

# Attachment 1

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## Epsilon Excerpts

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Complaint Exhibit  
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## Atypical Operations, Atypical Background Noise and Tree/Leaf Issues

The following excerpts are examples from the Epsilon Sound Study Report. Please page through the Epsilon report tables and notice all of the times the last Columns are noted with the 'C' which represents curtailment.

Page 23, Epsilon 6-7, **“Curtailments limited the electrical output of the site as a whole and SUBSTANTIALLY IMPACTED the typical operation of the wind turbines...”**

depending on operational or meteorological conditions. There were also periods when meteorological conditions were appropriate for observations, but CRW was being curtailed by the Midcontinent Independent System Operator (MISO). The MISO curtailments limited the electrical output of the site as a whole and substantially impacted the typical operations of the wind turbines when these curtailments occurred. It is Epsilon's understanding that the curtailments were based on decisions by MISO, were unscheduled (i.e., dependent upon real time conditions), and were out of the control of CRW operations. During MISO curtailments, auditory observations

Page 32, Epsilon 7-3, **Curtailment, 10 days out of 14**

As discussed in the earlier Section 6.3, CRW was curtailed by MISO on occasion throughout the program, and it is Epsilon's understanding that the curtailments were based on decisions by MISO, were unscheduled (i.e., dependent upon real time conditions), and were out of the control of CRW operations. The electrical output limitations from the curtailments, i.e., 'setpoints', were either the full power capacity of the Project (200 MW) or some lesser value, e.g., 100 MW, such that some subset of the wind turbines were limited in power production or shut down entirely. Consequently, these curtailments impacted the typical operations of certain wind turbines when they occurred, and unlike the wind turbine shutdowns scheduled as part of the program, the MISO curtailments did not always result in wind turbines being completely shut down.

- ◆ November 4: 20:30-24:00
- ◆ November 5: 0:00-9:20, 10:40-11:10, 11:20-11:40, 12:10-14:40, 15:10-16:20, 18:40-19:00
- ◆ November 10: 5:00-5:20, 19:30-19:50, 23:10-23:40
- ◆ November 11: 0:00-0:20, 1:30-3:00, 3:10-4:00, 5:10-7:50, 8:00-11:30
- ◆ November 12: 13:40-14:00, 14:30-22:50, 23:00-23:40
- ◆ November 14: 0:20-1:10, 1:20-4:30
- ◆ November 15: 19:30-19:40
- ◆ November 16: 0:30-0:50, 1:30-14:10, 14:20-20:10
- ◆ November 17: 0:00-0:10, 1:40-2:00, 2:10-2:50, 4:20-4:40, 17:20-17:40, 18:00-18:20, 18:30-18:50, 20:30-20:50, 21:00-21:20
- ◆ November 18: 5:50-6:20, 6:30-7:40, 7:50-8:20

Page 36, Epsilon 7-7, **Curtailment**

wind turbine, and the wind turbine only sound levels during these periods were no higher than 41 dBA. The 23:20 measurement was during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds.

All wind turbine only  $L_{eq}$  sound levels around shutdowns on this day are below the regulatory limit of 45 dBA.

**Table 7-1b Location 3A: Evaluation Periods – Shutdowns on November 5, 2021**

Start Time <sup>1</sup>	$L_{eq}$ (dBA)	$L_{max}$ (dBA)	$L_{90}$ (dBA)	Closest WT	Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only $L_{eq}^2$ (dBA)	Period Notes
				WT 21 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		Attended (A), Potential Icing (I), MISO Curtailment (C)
23:20 <sup>3</sup>	46	57	45	2127	4.9	6.9	12.2	181	M	C
1:00	48	54	46	0	6.1	8.7	11.6	179	-	-
17:40	44 <sup>4</sup>	66	42	2282	3.6	6.4	12.1	252	42 <sup>6</sup>	-
17:50	45 <sup>5</sup>	62	43	2189	4.9	7.5	12.1	263	44 <sup>6</sup>	-

Page 43, Epsilon 7-14, **Curtailment**

– Background) for all evaluation periods. The calculated wind turbine only  $L_{eq}$  sound levels for all 4 periods were masked. The 0:10 period was during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds.

Page 45, Epsilon 7-16, **Curtailment**

using potential icing conditions based on the temperature measured at Location 3A and other observations. The 19:30 period was during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds.

dBa or masked. All evaluation periods shown in the table between 0:30 and 20:00 were during a MISO curtailment and would not be representative of typical operating conditions during these measured wind speeds.

**Table 7-1m Location 3A: Evaluation Periods – Shutdowns on November 16, 2021**

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes Attended (A), Potential Icing (I), MISO Curtailment (C)
				WT 21 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		
23:40 <sup>3</sup>	41	49	40	1991	2.4	3.9	7.4	153	39	-
23:50 <sup>3</sup>	41	48	40	2301	2.7	5.5	7.9	163	39	-
0:00	41	47	40	2291	3.0	6.2	13.5	161	39	-
0:10	41	45	40	2300	3.3	5.9	12.7	159	39	-
0:20	40	43	39	2300	2.7	4.3	13.5	161	M	-
0:30	40	46	39	2112	2.6	5.3	13.8	167	M	C
1:00	37	49	35	0	3.2	5.9	13.0	158	-	-
1:30	40	47	39	1618	2.4	4.6	13.0	161	M	C
1:40	41	47	40	1819	2.9	6.5	13.6	160	39	C
1:50	42	50	40	1485	2.9	5.9	10.9	160	40	C
2:00	41	51	40	1763	2.5	5.5	12.6	156	39	C
2:10	42	50	41	1393	2.4	5.4	13.1	161	41	C
2:20	42	51	40	1931	2.9	6.1	12.3	158	41	C
11:50	40	45	38	537	3.6	5.7	8.7	201	M	C
12:00	42	61	39	606	4.3	6.4	9.2	199	41	C
12:10	40	49	38	568	3.6	5.8	8.1	201	M	C
12:20	40	48	39	736	3.4	5.6	8.0	195	38	C
12:30	40	50	38	624	3.0	5.0	5.9	215	M	C
12:40	41	50	39	564	4.2	5.9	6.5	211	39	C
13:00	36	49	34	0	3.4	6.7	6.1	211	-	-
19:00	28	39	25	0	2.9	4.1	7.1	302	-	-
20:00	40	46	38	1211	4.1	5.7	12.0	301	40	C

