



A Maharatna Company

एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)
(Formerly National Thermal Power Corporation Ltd.)
(केंद्रीय कार्यालय नोएडा)
Corporate Center NOIDA

Reference : CC-ENGG-4200-109-001-PSER-QVC-Q-371

Date : 12/04/2023

From : Arup Ghoshal
AGM(PE TASK FORCE)

To : BHEL DELHI
NEW DELHI
110049
IN

Cc :

Subject : KHTPP - FGD

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : PP-QLY-12020-UT-QA-102
Orgn. Drg. No. : 4200-109-001-PSER-QVC-Q-371
Revision No. : 02
Drg. Title : FQP for FGD Civil Work
App. Category : CAT-I
Release Date : 12/04/2023



Scan to verify

Comments : CAT I with comments



Engineering Division
ISO 9001:2008 Certified



अभियंत्रण कार्यालय परिसर, प्लॉट नं.- ए 8ए, सेक्टर-24, पोस्ट बॉक्स नं.- 13, नोएडा (उ.प्र.) पिन-201 307
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पंजीकृत कार्यालय: एनटीपीसी भवन, स्कोप कॉम्प्लेक्स, 7 इंस्टीट्यूशनल एरिया, लोडू रोड, नई दिल्ली-110 003
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BHEL Doc. No. : PP-QLY-1901-UT-QA-102
REV. NO.: 02

FIELD QUALITY PLAN

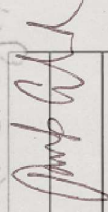
SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II			
BHEL, PS-ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG			
				PAGE : 02 OF 27	CONTRACT NO.	4200-109			
					MAIN CONTRACTOR	BHEL, PS-ER, KOLKATA			
Sl. No	Activity and operation	Characteristics / Instruments	Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9	10
1	GENERAL REQUIREMENTS								
A	Setting up of Field QA&QC laboratory, Availability of requisite laboratory set up and equipment in good working condition & duly calibrated, well before commencement of concerned activity	As agreed / required	B	Physical	Once prior to start of work and thereof monthly	Tech Specs and Const. Drawings	SR	✓	Functioning & calibration status of laboratory equipment in proper working condition to be verified on monthly basis
B	Submission of QA & QC manpower deployment schedule and availability of manpower	As agreed / required	B	Physical	Manpower shall be deployed progressively as per the work front and discipline wise progress	Tech Specs and Const. Drawings	✓		
C	Sampling for testing of building materials, concrete admixture, concrete mix design etc.	As agreed / required	A	Physical	Once per each source	Tech Specs and Const. Drawings	SR/TR	✓	Test report along with the recommendations from Owner acceptable laboratories to be submitted to EIC/FQA for review and acceptance.
D	Submission of monthly test reports/data	As agreed / required	A	Physical	Monthly	Tech Specs and Const. Drawings	SR	✓	
E	Stacking and storage of construction materials and components at site	As per IS:4082	B	Physical	Random	Tech Specs and Const. Drawings, Manufacturer's guidelines and IS 4082	SR		
2	EXCAVATION AND FILLING IN FOUNDATION WORKS								
	Excavations-								
2.1		Nature, type of soil/rock before and during excavations	B	Visual	Random in each shift	Tech Specs and Const. Drawings	SR		
2.2		Initial ground level before start of excavations, shape, Dimensions of excavations & Side slope of final excavation and Final excavation levels.	B	Measurement	100%	Tech Specs and Const. Drawings	SR	✓	
				* Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed by Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)		NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02			
MAIN SUPPLIER		R. S. Paul Sr. Project Engineer (QA/QC) BHEL, PS-ER, KOLKATA		For NTPC Use		REVIEWED BY		APPROVED BY	
								APPROVAL SEAL	

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG
					CONTRACT NO.	4200-109
				PAGE : 03 OF 27	MAIN CONTRACTOR	

Sl. No	Activity and operation	Characteristics / Instruments	Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9	10
2.3	Excavation in Hard Rock- If required								
i		Receipt, Storage, accountability of Explosive	B	Physical	Random in each week	Indian Explosive Act 1940/all statutory norms, Tech Specs and Const. Drawings		SR	Owner approved specialist blasting agency such as CMRI, NIRM shall be deployed at site for trial blasts, design blasts, blast vibration monitoring etc.
ii		Execution of Blasting Operation	B	Physical	Random in each shift	IS:4081, Tech Specs and Const. Drawings		SR	
iii		Submission of Blasting report to EIC	B	Physical	Each blast	Tech Specs and Const. Drawings			Seismographs shall be deployed at site for monitoring of blast operation vibrations.
iv		Excavation in Hard Rock (Blasting Prohibited)	B	Physical	100%	As per approved drawing/ scheme, Tech Specs and Const. Drawings		SR	
2.4	Filling/ Backfilling								
2.4.1	Suitability of fill material	Grain size analysis, Organic Matter, Liquid Limit, plastic limit, Shrinkage limit & Free Swell Index and chemical analysis (like Organic Matter, Calcium carbonate, pH value, Total soluble sulphate etc.) as required in TS	B	Physical	Once per each type of source or change of source subject to a min. of 2 samples	IS:2720 (Pt.IV), IS:2720 Pt.XXII, IS:2720 (Pt.XI)/relevant part, Tech Specs and Const. Drawings		SR/TR	Test report along with the recommendations regarding suitability of the fill material from Owner acceptable laboratories to be submitted to EIC for review and acceptance. 1 Geo-technical investigation report may also be considered as basis for suitability of fill material, if available, as per discretion of EIC
2.4.2	Standard proctor Test	Optimum moisture content and max. dry density before fill	A	Physical	One in every 10000 cum for each type and source of fill materials	IS 2720 (Pt.VII), Tech Specs and Const. Drawings		SR/TR	
2.4.3	Mixture content	Moisture content of fill before compaction	B	Physical	Random	IS 2720 (Pt.II), Tech Specs and Const. Drawings		SR/TR	
2.4.4	Degree Of Compaction Of Filling / Backfilling								
i		Dry density by core cutter method ---OR--- Dry density in place by sand displacement method ---OR--- Any suitable method specified in IS 2720/Tech. Spec.	A	Physical	i) For foundation fill/backfill one for every 10 foundations for each compacted layer. ii) For area filling, one every 1000 SQM area for each compacted layer.	IS 2720 (Pt. XXIX) / IS 2720 (Pt. XXVIII) / IS 2720 relevant part, Tech Specs and Const. Drawings		SR/TR	
LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate, Surveillance of Class 'A' checks shall be performed By Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)									
 MAIN SUPPLIER						 For NTPC Use		NTPC DOC NO. : 4200-1 09-001-P-SER-QVC-Q-371 / R-02	
						REVIEWED BY	APPROVED BY	APPROVAL SEAL	

FIELD QUALITY PLAN



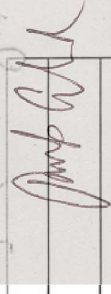
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							CONTRACT NO.	4200-109		
						PAGE : 04 OF 27	MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA		
							Reference Document	Acceptance Norms	Format of Record	Remarks
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	7	8		
1	2	3		4	5	6				
ii		Relative density (Density Index)		A	Physical	As per IS: 2720, balance oven etc.	IS 2720 (Pt XIV), Tech Specs and Const. Drawings	9	10	
3	RAW MATERIALS FOR CONCRETE									
3.1	CEMENT									
i	Material	Physical and chemical properties as per relevant IS codes	As required/ agreed	A	Review of MTC/ test reports	for each manufacturing Week number	IS : 289/ IS:1489/ IS:455, Tech Specs and Const. Drawings	MTC	To be procured from BIS approved source having valid BIS licence.. Each consignment of cement shall be duly correlated with manufacturers' TC. 	
ii		Testing of cement for Setting time (Initial & Final) and compressive strength	As per IS:4031	A	Physical	one for each manufacturing Week number	IS : 289/ IS:1489/ IS:455, Tech Specs and Const. Drawings	SR/Test Report	If cement is stored more than 90 days in godown of contractor, same shall be retested for Setting time.& Comp. Strength	
3.2	Coarse Aggregate									
i		Moisture content	IS:2386	B	Physical	To be done every day before start of work	IS : 456/IS : 383/IS: 2386 Part-III/Tech Spec	SR/LB	During monsoon, frequency may be increased and accordingly water content in concrete will be adjusted.	
ii		Sieve analysis, flakiness index, elongation index	IS:2386	B	Physical	One per 100 cum., or part thereof	IS: 2386 Part-I, IS: 383 / Tech Spec	SR/LB		
iii		Specific gravity, water absorption, Deleterious materials (coal & lignite, clay lumps, material finer than 75 micron sieve, soft fragment, shale, Total of % of all deleterious materials), Soundness	IS:2386	A	Physical	Once for each source & for every change of source	IS: 2386 Part-III, IS: 2386 Part-II, IS: 2386 Part-V, IS:456, IS:383/Tech Spec	SR/LB/ Test Report	These tests are to be carried out during design mix 	
iv		Alkali aggregate reactivity and Petrographic examination	IS 2386	A	Physical	-do-	IS: 2386 (Part-VIII/III), IS:383 /Tech Spec/ASTM C-1260 / ASTM 1293	SR/LB/ Test Report		
v		Crushing value, abrasion value and impact value	IS:2386	A	Physical	-do-	IS:383, IS-2386 Part IV/Tech Spec	SR/ Test Report		
 Sd/- P. K. Paul, Asstt. Engr. (QA/QC) BHEL, PS:ER, KOLKATA		* Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate, Surveillance of Class 'A' checks shall be performed by Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)				 For NTPC Use NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02				
						REVIEWED BY APPROVED BY APPROVAL SEAL				
MAIN SUPPLIER										

