A) The clause 9.69 as mentioned below is added in addition to the existing clauses of VOLUME-IA PART – II CHAPTER 1-Sl No: 8- "The following clauses are added under Volume 1 Book II- SPECIAL CONDITIONS OF CONTRACT (SCC): Chapter-IX: Occupational Health, Safety & Environment Management / Quality Assurance Programme":

Sl No. 8

9.69 List of suggestive minimum Safety Equipments/PPEs to be mobilised by the contractor. (Quantities indicated below are for two units):

Sl No.	Description	Quantity
1	**Safety Net** (conforming IS 11057:1984) Net Size: 10m x 5m, Mesh Size: 25 mm, Mesh Rope: 2mm double cord, Border/Tie Cord: 12 mm diameter polypropylene rope (tested as per IS: 5175). Two metres length shall be provided at all four corners.	25 Nos.
2	**Fall Arrester**: 'Rope grab fall arrester'& anchorage line Anchorage Line: 14 mm-16 mm diameter, three strand twisted Polyamide rope. Rope Grab fall arrester: Openable & Guided type Fall Arrestor (one flexible line) conforming EN 353-2 & works on 14-16 mm diameter Polyamide rope, material: Nickel Chrome plated Steel Connector: Karbiner conforming to EN 362 (Minimum Strength 22 kN), material: Steel	30 Nos. of 'Rope Grab Fall arrester' and Karbiner each. 10 nos. of anchorage line, each 30 metre long.

3	**Horizontal life line** Stainless Steel Wire rope of 8 mm diameter. Minimum six nos. of steel U-bolt clips are required for clamping each wire rope to a rigid support (03 nos. of U-bolt clips at both end).	20 nos. of wire rope, each 40 metre long.
4	**Ladders on column** The minimum design live load on metallic ladder shall be a single concentrated load of 100 kilo grams. All rungs shall have a minimum diameter of 1.90 centimetres, and minimum clear length of rungs shall be 40.6 centimetres. The distance between rungs shall not exceed 30.5 centimetres. Each ladder shall have maximum height of 9.0 metre. The ladder shall have proper fastenings for attaching it to a column using positive means such as bolt, weld or other type of fasteners.	Cumulative length of ladders is 200 metres.
5	**Safety PPEs (Industrial Safety Helmet & Industrial Safety / Electrical Shoes)** Industrial Safety Helmet (IS: 2995 -1984 marked). Industrial Safety / Electrical Shoes (IS:15298-2002 marked) Full Body Safety Harness (conforming IS: 3521)	Safety Helmet & Safety Shoes: 100 nos. each. Full Body Safety Harness: 30 nos.

B) Some of the bidders had raised queries in the published tender specification. The Clarifications issued by BHEL are furnished below:

Sl No.	Reference clause of Tender Document	Existing provision	Bidder's Query	BHEL's clarification
1	TCC Volume- IA Part I Chapter-III- SCOPE MATRIX Clause 1.3.1.2.2.2	Supply, installation and connection of material …… and maintenance	We do not understand the meaning of "connection of material" please clarify.	Fixing of digital type energy meter with all accessories for measuring the MD & KWH reading.
2	TCC Volume- IA Part I Chapter- XV- WELDING, HEAT TREATMENT & RADIOGRAPHY AND NON-DESTRUCTIVE TESTING Clause 1.15.6 to 1.15.28	All these clause are meant for NDT work	As there is no radiography or heat treatment work in ESP scope, we feel that these clauses should be deleted	RT applicable as below. 10 % RT on butt welds 100 % RT on roof beam tension flange
3	TCC Volume- IA Part I Chapter-XVI – TESTING AND COMMISSIONING Clause 1.16.15 to 1.16.23	All these clauses pertain to hydro test of piping etc.	As there is no piping work involve in this scope of work we feel that these clauses should be deleted	LP piping like Water washing system etc.
4	TCC Volume- IA Part I Chapter-XVII- PAINTING Clause 1.17.1.6	All the exposed metal ……BHEL / customer official	Since only final painting is in scope of contractor, please confirm the approximate area for application of primer	Materials will be supplied with painted condition. Any exposed metal during execution shall be applied

