



Re-submittal Form

Case Name/ Number: RCU2020-00027/HENDERSON PIT RECYCLING

Case Manager: GREG BARNES

Re-submitted Items:

- Development Plan/ Site Plan
- Plat
- Parking/ Landscape Plan
- Engineering Documents
- Subdivision Improvements Agreement
- Other: RESPONSES TO COMMENTS

*** All re-submittals must have this cover sheet and a cover letter addressing review comments.**

Please note the re-submittal review period is 21 days.

The cover letter must include the following information:

- Restate each comment that requires a response
- Provide a response below the comment with a description of the revisions
- Identify any additional changes made to the original document

For County Use Only:

Date Accepted:

Staff (accepting intake):

Resubmittal Active: ~~Addressing, Building Safety, Neighborhood Services,~~

~~Engineering, Environmental, Parks, Planner, ROW, SIA -- Finance, SIA -- Attorney~~

Response to Development Review Team Comments

Date of Comments: 10/23/2020
Project Number: RCU2020-00027
Project Name: Henderson Pit Recycling

Commenting Division:
Name of Reviewer: Greg Barnes
Email: gjbarnes@adcogov.org
Planner Review

PLN01: Request is for a Conditional Use Permit (CUP) for a Recycling facility and wholesale of recycled material in the A-3 zoned district.

JR Response: Noted

PLN02: Per Section 11-02-428, recycling facilities are when operators and owners claim exclusion from the Certificate of Designation Regulations by operating facilities, or sites receiving solid waste materials, for the purpose of processing, reclaiming, or recycling solid waste materials. The exclusion requires submittal of a design and operations plan to the Community and Economic Development Department, which has been received.

JR Response: Noted

PLN03: Per Section 3-07-01 a recycling facility is a use only allowed as a CUP in the A-3 zone.

JR Response: Noted

PLN04: Recycling Uses shall comply with Section 4-10-02-05-07. Demonstrate compliance with each listed item.

a.) Fencing - shown on site plan.

JR Response: See pictures below





b.) Traffic control plan and a nuisance control plan. This needs to be provided again with the new application.

JR Response: See revised Operation Plan

c) Recordkeeping is a requirement. Can you provide documentation on this?

JR Response: The site is periodically visited and inspected by CDPHE and Tri-County Health to ensure record keeping and the site is operating per the operations plan. The latest inspection was 07/07/2020 by CDHPE. See appendices for record copies.

PLN05: Per Section 2-02-08, the Board of County Commissioners (BOCC) is the final decision authority to review and approve/deny CUPs. Also, Per Section 2-02-08-05 CUPs are reviewed by the Planning Commission (PC) and BoCC.

JR Response: Noted

PLN06: The property is located in the A-3 zoning district. Per Section 3-10-01 the purpose of the Agricultural-3 District is to provide land primarily in holdings of at least 35 acres for dryland or irrigated farming, pasturage, or other related food production uses. The use is not consistent with the existing zoning.

JR Response: Noted

PLN07: The property is located within the Estate Residential future land use. Estate Residential areas are designated for single family housing at a lower densities, typically no greater than 1 unit per acre, and compatible uses such as schools and parks. The use is not consistent with this designation.

JR Response: Noted

PLN08: Please provide a complete explanation of the following items:

a. what is happening with the fill? Can you provide more specifics on a current status?

JR Response: The landfill will be filled in per the closure plan. We are in the process of having the inert fill stockpiles surveyed so we can get an accurate representation of the remaining fill needed. Remaining fill needed should be minimal since the pit is mostly filled in.

b. what duration do you expect recycling operations should continue?

JR Response: 2 years

c. what is the expected timeline on the rezoning?

JR Response: Concurrent with this CUP process. Zoning and future use are being evaluated by client.

Commenting Division: Environmental Analyst Review

Name of Reviewer: Katie Keefe

Email:

Environmental Analyst Review

ENV1. What is the requested duration for continuance of the recycling operations?

JR Response: 2 years

ENV2. What is the estimated air space remaining within the inert landfill and what volume of material is needed to be placed in order to meet the February 2021 Certificate of Designation expiration data?

JR Response: We are in the process of having the inert fill stockpiles surveyed so we can get an accurate representation of the remaining fill needed. Remaining fill needed should be minimal since the pit is mostly filled in.

ENV3. The Operations Plan needs to be updated to reflect the Conditions of Approval for RCU2019-00003, specifically the restricted hours for crushing operations.

JR Response: Operations Plan has been updated to reflect this comment

ENV4. During times when the facility is open after 6:00pm to accommodate highway construction projects, as proposed in the existing operations plan, no concrete/rock crushing or other material processing shall occur. The applicant shall specify this requirement within the Operations Plan.

JR Response: Operations Plan has been updated to reflect this comment

ENV5. Staff requests clarification on the statement "Materials to be recycled will be stockpiled in the bottom of the pile as well as the processed recycled material..." within the Facility Layout section of the Operations Plan.

JR Response: This statement was improperly revised. The original statement referred to stockpiles being stored at the bottom of the pit. It has been revised to explain recycling stockpiles shall be placed in areas with reduced visibility from the 120th right of way.

ENV6. The asphalt crusher location is not shown on the site plan. Given this is a listed piece of equipment in the Operations Plan, staff requests the location of such be demonstrated on the site plan.

JR Response: The asphalt and concrete crusher are the same piece of equipment. Site Plan revised for clarity

ENV7. The applicant shall provide a copy of the renewed APCD Regulation 3 APEN as submitted to CDPHE for the crushing/recycling operations.

JR Response: When applying for the APEN ownership was informed CDPHE had increased their threshold on emissions for crushers and screens and their equipment is exempt. See attachments in Appendix E. Page 13 of the shows how the calculation is done. In order to exceed the limits the equipment would need to do over 2.1 million tons according to the class that they gave this facility.

ENV8. Quarterly air monitoring reports shall also include meteorological data for the duration of sampling, as well as an analysis of meteorological conditions on the day of air monitoring in comparison with average conditions.

JR Response: Operations Plan has been updated to reflect this comment

ENV9. An anemometer, or other type of wind gauge, shall be permanently installed at the location through the duration of the facility's operating life, and shown on the facility Site Plan. When wind gusts exceed 35 mph or sustained winds exceed 20 mph, all crushing operations shall cease. Records of high wind shut downs shall be maintained including date, time and duration.

JR Response: Operations plan updated to ensure records of shutdowns are kept. See site plan for wind gauge locations. See appendices for wind shutdown log and pictures.

ENV10. The applicant indicates that 120th Ave will be swept twice a day between the hours of 1-3pm and 6-8pm. Given the allowed business hours of 6am - 6pm, the applicant shall alter those times to better reflect tracking impacts to 120th Ave from operational truck traffic.

JR Response: These street sweeping times were established based on the conditions of approval in the resolution RCU2019-00003

Commenting Division:

Name of Reviewer: Matthew Emmens

Date:

Email: memmens@adcogov.org

ROW Review

ROW1: Sufficient Right-of-way to access this parcel and neighboring parcels was dedicated to the County in the deed recorded under Reception No. 2011000030387. Therefore, no additional right-of-way is needed for this parcel.

JR Response: Noted

Commenting Division:
Name of Reviewer: Matthew Emmens
Date:
Email: memmens@adcogov.org
Development Engineering Review

ENG1: The applicant has submitted a traffic impact letter that states that the closing the fill operations will decrease traffic generation from this site. However, County staff are concerned with the turning movements the trucks are making. Safety at the intersection of 120th Ave and the site entrances must be maintained. The applicant is required to submit a revised traffic impact letter that includes a signal warrant analysis.

JR Response: See signal warrant analysis

ENG2: Flood Insurance Rate Map – FIRM Panel # (08001C0336H), Federal Emergency Management Agency, January 20, 2016. According to the above reference, the project site is NOT located within a delineated 100-year flood hazard zone; A floodplain use permit will not be required.

JR Response: Noted

ENG3: The project site is not located in a NRCO district. An environmental assessment is not required.

JR Response: Noted

ENG4: The applicant shall be responsible to ensure compliance with all Federal, State, and Local water quality construction requirements. The project site is within the County's MS4 Stormwater Permit area. In the event that the disturbed area of the site exceeds 1 acre the applicant shall be responsible to prepare the SWMP plan using the Adams County ESC Template, and obtain both a County SWQ Permit and State Permit COR-400000.

JR Response: Noted

If you have any questions concerning these items, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC



Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Community Letter/Email Responses

Email from Jason Bradford on behalf of the City of Brighton

Mr. Bradford,

Thank you for your comments regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your comments and have taken them in to consideration.

Recycling Facilities are a permitted use in the A-3 zoning district per the Adams County Zone District Regulations. The operations plan has been crafted and revised over the last few years to address the concerns you have listed including noise monitoring, air quality monitoring, and traffic control. Included with this resubmittal is a traffic conformance letter and traffic signal warrant memo. Please see resubmittal package including the site plan with landscaping additions from the previous approval for additional information.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink that reads "Joey M. Frank". The signature is written in a cursive, flowing style.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Email from Jordan Likes the Area 5 District Wildlife Manager

Mr. Likes,

Thank you for your email regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your email and appreciate the feedback.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink that reads "Joey M. Frank". The signature is written in a cursive style with a large initial 'J' and 'F'.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Email from Steven Gosselin with the North Metro Fire Rescue District's Fire Prevention Division

Mr. Gosselin,

Thank you for your email regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your email and appreciate the feedback.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink, reading "Joey M. Frank". The signature is written in a cursive style with a large initial 'J' and 'F'.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Letter from Kathy Boyer with the Tri-County Health Department

Mrs. Boyer,

Thank you for your letter regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your comments and revised the operations plan accordingly

The Tri-County Health Department periodically sends inspectors to the recycling facility to observe and ensure the facility is in compliance with the regulations and the operations plan. At the time of the last inspection no violations were observed and the facility was found to be in compliance with the regulations and the operations plan.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink that reads "Joey M. Frank". The signature is written in a cursive style with a large initial 'J' and 'F'.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Email from Samantha Riblett with United Power, Inc.

Mrs. Riblett,

Thank you for your email regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your email and appreciate the feedback.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink that reads "Joey M. Frank". The signature is written in a cursive style with a large initial 'J' and 'F'.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Email from Donna George with Public Service Company of Colorado dba Xcel Energy

Mrs. George,

Thank you for your email regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your email and appreciate the feedback.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink that reads "Joey M. Frank". The signature is written in a cursive style with a large initial 'J' and 'F'.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Letter from Barbara Barron

Mrs. Barron,

Thank you for your letter regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your comments and have taken them in to consideration.

The operations plan has been crafted and revised over the last few years to address many of the concerns you have illustrated. The health of the facility employees, facility visitors and surrounding community is of paramount importance to the facility owners and operators. Dust mitigation is critical which is why multiple sprayers are utilized within the crushers following each reduction stage. Operations at the facility will be shut down when winds exceed 35 mph or a sustained 25 mph. There are two water trucks on site which are constantly spraying the interior roads to reduce dust from truck traffic. As a result of the constant wetting of the interior roads trucks leaving the site tend to carry more mud which is why additional vehicle tracking rattle grates have been installed near the site exit (see site photos). The street sweepers are utilized every day to ensure the roads are clean of excess mud and dirt. Included with this resubmittal are the last few years of quarterly Perimeter Dust and Sound Level Monitoring Reports for your review. Also included is the traffic conformance letter and Traffic signal warrant memo.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink that reads "Joey M. Frank". The signature is written in a cursive style with a large initial 'J' and 'F'.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Email from Ronnie Fisher

Mr. Fisher,

Thank you for your email regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your concerns and have taken them in to consideration.

The health of the facility employees, facility visitors and surrounding community is of paramount importance to the facility owners and operators. Dust mitigation is critical which is why multiple sprayers are utilized within the crushers following each reduction stage. Operations at the facility will be shut down when winds exceed 35 mph or a sustained 25 mph. There are two water trucks on site which are constantly spraying the interior roads to reduce dust from truck traffic. Included with this resubmittal are the last few years of quarterly Perimeter Dust and Sound Level Monitoring Reports for your review.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink, appearing to read "Joey M. Frank". The signature is fluid and cursive, with the first name "Joey" being the most prominent.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Letter from Elle R.

Hello Elle,

Thank you for your letter regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your comments and have taken them in to consideration.

The health of the facility employees, facility visitors and surrounding community is of paramount importance to the facility owners and operators. Dust mitigation is critical which is why multiple sprayers are utilized within the crushers following each reduction stage. Operations at the facility will be shut down when winds exceed 35 mph or a sustained 25 mph. There are two water trucks on site which are constantly spraying the interior roads to reduce dust from truck traffic. Included with this resubmittal are the last few years of quarterly Perimeter Dust and Sound Level Monitoring Reports for your review.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink, appearing to read "Joey M. Frank". The signature is fluid and cursive, with the first name "Joey" being the most prominent.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Letter from Bill W. J.

Hello Bill,

Thank you for your letter regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your comments and have taken them in to consideration.

The health of the facility employees, facility visitors and surrounding community is of paramount importance to the facility owners and operators. Dust mitigation is critical which is why multiple sprayers are utilized within the crushers following each reduction stage. Operations at the facility will be shut down when winds exceed 35 mph or a sustained 25 mph. There are two water trucks on site which are constantly spraying the interior roads to reduce dust from truck traffic. Included with this resubmittal are the last few years of quarterly Perimeter Dust and Sound Level Monitoring Reports for your review.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink that reads "Joey M. Frank". The signature is written in a cursive style with a large, looped initial "J" and "F".

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Letter from Donavon Sparrow

Mr. Sparrow,

Thank you for your letter regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your list of concerns and have taken them in to consideration.

The operations plan has been crafted and revised over the last few years to address many of the concerns you have illustrated. The health of the facility employees, facility visitors and surrounding community is of paramount importance to the facility owners and operators. Dust mitigation is critical which is why multiple sprayers are utilized within the crushers following each reduction stage. Operations at the facility will be shut down when winds exceed 35 mph or a sustained 25 mph. There are two water trucks on site which are constantly spraying the interior roads to reduce dust from truck traffic. As a result of the constant wetting of the interior roads trucks leaving the site tend to carry more mud which is why additional vehicle tracking rattle grates have been installed near the site exit (see site photos). The street sweepers are utilized every day to ensure the roads are clean of excess mud and dirt. Included with this resubmittal are the last few years of quarterly Perimeter Dust and Sound Level Monitoring Reports for your review. Also included is the groundwater testing results from the last few years.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink that reads "Joey M. Frank". The signature is written in a cursive, flowing style.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Email from Lonnie & Amber Stephens

Mr. & Mrs. Stephens,

Thank you for your email regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your concerns and have taken them in to consideration.

The operations plan has been crafted and revised over the last few years to address many of the concerns you have illustrated. Regarding your concerns for the traffic in the area this conditional use resubmittal package includes a traffic conformance letter and Traffic signal warrant memo.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink that reads "Joey M. Frank". The signature is written in a cursive style with a large, looped initial "J" and a distinct "M" and "F".

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Email from Steve Zigan

Mr. Zigan,

Thank you for your email regarding the Henderson Recycling Facility Conditional Use Permit submittal. We have read your email and appreciate the feedback.

If you have any questions concerning this project, please contact me at 303-267-6232.

Sincerely,

JR Engineering, LLC

A handwritten signature in blue ink, reading "Joey M. Frank". The signature is written in a cursive style with a large initial 'J' and 'F'.

Joey Frank P.E.

Colorado Registered Professional Engineer No. 53399

Appendix A – Site Inspection



July 7, 2020

Henderson Pit
ATTN: Juan Padilla
10925 E 120th Avenue
Henderson CO 80640

Re: Routine Inspection of Henderson Pit, 10925 E 120th Avenue, Henderson, CO 80640
SW/ADM/HIF 1.2

Dear Juan,

On January 31, 2019, Jennifer Reynolds and Wolf Kray, representatives of the Hazardous Materials and Waste Management Division of the Colorado Department of Public Health and Environment conducted a Routine inspection of 120 85, LLC's Henderson Pit located at 10925 E 120th Avenue, Henderson, Colorado.

The inspection was performed to assess the facility's compliance with the minimum standards of the Solid Wastes Disposal Sites and Facilities Act, Title 30, Article 20, Part 1, C.R.S., as amended (the Act), the Regulations Pertaining to Solid Waste Sites and Facilities, 6 CCR 1007-2 (the Regulations), and the Facility's Engineering Design and Operations Plan (EDOP) (the plan).

Based upon records reviewed, information provided by the Facility, and observations made during the inspection, the Division has determined the Facility to be in compliance with the Act, the Regulations, and the plan. Copies of the Notice of Inspection, and Inspection Checklist are enclosed for your reference.

If you should have any questions regarding this correspondence, please feel free to contact Jennifer Reynolds at (303) 692-3408 or Ed Smith at (303) 692-3386.

Sincerely,

Jennifer Reynolds
Environmental Protection Specialist
Solid Waste Compliance Assurance Unit
Solid Waste & Materials Management Program

EC: Miles Buescher, Adams County





Colorado Department
of Public Health
and Environment

Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division

4300 Cherry Creek Drive South, Mail Code HMWMD-B2, Denver, CO 80246-1530
(303) 692-3320 <http://www.colorado.gov/cdphe/solidwaste>

Solid Waste and Materials Management Program Notice of Inspection

Facility Name: <u>Henderson Pit / 12085, LLC</u>	Facility ID	Date: <u>2/10/2020</u>
File Code: <u>SW/ADM/HMF 1.2</u>		
Street: <u>10925 E 120th Ave</u>	Inspection Announced? <input checked="" type="checkbox"/> Yes () No	Time In: <u>9:30 AM</u>
City: <u>Henderson</u> County: <u>Adams</u> Zip: <u>80040</u>	Enter by: <input checked="" type="checkbox"/> Consent () Warrant () Open Fields	Time Out: <u>10:15 AM</u>
Facility Representatives: <u>Juan Padilla</u> <u>Adam Schulte</u>	Phone	Email
Local Government Representatives: Michael T. ... <u>Miles Buescher, Adams County</u>	Phone	Email

Inspection Result:

No Violations Observed
 Minor Violations Noted Below
 Minor Violations, Compliance Advisory Issued
 Major Violations Identified

Compliance Assistance Delivered During the Inspection:

Yes No; If yes, describe:

Apparent Violations and requested corrective actions:

Inspection Type:

<input type="checkbox"/> Complaint	<input type="checkbox"/> Enforcement Follow-up
<input checked="" type="checkbox"/> Routine Compliance Inspection	<input type="checkbox"/> Environmental Covenant
<input type="checkbox"/> Compliance Assistance Visit	<input type="checkbox"/> File/Records Review
	<input type="checkbox"/> Sampling

Signature of Facility Representative Receiving Form: 	Lead CDPHE Inspector: <u>Jennifer Reynolds</u>
Name of Facility Official Receiving Form: <u>Juan G. Padilla</u>	Assisting Inspectors: <u>Jace Driver</u>



COLORADO DEPARTMENT of PUBLIC HEALTH ENVIRONMENT
Hazardous Materials and Waste Management Division
SOLID WASTE DISPOSAL SITE AND FACILITY INSPECTION

Time In: 9:30 AM

Time Out: _____

Facility: Henderson Pit

Inspection Date: 2/6/20

Landfill

Inspector(s): Reynolds / Driver

Functional Category	Requirement Description	Not Insp	N/A	Citation	Violation Y/N/P	Note Reference
Record Review						
Certificate of Designation	Have a Certificate of Designation (CD) (or Approved EDOP for One's Own Waste Facility)	___	___	1.3.3	N	___
D and O Plan	Closure Plan Submission	___	___	2.5.8	N	___
	Closure Plan Content	___	___	3.5.1,3.5.2,3.5.3,3.5.4	N	___
	Operating in Accordance with Approved Design and Operation Plan	___	___	1.3.9, 3.3.2	N	___
Duty to Comply	Post-closure Plan Submission and Content	___	___	2.6.1, 3.6	N	___
	Compliance with CD Conditions	___	___	1.3.5	N	___
Fees	Solid Waste User or Annual Fees	___	___	1.7.3, 1.7.4	N	___
Financial Assurance	Establish Adequate Financial Assurance	___	___	4.6.1	N	___
	Annually Adjust Financial Assurance	___	___	4.5.1	N	___
	5 Year Revised Cost Estimate	___	___	4.5.3	N	___
General Provisions	Compliance with Department issued compliance order	___	X	19.2	N	___
	Compliance with other Department rules or local ordinances	___	___	2.1.1	N	___
	Update Waste Characterization Plans for Required Disposal Prohibitions	___	___	16.6	N	___
Operating Requirements	Compliance with Approved Waiver conditions	___	___	1.5	N	___
Personnel Training	Conduct Personnel Training	___	___	2.1.2(B)(3)	N	___
Recordkeeping	Maintain Operating Record with all Required Elements	___	N	2.4, 3.4, 2.1.18(B)	N	___
Reporting	Submitted Construction / Quality Assurance Report	___	___	3.2.7, 3.3.3	N	___
Waste Analysis	Exclude Hazardous Waste	___	___	2.1.2(A)	N	___
	Have and Follow Waste Characterization Plan	___	___	2.1.2(C)(2)	N	___
Site Review						
Certificate of Designation	Illegal Disposal	___	___	1.3.3, 30-20-102	N	___
Cover	Place Adequate Cover	___	___	2.1.10, 3.3.4	N	___
Explosive Gas Monitoring	Conduct Explosive Gas Monitoring	___	___	2.3	N	___
General Provisions	Motorized and Electronic Equipment Disposal	___	___	16	N	___
Ground Water Monitoring	Compliance With Ground Water Protection Standards	___	___	2.1.15	N	___
	Implementation of a Groundwater Monitoring Program	___	___	2.2	N	___
Nuisance Conditions Control	Adequately Fence Site and Prevent Debris From Escaping and Accumulating	___	___	2.1.7	N	___
	Control Nuisance Conditions	___	___	2.1.3	N	___
	No Unauthorized Burning	___	___	2.1.9	N	___
Operating Requirements	Co-Disposal of Sludge at the Working Face	___	___	2.1.13	N	___

White = File Copy, Yellow=Tracking Copy, Pink=Facility Copy

Landfill

Inspector(s): Reynolds

Functional Category	Requirement Description	Not Insp	N/A	Citation	Violation Y/N/P	Note Reference
Operating Requirements	Ensure Adequate Cover is Available Throughout Site Life	<input checked="" type="checkbox"/>			3.3.5	1
	Ensure Adequate Water	<input type="checkbox"/>			3.3.6	2
	Operate Leachate Collection and Removal System, Including Monitoring for Leachate Depth on Liner	<input checked="" type="checkbox"/>			3.2.5(D)	1
	Place Waste in Most Dense Volume via Compaction or Other Approved Method	<input checked="" type="checkbox"/>			2.1.10 (A)	1
	Restricted Unloading Area, Waste in Smallest Area, Working Face Size	<input checked="" type="checkbox"/>			2.1.10 (B)	1
	Wind Speed Monitoring to Cease Operation During High Wind Warning	<input type="checkbox"/>			2.1.11	2
Reporting	Notify the Dept of a Release	<input type="checkbox"/>			2.1.18(A)	2
Security	Control Access and Provide Site Security	<input type="checkbox"/>			2.1.8	2
Surface Water Control	Maintain Stormwater Run-on and Run-off Control System	<input checked="" type="checkbox"/>			2.1.6, 3.2.6	1
	Prevent Ponding of Water	<input type="checkbox"/>			2.1.10 (C)	2
Waste Acceptance	Disposal of Liquid Waste	<input type="checkbox"/>			2.1.14	2
	Wastewater Treatment Sludge	<input type="checkbox"/>			2.1.12	2
	Septic Tank Pumpings	<input type="checkbox"/>			2.1.12	2
	Chemical Toilets	<input type="checkbox"/>			2.1.12	2
Water Protection	No Disposal of Waste Below or Into Surface Water or Groundwater	<input type="checkbox"/>			2.1.17	2
	Prevent Water Pollution at or Beyond the Point of Compliance	<input type="checkbox"/>			2.1.4, 2.15	2

Site-Specific Engineering Design and Operation Plan Requirements:

White = File Copy, Yellow=Tracking Copy, Pink=Facility Copy

Appendix B – Dust & Noise Monitoring



Industrial Hygiene, Safety & Environmental Services

September 24, 2020

Mr. Juan Padilla
Safety Officer
Henderson Pit
10925 East 120th Ave.
Henderson, CO 80640

**RE: Quarter Three, 2020 PM 10 and Sound Level Monitoring Report
Henderson Pit
Henderson, Colorado
(FEI Project Number: IH20022)**

Foothills Environmental Inc. (FEI) was contracted to perform perimeter dust and sound level monitoring at the Henderson Pit located in Henderson, Colorado. Sound level and dust monitoring were performed for Particulate Matter 10 (PM10) at four (4) locations around the perimeter of the Henderson Pit site on September 15th, 2020.

Executive Summary

The perimeter dust monitoring was performed for PM10 at four (4) locations around the perimeter of the Henderson Pit site. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particulate Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. The air monitoring was conducted during a typical work day at representative locations along the east, west, south and north sides of the Henderson Pit during site work operations from approximately 6:30 a.m. to 3:00 p.m.

Perimeter sound pressure level monitoring was performed at four (4) locations around the perimeter of the Henderson Pit site. The sound pressure levels were compared to the Adams County Chapter 4 Design Requirements and Performance Standards for Noise at 80 decibels (dB) for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.). The monitoring was conducted at representative locations along the north, south, east, and west sides of the Henderson Pit site during the work operations from approximately 6:30 a.m. to 3:00 p.m.

Results of PM10 dust monitoring indicated that dust levels along the south, east, north, and west perimeters of the site were all below the NAAQS PM10 standard.

Results of the sound level monitoring measured at all four perimeter locations for the sound pressure level assessment period showed that average sound levels were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.).

Methodology

Particulate Matter 10 (PM10) Monitoring

PM10 includes particles which have a diameter of 10 micrometers or less. PM10 air monitoring was conducted on September 15th, 2020 over an 8 hour shift at representative locations along the east, west, south and north perimeter of the Henderson Pit. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particle Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. The PM10 monitoring was conducted during normal work hours and for work activities with the highest potential to contribute to dust levels from 6:30 a.m. to 3:00 p.m. on September 15th, 2020.

PM10 sampling was performed with three (3) TSI Dust Trak II Desktop 8530 and one (1) TSI Dust Trak DRX Aerosol Monitors. The Dust Trak Aerosol monitors were calibrated by the equipment manufacturer representative and field zeroed prior to each use.

Sound Level Monitoring

FEI collected sound pressure level measurements on September 15, 2020 from 6:30 a.m. to 3:00 p.m. at four (4) locations along the perimeter of the Henderson Pit property. Samples were collected using 3M Sound Pro SE/DL Sound Level Meters that were calibrated with a 114 decibels (dB) acoustic calibrator at the beginning of the day before use and placed at each location at a height of at least four (4) feet above the immediate surrounding surface for a total of eight (8) hours. The sound level meters were set to a measurement range of 30-140 decibels (dB) with a slow response time, set on the A frequency weighting and set to record an average noise measurement every minute. Measurements were compared to the Adams County Maximum Sound Pressure Level of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

See Appendix A for site photos showing the perimeter sampling locations and site conditions. See Appendix D for a site map showing the sample locations.

Results

Particulate Matter 10 (PM10) Monitoring

See Table 1 for results of the PM10 levels identified during this air monitoring assessment conducted on September 15th, 2020. Results of direct read air monitoring recorded during site work activities showed that PM10 levels based on an 8-hour average were between 45 and 72 $\mu\text{g}/\text{m}^3$ for the four (4) locations monitored and were below the NAAQS level for PM10 at 150 $\mu\text{g}/\text{m}^3$. The highest recorded peak dust level of 1160 $\mu\text{g}/\text{m}^3$ was recorded at the west perimeter location at 10:17 a.m. However, the peak dust level was a short term occurrence of three (3) minutes and then dropped to 69 $\mu\text{g}/\text{m}^3$ at 10:20 a.m. See Appendix C for PM10 data statistics reports.

Table 1. Results of TSI DRX/Dust Trak II PM10 Air Sampling (September 15th, 2020)

Sample No. (Date)	Sample Location	Duration (min)	Average ($\mu\text{g}/\text{m}^3$)	8 Hour Average ($\mu\text{g}/\text{m}^3$)	Maximum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	Minimum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	EPA NAAQS ($\mu\text{g}/\text{m}^3$) 24-hour Average	Exceedance of NAAQS
PMS (9/15/20)	South perimeter	480	72	72	935	21	150	No
PME (9/15/20)	East perimeter	480	46	46	253	23	150	No
PMN (9/15/20)	North perimeter	480	50	50	256	19	150	No
PMW (9/15/20)	West perimeter	480	45	45	1160	17	150	No

EPA: Environmental Protection Agency
 $\mu\text{g}/\text{m}^3$: microgram per cubic meter

NAAQS: National Ambient Air Quality Standard

Sound Level Monitoring

See Table 2 for results of the sound level monitoring recorded at the south, north, east and west perimeters at Henderson Pit. Results of monitoring indicated that the sound pressure levels during the monitoring period based on an eight hour average were between 51.5 dB and 66.9 dB. This was below the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for a continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). See Appendix B for sound pressure level graphs.

Table 2. Results of Perimeter Sound Level Monitoring (September 15th, 2020)

Sample No. (Date)	Sample Location	Duration (min)	TWA Average	8 Hour Average (L _{eq})	Maximum Recorded Measurement (L _{max})	Minimum Recorded Measurement (L _{min})	Adams County Maximum Permissible Sound Pressure Level	Exceedance of Adams County Standard
SLM-S (9/15/20)	South perimeter	480	63.9	63.9	84.4	54.0	80 dB	No
SLM-E (9/15/20)	East perimeter	480	57.5	57.5	70.9	45.4	80 dB	No
SLM-N (9/15/20)	North perimeter	480	51.5	51.5	66.9	43.2	80 dB	No
SLM-W* (9/15/20)	West perimeter	480	66.9	66.9	95.6	48.6	80 dB	No

Leq: Level Average

Lmax: Level Maximum

Lmin: Level Minimum

dB: Decibels (A-weighted)

Discussion

Particulate Matter 10 (PM10) Monitoring

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to active roadways and had the highest 8-hour average PM10 levels. Water trucks were used on site to keep the roadways wet and reduced dust generation from vehicle traffic. Monitoring location #2 and #3 (east and north perimeters) were farthest from vehicle traffic. Periodic spikes in PM10 levels were observed at all monitoring locations. Periodic spikes in PM10 levels generally lasted for one to two minutes and levels quickly dropped below 150 µg/m³. The short duration PM10 spike levels are attributed to passing trucks and machinery where momentary increases in dust levels were recorded by the Dust Trak meters. The south perimeter monitoring location recorded the highest frequency of PM10 dust level spikes which is attributed to the close proximity to the south roadway where haul trucks enter the pit and wind velocity and direction during the monitoring period. See Appendix A for PM10 data statistics.

Sound Level Monitoring

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to the haul truck roads and site activity, including site arrival and departure roads within the Henderson Pit site. The instruments at those locations recorded the two (2) highest 8-hour average sound pressure levels. Monitoring location #2 (east perimeter) was adjacent to a road which had minimal traffic. Monitoring location #3 (north perimeter) was approximately 100 feet from the closest noise source which was an operating rock sifter. Sound pressure levels recorded at these locations were the two (2) lowest.

The monitoring instrument at the south, east, west perimeters recorded a few short term exceedances over 80 dB lasting a few seconds to approximately one (1) minute or less which contributed to less than 1% of the total monitoring time.

Sound level measurement graphs are provided in Appendix C of this report.

Conclusions and Recommendations

Results of perimeter area air monitoring for PM10 levels during the monitoring assessment conducted during site work activities on September 15th, 2020 show that PM10 levels based on an 8-hour average duration were between 45 and 72 $\mu\text{g}/\text{m}^3$ for the four (4) locations monitored and were all below the NAAQS level for Particle Pollution (PM10) at 150 $\mu\text{g}/\text{m}^3$. Although the NAAQS level for Particle Pollution (PM10) is based on an average over a 24 hour duration, operations at the Henderson Pit are conducted exclusively during the daytime. Therefore, an 8 hour sampling duration was selected which is representative of worst case dust and sound pressure levels during work operations. Actual dust and noise levels are expected to be lower during night time or non-work hours.

The results of the sound level monitoring show that average sound pressure levels for all locations were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

Limitations

This assessment was limited to conditions present during the time period the monitoring was performed. FEI utilized state-of-the-art practices and techniques in accordance with regulatory standards while performing this evaluation. FEI's evaluation of the PM10 dust levels and sound level measurements identified during this assessment are based on conditions observed at the time of the monitoring assessment. FEI cannot be responsible for changing conditions that may alter the relative exposure risk or for future changes in accepted methodology.

Please do not hesitate to contact FEI at (303) 232-2660 if you have any questions regarding this report.

Sincerely,



Ben Wilsom
Industrial Hygienist

Reviewed by,



Ronald Crandall, CIH, CHMM
Certified Industrial Hygienist



Industrial Hygiene, Safety & Environmental Services

Appendices:

Appendix A - Site Photos

Appendix B - Sound Level Graphs

Appendix C - PM10 Data Statistics Reports

Appendix D - Site Map with Sample Locations



Industrial Hygiene, Safety & Environmental Services

APPENDIX A

SITE PHOTOS



South Perimeter DustTrac and SLM



North Perimeter DustTrac and SLM



East Perimeter DustTrac and SLM



West Perimeter DustTrac and SLM

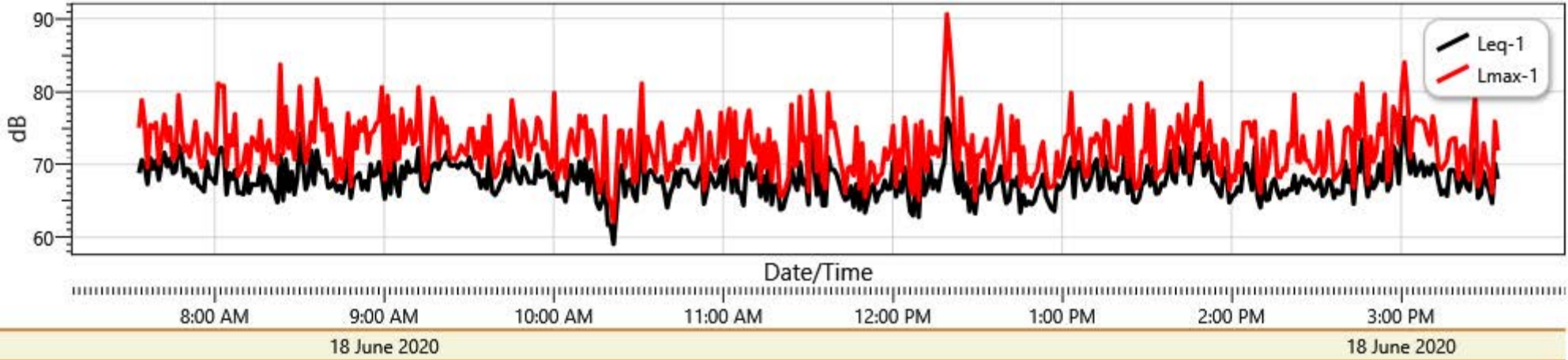


**Foothills
Environmental, Inc.**

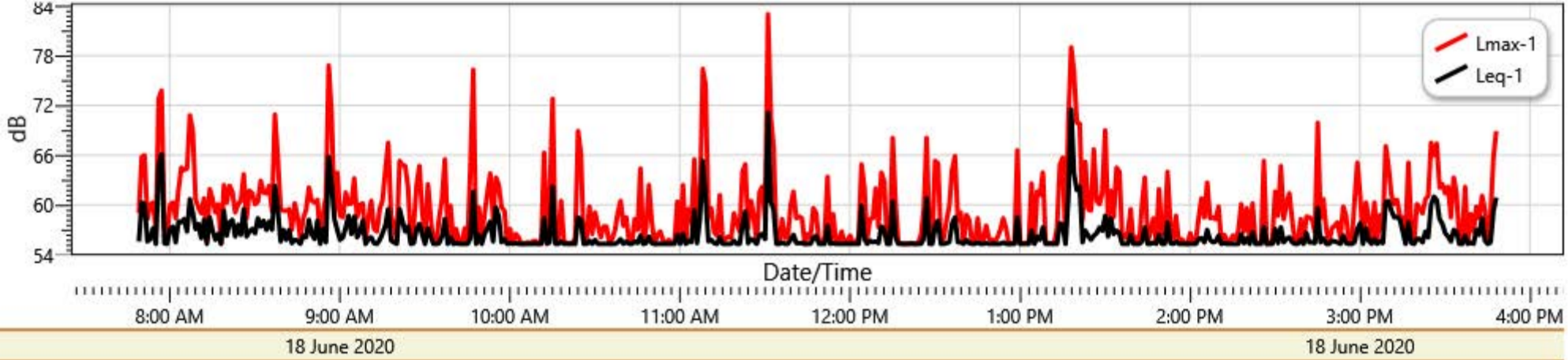
Industrial Hygiene, Safety & Environmental Services

APPENDIX B

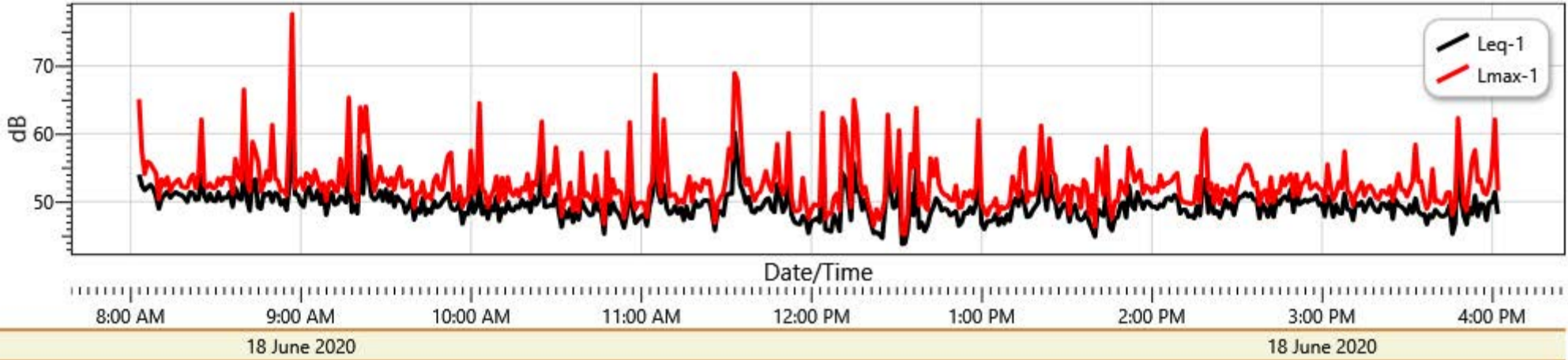
SOUND LEVEL GRAPHS



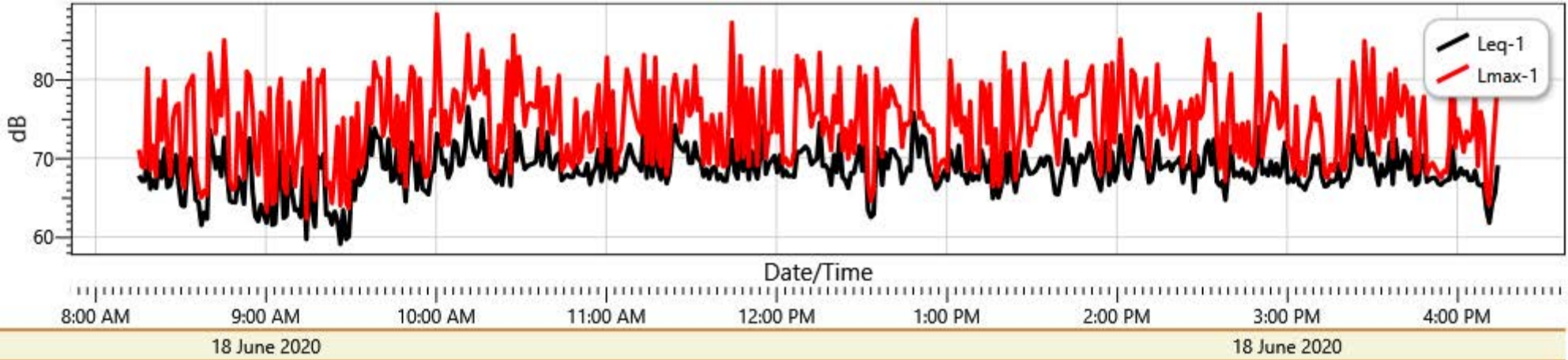
South SLM Data Chart



East SLM Data Chart



North SLM Data Chart



West SLM Data Chart



**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

APPENDIX C

PM10 DATA STATISTICS

South Perimeter PM10 Statistics

South Side

Instrument		Data Properties	
Model	DustTrak II	Start Date	09/15/2020
Instrument S/N	8530170717	Start Time	06:30:12
		Stop Date	09/15/2020
		Stop Time	14:30:12
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics	
AEROSOL	
Avg	0.072 mg/m ³
Max	0.935 mg/m ³
Max Date	09/15/2020
Max Time	10:52:12
Min	0.021 mg/m ³
Min Date	09/15/2020
Min Time	08:00:12
TWA (8 hr)	0.072
TWA Start Date	09/15/2020
TWA Start Time	06:30:12
TWA End Time	14:30:12

East Perimeter PM10 Statistics

East Side

Instrument		Data Properties	
Model	DustTrak II	Start Date	09/15/2020
Instrument S/N	8530183015	Start Time	06:39:26
		Stop Date	09/15/2020
		Stop Time	14:39:26
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics	
AEROSOL	
Avg	0.046 mg/m ³
Max	0.253 mg/m ³
Max Date	09/15/2020
Max Time	07:24:26
Min	0.023 mg/m ³
Min Date	09/15/2020
Min Time	07:04:26
TWA (8 hr)	0.046
TWA Start Date	09/15/2020
TWA Start Time	06:39:26
TWA End Time	14:39:26

North Perimeter PM10 Statistics

North Side

Instrument		Data Properties	
Model	DustTrak DRX	Start Date	09/15/2020
Instrument S/N	8533142908	Start Time	06:50:59
		Stop Date	09/15/2020
		Stop Time	14:50:59
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics					
	PM1	PM2.5	RESP	PM10	TOTAL
Avg	0.030 mg/m ³	0.031 mg/m ³	0.034 mg/m ³	0.050 mg/m ³	0.059 mg/m ³
Max	0.114 mg/m ³	0.120 mg/m ³	0.135 mg/m ³	0.256 mg/m ³	0.366 mg/m ³
Max Date	09/15/2020	09/15/2020	09/15/2020	09/15/2020	09/15/2020
Max Time	07:54:59	07:54:59	07:54:59	07:54:59	07:54:59
Min	0.016 mg/m ³	0.017 mg/m ³	0.017 mg/m ³	0.019 mg/m ³	0.019 mg/m ³
Min Date	09/15/2020	09/15/2020	09/15/2020	09/15/2020	09/15/2020
Min Time	11:28:59	11:28:59	12:28:59	12:27:59	12:28:59
TWA (8 hr)	0.030	0.031	0.034	0.050	0.059
TWA Start Date	09/15/2020	09/15/2020	09/15/2020	09/15/2020	09/15/2020
TWA Start Time	06:50:59	06:50:59	06:50:59	06:50:59	06:50:59
TWA End Time	14:50:59	14:50:59	14:50:59	14:50:59	14:50:59

West Perimeter PM10 Statistics

West Side

Instrument		Data Properties	
Model	DustTrak II	Start Date	09/15/2020
Instrument S/N	8530113008	Start Time	07:00:03
		Stop Date	09/15/2020
		Stop Time	15:00:03
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics	
	AEROSOL
Avg	0.045 mg/m ³
Max	1.160 mg/m ³
Max Date	09/15/2020
Max Time	10:17:03
Min	0.017 mg/m ³
Min Date	09/15/2020
Min Time	07:26:03
TWA (8 hr)	0.045
TWA Start Date	09/15/2020
TWA Start Time	07:00:03
TWA End Time	15:00:03



Industrial Hygiene, Safety & Environmental Services

APPENDIX D

SITE MAP WITH SAMPLE LOCATIONS



SLMN

PMN

Center

SLMW

PMW

SLME

PME

Henderson Pit

E 120th Ave

E 120th A

PMS

SLMS



Industrial Hygiene, Safety & Environmental Services

June 30, 2020

Mr. Juan Padilla
Safety Officer
Henderson Pit
10925 East 120th Ave.
Henderson, CO 80640

**RE: Quarter Two, 2020 Perimeter Dust and Sound Level Monitoring
Henderson Pit
Henderson, Colorado
(FEI Project Number: IH20016)**

Foothills Environmental Inc. (FEI) was contracted to perform perimeter dust and sound level monitoring at the Henderson Pit located in Henderson, Colorado. Dust monitoring was performed for Particulate Matter 10 (PM10) at four (4) locations around the perimeter of the Henderson Pit site on June 23 and 25th, 2020. Sound level monitoring was also performed at four (4) locations around the perimeter of the Henderson Pit property on June 18, 2020.

Executive Summary

The perimeter dust monitoring was performed for PM10 at four (4) locations around the perimeter of the Henderson Pit site. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particulate Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. The monitoring was conducted over two (2) days due to equipment malfunction on the south and east perimeter on June 23rd, 2020. The PM10 levels along the south and east side were resampled on June 25th, 2020. The air monitoring was conducted during typical work days at representative locations along the east, west, south and north sides of the Henderson Pit during site work operations from approximately 6:42 a.m. to 3:35 p.m.

Perimeter sound pressure level monitoring was performed at four (4) locations around the perimeter of the Henderson Pit site. The sound pressure levels were compared to the Adams County Chapter 4 Design Requirements and Performance Standards for Noise at 80 decibels (dB) for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.). The monitoring was conducted at representative locations along the north, south, east, and west sides of the Henderson Pit site during the work operations from approximately 7:19 a.m. 3:35 p.m.

Results of PM10 dust monitoring indicated that dust levels along the south, east, north, and west perimeters of the site were all below the NAAQS PM10 standard.

Results of the sound level monitoring measured at all locations for the sound pressure level assessment period showed that average sound levels were less than the Maximum Permissible



Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.).

Methodology

Particulate Matter 10 (PM10) Monitoring

PM10 includes particles which have a diameter of 10 micrometers or less. PM10 air monitoring was conducted on June 23rd and 25th, 2020 over an 8 hour shift at representative locations along the east, west, south and north sides of the Henderson Pit. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particle Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. PM10 monitoring was conducted during normal work hours and for work activities with the highest potential to contribute to dust levels from 7:19 a.m. to 3:35 p.m. on June 23rd, 2020 and 6:42 a.m. to 2:47 p.m. on June 25th, 2020.

PM10 sampling was performed with four (4) TSI Dust Trak II Desktop 8530 Aerosol Monitors. The Dust Trak Aerosol monitors were calibrated by the equipment manufacturer representative and field zeroed prior to each use.

Sound Level Monitoring

FEI collected sound pressure level measurements on June 18, 2020 from 7:18 a.m. to 3:35 p.m. at four (4) locations along the Henderson Pit property perimeter. Samples were collected using a 3M Sound Pro SE/DL Sound Level Meter that was calibrated with a 114 decibels (dB) acoustic calibrator at the beginning of the day before use and placed at each location at a height of at least four (4) feet above the immediate surrounding surface for a total of eight (8) hours. The sound level meter was set to a measurement range of 30-140 decibels (dB) with a slow response time, set on the A frequency weighting and set to record an average noise measurement every minute. Measurements were compared to the Adams County Maximum Sound Pressure Level of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

See Appendix A for site photos showing the perimeter sampling locations and site conditions. See Appendix D for a site map showing the sample locations.

Results

Particulate Matter 10 (PM10) Monitoring

See Table 1, for results of PM10 levels identified during this air monitoring assessment conducted on June 23rd and June 25th, 2020. Results of direct read air monitoring recorded during site work activities showed that PM10 levels based on an 8-hour average were between 11 and 49 $\mu\text{g}/\text{m}^3$ for the four (4) locations monitored and were below the NAAQS level for PM10 at 150 $\mu\text{g}/\text{m}^3$. The highest recorded peak dust level of 1010 $\mu\text{g}/\text{m}^3$ was recorded at the east perimeter location at 7:35 a.m. However, the peak dust level was a short term occurrence of three (3) minutes and then

dropped to 40 $\mu\text{g}/\text{m}^3$ at 7:37 a.m. Also this measurement was the first measurement in the series so it was likely caused by the initial machine set up. See Appendix C for PM10 data statistics reports.

Table 1. Results of TSI DRX/Dust Trak II PM10 Air Sampling (June 23 and 25, 2020)

Sample No. (Date)	Sample Location	Duration (min)	Average ($\mu\text{g}/\text{m}^3$)	8 Hour Average ($\mu\text{g}/\text{m}^3$)	Maximum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	Minimum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	EPA NAAQS ($\mu\text{g}/\text{m}^3$) 24-hour Average	Exceedance of NAAQS
PMS (6/25/20)	South perimeter	480	49	49	645	7	150	No
PME (6/25/20)	East perimeter	480	17	17	1010	6	150	No
PMN (6/23/20)	North perimeter	480	11	11	45	6	150	No
PMW (6/23/20)	West perimeter	480	19	19	711	0	150	No

EPA: Environmental Protection Agency
 $\mu\text{g}/\text{m}^3$: microgram per cubic meter

NAAQS: National Ambient Air Quality Standard

Sound Level Monitoring

See Table 2 for results of the sound level monitoring recorded at the south, north, east and west perimeters at Henderson Pit. Results of monitoring indicated that the sound pressure levels during the monitoring period based on an eight hour average were between 50.3 dB and 69.3 dB. This was below the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for a continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). See Appendix B for sound pressure level graphs.

Table 2. Results of Perimeter Sound Level Monitoring (June 18, 2020)

Sample No. (Date)	Sample Location	Duration (min)	TWA Average	8 Hour Average (L _{eq})	Maximum Recorded Measurement (L _{max})	Minimum Recorded Measurement (L _{min})	Adams County Maximum Permissible Sound Pressure Level	Exceedance of Adams County Standard
SLM-S (6/18/20)	South perimeter	480	68.5	68.5	96.8	56.2	80 dB	No
SLM-E (6/18/20)	East perimeter	480	57.3	57.3	83.0	55.3	80 dB	No
SLM-N (6/18/20)	North perimeter	480	50.3	50.3	77.6	41.9	80 dB	No
SLM-W* (6/18/20)	West perimeter	480	69.3	69.3	88.3	57.2	80 dB	No

Leq: Level Average

Lmax: Level Maximum

Lmin: Level Minimum

dB: Decibels (A-weighted)

Discussion

Particulate Matter 10 (PM10) Monitoring

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to active roadways and had the highest 8-hour average PM10 levels. Water trucks were used on site to keep the roadways wet and reduced dust generation from vehicle traffic. Monitoring location #3 (north perimeter) was farthest from vehicle traffic and recorded the lowest 8 hour average PM10 level. Monitoring location #2 (east perimeter) recorded the 2nd lowest 8 hour average PM10 level. Periodic spikes in PM10 levels were observed at all monitoring locations. Periodic spikes in PM10 levels generally lasted for one to two minutes and levels quickly dropped below 150 µg/m³. The short duration PM10 spike levels are attributed to passing trucks and machinery where momentary increases in dust levels were recorded by the Dust Trak meters. The south perimeter monitoring location recorded the highest frequency of PM10 dust level spikes which is attributed to the close proximity to the south roadway where haul trucks enter the pit and wind velocity and direction during the monitoring period. See Appendix A for PM10 data statistics.