7 periods were masked. The wind turbine only sound level at 18:30 is identified as masked based on a review of audio recordings where tree rustle was dominant. Epsilon observed similar wind conditions the following morning and confirmed tree rustle as the dominant source of sound. The 18:30 period was during worst-case electrical output ( $\geq 2300$  kW) at the closest wind turbine.

The analysis of 16 evaluation periods around the shutdowns at 1:00, 7:00, 13:00, and 19:00 on November 8, 2021 is presented in Table 7-2e. The total  $L_{eq}$  sound levels from the 16 periods ranged from 31 to 51 dBA. The closest shutdown period was utilized to determine a wind turbine only  $L_{eq}$  sound level (Total – Background) for all evaluation periods. The calculated wind turbine only  $L_{eq}$  sound levels for all 16 periods were masked. The wind turbine only sound levels at the 5 evaluation periods following the 1:00 shutdown period are identified as masked based on a review of audio recordings where tree rustle was dominant and the wind turbines were inaudible. A review of the audio recordings from the 7:00 background period revealed significant bird activity which could not be reasonably removed from the 1-second data. Epsilon field personnel were present during the shutdown period at 13:00.

Wind turbine only  $L_{eq}$  sound levels around shutdowns on this day could not be determined as all values are masked; measurements during other days are utilized to evaluate the sound level limit.

a tractor or some other machinery was clearly audible, and the wind turbines were inaudible. In addition, the wind turbine only sound levels at 20:00, 20:10, and 20:20 periods are identified as masked. Epsilon field personnel were present during the 20:10 and 20:20 periods and indicated in the field notes that tree rustle was dominant and that the wind turbines were indistinguishable.

Wind turbine only  $L_{eq}$  sound levels around shutdowns on this day could not be determined as all values are masked; measurements during other days are utilized to evaluate the sound level limit.

## Page 57, Epsilon 7-28, **Curtailment**

The closest shutdown period was utilized to determine a wind turbine only  $L_{eq}$  sound level (Total – Background) for all evaluation periods. The calculated wind turbine only  $L_{eq}$  sound levels for all 18 periods were masked. The wind turbine only sound level during the 8:30 period is identified as masked based on a review of audio recordings where tree rustle is dominant, and the wind turbines are inaudible. This period and all other evaluation periods around shutdowns on this day, with the exception of the 23:50 (11/10) and 0:20-0:40 periods, are during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds particularly at the wind speeds around the 7:00 shutdown.

Wind turbine only  $L_{eq}$  sound levels around shutdowns on this day could not be determined as all values are masked; measurements during other days are utilized to evaluate the sound level limit.

The analysis of 1 evaluation period around the shutdown at 13:00 on November 12, 2021 is presented in Table 7-2i. The total  $L_{eq}$  sound level from the period was 57 dBA. The closest shutdown period was utilized to determine a wind turbine only  $L_{eq}$  sound level (Total – Background) for the evaluation period, and the calculated wind turbine only  $L_{eq}$  sound level was determined to be masked. The periods around the 13:00 shutdown were during potential icing conditions based on the temperature measured at Location 3A and NWS observations.

Wind turbine only  $L_{eq}$  sound levels around shutdowns on this day could not be determined as all values are masked; measurements during other days are utilized to evaluate the sound level limit.

Pages 59-60, Epsilon 7-30-31, **Curtailment**

The analysis of 14 evaluation periods around the shutdowns at 1:00, 16:10, and 19:00 on November 13, 2021 is presented in Table 7-2j. The total  $L_{eq}$  sound levels from the 14 periods ranged from 26 to 51 dBA. The closest shutdown period was utilized to determine a wind turbine only  $L_{eq}$  sound level (Total – Background) for 8 of the evaluation periods. The evaluation periods before the 19:00 shutdown period all had lighter ground-level winds than the shutdown period, so the shutdown that occurred prior to these periods (16:10) was selected as a more representative and conservative background period for the wind turbine only calculations as identified in the table. The calculated wind turbine only  $L_{eq}$  sound levels for all 14 periods were no higher than 34 dBA or masked by background. **The 15:50 period was during potential icing conditions based on the temperature measured at Location 3A and NWS observations.**

→ This time period, 15:50 was also a curtailment period. ←  
 All wind turbine only  $L_{eq}$  sound levels around shutdowns on this day are below the regulatory limit of 45 dBA.

