

## CHAPTER V: MINISTRY OF STEEL

### Steel Authority of India Limited

#### 5.1 Investment of SAIL in Joint Ventures

##### 5.1.1 Introduction

Steel Authority of India Limited (the company) had 23 Joint Venture Companies (JVCs) as on 31 March 2014 with total investment of ₹ 778.82 crore. Out of 23 JVCs, only seven<sup>1</sup> are fully functional of which three<sup>2</sup> are regularly generating profits. Seventy nine per cent (₹ 614.28 crore) of the Company's total equity investment was in two power JVCs viz NTPC-SAIL Power Company Private Limited (NSPCL) and Bokaro Power Supply Company Private Limited (BPSCL). Nine JVCs were formed in partnership with Central Public Sector Undertakings (CPSUs) and State Government/State owned companies. Remaining 14 joint ventures were formed with equity participation of 50 per cent or more from Private Enterprises which also had management control. Four JVCs<sup>3</sup> were being wound up. The company formulated its policy guidelines on entering into MOUs/JVCs in November 2013.

The objectives of this audit were to assess whether selection process of JV partners was transparent, fair and not disadvantageous to the interests of the Company and the JVCs had achieved the intended objectives of their formation. Audit examination covered 15<sup>4</sup> JVCs formed during 2007-2013, the records of which were available with the Company. Reply of the Company (January 2015) has been suitably considered in this report.

##### 5.1.2 Audit Findings

###### 5.1.2.1 Terms and conditions of JVC obligations were disadvantageous to SAIL

The Company formed two JVCs<sup>5</sup>, one each at Bhilai and Bokaro in April 2007 and March 2008 respectively, with Jaypee Cement Limited (JCL) which had equity stake of 74 per cent and management control. JVCs were to use slag, a by-product produced in SAIL's Bhilai Steel Plant (BSP) and Bokaro Steel Plant (BSL) for making cement. Each plant was to supply 8 lakh tonnes of slag to the respective JVCs for the first 12 months and thereafter 10 lakh tonnes annually for five years after commissioning of the cement plant.

<sup>1</sup> NTPC-SAIL Power Company Private Limited (NSPCL), Bokaro Power Supply Company Private Limited (BPSCL), M-Junction Services Limited, Bokaro Jaypee Cement Limited (BoJCL), Bhilai Jaypee Cement Limited, SAIL Bansal Service Centre Limited and SAIL SCL Kerala Limited

<sup>2</sup> NSPCL, BPSCL and M-Junction Services Limited

<sup>3</sup> North Bengal Dolomite Limited, UEC-SAIL IT Limited, Romelt SAIL (India) Limited, and North East Steel & Galvanising (P) Limited

<sup>4</sup> Bhilai-Jaypee Cement Limited, Bokaro-Jaypee Cement Limited, SAIL SCL Kerala Limited, S&T Mining Company Pvt. Limited, International Coal Venture Limited, SAIL RITES Bengal Wagon Industry Private Limited, SAIL & MOIL Ferro Alloys Private Limited, SAIL-SCI Shipping Private Limited, SAIL Kobe Iron India Pvt. Limited, SAIL-Bengal Alloy Casting Pvt. Limited, SAL SAIL JVC Limited, TMT SAL SAIL JV Limited, ABHINAV SAIL JVC LIMITED, VSL-SAIL JVC LIMITED and SPU JV 'Prime Gold SAIL JVC Limited

<sup>5</sup> Bokaro Jaypee Cement Limited (BoJCL) and Bhilai Jaypee Cement Ltd

Prior to formation of JVCs, BSP and BSL were selling slag at market price through auction/open tender. Under the agreements, the initial selling price of slag to be supplied from BSP and BSL to JVCs was fixed at a mutually agreed rate of ₹ 160 and ₹ 312 per tonne, respectively based on prevalent market price. Annual revision of selling price of slag was not market driven but linked to changes in the cement index issued by RBI. It would be seen from Table-1 that there was volatility in slag market prior to JVC agreement and later years. After formation of JVCs, market price of slag increased sharply which was 2-3 times higher than the indexed selling price charged from JVCs. At the same time, BSP and BSL also sold surplus slag to other buyers at the prevalent market price. Bhilai based JVC procured 60,642 tonnes slag during 2013-14 from BSP outside the JVC agreement at ₹ 750 per tonne besides 8,50,426 tonnes at RBI indexed price of ₹ 190.27 per tonne.

**Table 1: Details of slag output, slag sold to JVCs and other buyers, and selling price**

Year ended on 31 March	Bokaro Steel Plant					Bhilai Steel Plant				
	Total slag produced (tonne)	Qty. of slag sold to (tonne)		Selling price ₹ per tonne sold to		Total slag produced (tonne)	Qty. of slag sold to (tonne)		Selling price ₹ per tonne sold to	
		Other buyers	JVC	JVC	Other buyers		Other buyers	JVC	JVC	Other buyers
2006	732765	724351	-	-	244-351	1363871	1637900	-	-	155-161
2007	711471	642050	-	-	256-369	1345160	1563911	-	-	155-161
2008	791497	746165	-	-	275-305	1601651	1561210	-	-	155-207
2009	756046	760718	-	-	275-305	1571425	1682978	-	-	207-228
2010	819380	808517	-	-	320-705	1708756	1649163	3551	160	207-400
2011	693758	669598	-	-	500-758	1761920	1324674	416386	160.00	400
2012	592361	309275	244961	336.65	517-768	1696888	896589	835509	172.68	450
2013	660705	21028	690004	351.04	1220	1693352	961378	850330	180.05	520-750
2014	915708	3,670	834193	444.24	1220	1736283	706626	850426	190.27	750-800

Selling prices so fixed were to be re-visited after 5 years from July 2009 for BSL and December 2009 for BSP subject to fulfillment of certain conditions which as per Company's own assessment, may not be fulfilled in case of BoJCL. Initial selling price fixed in 2006-07 was not revised upward despite SAIL losing substantially on sale of slag to JVCs. Thus, as a result of disadvantageous transfer pricing terms, the Company lost ₹ 156.58 <sup>♥</sup> crore up to the year 2013-14.

The Company stated (January 2015) that the JVC partners in both plants were selected through open tender and highest premium offered; initial selling price fixed by management and revision thereon were included in the tender documents; there was volatility in selling price of slag and it was difficult to predict market prices of slag; the price variation clause based on cement index issued by RBI/Office of Economic Advisor is a standard clause which is operated by SAIL plants to revise the slag prices being

<sup>♥</sup> Slag sold to JVCs multiplied by excess of market driven selling price (Weighted average taken) charged from other buyers over RBI/Economic Advisor indexed selling price (Weighted average taken) charged from JVCs

supplied to customers under open tender; and in November 2014, SAIL and JAL had sold their total equity stake in BoJCL to another company.

