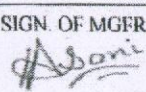
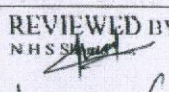

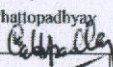
 AIA Engineering Ltd. 122, GVMM Estate, Odhav, Ahmedabad - 382410	REFERENCE QUALITY PLAN						TO BE FILLED IN BY NTPC							
	ITEM/EQUIPMENT: SINTERCAST BULL RING SEGMENTS up to XRP 1003 / HP 1103 MILLS			QP NO: SCBRS/35013/35014/ 35015 REV NO : 05 DATE : 07.11.2013 PAGE : 1 OF 2		SIGN. OF MGR. 	QP NO : 0000-999-QVM-P-424 REV NO: 01 DATE : 30.12.2013 PAGE : 1 OF 2		REVIEWED BY:  N.H.S.		APPROVED BY:  (I.Gowrishankar)			
VALID UPTO- 29.12.2016	K.K.Chattopadhyay													
SL NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT #	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N				D	M	C	N	
1	2	3	4	5	6		7	8	9	*	**10			11

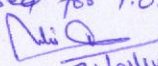
1.0	RAW MATERIALS													
1.1	Moulding sand	Physical	Minor	Size distribution	Each batch		AIAE std.	Lab record	-	P	-	-		
1.2	Ferro alloys	Chemical	Major	Melting recovery	Each batch		Supplier's Std.	Lab record	-	P	-	-		
1.3	Scrap	Chemical	Minor	Melting recovery	Each batch		AIAE std.	Lab record	-	P	-	-		
2.0	INPROCESS INSPECTION													
2.1	Melting	Temp. Control	Critical	Measurement	Each heat		AIAE Std.	Log sheet	-	P	V	-		
		Chemical test	Critical	Chemical analysis	Each melt		AIAE Std. 03.14.06.23 Rev 01	Test report	✓	P	V	V	See Note 4	
		Pouring	Critical	Observation	Each heat		AIAE Std.	Log sheet	-	P	-	-		
2.2	BRS castings	Heat treatment	Critical	Observation	Each H/T batch		See Note-1	H/T chart	-	P	V	V		
		Microstructure	Critical	Microstructure	AIAE Std. 03.14.06.23 Rev 01		AIAE Std. 03.14.06.23 Rev 01	H/T chart	✓	P	V	V		
3.0	FINAL INSPECTION AND TESTING													
3.1	BRS castings	Visual	Critical	Visual	100 %	100 %	AIAE Std. 03.14.06.23 Rev 01 See note-4	Test Certificate	✓	P	W	W		
		Dimensional - trial assembly	Critical	Assembly on test bowl	100 %	100 %	Drg. Approved by Main Suplier	Test Certificate	✓	P	W	W	20% random witness by NTPC	

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION
 ** M: MANUFACTURER/SUBCONTRACTOR, C: MAIN SUPPLIER, N: NTPC.
 P: PERFORM W: WITNESS AND V: VERIFICATION-REVIEW, AS APPROPRIATE. **CHP:** NTPC SHALL IDENTIFY IN COLUMN "N".

Note: # NTPC Inspection Engineer to check, approval date of reference Document viz a viz approval date of RQP at the time of inspection

-QA1-P-10/FI-R0

अनुज कुमार शाही
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NTPC/FQA/SIPAT/G-66A/M&P-566 Dt:- 31/01/14 ENGG.DIV/QA&I
 RQP Endorsed for P.O. No. :- 4000 121822

 31/01/14

SL NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT #	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
					M	C/N				M	C	N		
1	2	3	4	5	6		7	8	9	D*	**10			11
		Hardness test	Critical	Measurement	100 %	100 %	AIAE Std. 03.14.06.23 Rev 01	Test Certificate	✓	P	W	W	20% random witness by NTPC	
3.1	BRS castings	Identification	Major	Verification	Each set		See Note 2	Test Certificate	✓	P	V	-		

Note-1: Heat Treatment: Heat between 980 to 1060°C, Hold for 4 to 5 hours and air quench (As per AIAE Standard no. 03.14.06.23 Rev 01).

Note-2: Serial number and Set number will be painted on working face of each casting of the set.

Note-3: Locations for various manufacturing stages for Bull Ring Segments are as follows:

- Work address 235/236 GVMM Estate Odhav, Ahmedabad – 382410 for Castings of Bull Ring Segment.
- Work address 271 to 276 GVMM Estate Odhav, Ahmedabad – 382410 for Heat treatment of Bull Ring Segment.
- Work address 122 GVMM Estate Odhav, Ahmedabad – 382410 for assembly and final inspection of Bull Ring Segment.

Note-4: Since these are proprietary castings and are governed by performance guarantee, NTPC shall only review the Chemical Test Certificates for pre-empting any error overlooked by manufacturer. The correlation/traceability of these chemical test reports shall be as declared by M/s AIA. Further, these are very hard castings & hence surface cracks are inevitable. However, M/s AIAE unequivocally guarantees the performance of these items as per NTPC Specification.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION ** M: MANUFACTURER/SUBCONTRACTOR, C: MAIN SUPPLIER, N: NTPC. P: PERFORM W: WITNESS AND V: VERIFICATION-REVIEW, AS APPROPRIATE. CHP: NTPC SHALL IDENTIFY IN COLUMN "N".	Note: # NTPC Inspection Engineer to check, approval date of reference Document viz a viz approval date of RQP at the time of inspection
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-QAI-P-10/F1-R0

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NTPC/FQA/SIPAT/G-66A/M&P-566 Dt:- 31/01/14
 RQP Endorsed for P.O. No. :- 4000121822
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