

## Annexure I

## Statement showing additional expenditure towards Caustic Soda

Year	Production of Hydrate (tonnes)	Total caustic soda consumption (kg/tonne)			Total excess consumption (in tonnes)	Purchase price of caustic soda (₹/tonne)	Extra Expenditure (₹ in crore)
		Norms	Actual	Excess over norms			
(A)	(B)	(C)	(D)	(E)=(D-C)	(F)=(E*B)/1000	(G)	(H)=(F*G)/10 <sup>7</sup>
2012-13	1,802,000.00	72.00	87.36	15.36	27,678.72	29,650.00	82.07
2013-14	1,925,000.00	72.00	97.70	25.70	49,472.50	30,360.00	150.20
2014-15	1,851,000.00	72.00	102.82	30.82	57,047.82	28,160.00	160.65
2015-16	1,953,000.00	100.00	106.05	6.05	11,815.65	28,230.00	33.36
<b>Total</b>					<b>146,014.69</b>		<b>426.27</b>

**Annexure II**  
**(Refer Para No. 2.1.5 )**

**Statement showing additional expenditure towards Fuel Oil**

Year	Consumption of fuel oil (litre/tonne)		Excess Consumption over norms (ltr/tonne)	Production of Calcined Alumina (in tonnes)	Total Excess consumption (KL)	Average purchase price of fuel oil (₹/KL)	Extra Expenditure (₹ in crore)
	Norms	Actual					
(A)	(B)	(C)	(D)=(C-B)	(E)	(F) = (E*D)/1000	(G)	(H) =(E*F)/10 <sup>7</sup>
2012-13	77.00	77.56	0.56	1,762,700.00	987.11	40,344.80	3.98
2013-14	77.00	77.76	0.76	1,912,600.00	1,453.58	40,783.01	5.93
2014-15	77.00	78.88	1.88	1,826,500.00	3,433.82	34,943.29	12.00
2015-16	77.00	78.11	1.11	1,910,000.00	2,120.10	20,997.14	4.45
2016-17	77.00	78.83	1.83	2,032,500.00	3,719.48	22,505.28	8.37
<b>Total</b>					<b>11,714.08</b>		<b>34.73</b>

**Annexure III**  
**(Refer Para No. 3.1)**

**Calculation of loss of opportunity to earn contribution due to lower operation of Smelter Plant**

Sl. No.	Particulars	2012-13	2013-14	2014-15	2015-16	2016-17	Total (₹ in crore)
(A)	Sales Realisation from Aluminium Metal (Ingot) (in ₹ per tonne)	122,925.59	125,329.31	140,592.61	115,783.54	122,783.72	
	Variable Cost (₹ per tonne)						
(B)	Variable cost of Hot Metal used	96,774.01	95,170.00	91,559.62	88,965.89	91,977.88	
(C)	Cost of other input materials	659.28	1,650.11	1,396.83	717.03	681.45	
(D)	Fuel	534.00	521.97	430.47	268.68	321.85	
(E)	Utilities	162.02	206.11	173.50	149.54	141.29	
(F)	Direct Expenses	104.17	96.02	108.59	46.33	45.51	
(G)	Packaging Cost	298.09	294.26	65.94	75.07	61.80	
(H)=(B+C+D+E+F+G)	Total variable cost of Ingot (in ₹ per tonne)	98,531.57	97,938.47	93,734.95	90,222.54	93,229.78	
(I)=(A-H)	Contribution (in ₹ per tonne)	24,394.02	27,390.84	46,857.66	25,561.00	29,553.94	
(J)	Sales Margin on Calcined Alumina (in ₹ per tonne)	4,327.75	4,569.11	6,466.04	5,217.73	5,397.12	
(K)	Specific Consumption of Alumina ( in tonne)	1.972	1.940	1.931	1.937	1.945	
(L)=(J*K)	Margin of Alumina in Aluminium metal produced (in ₹ per Tonne)	8,534.32	8,864.07	12,483.34	10,106.74	10,497.40	

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(M)=(I-L)	Incremental (in ₹ per Tonne)	15,859.70	18,526.77	34,374.32	15,454.26	19,056.54	
(N)	Total capacity (in tonnes)	460,000.00	460,000.00	460,000.00	460,000.00	460,000.00	
(O)	Capacity utilisation (in tonnes)	403,384.00	316,492.00	327,070.00	372,183.00	387,422.00	
(P)=(N-O)	Shortfall in production (in tonnes)	56,616.00	143,508.00	132,930.00	87,817.00	72,578.00	
<b>(Q)=(P*M)/10<sup>7</sup></b>	<b>Loss of Contribution (₹ in crore)</b>	<b>89.79</b>	<b>265.87</b>	<b>456.94</b>	<b>135.71</b>	<b>138.31</b>	<b>1,086.63</b>

Notes:

Loss of contribution calculated in the methodology adopted by the Management for the same in its letter no. NBC/ED(P)/2014/741 dated 04.08.2014 addressed to Ministry of Mines.