Reply needs to be viewed against the following facts:

Agreements between two entities either made as a prelude to JVC formation or later should not have any commercial term that compromises the principle of arm's length transaction. Transfer price of slag should be the same as if two companies involved were independent. Thus, selling price of slag should have been left to market dynamics. The MoU for supply of slag under open tender to customer other than JVCs was for comparatively lesser quantity and short duration. BoJCL had started their commercial production in July 2011. During 2012-13 and 2013-14, BoJCL procured maximum slag from BSL, and on the strength of 2-3 times low price of slag charged by BSL (compared to market price), JVC not only registered a net profit of ₹ 136 crore and ₹ 30.62 crore, but had also driven its equity capitalization higher to ₹ 892.78 crore from ₹ 133.65 crore. While higher capitalization benefited JCL with a gain of ₹ 561.76<sup>1</sup> crore, SAIL could gain ₹ 197.37<sup>2</sup> crore on sale of its 26 per cent equity.

#### **5.1.2.2 Performance of Joint Venture Companies**

As of 31 January 2015, 12 JVCs<sup>3</sup> with equity participation of ₹ 42.77 crore did not start their commercial operations. Intended operational objectives of JVC formation were not achieved. There was lack of commitment among the JVC partners, financial support to JVCs and commercial terms for provisions of goods/services were not clearly firmed up before formation. The current status of these JVCs is given below:

##### **(a) International Coal Venture Limited (ICVL)**

ICVL was formed in May 2009 with SAIL, Rashtriya Ispat Nigam Limited (RINL), Coal India Limited (CIL), NMDC Limited (NMDC) and NTPC Limited (NTPC) as JV partners for securing metallurgical coal and thermal coal asset from overseas. Largely governed by SAIL nominated executives, ICVL did not acquire any foreign coal assets in the initial five years of operation. ICVL was expected to achieve supply of metallurgical coal to the extent of 10 per cent of requirements for 2019-20 of SAIL and RINL from its overseas assets by 2011-12. The goal of ICVL was on paper until July 2014 when it acquired coal assets of Rio Tinto Coal Mozambique. Audit noted that out of five JVC partners, CIL and NTPC did not show interest in overseas acquisitions as their priority was thermal coal and not metallurgical coal. As a result SAIL's financial exposure to ICVL increased disproportionately to 49.43 per cent (₹182 crore) as on 30 September

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<sup>1</sup> Excess of sale value of equity shares (₹ 660.66 crore) over ₹ 98.90 crore contributed towards 74 per cent equity.

<sup>2</sup> Excess of sale value of equity shares (₹ 232.12 crore) over ₹ 34.75 crore contributed towards 26 per cent equity.

<sup>3</sup> S&T Mining Company Pvt. Limited, International Coal Venture Limited, SAIL RITES Bengal Wagon Industry Private Limited, SAIL & MOIL Ferro Alloys Private Limited, SAIL-SCI Shipping Private Limited, SAIL Kobe Iron India Pvt. Limited, SAIL-Bengal Alloy Casting Pvt. Limited, SAL SAIL JVC Limited, TMT SAL SAIL JV Limited, ABHINAV SAIL JVC LIMITED, VSL-SAIL JVC LIMITED and SPU JV 'Prime Gold SAIL JVC Limited

2014 from the agreed 28.6 *per cent.* SAIL approved (July 2014) further equity investment of ₹ 1,000 crore in ICVL.

The Company stated that: (i) as a matter of commercial prudence, it did not buy foreign coal assets prior to 2014 because prices of metallurgical coal were very high during 2009 to 2015; (ii) ICVL had acquired first coal assets in July 2014 i.e. coal block from Rio Tinto Coal Mozambique; and (iii) a proposal for restructuring ICVL was under consideration of Ministry of Steel, Government of India in which CIL and NTPC were not included.

Reply needs to be viewed against the following facts:-

- (i) JVC had participated in bidding process for acquiring coal assets in Australia and Mozambique during 2010-14. Bids were not finalised as the project was held up by the seller due to depressed market condition; the JVC backed out from bidding process citing steep fall in prices of coking coal; and JVC was priced out in bidding process,
- (ii) due to delayed acquisition, intended benefits were not achieved, and
- (iii) exclusion of two partners would enhance the financial risk of the Company in the JV.

**(b) *SCI Shipping Private Limited (SSPL)***

The stated goal of the Company for forming a JVC (May 2010) in partnership with Shipping Corporation of India (SCI) was to acquire ships for shipping imported coking coal for its plants which was not achieved even after more than 4 years of formation. Audit noted that the decision on acquisition of the vessel was pending as SCI was not in a position to provide the corporate guarantee to JVC for raising debt and a study was required on infrastructure for berthing/discharging of cargo from 'Capesize' vessels in India. Adequate arrangements with regard to commercial terms and conditions, infrastructure requirements, and debt arrangement also were not decided upfront with the SCI. SAIL, the hirer of the JVC vessels, stated that 'cost plus' arrangement proposed by SCI was not acceptable as the rates would be more than the prevailing market rates. The reply may be viewed against the fact that market conditions were the same that were prevailing at the time of formation of JVC and the Company should have considered financial aspects before entering into JV mode.

**(c) *SAIL & MOIL Ferro Alloys (Pvt.) Limited (SMFAL)***

The Company formed (July 2008) a JVC with a CPSU viz Manganese Ore (India) Limited (MOIL) to set up facility for production of Ferro Manganese (Fe-Mn) and Silico manganese (Si-Mn) for captive use in its steel plants. Capital outlay was ₹ 365 crore and the project was to be completed within 22 months. The Company, however, kept on changing its requirements. Initial plant configuration included furnaces of 2x27 MVA for Si-Mn and 1x16.5 MVA for Fe-Mn. After finalization of L-1 tender, the Company asked (August 2012) JVC to set up only Si-Mn furnaces of 2x45 MVA which was not pursued. Ministry of Steel's proposal (October 2013) for merger of SMFAL and RINL-MOIL (another JVC of MOIL with RINL) for setting up 3 x 45 MVA furnaces to meet the Si-Mn requirements of SAIL and RINL was also not found viable due to prevailing cost of power and a proposal for captive power plant in the PPP mode was under consideration of

JVC. Thus, a JVC formed in 2008 failed to achieve the stated objective of becoming captive supplier of Si-Mn to SAIL. The reply of Company that it could buy only where the price of ferro-alloy offered by JVC was less than the market price and it was adding own capacity for production of Si-Mn to meet its enhanced requirement clearly indicates that JVC may not commence its operation in near future.

