MONITORING FORM

If environmental reviews indicate the need of monitoring by JICA, JICA undertakes monitoring for necessary items that are decided by environmental reviews. JICA undertakes monitoring based on regular reports including measured data submitted by the project proponent. When necessary, the project proponent should refer to the following monitoring form for submitting reports.

When monitoring plans including monitoring items, frequencies and methods are decided, project phase or project life cycle (such as construction phase and operation phase) should be considered.

${\bf 1}$. Responses/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period
ex.) Responses/Actions to Comments and Guidance from Government Authorities	January 2019 – March 2019

2. Mitigation Measures

The summary of the Environmental Monitoring is shown below.

[Construction Phase]

Item	Parameter	Frequency and Duration	Locations(At least)
Air	PM ₁₀	2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC	
Water	Groundwater quality (IS 10500:1991)	Once/6months During entire civil construction stage or even later, if directed by DMRC	20 locations
Noise	Noise Level (Leq and Lmax)	24hours Once/week During entire civil construction stage or even later, if directed by DMRC	30 locations
Vibration	Vibration (RMS)	24hours Once/week During entire civil construction stage or even later, if directed by DMRC	10 locations
Soil	Heavy Metal	Once/6moths During entire civil construction stage	In each Underground Construction Contract
Ecology	Felled and planted trees	Once a year till all trees that were to be planted by Delhi Government on behalf of DMRC, are planted	All the trees felled and newly planted trees

ltem	Duration		Locations	
Air PM ₁₀		2×24hours Once/month For 3years	10 locations	
Water	Effluent	Once/4months For 3years	3 locations(Depot)	
	Groundwater quality (IS 10500:1991)	Once/year For 3years	3 locations(Depot)	
Noise	Noise Level (Leq)	24hours Once/year For 3years	15 locations (Sensitive Receptors along the elevated section)	
Vibration	Vibration level VdB	24hours Once/year For 3years	15 locations (Sensitive Receptors along the elevated and underground section)	
Ecology	Bird Strike	4times/year(If no bird hit is reported in this duration, then this monitoring may be discontinued, else it will continue). From the beginning, DMRC will instruct its train operator to compulsorily blow the horn while on the bridge across the Yamuna.	On the DMRC Yamuna bridge near Okhla Bird Sanctuary	

2.1 During Construction

When a measured value exceeds the standards, the value is written in bold letters. Air Quality (Ambient Air Quality)

252

Date: February 2019

Location: CC-127(Dwarka Sector-21 to 25) (UG)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM ₁₀ μg/m ³	Batching Plant – 189.3 Station Area – 197.4	232.4 226.3	100 (24hours)		2×24hours Twice/month During entire civil construction	
		Cut & Cover Area - 154.8	251.7	(CPCB)		stage or even later, if directed by DMRC

Date: 2019

Location: CC-32AR(IGI Domestic Airport) (UG)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM ₁₀	μg/m³	Twin Box - 390.75	403.1	100 (24hours) (CPCB)	-	2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC

Date: February 2019

Location: CC-129 (elevated stabling depot) (Elevated)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM ₁₀	μg/m³	Near S.P14- 269 Near office:- 253.8	385.7 342.2	100 (24hours) (CPCB)		2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC

Date: January 2019

Location: CC-94 (NCC-Noida Electronic City) (Elevated)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)	
		Noida Sector-52- 339	358.4				
		Noida Sector-34- 338.8	375.8				
	Noida Sector- 61- 356.55	311.5			2×24hours Twice/month ⁻ During entire		
PM ₁₀	μg/m³	Noida Sector-62- 338.1	382.4	100 (24hours) (CPCB)	-	civil construction stage or even	
	Casting Yard- 361.95	391.5			later, if directed by DMRC		
		Noida Sector-59 337.35	364.2				
		Noida Electronic city- 379.35	351.8				

Ground Water Quality (Drinking Water Quality: IS 10500:1991)

Date:

ltem	Unit	Measure d Value (Mean)	Measured Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measurem ent Point, Frequency, Method, etc.)
Color,Hazen units,Max				5(25)	-	20 locations Once/6
Odour	-			Unobjectiona ble	-	months
Taste	-			Agreeable		During
Turbidity,NTU, Max	-			5(10)		entire civil construction
pH Value	-			6.5-8.5	-	stage or
Total Hardness (as CaCO ₃), Max	mg/l			300(600)	-	even later, if directed by DMRC
Iron(as Fe) ,max	mg/l			0.3(1.0)		
Chloride(as CI),	mg/l			250(1000)	-	