				with primer and finish paints as per the painting scheme provided.
5	TCC Volume- IA Part I Chapter-XVII- PAINTING Clause 1.17.1.14	Primer and finish paint …….. using the same	Please provide BHEL / customer approved agency for supply of paints	Clause self-explanatory
6	TCC VOLUME-IA PART – II CHAPTER 1 -Serial no. 3-PRICE VARIATION COMPENSATION(PVC)-Clause 2.17.9 (iv)	Clause 2.17.9 (iv) is deleted	Please confirm the maximum ceiling limit of PVC	There is no maximum ceiling limit.
7	TCC VOLUME-IA PART – II CHAPTER 1-SI No: 7-REVERSE AUCTION-Clause RA 1.3	In case BHEL decides to go for Reverse Auction, only those ……. tender process and will invite action by BHEL as per extant guidelines in vogue.”	Please confirm that submission of on line sealed bid price by the bidder is to be the same as that quoted in sealed price bid submitted to BHEL in hard copy or can be different	Bidder may read the clause RA 1.3 along with clause RA 1.4
8	TCC VOLUME-IA PART – II CHAPTER 1-SI No: 7-REVERSE AUCTION- Serial no. 4 of Annexure RA IV-Process Compliance form	We also confirm that …….. to BHEL and service provider	Please confirm that to whom original copy is to be sent BHEL or service provider	Original copy may be sent to BHEL with a copy to the Service Provider

9	TCC VOLUME- IA PART I CHAPTER-X –GENERAL Cl. 1.10.1.1.4 & 1.10.1.1.5	The contractor irrespective of their nature of work and manpower (Civil, Mechanical, Electrical works etc) should register their establishment under BOCW Act 1996 and comply with BOCW Welfare Cess Act 1996. BHEL shall recover an amount of 1% (one percent) from every RA Bill of the contractor towards BOCW Cess Act 1996 and shall be remitted to the Authority by BHEL by way of adjustment of BOCW Cess recovery by NTPC.	Please confirm whether BHEL will refund to the contractor the 1% amount recovered as per clause 1.10.1.1.5 on production of proof of remittance of BOCW welfare cess. Or Whether the contractor has to remit the BOCW welfare cess in addition to the 1% that BHEL deduct from the RA Bill as per clause 1.10.1.1.5	In line with Volume I A Part I Chapter X Clause 1.10.1.1.4 , bidder should register their establishment under BOCW Act 1996 and comply with BOCW Welfare Cess Act 1996. **The clause 1.10.1.1.5 is revised as follows:** BHEL shall recover an amount of 1% (one percent) from every RA Bill of the contractor towards BOCW Cess Act 1996 and shall be remitted to the Authority by BHEL by way of adjustment of BOCW Cess recovery by NTPC. **Amount will not be recovered from the contractor only on production of a certificate of no deduction from labour authorities.**
10	TCC VOLUME- IA PART I CHAPTER-XIV –ERECTION Clause 1.14.2.1	Application of wool insulation, sheet metal cladding, welding of hooks / supports to hold insulation under this contract including	As per the BOQ no flue gas duct erection in the scope of this work. Please confirm whether insulation of flue gas duct is included in the	**Clause revised as below:** Application of wool insulation, sheet metal cladding, welding of hooks/supports to hold

