

Construction Noise Impact Assessment

Powered Mechanical Equipment (PME) for Different Construction Tasks during Normal Daytime Working Hours (Unmitigated Scenario)

Proposed Chlorination Plant and Day Tank

Site formation & site establishment

Powered Mechanical Equipment (PME)		TM Ref./ other Ref.		SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Breaker, excavator mounted	- -	CNP028	1	122	100%	0	122
Excavator	- -	CNP081	1	112	100%	0	112
Dump Truck	- -	CNP067	1	117	100%	0	117
Air Compressor	- -	CNP002	1	102	100%	0	102
Generator	- -	CNP102	1	100	100%	0	100
						Total	124

Piling Work (For Day Tank Only)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Piling, large diameter bored	- - CNP164	1	115	100%	0	115
Mobile Crane	- - CNP048	1	112	100%	0	112
Water pump	- - CNP281	1	88	100%	0	88
Air Compressor	- - CNP002	1	102	100%	0	102
Concrete Pump	- - CNP047	1	109	100%	0	109
Bar Bender and cutter	- - CNP021	1	90	100%	0	90
Generator	- - CNP102	1	100	100%	0	100
					Total	118

Excavation and backfilling

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Dump Truck	- - CNP067	1	117	100%	0	117
Excavator	- - CNP081	1	112	100%	0	112
Generator	- - CNP102	1	100	100%	0	100
Air Compressor	- - CNP002	1	102	100%	0	102
Breaker, excavator mounted	- - CNP028	1	122	100%	0	122
					Total	124

Erection of formwork, reinforcement fixing & concreting

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Mobile Crane - -	CNP048	1	112	100%	0	112
Concrete Lorry Mixer - -	CNP044	1	109	100%	0	109
Bar Bender and cutter - -	CNP021	1	90	100%	0	90
Concrete Pump - -	CNP047	1	109	100%	0	109
Poker - -	CNP170	3	113	100%	0	118
Chipper, hand held - -	CNP043	1	112	100%	0	112
Saw, circular wood - -	CNP201	1	108	100%	0	108
Generator - -	CNP102	1	100	100%	0	100
Air Compressor - -	CNP002	1	102	100%	0	102
					Total	121

Fabrication of steelwork (For Chlorination Plant Only)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Backhoe - -	CNP081	1	112	100%	0	112
Mobile Crane - -	CNP048	1	112	100%	0	112
Lorry - -	CNP141	1	112	100%	0	112
Generator - -	CNP102	1	100	100%	0	100
Air Compressor - -	CNP002	1	102	100%	0	102
					Total	117

Note: Except for piling work and fabrication of steelwork, a duplicate set of PME is assumed for construction of chlorination plant and day tank.

Powered Mechanical Equipment (PME) for Different Construction Tasks during Normal Daytime Working Hours (Mitigated Scenario - Use of Quiet Plant)

Proposed Chlorination Plant and Day Tank

Site formation & site establishment

Powered Mechanical Equipment (PME)		TM Ref./ other Ref.		SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)	
Breaker, excavator mounted	[1]	-	C2/4	1	119	100%	0	119
Excavator	[1]	-	C3/97	1	105	100%	0	105
Dump Truck	[1]	-	C9/20	1	103	100%	0	103
Air Compressor	-	-	CNP002	1	102	100%	0	102
Generator	[1]	-	CNP 103	1	95	100%	0	95
							Total	119

Piling Work (For Day Tank Only)

Powered Mechanical Equipment (PME)		TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Piling, large diameter bored	- -	CNP164	1	115	100%	0	115
Mobile Crane	[1] -	C7/114	1	101	100%	0	101
Water pump	- -	CNP281	1	88	100%	0	88
Air Compressor	- -	CNP002	1	102	100%	0	102
Concrete Pump	[1] -	C6/36	1	106	100%	0	106
Bar Bender and cutter	- -	CNP021	1	90	100%	0	90
Generator	[1] -	CNP 103	1	95	100%	0	95
						Total	116

Excavation and backfilling

Powered Mechanical Equipment (PME)		TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Dump Truck	[1] -	C9/20	1	103	100%	0	103
Excavator	[1] -	C3/97	1	105	100%	0	105
Generator	[1] -	CNP 103	1	95	100%	0	95
Air Compressor	- -	CNP002	1	102	100%	0	102
Breaker, excavator mounted	[1] -	C2/4	1	119	100%	0	119
						Total	119

