.5		SSE	27.32		29.98	Clear	10.00	OK
3:05	62.6	44.6	52.4	52	3.5		S	27.32		29.98	Clear	10.00	OK
3:00	62.6	44.6	52.4	52	4.6		SSE	27.32		29.98	Clear	10.00	OK
2:55	62.6	44.6	52.4	52	5.8		SSE	27.31		29.97	Clear	10.00	OK
2:53	63.0	44.1	52.3	50	5.8		SSE	27.32	29.85	29.98	Clear	10.00	OK
2:50	62.6	44.6	52.4	52	4.6		SSE	27.32		29.98	Clear	10.00	OK
2:45	62.6	44.6	52.4	52	8.1		SSE	27.32		29.98	Clear	10.00	OK
2:40	62.6	44.6	52.4	52	5.8		SSE	27.32		29.98	Clear	10.00	OK
2:35	62.6	44.6	52.4	52	8.1		SSE	27.32		29.98	Clear	10.00	OK
2:30	62.6	44.6	52.4	52	10.4		SE	27.32		29.98	Clear	10.00	OK
2:25	62.6	44.6	52.4	52	10.4		SE	27.32		29.98	Clear	10.00	OK
2:20	62.6	44.6	52.4	52	11.5		SE	27.32		29.98	Clear	10.00	OK
2:15	62.6	44.6	52.4	52	9.2		SE	27.32		29.98	Clear	10.00	OK
2:10	62.6	44.6	52.4	52	9.2		SE	27.32		29.98	Clear	10.00	OK
2:05	62.6	44.6	52.4	52	9.2		SE	27.32		29.98	Clear	10.00	OK
2:00	62.6	44.6	52.4	52	9.2		SE	27.33		29.99	Clear	10.00	OK
1:55	64.4	44.6	53.1	49	9.2		SSE	27.33		29.99	Clear	10.00	OK
1:53	64.0	44.1	52.7	48	8.1		SSE	27.33	29.87	29.99	Clear	10.00	OK
1:50	64.4	44.6	53.1	49	10.4		SE	27.33		29.99	Clear	10.00	OK
1:45	64.4	44.6	53.1	49	10.4		SE	27.33		29.99	Clear	10.00	OK
1:40	64.4	44.6	53.1	49	10.4		SE	27.33		29.99	Clear	10.00	OK
1:35	64.4	44.6	53.1	49	6.9		SE	27.33		29.99	Clear	10.00	OK
1:30	64.4	44.6	53.1	49	8.1		SE	27.33		29.99	Clear	10.00	OK
1:25	64.4	44.6	53.1	49	6.9		SE	27.33		29.99	Clear	10.00	OK
1:20	64.4	44.6	53.1	49	6.9		SE	27.34		30.00	Clear	10.00	OK
1:15	64.4	44.6	53.1	49	8.1		SE	27.34		30.00	Clear	10.00	OK
1:10	64.4	44.6	53.1	49	9.2		SE	27.34		30.00	Clear	10.00	OK
1:05	64.4	44.6	53.1	49	8.1		SSE	27.34		30.00	Clear	10.00	OK
1:00	64.4	44.6	53.1	49	9.2		SE	27.34		30.00	Clear	10.00	OK
0:55	64.4	44.6	53.1	49	10.4		SE	27.34		30.00	Clear	10.00	OK
0:53	64.0	45.0	53.1	50	10.4		SSE	27.34	29.88	30.00	Clear	10.00	OK
0:50	64.4	44.6	53.1	49	10.4		SSE	27.34		30.00	Clear	10.00	OK
0:45	64.4	44.6	53.1	49	10.4		SSE	27.34		30.00	Clear	10.00	OK
0:40	64.4	46.4	53.9	52	8.1		SSE	27.34		30.00	Clear	10.00	OK

0:35	64.4	46.4	53.9	52	6.9	SE	27.34		30.00	Clear	10.00			OK
0:30	64.4	46.4	53.9	52	5.8	SE	27.34		30.00	Clear	10.00			OK
0:25	64.4	46.4	53.9	52	6.9	SSE	27.34		30.00	Clear	10.00			OK
0:20	64.4	46.4	53.9	52	5.8	SSE	27.34		30.00	Clear	10.00			OK
0:15	64.4	46.4	53.9	52	4.6	S	27.34		30.00	Clear	10.00			OK
0:10	64.4	46.4	53.9	52	4.6	S	27.34		30.00	Clear	10.00			OK
0:05	64.4	46.4	53.9	52	3.5	SSE	27.34		30.00	Clear	10.00			OK
0:00	64.4	46.4	53.9	52	6.9	SSE	27.34		30.00	Clear	10.00			OK
23:55	66.2	46.4	54.6	49	8.1	SSE	27.34		30.00	Clear	10.00			OK
23:53	64.9	46.0	54.0	50	8.1	SSE	27.34	29.88	30.00	Clear	10.00	88.0	60.1	OK
23:50	64.4	46.4	53.9	52	8.1	SSE	27.34		30.00	Clear	10.00			OK
23:45	64.4	46.4	53.9	52	5.8	SSE	27.34		30.00	Clear	10.00			OK
23:40	64.4	46.4	53.9	52	8.1	SSE	27.34		30.00	Clear	10.00			OK
23:35	64.4	46.4	53.9	52	6.9	SSE	27.35		30.01	Clear	10.00			OK
23:30	64.4	46.4	53.9	52	6.9	SSE	27.35		30.01	Clear	10.00			OK
23:25	64.4	46.4	53.9	52	6.9	S	27.35		30.01	Clear	10.00			OK
23:20	64.4	44.6	53.1	49	6.9	S	27.35		30.01	Clear	10.00			OK
23:15	64.4	44.6	53.1	49	8.1	S	27.35		30.01	Clear	10.00			OK
23:10	66.2	44.6	53.8	46	5.8	S	27.35		30.01	Clear	10.00			OK
23:05	66.2	44.6	53.8	46	6.9	S	27.35		30.01	Clear	10.00			OK
23:00	66.2	44.6	53.8	46	3.5	S	27.35		30.01	Clear	10.00			OK

Attachment 12

Permit Deviation Report dated November 8, 2018

FREEPORT-McMoRan

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

November 8, 2018

Via Email: Air.Notices@pima.gov and
Certified Mail: 7017 3380 0000 0803 5731

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

Re: Report of Permit Deviation and Certification of Truth, Accuracy and Completeness, Freeport-McMoRan Sierrita Inc., Permit # 6067

Dear Mr. Fitzpatrick:

This letter serves as a report of a deviation from permit requirements as required by the Freeport-McMoRan Sierrita Inc. (FMSI) Title V permit # 6067, issued January 30, 2016, Attachment "A" Condition XI.B.

Attachment "B" Condition II.E.1. states "*The Permittee shall not cause, suffer, allow, or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become airborne.*"

Description of the Event

On November 6, 2018 between approx. 10:45AM and 1:00PM, a FMSI Environmental Department employee observed intermittent tailings dust emanating from Phase 1, North Dam and Phase 1, South Dam of the tailings impoundment heading in a north direction. The FMSI Tailings Supervisor was immediately contacted, 2 water trucks and 1 all-track vehicle that were already in use on the tailings impoundment and surrounding areas were redirected to the areas of concern to help mitigate the tailings dust. The water trucks were dispatched to North Dam and the all-track vehicle was dispatched to the reachable area of Phase 1 North Dam. Earlier in the day, the all-track vehicle was operating in the reachable area of Phase 1, South Dam. An EPA Reference Official Method 9 Observation was not conducted due to the position of the sun. At approx. 12:10PM and 12:45PM, the tailings dust emanating from the impoundment intermittently moved across Duval Mine Rd, a public thoroughfare, and crossed back onto FMSI property just north of the public thoroughfare. In addition, the emanating dust moved across Continental Rd, a public road and quickly dissipated. Each event lasted for approx. 10 minutes. The wind speed data from the Tailings 1, Sierrita Cow and 10M weather stations showed sustained wind speeds less than 25 mph and gusts in excess of 24mph during the event.

The probable cause of the event was due to wind that picked up tailings material in areas of degraded surface crust in Phase 1, North and South Dam. The areas of the degraded surface crust are not accessible by all-track vehicle and are also at freeboard capacity and

cannot accept additional deposition. Each day more of the degraded areas are drying to allow for all-track vehicle accessibility to apply magnesium chloride.

As a corrective action, the Tailings Supervisor dispatched 2 water trucks and 1 all-track vehicle that were already in use at the time of the event to the areas of concern to mitigate tailings dust.

Preceding, during, and after the event, FMSI employed reasonable precautions, as defined by Attachment B, Section XIX.B.1.b(viii) and (ix) of its Title V permit, to prevent excessive amounts of particulate matter from becoming airborne from the tailings impoundment:

- Applied water to tailings dam roads and berms, as well as, $MgCl_2$ to the top of the tailings dam as needed.
- A total of 3,000 gallons of $MgCl_2$ and 206,000 gallons of water were applied to areas in and around the tailings impoundment on the day of this event.
- A total of 66,750 gallons of $MgCl_2$ and 1,065,000 gallons of water were applied to areas in and around the tailings impoundment 2 weeks prior to this event.
- Tailings Supervisor has adjusted the daily operating schedule to include 12 hour shifts, day and night shifts, to concentrate supplemental efforts on dust control.
- Tailings Supervisor has adjusted the deposition schedule to cover a large area of the impoundment in less time by moving deposition every one and a half shifts versus every two and a half shifts.

Reasonable Precautions or preventative measures employed on an ongoing basis by Sierrita as defined by Attachment B, Section XIX.B.1.b(viii) and (ix):

- Applying wetting agents
- Maximizing the wet surface area
- Barring and controlling vehicle access
- Limiting vehicle speed
- Re-vegetating the side-slopes
- Compaction
- Encrustation
- Completed new tailings dam roads have been capped with native dirt
- Side slopes are treated with a polymer based dust suppressant
- Heavily traveled perimeter roads are treated with $MgCl_2$ dust suppressant
- Active berms were sprayed with water
- The wet dam construction method is used, maintaining the majority of the surface of the impoundment wet or encrusted while the remaining area is under construction

The event at the tailings impoundment was reported to Mr. Dustin Fitzpatrick via phone on November 7, 2018.

Please contact me at 520.393.2376 if additional information is necessary.

Sincerely,

Natalie Nuñez

Natalie Nunez
Senior Environmental Scientist
20181108_001

Certification of Truth, Accuracy and Completeness

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

David Rhoades, General Manager – Sierrita Operations
Andrew Soderman, Mine Manager, Duly Authorized Representative – Sierrita Operations

Andrew Soderman — 11/8/18

(Signature) (Date)

Attachment 13

PDEQ Green Valley Monitoring Station Data dated October 6 & 7, 2018

Green Valley Daily: 10/6/2018 12:00 AM - 10/6/2018 11:00 PM

Date	Time	PM25HRF1	Status	PM10HR	Status	V Wdir	Status	V WSpd	Status
	[ug/m3 L]		[ug/m3]		[Deg]		[mph]		
10/6/2018	12:00 AM	1	Ok	2	Ok	180	Ok	3.8	Ok
10/6/2018	1:00 AM	-2	Ok	4	Ok	215	Ok	3.6	Ok
10/6/2018	2:00 AM	0	Ok	2	Ok	189	Ok	3.7	Ok
10/6/2018	3:00 AM	2	Ok	1	Ok	182	Ok	6.5	Ok
10/6/2018	4:00 AM	4	Ok	3	Ok	182	Ok	6.2	Ok
10/6/2018	5:00 AM	4	Ok	2	Ok	198	Ok	5.1	Ok
10/6/2018	6:00 AM	2	Ok	-2	Ok	191	Ok	5	Ok
10/6/2018	7:00 AM	0	Ok	3	Ok	191	Ok	6.7	Ok
10/6/2018	8:00 AM	3	Ok	9	Ok	194	Ok	7.1	Ok
10/6/2018	9:00 AM	2	Ok	5	Ok	187	Ok	6.5	Ok
10/6/2018	10:00 AM	0	Ok	3	Ok	207	Ok	8.5	Ok
10/6/2018	11:00 AM	2	Ok	4	Ok	200	Ok	6.3	Ok
10/6/2018	12:00 PM	5	Ok	56	Ok	227	Ok	10.6	Ok
10/6/2018	1:00 PM	6	Ok	166	Ok	224	Ok	11.6	Ok
10/6/2018	2:00 PM	13	Ok	115	Ok	214	Ok	12.2	Ok
10/6/2018	3:00 PM	23	Ok	416	Ok	218	Ok	13.3	Ok
10/6/2018	4:00 PM	128	Ok	985	Ok	221	Ok	13.6	Ok
10/6/2018	5:00 PM	97	Ok	985	Ok	224	Ok	12	Ok
10/6/2018	6:00 PM	5	Ok	76	Ok	227	Ok	10	Ok
10/6/2018	7:00 PM	8	Ok	293	Ok	217	Ok	8.5	Ok
10/6/2018	8:00 PM	7	Ok	9	Ok	201	Ok	5.8	Ok
10/6/2018	9:00 PM	5	Ok	11	Ok	207	Ok	6.7	Ok
10/6/2018	10:00 PM	3	Ok	9	Ok	216	Ok	7.6	Ok
10/6/2018	11:00 PM	2	Ok	7	Ok	218	Ok	7.6	Ok

Green Valley Daily: 10/7/2018 12:00 AM - 10/7/2018 11:00 PM

Date	Time	PM25HRF1	Status	PM10HR	Status	V Wdir	Status	V WSpd	Status
	[ug/m3 L]		[ug/m3]		[Deg]		[mph]		
10/7/2018	12:00 AM	9	Ok	7	Ok	229	Ok	7.6	Ok
10/7/2018	1:00 AM	6	Ok	17	Ok	219	Ok	5.5	Ok
10/7/2018	2:00 AM	3	Ok	17	Ok	208	Ok	6.5	Ok
10/7/2018	3:00 AM	8	Ok	7	Ok	223	Ok	5.6	Ok
10/7/2018	4:00 AM	9	Ok	35	Ok	221	Ok	4.9	Ok
10/7/2018	5:00 AM	9	Ok	60	Ok	201	Ok	6.3	Ok
10/7/2018	6:00 AM	3	Ok	27	Ok	209	Ok	10.4	Ok
10/7/2018	7:00 AM	2	Ok	67	Ok	211	Ok	14.4	Ok
10/7/2018	8:00 AM	19	Ok	985	Ok	219	Ok	15.3	Ok
10/7/2018	9:00 AM	12	Ok	985	Ok	220	Ok	15	Ok
10/7/2018	10:00 AM	7	Ok	135	Ok	201	Ok	18	Ok
10/7/2018	11:00 AM	3	Ok	28	Ok	208	Ok	16.2	Ok
10/7/2018	12:00 PM	18	Ok	376	Ok	247	Ok	12.5	Ok
10/7/2018	1:00 PM	7	Ok	24	Ok	261	Ok	12	Ok
10/7/2018	2:00 PM	9	Ok	1	Ok	259	Ok	7.6	Ok
10/7/2018	3:00 PM	7	Ok	21	Ok	269	Ok	5.8	Ok
10/7/2018	4:00 PM	1	Ok	18	Ok	331	Ok	8	Ok
10/7/2018	5:00 PM	-3	Ok	6	Ok	347	Ok	7.1	Ok
10/7/2018	6:00 PM	4	Ok	7	Ok	346	Ok	3.6	Ok
10/7/2018	7:00 PM	5	Ok	7	Ok	337	Ok	2.5	Ok
10/7/2018	8:00 PM	0	Ok	8	Ok	82	Ok	1.5	Ok
10/7/2018	9:00 PM	4	Ok	4	Ok	120	Ok	2	Ok
10/7/2018	10:00 PM	3	Ok	1	Ok	220	Ok	3.2	Ok
10/7/2018	11:00 PM	5	Ok	3	Ok	242	Ok	4.4	Ok

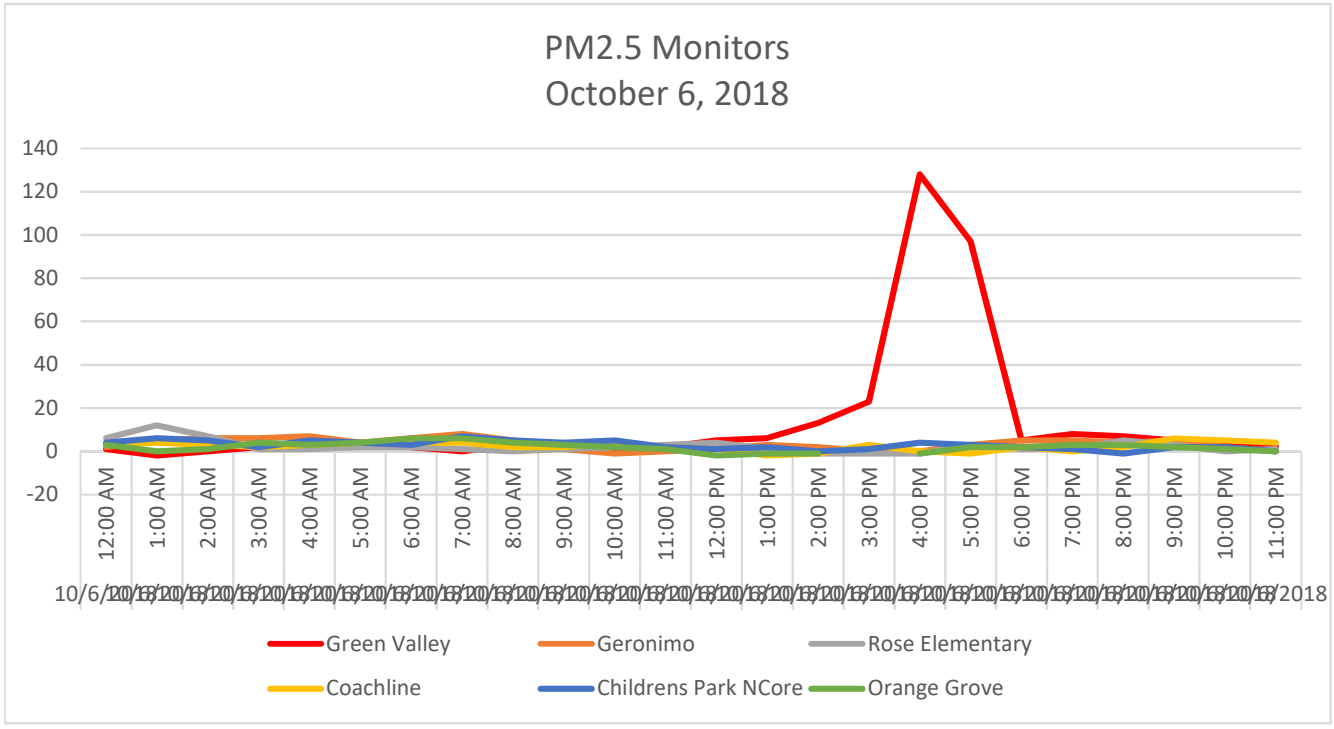
Attachment 14

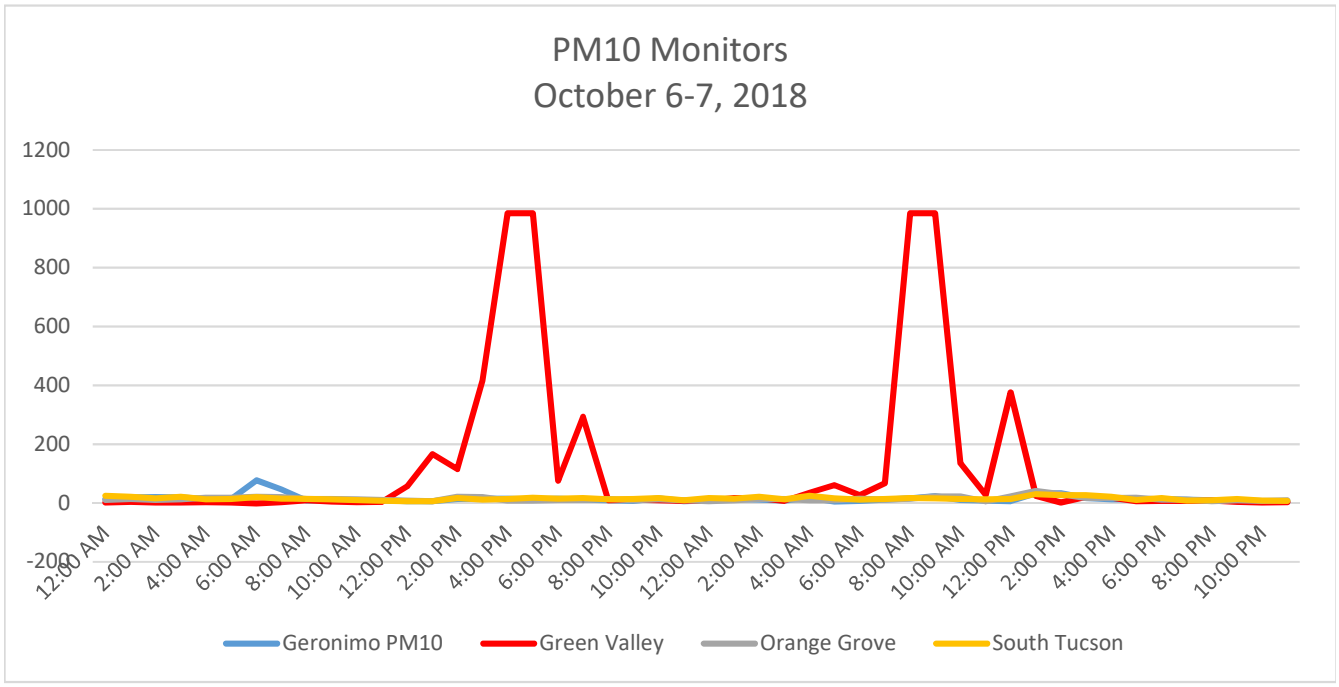
PDEQ Green Valley $PM_{2.5}$ & PM_{10} Tabular Data and Regional Graph Comparison

Green Valley Highest Hourly Concentrations for 2018*
*Preliminary data up until October 18, 2018

Date	Time	PM25 ug/m3	Date	Time	PM10 ug/m3	V Wdir Deg	V WSpd mph
10/6/2018	4:00 PM	128	10/6/2018	4:00 PM	985	221	13.6
10/6/2018	5:00 PM	97	10/6/2018	5:00 PM	985	224	12
6/28/2018	9:00 PM	67	10/7/2018	8:00 AM	985	219	15.3
2/20/2018	12:00 AM	32	10/7/2018	9:00 AM	985	220	15
6/28/2018	8:00 PM	30	8/29/2018	11:00 PM	521	219	17.9
6/28/2018	10:00 PM	29	10/6/2018	3:00 PM	416	247	12.5
4/13/2018	2:00 AM	28	8/30/2018	12:00 AM	413	216	10.8
2/20/2018	1:00 AM	27	10/7/2018	12:00 PM	376	247	12.5
2/20/2018	2:00 AM	27	6/28/2018	9:00 PM	371	226	10.6
1/28/2018	9:00 AM	23	1/28/2018	9:00 AM	332	1	4.4
2/19/2018	11:00 PM	23	10/6/2018	7:00 PM	293	217	8.5
5/11/2018	9:00 PM	23	1/7/2018	9:00 AM	248	164	4
10/6/2018	3:00 PM	23	9/16/2018	5:00 PM	228	218	10.4
1/7/2018	8:00 AM	22	9/15/2018	9:00 PM	225	204	9
2/20/2018	3:00 AM	21	6/28/2018	8:00 PM	189	244	8.7
4/13/2018	3:00 AM	21	5/11/2018	9:00 PM	183	208	10.69
6/7/2018	12:00 AM	20	6/28/2018	10:00 PM	178	217	11.7
7/25/2018	12:00 AM	20	10/6/2018	1:00 PM	166	224	11.6
1/1/2018	8:00 AM	19	1/7/2018	8:00 AM	162	171	4.8
2/20/2018	4:00 AM	19	7/25/2018	12:00 AM	162	216	3.2
4/7/2018	12:00 PM	19	5/11/2018	10:00 PM	157	186	12.5
4/19/2018	8:00 PM	19	4/13/2018	2:00 AM	152	260	5.3
5/11/2018	10:00 PM	19	10/7/2018	10:00 AM	135	201	18
			1/16/2018	3:00 PM	132	14	7.2
			5/11/2018	11:00 PM	126	185	13.6
			5/11/2018	8:00 PM	118	217	12
			7/9/2018	10:00 AM	117	22	4.1
			10/6/2018	2:00 PM	115	214	12.2

Green Valley High Pariculate Days Comparison





Attachment 15

Inspection Report dated September 26, 2018

PIMA COUNTY
ENVIRONMENTAL QUALITY

Inspection Report
Tracking ID: PC1809-109

Permit #: 6067
Source: Freeport-McMoRan Sierrita Inc.
Location: 6200 W. Duval Mine Rd., Green Valley, AZ
Date: September 26, 2018
Arrival Time: 11:00 am
Departure Time: 1:20 pm
Inspector: M. Rogers
Spoke With: Natalie Nunez
Phone #: (520) 393-2376
Reason for Inspection: Complaint / Permit Deviation Follow-up

On September 19, 2018, the Pima County Department of Environmental Quality (PDEQ) received a complaint regarding a dust plume coming from the northeast corner of the Freeport-McMoRan Sierrita Inc. (FMSI) Sierrita tailings impoundment on September 18, 2018, from 6:20 pm – 6:45 pm. On September 19, 2018, PDEQ received telephone notification from FMSI staff notifying of a dust event that occurred in which dust from the tailings impoundment crossed Duval Mine Rd. PDEQ received a permit deviation report from FMSI on September 20, 2018, reporting the deviation from the permit requirement to not allow dust to cross the property boundary line. The Green Valley area received significant rainfall September 18-20, 2018, and I delayed on onsite inspection until September 26, 2018.

I arrived to the FMSI facility and was met by Ms. Natalie Nunez, Sr. Environmental Scientist. I conducted inspection rights protocol with Ms. Nunez at the Environmental Office conference room at FMSI (Attachment 1). I described the complaint to her and the FMSI staff. Additionally we discussed FMSI's permit deviation report that was submitted on September 20, 2018.

FMSI staff also informed me that on September 10, 2018, an all-track vehicle had sunk into the softer center portion of the tailings impoundment and got stuck (Attachment 2, photo 1). FMSI deployed a bulldozer to pull the immobilized all-track vehicle out from the tailings impoundment interior and it became stuck as well.

Ms. Nunez escorted me to the top of the tailings impoundment. She informed me that FMSI has scheduled to apply a polymer, commercially named Gorilla-Snot, to the side benches of the tailings impoundment. Gorilla-Snot is a product utilized to stabilize soil surfaces as a dust suppressant.

During the inspection we walked around the divider that separates the North dam from the South dam. According to FMSI staff, the tailings impoundment had received over 3 inches of rainfall on September 20, 2018, which severely damaged the crust and areas of previous magnesium chloride application. I walked across the area of the tailings impoundment surface south of the divider and

observed the surface, as well as viewed and photographed phases 2 and 3 of the South dam (Attachment 2, photos 2 - 12). The surface was able to support my weight without creating deep foot prints. Additionally the surface was moist, and did not yield any fine particles when touched. The crust of the surface surrounding the divider appeared worn and eroded, with areas of uncrusted tailings material in channels where water had previously flowed across the surface and in cracks between crusted plates. I observed that slurry deposition was occurring in sections of phases 1 and 2 of the South dam. The majority of the tailings impoundment surface in phases 2 and 3 of the South dam appeared light in color.

I informed the FMSI staff that I did not observe any deficiencies during my inspection and that an inspection report would be provided following the inspection.

Attachments:

1. Inspection Rights Form dated September 26, 2018
2. Photo Log dated September 26, 2018

PIMA COUNTY
ENVIRONMENTAL QUALITY

PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY
33 N. Stone Avenue, Suite 700, Tucson, AZ 85701-1429

Phone (520) 724-7400 FAX (520) 838-7432
http://webcms.pima.gov/government/environmental_quality/

AIR PROGRAM
NOTIFICATION OF INSPECTION RIGHTS

SOURCE INFORMATION

PC # _____ Permit # 6067

Regulated Person FMST

On-site Representative NATALIE NUNEZ Title ENV. SCIENTIST

Site Location 6200 W. DUVAL MINE RD. Phone 520-393-2376

Site Contact _____ E-Mail Nnunez@fmi.com

Mailing Address _____

PDEQ INFORMATION

Inspector Name M. ROGERS Phone _____

Inspection Date 9/26/18 Time 11:05

Accompanied by _____

Questions or comments on these procedures, your inspection and due process rights or this form may be directed to the Pima County Department of Environmental Quality (PDEQ) inspector listed on this form at (520) 724-7400. While I have the right to decline to sign this form, the PDEQ representative(s) may still proceed with the inspection under Pima County Code (PCC) 17.20.050.

☒ ***I acknowledge that I have read and understand the Inspection Rights on the back of this form.***

Signature Natalie Nunez Date 9/26/18

☐ _____ Refused to sign the Notification.

☐ Authorized on-site representative is not present at the facility.

Pima County Department of Environmental Quality
Air Program

Photographic Log

Site Location: 6200 W. Duval Mine Rd., Green Valley, AZ
Date: September 26, 2018

Tracking #: PC1809-109
Photographer: M. Rogers

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Attachment 16

Inspection Report dated October 6, 2018

PIMA COUNTY
ENVIRONMENTAL QUALITY

Inspection Report
Tracking ID: PC1810-033

Permit #: 6067
Source: Freeport-McMoRan Sierrita Inc.
Location: 6200 W. Duval Mine Road, Green Valley, AZ
Date: October 6, 2018
Arrival Time: 1:49 pm
Departure Time: 5:46 pm
Inspector: J. Easley
Reason for Inspection: Surveillance

On October 6, 2018, at approximately 1:45 pm, I observed dust emanating from the east side of the Freeport-McMoRan Sierrita Inc. (FMSI) Sierrita Tailings Impoundment (Attachment 2: Photo 1). In response to my observation I conducted offsite surveillance for a duration of approximately four hours. My surveillance consisted of observation points at multiple locations in Green Valley. Attachment 1 is a Google Earth map with pins marking the locations where I stopped and photographed the dust event. The following narrative will refer to these pinned locations. Attachment 2 consists of the photographs that were taken at the pinned locations.