Max	·	 			Attachment
Residual free					
Chlorine, Min	mg/l		0.2	_	
Fluoride(as F),					
Max	mg/l		1.0(1.5)		
Dissolved					
solids,	ma/l		500/0000		
Max	mg/l		500(2000)		
IVIAX					
Calcium(as					3-11-1
Ca),	mg/l		75(200)		
Max			10(200)		
Magnesium(as	mg/l		30(100)		
Mg), Max			30(100)		
Copper(as Cu),	mg/l		0.05(4.5)		
Max	1119/1		0.05(1.5)	-	
Manganese(as					
Mn),	mg/l		0.1(0.3)		
Max			(5.5)		
Sulphate(as					
SO ₄),	mg/l		200(400)		
Max			200(400)		
Nitrate(as	Le Suit				
NO_2),	mg/l		45(100)		
Max	11.97.		45(100)	1	
Phenolic					
compounds					
(as	mg/l		0.001(0.002)		
C ₆ H₅OH),Max					
Mercury(as					
Hg),	mall				
Max	mg/l		0.001		
Cadmium(as	, ,				
Cd),	mg/l		0.01	12 FV = 7 F)	
Max					
Selenium(as					
Se),	mg/l		0.01		
Max					
Arsenic(as					
As),	mg/l		0.05		
Max					
Cyanide(as					
CN),	mg/l		0.05		
Max			0.00		
Lead(as Pb),	- 100				
Max	mg/l		0.05	- 1	
Zinc(as Zn),					
Max	mg/l		5(15)	_	
Anionic			, ,		
Detergents					
(as	mg/l		0.2(1.0)		
MBAS),Max			(1.0)		
Chromium					
	mg/l		0.05		
(as Cr6 ⁺),Max			0.00		

Location:

Referred

Remarks

(Measurem

Delimental				Attachment 2
Polynuclear aromatic hydrocarbons(as PAH),Max	mg/l	-	-	
Mineral Oil	mg/l	0.01	_	
Pesticides, Max	mg/l	Absent		
Radioactive Materials, Max a) Alpha emitters	Bq/I	-(0.1)	-	
Radioactive Materials, Max b) Beta emitters	Pci/I	-(1)	-	
Alkalinity, Max	mg/l	200(600)	-	
Aluminum(as Al), Max	mg/l	0.03(0.2)	-	
Boron,Max	mg/l	1(5)	-	

ltem Unit d Value Value **Standards** Internation ent Point, (Mean) (Max.) al Frequency, **Standards** Method, etc.) Color, Hazen 20 locations 5(25) units, Max Once/6 Odour Unobjection months able Taste Agreeable During Turbidity, NTU, entire civil 5(10) Max construction pH Value 6.5-8.5 stage **Total Hardness** even later, if (as CaCO₃), mg/l 300(600) directed by Max **DMRC** Iron(as mg/l 0.3(1.0)Fe) ,max Chloride(as CI), mg/l 250(1000)

Measured

Country's

0.2

1.0(1.5)

500(2000)

75(200)

Measure

Date:

Max

Max Dissolved solids,

Max

Ca),

Calcium(as

Residual free

Chlorine, Min Fluoride(as F),

mg/l

mg/l

mg/l

mg/l

Max			Attach	ment
Magnesium(as Mg), Max	mg/i	30(100)	-	
Copper(as Cu) Max	mg/i	0.05(1.5)	-	
Manganese(as Mn), Max	mg/l	0.1(0.3)	-	
Sulphate(as SO ₄),	mg/l	200(400)	-	
Nitrate(as NO ₂), Max	mg/l	45(100)		
Phenolic compounds (as C ₆ H ₅ OH),Max	mg/l	0.001(0.002)	-	
Mercury(as Hg), Max	mg/l	0.001	-	
Cadmium(as Cd), Max	mg/l	0.01	-	
Selenium(as Se), Max	mg/l	0.01	-	
Arsenic(as As), Max	mg/l	0.05	-	
Cyanide(as CN), Max	mg/l	0.05	-	
Lead(as Pb), Max	mg/l	0.05		
Zinc(as Zn), Max	mg/l	5(15)	-	
Anionic Detergents (as MBAS),Max	mg/l	0.2(1.0)	-	
Chromium (as Cr6⁺),Max	mg/l	0.05	-	
Polynuclear aromatic hydrocarbons(as PAH),Max	mg/l	-	-	
Mineral Oil Pesticides,	mg/l	0.01	-	
Max	mg/l	Absent	-	
Radioactive Materials, Max c) Alpha emitters	Bq/I	-(0.1)	-	
Radioactive Materials, Max	Pci/I	-(1)	-	

d) Beta emitters				Attachment
Alkalinity, Max	mg/l	200(600)		
Aluminum(as Al), Max	mg/l	0.03(0.2)	-	
Boron,Max	mg/l	1(5)	_	

