

Socio-Economic Effects Management Plan – Annual Report

April 30, 2021

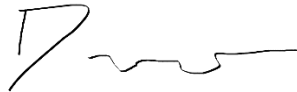


Teck

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1 Introduction

Elkview Operations (EVO) has committed to annual summary reports on the following management plans as part of the Socio-Community and Economic Effects Management Plan (SCEEMP).

- Noise
- Blasting and Vibration
- Air Quality and Dust Control
- Reclamation and Closure
- Visual Quality
- Socio-economic Effects

These management plans outline actions which EVO completes to mitigate impacts from the Baldy Ridge Extension Project (BRE). Below is a summary of the status of each plans' monitoring actions, any changes to the planned actions, and feedback received from communities on those actions.

This report and more detailed EVO Permit 1807 Annual Air Reports are available at www.teck.com/elkview-reports for review. Annual reports under the noise, view-scape and blasting and vibrations programs are currently not required through their associated management plans. All Management Plans can be viewed at www.sparwood.ca/livable under the 'SCEEMP' tab.

1.1 Project Status

In 2020, mining continued with Baldy Ridge Phase 6 (BR6), extended into the BRE permitted area of Natal Phase 2 (NP2) and in the Baldy Ridge 2 (BR2) and Baldy Ridge 3 (BR3) pits which are currently combined as BR2/3.

Waste from BR6 pit was deposited on Cedar Spoil and waste from NP2 on Erickson Spoil and Erickson Wrap Spoils. Waste rock from BR2/3 was deposited on the Erickson Spoil, Baldy Ridge 1 (BR1) Inpit Backfill, and Natal Phase 1 (NP1) Inpit Backfill.

1.2 Feedback

Feedback is defined as any comment received from Communities of Interest (COI), about Teck's Coal Operations (and associated activities), outside of the regular consultation process (e.g., gathered through permit applications). Feedback may include questions, ideas, concerns, suggestions, complaints, or compliments.

Teck Coal's feedback mechanism is available to all COI in the area of influence of Teck's Coal Operations. This includes, but is not limited to, Elkford, Sparwood, Fernie, the Crowsnest Pass, The Regional District of East Kootenay Area A, and the Ktunaxa Nation. The feedback mechanism applies to all activities related to Teck's coal operations including offices and personnel (employees and contractors).

To provide feedback on this report or on any Teck activities, please contact Teck through the Feedback Mechanism using one of the methods listed below:

- Phone: 1-855-806-6854
- Email: feedbackteckcoal@teck.com
- Online submission form: www.teck.com/contact

Responses to feedback will be sent if contact information is given.

Additionally, residents of Sparwood may provide feedback to the Socio-Community and Economic Effects Advisory Committee, a select committee of Council for the DOS who perform an advisory role focused on making recommendations to Council and Teck for consideration with respect to implementation of Condition 21 in Teck's Baldy Ridge Extension permit. See Section 7 for more information.

Feedback from the community helps Teck understand its impacts to the community. It provides information on whether the mitigation measures are working, and if there are new issues that need to be addressed.

An Annual Meeting to discuss this report will be scheduled for May 19, 2021. Minutes from the Annual Meeting will be displayed at the Sparwood Public Library, the Teck Social Responsibility Office in Sparwood and the DOS Main Office following the meeting,

2 Noise

Daily activities at EVO include mining, processing, maintenance, coal storage and loading coal onto trains. All of these activities generate sound that may be audible beyond the mine boundary and may become more noticeable as ongoing mining activity progressively moves closer to residences and infrastructure. EVO is committed to working with COI to ensure that noise levels generated from EVO do not exceed recommended guidelines defined within the Noise Management Plan (NMP).

Through consultation, six noise receptor locations (Figure 2-4) were selected based on the following general criteria:

- Feedback from the community and regulators
 - Baldy Ridge Extension Project Environmental Assessment (EA) Process
 - Socio-Community Economic Effects Advisory Committee (SCEEAC) in 2019 when the NMP was last updated
- Model predictions
 - Noise model was created for the BRE EA
 - The model was updated in 2019 and monitoring locations were placed in the community near the highest modeled noise locations from the mine
- Accessibility and background noise
 - All monitoring locations need to be accessible
 - Monitor locations need to have limited noise from non-mining activities which could impact the quality of the results

An update to the noise model was completed in 2019 to model predicted noise levels at all six receptor locations (**Error! Reference source not found.**). The results of the noise modelling showed that predicted sound level contributions from EVO are below the Permissible Sound Level (PSL) established for all six representative receptor locations for years 2020, 2021, 2022 and 2025.

The scope of the NMP includes mining activities that occur within the permitted active disturbance boundary of the operation or any construction activities that are directly associated with the operations that may exist outside of the disturbance boundary. The NMP encompasses all mining activities that have the potential to generate noise with the exception of blasting (covered in Section 3 of this report). Specifically, the NMP focuses on the following mine-related aspects:

- site preparation and site access;
- operation of heavy equipment in active mining areas (pits, haul roads, waste rock spoils, hopper, raw coal conveyance and breaker);
- process plant activities; and
- building and facility construction and operation activities.

The volume of intensity of sound is measured in decibels (dB). Some examples of common reference sounds and their intensities are listed below.

- | | |
|-------------------------------|----------------------------|
| • Library – 40 dB | • Power mower – 94 dB |
| • Refrigerator – 50 dB | • Nightclub – 94 dB |
| • Normal conversation – 60 dB | • Car horn – 100 dB |
| • Doorbell – 80 dB | • Ambulance siren – 120 dB |
| • Jazz concert – 91 dB | • Shotgun – 170 dB |

2.1 Noise Monitoring

Elkview conducts regular noise monitoring in the community to validate model results. A continuous noise monitor was installed at R02 in late 2019 and annual intermittent sampling will be conducted at R01, R02, R03 and R04 (Figure 2-4).

Elkview's noise assessment was based on the methods and limits outlined in the BC Oil and Gas Commission (OGC) *Noise Control Best Practices Guideline, March 2009* document (the BC OGC Guideline; BC OGC 2009) in the absence of directly applicable regulation, criteria, or assessment guidelines regarding mining noise in BC. The BC OGC Guideline outlines acceptable prediction methods, directions for the consideration of ambient sound, and requirements for the consideration of cumulative effects. The BC OGC Guideline was developed to establish reasonable levels around industrial facilities to reduce the effect of energy resource developments on the acoustic environment. The PSLs outlined in Table 2-1 were developed based on the BC OGC Guideline.

Table 2-1 Noise level receptor locations

Receptor Location	Daytime (07:00 – 22:00) PSL	Nighttime (22:00 – 07:00) PSL
R01– Michel Creek Road	63 dBA L _{EQ}	53 dBA L _{EQ}
R02 – Michel Creek Road	63 dBA L _{EQ}	53 dBA L _{EQ}
R03 – Cyprus Drive	58 dBA L _{EQ}	48 dBA L _{EQ}
R04 – Elk Valley Trailer Park	58 dBA L _{EQ}	48 dBA L _{EQ}
R05 – Alexander Creek North	50 dBA L _{EQ}	40 dBA L _{EQ}
R06 – Alexander Creek South	50 dBA L _{EQ}	40 dBA L _{EQ}

dBA = A-weighted decibel; L_{EQ} = equivalent continuous sound level; PSL = permissible sound level

2.1.1 Continuous Noise Monitoring

Continuous noise monitoring is conducted at the R02 Receptor Location (Figure 2-4). The sound level meter collects the following sound data in 1-minute logging intervals:

- L_{min}, L_{max}, L_{eq} sound levels;
- L₁, L₅, L₁₀, L₅₀, L₉₀, L₉₅, L₉₉ statistical sound levels; and
- one third octave band L_{eq} sound levels from 6.3 Hz to 20 kHz.

The sound level meter records digital audio signals simultaneously to isolate the extraneous noise events. The noise monitoring data is reviewed and processed monthly by a third-party Qualified Professional (QP).

A 01dB CUBE continuous noise monitor was set up at R02 in November 2019; however, a microphone failure was identified in April 2020. A replacement noise monitor (Brüel & Kjær model 2250 sound level meter) was installed at R02 on May 8, 2020 which collected sound data until the original unit was repaired and brought back online on November 4, 2020. Data collected prior to May 8, 2020 at R02 was determined to be invalid due to the microphone failure. In late January 2021, potential issues with the 01dB CUBE noise monitor were again identified by Teck's third-party QP, and troubleshooting is currently ongoing. Consequently, continuous noise monitoring data for November and December 2020 is not currently available. A summary of this issue and any resolutions will be provided in the 2021 SCEEMP Annual Report.

Results for continuous noise monitoring between May 8, 2020 and October 31, 2020 (the period for which validated data is available) indicate that all measured sound levels complied with PSLs (Figure 2-1 and Figure 2-2).

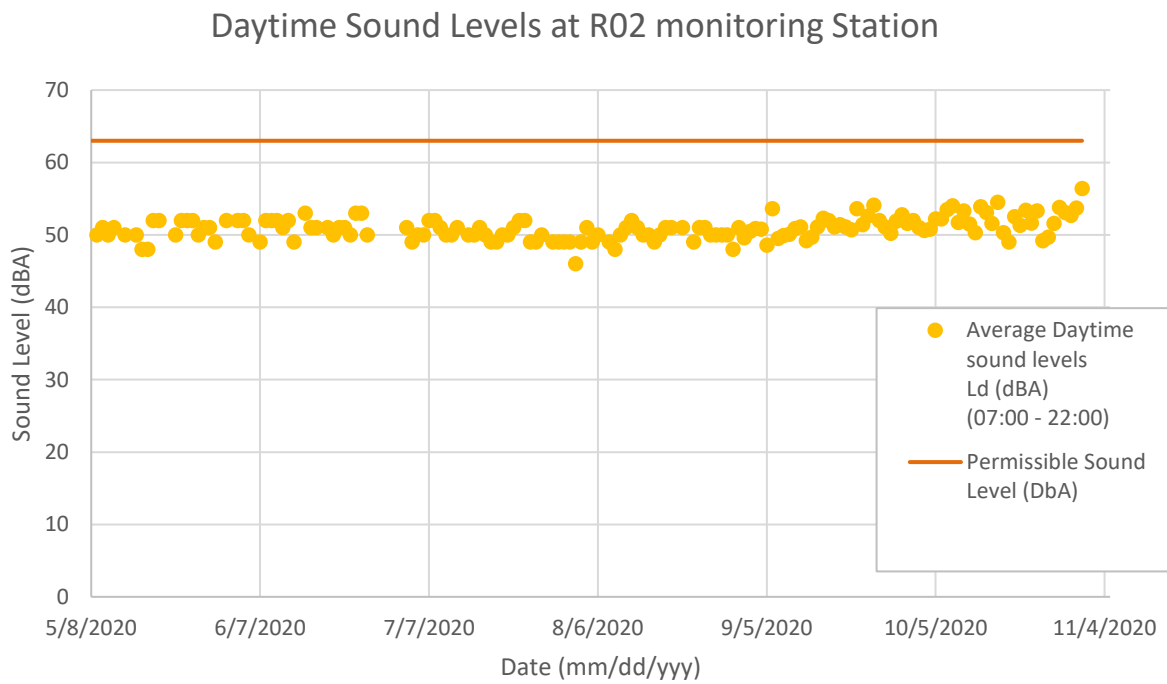


Figure 2-1 Valid average daytime sound levels measured at R02¹

¹ Notes on the visible data set (May 8 to October 31, 2020): twenty-one days excluded from analysis due to weather (wind/precipitation); an additional five days had less than four hours of valid one-minute data samples collected during this period due to weather (wind/precipitation); one day/night segment on August 20 was missed due to a full memory card; and October 22 data are not available (missing) between 13:24 and 22:00.