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		Rev. No. - 02 Date : 11/04/2023				CONTRACT NO.		4200-109		
		PAGE : 05 OF 27				MAIN CONTRACTOR		BHEL, PS:ER, KOLKATA		
Sl. No	Activity and operation	Characteristics / Instruments		Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks	
1	2	3		4	5	6	7	8	9 D*	
3.3	Fine Aggregate									10
i		Silt content	As agreed / required	B	Physical	One per 100 cum. or part thereof	CPWD / Tech Spec/ IS 2386 / IS 456/ IS 383	SR/LB/ TR	✓	
ii		Deleterious materials (coal & lignite, clay lumps, material finer than 75 micron sieve, soft fragment, shale, Total of % of all deleterious materials (except mica and included mica))	IS:2386	A	Physical	Once for each source & for every change of source	IS: 2386 Part-III, IS: 2386 Part-II, IS: 2386 Part-V, IS:456, IS:383/Tech Spec	SR/LB/ Test Report	✓	
iii		All other tests similar to coarse aggregates as mentioned above.					IS-2386, IS-383	SR/LB/ TR	✓	except test for flakiness index, elongation index, Crushing value, abrasion value, impact value.
3.4	Water	Complete Testing as per IS:456-2000	Burette, conical flask, pipette etc.	B	Testing	Once for each source and thereafter yearly in case of borewell. If water is used from open source like river, stream, canal etc., then water testing is to be done quarterly.	IS:456-2000/ Tech. spec.	TR	✓	
3.5	Admixtures for Concrete	Material/Type of admixture	As per IS:9103	A	Review of MTC/ test reports	For each lot received at site	As per Designed mix and IS:9103/ Tech. Spec.	Test Report/ MTC	✓	suitability can be decided by trials with construction materials to be used for the intended application and depending on results obtained vis-a-vis the requirements, suitable construction chemical may be used.
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MAIN SUPPLIER		REVIEWED BY				APPROVED BY		APPROVAL SEAL		

R. Arup Ratan Paul
3801 17th Street, Eugene (Ore)
School (year): Eugene High Sch. MO
A. H. C. 1910-1911, 1912-1913, 1914-1915, 1916-1917, 1918-1919, 1920-1921, 1922-1923, 1924-1925, 1926-1927, 1928-1929, 1930-1931, 1932-1933, 1934-1935, 1936-1937, 1938-1939, 1940-1941, 1942-1943, 1944-1945, 1946-1947, 1948-1949, 1950-1951, 1952-1953, 1954-1955, 1956-1957, 1958-1959, 1960-1961, 1962-1963, 1964-1965, 1966-1967, 1968-1969, 1970-1971, 1972-1973, 1974-1975, 1976-1977, 1978-1979, 1980-1981, 1982-1983, 1984-1985, 1986-1987, 1988-1989, 1990-1991, 1992-1993, 1994-1995, 1996-1997, 1998-1999, 2000-2001, 2002-2003, 2004-2005, 2006-2007, 2008-2009, 2010-2011, 2012-2013, 2014-2015, 2016-2017, 2018-2019, 2020-2021, 2022-2023, 2024-2025, 2026-2027, 2028-2029, 2030-2031, 2032-2033, 2034-2035, 2036-2037, 2038-2039, 2040-2041, 2042-2043, 2044-2045, 2046-2047, 2048-2049, 2050-2051, 2052-2053, 2054-2055, 2056-2057, 2058-2059, 2060-2061, 2062-2063, 2064-2065, 2066-2067, 2068-2069, 2070-2071, 2072-2073, 2074-2075, 2076-2077, 2078-2079, 2080-2081, 2082-2083, 2084-2085, 2086-2087, 2088-2089, 2090-2091, 2092-2093, 2094-2095, 2096-2097, 2098-2099, 2100-2101, 2102-2103, 2104-2105, 2106-2107, 2108-2109, 2110-2111, 2112-2113, 2114-2115, 2116-2117, 2118-2119, 2120-2121, 2122-2123, 2124-2125, 2126-2127, 2128-2129, 2130-2131, 2132-2133, 2134-2135, 2136-2137, 2138-2139, 2140-2141, 2142-2143, 2144-2145, 2146-2147, 2148-2149, 2150-2151, 2152-2153, 2154-2155, 2156-2157, 2158-2159, 2160-2161, 2162-2163, 2164-2165, 2166-2167, 2168-2169, 2170-2171, 2172-2173, 2174-2175, 2176-2177, 2178-2179, 2180-2181, 2182-2183, 2184-2185, 2186-2187, 2188-2189, 2190-2191, 2192-2193, 2194-2195, 2196-2197, 2198-2199, 2200-2201, 2202-2203, 2204-2205, 2206-2207, 2208-2209, 2210-2211, 2212-2213, 2214-2215, 2216-2217, 2218-2219, 2220-2221, 2222-2223, 2224-2225, 2226-2227, 2228-2229, 2230-2231, 2232-2233, 2234-2235, 2236-2237, 2238-2239, 2240-2241, 2242-2243, 2244-2245, 2246-2247, 2248-2249, 2250-2251, 2252-2253, 2254-2255, 2256-2257, 2258-2259, 2260-2261, 2262-2263, 2264-2265, 2266-2267, 2268-2269, 2270-2271, 2272-2273, 2274-2275, 2276-2277, 2278-2279, 2280-2281, 2282-2283, 2284-2285, 2286-2287, 2288-2289, 2290-2291, 2292-2293, 2294-2295, 2296-2297, 2298-2299, 2300-2301, 2302-2303, 2304-2305, 2306-2307, 2308-2309, 2310-2311, 2312-2313, 2314-2315, 2316-2317, 2318-2319, 2320-2321, 2322-2323, 2324-2325, 2326-2327, 2328-2329, 2330-2331, 2332-2333, 2334-2335, 2336-2337, 2338-2339, 2340-2341, 2342-2343, 2344-2345, 2346-2347, 2348-2349, 2350-2351, 2352-2353, 2354-2355, 2356-2357, 2358-2359, 2360-2361, 2362-2363, 2364-2365, 2366-2367, 2368-2369, 2370-2371, 2372-2373, 2374-2375, 2376-2377, 2378-2379, 2380-2381, 2382-2383, 2384-2385, 2386-2387, 2388-2389, 2390-2391, 2392-2393, 2394-2395, 2396-2397, 2398-2399, 2400-2401, 2402-2403, 2404-2405, 2406-2407, 2408-2409, 2410-2411, 2412-2413, 2414-2415, 2416-2417, 2418-2419, 2420-2421, 2422-2423, 2424-2425, 2426-2427, 2428-2429, 2430-2431, 2432-2433, 2434-2435, 2436-2437, 2438-2439, 2440-2441, 2442-2443, 2444-2445, 2446-2447, 2448-2449, 2450-2451, 2452-2453, 2454-2455, 2456-2457, 2458-2459, 2460-2461, 2462-2463, 2464-2465, 2466-2467, 2468-2469, 2470-2471, 2472-2473, 2474-2475, 2476-2477, 2478-2479, 2480-2481, 2482-2483, 2484-2485, 2486-2487, 2488-2489, 2490-2491, 2492-2493, 2494-2495, 2496-2497, 2498-2499, 2500-2501, 2502-2503, 2504-2505, 2506-2507, 2508-2509, 2510-2511, 2512-2513, 2514-2515, 2516-2517, 2518-2519, 2520-2521, 2522-2523, 2524-2525, 2526-2527, 2528-2529, 2530-2531, 2532-2533, 2534-2535, 2536-2537, 2538-2539, 2540-2541, 2542-2543, 2544-2545, 2546-2547, 2548-2549, 2550-2551, 2552-2553, 2554-2555, 2556-2557, 2558-2559, 2560-2561, 2562-2563, 2564-2565, 2566-2567, 2568-2569, 2570-2571, 2572-2573, 2574-2575, 2576-2577, 2578-2579, 2580-2581, 2582-2583, 2584-2585, 2586-2587, 2588-2589, 2590-2591, 2592-2593, 2594-2595, 2596-2597, 2598-2599, 2600-2601, 2602-2603, 2604-2605, 2606-2607, 2608-2609, 2610-2611, 2612-2613, 2614-2615, 2616-2617, 2618-2619, 2620-2621, 2622-2623, 2624-2625, 2626-2627, 2628-2629, 2630-2631, 2632-2633, 2634-2635, 2636-2637, 2638-2639, 2640-2641, 2642-2643, 2644-2645

FIELD QUALITY PLAN



SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		PROJECT:		NTPC - Kahalgaon Stage I & II		
BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023		FGD SYSTEM PKG		
				CONTRACT NO.		4200-109		
				MAIN CONTRACTOR		BHEL, PS:ER, KOLKATA		
				PAGE : 07 OF 27				
Sl. No	Activity and operation	Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9
iii	position and alignment of embedded parts and inserts	B	Visual	100%	As per provisions and tolerances of equipment supplier, Tech Specs and Const. Drawings			10
iv	Embedment of inserts in concrete shall be checked for gap if any using hammer for all dynamic foundations	B	Physical	100%	As per Technical Specification	SR		No hollow sound
v	Submission of grouting / repair methodology if concrete surface / position and alignment of embedded parts / inserts are found defective	B	Review and approval	once for each type of defect	As per provisions and tolerances, Tech Specs and Const. Drawings			
vi	Core Test	A	Physical	As required by Owner EIC.	As per IS:456, IS 516	SR/LB/ Test Report		Compressive strength based on core test is required to be carried out in case of doubt regarding the grade of concrete used, either due to poor workmanship or based on the results of cube strength test as per 4.2 ii) above / discretion of EIC..
vii	Rebound Hammer test	A	physical	as required by the Owner EIC	As per relevant / tech. Specification.	SR/LB		This test may be carried out to assess the strength of concrete in case of non-critical and lightly loaded structures as the discretions of EIC
viii	Water Tightness Test of liquid retaining structure/ tanks	A	Test	100%	IS:3370/ Tech. Specification	SR/LB		
5	REINFORCEMENT STEEL AND ITS PLACEMENT							
i	Material	A	Review of MTC	Each batch/lot of delivery	As per IS 1786, IS 432, IS 1586, tech spec and cont. drawing	MTC		To be procured from owner approved source.
				NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02				
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MAIN SUPPLIER		For NTPC Use		REVIEWED BY		APPROVED BY		APPROVAL SEAL

LEGENDS :

* Records identified with tick (✓) shall be essentially included by supplier in QA documentation

Class A : Critical, Class B : Major, Class C : Minor

Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer

SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate.