**Annexure IV**  
**(Refer Para No. 3.2)**

**Statement showing excess consumption of Calcined Alumina**

Year	Actual Production of hot metal (tonnes)	Total consumption of Alumina (tonnes)	Actual Specific Consumption of Alumina (tonnes)	Norms for consumption of Alumina per Tonnes of hot metal (tonnes)	Excess consumption over norms per Tonnes of hot metal (tonnes)	Total excess consumption (tonnes)	Sales price of alumina (₹ per tonne)	Loss due to excess consumption (₹ in crore)
(A)	(B)	(C)	(D)	(E)	(F)=(D-E)	(G)=(F*B)	(H)	(I)=(G*H)/10 <sup>7</sup>
2012-13	406,482	795,387	1.957	1.924	0.033	13,315.63	18,612.38	24.78
2013-14	318,544	613,943	1.927	1.924	0.003	1,064.34	19,539.62	2.08
2014-15	329,511	631,453	1.916	1.924	-	-	21,399.93	-
2015-16	374,903	720,880	1.923	1.924	-	-	19,093.87	-
2016-17	390,467	753,401	1.929	1.924	0.005	2,142.49	19,896.12	4.26
<b>Total</b>						<b>16,522.47</b>		<b>31.13</b>

**Annexure V**  
**(Refer Para No. 3.3)**

**Excess consumption of FO over Norms in 'Bake Oven' Plants**

Plant	Particulars		2012-13	2013-14	2014-15	2015-16	2016-17	Total
Bake Oven-1	Production (tonnes)	(A)	86,793.00	61,962.00	60,969.00	90,918.00	94,019.76	
	FO consumption Norms (ltrs/Tonne)	(B)	65.00	65.00	65.00	65.00	65.00	
	Actual consumption (ltrs/tonne)	(C)	65.00	68.00	66.00	72.00	68.80	
	Excess consumption (ltrs/tonne)	(D)=(C-B)	-	3.00	1.00	7.00	3.80	
	Excess consumption (KL)	(E)=(D*A)/1000	-	185.89	60.97	636.43	357.28	<b>1,240.56</b>
Bake Oven-2	Production (tonnes)	(F)	76,060.00	66,014.00	68,141.00	81,401.00	103,734.00	
	FO consumption Norms (ltrs/tonne)	(G)	54.00	54.00	54.00	54.00	54.00	
	Actual consumption (ltrs/tonne)	(H)	60.00	59.00	56.00	59.00	58.70	
	Excess consumption (ltrs/tonne)	(I)=(H-G)	6.00	5.00	2.00	5.00	4.70	
	Excess consumption (KL)	(J)=(I*F)/1000	456.36	330.07	136.28	407.01	487.55	<b>1,817.27</b>
Bake Oven-3	Production (tonnes)	(K)	77,065.00	65,796.00	67,867.00	50,944.00	34,982.00	
	FO consumption Norms (ltrs/tonne)	(L)	54.00	54.00	54.00	54.00	54.00	

	Actual consumption (ltrs/tonne)	(M)	56.00	56.00	54.00	57.00	57.50	
	Excess consumption (ltrs/tonne)	(N)=(M-L)	2.00	2.00	-	3.00	3.50	
	Excess consumption (KL)	(O)=(N*K)/1000	154.13	131.59	-	152.83	122.44	<b>560.99</b>
	Total loss(KL)	(P)=(E+J+O)	610.49	647.55	197.25	1,196.26	967.26	<b>3,618.81</b>
Sub Total Bake Oven	Cost of FO (₹ per KL)	(Q)	40,660.00	40,530.00	35,298.00	22,880.00	22,410.00	
	Loss due to excess consumption (₹ in crore)	(R )=((P*Q)/10^7	2.48	2.62	0.70	2.74	2.17	<b>10.71</b>

**Annexure VI**  
**(Refer Para No. 3.4)**

**Additional expenditure towards coal due to higher Station Heat Rate**

Year	Actual Coal Consumption (In MT)	Coal Consumption as per the Norms (in MT)	Excess Coal Consumption (in MT)	Rate of coal (₹ per MT)	Value of excess coal consumed (₹ in crore)
2012-13	4,933,458	4,646,763	286,695	1,769.48	50.73
2013-14	4,788,392	4,128,477	659,915	1,534.37	101.26
2014-15	4,432,389	4,113,444	318,945	1,455.05	46.41
2015-16	5,264,941	4,919,874	345,067	1,719.16	59.32
2016-17	5,479,306	5,130,762	348,544	1,976.86	68.90
<b>Total</b>					<b>326.62</b>



## Annexure VII

(Refer Para No. 3.5)

## Excess expenditure due to slippage in grade of coal received

Period	Quantity of coal purchased (in tonnes)	Grade Billed	Grade actually received	Difference in Base Price (₹ per tonne)	Excess expenditure (₹ in crore)
Alumina Refinery					
2012-13	1,261,207.65	E	D	-190.00	-23.96
2013-14	1,209,624.20	G11	G12	60.00	7.26
2014-15	1,254,863.34	V(I)	V(III)	90.00	11.29
2015-16	1,359,803.25	V(I)	V(III)	70.00	9.52
2016-17	1,372,849.95	G12	G14	130.00	17.85
<b>Sub Total</b>					<b>21.95</b>
Captive Power Plant					
2012-13	5,679,459.65	E	F	210.00	119.27
2013-14	5,043,189.94	V(I)	V(II)	60.00	30.26
2014-15	4,601,367.14	V(II)	V(III)	70.00	32.21
2015-16	5,077,103.26	V(II)	V(III)	70.00	35.54
2016-17	5,453,426.72	G13	G13	-	-
<b>Sub Total</b>					<b>217.28</b>
<b>Grand Total</b>					<b>239.23</b>