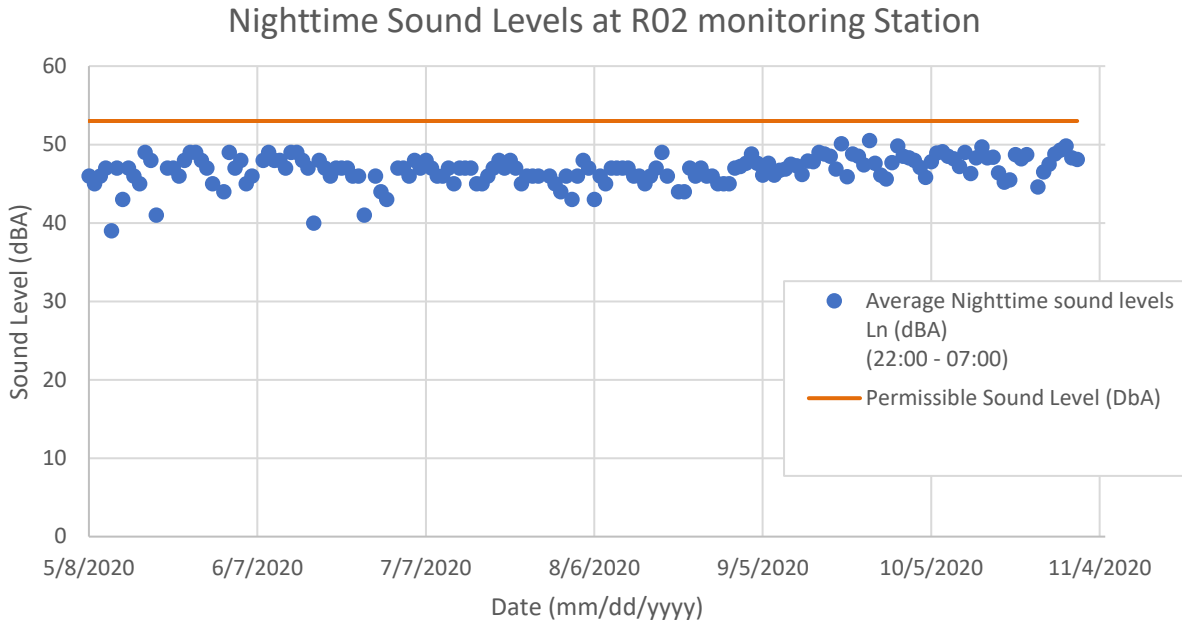


Figure 2-2 Valid average nighttime sound levels measured at R02²

2.1.2 Intermittent Noise monitoring

Intermittent noise monitoring consists of collecting 1-minute sound levels (L_{min} , L_{max} , L_{eq} , 1/3 octave band spectra and six statistical L_n levels), and continuous audio signals for no less than four daytime and nighttime periods at the four stations nearest to Sparwood (R01, R02, R03, R04). Noise sampling must occur between June 1 and September 30 annually.

In 2020, in accordance with the NMP, an annual intermittent noise monitoring survey was conducted over four daytime and nighttime periods between August 10 and August 14 at the four pre-defined locations (listed above).

Measured noise data were post-processed through isolation analysis to remove invalid or abnormal events which were not from EVO operations. At each monitoring location, valid 1-minute L_{eq} sound levels were used to calculate averaged hourly, daytime and nighttime L_{eq} sound levels. The averaged sound levels were summarized for each day and compared with the identified noise limits. Sound levels measured at R01, R02, R03 and R04 complied with the daytime and nighttime PSLs during the period of intermittent noise monitoring (Figure 2-3).

² Notes on the visible data set (May 8 to October 31, 2020): eight nights excluded from analysis due to weather (wind/precipitation); an additional 15 days had less than four hours of valid one-minute data samples collected during this period due to weather (wind/precipitation); one day/night segment on August 20 was missed due to a full memory card, and one night period (October 23) is not available due to lack of available (missing) data for that segment; one unusual operation event was recorded from 00:28 to 04:00 on August 14 with the likely cause being noise from an EVO locomotive idling with a faulty compressor.

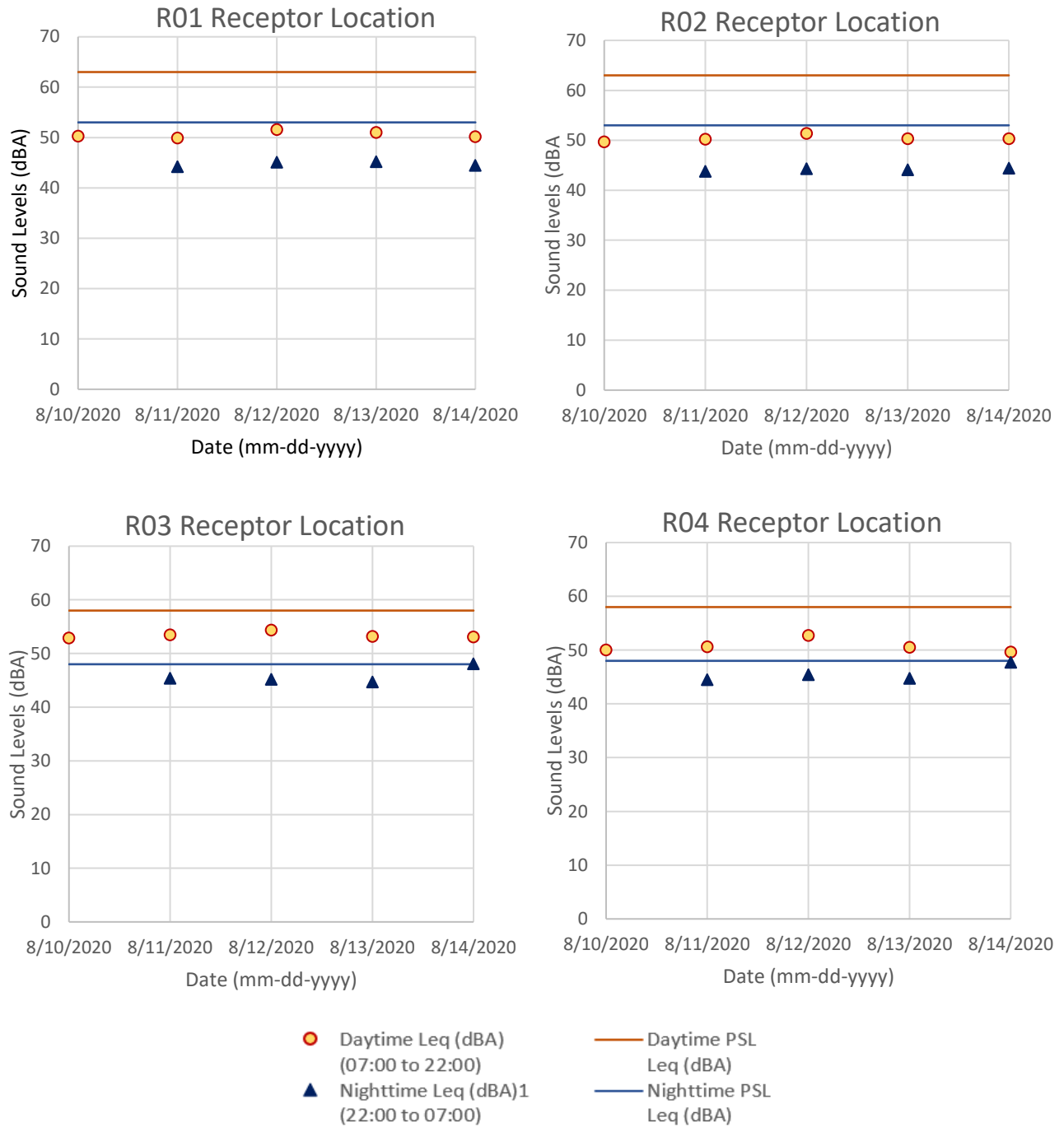
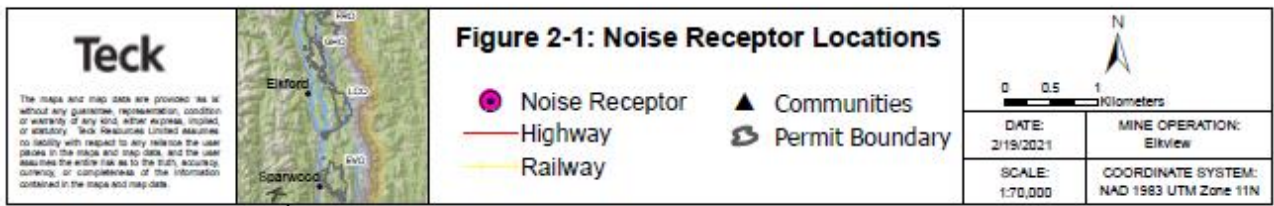


Figure 2-3 Intermittent monitoring daytime and nighttime sound levels measured by location ³

³ The elevated sound levels for the night of August 14 were attributed to an idling train with a broken compressor, which was also detected through continuous noise monitoring. The averaged nighttime sound level for this event was calculated as 48.1 dBA, 0.1 DBA above the PSL of 48, however, it was deemed to meet the nighttime PSL as this deviation was the result of a malfunctioning train, and not part of EVO's regular operations.



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Figure 2-4 Noise receptor locations

2.2 Feedback Received in 2020

One noise complaint was received in 2020 regarding a contractor-run generator in the industrial area off Michel Creek Road. The complaint was resolved after the contractor indicated they were in compliance with District noise bylaws, and that the disturbance would be short-term.

