



HOUSE OF COMMONS
LONDON SW1A 0AA

4 pps

The Private Secretary
to the Prime Minister,
10, Downing Street,
London
S.W.1.

24/3/81

Dear Sir,

I enclose a copy of the original leaked review document which Mr Campbell-Savoury acquired in December, 1980, and which led to the accusations he made on the floor of the House of Commons on 16th December.

This document, which is central to the argument surrounding Distinguon, is the one which misrepresented the case for Distinguon. The British Steel Corporation has always maintained that Mr Campbell-Savoury had not seen the document, which was an internal review.

You may recall that the removal of documents from Distinguon and their



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transmission to Mr Campbell-Savours was referred to the Director of Public Prosecutions, following representations from B.S.C. to Lambeth Police. However the case was dismissed by Sir Thomas Hetherington within twenty four hours of it being received by his office.

Yours sincerely,

Heleen Donoghue,

(Research Assistant to D. Campbell-Savours)

26th September 1980

INGOT MOULD FOUNDRY RATIONALISATION REVIEW

SEPTEMBER 1980

Summary

The future demand for ingot mould production is reviewed and the manufacturing costs of the available process routes are evaluated.

The foundry configurations for different levels of demand are identified and the operating costs compared..

It is possible to reduce the number of manufacturing sites to two when steel production falls below 12 million tonnes but the capabilities to react to fluctuations in demand would be limited and the timing of any further closure, therefore, requires careful consideration.

However, there is a potential saving of up to £8m next year if agreement to move to option 2(b) is achieved in the near future.

Page 5.

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- THIS IS DISCUSSION DOCUMENT.
- NOT A DOCUMENT THAT EVALUATES.
- EVEN THIS DOCUMENT IMPLIES FURTHER DISCUSSIONS ON DISTINCTION.

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INGOT MOULD FOUNDRY RATIONALISATION REVIEW

1. Liquid Steel Make

The 'Steady State' was defined in April 1980 as a liquid steel requirement of 15m tonnes and would be distributed among the various works at annual rates, established for Quarter 4 1980/81.

The steel tonnages defined this way are:-

	<u>Total</u> K Tonnes p.a.	<u>Continuous Cast</u> K Tonnes p.a.	<u>Ingot Mould Route</u> K Tonnes p.a.
Scotland	2,028	1,500	528
Scunthorpe	3,696	692	3,004
Sheffield	2,240	-	2,240
BSC Holdings	380	164	216
Teesside	3,500	1,752	1,748
Wales	2,784	-	2,784
Tubes	300	-	300
TOTAL	<u>14,928</u>	<u>4,108</u>	<u>10,820</u>

Recent falls in liquid steel demand make it necessary to assess tonnages of liquid steel that would be produced on the ingot mould route at a number of datum points recognising:-

- (a) reduced economic activity affecting all products to a similar degree,
- (b) the current distribution of lower demand with greater reductions on wide products.

TOTAL DEMAND	LIQUID STEEL ON INGOT MOULD ROUTE	
	Even Reduction in Demand for all Products	Greater Reduction on wide products (Sept.80 position)
	K Tonnes p.a.	K Tonnes p.a.
15 MTPA Liquid Steel 'Steady State'	10,820	10,820
12½ MTPA Liquid Steel	8,254	9,424
10 MTPA Liquid Steel	6,088	6,951

Consumption Rate of Ingot Moulds & Bottom Plates

Currently, 75% of ingot moulds supplied are hematite, most of the remainder are 'quasi flake' and a small number of S.G. moulds have been supplied ex Stanton. ?

TANMAN
FRW
SAMS
1/11/02 The modified graphite moulds (quasi flake or S.G.) are giving a 20% longer service life and the objective is to increase the manufacture of this type of mould to 50% of the total make in the short to medium term.

Not clear by what life records.
A further factor is a proven longer life of Fullwood moulds using the new equipment in the redeveloped foundry.

Standard ingot mould and bottom plate consumptions, current rates of usage and the probable future usage patterns are set out below.