		but are not limited to the following. Insulation of flue gas ducts,and connected ducts, ESP etc.	scope of this work. In case, it is included, specify the terminal points and tonnage of insulation.	insulation for ESP and aux as per scope indicated in TCC VOLUME-IA PART – I CHAPTER - IX WEIGHT SCHEDULE.
11	TCC VOLUME-IA PART I CHAPTER-III- SCOPE MATRIX Clause 1.3.1.3	WATER SUPPLY- For construction purposes is in bidders' scope	How can a bidder make water available for construction purposes? The required water for construction purposes shall be made available by BHEL/ Owner free of charges. We assumed that water required for testing, pre-commissioning and commissioning activities will also be provided by BHEL/ Owner free of charges. Kindly confirm.	Construction water to be arranged by bidder as per tender condition. BHEL/Owner will arrange water required for testing, pre-commissioning and commissioning activities.
12	TCC VOLUME-IA PART – I CHAPTER – V- T&Ps AND MMEs TO BE DEPLOYED BY BHEL ON SHARING BASIS Clause 1.5.7	In case of non-availability of these equipments, due to any reason i.e., **unavoidable breakdown, major overhaul or any other reason etc., the contractor** should make arrangement at his own cost to meet the erection targets. No extra claim will be	Unavoidable breakdowns, major overhaul or any other reasons etc. are not in bidders hand and it's beyond our control. Hence BHEL shall make alternative arrangements and also extend erection targets accordingly.	It is clarified that crane above 100 MT is not expected from Contractor.

		admitted due to non-availability of any of the above equipments. No delay in execution of work shall be accepted on this account.		
13	TCC VOLUME-IA PART – I CHAPTER – V- T&Ps AND MMEs TO BE DEPLOYED BY BHEL ON SHARING BASIS Clause 1.5.8	Cranes are only for erection purpose and shall not be available for material handling or transportation purpose. Contractor shall make their own arrangements for material transportation to erection site.	All cranes above 100 MT capacities for erection, material handling & transportation shall be provided by BHEL wherever required for such activities of heavy components / equipments, if required.	Tender condition prevails.
14	TCC VOLUME-IA PART –I CHAPTER -XII FOUNDATIONS AND GROUTING Clause 1.12.11	All the materials required for grouting including special cements like non shrinkable cement as approved by BHEL and other materials like Portland cement, sand etc., are to be arranged by the contractor at his cost. **It shall be the responsibility of the contractor to obtain prior approval of BHEL, regarding suppliers, type of grouting cements before procurement of**	Request BHEL to provide approximate quantity of grouting cements required for grouting of ESP & auxiliary equipment for loading in our cost.	Bidder to quote as per standard practice.

		grouting cements.		
15	VOLUME-IA PART – II CHAPTER 1 CORRECTIONS / REVISIONS/ ADDITIONS IN SPECIAL CONDITIONS OFCONTRACT,GENERAL CONDITIONS OF CONTRACT AND FORMS & PROCEDURES Sl No: 3 PRICE VARIATION COMPENSATION (PVC)	**Clause 2.17.5 is revised as under:** Base date shall be first of the consecutive first month to the month in which contract period completes. (Explanatory statement: PVC shall not be applicable for the contract period and also for the portion of the days remaining after the contract period in the contract completion month. For example if the contract period completes in any day in the month of June 2014 the PVC shall be applicable July onwards with base index of July 2014.)	While BHEL is availing this clause from NTPC contract from beginning, why your own sub-contractors (business associates) are not passed on this clause, at least for NTPC projects.	Tender condition prevails.
16	Erection sequence- Feeding of electrode	ESP Erection sequence there is no mention of mode of feeding of ESP electrodes.	Kindly confirm whether electrodes are to be bottom feed or top feed	Collecting electrode shall be fed from bottom.

C) In Vol I A Part-II: Technical specifications Chapter-2- **Painting schedule for ESP and Aux.,** the painting schedule of NTPC Gadarwara STPP Stage-1 (2x800 MW) was attached for reference. The same is to be replaced with the painting schedule of NTPC DARLIPALI STPP STAGE – 1 (2 X 800 MW) attached in the next 8 pages.

Bidders are requested to consider this corrigendum as part of tender specification and quote accordingly.
All other conditions of the tender specification remain unchanged.