I arrived at my second location on Camino de la Canoa at approximately 2:29 pm (Attachment 2: Photo 2). I observed dust emanating from the center of the east side of the tailings dam and moving in a northeasterly direction. I arrived at location 3 on Continental Road (Attachment 1) at approximately 2:39 pm. I observed dust plumes drifting off the tailings dam (Attachment 2: Photo 3). I continued northwest on Continental Road and arrived at Location 4 (Attachment 1) at approximately 2:40 pm. I observed dust plumes emanating from the tailings dam and moving in an easterly direction across Continental Road (Attachment 2: Photos 4, 5 & 6). The northeast corner of the tailings dam was obscured by the dust (Attachment 2: Photo 7). I did not observed any dust plumes, at the same location, looking southeast on Continental Road (Attachment 2: Photo 8). I arrived at location 5 on Continental Road at approximately 2:44 pm. I observed Continental Road was obscured by the dust moving across the road that was generated from the tailings dam and moving east northeast from the tailings dam (Attachment 2: Photos 9, 10 & 11). I arrived at location 6 on Continental Road at approximately 2:45 pm. I observed dust plumes emanating from the northeast corner of the tailings dam (Attachment 2: Photo 12). The plumes were rolling off the top of the tailings dam moving in an easterly direction. I observed the plumes rising at least 100 feet into the atmosphere (Attachment 2: Photo 13). The plumes were crossing Continental Road to the east and obscuring the utility poles on both sides of Continental Road (Attachment 2: Photos 13 & 14). At the intersection of Continental Road and Duval Mine Road I headed west. I stopped at location 7 at approximately 2:48 pm. I observed mostly clear skies and unobscured views of the mountains looking west on Duval Mine Road (Attachment 2: Photo 15). Looking east on Duval Mine Road I observed dust plumes emanating from the tailings dam and crossing Duval Mine Road; obscuring the view of the Santa Rita Mountains in the background

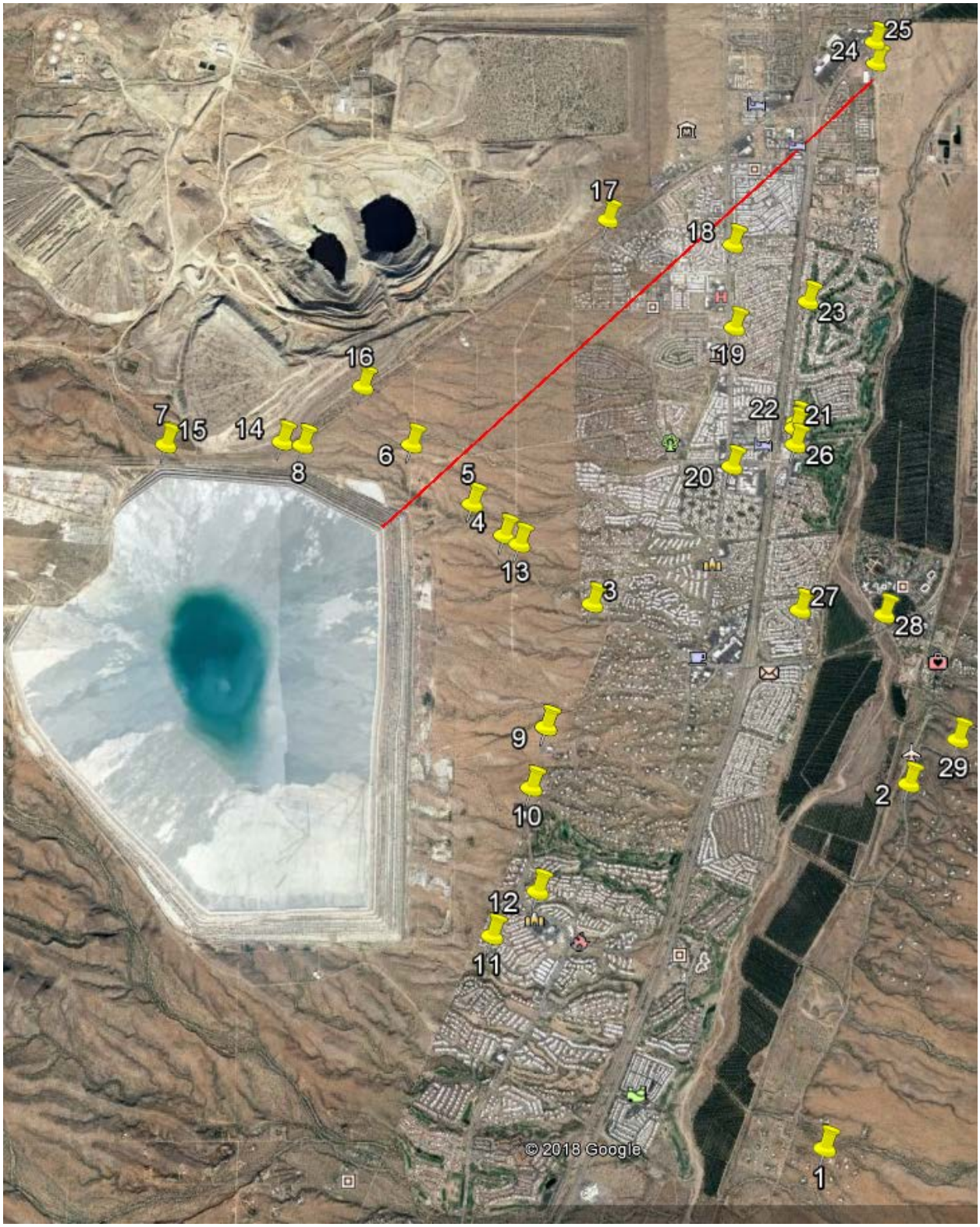
(Attachment 2: Photos 16, 17 & 18). I drove back on Continental Road, headed east, and stopped at location 8 at approximately 2:53 PM. I continued to observed plumes of dust emanating from the northeast corner of the tailings dam (Attachment 2: Photo 19) and moving to the east crossing Continental Road (Attachment 2: Photo 20). The plumes were rising at least 100 feet into the atmosphere (Attachment 2: Photo 21). I drove to the intersection of Camino Del Sol and Continental Road and headed south on Camino Del Sol and arrived at location 9 at approximately 3:05 pm. I observed dust plumes emanating from the middle of the east side to the northeast corner of the tailings dam (Attachment 2: Photos 22 & 23). I drove to location 10, arriving at approximately 3:21 pm. I continued to observed dust plumes emanating from the tailings dam (Attachment 2: Photo 24). I drove to location 11 to observe the southeast corner of the tailings dam. I did not observe any dust emanating from that area of the tailings dam (Attachment 2: Photo 25). I drove back to Camino Del Sol. At location 12, I observed dust emanating off the tailings dam (Attachment 2: Photo 26). The amount of dust emanating from the tailings dam appeared to be increasing. I drove back to Continental Road and stopped at location 3 at approximately 3:41 pm. I observed large plumes of dust coming off the tailings dam and crossing Continental Road (Attachment 2: Photos 27 & 28). I continued northwest on Continental Road and stopped at location 13 at approximately 3:47 pm. I observed dense clouds of dust moving east from the tailings damn across Continental Road (Attachment 2: Photo 29, 30 & 31). The background was completely obscured by the dust. I continued northwest on Continental Road and arrived at location 6 at approximately 4:03 pm. Looking to the east from this location I observed plumes of dust crossing Continental Road (Attachment 2: Photo 32). Continental Road was partially obscured by the dust looking to the west from this location (Attachment 2: Photo 33). I continued to the intersection of Continental Road and Duval Mine Road and arrived at location 14 at 4:06 pm. Looking east on Continental Road from this location dust was crossing the road and obscuring the view of the Santa Rita Mountains (Attachment 2: Photo 34). Most of the background was obscured by the dust looking northeast from this location (Attachment 2: Photo 35). I continued west on Duval Mine Road and arrived at location 15 at 4:25 pm. Looking west at this location I did not observe dust emissions (Attachment 2: Photo 36). From location 7 (across the street from location 15) looking east on Duval Mine Road the dust plume that was emanating from the tailings dam (Attachment 2: Photo 37) and crossing Duval Mine Road was dense enough to obscure most of the Santa Rita Mountains in the background (Attachment 2: Photo 38). I continued northeast on Duval Mine Road and arrived at location 16 at approximately 4:44 pm. Looking to the south of this location I observed a dust plume stretching from the tailings dam into the residential area of Green Valley (Attachment 2: Photos 39, 40 & 41). I continued northeast on Duval Mine Road and arrive at location 17 at approximately 4:50 pm. I observed dust plumes moving across Rio Altar (Attachment 2: Photo 42). I continued to La Canada Drive and drove south to location 18. I observed dust plumes to the south crossing La Canada Drive (Attachment 2: Photo 43). I continued south on La Canada Drive until I reached the intersection of Desert Bell and La Canada Drive, location 19. I observed the dust plume was crossing La Canada about 100 ft from this location (Attachment 2: Photo 44). I continued south on La Canada Drive to locate the south boundary of the dust plume and to determine the approximate width and path of the dust plume at that time. I arrived at location 20 at approximately 5:03 pm. Looking north on La Canada Drive at location 20 it appeared the dust plume's south boundary was just north of Esperanza Boulevard (Attachment 2: Photo 45). I drove to Abrego Drive and headed north to location 21, arriving at approximately 5:05 PM. I observed dust plumes drifting to the east (Attachment 2: Photo 46). I continued north on Abrego Drive and arrived at location 22 at approximately 5:06 pm. Looking

north I observed dust moving across Abrego Drive (Attachment 2: Photo 47). Further north on Abrego Drive I stopped at location 23 at approximately 5:08 pm. I observed dust obscuring the vegetation, building and road (Attachment 2: Photo 48). I continued north on Abrego Drive and stopped at location 24 at approximately 5:13 pm. Looking east at that location I observed the dust plume was moving east towards the Santa Rita Mountains obscuring most of the mountains as it was moving east (Attachment 2: Photo 49). At location 25 slightly to the northeast of location 24 I observed the dust plumes still wafting toward the east (Attachment 2: Photo 50). I drove back to Abrego Drive and headed south to Esperanza Blvd to location 26. I observed clear skies absent of dust plumes (Attachment 2: Photo 51). Further south on Abrego Drive I stopped at location 27 at approximately 5:24 pm. I observed a clear view of the Santa Rita Mountains (Attachment 2: Photo 52). I continued to Continental Road and headed south to location 27, arriving at approximately 5:26 pm. Looking north I observed the dust plume obscuring the Catalina Mountains (Attachment 2: Photo 53). I traveled to Camino de la Canoa arriving at location 28 at approximately 5:29 pm. Looking in a westerly direction I observed plumes of dust still emanating from the tailings dam (Attachment 2: Photo 54). I returned to location 1, where I started, at approximately 5:46 pm, 4 hours later and observed the dust plume still visible and obscuring the Catalina Mountains (Attachment 2: Photo 55).

Attachments:

1. Google Earth Map of Photo Locations
2. Photo Log dated October 6, 2018

Attachment 1: Google Earth Map of Photo Locations



Pima County Department of Environmental Quality
Air Program

Photographic Log

Site Location: 6200 W. Duval Mine Rd., Green Valley, AZ
Tracking #: PC1810-033
Date: October 6, 2018
Photographer: J. Easley

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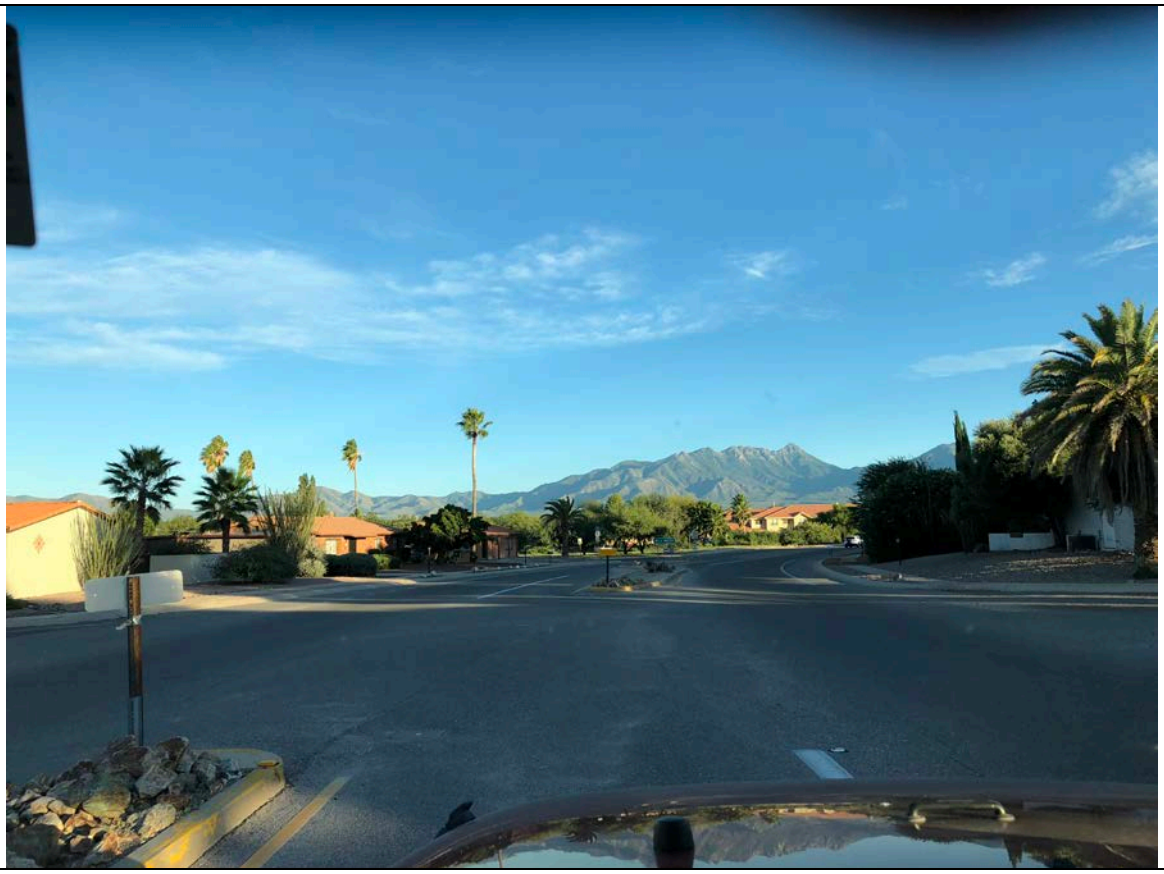

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Attachment 17

Inspection Report dated October 7, 2018

PIMA COUNTY
ENVIRONMENTAL QUALITY

Inspection Report
Tracking ID: PC1810-033

Permit #: 6067
Source: Freeport-McMoRan Sierrita Inc.
Location: 6200 W. Duval Mine Road, Green Valley, AZ
Date: October 7, 2018
Arrival Time: 8:13 am
Departure Time: 11:43 am
Inspector: J. Easley
Reason for Inspection: Surveillance

On October 7, 2018, at approximately 8:13 am, I observed dust emanating from the east side of the Freeport-McMoRan Sierrita Inc. (FMSI) Sierrita Tailings Impoundment (Attachment 2: Photo 1). In response to my observation I conducted offsite surveillance for a duration of approximately three hours. My surveillance consisted of observation points at multiple locations in Green Valley. Attachment 1 is a Google Earth map with pins marking the locations where I stopped and photographed the dust event. The following narrative will refer to these pinned locations. Attachment 2 consists of the photographs that were taken at the pinned locations.

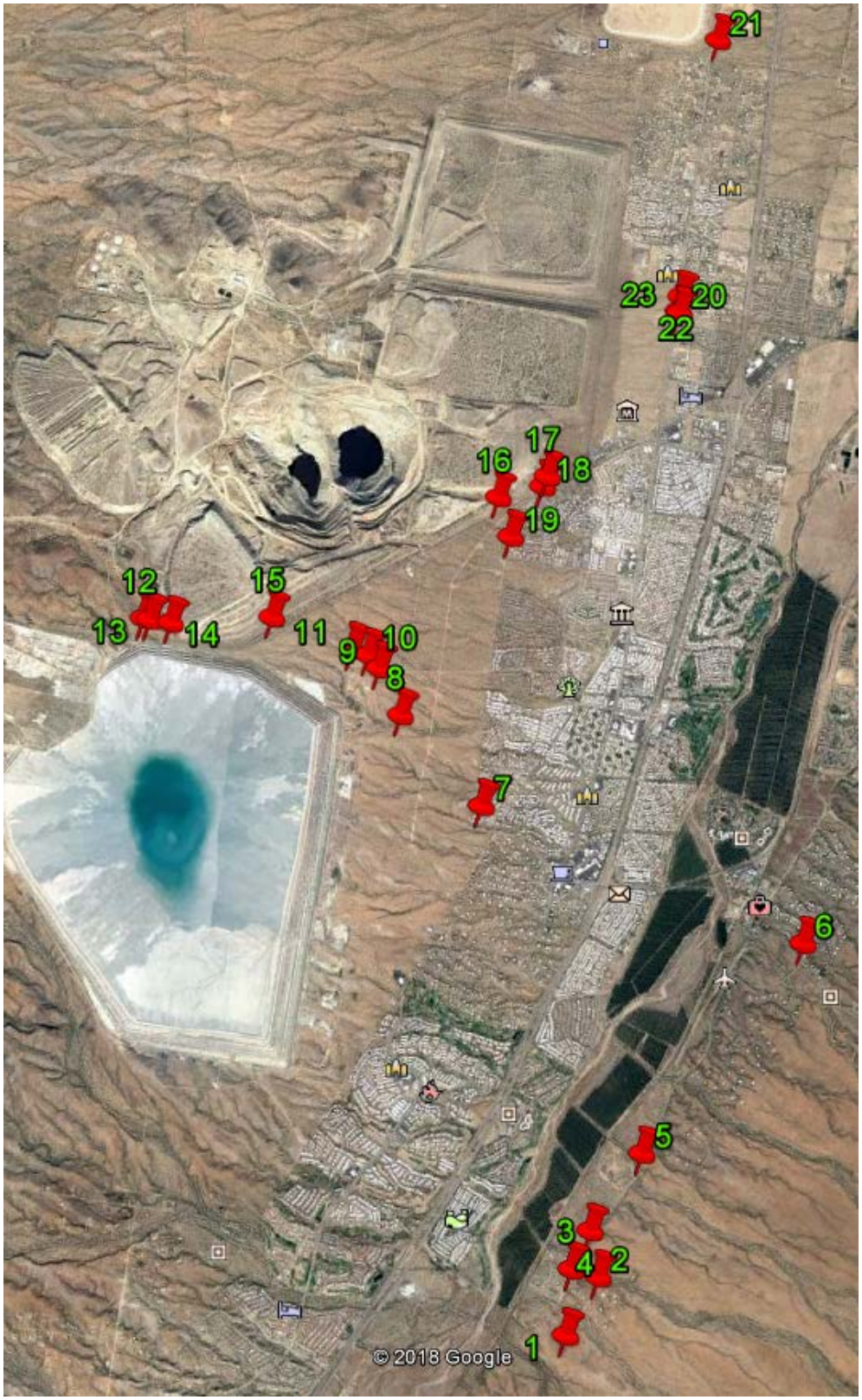
I arrived at my second location on Camino de la Canoa at approximately 8:30 am (Attachment 2: Photo 2). I observed dust emanating from the northeast side of the tailings dam and moving in a northeasterly direction for a least 4 miles. I arrived at location 3 on Camino de la Canoa at approximately 10:19 am. I observed dust plumes drifting off the tailings dam (Attachment 2: Photo 3). I continued northwest on Camino de la Canoa and arrived at location 4 (Attachment 1) at approximately 10:21 am. I observed dust plumes emanating from the tailings dam and moving in a northeasterly direction (Attachment 2: Photo 4). I arrived at location 5 on Camino de la Canoa at approximately 10:22 am. I observed most of the tailings dam was obscured by the dust and large dust plumes continue to travel in a northeasterly direction. (Attachment 2: Photos 5 & 6). I arrived at location 6 on White House Canyon Road at approximately 10:28 am. I observed dust plumes emanating from the east side of the tailings dam (Attachment 2: Photo 7 & 8). I arrived at location 7 on Continental Road at approximately 10:54 am. The dust was completely obscuring the tailings dam to the northwest (Attachment 2: Photo 7). I arrived at location 8 on Continental Road at approximately 10:58 am. The dust was crossing Continental Road and completely obscuring the view of the tailings dam as well as the road (Attachment 2: Photos 10 & 11). I observed white to gray dust becoming airborne, kicked up by a car driving northwest on Continental Road (Attachment 2: Photo 12). I arrived at location 9 on Continental road at approximately 11:00 am. I observed dust moving across Continental Road looking to the southeast (Attachment 2: Photo 13) and looking to northwest (Attachment 2: Photo 14) completely blocking out the background. The tailings dam was completely obscured by the dust (Attachment 2: Photos 15 & 16). I continued northwest on Continental Road and arrived at location 10 at approximately 11:01 am. The dust was very dense at this location. Dust plumes were crossing

Continental Road to the east and obscuring the utility poles and structures located on both sides of Continental Road (Attachment 2: Photo 17). I arrived at location 11 on Continental Road at approximately 11:02 am. The dust was very dense at this location. Dust plumes were crossing Continental Road (Attachment 2: Photo 18) and obscuring the utility poles located on both sides of Continental Road (Attachment 2: Photos 19 & 20) and the tailings dam (Attachment 2: Photo 21). The visibility at this location was greatly diminished in all directions as shown in photos taken looking to the northwest (Attachment 2: Photo 22), west (Attachment 2: Photo 23) and northeast (Attachment 2: Photo 24) from this location. At the intersection of Continental Road and Duval Mine Road I headed west. I stopped at location 12 at approximately 11:06 am. Looking east-southeast on Duval Mine Road I observed dense dust plumes emanating from the tailings dam and crossing Duval Mine Road; obscuring the view of the tailings dam in the background (Attachment 2: Photos 25 & 26). I observed mostly cloudy skies and a slightly hazy views of the mountains looking west on Duval Mine Road (Attachment 2: Photo 27). Moving slightly east on Duval Mine Road to location 13. I observed a layer of white to gray dust covering the ground (Attachment 2: Photo 28). While I was at that location a truck drove by and I observed plumes of dust kicked up from the tires as it passed (Attachment 2: Photo 29). Looking east at that location I observed dust plumes generated from the tailings dam crossing Duval Mine Road and completely obscuring the road and Mountains to the East (Attachment 2: Photos 30). I continued to where the dust plumes were crossing Duval Mine Road at location 14, arriving at approximately 11:10 am. I observed a fog of dust completely obscuring the road and surrounding vegetation looking to the east (Attachment 2: Photos 31 & 32). I continued northeast on Duval Mine Road and arrived at location 15 at approximately 11:14 am. I observed the road and vegetation continued to be obscured from the dust event (Attachment 2: Photo 33). Driving further to the northeast on Duval Mine Road I arrived at location 16 at approximately 11:17 am. I observed plumes of dust crossing the road however the background was less obscured and I could see the outline of the Santa Rita Mountains to the northeast (Attachment 2: Photo 34). I continued to the intersection of Duval Mine Road and Rio Altar arriving at location 17 at approximately 11:18 am. I observed dust obscuring the slopes of the older inactive tailings dam looking to the north (Attachment 2: Photos 35 & 36). At the corner of Via Imuris and Via San Miguel, location 18, I observed some dust slightly obscuring the area and blocking out most of the tailings dam to the north (Attachment 2: Photo 37). I arrived at the corner of Camino Casa Verde and Avenida Del Abaco, location 19 at approximately11:26 am. I observed dust obscuring the tailings dam to the north (Attachment 2: Photo 38) and dust plumes below the cloud layer above the homes (Attachment 2: Photo 39). I continued to La Canada Drive and drove north to location 20 arriving at approximately 11:34 am. I observed dust slightly obscuring the inactive tailing dams to the west (Attachment 2: Photo 40) and La Canada Drive to the north (Attachment 2: Photo 41). I continued driving north on La Canada to location 21 arriving at approximately 11:38 am. The view to the east was mostly clear (Attachment 2: Photo 42). I turned around and headed south on La Canada to location 22. At this location the background was obscured by dust (Attachment 2: Photo 43). I arrived at location 23 on La Canada Drive at approximately 11:43 am. Looking both south and north, it appears there is still some dust obscuring the road (Attachment 2: Photos 44 & 45).

Attachments:

1. Google Earth Map of Photo Locations
2. Photo Log dated October 7, 2018

Attachment 1: Google Earth Map of Photo Locations



Pima County Department of Environmental Quality
Air Program

Photographic Log

Site Location: 6200 W. Duval Mine Rd., Green Valley, AZ
Tracking #: PC1810-033
Date: October 7, 2018
Photographer: J. Easley

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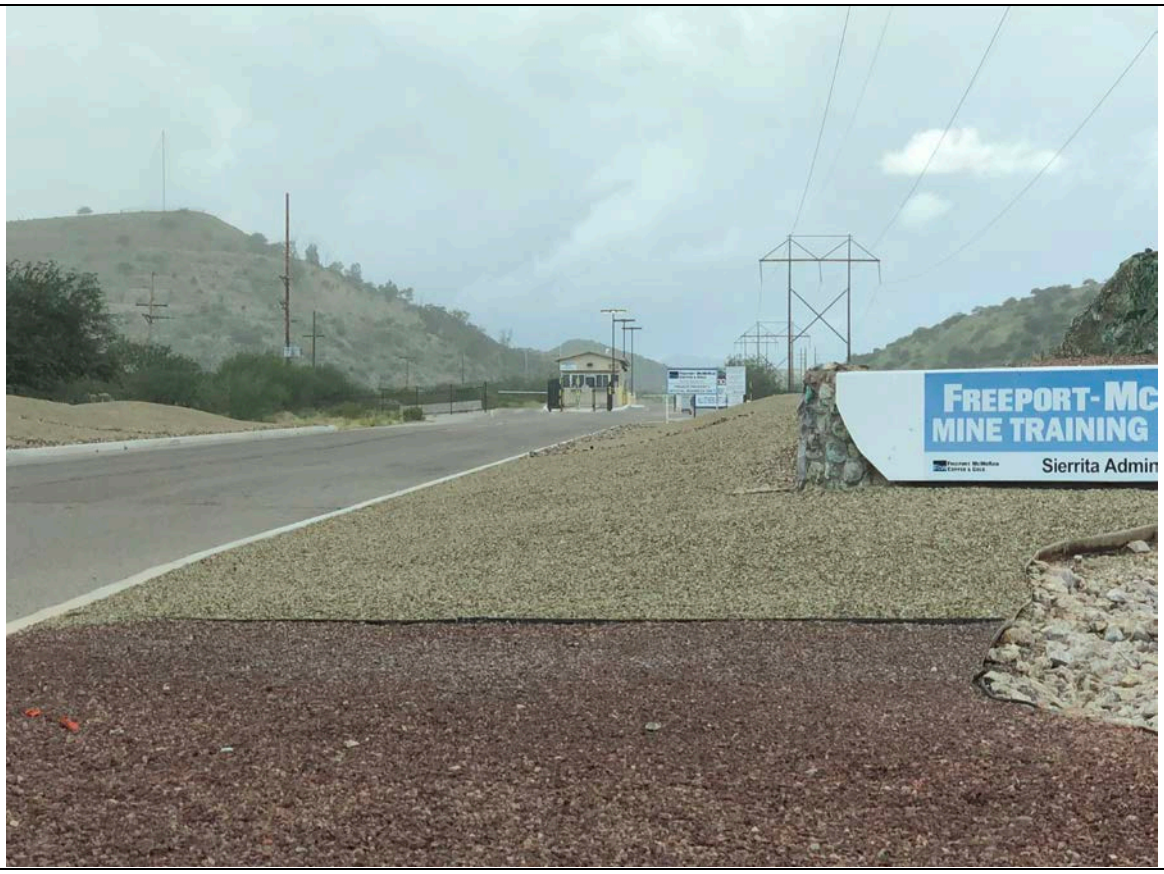

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Attachment 18

Inspection Report dated October 8, 2018

PIMA COUNTY
ENVIRONMENTAL QUALITY

Inspection Report
Tracking ID: PC1810-033

Permit #: 6067
Source: Freeport-McMoRan Sierrita Inc.
Location: 6200 W. Duval Mine Rd., Green Valley, AZ
Date: October 8, 2018
Arrival Time: 11:00 am
Departure Time: 1:30 pm
Inspector: M. Rogers & D. Fitzpatrick
Spoke With: Natalie Nunez, Sr. Environmental Scientist
Phone #: (520) 393-2376
Reason for Inspection: Complaint

Pima County Department of Environmental Quality (PDEQ) received numerous complaints concerning plumes of dust generated from the tailings impoundment on Freeport-McMoRan Sierrita Inc.'s (FMSI) property on the dates of October 6 and 7, 2018. PDEQ staff observed the dust emissions generating from the FMSI Sierrita Tailings Impoundment for several hours during both days. PDEQ Air Compliance Manager, Dustin Fitzpatrick, and I entered the FMSI facility and met Ms. Natalie Nunez, Sr. Environmental Scientist. I conducted inspection rights protocol with Ms. Nunez (Attachment 1). Ms. Nunez informed Mr. Fitzpatrick and me that FMSI was preparing an excess emissions report for submittal to PDEQ for the prior day's dust event. She said that FMSI's wind gauges stationed on the top south eastern corner of the impoundment had measured wind gusts at 40 miles per hour. Ms. Nunez also informed us that FMSI staff was aware of a multitude of complaints received by their facility from the public and was in the process of addressing those complaints at the time of inspection. She escorted us to the tailings impoundment.

While driving on the Sierrita Tailings Impoundment road, I observed a large amount of light colored fine material on the outward facing sloped embankments of the north and east dam faces (Attachment 2, Photos 1-4). The material appeared to be windblown tailings material from the impoundment surface and was covering some sections of berm faces in their entirety. The dry loose tailings material had accumulated and built up along the inside of the pipeline and on the road. The windblown material had not been present during my previous inspections on August 21 and September 26, 2018.

We then inspected the surface of the North dam near the boundaries of Phases 1 and 2.While on top of the berm we observed that there was approximately one to two feet of freeboard from the top of the berm to the surface of the impoundment (Attachment 2, Photo 5). The impoundment surface was partially moist and able support my weight without my boot sinking more than an inch (Attachment 2, Photo 6). The surface crust appeared approximately a quarter inch thick in many areas that we observed (Attachment 2, Photo 7). There were large areas observed where the wind and rain had eroded the crust away completely and exposed loose sandy tailings material

(Attachment 2, Photos 8 & 9). Several areas had developed channels up to a foot deep and several feet wide that appeared to been created by erosion of tailings material from surface water flow (Attachment 2, photos 10 - 12). We also observed a water truck applying water to the side slope of the berm during our inspection (Attachment 2, Photo 13).