**(d) S&T Mining Company**

The Company formed a Joint Venture (S&T Mining Company) with Tata Steel in September 2008 with 50:50 equity participation to leverage their strength in coal mining. No study was conducted to assess the suitability of projects prior to entering into JVC which was to develop 50 lakh tonne per annum mine with modern washery to produce 20 lakh tonne per annum of clean coal. No coking coal block was established by the JVC even after six years from investment of ₹ 25.88 crore defeating the primary objective of securing raw material availability. Initially JVC wanted to develop medium coking coal blocks of Central Coalfield Limited for captive use but did not succeed. Later it signed with Bharat Coking Coal Limited to revive their 40 years old Bhutgoria colliery having 6.83 million tonnes reserve of coking coal which did not take off since November 2010. JVC incurred losses amounting to ₹ 13.41 crore during 2008-09 to 2013-14 and 52 per cent of Company's investment has since been wiped out.

**(e) Steel Processing Units (SPUs) set up as JVC with private enterprises**

The Company decided to set up 5 SPUs in JV mode with 74 per cent equity stake of private enterprises and management control. Each SPU was to convert semi-finished steel (billets) into one lakh ton of TMT bars/rounds per annum. SAIL's financial exposure in these 5 SPUs is given in Table 2:-

**Table 2: SAIL's financial exposure to 5 SPUs as of 31 December 2014**

(Unit: ₹ in lakh)

Name of Joint Venture Company	JV Partners	Date of Formation	Equity Participation (per cent)	Total Investment	Present Financial exposure (per cent)*
SAL SAIL JVC Limited. (Lakhimpur)	SAIL	February 2012	26	79.30	96
	SAL		74	3.70	4
VSL-SAIL JVC Limited. (Ujjain)	SAIL	October 2012	26	27.18	35
	VSL		74	49.45	65
PRIME GOLD SAIL JVC Ltd. (Gwalior)	SAIL	December 2012	26	260.00	26
	PGI		74	740.00	74
TMT SAL SAIL JV Limited. (Barabanki)	SAIL	February 2012	26	1.30	26
	SAL		74	3.70	74
ABHINAV-SAIL JVC Limited (Hoshangabad)	SAIL	May 2012	26	56.00	100
	Abhinav		74	Nil	0

\*Includes contribution towards cost of land and advance against equity

Though land was arranged by the Company for four JVCs<sup>1</sup> prior to formation, three JVCs<sup>2</sup> had not started even plant acquisition activities. Reason for selection of Barabanki over other locations was not found on record and JVC has made no progress after formation.

(i) The following inadequacies were noted in JVC formation:

- JVC partners did not contribute equity capital in the agreed ratio. As could be seen in Table 2, financial exposure of the Company in three JVCs was significantly higher than the agreed equity participation ratio. The Company should have ensured that the private enterprises bring the corresponding funding/assets to agreed ratio;
- As per shareholders' agreement, the JVCs were to formulate and adopt a business plan within 60 days of formation, indicating time scales, detailed project cost estimates, financial projections and scheme of financing and timing of capital contributions from the shareholders. This was, however, not done even after 2 years of their formation;
- The Company selected M/s VSL as a JV partner for Ujjain which was involved in misappropriation of 'semis' handed over for conversion into TMT under another contract where ₹ 8.51 crore had remained unrecoverable. The case was under litigation which raises question on the procedure of selection of JV partner.

### 5.1.2.3 Monitoring mechanism and corporate governance issues

SAIL Board Sub-Committee on Strategic Alliance and Joint Ventures was constituted to evaluate the proposals and monitor performance. Members of senior Management of the Company were on the Board of JVCs. During 2007 to 2014, SAIL Board considered the performance of JVCs only twice i.e. in August 2012 and June 2014. Despite adequate management structure, there was no effective oversight over the affairs of JVCs and JV mode of partnership was not successful. Of the 23 JVCs formed, only seven were functional, 12 could not start commercial operation and four were being wound up.

### Conclusions

- **Annual price revision formula of slag transferred to BoJCL and BJCL was not beneficial to SAIL as it was not market driven.**
- **12 JVCs with investment of ₹ 42.77 crore did not start commercial operation.**
- **Financial exposure of SAIL would increase in ICVL after restructuring due to exclusion of CIL and NTPC.**
- **More than 52 per cent of SAIL's investment has been wiped out in S&T Mining Company.**
- **Despite adequate management structure, there was no effective oversight over the affairs of JVCs.**

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<sup>1</sup> SAL SAIL JVC Limited (Lakhimpur), VSL-SAIL JVC Limited(Ujjain), PRIME GOLD SAIL JVC Limited (Gwalior) and ABHINAV-SAIL JVC Ltd (Hoshangabad)

<sup>2</sup> SAL SAIL JVC Limited (Lakhimpur), VSL-SAIL JVC Limited(Ujjain) and ABHINAV-SAIL JVC Ltd (Hoshangabad)

The matter was reported to the Ministry in January 2015; their reply was awaited (March 2015).

## **5.2 Performance of Coke Oven Batteries**

### **5.2.1 Introduction**

Steel Authority of India Limited (SAIL or Company) in its five integrated steel plants<sup>1</sup> had 33 Coke Oven Batteries (COBs or battery) as on March 2014. The main function of COBs is to convert coal into coke which is used as the primary fuel and reducing agent in the Blast Furnaces (BF) for production of hot metal. The process of carbonization of coal in COB yields some by-products (a) namely 'Coke oven gas' (CO gas) which has a high calorific value and is used as a fuel in production shops like BFs and Rolling Mills<sup>2</sup> for heating purposes, (b) coal chemicals like Ammonium Sulphate, Crude Tar and Crude Benzol which are saleable in the market after some processing. Thus, efficient performance of COBs is critical for steel making in downstream plants.

Each battery is fitted with average 60-90 ovens<sup>3</sup>. The production performance of a battery depends on the no. of ovens available for operation vis-a-vis ovens installed as well as duration of actual coking time<sup>4</sup> and actual oven pushings<sup>5</sup> against standard norms. Some of the ovens were not working due to poor health or otherwise down for repairs, hence oven availability was less than Nos. of ovens installed. Less oven pushing caused by poor health of COBs had adverse impact on production of BF coke which in turn affected the production of hot metal.

Audit assessed the performance of COBs, adequacy and effectiveness of repair and maintenance measures implemented by the Company along with performance of rebuilt batteries (2007 to 2012) in the five integrated steel plants covering the period 2009-10 to 2012-13 and updated the status upto 31 March 2014. Replies of the Company/Ministry received in February 2013 and March 2014, respectively, have been suitably incorporated.

