

**MAGNOLIA POWER PROJECT
APPLICATION FOR CERTIFICATION
RESPONSE TO CEC DATA REQUESTS
01-AFC-06**

Technical Area: Noise

BACKGROUND

The applicant identifies the impact criteria on page 5.12-6. Specifically, the fourth paragraph on this page identifies COB impact criteria for a number of locations. A brief explanation is presented at how those criteria are derived.

Data Request 40: Please provide a more detailed discussion of how the COB impact criteria is determined, particularly for site LT-2.

Response: At LT-2, the nearest residential zone to the project site, the lowest measured hourly noise level was 46 dBA L_{eq} . Thus the CEC impact criteria would be 51 dBA L_{eq} (46 dBA L_{eq} plus five dBA). In order for the combined ambient noise level and plant noise level to not exceed 51 dBA L_{eq} , the maximum permissible plant noise level at LT-2 is 49 dBA L_{eq} . This is because the combination of the ambient noise level of 46 dBA L_{eq} and the plant noise level of 49 dBA L_{eq} equals 51 dBA L_{eq} . The COB's maximum permissible noise level with the proposed MPP in operation would be 50 dBA L_{eq} (45 dBA L_{eq} plus five dBA) at residential land uses. Thus, at LT-2 the maximum permissible plant noise level to satisfy COB is 48 dBA L_{eq} .

In order to comply with the COB's Noise Ordinance, the maximum plant noise level at the nearest commercial property is 68 dBA L_{eq} ; at the nearest industrial property, the maximum plant noise level is 73 dBA L_{eq} .

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Table 5.12-3 Identifies 9 categories of noise sources. The detailed worksheets in Appendix N identify 15 categories of noise sources. Some of the categories in Appendix N were grouped to come up with the categories in Table 5.12-3

Data Request 41: Please provide a list of which categories in Appendix N were grouped to come up with the categories in Table 5.12-3. To better understand the discussion of the noise sources in Table 5.12-3 and the subsequent discussions of mitigation measures, staff needs to know the link between the detailed calculations in Appendix N and the summary tables in the main text.

Response: Table 5.12-3 lists the far-field sound pressure level for each piece of major equipment modeled in the noise analysis. The analysis used the octave band sound power level data, supplied by Black and Veatch, by source component for each major piece of equipment. This data is supplied in Appendix N in the form of a memorandum from Black and Veatch. Each piece of equipment was divided into sub-components, as follows, to equal the 15 categories found in the spreadsheets:

1. Combustion Gas Turbine and Generator

CT Inlet (#1)
CT Compartment (#2)
CT Generator (#3)
CT Exhaust Duct (#4)

2. Heat Recovery Steam Generator (HRSG)

HRSG Transition (#5)
HRSG Boiler (#6)
Stack Exit (#7)

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3. HP/IP Boiler Feedwater Pumps

Boiler Feed Pumps (#8)

4. Closed Cycle Cooling Water Pumps

5. Condensate Pumps

4 and 5 combined as Other Major Pumps (#9)

6. Steam Turbine and Generator

ST Package (#10)

Generator Package (#11)

7. Cooling Tower Cell

High Cooling Tower (Cooling Tower Fan) (#12)

Low Cooling Tower (Water Fall Noise) (#13)

8. Gas Compressor

Gas Compressor (#14)

9. Step-up Transformers

CT Transformer (GSUT) (#15)

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On pager 5.12-12a the following statement is made; “With incorporation of the limited mitigation measures listed in Table 5.12-6, the noise levels from operation of the MPP will comply with the COB and CEC noise criteria only if there were no legal, nonconforming residential properties within the industrially zoned area.” “This statement is unclear whether the project will or will not comply with the COB and CEC noise criteria.

Data Request 42: The noise analysis previously states that there are residences (e.g., LT-1) in the industrial zone. Does the COB noise ordinance treat these residences as an industrial zone or as a residential use? Please provide more discussion on whether the project with mitigation will or will not be able to achieve the COB and CEC noise criteria at the residences represented by LT-1.

Response: The COB Noise Ordinance has been interpreted by City officials (in writing) as treating all properties that are used as residences located in the industrial zone as residential. All residential provisions of the Noise Ordinance are applicable to these properties without reservation or restriction.