Surveillance of Class 'A' checks shall be performed By Owner Head (FOA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Dept)

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant				PROJECT:	NTPC - Kahalgaon Stage I & II					
 BHEL, PS-ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.				PACKAGE:	FGD SYSTEM PKG					
		Rev. No. - 02 Date : 11/04/2023				CONTRACT NO.	4200-109					
		PAGE : 08 OF 27				MAIN CONTRACTOR	BHEL, PS-ER, KOLKATA					
		Sl. No	Activity and operation	2	3	4	5	6	7	8	9	D*
i			Characteristics / Instruments	Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record			
ii		Freedom from cracks surface flaws, Lamination & excessive rust.	As agreed / required	B	Visual	Random in each shift	IS: 1852, IS:432, IS:1786, Tech Specs and Const. Drawings		SR		To be checked at site. Steel collected from source should be free from excessive rust. To be stored as per Technical Specs.	
iii		Bar bending schedule with necessary lap, Spacers & Chairs	As agreed / required	B	Physical & Measurement	Random in each shift	Approved Drawings, Tech Specs and Const. Drawings, IS:2502		SR	✓		
iv		Acceptance - disposition of cage w.r.t. reference axes, cover, spacing of bars, spacers and chairs after the reinforcement cage is put inside the formwork	Measuring tape & as required	B	Visual & Measurement	Random in each shift*	IS 456, Tech Specs and Const. Drawings		SR	✓	* for foundations, frequency shall be Each foundation	
6.0	FOUNDATION SYSTEM											
	SHALLOW FOUNDATIONS											
i		Foundation casting - Layout, Shape, dimensions	As required / agreed	B	Physical	Each foundation	As per technical specifications and construction drawings		SR	✓	lines and levels to be checked, Concrete Grade to be checked as per Mix Design	
7.0	STAGING AND FORMS											
i		Materials and accessories	As agreed / required	B	Visual	Once before start of work	As per relevant IS, Tech Specs and Const. Drawings		SR			
ii		Soundness of staging, shuttering and scaffolding including application of mould oil / release agent	As agreed / required	B	Visual	Once before start of work	As per manufacturer's spec. and as per 3696, 4014, 4990, Tech Specs and Const. Drawings		SR			
iii		Acceptance of formwork before start of concreting : disposition w.r.t. reference axes, size, etc.	Measuring tape & as required	B	Physical / visual	Before start of each concreting	As per provisions and tolerances in IS 456, Tech Specs and Const. Drawings		SR	✓		
8	SLIPFORM SHUTTERING											
i		Submission of Slip form Work system to be used	As required / agreed	B	Submission	Before commencement of work	As per specifications		SR	✓		
ii		Check for the Slip form shutters	As required	B	Physical	Before commencement of work	As per specifications		SR		Check for water level system, Controls, Walkways etc.	
		LEGENDS :				NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02						
		* Records identified with tick (✓) shall be essentially included by supplier in QA documentation				 A Maharatna Company						
		# Class A : Critical, Class B : Major, Class C : Minor										
		Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer										
		SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate.										
		Surveillance of Class 'A' checks shall be performed By Owner Head (FQA), Class 'B' by Owner FQA Engineer and for Class 'C' Another Executing Engineer authorised by Head (Executing Deptt)										
MAIN SUPPLIER						For NTPC Use			APPROVED BY			APPROVAL SEAL

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102		PROJECT:		NTPC - Kahalgaon Stage I & II		
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023		PACKAGE:		FGD SYSTEM PKG		
						CONTRACT NO.		4200-109		
						MAIN CONTRACTOR		BHEL, PS:ER, KOLKATA		
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3		4	5	6	7	8	9	10
iii		Details Positions and arrangement of Jack rods		B	Approval	Before commencement of work	As per specifications		SR	Submitted to EIC for approval
iv		Details of Proposed arrangement for continuous readings		B	Approval	Before commencement of work	As per specifications		SR	Submitted to EIC for approval
v		Check for All type of openings, Chases. Fixing of Blocks and similar built-up features		B	Physical	100% during execution	Construction Drawings and specifications		SR	No any type of openings, chases, blocks other than shown in the construction drawings or approved by EIC shall be executed in the concrete.
vi		Details of proposed method for concrete curing and protection		B	Approval	Before commencement of work	Construction Drawings and specifications		SR	Submitted to EIC for approval
vii		Check of Concrete Curing and Protection		B	Physical	At Random	Construction Drawings and specifications		SR	Concrete shall not remain uncured for period longer than 12 hours
viii		Check for Sliding Operation & Monitoring of Sliding Portion		B	Physical	Each Sliding	As per specifications		SR	Rate of Sliding, Delays in sliding, Discontinuity or stop start sliding to be checked
ix		Progress Height		B	Physical	Once per shift	As per specifications		SR	
x		Centre line in relation to the centres at the base		B/A	Physical	Min. once per shift/ Min. once per day	As per specifications		SR	
xi		Internal wall faces in relation to the concrete at the base		B	Physical	Once per shift	As per specifications		SR	To be recorded in tabular form and on graphs immediately after each monitoring
xii		Wall thickness		B	Physical	Once per shift	As per specifications		SR	
xiii		Twist		B	Physical	Once per shift	As per specifications		SR	
 BHEL, PS:ER, KOLKATA		LEGENDS :				NTPC DOC NO. : 4200-1 09-001-PSEER-QVC-Q-371 / R-02				
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MAIN SUPPLIER						REVIEWED BY		APPROVED BY		APPROVAL SEAL

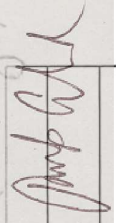
FIELD QUALITY PLAN

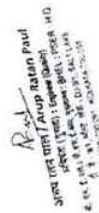
SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II				
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG				
				PAGE : 10 OF 27	CONTRACT NO.	4200-109				
					MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA				
Sl. No	Activity and operation	Characteristics / instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9	D*	
xiv	Verticality of the structure	Optical Theodolite	B/A	Physical	Every day in morning /Random	As per specifications	SR	SR	✓	Vertically check by Laser Level instrument or optical laser plummet or any other instrument as per the discretion of EIC to be recorded in tabular form and on graphs immediately after each monitoring
xv	Check for Tolerances for chimney construction	As required	B	Physical	For every day monitoring	As per specifications	SR	SR	✓	
9	EMBEDDED PART (INCLUDING LAYING OF RAILS & ANCHOR FASTENERS)									
i	Position / alignment / levels of embedded parts / bolt hole / pipe sleeves / rails / PVC pipes / etc	As agreed / required	B	Physical / measurement	100%	As per drawing, Tech Specs and Const. Drawings	SR/ Protocol	SR	✓	Exposed surface of the embedded parts other than holding down bolts are to be painted with as per technical specifications
ii	Welding / tying of embedment to reinforcement	As agreed / required	B	Physical / measurement	Random in each shift	As per drawing, Tech Specs and Const. Drawings	SR	SR	✓	
10	JOINTS IN CONCRETE, DAMP PROOF COURSE									
i	Joint material - bitumen impregnated fibre board, PVC water stops, Sealing compound, Expanded polystyrene board, Hydrophilic strip, Acrylic polymer etc.	As agreed / required	A	Review of MTC/ test reports	Each batch of delivery	Tech Specs and Const. Drawings, IS 1838, IS 1834, IS12200	MTC	✓		
ii	Material - Hot bitumen and water proofing materials etc.	As agreed / required	A	Review of MTC/ test reports	Each batch of delivery at site	Tech Specs and Const. Drawings, IS 702	SR/MTC	✓		
iii	Acceptance of installation of Joint material & Acceptance of damp proof course	As agreed / required	B	Acceptance	Each installation randomly	Tech Specs and Const. Drawings		✓		
11	GROUTING									
i	Material	As agreed / required	A	Review of MTC/ test reports	Each batch of delivery	Tech Specs and Const. Drawings	SR/MTC	✓		
ii	Acceptance of the grouts: Mixing, placement, application and grout pressure (as applicable)	As agreed / required	B	Physical	Each grout section	Tech Specs and Const. Drawings	SR	✓		
iii	Compressive strength of cubes after grouting	As agreed / required	A	Physical	Each grout section	Tech Specs and Const. Drawings	SR	✓		
 R. K. Singh Site Engineer (Civil) NTPC Ltd. Kahalgaon Stage I & II Bihar Date: 11/04/2023		 NTPC A Bharat Heavy Electricals Company		NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02						
MAIN SUPPLIER		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed by Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)		For NTPC Use		REVIEWED BY	APPROVED BY	APPROVAL SEAL		