	<u>Planning Standard</u> KG/Tonne	<u>Current Actual</u> KG/Tonne	<u>Potential</u> KG/Tonne
Scotland	27.18	21.98	19.78
Scunthorpe	12.72	11.22	11.22
Sheffield	15.59	15.82	14.03
BSC Holdings	21.79	21.79	19.61
Teesside	19.01	19.88	17.89
Wales	18.61	17.20	17.20
Tubes	14.50	14.50	14.50
Weighted Average	<u>16.78</u>	<u>15.94</u>	<u>15.09</u>

3. Small Moulds to BSC Plants and to Private Sector Steel Plants

Renishaw Foundry makes small moulds and plates for BSC plants and Stanton make moulds for Tubes - they would continue to do so and Renishaw would remain the principle suppliers to the private sector.

Five hundred thousand tonnes of the BSC liquid steel make indicated above will be serviced by moulds and plates from Renishaw/ Stanton under this arrangement.

4. Exports

Basic strategy for the operation of ingot mould foundries is founded on meeting the demands of BSC steel plants only.

Exports currently running at 14,000 tonnes per annum would continue partly at Renishaw and possibly as a filler to the foundry configuration determined to meet BSC's demand.

(c) Alternative Operating Capacity Levels

	<u>Capacity</u> <u>Tonnes P.A.</u>	<u>Capital</u> <u>£K</u>
i) <u>At Distington using Cold Metal</u>		
15 Shift Operation	57,500	339
15 Shift with Pre-heating	65,500	828
15 Shift with Pre-heating and Second Inductors	110,000	2,150
21 Shift with Pre-heating	86,500	828
ii) <u>At Dowlais</u>		
Concentration of Operations into one Foundry Building	35,000	. 225
iii) <u>At Fullwood</u>		
Increase Manning by 18 to Capacity at Single Furnace Working	56,000	-
Increase Manning by 86 and Operate both Furnaces	75,000	-

Note

- i) Distington foundry produce a higher proportion of small moulds; if the foundry configuration selected excluded Distington and allowance of approximately 10% of the transferred tonnes would be required to be made in matching capacity to demand.
- ii) Theoretically, capacity at Fullwood could be extended by 21 shift working. This would be expensive in overtime and production time lost for maintenance, further the experience in the area of 21 shift working with it's social consequences renders it unlikely that such a method of working would yield significantly higher outputs or lower costs.

7. Foundry Costs - Hematite Moulds

The following cost data is based on raw material prices current at 1st August 1980 and are aligned to the production of a 16 tonne ingot mould.

Rubric! Fixed cost could be much less at average 16 ton wt.

Please see table overleaf.

Mould & Bottom Plate Demands for the Three Major Foundries

Ingot moulds and plate production is now based on Distington, Dowlais and Fullwood foundries. Demands on these foundries at planned rates of consumption are assessed as being:-

	If Demand Fluctuations are Evenly Spread	If Greater Reduction in Demand for Wide Products
	Mould & Plate Tonnes Per Annum	Mould & Plate Tonnes Per Annum
15 MTPA Liquid Steel Make	172,900	172,900
^{14 1/2} 12 1/2 MTPA Liquid Steel Make	131,300	164,254 150,900
10 MTPA Liquid Steel Make	96,400	110,800

No allowance is made in these figures for short term fluctuations in demand caused by restocking etc.

Mould consumptions could potentially be reduced by 10% from the figures shown by extending the use of modified graphite moulds referred to in Section 2.

By 1983/84, demand for moulds and plates will be further reduced by not more than 20,000 tonnes per year following the introduction of continuous casting machines at Templeborough, Stocksbridge and Port Talbot.

Manufacturing Capacities - Major Mould Foundries

(a) Gross Capacities

Distington - Hot Metal Route	146,000 t.p.a.
Limiting factor is furnace capacity	
Distington - Cold Metal Route	75,000 t.p.a.
Limiting factor is furnace capacity	
Dowlais	80,000 t.p.a.
Limiting factor is drying stove capacity and space	
Fullwood	82,000 t.p.a.
Limiting factor is space	

(b) Currently Manned Capacities

Distington - Hot Metal Route	126,000 t.p.a.
Dowlais	50,000 t.p.a.
Fullwood	46,000 t.p.a.