**Table 7-2j Location 6: Evaluation Periods – Shutdowns on November 13, 2021**

**Table 7-2j Location 6: Evaluation Periods – Shutdowns on November 13, 2021 (Continued)**

Start Time <sup>1</sup>	$L_{eq}$ (dBA)	$L_{max}$ (dBA)	$L_{90}$ (dBA)	Closest WT	Loc. 6 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only $L_{eq}$ <sup>2</sup> (dBA)	Period Notes Attended (A), Potential Icing (I), MISO Curtailment (C)
				WT 38 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		
15:50	51	55	49	2300	0.0	2.0	8.9	13.4	10.0	200	M	I, C
16:10	49	55	47	0	0.5	4.5	8.3	12.8	9.4	199	-	-
17:30	44	50	43	1332	0.0	0.5	7.6	11.0	9.1	207	M	-
17:40	44	49	43	2299	0.0	1.5	7.3	10.6	8.7	212	M <sup>4</sup>	-
17:50	47	66	44	2300	0.0	1.0	6.4	9.4	8.7	213	M <sup>4</sup>	-
18:00	46	51	44	2299	0.0	1.5	8.1	13.1	9.4	221	M <sup>4</sup>	-
18:10	48	56	46	2300	0.5	2.0	9.1	13.6	9.5	237	M <sup>4</sup>	-
18:20	49	57	47	2300	0.5	2.0	8.7	13.9	9.4	239	M <sup>4</sup>	-
18:30	51	57	49	2300	1.0	2.5	8.2	11.7	10.7	249	M <sup>4</sup>	-
19:00	62	66	59	0	3.0	5.0	12.5	18.4	14.9	290	-	-
Representative Background Periods Used to Calculate WT Only $L_{eq}$												
16:10 <sup>4</sup>	49	55	47	0	0.5	4.5	8.3	12.8	9.4	199	-	-

Notes:

1. Shaded periods are shutdowns.
2. 'M' indicates the wind turbine only sound level is masked by the background.
3. November 12, 2021
4. Representative background on 11/13/21 selected for calculation of WT Only level of 17:40-18:30 evaluation periods.



The analysis of 8 evaluation periods around the shutdowns at 1:00, 7:00, and 19:00 on November 14, 2021 is presented in Table 7-2k. The total  $L_{eq}$  sound levels from the 8 periods ranged from 26 to 53 dBA. The closest shutdown period was utilized to determine a wind turbine only  $L_{eq}$  sound level (Total – Background) for all evaluation periods. The calculated wind turbine only  $L_{eq}$  sound levels for all 8 periods were no higher than 35 dBA or masked by background. **The evaluation periods following the 1:00 shutdown period were during a MISO curtailment and would not be representative of typical operating conditions during these measured wind speeds.**

All wind turbine only  $L_{eq}$  sound levels around shutdowns on this day are below the regulatory limit of 45 dBA.

**Table 7-2k Location 6: Evaluation Periods – Shutdowns on November 14, 2021**

Start Time <sup>1</sup>	$L_{eq}$ (dBA)	$L_{max}$ (dBA)	$L_{90}$ (dBA)	Closest WT	Loc. 6 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only $L_{eq}^2$ (dBA)	Period Notes
				WT 38 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		Attended (A), Potential Icing (I), MISO Curtailment (C)
1:00	54	58	51	0	1.5	3.5	4.2	8.2	11.4	323	-	-
1:30	53	56	51	1906	1.0	3.0	3.5	7.2	14.0	317	M	C
1:40	53	57	51	974	1.0	3.0	3.8	9.3	15.3	332	M	C
2:10	42	49	41	378	0.5	2.0	2.4	4.7	9.5	317	M	C
5:50	37	40	36	1865	0.0	2.0	2.5	5.4	9.6	332	35	-
6:20	31	34	29	1057	0.0	2.0	2.9	5.2	6.1	336	M	-
6:30	32	35	29	707	0.0	1.5	2.5	4.6	7.3	335	M	-
7:00	33	45	30	0	0.5	1.5	2.8	5.2	6.4	332	-	-
8:30	35	52	30	116	0.0	1.5	2.1	4.8	4.2	330	M	-
19:00	30	37	27	0	0.0	1.0	1.8	3.2	3.5	156	-	-
19:40	26	38	24	153	0.0	1.5	1.6	2.6	4.6	175	M	-

Notes:

1. Shaded periods are shutdowns.
2. 'M' indicates the wind turbine only sound level is masked by the background.

Pages 62-63, Epsilon 7-33-34, **Curtailement**

for all 9 periods were no higher than 37 dBA or masked by background. The 19:50 and 20:00 evaluation periods were during a MISO curtailment and would not be representative of typical operating conditions during these measured wind speeds.

All wind turbine only  $L_{eq}$  sound levels around shutdowns on this day are below the regulatory limit of 45 dBA.

**Table 7-2n Location 6: Evaluation Periods – Shutdowns on November 16, 2021**

Start Time <sup>1</sup>	$L_{eq}$ (dBA)	$L_{max}$ (dBA)	$L_{90}$ (dBA)	Closest WT	Loc. 6 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only $L_{eq}^2$ (dBA)	Period Notes
					WT 38 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)		
23:40 <sup>3</sup>	31	42	30	1357	0.0	1.0	2.4	3.9	7.4	153	M	-
23:50 <sup>3</sup>	31	44	30	1824	0.0	1.0	2.7	5.5	7.9	163	M	-
0:00	31	39	30	2135	0.0	1.0	3.0	6.2	13.5	161	M	-
0:10	32	44	30	2222	0.0	1.5	3.3	5.9	12.7	159	M	-
0:20	32	46	31	2175	0.5	1.5	2.7	4.3	13.5	161	M	-
1:00	40	54	37	0	1.5	3.0	3.2	5.9	13.0	158	-	-
19:00	29 <sup>4</sup>	54	27	0	0.0	1.0	2.9	4.1	7.1	302	-	-
19:50	33	42	31	656	0.5	1.5	4.1	6.1	10.1	290	32	C
20:00	35	39	34	978	0.0	1.0	4.1	5.7	12.0	301	34	C

The analysis of 6 evaluation periods around the shutdowns at 1:00 and 19:00 on November 17, 2021 is presented in Table 7-2o. The total  $L_{eq}$  sound levels from the 6 periods ranged from 39 to 51 dBA. The closest shutdown period was utilized to determine a wind turbine only  $L_{eq}$  sound level (Total – Background) for all evaluation periods. The calculated wind turbine only  $L_{eq}$  sound levels for all 6 periods were masked by background. **The 2:00 and 20:30 evaluation periods were during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds.**

Wind turbine only  $L_{eq}$  sound levels around shutdowns on this day could not be determined as all values are masked; measurements during other days are utilized to evaluate the sound level limit.