2.3 Changes and Updates to the Plan

No changes were made to the NMP in 2020. The NMP outlines requirements for updating, auditing and monitoring the plan. The plan will be updated every five years (to be updated in 2024) as each model validation will consider five-year increments of the EVO mine plan. For example, the current model takes into consideration 2020, 2021, 2022 and 2025 noise predictions. An audit of the plan will occur every five years in conjunction with each update to incorporate audit findings into the plan.

3 Blasting and Vibration

Extraction of coal at EVO requires the blasting of hard rock layers. Due to EVO's close proximity to the community of Sparwood, special considerations with respect to blast design and practice are required. Teck understands that mining is progressing closer to Sparwood and continues with its commitment of mitigating impacts in a collaborative spirit with the community.

Several aspects of blasting require management to minimize the potential impacts to the receiving environment and communities, specifically: fly rock, ground vibrations, air overpressure vibrations, blast fumes and dust.

Fly rock is material that is ejected into the air during a blast. Fly rock is managed through engineered blast design and processes with consideration of shot direction, material type, topography, borehole size, charge weight and proper burden/relief, stemming material and best practices. Blast clearance zones are used to manage the risk of injury to on-site personnel, wildlife, equipment and infrastructure from fly rock.

Blasting related vibrations have two components outlined below: ground vibration and air overpressure. Both are managed through blasting practice and design.

Ground vibration is the blast wave front that is carried through the ground. Ground vibration is measured as peak particle velocity (PPV) in millimetres per second (mm/s). While inaudible, ground vibration can be detected by humans and, if they are not controlled, could cause damage to property or infrastructure.

Air overpressure, also known as air blast, is the blast wave front that travels through the atmosphere as sound waves. Air overpressure is measured as pressure or decibels (dB(L)) and can be generally felt further away from the source than ground vibrations. The rate at which air blast overpressure levels diminish is dependent on distance, atmospheric conditions and topography. When a blast is felt or heard it is generally due to the air blast overpressure and not ground vibration as ground vibrations diminish closer to the source.

An adaptive management approach is applied to meet Teck's management objectives. This means, changes are made as site conditions and monitoring results dictate or as new technologies emerge. Through on-going blast monitoring, fly rock and blast vibration predictive models are updated. EVO can implement changes to blasting practices as mining progresses closer to residences and infrastructure. Monitoring and regular review of the results are the core adaptive management activity that helps guide improvement.

EVO has four monitoring stations for ground vibrations and air overpressure. Two of them are located within the community of Sparwood (S1 and S2), the third station (S3) and fourth station (S4) are between the general locations (S1 and S2) and the mine site (**Error! Reference source not found.**). The S3 and S4 locations were chosen to provide more data by being on site and closer to active operations. EVO is conducting trials to optimize the location of additional monitoring stations. S4 was put in place in 2020 to support operations in BR6. (See Appendix A for a general overview map of locations at EVO).

In addition to the four monitoring stations, a fifth microphone was installed in Q4 2020 within line-of-sight of BR2 to collect and monitor air overpressure in the near-field. The purpose of this fifth microphone is to assist in evaluating on-bench practices to continuously improve and adapt EVO's blasting standards on site.

The primary objective of the Blasting and Vibrations Management Plan is to blast safely and sustainably, while protecting property and minimizing the effect on residents, wildlife and infrastructure. This plan encompasses all blasting practices at EVO.

Specifically, the Plan focuses on managing the following mine blast-related aspects:

- Blast safely and control the generation of fly rock;
- Protect property and infrastructure from the potential effects of ground vibration;
- Protect property and infrastructure from the potential effects of air overpressure vibration;
- Manage nuisance vibration and noise effects to local community; and,
- Minimize and avoid the generation of blasting related dust and fumes.

The plan also outlines ground vibration and air overpressure limits which are listed below in **Error! Reference source not found.**

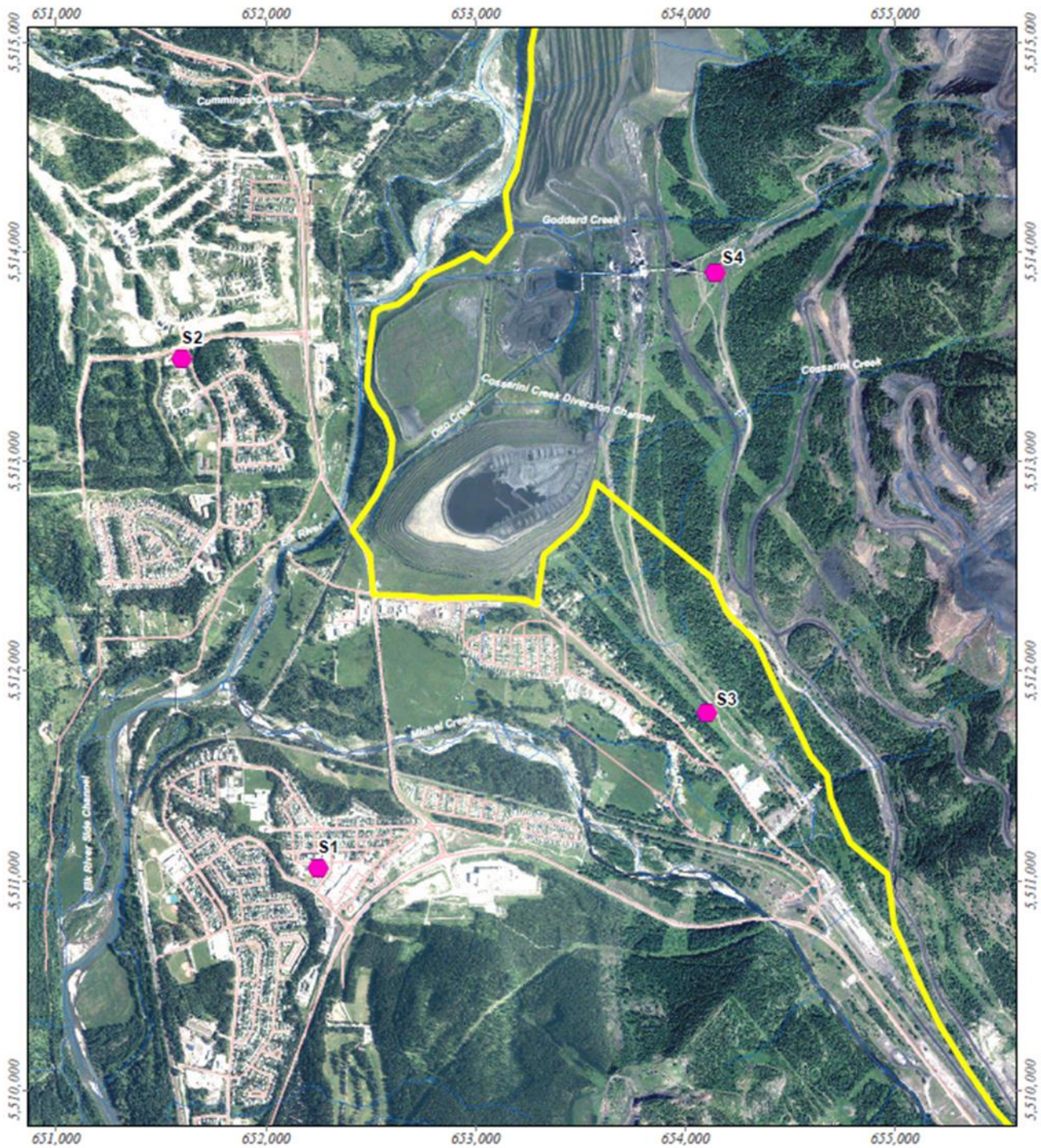
Table 3-1 Ground vibration and air overpressure limits at EVO

Component	Limit
Ground Vibration ⁴	12.7 mm/s
Air Overpressure Limits ⁵	133 dB6

Adam Bondi, P. Eng. (a qualified professional) reviewed the implementation of the Blasting and Vibration Management Plan. The qualified professional review concluded that Teck is in compliance with all conditions and actions outlined in the Blasting and Vibrations Management Plan.

⁴ U.S. Bureau of Mines: Investigation RI-8507 (1980).

⁵ U.S. Bureau of Mines: Investigation RI-8485 (1980). dB = decibel; mm/s = millimetres per second; USBM = United States Bureau of Mines.



<p>Teck</p> <p>The maps and map data are provided 'as is' without any guarantee, representation, condition or warranty of any kind, either express, implied, or statutory. Teck Resources Limited assumes no liability with respect to any reliance the user places in the maps and map data, and the user assumes the entire risk as to the truth, accuracy, currency, or completeness of the information contained in the maps and map data.</p>		<p>Blasting Monitoring and Triggers</p>		<p style="text-align: center;">N</p>
		<p>— Access</p> <p>— River</p> <p>— Western Edge of C Permit Boundary</p> <p>● Seismograph Monitoring Locations</p>	<p>DATE: 1/7/2021</p> <p>SCALE: 1:24,000</p>	

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Figure 3-1 Seismograph Locations for Monitoring Blasting and Vibration at EVO

3.1 Air Overpressure and Vibration Monitoring

EVO conducted 227 blasts in 2020. The distribution of blasts are shown in **Error! Reference source not found.** below. In 2020, 78 blasts fell within the BRE footprint. Of the 78 blasts within the BRE footprint, 12 blasts were in NP2, 20 in BR3, and 46 in BR6.