-Sd-
Senior Engineer/ Sub-contracts

एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)
(Formerly National Thermal Power Corporation Ltd.)
केन्द्रीय कार्यालय नोएडा
Corporate Centre NOIDA

Reference: CC:PE:104:1629

Date:30-01-15

From:	MS. ARUNDHATI BHATTACHARYA GM- C&I AND CTF	To:	Mr M. Mani BHEL RANIPET
		CC:	ukjain@ntpc.co.in - -

SUBJECT : DPALLI, ESP PKG

Please find enclosed following drawings/documents for necessary action at your end as indicated in purpose code.

VENDOR DRG NO:	null
NTPC DRG NO:	9549-104-PVM-H-002
REVISION NO:	00
DRG TITLE:	ESP Painting scheme
APP CATEGORY:	II
RELEASE DATE:	30-01-15
COMMENTS:	Refer minor comments marked up.

RANIPET	**Bharat Heavy Electricals Limited Boiler Auxiliaries Plant Ranipet – 632 406**	**BHEL DOC NO.**	**PS :DARL:ESP: R825-R826**
		REVISION NO.	**00**
		DATE	**12-01-2015**

NTPC DARLIPALI STPP STAGE – 1 (2 X 800 MW)

PAINTING SCHEDULE FOR ESP PACKAGE

NTPC CONTRACT NO: **CS-9549-104-2-FC-NOA-6232 DTD: 29-10-2014**

NTPC DRG NO: **9549-104-PVM-H-002**

BHEL RANIPET Customer No(s).: R825 & R826

Prepared & Reviewed By	Approved By
	
(K. Jothi Arulanandam)	(R. Arunachalam)

RECORD OF REVISION

REV NO	DATE	DETAILS OF REVISION
0 0	12.01.2015	Original Issue - First Submission

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	

1. ELECTROSTATIC PRECIPITATOR (ESP OR EP)

Include final P

1	Insulator Housing Assy	7X - X06	Power Tool Cleaning to st3 (sspc-sp3)	Heat Resistant Aluminum paint to IS 13183 Gr. II (up to 400^0 C) (Two Coats)	40	NIL	--	40
2	Gas Distribution Assy	7X - X08	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coast)	50	NIL	--	50
3	GD Rapping Mechanism	7X - X09	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coast)	50	NIL	--	50
4	GD Drive Arrangements	7X - X10	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coast)	40	Synthetic Enamel to IS 2932 Smoke Grey Shade No. 692 of IS 5 (Two Coats)	40	80
5	Gas Screening	7X - X11	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coast)	50	NIL	--	50
6	Emitting System suspension	7X - X13	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coast)	50	NIL	--	50
7	Emitting Electrode –Hook Part	7X - X15	Rust preventive application on Hook part Only (Electrode Wire is Stainless Steel)					
8	Emitting Electrode Rapping Mechanism	7X - X16	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coast)	50	NIL	--	50
9	Drive Arrangement For Emitting System	7X - X17	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coast)	40	Synthetic Enamel to IS 2932 Smoke Grey Shade No. 692 of IS 5 (Two Coats)	40	80
10	Suspension Arrangement For Collecting Electrode	7X - X19	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coast)	50	NIL	--	50
11	Collecting Electrode	7X - X20	Rust Preventive Fluid Application					

Specification for Rust Preventive Fluid may b

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
12	Lifting Beam for Collecting Electrode	7X - X20	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	40	Synthetic Enamel to IS 2932 Smoke Grey Shade No. 692 of IS 5 (Two Coats)	40	80
13	Frame Of Emitting System-Top	7X - X21	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50
14	Frame Of Emitting System Bottom	7X - X22	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Prime to IS: 12744 (Two coats)	50	NIL	--	50
15	Inspection /Access Door	7X - X23	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	40	Synthetic Enamel to IS 2932 Smoke Grey Shade No. 692 of IS 5 (Two Coats)	40	80
16	Shock Bars	7X - X24	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coast)	50	NIL	--	50
17	Collecting Electrode (CE) Rapping Mechanism	7X - X25	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50
18	Drive Arrangements for CE Raping	7X - X26	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	40	Synthetic Enamel to IS 2932 Smoke Grey Shade No. 692 of IS 5 (Two Coats)	40	80
19	ESP Roof Beams	7X - X28	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50
20	Frame of Emitting System – Middle	7X - X32	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50
21	Outer Roof –EP	7X - X42	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (two coats)	40	Synthetic Enamel to IS 2932 Smoke Grey Shade No. 692 of IS 5 (Two Coats)	40	80
22	Hopper Ridges	7X - X43	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50