### **5.2.2 Audit Findings**

#### **5.2.2.1 Production performance of COBs**

The Expert Committee on Coke Making (ECCM) of the Company annually fixed the norms for number of oven pushing per day, yield of coke oven gas and other by-products, energy consumption etc. Based on this assessment, annual plan for production of BF coke is prepared. The Company, however, did not achieve targets of planned production of

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<sup>1</sup> Bhilai Steel Plant (BSP), Bokaro Steel Plant (BSL), Rourkela Steel Plant (RSP), Durgapur Steel Plant (DSP), IISCO Steel Plant (ISP)

<sup>2</sup> Rolling mills are the units where finished steel is produced

<sup>3</sup> COBs in various plants have different nos. of ovens installed like BSP has 10 COBs with 65 ovens in 8 COBs and 67 ovens in 9<sup>th</sup> & 10<sup>th</sup> COB, BSL has 8 COBs with 69 ovens, DSP has 5 COBs with 78 ovens, RSP has 6 COBs with 70 ovens in battery 1 to 3 while 80 ovens in battery 5 and 67 ovens in battery 6 and, ISP has 3 batteries with 78 ovens and 1 battery with 74 ovens.

<sup>4</sup> Coking time is the duration of time taken by COB to convert coal into coke.

<sup>5</sup> Oven-pushing is a process of removing coke from coke ovens

8.703 million tonnes (MT) and there was shortfall of 3.320 MT of BF coke during the period, 2009-10 to 2013-14.

The reasons for short production of coke were analysed in Audit and it was noted that the production was less due to less oven pushing. Actual oven-pushings per day vis-a-vis norms fixed in APP in five integrated steel plants was as follows:

**Table 1  
Planned Vs. Actual Oven Pushings**

Years	2009-10	2010-11	2011-12	2012-13	2013-14
Planned	2023	2081	2082	1858	1870
Actual	1963	2032	1869	1759	1855

It was seen that targets for oven pushings decided by respective plant managements were not achieved due to deterioration in operational health of COBs. This led to loss of production of 2.125 MT of BF coke. Deterioration in health of COBs was due to delay in routine and timely repair and maintenance (Para 5.2.2.2).

Out of 33 COBs (refer footnote 1 in para 5.2.1) installed in five integrated steel plants, 26 COBs including two new<sup>1</sup> COBs were in operation as on 31 March 2014, two COBs were under rebuilding<sup>2</sup> (BSL #7, & RSP #3), three COBs were under cold<sup>3</sup> repairs (BSP #9, BSL # 3 & ISP # 8); one COB was under hot<sup>4</sup> repairs (DSP # 1); and one COB was closed (ISP # 9). **Table 2** shows that out of 26 COBs in operation, 7 ½ (29 per cent), 8 ½ (33 per cent) & 9 ½ (37 per cent) COBs were not performing to their effective capacity<sup>5</sup> in 2011-12, 2012-13 and 2013-14 respectively.

**Table 2  
Ineffective performance of COBs in BSP, BSL, DSP and ISP during 2011-12,  
2012-13 and 2013-14**

Plant	2011-12								2012-13								2013-14										
	BSP		BSL		DSP		ISP		BSP		BSL		DSP		ISP		BSP		BSL		DSP		ISP				
<b>(A) Position of Ovens available vis-à-vis ovens installed</b>																											
Battery Serial No.	<u>1</u>	<u>7</u>	<u>10</u>	<u>3</u>	<u>7</u>	<u>1</u>	<u>4</u>	<u>9A</u>	<u>7</u>	<u>10</u>	<u>3</u>	<u>5</u>	<u>6</u>	<u>8</u>	<u>1</u>	<u>4</u>	<u>9A</u>	<u>7</u>	<u>10</u>	<u>3</u>	<u>5</u>	<u>6</u>	<u>8</u>	<u>1</u>	<u>4</u>	<u>6</u>	<u>9A</u>
Ovens Installed	65	65	67	69	69	78	78	39	65	67	69	69	69	69	78	78	39	65	67	69	69	69	69	78	78	78	39
Average available Ovens	58	29	38	54	50	58	40	37	44	45	35	57	65	59	57	61	37	55	63	22	38	42	60	48	59	57	37
<b>(B) Average<sup>6</sup> actual coking time vis-a-vis prescribed norms</b>																											

<sup>1</sup>installed in RSP and ISP in 2013

<sup>2</sup>When the extent of damage spreads to almost all areas of the oven complex and no amount of repair could sustain the COB, rebuilding plans have to be undertaken.

<sup>3</sup>Cold repairs are done by cooling down the ovens and resorted to when hot repairs are not possible and a techno-economic feasibility favours it vis-a-vis rebuilding of the battery.

<sup>4</sup>Hot repair is carried out under the hot condition to contain the battery dimensions within the workable limits, while maintaining the coke production in the remaining part of battery.

<sup>5</sup>Effective capacity of a COB is measured by the nos. of Coke ovens available for operation vis-a-vis ovens installed as well as actual coking time and actual oven pushings against standard norms which are fixed by Plant management keeping in view the actual condition of batteries.

<sup>6</sup>The batteries in operation for six months or more have been considered for calculating averages included in Table 2.



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Norms for coking time	18	18	18	25	22	20	20	23	18	18	25	19	19	20	20	20	23	18	18	25	20	22	21	20	20	20	22
Average actual coking time	22	24	18	23	23	21	20	23	22	19	25	22	21	20	20	20	21	28	21	25	22	20	19	22	22	21	23
(C) Average <sup>6</sup> actual oven pushings vis-a-vis prescribed norms																											
Norms for pushing per day	87	87	89	46	74	85	61	40	87	89	36	85	84	83	72	61	35	87	89	25	37	61	71	30	63	60	21
Average actual Oven pushings	65	30	51	52	45	67	48	38	48	57	34	58	71	66	67	72	42	47	72	21	41	45	72	52	66	65	39

As seen from the table, in BSP, BSL, DSP and ISP fewer ovens were available for operation compared to the number of ovens installed. Coking time was more and /or oven pushings were less than expected norms resulting in poor production performance of batteries.

**5.2.2.2 Delay in repairs and maintenance of COBs**

COBs are re-built after 20-25 years of their operations. Average normal life of new or re-built COBs is about 20-25 years which can be maximised to 30-35 years by an effective preventive maintenance regime, hot repairs or cold repairs as per the battery condition. Fourteen COBs were 20-42 years old since their installation or last rebuilding.