POLITICAL LICENCE

	Output Level t.p.a.	Costs Per Tonne		
		Fixed	Variable	Total
<u>Distington</u>				
15 Shift Hot Metal	126,000	87.55	96.07	183.62
15 Shift Cold Metal Minimum Capital	57,500	79.92	82.67	162.59
21 Shift Cold Metal Minimum Capital	75,000	65.41	82.01	147.42
<u>Dowlais</u>				
15 Shift Capacity	80,000	35.50	92.78	128.28
15 Shift As Currently operated	50,000	47.77	97.21	144.98
Single Foundry Operation	35,000	36.77	94.21	130.98
<u>Fullwood</u>				
15 Shift 2 Furnace	75,000	24.15	87.68	111.83
15 Shift Single Furnace Maximum	56,000	25.25	87.30	112.55
15 Shift Single Furnace as currently operated	46,000	28.61	87.73	116.34

Notes on Cost Data

IMPLIES MAJOR DIFFERENCES - Same melting process - Same process route generally pursued
WHY? - argue it out

1. The Distington mix is more complex and covers a wider range than the other two foundries. Across a full size range the Distington disadvantage may be reduced by about £5 per tonne.

2. The cost figures shown for Distington at 75,000 and 57,500 tonnes, are theoretical, assume reductions in foundry manning of 33% from present day levels to produce at 75,000 tonne rate and 59% to meet the 57,500 tonne rate. Assumptions are made that overheads charged to the foundry will be reduced plus the elimination of overhead on the blast furnace costs currently charged to the foundry through hot metal price.

A detailed statement on the reduction in overhead will be prepared by Cumbria Works Management.

3. Dowlais have operated at both the 80,000 t.p.a. level and the 50,000 t.p.a. level and their costs represent what has been done evaluated at 1st August 1980 prices. The costs

shown for 35,000 t.p.a. are theoretical as single foundry production has not so far been adopted.

4. Fullwood figures at 46,000 t.p.a. are actuals rated at 1st August 1980 prices. The 56,000 t.p.a. figures carry additional manning and tonnage variable costs but with lower electricity costs per unit from the 46,000 t.p.a. level. The 75,000 t.p.a. costs are similar to the S.E. Scheme but with 1st August 1980 prices and overhead levels.

8. Transport Costs - Mould Foundries to Steel Works

	Fullwood £ per Tonne	Dowlais £ per Tonne	Distington £ per Tonne	
Ravenscraig	1.30	12.69	5.50	7 (29)
Teesside	7.54	8.76	5.00	19 48
Scunthorpe	11.73	7.89	6.00	25 143
Sheffield/Rotherham	9.98	7.56	6.00	19 76.
Llanwern	16.28	3.25	9.50	238.
Port Talbot	16.28	2.93	9.50	216
				<u>452</u>

The costs shown are approximate road haulage rates for 16 tonne moulds, more accurate information would require quotations and detail of possible return loadings. On the latter aspects, some advantage may possibly accrue where a higher proportion of used moulds are returned to the supplying foundry.

9. Conclusions

(1) 15 MILLION TONNES PER YEAR LIQUID STEEL MAKE

A maximum of 172,900 tonnes of ingot mould and bottom plate required, this can be met by:-

(a) current manning and facilities at

Distington	- Hot Metal	
	15 Shifts	126,000 t.p.a. capacity
Dowlais	- Current	
	Levels	
	15 Shifts	50,000 t.p.a. capacity
Fullwood	- Single	
	Furnace	
	15 Shifts	46,000 t.p.a. capacity
TOTAL		<u>222,000</u> " "
		<u>Cost - £31.1m p.a.</u>

or (b) with the closure of Dowlais:

Distington - Hotel Metal	126,000 t.p.a. capacity
15 Shifts	
Fullwood - Single Furnace	56,000 t.p.a. capacity
Maximum Capability	
TOTAL	<u>182,000</u> " "