**Table 7-2o Location 6: Evaluation Periods – Shutdowns on November 17, 2021**

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 6 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes
				WT 38 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		Attended (A), Potential Icing (I), MISO Curtailement (C)
23:40 <sup>3</sup>	39	44	37	2295	0.5	2.0	5.4	9.6	10.8	278	M	-
0:20	45	49	43	2300	1.0	2.5	5.9	9.2	11.1	264	M	-
0:30	43	46	42	2300	1.5	2.5	5.6	8.3	12.1	271	M	-
1:00	43	47	40	0	1.0	2.0	7.2	10.7	12.6	266	-	-
1:30	43	46	42	2300	1.0	2.0	6.5	10.7	11.8	266	M	-
2:00	43	49	41	2300	0.5	2.0	7.4	10.2	11.8	258	M	C
19:00	52	60	49	0	2.0	3.5	10.9	15.1	17.0	284	-	-
20:30	51	65	49	2241	2.0	3.5	10.5	14.7	16.3	277	M	C

Notes:

1. Shaded periods are shutdowns.
2. 'M' indicates the wind turbine only sound level is masked by the background.
3. November 16, 2021

Page 66, Epsilon 7-37, **Atypical background noise, noted many times on Location 7 results, below is a representation:**

The analysis of 34 evaluation periods around the shutdowns at 1:00, 7:00, 13:00, and 19:00 on November 4, 2021 is presented in Table 7-3b. The total Leq sound levels from the 34 periods ranged from 28 to 70 dBA. The closest shutdown period was utilized to determine a wind turbine only Leq sound level (Total – Background) for all evaluation periods. The calculated wind turbine only Leq sound levels for all 34 periods were no higher than 45 dBA or masked by background. During multiple visits to this location<sup>23</sup>, Epsilon observed the sound levels produced by one or more nearby grain dryers to be steady around 70 dBA when operating, and the high steady state L90 sound level during a 10-minute period is a clear indicator of this operation as shown in the 19:00 period when Epsilon field personnel were present and observed the operation. Therefore, the wind turbine only sound levels for the 5 periods following the 19:00 shutdown period are

Page 68, Epsilon 7-39, **Curtailement**

during the audio recording at 17:40. The grain dryer(s), therefore, masks wind turbine sound when operating and a wind turbine only sound level cannot be determined. The periods before the 1:00 shutdown were during a MISO curtailment and would not be representative of typical operating conditions during these measured wind speeds.

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				(kW)	(m/s)	(m/s)	(m/s)	(m/s)	(m/s)	(°)		Curtailement (C)
23:50 <sup>3</sup>	50	55	48	2121	3.5	7.0	5.3	9.9	13.5	190	M <sup>4</sup>	C
0:00	47	56	45	1942	3.0	6.5	5.4	8.3	13.2	176	M	C
1:00	46	54	43	0	3.5	6.5	6.1	8.7	11.6	179	-	-

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recordings where an idling vehicle was clearly audible. Furthermore, all evaluation periods after the 1:00 shutdown and all those around the 7:00 shutdown were during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds. Epsilon field personnel were present during the 5:40 and 5:50 periods and vegetation rustling was noted as dominant.

**Table 7-3i Location 7: Evaluation Periods – Shutdowns on November 11, 2021**

Start Time <sup>1</sup>	L <sub>eq</sub> (dBA)	L <sub>max</sub> (dBA)	L <sub>90</sub> (dBA)	Closest WT	Loc. 7 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only L <sub>eq</sub> <sup>2</sup> (dBA)	Period Notes
				WT 33 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		Attended (A), Potential Icing (I), MISO Curtailment (C)
23:50 <sup>3</sup>	39	49	38	2263	0.0	1.0	4.2	7.0	9.6	305	38	-
0:20	39	48	37	2295	0.0	0.0	4.6	6.3	9.3	300	37	-
0:30	38	45	37	2284	0.0	0.0	4.2	5.8	9.4	305	37	-
0:40	38	46	37	2239	0.0	0.0	5.3	8.1	8.9	302	37	-
1:00	33	39	32	0	0.0	0.0	5.8	8.3	8.6	293	-	-
1:30	39	51	37	1278	0.0	0.5	7.2	9.2	7.4	290	38	C
1:40	38	46	36	2027	0.0	0.0	7.2	9.6	9.6	291	36	C
1:50	39	52	37	1983	0.0	0.0	7.3	9.7	8.9	293	38	C
2:20	38	50	36	1522	0.0	0.5	6.4	8.4	9.6	301	36	C
5:40	45	67	43	1633	0.0	0.0	5.4	9.3	11.8	284	M	A, C
5:50	44	58	43	1747	0.0	3.5	5.3	8.6	12.1	283	M	A, C
6:20	47	55	45	735	0.0	0.0	7.8	10.2	14.6	282	M	C
6:30	49	58	47	1383	0.0	0.0	8.9	11.2	14.8	285	M	C
7:00	50	54	48	0	0.0	0.0	9.7	13.1	16.6	280	-	-
8:10	55	65	54	1571	1.0	3.5	8.5	12.5	13.8	277	M <sup>4</sup>	C
8:20	55	62	54	1414	1.0	3.5	9.3	13.7	16.7	277	M <sup>4</sup>	C
8:30	59	77	53	1327	0.5	3.0	10.3	14.5	15.3	277	M <sup>4</sup>	C

sound level (total background) for all evaluation periods. The calculated wind turbine only L<sub>eq</sub> sound levels for all 23 periods were no higher than 40 dBA or masked by background. The 19:30 period was during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds. The 0:00 and 0:10 periods were during potential icing conditions based on the temperature measured at Location 3A and NWS observations.