There were delays in taking up capital repairs of poorly performing COBs. The Company did not take up maintenance of COBs as planned since the number of COBs available was not sufficient for planned production of coke. Resultantly, their performance deteriorated impacting the health of other functioning COBs. Plant wise position of rebuilding/repairs plans and delay in their execution is as under:

**(a) BSP, Bhillai**

COB # 5	Installed in 1965, it stopped production in 1998, Board accorded approval for rebuilding in 2004. Though the scheduled completion was January 2007, battery was commissioned in August 2009 with delay of 32 months. There was delay in basic and detailed engineering, supply of equipment and lack of coordination between consortium partners.
COB # 6	Installed in 1966, it stopped production in October 1994. Board accorded approval for rebuilding (July 2008), after 14 years. Though the scheduled completion was March 2010, battery was completed in June 2011 with delay of 15 months. The delay was on account of late supply and rejection of fire clay, silica bricks and equipment.
COB # 9	It was commissioned in 1988 and Hot Complex repair of the battery was done during 1999-2002. Expected life of the battery after Hot Complex repairs is about 6-7 years. According to Comprehensive Project Feasibility Report (CPFR) COB-9 was due for rebuilding in the period 2008-09 to 2010-2011. But the rebuilding work was deferred to fulfill the coke requirement. Consequently, health of this battery further deteriorated and it was closed down in April 2011. Company accorded approval for cold repairs in July 2012 after lapse of 15 months.

Abnormal delay in rebuilding of COB-5 and 6 had adverse impact on the health and performance of other operating batteries resulting in reduced availability of coke. Rebuilding of COB-1 planned in October 2004 was not done. Cold repairs of COB-4 (planned for 2006-07) were deferred. Due to prolonged use of COB-7, COB-8, COB-9

and COB-10 without required repairs, their health deteriorated substantially and resulted in bunching of down batteries.

**(b) BSL, Bokaro**

COB # 5	Board first accorded in-principle approval in 1997 for rebuilding. However, on account of depressed market conditions, tendering was delayed for 5 years until 2002. Thereafter tenders were cancelled due to higher prices. After further delay of 2 years, fresh in-principle approval was accorded in May 2004. The battery was not commissioned before September 2007, i.e after 10 years from being identified for rebuilding.
COBs # 1 & # 2	Delay of 16 and 24 months was noticed in rebuilding of COB-1 and COB-2 due to reasons such as late handing-over of site to the contractor, delay in submission and approval of drawings, supply of oven machines and refractory bricks, and start of refractory erection work.
COB # 3	This was 13 years old since it was last rebuilt and number of oven pushings was falling due to deterioration in its operational health. It was not put to cold repairs till December 2013.
COBs # 6 & # 8	COB-6 and COB-8 were 32 and 21 years old respectively since their commissioning and health of both the batteries had deteriorated in absence of rebuilding/repairs.

**(c) DSP, Durgapur**

COB # 1 and # 4	Over 20 years had lapsed since their last rebuilding on the plea that number of operational batteries was less. Cold repairs of COB 1 (2003) and COB 4 (2001) did not restore their performance. As per the project feasibility report (2007), COB 1 and 4 were to be rebuilt during 2011-13 and 2008-11 respectively. However, instead of rebuilding, only COB-1 was put to hot repairs (December 2013).
COBs # 2, # 5 & # 4	DSP prepared rebuilding plan for three COBs (2, 5 and 4) which were to be completed by 2011. But rebuilding of only one battery (COB-2) was initially undertaken and completed in November 2013, while rebuilding of COB-5 (Block 5A & 5B) was approved not before November 2012 (with implementation schedule of 30 months) and rebuilding of COB-4 not yet started (February 2015).

**(d) ISP, Burnpur**

COB # 9A	It was over 22 years old since its last rebuilding. It could not be put to further repairs or rebuilding, pending completion of cold repairs of other battery (COB-8). This had resulted in further deterioration in its operating condition, until it was permanently closed down in March 2014.
COB # 8	As per Action Plan 2011, to improve health of COBs and Oven pushing COB 8 was planned for Hot repairs from April 2012 to be completed in 18 months. However, the same was under repairs (February 2015).
COB # 10	Board approved (2006) rebuilding of COB-10, which was completed in 2010 with delay of 11 months from scheduled completion. The reason for delay was attributed to failure of consultant (MECON) in estimation of civil works which were more than the original estimates; besides poor performance of contractor (HSCL) which led to termination of contract.

Audit observed that in order to achieve the short term goal of ensuring adequate and uninterrupted supply of BF coke, the Company considerably delayed the required shutdowns for repair/re-building. Prolonged and overuse of COBs without timely

repair/re-building had resulted in further deterioration in their health as well as that of other operating COBs.

### ***5.2.2.3 Effects of poor health of COBs on yield of BF Coke and by-products***

Production of BF coke from COBs was less due to poor oven-pushings (Para 2.1) which resulted in less availability of inputs in downstream plants. Three steel plants BSP, BSL and DSP, therefore procured 2.487 MT of BF coke from market (excluding inter-plant transfer) during 2009-10 to 2013-14.

The yield of Coke Oven Gas (CO Gas), which is a by-product generated during the carbonization of coal in the COBs, was less than the yearly norms fixed during 2009-14. Less availability of CO Gas resulted in unutilized production capacity in rolling mills of BSP, BSL, DSP and ISP and consequent production loss of 2.430 MT of saleable steel. Additionally, due to less yield of CO Gas, BSP had incurred ₹ 202.85 crore on purchase of 39,134 Kilo litre furnace oil as a substitute for CO Gas, in Plate Mill during 2009-13.

Low yield of CO Gas also meant low yield of coal chemicals like Ammonium Sulphate, Crude Tar and Crude Benzol which are generated as by-products during the carbonization of coal in COBs. These by-products were saleable in the market after some processing and some quantities were used internally. Yield of the by-products was lower in all the plants compared to norms annually fixed. Resultantly, the Company could not produce 64309 tonnes of Crude Tar, 77282 tonnes of Crude Benzol/Benzol products and 121897 tonnes of Ammonium Sulphate during 2009-10 to 2013-14 having a potential market value of ₹ 517.79 Crore.

### ***5.2.2.4 Performance of recently built batteries in BSL and ISP***

Performance of rebuilt COBs 5, 1, and 2 in BSL, and COB-10 in ISP was below their guaranteed performance parameters and thus resulted in shortfall in availability of BF coke. Audit noted that:

- (i) COBs- 5, 1 and 2 of BSL were rebuilt in September 2007, June 2011 and February 2012 respectively and guaranteed parameters for coking time and pushing were 16.9 hours and 98 ovens per day respectively. Defects in COB-5 were noticed immediately after its rebuilding in 2007. The battery achieved coking time between 21.40 - 22.21 hours and 74 to 78 pushing during 2007-08 to 2011-12. Its performance further deteriorated to 58 oven pushings per day during 2012-13. Even after Hot Complex Repair in September 2013, it achieved pushings of 70 ovens per day and coking time between 21.16 to 23.46 hours till March 2014. During 2011-12 to 2013-14, COB-1 and 2 achieved average oven pushings of 65-90 ovens per day and took average coking time in range of 18 to 19 hours or more.
- (ii) COB-10 of ISP was rebuilt in August 2010 and envisaged performance parameters were 104 pushings per day and coking time of 18 hours. Actual oven pushings per day during 2011-12 and 2013-14 ranged between 83 to 91 and coking time was 20.4 hours to 22.5 hours during the same period. ECCM opined (January 2012) that such high coking time in a newly commissioned battery may not only deteriorate coke quality but may also adversely affect the health of COB.