The initial AFC presented two alternative project conditions and thus, two required levels of mitigation. The most intensive level of noise mitigation was applied to allow the project to achieve the COB and the CEC noise criteria at the residences represented by LT-1 irrespective of the zoning. The less intensive level of noise mitigation would be applied only if all the residences in the industrial zone (represented by LT-1) were no longer used as residences. The less intensive level of mitigation would have allowed the project to achieve the COB and CEC noise criteria at the next-nearest residences (represented by LT-2) that are expected to remain zoned and used as residential properties. However, as the Project’s supplemental cumulative analysis shows, the intensive level of noise mitigation as specified in the AFC is insufficient to achieve compliance with COB and CEC criteria for the

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residences in the industrial zone when the plant was operating simultaneously with any nearby new additional electrical generating facilities. The cumulative noise level of the MPP with the less intense level of mitigation as specified in Table 5.12-6 and the LM 6000 unit would be in compliance with the CEC and COB criteria if there are no residences in the industrial zone.

The project will comply with the COB and CEC noise criteria by purchasing the nonconforming residential properties. Steps are currently underway to affect the property transaction. As the transaction progresses, the Applicant will provide copies of related documents when available.

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In Appendix N, two spreadsheets are presented for “600 feet west of nominal acoustic center with mitigation.” One calculation sheet shows a combined noise level of 47.3 dBA and the other 60.3 dBA.

Data Request 43: Please provide clarifications on what these two calculation sheets represent. Does one sheet represent “limited” mitigation, while the other represents a more intense level of mitigation?

Response: Yes, one sheet does represent “intense” and one represents “limited” mitigation for site LT-1. Provided is a spreadsheet for “limited” mitigation at LT-2, the second nearest residence (1300 feet southwest) of the plant. It should replace the spreadsheet presented for “1300 feet southwest of nominal acoustic center with mitigation” which does not account for all the mitigation measures in the “limited” mitigation case.

Magnolia Power Plant Expansion Project
 Sound Level Calculation
 Second Nearest Residential Area: Approx. 1300 Feet Southwest of Nominal Acoustic Center
 Cumulative Analysis With Less Intense Mitigation MPP

