

Plan to monitor microseismicity
at Sulphur Mines Salt Dome:
Proposal for Revised
Seismic Station Locations
(LDNR Compliance Order No. IMD 2022-027)



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Proposed Semi-Permanent Surface Seismic Array

Locations for semi-permanent seismic stations were proposed as Phase 2 of the Sulphur Mines salt dome seismic monitoring plan outlined in the “Plan to monitor microseismicity at Sulphur Mines Salt Dome” (March 9, 2023). In this updated report, we propose a modification to the semi-permanent station locations (Figure 1), by placing three stations (New 1, 2 and 3) outside the immediate Sulphur Mines dome area and returning to two sites (2A and 3A). We anticipate these revised and new station locations will assist in the location of seismic events recorded on the seismic array. We seek approval of the three new seismic locations for noise testing with the temporary stations. Table 1 lists the locations of seismic station locations at Sulphur Mines dome. Figure 2 shows the RMS background noise levels are below 1000 nm/sec on stations 2A and 3A recorded in late January and early February 2023.

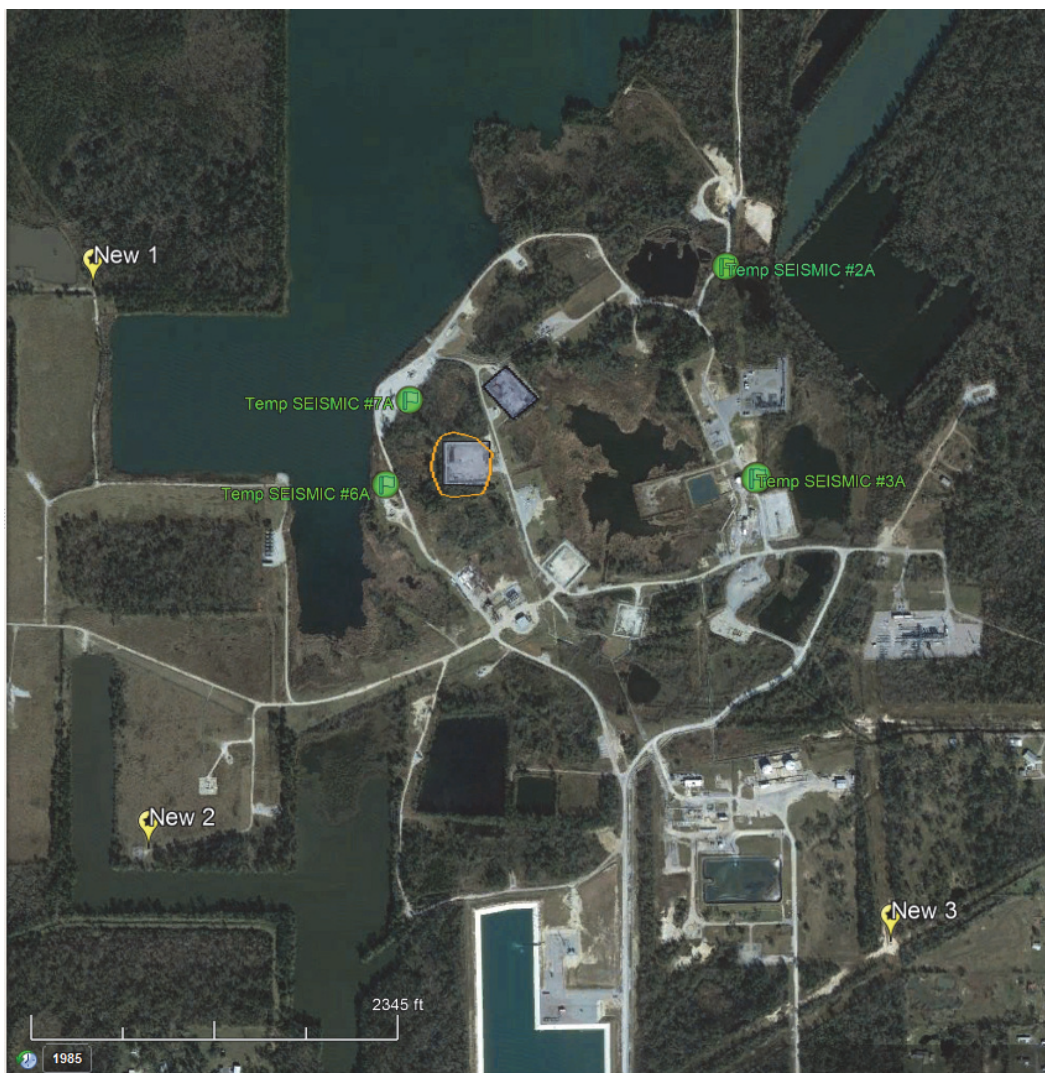


Figure 1. Google map image showing the proposed locations of the semi-permanent seismic recording station locations near and at the Sulphur Mines Salt Dome. Locations New 1, 2 and 3 are currently tentative locations suggested by JDS. The orange circle shows the approximate location of cavern 7.