Date:

		Location	• • • • • • • •		
Unit	Measure d Value (Mean)	Measured Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measurem ent Point, Frequency, Method,
			5(25)		etc.) 20 locations
-			Unobjection	-	Once/6 months
-					During
-			5(10)	_	entire civil construction
-			6.5-8.5	_	stage or
mg/l			300(600)	-	even later, if directed by DMRC
mg/l			0.3(1.0)	-	
mg/l			250(1000)	-	
mg/l			0.2	-	
mg/l			1.0(1.5)	-	
mg/l			500(2000)	-	
mg/l			75(200)	-	
mg/l			30(100)	-	
mg/l			0.05(1.5)	-	
mg/l			0.1(0.3)	-	
mg/l			200(400)	-	
mg/l			45(100)		
	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	Unit d Value (Mean)	Unit Measure d Value (Max.) Measured Value (Max.)	Unit d Value (Mean) Measure d Value (Max.)	Unit Measure d Value (Mean) Measured Value (Max.) Country's Standards Referred Internation alstandards - 5(25) - - Unobjection able Agreeable - S(10) - - 5(10) - - 6.5-8.5 - mg/l 0.3(1.0) - mg/l 0.2 - mg/l 1.0(1.5) - mg/l 500(2000) - mg/l 30(100) - mg/l 0.05(1.5) - mg/l 0.1(0.3) - mg/l 200(400) -

Dhanalia				Attachment 2
Phenolic compounds (as C ₆ H ₅ OH),Max	mg/l	0.001(0.002)	-	
Mercury(as Hg), Max	mg/l	0.001	-	
Cadmium(as Cd), Max	mg/l	0.01	-	
Selenium(as Se), Max	mg/l	0.01		
Arsenic(as As), Max	mg/l	0.05		
Cyanide(as CN), Max	mg/l	0.05		
Lead(as Pb), Max	mg/l	0.05		
Zinc(as Zn), Max	mg/l	5(15)	- , - i	
Anionic Detergents (as MBAS),Max	mg/l	0.2(1.0)	-	
Chromium (as Cr6 ⁺),Max	mg/l	0.05		
Polynuclear aromatic hydrocarbons(as PAH),Max	mg/l	-	_	
Mineral Oil Pesticides,	mg/l	0.01		
Max	mg/l	Absent		
Radioactive Materials, Max e) Alpha emitters	Bq/I	-(0.1)	<u>-</u>	
Radioactive Materials, Max f) Beta emitters	Pci/I	-(1)	_	
Alkalinity, Max	mg/l	200(600)	_	
Aluminum(as Al), Max	mg/l	0.03(0.2)	-	
Boron,Max	mg/l	1(5)	-	

Date:

Item	Unit	Measure d Value (Mean)	Measured Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measurem ent Point, Frequency, Method, etc.)
Color,Hazen units,Max			3 1 9	5(25)	-	20 locations
Odour	-			Unobjection able	-	Once/6 months
Taste	-			Agreeable	-	During
Turbidity,NTU, Max	-			5(10)	_	entire civil
pH Value						construction
Total Hardness	-			6.5-8.5	-	stage or even later, if
(as CaCO ₃), Max	mg/l			300(600)	-	directed by DMRC
Iron(as Fe) ,max	mg/l			0.3(1.0)	· _	
Chloride(as CI), Max	mg/l	*		250(1000)	_	
Residual free Chlorine, Min	mg/l			0.2		
Fluoride(as F), Max	mg/l			1.0(1.5)		
Dissolved solids, Max	mg/l			500(2000)	-	
Calcium(as Ca), Max	mg/l			75(200)	-	
Magnesium(as Mg), Max	mg/l			30(100)		
Copper(as Cu), Max	mg/l			0.05(1.5)	-	
Manganese(as Mn), Max	mg/l			0.1(0.3)	-	
Sulphate(as SO ₄), Max	mg/l			200(400)	_	
Nitrate(as NO ₂), Max	mg/l			45(100)	-	
Phenolic compounds (as C ₆ H₅OH),Max	mg/l			0.001(0.002)	_	
Mercury(as Hg), Max	mg/l			0.001	<u>-</u>	
Cadmium(as Cd), Max	mg/l			0.01	-	
Selenium(as	mg/l			0.01		