Sound Level Monitoring

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to the haul truck roads and site activity, including site arrival and departure roads within the Henderson Pit site. The instruments at those locations recorded the two (2) highest 8-hour average sound pressure levels. Monitoring location #2 (east perimeter) was adjacent to a road which had minimal traffic. Monitoring location #3 (north perimeter) was approximately 100 feet from the closest noise source

which was an operating rock sifter. Sound pressure levels recorded at these locations were the two (2) lowest.

The monitoring instrument at the south, east, west perimeters recorded a few short term exceedances over 80 dB lasting a few seconds to approximately one (1) minute or less which contributed to less than 1% of the total monitoring time.

Sound level measurement graphs are provided in Appendix C of this report.

Conclusions and Recommendations

Results of perimeter area air monitoring for PM10 levels during the monitoring assessment conducted during site work activities on June 23rd and June 25th, 2020 show that PM10 levels based on an 8-hour average duration were between 11 and 49 $\mu\text{g}/\text{m}^3$ for the four (4) locations monitored and were all below the NAAQS level for Particle Pollution (PM10) at 150 $\mu\text{g}/\text{m}^3$. Although the NAAQS level for Particle Pollution (PM10) is based on an average over a 24 hour duration, operations at the Henderson Pit are conducted exclusively during the daytime. Therefore, an 8 hour sampling duration was selected which is representative of worst case dust and sound pressure levels during work operations. Actual dust and noise levels are expected to be lower during night time or non-work hours.

The results of the sound level monitoring show that average sound pressure levels for all locations were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

Limitations

This assessment was limited to conditions present during the time period the monitoring was performed. FEI utilized state-of-the-art practices and techniques in accordance with regulatory standards while performing this evaluation. FEI's evaluation of the PM10 dust levels and sound level measurements identified during this assessment are based on conditions observed at the time of the monitoring assessment. FEI cannot be responsible for changing conditions that may alter the relative exposure risk or for future changes in accepted methodology.

Please do not hesitate to contact FEI at (303) 232-2660 if you have any questions regarding this report.

Sincerely,



Ben Wilsom

Reviewed by,



Ronald Crandall, CIH, CHMM



Industrial Hygiene, Safety & Environmental Services

Industrial Hygienist

Certified Industrial Hygienist

Appendices:

Appendix A - Site Photos

Appendix B - Sound Level Graphs

Appendix C - PM10 Data Statistics Reports

Appendix D - Site Map with Sample Locations



Industrial Hygiene, Safety & Environmental Services

APPENDIX A

SITE PHOTOS

Photos Taken From 6/18/20



West Perimeter DustTrac and SLM



East Perimeter DustTrac and SLM



North Perimeter DustTrac and SLM



South Perimeter DustTrac and SLM

Photos Taken From 6/23/20 and 6/25/20



South Perimeter DustTrac



East Perimeter DustTrac



North Perimeter DustTrac



West Perimeter DustTrac



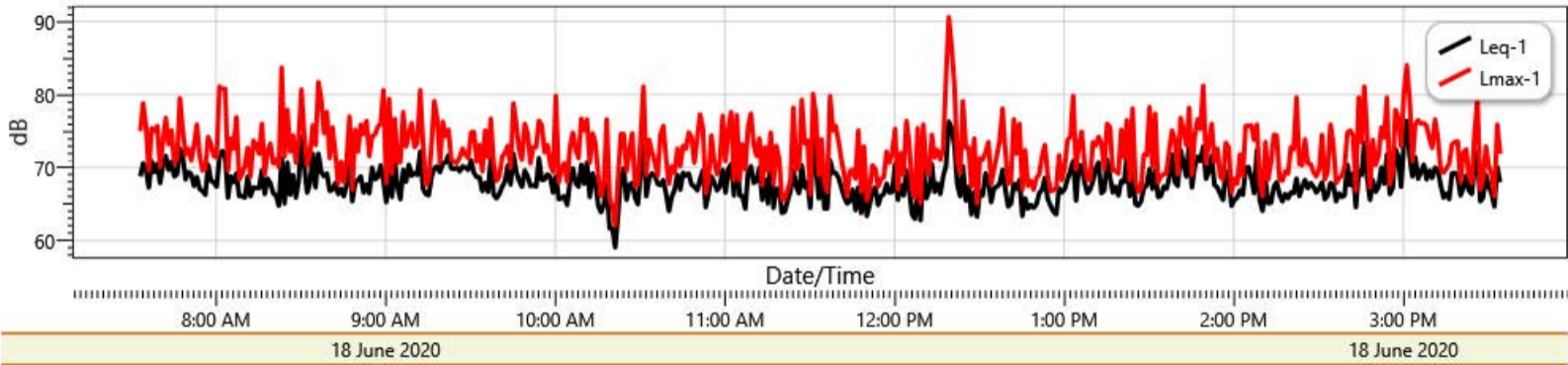
**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

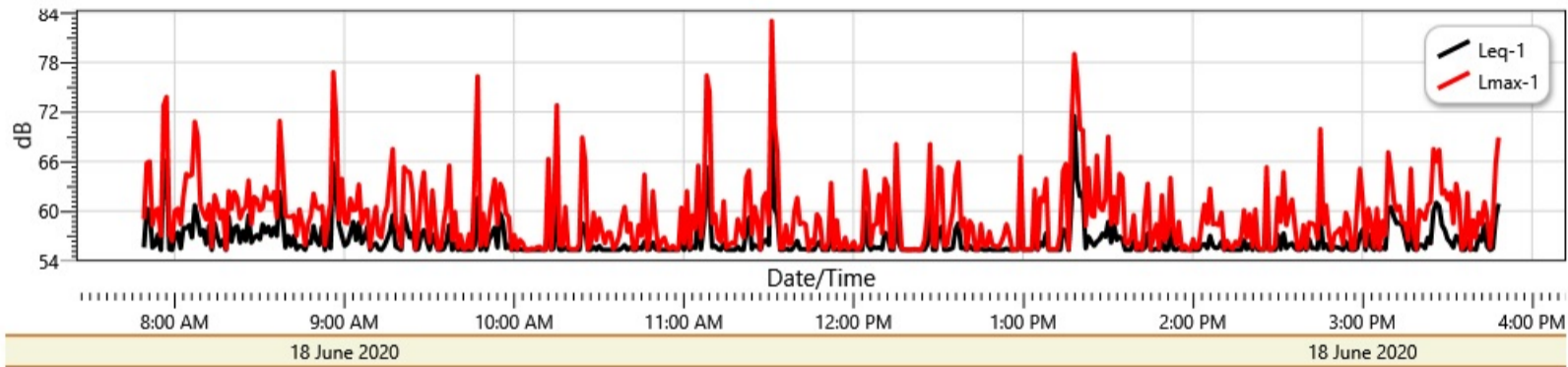
APPENDIX B

SOUND LEVEL GRAPHS

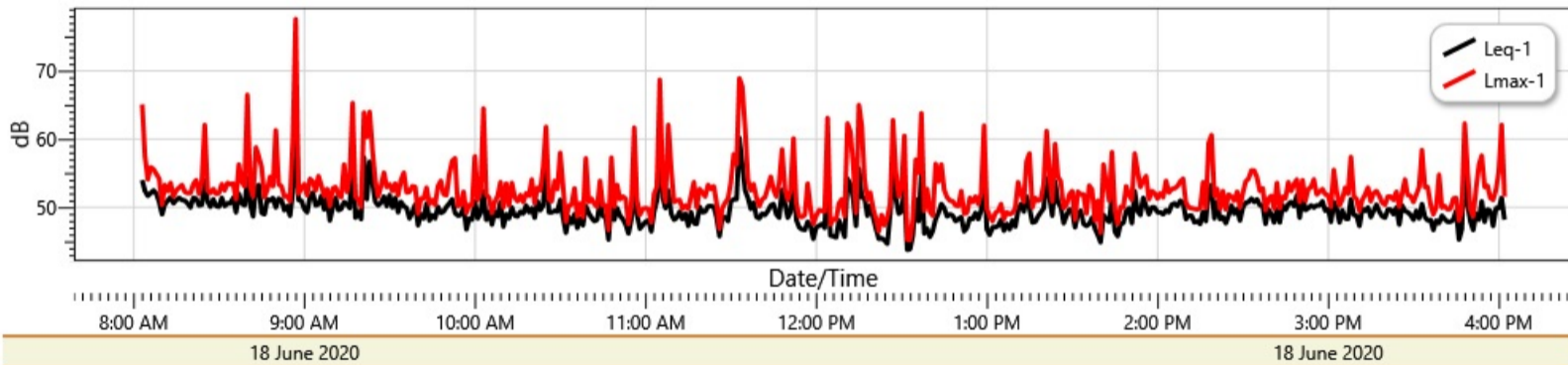
South SLM Data Chart



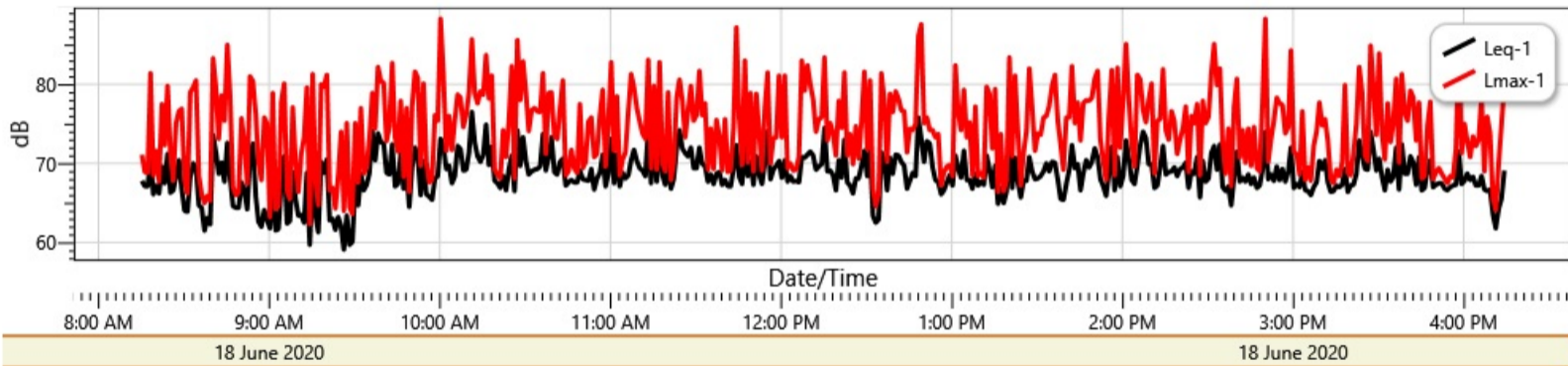
East SLM Data Chart



North SLM Data Chart



West SLM Data Chart





**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

APPENDIX C

PM10 DATA STATISTICS

South PM10 Statistics

South

Instrument		Data Properties	
Model	DustTrak II	Start Date	06/25/2020
Instrument S/N	8530183015	Start Time	06:42:51
		Stop Date	06/25/2020
		Stop Time	14:42:51
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics	
AEROSOL	
Avg	0.049 mg/m ³
Max	0.645 mg/m ³
Max Date	06/25/2020
Max Time	10:52:51
Min	0.007 mg/m ³
Min Date	06/25/2020
Min Time	13:50:51
TWA (8 hr)	0.049
TWA Start Date	06/25/2020
TWA Start Time	06:42:51
TWA End Time	14:42:51

East PM10 Statistics

East

Instrument		Data Properties	
Model	DustTrak II	Start Date	06/25/2020
Instrument S/N	8530164021	Start Time	06:47:46
		Stop Date	06/25/2020
		Stop Time	14:47:46
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics	
	AEROSOL
Avg	0.017 mg/m ³
Max	1.010 mg/m ³
Max Date	06/25/2020
Max Time	07:35:46
Min	0.006 mg/m ³
Min Date	06/25/2020
Min Time	13:58:46
TWA (8 hr)	0.017
TWA Start Date	06/25/2020
TWA Start Time	06:47:46
TWA End Time	14:47:46

North PM10 Statistics

North

Instrument		Data Properties	
Model	DustTrak II	Start Date	06/23/2020
Instrument S/N	8530183015	Start Time	07:25:37
		Stop Date	06/23/2020
		Stop Time	15:25:37
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics	
AEROSOL	
Avg	0.011 mg/m ³
Max	0.045 mg/m ³
Max Date	06/23/2020
Max Time	14:33:37
Min	0.006 mg/m ³
Min Date	06/23/2020
Min Time	13:56:37
TWA (8 hr)	0.011
TWA Start Date	06/23/2020
TWA Start Time	07:25:37
TWA End Time	15:25:37

West PM10 Statistics

West

Instrument		Data Properties	
Model	DustTrak II	Start Date	06/23/2020
Instrument S/N	8530164021	Start Time	07:35:24
		Stop Date	06/23/2020
		Stop Time	15:35:24
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics	
	AEROSOL
Avg	0.019 mg/m ³
Max	0.711 mg/m ³
Max Date	06/23/2020
Max Time	07:42:24
Min	0.000 mg/m ³
Min Date	06/23/2020
Min Time	08:44:24
TWA (8 hr)	0.019
TWA Start Date	06/23/2020
TWA Start Time	07:35:24
TWA End Time	15:35:24



Industrial Hygiene, Safety & Environmental Services

APPENDIX D

SITE MAP WITH SAMPLE LOCATIONS



Center

SLMN

PMN

SLMW

PMW

SLME

PME

Henderson Pit

E 120th Ave

E 120th A

PMS

SLMS



Industrial Hygiene, Safety & Environmental Services

April 8, 2020

Mr. Juan Padilla
Safety Officer
Henderson Pit
10925 East 120th Ave.
Henderson, CO 80640

**RE: Quarter One, 2020 Perimeter Dust and Sound Level Monitoring
Henderson Pit
Henderson, Colorado
(FEI Project Number: IH20009)**

Foothills Environmental Inc. (FEI) was contracted to perform perimeter dust and sound level monitoring at the Henderson Pit located in Henderson, Colorado. Dust monitoring was performed for Particulate Matter 10 (PM10) at four (4) locations around the perimeter of the Henderson Pit site on March 18, 2020. Sound level monitoring was also performed at four (4) locations around the perimeter of the Henderson Pit property on March 18, 2020.

Executive Summary

The perimeter dust monitoring was performed for PM10 at four (4) locations around the perimeter of the Henderson Pit site. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particulate Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. The air monitoring was conducted during a typical work day at representative locations along the east, west, south and north sides of the Henderson Pit during site work operations from approximately 7:41 a.m. to 4:14 p.m.

Perimeter sound pressure level monitoring was performed at four (4) locations around the perimeter of the Henderson Pit site. The sound pressure levels were compared to the Adams County Chapter 4 Design Requirements and Performance Standards for Noise at 80 decibels (dB) for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.). The monitoring was conducted over two (2) days due to equipment malfunction on the west perimeter on March 18th, 2020. The sound levels along the west side were resampled on April 7th, 2020. The monitoring was conducted at representative locations along the north, south, east, and west sides of the Henderson Pit site during the work operations from approximately 7:41 a.m. 4:14 p.m.

Results of PM10 dust monitoring indicated that dust levels along the south, east, north, and west perimeters of the site were all below the NAAQS PM10 standard.

Results of the sound level monitoring measured at all locations for the sound pressure level assessment period showed that average sound levels were less than the Maximum Permissible



Industrial Hygiene, Safety & Environmental Services

Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.).

Methodology

Particulate Matter 10 (PM10) Monitoring

PM10 includes particles which have a diameter of 10 micrometers or less. PM10 air monitoring was conducted on March 18, 2020 over an 8 hour shift at representative locations along the east, west, south and north sides of the Henderson Pit. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particle Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. PM10 monitoring was conducted during normal work hours and for work activities with the highest potential to contribute to dust levels from 7:41 a.m. to 4:14 p.m.

PM10 sampling was performed with TSI Dust Trak DRX (3) and TSI Dust Trak II Desktop 8530 (1) Dust Trak /Aerosol Monitors. The Dust Trak Aerosol monitors were calibrated by the equipment manufacturer representative and field zeroed prior to each use.

Sound Level Monitoring

FEI collected sound pressure level measurements on March 18, 2020 from 7:41 a.m. to 4:14 p.m. and on April 7th, 2020 from 8:03 a.m. to 4:03 p.m. at four (4) locations along the Henderson Pit property perimeter. Due to instrument malfunction during the initial monitoring event, FEI performed a retest for the west perimeter on April 7th, 2020 from 8:03 a.m. to 4:03 p.m. Samples were collected using a 3M Sound Pro SE/DL Sound Level Meter that was calibrated with a 114 decibels (dB) acoustic calibrator at the beginning of the day before use and placed at each location at a height of at least four (4) feet above the immediate surrounding surface for a total of eight (8) hours. The sound level meter was set to a measurement range of 30-140 decibels (dB) with a slow response time, set on the A frequency weighting and set to record an average noise measurement every minute. Measurements were compared to the Adams County Maximum Sound Pressure Level of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

See Appendix A for site photos showing the perimeter sampling locations and site conditions. See Appendix D for a site map showing the sample locations.

Results

Particulate Matter 10 (PM10) Monitoring

See Table 1, for results of PM10 levels identified during this air monitoring assessment conducted on March 18, 2020. Results of direct read air monitoring recorded during site work activities showed that PM10 levels based on an 8-hour average were between 12 and 98 $\mu\text{g}/\text{m}^3$ for the four (4) locations monitored and were below the NAAQS level for PM10 at 150 $\mu\text{g}/\text{m}^3$. The highest

recorded peak dust level of 8530 $\mu\text{g}/\text{m}^3$ was recorded at the east perimeter location at 7:46 a.m. However, the peak dust level was a short term occurrence of one (1) minute or less and then dropped to 6 $\mu\text{g}/\text{m}^3$ at 7:47 a.m. Also this measurement was the first measurement in the series so it was likely caused by the initial machine set up. See Appendix C for PM10 data statistics reports.

Table 1. Results of TSI DRX/Dust Trak II PM10 Air Sampling (March 18, 2020)

Sample No. (Date)	Sample Location	Duration (min)	Average ($\mu\text{g}/\text{m}^3$)	8 Hour Average ($\mu\text{g}/\text{m}^3$)	Maximum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	Minimum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	EPA NAAQS ($\mu\text{g}/\text{m}^3$) 24-hour Average	Exceedance of NAAQS
PMS (3/18/20)	South perimeter	480	98	98	2270	6	150	No
PME (3/18/20)	East perimeter	480	18	18	8530	5	150	No
PMN (3/18/20)	North perimeter	480	12	12	96	4	150	No
PMW (3/18/20)	West perimeter	480	50	50	923	7	150	No

EPA: Environmental Protection Agency
 $\mu\text{g}/\text{m}^3$: microgram per cubic meter

NAAQS: National Ambient Air Quality Standard

Sound Level Monitoring

See Table 2 for results of the sound level monitoring recorded at the south, north, east and west perimeters at Henderson Pit. Results of monitoring indicated that the sound pressure levels during the monitoring period based on an eight hour average were between 54.5 dB and 67.3 dB. This was below the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for a continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). See Appendix B for sound pressure level graphs.

Table 2. Results of Perimeter Sound Level Monitoring (March 18, 2020 and April 7, 2020)

Sample No. (Date)	Sample Location	Duration (min)	TWA Average	8 Hour Average (L _{eq})	Maximum Recorded Measurement (L _{max})	Minimum Recorded Measurement (L _{min})	Adams County Maximum Permissible Sound Pressure Level	Exceedance of Adams County Standard
SLM-S (3/18/20)	South perimeter	480	67.3	67.3	88.9	48.6	80 dB	No
SLM-E (3/18/20)	East perimeter	480	55.4	55.4	74.6	54.3	80 dB	No
SLM-N (3/18/20)	North perimeter	480	54.5	54.8	75.0	44.3	80 dB	No
SLM-W* (4/7/20)	West perimeter	480	64.5	64.5	86.7	54.3	80 dB	No

Leq: Level Average

Lmax: Level Maximum

Lmin: Level Minimum

dB: Decibels (A-weighted)

*The west perimeter sound levels was retested on April 7th, 2020 due to equipment malfunction on March 18th, 2020.

Discussion

Particulate Matter 10 (PM10) Monitoring

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to active roadways and had the highest 8-hour average PM10 levels. Water trucks were used on site to keep the roadways wet and reduced dust generation from vehicle traffic. Monitoring location #3 (north perimeter) was farthest from vehicle traffic and recorded the lowest 8 hour average PM10 level. Monitoring location #2 (east perimeter) recorded the 2nd lowest 8 hour average PM10 level. Periodic spikes in PM10 levels were observed at all monitoring locations. Periodic spikes in PM10 levels generally lasted for one to two minutes and levels quickly dropped below 150 µg/m³. The short duration PM10 spike levels are attributed to passing trucks and machinery where momentary increases in dust levels were recorded by the Dust Trak meters. The south perimeter monitoring location recorded the highest frequency of PM10 dust level spikes which is attributed to the close proximity to the south roadway where haul trucks enter the pit and wind velocity and direction (from north to south) during the monitoring period. See Appendix A for PM10 data statistics.

Sound Level Monitoring

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to the haul truck roads and site activity, including site arrival and departure roads within the Henderson Pit site. The instruments at those locations recorded the two (2) highest 8-hour average sound pressure levels. Monitoring location #2 (east perimeter) was adjacent to a road which had minimal traffic. Monitoring location #3 (north perimeter) was approximately 100 feet from the closest noise source which was an operating rock sifter. Sound pressure levels recorded at these locations were the two (2) lowest.

The monitoring instrument at the south and west perimeters recorded a few short term exceedances over 80 dB lasting a few seconds to approximately one (1) minute or less which contributed to less than 1% of the total monitoring time.

Sound level measurement graphs are provided in Appendix C of this report.

Conclusions and Recommendations

Results of perimeter area air monitoring for PM10 levels during the monitoring assessment conducted during site work activities on March 18, 2020 show that PM10 levels based on an 8-hour average duration were between 12 and 98 $\mu\text{g}/\text{m}^3$ for the four (4) locations monitored and were all below the NAAQS level for Particle Pollution (PM10) at 150 $\mu\text{g}/\text{m}^3$. Although the NAAQS level for Particle Pollution (PM10) is based on an average over a 24 hour duration, operations at the Henderson Pit are conducted exclusively during the daytime. Therefore, an 8 hour sampling duration was selected which is representative of worst case dust and sound pressure levels during work operations. Actual dust and noise levels are expected to be lower during night time or non-work hours.

The results of the sound level monitoring show that average sound pressure levels for all locations were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

Limitations

This assessment was limited to conditions present during the time period the monitoring was performed. FEI utilized state-of-the-art practices and techniques in accordance with regulatory standards while performing this evaluation. FEI's evaluation of the PM10 dust levels and sound level measurements identified during this assessment are based on conditions observed at the time of the monitoring assessment. FEI cannot be responsible for changing conditions that may alter the relative exposure risk or for future changes in accepted methodology.

Please do not hesitate to contact FEI at (303) 232-2660 if you have any questions regarding this report.

Sincerely,

Reviewed by,



Industrial Hygiene, Safety & Environmental Services

A handwritten signature in black ink that reads "Ben Wilsom".

Ben Wilsom
Industrial Hygienist

A handwritten signature in black ink that reads "Ronald Crandall".

Ronald Crandall, CIH, CHMM
Certified Industrial Hygienist

Appendices:

Appendix A - Site Photos

Appendix B - Sound Level Statistics and Graphs

Appendix C - PM10 Data Statistics Reports

Appendix D - Site Map with Sample Locations



Industrial Hygiene, Safety & Environmental Services

APPENDIX A

SITE PHOTOS



Sound Level Meter and Particulate Dust Monitor – South Perimeter Sample Location



Sound Level Meter and Particulate Dust Monitor – East Perimeter Sample Location



Sound Level Meter and Particulate Dust Monitor – North Perimeter Sample Location



Sound Level Meter and Particulate Dust Monitor – West Perimeter Sample Location



Industrial Hygiene, Safety & Environmental Services

APPENDIX B

SOUND LEVEL STATISTICS AND GRAPHS

South Perimeter Session Report

4/8/2020

General Information

Name	S195
Comments	
Start Time	3/17/2020 8:40:46 AM
Stop Time	3/17/2020 4:40:52 PM
Run Time	08:00:04
Model Type	SoundPro DL
Serial Number	BGQ080006
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Company Name	
Description	
Location	
User Name	

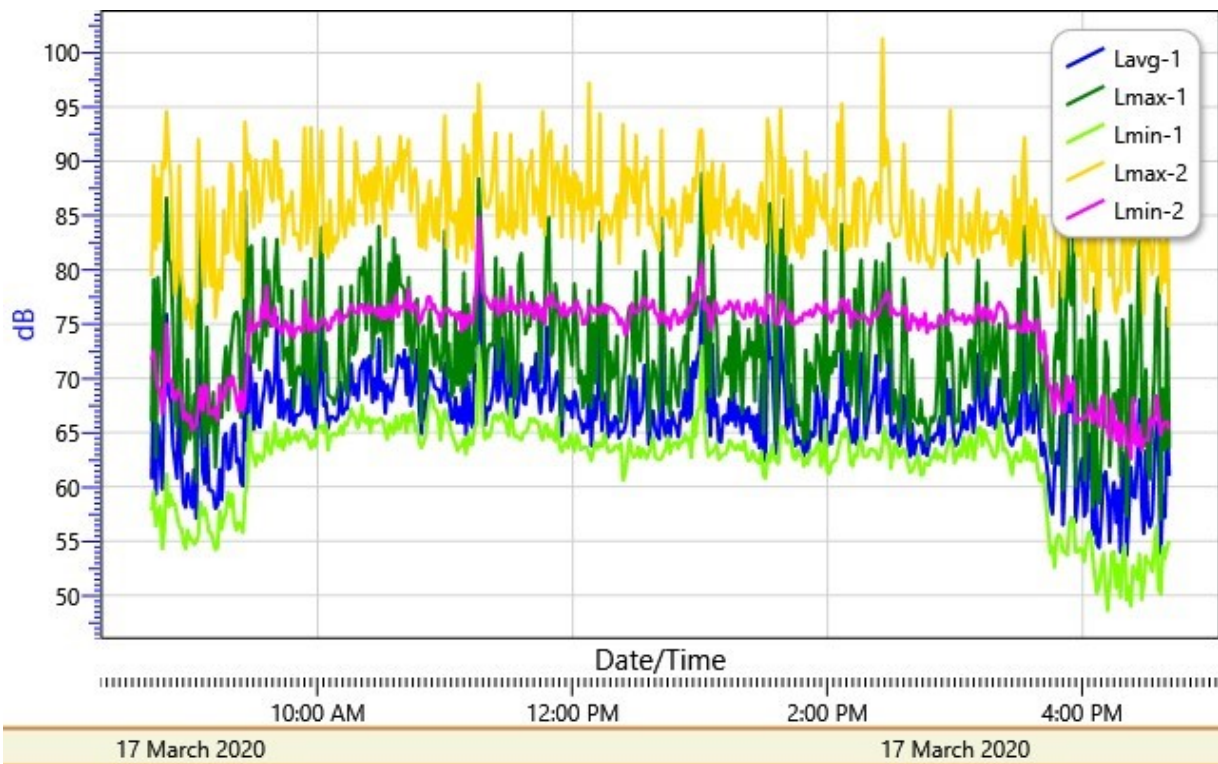
Summary Data

Description	Meter	Value	Description	Meter	Value
Dose	1	4.4 %	Pdose	1	13.1 %
Lavg	1	67.3 dB	Lpk	1	109.6 dB
Leq	1	--	TWA	1	67.3 dB
UL Time	1	00:00:00	SEL	1	141.4 dB
Projected TWA	1	75.3 dB	Mntime	1	3/17/2020 4:22:18 PM
Mxtime	1	3/17/2020 2:25:07 PM	PKtime	1	3/17/2020 1:33:22 PM
Weighting	1	--	Range Ceiling	1	--
Criterion Level	1	--	ULL	1	--
Dynamic Range	1	--	Exchange Rate	1	--
Response	1	--	Int Threshold	1	--
Alarm Level 1	1	--	AlarmLevel2	1	--
Dosimeter Name	1	--			
Dose	2	23.4 %	Pdose	2	23.4 %
Lavg	2	79.5 dB	Lpk	2	107.6 dB
Leq	2	--	TWA	2	79.5 dB
UL Time	2	00:00:00	SEL	2	153.5 dB
Projected TWA	2	79.5 dB	Mntime	2	3/17/2020 4:11:32 PM

Mxtime	2	3/17/2020 1:00:34 PM	PKtime	2	3/17/2020 1:33:22 PM
Weighting	2	C	Range Ceiling	2	--
Criterion Level	2	90 dB	ULL	2	115 dB
Dynamic Range	2	--	Exchange Rate	2	5 dB
Response	2	FAST	Integrating Threshold	2	100 dB
Alarm Level 1	2	--	AlarmLevel2	2	--
Dosimeter Name	2	--			

Logged Data Chart

S195: Logged Data Chart - Read Only



East Perimeter Session Report

4/8/2020

General Information

Name	S136
Comments	
Start Time	3/17/2020 6:48:49 AM
Stop Time	3/17/2020 2:48:54 PM
Run Time	08:00:05
Model Type	SoundPro DL
Serial Number	BLM090004
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Company Name	
Description	
Location	
User Name	

Summary Data

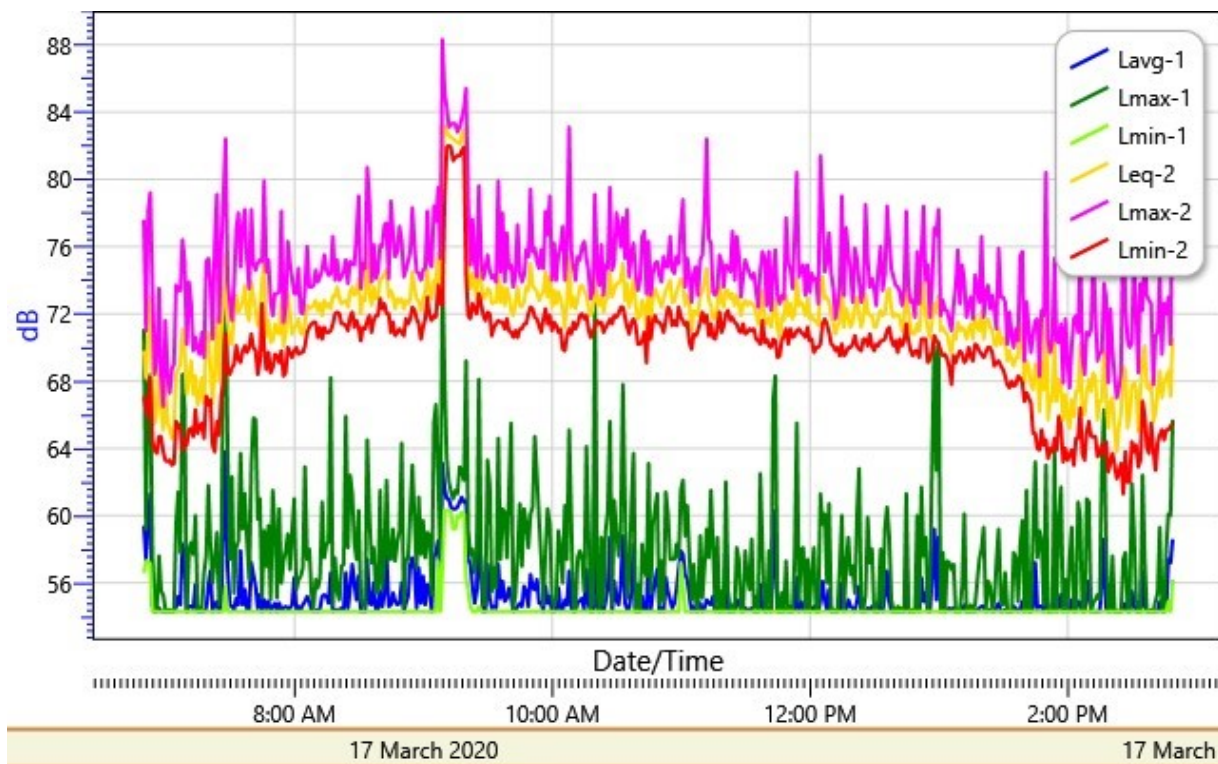
Description	Meter	Value	Description	Meter	Value
Dose	1	0.8 %	Pdose	1	0.8 %
Lavg	1	55.4 dB	Lpk	1	102.5 dB
Leq	1	--	TWA	1	55.4 dB
UL Time	1	00:00:00	SEL	1	129.5 dB
Projected TWA	1	55.4 dB	Mntime	1	3/17/2020 2:25:27 PM
Mxtime	1	3/17/2020 9:08:45 AM	PKtime	1	3/17/2020 6:49:07 AM
Weighting	1	--	Range Ceiling	1	--
Criterion Level	1	--	ULL	1	--
Dynamic Range	1	--	Exchange Rate	1	--
Response	1	--	Int Threshold	1	--
Alarm Level 1	1	--	AlarmLevel2	1	--
Dosimeter Name	1	--			
Dose	2	1.9 %	Pdose	2	1.9 %
Lavg	2	--	Lpk	2	103 dB
Leq	2	72.8 dB	TWA	2	72.8 dB
UL Time	2	00:00:00	SEL	2	117.4 dB
Projected TWA	2	72.8 dB	Mntime	2	3/17/2020 6:52:56 AM



Mxtime	2	3/17/2020 9:08:37 AM	PKtime	2	3/17/2020 6:49:17 AM
Weighting	2	C	Range Ceiling	2	--
Criterion Level	2	90 dB	ULL	2	115 dB
Dynamic Range	2	--	Exchange Rate	2	3 dB
Response	2	SLOW	Integrating Threshold	2	80 dB
Alarm Level 1	2	--	AlarmLevel2	2	--
Dosimeter Name	2	--			

Logged Data Chart

S136: Logged Data Chart - Read Only



North Perimeter Session Report

4/8/2020

General Information

Name	S031
Comments	
Start Time	3/17/2020 9:02:42 AM
Stop Time	3/17/2020 5:02:52 PM
Run Time	08:00:10
Model Type	SoundPro DL
Serial Number	BLM050004
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Company Name	
Description	
Location	
User Name	

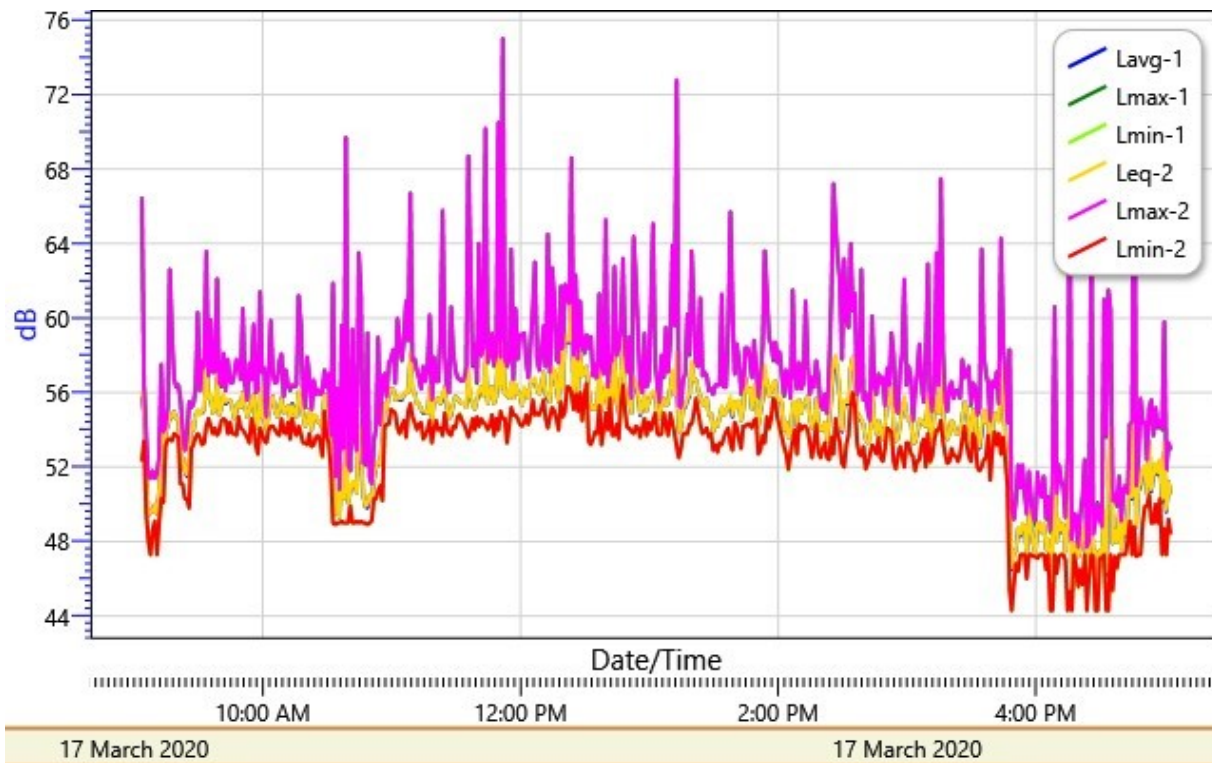
Summary Data

Description	Meter	Value	Description	Meter	Value
Dose	1	750.2 %	Pdose	1	750 %
Lavg	1	54.5 dB	Lpk	1	97.1 dB
Leq	1	--	TWA	1	54.5 dB
UL Time	1	00:00:00	SEL	1	128.6 dB
Projected TWA	1	54.5 dB	Mntime	1	3/17/2020 3:47:45 PM
Mxtime	1	3/17/2020 11:50:42 AM	PKtime	1	3/17/2020 11:50:42 AM
Weighting	1	--	Range Ceiling	1	--
Criterion Level	1	--	ULL	1	--
Dynamic Range	1	--	Exchange Rate	1	--
Response	1	--	Int Threshold	1	--
Alarm Level 1	1	--	AlarmLevel2	1	--
Dosimeter Name	1	--			
Dose	2	0 %	Pdose	2	0 %
Lavg	2	--	Lpk	2	97.1 dB
Leq	2	54.8 dB	TWA	2	54.8 dB
UL Time	2	00:00:00	SEL	2	99.4 dB
Projected TWA	2	54.8 dB	Mntime	2	3/17/2020 3:47:46 PM

Mxtime	2	3/17/2020 11:50:42 AM	PKtime	2	3/17/2020 11:50:42 AM
Weighting	2	A	Range Ceiling	2	--
Criterion Level	2	90 dB	ULL	2	130 dB
Dynamic Range	2	--	Exchange Rate	2	3 dB
Response	2	SLOW	Integrating Threshold	2	80 dB
Alarm Level 1	2	--	AlarmLevel2	2	--
Dosimeter Name	2	--			

Logged Data Chart

S031: Logged Data Chart - Read Only



West Perimeter Session Report

4/8/2020

General Information

Name	S001
Comments	
Start Time	4/7/2020 8:02:19 AM
Stop Time	4/7/2020 4:02:20 PM
Run Time	08:00:01
Model Type	SoundPro DL
Serial Number	BGQ080006
Model Type	SoundPro DL
Device Firmware Rev	R.13H
Company Name	
Description	
Location	
User Name	

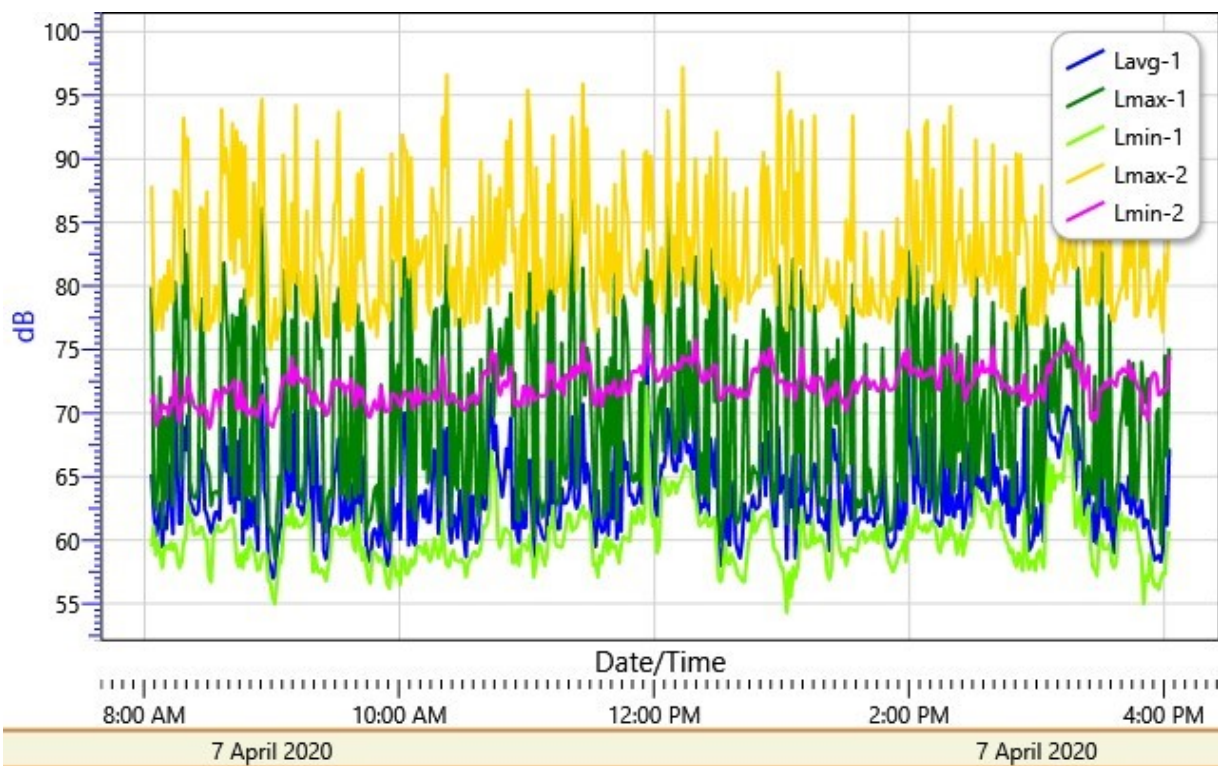
Summary Data

Description	Meter	Value	Description	Meter	Value
Dose	1	2.9 %	Pdose	1	8.8 %
Lavg	1	64.5 dB	Lpk	1	106.4 dB
Leq	1	--	TWA	1	64.5 dB
UL Time	1	01:34:58	SEL	1	138.5 dB
Projected TWA	1	72.4 dB	Mntime	1	4/7/2020 8:30:10 AM
Mxtime	1	4/7/2020 3:29:40 PM	PKtime	1	4/7/2020 2:15:40 PM
Weighting	1	--	Range Ceiling	1	--
Criterion Level	1	--	ULL	1	--
Dynamic Range	1	--	Exchange Rate	1	--
Response	1	--	Int Threshold	1	--
Alarm Level 1	1	--	AlarmLevel2	1	--
Dosimeter Name	1	--			
Dose	2	15.6 %	Pdose	2	15.6 %
Lavg	2	76.6 dB	Lpk	2	108.8 dB
Leq	2	--	TWA	2	76.6 dB
UL Time	2	00:00:00	SEL	2	150.6 dB
Projected TWA	2	76.6 dB	Mntime	2	4/7/2020 1:01:23 PM

Mxtime	2	4/7/2020 11:20:22 AM	PKtime	2	4/7/2020 11:20:22 AM
Weighting	2	C	Range Ceiling	2	--
Criterion Level	2	90 dB	ULL	2	115 dB
Dynamic Range	2	--	Exchange Rate	2	5 dB
Response	2	FAST	Integrating Threshold	2	100 dB
Alarm Level 1	2	--	AlarmLevel2	2	--
Dosimeter Name	2	--			

Logged Data Chart

S001: Logged Data Chart - Read Only





**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

APPENDIX C

PM10 DATA STATISTICS

South Perimeter PM10 Statistics Table

South side

Instrument		Data Properties	
Model	DustTrak DRX	Start Date	03/17/2020
Instrument S/N	8533172503	Start Time	07:40:56
		Stop Date	03/17/2020
		Stop Time	15:40:56
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics					
	PM1	PM2.5	RESP	PM10	TOTAL
Avg	0.064 mg/m ³	0.069 mg/m ³	0.073 mg/m ³	0.098 mg/m ³	0.128 mg/m ³
Max	1.480 mg/m ³	1.510 mg/m ³	1.580 mg/m ³	2.270 mg/m ³	3.310 mg/m ³
Max Date	03/17/2020	03/17/2020	03/17/2020	03/17/2020	03/17/2020
Max Time	07:48:56	07:48:56	07:48:56	07:48:56	07:48:56
Min	0.006 mg/m ³	0.006 mg/m ³	0.006 mg/m ³	0.006 mg/m ³	0.006 mg/m ³
Min Date	03/17/2020	03/17/2020	03/17/2020	03/17/2020	03/17/2020
Min Time	07:53:56	07:53:56	07:53:56	07:53:56	07:53:56
TWA (8 hr)	0.064	0.069	0.073	0.098	0.128
TWA Start Date	03/17/2020	03/17/2020	03/17/2020	03/17/2020	03/17/2020
TWA Start Time	07:40:56	07:40:56	07:40:56	07:40:56	07:40:56
TWA End Time	15:40:56	15:40:56	15:40:56	15:40:56	15:40:56

East Perimeter PM10 Statistics Table

East side

Instrument		Data Properties	
Model	DustTrak II	Start Date	03/17/2020
Instrument S/N	8530164021	Start Time	06:46:34
		Stop Date	03/17/2020
		Stop Time	14:46:34
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics	
	AEROSOL
Avg	0.018 mg/m ³
Max	8530.000 mg/m ³
Max Date	03/17/2020
Max Time	06:46:34
Min	0.005 mg/m ³
Min Date	03/17/2020
Min Time	06:56:34
TWA (8 hr)	0.018
TWA Start Date	03/17/2020
TWA Start Time	06:46:34
TWA End Time	14:46:34

North Perimeter PM10 Statistics Table

North side

Instrument		Data Properties	
Model	DustTrak DRX	Start Date	03/17/2020
Instrument S/N	8533173905	Start Time	08:03:19
		Stop Date	03/17/2020
		Stop Time	16:03:19
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics					
	PM1	PM2.5	RESP	PM10	TOTAL
Avg	0.011 mg/m ³	0.012 mg/m ³	0.012 mg/m ³	0.012 mg/m ³	0.012 mg/m ³
Max	0.064 mg/m ³	0.065 mg/m ³	0.069 mg/m ³	0.096 mg/m ³	0.125 mg/m ³
Max Date	03/17/2020	03/17/2020	03/17/2020	03/17/2020	03/17/2020
Max Time	15:46:19	15:46:19	15:46:19	15:46:19	15:46:19
Min	0.004 mg/m ³	0.004 mg/m ³	0.004 mg/m ³	0.004 mg/m ³	0.004 mg/m ³
Min Date	03/17/2020	03/17/2020	03/17/2020	03/17/2020	03/17/2020
Min Time	08:04:19	08:04:19	08:04:19	08:04:19	08:04:19
TWA (8 hr)	0.011	0.012	0.012	0.012	0.012
TWA Start Date	03/17/2020	03/17/2020	03/17/2020	03/17/2020	03/17/2020
TWA Start Time	08:03:19	08:03:19	08:03:19	08:03:19	08:03:19
TWA End Time	16:03:19	16:03:19	16:03:19	16:03:19	16:03:19

West Perimeter PM10 Statistics Table

West side

Instrument		Data Properties	
Model	DustTrak DRX	Start Date	03/17/2020
Instrument S/N	8533142908	Start Time	08:14:10
		Stop Date	03/17/2020
		Stop Time	16:14:10
		Total Time	0:08:00:00
		Logging Interval	60 seconds

Statistics					
	PM1	PM2.5	RESP	PM10	TOTAL
Avg	0.030 mg/m ³	0.030 mg/m ³	0.033 mg/m ³	0.050 mg/m ³	0.066 mg/m ³
Max	0.527 mg/m ³	0.546 mg/m ³	0.592 mg/m ³	0.923 mg/m ³	1.320 mg/m ³
Max Date	03/17/2020	03/17/2020	03/17/2020	03/17/2020	03/17/2020
Max Time	09:19:10	09:19:10	09:19:10	09:19:10	09:19:10
Min	0.006 mg/m ³	0.006 mg/m ³	0.006 mg/m ³	0.007 mg/m ³	0.007 mg/m ³
Min Date	03/17/2020	03/17/2020	03/17/2020	03/17/2020	03/17/2020
Min Time	08:17:10	08:17:10	08:17:10	08:20:10	09:04:10
TWA (8 hr)	0.030	0.030	0.033	0.050	0.066
TWA Start Date	03/17/2020	03/17/2020	03/17/2020	03/17/2020	03/17/2020
TWA Start Time	08:14:10	08:14:10	08:14:10	08:14:10	08:14:10
TWA End Time	16:14:10	16:14:10	16:14:10	16:14:10	16:14:10



Industrial Hygiene, Safety & Environmental Services

APPENDIX D

SITE MAP WITH SAMPLE LOCATIONS



Center

SLMN

PMN

SLMW

PMW

SLME

PME

Henderson Pit

E 120th Ave

E 120th A

PMS

SLMS



Industrial Hygiene, Safety & Environmental Services

December 31, 2019

Mr. Juan Padilla
Safety Officer
Henderson Pit
10925 East 120th Ave
Henderson, CO 80640

**RE: Quarter Four Perimeter Dust and Sound Level Monitoring
Henderson Pit
Henderson, Colorado
(FEI Project Number: IH19045)**

Foothills Environmental Inc. (FEI) was contracted to perform perimeter dust and sound level monitoring at the Henderson Pit located in Henderson, Colorado. Dust monitoring was performed for Particulate Matter 10 (PM10) at four (4) locations around the perimeter of the Henderson Pit site on December 23, 2019. Sound level monitoring was also performed at four (4) locations around the perimeter of the Henderson Pit property on December 23, 2019.

Executive Summary

The perimeter dust monitoring was performed for PM10 at four (4) locations around the perimeter of the Henderson Pit site. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particulate Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. The air monitoring was conducted during a typical work day at representative locations along the east, west, south and north sides of the Henderson Pit during site work operations from approximately 7:14 a.m. to 4:01 p.m.

Perimeter sound pressure level monitoring was performed at four (4) locations around the perimeter of the Henderson Pit site. The sound pressure levels were compared to the Adams County Chapter 4 Design Requirements and Performance Standards for Noise at 80 decibels (dB) for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.). The monitoring was conducted over one (1) day at representative locations along the north, south, east, and west sides of the Henderson Pit site during the work operations from approximately 7:18 a.m. 3:58 p.m.

Results of PM10 dust monitoring indicated that dust levels along the south, east, north, and west perimeters of the site were all below the NAAQS PM10 standard.

Results of the sound level monitoring measured at all locations for the sound pressure level assessment period showed that average sound levels were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.).

Methodology

Particulate Matter 10 (PM10) Monitoring

PM10 includes particles which have a diameter of 10 micrometers or less. PM10 air monitoring was conducted on December 23, 2019 over an 8 hour shift at representative locations along the east, west, south and north sides of the Henderson Pit. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particle Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. PM10 monitoring was conducted during normal work hours and for work activities with the highest potential to contribute to dust levels from 7:14 a.m. to 4:01 p.m.

PM10 sampling was performed with a TSI Dust Trak II Desktop 8530 Dust Trak /Aerosol Monitor. The Dust Trak Aerosol monitors were calibrated by the equipment manufacturer representative and field zeroed prior to each use. The battery was changed out for the instrument placed at the west perimeter and the instrument was off for approximately 17 minutes during the time period of 1:42 to 1:58 p.m.