Sl No	SURFACE LOCATION		PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
					PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
23	Hopper Upper part	Insulated side	7X - X44	Power Tool Cleaning to St3 (SSPC-SP3)	Heat Resistant Aluminum paint to IS 13183 Gr. II (up to 400^0 C) (Two Coats)	40	NIL	--	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50
24	Hopper Middle & Lower part	Insulated side	7X - X45	Power Tool Cleaning to St3 (SSPC-SP3)	Heat Resistant Aluminum paint to IS 13183 Gr. II (up to 400^0 C) (Two Coats)	40	NIL	--	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50
25	Insulator Support Panel	Insulated Side	7X - X46	Power Tool Cleaning to st3 (SSPC-SP3)	Heat Resistant Aluminum paint to IS 13183 Gr. II (up to 400^0 C) (Two Coats)	40	NIL	--	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50
26	Roof Panel Assy	Insulated Side	7X - X47	Power Tool Cleaning to st3 (SSPC-SP3)	Heat Resistant Aluminum paint to is 13183 Gr II (up to 400^0 C) (Two coats)	40	NIL	--	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coast)	50	NIL	--	50
27	Casing Structure		7X - X48	Power Tool Cleaning to st3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50
28	Casing (Shell, Side Panels, Gables & GD Housing)	Insulated Side	7X - X49	Power Tool Cleaning to st3 (SSPC-SP3	Heat Resistant Aluminum paint to is 13183 Gr II (up to 400^0 C) (Two coats)	40	NIL	--	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50

Sl No	SURFACE LOCATION		PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
					PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
29	ESP Funnel Assy	Insulated Side	7X - X50	Power Tool Cleaning to st3 (SSPC-SP3	Heat Resistant Aluminum paint to is 13183 Gr II (up to 400^0 C) (Two coats)	40	NIL	--	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50
30	ESP Pent House		7X - X55	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	40	Synthetic Enamel to IS 2932 Smoke Grey Shade No. 692 of IS 5 (Two Coats)	40	80
31	Splitters & Guide Vanes		7X - X57	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	50	NIL	--	50
32	ESP Performance Test Equipment		7X - X61	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	40	Synthetic Enamel to IS 2932 Smoke Grey Shade No. 692 of IS 5 (Two Coats)	40	80
33	Water Washing System		7X - X66	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	40	Synthetic Enamel to IS 2932 Smoke Grey Shade No. 692 of IS 5 (Two Coats)	40	80
34	Foundation Materials for ESP		7X - X80	All Threaded and other surfaces of foundation bolt and its materials shall be coated with temporary rust preventive fluid. During execution of civil works the dried film of coating will be removed using Organic Solvents.					
35	Hand Rail Post, Bend ,ERW Tubes ,Floor Grill and Step Tread		7X - X65 89 - 611 89 - 612 89 - 613	Hot Dip Galvanizing to 610 gm sq. Meter (minimum) and to a coating thickness of 87 µm (minimum)					
36	Commissioning Spares		79 - 988	As per respective item , as listed in the painting schedule					
37	Tools & Tackles		79 - 996	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	40	Synthetic Enamel to IS 2932 Smoke Grey Shade No. 692 of IS 5 (Two Coats)	40	80