FIELD QUALITY PLAN

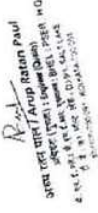
SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102		PROJECT:		NTPC - Kahalgaon Stage I & II		
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023		PACKAGE:		FGD SYSTEM PKG		
				PAGE : 11 OF 27		CONTRACT NO.		4200-109		
						MAIN CONTRACTOR		BHEL, PS:ER, KOLKATA		
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3		4	5	6	7	8	9	D* 10
12	BRICK MASONARY									
12.1	Test on Bricks									
i		Compressive strength, water absorption, efflorescence.	As agreed / required	A	Measurement/ Physical Test	As per relevant IS Code/ One Sample for 30,000 nos. or part thereof	IS: 1077, IS:13757, IS: 12894 / Tech Specs and const. Drawings	Inspection Report	✓	
ii		Dimensions , shape, warpage.	As agreed / required	B	Measurement/ Physical Test	As per relevant IS Code/ One Sample for 30,000 nos. or part thereof	IS: 1077, IS:13757, IS: 12894 / Tech Specs and const. Drawings	Inspection Report	✓	Warpage test is applicable for facing bricks only as per IS:2691.
12.2	Test on Mortar									
i	Sand	Grading	As agreed / required	B	Test	once per 100 Cum or part thereof	IS:2116	SR/LB	✓	
ii		Compressive strength	As agreed / required	B	Test	At random	IS 2250-1981, Tech Specs and Const. Drawings	LB	✓	
12.3	Masonry construction	Workmanship, verticality and alignment	As agreed / required	B	Visual/ Physical	100%	IS 2212, IS 1905 , Tech Specs and Const. Drawings	SR/LB		
13	PLASTERING- MATERIAL AND WORKMANSHIP									
i	Sand	Deleterious Material	As agreed / required	B	Physical	Once per source	IS : 2386 (Part-I &II) & IS :2116, Tech Specs and Const. Drawings	SR	✓	
ii		Grading	As agreed / required	B	Physical	50 Cum./or part thereof	Tech Specs and Const. Drawings	SR	✓	
iii		Silt content	As agreed / required	B	Physical	One per 100 cum., or part thereof	CPWD/ Tech Spec/ IS 2386/ IS 456/ IS: 383	SR/LB/ TR	✓	
iv	Stone grit plaster/ granular textured coat finish	Material	As agreed / required	B	Review of MTC	For each lot received at site	Tech Specs and Const. Drawings	SR/MTC	✓	
v	Galvanised wire mesh	Galvanized hexagonal wire netting for lath plastering	As agreed / required	B	Review of MTC/ test reports	Each batch of delivery	Tech Specs and Const. Drawings	SR/MTC	✓	
vi		Thickness, Trueness and finishing of plaster, grooves etc.	As agreed / required	B	Visual/ Measurement	Random in each shift	Tech Specs and Const. Drawings	SR/LB	✓	
 BHEL, PS:ER, KOLKATA		LEGENDS :				 For NTPC Use		NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02		
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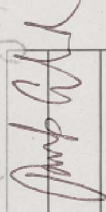


SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II					
 BHEL, PS-ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG					
				PAGE : 12 OF 27	CONTRACT NO.	4200-109					
		Characteristics / Instruments		3	Quantum Of check	6	CONTRACTOR Reference Document	BHEL, PS-ER, KOLKATA			
Sl. No	Activity and operation	2	Class of check	4	Type of Check	5	Format of Record	9	D*	10	Remarks
1											
14	PAINTING										
14.10	PAINTING SYSTEM - CONCRETE WORKS INCLUDING CHIMNEY WORKS AND PLASTERED MASONRY SURFACES 1										
i	Materials - Oil Bound, Acrylic Emulsion, Chemical Resistant, Oil Resistant Paint etc, as required in TS	Shade, type from brand and approved manufacturer	As agreed / required	A	Review of MTC/ test reports	Each batch of delivery	Tech Specs and Const. Drawings	SR/MTC	✓		Mr.'s T.C. shall be correlated with the consignment received.
ii	Surface preparation	As required	As agreed / required	B	Physical / visual	Random in each shift	Tech Specs and Const. Drawings	SR			
iii	Acceptance of painted surfaces	Shade, finish, WFT	As agreed / required	B	Physical/visual	Each surface at random	Tech Specs and Const. Drawings	SR	✓		
14.20	PAINTING SYSTEM - STEEL WORKS (OTHER THAN STRUCTURAL STEEL WORKS)										
i	Paining Materials	-	-	A	Review of MTC/ test reports	Each batch of delivery	Tech Specs and Const. Drawings	SR/MTC	✓		Mr.'s T.C. shall be correlated with the consignment received.
ii	Surface preparation	As agreed / required	As agreed / required	B	Physical / visual	Each Erection Mark	Tech Specs and Const. Drawings, Relevant code/ standards	SR	✓		
iii	Primer Thickness	Elcometer	Elcometer	B	Measurement	Each Erection Mark	Tech Specs and Const. Drawings	SR	✓		
v	Acceptance of painted surfaces : DFT, Finish, Shade	Elcometer	Elcometer	B	Visual and measurement	Each Erection Mark	Tech Specs and Const. Drawings	SR	✓		
15	SHEETING, INSULATION & ALLIED WORK										
i	Material : Permanently colour coated sheets for cladding & metal decking	As agreed / required	As agreed / required	A	Review of MTC & Test reports 1	Each batch of delivery	Tech Specs and Const. Drawings/ profiled drawing 1	SR/MTC/ CHP	✓		Co-relation with MTC/TR (video-jet printing or any other means) to be verified with the lot received at site. 1
ii	Insulation material including chimney insulation 1	Insulation material, galvanised wire net, aluminium foil, fasteners	As agreed / required	A	Review of MTC/ test reports	For each lot received at site	Tech Specs and Const. Drawings	SR / LB/MTC	✓		All tests as per specification
iii	Installation, lap alignment & workmanship.	As agreed / required	As agreed / required	B	Visual/Physical	Random in each shift	Tech Specs and Const. Drawings	SR			No gas cutting of sheets acceptable.
iv	Finishing and acceptance	As agreed / required	As agreed / required	B	Visual/Physical	Random in each shift	Tech Specs and Const. Drawings	SR/LB	✓		
 MAIN SUPPLIER		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed by Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)									
		 For NTPC Use NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02									
		REVIEWED BY		APPROVED BY		APPROVAL SEAL					

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102		PROJECT:		NTPC - Kahalgaon Stage I & II			
 BHEL, PS-ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		(Rev. No. - 02) Date : 11/04/2023		PACKAGE:		FGD SYSTEM PKG			
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1	2	3		4	5	6	7	8	9	10	
16	DOORS , WINDOWS VENTILATORS & GRILL										
i	Steel doors	Materials (MS sheet, fasteners, hinges, jambs, lock strike plate etc) & Check for shape tolerances, thickness, welding & finishing of sections		B	Visual/ Physical / test report	For each lot received at site	Tech Specs and Const. Drawings	SR / LB	✓	Review of test report	
ii	Wood/Timber	Moisture content & anatomy		A	Physical	For each lot received at site	Tech Specs and Const. Drawings/ IS 287	SR/LB	✓	To be carried out from NTPC acceptable third party lab. like Forest Research Institute Dehradun. Frequency of check may be decided by EIC based on quantity and requirement	
iii	Wood work in frames	Check for dimensions, surface finish		B	Physical	Random for each installation	Tech Specs and Const. Drawings	SR	✓		
iv	Flush Door shutter	End emersion test, knife test, adhesion test		A	Review of MTC/ test reports	For each lot received at site	IS 2202, Tech Specs and Const. Drawings	SR/MTC	✓	The required tests to be carriedout from employer acceptable thirdparty lab like Forest Research Institute, Dehradun in addition to review of MTC/RE. Frequency of check may be decided by EIC based on quantity.	
v	Particle Door			A	Review of MTC/ test reports	For each lot received at site	IS-12823, Tech Specs and Const. Drawings	SR/MTC	✓	Requirement and IS 2202 & IS 12823	
vi	Anodised aluminium works	Materials- Aluminium sections, Coating		A	Visual/ Physical / test report	For each lot received at site	IS: 1948, IS: 1949, IS:733, IS1285, IS:1868, IS:11857/ Tech Specs and Const. Drawings	SR / LB	✓	As a part of surveillance, EIC may ask to conduct the sample to be tested at NTPC acceptable third-party lab. In addition to review MTC/RE, Frequency of test may be decided by EIC based on Quantity, requirements / relevant code	
vii	Fire proof doors	Material & Receipt inspection		A	Review of MTC/ PO (unpriced copy) / drawings of suppliers / certificate of CBRI/CPRI/GOV. LAB. & Visual/ Physical/ Review of MTC	For each source & For each lot received at site	Tech Specs and Const. Drawings	SR/MTC	✓	The door drawing proposed for supply should have been tested and approved by CBRI Roorkee/CPRI/GOV. LAB. for the similar dimensions for minimum fire rating as required in Tech. spec..	
 ANUP KUMAR PAUL Project Engineer (Quality Control) BHEL, PS-ER, KOLKATA		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be perform By Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)					NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02				
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MAIN SUPPLIER		REVIEWED BY					APPROVED BY				
							APPROVAL SEAL				