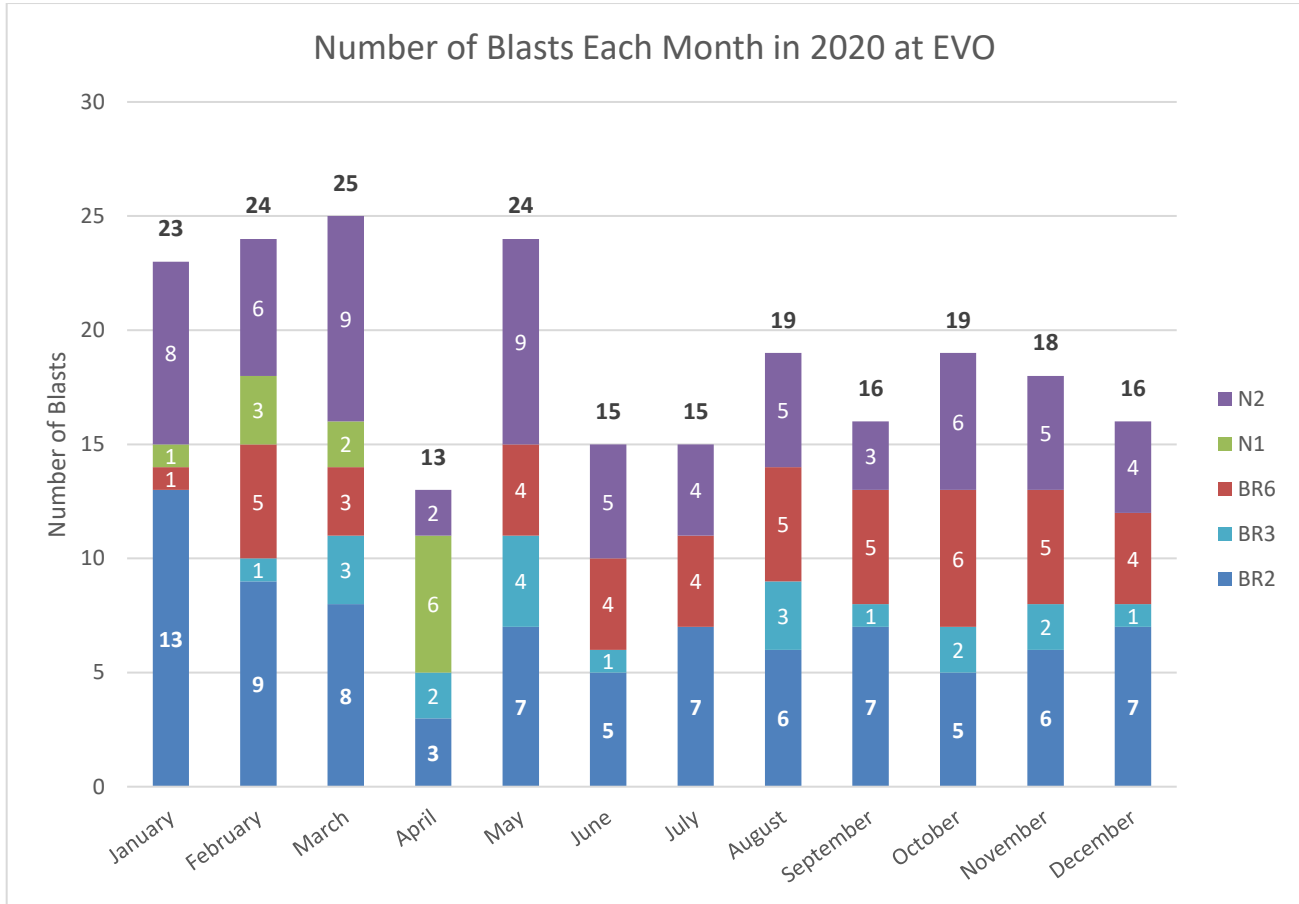


Figure 3-2: Number of blasts at EVO for each month in 2020

1.2 Air Overpressure and Vibration Monitoring Results

During 2020, a total of 96 blast events were detected in four seismograph locations (**Error! Reference source not found.**), all of which were below the limits for ground vibrations of 12.7 mm/sec and air overpressure of 133 dB(L). The monitors were triggered by non-blast related events for air overpressure 1048 and ground vibration 642 times. Monitor trigger limits are set low to maximize the data points available for modeling and adjusting blasting practices as part of the adaptive management approach.

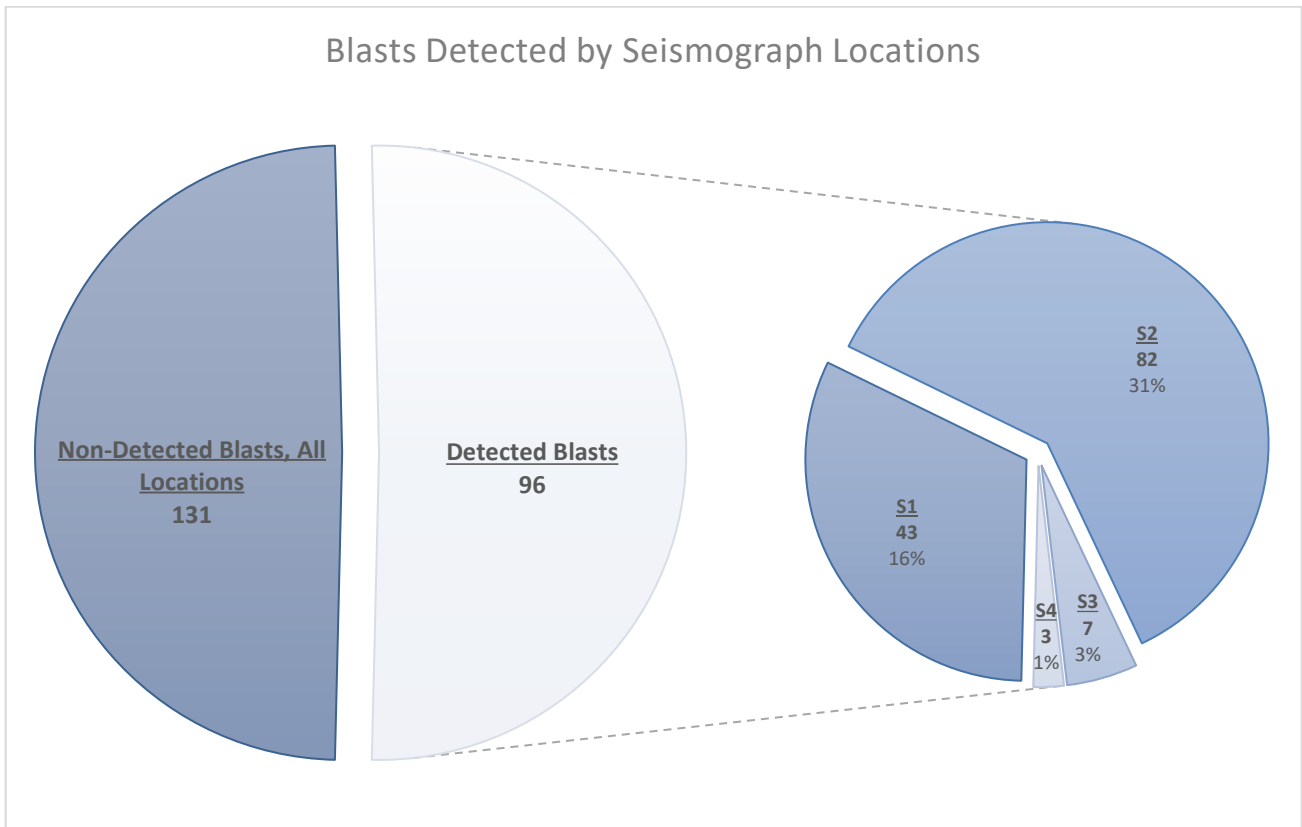


Figure 3-3 Number of blasts detected and non-detected at each seismograph location in 2020 (Location, Number of Blasts, Percent of Blasts)

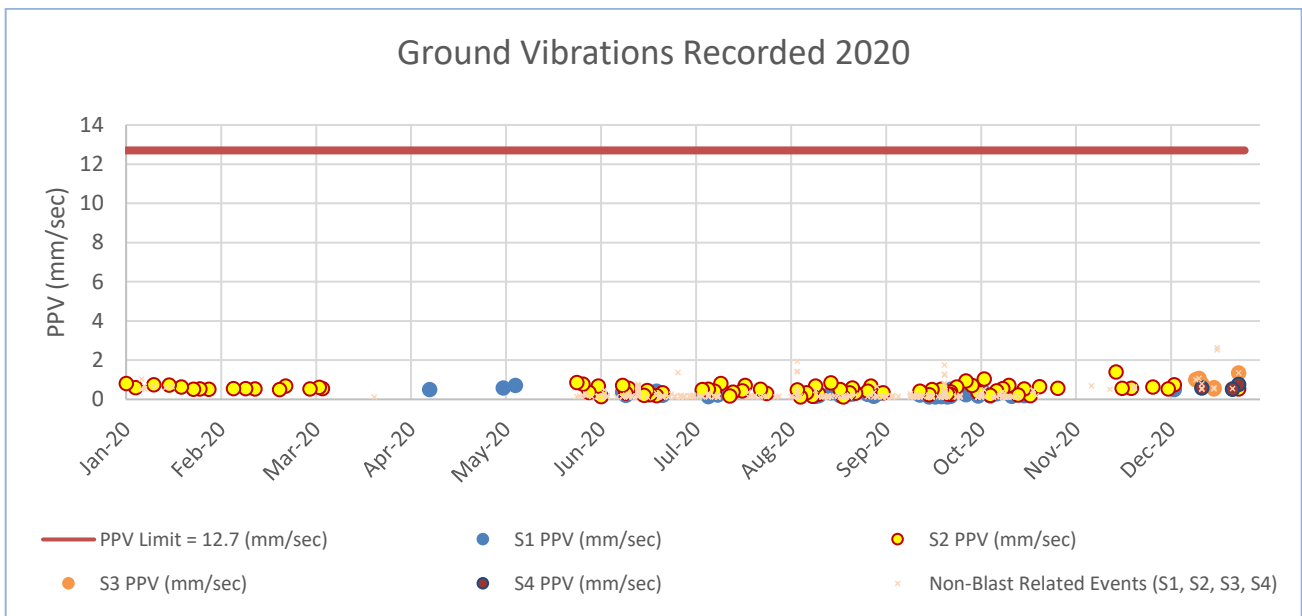


Figure - Recorded ground vibrations (GV) at each station in 2020 compared to limits