Our next stop for inspection was the divider between the North and South dam. At the time of our inspection, FMSI staff were working on the removal of several pieces of equipment that had been stuck in tailings south of the divider toward the reclaim pond, including an all-track and bulldozer (Attachment 2, Photo 14). The surface of the South dam near the divider was covered in a layer of apparent windblown tailings material (Attachment 2, Photos 15 & 16). The surface crust appeared similar to the North dam but there were many areas where all-track vehicles had crossed the surface and left track marks. We observed the deposition of tailings slurry onto portions of phases 1 and 2 of the South dam (Attachment 2, Photo 17). We observed the two all-track vehicles applying magnesium chloride to surface of the southeast portion of the South dam (Attachment 2, Photo 18). On the tailings road, we observed the larger capacity Terramac all-track vehicle parked and another all-track vehicle that was under repair (Attachment 2, Photos 19 & 20).

Ms. Nunez escorted Mr. Fitzpatrick and me back to the FMSI parking lot. We thanked her for her time, and informed her that PDEQ would provide an inspection report following the inspection.

Attachments:

1. Inspection Rights Form dated October 8, 2016
2. Photo Log dated October 8, 2016

PIMA COUNTY
ENVIRONMENTAL QUALITY

PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY
33 N. Stone Avenue, Suite 700, Tucson, AZ 85701-1429

Phone (520) 724-7400 FAX (520) 838-7432
http://webcms.pima.gov/government/environmental_quality/

AIR PROGRAM
NOTIFICATION OF INSPECTION RIGHTS

SOURCE INFORMATION

PC # _____ Permit # 6067

Regulated Person FMSI, FREEPORT McMoRan SIERRITA INC.

On-site Representative NATALIE NUNEZ Title ENV. SCIENTIST / MGR.

Site Location 6200 W OUVAL MINE RD Phone _____

Site Contact _____ E-Mail _____

Mailing Address _____

PDEQ INFORMATION

Inspector Name M. ROGERS / D. FITZPATRICK Phone 724-7320

Inspection Date _____ Time 11:00 AM

Accompanied by _____

Questions or comments on these procedures, your inspection and due process rights or this form may be directed to the Pima County Department of Environmental Quality (PDEQ) inspector listed on this form at (520) 724-7400. While I have the right to decline to sign this form, the PDEQ representative(s) may still proceed with the inspection under Pima County Code (PCC) 17.20.050.

☒ ***I acknowledge that I have read and understand the Inspection Rights on the back of this form.***

Signature Natalie Nunez Date 10/8/2018

☐ _____ Refused to sign the Notification.

☐ Authorized on-site representative is not present at the facility.

Pima County Department of Environmental Quality
Air Program

Photographic Log

Site Location: 6200 W. Duval Mine Rd.
Date: October 8, 2018

Tracking #: PC1810-033
Photographer: M. Rogers

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Attachment 19

Inspection Report dated October 10, 2018

PIMA COUNTY
ENVIRONMENTAL QUALITY

Inspection Report
Tracking ID: PC1810-033

Permit #: 6067
Source: Freeport-McMoRan Sierrita Inc.
Location: 6200 W. Duval Mine Rd., Green Valley, AZ
Date: October 10, 2018
Arrival Time: 9:50 am & 1:50 pm
Departure Time: 10:20 am & 3:30 pm
Inspector: M. Rogers, accompanied by Dustin Fitzpatrick, Air Compliance Manager, Pima County Department of Environmental Quality
Spoke With: Travis Behrens, Environmental Scientist; Chris Young, Engineer; Procopio Gonzales, Tailings Dam Manager; and David Barnes, Environmental Manager
Phone #: (520) 393-2010
Reason for Inspection: Follow-up

PDEQ Air Compliance Manager, Dustin Fitzpatrick, and I arrived at the Freeport-McMoRan Sierrita Inc. (FMSI) facility to evaluate emissions from the Molybdenum Roaster stack that were previously observed to be near the 20% opacity limit during the previous site inspection on October 8, 2108. We were met by Travis Behrens, Environmental Scientist for FMSI. I conducted inspection rights protocol with Mr. Behrens (Attachment 1). Mr. Behrens was accompanied by Mr. Chris Young, Engineer, and Mr. David Barnes, Environmental Manager. The emissions from the Molybdenum Roaster stack appeared well below 20% opacity around 10:00 am. The FMSI staff invited Mr. Fitzpatrick and me to inspect the tailings impoundment and show us the most recent dust control efforts. We informed them that we were expected at another facility for a scheduled inspection, but would return in the afternoon.

Mr. Fitzpatrick and I returned to the FMSI facility on the afternoon of October 10, 2018. The FMSI staff escorted us to the top of the tailings impoundment. Our inspection began on top of Phase 1 of the North dam. We observed the tailings crew installing spigot lines for deposition (Attachment 2, Photo 1). While en route to the divider between the North and South dam, we observed areas of recent application of the polymer dust suppressant Gorilla-Snot to the side slopes of the berm (Attachment 2, Photos 2 & 3). The Gorilla-Snot had been previously scheduled to be applied as a measure for operations and maintenance. We observed the Gorilla-Snot clumping after its application.

When we arrived to the divider area, we observed the damaged all-track vehicle that had been previously lodged in the tailings impoundment and had been removed along with other equipment (Attachment 2, Photos 4 & 5). We also observed the larger capacity Terramac all-track vehicle that FMSI was parked on the tailings road, unable to deploy at the time of the inspection due to the softness of the tailings impoundment surface (Attachment 2, Photo 6).

While on the tailings surface, we observed the three remaining all track vehicles in operation (Attachment 2, Photo 7 & 8). They were applying magnesium chloride ($MgCl_2$) to the surface of the southeast portion of the South dam. The surface of the tailings impoundment appeared to have increased track marks from additional $MgCl_2$ application since our inspection October 8, 2018, and appeared to have a harder crust in areas of recent $MgCl_2$ application (attachment 2 photos 9 - 11).

Mr. Behrens and Mr. Young escorted us back to our vehicles. We informed the staff from FMSI that PDEQ would provide an inspection report following the inspection.

Attachments:

1. Inspection Rights Form dated October 10, 2018
2. Photo Log dated October 10, 2018

PIMA COUNTY
ENVIRONMENTAL QUALITY

PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY
33 N. Stone Avenue, Suite 700, Tucson, AZ 85701-1429

Phone (520) 724-7400 FAX (520) 838-7432
http://webcms.pima.gov/government/environmental_quality/

AIR PROGRAM
NOTIFICATION OF INSPECTION RIGHTS

SOURCE INFORMATION

PC # _____ Permit # 6067

Regulated Person FMSI

On-site Representative TRAVIS BEHRENS Title ENV. SCIENTIST

Site Location 6200 W DUVAL MINE RD Phone _____

Site Contact _____ E-Mail _____

Mailing Address _____

PDEQ INFORMATION

Inspector Name M. ROGERS Phone 724 7326

Inspection Date 10/10/18 Time 9:50

Accompanied by D. FITZPATRICK

Questions or comments on these procedures, your inspection and due process rights or this form may be directed to the Pima County Department of Environmental Quality (PDEQ) inspector listed on this form at (520) 724-7400. While I have the right to decline to sign this form, the PDEQ representative(s) may still proceed with the inspection under Pima County Code (PCC) 17.20.050.

☒ ***I acknowledge that I have read and understand the Inspection Rights on the back of this form.***

Signature _____ Date 10/10/2018

☐ _____ Refused to sign the Notification.

☐ Authorized on-site representative is not present at the facility.

Pima County Department of Environmental Quality
Air Program

Photographic Log

Site Location: 6200 W. Duval Mine Rd.
Date: October 10, 2018

Tracking #: PC1810-033
Photographer: M. Rogers

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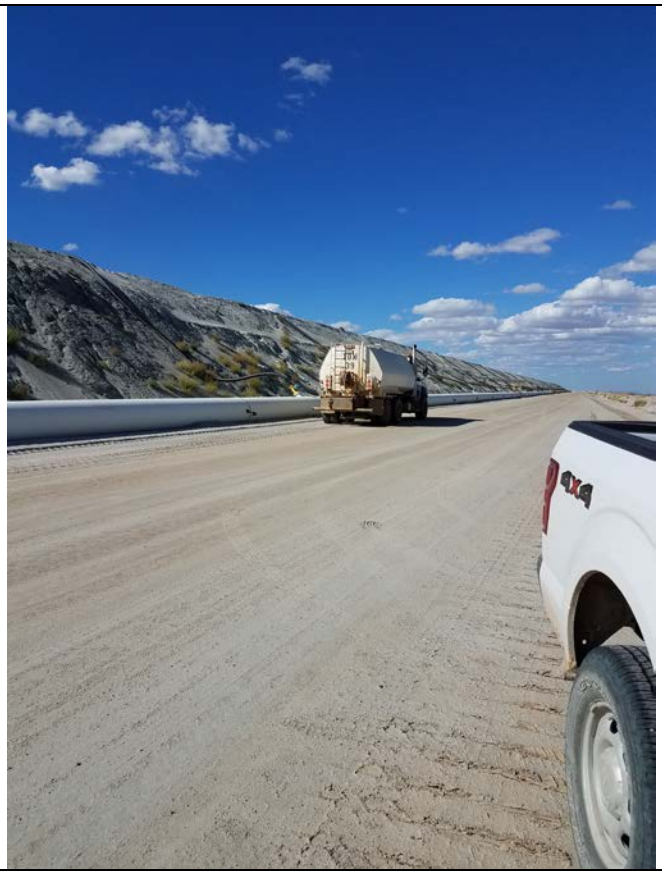

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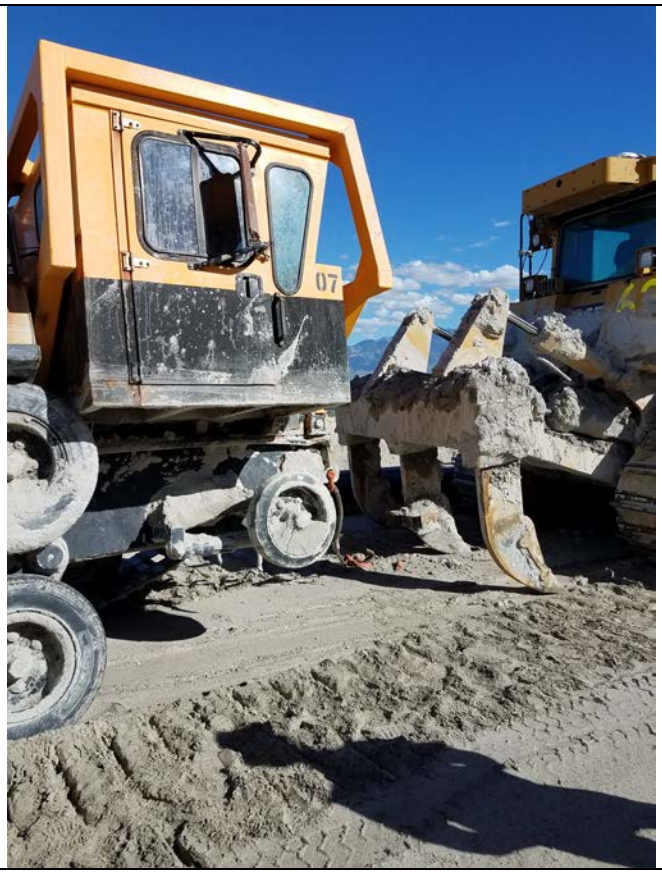

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Attachment 20

Inspection Report dated October 11, 2018

PIMA COUNTY
ENVIRONMENTAL QUALITY

Inspection Report
Tracking ID: PC1810-033

Permit #: 6067
Source: Freeport-McMoRan Sierrita, Inc.
Location: 6200 W. Duval Mine Rd., Green Valley, AZ
Date: October 11, 2018
Arrival Time: 11:00 am
Departure Time: 3:30 pm
Inspector: M. Rogers and Dustin Fitzpatrick
Spoke With: Bryce Cooke, Sr. Environmental Scientist
Phone #: (520) 393-2419
Reason for Inspection: Surveillance

Pima County Department of Environmental Quality (PDEQ) conducted a surveillance inspection of the Freeport-McMoRan Sierrita, Inc. (FMSI) Sierrita Tailings Impoundment in response to a National Weather Service forecast for high winds. I utilized a parking lot at 1393 W. Mission Twin Buttes Rd. for my initial surveillance location. That location provided an optimal view point of the impoundment for conducting an EPA Alternative Method ALT-082 visible emission observation.

I set up my tri-pod and affixed a Canon SX 60HS camera with an intervalometer. I measured wind speeds of 5 to 9 mph coming from the south utilizing my Kestrel model 3500 wind meter. The pointed my camera toward the northeast corner of the Sierrita Tailings Impoundment (Attachment 1, Photo 1). The primary area for my observations was selected to view dust emissions from the top surface of the tailings impoundment. I observed several long duration plumes of dust that appeared to be generating from the central portion of the impoundment and heading north towards W. Duval Mine Rd. (Attachment 1, Photos 2 - 7). I was able to conduct five series of Alt-082 visible emissions observations (VEO) (Attachment 2, MR 01 – MR 05).

Simultaneously, PDEQ Air Compliance Manager, Dustin Fitzpatrick set up a Canon SX 60HS camera along W. Continental Rd. east of W. Duval Mine Rd. (Attachment 1, Photos 8 – 12). He observed visible dust emissions from the Sierrita Tailings Impoundment crossing W. Duval Mine Rd. and W. Continental Rd. from 10:20 am – 11:40 am and conducted seven series of Alt-082 VEOs, five of which were valid observations (Attachment 3, DF 01 – DF 05). He recorded wind speeds between 4 – 11 mph at the location.

At approximately 11:40 am, Mr. Fitzpatrick met Bryce Cooke driving along W. Continental Rd. and requested to access FMSI's property to view the Sierrita Tailings Impoundment from a higher vantage point. Mr. Cooke escorted Mr. Fitzpatrick to the Medical Clinic office near the mine entrance to the mine. Mr. Fitzpatrick conducted inspection rights (Attachment 4) and observed and photographed dust emissions generating from the surface of the Sierrita Tailings Impoundment

(Attachment 2, Photos 13 - 17). Mr. Fitzpatrick departed the site and informed Mr. Cooke that an inspection report would be provided following the inspection.

Mr. Fitzpatrick and I took a break for lunch approximately between 12:00 pm and 1:00 pm. We are unable to perform Alt-082 VEOs at that time due sun position and plume direction. After lunch I returned to the parking lot on 1393 W. Mission Twin Buttes Rd. I did not observe any significant releases of dust from the tailings impoundment. During that time period Mr. Fitzpatrick located himself northwest of the tailings impoundment along S. Mission Rd. and observed plumes of dust generating on the top surface of the impoundment at approximated 2:25 pm (Attachment 1, Photo 18).

He relocated to a position along W. Duval Mine Rd. west of S. Mission Rd. observed the visible tailings emissions from the Sierrita Tailings Impoundment crossing W. Duval Mine Rd. from approximately 2:55 pm – 3:40 pm (Attachment 1, Photos 19 & 20). He conducted four more series of Alt-082 VEOs of dust emitting from the north side of the Sierrita Tailings Impoundment (Attachment 3, DF 08 – DF 11). He measured wind speeds of 3 – 11 mph from the south at the location.

Utilizing Digital Opacity Camera System (DOCS II) the Alt-082 VEOs resulted in the following opacities: 37% (DF 01, 10:38 am – 10:44 am), 21% (DF 02, 10:47 am – 10:53 am), 27% (DF 03, 11:00 am – 11:06 am), 23% (DF 04, 11:10 am – 11:16 am), 24% (MR 01, 11:18 am – 11:23 am), 25% (DF 05, 11:18 am – 11:24 am), 24% (MR 02, 11:25 – 11:31), 21% (MR 03, 11:37 am – 11:42), 44% (MR 04, 11:49 am – 11:55 am), 41% (MR 05, 11:57 am – 12:03 pm), 45% (DF 08, 2:55 pm – 3:01 pm), 61% (DF 09, 3:14 pm – 3:19 pm), 40% (DF 10, 3:23 pm – 3:29), and 38% (DF 11, 3:31 pm – 3:37 pm).

Attachments:

1. Photo Log dated October 11, 2018
2. Visible Emissions Observation Forms and DOCS II Reports MR 01, MR 02, MR 03, MR 04 dated October 11, 2018
3. Visible Emissions Observation Forms and DOCS II Reports DF 01, DF 02, DF 03, DF 04, DF 05, DF 08, DF 09, DF 10, DF 11 dated October 11, 2018
4. Inspection Rights Form dated October 11, 2018

Pima County Department of Environmental Quality
Air Program

Photographic Log

Site Location: 6200 W. Duval Mine Rd.
Date: October 11, 2018

Tracking #: PC1810-033
Photographer: M. Rogers, D. Fitzpatrick

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VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used		
Method 9		
Equipment Owner		
David Barnes		
Facility Name		
Freeport-McMoRan Sierrita Inc.		
EO Street Address		
6200 W Duval Mine Rd		
EO City	EO State	EO Zip
Green Valley	AZ	85629

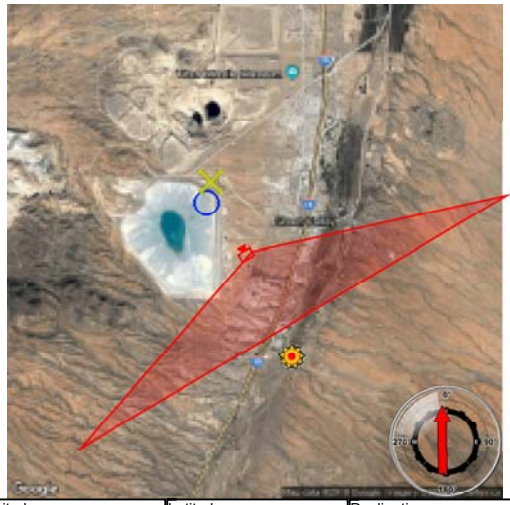
Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

Describe Emission Point	
Light Colored Dust Plume Generated from Tailings Surface NE	
Height of Emiss. Pt. Start 1113.08 End Same	Height of Emiss. Pt. Rel. to Observer Start 1109.08 End Same
Distance to Emiss. Pt. Start 8647.55 End Same	Direction to Emiss. Pt. (Degrees) Start 317.41 End Same

Vertical Angle to Obs. Pt. Start 6.52 End Same	Direction to Obs. Pt. Start 329.23 End Same
Distance and Direction to Observation Point from Emission Point Start 2621.95 / 169.23 End Same	

Describe Emissions Start Fumigating End Same	
Emission Color Start Dust End Same	Water Droplet Plume Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background Start cloudy sky End Same		
Background Color Start Gray End Same	Sky Conditions Start Overcast End Same	
Wind Speed Start 9 End Same	Wind Direction Start 180 End Same	
Ambient Temp. Start 73 End Same	Wet Bulb Temp. Start 51 End Same	RH Percent Start 46 End Same



Longitude	Latitude	Declination
111.00.52.631 W	31.50.37.188 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	11:17:35	11:24:49

					Comments
1	10	15	20	15	
2	***30***	***35***	***25***	***20***	
3	***30***	***30***	***20***	***20***	Avg. Opacity = 23.542
4	***15***	***25***	***20***	***20***	
5	***15***	***20***	***25***	***25***	
6	***20***	***25***	***25***	***25***	
7	***25***	***25***	***20***	***25***	
8	25	25			
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Observers Name (Print)	
Mark Rogers	
Observers Signature	Date
Mark Rogers	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State:
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 49.3
Azimuth: 159.1
Data Source: Calculated

Map Information

Map Type: Google
Map Width: 64200

Analysis

Averaging Type: Manual
Method: Method 9
Number of Images: 24
Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments:

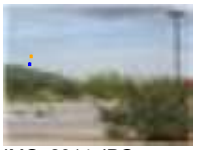
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2310.JPG	30	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 663 L: 1003 B: 702 R: 1037	**Date Taken** 10/11/2018 11:18:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2311.JPG	35	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 675 L: 1006 B: 714 R: 1040	**Date Taken** 10/11/2018 11:18:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2312.JPG	25	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 675 L: 1768 B: 714 R: 1802	**Date Taken** 10/11/2018 11:19:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2313.JPG	20	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 675 L: 1768 B: 714 R: 1802	**Date Taken** 10/11/2018 11:19:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2314.JPG	30	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 547 L: 286 B: 586 R: 320	**Date Taken** 10/11/2018 11:19:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2315.JPG	30	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 494 L: 324 B: 533 R: 358	**Date Taken** 10/11/2018 11:19:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2316.JPG	20	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 532 L: 283 B: 571 R: 317	**Date Taken** 10/11/2018 11:20:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2317.JPG	20	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 506 L: 266 B: 545 R: 300	**Date Taken** 10/11/2018 11:20:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

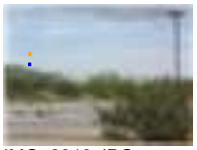
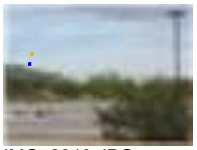
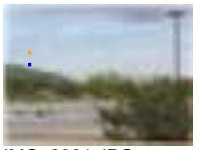
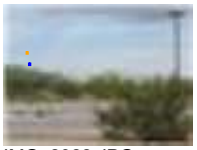
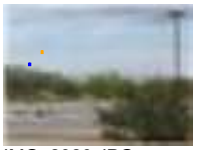
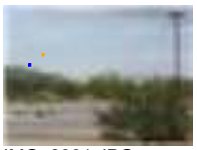
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2318.JPG	15	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 521 L: 272 B: 560 R: 306	**Date Taken** 10/11/2018 11:20:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2319.JPG	25	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 521 L: 296 B: 560 R: 330	**Date Taken** 10/11/2018 11:20:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2320.JPG	20	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 494 L: 365 B: 533 R: 399	**Date Taken** 10/11/2018 11:21:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2321.JPG	20	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 502 L: 269 B: 541 R: 303	**Date Taken** 10/11/2018 11:21:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2322.JPG	15	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 509 L: 242 B: 548 R: 276	**Date Taken** 10/11/2018 11:21:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2323.JPG	20	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 517 L: 385 B: 556 R: 419	**Date Taken** 10/11/2018 11:21:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2324.JPG	25	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 494 L: 429 B: 533 R: 463	**Date Taken** 10/11/2018 11:22:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2325.JPG	25	**Foreground Coordinates** T: 633 L: 269 B: 671 R: 304 **Background Coordinates** T: 498 L: 440 B: 537 R: 474	**Date Taken** 10/11/2018 11:22:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2326.JPG	20	**Foreground Coordinates** T: 633, L: 269, B: 671, R: 304 **Background Coordinates** T: 498, L: 406, B: 537, R: 440	**Date Taken** 10/11/2018 11:22:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2327.JPG	25	**Foreground Coordinates** T: 633, L: 269, B: 671, R: 304 **Background Coordinates** T: 640, L: 962, B: 679, R: 996	**Date Taken** 10/11/2018 11:22:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2328.JPG	25	**Foreground Coordinates** T: 633, L: 269, B: 671, R: 304 **Background Coordinates** T: 659, L: 1017, B: 698, R: 1051	**Date Taken** 10/11/2018 11:23:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2329.JPG	25	**Foreground Coordinates** T: 633, L: 269, B: 671, R: 304 **Background Coordinates** T: 636, L: 972, B: 675, R: 1006	**Date Taken** 10/11/2018 11:23:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2330.JPG	25	**Foreground Coordinates** T: 633, L: 269, B: 671, R: 304 **Background Coordinates** T: 628, L: 1061, B: 667, R: 1095	**Date Taken** 10/11/2018 11:23:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2331.JPG	25	**Foreground Coordinates** T: 633, L: 269, B: 671, R: 304 **Background Coordinates** T: 521, L: 416, B: 560, R: 450	**Date Taken** 10/11/2018 11:23:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2332.JPG	20	**Foreground Coordinates** T: 633, L: 269, B: 671, R: 304 **Background Coordinates** T: 675, L: 1768, B: 714, R: 1802	**Date Taken** 10/11/2018 11:24:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2333.JPG	25	**Foreground Coordinates** T: 633, L: 269, B: 671, R: 304 **Background Coordinates** T: 675, L: 1768, B: 714, R: 1802	**Date Taken** 10/11/2018 11:24:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used		
Method 9		
Equipment Owner		
David Barnes		
Facility Name		
Freeport-McMoRan Sierrita Inc.		
EO Street Address		
6200 W Duval Mine Rd		
EO City	EO State	EO Zip
Green Valley	AZ	85629

Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

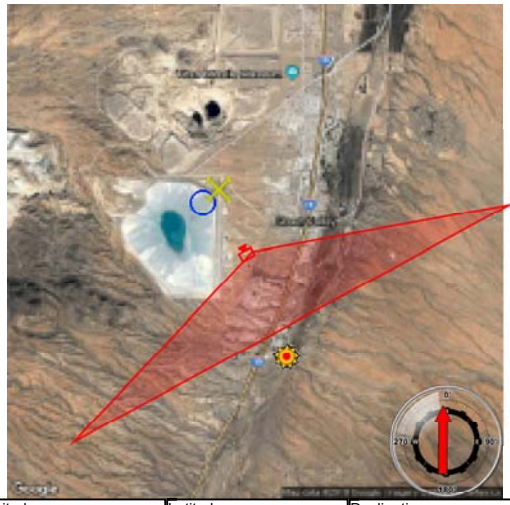
Describe Emission Point	
Light Colored Dust Plume Generating from Tailings Surface	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start 1061.99 End Same	Start 1057.99 End Same
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 9027.27 End Same	Start 314.99 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 5.96 End Same	Start 331.33 End Same
Distance and Direction to Observation Point from Emission Point	
Start 2575.06 / 186.71 End Same	

Describe Emissions	
Start Fumigating End Same	
Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background	
Start sky End Same	
Background Color	Sky Conditions
Start Blue End Same	Start Overcast End Same
Wind Speed	Wind Direction
Start 9 End Same	Start 180 End Same

Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 73 End Same	Start 51 End Same	Start 46 End Same



Longitude	Latitude	Declination
111.00.52.631 W	31.50.37.188 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	11:25:30	11:32:45

					Comments
1	25	***30***	***30***	***25***	
2	***25***	***20***	***25***	***20***	
3	***20***	***25***	***25***	***20***	Avg. Opacity = 24.375
4	***25***	***30***	***25***	***25***	
5	***25***	***25***	***25***	***20***	
6	***20***	***25***	***25***	***25***	
7	***25***	N/A	N/A	N/A	
8	N/A	N/A			
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32					

Observers Name (Print)	
Mark Rogers	
Observers Signature	Date
Mark Rogers	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State:
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 49.9
Azimuth: 162.1
Data Source: Calculated

Map Information

Map Type: Google
Map Width: 64200

Analysis

Averaging Type: Manual
Method: Method 9
Number of Images: 24
Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments: Opacity low due to dust in the background

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2337.JPG	30	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:25:45 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2338.JPG	30	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:26:00 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2339.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:26:15 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2340.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:26:30 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2341.JPG	20	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:26:45 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2342.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:27:00 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2343.JPG	20	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:27:15 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2344.JPG	20	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:27:30 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2345.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:27:45 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2346.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:28:00 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2347.JPG	20	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:28:15 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2348.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:28:30 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2349.JPG	30	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:28:45 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2350.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:29:00 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2351.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:29:15 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2352.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:29:30 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_2353.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:29:45 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2354.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:30:00 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2355.JPG	20	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:30:15 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2356.JPG	20	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:30:30 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2357.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:30:45 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2358.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:31:00 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2359.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:31:15 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2360.JPG	25	**Foreground Coordinates** T: 595, L: 157, B: 633, R: 191 **Background Coordinates** T: 621, L: 880, B: 660, R: 915	**Date Taken** 10/11/2018 11:31:30 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used	
Method 9	
Equipment Owner	
David Barnes	
Facility Name	
Freeport-McMoRan Sierrita Inc.	
EO Street Address	
6200 W Duval Mine Rd	
EO City	EO State / EO Zip
Green Valley	AZ 85629

Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

Describe Emission Point	
Light Colored Dust Plume Generated from Tailings Surface NE	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start 944.49 End Same	Start 940.49 End Same
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 8948.17 End Same	Start 317.33 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 6.09 End Same	Start 328.14 End Same
Distance and Direction to Observation Point from Emission Point	
Start 1998.58 / 234.17 End Same	

Describe Emissions	
Start Fumigating	End Same
Emission Color	Water Droplet Plume
Start Dust End Same	Attached: ( ) Detached: ( ) N/A: (X)

Describe Plume Background	
Start sky	End Same
Background Color	Sky Conditions
Start Gray End Same	Start Overcast End Same
Wind Speed	Wind Direction
Start 9 End Same	Start 180 End Same

Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 73 End Same	Start 51 End Same	Start 46 End Same

Longitude	Latitude	Declination
111.00.52.631 W	31.50.37.188 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	11:36:48	11:44:03

					Comments
1	35	***20***	***15***	***15***	
2	***30***	***15***	***25***	***20***	
3	***25***	***25***	***25***	***20***	Avg. Opacity = 20.625
4	***20***	***25***	***25***	***20***	
5	***20***	***20***	***20***	***20***	
6	***15***	***20***	***20***	***20***	
7	***15***	15	N/A	N/A	
8	N/A	N/A			
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Observers Name (Print)	
Mark Rogers	
Observers Signature	Date
Mark Rogers	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State:
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 50.5
Azimuth: 166.2
Data Source: Calculated

Map Information

Map Type: Google
Map Width: 128399

Analysis

Averaging Type: Automatic
Method: Method 9
Number of Images: 24
Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments: reading low due to background