Co)		T			Attachment
Se), Max					
Arsenic(as As), Max	mg/l		0.05	-	
Cyanide(as CN), Max	mg/l		0.05	_	
Lead(as Pb), Max	mg/l		0.05	-	
Zinc(as Zn), Max	mg/l		5(15)		
Anionic Detergents (as MBAS),Max	mg/l		0.2(1.0)	-	
Chromium (as Cr6⁺),Max	mg/l		0.05	-	
Polynuclear aromatic hydrocarbons(as PAH),Max	mg/l		-	-	
Mineral Oil	mg/l		0.01		
Pesticides, Max	mg/l		Absent	-	
Radioactive Materials, Max g) Alpha emitters	Bq/I		-(0.1)	-	
Radioactive Materials, Max h) Beta emitters	Pci/I		-(1)	_	
Alkalinity, Max	mg/l		200(600)		
Aluminum(as Al), Max	mg/l		0.03(0.2)	-	
Boron,Max	mg/l		1(5)	_	

Noise / Vibration

Date: January 2019

Location: CC-94(NCC-NEC) (Elevated)

Item	Unit	Measured Value (L _{eq})	Meas ured Value (L _{Max})	Country's Standards (Environmental Management Manual by DMRC	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Noida Sector-52 Leq(d) - 61.6 Leq(n) - 49.3 Lmin - 41.3	72.8	National Standards Area Leq(d Leq(n) Resi 55 45 Comm 65	5	30locations 24hours/time Once/week During entire

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	,					Attachment 2
		Noida Sector-62 Leq(d) -66.8 Leq(n) - 54.2 Lmin - 47.8	74.8	55 Indstl 75 70 Silence 50 40	al / residence	construction stage or even later, if directed by DMRC
		Noida Sector-59 Leq(d) – 58.4 Leq(n) – 46.7 Lmin – 39.8	69.2	DMRC Env Manual (when pre construction levels are not known) Resi Lmax Daytime:		
		Casting Yard Leq(d)- 67.8 Leq(n) - 55.1 Lmin - 49.8 Noida Elec	79.4	75 Nighttime: 65 Comm & and Indstl At all time:		
		tronic City Leq(d) – 69.3 Leq(n) – 57.5 Lmin – 50.6	81.7	85		
Vibration level	RMS (mm/s)			Structures in good condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5 Heritage structure/ Bridge structures:5	-	10locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC

Date: February, 2019

Location: Dwarka Sec-25 CC-127 (UG)

Item	Unit	Measured Value (L _{eq})	Meas ured Value (L _{Max})	Stand (Enviro Manag	ntry's dards nmental gement by DMRC)	Occupancy	Remarks (Measure- ment Point, Frequenc y, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Batching Plant Leq(d) – 63.9 Leq(n) – 54.4 Lmin – 38.7	86.2	National S Area Leq(n) Resi 45 Comm 55	Standards Leq(d) 55 65		30location s 24hours/ti me Once/wee k
		Station Area Leq(d) – 64.5 Leq(n) – 54.1 Lmin – 38.9	87.1	Indstl 70 Silence 40	75 50		During entire civil constructio n stage or

	0.11
nment 2	_ 2 %

	1				At	tachment 2
		Cut & Cover Area Leq(d) — 64.7 Leq(n) — 54.1 Lmin —41.1	87.3	DMRC Env Manual (when pre construction levels are not known) Resi Lmax Daytime: 75 Nighttime: 65 Comm & and Indstl At all time: 85	Commerci	even later, if directed by DMRC
Vibration level	RMS (mm/s)			Structures in good condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5 Heritage structure/ Bridge structures:5		10location s 24hours/ti me Once/week During entire civil constructio n stage or even later, if directed by DMRC

Date: January, 2019 Location: CC-32AR (IGI Domestic Airport) (UG)