All wind turbine only L<sub>eq</sub> sound levels around shutdowns on this day are below the regulatory limit of 50 dBA.

Page 80, Epsilon 7-51, **Curtailment**

18:30	35	45	34	531	0.5	2.5	1.1	1.8	4.2	157	M	-
19:00	34	47	31	0	0.0	1.5	1.5	2.4	4.9	154	-	-
19:30	39	45	38	514	0.5	3.0	2.7	6.1	4.0	128	37	C
20:00	41	60	38	495	0.0	2.5	2.7	5.2	5.4	161	40	-

Page 81, Epsilon 7-52, **Curtailment**

higher than 36 dBA or masked. The evaluation periods 0:30, 1:30-2:20, 11:50, and 12:30 were during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds.

All wind turbine only  $L_{eq}$  sound levels around shutdowns on this day are below the regulatory limit of 50 dBA.

**Table 7-3n Location 7: Evaluation Periods – Shutdowns on November 16, 2021**

Start Time <sup>1</sup>	$L_{eq}$ (dBA)	$L_{max}$ (dBA)	$L_{90}$ (dBA)	Closest WT	Loc. 7 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only $L_{eq}^2$ (dBA)	Period Notes Attended (A), Potential Icing (I), MISO Curtailment (C)
				WT 33 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		
23:40 <sup>3</sup>	46	53	44	2279	3.0	6.5	2.4	3.9	7.4	153	M	-
23:50 <sup>3</sup>	47	53	46	2301	3.0	5.5	2.7	5.5	7.9	163	M	-
0:00	45	50	43	2301	2.5	6.0	3.0	6.2	13.5	161	M	-
0:10	46	50	44	2300	3.0	6.5	3.3	5.9	12.7	159	M	-
0:20	44	51	43	2300	2.5	5.5	2.7	4.3	13.5	161	M	-
0:30	45	51	43	2139	2.5	6.0	2.6	5.3	13.8	167	M	C
1:00	47	56	44	0	2.5	6.5	3.2	5.9	13.0	158	-	-
1:30	46	49	44	2228	2.5	5.5	2.4	4.6	13.0	161	M	C
1:40	47	61	45	2286	3.5	6.5	2.9	6.5	13.6	160	M	C
1:50	47	54	46	1500	3.0	6.0	2.9	5.9	10.9	160	M	C
2:00	46	49	44	1800	2.5	5.5	2.5	5.5	12.6	156	M	C
2:10	47	52	45	1436	2.5	5.0	2.4	5.4	13.1	161	M	C
2:20	48	52	46	1946	3.0	6.0	2.9	6.1	12.3	158	M	C
11:50	46	51	44	810	4.0	6.5	3.6	5.7	8.7	201	M <sup>4</sup>	C
12:30	40	51	39	564	1.5	3.5	3.0	5.0	5.9	215	M	C
13:00	40	50	37	0	2.5	4.5	3.4	6.7	6.1	211	-	-

level (total – background) for all evaluation periods. The calculated wind turbine only Leq sound levels for all 7 periods were masked by background. **The evaluation period at 1:50 was during a**

**MISO curtailment and would not be representative of typical operating conditions during these measured wind speeds.**

All wind turbine only Leq sound levels around shutdowns on this day are below the regulatory limit of 50 dBA.

**Table 7-3o Location 7: Evaluation Periods – Shutdowns on November 17, 2021**

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 7 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes
				WT 33 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		Attended (A), Potential Icing (I), MISO Curtailment (C)
23:40 <sup>3</sup>	40	48	39	2300	0.0	4.0	5.4	9.6	10.8	278	M	-
23:50 <sup>3</sup>	41	50	39	2300	0.0	2.0	5.2	8.9	11.2	268	M	-
0:10	43	49	41	2300	0.0	2.5	6.0	9.4	12.1	262	M	-
0:20	43	51	42	2300	0.0	2.5	5.9	9.2	11.1	264	M	-
0:30	43	49	41	2300	0.5	2.5	5.6	8.3	12.1	271	M	-
1:00	47	53	44	0	1.0	4.0	7.2	10.7	12.6	266	-	-
1:50	47	52	45	2117	0.5	2.5	7.3	10.0	13.1	265	M	C

36 periods were no higher than 44 dBA or masked by background. **All evaluation periods around shutdowns on this day except the 23:50 (11/10), 0:20-0:40, and 7:50 periods were during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds.** Epsilon field personnel were present during the 7:50 evaluation period.