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2373.JPG	20	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:37:03 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2374.JPG	15	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:37:18 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2375.JPG	15	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:37:33 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2376.JPG	30	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:37:48 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2377.JPG	15	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:38:03 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2378.JPG	25	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:38:18 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2379.JPG	20	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:38:33 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2380.JPG	25	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:38:48 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2381.JPG	25	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:39:03 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2382.JPG	25	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:39:18 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2383.JPG	20	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:39:33 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2384.JPG	20	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:39:48 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2385.JPG	25	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:40:03 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2386.JPG	25	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:40:18 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2387.JPG	20	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:40:33 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2388.JPG	20	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:40:48 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2389.JPG	20	**Foreground Coordinates** T: 690 L: 1341 B: 728 R: 1375 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:41:03 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2390.JPG	20	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:41:18 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2391.JPG	20	**Foreground Coordinates** T: 698 L: 1334 B: 736 R: 1368 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:41:33 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2392.JPG	15	**Foreground Coordinates** T: 698 L: 1334 B: 736 R: 1368 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:41:48 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2393.JPG	20	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:42:03 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2394.JPG	20	**Foreground Coordinates** T: 679 L: 1290 B: 717 R: 1324 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:42:18 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2395.JPG	20	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:42:33 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2396.JPG	15	**Foreground Coordinates** T: 664 L: 1338 B: 702 R: 1372 **Background Coordinates** T: 675 L: 1611 B: 714 R: 1645	**Date Taken** 10/11/2018 11:42:48 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used		
Method 9		
Equipment Owner		
David Barnes		
Facility Name		
Freeport-McMoRan Sierrita Inc.		
EO Street Address		
6200 W Duval Mine Rd		
EO City	EO State	EO Zip
Green Valley	AZ	85629

Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

Describe Emission Point	
Light Colored Dust Plume Generated from Tailings Surface NE	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start 987.45 End Same	Start 983.45 End Same
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 8876.42 End Same	Start 317.84 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 5.64 End Same	Start 331.69 End Same
Distance and Direction to Observation Point from Emission Point	
Start 2361.88 / 43.46 End Same	

Describe Emissions	
Start Fumigating	End Same
Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background		
Start mountain with patchy sky	End Same	
Background Color	Sky Conditions	
Start Gray End Same	Start Overcast	End Same
Wind Speed	Wind Direction	
Start 9 End Same	Start 180	End Same
Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 73 End Same	Start 51 End Same	Start 46 End Same

Longitude	Latitude	Declination
111.00.52.631 W	31.50.37.188 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	11:48:57	11:56:12

					Comments
1	N/A	N/A	***35***	***35***	
2	***55***	***60***	***65***	***65***	
3	***60***	***60***	***60***	***45***	Avg. Opacity = 44.167
4	***45***	***35***	***30***	***45***	
5	***45***	***20***	***45***	***20***	
6	***45***	***45***	***45***	***30***	
7	***35***	***35***	N/A	N/A	
8	N/A	N/A			
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Observers Name (Print)	
Mark Rogers	
Observers Signature	Date
Mark Rogers	10/16/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State:
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 51
Azimuth: 170.8
Data Source: Calculated

Map Information

Map Type: Google
Map Width: 128399

Analysis

Averaging Type: Manual
Method: Method 9
Number of Images: 24

Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments: low readings do to dust in background and cloud cover

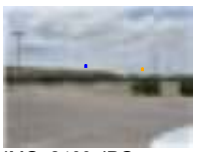
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2406.JPG	35	**Foreground Coordinates** T: 609 L: 748 B: 647 R: 782 **Background Coordinates** T: 647 L: 1552 B: 685 R: 1586	**Date Taken** 10/11/2018 11:49:27 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2407.JPG	35	**Foreground Coordinates** T: 617 L: 736 B: 655 R: 770 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:49:42 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2408.JPG	55	**Foreground Coordinates** T: 621 L: 924 B: 659 R: 958 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:49:57 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2409.JPG	60	**Foreground Coordinates** T: 629 L: 883 B: 667 R: 917 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:50:12 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2410.JPG	65	**Foreground Coordinates** T: 629 L: 873 B: 667 R: 907 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:50:27 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2411.JPG	65	**Foreground Coordinates** T: 633 L: 938 B: 671 R: 972 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:50:42 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2412.JPG	60	**Foreground Coordinates** T: 640 L: 914 B: 678 R: 948 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:50:57 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2413.JPG	60	**Foreground Coordinates** T: 648 L: 903 B: 686 R: 937 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:51:12 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

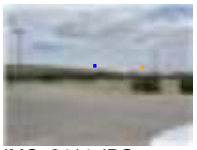
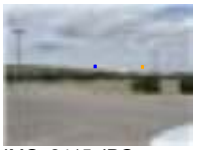
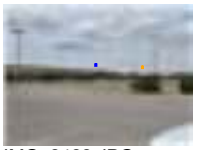
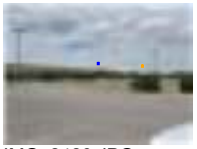
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2414.JPG	60	**Foreground Coordinates** T: 648 L: 982 B: 686 R: 1016 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:51:27 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2415.JPG	45	**Foreground Coordinates** T: 659 L: 985 B: 697 R: 1019 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:51:42 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2416.JPG	45	**Foreground Coordinates** T: 655 L: 988 B: 693 R: 1022 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:51:57 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2417.JPG	35	**Foreground Coordinates** T: 655 L: 992 B: 693 R: 1026 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:52:12 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2418.JPG	30	**Foreground Coordinates** T: 643 L: 995 B: 681 R: 1029 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:52:27 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2419.JPG	45	**Foreground Coordinates** T: 655 L: 1005 B: 693 R: 1039 **Background Coordinates** T: 648 L: 1430 B: 686 R: 1464	**Date Taken** 10/11/2018 11:52:42 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2420.JPG	45	**Foreground Coordinates** T: 648 L: 992 B: 686 R: 1026 **Background Coordinates** T: 664 L: 1488 B: 702 R: 1522	**Date Taken** 10/11/2018 11:52:57 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2421.JPG	20	**Foreground Coordinates** T: 655 L: 995 B: 693 R: 1029 **Background Coordinates** T: 664 L: 1502 B: 702 R: 1536	**Date Taken** 10/11/2018 11:53:12 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_2422.JPG	45	**Foreground Coordinates** T: 640, L: 992, B: 678, R: 1026 **Background Coordinates** T: 664, L: 1502, B: 702, R: 1536	**Date Taken** 10/11/2018 11:53:27 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2423.JPG	20	**Foreground Coordinates** T: 640, L: 964, B: 678, R: 998 **Background Coordinates** T: 664, L: 1502, B: 702, R: 1536	**Date Taken** 10/11/2018 11:53:42 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2424.JPG	45	**Foreground Coordinates** T: 656, L: 1112, B: 694, R: 1146 **Background Coordinates** T: 664, L: 1502, B: 702, R: 1536	**Date Taken** 10/11/2018 11:53:57 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2425.JPG	45	**Foreground Coordinates** T: 639, L: 995, B: 677, R: 1029 **Background Coordinates** T: 664, L: 1502, B: 702, R: 1536	**Date Taken** 10/11/2018 11:54:12 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2426.JPG	45	**Foreground Coordinates** T: 636, L: 1019, B: 674, R: 1053 **Background Coordinates** T: 664, L: 1502, B: 702, R: 1536	**Date Taken** 10/11/2018 11:54:27 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2427.JPG	30	**Foreground Coordinates** T: 648, L: 1002, B: 686, R: 1036 **Background Coordinates** T: 664, L: 1502, B: 702, R: 1536	**Date Taken** 10/11/2018 11:54:42 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2428.JPG	35	**Foreground Coordinates** T: 640, L: 999, B: 678, R: 1033 **Background Coordinates** T: 664, L: 1502, B: 702, R: 1536	**Date Taken** 10/11/2018 11:54:57 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_2429.JPG	35	**Foreground Coordinates** T: 644, L: 941, B: 682, R: 975 **Background Coordinates** T: 664, L: 1502, B: 702, R: 1536	**Date Taken** 10/11/2018 11:55:12 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used	
Method 9	
Equipment Owner	
David Barnes	
Facility Name	
Freeport-McMoRan Sierrita Inc.	
EO Street Address	
6200 W Duval Mine Rd	
EO City	EO State / EO Zip
Green Valley	AZ 85629

Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

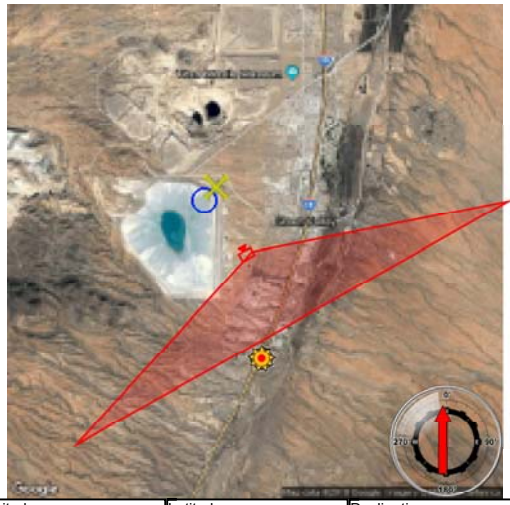
Describe Emission Point	
White Dust Generated from Tailings Impoundment Surface	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start 1100.36 End Same	Start 1096.36 End Same
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 9098.49 End Same	Start 317.29 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 6.13 End Same	Start 330.52 End Same
Distance and Direction to Observation Point from Emission Point	
Start 2182.61 / 5 End Same	

Describe Emissions	
Start Fumigating Plume End Same	
Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background	
Start Tailings side slope End Same	
Background Color	Sky Conditions
Start Gray End Same	Start Overcast End Same
Wind Speed	Wind Direction
Start 9 End Same	Start 180 End Same

Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 73 End Same	Start 51 End Same	Start 46 End Same



Longitude	Latitude	Declination
111.00.52.631 W	31.50.37.188 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	11:57:38	12:04:53

					Comments
1	***80***	***80***	***80***	***75***	
2	***80***	***75***	***65***	***60***	
3	***50***	***40***	***35***	***35***	Avg. Opacity = 40.625
4	***20***	***20***	***20***	***20***	
5	***20***	***20***	***20***	***20***	
6	***15***	***15***	***15***	***15***	
7	N/A	N/A	N/A	N/A	
8	N/A				
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Observers Name (Print)	
Mark Rogers	
Observers Signature	Date
Mark Rogers	10/16/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State:
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 51.3
Azimuth: 174.4
Data Source: Calculated

Map Information

Map Type: Google
Map Width: 64200

Analysis

Averaging Type: Override
Method: Method 9
Number of Images: 24
Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments:

Background Image

IMG_2464.JPG

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_2435.JPG	80	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 11:57:38 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2436.JPG	80	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 11:57:53 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2437.JPG	80	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 11:58:08 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2438.JPG	75	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 11:58:23 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2439.JPG	80	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 11:58:38 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2440.JPG	75	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 11:58:53 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2441.JPG	65	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 11:59:08 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2442.JPG	60	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 11:59:23 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_2443.JPG	50	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 11:59:38 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2444.JPG	40	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 11:59:53 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2445.JPG	35	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:00:08 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2446.JPG	35	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:00:23 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2447.JPG	20	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:00:38 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2448.JPG	20	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:00:53 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2449.JPG	20	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:01:08 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2450.JPG	20	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:01:23 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_2451.JPG	20	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:01:38 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2452.JPG	20	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:01:53 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2453.JPG	20	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:02:08 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2454.JPG	20	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:02:23 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2455.JPG	15	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:02:38 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2456.JPG	15	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:02:53 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2457.JPG	15	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:03:08 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_2458.JPG	15	**Foreground Coordinates** T: 840, L: 1835, B: 879, R: 1869 **Background Coordinates** T: 714, L: 64, B: 752, R: 98	**Date Taken** 10/11/2018 12:03:23 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used		
Method 9		
Equipment Owner		
David Barnes		
Facility Name		
Freeport-McMoRan Sierrita Inc.		
EO Street Address		
6200 W Duval Mine Rd		
EO City	EO State	EO Zip
Green Valley	AZ	85629

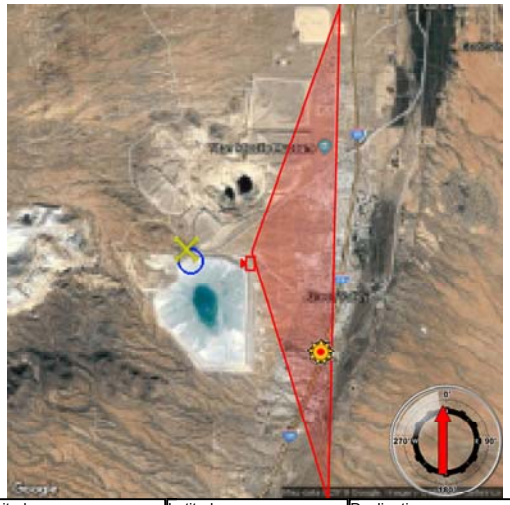
Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

Describe Emission Point	
Light colored dust generating from North tailings surface	
Height of Emiss. Pt. Start 308.6 End Same	Height of Emiss. Pt. Rel. to Observer Start 304.6 End Same
Distance to Emiss. Pt. Start 8013.93 End Same	Direction to Emiss. Pt. (Degrees) Start 261.56 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 1.95 End Same	Start 271.32 End Same
Distance and Direction to Observation Point from Emission Point	
Start 1817.63 / 296.87 End Same	

Describe Emissions	
Start Fumigating	End Same
Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background		
Start Brown hillside	End Same	
Background Color	Sky Conditions	
Start Gray End Same	Start Overcast End Same	
Wind Speed	Wind Direction	
Start 11 End Same	Start 180 End Same	
Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 73 End Same	Start 51 End Same	Start 42 End Same



Longitude	Latitude	Declination
111.01.41.751 W	31.52.12.733 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	10:37:18	10:44:32

					Comments
1	N/A	N/A	N/A	N/A	
2	40	***35***	***35***	***35***	
3	***35***	***40***	***35***	***30***	Avg. Opacity = 37.083
4	***35***	***40***	***35***	***40***	
5	***40***	***35***	***40***	***35***	
6	***40***	***40***	***40***	***35***	
7	***40***	***40***	***35***	***40***	
8	***35***	N/A			
9					
10					
11					
12					
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18					
19					
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21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Observers Name (Print)	
Dustin Fitzpatrick	
Observers Signature	Date
Dustin Fitzpatrick	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State: NA
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 45.4
Azimuth: 145.6
Data Source: Calculated

Map Information

Map Type: USGSDRG
Map Width: 64200

Analysis

Averaging Type: Automatic
Method: Method 9
Number of Images: 24
Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments:

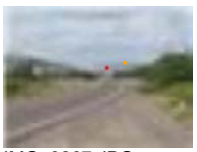
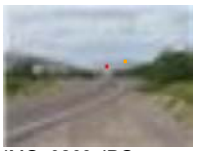
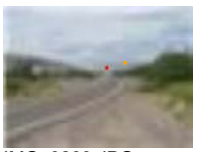
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0264.JPG	35	**Foreground Coordinates** T: 644 L: 1113 B: 683 R: 1147 **Background Coordinates** T: 591 L: 1314 B: 629 R: 1348	**Date Taken** 10/11/2018 10:38:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0265.JPG	35	**Foreground Coordinates** T: 644 L: 1113 B: 683 R: 1147 **Background Coordinates** T: 591 L: 1314 B: 629 R: 1348	**Date Taken** 10/11/2018 10:38:48 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0266.JPG	35	**Foreground Coordinates** T: 644 L: 1113 B: 683 R: 1147 **Background Coordinates** T: 591 L: 1314 B: 629 R: 1348	**Date Taken** 10/11/2018 10:39:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0267.JPG	35	**Foreground Coordinates** T: 644 L: 1113 B: 683 R: 1147 **Background Coordinates** T: 591 L: 1314 B: 629 R: 1348	**Date Taken** 10/11/2018 10:39:18 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0268.JPG	40	**Foreground Coordinates** T: 644 L: 1113 B: 683 R: 1147 **Background Coordinates** T: 591 L: 1314 B: 629 R: 1348	**Date Taken** 10/11/2018 10:39:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0269.JPG	35	**Foreground Coordinates** T: 644 L: 1113 B: 683 R: 1147 **Background Coordinates** T: 591 L: 1314 B: 629 R: 1348	**Date Taken** 10/11/2018 10:39:47 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0270.JPG	30	**Foreground Coordinates** T: 644 L: 1113 B: 683 R: 1147 **Background Coordinates** T: 591 L: 1314 B: 629 R: 1348	**Date Taken** 10/11/2018 10:40:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0271.JPG	35	**Foreground Coordinates** T: 644 L: 1113 B: 683 R: 1147 **Background Coordinates** T: 591 L: 1314 B: 629 R: 1348	**Date Taken** 10/11/2018 10:40:18 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0272.JPG	40	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:40:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0273.JPG	35	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:40:47 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0274.JPG	40	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:41:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0275.JPG	40	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:41:17 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0276.JPG	35	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:41:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0277.JPG	40	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:41:47 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0278.JPG	35	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:42:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0279.JPG	40	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:42:18 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0280.JPG	40	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:42:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0281.JPG	40	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:42:47 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0282.JPG	35	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:43:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0283.JPG	40	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:43:17 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0284.JPG	40	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:43:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0285.JPG	35	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:43:47 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0286.JPG	40	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:44:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51
 IMG_0287.JPG	35	**Foreground Coordinates** T: 644, L: 1113, B: 683, R: 1147 **Background Coordinates** T: 591, L: 1314, B: 629, R: 1348	**Date Taken** 10/11/2018 10:44:17 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 42 **Wet Bulb Temp** 51

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used	
Method 9	
Equipment Owner	
David Barnes	
Facility Name	
Freeport-McMoRan Sierrita Inc.	
EO Street Address	
6200 W Duval Mine Rd	
EO City	EO State / EO Zip
Green Valley	AZ 85629

Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

Describe Emission Point	
Dust plume from tailings impoundment North surface	
Height of Emiss. Pt. Start 238.01 End Same	Height of Emiss. Pt. Rel. to Observer Start 234.01 End Same
Distance to Emiss. Pt. Start 7641.47 End Same	Direction to Emiss. Pt. (Degrees) Start 257 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 1.56 End Same	Start 269.87 End Same
Distance and Direction to Observation Point from Emission Point	
Start 1705.23 / 159.43 End Same	

Describe Emissions	
Start Fumigating	End Same
Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background		
Start Brown hillside	End Same	
Background Color	Sky Conditions	
Start Gray End Same	Start Overcast End Same	
Wind Speed	Wind Direction	
Start 10 End Same	Start 180 End Same	
Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 75 End Same	Start 51 End Same	Start 43 End Same

Longitude	Latitude	Declination
111.01.41.081 W	31.52.12.799 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	10:47:29	10:54:44

					Comments
1	***25***	***25***	***25***	***20***	
2	***20***	***15***	***15***	***15***	
3	***25***	***25***	***20***	***15***	Avg. Opacity = 20.625
4	***15***	***20***	***20***	***15***	
5	***20***	***20***	***25***	***20***	
6	***25***	***25***	***25***	***20***	
7	15	20	25	25	
8	20	15			
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30					
31					
32					

Observers Name (Print)	
Dustin Fitzpatrick	
Observers Signature	Date
Dustin Fitzpatrick	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State: NA
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 46.5
Azimuth: 148.8
Data Source: Calculated

Map Information

Map Type: USGSDRG
Map Width: 64200

Analysis

Averaging Type: Automatic
Method: Method 9
Number of Images: 24
Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments: reading low due to dust in the background

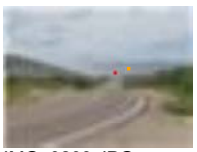
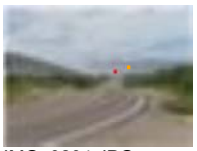
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0290.JPG	25	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:47:29 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0291.JPG	25	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:47:44 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0292.JPG	25	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:47:59 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0293.JPG	20	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:48:14 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0294.JPG	20	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:48:29 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0295.JPG	15	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:48:44 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0296.JPG	15	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:48:59 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0297.JPG	15	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:49:14 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51

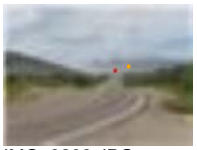
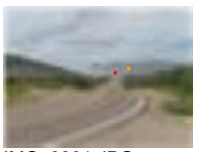
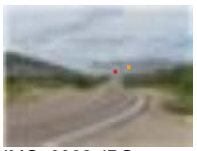
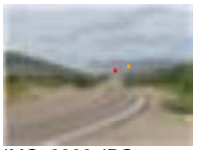
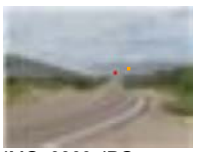
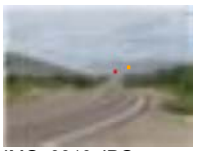
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0298.JPG	25	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:49:29 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0299.JPG	25	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:49:44 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0300.JPG	20	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:49:59 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0301.JPG	15	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:50:14 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0302.JPG	15	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:50:29 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0303.JPG	20	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:50:44 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0304.JPG	20	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:50:59 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0305.JPG	15	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:51:14 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0306.JPG	20	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:51:29 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0307.JPG	20	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:51:44 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0308.JPG	25	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:51:59 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0309.JPG	20	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:52:14 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0310.JPG	25	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:52:29 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0311.JPG	25	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:52:44 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0312.JPG	25	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:52:59 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0313.JPG	20	**Foreground Coordinates** T: 698 L: 1205 B: 737 R: 1239 **Background Coordinates** T: 656 L: 1351 B: 694 R: 1386	**Date Taken** 10/11/2018 10:53:14 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 10 S **Rel Humidity** 43 **Wet Bulb Temp** 51

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used		
Method 9		
Equipment Owner		
David Barnes		
Facility Name		
Freeport-McMoRan Sierrita Inc.		
EO Street Address		
6200 W Duval Mine Rd		
EO City	EO State	EO Zip
Green Valley	AZ	85629

Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

Describe Emission Point
Light colored dust plume from tailings impoundment North surface

Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start 221.48 End Same	Start 217.48 End Same
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 7434.65 End Same	Start 257.61 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 1.48 End Same	Start 270.7 End Same

Distance and Direction to Observation Point from Emission Point
Start 1701.91 / 180 End Same

Describe Emissions
Start Fumigating End Same

Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background
Start Brown hillside End Same

Background Color	Sky Conditions
Start Gray End Same	Start Overcast End Same
Wind Speed	Wind Direction
Start 7 End Same	Start 180 End Same

Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 75 End Same	Start 51 End Same	Start 43 End Same

Longitude	Latitude	Declination
111.01.40.462 W	31.52.12.666 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	11:00:08	11:07:23

					Comments
1	20	25	***25***	***25***	
2	***25***	***20***	***15***	***25***	
3	***15***	***25***	***25***	***20***	Avg. Opacity = 26.667
4	***30***	***20***	***30***	***35***	
5	***45***	***45***	***40***	***35***	
6	***20***	***20***	***25***	***25***	
7	***20***	***30***	20	30	
8	20	20			
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25					
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27					
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31					
32					

Observers Name (Print)	
Dustin Fitzpatrick	
Observers Signature	Date
Dustin Fitzpatrick	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State: NA
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 47.8
Azimuth: 153.1
Data Source: Calculated

Map Information

Map Type: USGSDRG
Map Width: 64200

Analysis

Averaging Type: Automatic
Method: Method 9
Number of Images: 24
Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments:

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0322.JPG	25	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:00:38 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0323.JPG	25	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:00:53 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0324.JPG	25	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:01:08 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0325.JPG	20	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:01:23 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0326.JPG	15	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:01:38 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0327.JPG	25	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:01:53 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0328.JPG	15	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:02:08 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51
 IMG_0329.JPG	25	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:02:23 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0330.JPG	25	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:02:38 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0331.JPG	20	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:02:53 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0332.JPG	30	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:03:08 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0333.JPG	20	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:03:23 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0334.JPG	30	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:03:38 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0335.JPG	35	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:03:53 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0336.JPG	45	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:04:08 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0337.JPG	45	**Foreground Coordinates** T: 691 L: 1208 B: 729 R: 1242 **Background Coordinates** T: 656 L: 1355 B: 694 R: 1389	**Date Taken** 10/11/2018 11:04:23 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0338.JPG	40	**Foreground Coordinates** T L B R 691 1208 729 1242 **Background Coordinates** T L B R 656 1355 694 1389	**Date Taken** 10/11/2018 11:04:38 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0339.JPG	35	**Foreground Coordinates** T L B R 691 1208 729 1242 **Background Coordinates** T L B R 656 1355 694 1389	**Date Taken** 10/11/2018 11:04:53 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0340.JPG	20	**Foreground Coordinates** T L B R 691 1208 729 1242 **Background Coordinates** T L B R 656 1355 694 1389	**Date Taken** 10/11/2018 11:05:08 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0341.JPG	20	**Foreground Coordinates** T L B R 691 1208 729 1242 **Background Coordinates** T L B R 656 1355 694 1389	**Date Taken** 10/11/2018 11:05:23 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0342.JPG	25	**Foreground Coordinates** T L B R 691 1208 729 1242 **Background Coordinates** T L B R 656 1355 694 1389	**Date Taken** 10/11/2018 11:05:38 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0343.JPG	25	**Foreground Coordinates** T L B R 691 1208 729 1242 **Background Coordinates** T L B R 656 1355 694 1389	**Date Taken** 10/11/2018 11:05:53 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0344.JPG	20	**Foreground Coordinates** T L B R 691 1208 729 1242 **Background Coordinates** T L B R 656 1355 694 1389	**Date Taken** 10/11/2018 11:06:08 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	
 IMG_0345.JPG	30	**Foreground Coordinates** T L B R 691 1208 729 1242 **Background Coordinates** T L B R 656 1355 694 1389	**Date Taken** 10/11/2018 11:06:23 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 75 **Wind Speed/Dir** 7 S **Rel Humidity** 43 **Wet Bulb Temp** 51	

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used	
Method 9	
Equipment Owner	
David Barnes	
Facility Name	
Freeport-McMoRan Sierrita Inc.	
EO Street Address	
6200 W Duval Mine Rd	
EO City	EO State / EO Zip
Green Valley	AZ 85629

Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

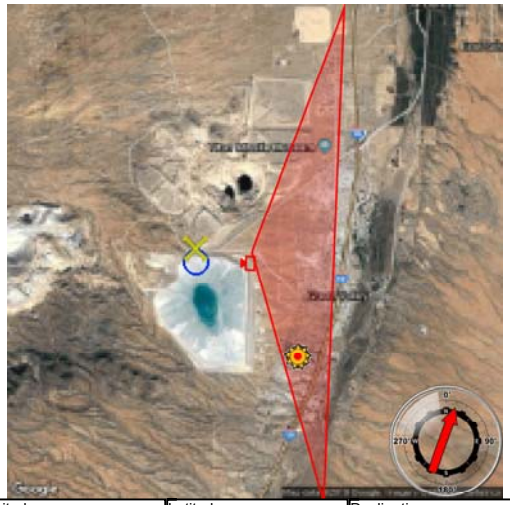
Describe Emission Point	
Light colored dust plume from tailings impoundment North surface	
Height of Emiss. Pt. Start 300.16 End Same	Height of Emiss. Pt. Rel. to Observer Start 296.16 End Same
Distance to Emiss. Pt. Start 7347.65 End Same	Direction to Emiss. Pt. (Degrees) Start 259.86 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 2.06 End Same	Start 272.36 End Same
Distance and Direction to Observation Point from Emission Point	
Start 1599.07 / 140.41 End Same	

Describe Emissions	
Start Fumigating	End Same
Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background	
Start Brown hillside	End Same
Background Color	Sky Conditions
Start Gray End Same	Start Overcast End Same
Wind Speed	Wind Direction
Start 8 End Same	Start 200 End 180

Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 79 End Same	Start 52 End Same	Start 39 End Same



Longitude	Latitude	Declination
111.01.41.401 W	31.52.12.367 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	11:10:18	11:17:32

					Comments
1	***25***	***20***	***25***	***20***	
2	***25***	***20***	***25***	***20***	
3	***20***	***25***	***20***	***25***	Avg. Opacity = 22.917
4	***25***	***15***	***20***	***20***	
5	***25***	***20***	***25***	***25***	
6	***25***	***30***	***25***	***25***	
7	20	25	20	20	
8	20	25			
9					
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18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
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29					
30					
31					
32					

Observers Name (Print)	
Dustin Fitzpatrick	
Observers Signature	Date
Dustin Fitzpatrick	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State: NA
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 48.7
Azimuth: 156.6
Data Source: Calculated

Map Information

Map Type: USGSDRG
Map Width: 64200

Analysis

Averaging Type: Manual
Method: Method 9
Number of Images: 24

Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments: Zero image? more zoom and framed to left more to get top.