FIELD QUALITY PLAN



SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II			
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG			
				PAGE : 14 OF 27	CONTRACT NO.	4200-109			
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1	2	3	4	5	6	7	8	9	10
viii	Rolling shutters	Coating, finish and thickness of plate of approved make and DFT	B	Physical / visual / review of MTC	Random for each lot of delivery	Tech Specs and Const. Drawings	Drawings	SR/MTC	✓
ix	Steel windows / Grills/ Louvre	Material fabrication and fixtures	B	Review of MTC/ test reports	Each lot of delivery	IS: 1038 / IS: 1361, IS: 7452 and Tech Specs and Const. Drawings	Drawings	SR/MTC	✓
x	Doors / Windows Sections	Material - Rolled Steel, Z-sections, T-iron frames sections, Plates etc.	B	Review of MTC/ test reports	For each batch of delivery	Tech Specs and Const. Drawings	Drawings	SR/MTC	✓
xi	Glass and glazing (Clear float glass, wired glass, tinted glass, curtain glass, hermetically sealed glass, Reflective toughened glass, as applicable)	Material	B	Review of MTC/ test reports	For each lot received at site	IS: 14900, IS: 1081, IS: 3548, IS: 5437 Tech Specs and Const. Drawings	Drawings	SR/MTC	✓
xii	Curved dome on roof/ Poly Carbonate Sheet	Source of supply Material : Impact strength, K value, light transmission value with class - I fire rating.	B	Review of MTC/ test reports	For each lot received at site	Tech Specs and Const. Drawings	Drawings	SR/MTC	✓
xiii	False Ceiling	Materials (gypsum glass, glass fibre membrane, fibre board acoustical tiles etc)	A	Review of MTC/ test reports	For each lot received at site	Tech Specs and Const. Drawings	Drawings	SR/MTC	✓
xiv		Installation finishing and acceptance	B	Visual / physical	Random	Tech Specs and Const. Drawings	Drawings	SR	
17	WATER PROOFING (Roof / Basement Treatment)								
i		Methodology for the application of water proofing system	B	Review	for each type of treatment	Tech Specs and Const. Drawings	Drawings	SR	✓
ii	Graded under bed	Levels / slopes	C	Physical	100%	Tech Specs and Const. Drawings	Drawings		
iii	Elastomeric coatings	Material- Primer coat, finishing coat	B	Review of MTC/ test reports	Each lot of delivery	Tech Specs and Const. Drawings	Drawings	SR/MTC	✓
iv	Wearing course	Materials - PCC, chicken wire mesh, elastomeric sealant	B	Review of MTC/ test reports	Each lot of delivery	Tech Specs and Const. Drawings	Drawings	SR/MTC	✓
v		Acceptance of water proofing work	B	Physical	100%	Tech Specs and Const. Drawings	Drawings		
 37th April 2023 (P. S. ER) PS:ER, BHEL, PS:ER, KOLKATA 4200-109-001-PSER-QVC-Q-37.1/02/CAT-I/		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed by Owner Head (FOA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)			 For NTPC Use		NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02		
		REVIEWED BY		APPROVED BY		APPROVAL SEAL			

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II											
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG											
					CONTRACT NO.	4200-109											
					MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA											
Sl. No	Activity and operation	2	Characteristics / Instruments	3	Class of check	4	Type of Check	5	Quantum Of check	6	7	Acceptance Norms	8	Format of Record	9	Remarks	
1																	
18	Fencing and Gates																
i	PVC coated chain link fencing (IS 2720), Welded wire mesh (IS 1566), Reinforced barbed tape galvanised (IS 2629) etc.		As agreed / required		A		Review of MTC/ test reports		Each batch of delivery			Tech Specs and Const. Drawings		SR/MTC	✓	MTC shall contain all the parameters specified in the technical specifications	
ii	Structural steel, painting system, caster wheel, ball and bearing, fixtures and fasteners		As agreed / required		A		Review of MTC/ test reports		Each batch of delivery			Tech Specs and Const. Drawings		SR/MTC	✓	MTC shall contain all the parameters specified in the technical specifications	
iii			As agreed / required		B		Physical / measurements		Each installation			Tech Specs and Const. Drawings		SR	✓		
19	FLOOR FINISHES AND ALLIED WORKS																
i	Cement Concrete Flooring		As agreed / required		B		Physical		Random in each shift			Tech Specs and Const. Drawings		SR			
ii	Ceramic tiles, vitrified tiles, glass mosaic, acid alkali resistant tiles, heavy duty cement concrete tiles		As agreed / required		B		Review of MTC/ test reports		Each lot of delivery			Tech Specs and Const. Drawings		SR/MTC	✓	MTC shall contain all the parameters specified in the technical specifications. In case of non-availability of MTC, sample to be tested as per relevant IS code.	
iii	Interlocking Blocks		As agreed / required		A		Review of MTC/ test reports		Each lot of delivery			Tech Specs and Const. Drawings		SR/MTC	✓	MTC shall contain all the parameters specified in the technical specifications	
iv	Kota Stone, Granite and Marble		As agreed / required		B		Physical		Each batch of delivery			Tech Specs/ BOQ and Const. Drawings		SR	✓		
v	Metallic / non-metallic hardener		As agreed / required		B		Review of MTC/ test reports		Each batch of delivery			Tech Specs and Const. Drawings		SR	✓		
vi	Rubber Flooring		As agreed / required		B		Review of MTC/ test reports		Each batch of delivery			Tech Specs and Const. Drawings / IS 809		SR/MTC	✓	MTC shall contain all the parameters specified in the technical specifications	
 Rajan Paul Site Engineer (Civil), Kahalgaon Stage I & II NTPC Ltd., Kahalgaon Stage I & II Kahalgaon, Jharkhand - 825212		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed by Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)		 For NTPC Use		NTPC DOC NO. 4200-109-001-P SER-QVC-Q-371 / R-02											
				REVIEWED BY	APPROVED BY	APPROVAL SEAL											
MAIN SUPPLIER																	

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102		PROJECT:		NTPC - Kahalgaon Stage I & II		
BHEL, PS-ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023		PACKAGE:		FGD SYSTEM PKG		
				PAGE : 16 OF 27		CONTRACT NO.		4200-109		
						MAIN CONTRACTOR		BHEL, PS-ER, KOLKATA		
Sl. No	Activity and operation	Characteristics / instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	Acid / alkali and oil resistant high built seamless epoxy based resin and treatment	3		4	5	6	7	8	9	10
vii	Acid / alkali and oil resistant high built seamless epoxy based resin and treatment	Material		A	Review of MTC / test reports	Each batch of delivery	Tech Specs and Const. Drawings	SR/MTC	✓	work to be done by skilled manpower
viii	Acid / alkali and oil resistant high built seamless epoxy based resin and treatment	Surface preparation (as applicable)		B	Physical	Random in each shift	Tech Specs and Const. Drawings, IS 2395			
ix	Finishing and acceptance	Finishing and acceptance		B	Physical	100%	Tech Specs and Const. Drawings	SR		
20	WATER SUPPLY / SANITORY INSTALLATIONS									
i	Material	Sanitary items and fixtures i.e. water closets, urinals, wash basins, sinks, mirrors, shelves, towel rail, soap containers, geyser, water cooler, etc. water supply / sanitation pipes (GI/MS/ SCI/ CI / RCC), manhole cover and frames, Over head / loft type Water Storage Tanks etc.		B	Review of MTC/ test reports	Each lot of delivery as per Specifications	Tech Specs and Const. Drawings	SR/MTC	✓	
ii	Disinfection	Before use		B	Physical	Each installation	Tech Specs and Const. Drawings	SR		
iii	Leakage test	Before use / leakage of pipes		A	Physical	Each installation	Tech specs and const drawings	SR	✓	
iv	Acceptance of installations of all sanitary items and fixtures			B	Acceptance	100%	Tech Specs and Const. Drawings	SR		
21.0	SPECIAL ITEMS									
i	Bitumen layer for tank foundation	Material: Grade of bitumen		A	Review of MTC/ test reports	Each lot of delivery as per Specifications	As per relevant IS and Tech. Specs /MTC	SR/MTC	✓	approved source for material procurement shall be all government refineries
ii	Modular aerated panel	As required		A	Review of MTC/test report	Each batch of delivery	Tech Specs and Const. Drawings	SR/LR/MT C	✓	
iii	Composite Aluminium Panels and structural glazing	Material : Type of aluminium panels / structural glazing / fasteners and fixtures / silicon sealant		A	Review of MTC/ test reports	Each lot of delivery as per Specifications	Technical specifications / drawings	SR/MTC	✓	MTC shall cover all the properties / parameters as per technical specifications
LEGENDS :				NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02						
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MAIN SUPPLIER				REVIEWED BY		APPROVED BY		APPROVAL SEAL		