#### **5.2.2.5 Oversight and monitoring of COBs performance was inadequate**

Though the Company discussed the status of batteries, future requirement of coke, action plan to improve the health of COBs and oven pushings in its 377<sup>th</sup> Board meeting held on 29 November 2011, the existing Plant level oversight arrangements like ECCM remained ineffective. There was no long-term plan for repairing/rebuilding of COBs specifying timely shutdowns required for repair and rebuilding.

The Company in its replies (February 2013) conceded that the main reasons for less production of BF coke and other by-products were less oven pushings caused by poor health of oven batteries; and low overall availability of COBs in some plants was due to bunching of their repair caused by their prolonged operation without repair. It further stated that shutting down of COBs for the required repairs or rebuilding would have reduced coke production to a great extent leading to more dependence on purchase of coke. Hot/cold repairs and rebuilding of COBs were planned in such a way to ensure continuous and adequate supply of BF coke. Ministry in its reply (March 2014) reiterated the views of the Company.

The reply only reinforces the audit observation that the Company did not provide timely shutdown of COBs for the repair/rebuilding which resulted in continuous deterioration of operational performance of defective COBs as well as affecting the health of other operating COBs.

#### **Conclusion**

**In audit opinion, norms and planned production fixed by ECCM could have been generally achieved because these performance norms of COBs were mostly below the rated capacity and were fixed after assessing the availability of COBs and status of their current operational health. The Company, however, could not achieve these norms, resulting in shortfall of 3.320 MTs of BF coke from COBs during 2009-2014 against the plan. This factored in market procurement of 2.487 MT of BF coke (excluding interplant transfer) in three plants, namely BSL, BSP, and DSP during the same period. Less oven pushings due to poor health of COBs resulted in less production of 2.125 MTs of BF coke during 2009-14. Low availability of batteries was also due to bunching caused by prolonged operations without required repairs. Delays in repairing/rebuilding of COBs had a cascading effect on the health of other batteries and their condition further deteriorated due to deferment of scheduled repairs and prolonged use, in order to meet the immediate requirement of BF Coke. A long-term plan for repairs and rebuilding of COBs coupled with effective monitoring mechanism is required in all the steel plants to ensure good operational health of COBs.**

#### **5.3 Non-recovery of interest on differential excise duty**

<p><b>The Company failed to ensure recovery of interest charges of ₹ 61.94 crore on delayed payment of excise duty on long rails supplied to Indian Railways by not insisting a suitable clause in the MOU.</b></p>
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Steel Authority of India Limited (the Company) had entered (2003) into a Memorandum of Understanding (MOU) with the Indian Railways (IR) for supply of Long Rails/ Panels

from its Bhilai Steel Plant (BSP). According to MOU, Chairman, Railway Board would decide the final price on the recommendation of the joint pricing committee of IR and the Company.

Scrutiny of records for the period January 2005 to March 2012 revealed that the Company had paid differential excise duty of ₹ 353.99 crore to Government of India along with interest amounting to ₹ 61.94 crore for supply of 51.79 lakh tonnes of rails. The Company recovered differential excise duty from IR but failed to recover interest charges as there was no such provision in the MOU with IR. Audit noted that final prices of rails were approved by the Railway Board in 6 months to 69 months after dispatch of goods. The prices finally fixed for supply were either higher or lower than the provisional prices. As a result, the Company paid differential excise duty and interest thereon where the final approved prices were higher than the provisional prices. Final prices for the rails supplied after 1 April 2012 were not approved by the Railway Board (February 2015).

The Company did not make any effort to recover interest charges or include an appropriate condition in the MOU to safeguard its claim for interest charges of ₹ 30.77 crore for the period January 2005 to December 2008 with IR. The Company belatedly realized its mistake and wrote a letter (May 2014) to IR seeking reimbursement of interest of ₹ 31.17 crore paid for the period, July 2010 to March 2012 which the latter refused (July 2014) stating that that they were not liable to pay any such interest. The Company after losing cases at lower judiciary has filed SLP in the Supreme Court (October 2010) where no relief by way of stay was given.

While attributing the delay in finalization of rail prices to IR, the Company stated (November 2014) that they had demanded the interest arising out from differential excise duty from the IR; Ministry reiterated (February 2015) the views of the Company.

The fact remains that the Company had failed to safeguard their financial interest by not insisting on a suitable clause in the MOU with IR to ensure recovery of interest on delayed payment of excise duty that had in turn, arisen due to delay in finalisation of price of rails by IR. This resulted in the Company incurring avoidable expenditure of ₹ 61.94 crore.

#### ***5.4 Under recovery of electricity charges***

**The Company did not recover electricity charges at the minimum of domestic tariff of State Electricity Boards (SEBs) for electricity supplies to employees in mines township in violation of Board approval which resulted in benefits of ₹ 30.32 crore to employees. The company also did not segregate electricity supply lines for industrial and domestic use.**

Steel Authority of India Limited (SAIL) procures electricity from the concerned SEBs and supplies at subsidized rate to the employees residing in the company's township in Mines. Electricity cost (i.e. cost to the company) purchased from the SEBs was significantly higher than the amount recovered from the employees. In order to rationalise the electricity subsidy, the SAIL decided (23 March 2002) that the chargeable rate for electricity supply to the employees in township would be at least equal to the minimum of

domestic tariff of SEBs w.e.f 1 April 2002. Audit reviewed the records of all the mines<sup>^</sup> having townships (except Nandini and Hirri Mines) for 2008-09 to 2013-14 and noted that:

- (i) Mine managements of Barsua and Kalta mines had implemented the Board decision. They also revised the electricity charges recoverable from employees periodically which were equal to or higher than the minimum domestic tariff fixed by the SEB. Effective March 2003 and August 2003, KIOM-MIOM<sup>1</sup> and BOM<sup>1</sup> management respectively revised electricity charges of executives at par with the minimum of domestic tariff of SEB. No further increase was made even when the concerned SEB had increased its minimum domestic rates. Gua mines periodically revised the electricity charges for executives. Eight mines, however, did not implement the Board decision and the electricity charges being recovered from employees were less than the minimum of domestic tariff fixed by SEBs. The employees were being charged fixed monthly amount which was less than the minimum of domestic tariff of SEBs and/or predetermined fixed units without any linkage with the actual consumption of electricity. As a result, mines employees received benefits amounting to ₹ 30.32 crore during 2008-09 to 2013-14.
- (ii) Electricity for Industrial/ Commercial purpose is provided with High Tension Voltage Services (HT connection) and is charged at a rate higher than the rate at which domestic consumption is charged. Rajhara mines have separated domestic connection from industrial connection for electricity supply to township. The separation, however, was not done in other mines and they continued to pay energy charges for domestic use at industrial rate. The amount of extra expenditure on this account was not quantifiable in the absence of chargeable rate for domestic use.