Erection of formwork, reinforcement fixing & concreting

Powered Mechanical Equipment (PME)		TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Mobile Crane	[1] -	C7/114	1	101	100%	0	101
Concrete Lorry Mixer	[1] -	C6/23	1	100	100%	0	100
Bar Bender and cutter	- -	CNP021	1	90	100%	0	90
Concrete Pump	[1] -	C6/36	1	106	100%	0	106
Poker	[1] -	C6/32	3	100	100%	0	105
Chipper, hand held	- -	CNP043	1	112	100%	0	112
Saw, circular wood	- -	CNP201	1	108	100%	0	108
Generator	[1] -	CNP 103	1	95	100%	0	95
Air Compressor	- -	CNP002	1	102	100%	0	102
						Total	115

Fabrication of steelwork (For Chlorination Plant Only)

Powered Mechanical Equipment (PME)	TM Ref./ other Ref.	No. Items	SWL/Item dB(A)	On-time %	Noise Barrier Reduction	Total SWL dB(A)
Backhoe [1] -	C8/33	1	102	100%	0	102
Mobile Crane [1] -	C7/114	1	101	100%	0	101
Lorry [1] -	C3/59	1	105	100%	0	105
Generator [1] -	CNP 103	1	95	100%	0	95
Air Compressor - -	CNP002	1	102	100%	0	102
					Total	109

Note: (1) Use of Quiet PME

Except for piling work and fabrication of steelwork, a duplicate set of PME is assumed for construction of chlorination plant and day tank.

Calculation of Construction Noise Levels at Representative NSR - Unmitigated Scenario

NSR: P1

(Chlorination Plant)

	SWL	Distance	SPL	2008										2009									
				Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Site formation & site establishment	124	330	68	68	68	68	68																
Excavation and backfilling	124	330	68					68	68	68													
Erection of formwork, reinforcement fixing & concreting	121	330	65								65	65	65	65									
Fabrication of steelwork	117	330	62										62	62	62	62	62	62	62				
Installation of E&M equipment #	-	-	-																-	-	-	-	
Testing and commissioning #	-	-	-																		-	-	-
			Total SPL, dB(A)	68	68	68	68	68	68	70	65	67	67	62	62	62	62	62	62	-	-	-	-

NSR: P1

(Day Tank)

	SWL	Distance	SPL	2008										2009									
				Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Site formation & site establishment	124	530	64	64	64	64	64																
Excavation and backfilling	124	530	64					64															
Piling (probably mini-pile)	118	530	58						58	58	58												
Erection of formwork, reinforcement fixing & concreting	121	530	61									61	61	61	61								
Installation of E&M equipment #	-	-	-														-	-					
Testing and commissioning #	-	-	-															-	-	-	-	-	-
Total SPL, dB(A)				64	64	64	64	64	58	58	58	61	61	61	61	61	62	-	-	-	-	-	-

Cumulative SPL at NSR P1

(Chorination Plant + Day Tank)

70 70 70 70 70 69 70 66 68 68 64 64 65 62 62 - - - - -

As advised by DSD, no PME would be required for installation of E&M equipment and testing & commissioning

Calculation of Construction Noise Levels at Representative NSR - Mitigated Scenario

NSR: P1

(Chlorination Plant)

	SWL	Distance	SPL	2008												2009								
				Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
Site formation & site establishment	119	330	64	64	64	64	64																	
Excavation and backfilling	119	330	64					64	64	64														
Erection of formwork, reinforcement fixing & concreting	115	330	60							60	60	60	60											
Fabrication of steelwork	109	330	54									54	54	54	54	54	54	54	54					
Installation of E&M equipment #	-	-	-															-	-	-	-			
Testing and commissioning #	-	-	-																		-	-	-	

Total SPL, dB(A) 64 64 64 64 64 64 65 60 61 61 54 54 54 54 54 - - - -

NSR: P1

(Day Tank)

	SWL	Distance	SPL	2008										2009										
				Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
Site formation & site establishment	119	530	60	60	60	60	60																	
Excavation and backfilling	119	530	60					60																
Piling (probably mini-pile)	116	530	56						56	56	56													
Erection of formwork, reinforcement fixing & concreting	115	530	56									56	56	56	56									
Installation of E&M equipment #	-	-	-														-	-						
Testing and commissioning #	-	-	-															-	-	-	-	-	-	
Total SPL, dB(A)				60	60	60	60	60	56	56	56	56	56	56	56	56	-	-	-	-	-	-	-	-

Cumulative SPL at NSR P1

(Chorination Plant + Day Tank)

65 65 65 65 65 65 66 61 62 62 58 58 54 54 54 - - - - - - -

As advised by DSD, no PME would be required for installation of E&M equipment and testing & commissioning