Sound Level Monitoring

FEI collected sound pressure level measurements on December 23, 2019 from 7:18 a.m. to 3:58 p.m. at four (4) locations along the Henderson Pit perimeter. Samples were collected using a 3M Sound Pro SE/DL Sound Level Meter that was calibrated with a 114 decibels (dB) acoustic calibrator at the beginning of the day before use and placed at each location at a height of at least four (4) feet above the immediate surrounding surface for a total of eight (8) hours. The sound level meter was set to a measurement range of 30-140 decibels (dB) with a slow response time, set on the A frequency weighting and set to record an average noise measurement every minute. Measurements were compared to the Adams County Maximum Sound Pressure Level of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

See Appendix A for site photos showing the perimeter sampling locations and site conditions. See Appendix D for a site map showing the sample locations.

Results

Particulate Matter 10 (PM10) Monitoring

See Table 1, for results of PM10 levels identified during this air monitoring assessment conducted on December 23, 2019. Results of direct read air monitoring recorded during site work activities showed that PM10 levels based on an 8-hour average were between 56 and 91 $\mu\text{g}/\text{m}^3$ for the four (4) locations monitored and were below the NAAQS level for PM10 at 150 $\mu\text{g}/\text{m}^3$. The highest recorded peak dust level of 666 $\mu\text{g}/\text{m}^3$ was recorded at the west perimeter location at 9:16 a.m.

However, the peak dust level was a short term occurrence of one (1) minute or less and then dropped to 69 $\mu\text{g}/\text{m}^3$ at 9:18 a.m. See Appendix C for PM10 data statistics reports.

Table 1. Results of TSI Dust Trak II PM10 Air Sampling (December 23, 2019)

Sample No. (Date)	Sample Location	Duration (min)	Average ($\mu\text{g}/\text{m}^3$)	8 Hour Average ($\mu\text{g}/\text{m}^3$)	Maximum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	Minimum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	EPA NAAQS ($\mu\text{g}/\text{m}^3$) 24-hour Average	Exceedance of NAAQS
PMS (12/23/19)	South perimeter	484	69	69	351	16	150	No
PME (12/23/19)	East perimeter	393	59	56	611	20	150	No
		101	35					
PMN (12/23/19)	North perimeter	497	61	62	241	30	150	No
PMW (12/23/19)	(1) West perimeter	476	90	91	666	23	150	No

EPA: Environmental Protection Agency
 $\mu\text{g}/\text{m}^3$: microgram per cubic meter

NAAQS: National Ambient Air Quality Standard

⁽¹⁾ The instrument was off for approximately 17 minutes while the battery was changed out during the time period of 1:42 to 1:58 p.m.

Sound Level Monitoring

See Table 2 for results of the sound level monitoring recorded at the south, north, east and west perimeters at Henderson Pit. Results of monitoring indicated that the sound pressure levels during the monitoring period based on an eight hour average were between 54.3 dB and 65.1 dB. This was below the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for a continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). See Appendix B for sound pressure level graphs.

Table 2. Results of Perimeter Sound Level Monitoring (December 23, 2018)

Sample No. (Date)	Sample Location	Duration (min)	TWA Average	8 Hour Average (L_{eq})	Maximum Recorded Measurement (L_{max})	Minimum Recorded Measurement (L_{min})	Adams County Maximum Permissible Sound Pressure Level	Exceedance of Adams County Standard
SLM-S (12/23/19)	South perimeter	484	65.1	65.1	88.8	55.3	80 dB	No
SLM-E (12/23/19)	East perimeter	502	57.6	57.4	82.5	46.9	80 dB	No
SLM-N (12/23/19)	North perimeter	496	54.3	54.2	73.3	46.5	80 dB	No
SLM-W (12/23/19)	West perimeter	491	64.6	64.5	86.7	49.9	80 dB	No

Leq: Level Average

Lmax: Level Maximum

Lmin: Level Minimum

dB: Decibels (A-weighted)

Discussion

Particulate Matter 10 (PM10) Monitoring

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to active roadways and had the highest 8-hour average PM10 levels. Water trucks were used on site to keep the roadways wet and reduced dust generation from vehicle traffic. Monitoring location #2 (east perimeter) was farthest from vehicle traffic and recorded the lowest 8 hour average PM10 level. Monitoring location #3 (north perimeter) recorded the 2nd lowest 8 hour average PM10 level. An aggregate conveyor belt and sifting operations were conducted near the north perimeter of the site which may have contributed to the PM10 levels recorded at the north location. Periodic spikes in PM10 levels were observed at all monitoring locations. Periodic spikes in PM10 levels generally lasted for one to two minutes and levels quickly dropped below 150 $\mu\text{g}/\text{m}^3$. The short duration PM10 spike levels are attributed to passing trucks and machinery where momentary increases in dust levels were recorded by the Dust Trak meters. The west perimeter monitoring location recorded the highest frequency of PM10 dust level spikes which is attributed to the close proximity to the west perimeter road where haul trucks are leaving the site. See Appendix A for PM10 data statistics.

Sound Level Monitoring

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to the haul truck roads and site activity, including site arrival and departure roads within the Henderson Pit site. The instruments at those locations recorded the two (2) highest 8-hour average sound pressure levels.

Monitoring location #2 (east perimeter) was adjacent to a road which had minimal traffic, but was the closest to train tracks located to the east of the site. Monitoring location #3 (north perimeter) was approximately 100 feet from the closest noise source which was an operating rock sifter. Sound pressure levels recorded at these locations were the two (2) lowest.

The monitoring instrument at the south perimeter location recorded a few short term exceedances over 80 dB lasting a few seconds to approximately one (1) minute or less which contributed to less than 0.1% of the total monitoring time.

Sound level measurement graphs are provided in Appendix C of this report.

Conclusions and Recommendations

Results of perimeter area air monitoring for PM10 levels during the monitoring assessment conducted during site work activities on December 23, 2019 show that PM10 levels based on an 8-hour average duration were between 56 and 91 $\mu\text{g}/\text{m}^3$ for the four (4) locations monitored and were all below the NAAQS level for Particle Pollution (PM10) at 150 $\mu\text{g}/\text{m}^3$. Although the NAAQS level for Particle Pollution (PM10) is based on an average over a 24 hour duration, operations at the Henderson Pit are conducted exclusively during the daytime. Therefore, an 8 hour sampling duration was selected which is representative of worst case dust and sound pressure levels during work operations. Actual dust and noise levels are expected to be lower during night time or non-work hours.

The results of the sound level monitoring show that average sound pressure levels for all locations were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

Limitations

This assessment was limited to conditions present during the time period the monitoring was performed. FEI utilized state-of-the-art practices and techniques in accordance with regulatory standards while performing this evaluation. FEI's evaluation of the PM10 dust levels and sound level measurements identified during this assessment are based on conditions observed at the time of the monitoring assessment. FEI cannot be responsible for changing conditions that may alter the relative exposure risk or for future changes in accepted methodology.

Please do not hesitate to contact FEI at (303) 232-2660 if you have any questions regarding this report.

Sincerely,

Reviewed by,



Industrial Hygiene, Safety & Environmental Services

A handwritten signature in cursive script that reads "Ronald Crandall".

Ronald Crandall, CIH, CHMM
Senior Industrial Hygienist

A handwritten signature in cursive script that reads "Jason Martin".

Jason Martin, CIH, CSP
Senior Industrial Hygienist

Appendices:

Appendix A - Site Photos

Appendix B - Sound Level Graphs

Appendix C - PM10 Data Statistics Reports

Appendix D - Site Map with Sample Locations



**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

APPENDIX A

SITE PHOTOS



Sound Level Meter and Particulate Dust Monitor – South Perimeter Sample Location



Sound Level Meter and Particulate Dust Monitor – East Perimeter Sample Location



Sound Level Meter and Particulate Dust Monitor – North Perimeter Sample Location



Sound Level Meter and Particulate Dust Monitor – West Perimeter Sample Location



**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

APPENDIX B

SOUND LEVEL GRAPHS

South Side Sound Level Report

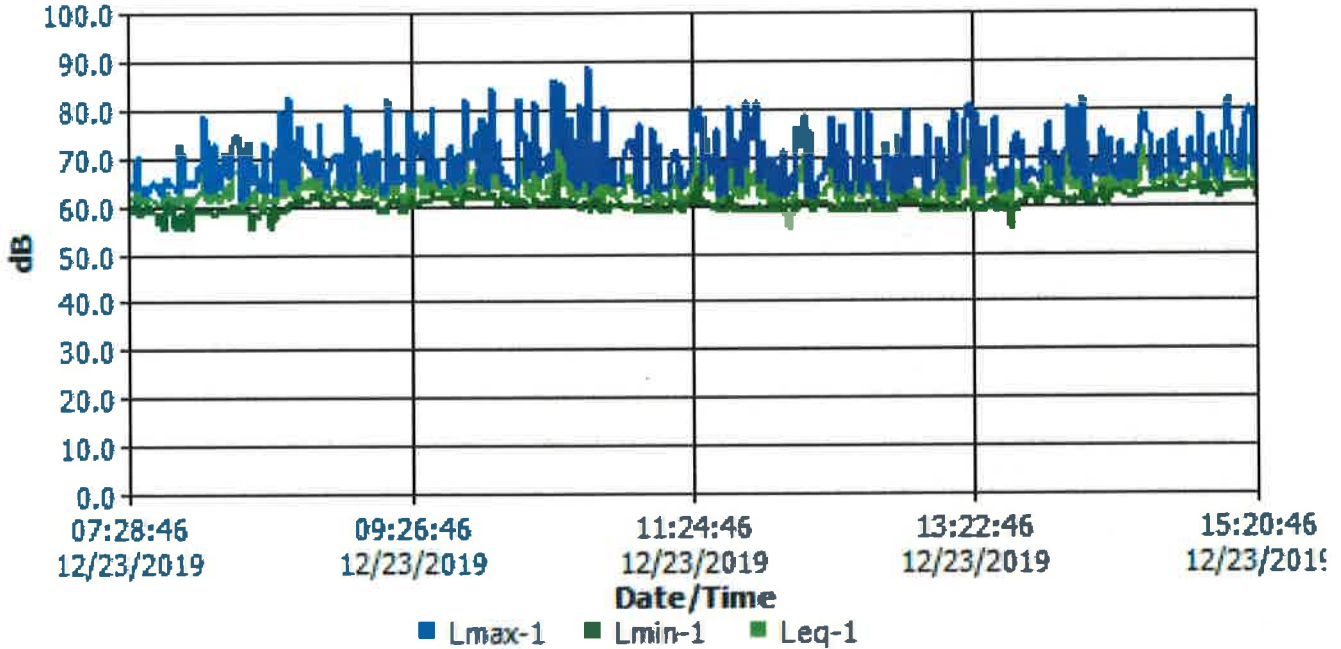
Information Panel

Name South_BIJ060020_23122019
 Start Time Monday, December 23, 2019 07:17:46
 Stop Time Monday, December 23, 2019 15:21:30
 Device Model Type SoundPro DL
 Comments

General Data Panel

Description	Meter	Value	Description	Meter	Value
Lmin	1	55.3 dB	Dose	1	0.3 %
Lmax	1	88.8 dB	Leq	1	65.1 dB
TWA	1	65.1 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	1/1	Lmin	2	55.3 dB
Lmax	2	88.8 dB	Exchange Rate	2	5 dB
Weighting	2	A	Response	2	SLOW

Logged Data Chart



East Side Sound Level Report

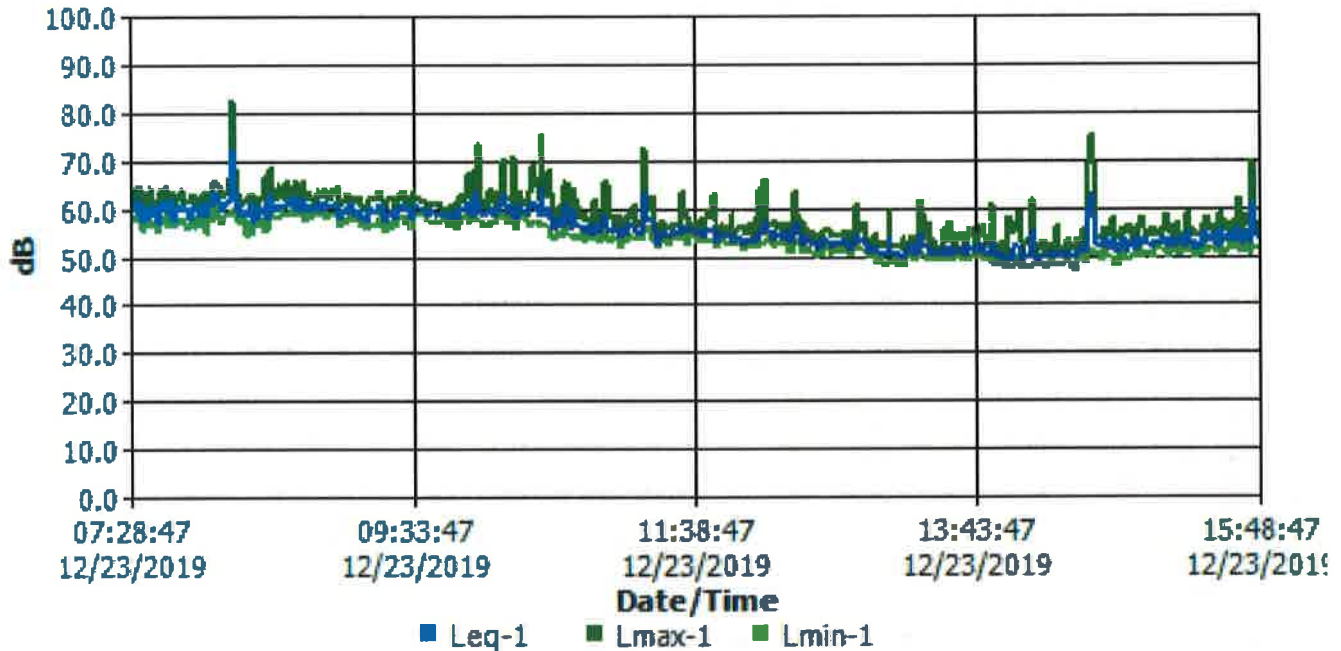
Information Panel

Name East_BJM120006_23122019
 Start Time Monday, December 23, 2019 07:27:47
 Stop Time Monday, December 23, 2019 15:49:09
 Device Model Type SoundPro DL
 Comments

General Data Panel

Description	Meter	Value	Description	Meter	Value
Lmin	1	46.9 dB	Lmax	1	82.5 dB
TWA	1	57.6 dB	Leq	1	57.4 dB
Mxtime	1	12/23/2019 8:13:27 AM	Lavg	2	56.5 dB
Lmin	2	46.8 dB	Lmax	2	82.4 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	A
Response	2	SLOW			

Logged Data Chart



North Side Sound Level Report

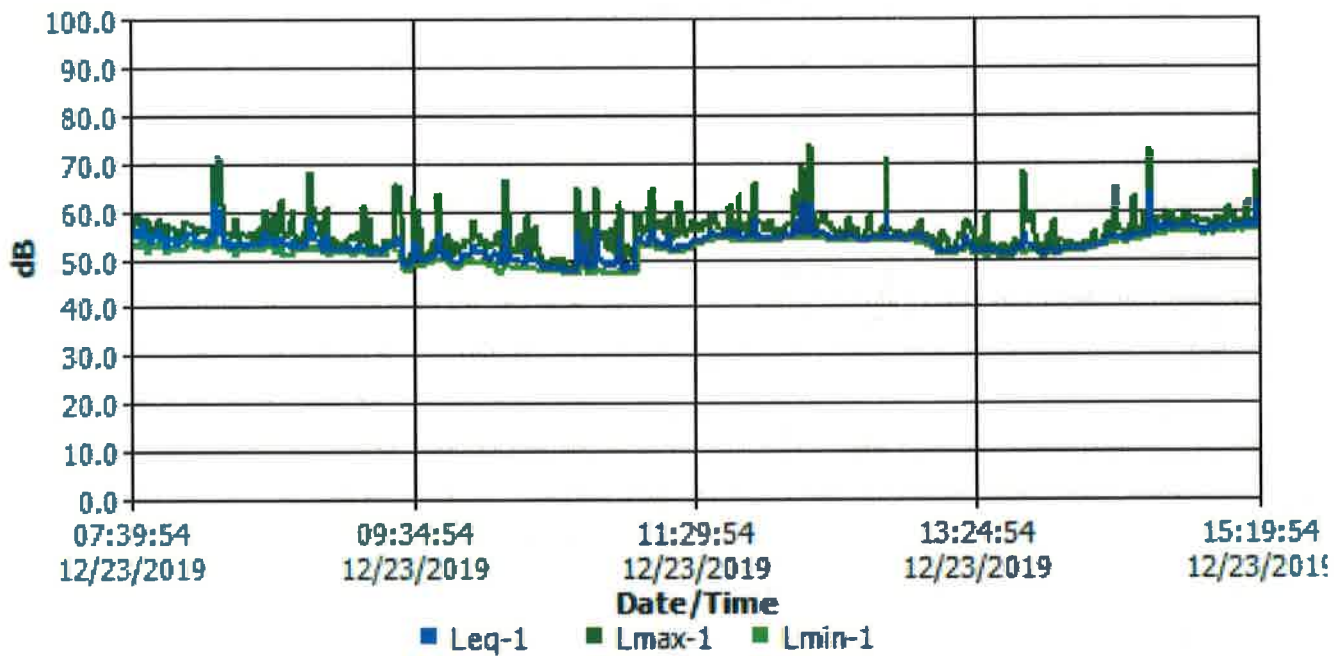
Information Panel

Name North_BIJ090028_24122019
 Start Time Monday, December 23, 2019 07:38:21
 Stop Time Monday, December 23, 2019 15:54:07
 Device Model Type SoundPro DL
 Comments

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	54.2 dB	Lmin	1	46.5 dB
Lmax	1	73.3 dB	TWA	1	54.3 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	3 dB	Weighting	2	A
Response	2	SLOW			

Logged Data Chart



West Side Sound Level Report

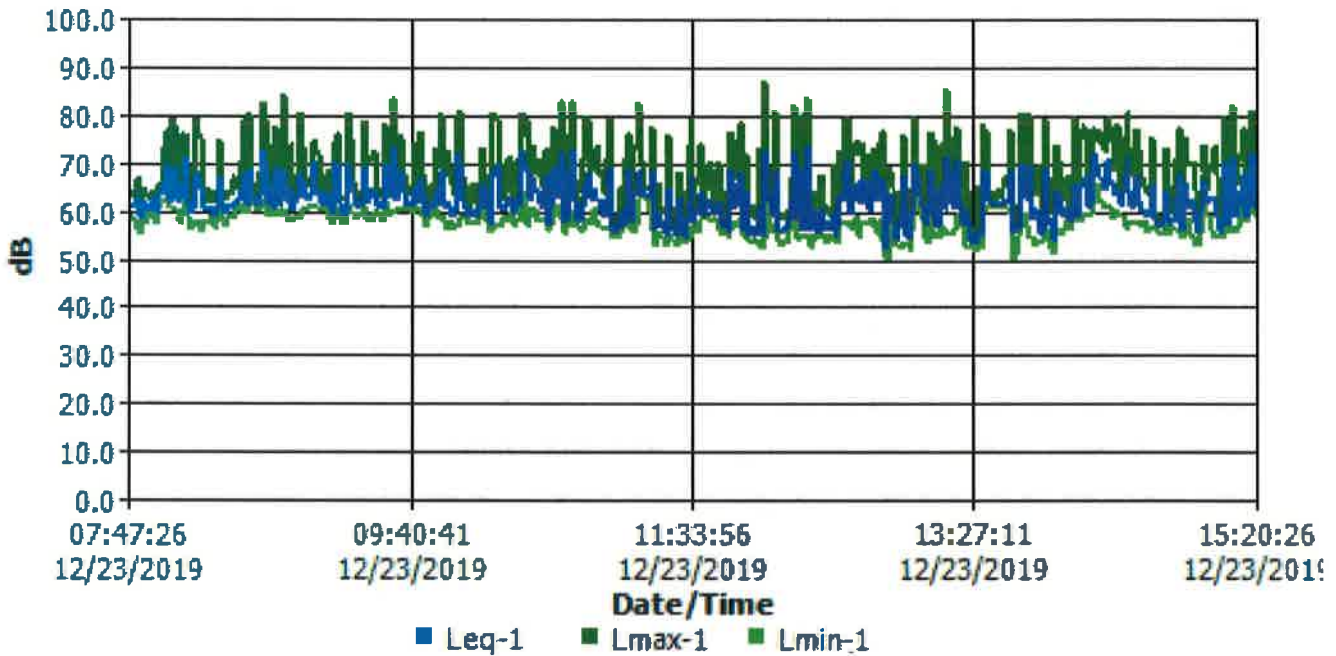
Information Panel

Name West_BIG030012
 Start Time Monday, December 23, 2019 07:46:26
 Stop Time Monday, December 23, 2019 15:58:58
 Device Model Type SoundPro DL
 Comments

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	64.5 dB	Lmin	1	49.9 dB
Lmax	1	86.7 dB	TWA	1	64.6 dB
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW	Bandwidth	1	OFF
Exchange Rate	2	5 dB	Weighting	2	C
Response	2	SLOW			

Logged Data Chart





**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

APPENDIX C

PM10 DATA STATISTICS

Test 001

East Side AM

Instrument		Data Properties	
Model	DustTrak II	Start Date	12/23/2019
Instrument S/N	8530164021	Start Time	07:23:53
		Stop Date	12/23/2019
		Stop Time	13:56:53
		Total Time	0:06:33:00
		Logging Interval	60 seconds

Statistics	
	AEROSOL
Avg	0.059 mg/m ³
Max	0.611 mg/m ³
Max Date	12/23/2019
Max Time	09:44:53
Min	0.020 mg/m ³
Min Date	12/23/2019
Min Time	07:29:53
TWA (8 hr)	0.049
TWA Start Date	12/23/2019
TWA Start Time	07:23:53
TWA End Time	13:56:53

Test 002

East Side PM

Instrument		Data Properties	
Model	DustTrak II	Start Date	12/23/2019
Instrument S/N	8530164021	Start Time	13:57:39
		Stop Date	12/23/2019
		Stop Time	15:38:39
		Total Time	0:01:41:00
		Logging Interval	60 seconds

Statistics	
	AEROSOL
Avg	0.035 mg/m ³
Max	0.076 mg/m ³
Max Date	12/23/2019
Max Time	14:34:39
Min	0.026 mg/m ³
Min Date	12/23/2019
Min Time	14:24:39
TWA (8 hr)	0.007
TWA Start Date	12/23/2019
TWA Start Time	13:57:39
TWA End Time	15:38:39

Test 002

North Side

Instrument		Data Properties	
Model	DustTrak II	Start Date	12/23/2019
Instrument S/N	8530172410	Start Time	07:36:46
		Stop Date	12/23/2019
		Stop Time	15:53:46
		Total Time	0:08:17:00
		Logging Interval	60 seconds

Statistics	
AEROSOL	
Avg	0.061 mg/m ³
Max	0.241 mg/m ³
Max Date	12/23/2019
Max Time	09:24:46
Min	0.030 mg/m ³
Min Date	12/23/2019
Min Time	14:20:46
TWA (8 hr)	0.062
TWA Start Date	12/23/2019
TWA Start Time	07:36:46
TWA End Time	15:53:46

Test 001

South Side

Instrument		Data Properties	
Model	DustTrak II	Start Date	12/23/2019
Instrument S/N	8530170717	Start Time	07:14:29
		Stop Date	12/23/2019
		Stop Time	15:18:29
		Total Time	0:08:04:00
		Logging Interval	60 seconds

Statistics	
	AEROSOL
Avg	0.069 mg/m ³
Max	0.351 mg/m ³
Max Date	12/23/2019
Max Time	09:59:29
Min	0.016 mg/m ³
Min Date	12/23/2019
Min Time	07:37:29
TWA (8 hr)	0.069
TWA Start Date	12/23/2019
TWA Start Time	07:14:29
TWA End Time	15:18:29

Test 001

West Side

Instrument		Data Properties	
Model	DustTrak II	Start Date	12/23/2019
Instrument S/N	8530172022	Start Time	07:48:22
		Stop Date	12/23/2019
		Stop Time	16:01:22
		Total Time	0:08:13:00
		Logging Interval	60 seconds

Statistics	
AEROSOL	
Avg	0.090 mg/m ³
Max	0.666 mg/m ³
Max Date	12/23/2019
Max Time	09:16:22
Min	0.000 mg/m ³
Min Date	12/23/2019
Min Time	13:59:15
TWA (8 hr)	0.091
TWA Start Date	12/23/2019
TWA Start Time	07:48:22
TWA End Time	16:01:22



Industrial Hygiene, Safety & Environmental Services

APPENDIX D

SITE MAP WITH SAMPLE LOCATIONS



Center

SLMN

PMN

SLMW

PMW

SLME

PME

Henderson Pit

E 120th Ave

E 120th A

PMS

SLMS



Industrial Hygiene, Safety & Environmental Services

October 10, 2019

Mr. Juan Padilla
Safety Officer
Henderson Pit
10925 East 120th Ave,
Henderson, CO 80640

**RE: Third Quarter 2019 Perimeter Dust and Sound Level Monitoring Report
Henderson Pit
Henderson, Colorado
(FEI Project Number: IH19030)**

Foothills Environmental Inc. (FEI) was contracted to perform perimeter dust and sound level monitoring at the Henderson Pit located in Henderson, Colorado. Dust monitoring was performed for Particulate Matter 10 (PM10) at four locations around the perimeter of the Henderson Pit site on September 16, 2019. Sound level monitoring was also performed at four locations around the perimeter of the Henderson Pit property on September 16, 2019.

Executive Summary

The perimeter dust monitoring was performed for PM10 at four locations around the perimeter of the Henderson Pit site. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particulate Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. The air monitoring was conducted during a typical work day at representative locations along the east, west, south and north side of the Henderson Pit during site work operations from approximately 7:17 a.m. to 04:03 p.m.

Perimeter sound pressure level monitoring was performed at four locations around the perimeter of the Henderson Pit site. The sound pressure levels were compared to the Adams County Chapter 4 Design Requirements and Performance Standards for Noise at 80 decibels (dB) for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). The monitoring was conducted over one day at representative locations along the north, south, east, and west sides of the Henderson Pit site during the work operations from approximately 07:11 a.m. to 04:02 p.m.

Results of PM10 dust monitoring indicates that dust levels along the north, east, west and south perimeter of the site were below the NAAQS PM10 standard. Results of the sound level monitoring measured at three (3) locations for the sound pressure level assessment period were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). Monitoring location #1 (south perimeter) exceeded the Maximum Permissible Sound Pressure Level set by Adams County.

Methodology

Particulate Matter 10 (PM10) Monitoring

PM10 includes particles which have a diameter of 10 micrometers or less. PM10 air monitoring was conducted on September 16, 2019 over an 8 hour shift at representative locations along the east, west, south and north side of the Henderson Pit. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particle Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. PM10 monitoring was conducted during normal work hours and for work activities with the highest potential to contribute to dust levels from 7:17 a.m. to 4:03 p.m.

PM10 sampling was performed with TSI Dust Trak II and TSI DRX Dust/Aerosol Monitor. The Dust Trak Aerosol monitors were calibrated by the equipment manufacturer representative and field zeroed prior to each use.

Sound Level Monitoring

FEI collected sound pressure level measurements on September 16, 2019 from 07:09 a.m. to 04:04 p.m. at four (4) locations along the Henderson Pit perimeter. Samples were collected using a 3M Sound Pro SE/DL Sound Level Meter that was calibrated with a 114 decibels (dB) acoustic calibrator at the beginning of the day before use and placed at each location at a height of at least four (4) feet above the immediate surrounding surface for a total of eight (8) hours. The sound level meter was set to a measurement range of 30-140 decibels (dB) with a slow response time, set on the A frequency weighting and set to record an average noise measurement every minute. Measurements were compared to the Adams County Maximum Sound Pressure Level of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (07 a.m. – 10 p.m.).

See Attachment 1 for site photos showing the perimeter sampling locations and site conditions. See Attachment 4 for a site map showing the sample locations.

Results

Particulate Matter 10 (PM10) Monitoring

See Table 1, for results of PM10 levels identified during this air monitoring assessment conducted on September 16, 2019. Results of direct read air monitoring recorded during site work activities showed that PM10 levels based on an 8 hour average were between 45 and 61 $\mu\text{g}/\text{m}^3$ for the four locations monitored and were all below the NAAQS level for PM10 at 150 $\mu\text{g}/\text{m}^3$. See Attachment 3 for PM10 graphs.

Table 1. Results of TSI Dust Trak II and DRX PM10 Air Sampling (September 16, 2019)

Sample No. (Date)	Sample Location	Duration (min)	Average of 8 hours ($\mu\text{g}/\text{m}^3$)	Maximum ⁽¹⁾ Recorded Measurement ($\mu\text{g}/\text{m}^3$)	Minimum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	EPA NAAQS ($\mu\text{g}/\text{m}^3$) 24-hour Average	Exceedance of NAAQS
PMS (9/16/19)	South perimeter	480	52	752	4	150	No
PME (9/16/19)	East perimeter	480	45	738	14	150	No
PMN (9/16/19)	North perimeter	480	48	475	5	150	No
PMW (9/16/19)	West perimeter	480	61	1870	15	150	No

⁽¹⁾: Maximum recorded PM10 levels were measured for a brief period lasting for a few minutes while trucks were passing by and dust levels quickly returned below the NAAQS standard.

EPA: Environmental Protection Agency

NAAQS: National Ambient Air Quality Standard

$\mu\text{g}/\text{m}^3$: microgram per cubic meter

Sound Level Monitoring

See Table 2 for results of the sound level monitoring recorded at the south, north, east and west perimeter at Henderson Pit. Results of monitoring indicated that the sound pressure levels during the monitoring period based on an eight hour average were between 53.3 dB and 85.5 dB. All but one sampling site were below the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for a continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). Monitoring location # 1 (south perimeter) exceeded the Maximum Permissible Sound Pressure Level set by Adams County. See attachment 3 for sound pressure level graphs.

Table 2. Results of Perimeter Sound Level Monitoring (September 16, 2019)

Sample No. (Date)	Sample Location	Duration (min)	Average (L_{eq})	Maximum Recorded Measurement (L_{max})	Minimum Recorded Measurement (L_{min})	Adams County Maximum Permissible Sound Pressure Level	Exceedance of Adams County Standard
SLMS (9/16/19)	South perimeter	480	85.5	105.1	58.7	80 dB	Yes
SLME (9/16/19)	East perimeter	480	56.9	80.6	47.2	80 dB	No
SLMN (9/16/19)	North perimeter	480	53.3	76.0	44.2	80 dB	No
SLMW (9/16/19)	West perimeter	480	67.8	100.0	49.8	80 dB	No

Leq: Level Average

Lmax: Level Maximum

Lmin: Level Minimum

dB: Decibels (A-weighted)

Discussion

Particulate Matter 10 (PM10) Monitoring

Monitoring location #2 and #3 (east and north perimeters, respectively) were furthest away from active truck hauling and dirt sifting activities. Therefore average PM10 levels at these locations were lower than other sampling locations which were proximal to a roadway and heavy machinery. Monitoring location #1 and #4 (south and west perimeters, respectively) were closest to an active roadway and recorded the highest readings. A water truck was used to periodically to spray the roads for dust suppression; however, increased dust suppression should be implemented in areas of high roadway use in order to keep dust levels down.

Sampling location #1 (south perimeter) and location #4 (west perimeter) were closest to haul truck activities, including site arrival and departure roads within the Henderson Pit site. Therefore, peak PM10 levels at these two locations were higher than monitoring locations #2 and #3 (east and north perimeters, respectively) which were adjacent to roads with less traffic. Increased levels of particulate matter would therefore be expected around the south and west perimeters.

Periodic spikes in PM10 levels were observed at all monitoring locations. Monitoring location #1 along the south perimeter documented a momentary increase in PM10 level at 3:05 p.m. lasting approximately one minute and peaking at $752 \mu\text{g}/\text{m}^3$. Monitoring location #2 along the east perimeter recorded a PM10 level spike at 7:33 p.m. lasting approximately one minute and peaking at $738 \mu\text{g}/\text{m}^3$. Monitoring location #3 along the north perimeter observed a PM10 level spike at 1:22 p.m. lasting approximately one minute and peaking at $475 \mu\text{g}/\text{m}^3$. Monitoring location #4 along the west perimeter recorded a PM10 level spike at 10:24 a.m. lasting approximately fourteen minutes and peaking at $1,870 \mu\text{g}/\text{m}^3$. This prolonged spike was possibly due to a sweeper truck in the area sweeping roads south of Monitoring location #4. Momentary elevated PM10 levels may have been attributed to passing trucks during intervals between site wetting activities, an increase

in soil moving or driving activities, and wind blowing towards the PM10 monitors. See Attachment 3 for PM10 graphs.

Sound Level Monitoring

Monitoring locations #1 (south perimeter) and location #4 (west perimeter) were closest to truck hauling activities, including site arrival and departure roads within the Henderson Pit site. Monitoring locations #3 and #2 (north and east perimeters, respectively) were relatively far from any roadway. Therefore, sound pressure levels at the south and west locations were higher than the east and north monitoring locations due to the close presence of passing trucks and nearby heavy machinery operating continuously. The monitoring location at the south perimeter was also in close proximity to shipping and storage containers which may have caused reverberation of sound pressure levels.

The east and north perimeter monitoring locations had no short term exceedances above 80 dB during the monitoring period. The south location recorded exceedances over 80 dB which contributed to 59% of the total monitoring time. The west location recorded exceedances over 80 dB which contributed to 0.77% of the total monitoring time.

Monitoring location #1's distance to nearest potential receptors is approximately 300 - 400 feet. Therefore, the effect of higher sound pressure on the south side of the property would be lessened by the significant amount of distance to the nearest receptor(s). See Attachment #4 for a map of monitoring location #4 and potential nearest receptors.

Table 3 shows the average, maximum and minimum sound levels at all four monitoring locations. Sound level measurement graphs are provided in Attachment 3 of this report.

Conclusions and Recommendations

Results of perimeter area air monitoring for PM10 levels identified during this air monitoring assessment conducted during site work activities on September 16, 2019 show that PM10 levels based on an eight (8) hour average duration were between 45 and 61 $\mu\text{g}/\text{m}^3$ for the four locations monitored and were below the NAAQS level for Particle Pollution (PM10) at 150 $\mu\text{g}/\text{m}^3$. Although the NAAQS level for Particle Pollution (PM10) is based on an average over a 24 hour duration, operations at the Henderson Pit are conducted exclusively during the daytime. Therefore, an 8 hour sampling duration was selected which is representative of worst case dust and sound pressure levels during work operations. Actual dust and noise levels are expected to be lower during night time or non-work hours.

Average noise monitoring results recorded at three locations over the sound pressure level assessment period were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). Monitoring location # 1 (south perimeter) exceeded the Maximum Permissible Sound Pressure Level set by Adams County.

Limitations

This assessment was limited to conditions present during the time period the monitoring was performed. FEI utilized state-of-the-art practices and techniques in accordance with regulatory standards while performing this evaluation. FEI's evaluation of the PM10 dust levels and sound level measurements identified during this assessment are based on conditions observed at the time of the monitoring assessment. FEI cannot be responsible for changing conditions that may alter the relative exposure risk or for future changes in accepted methodology.

Please do not hesitate to contact FEI at (303) 232-2660 if you have any questions regarding this report.

Sincerely,

Reviewed by,



Ben Wilson
Industrial Hygienist



Ronald Crandall, CIH, CHMM
Senior Industrial Hygienist

Attachments:

- Attachment 1 - Site Photos
- Attachment 2 - Sound Level Graphs
- Attachment 3 - PM10 Graphs
- Attachment 4 - Site Map with Sample Locations



**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

ATTACHEMENT 1

SITE PHOTOS



Foothills Environmental, Inc.

Industrial Hygiene, Safety & Environmental Services



PM10 Sample # PMS and Sound Level Monitoring
Sample #SLMS on the south perimeter of
Henderson Pit (looking west, typical)



PM10 Sample # PMN and Sound Level Monitoring
Sample #SLMN on the north perimeter of
Henderson Pit (looking north, typical)

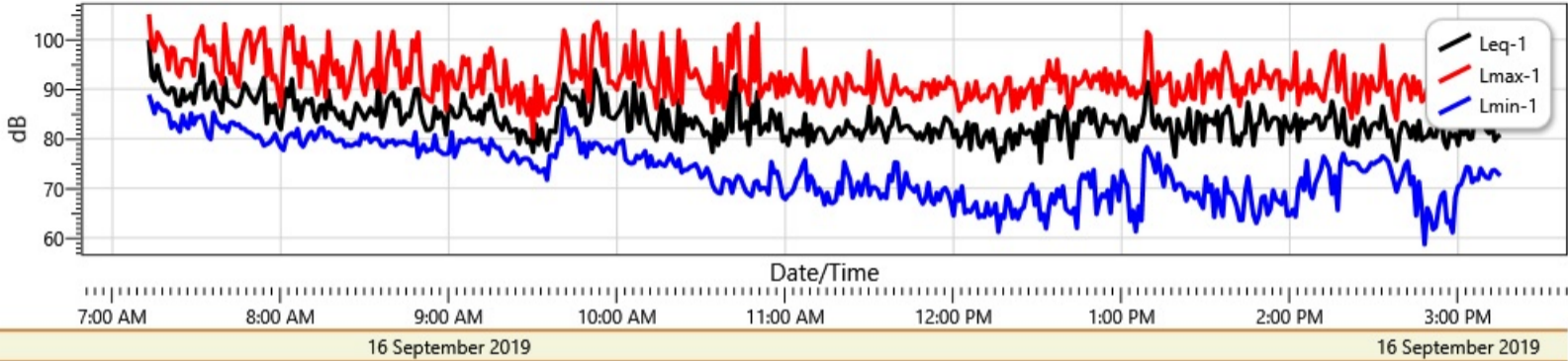


**Foothills
Environmental, Inc.**

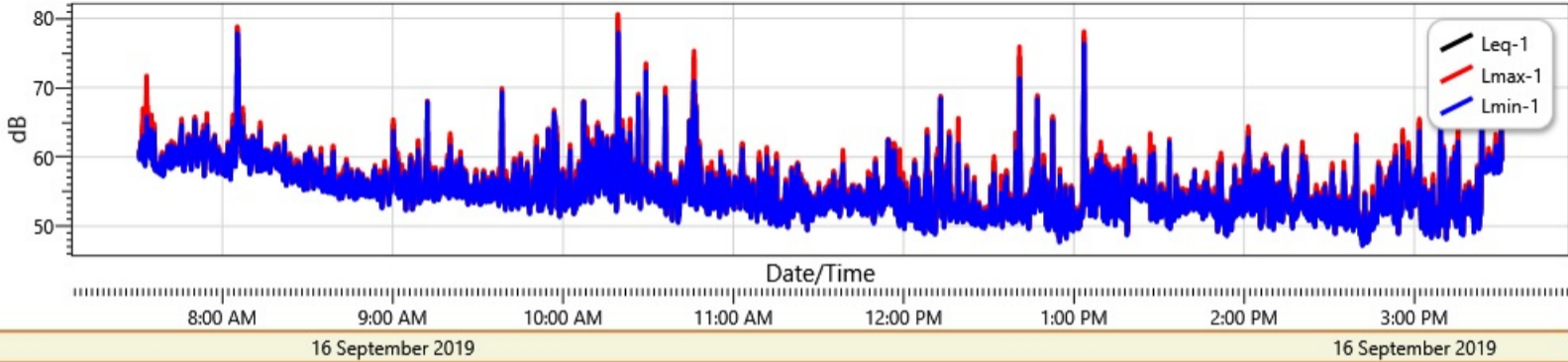
Industrial Hygiene, Safety & Environmental Services

ATTACHMENT 2

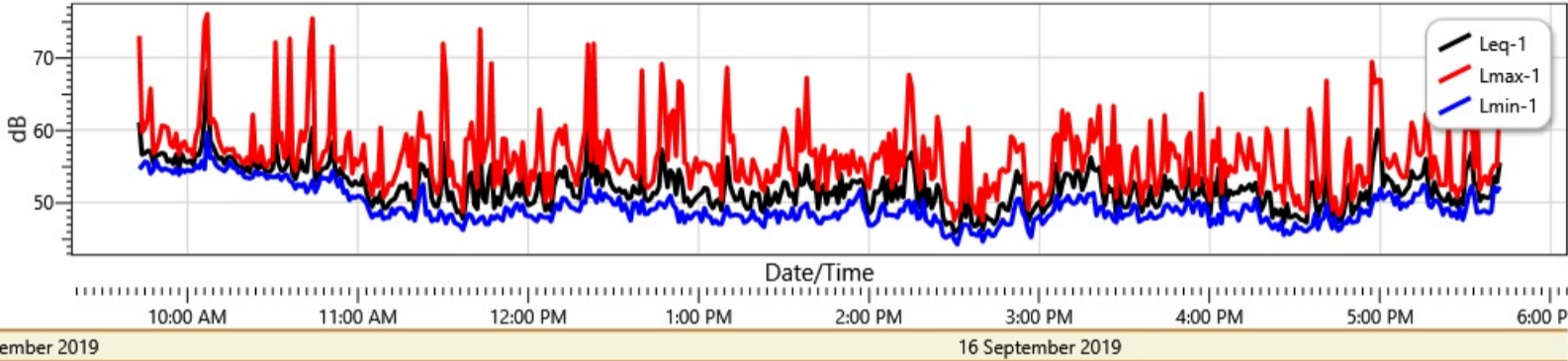
SOUND LEVEL GRAPHS



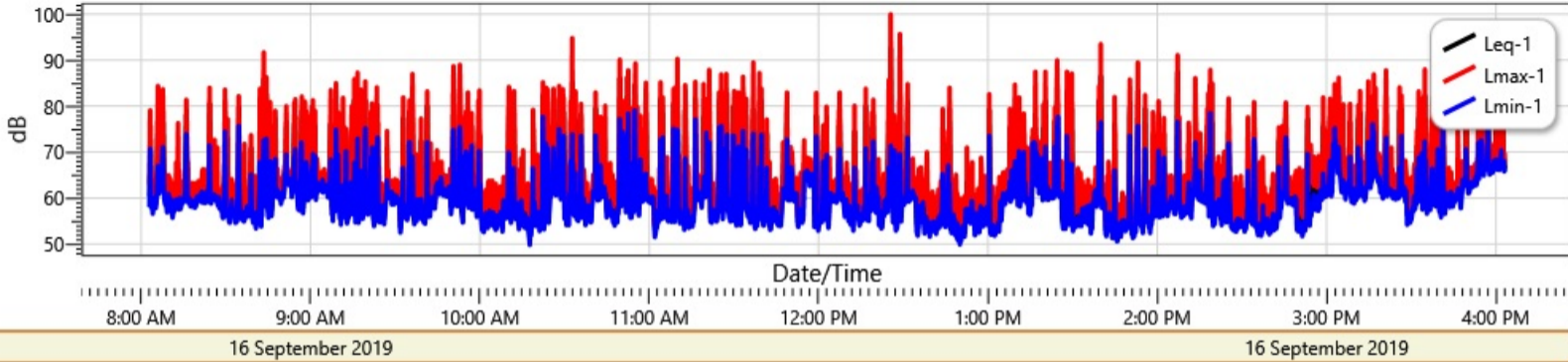
Henderson South SLM Graph



Henderson East SLM Graph



Henderson North SLM Graph



Henderson West SLM Graph



**Foothills
Environmental, Inc.**

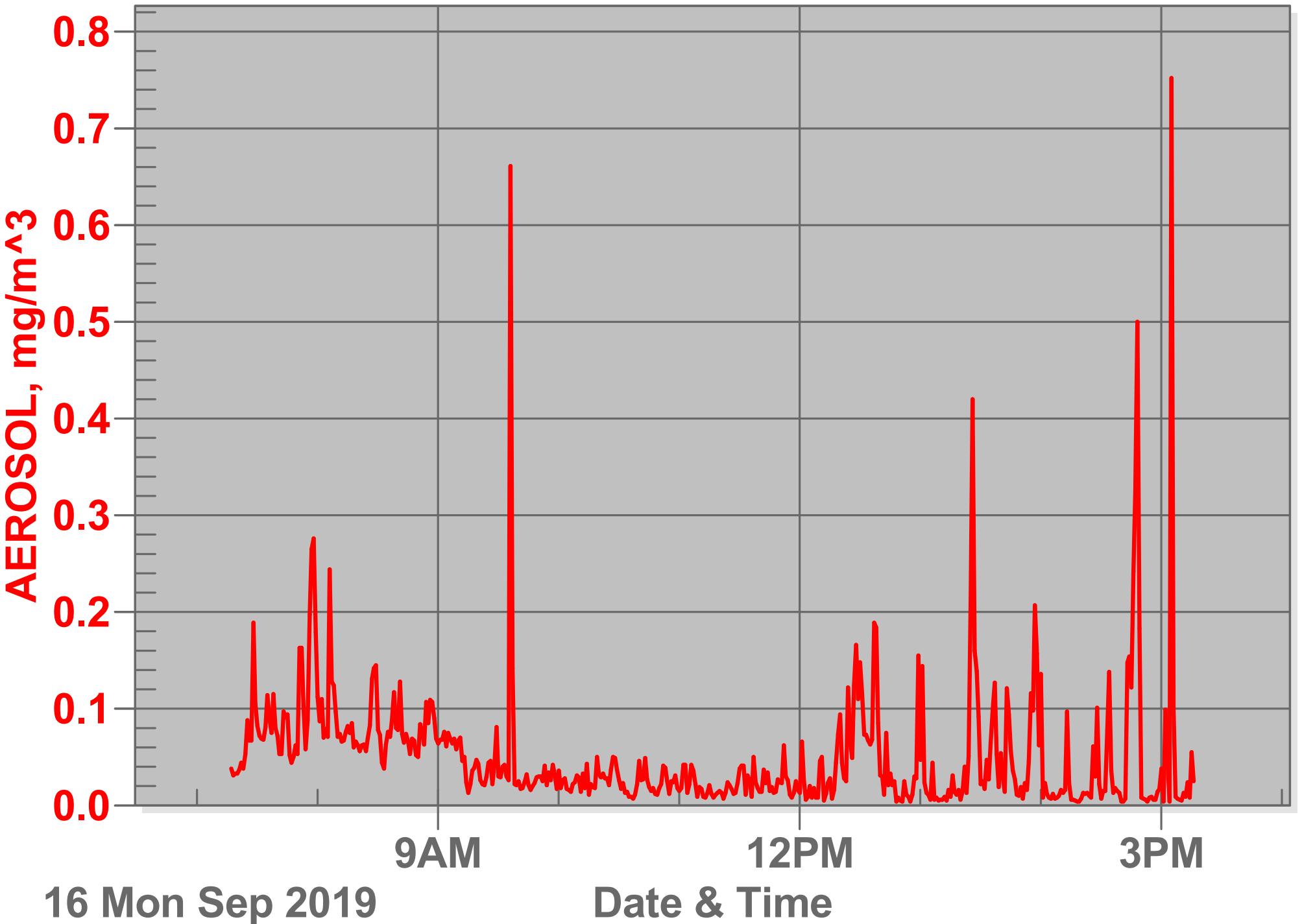
Industrial Hygiene, Safety & Environmental Services