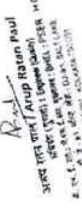
FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102		PROJECT:		NTPC - Kahalgaon Stage I & II		
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIP FORM, ROAD, BUILDING ETC.		Rev. No - 02 Date : 11/04/2023		PACKAGE:		FGD SYSTEM PKG		
				PAGE : 17 OF 27		CONTRACT NO.		4200-109		
						MAIN CONTRACTOR		BHEL, PS:ER, KOLKATA		
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1		3		4	5	6	7	8	9	10
iv	Pressure Relief Valves	Material		B	Review of MTC/ test reports	Each lot of delivery as per Specifications	IS 4558/ Technical specifications / drawings	SR/MTC	✓	
v	Acceptance and workmanship	Acceptance / Installation / workmanship		B	Physical	Random	Tech Specs and Const. Drawings	SR	✓	
22.0 ANTI WEED TREATMENT (AS APPLICABLE)										
i		Anti-weed treatment materials		B	Review of MTC/ test reports	Each batch of delivery	Tech Specs and Const. Drawings	SR/MTC	✓	
ii		Execution of treatment		B	Physical	Random check for each treatment	Tech Specs and Const. Drawings	SR		
23 PILING WORK (If Applicable)										
23.1 Execution										
i		Borehole diameter		B	Physical	100%	As per appd. Drawings and technical specification	SR/LB	✓	
ii		Pile layout		B	Measurement	100%	As per appd. Drawings and technical specification	SR/LB	✓	
iii		Recording ground level		B	Measurement	Random	As per appd. Drawings and technical specification	SR/LB	✓	
iv		Cleaning/Flushing of pile bore		B	Visual	Each pile $\Delta 1$	As per appd. Drawings and technical specification	SR/LB	✓	
v		Size of bore and During boring of pile record commencement of SPT/ core recovery to ensure socketing length equivalent in terms of the Diameter of the pile below the socketing horizon. (if applicable)		B	Measurement	100%	As per appd. Drawings and technical specification	SR/LB	✓	
vi		Pouring of concrete to project above cut off level.		B	Measurement	100%	As per appd. Drawings and technical specification	SR/LB	✓	
23.2 Testing										
i		Bentonite		A	Physical / testing	Once per Lot $\Delta 1$	As per IS:2720, IS 2911/ tech. Specs.	SR/LB SR/MTC	✓	One sample from each source (brand/manufacture) to be tested at Employer acceptable third party lab.
		LEGENDS :						NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02		
		 For NTPC Use								
MAIN SUPPLIER		 Anup Kumar Paul Sr. Asst. Exec. Engineer (Civil) BHEL, PS:ER, KOLKATA						APPROVED BY		
								APPROVAL SEAL		

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II				
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG				
					CONTRACT NO.	4200-109				
					MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA				
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9	10	
ii	Density check on sample of mud collected from pile bore bottom	Sample collection	B/A	Physical	Each Pile (Random)	IS:2911, Tech. Spec., As per appd. Drawings and Approved Piling Methodology	1	SR/LB	✓	Tests to be done before placing concrete. Samples to be collected from pile bore bottom.
iii	Slump test of concrete	IS:1199	B	Physical	Every 2 hrs at pouring point of concrete	IS:2911, As per appd. Drawings and technical specification		SR/LB	✓	
iv	Concrete Cube strength Test	IS:456	A	Physical	One set of 6 cubes per 50 CuM or part thereof for each grade of concrete per shift whichever is earlier.	IS:2911, As per appd. Drawings and technical specification		SR/LB	✓	
v	Initial pile load test, Vertical (Compression), Lateral (horizontal) and pull-out (tension).	IS:2911 / as required	A	Testing	As per Technical Specifications	IS:2911, As per appd. Drawings and technical specification		SR/LB	✓	
vi	Routine pile tests, compression and horizontal	Calibrated LVDT etc. as required.	A	Testing	As per Technical Specifications	IS:2911, As per appd. Drawings and technical specification		SR/LB	✓	
vii	Pile Integrity Tests	PEM	A	Testing	100%	IS:2911, As per appd. Drawings and technical specification and suppliers manual		Test Report	✓	
24	ROAD WORKS									
24.10	Tests on Embankment, Subgrade Construction and Cut Formation									
A	Suitability of Borrow Fill material									
i	Sand Content	As per IS 2720	A	Physical	2 tests per 3000 cum of soil	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 2720 (Part IV)		SR/TR	✓	
ii	Plasticity Test	As per IS 2720	A	Physical	Each type to be tested, 2 tests	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 2720 (Part V)		SR/TR	✓	
iii	Density Test	As per IS 2720	A	Physical	Each soil type to be tested, 2 tests	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 2720 (Part VIII)		SR/TR	✓	
 MAIN SUPPLIER		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate, Surveillance of Class 'A' checks shall be performed by Owner Head (FOA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)				 NTPC A Maharatna Company		NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02		
		REVIEWED BY		APPROVED BY		APPROVAL SEAL				

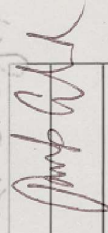
FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-JT-QA-102		PROJECT:		NTPC - Kahalgaon Stage I & II			
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIP FORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023		PACKAGE:		FGD SYSTEM PKG			
				PAGE : 19 OF 27		CONTRACT NO.		4200-109			
						MAIN CONTRACTOR		BHEL, PS:ER, KOLKATA			
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks	
1	2	3		4	5	6	7	8	9	10	
iv		Deleterious Content Test		B	Physical	As and when required by Engineer in charge		As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 2720 (Part XXVII)	SR/TR	✓	
v		Moisture Content Test		A	Physical	Two Tests		As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 2720 (Part II)	SR/TR	✓	
vi		CBR Test		A	Physical	One CBR test (Avg. of three specimens) or closer as and when required by EIC		As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 2720 (Part XVI)	SR/TR	✓	
vii		Free swell Index		A	Physical	Once per each type of source or change of source		As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 2720 (Part XI)	SR/TR	✓	
B	Standard proctor Test	Optimum moisture content and max. dry density before fill		A	Physical	One in every 2000 cum for each type and source of fill materials		As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 2720 (Pt.VII)	SR/TR	✓	
C	Moisture content	Moisture content of fill before compaction		B	Physical	One in every 2000 cum for each type and source of fill materials		As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 2720 (Pt.II)	SR/TR	✓	
D	Compaction										
i		Dry density by core cutter method OR Dry density in place by sand displacement method		A	Physical	One in every 2000 SQM area for each compacted layer.		As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 2720 (Pt. XXIX)/ IS 2720 (Pt. XXVIII),	SR/TR	✓	
ii		Lines, grade and cross section		B	Physical	One in every 500 SQM area		As per Tech Specs and Const. Drawings	SR	Template, straight edge	
24.2	Granular Sub-Base (GSB) (if applicable)										
i		Grading of aggregate		B	Physical	One test per 400 cum		As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓	
 MAIN SUPPLIER		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed By Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)				 For NTPC Use				NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02	
		REVIEWED BY		APPROVED BY		APPROVAL SEAL					

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 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIP FORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023		PACKAGE:		FGD SYSTEM PKG		
						CONTRACT NO.		4200-109		
				PAGE : 20 OF 27		MAIN CONTRACTOR		BHEL, PS:ER, KOLKATA		
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9	D*	10
ii	Atterberg limits	Atterberg limits determination	A	Physical	One test per 400 cum	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
iii	Moisture Content prior to compaction	As required / agreed	B	Physical	One test per 400 cum	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
iv	Density of compacted Layer	As required / agreed	B	Physical	one test per 1000 sqm.	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
v	Deleterious Constituents	As required / agreed	B	Physical	As required	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
vi	CBR	As required / agreed	B	Physical	As required	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
24.3 Water Bound Macadam (WBM)										
i	Aggregate Impact Value	Aggregate Impact value Test Apparatus	A	Physical	One test per 1000 cum of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
ii	Grading of aggregate	Set of IS Sieves	B	Physical	One test per 250 cum	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
iii	combined Flakiness and Elongation Indices	Flakiness & Elongation test gauge	B	Physical	One test per 500 cum of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
iv	Atterberg limits of binding material	Atterberg limits determination	A	Physical	One test per 50 cum of binding material	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
v	Atterberg limits of screenings	Atterberg limits determination	A	Physical	One test per 100 cum of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
24.4 Wet Mix Macadam (WMM) for base course and sub-base course										
i	Aggregate Impact value	Aggregate Impact value Test Apparatus	A	Physical	One test per 1000 cum of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,	SR/TR	✓		
 Anup Kumar Paul Sr. Asst. Engineer (QA/QC) / PSER BHEL, PS:ER, KOLKATA		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR - Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed by Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)				 For NTPC Use		NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02		
MAIN SUPPLIER		REVIEWED BY		APPROVED BY		APPROVAL SEAL				

FIELD QUALITY PLAN



SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II					
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG					
				PAGE : 21 OF 27	CONTRACT NO.	4200-109					
					MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA					
					Reference Document	Acceptance Norms	Format of Record	Remarks			
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	7	8	9	D*	10
i		3		4	5	6					
ii		Grading of aggregate	Set of IS Sieves	B	Physical	One test per 200 cum of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,		SR/TR	✓	
iii		Combined Flakiness index and elongation index	Flakiness & Elongation test gauge	B	Physical	One test per 500 cum of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,		SR/TR	✓	
iv		Atterberg Limits of portion of aggregate passing 425 micron sieve	Atterberg limits determination	A	Physical	One test per 200 cum of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,		SR/TR	✓	
v		Density of compacted Layer	As required / agreed	B	Physical	one set of three tests per 1000 sqm.	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification,		SR/TR	✓	Template, straight edge
24.5 Premix Bituminous Macadam (BM) (If applicable)											
i		Quality of binder	As required / agreed	A	Physical	Number of samples per lot and tests as per IS:73, IS:217 and IS:8887 as applicable	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 73		SR/TR	✓	approved source for material procurement shall be all government refineries
ii		Aggregate Impact Value / Los Angeles Abrasion value	Aggregate Impact Value/Los Angeles Test apparatus	A	Physical	One test per 200 cum of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification		SR/TR	✓	
iii		Combined Flakiness Index and elongation index of aggregates	Flakiness & Elongation test gauge	B	Physical	One test per 350 cum for each source	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification		SR/TR	✓	
iv		Stripping value of aggregate (Immersion tray test)	As required / agreed	B	Physical	one test of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification		SR/TR	✓	
v		Water absorption of aggregate	As required / agreed	B	Physical	one test of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification		SR/TR	✓	
LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR - Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed by Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)											
 Pankaj Chandra Project Engineer (QA/QC) BHEL, PS:ER, KOLKATA		 For NTPC Use				NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02		APPROVED BY		APPROVAL SEAL	