	X	Y	Z	Distance (feet)	dBA	OCTAVE BAND CENTER FREQUENCY (Hz)								
						31.5	63	125	250	500	1000	2000	4000	8000
Receptor Location	1300	15	5	48.1	67.1	63.3	54.0	49.3	45.2	41.3	37.8	33.4	28.2	
					27.7	37.1	37.9	40.7	42.0	41.3	39.0	34.4	27.1	
Summary														
Stack Exit, SPL				1507.2	35.5	43.4	39.3	43.0	40.5	33.7	24.6	13.3	-3.3	-44.0
Combustion Turbine (CT) Inlet SPL				1232.6	21.0	32.2	36.1	28.9	27.5	15.8	0.9	-5.0	-3.3	-25.9
CT Compartment SPL				1315.7	26.2	30.7	32.5	27.3	24.9	21.2	18.2	22.1	11.5	-13.4
CT Generator SPL				1277.0	27.0	27.9	27.8	26.5	25.2	24.5	22.5	19.5	9.0	-19.2
CT Exhaust Duct SPL				1339.4	34.4	46.5	43.4	41.1	33.7	32.0	29.0	24.9	18.1	-5.1
HRSB Transition, SPL				1370.5	39.1	54.3	50.2	45.9	41.5	36.7	32.7	27.6	15.7	-18.0
HRSB Boiler, SPL				1449.5	39.2	54.8	49.6	46.4	41.9	36.1	33.0	27.8	15.5	-20.3
CT Transformer (GSUT), SPL				1179.5	34.3	32.6	38.5	40.3	34.9	34.3	27.4	20.6	10.5	-14.3
ST Package, SPL				1337.2	27.1	31.5	37.4	35.1	29.7	25.0	20.0	14.9	1.1	-25.0
Generator Package, SPL				1301.0	27.4	31.8	37.6	35.4	30.0	25.3	20.3	15.3	1.7	-23.9
Boiler Feed Pumps, SPL				1469.2	37.6	34.7	40.5	38.2	36.8	35.0	32.9	29.6	22.3	-3.8
Other Pumps, SPL				1388.5	25.3	22.2	28.1	25.8	24.4	22.6	20.5	17.4	10.4	-14.5
Gas Compressor SPL				1571.3	25.3	21.1	16.9	21.6	20.1	17.3	19.1	21.7	11.9	-18.8
High Total Cooling Tower (6 cells)				1563.9	39.9	42.1	45.0	44.6	41.2	38.3	34.1	29.7	22.0	-3.6
Low Total Cooling Tower (6 cells)				1563.2	35.9	38.1	41.0	40.6	37.2	34.3	30.1	25.7	18.0	-7.6
Peaker Gas Compressor SPL				1240.6	33.4	31.5	37.5	29.5	30.5	28.5	23.5	27.5	25.5	25.5
Peaker Generator Package, SPL				1182.6	38.5	46.9	45.9	40.9	39.9	33.9	30.9	29.9	30.9	20.9
Peaker Transformer, SPL				1090.0	28.0	24.6	30.6	32.6	27.6	27.6	21.6	16.6	11.6	4.6
Peaker VBV Bleed Vent, SPL				1238.5	38.4	66.5	62.5	47.5	31.5	24.5	22.5	16.5	11.5	22.5
Distance to acoustic center				1348.3										
Stack Exit	1134	1506	150	1507.2										
Standard Lw					92.3	102	106	99	98	87	78	74	81	77
Mitigation - silencer						12	12	12	12	12	12	12	12	12
Distance Correction				1507.2		61	61	61	61	61	61	61	61	61
Atmospheric Absorption (59 deg F, 70% R.H.)						0	0	1	1	2	3	6	12	35
Directivity						2	3	4	5	6	7	8	10	12
Stack Exit, SPL				1507.2	35.5	43	39	43	41	34	25	13	-3	-44
Combustion Turbine (CT) Inlet	1134	1236	35	1232.6										
Standard Silencer Lw					92.3	102	106	99	98	87	78	74	81	77
Mitigation						0	0	0	0	0	0	0	0	0
Upgraded Silencer Lw					92.3	102	106	99	98	87	78	74	81	77
Distance Correction				1232.6		59	59	59	59	59	59	59	59	59
Atmospheric Absorption (59 deg F, 70% R.H.)						0	0	1	1	2	3	5	10	28
Directivity			n			0	0	0	0	0	5	5	5	5
Shielding						10	10	10	10	10	10	10	10	10
Combustion Turbine (CT) Inlet SPL				1232.6	21.0	32	36	29	28	16	1	-5	-3	-26
CT Compartment	1134	1320	25	1315.7										
Lw					112.8	113	115	110	108	105	103	109	104	99
Mitigation						12	12	12	12	12	12	12	12	12
Mitigated Lw					100.8	101	103	98	96	93	91	97	92	87
Distance Correction				1315.7		60	60	60	60	60	60	60	60	60
Atmospheric Absorption (59 deg F, 70% R.H.)						0	0	1	1	2	3	5	10	30
Directivity			n			0	0	0	0	0	0	0	0	0
Shielding						10	10	10	10	10	10	10	10	10
CT Compartment SPL				1315.7	26.2	31	33	27	25	21	18	22	11	-13
CT Generator	1134	1281	25	1277.0										
Lw					112.1	110	110	109	108	108	107	106	101	92
Mitigation						12	12	12	12	12	12	12	12	12
Mitigated Lw					100.1	98	98	97	96	96	95	94	89	80
Distance Correction				1277.0		60	60	60	60	60	60	60	60	60
Atmospheric Absorption (59 deg F, 70% R.H.)						0	0	1	1	2	3	5	10	29
Directivity			n			0	0	0	0	0	0	0	0	0
Shielding						10	10	10	10	10	10	10	10	10
CT Generator SPL				1277.0	27.0	28	28	27	25	24	22	20	9	-19
CT Exhaust Duct	1134	1344	18	1339.4										
Lw					108.0	117	114	112	105	104	102	100	99	96
Mitigation						0	0	0	0	0	0	0	0	0
Mitigated Lw					108.0	117	114	112	105	104	102	100	99	96
Distance Correction				1339.4		60	60	60	60	60	60	60	60	60
Atmospheric Absorption (59 deg F, 70% R.H.)						0	0	1	1	2	3	5	11	31
Directivity			n			0	0	0	0	0	0	0	0	0
Shielding						10	10	10	10	10	10	10	10	10
CT Exhaust Duct SPL				1339.4	34.4	46	43	41	34	32	29	25	18	-5