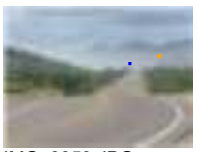
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0350.JPG	25	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:10:18 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0351.JPG	20	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:10:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0352.JPG	25	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:10:48 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0353.JPG	20	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:11:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0354.JPG	25	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:11:17 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0355.JPG	20	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:11:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0356.JPG	25	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:11:47 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0357.JPG	20	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:12:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52

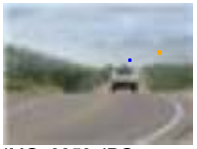
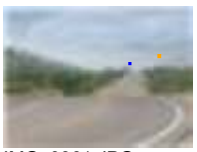
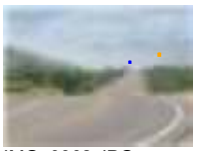
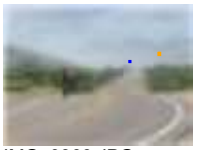
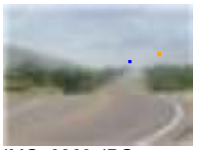
Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0358.JPG	20	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:12:17 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0359.JPG	25	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:12:33 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0360.JPG	20	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:12:47 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0361.JPG	25	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:13:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0362.JPG	25	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:13:17 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0363.JPG	15	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:13:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0364.JPG	20	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:13:47 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0365.JPG	20	**Foreground Coordinates** T: 602, L: 1365, B: 637, R: 1399 **Background Coordinates** T: 514, L: 1683, B: 560, R: 1724	**Date Taken** 10/11/2018 11:14:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52	

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0366.JPG	25	**Foreground Coordinates** T: 602 L: 1365 B: 637 R: 1399 **Background Coordinates** T: 514 L: 1683 B: 560 R: 1724	**Date Taken** 10/11/2018 11:14:17 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0367.JPG	20	**Foreground Coordinates** T: 602 L: 1365 B: 637 R: 1399 **Background Coordinates** T: 514 L: 1683 B: 560 R: 1724	**Date Taken** 10/11/2018 11:14:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0368.JPG	25	**Foreground Coordinates** T: 602 L: 1365 B: 637 R: 1399 **Background Coordinates** T: 514 L: 1683 B: 560 R: 1724	**Date Taken** 10/11/2018 11:14:47 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0369.JPG	25	**Foreground Coordinates** T: 602 L: 1365 B: 637 R: 1399 **Background Coordinates** T: 514 L: 1683 B: 560 R: 1724	**Date Taken** 10/11/2018 11:15:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0370.JPG	25	**Foreground Coordinates** T: 602 L: 1365 B: 637 R: 1399 **Background Coordinates** T: 514 L: 1683 B: 560 R: 1724	**Date Taken** 10/11/2018 11:15:17 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0371.JPG	30	**Foreground Coordinates** T: 602 L: 1365 B: 637 R: 1399 **Background Coordinates** T: 514 L: 1683 B: 560 R: 1724	**Date Taken** 10/11/2018 11:15:32 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0372.JPG	25	**Foreground Coordinates** T: 602 L: 1365 B: 637 R: 1399 **Background Coordinates** T: 514 L: 1683 B: 560 R: 1724	**Date Taken** 10/11/2018 11:15:47 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0373.JPG	25	**Foreground Coordinates** T: 602 L: 1365 B: 637 R: 1399 **Background Coordinates** T: 514 L: 1683 B: 560 R: 1724	**Date Taken** 10/11/2018 11:16:02 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 8 S **Rel Humidity** 39 **Wet Bulb Temp** 52

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used	
Method 9	
Equipment Owner	
David Barnes	
Facility Name	
Freeport-McMoRan Sierrita Inc.	
EO Street Address	
6200 W Duval Mine Rd	
EO City	EO State / EO Zip
Green Valley	AZ 85629

Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

Describe Emission Point	
Light colored dust plume from tailings impoundment North surface	
Height of Emiss. Pt. Start 249.81 End Same	Height of Emiss. Pt. Rel. to Observer Start 245.81 End Same
Distance to Emiss. Pt. Start 7101.65 End Same	Direction to Emiss. Pt. (Degrees) Start 261.31 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 1.77 End Same	Start 270.36 End Same
Distance and Direction to Observation Point from Emission Point	
Start 1115.99 / 337.67 End Same	

Describe Emissions	
Start Fumigating End Same	
Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background	
Start Brown hillside End Same	
Background Color	Sky Conditions
Start Gray End Same	Start Overcast End Same
Wind Speed	Wind Direction
Start 11 End Same	Start 200 End 180

Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 79 End Same	Start 52 End Same	Start 39 End Same

Longitude	Latitude	Declination
111.01.41.831 W	31.52.12.712 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	UMST	11:18:20	11:25:34

					Comments
1	25	30	30	25	
2	25	20	***25***	***20***	
3	***25***	***25***	***25***	***20***	Avg. Opacity = 24.583
4	***20***	***25***	***25***	***20***	
5	***20***	***20***	***25***	***25***	
6	***25***	***20***	***25***	***20***	
7	***20***	***25***	***35***	***35***	
8	***30***	***35***			
9					
10					
11					
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18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Observers Name (Print)	
Dustin Fitzpatrick	
Observers Signature	Date
Dustin Fitzpatrick	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State: NA
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 49.4
Azimuth: 159.5
Data Source: Calculated

Map Information

Map Type: USGSDRG
Map Width: 32100

Analysis

Averaging Type: Manual
Method: Method 9
Number of Images: 24

Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments: reading low due to dust in background, more zoom

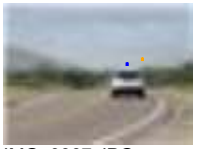
Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0386.JPG	25	**Foreground Coordinates** T L B R 644 1334 683 1369 **Background Coordinates** T L B R 591 1502 629 1536	**Date Taken** 10/11/2018 11:19:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0387.JPG	20	**Foreground Coordinates** T L B R 644 1334 683 1369 **Background Coordinates** T L B R 591 1502 629 1536	**Date Taken** 10/11/2018 11:20:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0388.JPG	25	**Foreground Coordinates** T L B R 644 1334 683 1369 **Background Coordinates** T L B R 591 1502 629 1536	**Date Taken** 10/11/2018 11:20:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0389.JPG	25	**Foreground Coordinates** T L B R 644 1334 683 1369 **Background Coordinates** T L B R 591 1502 629 1536	**Date Taken** 10/11/2018 11:20:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0390.JPG	25	**Foreground Coordinates** T L B R 644 1334 683 1369 **Background Coordinates** T L B R 591 1502 629 1536	**Date Taken** 10/11/2018 11:20:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0391.JPG	20	**Foreground Coordinates** T L B R 644 1334 683 1369 **Background Coordinates** T L B R 591 1502 629 1536	**Date Taken** 10/11/2018 11:21:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0392.JPG	20	**Foreground Coordinates** T L B R 644 1334 683 1369 **Background Coordinates** T L B R 591 1502 629 1536	**Date Taken** 10/11/2018 11:21:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52	
 IMG_0393.JPG	25	**Foreground Coordinates** T L B R 644 1334 683 1369 **Background Coordinates** T L B R 591 1502 629 1536	**Date Taken** 10/11/2018 11:21:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52	

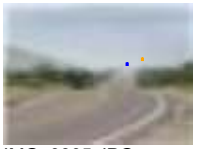
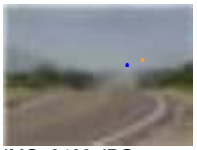
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0394.JPG	25	**Foreground Coordinates** T: 644 L: 1334 B: 683 R: 1369 **Background Coordinates** T: 591 L: 1502 B: 629 R: 1536	**Date Taken** 10/11/2018 11:21:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0395.JPG	20	**Foreground Coordinates** T: 644 L: 1334 B: 683 R: 1369 **Background Coordinates** T: 591 L: 1502 B: 629 R: 1536	**Date Taken** 10/11/2018 11:22:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0396.JPG	20	**Foreground Coordinates** T: 644 L: 1334 B: 683 R: 1369 **Background Coordinates** T: 591 L: 1502 B: 629 R: 1536	**Date Taken** 10/11/2018 11:22:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0397.JPG	20	**Foreground Coordinates** T: 644 L: 1334 B: 683 R: 1369 **Background Coordinates** T: 591 L: 1502 B: 629 R: 1536	**Date Taken** 10/11/2018 11:22:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0398.JPG	25	**Foreground Coordinates** T: 644 L: 1334 B: 683 R: 1369 **Background Coordinates** T: 591 L: 1502 B: 629 R: 1536	**Date Taken** 10/11/2018 11:22:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0399.JPG	25	**Foreground Coordinates** T: 644 L: 1334 B: 683 R: 1369 **Background Coordinates** T: 591 L: 1502 B: 629 R: 1536	**Date Taken** 10/11/2018 11:23:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0400.JPG	25	**Foreground Coordinates** T: 644 L: 1334 B: 683 R: 1369 **Background Coordinates** T: 591 L: 1502 B: 629 R: 1536	**Date Taken** 10/11/2018 11:23:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0401.JPG	20	**Foreground Coordinates** T: 644 L: 1334 B: 683 R: 1369 **Background Coordinates** T: 591 L: 1502 B: 629 R: 1536	**Date Taken** 10/11/2018 11:23:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0402.JPG	25	**Foreground Coordinates** T: 644, L: 1334, B: 683, R: 1369 **Background Coordinates** T: 591, L: 1502, B: 629, R: 1536	**Date Taken** 10/11/2018 11:23:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0403.JPG	20	**Foreground Coordinates** T: 644, L: 1334, B: 683, R: 1369 **Background Coordinates** T: 591, L: 1502, B: 629, R: 1536	**Date Taken** 10/11/2018 11:24:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0404.JPG	20	**Foreground Coordinates** T: 644, L: 1334, B: 683, R: 1369 **Background Coordinates** T: 591, L: 1502, B: 629, R: 1536	**Date Taken** 10/11/2018 11:24:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0405.JPG	25	**Foreground Coordinates** T: 644, L: 1334, B: 683, R: 1369 **Background Coordinates** T: 591, L: 1502, B: 629, R: 1536	**Date Taken** 10/11/2018 11:24:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0406.JPG	35	**Foreground Coordinates** T: 644, L: 1334, B: 683, R: 1369 **Background Coordinates** T: 591, L: 1502, B: 629, R: 1536	**Date Taken** 10/11/2018 11:24:49 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0407.JPG	35	**Foreground Coordinates** T: 644, L: 1334, B: 683, R: 1369 **Background Coordinates** T: 591, L: 1502, B: 629, R: 1536	**Date Taken** 10/11/2018 11:25:04 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0408.JPG	30	**Foreground Coordinates** T: 644, L: 1334, B: 683, R: 1369 **Background Coordinates** T: 591, L: 1502, B: 629, R: 1536	**Date Taken** 10/11/2018 11:25:19 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52
 IMG_0409.JPG	35	**Foreground Coordinates** T: 644, L: 1334, B: 683, R: 1369 **Background Coordinates** T: 591, L: 1502, B: 629, R: 1536	**Date Taken** 10/11/2018 11:25:34 AM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 79 **Wind Speed/Dir** 11 S **Rel Humidity** 39 **Wet Bulb Temp** 52

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used: Method 9

Equipment Owner: David Barnes

Facility Name: Freeport-McMoRan Sierrita Inc.

EO Street Address: 6200 W Duval Mine Rd

EO City	EO State	EO Zip
Green Valley	AZ	85629

Process	Unit	Operating Mode
N/A	N/A	N/A

Control Equipment	Operating Mode
N/A	N/A

Describe Emission Point: Dust plume from tailings impoundment surface

Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start 342.08 End Same	Start 338.08 End Same

Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 7589.2 End Same	Start 104.74 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 2.3 End Same	Start 89.18 End Same

Distance and Direction to Observation Point from Emission Point: Start 2034.86 / 359.95 End Same

Describe Emissions: Start Light colored dust plume End Same

Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background: Start Santa Rita Mountains End Same

Background Color	Sky Conditions
Start Gray End Same	Start Overcast End Same

Wind Speed	Wind Direction
Start 11 End Same	Start 200 End 180

Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 73 End Same	Start 51 End Same	Start 46 End Same

Longitude	Latitude	Declination
111.03.57.730 W	31.52.12.648 N	

Notes:

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	14:55:48	15:03:03

					Comments
1	***45***	***40***	***70***	***55***	
2	***55***	***55***	***55***	***55***	
3	***60***	***55***	***45***	***35***	Avg. Opacity = 45.208
4	***35***	***20***	***25***	***30***	
5	***45***	***40***	***45***	***45***	
6	***45***	***45***	***40***	***45***	
7	N/A	N/A	N/A	N/A	
8	N/A	N/A			
9					
10					
11					
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29					
30					
31					
32					

Observers Name (Print): Dustin Fitzpatrick

Observers Signature	Date
Dustin Fitzpatrick	10/15/2018

Organization: PCDEQ

Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State: NA
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 35.1
Azimuth: 232.7
Data Source: Calculated

Map Information

Map Type: USGSDRG
Map Width: 64200

Analysis

Averaging Type: Manual
Method: Method 9
Number of Images: 24
Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments:

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0549.JPG	45	**Foreground Coordinates** T: 491, L: 1122, B: 529, R: 1156 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 2:55:48 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0550.JPG	40	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 2:56:03 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0551.JPG	70	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 2:56:18 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0552.JPG	55	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 2:56:33 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0553.JPG	55	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 2:56:48 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0554.JPG	55	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 2:57:03 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0555.JPG	55	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 2:57:18 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0556.JPG	55	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 2:57:33 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0557.JPG	60	**Foreground Coordinates** T: 491 L: 1123 B: 529 R: 1157 **Background Coordinates** T: 483 L: 758 B: 522 R: 792	**Date Taken** 10/11/2018 2:57:48 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0558.JPG	55	**Foreground Coordinates** T: 491 L: 1123 B: 529 R: 1157 **Background Coordinates** T: 483 L: 758 B: 522 R: 792	**Date Taken** 10/11/2018 2:58:03 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0559.JPG	45	**Foreground Coordinates** T: 491 L: 1123 B: 529 R: 1157 **Background Coordinates** T: 483 L: 758 B: 522 R: 792	**Date Taken** 10/11/2018 2:58:18 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0560.JPG	35	**Foreground Coordinates** T: 491 L: 1123 B: 529 R: 1157 **Background Coordinates** T: 483 L: 758 B: 522 R: 792	**Date Taken** 10/11/2018 2:58:33 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0561.JPG	35	**Foreground Coordinates** T: 491 L: 1123 B: 529 R: 1157 **Background Coordinates** T: 483 L: 758 B: 522 R: 792	**Date Taken** 10/11/2018 2:58:48 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0562.JPG	20	**Foreground Coordinates** T: 491 L: 1123 B: 529 R: 1157 **Background Coordinates** T: 483 L: 758 B: 522 R: 792	**Date Taken** 10/11/2018 2:59:03 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0563.JPG	25	**Foreground Coordinates** T: 491 L: 1123 B: 529 R: 1157 **Background Coordinates** T: 483 L: 758 B: 522 R: 792	**Date Taken** 10/11/2018 2:59:18 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0564.JPG	30	**Foreground Coordinates** T: 491 L: 1123 B: 529 R: 1157 **Background Coordinates** T: 483 L: 758 B: 522 R: 792	**Date Taken** 10/11/2018 2:59:33 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0565.JPG	45	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 2:59:48 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0566.JPG	40	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 3:00:03 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0567.JPG	45	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 3:00:18 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0568.JPG	45	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 3:00:33 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0569.JPG	45	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 3:00:48 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0570.JPG	45	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 3:01:03 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0571.JPG	40	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 3:01:18 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0572.JPG	45	**Foreground Coordinates** T: 491, L: 1123, B: 529, R: 1157 **Background Coordinates** T: 483, L: 758, B: 522, R: 792	**Date Taken** 10/11/2018 3:01:33 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 11 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used		
Method 9		
Equipment Owner		
David Barnes		
Facility Name		
Freeport-McMoRan Sierrita Inc.		
EO Street Address		
6200 W Duval Mine Rd		
EO City	EO State	EO Zip
Green Valley	AZ	85629

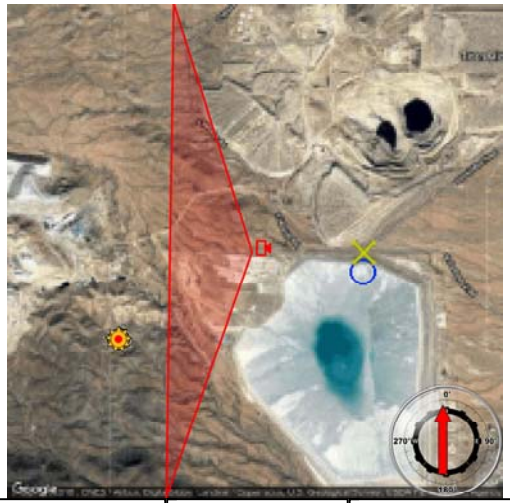
Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

Describe Emission Point	
Tailings impoundment surface generating dust plume	
Height of Emiss. Pt. Start 342.08 End Same	Height of Emiss. Pt. Rel. to Observer Start 338.08 End Same
Distance to Emiss. Pt. Start 7293.88 End Same	Direction to Emiss. Pt. (Degrees) Start 100.15 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 2.38 End Same	Start 90.85 End Same
Distance and Direction to Observation Point from Emission Point	
Start 965.04 / 170.14 End Same	

Describe Emissions	
Start Light colored dust plume End Same	
Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background		
Start Santa Rita Mountains End Same		
Background Color	Sky Conditions	
Start Dark Blue End Same	Start Overcast End Same	
Wind Speed	Wind Direction	
Start 7 End Same	Start 180 End Same	
Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 73 End Same	Start 51 End Same	Start 46 End Same



Longitude	Latitude	Declination
111.03.57.730 W	31.52.12.648 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	15:14:21	15:21:36

					Comments
1	***55***	***50***	***55***	***50***	
2	***55***	***55***	***60***	***65***	
3	***65***	***70***	***65***	***70***	Avg. Opacity = 61.042
4	***65***	***65***	***65***	***65***	
5	***70***	***70***	***70***	***70***	
6	***60***	***55***	***50***	***45***	
7	N/A	N/A	N/A	N/A	
8	N/A	N/A			
9					
10					
11					
12					
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29					
30					
31					
32					

Observers Name (Print)	
Dustin Fitzpatrick	
Observers Signature	Date
Dustin Fitzpatrick	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State:
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 31.8
Azimuth: 236.8
Data Source: Calculated

Map Information

Map Type: Google
Map Width: 32100

Analysis

Averaging Type: Manual
Method: Method 9
Number of Images: 24

Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments: Readings low due to dust in the background

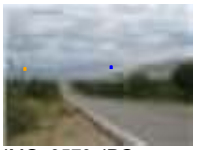
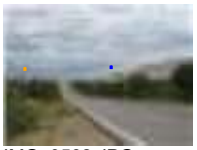
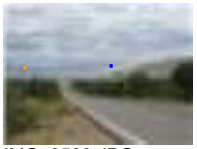
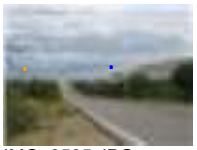
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0579.JPG	55	**Foreground Coordinates** T: 664 L: 1160 B: 702 R: 1194 **Background Coordinates** T: 683 L: 218 B: 721 R: 252	**Date Taken** 10/11/2018 3:14:21 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0580.JPG	50	**Foreground Coordinates** T: 664 L: 1160 B: 702 R: 1194 **Background Coordinates** T: 683 L: 218 B: 721 R: 252	**Date Taken** 10/11/2018 3:14:36 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0581.JPG	55	**Foreground Coordinates** T: 664 L: 1160 B: 702 R: 1194 **Background Coordinates** T: 683 L: 218 B: 721 R: 252	**Date Taken** 10/11/2018 3:14:51 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0582.JPG	50	**Foreground Coordinates** T: 664 L: 1160 B: 702 R: 1194 **Background Coordinates** T: 683 L: 218 B: 721 R: 252	**Date Taken** 10/11/2018 3:15:06 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0583.JPG	55	**Foreground Coordinates** T: 664 L: 1160 B: 702 R: 1194 **Background Coordinates** T: 683 L: 218 B: 721 R: 252	**Date Taken** 10/11/2018 3:15:21 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0584.JPG	55	**Foreground Coordinates** T: 664 L: 1160 B: 702 R: 1194 **Background Coordinates** T: 683 L: 218 B: 721 R: 252	**Date Taken** 10/11/2018 3:15:36 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0585.JPG	60	**Foreground Coordinates** T: 664 L: 1160 B: 702 R: 1194 **Background Coordinates** T: 683 L: 218 B: 721 R: 252	**Date Taken** 10/11/2018 3:15:51 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0586.JPG	65	**Foreground Coordinates** T: 664 L: 1160 B: 702 R: 1194 **Background Coordinates** T: 683 L: 218 B: 721 R: 252	**Date Taken** 10/11/2018 3:16:06 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0587.JPG	65	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:16:21 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0588.JPG	70	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:16:36 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0589.JPG	65	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:16:51 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0590.JPG	70	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:17:06 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0591.JPG	65	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:17:21 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0592.JPG	65	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:17:36 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0593.JPG	65	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:17:51 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0594.JPG	65	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:18:06 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0595.JPG	70	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:18:21 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0596.JPG	70	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:18:36 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0597.JPG	70	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:18:51 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0598.JPG	70	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:19:06 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0599.JPG	60	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:19:21 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0600.JPG	55	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:19:36 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0601.JPG	50	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:19:51 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0602.JPG	45	**Foreground Coordinates** T: 664, L: 1160, B: 702, R: 1194 **Background Coordinates** T: 683, L: 218, B: 721, R: 252	**Date Taken** 10/11/2018 3:20:06 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used	
Method 9	
Equipment Owner	
David Barnes	
Facility Name	
Freeport-McMoRan Sierrita Inc.	
EO Street Address	
6200 W Duval Mine Rd	
EO City	EO State / EO Zip
Green Valley	AZ 85629

Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

Describe Emission Point	
Tailings impoundment surface generating dust plume	
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start 342.08 End Same	Start 338.08 End Same
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 7313.37 End Same	Start 100.97 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 2.37 End Same	Start 92.19 End Same
Distance and Direction to Observation Point from Emission Point	
Start 1116.88 / 0 End Same	

Describe Emissions	
Start Light colored dust plume End Same	
Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background	
Start Santa Rita Mountains End Same	
Background Color	Sky Conditions
Start Dark Blue End Same	Start Overcast End Same
Wind Speed	Wind Direction
Start 9 End Same	Start 180 End Same

Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 73 End Same	Start 51 End Same	Start 46 End Same

Longitude	Latitude	Declination
111.03.57.730 W	31.52.12.648 N	

Notes

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	15:22:55	15:30:09

					Comments
1	N/A	N/A	35	35	
2	***40***	***40***	***40***	***55***	
3	***55***	***45***	***45***	***45***	Avg. Opacity = 40.417
4	***45***	***45***	***40***	***25***	
5	***25***	***35***	***30***	***35***	
6	***35***	***40***	***60***	***50***	
7	***35***	***35***	***35***	***35***	
8	N/A	N/A			
9					
10					
11					
12					
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30					
31					
32					

Observers Name (Print)	
Dustin Fitzpatrick	
Observers Signature	Date
Dustin Fitzpatrick	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID: 6067
Condition:
Regulatory Reference: FMSI

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State:
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 30.4
Azimuth: 238.4
Data Source: Calculated

Map Information

Map Type: Google
Map Width: 32100

Analysis

Averaging Type: Manual
Method: Method 9
Number of Images: 24
Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments:

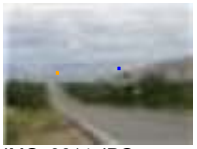
Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0613.JPG	40	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:23:54 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0614.JPG	40	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:24:09 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0615.JPG	40	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:24:24 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0616.JPG	55	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:24:39 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0617.JPG	55	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:24:54 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0618.JPG	45	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:25:09 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0619.JPG	45	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:25:24 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0620.JPG	45	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:25:39 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0621.JPG	45	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:25:54 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0622.JPG	45	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:26:09 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0623.JPG	40	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:26:24 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0624.JPG	25	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:26:39 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0625.JPG	25	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:26:54 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0626.JPG	35	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:27:09 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0627.JPG	30	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:27:24 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0628.JPG	35	**Foreground Coordinates** T: 691 L: 1246 B: 729 R: 1280 **Background Coordinates** T: 740 L: 573 B: 779 R: 607	**Date Taken** 10/11/2018 3:27:39 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken	Camera Information
 IMG_0629.JPG	35	**Foreground Coordinates** T: 691, L: 1246, B: 729, R: 1280 **Background Coordinates** T: 740, L: 573, B: 779, R: 607	**Date Taken** 10/11/2018 3:27:54 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0630.JPG	40	**Foreground Coordinates** T: 691, L: 1246, B: 729, R: 1280 **Background Coordinates** T: 740, L: 573, B: 779, R: 607	**Date Taken** 10/11/2018 3:28:09 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0631.JPG	60	**Foreground Coordinates** T: 691, L: 1246, B: 729, R: 1280 **Background Coordinates** T: 740, L: 573, B: 779, R: 607	**Date Taken** 10/11/2018 3:28:24 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0632.JPG	50	**Foreground Coordinates** T: 691, L: 1246, B: 729, R: 1280 **Background Coordinates** T: 740, L: 573, B: 779, R: 607	**Date Taken** 10/11/2018 3:28:39 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0633.JPG	35	**Foreground Coordinates** T: 691, L: 1246, B: 729, R: 1280 **Background Coordinates** T: 740, L: 573, B: 779, R: 607	**Date Taken** 10/11/2018 3:28:54 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0634.JPG	35	**Foreground Coordinates** T: 691, L: 1246, B: 729, R: 1280 **Background Coordinates** T: 740, L: 573, B: 779, R: 607	**Date Taken** 10/11/2018 3:29:09 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0635.JPG	35	**Foreground Coordinates** T: 691, L: 1246, B: 729, R: 1280 **Background Coordinates** T: 740, L: 573, B: 779, R: 607	**Date Taken** 10/11/2018 3:29:24 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	
 IMG_0636.JPG	35	**Foreground Coordinates** T: 691, L: 1246, B: 729, R: 1280 **Background Coordinates** T: 740, L: 573, B: 779, R: 607	**Date Taken** 10/11/2018 3:29:39 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 9 S **Rel Humidity** 46 **Wet Bulb Temp** 51	

VISIBLE EMISSION OBSERVATION FORM

Form Number						Page	Of
Continued on VEO Form Number							

Method Used	
Method 9	
Equipment Owner	
David Barnes	
Facility Name	
Freeport-McMoRan Sierrita Inc.	
EO Street Address	
6200 W Duval Mine Rd	
EO City	EO State / EO Zip
Green Valley	AZ 85629

Process	Unit	Operating Mode
N/A	N/A	N/A
Control Equipment		Operating Mode
N/A		N/A

Describe Emission Point: Tailings impoundment surface generating light dust plume

Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start 342.08 End Same	Start 338.08 End Same
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start 7179.88 End Same	Start 99.88 End Same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt.
Start 2.41 End Same	Start 90.91 End Same

Distance and Direction to Observation Point from Emission Point: Start 1128.21 / 10.49 End Same

Describe Emissions: Start Light colored dust plume End Same

Emission Color	Water Droplet Plume
Start Dust End Same	Attached: (X) Detached: ( ) N/A: ( )

Describe Plume Background: Start Santa Rita Mountains End Same

Background Color	Sky Conditions
Start Dark Blue End Same	Start Overcast End Same
Wind Speed	Wind Direction
Start 7 End Same	Start 180 End Same

Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 73 End Same	Start 51 End Same	Start 46 End Same

Longitude	Latitude	Declination
111.03.57.805 W	31.52.12.658 N	

Notes:

Observation Date	Time Zone	Start Time	End Time
10/11/2018	MST	15:31:43	15:38:57

					Comments
1	***45***	***45***	***40***	***45***	
2	***45***	***45***	***45***	***40***	
3	***35***	***35***	***35***	***30***	Avg. Opacity = 37.5
4	***30***	***25***	***25***	***30***	
5	***35***	***35***	***35***	***45***	
6	***45***	***45***	***35***	***30***	
7	20	N/A	N/A	N/A	
8	N/A	N/A			
9					
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18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Observers Name (Print)	
Dustin Fitzpatrick	
Observers Signature	Date
Dustin Fitzpatrick	10/15/2018
Organization	
PCDEQ	
Certified By	Date
Dustin Fitzpatrick	10/18/2018

Source

Name: Sierrita Tailings Impoundment - Equipment ID 087
Address:
City: Green Valley
State: AZ
Zip: 85629
Phone:
Local ID:

Regulatory

Permit ID:
Condition:
Regulatory Reference:

Process

Process: N/A
Unit: N/A
Operating Mode: N/A

Complaint

Name:
Address:
City:
State: NA
Zip:

Equipment

Name: N/A

Type of Inspection

Type of Inspection: Surveillance

Sun

Altitude: 28.8
Azimuth: 240.1
Data Source: Calculated

Map Information

Map Type: USGSDRG
Map Width: 32100

Analysis

Averaging Type: Manual
Method: Method 9
Number of Images: 24
Rolling High Count: 24
Seconds Between Images: 15
Who Created: DOCS II
Creation Date: 9/22/2011

Analyst Name: Shawn Dolan
Affiliation: Virtual Technology LLC 05
Comments:

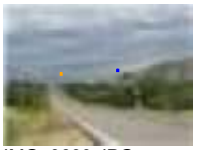
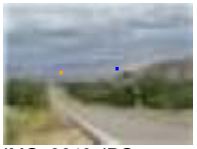
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0639.JPG	45	**Foreground Coordinates** T: 698, L: 1232, B: 736, R: 1266 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:31:43 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0640.JPG	45	**Foreground Coordinates** T: 694, L: 1225, B: 732, R: 1259 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:31:57 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0641.JPG	40	**Foreground Coordinates** T: 690, L: 1232, B: 728, R: 1266 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:32:12 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0642.JPG	45	**Foreground Coordinates** T: 702, L: 1242, B: 740, R: 1276 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:32:27 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0643.JPG	45	**Foreground Coordinates** T: 683, L: 1218, B: 721, R: 1252 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:32:42 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0644.JPG	45	**Foreground Coordinates** T: 690, L: 1228, B: 728, R: 1262 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:32:57 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0645.JPG	45	**Foreground Coordinates** T: 694, L: 1228, B: 732, R: 1262 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:33:12 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0646.JPG	40	**Foreground Coordinates** T: 690, L: 1221, B: 728, R: 1255 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:33:27 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51

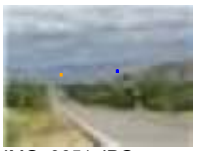
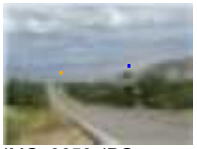
Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0647.JPG	35	**Foreground Coordinates** T: 698 L: 1218 B: 736 R: 1252 **Background Coordinates** T: 737 L: 614 B: 775 R: 648	**Date Taken** 10/11/2018 3:33:42 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0648.JPG	35	**Foreground Coordinates** T: 694 L: 1228 B: 732 R: 1262 **Background Coordinates** T: 737 L: 614 B: 775 R: 648	**Date Taken** 10/11/2018 3:33:57 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0649.JPG	35	**Foreground Coordinates** T: 698 L: 1221 B: 736 R: 1255 **Background Coordinates** T: 737 L: 614 B: 775 R: 648	**Date Taken** 10/11/2018 3:34:12 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0650.JPG	30	**Foreground Coordinates** T: 706 L: 1225 B: 744 R: 1259 **Background Coordinates** T: 737 L: 614 B: 775 R: 648	**Date Taken** 10/11/2018 3:34:27 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0651.JPG	30	**Foreground Coordinates** T: 698 L: 1228 B: 736 R: 1262 **Background Coordinates** T: 737 L: 614 B: 775 R: 648	**Date Taken** 10/11/2018 3:34:42 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0652.JPG	25	**Foreground Coordinates** T: 690 L: 1225 B: 728 R: 1259 **Background Coordinates** T: 737 L: 614 B: 775 R: 648	**Date Taken** 10/11/2018 3:34:57 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0653.JPG	25	**Foreground Coordinates** T: 664 L: 1355 B: 702 R: 1389 **Background Coordinates** T: 737 L: 614 B: 775 R: 648	**Date Taken** 10/11/2018 3:35:12 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0654.JPG	30	**Foreground Coordinates** T: 664 L: 1355 B: 702 R: 1389 **Background Coordinates** T: 737 L: 614 B: 775 R: 648	**Date Taken** 10/11/2018 3:35:27 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51

Image	Opacity	Coordinates	Date Taken / Camera Information
 IMG_0655.JPG	35	**Foreground Coordinates** T: 664, L: 1355, B: 702, R: 1389 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:35:42 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0656.JPG	35	**Foreground Coordinates** T: 664, L: 1355, B: 702, R: 1389 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:35:57 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0657.JPG	35	**Foreground Coordinates** T: 664, L: 1355, B: 702, R: 1389 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:36:12 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0658.JPG	45	**Foreground Coordinates** T: 683, L: 1215, B: 721, R: 1249 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:36:27 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0659.JPG	45	**Foreground Coordinates** T: 694, L: 1235, B: 732, R: 1269 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:36:42 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0660.JPG	45	**Foreground Coordinates** T: 698, L: 1232, B: 736, R: 1266 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:36:57 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0661.JPG	35	**Foreground Coordinates** T: 702, L: 1242, B: 740, R: 1276 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:37:12 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51
 IMG_0662.JPG	30	**Foreground Coordinates** T: 698, L: 1221, B: 736, R: 1255 **Background Coordinates** T: 737, L: 614, B: 775, R: 648	**Date Taken** 10/11/2018 3:37:27 PM **Camera Mfg/Model** Canon/Canon PowerShot SX60 HS **Temperature** 73 **Wind Speed/Dir** 7 S **Rel Humidity** 46 **Wet Bulb Temp** 51

PIMA COUNTY
ENVIRONMENTAL QUALITY

PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY
33 N. Stone Avenue, Suite 700, Tucson, AZ 85701-1429

Phone (520) 724-7400 FAX (520) 838-7432
http://webcms.pima.gov/government/environmental_quality/

AIR PROGRAM
NOTIFICATION OF INSPECTION RIGHTS

SOURCE INFORMATION

PC # _____ Permit # 6067

Regulated Person FREEPORT-MCMORAN SIERRITA INC

On-site Representative BRUCE COOKE Title _____

Site Location 6200 W DUVAL MINE RD Phone (520) 393-2919

Site Contact _____ E-Mail _____

Mailing Address _____

PDEQ INFORMATION

Inspector Name D. FITZPATRICK Phone (520) 724-7327

Inspection Date 10/11/18 Time 11:50 AM

Accompanied by _____

Questions or comments on these procedures, your inspection and due process rights or this form may be directed to the Pima County Department of Environmental Quality (PDEQ) inspector listed on this form at (520) 724-7400. While I have the right to decline to sign this form, the PDEQ representative(s) may still proceed with the inspection under Pima County Code (PCC) 17.20.050.