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
38	Approach Platform For Hopper	7X - X64 7X - X65	Blast Cleaning to Sa 2.5 Near White metal with surface roughness profile to 35-50 µm	**Primer Coat :** Inorganic Ethyl Zinc Silicate primer (solid by volume min. 60%) DFT =75 µm (min.) **Intermediate Coat :** Polyamide Cured pigmented TI 02 (solid by volume min. 60%) DFT=75 µm (min.) **Finish Coat :** Epoxy based polyamide cured finish paint (solid by volume min. 60%) DFT=75 µm (min.) + Aliphatic polyurethane paint (solid by volume min. 40%) DFT=25 µm (min.) **Note:** **1.** Out of two coats of Epoxy based polyamide cured finish paint –one coat will be done by shop / sub –contracting works to DFT=35 µm (min.) shade no.692 of IS : 5. **2.** Second coat of Epoxy based polyamide cured finish paint to DFT 40 µm (min.) followed by one coat of Aliphatic polyurethane paint to DFT = 25 µm (min.) will be done by BHEL site either by spray or brush – **Shade Grey-RAL 9002** **3.** The total paint thickness (Primer (75 µm)+ Intermediate (75 µm) +Finish with polyurethane (75 µm+25 µm) shall be minimum 250µm. **4.** DFT of individual paint coat shall be ensured separately and the same shall meet the specified minimum DFT of each coat as given above. **5.** Bottom of base plate including below zero level portion marked in EP Supp Columns which will be embedded in concrete , those surfaces shall be prepared by power tool cleaning to ST3 and provided with primer coat of chlorinated rubber based zinc phosphate primer of min. 50 µm DFT.			
39	Supporting Structure for ESP and penthouse (Refer note 5 for surface embedded in concrete)	7X - X81						
40	Stair stringer Channels, Bracket, Supp Bracket, Frames Loose Channels , Toe Plates, Stiffener Plates and Angles for EP Galleries ,Stair and Walk Way	7X - X64 7X - X65 89 - 610						

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	

2. PAINTING OF DAMAGED AREAS

Areas where paint has deteriorated badly by erosion and areas where the paint film has lost its adhesion property and where the steel has got rusted appreciably - these areas are to be repainted as per the following procedure:

SL NO	SURFACE LOCATION	SURFACE PREPARATION	PRIMER, INTERMEDIATE & FINISH self priming epoxy
1	Paint damaged Components falling under sl.no. 38 to 40 of ESP	Power Tool cleaning to Bare matal and as per clause no.4.01.04 of Secti	1. Primer: One coat of Epoxy Zinc rich primer to IS:14589 Gr.II to DFT of 100 µm (min.) 2. Intermediate and Finish: As given in respective scheme as above
2	Paint damaged components failing under other sl.nos of ESP	Power Tool Cleaning to Bare matal	Primer and Finish : As given in respective scheme

GENERAL NOTES

1. No painting is required for Galvanized , non-ferrous & stainless steel items, except as indicated above.
2. Machined items are to be applied with coat of temporary rust preventive oil
3. PGMAs covered in sub-supplier (ie., Purchased) items viz., support bearing / slide bearing and other sub-delivery components of ESP etc., are not indicated in the above list. However, the Painting Schedule for all items supplied by all sub-suppliers and BOI under the scope of BHEL shall be same as for main equipment covered in this document.
4. In sub-assy, wherever plates / sheets of thickness less than or equal to 5mm and rods are used - Power Tool or Hand Tool Cleaning to SSPC - SP 3 / SP 2 shall be followed.
5. Ground shade/colour of finish paints and identification tag/band for equipments, fans, piping, pipe services, supporting structures and other components shall be followed as per NTPC doc at site.
6. All components covered under different PGMAs are to painted. Incase any component is left out, the same shall deemed to be included under the relevant section.
7. All threaded and other surfaces of foundation bolts and its materials, insulation pins, Anchor channels, Sleeves shall be coated with temporary rust preventive fluid and during execution of civil works; the dried film of coating shall be removed using organic solvents.