The semi-permanent surface seismic stations shall be deployed starting in early April 2023, if Louisiana Department of Natural Resources (LDNR) approvals are given, and the Phase 1 background noise results for the new array station locations are satisfactory at the new proposed locations.

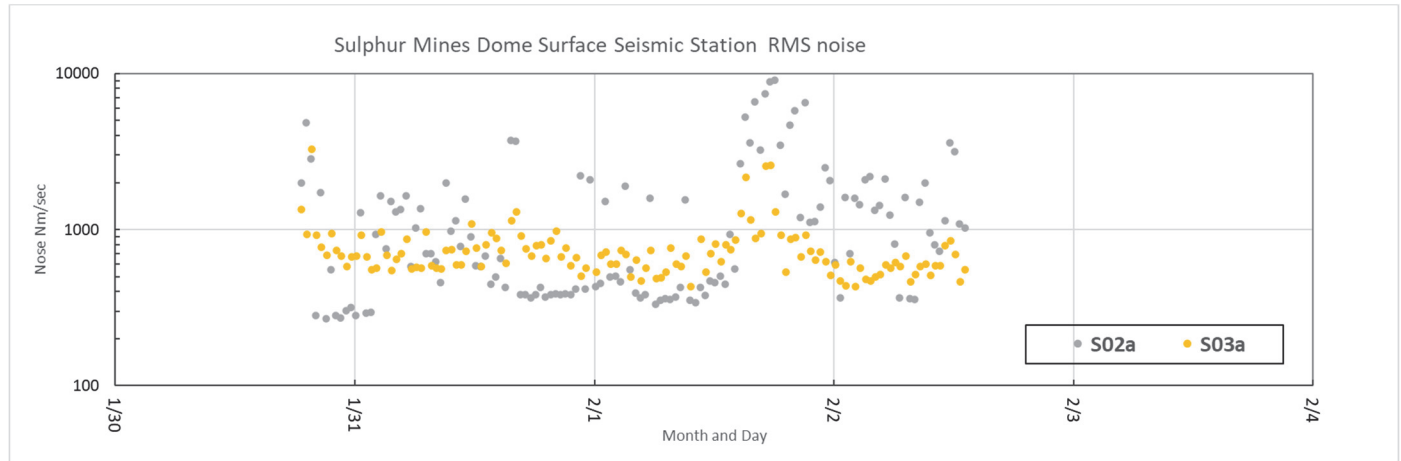


Figure 2. RMS noise levels recorded on stations 2A and 3A recorded in January and early February 2023.

The Phase 2 semi-permanent array will be installed by JDS, and the seismic sensor for each station will be buried about six inches below ground level. The electrical equipment for recording and transmitting the data will be placed in a sealed box and mounted on a pole. The station is solar powered via a solar panel mounted above the equipment box. The data will be sampled at 125 samples per second with a GPS-synched timing system and continuously telemetered to JDS and for JDS to perform weekly data processing.

Table 1. Sulphur Mines Salt Dome Temporary Seismic Station Locations

Station	LAT WGS84	LON WGS84	Date start	Date end
1a	30.257519	-93.412295	1/30/2023	2/9/2023
1b	30.253427	-93.413504	2/9/2023	
2a	30.257004	-93.409735	1/30/2023	2/9/2023
2b	30.255468	-93.413201	2/9/2023	2/27/2023
2c	30.254707	-93.413785	2/27/2023	
3a	30.253309	-93.409116	1/30/2023	2/9/2023
3b	30.256257	-93.414608	2/9/2023	
4a	30.248590	-93.412296	1/30/2023	2/27/2023
4b	30.250684	-93.412051	2/27/2023	3/8/2023
4c	30.250632	-93.410027	3/8/2023	3/15/2023
4d	30.250303	-93.411914	3/15/2023	
5a	30.250159	-93.415560	1/30/2023	2/27/2023
5b	30.250672	-93.415279	2/27/2023	3/15/2023
5c	30.250352	-93.413960	3/15/2023	
6a	30.253187	-93.416629	1/30/2023	3/15/2023
6b	30.252864	-93.416142	3/15/2023	
7a	30.254665	-93.416147	1/30/2023	
New 1 approx	30.256639	-93.422562		
New 2 approx	30.246802	-93.421437		
New 3 approx	30.245166	-93.406399		