☐ ***I acknowledge that I have read and understand the Inspection Rights on the back of this form.***

Signature _____ Date 10-11-18

☐ _____ Refused to sign the Notification.

☐ Authorized on-site representative is not present at the facility.

Attachment 21

FMSI Email dated October 9, 2018

From: Brown, Collette
To: Beth Gorman
Subject: Dust Response
Date: Tuesday, October 9, 2018 11:56:34 AM

On October 6 and 7, Freeport-McMoRan Sierrita mining operations experienced significant storm events causing tailings dust to leave the property due to wind gusts exceeding 40 mph. We have reported these events to Pima County Department of Environmental Quality. Though we work diligently to ensure that these events do not occur, recent heavy rain in the area impacted the soil control efforts used to manage dust. We are working to restore dust protection to help prevent future occurrences. In addition, we are in the process of identifying our affected neighbors and developing a plan to remedy the dust. We will communicate that plan as soon as it is final.

We apologize to those impacted by this incident and ask that concerns or issues be directed to our 24-hour community information line at 520-393-4426 or 866-717-7030. Please include address and contact information with any messages.

Collette Brown
Manager Strategic Community Development
Freeport-McMoRan

Office: 520-393-2409
Cell: 520-349-3067
Fax: 520-393-2363
cbrown@fmi.com
www.freeportinmycommunity.com

Attachment 22

Records Request Letter dated October 19, 2018

PIMA COUNTY
ENVIRONMENTAL QUALITY

33 N. Stone Avenue, Suite 700
Tucson, Arizona 85701-1429
www.pima.gov/deq

Ursula Kramer Nelson, P.E.
Director

(520) 724-7400
FAX (520) 838-7432

October 19, 2018

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

Sent by Email
tbehrens@fmi.com; nnunez@fmi.com

RE: Request for Production of Records

Dear Mr. Behrens and Ms. Nunez:

Pursuant to Pima County Code 17.24.040 - Reporting for compliance evaluations, the Pima County Department of Environmental Quality (PDEQ) hereby requests that Freeport-McMoRan Sierrita Inc. (FMSI) provide the below requested records. Upon receipt, PDEQ will review all submitted documentation and records to determine FMSI's compliance status with requirements of Air Quality Operating Permit #6067.

- Provide the Tailings Dam Environmental Weekly Activities Report and Tailings Impoundment Surface Inspection Forms from September 22, 2018, through October 5, 2018.
- Provide the dates and locations (i.e., North or South dams, phases, and sections) of wet tailings application from June 1, 2018, to present.
- When did berm construction last take place and in which phase?
- What is the current remaining feet of freeboard and remaining feet of tailings that can be deposited in each phase?
- What dates was the all-track vehicle, observed by PDEQ on October 8, 2018, stuck in the tailings impoundment interior south of the divider?
- Did the stuck all-track vehicle prevent wet tailings application to phase 2 or 3 of the South dam in areas with damaged crust that were not accessible by all-track?
- Did the stuck all-track prevent additional application of Magnesium Chloride ($MgCl_2$) to the tailings surface during the date it became stuck to present?
- What was the operational status of the five all-track vehicles from October 1, 2018, to present, including the dates each one was used to apply $MgCl_2$ to the tailings dam surface?
- Utilizing the tailings dam diagram from Attachment A of the Tailings Dam Dust Control Management Plan (TDDCMP), provide a document highlighting the tailings surface areas damaged by the September 20, 2018, and October 2, 2018, rain events that, following the rain events, did not receive application of wet tailings or $MgCl_2$ before October 6, 2018.
- What dust control method is used to suppress dust from damaged tailings surfaces that are inaccessible by all-track vehicles and that are unable to be covered by an application of wet tailings prior to drying?

- Have contingency measures for dust control been undertaken as provided by section 3.0 of the TDDCMP, including the rental of an additional all-track vehicle to help apply $MgCl_2$ to the tailings dam? Please provide documentation if any efforts have been undertaken to rent an additional all-track vehicle.
- Provide the reports and/or checklist audit forms from the two most recent semi-annual evaluations identified in section 4.2 *Evaluation of Objectives* of the TDDCMP.

PDEQ requests that FMSI produce the requested records no later than ten (10) calendar days of receipt of this letter. Please send your response to:

Pima County Department of Environmental Quality
Attn: Dustin Fitzpatrick
33 N. Stone Avenue, Suite 700
Tucson, AZ 85701

Or by email to: Air.Permits@pima.gov

If you have any questions, please do not hesitate to contact me at (520) 724-7322.

Sincerely,

Dustin Fitzpatrick

Dustin Fitzpatrick
Air Compliance Manager

cc: David Barnes, Environmental Manager – dbarnes1@fmi.com
PDEQ File #: PC1810-033

Attachment 23

Records Request Response dated November 1, 2018

FREEPORT-McMoRan

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

November 1, 2018

Via Email: Air.Notices@pima.gov and
Certified Mail: 7017 3380 0000 0803 5755

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

Re: Response to Request for Production of Records
PDEQ File #: PC1810-033
Freeport-McMoRan Sierrita Inc., Permit # 6067

Dear Mr. Fitzpatrick:

Freeport-McMoRan Sierrita Inc. (FMSI) is in receipt of the Pima County Department of Environmental Quality (PDEQ) Request for Production of Records relating to Tailings Dam Dust Control Management sent via email on October 19, 2018. This letter serves as the written response to PDEQ's request. For ease of review, FMSI has identified each request followed by FMSI's information related to that request.

1) Provide the Tailings Dam Environmental Weekly Activities Report and Tailings Impoundment Surface Inspection Forms from September 22, 2018, through October 5, 2018.

   The requested information is referenced in Attachment A of this letter.

2) Provide the dates and locations (i.e. North or South dams, phases and sections) of wet tailings application from June 1, 2018, to present.

   The requested information is referenced in Attachment B of this letter.

3) When did the berm construction last take place and in which phase?

   Berm construction on the Sierrita Tailings Impoundment (STI) last took place on January 15, 2018 on South Dam, Phase 3. The STI and Esperanza Tailings Impoundment (ETI) Tie-In berm construction started in early 2018 and is currently on-going.

4) What is the current remaining feet of freeboard and remaining feet of tailings that can be deposited in each phase?

   The requested information is referenced in Attachment C of this letter.

5) What dates was the all-track vehicle, observed by PDEQ on October 8, 2018, stuck in the tailings impoundment interior south of the divider?

The stuck all-track vehicle observed by PDEQ on October 8, 2018 was stuck in the Sierrita Tailings Impoundment from September 10, 2018 through October 9, 2018.

6) Did the stuck all-track vehicle prevent wet tailings application to phase 2 or 3 of the South dam in areas with damaged crust that were not accessible by all-track?

The stuck all-track vehicle did prevent wet tailings application to South Dam, Phase 2 and 3.

7) What was the operational status of the five all-track vehicles from October 1, 2018, to present, including the dates each one was used to apply magnesium chloride to the tailings dam surface?

The requested information is referenced in Attachment D of this letter. FMSI uses daily surface inspections and weather forecasts to determine the need for all-track vehicle usage. Based on the above mentioned variables, all available all-track vehicles may not be in use during a shift.

8) Utilizing the tailings dam diagram from Attachment A of the Tailings Dam Dust Control Management Plan (TDDCMP), provide a document highlighting the tailings surface areas damaged by the September 20, 2018, and October 2, 2018, rain events that, following the rain events, did not receive application of wet tailings or magnesium chloride before October 6, 2018.

The requested information is referenced in Attachment E of this letter.

9) What dust control method is used to suppress dust from damaged tailings surfaces that are inaccessible by all-track vehicles and that are unable to be covered by an application of wet tailings prior to drying?

Currently, there is no immediate dust suppression method to address areas of damaged tailings surfaces that are inaccessible by all-track vehicle and cannot be covered by wet tailings application prior to drying. While aerial dust suppressant application has been explored and used previously, the availability of the aerial equipment is too unpredictable for FMSI to rely upon its use. For example, during dust events in early October 2018, the next available date for aerial application, according to the vendor, was the week of November 12, 2018.

10) Have contingency measures for dust control been undertaken as provided by section 3.0 of the TDDCMP, including the rental of an additional all-track vehicle to help apply magnesium chloride to the tailings dam? Please provide documentation if any efforts have been undertaken to rent an additional all-track vehicle.

Contingency measures that go beyond those considered reasonable to control dust have been undertaken. The deposition schedule of the tailings impoundment has been modified to cover a large surface area in less time by moving deposition every shift and a half verses two and a half shifts. This approach is generally only allowed in the seasonal planned deposition at the beginning of fall through the month of April. In addition, the manpower to apply mag chloride to the surface of the tailings impoundment has been modified to accommodate 12 hour shifts, nights and days

from 10 hour shifts, days only. In September of 2017, FMSI did receive a quote for rental of an additional all-track vehicle, however, FMSI decided not to rent an additional all-track during the recent dust events due to the inaccessibility to the areas of concern.

11) Provide the reports and/or checklist audit forms from the two most recent semi-annual evaluations identified in Section 4.2 *Evaluation of Objectives* of the TDDCMP.

The requested information is referenced in Attachment F and Attachment G of this letter.

FMSI would be more than happy to meet with you to discuss the information submitted in this letter. Please contact me at 520.393.2376 if you would like to schedule a meeting or if additional information is necessary.

Sincerely,

Natalie Nunez
Senior Environmental Scientist
11012018_001
7 attachments

Certification of Truth, Accuracy and Completeness

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

David Rhoades, President; General Manager – Freeport-McMoRan Sierrita Inc.

(Signature) (Date)

Attachment A

Tailings Dam Environmental Weekly Activities Report

Operator: Jesus Hernandez Date: 9.21.2018

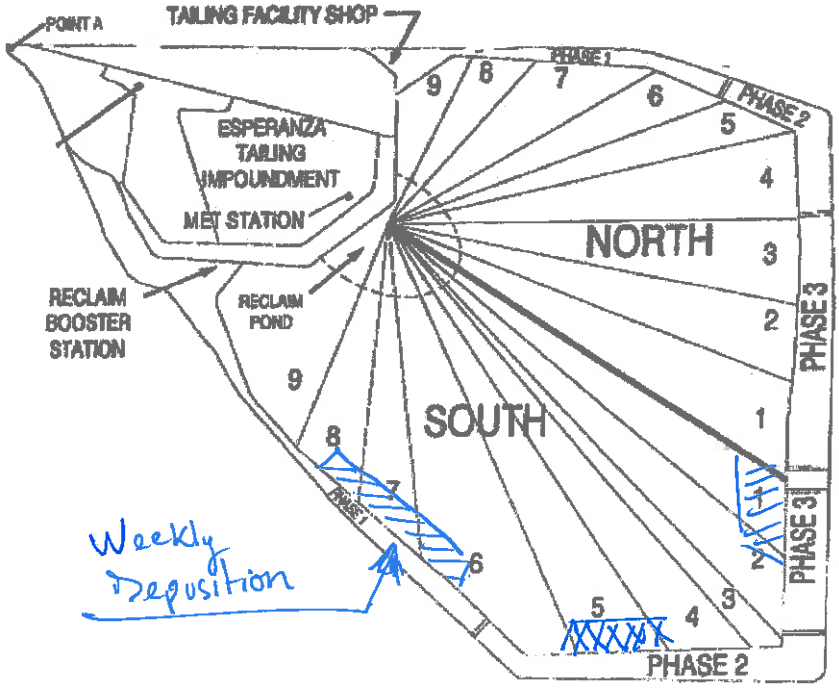
Primary Controls	N/S	Phase	Area			
Area of Deposition	S	1	87,6			
Special Wetting Area	—	—	—			
Water Truck #	88	94	36	37	Rental	Rental
No. of Loads	3	—	24	19	—	—

	Gallons	N/S	Approximate Area Covered
All-track application	12,750	S	South - Ph-2 Ph-3
Mag. Chloride Applied to Rds	15,000	N/S	North/South Pipeline Rodds

Site Conditons

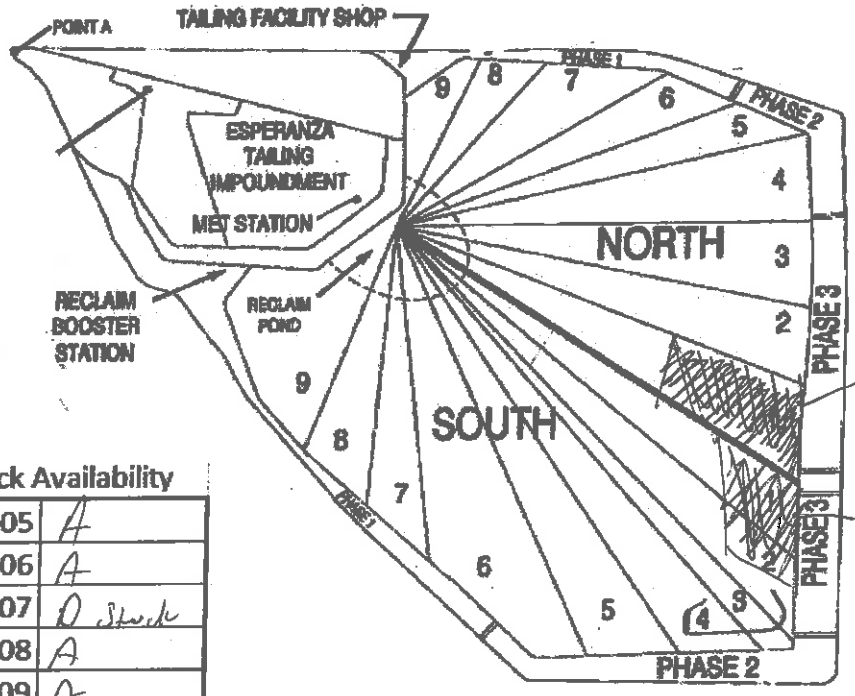
Area Under Construction	ETI/STI
Inches of Rain Throughout Week	3.5

Comments: ETI / STI Construction ongoing
Deposition on South Dam-
2 Dust Events reported
Environmental spill reported - 9/15



Tailings Impoundment Surface Inspection

Date: 9/17/18
Time: 8:00
Conditions: Breezy
Dam Inspected: N Phase(s) 3
Inspected By: F Duran



All-track Availability

70105	A
70106	A
70107	D Stuck
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 All trucks / 1 Water truck

Dust Suppressant Applied: Water / Mag

Operators: Isaiah / Efrain / Jesse

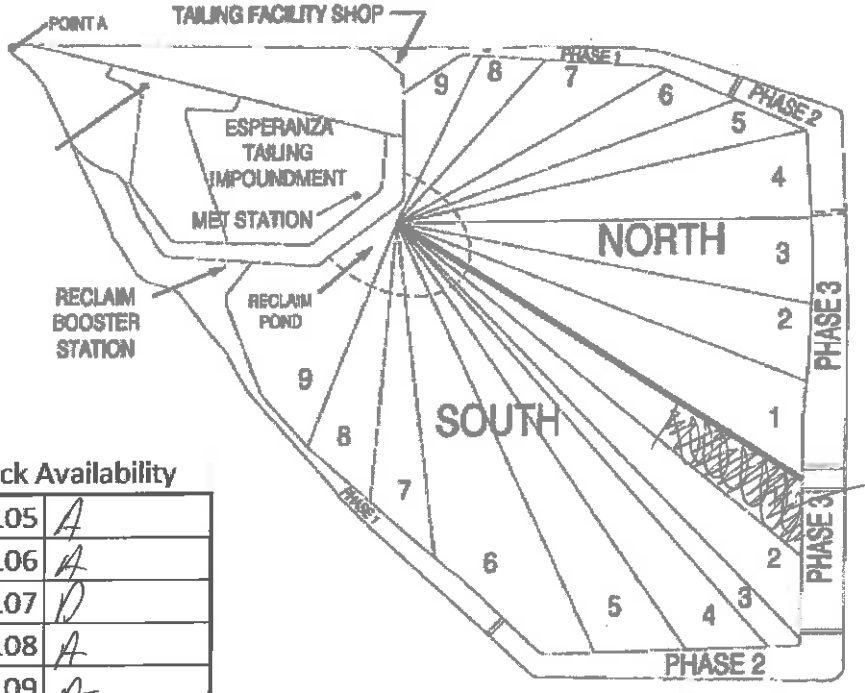
Weather Conditions:

Wind Speed: 6 Gusts up to: 14 Temp: 80

Precipitation in the last 24 hrs. N Inches of rain: —

Tailings Impoundment Surface Inspection

Date: 9/18/18
Time: 9:00
Conditions: & Calm
Dam Inspected: S Phase(s) 3
Inspected By: F. Duran



Area Insp (3, 4)
Road had fine Mag. @ the end of day

All-track Availability

70105	A
70106	A
70107	D
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Water trucks

Dust Suppressant Applied: Water

Operators: Rudy / Maranon

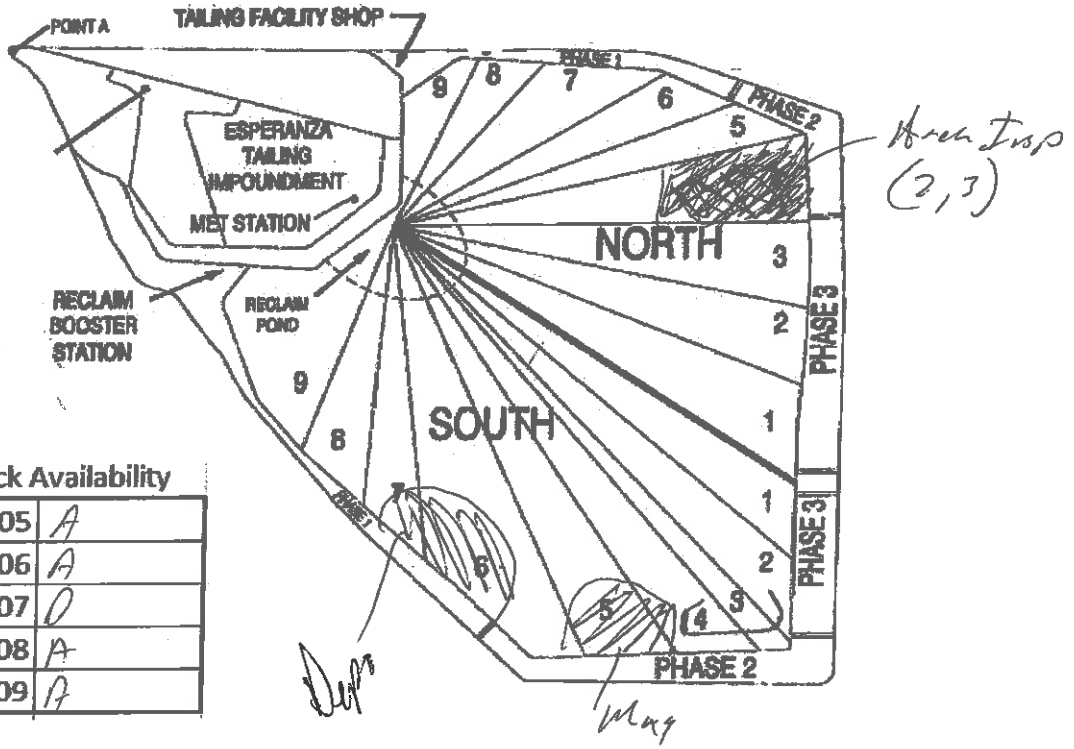
Weather Conditions:

Wind Speed: 2 Gusts up to: 6 Temp: 94

Precipitation in the last 24 hrs. — Inches of rain: —

Tailings Impoundment Surface Inspection

Date: 9/19/18
Time: 8:00
Conditions: Breezy
Dam Inspected: N Phase(s) 2
Inspected By: F Duran



All-track Availability

70105	A
70106	A
70107	O
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 Water trucks / 2 All trucks

Dust Suppressant Applied: Water Mag

Operators: Jesse / John / JR / Jose

Weather Conditions:

Wind Speed: 12 Gusts up to: 18 Temp: 79

Precipitation in the last 24 hrs. — Inches of rain: —

Tailings Impoundment Surface Inspection

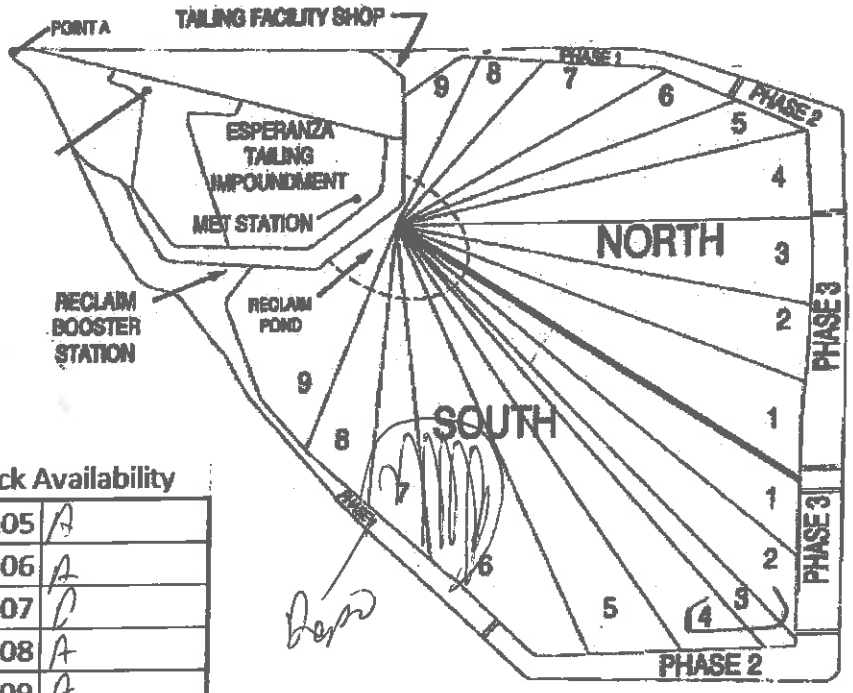
Date: 9/20/18

Time: —

Conditions: Wet

Dam Inspected: — Phase(s) —

Inspected By: F Duran



All-track Availability

70105	A
70106	A
70107	A
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Equipment on Standby

Dust Suppressant Applied: —

Operators: —

Weather Conditions:

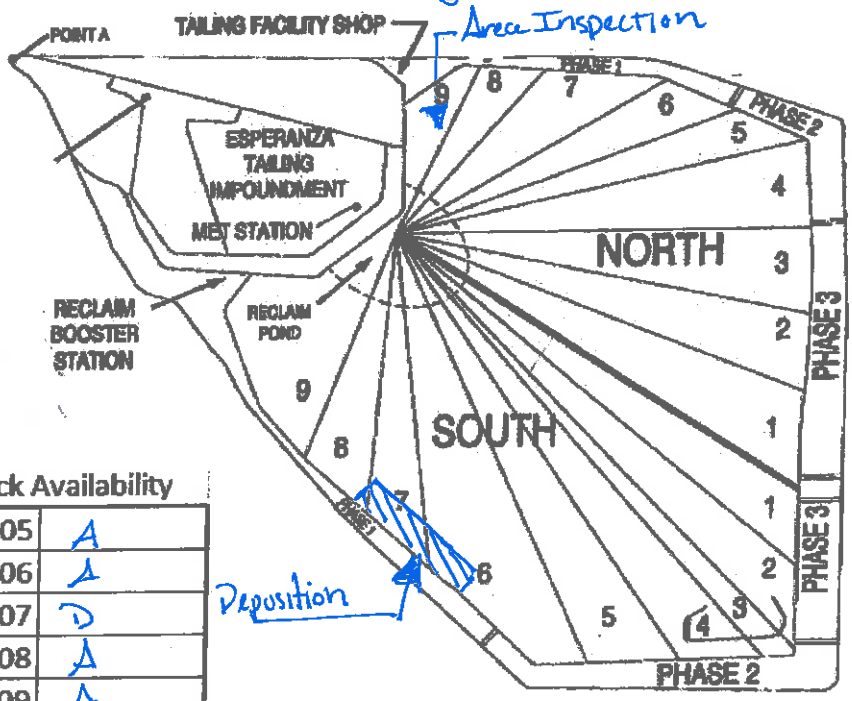
Wind Speed: 8 Gusts up to: 12 Temp: 85

Precipitation in the last 24 hrs. Y Inches of rain: 3.5"

* Received 3 1/2" of Rain

Tailings Impoundment Surface Inspection

Date: 9.21.2018
Time: 8:00 AM
Conditions: Clear
Dam Inspected: North Phase(s) 1-9
Inspected By: Jesus Hernandez



All-track Availability

70105	A
70106	A
70107	D
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
(2)	Moist Surface Due to recent rain	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Equipment on STANDBY

Dust Suppressant Applied: —

Operators: —

Weather Conditions:

Wind Speed: 5 Gusts up to: 8 Temp: 68

Precipitation in the last 24 hrs. .10 Inches of rain: 0

Tailings Dam Environmental Weekly Activities Report

Operator: Jesus Hernandez Date: 9.28.2018

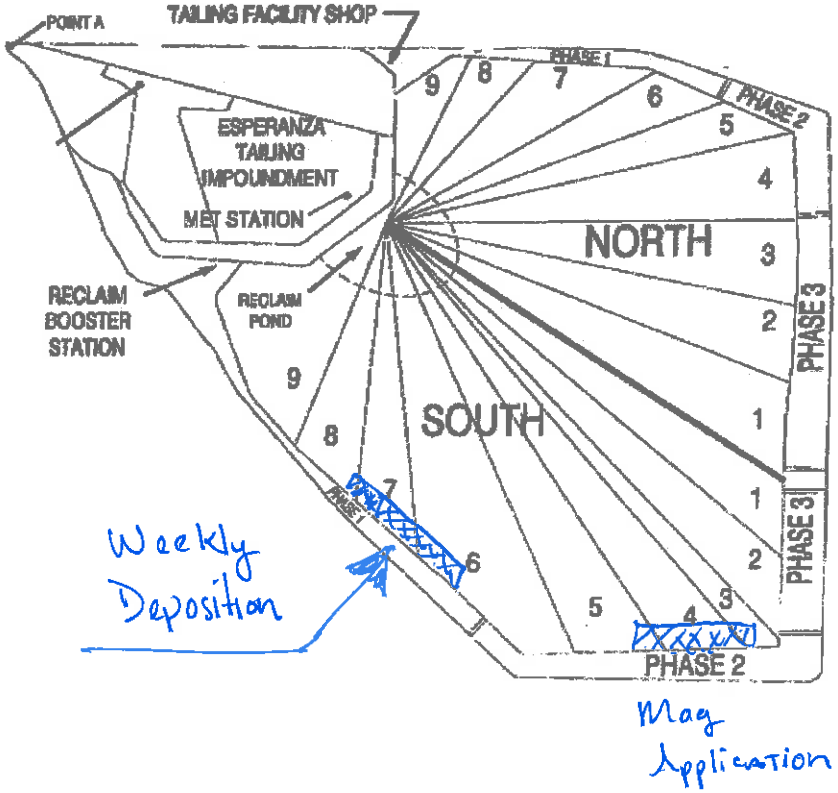
Primary Controls	N/S	Phase	Area			
Area of Deposition	S	1	7-6			
Special Wetting Area	—	—	—			
Water Truck #	88	94	36	37	Rental	Rental
No. of Loads	17	3	16	36		

	Gallons	N/S	Approximate Area Covered
All-track application	35,250	S	South - Ph-2
Mag. Chloride Applied to Rds	5,000	N	Lower North Rd / N. Dirt Pile

Site Conditons

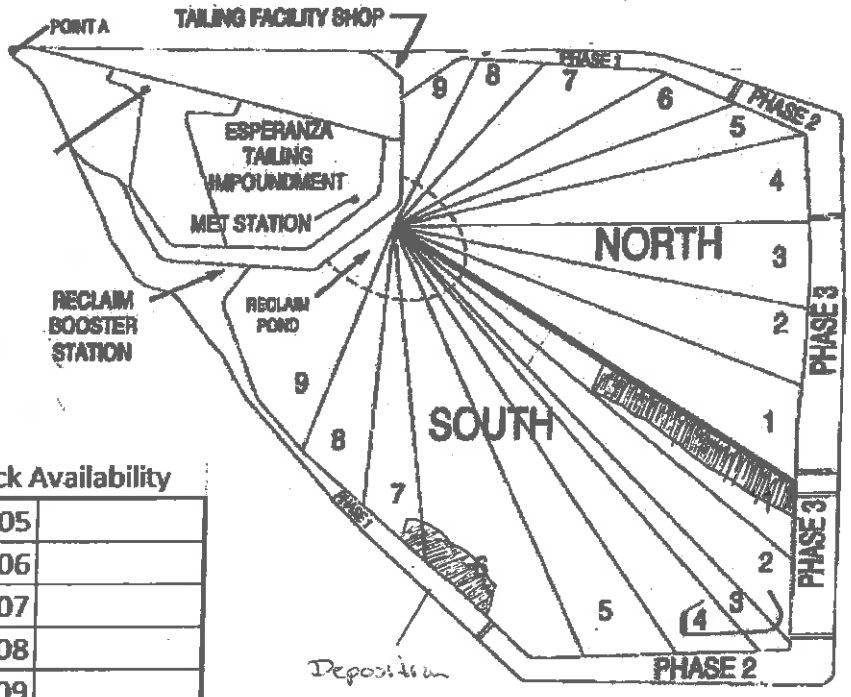
Area Under Construction	ETI / STI	
Inches of Rain Throughout Week	N/A	

Comments: ETI / STI Construction on Going
Deposition on South Dam



Tailings Impoundment Surface Inspection

Date: 9-28-18
Time: 16:30
Conditions: Calm
Dam Inspected: South Phase(s) 3
Inspected By: Derek Berry



Area Inspected
2, 3, 4, 5

All-track Availability

70105	
70106	
70107	
70108	
70109	

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 Water trucks

Dust Suppressant Applied: H20

Operators: Rocky, Efrain

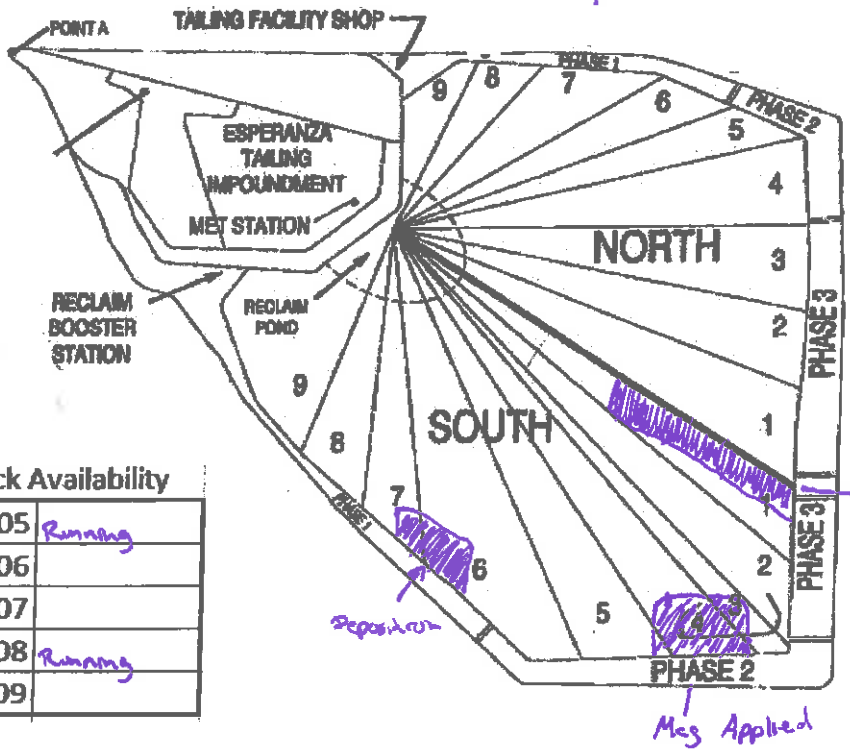
Weather Conditions:

Wind Speed: 0 Gusts up to: 4 Temp: 92

Precipitation in the last 24 hrs. 0 Inches of rain: NA

Tailings Impoundment Surface Inspection

Date: 9.27-2018
Time: 9:00
Conditions: Clear
Dam Inspected: South Phase(s) 3
Inspected By: Derek Bean



All-track Availability

70105	Running
70106	
70107	
70108	Running
70109	

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 Water trucks and

Dust Suppressant Applied: H20 / Meg

Operators: Jose G., JR B. / Jose G. Edolie M.