ATTACHMENT 3

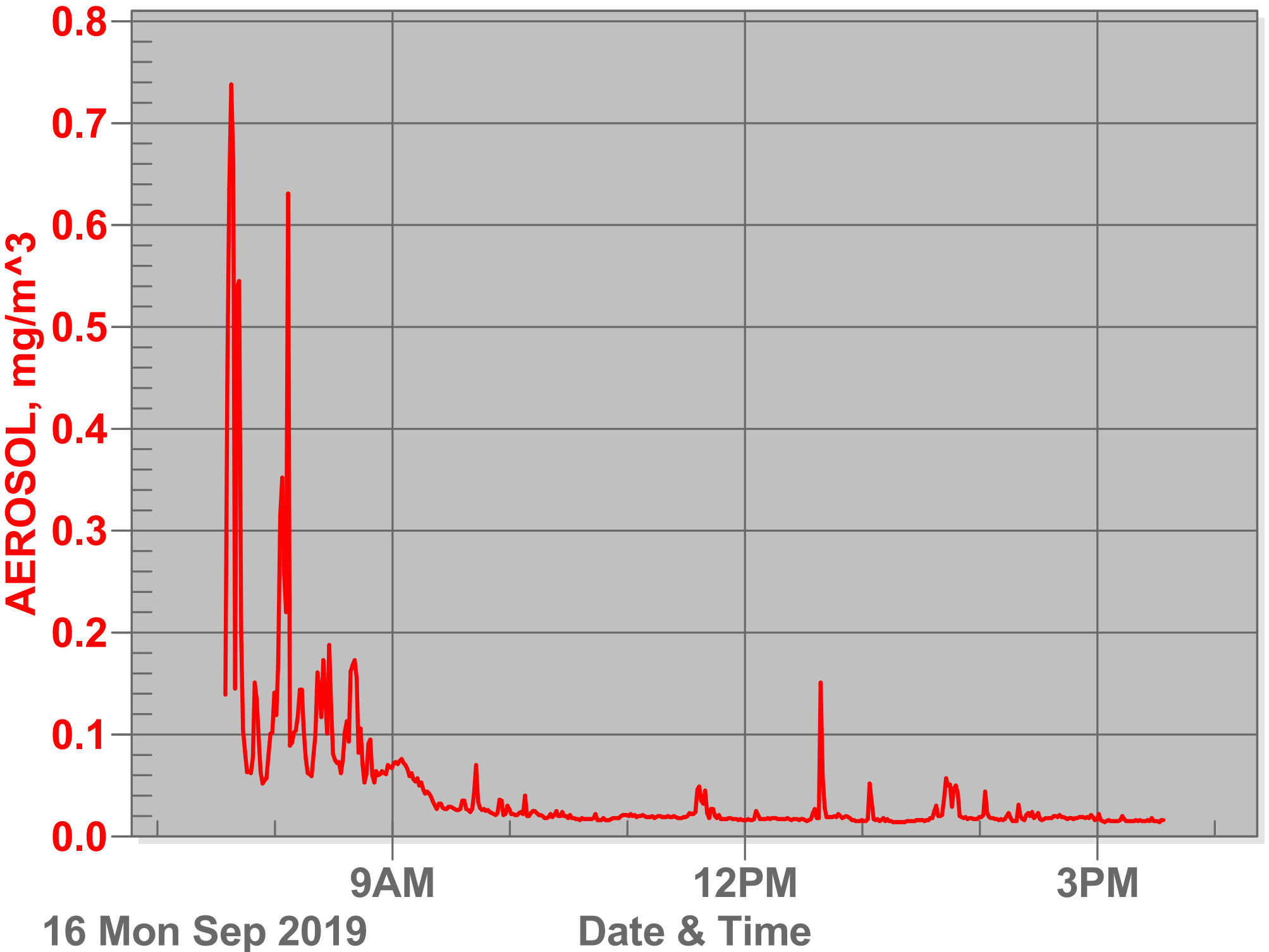
PM10 GRAPHS

Henderson South PM10

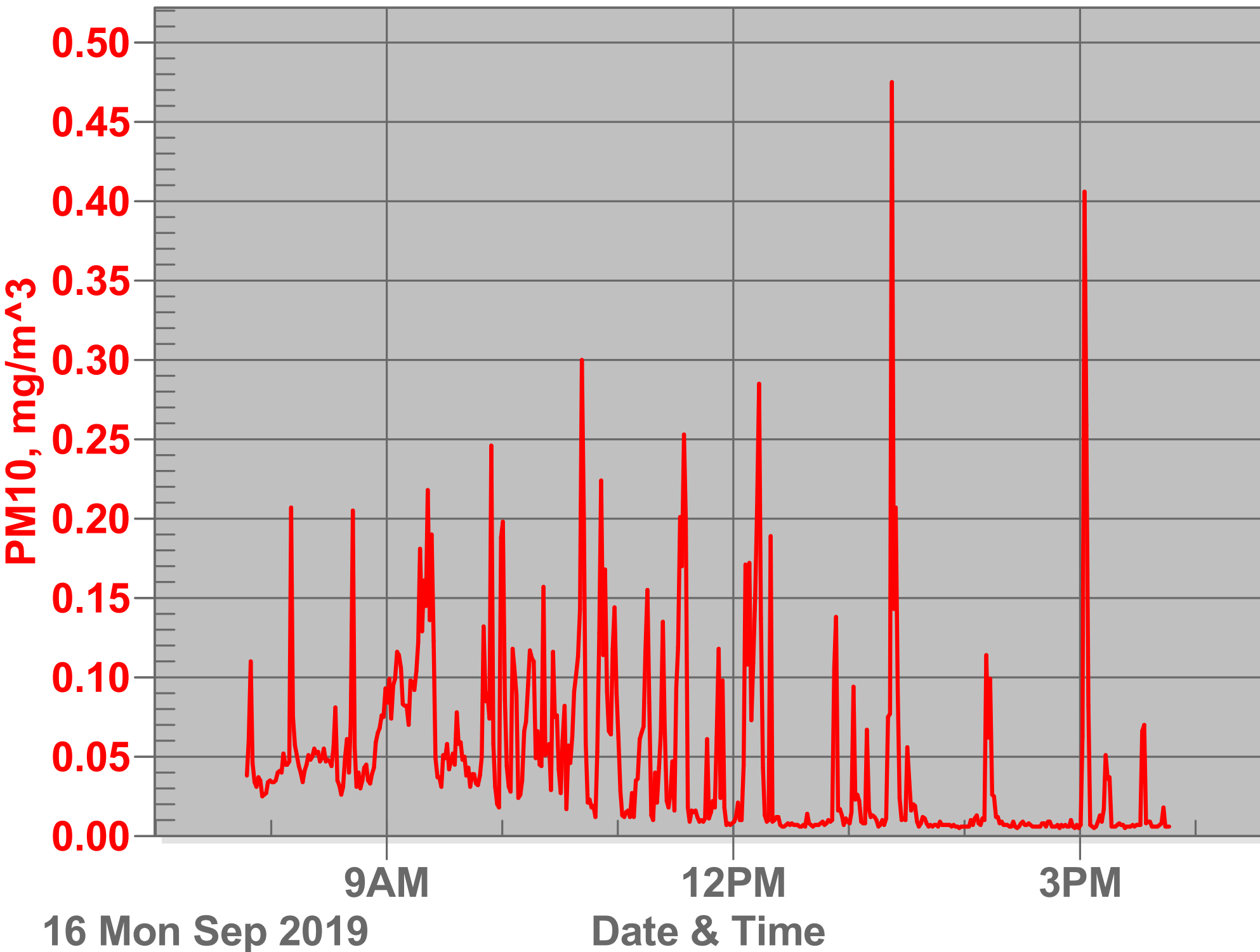
Sub Title



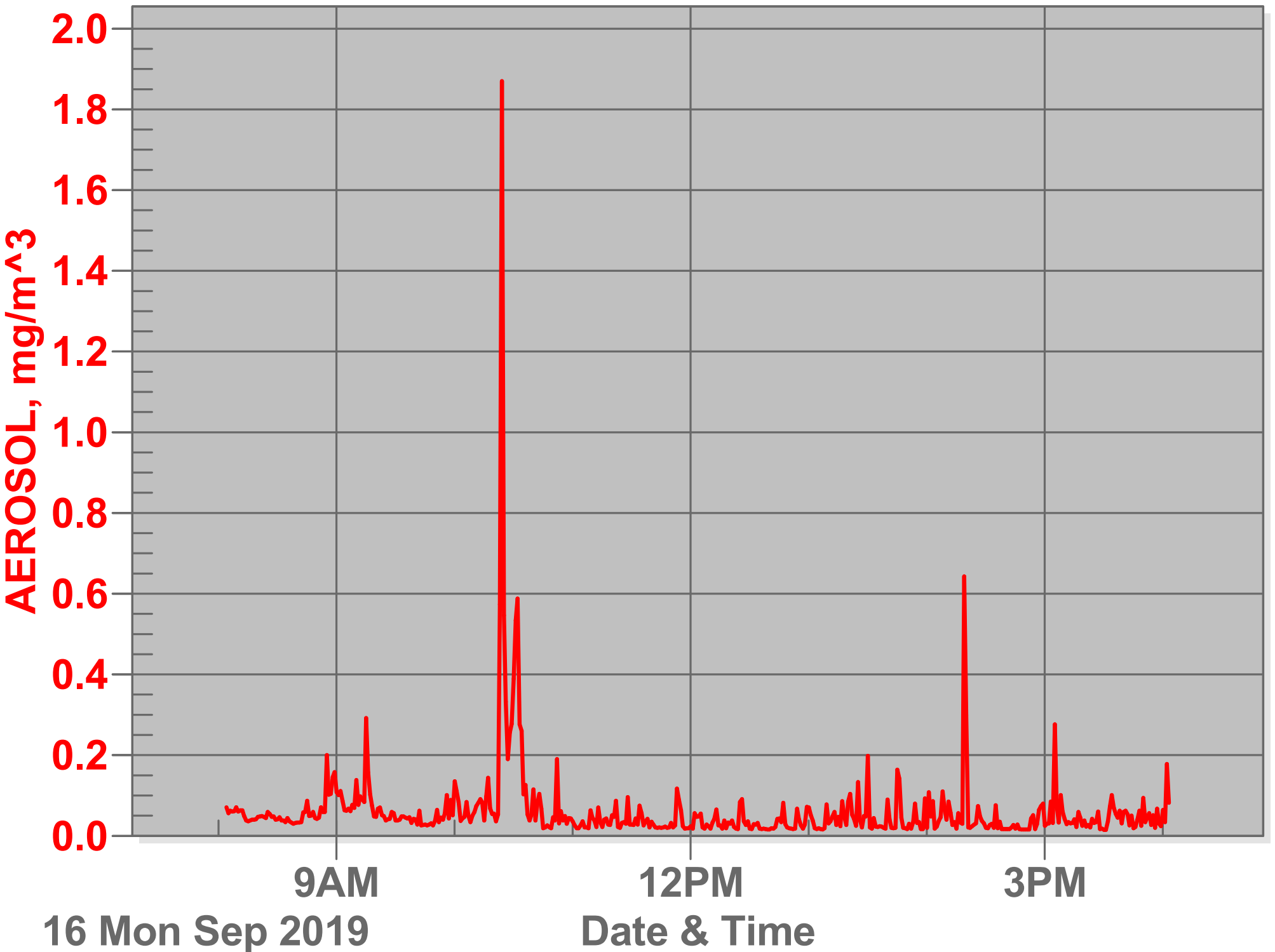
Henderson East PM10



Henderson North PM10



Henderson West PM10





Industrial Hygiene, Safety & Environmental Services

ATTACHMENT 4

SITE MAP WITH SAMPLE LOCATIONS



SLMN

PMN

SLMW

PMW

SLME

PME

SLMS

PMS



Industrial Hygiene, Safety & Environmental Services

July 1, 2019

Mr. Juan Padilla
Safety Officer
Henderson Pit
10925 East 120th Ave
Henderson, CO 80640

**RE: Quarter Two Perimeter Dust and Sound Level Monitoring Report
Henderson Pit
Henderson, Colorado
FEI Project Number: IH19016**

Foothills Environmental Inc. (FEI) was contracted to perform perimeter dust and sound level monitoring at the Henderson Pit located in Henderson, Colorado. Dust monitoring was performed for Particulate Matter 10 (PM10) at four locations around the perimeter of the Henderson Pit site on June 13, 2019. Sound level monitoring was also performed at four locations around the perimeter of the Henderson Pit property on June 13, 2019. Two of the sound level monitors (south and east perimeter) experienced technical difficulties related to the memory cards not storing and/or recording data.

Executive Summary

The perimeter dust monitoring was performed for PM10 at four locations around the perimeter of the Henderson Pit site. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particulate Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. The air monitoring was conducted during a typical work day at representative locations along the east, west, south and north side of the Henderson Pit during site work operations from approximately 6:52 a.m. to 3:36 p.m.

Perimeter sound pressure level monitoring was performed at four locations around the perimeter of the Henderson Pit site. Two of the sound level monitor's data were unattainable due to technical failure during the sampling process. The sound pressure levels were compared to the Adams County Chapter 4 Design Requirements and Performance Standards for Noise at 80 decibels (dB) for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.). The monitoring was conducted over one day at representative locations along the north, south, east, and west sides of the Henderson Pit site during the work operations from approximately 6:52 a.m. to 3:42 p.m.

Results of PM10 dust monitoring indicates that dust levels along the north, east, and south perimeter of the site were below the NAAQS PM10 standard. Results of PM10 dust monitoring from the west perimeter were higher than the NAAQS PM10 standard. Results of the sound level monitoring measured at all locations for the sound pressure level assessment period were less than the



Industrial Hygiene, Safety & Environmental Services

Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.).

Methodology

Particulate Matter 10 (PM10) Monitoring

PM10 includes particles which have a diameter of 10 micrometers or less. PM10 air monitoring was conducted on June 13, 2019 over an 8 hour shift at representative locations along the east, west, south and north side of the Henderson Pit. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particle Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. PM10 monitoring was conducted during normal work hours and for work activities with the highest potential to contribute to dust levels from 6:52 a.m. to 3:36 p.m.

PM10 sampling was performed with a TSI Dust Trak II Desktop 8530 Dust/Aerosol Monitor (1) and TSI Dust Trak DRX Dust/Aerosol Monitors (3). The Dust Trak Aerosol monitors were calibrated by the equipment manufacturer representative and field zeroed prior to each use.

Sound Level Monitoring

FEI collected sound pressure level measurements on June 13, 2019 from 7:21 a.m. to 3:42 p.m. at four (4) locations along the Henderson Pit perimeter. Samples were collected using a 3M Sound Pro SE/DL Sound Level Meter that was calibrated with a 114 decibels (dB) acoustic calibrator at the beginning of the day before use and placed at each location at a height of at least four (4) feet above the immediate surrounding surface for a total of eight (8) hours. The sound level meter was set to a measurement range of 30-140 decibels (dB) with a slow response time, set on the A frequency weighting and set to record an average noise measurement every minute. Measurements were compared to the Adams County Maximum Sound Pressure Level of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). Two of the sound level monitors (South and East Perimeter) experienced technical problems on the day of sampling and the data was not recorded.

See Attachment 1 for site photos showing the perimeter sampling locations and site conditions. See Attachment 4 for a site map showing the sample locations.

Results

Particulate Matter 10 (PM10) Monitoring

See Table 1, for results of PM10 levels identified during this air monitoring assessment conducted on June 13, 2019. Results of direct read air monitoring recorded during site work activities showed that PM10 levels based on an 8 hour average were between 20 and 647 $\mu\text{g}/\text{m}^3$ for the four locations monitored. One dust monitor (west perimeter) was above the NAAQS level for PM10 at 150 $\mu\text{g}/\text{m}^3$.



**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

A peak of 7310 $\mu\text{g}/\text{m}^3$ was recorded at the western perimeter at 7:47 a.m. See Attachment 3 for PM10 data reports and graphs.

Table 1. Results of TSI Dust Trak II/DRX PM10 Air Sampling (June 13, 2019)

Sample No. (Date)	Sample Location	Duration (min)	Average ($\mu\text{g}/\text{m}^3$)	8 Hour Average ($\mu\text{g}/\text{m}^3$)	Maximum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	Minimum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	EPA NAAQS ($\mu\text{g}/\text{m}^3$) 24-hour Average	Exceedance of NAAQS
PMS (6/13/19)	South perimeter	480	81	81	3900	5	150	No
PME (6/13/19)	East perimeter	43	56	20	886	10	150	No
		149	29		619	9		
		301	11		1130	1		
PMN (6/13/19)	North perimeter	182	62	78	321	12	150	No
		302	87		1060	2		
PMW (6/13/19)	West perimeter	480	647	647	7310	36	150	Yes

EPA: Environmental Protection Agency
 NAAQS: National Ambient Air Quality Standard
 $\mu\text{g}/\text{m}^3$: microgram per cubic meter



Industrial Hygiene, Safety & Environmental Services

Sound Level Monitoring

See Table 2 for results of the sound level monitoring recorded at the north and west perimeter of Henderson Pit. Two of the sound level monitors (south and east Perimeter) experienced technical problems on the day of sampling and the data was not recorded. Results of the sound level monitoring for the north and west perimeter indicated that the sound pressure levels during the monitoring period based on an eight hour average were between 58.9 dB and 68.9 dB. This was below the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for a continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). A maximum sound pressure level of 96.4 dB was recorded at the west perimeter at 8:09 a.m. See Attachment 2 for sound pressure level graphs.

Table 2. Results of Perimeter Sound Level Monitoring (June 13, 2018)

Sample No. (Date)	Sample Location	Duration (min)	Average (L_{eq})	8 Hour Average (L_{eq})	Maximum Recorded Measurement (L_{max})	Minimum Recorded Measurement (L_{min})	Adams County Maximum Permissible Sound Pressure Level	Exceedance of Adams County Standard
SLMN (06/13/19)	North perimeter	490	59.0	58.9	85.8	45.9	80 dB	No
SLMW (06/13/19)	West perimeter	480	68.9	68.9	96.4	49.6	80 dB	No

Leq: Level Average

Lmax: Level Maximum

Lmin: Level Minimum

dB: Decibels (A-weighted)

Discussion

Particulate Matter 10 (PM10) Monitoring

Monitoring location #2 (east perimeter) was furthest away from active truck hauling and asphalt sifting activities. Therefore, average PM10 levels at this location were lower than other sampling locations which were proximal to a roadway and heavy machinery. Sampling location #1 (south perimeter) and location #4 (west perimeter) were closest to haul truck activities, including site arrival and departure roads within the Henderson Pit site. Therefore, peak PM10 levels at these two locations were higher than monitoring location #2 (east perimeter), which was adjacent to a road with less traffic. Monitoring location #3 (north perimeter) was far from the road but close to an area where asphalt was dropped off by trucks and loaded onto a conveyor belt with heavy machinery. Increased levels of particulate matter would therefore be expected around that area. Periodic spikes in PM10 levels were observed at all monitoring locations. Monitoring location #1 along the south perimeter documented a momentary increase in PM10 level at 12:52 p.m. lasting approximately one minute and peaking at $3900 \mu\text{g}/\text{m}^3$. Monitoring location #2 along the east perimeter recorded a PM10 level spike at 2:37 p.m. lasting approximately one minute and peaking at $1130 \mu\text{g}/\text{m}^3$. Monitoring location #3 along the north perimeter observed a PM10 level spike at 2:23 p.m. lasting approximately one minute and peaking at $1060 \mu\text{g}/\text{m}^3$. Monitoring location #4 along the west perimeter recorded a PM10 level spike from 7:43 to 7:47 a.m. peaking at $7310 \mu\text{g}/\text{m}^3$. Momentary elevated PM10 levels may have been attributed to passing trucks during intervals between or before the use of water trucks for dust suppression activities, an increase in materials handling and truck hauling activities, and changing wind direction blowing towards the PM10 monitors. See Attachment 3 for PM10 graphs.

Sound Level Monitoring

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to haul truck activity, including site arrival and departure roads within the Henderson Pit site. These two locations would be expected to have the highest sound pressure profiles followed by location #3 (north perimeter) and then location # 2 (east perimeter). Data was only collected from monitoring locations #4 and #3 due to technical issues with the Sound Level Monitoring equipment located at the south and east perimeter. The north perimeter monitoring location had no short term exceedances above 80 dB during the monitoring period. The west location recorded exceedances over 80 dB which contributed to 1.3% of the total monitoring time or 6.24 total minutes. Both the north and west monitoring locations were below the Adams County Noise limit of 80 dB for an 8-hour average. Sound level measurement graphs are provided in Attachment 3 of this report.

Conclusions and Recommendations

Results of perimeter area air monitoring for PM10 levels during the air monitoring assessment conducted during site work activities on June 13, 2019 show that PM10 levels based on an eight (8) hour average duration were between 20 and 647 $\mu\text{g}/\text{m}^3$ for the four locations monitored and one (west perimeter) sampling location was above the NAAQS level for Particle Pollution (PM10) at 150 $\mu\text{g}/\text{m}^3$. Although the NAAQS level for Particle Pollution (PM10) is based on an average over a 24 hour duration, operations at the Henderson Pit are conducted exclusively during the daytime. Therefore, an 8 hour sampling duration was selected which is representative of worst case dust and sound pressure levels during work operations. Actual dust and noise levels are expected to be lower during night time or non-work hours. It is recommended that additional dust suppression control measures are incorporated for the west haul road. This may include a combination of increasing the frequency of water trucks along the west haul road and/or instituting additional dust suppression controls.

Average noise monitoring results recorded at the two locations collected over the sound pressure level assessment period were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

Limitations

This assessment was limited to conditions present during the time period the monitoring was performed. FEI utilized state-of-the-art practices and techniques in accordance with regulatory standards while performing this evaluation. FEI's evaluation of the PM10 dust levels and sound level measurements identified during this assessment are based on conditions observed at the time of the monitoring assessment. FEI cannot be responsible for changing conditions that may alter the relative exposure risk or for future changes in accepted methodology.



Industrial Hygiene, Safety & Environmental Services

Please do not hesitate to contact FEI at (303) 232-2660 if you have any questions regarding this report.

Sincerely,

A handwritten signature in black ink that reads "Ben Wilson". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Ben Wilson
Industrial Hygienist

Reviewed by,

A handwritten signature in black ink that reads "Ronald Crandall". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Ronald Crandall, CIH, CHMM
Senior Industrial Hygienist

Attachments:

Attachment 1 - Site Photos

Attachment 2 - Sound Level Graphs

Attachment 3 - PM10 Graphs

Attachment 4 - Site Map with Sample Locations



**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

ATTACHEMENT 1

SITE PHOTOS



PM10 Sample # PMS and Sound Level Monitoring Sample #SLMS on the south perimeter of Henderson Pit (looking south, typical)



PM10 Sample # PME and Sound Level Monitoring Sample #SLME on the east perimeter of Henderson Pit (looking east, typical)



PM10 Sample # PMN, and Sound Level Monitoring Sample #SLMN on the north perimeter of Henderson Pit (looking north, typical)



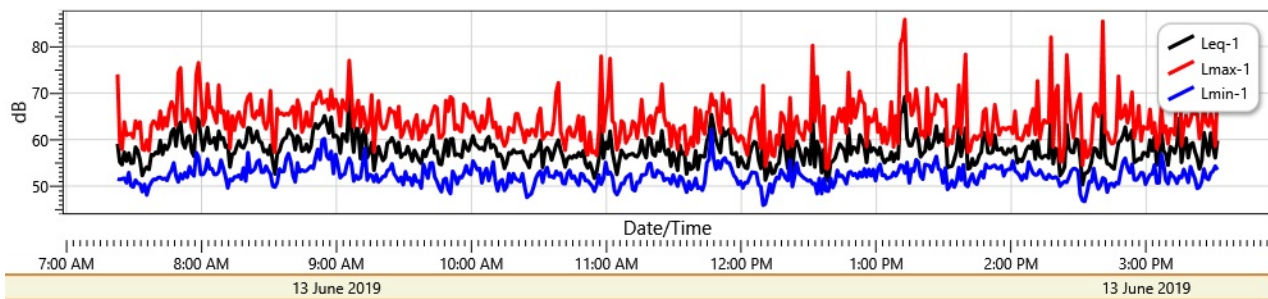
PM10 Sample # PMW, and Sound Level Monitoring Sample #SLMW on the west perimeter of Henderson Pit (looking west, typical)



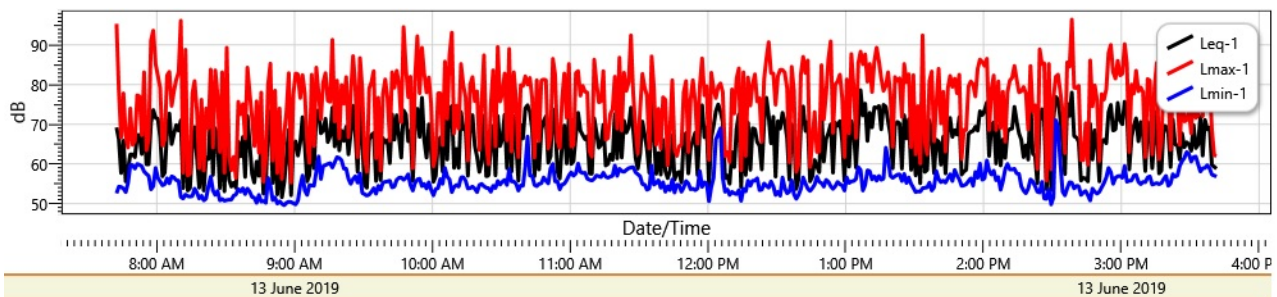
ATTACHMENT 2

SOUND LEVEL GRAPHS

SLM North



SLM West

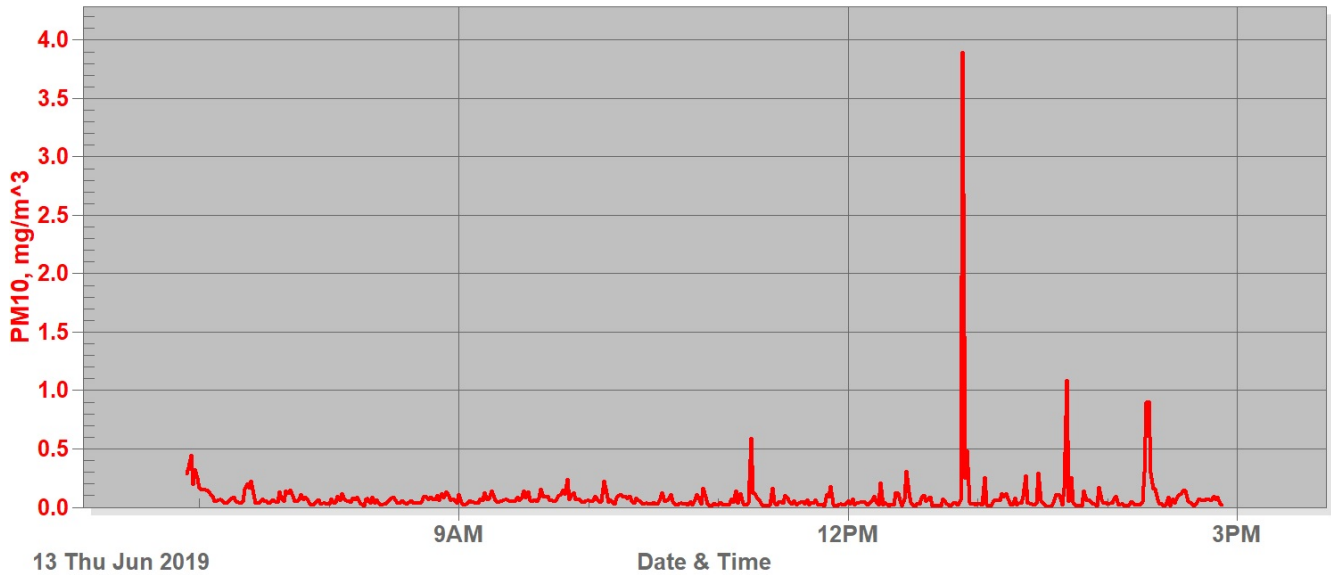


ATTACHMENT 3

PM10 GRAPHS

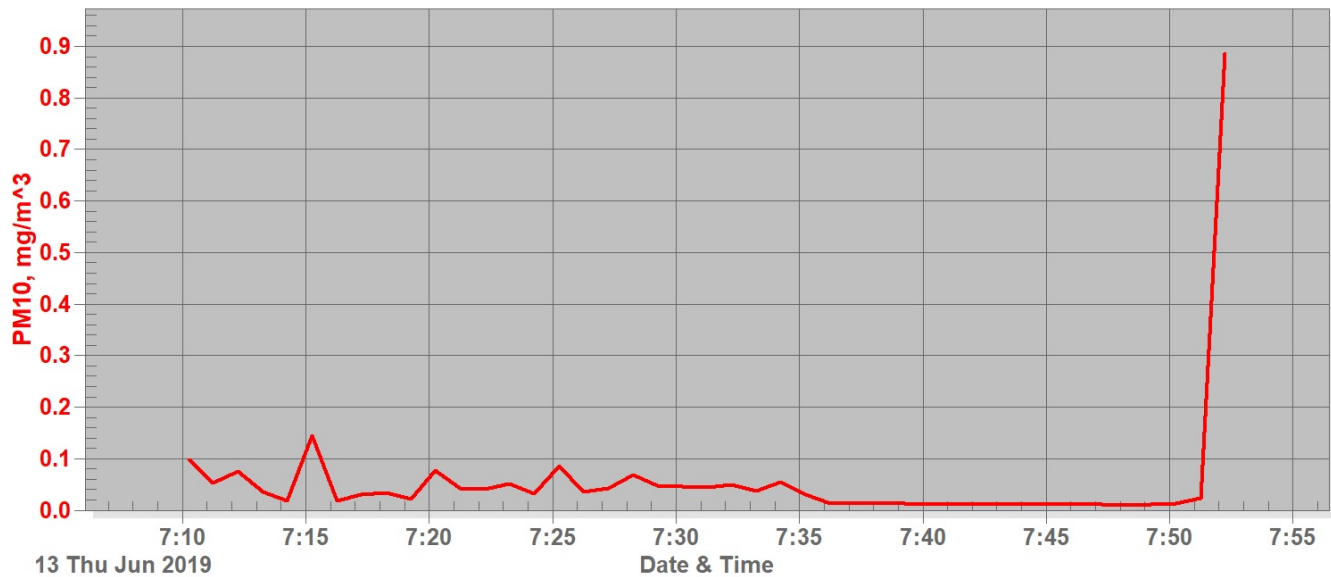
Henderson South

PM10



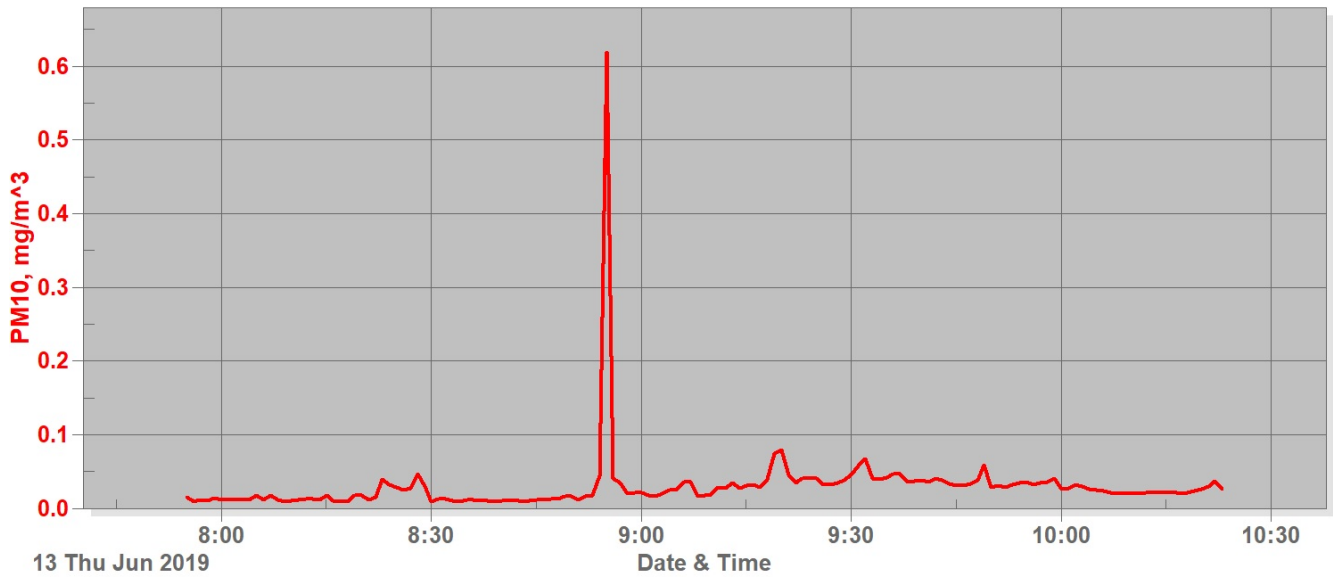
Henderson East 1

PM10



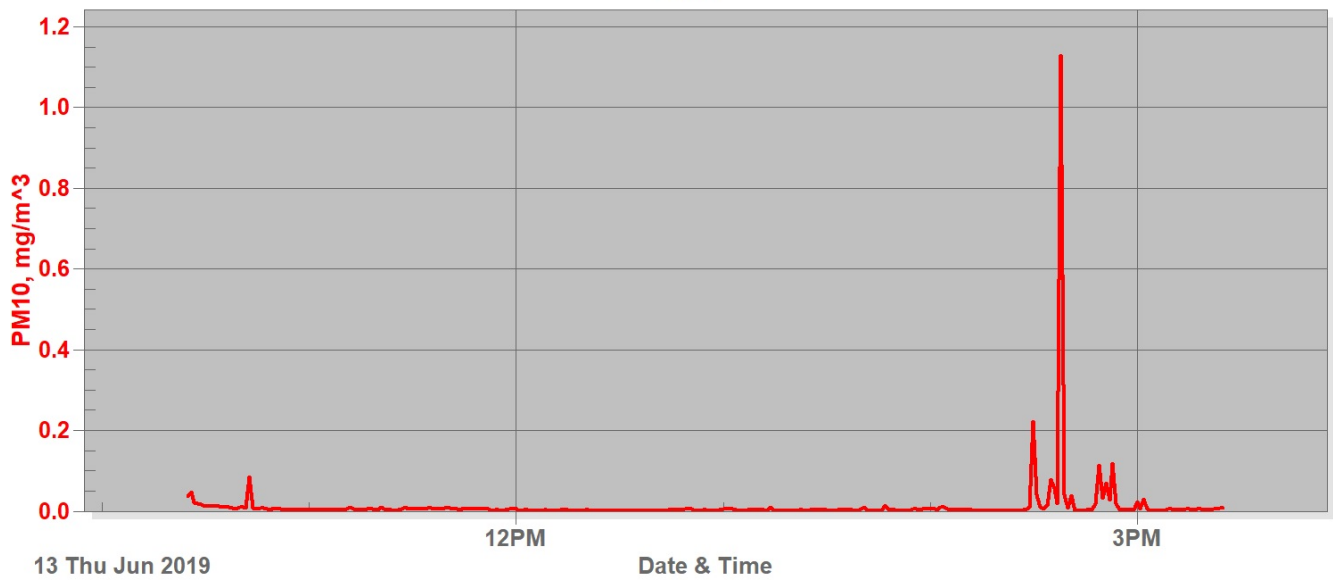
Henderson East 2

PM10

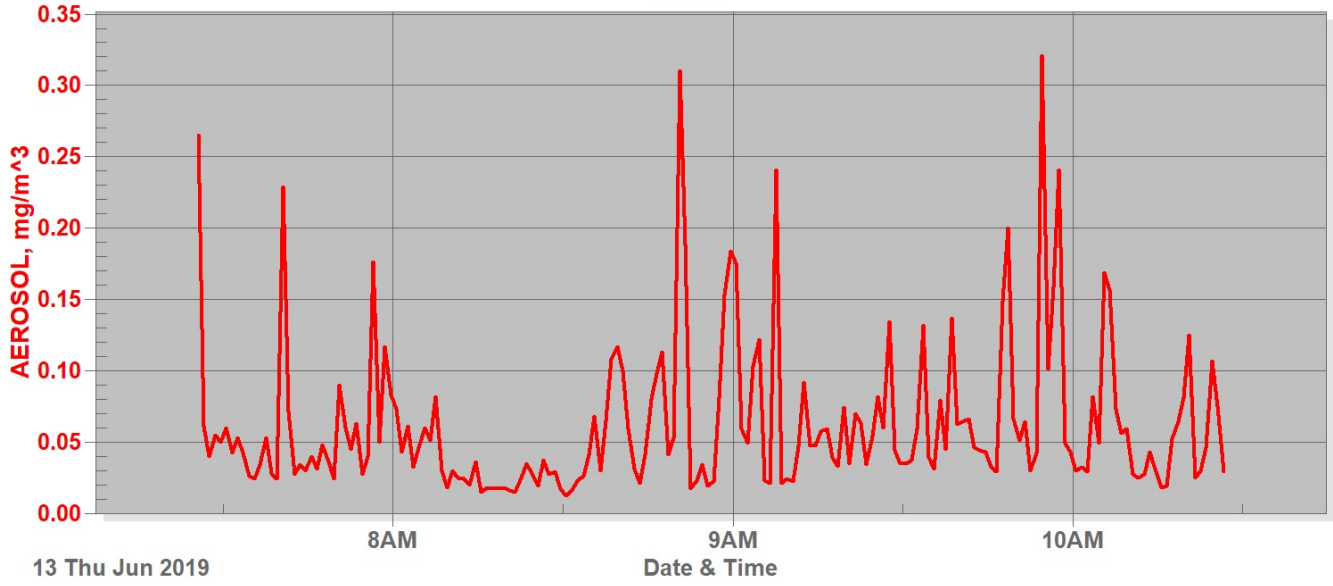


Henderson East 3

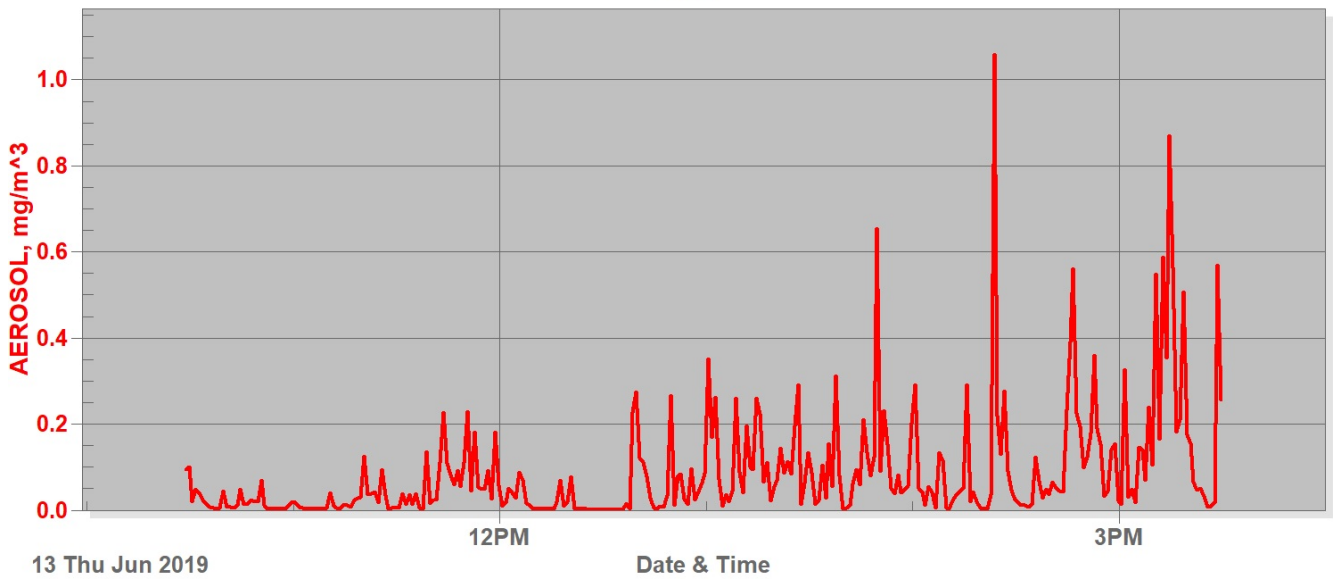
PM10



Henderson North 1 PM10

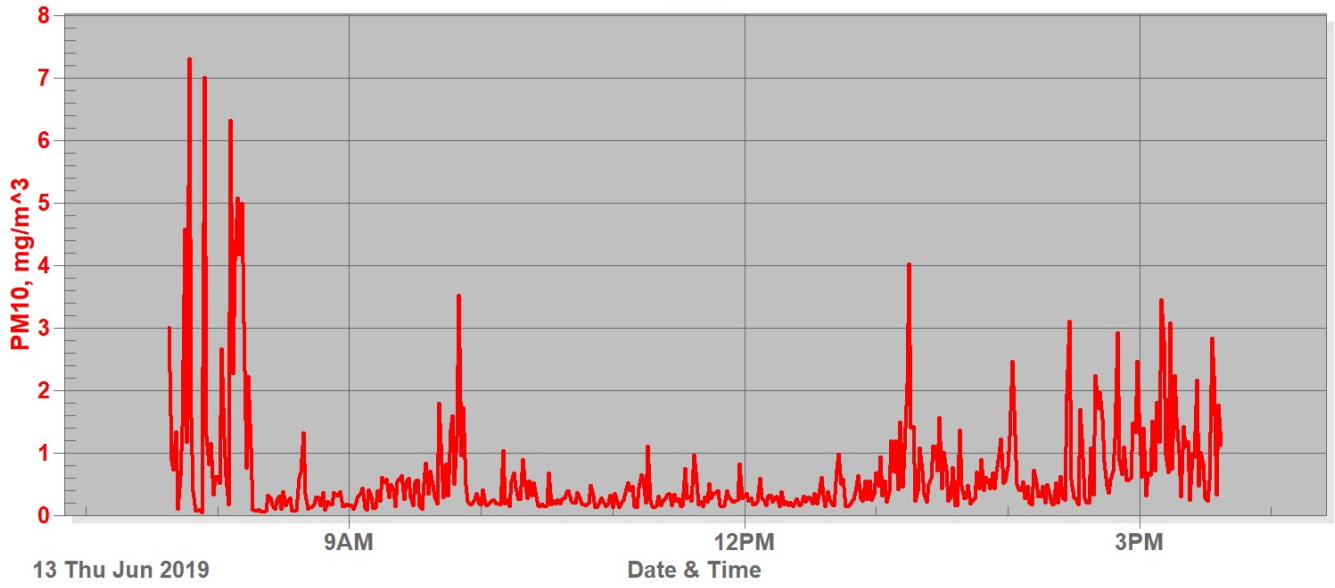


Henderson North 2 PM10



Henderson West

PM 10





Industrial Hygiene, Safety & Environmental Services

ATTACHMENT 4

SITE MAP WITH SAMPLE LOCATIONS



SLMW

PMW

SLMN

PMN

SLME

PME

SLMS

PMS



Industrial Hygiene, Safety & Environmental Services

March 23, 2019

Mr. Juan Padilla
Safety Officer
Henderson Pit
10925 East 120th Ave
Henderson, CO 80640

**RE: Quarter One Perimeter Dust and Sound Level Monitoring Report
Henderson Pit
Henderson, Colorado
(FEI Project Number: IH19007)**

Foothills Environmental Inc. (FEI) was contracted to perform perimeter dust and sound level monitoring at the Henderson Pit located in Henderson, Colorado. Dust monitoring was performed for Particulate Matter 10 (PM10) at four locations around the perimeter of the Henderson Pit site on March 6, 2019. Sound level monitoring was also performed at four locations around the perimeter of the Henderson Pit property on March 6, 2019.

Executive Summary

The perimeter dust monitoring was performed for PM10 at four locations around the perimeter of the Henderson Pit site. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particulate Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. The air monitoring was conducted during a typical work day at representative locations along the east, west, south and north side of the Henderson Pit during site work operations from approximately 7:11 a.m. to 3:51 p.m.

Perimeter sound pressure level monitoring was performed at four locations around the perimeter of the Henderson Pit site. The sound pressure levels were compared to the Adams County Chapter 4 Design Requirements and Performance Standards for Noise at 80 decibels (dB) for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.). The monitoring was conducted over one day at representative locations along the north, south, east, and west sides of the Henderson Pit site during the work operations from approximately 7:11 a.m. 4:04 p.m.

Results of PM10 dust monitoring indicated that dust levels along the north, east, and west perimeter of the site were above the NAAQS PM10 standard. During the PM10 monitoring event, the EPA AirNow website designated an air quality index rating of “Unhealthy” on the day of monitoring. FEI checked the EPA AirNow website which showed that background PM10 levels of $82 \mu\text{g}/\text{m}^3$ and PM2.5 levels of $159 \mu\text{g}/\text{m}^3$ were recorded in Adams County on the day of monitoring. Therefore, the elevated levels measured at the Henderson Pit on March 6, 2019, are considered to be biased high due to elevated background (ambient) levels of PM10 and PM2.5.



Industrial Hygiene, Safety & Environmental Services

Results of the sound level monitoring measured at all locations for the sound pressure level assessment period were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7:00 a.m. – 10:00 p.m.).

Methodology

Particulate Matter 10 (PM10) Monitoring

PM10 includes particles which have a diameter of 10 micrometers or less. PM10 air monitoring was conducted on March 6, 2019 over an 8 hour shift at representative locations along the east, west, south and north side of the Henderson Pit. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particle Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. PM10 monitoring was conducted during normal work hours and for work activities with the highest potential to contribute to dust levels from 7:11 a.m. to 3:51 p.m.

PM10 sampling was performed with a TSI Dust Trak II Desktop 8530 Dust/Aerosol Monitor. The Dust Trak Aerosol monitors were calibrated by the equipment manufacturer representative and field zeroed prior to each use.

Sound Level Monitoring

FEI collected sound pressure level measurements on March 6, 2019 from 7:11 a.m. to 4:04 p.m. at four (4) locations along the Henderson Pit perimeter. Samples were collected using a 3M Sound Pro SE/DL Sound Level Meter that was calibrated with a 114 decibels (dB) acoustic calibrator at the beginning of the day before use and placed at each location at a height of at least four (4) feet above the immediate surrounding surface for a total of eight (8) hours. The sound level meter was set to a measurement range of 30-140 decibels (dB) with a slow response time, set on the A frequency weighting and set to record an average noise measurement every minute. Measurements were compared to the Adams County Maximum Sound Pressure Level of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

See Attachment 1 for site photos showing the perimeter sampling locations and site conditions. See Attachment 4 for a site map showing the sample locations.

Results

Particulate Matter 10 (PM10) Monitoring

See Table 1, for results of PM10 levels identified during this air monitoring assessment conducted on March 6, 2019. Results of direct read air monitoring recorded during site work activities showed that PM10 levels based on an 8 hour average were between 183 and 200 $\mu\text{g}/\text{m}^3$ for the four locations monitored and were above the NAAQS level for PM10 at 150 $\mu\text{g}/\text{m}^3$. A peak of 597 $\mu\text{g}/\text{m}^3$ was

recorded at the southern perimeter at 11:33 a.m. See Attachment 3 for PM10 data reports and graphs.

Table 1A shows the average results for the PM10 monitoring locations when corrected for background PM10 levels. Background (ambient) PM10 levels recorded on the EPA AirNow website of 82 $\mu\text{g}/\text{m}^3$ were subtracted from the four Henderson Pit perimeter monitoring locations. When background levels are subtracted out, the Henderson Pit PM10 levels based on an 8 hour average were between 101 and 120 $\mu\text{g}/\text{m}^3$ for the four locations monitored.

Table 1. Results of TSI Dust Trak II PM10 Air Sampling (March 6, 2019)

Sample No. (Date)	Sample Location	Duration (min)	Average ($\mu\text{g}/\text{m}^3$)	8 Hour Average ($\mu\text{g}/\text{m}^3$)	Maximum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	Minimum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	EPA NAAQS ($\mu\text{g}/\text{m}^3$) 24-hour Average	Exceedance of NAAQS
PMS (3/6/19)	South perimeter	437	177	183	597	106	150	Yes
		44	236		371	186		
PME (3/6/19)	East perimeter	480	200	200	252	127	150	Yes
PMN (3/6/19)	North perimeter	480	197	197	369	115	150	Yes
PMW (3/6/19)	West perimeter	19	167	185	222	147	150	Yes
		454	187		313	123		
		9	56		78	23		

EPA: Environmental Protection Agency
 NAAQS: National Ambient Air Quality Standard
 $\mu\text{g}/\text{m}^3$: microgram per cubic meter

Table 1A Background Subtracted Results for PM10 Air Sampling (March 6, 2019)

Sample No. (Date)	Sample Location	Duration (min)	Average ($\mu\text{g}/\text{m}^3$)	8 Hour Average ($\mu\text{g}/\text{m}^3$)	EPA NAAQS ($\mu\text{g}/\text{m}^3$) 24-hour Average	Exceedance of NAAQS
PMS (3/6/19)	South perimeter	437	95 ¹	101	150	No
		44	154 ¹			
PME (3/6/19)	East perimeter	480	118 ¹	118	150	No
PMN (3/6/19)	North perimeter	480	115 ¹	115	150	No
PMW (3/6/19)	West perimeter	19	85 ¹	104	150	No
		454	105 ¹			
		9	56 ²			

¹ The EPA AirNow website reported background PM10 levels of 82 $\mu\text{g}/\text{m}^3$ in Adams County on the day of monitoring. Therefore background PM10 level was subtracted from the site perimeter monitoring results to reflect PM10 levels attributed to site activities.

² Later in the day the background PM10 levels decreased significantly; measurement periods starting after 03:31 p.m. were not background subtracted to reflect actual conditions.

EPA: Environmental Protection Agency NAAQS: National Ambient Air Quality Standard
 $\mu\text{g}/\text{m}^3$: microgram per cubic meter

Sound Level Monitoring

See Table 2 for results of the sound level monitoring recorded at the south, north, east and west perimeter at Henderson Pit. Results of monitoring indicated that the sound pressure levels during the monitoring period based on an eight hour average were between 52.3 dB and 65.0 dB. This was below the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for a continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.). A maximum sound pressure level of 87.1 dB was recorded at the west perimeter at 10:12 a.m. See Attachment 2 for sound pressure level graphs.

Table 2. Results of Perimeter Sound Level Monitoring (March 6, 2018)

Sample No. (Date)	Sample Location	Duration (min)	Average (L _{eq})	8 Hour Average (L _{eq})	Maximum Recorded Measurement (L _{max})	Minimum Recorded Measurement (L _{min})	Adams County Maximum Permissible Sound Pressure Level	Exceedance of Adams County Standard
SLMS (03/06/19)	South perimeter	374	60.3	62.5	83.4	47.6	80 dB	No
		127	58.7		82.7	58.0		
SLME (03/06/19)	East perimeter	480	56.8	56.8	85.5	48.5	80 dB	No
SLMN (03/06/19)	North perimeter	363	54.8	52.3	75.8	45.6	80 dB	No
		106	49.0		77.0	48.4		
SLMW (03/06/19)	West perimeter	483	65.0	65.0	87.1	54.0	80 dB	No

Leq: Level Average

Lmax: Level Maximum

Lmin: Level Minimum

dB: Decibels (A-weighted)

Discussion

Particulate Matter 10 (PM10) Monitoring

Due to local weather conditions, the mass concentration of PM10 particles present in the ambient air was elevated on the day of monitoring. Background PM10 levels measured during previous monitoring events in 2017 were between 18 $\mu\text{g}/\text{m}^3$ and 37 $\mu\text{g}/\text{m}^3$. Data from an EPA air quality website (www.airnow.gov) showed that on the day of monitoring background PM10 levels were at 82 $\mu\text{g}/\text{m}^3$ and background PM 2.5 levels were at 159 $\mu\text{g}/\text{m}^3$ which triggered an air quality designation of Unhealthy for Denver and the Front Range. Ambient PM10/PM2.5 levels are considered a significant source of particulate measured during the day of monitoring and do not represent the dust emissions caused by work activities at the site. See Attachment 1 for a screenshot of the background PM10 level reported from the AirNow website.

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to active roadways but had the two lowest 8 hour average PM10 levels. Melting snow kept the roadways wet and reduced dust generation from vehicle movement. Monitoring location #2 (east perimeter) recorded the highest 8 hour average PM10 level. It was adjacent to a road but there were no dirt sifting or concrete crushing activities nearby. The prevailing winds may have contributed to elevated PM10 levels at the eastern perimeter. Monitoring location #3 (north perimeter) logged the second highest 8 hour average PM10 level. The north perimeter instrument was placed approximately 100 feet north of a large rock sifting machine that was fed using heavy equipment. These activities may

have contributed to the higher PM10 levels recorded there. Periodic spikes in PM10 levels were observed at all monitoring locations. Monitoring location #1 along the south perimeter recorded a momentary increase in PM10 level at 12:30 p.m. lasting approximately one minute and peaking at 597 $\mu\text{g}/\text{m}^3$. Monitoring location #2 along the east perimeter recorded a PM10 level spike at 3:40 p.m. lasting approximately one minute and peaking at 252 $\mu\text{g}/\text{m}^3$. Monitoring location #3 along the north perimeter observed a PM10 level spike at 9:41 a.m. lasting approximately one minute and peaking at 369 $\mu\text{g}/\text{m}^3$. Monitoring location #4 along the west perimeter recorded a PM10 level spike at 9:07 a.m. lasting approximately one minute and peaking at 313 $\mu\text{g}/\text{m}^3$. Momentary elevated PM10 levels may have been attributed to passing trucks, momentary increases in soil moving activities, and wind blowing particles towards the PM10 monitors. See Attachment 3 for PM10 graphs.

Sound Level Monitoring

Monitoring locations #1 (south perimeter) and #4 (west perimeter) were closest to haul truck activity, including site arrival and departure roads within the Henderson Pit site. The two instruments at those locations recorded the two highest 8 hour average sound pressure levels. Monitoring location #2 (east perimeter) was adjacent to a road which had minimal traffic, and location #3 (north perimeter) was approximately 100 feet from the closest noise source which was an operating rock sifter. Sound pressure levels recorded at these locations were the two lowest.

The north perimeter monitoring instrument recorded no short term exceedances above 80 dB during the monitoring period. The instruments at the south and east locations recorded exceedances over 80 dB which contributed to between 0.03% and 0.04% of the total monitoring time. The highest short term exceedance over 80 dB was recorded at the western perimeter and accounted for 0.3% of the total monitoring time.

The sound level meter instrument batteries at the south perimeter failed between 12:29 p.m. and 01:59 p.m. No data was recorded during that period and the batteries were replaced at 01:59 p.m. The batteries failed in the instrument at the north perimeter between 01:25 p.m. and 02:08 p.m. Data was not recorded during the period and the batteries were replaced at 02:08 p.m. Sound level measurement graphs are provided in Attachment 3 of this report.

Conclusions and Recommendations

Results of perimeter area air monitoring for PM10 levels during the air monitoring assessment conducted during site work activities on March 6, 2019 show that PM10 levels based on an eight (8) hour average duration were between 183 and 200 $\mu\text{g}/\text{m}^3$ for the four locations monitored and were above the NAAQS level for Particle Pollution (PM10) at 150 $\mu\text{g}/\text{m}^3$. Ambient PM10 air pollution of 82 $\mu\text{g}/\text{m}^3$ was recorded on the EPA AirNow website on the day of monitoring which contributed to the elevated levels of PM10 measured at the site. Although the NAAQS level for Particle Pollution (PM10) is based on an average over a 24 hour duration, operations at the Henderson Pit are conducted exclusively during the daytime. Therefore, an 8 hour sampling duration was selected which is representative of worst case dust and sound pressure levels during



Industrial Hygiene, Safety & Environmental Services

work operations. Actual dust and noise levels are expected to be lower during night time or non-work hours.

