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Response to Third Supplement to Compliance Order IMD 2022-027

Order #1. Daily Microseismic Reporting

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The first order from the Third Supplement to Compliance Order IMD 2022-027 dated October 25, 2023 states:

Until further notice, Westlake must submit daily reports of all measurable microseismic events, including magnitude and three-dimensional (3D) location information, to Conservation's Injection and Mine Division ("IMD").

Westlake currently is monitoring for seismicity with a five-station broadband seismic array on the Sulphur Mines salt dome (Figure 1). The seismic array was installed by Nanometrics (<https://nanometrics.ca>) using Trillium Compact (20 second) three-component seismometers and was fully operation on September 20, 2023. The seismic array is operated and processed by Nanometrics. Seismic data processing is performed seven days a week for data recorded from the previous day.

For purposes of this response, Westlake's expert consultants interpret the phrase "measurable microseismic events" as ground motion recordings (seismograms) with identifiable P- and S-waves on at least four seismic stations with arrivals that can be picked with reasonable timing accuracy. The seismic system triggers from time to time on anthropogenic noise, lightning and other phenomenon creating vibrations. These triggered events are not considered measurable microseismic events by Westlake's experts and are not reported to the IMD.

To comply with Order #1, Westlake proposes that following the verification of a measurable microseismic event reported by Nanometrics, a microseismic occurrence report will be provided within a day to IMD. The microseismic occurrence report will have a catalog of microseismic events, with latitude and longitude, depth and magnitude, as well as a location uncertainty estimate.

No measurable microseismic event has been recorded on the Nanometrics Seismic Array since the installation on September 20, 2023. The bi-weekly "Surface Seismic Monitoring Report" will continue to be provided to IMD with a summary of the operational parameters and state-of-health of the seismic array as long as no measurable microseismic events are recorded. If measurable seismic events begin to occur, the microseismic occurrence reports to the IMD will replace the current bi-weekly reports.



Figure 1. Map showing the location of Nanometrics Seismic Array stations (blue triangles) at Sulphur Mines dome. The gray lines show the contour lines of the salt dome and red lines show the cap rock contour lines. The purple line is the outline of the seismic monitoring AOI.