In C&AG's Report No. 11 of 2007 it was reported that above decision (2002) of the SAIL was not implemented in Bolani mine. While electricity charges were revised in line with Board decision with effect from 1 August 2003 for executives, these were not revised from time to time when SEB had increased their rates. Electricity charges continued to be recovered from non executives at pre-determined rates, last revised in August 2008.

Ministry stated (March 2015) that: (i) necessary action is being initiated to increase the recovery rates of electricity for executive employees thereby complying with the SAIL Board directives; (ii) The exercise to revise the electricity charge for non-executive employees would be completed within six months; and (iii) In case of KIOM, MIOM and GOM due to practical difficulties, separation of domestic consumption from industrial lines is not feasible.

The reply of the Ministry may be viewed against the facts that (i) after the issue was pointed out to Ministry in December 2014 by audit, the SAIL management issued the recovery instructions for executives only in case of BOM, KIOM MIOM, KTR, and BNP-TDR mines, with retrospective effect from 5 October 2009, whereas the Board

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<sup>^</sup> *Kiriburu iron ore mines (KIOM); Meghahatuburu iron ore mines (MIOM); Bolani Ore Mines(BOM); Barsua iron ore mines (BIM); Kalta iron ore mines (KIM); Gua ore mines (GOM); Kuteswar limestone mines (KTR); Tulsidamar dolomite mines (TDR); Chasnalla Colliery; and Rajhara mines.*

decision was effective from April 2002 and included both executive and non-executives. Similar actions have not been initiated in case of Rajhara mines and Chasnalla colliery, (ii) Citing of practical difficulties in separation of domestic consumption from industrial lines in case of KIOM, MIOM and GOM without any technical study is not acceptable because segregation of lines between industrial and domestic consumption was possible in Rajhara mines while it is under progress in BIM and BOM townships. The reply was silent on separation of lines in rest of the mines<sup>▼</sup>.

Thus, SAIL did not implement its decision of March 2002 to charge its employees in townships in Mines at minimum of the rate charged by SEBs for domestic consumption for electricity which resulted in conferring benefits amounting to ₹ 30.32 crore on its employees during 2008-14. The Company also did not segregate electricity supply lines for industrial and domestic use.

### 5.5 *Blocking of funds*

**Failure of the management to provide requisite and timely shutdown of the sinter machines for replacement of old battery cyclones, led to suspension of work on Electro Static Precipitators since July 2010, resulted in blocking of funds of ₹ 26.91 crore for more than three and half years. BSL also could not meet the stipulated emission norms fixed by Central Pollution Control Board.**

Sinter plant in Bokaro Steel Plant (BSL) of Steel Authority of India limited (SAIL or Company) has 3 Nos. sinter machines. Each sinter machine is attached with wind boxes, vacuum chambers, wind main ducts, 2 battery cyclones and 2 exhaust fans to control dust emission. Six battery cyclones in sinter machines had outlived their useful life, and dust emission from the plant was more (250-280 mg/Nm<sup>3</sup>) than the statutory norm of 150 mg/Nm<sup>3</sup> fixed by the Central Pollution Control Board (CPCB). SAIL approved 'in-principle' (January 2005) replacement of the battery cyclones with Electro Static Precipitators (ESPs). After delayed finalization in scope of work, the contract was awarded (October 2007) to a consortium of M/s Hamon Research Cottrell, USA (Consortium Leader) and M/s Shriram EPC Limited (SEPC), India (Consortium Member), on a turnkey basis at a total cost of ₹ 75.16 crore.

Audit noticed that the stated goal of overall reduction in emission level was not achieved as only one ESP has been replaced so far; (February 2015) and ₹ 26.91 crore has remained blocked for more than three and half years due to failure of management to arrange shutdowns stipulated in the contract to install the remaining five ESPs. Detailed observations are as under:

- As per the contract, the schedule of implementation required that all six ESPs shall be installed one after another. First battery cyclone No. 6 of sinter machine 3 had to be dismantled after isolation. New ESP-6 would be installed in the location of this battery cyclone along with related dust disposal system and ducting. Thereafter, ESP would be connected to the sinter machine No. 3 and be

<sup>▼</sup> *Bhwnathpur-Tulsidamar dolomite mines (BNP-TDR), Kuteswar Limestone mines (KTR), Kalta iron ore Mines(KIM) and Chasnalla Colliery*

commissioned. One exhaustor would be shut down for a maximum period of 5 months for dismantling and erection activities. The second battery cyclone of sinter machine No. 3 would be dismantled and replaced with ESP, battery cyclones of Sinter machine nos. 2 & 1 would be replaced one after another. The shutdown of each sinter machine would be given in phases in order to ensure uninterrupted sinter feed to blast furnaces. Contract also provided that M/s HRC consortium would require 5 months shutdown (including one week pre-shutdown and one week post-shutdown) time for dismantling each battery cyclone for each machine and installation and commissioning of ESP in its place.