Average noise monitoring results recorded at all locations over the sound pressure level assessment period were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (7 a.m. – 10 p.m.).

Limitations

This assessment was limited to conditions present during the time period the monitoring was performed. FEI utilized state-of-the-art practices and techniques in accordance with regulatory standards while performing this evaluation. FEI's evaluation of the PM10 dust levels and sound level measurements identified during this assessment are based on conditions observed at the time of the monitoring assessment. FEI cannot be responsible for changing conditions that may alter the relative exposure risk or for future changes in accepted methodology.

Please do not hesitate to contact FEI at (303) 232-2660 if you have any questions regarding this report.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew Castano".

Andrew Castano
Industrial Hygienist

Reviewed by,

A handwritten signature in black ink, appearing to read "Ronald Crandall".

Ronald Crandall, CIH, CHMM
Senior Industrial Hygienist

Attachments:

- Attachment 1 - Site Photos and EPA AirNow Data
- Attachment 2 - Sound Level Graphs
- Attachment 3 - PM10 Graphs
- Attachment 4 - Site Map with Sample Locations



**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

ATTACHEMENT 1

SITE PHOTOS



View of concrete crushing process (typical) looking south from the northern perimeter.



View of southeast area looking north shows road conditions are wet.



Poor air quality obscures the mountains looking west.



View of Dust Trak II monitor with PM10 impactor attached



View of west perimeter road looking south. Melting snow reduced dusted generation from vehicles.



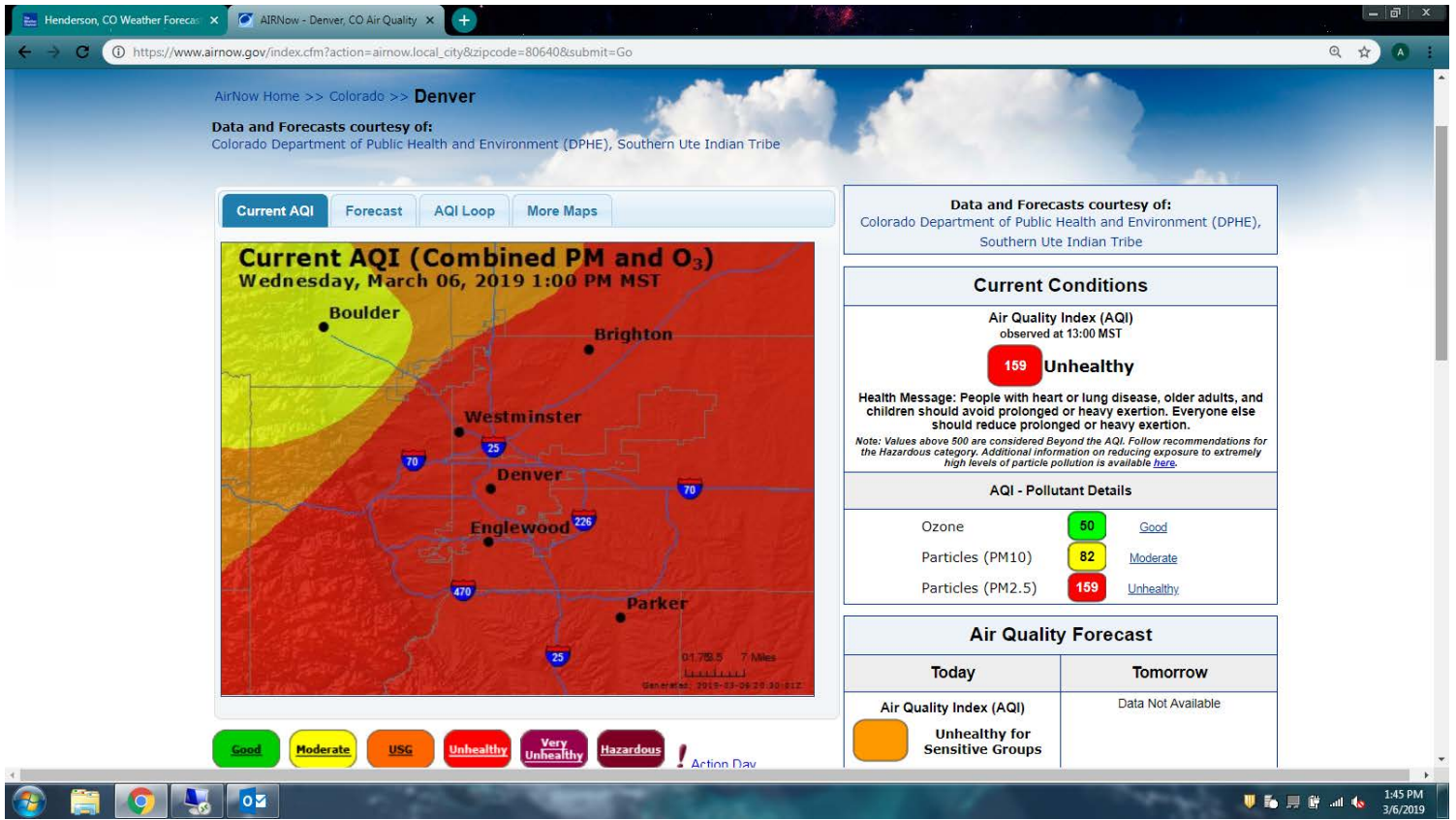
View of monitoring location #1 (south perimeter)



View of monitoring location #3 (north perimeter)



View of monitoring location #4 (west perimeter)





**Foothills
Environmental, Inc.**

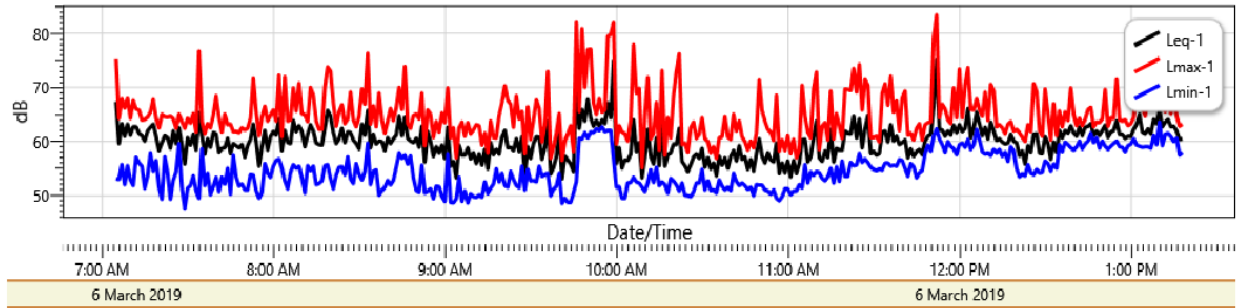
Industrial Hygiene, Safety & Environmental Services

ATTACHMENT 2

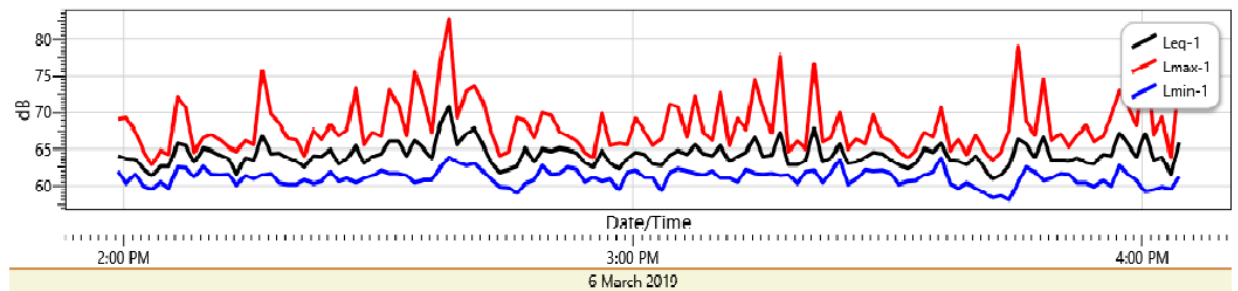
SOUND LEVEL GRAPHS

Sound Level Graphs

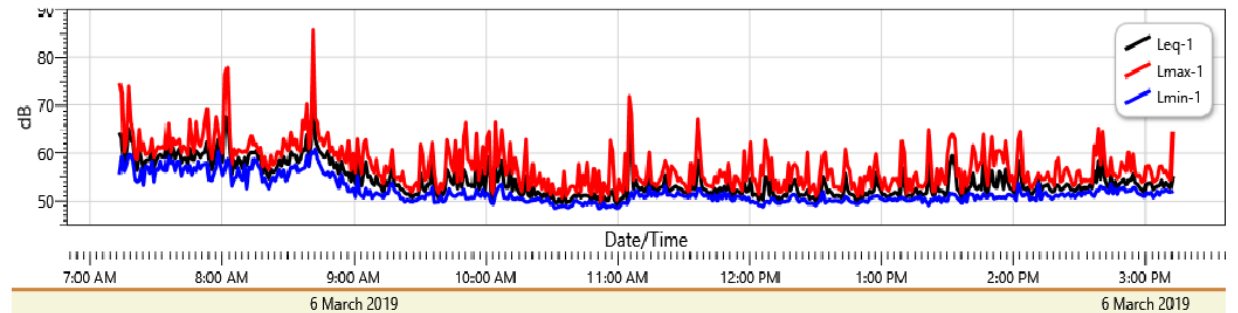
Monitoring Location: **Southern Perimeter** (sample #SLMS1) Data Chart (Instrument time- 7:03am – 1:17pm)(Actual time- 7:41am – 1:55pm)



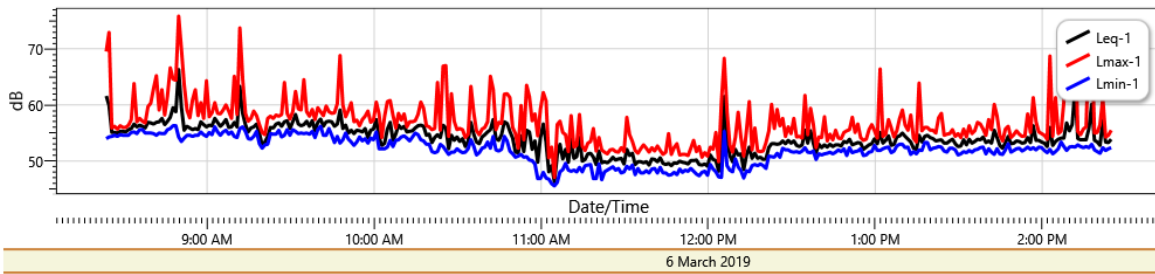
Monitoring Location: **Southern Perimeter** (sample #SLMS2) Data Chart (Instrument time- 1:58 pm – 4:04pm)(Actual time 2:36pm – 4:42pm)



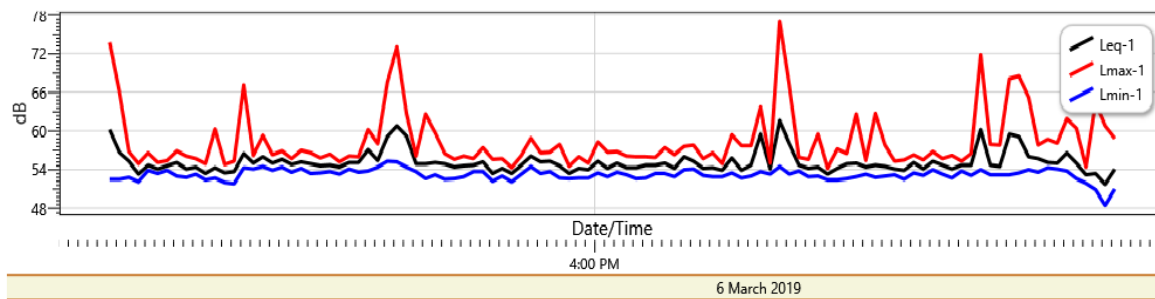
Monitoring Location: **Eastern Perimeter** (sample #SLME1) Data Chart (7:12am – 3:12pm)



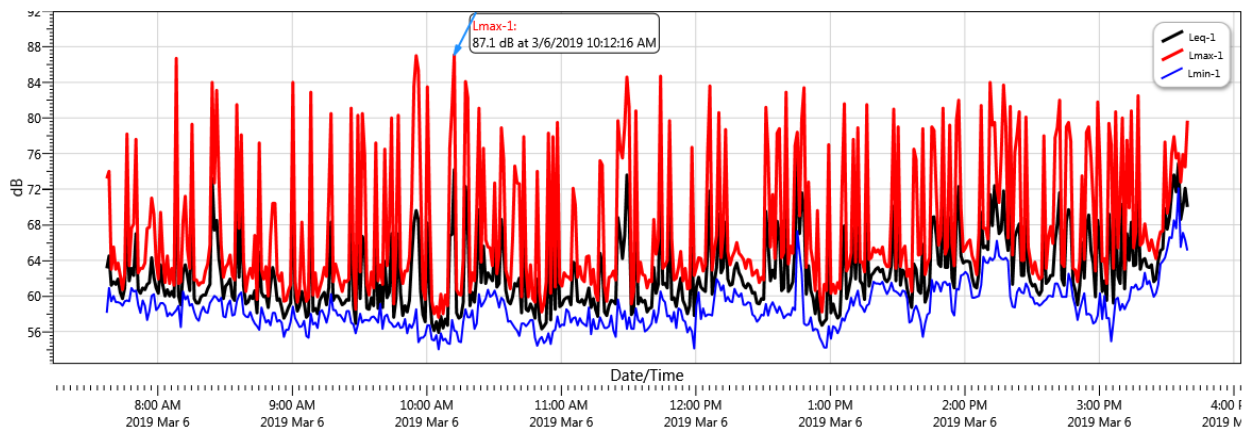
Monitoring Location: **Northern Perimeter** (sample #SLMN1) Data Chart (Instrument time- 8:22am – 2:25pm)(Actual time- 7:22am – 1:25pm)



Monitoring Location: **Northern Perimeter** (sample #SLMN2) Data Chart (2:08am – 3:54pm)



Monitoring Location: **Western Perimeter** (sample #SLMW1) Data Chart (7:36pm – 3:39pm)





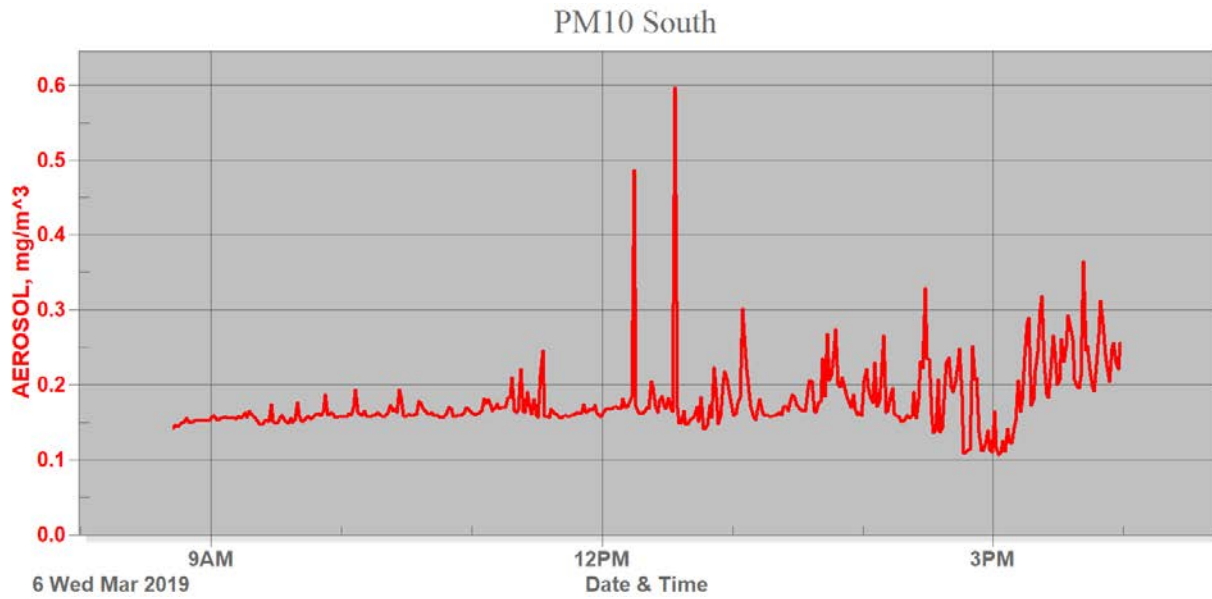
**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

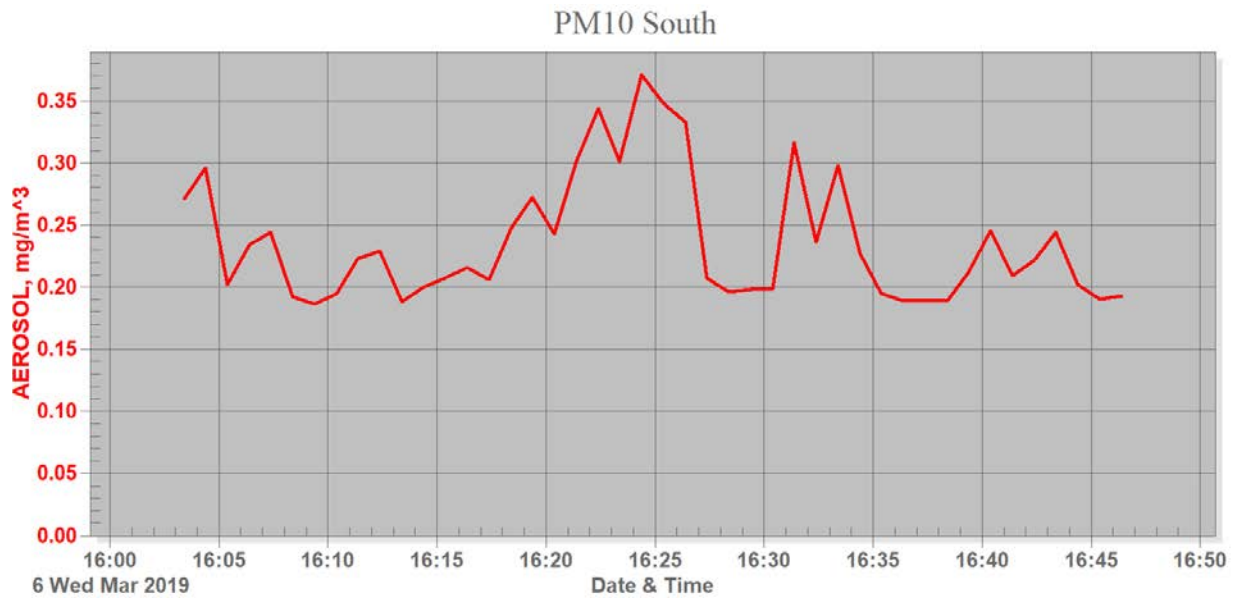
ATTACHMENT 3

PM10 GRAPHS

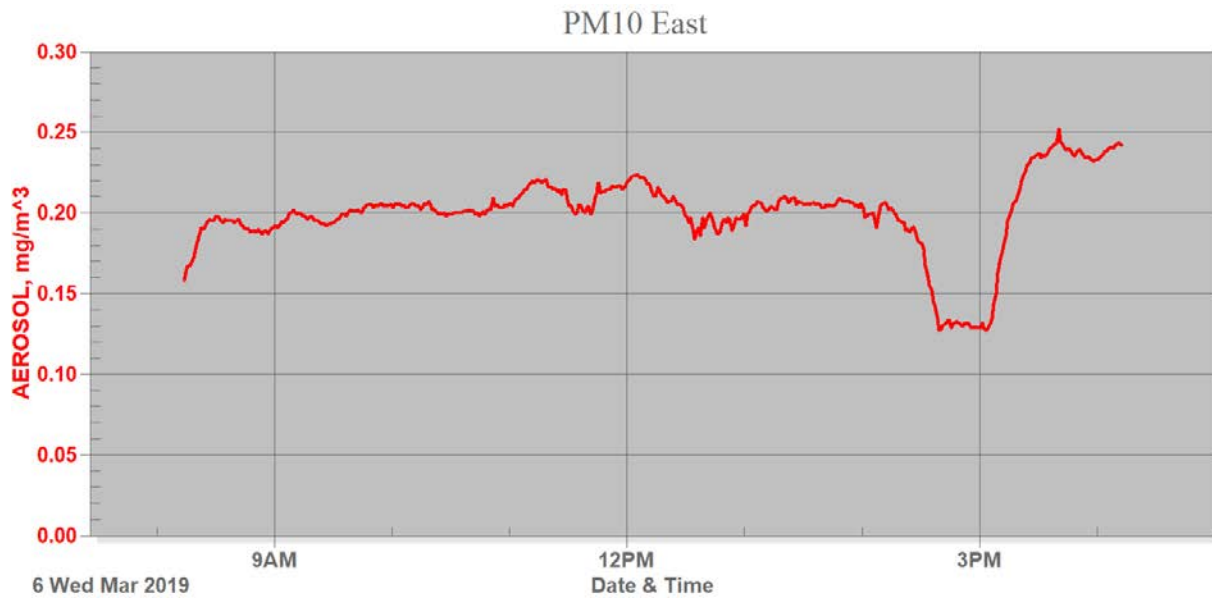
Perimeter PM₁₀ Graphs



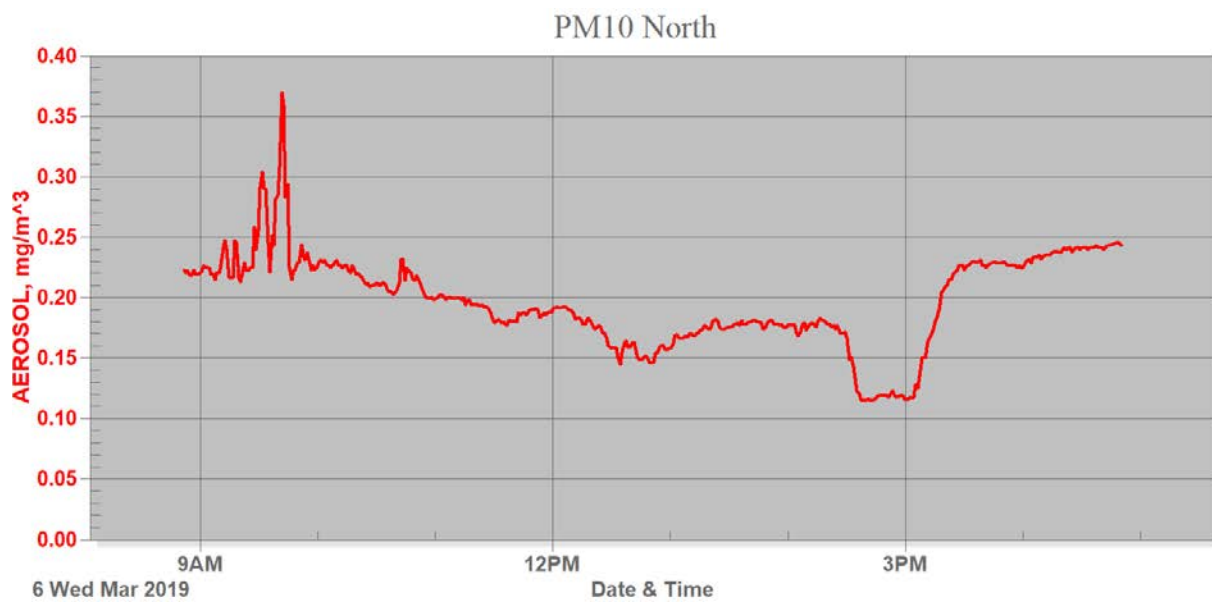
Instrument time 8:41am – 3:58pm (Actual time 7:41am – 2:58pm)



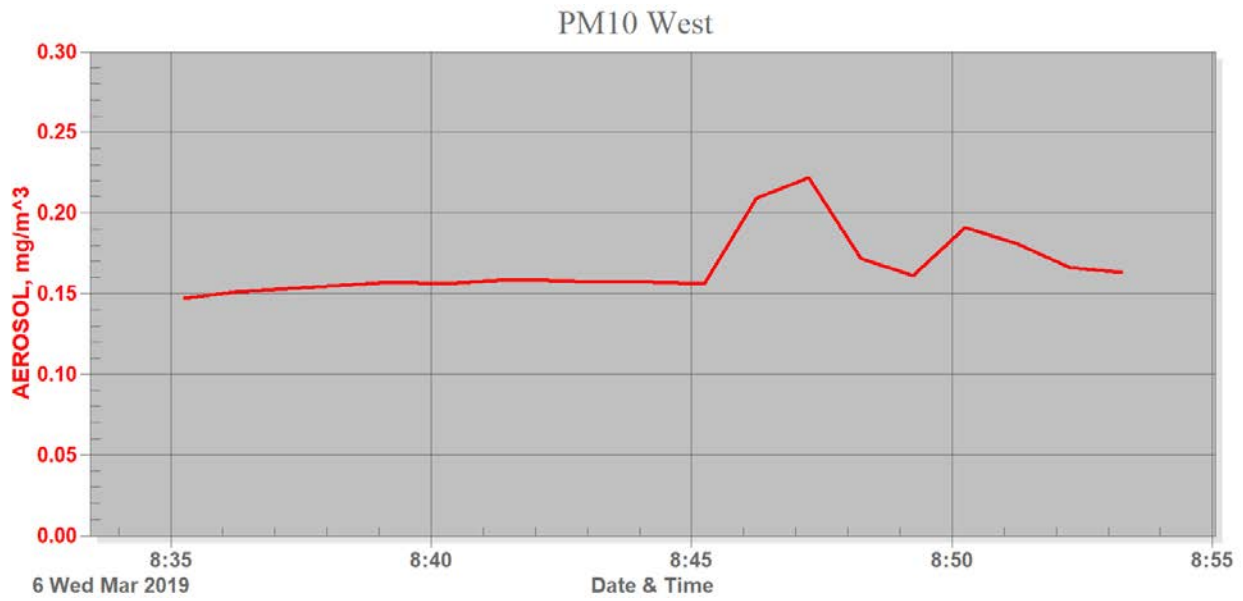
Instrument time 4:02pm – 4:46pm (Actual time 3:02pm – 3:46pm)



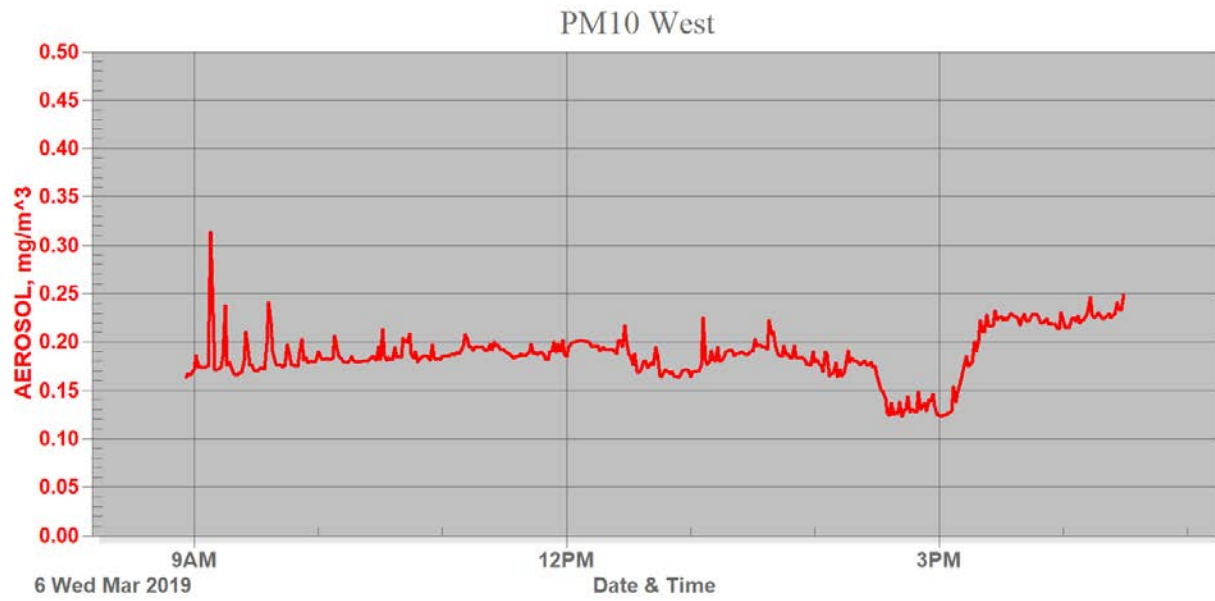
Instrument time 8:12am – 4:12pm (Actual time 7:51am – 3:51pm)



Instrument time 8:50am – 4:50pm (actual time 7:51am – 3:51pm)

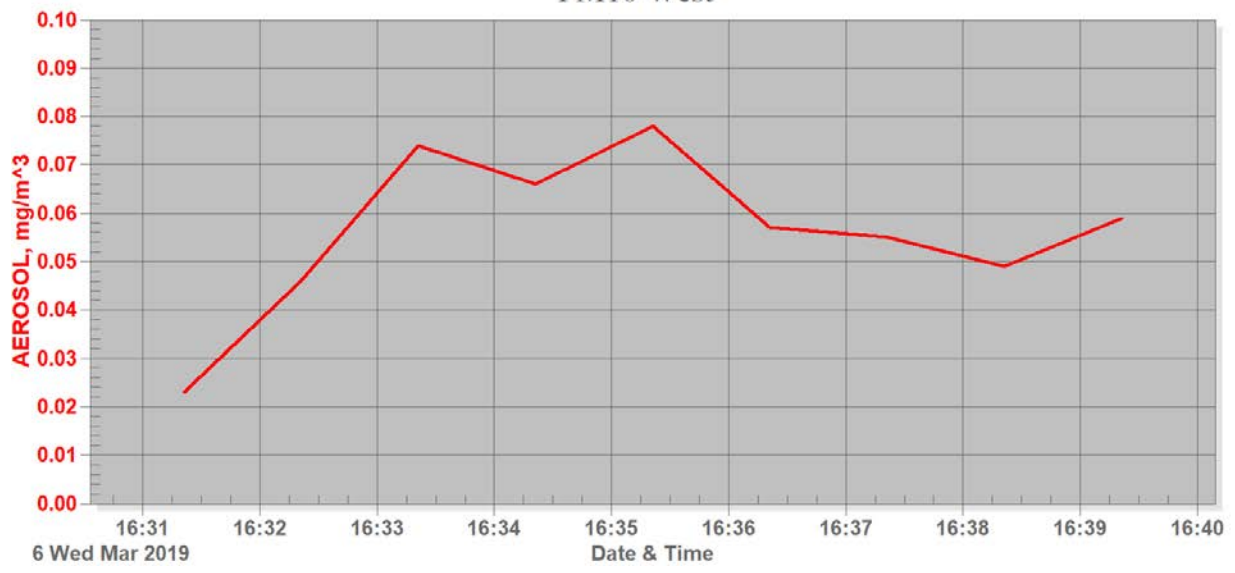


Instrument time 8:34am – 8:53am (Actual time 7:34am – 7:53am)



Instrument time 8:54am – 4:28pm (Actual time 7:54am – 3:28pm)

PM10 West



Instrument time 4:30pm – 4:39pm (Actual time 3:30pm – 3:39pm)



**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

ATTACHMENT 4

SITE MAP WITH SAMPLE LOCATIONS



SLMN

PMN

SLMW

PMW

SLME

PME

SLMS

PMS



Industrial Hygiene, Safety & Environmental Services

January 10, 2019

Mr. Juan Padilla
Safety Officer
Henderson Pit
10925 East 120th Ave,
Henderson, CO 80640

**RE: Quarter Four Perimeter Dust and Sound Level Monitoring Report
Henderson Pit
Henderson, Colorado
(FEI Project Number: IH18047)**

Foothills Environmental Inc. (FEI) was contracted to perform perimeter dust and sound level monitoring at the Henderson Pit located in Henderson, Colorado. Dust monitoring was performed for Particulate Matter 10 (PM10) at four locations around the perimeter of the Henderson Pit site on December 10, 2018. Sound level monitoring was also performed at four locations around the perimeter of the Henderson Pit property on December 10, 2018.

Executive Summary

The perimeter dust monitoring was performed for PM10 at four locations around the perimeter of the Henderson Pit site. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particulate Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. The air monitoring was conducted during a typical work day at representative locations along the east, west, south and north side of the Henderson Pit during site work operations from approximately 07:11 a.m. to 03:49 p.m.

Perimeter sound pressure level monitoring was performed at four locations around the perimeter of the Henderson Pit site. The sound pressure levels were compared to the Adams County Chapter 4 Design Requirements and Performance Standards for Noise at 80 decibels (dB) for any continuous noise source in an Industrial-3 zoned property during day time hours (07 a.m. – 10 p.m.). The monitoring was conducted over one day at representative locations along the north, south, east, and west sides of the Henderson Pit site during the work operations from approximately 07:09 a.m. to 04:04 p.m.

Results of PM10 dust monitoring indicates that dust levels along the north, east, west and south perimeter of the site were below the NAAQS PM10 standard. Results of the sound level monitoring measured at all locations for the sound pressure level assessment period were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (07 a.m. – 10 p.m.).

Methodology

Particulate Matter 10 (PM10) Monitoring

PM10 includes particles which have a diameter of 10 micrometers or less. PM10 air monitoring was conducted on December 10, 2018 over an 8 hour shift at representative locations along the east, west, south and north side of the Henderson Pit. The PM10 levels were compared to the EPA National Ambient Air Quality Standard (NAAQS) for Particle Pollution (PM10) at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) over an integrated 24 hour period. PM10 monitoring was conducted during normal work hours and for work activities with the highest potential to contribute to dust levels from 07:11 a.m. to 03:49 p.m.

PM10 sampling was performed with a TSI Dust Trak II Desktop 8530 Dust/Aerosol Monitor. The Dust Trak Aerosol monitors were calibrated by the equipment manufacturer representative and field zeroed prior to each use.

Sound Level Monitoring

FEI collected sound pressure level measurements on December 10, 2018 from 07:09 a.m. to 04:04 p.m. at four (4) locations along the Henderson Pit perimeter. Samples were collected using a 3M Sound Pro SE/DL Sound Level Meter that was calibrated with a 114 decibels (dB) acoustic calibrator at the beginning of the day before use and placed at each location at a height of at least four (4) feet above the immediate surrounding surface for a total of eight (8) hours. The sound level meter was set to a measurement range of 30-140 decibels (dB) with a slow response time, set on the A frequency weighting and set to record an average noise measurement every minute. Measurements were compared to the Adams County Maximum Sound Pressure Level of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (07 a.m. – 10 p.m.).

See Attachment 1 for site photos showing the perimeter sampling locations and site conditions. See Attachment 4 for a site map showing the sample locations.

Results

Particulate Matter 10 (PM10) Monitoring

See Table 1, for results of PM10 levels identified during this air monitoring assessment conducted on December 10, 2018. Results of direct read air monitoring recorded during site work activities showed that PM10 levels based on an 8 hour average were between 7 and 49 $\mu\text{g}/\text{m}^3$ for the four locations monitored and were all below the NAAQS level for PM10 at 150 $\mu\text{g}/\text{m}^3$. See Attachment 3 for PM10 graphs.

Table 1. Results of TSI Dust Trak II PM10 Air Sampling (December 10, 2018)

Sample No. (Date)	Sample Location	Duration (min)	Average of 8 hours ($\mu\text{g}/\text{m}^3$)	Maximum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	Minimum Recorded Measurement ($\mu\text{g}/\text{m}^3$)	EPA NAAQS ($\mu\text{g}/\text{m}^3$) 24-hour Average	Exceedance of NAAQS
PMS (12/10/18)	South perimeter	480	49	686	12	150	No
PME (12/10/18)	East perimeter	480	7	36	2	150	No
PMN (12/10/18)	North perimeter	480	49	284	11	150	No
PMW (12/10/18)	West perimeter	480	21	313	5	150	No

EPA: Environmental Protection Agency
 NAAQS: National Ambient Air Quality Standard
 $\mu\text{g}/\text{m}^3$: microgram per cubic meter

Sound Level Monitoring

See Table 2 for results of the sound level monitoring recorded at the south, north, east and west perimeter at Henderson Pit. Results of monitoring indicated that the sound pressure levels during the monitoring period based on an eight hour average were between 49.0 dB and 66.3 dB. This was below the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for a continuous noise source in an Industrial-3 zoned property during day time hours (07 a.m. – 10 p.m.). See attachment 3 for sound pressure level graphs.

Table 2. Results of Perimeter Sound Level Monitoring (December 10, 2018)

Sample No. (Date)	Sample Location	Duration (min)	Average (Leq)	Maximum Recorded Measurement (L _{max})	Minimum Recorded Measurement (L _{min})	Adams County Maximum Permissible Sound Pressure Level	Exceedance of Adams County Standard
SLMS (12/10/18)	South * perimeter	28	65.6	76.4	54.6	80 dB	No
		61	65.7	77.8	55.6	80 dB	No
		176	64.5	78.7	55.1	80 dB	No
SLME (12/10/18)	East * perimeter	160	58.7	75.4	3.3	80 dB	No
		303	54.7	72.5	21.7	80 dB	No
SLMN (12/10/18)	North * perimeter	90	50.4	67.6	47.1	80 dB	No
		341	49.0	73.0	46.2	80 dB	No
		70	53.2	69.5	46.9	80 dB	No
SLMW (12/10/18)	West * perimeter	82	64.7	80.5	53.6	80 dB	No
		289	65.6	85.4	46.4	80 dB	No
		124	66.3	84.7	50.9	80 dB	No

Leq: Level Average

Lmax: Level Maximum

Lmin: Level Minimum

dB: Decibels (A-weighted)

* The Sound level Instrument batteries were changed out one to two times per instrument at varying times throughout the monitoring duration. Therefore, Table 3 shows the average, maximum and minimum sound levels for each monitoring session before and after changing the instrument batteries.

Discussion

Particulate Matter 10 (PM10) Monitoring

Monitoring location #2 (east perimeter) was furthest away from active truck hauling and dirt sifting activities. Therefore average PM10 levels at this location were lower than other sampling locations which were proximal to a roadway and heavy machinery. Monitoring location #4 (west perimeter) was closest to an active roadway but did not record the highest average or peak measurement. The presence of moisture on the ground and a water truck used to spray the roads may have contributed to a reduction the release of dust and PM10 levels during the monitoring period.

Sampling location #1 (south perimeter) and location #4 (west perimeter) were closest to haul truck activities, including site arrival and departure roads within the Henderson Pit site. Therefore, peak PM10 levels at these two locations were higher than monitoring location #2 (east perimeter), which was adjacent to a road with less traffic. Monitoring location #3 (north perimeter) was far from the road but proximal to an area where dirt was dropped off by trucks and loaded onto a conveyor belt with heavy machinery. Increased levels of particulate matter would therefore be expected around

that area. PM10 levels at this monitoring location were the highest on average but the peak concentration was not.

Periodic spikes in PM10 levels were observed at all monitoring locations. Monitoring location #1 along the south perimeter documented a momentary increase in PM10 level at 12:30 p.m. lasting approximately one minute and peaking at 686 $\mu\text{g}/\text{m}^3$. Monitoring location #2 along the east perimeter recorded a PM10 level spike at 12:45 p.m. lasting approximately one minute and peaking at 36 $\mu\text{g}/\text{m}^3$. Monitoring location #3 along the north perimeter observed a PM10 level spike at 09:23 a.m. lasting approximately one minute and peaking at 284 $\mu\text{g}/\text{m}^3$. Monitoring location #4 along the west perimeter recorded a PM10 level spike at 08:04 a.m. lasting approximately one minute and peaking at 313 $\mu\text{g}/\text{m}^3$. Momentary elevated PM10 levels may have been attributed to passing trucks during intervals between site wetting activities, an increase in soil moving or driving activities, and wind blowing towards the PM10 monitors. The western perimeter monitor may have recorded a PM10 level peak at 08:04 a.m. because this was before the water truck was conducting road wetting activities. See Attachment 3 for PM10 graphs.

Sound Level Monitoring

Monitoring locations #1 (south perimeter) and location #4 (west perimeter) were closest to haul truck activity, including site arrival and departure roads within the Henderson Pit site. Monitoring location #3 (north perimeter) was relatively far from any road. Therefore, sound pressure levels at the south and west locations were higher than the east and north monitoring locations due to the close presence of passing trucks and nearby heavy machinery operating continuously.

The south, east, and north perimeter monitoring locations had no short term exceedances above 80 dB during the monitoring period. The west location recorded exceedances over 80 dB which contributed to 0.3% of the total monitoring time.

The sound level meter instrument batteries were changed for the south perimeter at 07:54 a.m. and 12:42 p.m. The instrument unexpectedly stopped recording at 08:55 a.m. No data was collected during the period between 08:55am and 12:42 p.m. No further errors in recording occurred after the resumption of data logging at 12:42 p.m. The instrument batteries for the east perimeter were changed at 10:14 a.m. At the north perimeter, the sound level meter instrument batteries were changed at 09:05 a.m. and at 02:47 p.m. Instrument batteries at the west perimeter were changed at 09:08 a.m. and 2:00 p.m. Table 3 shows the average, maximum and minimum sound levels for the morning and afternoon monitoring sessions before and after swapping the batteries at the respective locations. Sound level measurement graphs are provided in Attachment 3 of this report.

Conclusions and Recommendations

Results of perimeter area air monitoring for PM10 levels identified during this air monitoring assessment conducted during site work activities on December 10, 2018 show that PM10 levels based on an eight (8) hour average duration were between 7 and 49 $\mu\text{g}/\text{m}^3$ for the four locations monitored and were below the NAAQS level for Particle Pollution (PM10) at 150 $\mu\text{g}/\text{m}^3$. Although the NAAQS level for Particle Pollution (PM10) is based on an average over a 24 hour duration, operations at the Henderson Pit are conducted exclusively during the daytime. Therefore, an 8 hour

sampling duration was selected which is representative of worst case dust and sound pressure levels during work operations. Actual dust and noise levels are expected to be lower during night time or non-work hours.

Average noise monitoring results recorded at all locations over the sound pressure level assessment period were less than the Maximum Permissible Sound Pressure Level set by Adams County of 80 dB for any continuous noise source in an Industrial-3 zoned property during day time hours (07 a.m. – 10 p.m.).

Limitations

This assessment was limited to conditions present during the time period the monitoring was performed. FEI utilized state-of-the-art practices and techniques in accordance with regulatory standards while performing this evaluation. FEI's evaluation of the PM10 dust levels and sound level measurements identified during this assessment are based on conditions observed at the time of the monitoring assessment. FEI cannot be responsible for changing conditions that may alter the relative exposure risk or for future changes in accepted methodology.

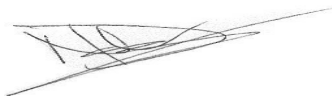
Please do not hesitate to contact FEI at (303) 232-2660 if you have any questions regarding this report.

Sincerely,



Andrew Castano
Industrial Hygienist

Reviewed by,



Nicolas Vasquez
Technical Services Manager

Attachments:

- Attachment 1 - Site Photos
- Attachment 2 - Sound Level Graphs
- Attachment 3 - PM10 Graphs
- Attachment 4 - Site Map with Sample Locations



**Foothills
Environmental, Inc.**

Industrial Hygiene, Safety & Environmental Services

ATTACHEMENT 1

SITE PHOTOS



View of concrete crushing process (background) looking southwest. View of damp road conditions and water spraying truck (foreground).



View of monitoring location #2 (east perimeter).



View of Dust-trak monitor with PM10 impactor attached.



View of monitoring location #4 (west perimeter) showing proximity to roadway.



View of monitoring location #3 (north perimeter).



**Foothills
Environmental, Inc.**

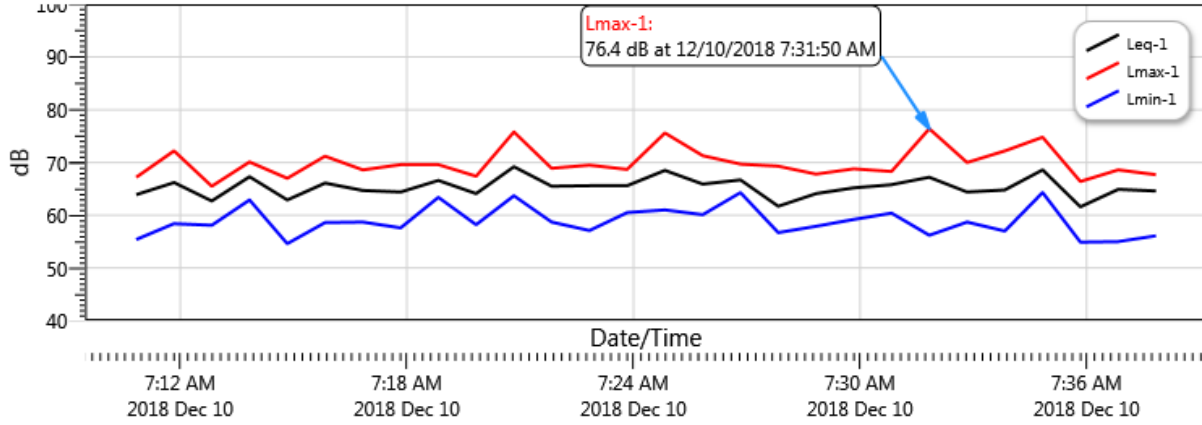
Industrial Hygiene, Safety & Environmental Services

ATTACHMENT 2

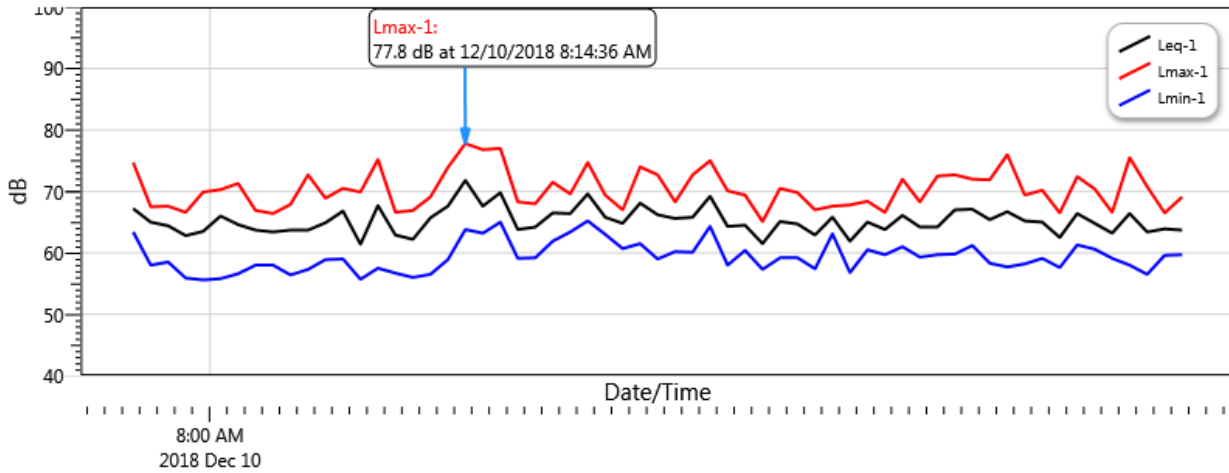
SOUND LEVEL GRAPHS

Sound Level Graphs

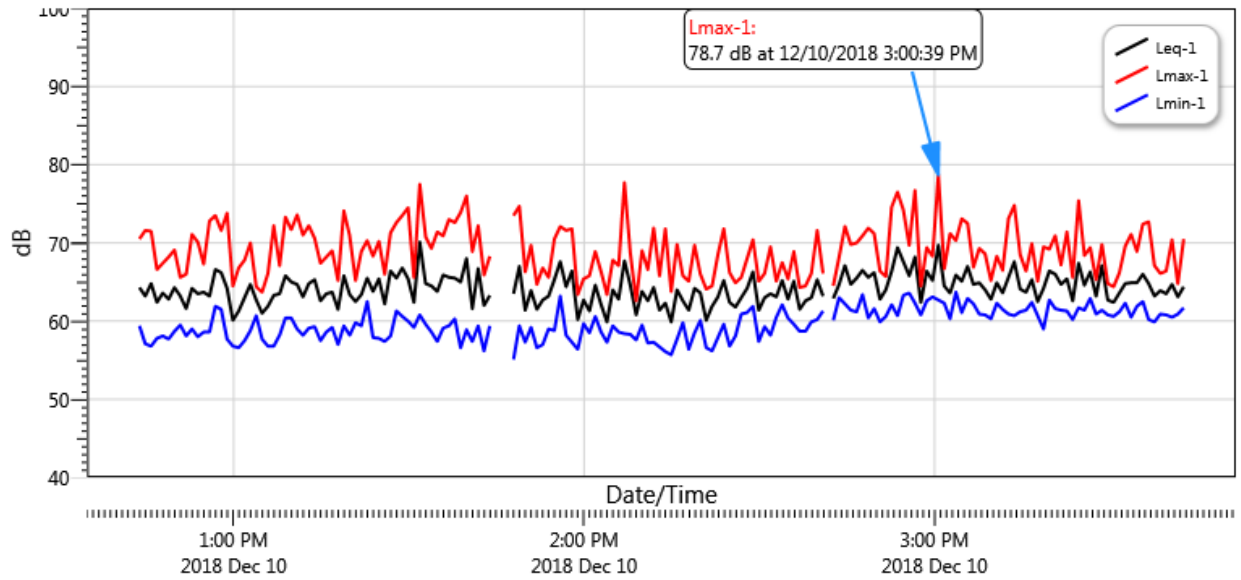
Monitoring Location: Southern Perimeter (sample #SLMS1) Data Chart (7:09am – 7:38am)



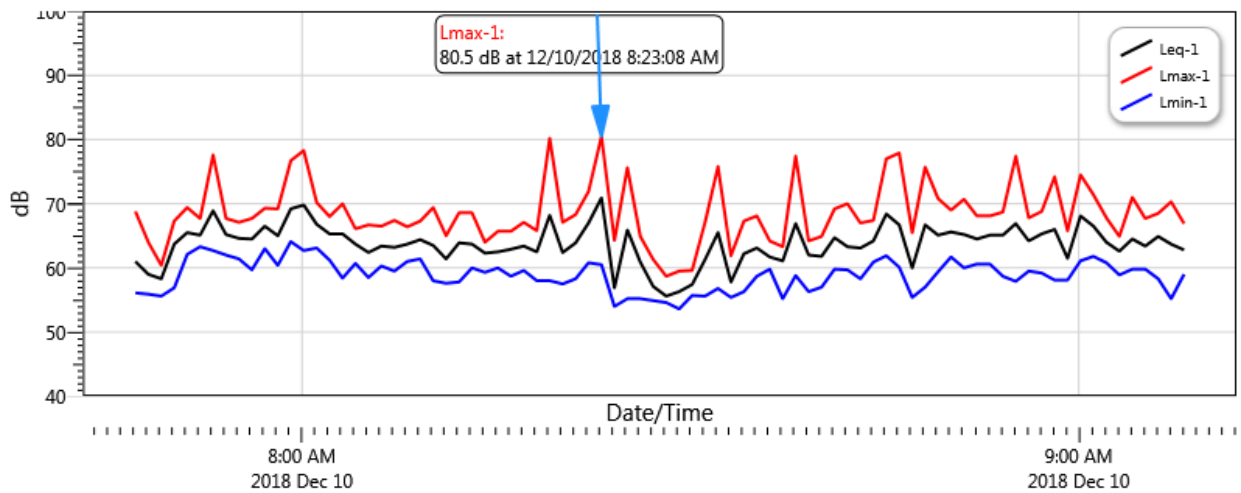
Monitoring Location: Southern Perimeter (sample #SLMS2) Data Chart (7:54 am – 8:55am)