MAIN SUPPLIER

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II				
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIP FORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG				
					CONTRACT NO.	4200-109				
					MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA				
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9	10	
vi	Water sensitivity of mix	As required / agreed	B	Physical	one test of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓		
vii	Grading of aggregates	Set of Sieves	B	Physical	Two test per day per plant both on individual constituents and mixed aggregate from dryer	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓		
viii	Soundness (Magnesium and Sodium Sulphate)	As required as per IS:2386	A	Physical	one test of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓		
ix	Percentage of fractured faces	As required / agreed	B	Physical	one test per 100 cum of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓		
x	Binder content	Bitumen extractor	A	Physical	Periodic, subject to a min of two tests per day per plant	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓		
xi	Control of Temperature of binder and aggregate for mix and of the mix at the time of laying and rolling	Thermometer	B	Physical	At regular dose intervals	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓		
xii	Density of compacted Layer	As required / agreed	A	Physical	One test per 700 Sqm of area	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓		
xiii	Rate of spread of mixed materials	As required / agreed	B	Physical	At Regular Interval	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓		
24.6	Bituminous Concrete (if applicable)									
i	Quality of binder	As required / agreed	A	Physical	Number of samples per lot and tests as per IS:73 or IRC:SP:53, IS:15462	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 73	SR/TR	✓	approved source for material procurement shall be all government refineries	
 BHEL, PS:ER, KOLKATA		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed by Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Dept)				 For NTPC Use		NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02		
MAIN SUPPLIER						REVIEWED BY		APPROVED BY		APPROVAL SEAL

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102		PROJECT:	NTPC - Kahalgaon Stage I & II			
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIP FORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023		PACKAGE:	FGD SYSTEM PKG			
						CONTRACT NO.	4200-109			
						MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA			
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9	10	
ii		Aggregate Impact Value / Los angels abrasion value	Aggregate Impact Value/Los Angeles Test apparatus	A	Physical	One test per 350 cum of aggregate for each source and whenever there is change in the quality of aggregate. One test per 350	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
iii		Flakiness Index and elongation index of aggregates	Flakiness & Elongation test gauge	B	Physical	cum of aggregate for each source and whenever there is change in the quality of aggregate. One test for each	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
iv		Soundness Test (Magnesium and Sodium Sulphate)	As required as per IS:2386	A	Physical	One test for each source and whenever there is change in the quality of aggregate. One test for each	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
v		Water absorption of aggregate	As required / agreed	B	Physical	source and whenever there is change in the quality of aggregate. One test for each	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
vi		Sand equivalent test	As required / agreed	B	Physical	quality of aggregate. One test for each source and whenever there is change in the quality of aggregate. One test for each	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
vii		Plasticity Index	As required / agreed	B	Physical	One test for each source and whenever there is change in the quality of aggregate. One test for each	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
viii		Polished stone value	As required / agreed	B	Physical	One test for each source and whenever there is change in the quality of aggregate. One test for each	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
ix		Percentage of fractured faces	As required / agreed	B	Physical	One test per 350 cum of aggregate when crushed gravel is used	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
 Ratan Paul 4200-109-001-PSER-QVC-Q-371/02/CAT-I/ Page: 23 of 27		LEGENDS :		* Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate, Surveillance of Class 'A' checks shall be performed By Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)						
		 For NTPC Use		NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02 REVIEWED BY APPROVED BY APPROVAL SEAL						

MAIN SUPPLIER

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant			QP NO. : PP-QLY-1901-UT-QA-102		PROJECT:	NTPC - Kahalgaon Stage I & II			
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.			Rev. No. - 02 Date : 11/04/2023		PACKAGE:	FGD SYSTEM PKG			
					PAGE : 24 OF 27		CONTRACT NO.	4200-109			
							MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA			
Sl. No	Activity and operation	Characteristics / Instruments			Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3			4	5	6	7	8	9	10
x		Mix Grading	Set of Sieves	Physical	B	Physical	One set for individual constituent and mixed aggregate from dryer for each 400 tonnes of mix subject to minimum of two tests per day	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
xi		Stability and voids analysis of mix including theoretical maximum specific of loose mix	As required / agreed	Physical	B	Physical	Three tests for stability, flow value, density and void contents for each 400 tonnes of mix subject to minimum of two tests per day per plant	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
xii		Moisture Susceptibility of mix (AASHTO T283)	As required / agreed	Physical	A	Physical	One test for each mix type whenever there is change in the quality or source of coarse or fine aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
xiii		Temperature of binder in boiler, aggregate in dryer and mix at the time of laying and compaction	Thermometer	Physical	B	Physical	At regular intervals	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
xiv		Binder content	Bitumen extractor	Physical	A	Physical	One set for each 400 tonnes of mix subject to minimum of two tests per day per plant	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
xv		Rate of spread of mixed materials	As required / agreed	Physical	B	Physical	Alter every 5th truck load	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
xvi		Density of compacted Layer	As required / agreed	Physical	A	Physical	One test per 700 Sqm of area	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓	
 R. J. Singh Sr. Asst. Engr. (Civil) NTPC Ltd. Kahalgaon Stage I & II Dist. - Jharkhand Pin - 814121		LEGENDS :			* Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed By Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)			 For NTPC Use		NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02	
		MAIN SUPPLIER			REVIEWED BY	APPROVED BY	APPROVAL SEAL				

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II					
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG					
					CONTRACT NO.	4200-109					
					MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA					
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks	
1	2	3	4	5	6	7	8	9	10		
24.7	Premix surfacing and Seal coat (If applicable)										
i	Quality of binder	As required / agreed	A	Physical	Number of samples per lot and tests as per IS:73, IS:217 and IS 8887 as applicable	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification, IS 73	SR/TR	✓	approved source for material procurement shall be all government refineries		
ii	Aggregate Impact Value / Los Angeles Abrasion value	Aggregate Impact Value/Los Angeles Test apparatus	A	Physical	One test per 200 cum of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
iii	Combined Flakiness Index and elongation index of aggregates	Flakiness & Elongation test gauge	B	Physical	One test per 100 cum of aggregate for each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
iv	Stripping value of aggregate (Immersion tray test)	As required / agreed	B	Physical	one test of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
v	Water absorption of aggregate	As required / agreed	B	Physical	one test of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
vi	Grading of aggregates	Set of Sieves	B	Physical	Two test per day per plant both on individual constituents and mixed aggregate from dryer	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
vii	Soundness (Magnesium and Sodium Sulphate)	As required as per IS:2386	A	Physical	one test of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
 R. K. Paul Asst. Engineer (Civil) BHEL, PS:ER, KOLKATA		LEGENDS :			NTPC DOC NO. : 4200-1 09-001-PSER-QVC-Q-371 / R-02						
		* Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed by Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)			 For NTPC Use						
MAIN SUPPLIER					REVIEWED BY			APPROVED BY			APPROVAL SEAL

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant			QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II				
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.			Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG				
					PAGE : 26 OF 27	CONTRACT NO.	4200-109				
						MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA				
Sl. No	Activity and operation	Characteristics / Instruments			Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9	10		
viii		Polished stone value	As required / agreed	Physical	one test or each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
ix		Temperature of binder at application	Thermometer	Physical	At regular interval	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
x		Binder Content	Bitumen extractor	Physical	Two tests per day per plant	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
xi		Percentage of fractured faces	As required / agreed	Physical	One test per 100 cum of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
24.8 Tack Coat/ Prime coat											
i		Quality of binder	As required / agreed	Physical	Number of samples per lot and tests as per IS:73, IS:217 and IS:8887 as applicable	IS 73, Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			approved source for material procurement shall be all government refineries
ii		Binder temperature for application	Thermometer	Physical	At regular close intervals	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
iii		Rate of spread of binder	As required / agreed	Physical	Three tests per day	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
24.9 RCC Pavements											
i		Quality checks for Materials used for Pavement concrete			As per Table 900-6 of MoRTH Spec.						
ii		Quality checks for concrete used for Pavement concrete			As per Table 900-6 of MoRTH Spec.						
24.10 Alignment, Level, Surface regularity and rectification											
i		Horizontal alignment, Surface levels and Surface regularity	As required / agreed	Physical	As per section 900 of MoRTH specification	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
ii		Rectification	As required / agreed	Physical	Each rectification	As per Tech Specs and Const. Drawings, Section 900 of MoRTH specification	SR/TR	✓			
 R. S. Paul, Joint Project Engineer, BHEL, PS:ER, KOLKATA		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate. Surveillance of Class 'A' checks shall be performed by Owner Head (FOA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Dept)				 NTPC A Maharatna Company		NTPC DOC NO. 4200-1 09-001-PSER-QVC-Q-371 / R-02			
		MAIN SUPPLIER		REVIEWED BY	APPROVED BY	APPROVAL SEAL					