**Table 7-4h Location 8: Evaluation Periods – Shutdowns on November 11, 2021**

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 8 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes
				WT 81 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		Attended (A), Potential Icing (I), MISO Curtailment (C)
23:50 <sup>3</sup>	39	50	38	2299	0.7	2.1	4.2	7.0	9.6	305	38	-
0:00	40	49	38	1585	0.6	1.8	4.3	8.5	8.8	305	38	C
0:10	39	45	38	2088	0.7	1.7	4.7	6.7	8.9	302	37	C
0:20	39	45	38	2300	1.0	2.3	4.6	6.3	9.3	300	37	-
0:30	40	45	39	2300	1.0	2.7	4.2	5.8	9.4	305	38	-
0:40	39	48	38	2300	0.9	2.3	5.3	8.1	8.9	302	37	-
1:00	35	39	33	0	0.9	1.9	5.8	8.3	8.6	293	-	-
1:30	40	45	38	1549	1.0	2.2	7.2	9.2	7.4	290	38	C
1:40	40	44	39	2289	1.0	2.6	7.2	9.6	9.6	291	38	C
1:50	42	47	40	2010	0.9	2.0	7.3	9.7	8.9	293	41	C
2:00	42	47	40	1873	1.0	2.7	6.6	9.2	8.3	299	41	C
2:10	40	45	39	1348	0.9	1.8	6.8	8.8	10.0	295	39	C
2:20	40	48	39	1565	0.9	2.1	6.4	8.4	9.6	301	39	C
5:40	38 <sup>4</sup>	73	36	1615	0.5	1.6	5.4	9.3	11.8	284	M	C
5:50	36 <sup>5</sup>	73	35	1641	0.7	1.7	5.3	8.6	12.1	283	M	C
6:30	38	46	36	1185	0.6	1.5	8.9	11.2	14.8	285	M	C
7:00	41	46	38	0	1.0	2.6	9.7	13.1	16.6	280	-	-
7:50	44	55	41	1471	1.1	2.8	8.3	11.3	15.9	278	M	A
8:30	46	51	44	1326	1.3	3.4	10.3	14.5	15.3	277	44	C

18:30	33	40	32	400	0.9	1.6	1.1	1.8	4.2	157	M	-
19:00	30	42	22	0	0.5	0.9	1.5	2.4	4.9	154	-	-
19:30	35	41	34	668	0.7	1.4	2.7	6.1	4.0	128	33	C

level (Total – Background) for all evaluation periods. The calculated wind turbine only Leq sound levels for all 15 periods were no higher than 40 dBA. Seven (7) evaluation periods around the 1:00 shutdown and the 20:00 evaluation period were during a MISO curtailment and would not be representative of typical operating conditions during these measured wind speeds. Two (2)

**Table 7-4m Location 8: Evaluation Periods – Shutdowns on November 16, 2021**

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 8 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes
				WT 81 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		Attended (A), Potential Icing (I), MISO Curtailment (C)
23:40 <sup>3</sup>	39	45	38	1615	2.2	4.0	2.4	3.9	7.4	153	39	-
23:50 <sup>3</sup>	40	46	38	1744	2.5	4.0	2.7	5.5	7.9	163	40	-
0:00	40	46	39	2092	2.5	4.0	3.0	6.2	13.5	161	40	-
0:10	40	44	38	2280	2.2	3.6	3.3	5.9	12.7	159	39	-
0:20	39	47	38	2163	2.0	3.3	2.7	4.3	13.5	161	39	-
0:30	39	45	38	1741	1.6	2.9	2.6	5.3	13.8	167	39	C
1:00	26	35	25	0	1.5	3.0	3.2	5.9	13.0	158	-	-
1:30	38	44	36	1234	1.7	3.0	2.4	4.6	13.0	161	37	C
1:40	39	45	37	1678	1.8	2.5	2.9	6.5	13.6	160	39	C
1:50	40	49	38	1477	2.0	3.3	2.9	5.9	10.9	160	40	C
2:00	38	44	37	1057	1.4	2.5	2.5	5.5	12.6	156	38	C
2:10	38	47	37	883	0.7	1.4	2.4	5.4	13.1	161	38	C
2:20	37	44	36	995	0.7	1.4	2.9	6.1	12.3	158	36	C
19:00	28	39	24	0	0.6	1.5	2.9	4.1	7.1	302	-	-
20:00	36	47	34	1200	0.6	1.1	4.1	5.7	12.0	301	36	C
20:10	36	40	35	2300	0.6	1.5	4.6	7.1	10.8	305	35	-
20:20	37	50	35	2300	0.6	2.0	4.0	6.9	11.1	299	37	-

levels for all 11 periods were no higher than 43 dBA or masked by background. The 0:00, 1:50, 2:10, and 2:20 evaluation periods were during a MISO curtailment and would not be representative of typical operating conditions during these measured wind speeds.

**Table 7-4n Location 8: Evaluation Periods – Shutdowns on November 17, 2021**

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 8 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes
				WT 81 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		Attended (A), Potential Icing (I), MISO Curtailment (C)
23:40 <sup>3</sup>	40	49	38	2294	0.9	2.2	5.4	9.6	10.8	278	M	-
23:50 <sup>3</sup>	40	45	38	2290	0.8	2.3	5.2	8.9	11.2	268	M	-
0:00	40	44	38	2298	0.7	2.2	5.3	8.9	12.3	268	M	C
0:10	42	47	40	2300	0.9	2.6	6.0	9.4	12.1	262	M	-
0:20	43	48	41	2300	0.8	1.9	5.9	9.2	11.1	264	M	-
0:30	44	48	42	2300	0.9	1.7	5.6	8.3	12.1	271	M	-
1:00	41	49	39	0	0.9	1.9	7.2	10.7	12.6	266	-	-
1:50	43	49	41	2116	1.0	2.9	7.3	10.0	13.1	265	M	C
2:10	44	49	42	1819	1.0	2.3	8.0	11.0	11.2	268	M	C
2:20	45	52	44	1824	0.8	1.9	7.7	10.4	14.2	285	43	C