- As per the project implementation schedule, first shutdown for ESP-6 was to be given in April 2008. BSL, however, took 21 months to grant first shutdown in January 2010. Apart from delays in preparatory works by the contractor, delay was largely attributed to BSL as there was change in scope of work; and the contractor was made to execute certain activities 'off-ESP' site (out of contract agreement), before shutdown, which otherwise could have been executed parallel to the main ESP erection work. After ESP-6 was installed, put to use and capitalized (June 2010) at a cost of ₹ 11.41 crore, BSL did not give other shutdowns to replace other five ESPs on the plea of loss of sinter production. BSL also changed the location of new ESP -1 which was not envisaged in the contract necessitating change in locations of other ESPs and consequent cost and time overrun.
- In the meantime, the balance amount of ₹ 26.91 crore were paid (up to July 2011) to the contractor for men, material and machines mobilized at the project site for reception of remaining ESPs, which has remained blocked for past more than three and half years (July 2011 to February 2015). Due to idling of men and machinery since June 2010, the contractor decided to withdraw from the site in January 2011 and issued an arbitration notice which had been put on hold. After delay of two years, the BSL decided (May 2013) to provide shut down with effect from June 2013 for installation of ESP-5. Even this shutdown did not materialize as ESP locations were revised.
- It was noticed that CPCB (July 2011) had pointed out inadequacy in air pollution control equipments installed with sinter plants and issued direction to BSL under section 5 of the Environment (Protection) Act 1986, to commission ESP to ensure compliance to stipulated emission norms. On BSL's failure to comply with the above directions, CPCB not only forfeited the bank guarantee of ₹ 50 Lakh (January 2014), but also demanded (August 2014) another bank guarantee of ₹ 50 Lakh. CPCB also found (December 2014) that progress of work in respect of ESPs at sinter plant was grossly unsatisfactory and directed BSL to complete the work by August 2015.
- The Company stated that: (i) location of ESP was changed due to production requirements; and (ii) shutdowns for the remaining ESPs could not be provided because the contractor did not liquidate the defects of ESP-6, they did not conduct performance guarantee parameters on ESP-6 to demonstrate achieving dust



content of 50 mg/Nm<sup>3</sup>, and the management could not risk sinter production by giving shutdown for ESP.

Reply is not tenable as: (i) the scope of work and location of ESPs were to be finalized upfront and not after award of contract (ii) new ESP-6 was being operated uninterrupted since 17 June 2010 and had achieved not only stack emission norms of 150 mg/Nm<sup>3</sup> of CPCB but gradually obtained guaranteed emission parameter of 50 mg/Nm<sup>3</sup>. This was a turnkey contract, and sequence of replacement of six ESPs and the required shutdown was stipulated in the contract. Therefore, shutdown of existing facility was a contractual requirement to execute the work sequentially. Project Division of the BSL had also sought shutdowns from the user department for completing remaining five ESPs which was not granted on consideration of interruption in production. Delaying shutdown to avoid slippage in production was not only against the contractual provisions, but also resulted in non-achievement of the stated objective from this investment, i.e. to achieve the dust emission level in all six battery cyclone from 250-280 mg/Nm<sup>3</sup> to below the statutory norm of 150 mg/Nm<sup>3</sup>.

Thus, failure of BSL to provide requisite and timely shutdown of the sinter machines not only led to violation of CPCB's emission norms but also resulted in blocking up of funds of ₹ 26.91 crore for more than three and half years.

The matter was reported to the Ministry in February 2015; their reply was awaited (March 2015).

#### **5.6 Avoidable expenditure in ISP/SAIL**

**The Company had to incur an avoidable expenditure of ₹ 26.40 crore on major repairs after an explosion in boiler which had occurred due to non compliance with the contractual design parameters and advisories for boiler operation set by the equipment supplier.**

IISCO Steel Plant (ISP) of Steel Authority of India Limited (the Company) awarded a contract to Bharat Heavy Electrical Limited (BHEL) in October 2007 for installation of Power and Blowing Station which included three boilers each of 200 ton per hour capacity. As per Clause 01.02.01 of the contract agreement, the boilers were designed for firing Blast Furnace (BF) gas, Basic Oxygen Furnace (BOF) gas, Coke Oven (CO) gas and Coal Bed Methane (CBM) as main fuel. Light Diesel Oil (LDO) was to be used for initial start up to 10 per cent rated capacity.

Gas from BF and BOF was not available due to delays in completion of BF and BOF projects. Coke Oven Battery-11 was ready and supply of steam from boilers was a technical requirement for pre-commissioning activities. The boilers were also ready. Keeping the design parameters of the boilers in mind, BHEL and the ISP management had mutually agreed in a meeting held on 15 February 2012 that the boilers would not be run continuously on LDO alone; the boilers could run on LDO continuously for maximum 7 days for charging of first chamber of Coke Oven Battery; and after an interval of 15 to 30 days, for further maximum 7 days for charging the second chamber. As noted below, the ISP management did not adhere to these design parameters risking safety of human life and equipment, and ignored repeated forewarnings and advisories on boiler operating instructions from BHEL resulting in an explosion in a boiler.

On specific demand from the ISP management, BHEL allowed the Boiler-3 to run continuously for 14 days from 5 December to 19 December 2012 with a condition that any deterioration in performance parameters at later date would be solely on the Company's account. This condition was in line with the Clause 26.2 of the contract which states that 'The Employer shall have the right to take possession or use any completed or partially completed work. Such possession or use shall not be deemed to be an acceptance of any work done not in accordance with the Contract. However, any damage to such work solely to such provision or use shall be to the employers account.' BHEL reminded the ISP management on 21 December 2012 that the boilers cannot be run on LDO alone and advised the ISP management to expedite completion of the other fuel lines i.e. BF and BOF gas.

The Boiler-3 was started again on 10 January 2013 and a minor explosion occurred in the boiler on 24 January 2013 because prolonged running of the boiler with LDO fuel alone had contributed to formation of fuel carryover and deposition which in turn promoted a secondary combustion. After repair the BHEL expert put some additional riders including 3-4 days shutdown to boiler every 10 days for inside cleaning and washing. After restoration the boiler was re-started on 4 February 2013 and it was running continuously with LDO and the clogging of valves/deposition of unburnt LDO was noted. However, the Company did not give shutdown requested on 3 March 2013 by BHEL to clear the same, and after a continuous run of 37 days, a major explosion took place on 12 March 2013 resulting in damage of the Boiler-3.

BHEL refused to repair the boiler without any extra cost citing provisions of clause 26.2 of the contract. The insurer too rejected insurance claim\* twice citing negligence in operation of the boiler. The Company therefore had to award a contract to BHEL for repair of the boiler at a total cost of ₹ 26.40 crore inclusive of taxes and duties.

While denying negligence in running the boiler, the Company stated (November 2014) that incident of boiler explosion was merely an accident, and all the technical parameters required to run the boiler were duly taken care of. Discussion on the settlement of claim by M/s BHEL and ISP with the insurer was under progress.

The reply is not tenable as BHEL and insurer had noted violation of manufacturer instructions by ISP in operation of boiler which was found to be the cause of explosion. BHEL intimated (May 2014) to ISP that insurer had rejected the claim altogether citing reasons that were neither attributable to nor defensible by BHEL. No amount was realised against the insurance claim (February 2015).

It would be seen that Company operated the boiler in violation of manufacturer's recommendations which resulted in an explosion in the boiler. As a result the Company had to incur avoidable expenditure of ₹ 26.40 crore on restoration of damaged boiler.

The matter was reported to the Ministry in November 2014; their reply was awaited (March 2015).

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\* *Insurance policy was taken by BHEL*