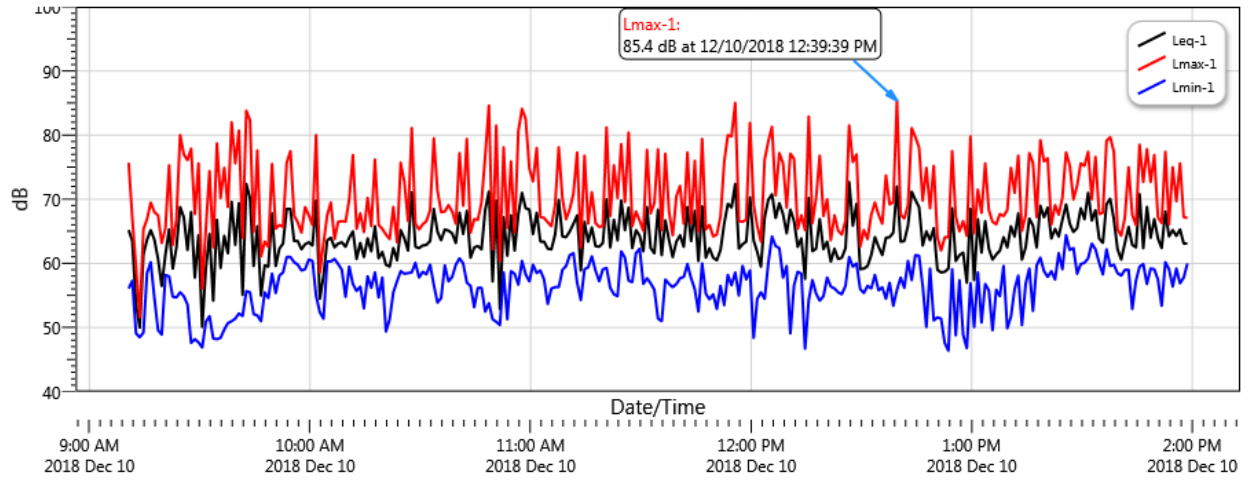
Monitoring Location: Southern Perimeter (sample #SLMS3) Data Chart (12:42pm – 3:42pm)



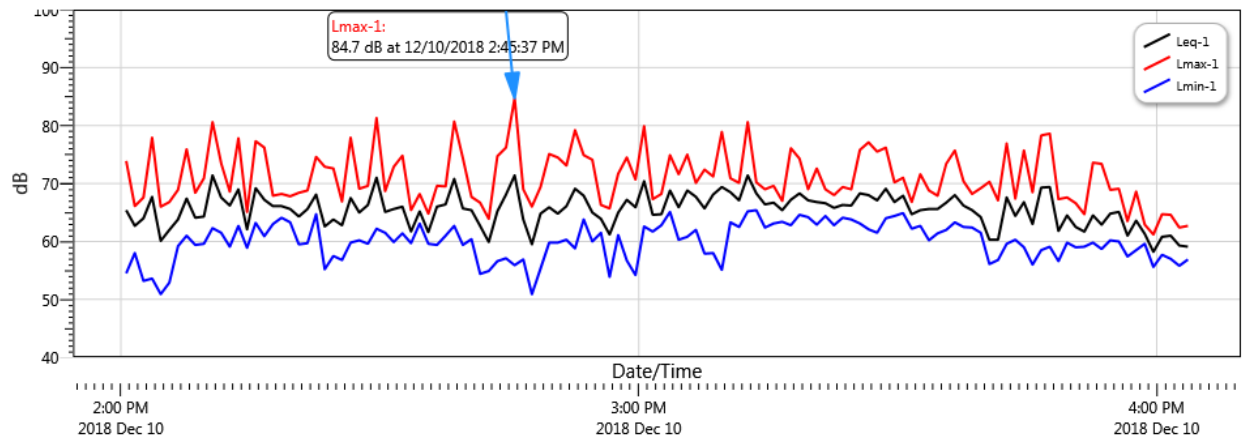
Monitoring Location: Western Perimeter (sample #SLMW1) Data Chart (7:46am – 9:08am)



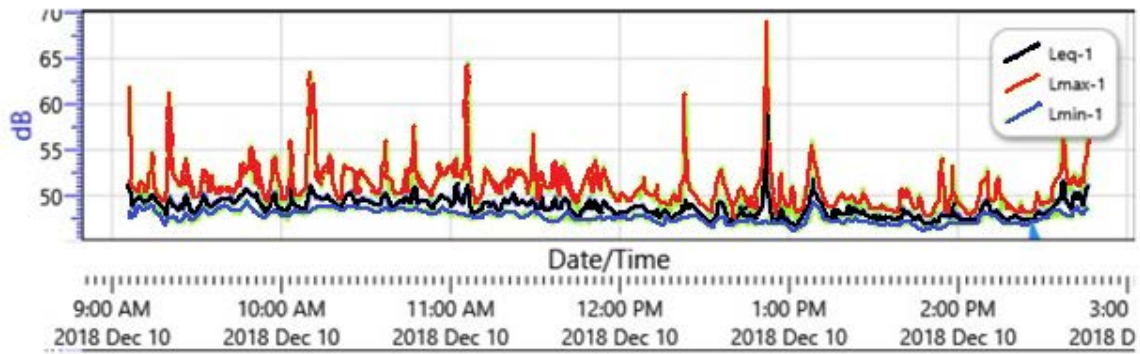
Monitoring Location: Western Perimeter (sample #SLMW2) Data Chart (9:09am – 1:58pm)



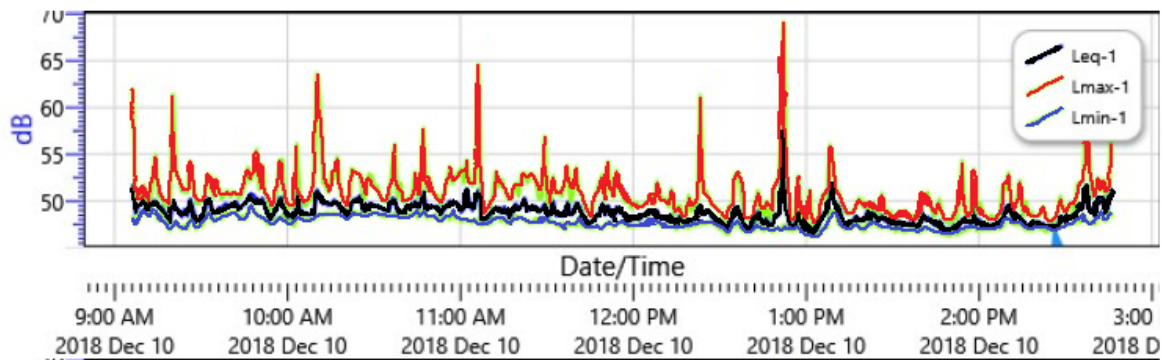
Monitoring Location: Western Perimeter (sample #SLMW3) Data Chart (1:59pm – 4:04pm)



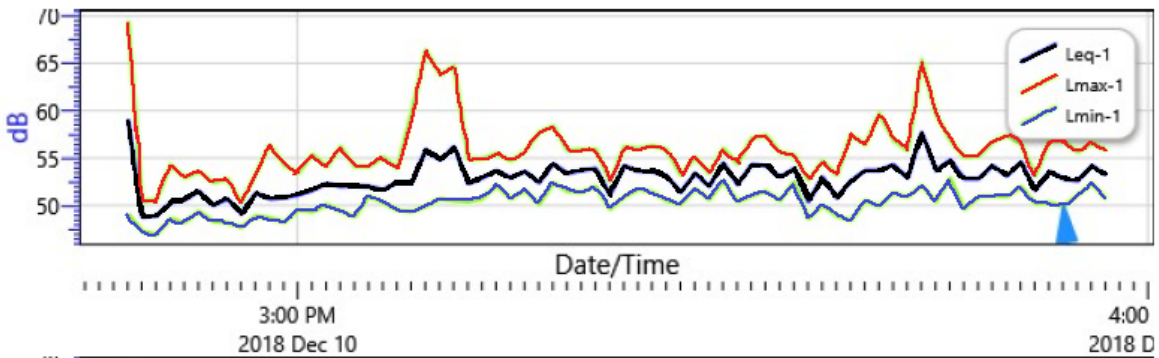
Monitoring Location: Northern Perimeter (sample #SLMN1) Data Chart (7:34am – 9:04am)



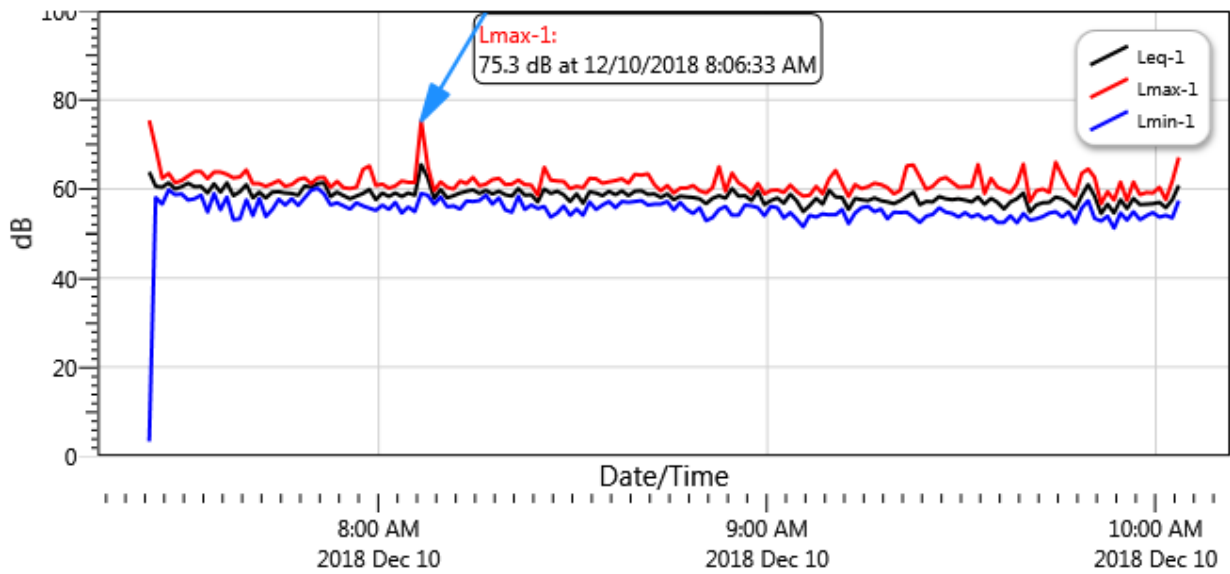
Monitoring Location: Northern Perimeter (sample #SLMN2) Data Chart (9:05am – 2:46pm)



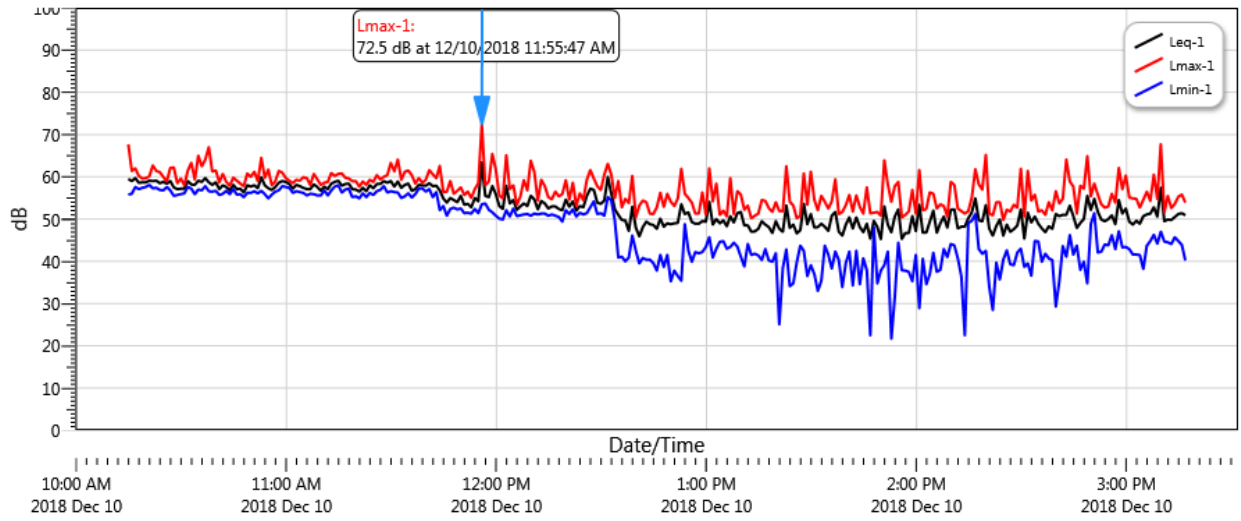
Monitoring Location: Northern Perimeter (sample #SLMN3) Data Chart (2:47pm – 3:57pm)



Monitoring Location: Eastern Perimeter (sample #SLME1) Data Chart (7:23am – 10:03am)



Monitoring Location: Eastern Perimeter (sample #SLME2) Data Chart (10:13am – 3:16pm)





**Foothills
Environmental, Inc.**

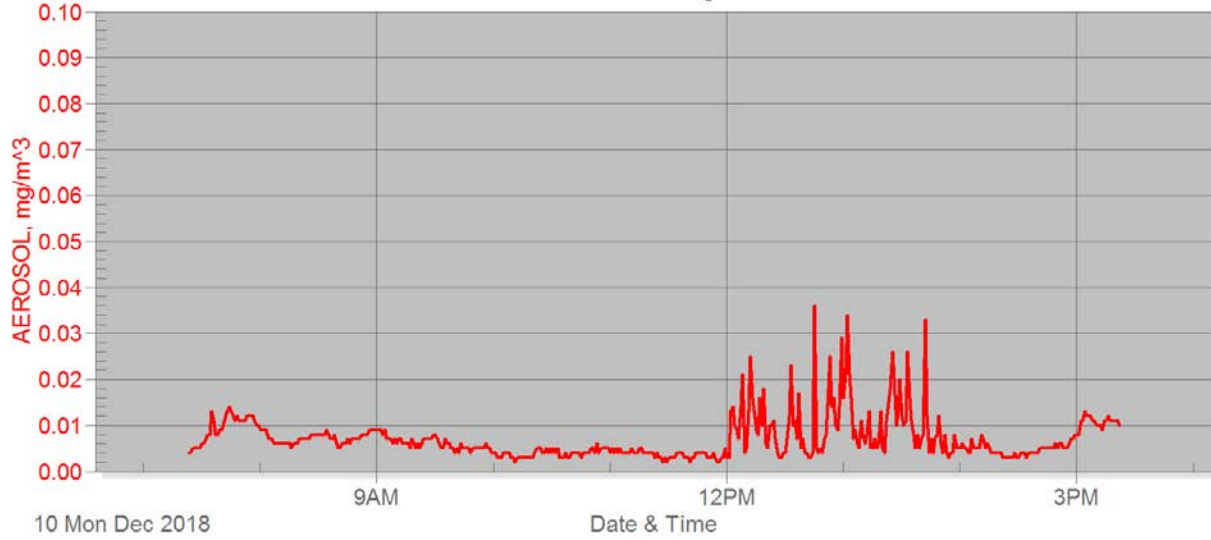
Industrial Hygiene, Safety & Environmental Services

ATTACHMENT 3

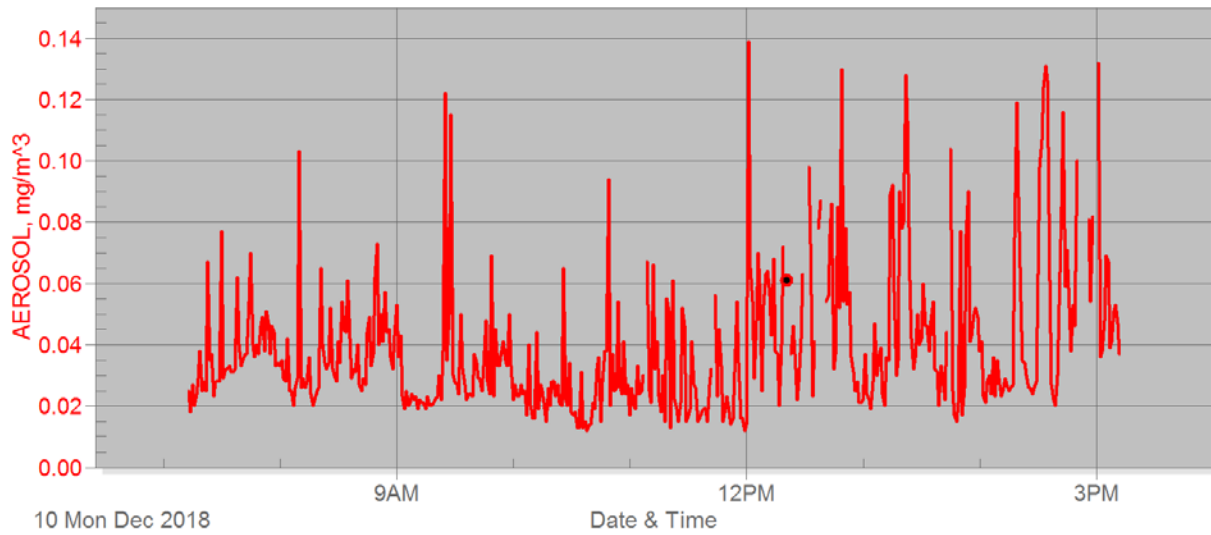
PM10 GRAPHS

PM₁₀ Graphs

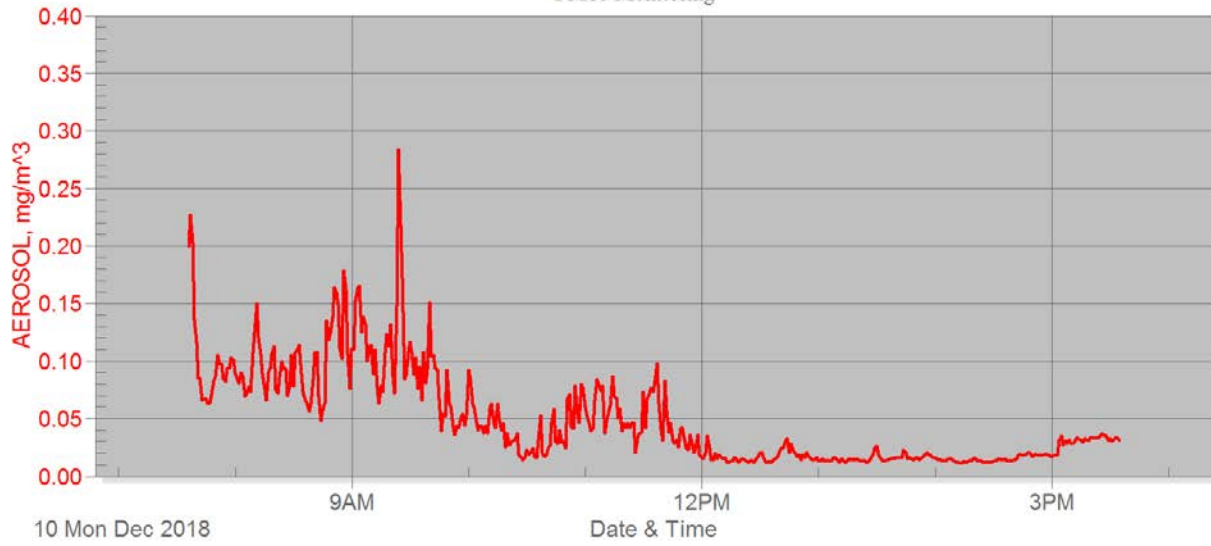
Eastern Perimeter
PM10 Monitoring



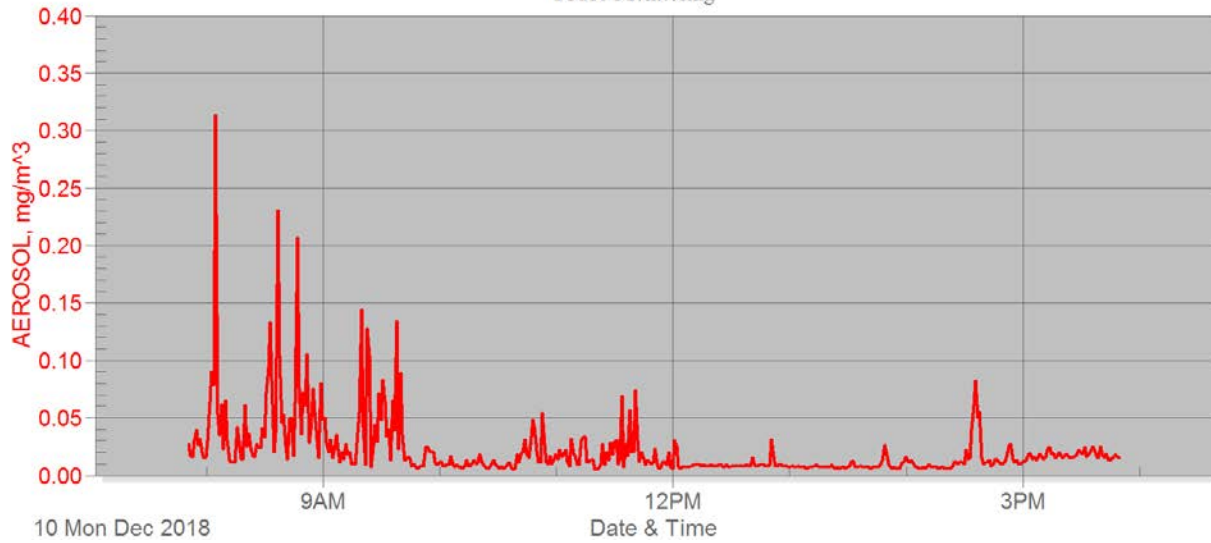
Southern Perimeter
PM10 Monitoring



Northern Perimeter PM10 Monitoring



Western Perimeter PM10 Monitoring





Industrial Hygiene, Safety & Environmental Services

ATTACHMENT 4

SITE MAP WITH SAMPLE LOCATIONS



SLMN

PMN

SLMW

PMW

SLME

PME

SLMS

PMS

Appendix C – Groundwater Reports

Henderson Pit Ground water measurements

March 2014	North well	12 feet	Elev. N/A
March 2014	South well	7 feet	Elev. N/A
January 2015	North well	13 feet	Elev. N/A
January 2015	South well	7 feet	Elev. N/A
Dec. 2015	North well	12.5 feet	Elev. N/A
Dec. 2015	South well	7 feet	Elev. N/A
July 2016	North well	12 feet	Elev. N/A
July 2016	South well	8 feet	Elev. N/A
March 2017	North well	12 feet	5025.554
March 2017	South well	16 feet	5045.636
June 2017	North well	10 feet	5025.554
June 2017	South well	14.5 feet	5045.636
Oct. 2017	North well	9 feet	5025.554
Oct. 2017	South well	14.5 feet	5045.636
Dec. 28, 2017 8:10 AM	South well	19.5 feet	5045.636
Dec. 28, 2017 8:30 AM	North well	12 feet	5025.554
Mar 30 th 2018 3:40 PM	South well	17.5 feet	5045.636
Mar. 30 th 2018 3:50 Pm	North well	12 Feet	5025.554
Jul 30 th 2018 11:25 AM	South well	17 feet	5045.636
Jul 30 th 2018 12:20 PM	North well	9 feet	5025.554
Oct 30 th 2018 11:20 AM	South well	18 feet	5045.636

Henderson Pit Ground water measurements

Oct 31 st 2018 11:32 AM	North well	10 Feet	5025.554
Dec 28 th 2018 10:35 AM	South well	17.5 Feet	5045.636
Dec 28 th 2018 10:50 AM	North well	9 Feet	5025.554
Apr 8 th 2019 9:00 AM	South well	20 feet	5045.636
Apr 8 th 2019 9:20 AM	North well	12 feet	5025.554
Jul 1 st 2019 8:55 AM	South well	16 feet	5045.636
Jul 1 st 2019 9:25 AM	North well	9 feet	5025.554
Oct 4 th 2019 9:00 AM	South Well	18 Feet	5045.636
Oct 4 th 2019 10:00	North Well	10 Feet	5025.554
Dec 31 st 2019 9:20 AM	South Well	19 Feet	5045.636
Dec 31 st 2019 9:40 AM	North Well	11 Feet	5025.554
Mar 31 st 2020 8:30 AM	South Well	17 Feet	5045.636
Mar 31 st 2020 9:00 AM	North Well	11 Feet	5025.554
Jul 1 st 2020 11:00 AM	South Well	16 Feet	5045.636

Henderson Pit Ground water measurements

Jul 1 st 2020 11:00 AM	North Well	9 Feet	5025.554
Oct 1 st 2020 8:30 AM	South Well	18 Feet	5045.636
Oct 1 st 2020 8:45 AM	North Well	10 Feet	5025.554

Analytical Results

TASK NO: 200527069

Report To: Lee Asay
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Bill To: Accounts Payable
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Task No.: 200527069
Client PO:
Client Project: Henderson Pit

Date Received: 5/27/20
Date Reported: 6/4/20
Matrix: Water - Surface

Customer Sample ID Henderson Pit
Sample Date/Time: 5/27/20 1:10 PM
Lab Number: 200527069-01

Test	Result	Method	ML	Date Analyzed	Analyzed By
<i>Total</i>					
Arsenic	0.0008 mg/L	EPA 200.8	0.0006 mg/L	6/1/20	IPC
Barium	0.0594 mg/L	EPA 200.8	0.0007 mg/L	6/1/20	IPC
Cadmium	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	6/1/20	IPC
Chromium	< 0.0015 mg/L	EPA 200.8	0.0015 mg/L	6/1/20	IPC
Lead	0.0001 mg/L	EPA 200.8	0.0001 mg/L	6/1/20	IPC
Mercury	< 0.0002 mg/L	EPA 245.7	0.0002 mg/L	6/3/20	JTF
Selenium	0.0021 mg/L	EPA 200.8	0.0008 mg/L	6/1/20	IPC
Silver	< 0.0005 mg/L	EPA 200.8	0.0005 mg/L	6/1/20	IPC

Abbreviations/ References:

ML = Minimum Level = LRL = RL
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed



DATA APPROVED FOR RELEASE BY

10411 Heinz Way / Commerce City, CO 80640 / 303-659-2313
Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507

Chain of Custody Form

Report To Information Company Name: <u>120 85 LLC</u> Contact Name: <u>Kelly Johnson</u> Address: <u>10925 E 120th</u>		Bill To Information (if different from report to) Company Name: _____ Contact Name: _____ Address: _____		Project Name _____	
City: <u>Handerson</u> State: <u>CO</u> Zip: <u>80640</u>		City: _____ State: _____ Zip: _____		Task Number (Lab Use Only) CAL Task No. <u>200527069</u> JML	
Phone: <u>720-276-9740</u> Fax: _____		Phone: _____ Fax: _____		Sample Disp. Date (Lab Use Only)	
Email: <u>eb5colorado@gmail.com</u>		Email: _____		_____	
Sampler Name: <u>LEE ASAY</u>		PO No.: _____		_____	


Colorado Analytical
 LABORATORIES, INC.
Brighton Lab
 240 South Main Street
 Brighton, CO 80601
Lakewood Lab
 12860 W. Cedar Dr, Suite 100A
 Lakewood CO 80228
 Phone: 303-659-2313
 Fax: 303-659-2315
www.coloradolab.com

Date		Time	Sample ID	Sample Matrix (Select One Only)			No. of Containers	Grab or (Check One Only) Composite	Notes	Seals Present Yes <input type="checkbox"/> No <input type="checkbox"/>
5-27-20	5-27-20	1:10 PM	Handerson P.T	<input type="checkbox"/> Waste Water <input checked="" type="checkbox"/> Ground Water <input checked="" type="checkbox"/> Surface Water	<input type="checkbox"/> Soil <input type="checkbox"/> Sludge <input type="checkbox"/> Compost	<input type="checkbox"/> Plant Tissue <input type="checkbox"/> Other	2	<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite	RORA 8 Complete Nutrient	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Instructions: <u>SAMPLE ID per bottle info</u>										
See history for tests ✓										
Relinquished By: <u>Lee Asay</u>		Date/Time: <u>5-27-11:30</u>	Received By: <u>Adriant</u>	Date/Time: <u>5/27/20</u>	Deliver Via: <u>HA</u>	Relinquished By: <u>HA</u>	CS Charge <input type="checkbox"/>	Date/Time: _____	Temp. <u>12</u> °C/°F	Received By: <u>Y</u>
Sample Pres. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Date/Time: _____	Sample Pres. Yes <input type="checkbox"/> No <input type="checkbox"/>		Date/Time: _____					

Analytical Results

TASK NO: 200804055

Report To: Lee Asay
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Bill To: Accounts Payable
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Task No.: 200804055
Client PO:
Client Project: Henderson Pit

Date Received: 8/4/20
Date Reported: 8/12/20
Matrix: Water - Surface

Customer Sample ID Henderson Pit
Sample Date/Time: 8/4/20 9:35 AM
Lab Number: 200804055-01

Test	Result	Method	ML	Date Analyzed	Analyzed By
<i>Total</i>					
Arsenic	0.0007 mg/L	EPA 200.8	0.0006 mg/L	8/7/20	IPC
Barium	0.0573 mg/L	EPA 200.8	0.0007 mg/L	8/7/20	IPC
Cadmium	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	8/7/20	IPC
Chromium	< 0.0015 mg/L	EPA 200.8	0.0015 mg/L	8/7/20	IPC
Lead	0.0002 mg/L	EPA 200.8	0.0001 mg/L	8/7/20	IPC
Mercury	< 0.0002 mg/L	EPA 245.7	0.0002 mg/L	8/11/20	MLT
Selenium	0.0019 mg/L	EPA 200.8	0.0008 mg/L	8/7/20	IPC
Silver	< 0.0005 mg/L	EPA 200.8	0.0005 mg/L	8/7/20	IPC

Abbreviations/ References:

ML = Minimum Level = LRL = RL
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed



DATA APPROVED FOR RELEASE BY

10411 Heinz Way / Commerce City, CO 80640 / 303-659-2313
Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507



Brighton Lab
 240 South Main Street
 Brighton, CO 80601
Lakewood Lab
 12860 W. Cedar Dr, Suite 100A
 Lakewood CO 80228
 Phone: 303-659-2313
 Fax: 303-659-2315
 www.coloradolab.com

Chain of Custody Form

Report To Information		Bill To Information (If different from report to)		Project Name	
Company Name: 170 85 LLC		Company Name:			
Contact Name: Kelly Johnson		Contact Name:			
Address: 10925 E 170th AVE		Address:		Task Number (Lab Use Only)	
City: Henderson State CO Zip: 80640		City: State Zip		200804055	
Phone: 720-276-9790 Fax:		Phone: Fax:		JML	
Email: cbs colorado@gmail.com		Email:		Sample Disp. Date (Lab Use Only)	
Sampler Name: LEE ASAY		PO No.:			

Date	Time	Sample Matrix (Select One Only)			No. of Containers	Grab or (Check One Only) Composite	X RCPA 8	X Comp. Nutrient	Seals Present Yes <input type="checkbox"/> No <input type="checkbox"/>	Temp. °C/Ice	Received By:
		Waste Water <input type="checkbox"/>	Soil <input type="checkbox"/>	Plant Tissue <input type="checkbox"/>							
8-4-20	935				1		X			1	Y
8-4-20	935				1		X				
Instructions: INCORRECT bottle received for metals; digested from unpreserved @ 16.5 ft * Please see history for tests Relinquished: Lee Gray 9-4-20 Received By: Aelana 8/4/20 Relinquished By: HD C/S Info: 2 Deliver Via: HD Date/Time: 9-4-20 Date/Time: 8/4/20 Page 2 of 2											

Analytical Results

TASK NO: 200527069

Report To: Lee Asay
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Bill To: Accounts Payable
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Task No.: 200527069	Date Received: 5/27/20
Client PO:	Date Reported: 6/4/20
Client Project: Henderson Pit	Matrix: Water - Surface

Customer Sample ID Henderson Pit
Sample Date/Time: 5/27/20 1:10 PM
Lab Number: 200527069-01

Test	Result	Method	ML	Date Analyzed	Analyzed By
<i>Total</i>					
Arsenic	0.0008 mg/L	EPA 200.8	0.0006 mg/L	6/1/20	IPC
Barium	0.0594 mg/L	EPA 200.8	0.0007 mg/L	6/1/20	IPC
Cadmium	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	6/1/20	IPC
Chromium	< 0.0015 mg/L	EPA 200.8	0.0015 mg/L	6/1/20	IPC
Lead	0.0001 mg/L	EPA 200.8	0.0001 mg/L	6/1/20	IPC
Mercury	< 0.0002 mg/L	EPA 245.7	0.0002 mg/L	6/3/20	JTF
Selenium	0.0021 mg/L	EPA 200.8	0.0008 mg/L	6/1/20	IPC
Silver	< 0.0005 mg/L	EPA 200.8	0.0005 mg/L	6/1/20	IPC

Abbreviations/ References:

ML = Minimum Level = LRL = RL
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed



DATA APPROVED FOR RELEASE BY

Analytical Results

TASK NO: 200324002

Report To: Lee Asay
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Bill To: Accounts Payable
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Task No.: 200324002	Date Received: 3/24/20
Client PO:	Date Reported: 3/31/20
Client Project: Henderson Pit	Matrix: Water - Surface

Customer Sample ID Henderson Pit 1
Sample Date/Time: 3/24/20
Lab Number: 200324002-01

Test	Result	Method	ML	Date Analyzed	Analyzed By
<i>Total</i>					
Arsenic	< 0.0006 mg/L	EPA 200.8	0.0006 mg/L	3/27/20	IPC
Barium	0.0592 mg/L	EPA 200.8	0.0007 mg/L	3/27/20	IPC
Cadmium	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	3/27/20	IPC
Chromium	< 0.0015 mg/L	EPA 200.8	0.0015 mg/L	3/27/20	IPC
Lead	0.0015 mg/L	EPA 200.8	0.0001 mg/L	3/27/20	IPC
Mercury	< 0.0002 mg/L	EPA 245.7	0.0002 mg/L	3/30/20	JTF
Selenium	0.0017 mg/L	EPA 200.8	0.0008 mg/L	3/27/20	IPC
Silver	< 0.0005 mg/L	EPA 200.8	0.0005 mg/L	3/27/20	IPC

Abbreviations/ References:

ML = Minimum Level = LRL = RL
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpr/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed



DATA APPROVED FOR RELEASE BY

Analytical Results

TASK NO: 190909031

Report To: Lee Asay
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Bill To: Accounts Payable
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Task No.: 190909031
Client PO:
Client Project: Henderson Pit

Date Received: 9/9/19
Date Reported: 9/16/19
Matrix: Water - Surface

Customer Sample ID Henderson Pit 1
Sample Date/Time: 9/9/19 1:00 PM
Lab Number: 190909031-01

Test	Result	Method	ML	Date Analyzed	Analyzed By
<i>Total</i>					
Arsenic	0.0032 mg/L	EPA 200.8	0.0006 mg/L	9/11/19	IPC
Barium	0.0877 mg/L	EPA 200.8	0.0007 mg/L	9/11/19	IPC
Cadmium	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	9/11/19	IPC
Chromium	0.0019 mg/L	EPA 200.8	0.0015 mg/L	9/11/19	IPC
Lead	0.0020 mg/L	EPA 200.8	0.0001 mg/L	9/11/19	IPC
Mercury	< 0.0002 mg/L	EPA 245.7	0.0002 mg/L	9/16/19	DBM
Selenium	0.0015 mg/L	EPA 200.8	0.0008 mg/L	9/11/19	IPC
Silver	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	9/11/19	IPC

Abbreviations/ References:

ML = Minimum Level = LRL = RL
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mprn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed



DATA APPROVED FOR RELEASE BY

Chain of Custody Form

Report To Information Company Name: <u>120 85 LLC</u> Contact Name: <u>Kelly Johnson</u> Address: <u>16925 E 120th AVE</u>	Bill To Information (if different from report to) Company Name: <u>120 85 LLC</u> Contact Name: <u>Kelly Johnson</u> Address: <u>10925 E 120th</u>	Project Name Task Number (Lab Use Only) CAL Task No. <u>190909031</u> ARF
City: <u>Henderson</u> State: <u>CO</u> Zip: <u>80640</u>	City: <u>Henderson</u> State: <u>CO</u> Zip: <u>80640</u>	Sample Disp. Date (Lab Use Only)
Phone: <u>720-276-9743</u> Fax: _____ Email: <u>eb5colorado@gmail.com</u>	Phone: <u>720-276-9740</u> Fax: _____ Email: <u>eb5colorado@gmail.com</u> PO No.: _____	
Sampler Name: <u>LEE ASAY</u>		



Brighton Lab
 240 South Main Street
 Brighton, CO 80601
Lakewood Lab
 12860 W. Cedar Dr., Suite 100A
 Lakewood CO 80228
 Phone: 303-659-2313
 Fax: 303-659-2315
www.coloradolab.com

Sample Matrix (Select One Only)			Sample ID	No. of Containers	Grab or (Check One Only) Composite	see history for testing	Seals Present Yes <input type="checkbox"/> No <input type="checkbox"/>																		
Waste Water	Ground Water	Surface Water					Soil	Sludge	Compost	Plant Tissue	Other	1	2	3	4	5	6	7	8	9	10	11	12		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-9-19	1:00	1	1														
			PCRA 8 Metals																						
			Lowp Nut. Analysis																						
			(2)																						

Relinquished By: ADAM Date/Time: 9-9-19 1:00 Received By: ADAM Date/Time: 9/9/19 Deliver Via: HD
 Relinquished By: _____ Date/Time: _____ Received By: _____ Date/Time: _____
 CS Charge Temp W/ice N Sample Pres. Yes No
 Instructions: _____

Analytical Results

TASK NO: 190605013

Report To: Lee Asay
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Bill To: Accounts Payable
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Task No.: 190605013
Client PO:
Client Project: Henderson Pit

Date Received: 6/5/19
Date Reported: 6/12/19
Matrix: Water - Surface

Customer Sample ID Henderson Pit 1
Sample Date/Time: 6/5/19 8:25 AM
Lab Number: 190605013-01

Test	Result	Method	ML	Date Analyzed	Analyzed By
Total					
Arsenic	0.0006 mg/L	EPA 200.8	0.0006 mg/L	6/7/19	DBM
Barium	0.0666 mg/L	EPA 200.8	0.0007 mg/L	6/7/19	DBM
Cadmium	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	6/7/19	DBM
Chromium	< 0.0015 mg/L	EPA 200.8	0.0015 mg/L	6/7/19	DBM
Lead	0.0012 mg/L	EPA 200.8	0.0001 mg/L	6/7/19	DBM
Mercury	< 0.0002 mg/L	EPA 245.7	0.0002 mg/L	6/7/19	DBM
Selenium	0.0026 mg/L	EPA 200.8	0.0008 mg/L	6/7/19	DBM
Silver	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	6/7/19	DBM

Abbreviations/ References:

ML = Minimum Level = LRL = RL
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed



DATA APPROVED FOR RELEASE BY

Drinking Water Chain of Custody



LABORATORIES, INC.

Brighton Lab
240 South Main Street
Brighton, CO 80601

Lakewood Lab
12860 W. Cedar Dr., Suite 100A
Lakewood CO 80228

Phone: 303-659-2313
Fax: 303-659-2315

www.coloradolab.com

Report To Information		Bill To Information (if different from report to)		State Form / Project Information	
Company Name: <u>120 85 LLC</u>	Company Name: <u>120 85 LLC</u>	PWSID:			
Contact Name: <u>Kelly Johnson</u>	Contact Name: <u>Kelly Johnson</u>	System Name:			
Address: <u>10925 E 120th AVE</u>	Address: <u>10925 E 120th AVE</u>	Address:			
City: <u>Henderson State Co</u>	City: <u>Henderson State Co</u>	City:			
State: <u>CO</u>	State: <u>CO</u>	State:			
Zip: <u>80640</u>	Zip: <u>80640</u>	Zip:			
Phone: <u>720-276-9740</u>	Phone: <u>720-276-9740</u>	County:			
Fax: <u>720-276-9740</u>	Fax: <u>720-276-9740</u>	County:			
Email: <u>chscoloradogmail.com</u>	Email: <u>chscoloradogmail.com</u>	Compliance Samples: Yes <input type="checkbox"/> No <input type="checkbox"/>			
Sampler Name: <u>Lee Asay</u>	PO No.:	Send Forms to State: Yes <input type="checkbox"/> No <input type="checkbox"/>			

CAL Task No. 190605013

Date	Time	Client Sample ID / EP Code	No. of Containers	Residual Chlorine (mg/L) P/A Samples Only	Total Coliform P/A	504.1 EDB/DBCP	505 Pests/PCBs	515.4 Herbicides	524.2 VOCs	525.2 SOCs-Pest	531.1 Carbamates	547 Glyphosate	548.1 Endothall	549.2 Diquat	524.2 TTHMs	552.2 HAA5s	Lead/Copper	Nitrate	Nitrite	Fluoride	Inorganics	Alk./Lang. Index	TOC, DOC (Circle)	SUVA, UV 254 (Circle)	Gross Alpha/Beta	Radium 226	Radium 228	Radon	Uranium	
6-5-19	8:15	1	1																											
6-5-19	8:25	2	1																											

PCRs/Complete Nutrients

Instructions: See history for tests required - R

Relinquished By: Lee Asay Date/Time: 6/5/19

Received By: J. Harper Date/Time: 6/5/19

Delivered Via: Hand

C/S Charge Date/Time: 6/5/19

Temp. 15.6 Received By: Y

Seals Present Yes No Headspace Yes No

Sample Pres. Yes No

Analytical Results

TASK NO: 190226071

Report To: Lee Asay
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Bill To: Accounts Payable
Company: 12085 LLC
10925 E. 120th Ave.
Henderson CO 80640

Task No.: 190226071
Client PO:
Client Project: Henderson Pit

Date Received: 2/26/19
Date Reported: 3/5/19
Matrix: Water - Surface

Customer Sample ID: Henderson Pit 1
Sample Date/Time: 2/26/19 2:20 PM
Lab Number: 190226071-01

Test	Result	Method	ML	Date Analyzed	Analyzed By
<u>Total</u>					
Arsenic	0.0008 mg/L	EPA 200.8	0.0006 mg/L	3/1/19	DBM
Barium	0.0680 mg/L	EPA 200.8	0.0007 mg/L	3/1/19	DBM
Cadmium	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	3/1/19	DBM
Chromium	< 0.0015 mg/L	EPA 200.8	0.0015 mg/L	3/1/19	DBM
Lead	0.0005 mg/L	EPA 200.8	0.0001 mg/L	3/1/19	DBM
Mercury	< 0.0002 mg/L	EPA 245.7	0.0002 mg/L	2/27/19	DBM
Selenium	0.0032 mg/L	EPA 200.8	0.0008 mg/L	3/1/19	DBM
Silver	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	3/1/19	DBM

Abbreviations/ References:

ML = Minimum Level = LRL = RL
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed



DATA APPROVED FOR RELEASE BY

Chain of Custody Form

Report To Information

Company Name: 120 85 LLC

Contact Name: Kelly Johnson

Address: 10925 E 120th

City: Hendersonville CO zip 80640

Phone: 720-276-9740 Fax:

Email: chs.colorado@gmail.com

Sampler Name: Lee Asay

Bill To Information (If different from report to)

Company Name: 120 85 LLC

Contact Name: Kelly Johnson

Address: 10925 E 120TH AVE

City: Hendersonville CO zip 80640

Phone: 720-276-9740 Fax:

Email: chs.colorado@gmail.com

PO No.:

Project Name

Task Number: CAL Task No. 190226071

JML

Sample Disp. Date(LabUse Only)



Brighton Lab
240 South Main Street
Brighton, CO 80601
Lakewood Lab
12860 W. Cedar Dr, Suite 100A
Lakewood CO 80228

Phone: 303-659-2313
Fax: 303-659-2315

www.coloradolab.com

Sample Matrix (Select One Only)

- Waste Water
- Ground Water
- Surface Water
- Soil
- Sludge
- Compost
- Plant Tissue
- Other

Date	Time	Sample ID	No. of Containers	Grab or (Check One Only) Composite	Task Number	Temp. °C/°F	Seals Present Yes <input type="checkbox"/> No <input type="checkbox"/>
2-25-19	2:20	#1	1	Composite	KCRAS Complete Nutrient	14.5	<input checked="" type="checkbox"/>
2-25-19	2:20	#2	1	Composite			<input type="checkbox"/>

Instructions: See history - on history - lists & matrix based

CS Info: (2)

Relinquished: [Signature] Date/Time: 1/14/19 Received By: [Signature] Date/Time: 2/26/19

Deliver Via: Hand Relinquished By: [Signature] Date/Time: [Signature] Date/Time: CS Charge Temp. °C/°F: 14.5

Seals Present Yes No Sample Pres. Yes No Date/Time: [Signature] Date/Time:

Appendix D – Wind Shutdown Log

East Wind Gauge



West Wind Gauge



Appendix E – CDHPE APEN Exemption Info

Dave Schultejann

----- Original message -----

From: "Cliff C. Kelley" <Kelley_Cliff@wagnerequipment.com>

Date: 3/7/17 11:15 AM (GMT-07:00)

To: dschultejann58@gmail.com

Cc: "Cliff C. Kelley" <Kelley_Cliff@wagnerequipment.com>, "Greg K. Jones" <Jones_Greg@wagnerequipment.com>

Subject: FW: Air permit

Dave see and attachment:

CDPHE has increased their threshold on emissions for crushers and screens. They have told us our equipment is now exempt. Attached is the presentation they gave that outlines the changes. Page 13 shows how the calculation is done. In order to exceed the limits the equipment would need to do over 2.1 million tons according to the class that they gave us.

Also, below is an email from CDPHE showing that our equipment is now exempt.

Please note – we need water supplied to the crusher for dust suppression. It makes a huge difference in the dust emission calculation.

Thanks,

Greg

President

Inter-Mountain Construction Equipment

(303) 885-2068

www.intermountaincrushers.com

From: Ryder - CDPHE, Doug [<mailto:doug.ryder@state.co.us>]
Sent: Thursday, May 01, 2014 3:05 PM
To: greg@intermountaincrushers.com
Subject: Inter-Mountain Construction Equipment permits

Mr. Jones:

This message refers to the following Colorado air quality permits for portable processing equipment:

Permit #: AIRS #:
12PO3109 777/3785
12PO3114 777/3787
12PO3115 777/3788
12PO3117 777/3790
12PO3140 777/3795
14PO0253 777/3957
14PO0254 777/3958

Thank you for submitting self certification information for these permits. It looks fine, and we can write Final Approval letters for these permits if you wish. However, since you send in the APEN's for this equipment our regulations have changed such that this equipment is now exempt from APEN requirements. As such, you can cancel each of these permits if you want to.

I will add that the equipment is still subject to certain Federal Regulations (NSPS OOO for the processing equipment and NSPS IIII for the engines,) so it would be good to keep all of the information you have submitted to us in the event any of this equipment is inspected in the future.

You may wish to keep these permits in the event such a hypothetical inspection occurs, however, this is not a requirement in view of the fact that the emissions from it are so low.

So, do you wish to keep these permits? I have attached a cancellation request in the event you do not.

Doug Ryder
Final Approval and Self Certification Coordinator
Air Pollution Control Division
COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
4300 Cherry Creek Drive, South
APCD/SS/B-1
Denver, CO 80246

Phone: (303) 692-3189
Fax: (303) 782-0278
Email: doug.ryder@state.co.us

Total Tons Delivered to Facility 2019

Quarter 1 2019:	189,912	tons
Quarter 2 2019:	314,429	tons
Quarter 3 2019:	410,420	tons
Quarter 4 2019:	240,369	tons

Total Tons: 1,155,130 tons

Total Tons Material Sold 2019

Quarter 1 2019:	66,010	tons
Quarter 2 2019:	250,299	tons
Quarter 3 2019:	281,682	tons
Quarter 4 2019:	174,480	tons

Total Tons: 772,471 tons

New Air Pollution Emissions Reporting & Permitting Changes

Provided by the Colorado Air Division's Small
Business Assistance Program

Summer 2014



Colorado Department
of Public Health
and Environment



Agenda

- Background Information
- New Regulation Changes
 - Removal of “Catchall” Provision
 - Hazardous Air Pollutant Changes
 - Crude Oil Exemption is Gone
- Process Changes
 - APEN and Permit Exemptions
 - How to fill out APEN to avoid rejection (Completeness)
 - General Permits Now Available
 - No longer doing initial and final approvals
 - New Billing Rules





BACKGROUND

Air regulations and permitting exist to help balance industry and environmental impacts



What industries are regulated for air quality?



EPA develops regulations on a national level, Colorado adopts (sometimes with changes), and enforces them.



Colorado Department
of Public Health
and Environment



Permitting 101



○ Submit an APEN and \$152.90

○ If emission are high enough, APEN becomes your permit application

○ Permit engineer reviews APEN and writes permit

○ Receive permit and **READ IT**



Pay up and comply



APEN= Air Pollution Emissions Notice

APENs

- Submit based on amount of emissions
- Filing fee of \$152.90
- Must renew every 5 years
- Revised APENS must be submitted when changes occur
- Dual purpose form for reporting air emissions and obtaining a permit

Permits

- Based on information provided in the APEN
- Permit based on amount of emissions
- Includes compliance requirements
- Billed based on engineer's time

(Complete APENs take less time to write a permit for)



Actual Emissions



- Calculated based on product throughput and emission factors
- “Uncontrolled” does NOT account for control equipment
- Must be on APEN!
- What annual bill is based on



Requested Emissions

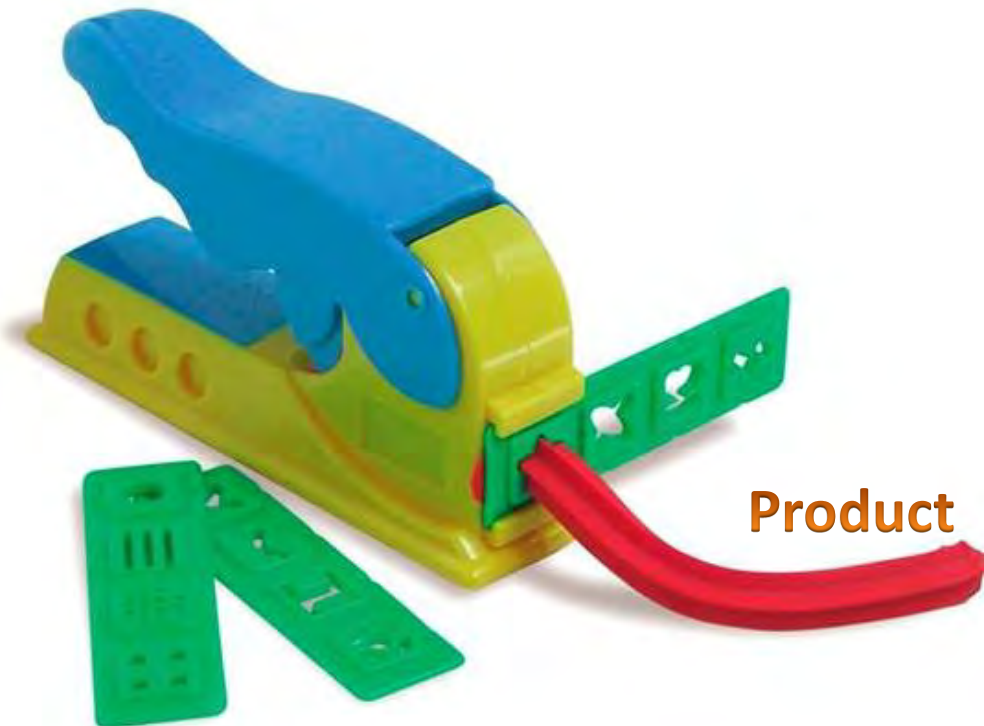
- Level at which you are permitted (maximum allowed)
- Leave room for growth over next 5 yrs.
- A change in this number results in permit modification



To be able to calculate **actual emissions**, you will need to know your process throughput, your control efficiently and your emission factor.