			Locat	IOII. CC-32AK (IGI D	ornestic Airpo	π) (UG)
Item	Unit	Measured Value (L _{eq})	Meas ured Value (L _{Max})	Country's Standards (Environmental Management Manual by DMRC)	Occupancy	Remarks (Measure- ment Point, Frequency , Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Twin Box- Leq(d) - 66.1 Leq(n) - 62.6 Lmin -41.2	89.7	National Standards Area Leq(d) Leq(n) Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40 DMRC Env Manual (when pre construction levels are not known) Resi Lmax Daytime:	Commerci al / residence	30locations 24hours/tim e Once/week During entire civil constructio n stage or even later, if directed by DMRC

			Attachment 2
		75 Nighttime: 65 Comm & and Indstl At all time: 85	
Vibration level	RMS (mm/s)	Structures in good condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5 Heritage structure/ Bridge structures:5	10locations 24hours/tim e Once/week During entire civil constructio n stage or even later, if directed by DMRC

Date: November 2018

Location:CC-129 Stabling Line (Elevated)

Item	Unit	Measured Value (L _{eq})	Meas ured Value (L _{Max})	Country's Standards (Environmental Management Manual by DMRC)	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Near S.P14 Leq (d)-66.3 Leq (n)- 61.7 Lmin- 40.3 Near DMRC Office Leq (d)-62.8 Leq (n)- 59.8 Lmin- 38.4	79.4	National Standards Area Leq(d) Leq(n) Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40 DMRC Env Manual (when pre construction levels are not known) Resi Lmax Daytime: 75 Nighttime: 65 Comm & and Indstl At all time: 85	Commerci al / residence	30locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC
level	(mm/s)			Structures in good		10locations 24hours/time

ment 2	. 0
hugok	7 7

	Attachment 2
condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5 Heritage structure/ Bridge structures:5	Once/week During entire civil construction stage or even later, if directed by DMRC

Excavated soil (Leaching test)

Date:						Location:
Item	Unit	Measure d Value (Mean)	Measure d Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measuremen t Point, Frequency, Method, etc.)
Mercury(as Hg)	mg/l			-	0.0005	In each Underground
Cadmium(as Cd)	mg/l			-	0.01	Construction Contract
Arsenic(as As)	mg/l			-	0.01	Once/6month s
Cyanide(as CN)	mg/l			-	Not detected	During entire civil
Lead(as Pb)	mg/l				0.01	construction stage
Chromium(as Cr6 ⁺)	mg/l			-	0.05	Samples should be taken from the underground lowest point.

Date:						Location:	
Item	Unit	Measure d Value (Mean)	Measure d Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measuremen t Point, Frequency, Method, etc.)	
Mercury(as Hg)	mg/l			-	0.0005	In each Underground	
Cadmium(as Cd)	mg/l			- W.	0.01	Construction	
Arsenic(as As)	mg/l			<u> </u>	0.01	Contract Once/6month	
Cyanide(as CN)	mg/l			<u>-</u>	Not detected	s During entire	
Lead(as Pb)	mg/l			-	0.01	civil construction	
Chromium(as Cr6 ⁺)	mg/l			-	0.05	stage Samples	

	Attachment 2
	should be taken from the underground
L. San Charles	lowest point.

Excavated soil (Amount)

Line	Excavated Amou Approx.('000 m³)	Name of Disposed Site	Disposed Amount Approx.('000 m3)
Line-2*	-	<u>-</u>	<u>-</u>
Line-6		-	-
Line-7*	-	-	
Line-8		-	

Ecological Monitoring (Flora Monitoring)

СРМ	Permissio n to fell trees	No. of trees actually felled	No of trees planted	No of trees transpla nted	Location of plantation
CPM-1*		ALE SERVE	-		
CPM-2*		- <u>-</u>	- CO	_	
CPM-3*	- 1	-	_		
CPM-4*	-	-			
CPM-5*	_	- The second	-	_	
СРМ-6	-	-	-	-	
CPM-7*			_	_	
CPM-8	-	<u>-</u>	-		
CPM-9*		-	-	-	
CPM-10*			<u>-</u>	-	
ED/Civil	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	_		_	

^{*}Data under process.

2.2 During Operation

When a measured value exceeds the standards, the value is written in bold letters.