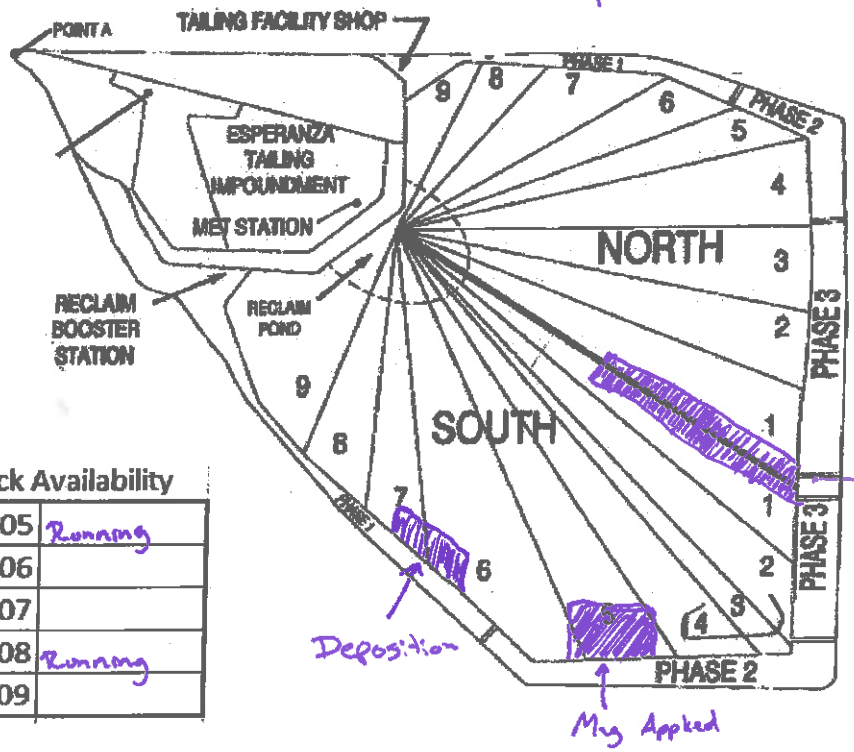
Weather Conditions:

Wind Speed: 3 Gusts up to: 8 Temp: 85-90

Precipitation in the last 24 hrs. NO Inches of rain: NA

Tailings Impoundment Surface Inspection

Date: 9-26-2018
Time: 10:00
Conditions: Clear
Dam Inspected: South Phase(s) 3
Inspected By: Derek Beam



All-track Availability

70105	Running
70106	
70107	
70108	Running
70109	

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 Water Trucks and

Dust Suppressant Applied: H2O / Mag

Operators: Jose G., Jesus H., / JR B., Eddie M.

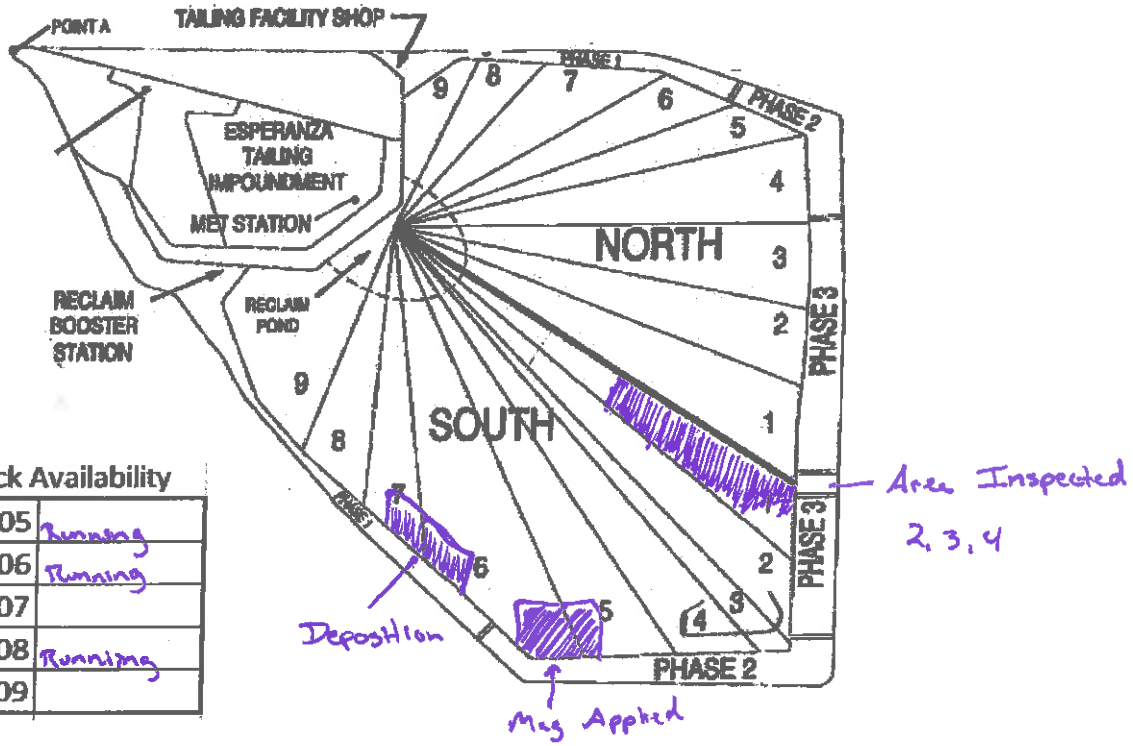
Weather Conditions:

Wind Speed: 3 Gusts up to: 8 Temp: 85-90

Precipitation in the last 24 hrs. NA Inches of rain: NA

Tailings Impoundment Surface Inspection

Date: 9-25-2018
Time: 10:00
Conditions: Clear
Dam Inspected: South Phase(s) 3
Inspected By: Derek Berry



All-track Availability

70105	Running
70106	Running
70107	
70108	Running
70109	

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 water trucks and 3 All Tracks

Dust Suppressant Applied: H2O / Mag

Operators: JR B. / Efrain, Jose G. Eddie M.

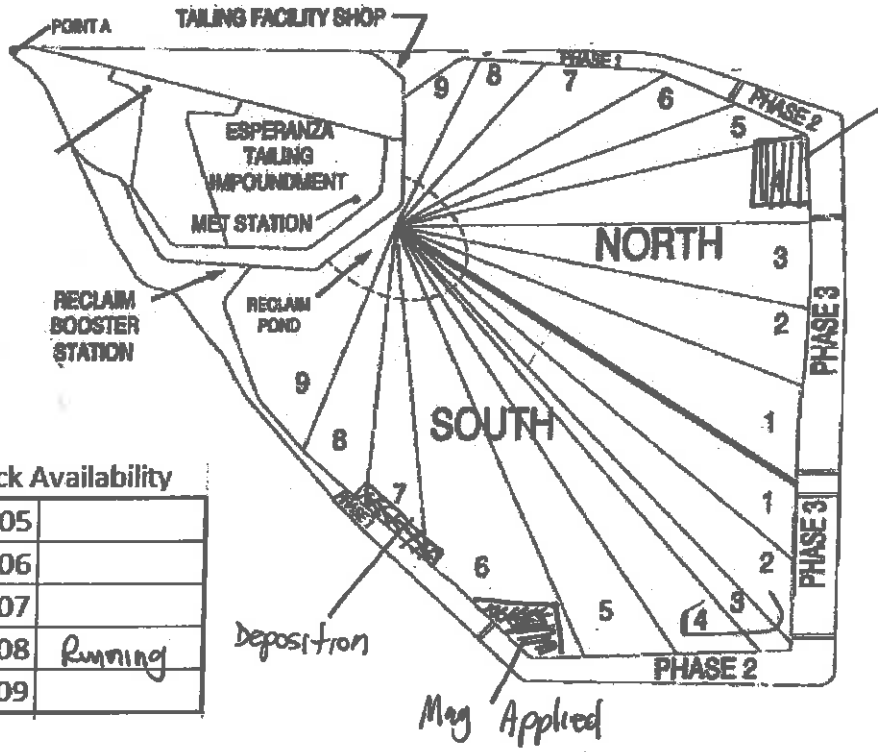
Weather Conditions:

Wind Speed: 3 Gusts up to: 8 Temp: 85 - 90

Precipitation in the last 24 hrs. NA Inches of rain: NA

Tailings Impoundment Surface Inspection

Date: 9.24.18
Time: 10 AM
Conditions: Calm
Dam Inspected: North Phase(s) 2
Inspected By: A. Coding



All-track Availability

70105	
70106	
70107	
70108	Running
70109	

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 3 water trucks & 1 all track

Dust Suppressant Applied: H_2O / Mag

Operators: Jesus H. Rudy L. / Efrain R. Jesse P.

Weather Conditions:

Wind Speed: 4 MPH Gusts up to: 8 Temp: 90°

Precipitation in the last 24 hrs. No Inches of rain: N/A

Tailings Dam Environmental Weekly Activities Report

Operator: Jesus Hernandez Date: 10.5.2018

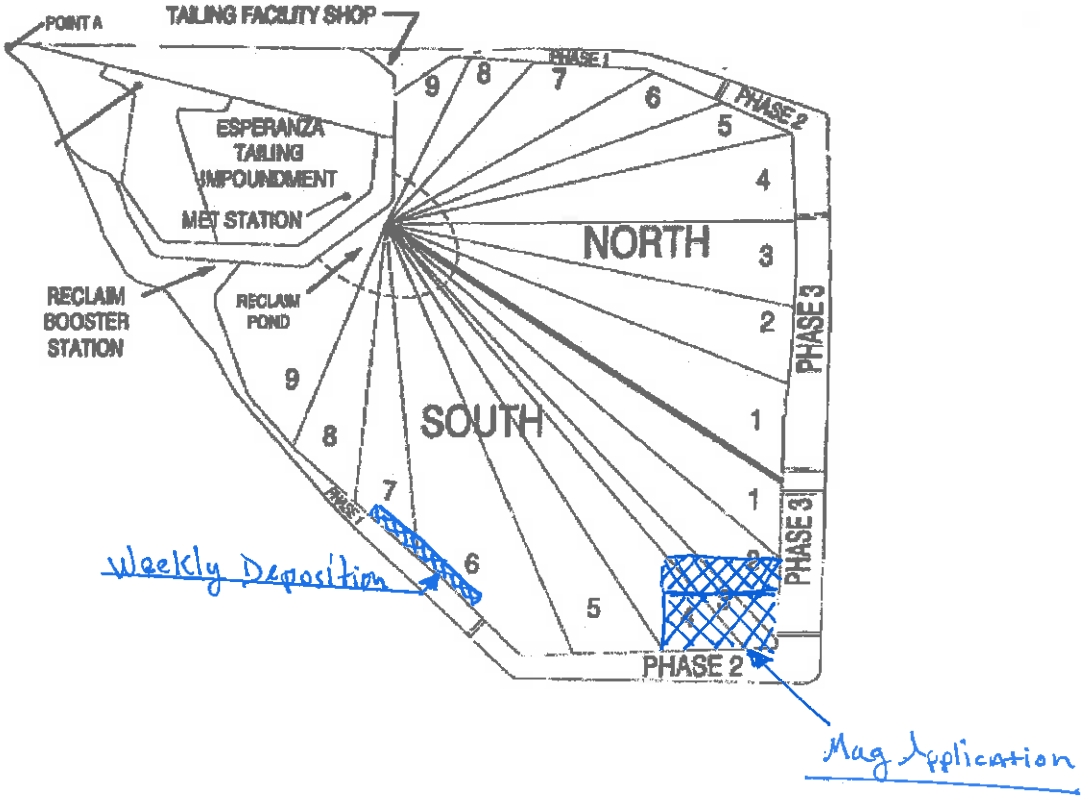
Primary Controls	N/S	Phase	Area			
Area of Deposition	South	1	7.6			
Special Wetting Area	—	—	—			
Water Truck #	88	94	36	37	Rental	Rental
No. of Loads	5	—	4	1	—	—

	Gallons	N/S	Approximate Area Covered
All-track application	17,250	S	South Dam - Ph-2
Mag. Chloride Applied to Rds	—	—	

Site Conditons

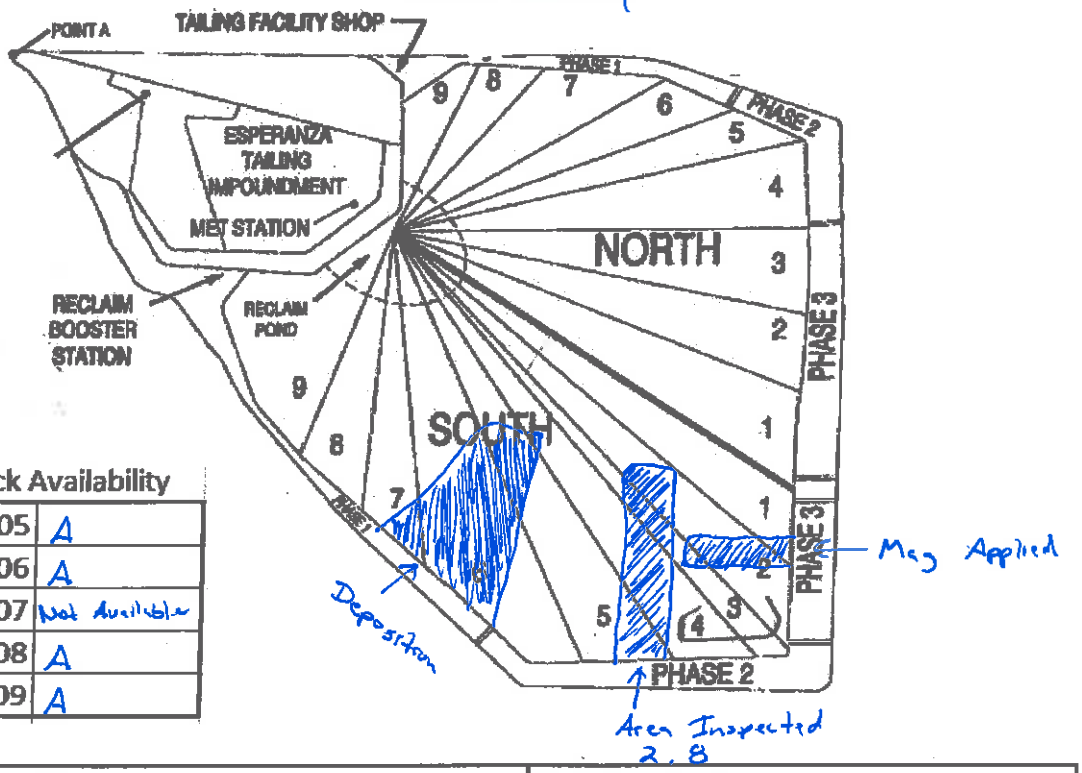
Area Under Construction	ETI/STI
Inches of Rain Throughout Week	2"

Comments: ETI / STI construction ongoing
Deposition on South Dam.
On 10/4 ELW was called to report dust within the impoundment - did not leave property.



Tailings Impoundment Surface Inspection

Date: 10-5-18
Time: 12:00
Conditions: Calm
Dam Inspected: South Phase(s) 2/3
Inspected By: Derek Bessy



All-track Availability

70105	A
70106	A
70107	Not Available
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 All Tracks

Dust Suppressant Applied: Mag

Operators: Jose / Chris

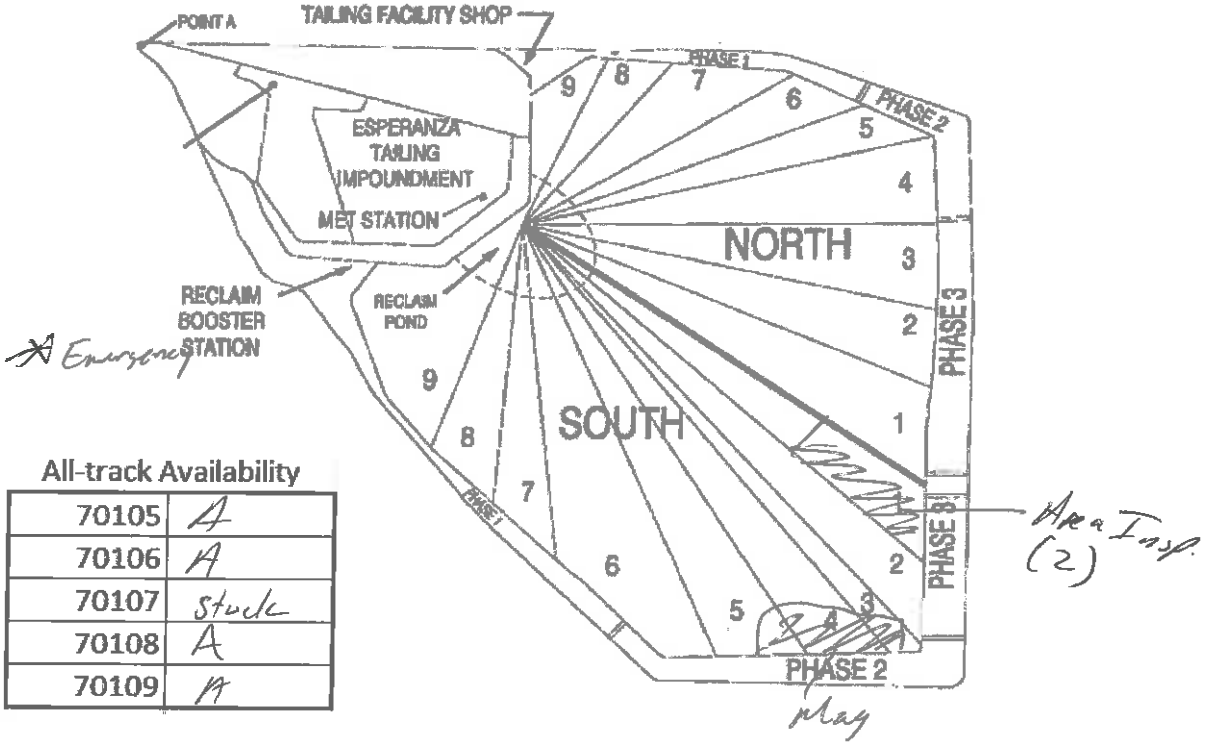
Weather Conditions:

Wind Speed: 0 Gusts up to: 4 Temp: 80

Precipitation in the last 24 hrs. 0 Inches of rain: 0

Tailings Impoundment Surface Inspection

Date: 10/4/18
Time: 8:00
Conditions: Calm
Dam Inspected: 5 Phase(s) 3
Inspected By: Fernando Durazo



All-track Availability

70105	A
70106	A
70107	Stuck
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 All tracks

Dust Suppressant Applied: Y

Operators: JR / Chris

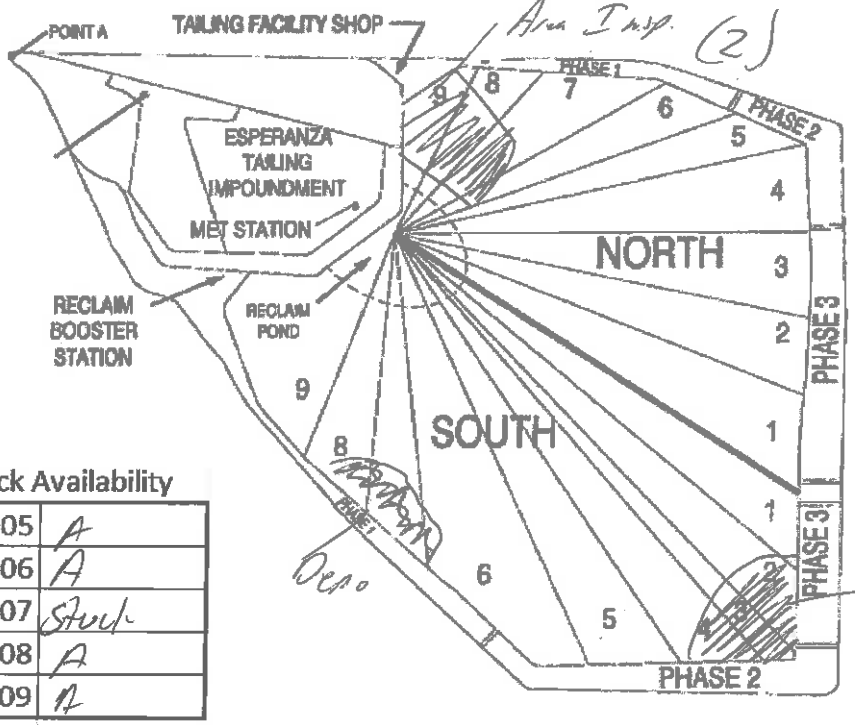
Weather Conditions:

Wind Speed: 4 Gusts up to: 8 Temp: 70°

Precipitation in the last 24 hrs. — Inches of rain: —

Tailings Impoundment Surface Inspection

Date: 10/3/18
Time: 10:30
Conditions: Calm
Dam Inspected: W Phase(s) #1
Inspected By: F Dyer



All-track Availability

70105	A
70106	A
70107	Stuck
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: 2 All tracks / water trucks on Standby

Dust Suppressant Applied: Y

Operators: Chris / JR

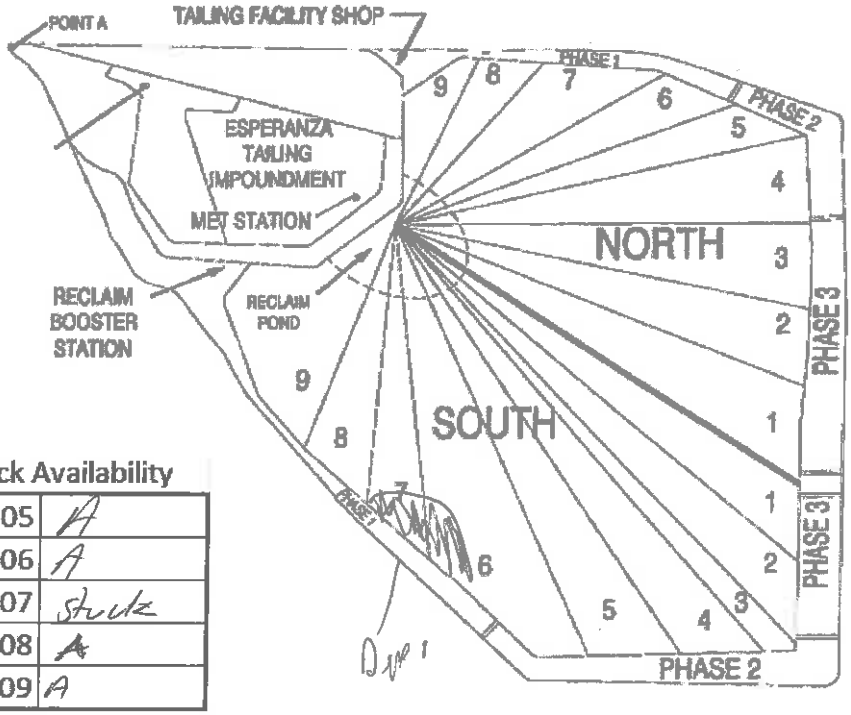
Weather Conditions:

Wind Speed: 4 Gusts up to: 10 Temp: 72

Precipitation in the last 24 hrs. Y Inches of rain: — drizzle

Tailings Impoundment Surface Inspection

Date: 10/2/18
Time: —
Conditions: Wet.
Dam Inspected: — Phase(s) —
Inspected By: F Herrera



* 1.5" Yesterday. Drizzle throughout day

All-track Availability

70105	A
70106	A
70107	Stuck
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: Equipment on Standby

Dust Suppressant Applied: —

Operators: —

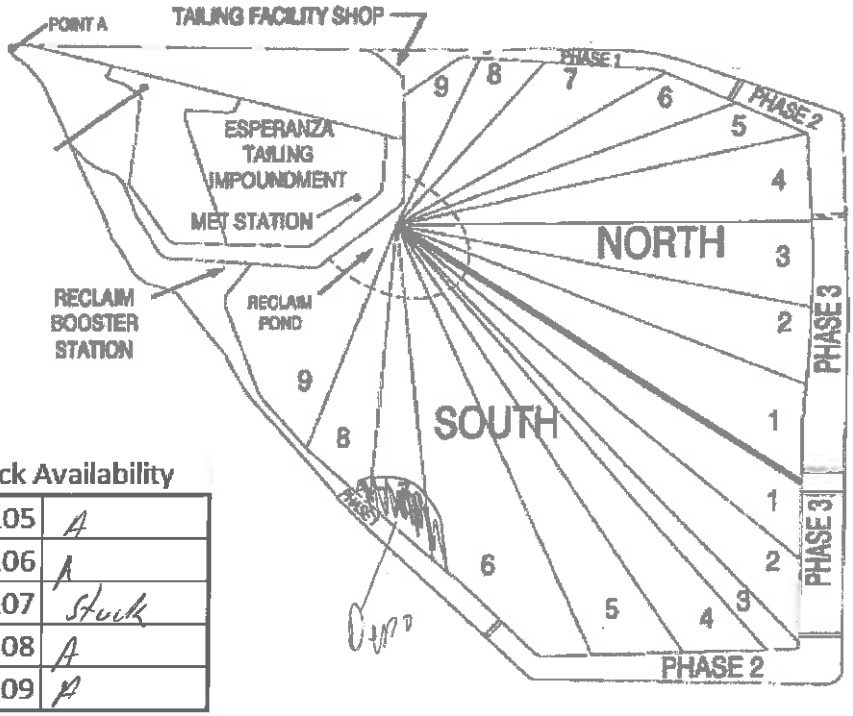
Weather Conditions:

Wind Speed: 22 Gusts up to: 40 Temp: 72

Precipitation in the last 24 hrs. .4 Inches of rain: 1.5"

Tailings Impoundment Surface Inspection

Date: 10/1/19
Time: —
Conditions: WA
Dam Inspected: — Phase(s) —
Inspected By: F Duran



* .5" of rain during the night. Rain throughout day.