Throughput



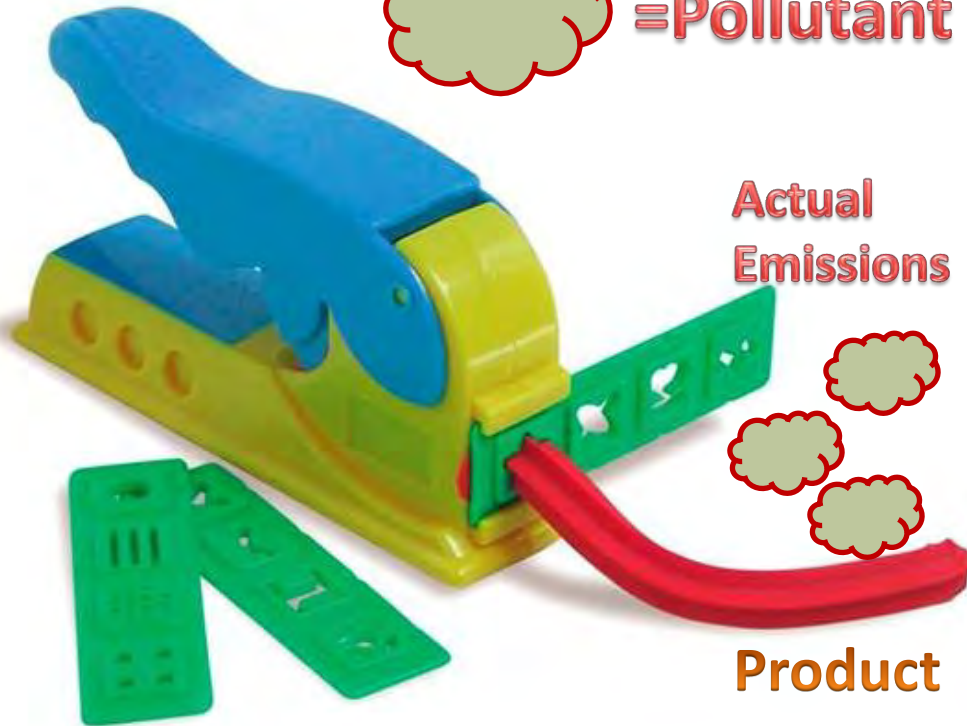
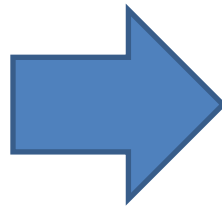
Control Device

Emission Factor

$$EF = \text{Pollutant Released} \div \text{Amount of product used}$$



Throughput



=Pollutant

Actual Emissions

Product

Control Device

$$E = A \times EF \times (1-ER)$$



- **E** = Emissions
- **A** = Activity Rate
- **EF** = Emission Factor
- **ER** = overall emission reduction efficiency (%)



Example: Crusher

$$E = A \times EF \times (1 - ER)$$

60,000 tons of Gravel per year
AP-42 Emission factor: 0.039 lbs per ton
Control Efficiency of 97.8% (water spray)

A = 60,000 tons/yr

EF = 0.039 lbs/ ton

ER = .978 (reduction efficiency)



$$E = 60,000 \text{ tons/yr} \times 0.039 \text{ lbs/ton} \times (1 - .978)$$

$$E = 51.48 \text{ lbs of PM per year}$$



Example: Propane Burning Boiler

Fuel type: Propane

Amount of fuel burned: 5,000,000 cubic feet per yr

AP-42 Emission factor: 7.6 lbs of Particulate Matter (PM) emitted per 10^6 cubic feet

Control technology: None

$$E = A \times EF \times (1 - ER)$$

A = 5,000,000 cubic feet

EF = 7.6 lbs of PM per 10^6 cubic feet

ER = None

$$E = 5,000,000 \text{ ft}^3/\text{yr} \times 7.6 \text{ lbs per } 10^6 \text{ ft}^3 \times (\text{no controls})$$

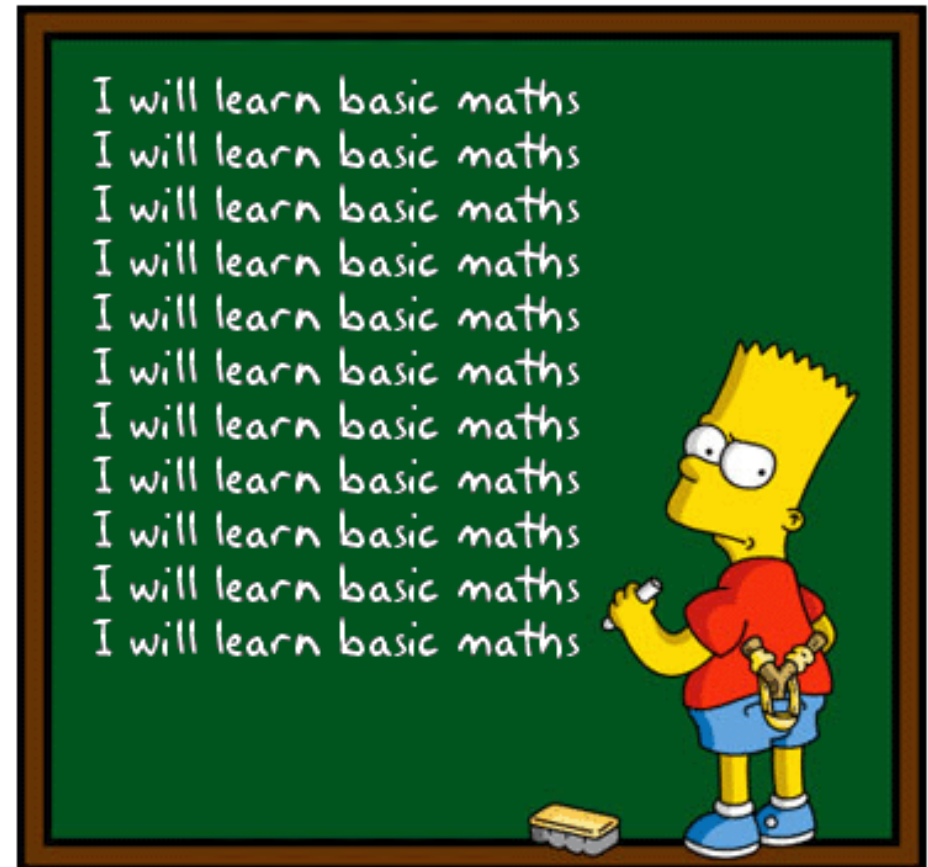
$$E = 38 \text{ lbs of PM/yr}$$



Mass Balance: **Input=Output**



- lbs of pollutant per gallon of product
- gallons of product used per year
- Product density or specific gravity (if given ingredient percentages)





Example: Surface Coating

20,000 gallons of coating used last year. **Determine the pounds of VOC emitted last year.**

• From Safety Data Sheet:

➤ % by weight VOC=87%

➤ Density=8.10 lbs/gal

1. Calculate pounds of VOC per gallon of coating

(% by weight VOC) x (density of coating) = lbs VOC / gallon of coating

$$(.87) \times (8.10 \text{ lbs / gal}) = \mathbf{7.05 \text{ lbs / gal}}$$

2. Calculate pounds of VOC emitted last year

(lbs VOC /gallon of coating) x (gallons of coating used/year) = lbs VOC emitted / year

$$(7.05 \text{ lbs / gal}) \times (20,000 \text{ gal / year}) = \mathbf{141,000 \text{ lbs / year}}$$

1 ton= 2,000lbs

$$141,000 \text{ lbs/yr} \div 2000 \text{ lbs/ton} = \mathbf{70.5 \text{ tons VOC /year}}$$



Example: Engine

Process: 4-cycle rich burn engine (natural gas)

AP-42 Emission Factor: 12 grams NO_x/hp-hr
from 500 hp engine

Operates: 8760 Hours/Year



Example: Engine- STEP 1

4-cycle rich burn engine

Emission Factor

Conversion

Rated Horsepower

~~12 grams NO_x~~
~~hp-hour~~

1 lb

~~454 grams~~

~~500 hp~~

= 13.216 lbs NO_x
hour

Example: Engine - STEP 2

4-cycle rich burn engine

Emissions Amount

Actual Hours

Conversion

~~13.216 lbs NO_x~~

~~8760 hours~~


1 ton

~~hour~~

year

~~2000 lbs~~

= 57.886 tons per year of NO_x

	Cummins Inc. Columbus, Indiana 47201	Basic Engine Model: KTA50-G3	Curve Number: FR-6250	<i>G-DRIVE</i> K50 1
	EXHAUST EMISSIONS DATA SHEET	Engine Critical Parts List: CPL: 2227	Date: 22Apr03	
Displacement : 50.3 litre (3067 in³)		Bore : 159 mm (6.25 in) Stroke : 159 mm (6.25 in)		
No. of Cylinders : 16		Aspiration : Turbocharged and Aftercooled		

Engine Speed	Standby Power Rating		Prime Power Rating				Continuous Power Rating	
			Limited Time		Unlimited Time			
RPM	kWm	BHP	kWm	BHP	kWm	BHP	kWm	BHP
1500	1227	1645	1150	1541	1097	1470	900	1206
1800	1380	1850	1300	1742	1220	1635	1000	1340

Exhaust Emissions Data @ 1500 RPM

Component	Standby Power			Prime Power			Continuous Power		
	g/BHP-h	mg/m ³	PPM	g/BHP-h	mg/m ³	PPM	g/BHP-h	mg/m ³	PPM
HC (Total Unburned Hydrocarbons)	0.13	55	110	0.12	50	100	0.10	42	90
NOx (Oxides of Nitrogen as NO ₂)	12.00	6100	2880	11.00	5500	2590	9.00	4500	2140
CO (Carbon Monoxide)	2.80	1400	1060	2.70	1400	1020	2.60	1300	930
PM (Particulate Matter)	0.08	40	-	0.09	35	-	0.11	55	-
SO ₂ (Sulfur Dioxide)	0.12	56	28	0.12	56	28	0.12	57	27

Exhaust Emissions Data @ 1800 RPM

Component	Standby Power			Prime Power			Continuous Power		
	g/BHP-h	mg/m ³	PPM	g/BHP-h	mg/m ³	PPM	g/BHP-h	mg/m ³	PPM
HC (Total Unburned Hydrocarbons)	0.12	45	90	0.12	45	100	0.13	50	100
NOx (Oxides of Nitrogen as NO ₂)	12.70	6300	3040	11.30	5700	2760	9.70	4800	2290
CO (Carbon Monoxide)	1.00	480	400	0.80	360	290	0.50	250	190
PM (Particulate Matter)	0.06	30	-	0.07	35	-	0.06	30	-
SO ₂ (Sulfur Dioxide)	0.12	59	29	0.12	58	28	0.13	56	28

Fuel Consumption 1800 rpm (60 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	1380	1850	330	87.3
Prime Power				
100	1220	1635	291	76.9
75	915	1226	222	58.7
50	610	818	157	41.6
25	305	409	89	23.6
Continuous Power				
100	1000	1340	242	63.8

AP-42 Online



Questions?



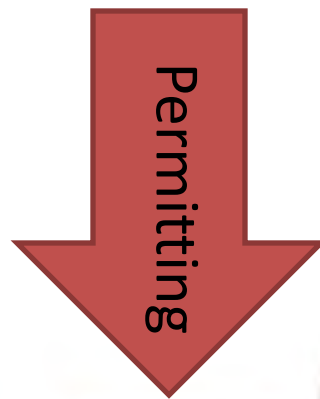
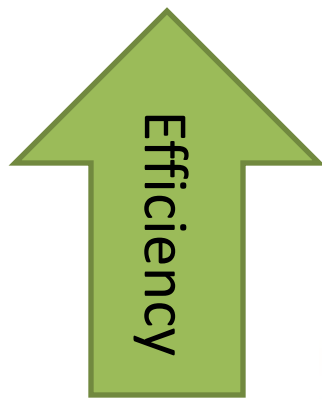


REGULATORY CHANGES

Why bother with change?



The regulatory and process changes will increase efficiency, reduce permitting burdens and address oil and gas development while still protecting the environment.



Revisions to Regulation 3 make it easier to understand when an APEN is required and reduced the administrative burden.

Removed requirements for sources subject to a NSPS, NESHAP, or MACT to file an APEN and obtain a construction permit, regardless of amount of emissions.





Remember that even if your source is APEN or permit exempt, **you must still comply** with all requirements applicable to your emission units.



Criteria Pollutants

Carbon
Monoxide

Nitrogen
Dioxide

Sulfur
Dioxide

Particulate
Matter

Ozone

Volatile Organic
Compounds

Lead

NSPS
MSRPS

Non-Criteria Pollutants

**Hazardous
Air Pollutants**

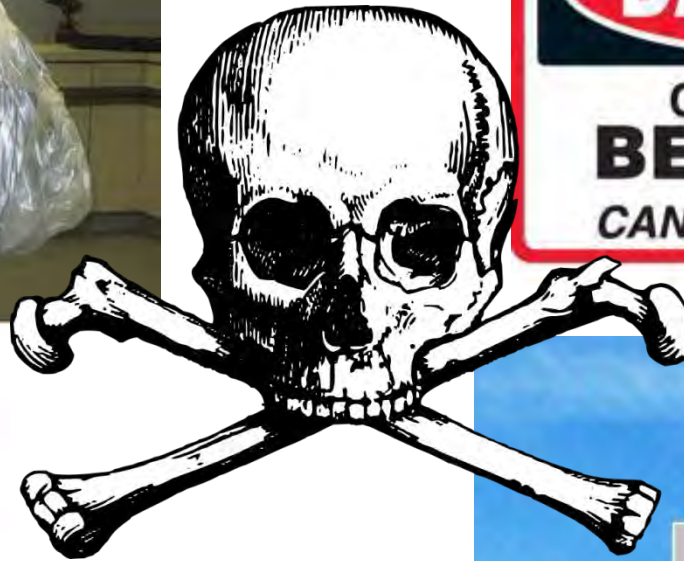
Chlorofluorocarbon

SARA
313

NESAP
MESAP

Non-Criteria Pollutants

Include HAPs- Hazardous Air Pollutants



NSPS- New Source Performance Standards

- The NSPS apply to new, modified and reconstructed affected facilities in specific source categories which cause or contribute significantly to air pollution (criteria pollutants)



NESHAPs—National Emission Standards for Hazardous Air Pollutants



- Stationary source standards for hazardous air pollutants
- Some NESHAPs require application of technology based emissions standards referred to as Maximum Achievable Control Technology

Changes in HAP Reporting Procedure



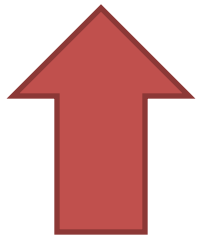
All values are in pounds per year.

<u>Chemical Bin</u>	<u>Scenario 1</u> De Minimis	<u>Scenario 2</u> De Minimis	<u>Scenario 3</u> De Minimis
Bin A	50	125	250
Bin B	500	1250	2500
Bin C	1000	2500	5000



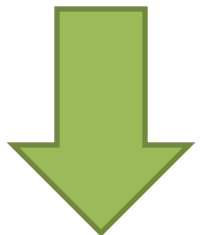
≥ 250 pounds per year of any HAP

APENs are required for each individual emission point with uncontrolled actual emissions \geq 250 pounds per year of any individual non-criteria reportable pollutant (including HAPs).



Must submit APEN and potentially a Permit

250 lb/year of non-criteria reportable pollutants



Not required to report. "APEN Exempt"

The crude oil storage tank permit exemptions were removed from Regulation 3.



Summary of Regulatory Changes

- Removal of “Catch all” provision

Trigger reporting and permitting if the emissions exceed the thresholds



- Hazardous Air Pollutant changes



250 lb/year of non-criteria reportable pollutants



- Crude oil exemption is gone

No longer exempt from permitting requirements unless emissions are below threshold



A good resource regarding these changes is PS Memo [14-01: 2014 Regulation No. 3 Changes](#)

www.colorado.gov/cdphe/airoilandgas

Oil and Gas Emission Control Requirements >> Summary of Requirements





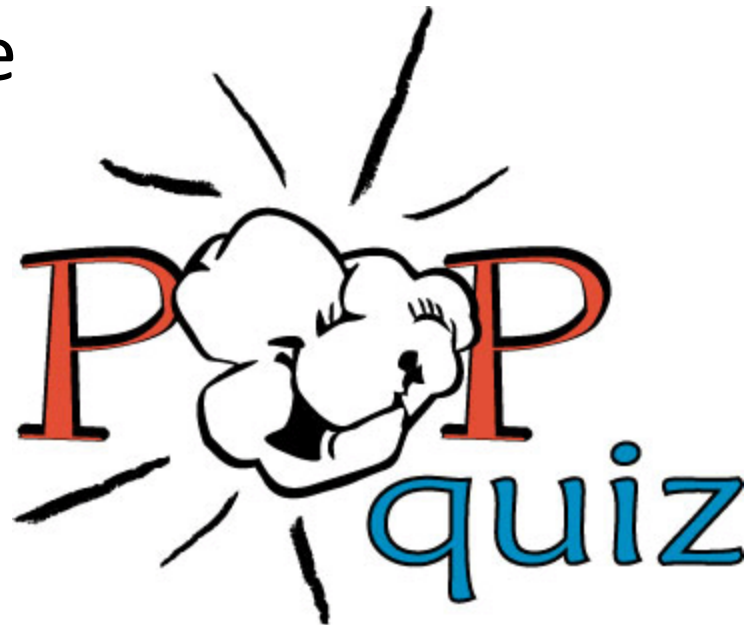
It's Time For A Break



PROCESS CHANGES

Q: Your operation is subject to a NSPS, but your actual emissions are below reporting thresholds, what documentation do you have to submit to the Air Division?

A: If the NSPS is one the Division has adopted, then you would submit an Initial Notification, otherwise...nothing.



Who needs an APEN?

Pollutant Category	Uncontrolled Actual Emissions	
	Attainment Area	Non-attainment Area
Criteria Pollutant	2 tons per year	1 ton per year
Lead	100 pounds per year	100 pounds per year
Non-Criteria Pollutant (HAP)	≥ 250 pounds per year of any individual non-criteria reportable pollutant	

Certain categories of sources are exempt from APEN requirements because the emissions from those sources are considered to have a very small impact on air quality.



How do I get something from APCD saying I am APEN exempt?



Who needs a permit?

Pollutant Category	Uncontrolled Actual Emissions	
	Attainment Area	Non-attainment Area
Criteria Pollutant: VOC-	5 tons per year	2 ton per year (VOC)
PM 10, PM 2.5 -	5 tons per year	1 ton per year (PM10, PM 2.5)
TSP, CO, SO _x , NO _x -	10 tons per year	5 tons per year
Non-Criteria Pollutant (HAP)	10 ton per each	

Rejection Process



How to fill out a General APEN

Administration Information

- Fill out general company information

Requested Action

- New Permit, portable, modification, **Limit HAP PTE**, or APEN Update

General Information

- Provide overall source schedule, times, and dates of operation and a general description of equipment used, and the purpose of the equipment.

Processing/Manufacturing Equipment Information & Material Use

- Equipment Description, Raw Materials, Finished Products, Actual Level, Annual Requested Permitted Level, Design Process Rate

Please Note: For an APEN to be considered complete, all appropriate fields for current operating and company data must be filled out. The application will not be accepted if all fields are not completed.

How to fill out a General APEN

Emissions Release Information

- Operator Stack ID No., Base Elevation (feet), Discharge Height Above Ground Level, Temperature, Flow Rate, Velocity, Moisture, Horizontal Datum, Latitude/Longitude, and Method of Collection for Location Data

Combustion Equipment & Fuel Consumption Information

- Fuel Type, Design Input Rate, Actual Level, Annual Requested Permitted Level, Fuel Heating Value, Percent by Weight for Sulfur and Ash, and Seasonal Fuel Use

Emissions Inventory Information & Emission Control Information

- Control Device Description, Overall Collection Efficiency, Control Efficiency, Emission Factor, Actual Calendar Year Emissions, Requested Permitted Emissions, and Emission Method or Factor Source

Applicant Certification

- An original signature, the date signed, printed name and title


There is a new statement on every APEN

Colorado Department of Public Health and Environment
Air Pollution Control Division

Page 1 of 4

- HOT MIX ASPHALT PLANTS -

Air Pollutant Emission Notice (APEN) – and – Application for Construction Permit



All sections of this APEN and application must be completed for both new and existing facilities, including APEN updates. An application with missing information may be determined incomplete and may be returned to you or result in longer engineer processing times. You will be charged an additional APEN fee if APEN is filled out incorrectly or missing information and requires re-submittal.

Check all that apply:

New Facility

Transfer of Ownership¹

APEN Update

Change in HMA Production

Request Modification to Existing Permit

¹ For transfer of ownership or company name change, you must submit proof of ownership transfer (e.g., Transfer of Ownership Form signed by the previous owner or a copy of a Bill of Sale with this form).

Permit Number

AIRS Number

AIR POLLUTANT NOTICE (APEN) & Application for Construction Permit – General¹

Permit Number: 90AD1234 [Leave blank unless APCD has already assigned a permit # & AIRS ID] **Emission Source AIRS ID:** 001 / 001 / 001
Facility Equipment ID: _____ [Provide Facility Equipment ID to identify how this equipment is referenced within your organization.]

Section 01 – Administrative Information

Company Name: Christine's Company NAICS, or
Source Name: _____ SIC Code: _____
Source Location: 12345 s. Broadway St. County: Denver
Denver Elevation: 5280 Feet
Portable Source
Home Base: N/A
Mailing Address: Same as above ZIP Code: _____
Person To Contact: Christine Hoefler Phone Number: 303-555-5555
E-mail Address: christine.hoefler@state.co.us Fax Number: 303-555-5552

Section 02 – Requested Action (check applicable request boxes)

- Request for NEW permit or newly reported emission source
- Request PORTABLE source permit
- Request MODIFICATION to existing permit (check each box below that applies)
 - Change fuel or equipment Change company name
 - Change permit limit Transfer of ownership Other
- Request to limit HAPs with a Federally enforceable limit on PTE
- Request APEN Update

Emissions data must be completed. Blank APENs will not be accepted.

Additional
Info. &
Notes: _____

Section 03 – General Information

For existing sources, operation began on: 12 / 12 / 2012 For new or reconstructed sources, the projected startup date is: _____ / _____ / _____
 Normal Hours of Source Operation: 8 hours/day 4 days/week 50 weeks/year
 General description of equipment and purpose: Diesel Boiler for heating process

Will this equipment be operated in any NAAQS nonattainment area?
<http://www.colorado.gov/cdphe/attainment> Yes No Don't know

Section 04 – Processing/Manufacturing Equipment Information & Material Use

Description of equipment²: _____
Manufacturer: Jensen **Model No.:** 1234 **Serial No.:** 1234

	Description	Actual Level (For Data Year)	Annual Requested Permitted Level ³ (Specify Units)	Design Process Rate (Specify Units/Hour)
Raw Materials:				
Finished Products:				
Other Process:				

**Colorado Department of Public Health and Environment
Air Pollution Control Division (APCD)**

This notice is valid for five (5) years. Submit a revised APEN prior to expiration of five-year term, or when a significant change is made (increase production, new equipment, change in fuel type, etc).

Mail this form along with a check for \$152.90 to:
 Colorado Department of Public Health & Environment
 APCD-SS-B1
 4300 Cherry Creek Drive South
 Denver, CO 80246-1530

For guidance on how to complete this APEN form:
 Air Pollution Control Division: (303) 692-3150
 Small Business Assistance Program (SBAP): (303) 692-3148 or (303) 692-3175

APEN forms: <http://www.colorado.gov/cdphe/APENforms>
 Application status: <http://www.colorado.gov/cdphe/permitstatus>

¹You will be charged an additional APEN fee if APEN is filled out incorrectly or information is missing and requires re-submittal.
²If additional space is required, please attach a separate list of equipment, materials and throughputs.
³Requested values will become permit limitations. Requested level should consider process growth over the next five years.

- Check box to request copy of draft permit prior to issuance.
- Check box to request copy of draft permit prior to public notice.

AIR POLLUTANT EMISSION NOTICE (APEN) & Application for Construction Permit – General¹

Permit Number: 90AD1234

Emission Source AIRS ID: 001 / 001 / 001

Section 05 – Emission Release Information (Attach a separate sheet with relevant information in the event of multiple releases; provide datum & either Lat/Long or UTM)

Operator Stack ID No.	Base Elevation (feet)	Discharge Height Above Ground Level (Feet)	Temp. (°F)	Flow Rate (ACFM)	Velocity (ft/sec)	Moisture (%)	Horizontal Datum (NAD27, NAD83, WGS84)	UTM Zone (12 or 13)	UTM Easting or Longitude (meters or degrees)	UTM Northing or Latitude (meters or degrees)	Method of Collection for Location Data (e.g. map, GPS, GoogleEarth)

Direction of outlet (check one): Vertical Vertical with obstructing raincap Horizontal Down Other (Describe): _____

Exhaust Opening Shape & Size (check one): Circular: Inner Diameter (inches) = _____ Other: Length (inches) = _____ Width (inches) = _____

Section 06 – Combustion Equipment & Fuel Consumption Information

Company equipment Identification No.: _____ Manufacturer: _____ Model: _____ Serial No.: _____

Fuel Type	Design Input Rate (10 ⁶ Btu/hr)	Actual Level (For Data Year)	Annual Requested Permitted Level ² (Specify Units)	Fuel Heating Value (Indicate: Btu/lb, Btu/gal, Btu/SCF)	Percent by Weight		Seasonal Fuel Use (% of Annual Use)			
					Sulfur	Ash	Dec-Feb	Mar-May	Jun-Aug	Sep-Nov
Diesel Fuel #2	23 mmBtu	20,000 gallons	30,000 gallons	3.7 btu/SCF	.00015		20	20	30	30

²Requested values will become permit limitations. Requested level should consider process growth over the next five years.

Section 07 – Emissions Inventory Information & Emission Control Information

Attach any emission calculations and emission factor documentation to this APEN form.

Emission Factor Documentation attached Data year for actual calendar yr. emissions below & throughput above (e.g. 2007): 2013

Pollutant	Control Device Description		Overall Collection Efficiency	Control Efficiency (% Reduction)	Emission Factor		Actual Calendar Year Emissions ³		Requested Permitted Emissions		Estimation Method or Emission Factor Source
	Primary	Secondary			Uncontrolled Basis	Units	Uncontrolled (Tons/Year)	Controlled (Tons/Year)	Uncontrolled (Tons/Year)	Controlled (Tons/Year)	
TSP											
PM ₁₀					.087		2.5 tons		3.5 tons		AP 42
PM _{2.5}					.087		2.5 tons		3.5 tons		AP 42
SO _x					.002		.5 tons		1 ton		AP 42
NO _x											
VOC											
CO											

Please use the APCD Non-Criteria Reportable Air Pollutant Addendum form to report pollutants not listed above.

³You will be charged an additional APEN fee if APEN is filled out incorrectly or information is missing and requires re-submittal.

⁴Annual emission fees will be based on actual emissions reported here.

Section 08 – Applicant Certification - I hereby certify that all information contained herein and information submitted with this application is complete, true and correct.

	4-3-2014	Christine Hoefler	BOSS
Signature of Person Legally Authorized to Supply Data	Date	Name of Legally Authorized Person (Please print)	Title

John W. Hickenlooper, Governor
Larry Wolk, MD, MSPH
Executive Director and Chief Medical Officer

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
Located in Glendale, Colorado
www.colorado.gov/cdphe



Colorado Department
of Public Health
and Environment

APEN(s) REJECTED

April 1, 2014

[APPLICANT NAME AND ADDRESS]

Re: Notice of Rejection of Incomplete Air Pollutant Emission Notice(s), APEN(s)

Dear Applicant:

The Air Pollution Control Division (the Division) received your Air Pollutant Emission Notice(s), or APEN(s), for your reported point source(s). Upon administrative review, the Division determined your APEN(s) to be incomplete due to the following reason(s):

- Missing critical source-specific information and/or emissions/production data
- Missing signature of person legally authorized to supply data
- Incorrect form was submitted

Please submit a complete APEN for each point source affected by this notice in order for the Division to appropriately process your information. Guidance on appropriately completing APEN forms can be found on the following page of the Division's website: www.colorado.gov/cdphe/sspermits. Please note that all APEN submissions should be completed using forms currently supplied by the Division (see Reg. 3, Part A, Section II.A).

- New APEN filing fee required for each point source affected by this notice

Please include a copy of this rejection letter with your revised application materials. This will allow the Division to appropriately consolidate application fees from your original application with your revised application. Failure to include a copy of this letter with your revised application will result in charges for new APEN filing fees regardless of the original submittal and the status of the check-box directly above this paragraph.

In order to minimize delays in permit processing and APEN costs, please verify that all APENs are complete prior to submission to the Division. If you have any questions concerning the APEN(s) or this rejection letter, please contact me directly at 303-XXX-XXXX.

Sincerely,
(Signature)
[LOG IN TECH NAME]
Construction Permit Unit
Stationary Sources Program
Air Pollution Control Division

Package Number	Date APEN(s) Received
301704	November 25, 2013

REJECTED!

Missing critical source-specific information and/or emissions/production data

REJECTED!

Missing signature of person legally authorized to supply data

REJECTED!

Incorrect form was submitted

Rejected APENs

Reject APEN comes in



Log-in tech prepares rejection documentation as applicable



Sends rejection letter to applicant

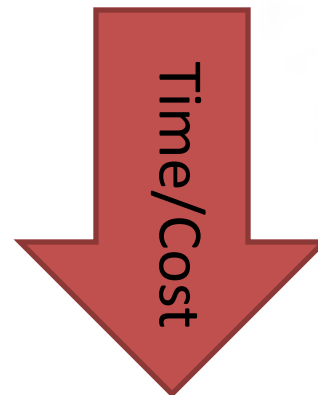


Specialty APENs are designed to report detailed, source-specific information.



General Permits (GPs)

- Sources can choose GP or individual construction permit
- Can start operation immediately once APEN processed
- We currently have 7 GPs available



General Permits that can be found online



The Division is no longer issuing Final Approval Permits as of April 1st, just letters.

Step 1

- Source applies for a Permit

Step 2

- Issued Construction Permit Issuance 1

Step 3

- Self-certify to Construction Permit Issuance 1

Step 4

- Division issues a “Final Approval to Operate” letter

Step 5

- Issued an invoice for processing time for permit, and shall pay the invoice within 30 days of receipt

Submit an APEN to modify an existing permit.

Source will provide new APEN requesting a modification



Construction Permit Issuance # (1, 2, 3...)



Self-certify to Construction Permit Issuance #, if required



If self-certification is required, the Division issues a “Final Approval to Operate” letter

Permit Processing Fees

- Filing fees: \$152.90 per APEN
- Processing fees: \$76.45 per hour
- Annual fees on emissions:
 - \$22.90 per ton of criteria pollutants
 - \$152.90 per ton of HAPs

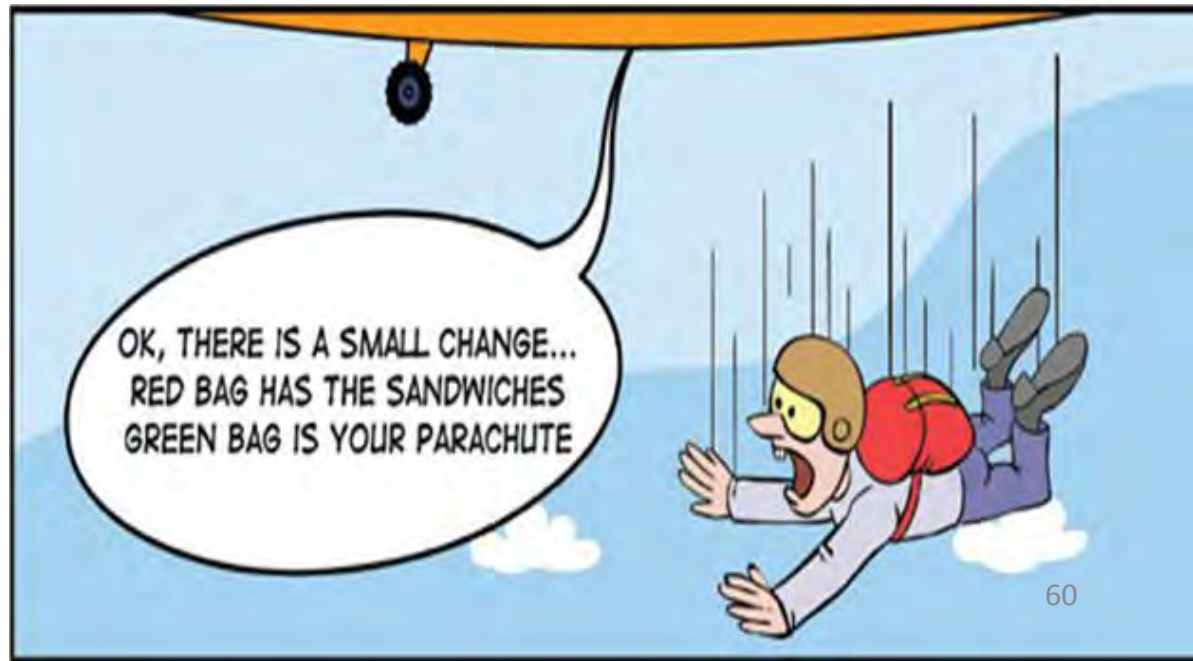


Bills will now be sent with Final Approval letter. If not paid within 30 days, the permit will be revoked.



Recap of Process Changes

- APEN and Permit Exemptions
- How to fill out APEN to avoid rejection (Completeness)
- General Permits Now Available
- No longer doing initial and final approvals
- New Billing Rules



Looking to the Future → More Changes to Come

- Public Comment announced online instead of newspaper
- Electronic Submittals
- Online bill pay



Information

- Unofficial Regulation language and fact sheet is posted on Commission website
 - <http://www.colorado.gov/cdphe/apcd>
- Sign up for our new listserve

SBO- Elizabeth Sapio 303-692-2135





**Thank you for
attending!**



Christine Hoefler
Christine.Hoefler@state.co.us
303-692-3148

Kaitlin Stabrava
Kaitlin.Stabrava@state.co.us
303-692-3175

Appendix F – Site Photos

Entrance Signage



Load Screening West
(roads constantly sprayed for dust mitigation)



Load Screening East



Midday Street Sweeping of 120th



Crushing Operations
(note sprayers after each crushing mechanism for dust mitigation)





North Truck Tracking guards
(mud/dirt is routinely removed to ensure adequate tracking)



South Truck Tracking guards
(mud/dirt is routinely removed to ensure adequate tracking)



Site Exit/Entrance



Appendix G – Operations Plan

Operation Plan
Henderson Material Recycling
Operations and Wholesale
of Recycled Products

Submitted By:
120 85 LLC
10925 East 120th Ave.
Henderson, Colorado 80640

November 2020

SITE MANAGEMENT AND OPERATIONS

Operations Schedule

The Henderson Recycling Facility will maintain operating hours of 6:00 a.m. to 6:00 p.m., Monday through Friday, excluding major holidays. When there are highway construction projects that require night operations the Henderson facility may stay open later than 6:00pm to receive materials. No recycle operations including concrete/rock crushing, other material processing or sales shall occur after 6:00pm.

The Henderson Recycling Facility will not normally be open on Sundays or holidays. The following holidays are the minimum holidays that will be observed by Henderson personnel:

- New Year's day
- Memorial Day
- Fourth of July
- Labor Day
- Thanksgiving Day
- Christmas Day

Personnel and Equipment Requirements

The Henderson Recycling Facility will normally have a minimum of six employees' onsite during operational hours. Henderson will always have, at a minimum, one qualified operations personnel on site during operational hours to monitor activities. The operation employs 30 personnel. The employees will be a qualified person at the check-in station to log-in and screen loads, also to weigh and record recycled materials, and a laborer to direct trucks to the proper location to dump and load recycled materials. Equipment operators will also sort and push material into stock piles for sorting and crushing. Dave Schultejeann is the President of Henderson; questions and information requests should be directed through him at the main office regarding these requirements.

Facility Layout

The areas of operation include: delivery-receiving, placement of materials, stockpiles for materials to be processed, stockpiles of recycled materials, and equipment parking. Materials to be recycled will be stockpiled in areas with low visibility from the 120th right of way. Processed recycled material, and stockpiles on the property shall not exceed the height of the screen fencing and landscape buffers around the property.

Buildings

The site is already permitted and outfitted with a small construction trailer for housing of documents and the gate attendant. A portable toilet is available on site. A dumpster is on site. There is a scale for weighing recycled material loads. The office building also has WiFi

connection and the operations are monitored with video cameras viewable in the office.

Equipment

The following equipment will be available and will either be kept on the site or located at an alternative location near the site for convenient deployment:

- Dozer
- Loader
- Motor-grader
- Pickup truck
- Water truck
- Street sweeper
- Asphalt/Concrete crusher
- Excavator

Equipment will be utilized for the proper placement of both recycled materials and materials to be recycled. The equipment will also be used to maintain the grounds and move other soil existing on the site.

Site Security and Fencing

Unauthorized access to the site is prevented with fencing, berms and a locked gate. A large landscaped berm will screen and protect the site along 120th Avenue. The west, north and a majority of the east of the site are secured and screened with a chained link fence with screening. To the east there is the Fulton Ditch which provides a natural barrier to entrance into the site. The site is secured with a locked gate at the entrance when the facility is closed. The facility is also monitored via security cameras viewed by laptop and cell phones. Henderson personnel, from the filling operation will monitor the site throughout the day by regular inspections or working onsite.

Run-on and Run-off Control Measures

Surface water control measures will be maintained wherever required to manage run-on and run-off from the facility operations. No run-on surface water enters the Henderson property. Areas of operation on the eastern portion of the site have been stripped of overburden/topsoil and so no water ponds or runs-off, but percolates into the remaining sand and gravel below this area (it was never mined). Areas previously backfilled with clean fill dirt are also generally porous enough that no water ponds and very little runs-off. All drainage from the site currently enters the mined-out gravel pit and no surface run-off exits the Henderson property as surface run-off. The western pit sides will not allow surface water (stormwater) to reach the property boundaries. All stormwater runoff, controlled by topography, drains to the west-northwest area of the site. No surface run-off from the Henderson site exits onto neighboring properties to the west, east, or south.

All onsite run-off will continue to enter the mined out gravel pit, whether filled with alluvial groundwater or not, during the operational life of the filling operation. Construction impact

however will best mitigated by good site practice. Surface water will be routed to settlement lagoons and diverted from the main surface watercourses. This will restrict flow onto the active portion of the facility during peak discharge from a 25-year storm. Fulton Ditch maintains a current and active stormwater permit through the CDPHE for the Henderson pit site.

Record-keeping

Henderson will maintain records of deliveries of materials to the site on a daily basis. Drivers are required to sign-in listing the company, location of the source of material, and the number of loads on a daily basis. A copy of the sign-in sheet shall be kept for the duration of the project.

All records will be maintained for the active life of the Henderson Recycling facility and for the entire period of the post-closure period, which may be as long as 30 years. The operator shall maintain records showing amounts of stockpiled materials both processed and unprocessed. In addition, records containing customer lists and records showing amounts of recycled material shipped off site shall be maintained.

Recycled material will be loaded from stockpiles by pit operator employees. Loads will be weighed before exiting the facility and records of all recycled material sales will be kept.

Recyclable Material Acceptance and Placement

Materials to be recycled include:

- Concrete
- Asphalt
- Steel
- Top soil

These materials will be sorted, processed, stockpiled and sold to contractors as construction material.

Prohibited Materials

Contaminated soils are NOT ACCEPTABLE at the Henderson Recycling site. Contaminated soils include petroleum hydrocarbon contaminated materials, organic demolition debris (wood, gypsum, etc.), and excessive vegetation (trees, tree limbs, shrubbery, etc.), and other non-inert materials. Additionally, soils cannot be contaminated with asbestos, paint chips, or other potentially hazardous materials.

Pursuant to Section 2.1.2 (B) of the Solid Waste Regulations, the disposal of polychlorinated biphenyl (PCB) wastes is prohibited. Also prohibited, pursuant to CRS 25-15-101 (6), friable asbestos materials is a hazardous waste. Since some material might contain asbestos, asbestos-containing material, asbestos-contaminate soil, or asbestos waste as defined in Section 1.2 of the Solid Waste Regulations, material suspected of containing above stated asbestos shall be

prohibited.

Delivery and Receiving Traffic Controls

Transporters enter the facility through the entrance gate located on E 120th Ave. and the exit will loop around and back to an exit directly beside the entrance. The traffic pattern is designated to minimize the potential for accidents on site and to facilitate easy unloading. The site plan dated 11/20/20 shows the circulation pattern within the site. Traffic cones and signs will direct transporters to the daily-designated unloading area.

Trucks picking up recycled material will be directed to the appropriate stockpile and loaded by pit operator employees. Loaded trucks will be weighed at the scale at the yard office and exit at the same location as the disposing trucks.

Proactive Screening

Prior to granting approval for recyclable material acceptance on a larger hauling or dumping project, a verbal agreement will be made between the hauling company and Henderson pit. The verbal agreements will include interview questions on the type of activity generating the recyclable materials, the location, whether contamination is known to be generated at the source site, the approximate quantity, and any information available concerning the potential for encountering contamination. The source location of materials is then known and will be typically checked by Henderson pit personnel to verify the activities and screen for potential of unacceptable or contaminated materials. Any observed abnormalities would need to be explained or an evaluation done prior to materials being delivered from the source site to the Fulton Ditch site.

Henderson will develop, within the first year of operation of the Henderson Recycling Facility, an approved list of companies that have a history of not delivering any unacceptable or contaminated materials to the Henderson site. Companies that have been known to deliver materials that were not described initially as being contaminated or were found to be unacceptable or contaminated, are taken off the approved list and will remain off the approved list until such time that they can demonstrate regular compliance with Henderson rules.

Onsite Field Screening

For individual loads from an unknown source, the load will be thoroughly screened at the entrance and the driver will be asked information as to where the load originated from. The driver then will be required to sign a “manifest” placing the burden of proof on the driver. Legal information will be taken from the driver so that, in case of contaminated materials, the source can be checked. All records will be maintained for the active life of the Henderson Recycling facility and for the entire period of the post-closure period which may be as long as 30 years.

Field Screening Methods

Field screening methods may be used to determine potential recyclable material contamination. The field screening methods include headspace/PID screening, draeger tubes (or equivalent), colorimetric field kits, infrared (IR) analysis for TPH in soil, pH, conductivity, temperature and other methods, depending on the known or suspected contaminants or purpose of screening. Field screening methods may be done independently or periodic laboratory testing may be employed to verify the field screening results. Field screening equipment will be calibrated according to the manufacturer specification prior to and periodically during the field use. This applies to equipment used for on-site chemical measurements such as pH, electrical conductivity, and temperature. Instruments and equipment used to gather, generate, or measure environmental data in the field will be calibrated with sufficient frequency and in such a manner that accuracy and reproducibility of the results are consistent with the manufacturer specifications.

Recycled Material Crushing

Concrete and asphalt to be recycled will be placed in stockpiles, loaded into crushing equipment and crushed to appropriate size. Crushed material will be screened and sorted and placed into new stockpiles for recycled material sales. Crushing operations will only be conducted from 7 a.m. – 5 p.m. on Mondays through Fridays, excluding major holidays. Crushing operations will be sprayed with water to control dust and release of particulates into the air.

Stormwater

Stormwater does not currently run-off from the site as described in Section 6.4. Upon closure of the Henderson inert landfill pit fill slopes will be graded into the pit bottom to ensure the surface run-off is always directed to the pit floor or lowest elevation on the site. Final surface grades will be constantly surveyed to ensure that the flow direction will always be to the southwest, to the lowest point on the property. Berms or furrowing will be implemented if necessary during the final filling and grading of the site to ensure that no significant erosion and sedimentation occurs. The stormwater plan and permit will be updated and amended as necessary.

Air Quality

The only air quality issue at the facility will be fugitive dust from trucks, equipment traffic and crushing operations. Fugitive dust will be controlled by watering with a water truck or similar equipment consisting of a water tank in the bed of a pick-up truck. Water from onsite ponds in the pit bottom or from de-watering pumps will be used, as well as sources of clean water from off-site, if necessary. The operator has installed all weather roads around the pit and we do not believe dust or mud contamination will be an issue. Equipment used to crush recycled materials is equipped with water suppression pumps and spray heads. The Henderson pit has added pumps and spray heads to the manufactured equipment to provide additional water suppression.

A Fugitive Dust Permit will be re-acquired for this site based on the activities proposed in this

application. Fugitive dust control measures as prescribed within the facility's Air pollutant Emission Notice permit, issued by CDHPE, must always be in place and functioning to ensure on-site visible emissions do not exceed 20% at any time. There must be no off-property transport of visible transmissions. Operations at the facility will be shut down when winds exceed 35 mph or a sustained 25 mph.

Quarterly monitoring of air quality shall be conducted, and a report submitted to Adams County's Community and Economic Development to ensure that crushing of product does not create negative off-site impacts.

Litter Control

Litter at the facility should be minimal to non-existent because the facility will not receive materials that would normally contain litter. Henderson Pit personnel will police the site for inadvertent litter and place it in appropriate receptacles. Trash cans will be placed in strategic locations on site for use by transporters. Litter picked up at the site will be disposed of from the site on a regular basis. The operator will also monitor the surrounding streets and Right-of-Way for litter and debris weekly and will remove trash and clean up debris as necessary. All trucks entering and leaving the facility will be required to be tarped. All uncovered loads shall be charged double the normal disposal rate. This information shall be tracked and documented within required quarterly gross revenue reports.

Fire Safety

The potential for fire at the site is limited to shrubs located on the boundaries. Due to the nature of the materials delivered to the site, there will not be any materials that can sustain fire. This site is approved by the CUP from Adams County for fire safety.

Each piece of equipment used on site will have a fire extinguisher on it. The most likely place for a fire to occur on site would be an equipment fire. All Henderson personnel will be provided with fire safety training, including proper use of fire extinguishers. Equipment fires will be extinguished rapidly.

The site is located in Fire District 6, Greater Brighton. The Brighton Fire and Rescue District phone number will be posted, along with other emergency contacts, where it is clearly visible from the office. Henderson personnel will have access to radios and/or a mobile phone for emergency contact purposes.

Hazardous Materials Emergency Management Plan

Hazardous materials inadvertently received at the Henderson site will be removed and placed in appropriate containers for temporary storage. If a transporter inadvertently delivered hazardous materials, the transporter/company will be contacted and will be held responsible to remove the materials. Companies that inadvertently deliver hazardous materials more than once will be removed from the list of acceptable companies that can use the facility.

A solid, new or reconditioned 55-gallon drum with a removable top will be kept on site and used to temporarily store hazardous materials inadvertently delivered to the site. Henderson personnel will place the hazardous materials into the container. Only one type of material is permitted to be placed into the container. No mixing (i.e. acid and bases, oxidizers and oils, or other incompatible materials) of two types of materials would be allowed in any one 55-gallon drum. Additional 55-gallon drums will be purchased if necessary. If necessary, a professional hazardous materials management company will be contracted to properly dispose of the materials in a timely manner.

A phone number of a hazardous material emergency response company will be posted with other emergency numbers in the office. The emergency response company will be called when necessary to respond to hazardous materials inadvertently disposed of on site.

Nuisance Conditions

Nuisance conditions at the site are limited to blowing dust (fugitive emissions) and blowing litter. Applying water to traffic areas and temporary roads will control blowing dust. A Fugitive Dust Permit will be re-acquired for this site based on the activities proposed in this application.

Operations at the facility will be shut down when winds exceed 35 mph or a sustained 25 mph. Litter is addressed in Section 9.4.

The site will also be kept free of weeds and the operator will contract with a licensed weed control contractor to monitor and spray for weed management.

The site will also be monitored for vectors. There is storage of material onsite which creates opportunity for rodent activity but due to the operation of heavy equipment activity the vector activity is minimized. The operator will contract with a licensed vector management company to monitor and control vector activity as necessary.

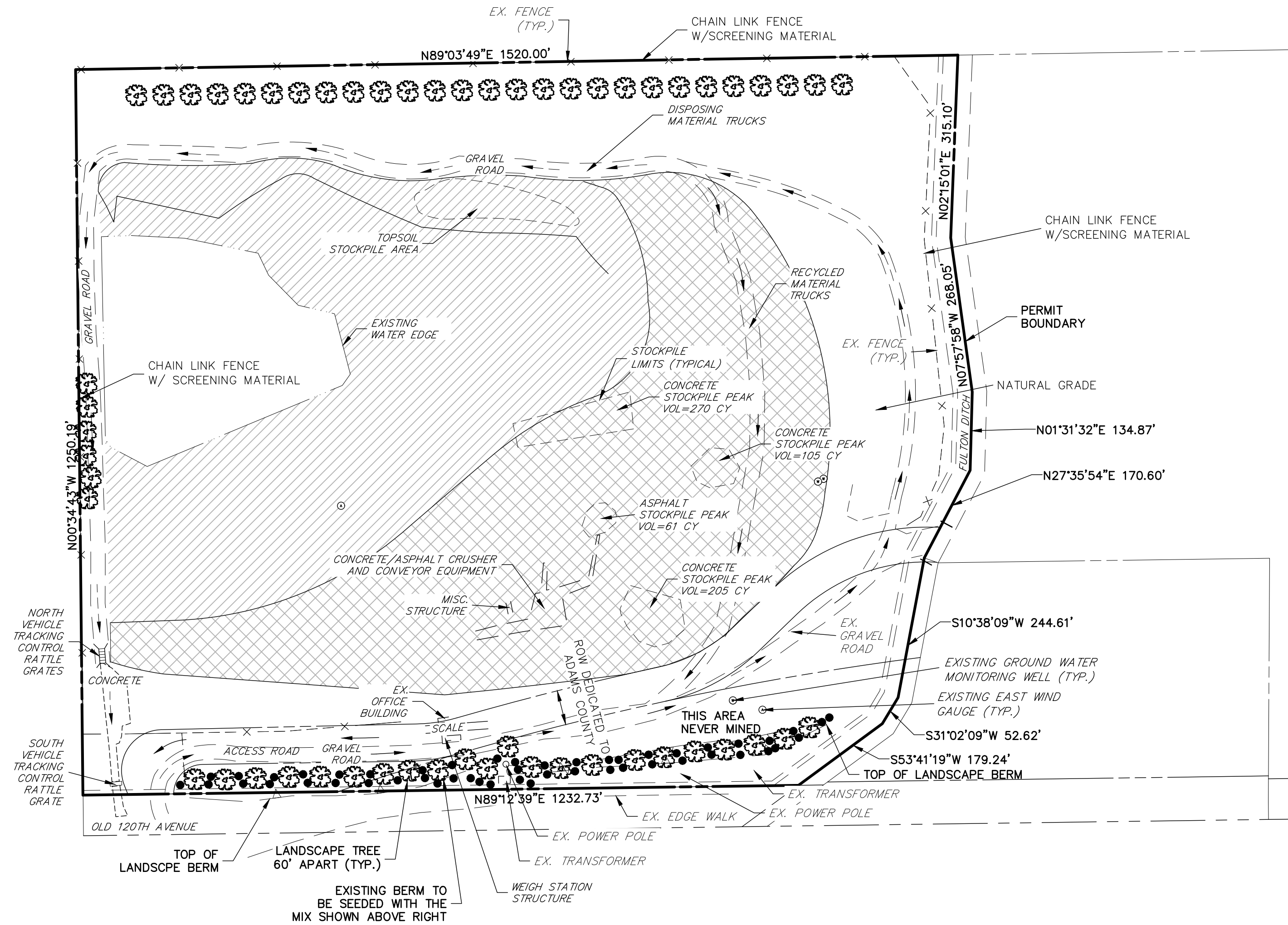
The roads, Right-of-Way and perimeter of the site will be monitored and maintained in a clean and sitely condition. Weekly inspections will be conducted, and litter and debris removal will be done as necessary. The site owner has their own street sweeper and 120th Ave is swept on at least twice every workday and/or as needed basis. Wet sweeping shall occur between the hours of 1 – 3 p.m. and between the hours of 6 – 8 p.m, excluding major holidays.