Air Quality (Ambient Air Quality)

Date

Location:

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM ₁₀	μg/m³			100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years

Effluent at Depot

Date:

Location:

Item	Unit	V	sured alue ean)	Measur ed Value	Country's Standards	Referred Internation	Remarks (Measureme nt Point, Frequency,
		Inle t	Outle t	(Max.)		Standards	Method, etc.)
рН	A 1-11			_	5.5-9.0	_	(Donot)
TSS	mg/l			_	100		(Depot)
BOD	mg/l			_	30	-	Once/4mont
COD	mg/l					-	hs
					250	-	For 3 years
Oil/Grease	mg/l			-	10		

Ground Water Quality (Drinking Water Quality: IS 10500:1991)

Date:

Item	Unit	Measure d Value (Mean)	Measure d Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
Color,Hazen units,Max	-		-	5(25)	-	(Depot)
Odour	_		-	Unobjectionab le	-	Once/year
Taste	-			Agreeable	_	For 3years
Turbidity,NTU,M ax	-		7-1	5(10)	_	1 of Oyears
pH Value	-			6.5-8.5	_	
Total Hardness (as CaCO ₃), Max	mg/l		-	300(600)	-	
Iron(as Fe) ,max	mg/l		-	0.3(1.0)	_	
Chloride(as CI), Max	mg/l		- 1	250(1000)	1	
Residual free Chlorine, Min	mg/l		- 1	0.2	_	
Fluoride(as F),	mg/l		-	1.0(1.5)	_	

Attachment 2

Max					Attachment
Dissolved					
solids, Max	mg/l	-	500(2000)	-	
Calcium(as Ca), Max	mg/l	-	75(200)	- "	
Magnesium(as Mg), Max	mg/l		30(100)		
Copper(as Cu), Max	mg/l	-	0.05(1.5)	-	
Manganese(as Mn), Max	mg/l	-	0.1(0.3)	-	
Sulphate(as SO ₄), Max	mg/l	-	200(400)	-	
Nitrate(as NO ₂), Max	mg/l	-	45(100)		
Phenolic compounds (as C ₆ H ₅ OH),Max	mg/l	-	0.001(0.002)	_	
Mercury(as Hg), Max	mg/l	-	0.001	-	
Cadmium(as Cd), Max	mg/l	-	0.01	-	
Selenium(as Se), Max	mg/l	-	0.01		
Arsenic(as As), Max	mg/l	<u>-</u>	0.05	-	
Cyanide(as CN), Max	mg/l	-	0.05	-	
Lead(as Pb), Max	mg/l	-	0.05	-	
Zinc(as Zn), Max	mg/l		5(15)	-	
Anionic Detergents (as MBAS),Max	mg/l	-	0.2(1.0)	-	
Chromium (as Cr6⁺),Max	mg/l	-	0.05	-	
Polynuclear aromatic hydrocarbons(a s PAH),Max	mg/l	-	-	-	
Mineral Oil	mg/l		0.01	_	
Pesticides, Max	mg/l		Absent	_	
Radioactive Materials, Max i) Alpha emitters	Bq/I	-	-(0.1)	-	
Radioactive Materials, Max j) Beta	Pci/I	_	-	-	

emitters				Attachment 2
Alkalinity, Max	mg/l	_	200(600)	
Aluminum(as Al), Max	mg/l	-	0.03(0.2)	
Boron,Max	mg/l	-	1(5)	 -
TSS	mg/l	-	600	 _
BOD	mg/l	_	350	
COD	mg/l	_	-	
Oil/Grease	mg/l	_	20	

Noise / Vibration

Date:

Location:

Item	Unit	Measured RMS Value (Mean)	Measured RMS Value (Max.)	Country's Standards Max. PPV mm/s	Referred International Standards	Remarks (Measure- ment Point, Frequency, Method, etc.)
Vibration level	mm/s			Structures in:- Good condition = 25 Fair condition = 12 Poor condition = 5 Water supply structures = 5 Heritage structures = 5	Federal Transmission Administration (FTA), US	As and when complaint arises at the ground floor of building above the tunnel.

Ecological Monitoring (Bird Strike near Okhla Bird Sanctuary)

Duration: From / / to / /

Item	Number of Interviews with Train Operators who reported the accident during monitoring period	Number of Accidents Reported during the monitoring period	Name of Species lost in the accident	Remarks (Place of accident, frequency, Method, etc.)
Train				4times/year
Accidents				
involving bird				For 2years
				Visual

	Attachment 2
fatality	observation (If no
	bird hit is reported
*	in this duration,
	then this
	monitoring may be
	discontinued, else
	it will continue).
	From the
	beginning, DMRC
	will instruct its train
	operator to
	compulsorily blow
	the horn while on
	the bridge across
	the Yamuna