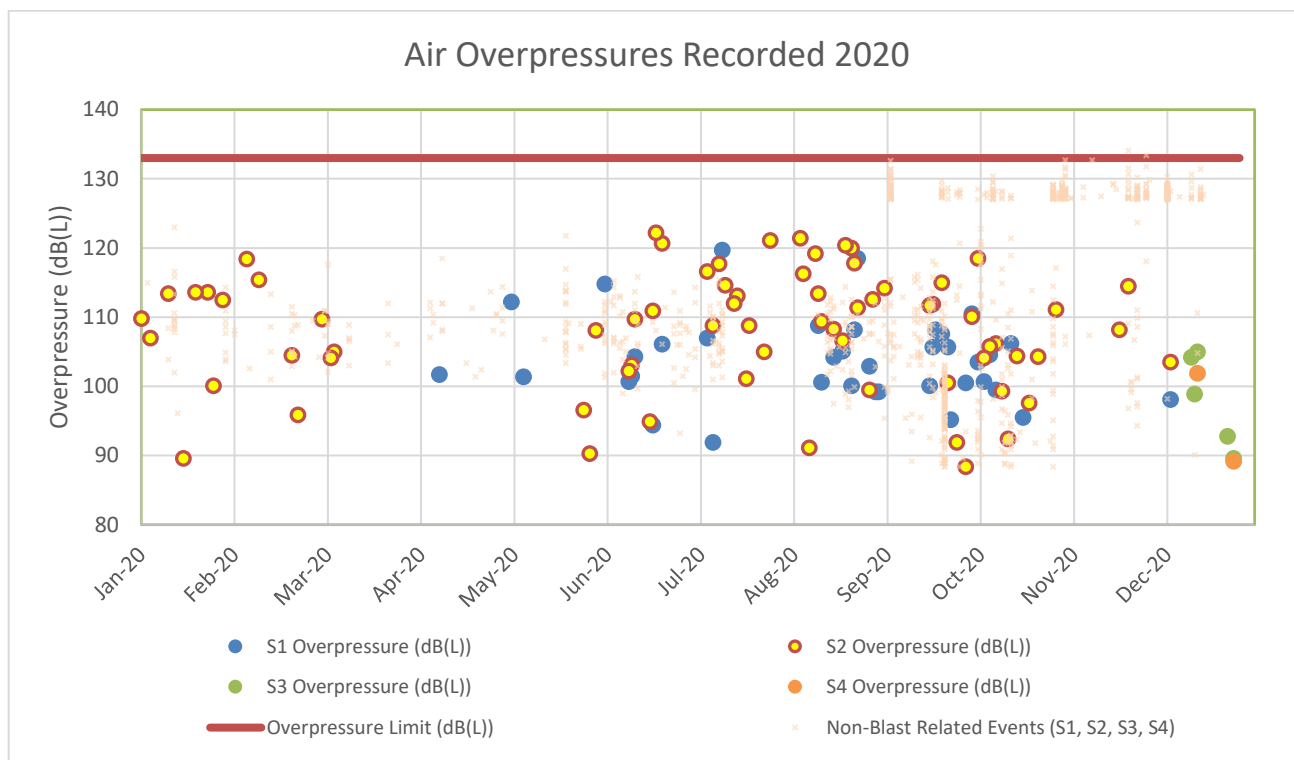


Figure - Recorded air overpressure (dB(L)) at each station in 2020 compared to limits

3.2 Feedback Received in 2020

During 2020, three instances of community feedback were received through Teck’s Feedback Mechanism related to the Blasting and Vibrations Management Plan, two of which were related to the same blast. These three concerns were related to air overpressure events from blast holes with less confinement. After the blasts, video recordings were reviewed and it was determined that the blast holes had less confinement than what was designed due to stemming material bridging within the hole. This caused a reduction in confinement. The reduced confinement, combined with a low cloud cover at the time of the blast, caused the air overpressure levels to increase. Following the community feedback related to these events, EVO has recently installed an additional microphone within line-of-sight of BR2 to further evaluate and enhance on-bench practices and stemming design following our adaptive management process. EVO also adheres to the site’s Blast Trigger Action Plan to track and record potential qualitative and quantitative meteorological data to assist in the decision-making process about whether the meteorological conditions could reinforce air overpressure levels.

3.3 Changes and Updates to the Plan

The Blasting and Vibration Management Plan was updated in consultation with the SCEEAC and BC Environmental Assessment Office (EAO) in 2019. No changes were made to the Blasting and Vibration Management Plan in 2020.

In 2020, an independent third-party review by a qualified professional of the blasting and vibration management was completed. This included an update of the critical off-site infrastructure, a review of the current ground vibration monitoring and management program, and the creation of a site-specific fly rock model. The recommendations from this work suggested that Elkview’s current blasting practices are sufficient and the monitoring locations offer adequate coverage of the community.

4 Air Quality and Dust Control

The primary objective of Elkview's Air Quality and Dust Control Management Plan (AQDCMP) is to manage site activities and mitigate effects on air quality related to particulate matter (fugitive and source) and greenhouse gas (GHG) emissions.

Primary sources of fugitive dust generated at EVO include the use of haul and light vehicle roads, spoiling of waste rock, blasting and stockpiling of materials. Source emissions (e.g., dryer stack emissions) at EVO are primarily related to coal processing. The primary sources associated with GHG, and managed within the plan, are from light vehicles, mining equipment emissions and source emissions while operating.

Below are definitions of terms as they relate to Section 4 of this report.

Greenhouse gas: any or all of carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and any other substance prescribed by regulation.

Particulate matter: all solid and liquid particles suspended in air, can be measured based on the size of a particle or all particles (total particulate matter).

Source dust: dust emitted from a definable point source.

Fugitive dust: dust not emitted from a definable point source.

Ambient air monitoring: continuous assessment of the surrounding air quality as it relates to fugitive dust emissions.

4.1 Air Quality Monitoring

During 2020, EVO monitored three permitted ambient air quality stations in conjunction with meteorological stations adjacent to the mine site (Figure 4-1) as well as the background station at Hosmer. Samples were collected continuously and monitored for particulate matter (PM) less than 10 µm diameter (PM₁₀) and less than 2.5 µm diameter (PM_{2.5}). Ambient air stations are used to assess air quality related to fugitive dust emissions.

Source locations, the Dryer Stacks and Breaker Stack (Figure 4-1), are sampled twice a year and compared to Permit 1807 discharge limits issued by the Ministry of Environment and Climate Change Strategy (ENV). Source sampling was conducted in Q2 2020 and again in Q4 2020. Source monitoring is used to assess the effectiveness of control measures on particulate and GHG release at a point or single source.

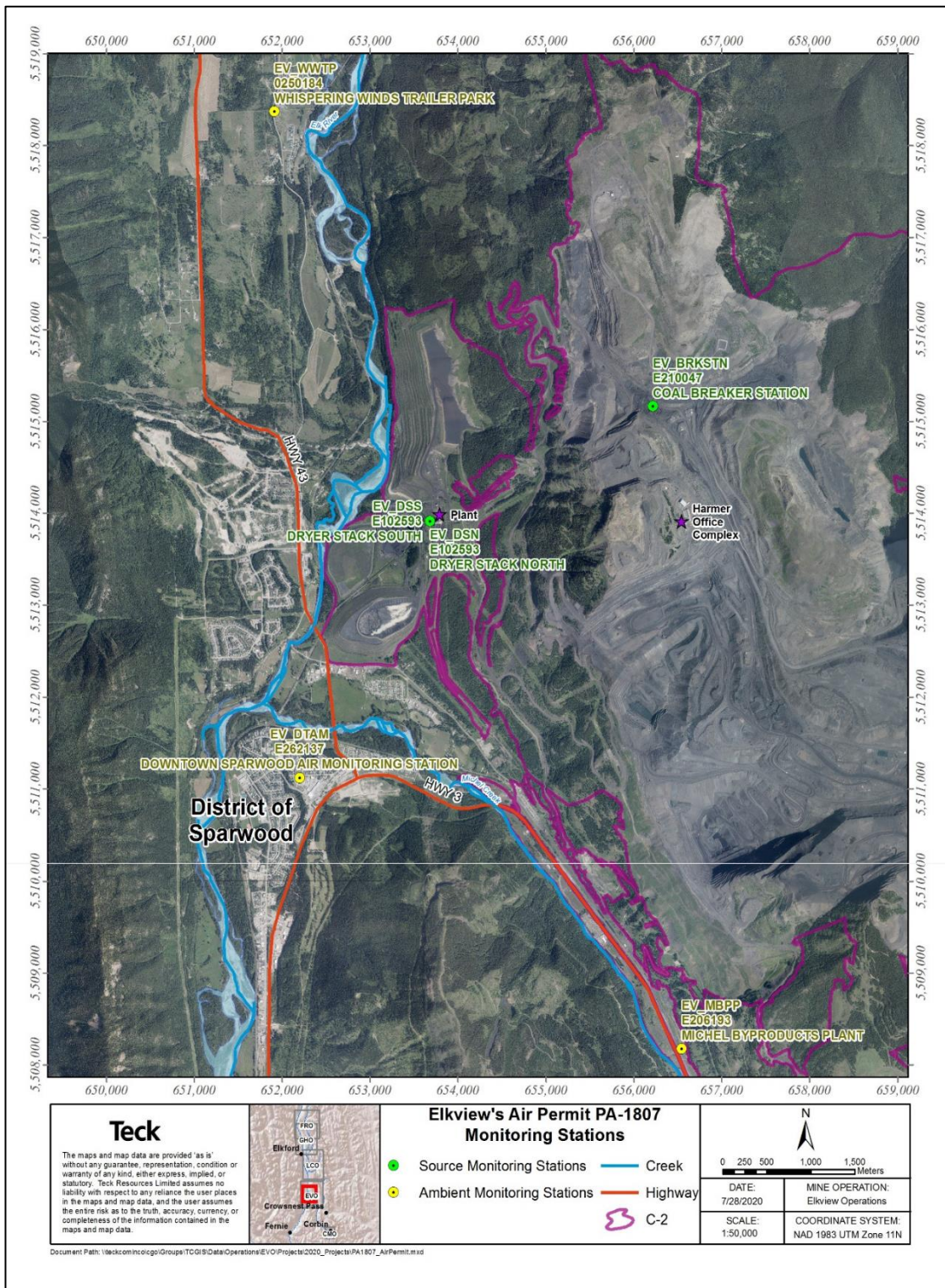


Figure 4-1: EVO permitted air monitoring locations

4.1.1 Source Monitoring

Elkview's Dryer Stacks and Breaker Stack are sampled twice a year by qualified third-party professionals at approximately equal time intervals in accordance with Permit 1807. Each stack must be discharging under normal operating conditions and at least 75% of nominal load during sampling.

Source emissions sampling in 2020 was conducted from May 19 to May 22 and from November 23 to November 25. Results from this sampling were below permit limits for all stacks (**Error! Reference source not found.**).

Table 4-1 Source monitoring results in 2020

Location	Sample Date	Average Flow Rate (m ³ /s)	Average Total Particulate Matter (mg/m ³)	Average Coal Production During Sampling (T)
Coal Breaker Stack	May 19	9.4	<4.29	1,411
	Nov 25	9.83	<4.26	1,705
Permit Limit		14	150	-
North Dryer Stack	May 21 & 22	48.9	33.6	541
South Dryer Stack	May 21 & 22	60.9	35.5	572
Combined Dryer Stacks	May 21 & 22	109.8	-	-
North Dryer Stack	Nov 23 & 24	52.6	29.1	473
South Dryer Stack	Nov 23 & 24	63.1	23.8	523
Combined Dryer Stacks	Nov 23 & 24	115.6	-	-
Permit Limit		133	85	-

Notes: m³/s = metres cubed per second; mg/m³ = milligrams per cubic metre

4.1.2 Ambient Monitoring

EVO monitors ambient air quality at three permitted monitoring locations: Downtown Sparwood at Centennial Square (DTAM); Whispering Winds Trailer Park (WWTP); and the old Michel By-Products Plant (MBPP). Results of continuous air monitoring at these stations is compared to British Columbia Ambient Air Quality Objectives⁷ (BC AAQO) for PM₁₀ and PM_{2.5} (Figure 4-2: and **Error! Reference source not found.**).

