



## Summary:

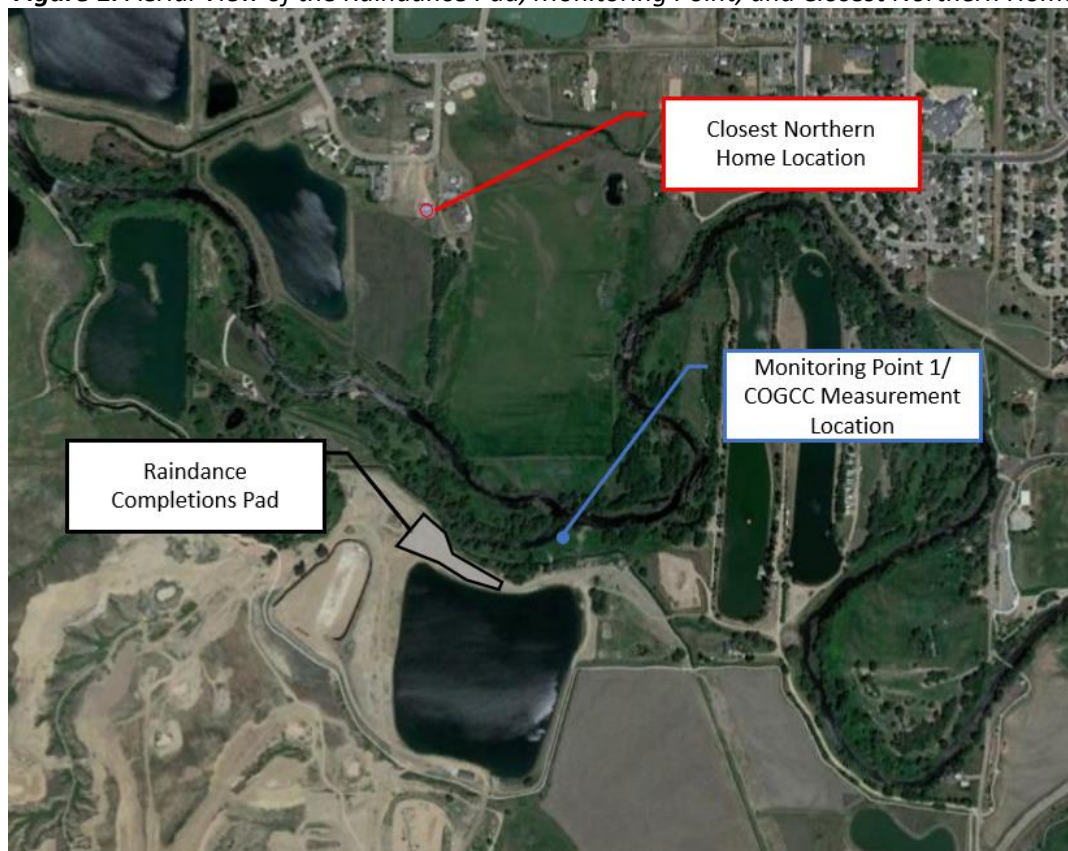
Urban Solution Group, LLC (Urban) was commissioned by Great Western Operating Company, LLC (GWOC) to document the A and C-weighted sound pressure levels at one location adjacent to GWOC's Raindance Pad in Weld County, Colorado while operations are ongoing. The monitoring location corresponds to the same location where a COGCC representative performed a similar sound study to address complaint. Based on the results recorded at Measuring Point 1 near the Raindance Pad from 7 p.m. February 1, 2022, to 7 a.m. February 2, 2022, GWOC operations were **compliant** with the COGCC nighttime permissible noise levels of 60 dBA and 65 dBC when extrapolated to 25 feet from the nearest northern home location (2,100 feet from the edge of the pad). The overall compliance study averages are summarized below:

**Table 1:** Extrapolated Nighttime Averages for Closest Home Based on Monitoring Point 1 Results

Location	Average Wind Speed (mph)	Extrapolated Nighttime Averages (Leq)	
		dBA	dBC
Monitoring Point 1	1.7	49.7	61.8

<sup>1</sup>The extrapolated levels were calculated using the formula(s) in section 423.c.(2).B of the COGCC 400 series

**Figure 1.** Aerial View of the Raindance Pad, Monitoring Point, and Closest Northern Home





## Background:

The Raindance Pad is located in Weld County near the town of Windsor, Colorado. The pad is North of New Liberty Road 13, and West of Weld County Road 17. The area surrounding the Raindance Pad is primarily utilized for oil and gas, construction of a new golf course, and residential development. At the time of the compliance noise level survey, the Raindance Pad had been constructed and had ongoing completion activities onsite.