Page 104, Epsilon 7-75, **Curtailment, 45 dbA while 5 closest turbines are approximately one-half power.** Location 9 (Lindgren property)

- 5 Closest turbine outputs:
  - T26-1747MW (closest)
  - T25-1448MW
  - T35-1246MW
  - T34-1068MW
  - T22-1154MW

**Table 7-5e Location 9: Evaluation Periods – Shutdowns on November 7, 2021**

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 9 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes Attended (A), Potential Icing (I), MISO Curtailment (C)
				WT 26 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		
5:50	44	51	42	1397	3.0	5.5	3.1	5.1	7.1	220	42	-
6:00	46	53	44	1747	3.5	5.5	3.4	5.3	7.7	222	45	-
6:20	45	52	44	1646	3.0	4.5	3.1	4.4	7.1	220	44	-
6:30	43	47	42	1728	2.5	4.0	2.3	4.4	7.0	229	M	-
7:00	39	50	36	0	2.0	3.5	2.8	4.2	5.8	252	-	-

Page 108, Epsilon 7-79, **Curtailment**

considerably lighter during the shutdown, therefore, it is anticipated that the wind turbine only sound level is lower than shown in the table. Furthermore, all evaluation periods on this day except the 0:30 and 0:40 periods were during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds.

Page 109, Epsilon 7-79, **Curtailment with dbA at limit of 45**

Table 7-5i Location 9: Evaluation Periods – Shutdowns on November 11, 2021

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 9 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes
				WT 26 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		
0:10	47	52	45	2082	5.0	7.0	4.7	6.7	8.9	302	45	C
0:30	45	48	43	2300	4.0	6.5	4.2	5.8	9.4	305	M	
0:40	43	49	42	2300	3.5	6.0	5.3	8.1	8.9	302	M	-
1:00	42	47	40	0	3.5	5.5	5.8	8.3	8.6	293	-	-
1:40	44	50	43	2289	3.5	6.0	7.2	9.6	9.6	291	M	C
2:00	44	50	42	1860	3.5	5.5	6.6	9.2	8.3	299	M	C
2:10	44	49	42	1321	3.5	5.5	6.8	8.8	10.0	295	M	C
2:20	43	48	42	1554	3.5	5.5	6.4	8.4	9.6	301	M	C

Page 110, Epsilon 7-81, **Leaf Rustle**

periods in addition to the two shutdown periods at 13:00 and 14:10 on November 11, 2021 are presented in Table 7-5j-2. Upon arrival at Location 9 (approximately 13:55), there were elevated sound levels as noted through instantaneous readouts on the meter and aerodynamic sound from the wind turbines was noted as the primary sound source. Wind and leaf rustle were also observed. Although ground-level wind speeds and gusts met the evaluation criteria at Location 9, it can be seen in the table that the winds at Location 3A were much stronger and exceeded the criteria. Furthermore, the steady sound criterion was not met during any period this afternoon at this location. Epsilon noted much stronger winds at the ground by 14:25. Given that the winds during the 13:00 shutdown period were considerably lighter than the attended periods between 13:50 and 14:20 and that precipitation was present during the shutdown, a subtraction to determine wind turbine only sound levels is not supported. Although there were elevated sound levels during the periods and the field notes indicate the primary sound source to be the wind turbines at times, the lack of data to accurately determine a wind turbine only sound level, results in compliance being identified as undeterminable under these conditions.

Epsilon returned to Location 9 later in the afternoon and observed wind and leaf rustle to be the primary sound source. The period at 15:30 is shown in the table. A comparison of the conditions

Page 111, Epsilon 7-82, **Leaf Rustle, ANSI leaf rustle filter should have been applied.**

- *American National Standard Institute (ANSI) S12.9 Part 3 to exclude dB(A) corruption from audible natural sounds: insects, treefrogs, and leaf rustle, by excluding octave bands from 2kHz thru 8 kHz and identify with dB(ANS).*

**Also, WIOM was engaged just prior to this from 10:00-12:20, yet no analysis was conducted.**

increasing. This resulted in a very dynamic sound environment as the sound level from the wind turbines was increasing while wind noise and **vegetation rustle** were also increasing. All of these factors combined, led to these periods being undeterminable with respect to wind turbine only sound levels. Even though the first operational sound level measurement in Table 7-5j-2 was within an hour of the background sound level measurement, the conditions had changed enough to result in it no longer being a representative background even if precipitation was not considered. Actual ambient conditions would likely be at levels between what was measured at 13:00 and 16:10. As those actual ambient conditions are unknown, the wind turbine only sound levels during the early afternoon (13:50-14:30) are undeterminable.



**Table 7-5j-2 Location 9: Observation Periods on November 13, 2021**

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 9 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes Attended (A), Potential Icing (I), MISO Curtailment (C)
				WT 26 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		
13:00 <sup>5</sup>	44	63	37	0	2.0	4.5	3.2	5.1	4.5	184	-	I
13:50 <sup>5</sup>	52	70	47	1714	3.0	6.5	6.1	8.8	7.1	174	U <sup>3</sup>	A, I
14:00 <sup>5</sup>	51	65	48	1914	3.5	6.5	6.7	9.1	7.9	175	U <sup>3</sup>	A, I
14:10 <sup>5</sup>	52	67	48	1854	4.0	6.5	6.7	10.9	7.6	185	U <sup>3</sup>	A, I
14:20 <sup>5</sup>	56	64	52	2242	5.0	8.6	6.5	9.4	8.4	185	U <sup>3</sup>	A, I
15:30	58	73	53	2300	5.5	9.1	8.8	13.3	7.9	198	M <sup>4</sup>	A, I
16:10	59	76	52	0	5.0	8.6	8.3	12.8	9.4	199	-	