There were 13 daily average PM₁₀ concentrations above BCAAQO in 2020; eight at MBPP and five at WWTP. Elevated results at MBPP occurred on April 6 and 7 which were likely impacted by activity on the adjacent highway, and on September 13 and 15-19 which were associated with forest fires. Elevated results at WWTP occurred on September 13-15 and 17-18 which were also associated with forest fires. A similar trend was observed at the Hosmer background station with particulate concentrations increasing during the same period in September due to wildfire activity.

In 2020, the PM_{2.5} 98th percentile results for comparison to BC AAQO remained below objectives at the three permitted stations. There were seven daily average PM_{2.5} concentrations above objectives at both MBPP and WWTP and three at DTAM; all occurring in September. Daily average concentrations above objectives for PM_{2.5} are associated primarily with forest fires during that timeframe. This is supported by the same trend being observed at the Hosmer background station which recorded daily average results above objectives for the same period in September.

⁷ Available at <http://www.bcairquality.ca/reports/pdfs/aqotable.pdf>

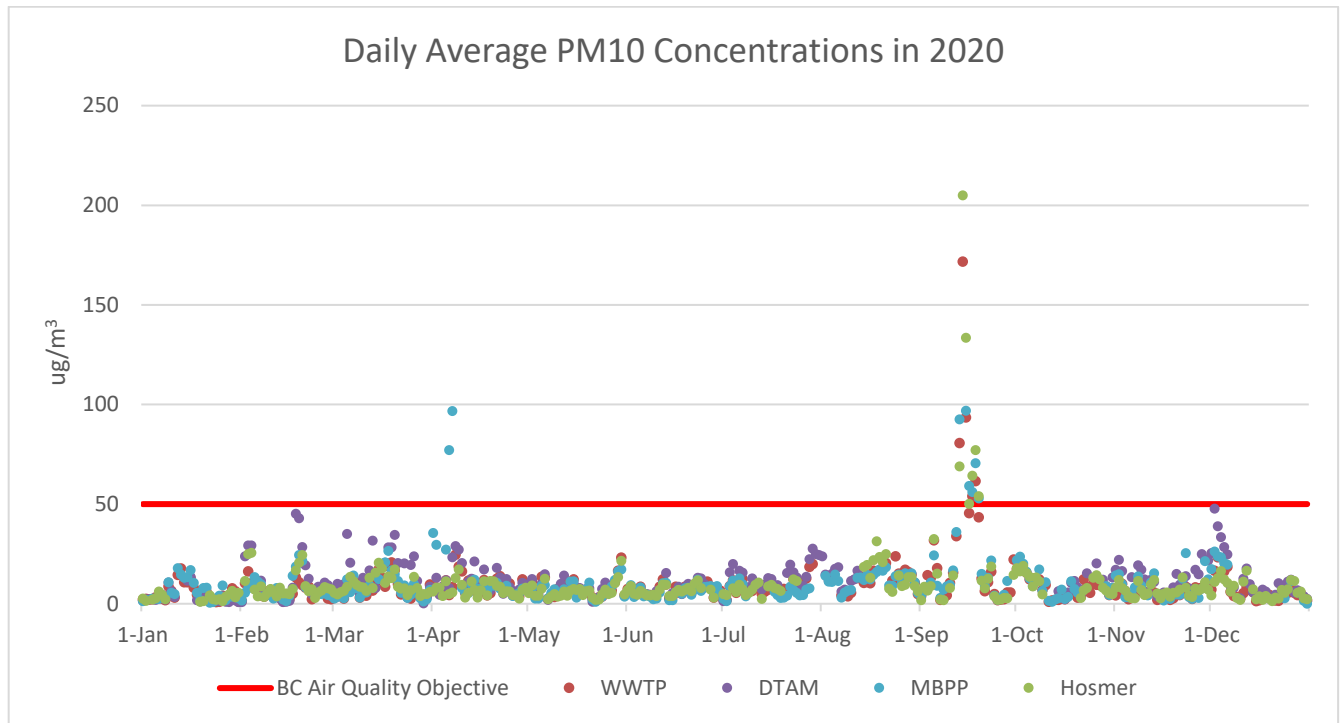


Figure 4-2: PM₁₀ daily average results in 2020

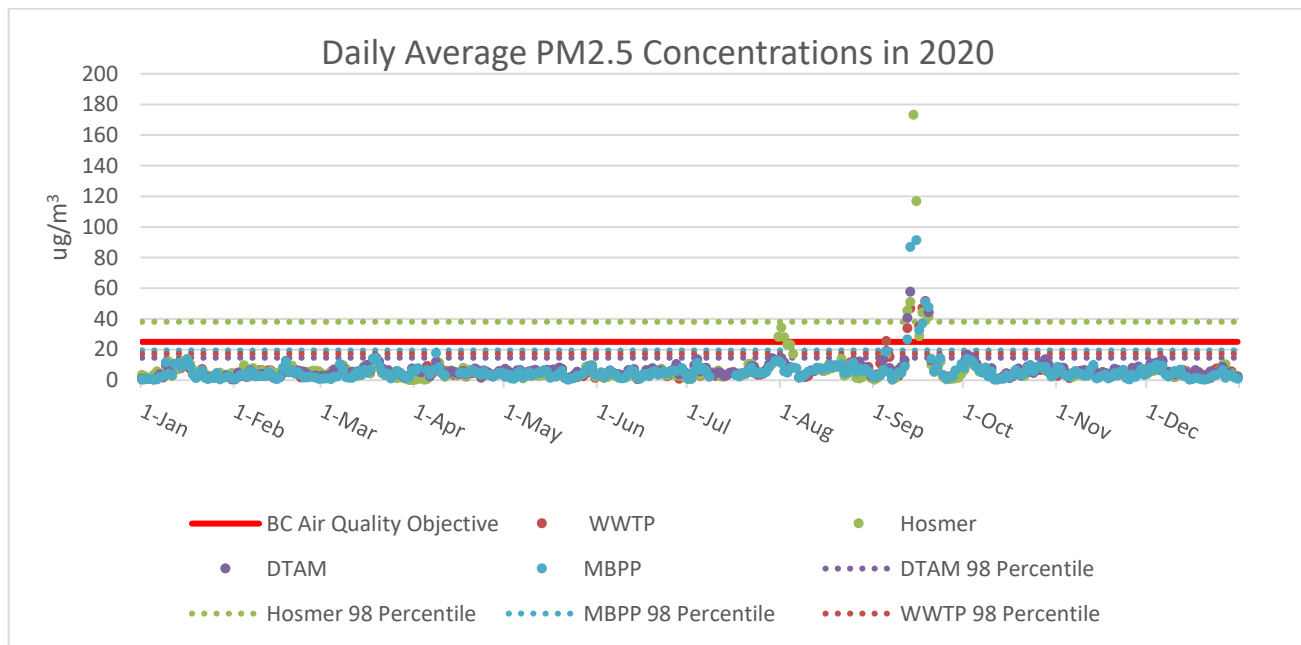


Figure 4-3 PM_{2.5} daily average results in 2020

4.2 Feedback Received in 2020

Minimizing fugitive dust generated from the mine sites is a top priority for Teck. Receiving feedback on air quality of fugitive dust from both the community and the SCEEAC is important in determining the effectiveness of current practices and inform new processes Teck is pursuing in partnership with industry experts like RWDI Consulting Engineers and Scientist, Envirosuite Limited and the Massachusetts Institute of Technology.

In 2020, Teck’s Elkview Operations received 277 submissions from the public related to air quality and dust. Table 4-2 summarizes all feedback received in 2020.

Table 4-2 Summary of community feedback related to air quality and dust

Topic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Dirty Vehicles			1								1		2
Visible Dust above Elkview							1	4					5
Dusting Train ⁸							1						1
Dust on property	1			1	2	1							5
Requests for property cleaning	2	5				9	68	91	69	19			263
Dust in the community/street			1										1
2020 Total Feedback Related to Air Quality and Dust													277

4.3 Changes and Updates to the Plan

Elkview’s AQDCMP was updated in September 2020 to reflect feedback received from the Ministry of Environment and Climate Change Strategy in 2019 and feedback received from the District of Sparwood (DoS) representatives on the SCEEAC in August 2020. The updated plan was reviewed by the SCEEAC in accordance with the SCEEMP with the recommendation being that the DoS Mayor and Council endorse the AQDCMP which occurred at a Council meeting on the November 17, 2020.

Additional comments from the Ministry of Environment (ENV) were received in January 2021 following submission of the revised Fugitive Dust Management Plan (FDMP - previously known as AQDCMP) in September 2020. The comments are related to updating the current FDMP according to the Guidance document published by ENV in 2018. Teck met with ENV on March 18, 2021 to discuss the feedback received and will be working to address ENV comments and resubmit the FDMP by August 30, 2021. Teck will keep the SCEEAC updated on our progress and will ensure the SCEEAC is included in the review process. The next scheduled update to the Plan is 2025.

⁸ From a train originating at Teck’s Fording River Operations.

5 Reclamation and Closure

Elkview's Five Year Mine Plan and Reclamation Plan⁹ outlines mine planning and reclamation activities in detail for years 2017 to 2021 and conceptually for 2022 onward. The conceptual content provides a high-level strategy that will be translated into more detailed closure and reclamation actions as the operation nears the closure stage of mining. As the operation matures and moves toward the planned closure date, future iterations of this plan will become less conceptual and will provide more direction around timing and implementation of closure activities. The next update to the EVO Five Year Mine Plan and Reclamation Plan is due for submission to the Ministry of Energy, Mines and Low Carbon Innovation by June 30, 2022. This plan will detail the mine planning and reclamation activities from 2022 to 2026.

The plan has been created with the following overarching closure objectives:

- Long-term safety and stability of drainages, landforms, and features;
- Water quality that meets acceptable quality guidelines for safe release to the surrounding environment and for use by local flora and fauna;
- Working towards a net positive impact (NPI) on biodiversity in areas impacted by Teck's operations; and
- Integrating community and First Nations values and input to the extent practicable.

The Plan is based on a management approach to:

- Evolve the Plan based on current regulations, policy and expectations, new knowledge, and monitoring results;
- Use a risk-based approach that identifies potential risks to successful closure and focuses planning and resources on the areas of highest risk;
- Identify gaps in current knowledge and the proposed actions to close the gaps;
- Apply best practices and incorporate ongoing research and innovation;
- Integrate results of engagement with First Nations and communities of interest;
- Implement processes that mitigate impacts of operations to ecosystem and biodiversity elements (EBEs) at the operation;
- Provide an increasing level of detail in regards to closure planning over the mine life; and,
- Support the maintenance and enhancement of sustainable communities and the environment.