FIELD QUALITY PLAN

SUPPLIERS NAME AND ADDRESS		ITEM : Civil Work of FGD System, Gypsum Handling Plant & Limestone Handling Plant		QP NO. : PP-QLY-1901-UT-QA-102	PROJECT:	NTPC - Kahalgaon Stage I & II				
 BHEL, PS:ER, KOLKATA		SUB-SYSTEM : GEOTECH INVESTIGATION, SITE LEVELLING, PILING, EXCAVATION & FILL, CONCRETE, FORM WORK, FOUNDATIONS, SLIPFORM, ROAD, BUILDING ETC.		Rev. No. - 02 Date : 11/04/2023	PACKAGE:	FGD SYSTEM PKG				
					CONTRACT NO.	4200-109				
				PAGE : 27 OF 27	MAIN CONTRACTOR	BHEL, PS:ER, KOLKATA				
Sl. No	Activity and operation	Characteristics / Instruments		Class of check	Type of Check	Quantum Of check	CONTRACTOR Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9	D*	10
GEOTECHNICAL INVESTIGATION WORK										
i		Deployment of approved Geotechnical Investigation Agency Equipment, Manpower etc.	As required / agreed	B	Physical	Once before commencement of work	As per technical specifications and relevant IS Codes	SR	✓	
ii		Execution of Geotechnical Investigation - locations, type etc. as per scheme	As required / agreed	B	Physical	Each Location	As per technical specifications and relevant IS Codes	SR	✓	
iii		Collection of disturbed and undisturbed samples, their packing and storage	As required / agreed	B	Physical	each sampling	As per technical specifications and relevant IS Codes	SR		
iv		Conducting filed tests as per investigation scheme- such as, SPT/ERT/SCPT/PLT/PMIT etc.	As required / agreed	B	Physical	each field test	As per technical specifications and relevant IS Codes	SR		
v		Submission of Field Bore logs in approved format	As required / agreed	B	Review	Within 24 hours after completion of each BH	As per technical specifications and relevant IS Codes	SR	✓	
vi		Submission of laboratory test schedule and selection of samples for laboratory testing	As required / agreed	B	Review and acceptance	as per consultation with engineer during dispatch of samples to approved laboratory	As per technical specifications and relevant IS Codes	SR	✓	
vii		Submission of Final Geotechnical investigation report along with recommendations	As required / agreed	B	Physical	After completion of investigation work and review of draft reports	As per technical specifications and relevant IS Codes	-	✓	
viii		Topographical Survey works with calibrated instrument (Total Station/GPS, etc.)	As required / agreed	C	Physical/Review	On completion of area (partial/complete)	As per technical specifications and relevant IS Codes, approved drawings	SR	✓	Copy of calibration certificates of instruments shall be submitted for records
ix	Construction of Bench Mark / Grid Pillars	To mark reference co-ordinate & elevation : Selection of location, checking of co-ordinate & elevation	As required / agreed	B	Physical	each Bench Mark/ Grid Pillars	As per technical specifications and relevant IS Codes, approved drawings	SR	✓	Joint protocol for co-ordinate and elevation
 R. S. Paul (Asst. Engineer)		LEGENDS : * Records identified with tick (✓) shall be essentially included by supplier in QA documentation # Class A : Critical, Class B : Major, Class C : Minor Class A checks shall be witnessed by NTPC FQA and Execution Engineer, Class B checks shall be witnessed by NTPC Execution Engineer, Class C checks shall be witnessed by BHEL Site engineer SR - Site Register, TR- Test Report, IR - Inspection Report, MTC - Manufacturer's Test Certificate, Surveillance of Class 'A' checks shall be performed by Owner Head (FQA), Class 'B' by Owner FQA Engineer and for class 'C' Another Executing Engineer authorised by Head (Executing Deptt)				 For NTPC Use		NTPC DOC NO. 4200-1 09-001-PSER-QVC-Q-371 / R-02		
		REVIEWED BY		APPROVED BY		APPROVAL SEAL				

Note: Any non conformity/ deviation to the Quality plan must be brought to notice of NTPC Employer.
Dispositioning authority shall be the authorised representative of NTPC/Employer

Reference : CC-ENGG-4200-109-002-PEM-PVC-B-018

Date : 11/10/2022

From : Arup Ghoshal AGM(PE TASK FORCE)	To : BHEL DELHI NEW DELHI 110049 IN
Cc :	
Subject : KHTPP - FGD	
Please find enclosed following drawings/ documents for necessary action at your end.	
Vendor Drg. No. : PE-DG-481-695-C015 Orgn. Drg. No. : 4200-109-002-PEM-PVC-B-018 Revision No. : 00 Drg. Title : FGD FLUE GAS DUCT SUPPORT FOUNDATION STAGE-1 :-GA AND RC DETAILS OF FOUNDATION FROM ABSORBER TO CHIMNEY FOR UNIT 1&2 App. Category : CATREL Release Date : 11/10/2022	 Scan to verify
Comments : Since the drg/Document is identified as an Auto Archive type, hence Contractor/ Vendor has the entire responsibility to ensure fulfilment for tendered specification and contractual requirement. This drg/document has been retained for information to NTPC.	

Reference : CC-ENGG-4200-109-002-PEM-PVC-B-037

Date : 20/06/2022

From : Arup Ghoshal
AGM(PE TASK FORCE)

To : BHEL DELHI
NEW DELHI
110049
IN

Cc :

Subject : KHTPP - FGD

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : PE-DG-481-620-C107
Orgn. Drg. No. : 4200-109-002-PEM-PVC-B-037
Revision No. : 00
Drg. Title : FGD CHIMNEY- DETAILS OF EXTRA REINFORCEMENT AROUND OPENINGS STAGE-I
App. Category : CATREL
Release Date : 20/06/2022



Scan to verify

Comments : Since the drg/Document is identified as an Auto Archive type, hence Contractor/ Vendor has the entire responsibility to ensure fulfilment for tendered specification and contractual requirement. This drg/document has been retained for information to NTPC.

Reference : CC-ENGG-4200-109-001-PEM-PVC-U-707

Date : 11/01/2022

From : MANOJ KUMAR SINGH
MANAGER(PE TASK FORCE)

To : BHEL DELHI
NEW DELHI
110049
IN

Cc :

Subject : KHTPP - FGD

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : PE-DG-481-620-C105

Orgn. Drg. No. : 4200-109-001-PEM-PVC-U-707

Revision No. : 01

Drg. Title : FGD CHIMNEY- RC details of chimney shell STAGE-I

App. Category : CAT-I

Release Date : 11/01/2022



Scan to verify

Comments : no comments.

REPLY TO NTPC COMMENTS ON DWG NO. PE-DG-481-620-C105 R0

NTPC DWG NO. 4200-109-PEM-PVC-U-707-00

1. NTPC COMMENT: Refer to the comments marked in design document, finalize the design and accordingly update this drawing as per approved design.

BHEL REPLY: Noted and incorporated.

2. NTPC COMMENT: Wind tunnel test shall be carried out and findings of the same shall be incorporated in drawing as well as drawing.

BHEL REPLY: Wind tunnel test report has been approved by NTPC. The drawing and design document has been revised as per the findings of the wind tunnel test report.



A Maharatna Company

एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)
(Formerly National Thermal Power Corporation Ltd.)
(केंद्रीय कार्यालय नोएडा)
Corporate Center NOIDA

Reference : CC-ENGG-4200-109-002-PEM-PVC-B-035

Date : 18/08/2021

From : MANOJ KUMAR SINGH
MANAGER(PE TASK FORCE)

To : BHEL DELHI
NEW DELHI
110049
IN

Cc :

Subject : KHTPP - FGD

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : PE-DG-481-620-C104

Orgn. Drg. No. : 4200-109-002-PEM-PVC-B-035

Revision No. : 00

Drg. Title : FGD CHIMNEY-REINFORCEMENT DETAILS OF FOUNDATION STAGE-I

App. Category : CATREL

Release Date : 18/08/2021



Scan to verify

Comments : Drawings / Documents are being submitted to NTPC for information. Contractor/Vendor hereby confirms full compliance to all the specified requirements of the contract specification, without and deviation, whatsoever. In case during the tenure of the contract, it is observed/found that the data/ information in the released Drawing/document is not meeting the contract specification, Contractor/vendor will modify/ rectify/replace the Equipments/ System/Utilities to meet the specification without any commercial implication or any time extension to NTPC in this regard.



Engineering Division
ISO 9001:2008 Certified



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Registered Office: NTPC Bhawan, Scope Complex, 7 Institutional Area, Lodhi Road, New Delhi-110 003
Telephone No: 011 24360100 Fax: 011 24361018, Website: www.ntpc.co.in

Reference : CC-ENGG-4200-109-001-PEM-PVC-U-703

Date : 22/09/2022

From : Arup Ghoshal
AGM(PE TASK FORCE)

To : BHEL DELHI
NEW DELHI
110049
IN

Cc :

Subject : KHTPP - FGD

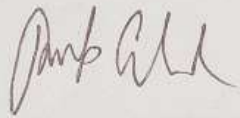
Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : PE-DG-481-620-C102 SH-1
Orgn. Drg. No. : 4200-109-001-PEM-PVC-U-703
Revision No. : 03
Drg. Title : FGD CHIMNEY- FOUNDATION PILING LAYOUT SH-1 STAGE-I
App. Category : CAT-I
Release Date : 22/09/2022



Scan to verify

Comments : no comments.



REPLY TO NTPC COMMENTS ON DWG NO. PE-DG-481-620-C102 R2

NTPC DWG NO. 4200-109-PEM-PVC-U-703-02

1. NTPC COMMENT: Wind Tunnel Test report is an auto archive document, hence the same is not to be reviewed by NTPC Engg. BHEL to ensure that its findings are incorporated in design and drawing.
BHEL REPLY: Noted and incorporated.

Reference : CC-ENGG-4200-109-002-PEM-PVC-B-036

Date : 20/06/2022

From : Arup Ghoshal
AGM(PE TASK FORCE)

To : BHEL DELHI
NEW DELHI
110049
IN

Cc :

Subject : KHTPP - FGD

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : PE-DG-481-620-C106

Orgn. Drg. No. : 4200-109-002-PEM-PVC-B-036

Revision No. : 00

Drg. Title : FGD CHIMNEY- DETAILS OF SHELL OPENINGS STAGE-I

App. Category : CATREL

Release Date : 20/06/2022



Scan to verify

Comments : Since the drg/Document is identified as an Auto Archive type, hence Contractor/ Vendor has the entire responsibility to ensure fulfilment for tendered specification and contractual requirement. This drg/document has been retained for information to NTPC.