Page 113, Epsilon 7-84, **Curtailment**

period is conservative given that there is a high L<sub>max</sub> sound level, and the 1-second data were not analyzed. **The 19:30 period was during a MISO curtailment and may not be representative of typical operating conditions during these measured wind speeds.**

**Table 7-5m Location 9: Evaluation Periods – Shutdowns on November 15, 2021 (Continued)**

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 9 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes
				WT 26 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		Attended (A), Potential Icing (I), MISO Curtailment (C)
19:00	32 <sup>5</sup>	81	28	0	0.0	2.0	1.5	2.4	4.9	154	-	-
19:30	38	43	37	1351	1.0	3.0	2.7	6.1	4.0	128	36	C
19:40	40	50	38	1542	1.5	3.5	3.0	4.7	4.2	132	39	-
20:10	40	47	39	1840	2.0	4.0	2.8	4.7	5.1	121	39	-
20:20	41	52	39	2036	2.5	5.5	2.5	4.7	6.0	137	41	-

Notes:

level (Leq) background) for all evaluation periods. The calculated time-averaged only Leq sound levels for all 11 periods were no higher than 43 dBA or masked by background. The evaluation periods at 0:30, 1:30 through 2:20, and 20:00 were during a MISO curtailment and would not be representative of typical operating conditions during these measured wind speeds.

Page 115, Epsilon 7-86, **Curtailment**, 43 dbA while 5 closest turbines are approximately one-half power. Location 9 (Lindgren property)

- 5 Closest turbine outputs:
  - T26-1408MW (closest), T25-1443MW, T35-1167MW, T34-1429MW, T22-1433MW

**Table 7-5n Location 9: Evaluation Periods – Shutdowns on November 16, 2021**

Start Time <sup>1</sup>	Leq (dBA)	Lmax (dBA)	L90 (dBA)	Closest WT	Loc. 9 Ground Level		Loc. 3A Ground Level		CRW Met Tower Hub Height		WT Only Leq <sup>2</sup> (dBA)	Period Notes Attended (A), Potential Icing (I), MISO Curtailment (C)
				WT 26 Average Output (kW)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Max. Wind Gust (m/s)	Avg. Wind Speed (m/s)	Avg. Wind Dir. (°)		
23:40 <sup>3</sup>	41	46	41	1467	1.0	3.0	2.4	3.9	7.4	153	M	-
23:50 <sup>3</sup>	42	52	41	1973	2.0	3.5	2.7	5.5	7.9	163	M	-
0:00	43	51	42	2279	2.5	4.5	3.0	6.2	13.5	161	M	-
0:30	44	54	42	1869	2.5	4.5	2.6	5.3	13.8	167	M	C
1:00	41	52	38	0	2.5	5.0	3.2	5.9	13.0	158	-	-
1:30	42	53	40	1544	2.0	4.0	2.4	4.6	13.0	161	M	C
1:40	42	54	41	1941	2.5	4.5	2.9	6.5	13.6	160	M	C
1:50	44	52	43	1485	3.0	4.5	2.9	5.9	10.9	160	M	C
2:00	44	54	42	1769	3.0	4.5	2.5	5.5	12.6	156	M	C
2:10	45	55	43	1408	3.0	5.0	2.4	5.4	13.1	161	43	C
2:20	44	54	42	1937	3.0	6.0	2.9	6.1	12.3	158	M	C
19:00	42	69	29	0	1.5	3.0	2.9	4.1	7.1	302	-	-
20:00	43	62	39	1175	2.5	4.0	4.1	5.7	12.0	301	M	C

Notes:





5/11/22 Posted to Docket by CRW in response to Data Request by Ms. Christenson

### **Turbines Relevant to Study--Out of Commission for Maintenance**

<b>Turbine</b>	<b>Start Date-Time</b>	<b>End Date-Time</b>
WCD1-0040	11/2/2021 5:10	11/2/2021 8:50
WCD1-0040	11/2/2021 8:50	11/2/2021 12:50
WCD1-0077	11/3/2021 17:18	11/3/2021 18:40
WCD1-0080	11/3/2021 19:33	11/3/2021 23:50
WCD1-0080	11/3/2021 23:50	11/4/2021 7:10
WCD1-0021	11/4/2021 9:10	11/4/2021 14:30
WCD1-0047	11/5/2021 2:30	11/5/2021 6:10
WCD1-0040	11/5/2021 7:18	11/5/2021 9:00
WCD1-0036	11/5/2021 8:10	11/5/2021 11:00
WCD1-0058	11/5/2021 11:50	11/5/2021 14:20
WCD1-0077	11/9/2021 0:38	11/9/2021 4:20
WCD1-0078	11/9/2021 8:01	11/9/2021 13:50
WCD1-0080	11/9/2021 9:21	11/9/2021 11:40
WCD1-0037	11/10/2021 8:17	11/10/2021 14:00
WCD1-0075	11/10/2021 9:50	11/10/2021 10:50
WCD1-0075	11/10/2021 10:50	11/10/2021 14:20
WCD1-0022	11/10/2021 13:50	11/10/2021 15:10
WCD1-0022	11/12/2021 7:11	11/12/2021 10:40
WCD1-0071	11/12/2021 17:38	11/12/2021 23:50
WCD1-0071	11/12/2021 23:50	11/13/2021 12:20
WCD1-0042	11/13/2021 7:20	11/13/2021 10:40
WCD1-0042	11/15/2021 7:49	11/15/2021 10:20
WCD1-0038	11/16/2021 9:20	11/16/2021 14:50
WCD1-0039	11/17/2021 8:03	11/17/2021 10:50