5.1 Reclamation Completed in 2020

EVO currently has 1,308.2 hectares (ha) of area that is considered to be reclaimed.¹⁰ These areas include those which have been prescribed reclamation treatment or have established as a result of natural vegetation ingress. The completed reclamation area accounts for approximately 30% of the total disturbance area at Elkview (Figure 5-1).

⁹ June 2017 version.

¹⁰ Reclamation status for this context is defined as areas which have been deemed to have maintained successful vegetation for a period of one year.

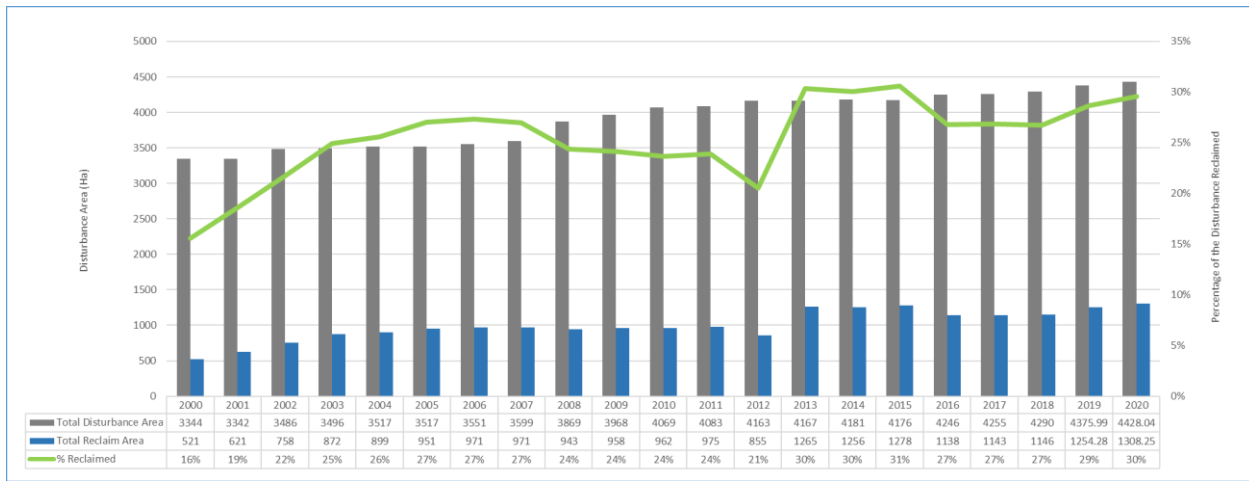


Figure 5-1: EVO disturbance and reclamation summary over the last 20 years

In 2020, approximately 600 Montana Wildrye seedlings were planted on EVO’s South Pit Spoil to supplement planting that was completed on this area in 2017. Teck has a Species Management Plan for Montana Wildrye which, in 2016, was ranked as a red listed (Critically Imperiled) species in BC. Most recently Montana Wildrye has been downgraded to a yellow listed (Vulnerable) species in BC.

A soil salvage was completed in advance of Baldy Ridge mine development in 2020. The soil salvage area was 1.5 ha and was salvaged at a depth of 60 cm. There was 9,110 m³ of good quality soil material salvaged from this area which was hauled and directly placed on the 1,450 m lift of EVO’s Bodie Spoil. Direct soil placement has an ecological benefit as native seed sources are transferred to the final placement area. This project was completed in alignment with EVO’s Soil Salvage Plan (SSP) and Visual Quality Management Plan.

The Coarse Coal Rejects (CCR) spoil at EVO continues to be progressively reclaimed as additional lifts are added. In accordance with EVO’s SSP, approximately 3.7 ha of soil was salvaged in 2020 to an approximate depth of 50 cm in advance of CCR spoiling. Approximately 5,000 m³ of cover material was spread over 1.6 ha of the CCR spoil face at a depth of approximately 30 cm in 2020. A hydro-seeding treatment was also applied on approximately 1.6 ha of the CCR spoil. All of the seeding and planting completed in 2020 was appropriate to the specific ecosystems.

There was 54.0 ha of interim seeding completed at EVO in 2020. The purpose of interim reclamation is to mitigate potential impacts during active mining. The interim reclamation treatment are not final reclamation and therefore quick establishing agronomic species can be used. The objective of the 2020 interim seeding is to mitigate visual quality impacts, fugitive dust impacts, reduce erosion potential, reduce invasive plant ingress, and provide forage for wildlife.

Teck continued with the Invasive Plant Management Program in 2020 by treating a total of 45.6 ha of area on EVO for invasive plants. A total of 312.2 ha of area was also inventoried for invasive plants with 14.6% receiving treatment.

EVO also conducts interim reclamation activities that are intended to be mitigation for potential impacts such as visual quality, erosion, fugitive dust, wildlife forage, and invasive plants. These interim reclamation activities do not contribute to final reclamation however will demonstrate short term benefits during active mining. In 2020 there was 27.0 ha of interim seeding completed as well as 5.0 ha completed of interim soil placement.

A multi-year Closure Landform Assessment continued in 2020 at the Harmer Knob spoil area on the north side of the EVO property. The objective of the assessment is to complete a re-designed landform that improves overall stability and drainage integrity. A geotechnical drilling program was completed in 2020 to inform foundation conditions. A feasibility design is planned for 2021, which will guide the reclamation activities over the next few years.

The Annual Reclamation Report provides additional detail to the treatments above.

5.2 Feedback Received in 2020

No community feedback was received in 2020 related to reclamation or closure at Elkview.

5.3 Changes and Updates to the Plan

No updates occurred to the Five Year Mine Plan and Reclamation Plan in 2020. This plan is updated at least every five years and was last updated in 2017. Elkview's Five Year Mine Plan and Reclamation Plan will therefore be updated in 2022 for the next five-year cycle.

6 Visual Quality

In 2019, a Visual Quality Management Plan (VQMP) was developed for EVO in consultation with the SCEEAC, KNC, Ministry of Forest, Lands, Natural Resource Operations and Rural Development (FLNRORD), and EAO.

The VQMP constitutes a foundation for adaptive management of visual effects of the BRE Project. The plan provides a working environmental management tool for managing ongoing visual effects to the landscape from BRE Project mining activity and other BRE Project components. An adaptive approach will be used to address the uncertainty of visual effects and/or the effectiveness of mitigation strategies and procedures through the integration of knowledge and experience gained through ongoing engagement, monitoring and research.

Management of visual quality for the BRE Project area focuses on strategies for visual design of landscape features that are compatible with the surrounding natural landscape character. The goal of this design is to minimize the visual dominance of BRE Project mining features and infrastructure while supporting intended end land uses. The VQMP also considers other management objectives (e.g., biodiversity, air quality, reclamation and closure) as well as mine development and operational requirements to support an appropriate balance in planning, design and management of activities.

The objective of the VQMP is to address the potential adverse effects to visual quality from mining activities and infrastructure associated with the BRE Project. Specific objectives of the VQMP include:

- meet and maintain compliance with Condition 18 of the BRE Project EAC;
- identify visual design practices and specific mitigation strategies and procedures to minimize the visibility and visual effect of mining activities and infrastructure to key areas of value and/or viewer sensitivity to visual disturbance;
- support social value associated with the use of the visual landscape setting;
- support cultural value associated with the use of the visual landscape setting;
- support broader closure & reclamation planning and objectives while specifically addressing visual quality goals;
- integrate with other EVO management plans and commitments to provide additional benefit to performance goals and understand the potential trade-offs involved;
- develop a visual quality monitoring and auditing program to address uncertainty of visual effects and the effectiveness of mitigation strategies and procedures;
- support Teck's Sustainability Strategy objectives; and,
- strengthen relationships with the DOS and Ktunaxa Nation.

6.1 Visual Quality Monitoring

The VQMP outlines a monitoring, reporting and auditing program, and will occur every five years or in alignment with the Five Year Mine Plan and Reclamation Plan submissions. The first audit of the VQMP is planned to occur in 2026 with participation from the KNC and SCEEAC. In addition, shorter interim monitoring periods (e.g., 1-2 years) and focused monitoring-related programs may be required under certain circumstances to assess periods with high rates of visual disturbance, and/or to support the development of mitigation measures that require short-term monitoring. The process and standards for visual quality monitoring and auditing were developed in 2020, and are found in Section 5 in the VQMP Toolkit.

6.2 Feedback Received in 2020

In 2020, Teck received zero comments from the public related to visual quality (e.g., comments related to aesthetics, reclamation, or contouring). Feedback received from the SCEEAC, KNC and MFLNRORD as part

of the development of the VQMP Toolkit has been incorporated into the final version of the Toolkit. A summary of feedback received was provided to the SCEEAC with the final toolkit, shared on February 16, 2021. This summary table will be incorporated into the VQMP as an Appendix.

6.3 Changes and Updates to the Plan

The VQMP was finalized in 2019 with milestones for further development in 2020, including:

- the identification of Key Viewpoints;
- definition of Visual Management Zones;
- submission of a draft VQMP Toolkit for review and comment to the SCEEAC, KNC, and regulators;
- submission of draft visual monitoring and auditing procedures for review and comment to the SCEEAC, KNC, and regulators; and,
- developing and presenting training on the Toolkit to EVO mine planners.

The VQMP Toolkit is a supplement to the VQMP, and describes a set of visual principles, strategies, procedures, and design techniques that mine design engineers can apply when planning mine activities. Each tool includes procedures, design parameters, considerations for implementation, and visual precedents.

All VQMP Key Operational Milestones identified for 2020 were achieved as follows:

- Key Viewpoints were identified representing a range of publicly accessible viewing opportunities related to residential areas, motorists, recreational and Ktunaxa Nation use areas. These viewpoints will be used to monitor changes in viewscales over time.
- Visual Management Zones, discrete units that are defined to indicate areas of relative sensitivity to visual disturbance, were identified ranging from low visibility (VMZ#1) to highly visible (VMZ#4). Various visual management tools will be used within each zone.
- A draft VQMP Toolkit that includes visual monitoring and auditing procedures was provided to the SCEEAC, KNC and regulators in September 2020.
- Toolkit training was provided to EVO mine planners in November 2020.

The VQMP Toolkit was finalized in December 2020 and will be used in future mine planning beginning in 2021. An update on the implementation of the VQMP Toolkit, including monitoring that has been conducted, will be provided to the SCEEAC as related work progresses. The VQMP will be updated in 2024, following monitoring and auditing report submission, as per the Key Operational Milestone in the VQMP.