Monitoring Point 1 was placed in an open area approximately 700 feet northeast of the edge of pad with the GPS coordinates of 40.463588°N, 104.922561°W. This monitoring point was approximately in the same location where a COGCC representative performed a sound study to determine compliance. Noise levels reported were recorded using a calibrated Type 1 Svantek SV307 sound level meter with the microphone located approximately five feet above ground level. The sound level meter collects measurements of A and C-weighted decibel (dB) levels by continuously sampling sound levels and logging the specified data every minute. The data is filtered to remove data points with wind speeds above five miles per hour (per guidance from the COGCC), and then averaged. The sound level meters were calibrated before the measurement period. The sound level meters are still actively monitoring noise levels and a final calibration will be performed when the monitoring period is finished.

## Results:

The COGCC Rule 423.b.(2) states that the allowable noise limit for residential/rural or commercial/agricultural zones during drilling or completions operations, including flowback, are 65 dBA and 65 dBC during the daytime (7:00 a.m. to 7:00 p.m.), and 60 dBA and 65 dBC during the nighttime (7:00 p.m. to 7:00 a.m.). The hourly and overall results for Monitoring Point 1 are found in Table 2. This monitoring location was not located 25 feet from the complainant's residence as the COGCC Rule 423.c.(2).A requires. Therefore, using the COGCC Rule 423.c.(2).B and extrapolating the dBC sound levels to 25 feet from the closest northern residence (approximately 2,100 feet from the working pad surface), we find that the resulting extrapolated sound levels from Monitoring Point 1 are **compliant**.

Table 2 and Figure 2 show Monitoring Point 1 hourly dBA and dBC averages, and the average hourly wind speed. Table 2 presents the filtered results, while Figure 2 presents the unfiltered results. The average LAeq and LCEq values shown in this report are calculated by averaging 1-minute noise levels when the wind is below 5 miles per hour, per guidance from the COGCC. The COGCC Rule 423.b.(2) states that the allowable noise limit for residential/rural or commercial/agricultural zones during drilling or completions operations, including flowback, are 65 dBA and 65 dBC during the daytime (7:00 a.m. to 7:00 p.m.), and 60 dBA and 65 dBC during the nighttime (7:00 p.m. to 7:00 a.m.).





**Table 2. Filtered Monitoring Point 1 Hourly Averages for 7 p.m. February 1 to 7 a.m. February 2**

Time	Average Hourly LAeq (dBA)	Average Hourly LCeq (dBC)	Average Wind Speed (mph)	Extrapolated Hourly LAeq (dBA)	Extrapolated Hourly LCeq (dBC)
2/1/2022 19:00	61.2	72.5	2.7	51.3	62.6
2/1/2022 20:00	60.8	74.8	4.0	50.9	64.9
2/1/2022 21:00	59.4	72.6	4.5	49.5	62.7
2/1/2022 22:00	59.2	69.9	2.4	49.3	60.0
2/1/2022 23:00	58.8	71.8	2.4	48.9	61.9
2/2/2022 0:00	59.3	72.6	1.6	49.4	62.7
2/2/2022 1:00	59.9	71.1	1.5	50.0	61.2
2/2/2022 2:00	61.4	73.2	1.1	51.5	63.3
2/2/2022 3:00	59.9	73.2	1.0	50.0	63.3
2/2/2022 4:00	57.7	66.8	1.6	47.8	56.9
2/2/2022 5:00	57.7	68.2	0.9	47.8	58.3
2/2/2022 6:00	58.1	69.5	0.6	48.2	59.6
Overall Compliance Study Leq	59.6	71.7	1.7	49.7	61.8



**Figure 2. Unfiltered Hourly Averages from North Monitoring Point**