Vehicle tracking onto public roadways will be a daily focus of the facility operations. Four tracking control devices are installed at the exit lane of the facility to remove material from exiting vehicle tires. The facility has a street sweeper on site to sweep adjacent public roads a minimum of two times per day. More frequent sweeping is done as conditions require. The operator also has a contract with a third party vendor to do additional sweeping as necessary or if the onsite sweeper is out of service.

Appendix H – Site Plan

HENDERSON GRAVEL PIT

SITE PLAN/LANDSCAPE PLAN

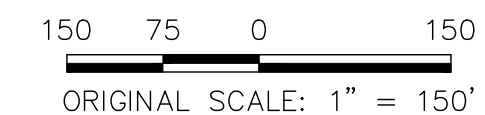


GENERAL NOTES:

- FENCING: AN EIGHT (8) FOOT SOLID SCREEN FENCE OR SECURITY FENCE, WITH ADDITIONAL SCREENING MATERIAL, AS APPROVED BY THE DIRECTOR OF PLANNING AND DEVELOPMENT, SHALL ENCLOSE ALL OUTSIDE STORAGE.
- NUISANCE CONTROL PLAN: PROVISIONS OF THE NUISANCE CONTROL PLAN SHALL BE FOLLOWED.
- APPEARANCE: ALL SITES SHALL MAINTAIN A CLEAN, NEAT, AND ORDERLY APPEARANCE. STOCKPILES OF MATERIALS MAY ONLY BE PLACED AS SPECIFIED IN THE DESIGN AND OPERATION PLAN.
- RECORDKEEPING: ALL OPERATORS SHALL MAINTAIN RECORDS SHOWING AMOUNTS OF STOCKPILED MATERIALS BOTH PROCESSED AND UNPROCESSED THAT ARE CONSISTENT WITH THE AMOUNTS ALLOWED IN THE PERMIT. IN ADDITION, RECORDS CONTAINING CUSTOMER LISTS AND RECORDS SHOWING AMOUNTS OF RECYCLED MATERIAL SHIPPED OFF SITE SHALL BE MAINTAINED.
- PERFORMANCE BOND: PRIOR TO COMMENCING OPERATIONS, AND THEREAFTER DURING THE ACTIVE LIFE OF THE FACILITY, AND FOR ONE (1) YEAR AFTER CLOSURE, THE OPERATOR SHALL POST AND MAINTAIN A PERFORMANCE BOND OR OTHER APPROVED FINANCIAL INSTRUMENT WITH ADAMS COUNTY. THE AMOUNT OF THE BOND SHALL BE CALCULATED TO INCLUDE REMOVAL, TIPPING FEES, AND TRANSPORTATION COSTS. SHOULD ANY CORRECTIVE ACTIONS BE REQUIRED BY THE COUNTY IN ORDER TO PROTECT THE HEALTH, SAFETY, AND GENERAL WELFARE WHICH RESULT FROM FAILURE OF THE OPERATOR TO FOLLOW ANY REGULATIONS, STANDARDS, OR CONDITIONS OF APPROVAL, THE PERFORMANCE BOND SHALL BE FORFEITED IN AN AMOUNT SUFFICIENT TO DEFRAY THE EXPENSE OF SAID ACTIONS, INCLUDING STAFF TIME EXPENDED BY ADAMS COUNTY INVOLVED IN SUCH CORRECTIVE ACTIONS.
- REMOVAL OF TRASH FROM RIGHT-OF-WAY: OPERATORS SHALL REMOVE TRASH, OR OTHER WASTE MATERIAL, OF THE TYPE WHICH IS BROUGHT TO THE FACILITY, ALONG PUBLIC RIGHTS-OF-WAY WITHIN ONE-HALF (1/2) MILE OF THE FACILITY.
- TREES TO BE WATERED BY HAND WATERING WITH A WATER TRUCK.
- STOCKPILE HEIGHT NOT TO EXCEED 8' ABOVE NATURAL GRADE.

LEGEND

- DISPOSAL TRUCK TRAFFIC
- RECYCLED MATERIAL TRUCK TRAFFIC
- FILL AREA
- LOW AREA FOR STOCKPILE
- TOP OF SLOPE
- LANDSCAPE TREE



NOTES:

- REFER TO CDOT STANDARD M-607-1, 2, AND 3 FOR INSTALLATION DETAILS AND NOTES.
- SCREENING MATERIAL IS TO BE FENCE4EVER OLIVE DARK GREEN PRIVACY SCREEN OF APPROVED EQUAL.

SITE PLAN/LANDSCAPE PLAN
HENDERSON GRAVEL PIT
JOB NO. 15694.00
11/20/20
SHEET 1 OF 1



Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

Appendix I – Traffic Studies

MEMORANDUM



To: Adams County

From: Eli Farney and Rocky Carns

Date: November 10, 2020

Subject: Henderson Pit Inert Landfill – Traffic Signal Warrant Analysis for 120th Avenue/Parkway

The purpose of this memo is to provide the results of a traffic signal warrant analysis for the nearest major intersection to the Henderson Pit Inert Landfill project located near the northwest corner of the intersection of US Highway 85 and 120th Avenue in Adams County, Colorado. The project site is located approximately 1500 feet west of US Highway 85. The project area is bounded by 120th Avenue on the south and vacant land on the east, west, and north. The site contains an inert landfill and also provides recycled aggregate services. Access to the site is provided from Old 120th Avenue south of the site with a full movement intersection at the 120th Parkway/120th Avenue intersection.

With the fill operation ending, the wholesale operation will remain as the only source of traffic to and from the site. The property owner stated that current wholesale operation of the Henderson Pit Inert Landfill site is generating approximately 55 trucks per day which is equal to 110 total daily trips. Some trucks drop off materials at the landfill, and some trucks pick up materials to recycle. This total number of daily trips was distributed throughout the day based on 12-hour traffic volume data collected at the intersection of 120th Avenue and 120th Parkway in 2012 by All Traffic Data. This 12-hour trip generation from the wholesale operation was then added to these counted volumes to produce a total intersection volume distribution which was then scaled to 2040 projected volumes based on a 2.1% estimated growth rate, taken from a 2013 Traffic Study by JR Engineering.

The 2040 projected 12-hour volumes for the intersection of 120th Avenue and 120th Parkway were analyzed to determine if the intersection justified a traffic signal based on the Federal Highway Administration's warrants found in Chapter 9 of the Manual on Uniform Traffic Control Devices (2009). The analysis determined that a signal was not required by any of the warrants for the year 2040. The full traffic signal warrant reports and 2012 traffic counts are attached.

Please feel free to contact me at efarney@jrengineering.com or 303-267-6183 if you have any questions or comments.

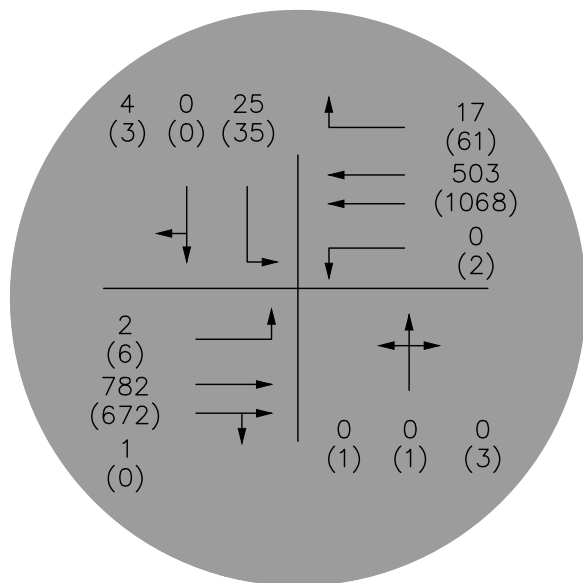
Sincerely,
JR Engineering, LLC

Eli Farney, PE, PTOE
Transportation Group Lead

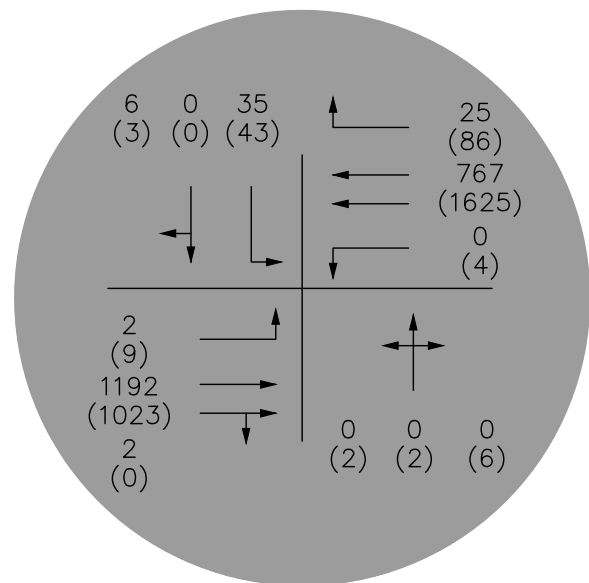
7200 South Alton Way, Suite C400
Centennial, CO 80112
303-740-9393 • Fax 303-921-7320

5475 Tech Center Drive, Suite 235
Colorado Springs, CO 80919
719-593-2593 • Fax 303-921-7320

2900 South College Avenue, Suite 3D
Fort Collins, CO 80525
970-491-9888 • Fax 303-921-7320



2020



2040

**EXISTING 2020 AND
FUTURE 2040 TRAFFIC
AND LANE GEOMETRY**

LEGEND

XX AM PEAK HOUR

(XX) PM PEAK HOUR



SIGNALIZED INTERSECTION



TWO WAY STOP CONTROL

FIGURE 1
HENDERSON PIT INERT LANDFILL
JOB NO. 15694.00
11/2020
SHEET 1 OF 1



J·R ENGINEERING

A Westrian Company

7200 S. Alton Way, Suite C100 • Centennial, CO 80112
303-740-9393 • Fax: 303-721-9019 • www.jrengineering.com

File Name: Z:\NATHAN TMCS\2012\120th 12-2012\2 HOUR\#2 120THAVE&120THPKWY12HR.ppd

Start Date: 12/14/2012

Start Time: 6:00:00 AM

Site Code: 00000000

Comment 1: Default Comments

Comment 2: Change These in The Preferences Window

Comment 3: Select File/Preference in the Main Scree

Comment 4: Then Click the Comments Tab

Start Time	120TH AVE Southbound				120TH PKWY Westbound				120TH AVE Northbound				120TH PKWY Eastbound			
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
06:00 AM	0	0	2	0	0	106	0	0	0	0	0	0	0	149	0	0
06:15 AM	0	0	2	0	2	129	0	0	0	0	0	0	0	172	0	0
06:30 AM	1	0	5	0	2	112	0	0	0	0	0	0	0	150	0	0
06:45 AM	1	0	5	0	2	84	0	0	0	0	0	0	0	190	0	0
07:00 AM	0	0	4	0	4	101	0	0	0	0	0	0	1	150	0	0
07:15 AM	0	0	2	0	2	107	0	0	0	0	0	0	2	164	0	0
07:30 AM	0	0	1	0	6	111	0	0	0	0	0	0	1	127	0	0
07:45 AM	0	0	0	0	5	86	2	0	1	0	0	0	0	126	0	0
08:00 AM	0	0	0	0	1	68	1	0	0	0	0	0	3	104	0	0
08:15 AM	0	0	2	0	6	61	0	0	5	0	0	0	1	102	0	0
08:30 AM	0	0	5	0	8	93	0	0	1	0	0	0	1	88	0	0
08:45 AM	0	1	1	0	1	77	1	0	2	0	0	0	1	103	0	0
09:00 AM	0	0	1	0	8	72	0	0	0	0	0	0	0	77	0	0
09:15 AM	0	0	3	0	4	93	1	0	0	0	0	0	1	97	1	0
09:30 AM	1	0	3	0	1	96	0	0	0	1	0	0	0	99	0	0
09:45 AM	0	0	2	0	3	80	1	0	1	0	0	0	0	95	0	0
10:00 AM	0	0	3	0	5	85	1	0	2	0	1	0	1	92	0	0
10:15 AM	0	0	2	0	4	93	0	0	0	0	0	0	0	90	0	0
10:30 AM	1	0	7	0	3	92	1	0	0	0	0	0	0	118	0	0
10:45 AM	0	0	2	0	5	90	1	0	0	0	0	0	0	76	1	0
11:00 AM	1	0	4	0	4	93	0	0	2	0	0	0	0	105	1	0
11:15 AM	0	0	3	0	6	72	1	0	1	0	1	0	0	112	0	0
11:30 AM	0	0	2	0	10	81	2	0	2	0	1	0	0	79	0	0
11:45 AM	1	0	3	0	8	112	0	0	0	0	1	0	0	120	0	0
12:00 PM	0	0	4	0	3	81	1	0	1	0	1	0	4	99	0	0
12:15 PM	0	0	3	0	7	98	1	0	0	0	0	0	0	148	0	0
12:30 PM	0	0	5	0	5	116	0	0	2	0	0	0	0	113	1	0
12:45 PM	0	0	2	0	9	103	3	0	1	0	1	0	0	127	0	0
01:00 PM	1	0	3	0	7	93	1	0	1	0	1	0	0	111	0	0
01:15 PM	0	0	1	0	3	115	0	0	0	0	0	0	0	116	0	0
01:30 PM	0	0	2	0	7	113	0	0	0	0	0	0	1	117	0	0
01:45 PM	0	0	7	0	15	100	0	0	0	0	0	0	0	125	0	0
02:00 PM	0	0	4	0	10	122	2	0	1	0	3	0	0	107	1	0
02:15 PM	0	1	1	0	9	144	0	0	1	0	0	0	0	140	0	0
02:30 PM	0	0	2	0	5	146	2	0	3	0	0	0	0	139	1	0
02:45 PM	0	0	6	0	7	157	0	0	0	0	0	0	0	135	1	0
03:00 PM	1	0	4	0	8	177	0	0	0	0	0	0	0	124	0	0
03:15 PM	0	0	4	0	9	197	0	0	1	0	0	0	1	147	0	0
03:30 PM	0	0	10	0	11	185	1	0	0	1	1	0	0	117	0	0
03:45 PM	0	0	0	0	10	227	1	0	2	0	0	0	0	151	1	0
04:00 PM	0	0	3	0	6	222	0	0	1	0	0	0	0	137	1	0
04:15 PM	0	0	3	0	12	268	0	0	0	0	0	0	0	163	1	0
04:30 PM	0	0	7	0	5	182	0	0	0	0	1	0	0	125	0	0
04:45 PM	0	0	3	0	7	190	1	0	0	0	0	0	0	155	0	0
05:00 PM	0	0	5	0	7	50	0	0	0	0	0	0	0	85	0	0
05:15 PM	1	0	5	0	8	58	0	0	1	0	0	0	0	129	0	0
05:30 PM	1	0	2	0	6	83	0	0	0	0	0	0	0	102	2	0
05:45 PM	0	0	1	0	8	91	0	0	0	0	0	0	0	153	0	0

Warrants Summary Report

11: Business Access 1 & 120th Ave

Intersection Information

	Major Street	Minor Street
Street Name	120th Ave	120th Ave
Direction	EB/WB	NB/SB
Number of Lane:	2	2
Approach Speed	45	30

Warrant	Met?	Notes
Warrant 1, Eight-Hour Vehicular Volume		
	No	
Condition A or B Met?	No	0 Hours met (8 required)
Condition A and B Met?	No	0 Hours met (8 required)
Warrant 2, Four-Hour Vehicular Volume		
	No	0 Hours met (4 required)
Warrant 3, Peak Hour		
	No	
Condition A Met?	No	0 Hours met (1 required)
Condition B Met?	No	0 Hours met (1 required)
Warrant 4, Pedestrian Volume		
	No	
Condition A Met?	No	0 Hours met (4 required)
Condition B Met?	No	0 Hours met (1 required)
Warrant 5, School Crossing		
	No	

Warrant 6, Coordinated Signal System

No

Warrant 7, Crash Experience

No

Traffic Volume Condi **No** 1 Hours met (8 required)

Ped Condition? **No** 0 Hours met (8 required)

Warrant 8, Roadway Network

No

Warrant 9, Intersection Near a Grade Crossing

No

AWSC Warrant, Multiway Stop Application

No

Condition A Met? **No**

Condition B Met? **No**

Condition C Met? **No**

Warrant 1: Eight-hour Vehicular Volume

11: Business Access 1 & 120th Ave

Intersection Information

Major Street Name: 120th Ave

Major Street Direction: EB/WB

Minor Street Direction: NB/SB

WARRANT 1 MET? No

Details:

Condition A Met? No 0 Hours met (8 required)

Condition B Met? No 0 Hours met (8 required)

Hour	Major Street Vehicles (Total of Both Approaches)	High Volume Minor Approach Vehicles	70% Standard Met? Cond. A OR Cond. B		56% Standard Met? Cond. A AND Cond. B	
			Condition A 70% Column	Condition B 70% Column	Condition A 56% Column	Condition B 56% Column
06:00 to 07:00	1,984	36	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		
06:15 to 07:15	1,988	41	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		
06:30 to 07:30	1,938	41	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		
06:45 to 07:45	1,904	32	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

07:00 to 08:00		1,802		21	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No				
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No				

07:15 to 08:15		1,656		11	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No				
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No				

07:30 to 08:30		1,468		12	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No				
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No				

07:45 to 08:45		1,369		21	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No				
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No				

08:00 to 09:00		1,303		24	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No				
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No				

08:15 to 09:15		1,271		29	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No				
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No				

08:30 to 09:30		1,320		31	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No				
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No				

08:45 to 09:45	1,330	27	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

09:00 to 10:00	1,323	28	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

09:15 to 10:15	1,372	31	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

09:30 to 10:30	1,352	29	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

09:45 to 10:45	1,385	38	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

10:00 to 11:00	1,375	38	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

10:15 to 11:15	1,408	42	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

10:30 to 11:30	1,418	44	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

10:45 to 11:45	1,344	34	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

11:00 to 12:00	1,466	39	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

11:15 to 12:15	1,438	36	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

11:30 to 12:30	1,550	36	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

11:45 to 12:45	1,662	40	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

12:00 to 13:00	1,664	36	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

12:15 to 13:15	1,709	37	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

12:30 to 13:30	1,671	32	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

12:45 to 13:45	1,677	27	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

13:00 to 14:00	1,678	40	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

13:15 to 14:15	1,735	42	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

13:30 to 14:30	1,843	46	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

13:45 to 14:45	1,941	45	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

14:00 to 15:00	2,047	40	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

14:15 to 15:15	2,165	41	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

14:30 to 15:30	2,277	45	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

14:45 to 15:45	2,320	64	No	No	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	Yes		

15:00 to 16:00	2,481	52	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

15:15 to 16:15	2,584	47	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

15:30 to 16:30	2,747	46	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

15:45 to 16:45	2,740	38	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

16:00 to 17:00	2,673	43	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

16:15 to 17:15	2,270	48	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

16:30 to 17:30	1,819	53	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

16:45 to 17:45	1,604	45	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

17:00 to 18:00	1,421	42	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

17:15 to 18:15	1,161	29	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No		
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No		
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No		
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No		

17:30 to 18:30		807	14	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No			
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No			
Condition B	Volume >= 70% column (630)?	Yes	Volume >= 70% column (70)?	No			
	Volume >= 56% column (504)?	Yes	Volume >= 56% column (56)?	No			

17:45 to 18:45		456	5	No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No			
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No			
Condition B	Volume >= 70% column (630)?	No	Volume >= 70% column (70)?	No			
	Volume >= 56% column (504)?	No	Volume >= 56% column (56)?	No			

Warrant 2: Four-hour Vehicular Volume

11: Business Access 1 & 120th Ave

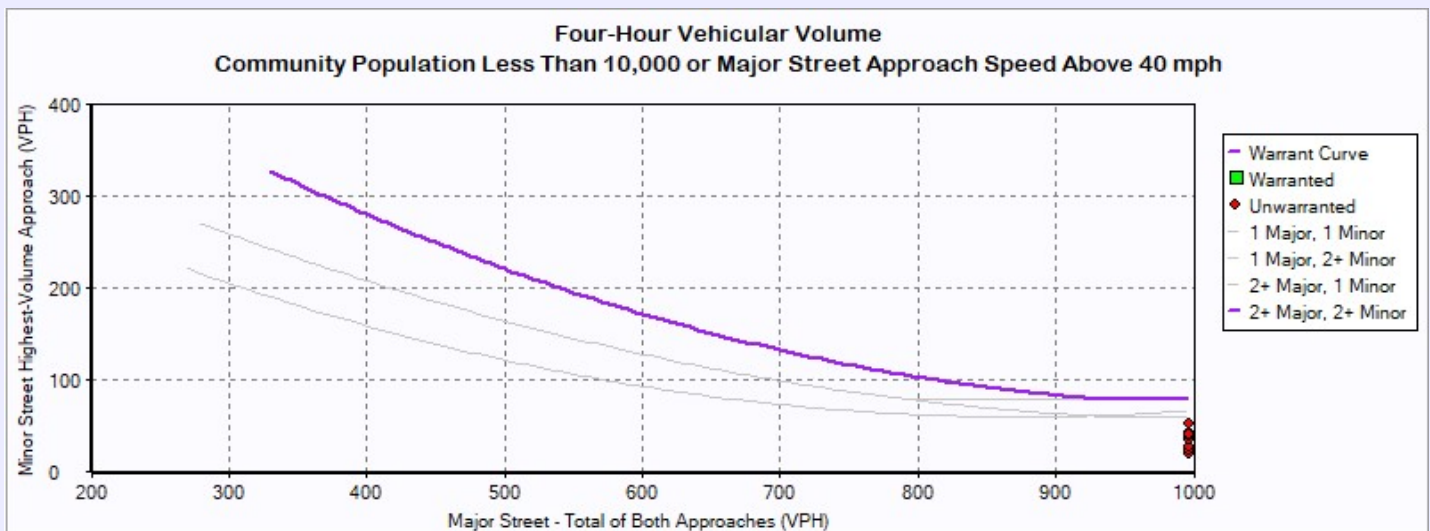
Intersection Information

	Major Street	Minor Street
Street Name	120th Ave	120th Ave
Direction	EB/WB	NB/SB
Number of Lane:	2	2
Approach Speed	45	30

Warrant 2 Met? **No**

Details:

Notes	0 Hours met (4 required)
Low population	No



Hourly Volumes

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
00:00:00 - 01:00:00	0.00	0.00
01:00:00 - 02:00:00	0.00	0.00
02:00:00 - 03:00:00	0.00	0.00
03:00:00 - 04:00:00	0.00	0.00
04:00:00 - 05:00:00	0.00	0.00
05:00:00 - 06:00:00	0.00	0.00
06:00:00 - 07:00:00	1,984.00	36.00
07:00:00 - 08:00:00	1,802.00	21.00
08:00:00 - 09:00:00	1,303.00	24.00
09:00:00 - 10:00:00	1,323.00	28.00
10:00:00 - 11:00:00	1,375.00	38.00
11:00:00 - 12:00:00	1,466.00	39.00
12:00:00 - 13:00:00	1,664.00	36.00
13:00:00 - 14:00:00	1,678.00	40.00
14:00:00 - 15:00:00	2,047.00	40.00
15:00:00 - 16:00:00	2,481.00	52.00
16:00:00 - 17:00:00	2,673.00	43.00
17:00:00 - 18:00:00	1,421.00	42.00
18:00:00 - 19:00:00	0.00	0.00
19:00:00 - 20:00:00	0.00	0.00
20:00:00 - 21:00:00	0.00	0.00
21:00:00 - 22:00:00	0.00	0.00
22:00:00 - 23:00:00	0.00	0.00
23:00:00 - 00:00:00	0.00	0.00

Warranted Volumes

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)

Warrant 3: Peak Hour

11: Business Access 1 & 120th Ave

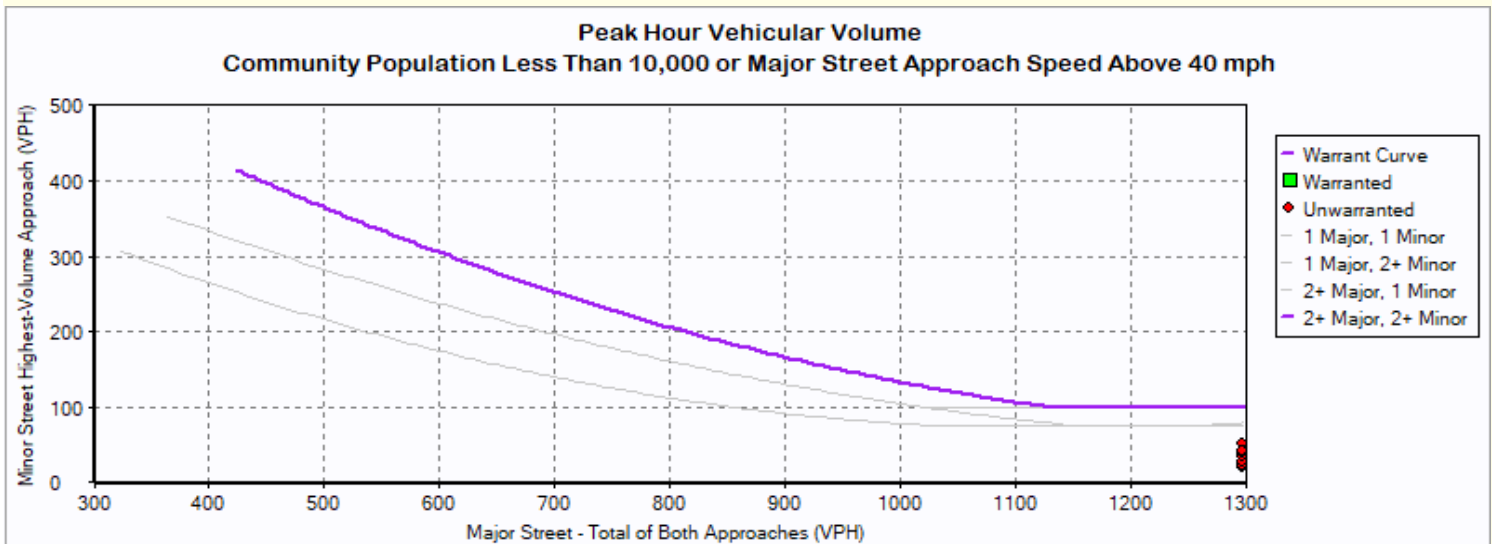
Intersection Information

	Major Street	Minor Street
Street Name	120th Ave	120th Ave
Direction	EB/WB	NB/SB
Number of Lanes	2	2
Approach Speed	45	30

Warrant 3 Met? **No**

Details

Low Population?	No		
Condition A Met?	No	Condition B Met?	No
Notes	0 Hours met (1 required)	Notes	0 Hours met (1 required)
Minor Approach Time Delay Condition Met?	Not Met		
Minor Approach Volume Condition Met?	Met		
Total Entering Intersection Volume Condition Met?	Not Met		



Warrant 3: Peak Hour

11: Business Access 1 & 120th Ave

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
6:00	1,984	36
7:00	1,802	21
8:00	1,303	24
9:00	1,323	28
10:00	1,375	38
11:00	1,466	39
12:00	1,664	36
13:00	1,678	40
14:00	2,047	40
15:00	2,481	52
16:00	2,673	43
17:00	1,421	42

Warrant 4: Pedestrian Volume

11: Business Access 1 & 120th Ave

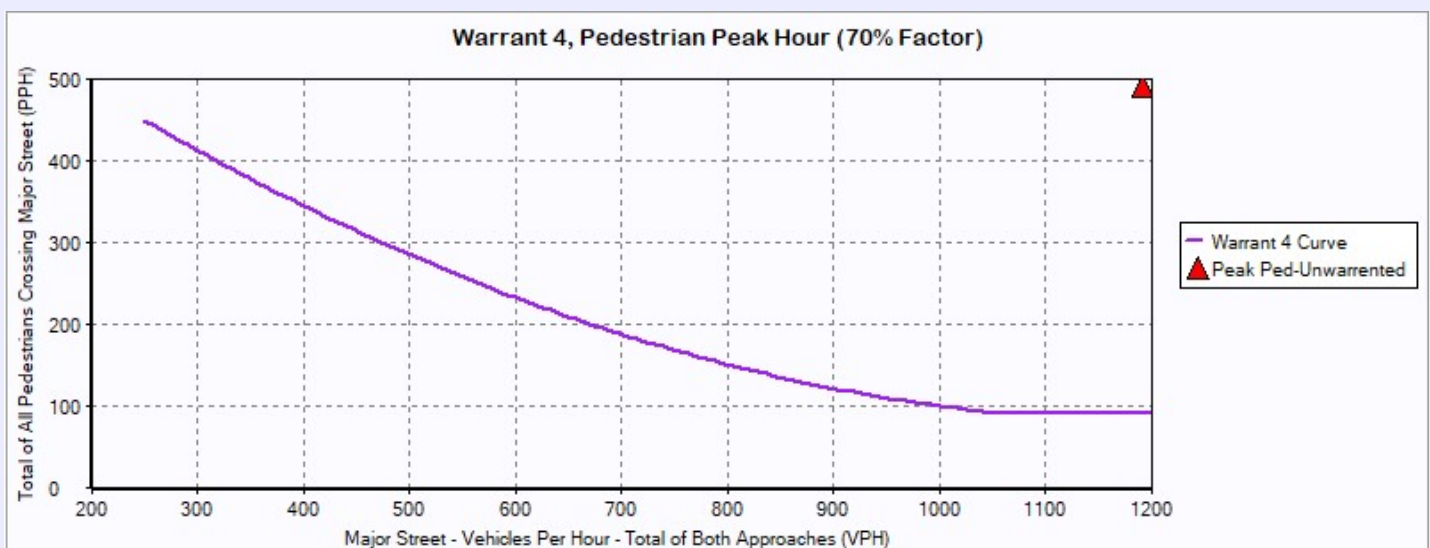
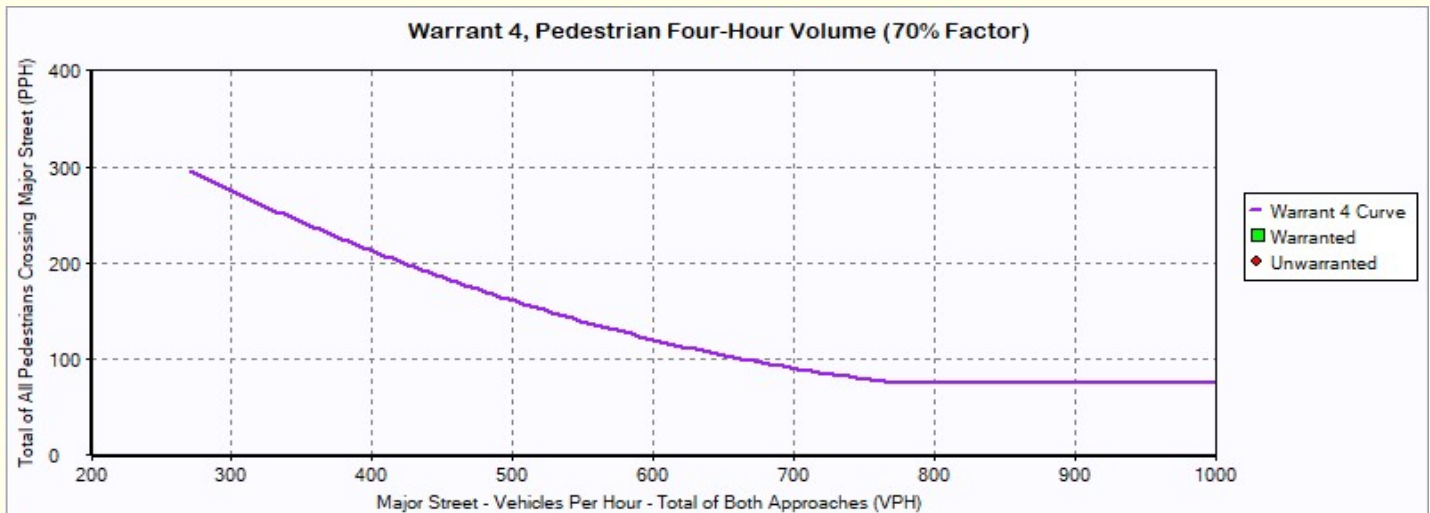
Intersection Information

	Major Street	Minor Street
Street Name	120th Ave	120th Ave
Direction	EB/WB	NB/SB
Number of Lane:	2	2
Approch Speed	45	30

WARRANT 4 MET ? No

Details

Pedestrian Four Hour Volume Warrant Met?	No	
Pedestrian Peak Hour Warrant Met?	No	Notes 0 Hours met (4 required)
Speed Limit or 85th Percentile Speed on Major Street > 35mph, or Intersection lies within an Isolated Community with Population < 10,000?	Yes	



Warrant 5: School Crossing

11: Business Access 1 & 12

Intersection Information

Major Street Name 120th Ave

Major Street Direction EB/WB

WARRANT 5 MET? **No**

Details:

Time Period Interval for Students Crossing (min) 0

Number of Students Crossing in Time Period 0

Number of Adequate Gaps in Time Period 0

Other Remedial Measures Attempted? **No**

Adjacent Signal on EB approach? **No**

Distance to signal on EB Approach (ft) -

Adjacent Signal on WB approach? **No**

Distance to signal on WB Approach (ft) -

Will New Signal Restrict Progressive Traffic? **No**

Warrant 6: Coordinated Signal System

11: Business Access 1 & 120th Ave

Intersection Information

Major Street Name 120th Ave
Major Street Direction EB/WB

WARRANT 6 MET? **No**

Details:

Approach Direction & Name	Acceptable Platooning?	Adjacent Coordinating Signal?	Adjacent Intersection Distance
SB Approach (120th Ave)	Yes	No	N/A
NB Approach (Business Access 1)	Yes	No	N/A
WB Approach (120th Ave)	Yes	No	N/A
EB Approach (120th Pkwy)	Yes	No	N/A

Unacceptable Platooning?
(At least one approach)

No

Distance to Closest Signal
(Must be N/A or > 1000)

N/A

Warrant 7: Crash Experience

11: Business Access 1 & 120th Ave

Intersection Information

Major Street Name 120th Ave
 Major Street Direction EB/WB
 Minor Street Direction NB/SB

WARRANT 7 MET? No

Details:

Low Population?	No	Traffic Volume Condition Met?	No
Major Street Speed Limit	45		1 Hours Met (8 Required)
Major Street 85th-% tile Speed	0.00	Ped Volume Condition Met?	No
			0 Hours Met (8 Required)
Qualifying Crashes		0	
Adequate Alternative Trials?	No		

Hour	Traffic Volumes				Pedestrian Volumes			
	Major Street Vehicles	Minor Street Vehicles	80% Standard Met? A or B		Northbound Ped Volumes		Southbound Ped Volumes	
			Condition A	Condition B	Peds	> 80?	Peds	> 80?
06:00 to 07:00	1,984	0	No	No	0	No	0	No
06:15 to 07:15	1,988	0	No	No	0	No	0	No
06:30 to 07:30	1,938	0	No	No	0	No	0	No
06:45 to 07:45	1,904	0	No	No	0	No	0	No
07:00 to 08:00	1,802	0	No	No	0	No	0	No
07:15 to 08:15	1,656	0	No	No	0	No	0	No
07:30 to 08:30	1,468	0	No	No	0	No	0	No
07:45 to 08:45	1,369	0	No	No	0	No	0	No

08:00 to 09:00	1,303	0	No	No	0	No	0	No
08:15 to 09:15	1,271	0	No	No	0	No	0	No
08:30 to 09:30	1,320	0	No	No	0	No	0	No
08:45 to 09:45	1,330	0	No	No	0	No	0	No
09:00 to 10:00	1,323	0	No	No	0	No	0	No
09:15 to 10:15	1,372	0	No	No	0	No	0	No
09:30 to 10:30	1,352	0	No	No	0	No	0	No
09:45 to 10:45	1,385	0	No	No	0	No	0	No
10:00 to 11:00	1,375	0	No	No	0	No	0	No
10:15 to 11:15	1,408	0	No	No	0	No	0	No
10:30 to 11:30	1,418	0	No	No	0	No	0	No
10:45 to 11:45	1,344	0	No	No	0	No	0	No
11:00 to 12:00	1,466	0	No	No	0	No	0	No
11:15 to 12:15	1,438	0	No	No	0	No	0	No
11:30 to 12:30	1,550	0	No	No	0	No	0	No
11:45 to 12:45	1,662	0	No	No	0	No	0	No
12:00 to 13:00	1,664	0	No	No	0	No	0	No
12:15 to 13:15	1,709	0	No	No	0	No	0	No

12:30 to 13:30	1,671	0	No	No	0	No	0	No
12:45 to 13:45	1,677	0	No	No	0	No	0	No
13:00 to 14:00	1,678	0	No	No	0	No	0	No
13:15 to 14:15	1,735	0	No	No	0	No	0	No
13:30 to 14:30	1,843	0	No	No	0	No	0	No
13:45 to 14:45	1,941	0	No	No	0	No	0	No
14:00 to 15:00	2,047	0	No	No	0	No	0	No
14:15 to 15:15	2,165	0	No	No	0	No	0	No
14:30 to 15:30	2,277	0	No	No	0	No	0	No
14:45 to 15:45	2,320	0	No	No	0	No	0	No
15:00 to 16:00	2,481	0	No	No	0	No	0	No
15:15 to 16:15	2,584	0	No	No	0	No	0	No
15:30 to 16:30	2,747	0	No	No	0	No	0	No
15:45 to 16:45	2,740	0	No	No	0	No	0	No
16:00 to 17:00	2,673	0	No	No	0	No	0	No
16:15 to 17:15	2,270	0	No	No	0	No	0	No
16:30 to 17:30	1,819	0	No	No	0	No	0	No
16:45 to 17:45	1,604	0	No	No	0	No	0	No

17:00 to 18:00	1,421	0	No	No	0	No	0	No
17:15 to 18:15	1,161	0	No	No	0	No	0	No
17:30 to 18:30	807	0	No	No	0	No	0	No
17:45 to 18:45	456	0	No	No	0	No	0	No

Warrant 8: Roadway Network

11: Business Access 1 & 120th Ave

Intersection Information

Major Street Name	120th Ave
Major Street Direction	EB/WB
Minor Street Direction	NB/SB

WARRANT 8 MET? (A or B) No

Details:

	Growth Rates % (per year)			
	NB	SB	EB	WB
L	0.00	0.00	0.00	0.00
T	0.00	0.00	0.00	0.00
R	0.00	0.00	0.00	0.00

<u>Condition A, Total Entering Volume</u>		<u>Condition B, Non-normal Business Day</u>		
			<u>Existing</u>	<u>Future</u>
Existing Peak Hour	2,801	Highest Hour	0	0
Years	0.00	Second Highest Hour	0	0
Future Peak Hour	2,801	Third Highest Hour	0	0
Warrant 1 in 5 Years?	No	Fourth Highest Hour	0	0
Warrant 2 in 5 Years?	No	Fifth Highest Hour	0	0
Warrant 3 in 5 Years?	No	Yearly Growth Rate (%)	0.00	
		Years	0.00	

Condition A Met? No

Condition B Met? No

Warrant 9: Intersection Near a Grade Crossing

11: Business Access 1 & 120th Ave

Intersection Information

	Major Street	Minor Street
Street Name	120th Ave	120th Ave
Direction	EB/WB	NB/SB
Number of Lane:	2	2
Approach Speed	45	30

WARRANT 9 MET ? **No**

Details

Note **No approach with a railroad grade crossing**

Minor street approach having a grade crossing

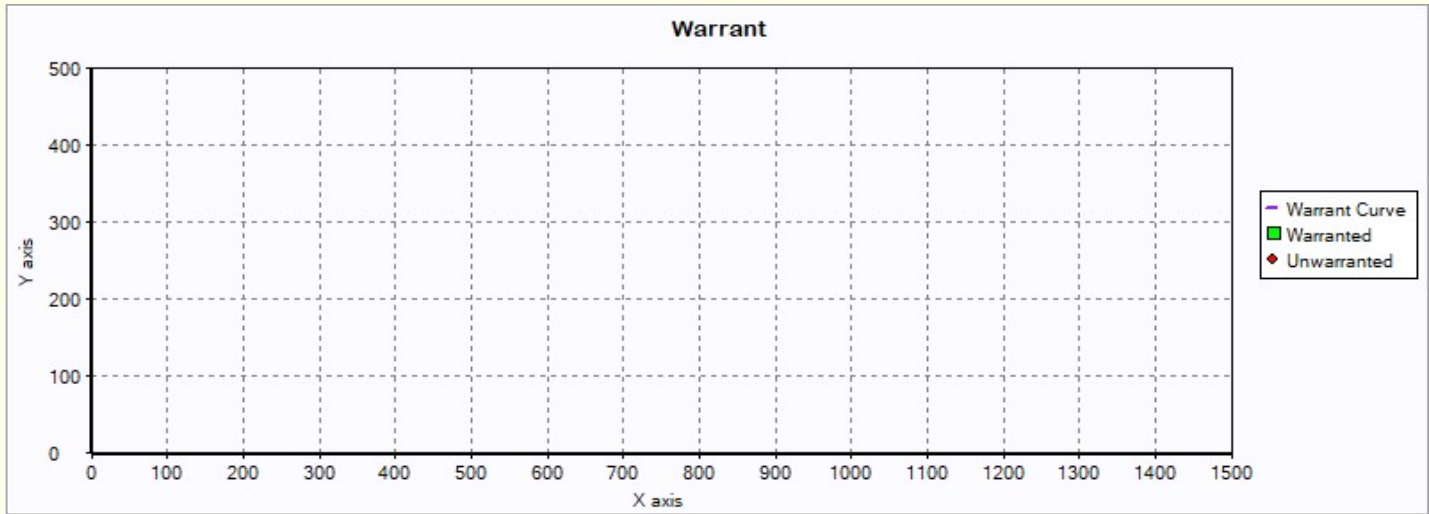
Distance from the center of the track to the stop or yield line Interpolated

Number of occurrences of rail traffic per day Adjustment Factor

Percentage of high-occupancy buses crossing the track (%) Adjustment Factor

Percentage of tractor-trailer trucks crossing the track (%) Adjustment Factor

The rail traffic arrival times are unknown, the highest traffic volume hour of the day is used



Hour	Major Street Total of Both Approaches (vph)	Minor Street Adjusted Volume Crossing Tracks (vph)

All-Way Stop Control Warrant: Multiway Stop Applications

11: Business Access 1 & 120th Ave

Intersection Information

Major Street Name: 120th Ave
 Major Street Direction: EB/WB
 Minor Street Direction: NB/SB

AWSC WARRANT MET? No

Details:

Condition A Met?	No	Qualifying Crashes	0
Condition B Met?	No	Major Street 85th %-tile Speed	0.00
Condition C Met?	No	Major Street Speed Limit	45
Notes: 0 Hours Met (8 Required)			

Hour	Traffic Volumes		Bicycle Volumes		Ped Volumes		Condition C		
	Major Street	Minor Street	East Bound Bicycle Volumes	North Bound Bicycle Volumes	East Bound Ped Volumes	North Bound Ped Volumes	Major Street Veh Vol > 210	Avg(Veh + Ped + Bicycle) > 200	Minor Street Delay > 30

September 4, 2020

To Whom It May Concern
Adams County Community Development Department
4430 South Adams County Parkway
Brighton, CO 80601

**Re: 2020 Traffic Conformance Letter – Henderson Pit Inert Landfill
JR Engineering Project #15694.00**

To Whom It May Concern:

The purpose of this letter is to provide updated trip generation information for the Henderson Pit Inert Landfill project located near the northwest corner of the intersection of US Highway 85 and 120th Avenue in Adams County, Colorado. The project site is located approximately 1500 feet west of US Highway 85. The project area is bounded by 120th Avenue on the south and vacant land on the east, west, and north. The site contains an inert landfill and also provides recycled aggregate services. Access to the site is provided from Old 120th Avenue south of the site with a full movement intersection at the 120th Parkway/120th Avenue intersection.

This letter has also been prepared for compliance with the existing traffic impact study for the Henderson Pit Inert Landfill. The Henderson Pit Inert Landfill and its associated traffic impacts were addressed in the *Henderson Pit Inert Landfill Traffic Impact Study* prepared by JR Engineering in August 2013 and later amended with a traffic conformance letter by JR Engineering in 2016. The termination of the inert landfill leaves only the wholesale operation which will result in less site-generated trips than identified in the 2016 traffic letter.

Trip Generation – Fill Operation

In the 2013 TIS, the site generated traffic volumes were estimated based on two scenarios. A “Low Demand” scenario assumed that the inert landfill site will be filled in approximately 7 years. The site generated traffic volumes were calculated based on an average of 10 hours/day and 306 days/year of filling. A “High Demand” scenario assumed that the inert landfill can process a maximum of 200 trucks per day. Based on an average of 10 hours/day and 306 days/year of filling, the site should be filled in approximately 2.5 years. It was discussed that the High Demand approach may result in an over estimate of traffic but ensured that volumes would not be underestimated. For both scenarios, site generated traffic volumes were split between tractor trailers, single dump trucks, and pickup trucks. A trip is defined as a one-way vehicle movement from origin to destination.

In the 2013 TIS, the Low Demand scenario was expected to generate:

- 18 AM peak hour vehicle trips split 50% entering and 50% exiting
- 18 PM peak hour vehicle trips split 50% entering and 50% exiting

In the 2013 TIS, the High Demand scenario was expected to generate:

- 40 AM peak hour vehicle trips split 50% entering and 50% exiting
- 40 PM peak hour vehicle trips split 50% entering and 50% exiting

The fill operation began in approximately Year 2014, and the property owner expects the fill operation to be completed by the end of the year 2020 which indicates the site generated trips for the fill operation were congruent with the Low Demand scenario. With the landfill nearly full, the trip generated traffic from the fill operation will soon cease and the 18 peak hour vehicles trips will be subtracted from the total peak hour traffic volumes, leaving only the wholesale operation trips.

Trip Generation, Directional Distribution – Wholesale Operation

With the fill operation ending, the wholesale operation will remain as the only source of traffic to and from the site. The property owner stated that current wholesale operation of the Henderson Pit Inert Landfill site is generating approximately 55 trucks per day. Some trucks drop off materials at the landfill, and some trucks pick up materials to recycle. Assuming an even distribution of trucks for 8 hours/day, approximately 6.9 trucks would be expected per hour. The 6.9 was rounded to 7 for this analysis. One truck would be equivalent to one trip entering the site and one trip exiting the site. In summary, the wholesale operation is currently generating:

- 14 AM peak hour vehicle trips split 50% entering and 50% exiting
- 14 PM peak hour vehicle trips split 50% entering and 50% exiting

In the 2013 TIS, 70 percent of the site-generated traffic was oriented to the south on US 85 with 20 percent oriented to the north. The other 10 percent was oriented to the west on 120th Parkway. Based on this directional distribution, the new wholesale operation trips were assigned to the existing roadway network as shown below:

- South on US 85: 5 new trips
- North on US 85: 1 new trip
- West on 120th Parkway: 1 new trip

The trip assignment figure is attached.

Conclusion

Since the completion of the inert landfill will lower the site trip generation and therefore the total traffic volumes, the level of service (LOS) should not degrade at the following intersections:

- US 85 & 120th Parkway
- 120th Parkway & Brighton road

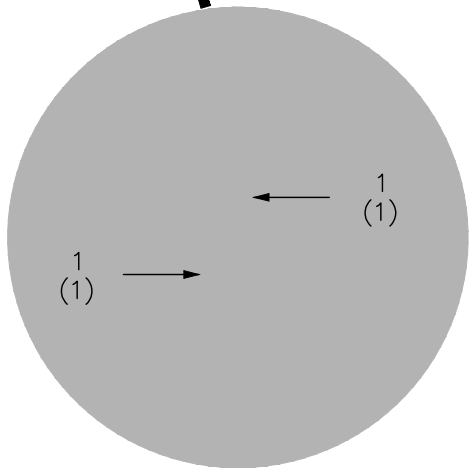
Both the US 85 & 120th Parkway and the 120th Avenue/Parkway & Old 120th Avenue intersections were expected to operate at acceptable levels of service with higher volumes of traffic for the year 2020, per the 2016 traffic conformance letter, so the intersection should operate even better with the removal of the landfill vehicle trips. Therefore, we conclude that the recommendations of the original 2013 TIS and 2016 traffic letter are still valid.

Please feel free to contact me at efarney@jrengineering.com or 303-267-6183 if you have any questions or comments.

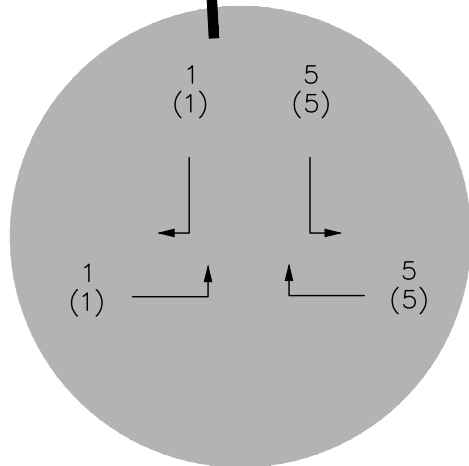
Sincerely,
JR Engineering, LLC

Eli Farney, PE, PTOE
Transportation Group Lead

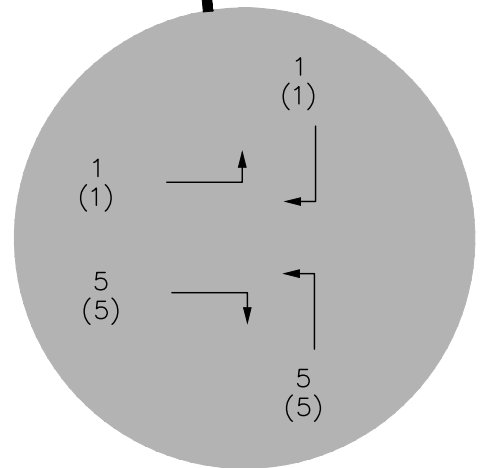
Attachments: Figure 1 – Assignment of Site Generated Traffic



**E. 120TH PKWY
& BRIGHTON RD**



**E. 120TH AVE/PKWY
& OLD 120TH AVE**



**120TH PKWY
& US-85**

LEGEND	
XX	AM PEAK HOUR
(XX)	PM PEAK HOUR

**ASSIGNMENT OF SITE
GENERATED TRAFFIC**

FIGURE 1
 HENDERSON PIT INERT LANDFILL
 JOB NO. 15694.00
 9/04/2020
 SHEET 1 OF 1



J·R ENGINEERING
 A Westrian Company