Through its development and in consultation with the SCEEAC and the KNC, the VQMP Toolkit was applied to the design of the Cedar North In-Pit Backfill Extension (CNIBE). The CNIBE reduces the overall mine disturbance by increasing in-pit fill, and the design incorporates more natural and functional features improving visual quality and ecosystem diversity. The spoil will also be constructed such that it can be progressively reclaimed and to create a buffer between the community and active operations on the north side of the mine.

7 Socio-Community and Economic Effects

EVO and the DOS worked collaboratively throughout 2018 to prepare the SCEEMP and outline the role and objectives of the SCEEAC. The SCEEAC is a group intended to:

- perform an advisory role, focused on making recommendations to DOS Council and Teck for consideration with respect to implementing Condition 21 of the BRE EAC;
- provide a broad community voice;
- act as a conduit for communication between Teck, DOS, and the public, and to build trust;
- advise on engaging the broader community of Sparwood;
- review results for other management plans preapproved under the BRE EAC; and,
- assist in identifying on-going socio-community impacts and possible solutions for adaptive management.

The SCEEAC is a select committee of Council for the DOS. The DOS Council appointed seven volunteer community members, three representatives from Council and three representatives from Teck: Manager Social Responsibility, EVO Superintendent Environment, and EVO General Manager.

Residents of Sparwood are welcome to attend the quarterly SCEEAC meetings, and may view the schedule, agendas, and minutes at www.sparwood.ca/livable. Additionally, residents may provide feedback to the Socio-Community and Economic Effects Advisory Committee via livable@sparwood.ca

The SCEEAC Terms of Reference are available at website: www.sparwood.ca/livable

7.1 Socio-Community and Economic Effects Monitoring

A Livability Study led by the DOS was completed in November 2019. The study was the first step in monitoring performance with respect to the SCEEMP. The purpose of the study was to better understand the quality of life in Sparwood by reviewing multiple focus areas such as social engagement and cohesion, environmental sustainability, healthcare, the economy, education, mobility, housing, recreation, and social space. It is meant to inform community development by providing indicators against which development can be weighed. It is also meant to assist in selection of alternative management actions in the adaptive management cycle, if related to socio-economic effects directly attributable to the BRE Project, including identifying gaps in quality of life to inform future investments (from the DOS, Teck, or others) to areas that will have best outcome/returns.

The study can be viewed at the following location:

<https://sparwood.civicweb.net/FileStorage/4C8D14839D1F4DDA9B18E54BFB4F78FE-Livability%20Study%20-%20What%20We%20Learned%20Report.pdf>

A Livability Report Card will be distributed by the District of Sparwood in early 2021. Please visit www.sparwood.ca/livable for more information.

7.1.1 Home Cleaning Program Pilot

Based on increasing feedback collected through Teck's Feedback Mechanism, it was determined by Teck and encouraged by the SCEEAC, that Teck should consider a home cleaning program for the residents of Sparwood. The scope was to develop an effective and efficient cleaning program pilot for impacted Sparwood and area residents that is reflective of Teck's commitment to being a responsible and a good neighbor to our adjacent community.

Eligible residents signed up for the program through the feedback mechanism or were notified of the program through previous dust grievances. From July 13 to October 7, 2020. 348 homes were cleaned, and Teck received 94 pieces of positive feedback about the program.

7.1.2 Clean Vehicle Policy

Teck’s Clean Vehicle Policy is applicable to all sites and contractors. Employees and contractors are required to clean the body and undercarriage of their fleet vehicles before entering a community. There are light vehicle car washes on site at Fording River, Greenhills and Elkview Operations. The Elkview carwash is available for use 24/7 for individuals from other Teck sites, and in each of the local communities.

Municipal fines may be issued for dirty vehicles. The driver of the vehicle is responsible for payment.

If a member of the public reports a dirty vehicle to Teck, the driver’s supervisor will be informed, and will lead to follow-up actions.

There were nine dirty vehicle complaints in 2019 and two in 2020. Also, in 2020, a positive comment was provided, noting that there seemed to be fewer dirty vehicles in the community.

7.2 Feedback Received in 2020

During 2020, no community feedback was received directly related to the Socio-Community and Economic Effects Management Plan.

There were three SCEEAC meetings in 2020 which included public question periods. The regularly scheduled SCEEAC meeting in April was cancelled due to the uncertainty of the COVID-19 pandemic. Meeting minutes are located here: <https://sparwood.civicweb.net/filepro/documents/97460>

As required under the SCEEMP, the Annual BRE Public Meeting was held virtually on June 17, 2020. Typically, the meeting is held in May, but was delayed due to the uncertainty of the COVID-19 pandemic.

Teck’s annual access boundary maps were distributed in the Fernie Free Press, at site gatehouses, to outdoor recreational groups, and posted online in September 2020. View the online maps at www.teck.com/coalmaps

Table 7-1 Engagement, feedback and commitment tracking regarding the Socio-Community and Economic Effects Management Plan in 2020

Date	Engagement	Result
February 5, 2020	SCEEAC request for Visual Quality to be presented at next SCEEAC meeting	Teck presented on February 19, 2020 4 pieces of feedback received on March 4, 2020
February 5, 2020	Council requested Castle Project presentation at next SCEEAC meeting	Teck presented on February 19, 2020
February 18, 2020	Email invitation to Massachusetts Institute of Technology Presentation	Invitation
February 19, 2020	SCEEAC Regular Meeting	Agenda
February 19, 2020	Teck to provide presentation on air monitoring software	Presentation on EnviroSuite on October 21, 2020
February 19, 2020	Teck to provide home cleaning program update at BRE Annual Public Meeting	Complete June 17, 2020
March 3, 2020	Massachusetts Institute of Technology Presentation	Information sharing
March 25, 2020	Email circulation of SCEEMP Annual Report for Feedback	1 piece of feedback received by April 21, 2020

April 4, 2020	Notification of Continuous Noise Monitor inconsistencies	Information sharing
April 15, 2020	SCEEAC Regular Meeting	Cancelled
June 2, 2020	Email invitation to Baldy Ridge Extension Annual Public Update	Invitation
June 23, 2020	Introductory meeting with SCEEAC District of Sparwood Council and Teck Members	Information sharing
June 17, 2020	Baldy Ridge Extension Annual Public Meeting	7 SCEEAC members in attendance
July 13, 2020	Email notification of potential blast misfire	Information sharing
July 13, 2020	Home Cleaning Program Pilot commenced	Notification to residents
July 15, 2020	SCEEAC Regular Meeting	Agenda
July 22, 2020	Email circulation of Air Quality & Dust Management Plan for feedback	5 pieces of feedback received from SCEEAC
August 6, 2020	Email notification of potential blast misfire	Information sharing
August 31, 2020	Email notification of potential blast misfire	Information sharing
September 1, 2020	Email circulation of revised Air Quality & Dust Management Plan	Endorsed by District of Sparwood Council on November 17, 2020
September 10, 2020	Teck Access Boundary maps published in the Fernie Free Press, distributed to outdoor enthusiast clubs, and available at mine site gatehouses	Information sharing
September 30, 2020	Email circulation of Visual Toolkit	2 pieces of feedback received on November 23, 2020
October 7, 2020	Home Cleaning Program Pilot completed	348 home cleaned. 94 pieces of positive feedback received.
October 21, 2020	SCEEAC Regular Meeting	Agenda
November 23, 2020	SCEEAC Coordinator request for information to inputs into the Livability Report Card	Information sharing
November 30, 2020	Response to Cal McDougall letter	Initial letter received June 24, 2019
December 16, 2020	Outdoor Enthusiast Meeting – Access Boundary Maps Discussed	Information sharing

7.3 Changes and Updates to the Plan

There have been no changes to the SCEEMP since Version 1.0 was finalized in 2019. The overall purpose of the SCEEMP is to provide a comprehensive adaptive management framework and process designed not only to ensure compliance with the BRE EAC, specifically Condition 21 (Section 1.2), but also to be the foundation for a long-lasting and effective partnership between Teck and the DOS. The adaptive management process cycles every three years and will apply to the SCEEMP in 2022.

8 Summary and Conclusions

Results from noise monitoring in 2020 (intermittent in August 2020, and continuous from May 8 – October 31) indicate that current sound levels from EVO are in compliance with Permissible Sound Levels as defined in the Noise Management Plan. There were no changes to the Noise Management Plan in 2020.

The Visual Quality Management Plan Toolkit, a supplement to the Visual Quality Management Plan, was finalized in 2020. The Toolkit describes a set of visual principles, strategies, procedures, and techniques that mine engineers can apply when designing mine features. The Toolkit describes Key Viewpoints within the Sparwood area that represent a range of publicly accessible viewing opportunities, and will be used for monitoring changes in viewscales over time. The Toolkit also describes Visual Management Zones (VMZs), which are discrete units that indicate areas of relative sensitivity to visual disturbance, ranging from low visibility (VMZ#1) to high visibility (VMZ#4). These VMZs are used to guide application of the toolkit, as the suitability of visual management tools varies by zone. An update on the implementation of the toolkit will be provided as related work progresses.

In 2020, progressive reclamation continued at EVO with 3.4 hectares of direct soil placement and 5.2 hectares of vegetation activities as well as a comprehensive Invasive Plant Management Plan. All of the seedlings were native species and suited to the ecosystem. Progressive reclamation is planned to occur throughout the stages of active mining and closure. Progressive Reclamation is focused on portions of the disturbance that are no longer necessary for the immediate operating requirements of EVO. The process for assigning areas available for reclamation considers the current permitted mine plan, the conceptual life of mine plan and the operational requirement for an active mining operation.

In 2020, the PM_{2.5} 98th percentile results for comparison to BC AAQO remained below objectives at the three permitted stations. Daily average concentrations above objectives for PM₁₀ in April were associated with the adjacent highway and daily averages above objectives for both PM₁₀ and PM_{2.5} recorded in September were associated with forest fires during that timeframe. A similar trend was observed at the Hosmer background station with particulate concentrations increasing during the same period in September due to wildfire activity.

Source emissions sampling occurred at the Dryer Stacks and Breaker Stack in Q2 and Q4 2020. All source emissions results for 2020 remained below permit limits.

EVO continues to implement its air monitoring program in accordance with the requirements identified in Permit 1807 and the Air Quality & Dust Control Management Plan, last amended October 7, 2020.

Teck conducted a home cleaning program for the residents of Sparwood that was reflective of Teck's commitment to being a responsible and a good neighbor to our adjacent community. From July 13 to October 7, 2020. 348 homes were cleaned, and Teck received 94 pieces of positive feedback about the program.