All-track Availability

70105	A
70106	A
70107	Stuck
70108	A
70109	A

1	Recent Deposition (14 days or less)	No Action Required
2	Moist Surface	No Action Required
3	Established Salt Crust	No Action Required
4	Crusted with light surface sands (blown in/washed in)	Watch Area/Reinspect in one week
5	Crust is breaking down	Watch Area/Reinspect in one week
6	Piles of standing sands	Action Required - Deposition or application of suppresant
7	Broken down crust	
8	Area has had dust suppressant recently applied	Watch Area/Reinspect in one week

Action Plan: - Equipment on standby

Dust Suppressant Applied: —

Operators: —

Weather Conditions:

Wind Speed: — Gusts up to: — Temp: 70

Precipitation in the last 24 hrs. Y Inches of rain: .5

Attachment B

Deposition June - October

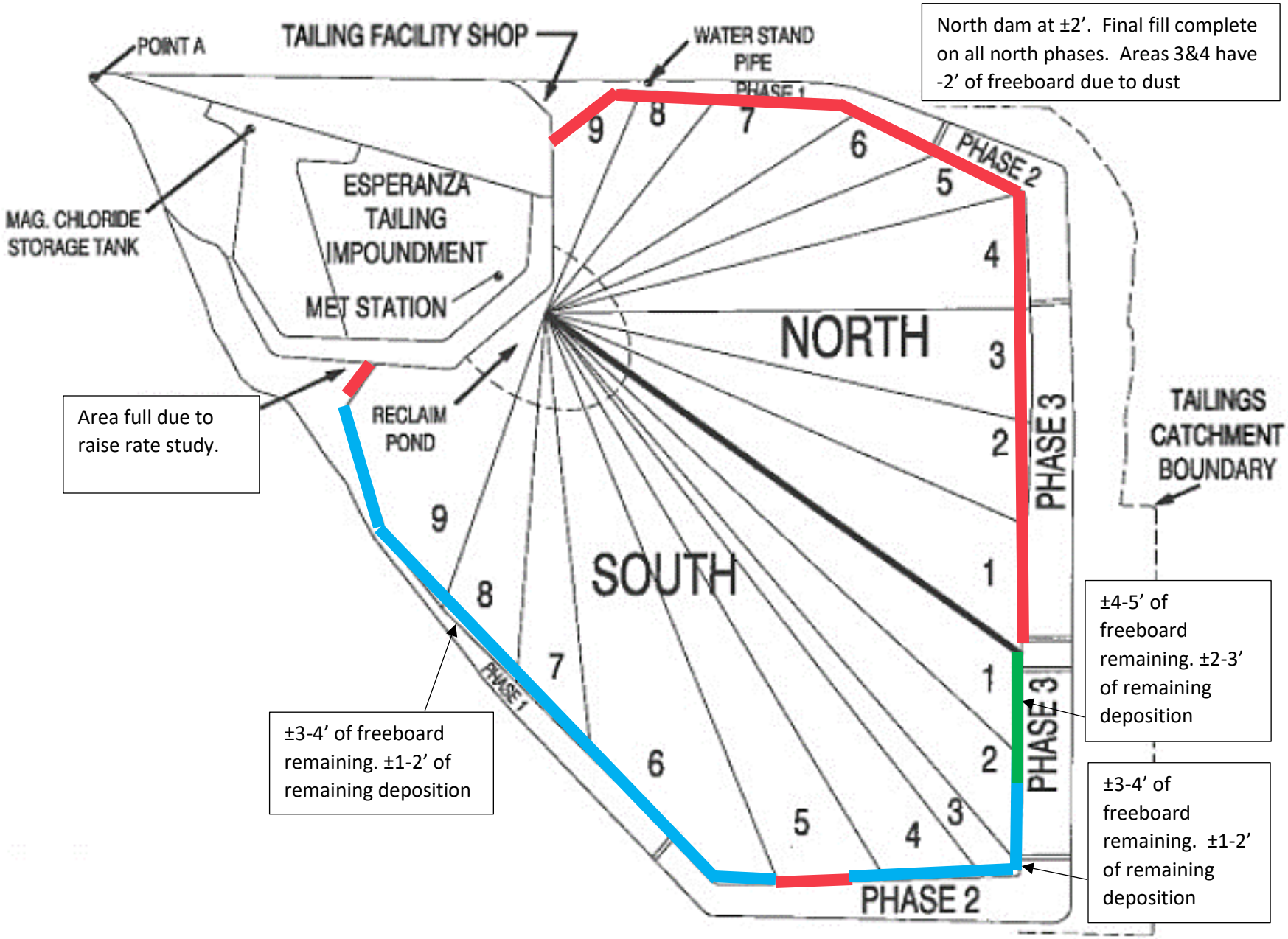
Date	Dam	Phase	Section(s)	Notes
6/1/2018	S	2/3	3/2	
6/2/2018	S	2/3	3/2	
6/3/2018	S	2/3	3/2	
6/4/2018	S	3	2/1	
6/5/2018	S	3	2/1	
6/6/2018	S	3/2	2/1/5/4	
6/7/2018	S	2	5/4	
6/8/2018	S	2	5/4	
6/9/2018	S	3	2/1	
6/10/2018	S	3	2/1	
6/11/2018	S	3	2/1	
6/12/2018	S	3	2/1	
6/13/2018	S	3	2/1	
6/14/2018	S	3	2/1	
6/15/2018	S	3	2/1	
6/16/2018	S	3	2/1	
6/17/2018	S	3	2/1	
6/18/2018	S	3	2/1	
6/19/2018	S	3	2/1	
6/20/2018	S	3	2/1	
6/21/2018	S	3	2/1	
6/22/2018	S	3	2/1	
6/23/2018	S	3	2/1	
6/24/2018	S	3	2/1	
6/25/2018	S	3	2/1	
6/26/2018	S	3	2/1	
6/27/2018	S	3	2/1	
6/28/2018	S	3	2/1	
6/29/2018	N	1	9/8	
6/30/2018	N	1	9/8	
7/1/2018	N	1	9/8	
7/2/2018	N	1	9/8	
7/3/2018	N	1	9/8	
7/4/2018	N	1	8/7	
7/5/2018	N	1	8/7	
7/6/2018	N	1	7/6	
7/7/2018	N	1/2	6/5	
7/8/2018	N	1	7/6	
7/9/2018	S	2	6/5	Moved due to hole in north
7/10/2018	S	2	6/5	
7/11/2018	S	2	6/5	
7/12/2018	N	2	6/5	Line repairs completed

Date	Dam	Phase	Section(s)	Notes
7/13/2018	N	2	6/5	
7/14/2018	N	2	6/5	
7/15/2018	N	2	6/5	
7/16/2018	N	2	6/5	
7/17/2018	N	2	6/5	
7/18/2018	N	2	6/5	
7/19/2018	N	2	5/4	
7/20/2018	N	2	4	
7/21/2018	N	3	4/3	
7/22/2018	N	3	4/3	
7/23/2018	N	3	4/3	
7/24/2018	N	3	3/2	
7/25/2018	N	3	3/2	
7/26/2018	N	3	3/2	
7/27/2018	N	3	3/2	
7/28/2018	N	3	3/2	
7/29/2018	N	3	3/2	
7/30/2018	N	3	2/1	
7/31/2018	N	1	9/8/7	
8/1/2018	N	3	1	
8/2/2018	S	1	9	Raise Rate
8/3/2018	S	1	9	Raise Rate
8/4/2018	S	1	9	Raise Rate
8/5/2018	S	1	9	Raise Rate
8/6/2018	S	1	9	Raise Rate
8/7/2018	S	1	9	Raise Rate
8/8/2018	S	1	9	Raise Rate
8/9/2018	S	1	9	Raise Rate
8/10/2018	S	1	9	Raise Rate
8/11/2018	S	1	9	Raise Rate
8/12/2018	S	1	9	Raise Rate
8/13/2018	S	1	9	Raise Rate
8/14/2018	S	1	9	Raise Rate
8/15/2018	S	1	9	Raise Rate
8/16/2018	S	1	9	Raise Rate
8/17/2018	S	1	9	Raise Rate
8/18/2018	S	1	9	Raise Rate
8/19/2018	S	1	9	Raise Rate
8/20/2018	S	1	9	Raise Rate
8/21/2018	S	1	9	Raise Rate
8/22/2018	S	1	9	Raise Rate
8/23/2018	S	1	9	Raise Rate
8/24/2018	N	1	9	
8/25/2018	N	1	9	
8/26/2018	N	1	9	

Date	Dam	Phase	Section(s)	Notes
8/27/2018	S	3	9/8	
8/28/2018	S	3	9	
8/29/2018	N	1	9/8	Switched back to north
8/30/2018	N	1	8/7	
8/31/2018	N	1	8/7	
9/1/2018	N	1	7	
9/2/2018	N	1	7/6	
9/3/2018	N	1	7/6	
9/4/2018	N	1	7/6	
9/5/2018	N	1	7/6	
9/6/2018	N	1	7/6	
9/7/2018	N	1	7/6	
9/8/2018	N	1	7/6	
9/9/2018	N	1	7/6	
9/10/2018	S	1	9/8	
9/11/2018	S	1	9/8	
9/12/2018	S	1	9/8	
9/13/2018				Depo down due to feed
9/14/2018				Depo down due to feed
9/15/2018	S	1	8/7	
9/16/2018	S	1	8/7	
9/17/2018	S	1	8/7	
9/18/2018	S	1	7/6	
9/19/2018	S	1	7/6	
9/20/2018	S	1	7/6	
9/21/2018	S	1	7/6	
9/22/2018	S	1	7/6	
9/23/2018	S	1	7/6	
9/24/2018	S	1	7/6	
9/25/2018	S	1	7/6	
9/26/2018	S	1	7/6	
9/27/2018	S	1	7/6	
9/28/2018	S	1	7/6	
9/29/2018	S	1	7/6	
9/30/2018	S	1	7/6	
10/1/2018	S	1	7/6	
10/2/2018	S	1	7/6	
10/3/2018	S	1	7/6	
10/4/2018	S	1	7/6	Emergency
10/5/2018	S	1	7/6	
10/6/2018	S	1	7/6	
10/7/2018	S	1	6	
10/8/2018	S	1	7/6	
10/9/2018	S	1	7/6	
10/10/2018	N	2	5/4	

Date	Dam	Phase	Section(s)	Notes
10/11/2018	N	2	4	
10/12/2018	N	2/3	4/3	
10/13/2018	N	2/3	4/3	
10/14/2018	N	3	3/2	
10/15/2018	N	3	3/2	
10/16/2018	N	3	3/2	
10/17/2018	N	2/3	4/3	
10/18/2018	N	3	3/2	
10/19/2018	N	3	3/2	

Attachment C



Attachment D

All-Track Availablility and Usage October 1st - Present

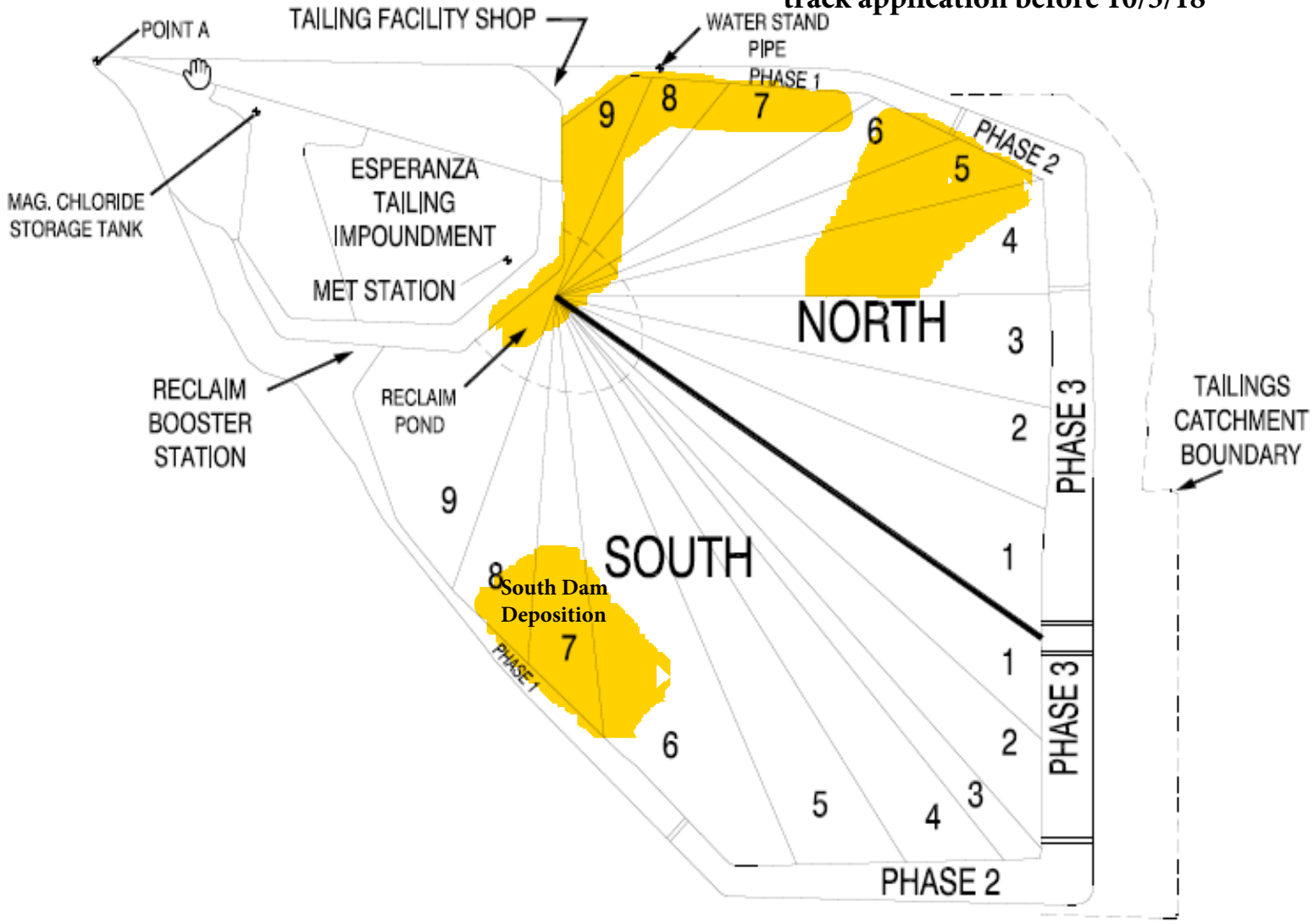
Date	Equipment #	Availability	Status	Comments
10/1/2018	70105	Available	Not In use	.5 inches of rain the night before
	70106	Available	Not In use	
	70107	Not Available	Stuck	
	70108	Available	Not In use	
	70109	Available	Not In use	
10/2/2018	70105	Available	Not In use	1.5 inches of rain the day before, drizzle most of today
	70106	Available	Not In use	
	70107	Not Available	Stuck	
	70108	Available	Not In use	
	70109	Available	Not In use	
10/3/2018	70105	Available	Not In use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	In Use	
	70109	Available	Not In use	
10/4/2018	70105	Available	Not In use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	In Use	
	70109	Available	Not In use	
10/5/2018	70105	Available	Not In use	
	70106	Available	Not In use	
	70107	Not Available	Stuck	
	70108	Available	In Use	
	70109	Available	Not In use	
10/6/2018	70105	Available	Not In use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	Not In use	
	70109	Available	Not In use	
10/7/2018	70105	Available	Not In use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	In Use	
	70109	Available	Not In use	
10/8/2018	70105	Available	Not In use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	Not In use	
	70109	Available	Not In use	
	70105	Available	In Use	

Date	Equipment #	Availability	Status	Comments
10/9/2018	70106	Available	in use	
	70107	Not Available	Stuck	
	70108	Available	in use	
	70109	Available	Not In use	
10/10/2018	70105	Available	Not In use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	In Use	
	70109	Available	Not In use	
10/11/2018	70105	Available	Not In use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	In Use	
	70109	Available	Not In use	
10/12/2018	70105	Available	In Use	
	70106	Available	Not In use	
	70107	Not Available	Stuck	
	70108	Available	Not In use	
	70109	Available	Not In use	
10/13/2018	70105	Available	Not In use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	In Use	
	70109	Available	Not In use	
10/14/2018	70105	Available	Not In use	
	70106	Available	Not In use	
	70107	Not Available	Stuck	
	70108	Available	Not In use	
	70109	Available	Not In use	
10/15/2018	70105	Available	Not In use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	In Use	
	70109	Available	Not In use	
10/16/2018	70105	Available	Not In use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	In Use	
	70109	Available	Not In use	
10/17/2018	70105	Available	In Use	
	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Available	In Use	
	70109	Available	Not In use	
	70105	Available	In Use	

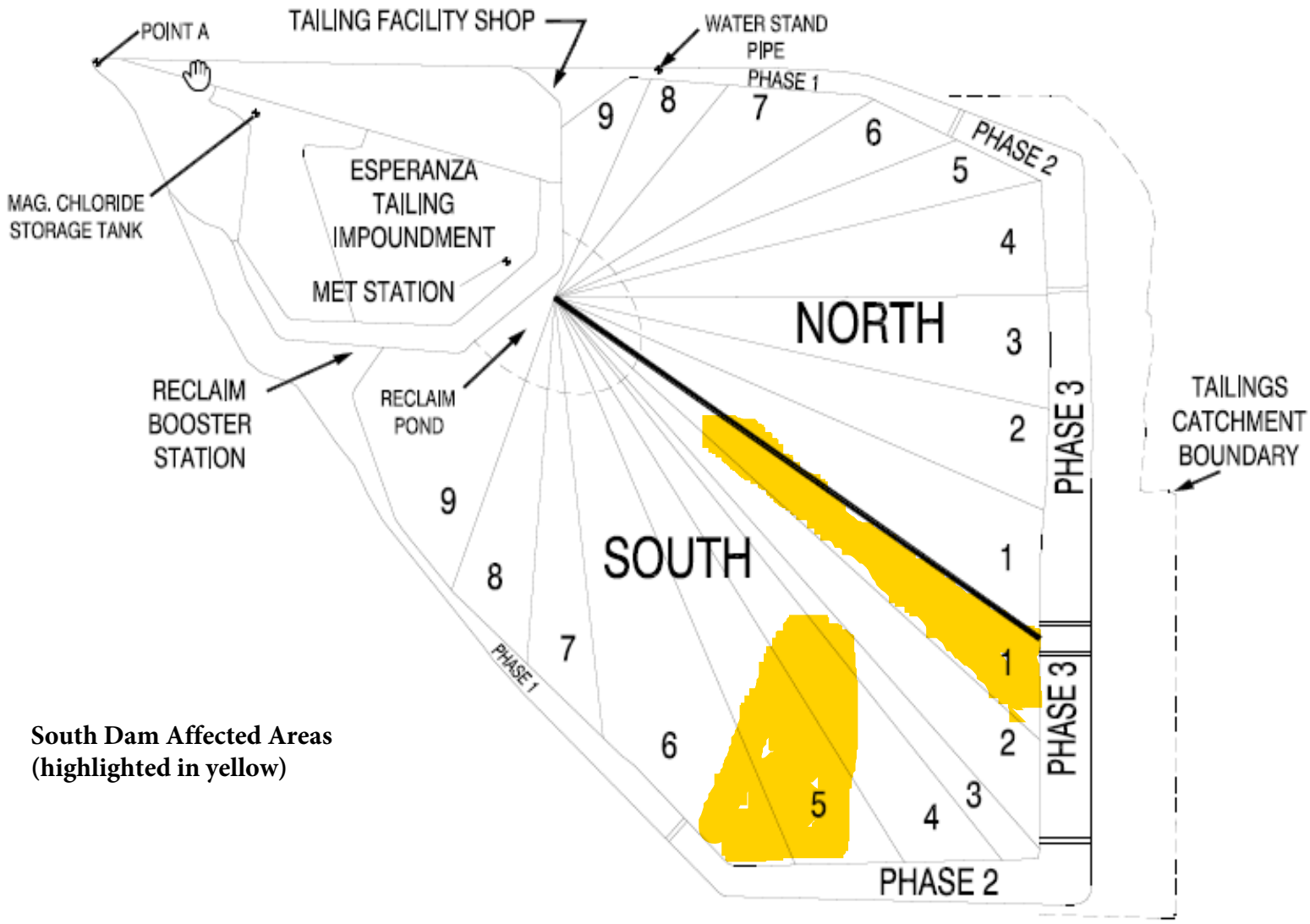
Date	Equipment #	Availability	Status	Comments
10/18/2018	70106	Available	In Use	
	70107	Not Available	Stuck	
	70108	Not Available	In Use	All-track broke down half way through
	70109	Available	In Use	
10/19/2018	70105	Available	In Use	
	70106	Available	In Use	
	70107	Not Available	stuck	
	70108	Available	In Use	
	70109	Available	In Use	

Attachment E
September 20th, 2018 Storm Event

North Dam Affected Areas (highlighted in yellow): Phase 1 and 2 was too moist for all track application before 10/5/18



Attachment E
October 2nd, 2018 Storm Event



South Dam Affected Areas (highlighted in yellow)

Attachment F

Freeport-McMoRan Sierrita, Inc.
SEMI-ANNUAL TAILINGS DAM REVIEW
DUST CONTROL MANAGEMENT PLAN

Date of Review: March 27, 2018

Review Team Members: Natalie Nunez

VISUAL INSPECTION

	YES	NO
Are berm construction activities currently in progress?		X
Is there any evidence of fugitive emissions in excess of permit condition(s)?		X
Is a dust suppressant (I.e. water, $MgCl_2$) being applied on a frequent basis?	X	

RECORDS REVIEW

	YES	NO
Have Tailings Dam Environmental Activities Reports been completed at least weekly for the last six months?	X	

Comments:

None

	YES	NO
Are Activity Reports accurate and complete?		X

Comments:

The reports were completed but some of the reports went from a Monday through Friday timeframe and others went from a Friday though Thursday timeframe, so the reports are inconsistent. The amount of Mag Chloride used does not match the amount in the Mag Chloride logs.

	YES	NO
Have Visible Emissions Observations (VEO) been conducted at a minimum on a monthly basis for the previous six months?	X	

Comments:

None

Attachment F

	YES	NO
Were the VEO(s) conducted by a certified Method 9 observer?	X	
Have any high opacity events resulted in the previous six months?	X	

	YES	NO
Are Mag Chloride Log and Water log being filled out properly?	X	
Does Mag Chloride Log line up with weekly report?		X

Comments:

Suggest placing equipment tank capacitites on the top of the mag chloride log sheets since some equipment have different carrying capacities. During the audit, personnel stated different capacities for the same pieces of equipment which may account for the descrepancies in gallons of Mag Chloride used.

The amount of Mag Chloride used in the Log and the Weekly report did not match for some of the reports. Suggest marking the last row that was included in the report so rows are not added twice or not at all.

List high opacity dates and corresponding weather and operating conditions.

On 10/2/17, the environmental department received an internal phone call reporting that dust was seen coming from the tailings dam. The tailing crew was contacted and informed environmental that the tailings crew was following their BMP's and ceased berm construction activities at approximately 9:40 AM due to high winds, at which time all work at the tailings dam was shifted to dust control. Environmental representatives arrived at the tailings dam and observed dust emanating from the South area of the tailings dam. There were three all track vehicles applying Magnesium Chloride to the tailings dam and three water trucks applying water to the roads and berms at the tailings dam. Environmental employees climbed to the top of the tailings dam to be in proper position for an EPA Reference Method 9 observation and performed an observation starting at 1052 and ending at 1058 resulting in 16.9%. A property boundary surveillance was also performed. During the surveillance, environmental employees observed dust crossing the property line along the Northeast side of the tailings dam on Duval Mine Rd. at approximately 11:35 AM, and along Continental Rd. on the Southeast side of the tailings dam at approximately 11:40 AM. At this time the tailings crew were utilizing all practically available equipment and control measures to mitigate dust on the tailings impoundment; however, average wind speeds in excess of 25 mph were recorded on both the 10_Meter_MET and Tailings_COW weather station data.

	YES	NO
Were all corrective actions completed for high opacity events for the past six months?		X

Comments:

The immediate corrective actions were taken. There are 2 projects that are due for completion at the end of 2018. The two projects are as follows: Install GPS units on the all-tracks to better be able to track where Mag Chloride has been applied and conduct a Dust Suppression Study with various dust suppressants. It also was observed that the parts for the all-tracks have not been put into warehouse stock but were rather put into

stock at the Tailings office. This has led to parts not being ordered or incorrect parts being ordered. Suggest putting these items into warehouse stock so the correct parts are ordered.

RECOMMENDATIONS

Explain recommended updates / revisions to the plan.

The Sierrita Title V permit states that recommendations for improving dust management are "based on the results of a semiannual checklist audit of compliance with the measures specified in XIX.B.1." The checklist consists of the reasonable precautions identified in Section XIX.B.1.

Reasonable Precautions (Section XIX.B.1)	**Yes**	**No**
Are new tailing dam roads capped with native dirt?	**X**	
Are heavily traveled perimeter roads capped with dust suppressant as necessary?	**X**	
Are active berms and construction areas sprayed with water as necessary?	**X**	
Is dust suppressant applied to surface areas susceptible to wind erosion?	**X**	

Semi-Annual Review of Tailings Dam Dust Control Management Plan

Date of last revision: January 30, 2018

Are all procedures being followed according to the plan?
Procedures are being followed according to plan.

Are there any procedures that are no longer in use? If so, state here and revise plan.
No procedures listed in the plan are no longer in use.

Any new experiments/projects? Have there been any updates to existing projects?
The two projects are as follows: Install GPS units on the all-tracks to better be able to track where Mag Chloride has been applied and conduct a Dust Suppression Study with various dust suppressants. The GPS units are in the process of being ordered.

Recommended Updates / Revisions / Experiments

No plan updates/revisions/experiments are recommeded at this time.

Attachment G

Freeport-McMoRan Sierrita, Inc.
SEMI-ANNUAL TAILINGS DAM REVIEW
DUST CONTROL MANAGEMENT PLAN

Date of Review: September 27, 2018

Review Team Members: Natalie Nunez
Fernando Durazo
Jesus Hernandez

VISUAL INSPECTION

	YES	NO
Are berm construction activities currently in progress?	X	
Is there any evidence of fugitive emissions in excess of permit condition(s)?		X
Is a dust suppressant (I.e. water, $MgCl_2$) being applied on a frequent basis?	X	

RECORDS REVIEW

	YES	NO
Have Tailings Dam Environmental Activities Reports been completed at least weekly for the last six months?	X	

Comments:

	YES	NO
Are Activity Reports accurate and complete?		X

Comments: 6 Tailings Activity Reports were reviewed (dated 8/10, 8/24, 9/7, 9/14 and 9/21). Of the 6 reports reviewed, only one report had accurate Mag Chloride calculations. Through interviews with tailings staff, it is unclear how the figures were calculated incorrectly. 61 Daily Surface Area Inspection reports were reviewed (dated from July to September). The following issues were identified:
8/3 - Report indicates that mag chloride was applied but the map does not show the area that it was applied
8/7 - The map has 2 shaded areas but the areas are not labeled as to whether they were inspected or had mag applied.
8/16 - The area inspected on the map does not have a number assigned to that area indicating what was seen during the inspection.
8/22 - One of the shaded areas on the map is not labeled. It appears to be the area that had mag chloride applied, but this is unclear.
8/24 - The area inspected on the map does not have a number assigned to that area indicating what was observed during the inspection.

9/6 - The report indicates that recent dust suppressant was applied in the shaded inspected area but the reports in the 2 weeks prior, do not show mag chloride application in that area.
9/7 - The report says that no all track is needed. It is unclear why no all track is needed because the precipitation is not recorded on the report. The all track availability is also not recorded on the report.
9/17 - The inspected area indicates a #4 for what was observed during the inspection. #4 states that it must be monitored and reinspected within one week. The area was not reinspected within one week.
9/17 - The inspected area indicates a #4 for what was observed during the inspection. #4 states that it must be monitored and resinspected within one week. The area was not reinspected within one week.

	YES	NO
Have Visible Emissions Observations (VEO) been conducted at a minimum on a monthly basis for the previous six months?	X	

Comments:

	YES	NO
Were the VEO(s) conducted by a certified Method 9 observer?	X	
Have any high opacity events resulted in the previous six months?	X	
Are Mag Chloride Log and Water log being filled out properly?	X	
Does Mag Chloride Log line up with weekly report?		X

Comments: The Weekly Report does not match the gallons recorded in the log for 5 out of the 6 reports reviewed. Most of the calculated usage reported on the report was lower than was actually used according to the log.

List high opacity dates and corresponding weather and operating conditions: On August 6, a microburst originated south of the Sierrita Tailings Impoundment and moved northeast. It initially moved across the native desert soil and then continued across the south face of the dam. Fugitive dust was observed crossing the property boundary line, Duval Mine rd, on the north side of the tailings impoundment as the microburst continued notheast. FMSI did not have the opportunity to conduct an Official EPA Reference Method 9 observation, although, based on the knowledge and experience of the environmental employee who witnessed the event, opacity consisting of a combination of native soil and tailings, may have exceeded the 20% permit limit during the event.

	YES	NO
Were all corrective actions completed for high opacity events for the past six months?	X	

Comments:

RECOMMENDATIONS

Explain recommended updates / revisions to the plan.

The Sierrita Title V permit states that recommendations for improving dust management are “based on the results of a semiannual checklist audit of compliance with the measures specified in XIX.B.1.” The checklist consists of the reasonable precautions identified in Section XIX.B.1.

Reasonable Precautions (Section XIX.B.1)	Yes	No
Are new tailing dam roads capped with native dirt?	X	
Are heavily traveled perimeter roads capped with dust suppressant as necessary?	X	
Are active berms and construction areas sprayed with water as necessary?	X	
Is dust suppressant applied to surface areas susceptible to wind erosion?	X	

Semi-Annual Review of Tailings Dam Dust Control Management Plan

Date of last revision: January 30, 2018

Are all procedures being followed according to the plan?

Yes, except for the provision in section 2.8, stating that deposition may be used to cover the area(s) of concern, due to three pieces of equipment stuck in the impoundment. If deposition occurs in those areas, the equipment will be inundated with tailings.

Are there any procedures that are no longer in use? If so, state here and revise plan.

No

Any new experiments/projects? Have there been any updates to existing projects?

Dust Supression products study on the inactive Esperanza Tailings Impoundment

Recommended Updates / Revisions / Experiments

Update Attachment A and C to updated versions. Update the projects section to reflect status of projects.

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EXHIBIT 2

SEP Detailed Project Specifications

Exhibit 2

2019 Freeport-McMoRan Sierrta, Inc. PDEQ Settlement Agreement PC 1810-033 Camino Del Sol Path Paving	
Paving works, extend east and west path on Camino del sol (See attached conceptual rendering – green paving approximately 7700′ = 1.45 miles)	$200,000.00
Total	**$200,000.00**

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Conceptual Rendering

Camino Del Sol Path Paving

Portion to be completed by RFCD

Portion to be completed by FMI