High Cooling Tower (6 cells)	788	1492	50	1563.9															
Lw					114.5	114	117	117	114	111	108	105	105	103					
Mitigation						2	2	2	2	2	2	2	2	2					
Mitigated Lw					112.5	112	115	115	112	109	106	104	103	101					
Distance Correction				1563.9		62	62	62	62	62	62	62	62	62					
Atmospheric Absorption (59 deg F, 70% R.H.)						0	1	1	1	2	3	6	12	36					
Directivity				n		0	0	0	0	-1	-1	-1	-1	-1					
Shielding						8	8	8	8	8	8	8	8	8					
High Total Cooling Tower (6 cells)				1563.9	39.9	42	45	45	41	38	34	30	22	-4					
Low Cooling Tower (6 cells)	788	1492	10	1563.2															
Lw					114.5	114	117	117	114	111	108	105	105	103					
Mitigation						4	4	4	4	4	4	4	4	4					
Mitigated Lw					110.5	110	113	113	110	107	104	102	101	99					
Distance Correction				1563.2		62	62	62	62	62	62	62	62	62					
Atmospheric Absorption (59 deg F, 70% R.H.)						0	1	1	1	2	3	6	12	36					
Directivity				n		0	0	0	0	-1	-1	-1	-1	-1					
Shielding						10	10	10	10	10	10	10	10	10					
Low Total Cooling Tower (6 cells)				1563.2	35.9	38	41	41	37	34	30	26	18	-8					
Peaker Gas Compressor	587	1090	25	1240.6															
Lw					108.0	106	112	112	104	103	98	102	100	100					
Mitigation						5	5	5	5	5	5	5	5	5					
Mitigated Lw					103.0	101	107	99	100	98	93	97	95	95					
Distance Correction				1240.6		60	60	60	60	60	60	60	60	60					
Atmospheric Absorption (59 deg F, 70% R.H.)						0	0	0	0	0	0	0	0	0					
Directivity				n		0	0	0	0	0	0	0	0	0					
Shielding						10	10	10	10	10	10	10	10	10					
Peaker Gas Compressor SPL				1240.6	33.4	31	37	29	30	28	23	27	25	25					
Peaker Generator Package	669	1015	25	1182.6															
Lw					107.6	116	115	110	109	103	100	99	100	90					
Mitigation						10	10	10	10	10	10	10	10	10					
Mitigated Lw					107.6	116	115	110	109	103	100	99	100	90					
Distance Correction				1182.6		59	59	59	59	59	59	59	59	59					
Atmospheric Absorption (59 deg F, 70% R.H.)						0	0	0	0	0	0	0	0	0					
Directivity						0	0	0	0	0	0	0	0	0					
Shielding						10	10	10	10	10	10	10	10	10					
Peaker Generator Package, SPL				1182.6	38.5	47	46	41	40	34	31	30	31	21					
Peaker Transformer	714	934	16	1090.0															
Lw					96.4	93	99	101	96	96	90	85	80	73					
Mitigation						0	0	0	0	0	0	0	0	0					
Mitigated Lw					96.4	93	99	101	96	96	90	85	80	73					
Distance Correction				1090.0		58	58	58	58	58	58	58	58	58					
Atmospheric Absorption (59 deg F, 70% R.H.)						0	0	0	0	0	0	0	0	0					
Shielding						10	10	10	10	10	10	10	10	10					
Peaker Transformer, SPL				1090.0	28.0	25	31	33	28	28	22	17	12	5					
Peaker VBV Bleed vent	669	1080	45	1238.5															
Standard Lw						136	132	117	101	94	92	86	81	92					
Mitigation - silencer																			
Distance Correction				1238.5		60	60	60	60	60	60	60	60	60					
Atmospheric Absorption (59 deg F, 70% R.H.)						0	0	0	0	0	0	0	0	0					
Shielding						10	10	10	10	10	10	10	10	10					
Peaker VBV Bleed Vent, SPL				1238.5	38.4	66	62	47	31	24	22	16	11	22					

ATMOSPHERIC ABSORPTION (dB/100 meters - 75% of EEI Values)

	0.08	0.11	0.17	0.27	0.45	0.70	1.20	2.62	7.56
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