Cost - £29.1m p.a.

or (c) with the hot metal route at Distington closed demand could be met with between 5.5% spare capacity and possibly more dependent on progress made on the introduction of modified graphite moulds by:-

Distington - Cold Metal	57,500 t.p.a. capacity
15 shifts	
Dowlais - Current Levels	50,000 t.p.a. capacity
15 shifts	
Fullwood - 2 Furnaces	75,000 t.p.a. capacity
15 shifts	
TOTAL	<u>182,500</u> " "

Cost - £23.9m p.a.

A decision has already been taken to close the hot metal route. Option (c) offers considerable financial benefit - £7.2m per annum over current arrangements and retains a capability to expand production to service liquid steel demands of up to 20m tonnes per year.

(2) 12½ MILLION TONNES PER YEAR LIQUID STEEL MAKE

A maximum of 150,900 tonnes of ingot mould and bottom plates are required. This can be met by :-

(a) Current manning and facilities which allows 47% spare capacity.

Distington - Hot Metal	126,000 t.p.a. capacity
15 shifts	
Dowlais - Current Level	50,000 t.p.a. capacity
15 shifts	
Fullwood - Single Furnace	46,000 t.p.a. capacity
15 shifts	
TOTAL	<u>222,000</u> " "

Cost - £29.0m p.a.

- (b) Putting Distington on 15 shifts using the cold metal route, reducing capacity at Dowlais to the use of single foundry and manning up for 2 furnace operation at Fullwood. This would allow a minimum of 11% spare capacity.

Distington - Cold Metal 15 shifts	57,500 t.p.a. capacity
Dowlais - Single Foundry Operation	35,000 t.p.a. capacity
Fullwood - 2 Furnace 15 Shifts	75,000 t.p.a. capacity
TOTAL	<u>167,500</u> " "

Cost £20.9m per annum

- or (c) Close Distington and work Dowlais and Fullwood at capacity levels. This would leave virtually no spare capacity unless mould performance improved by the extension of the use of S.G. moulds (Section 2 of this report refers).

Dowlais - 15 Shifts Maximum capacity	80,000 t.p.a. capacity
Fullwood - 2 Furnace 15 Shifts	75,000 t.p.a. capacity
	<u>155,000</u> " "
Less adjustment to capacities for small moulds transferred from Distington	<u>4,000</u>
TOTAL	<u>151,000</u> " "

Cost - £18.7m p.a.

- or (d) Close Dowlais and work Distington and Fullwood at capacity levels. As in (c) above, there would virtually be no spare capacity unless mould performances improved.

Distington - Cold Metal 21 Shifts	75,000 t.p.a. capacity
Fullwood - 2 Furnace 15 Shifts	75,000 t.p.a. capacity
TOTAL	<u>150,000</u> " "

The balance of 900 tonnes required to service a steel make of 12½m tonnes per annum could be made in overtime at Fullwood if necessary.

Cost - £19.9m p.a.

Option (c) has the lower annual cost but it has the following disadvantages:-

- If demand rises much above the 12½m t.p.a., liquid steel level, mould production capability would not be available without significant capital spending and some delay. The situation will be eased when the new continuous casting machines come into service.
- The Regional Development Grant and Ferrous Foundry Grant received for the Distington Development would be at risk - amount £4m.
- To make the full range of moulds current made at Distington would probably require some capital expenditure and some enhancement to production planning and control systems at the other foundries.
- The long-term development of continuous casting may ultimately reduce demand to a level that could be met by one foundry - Distington is best equipped to meet the probable product mix in that circumstance.

Option (d) has the similar disadvantage to (c) of not being able to cope with mould requirements for steel makes in excess of 12½m t.p.a.

The £1.2m p.a. cost disadvantage of option (d) over (c) must be weighed against:-

- No capital expenditure requirements and no risk of having to pay back up to £4m in grants.
- All moulds made in foundries accustomed to the mix of products that they would be called upon to make.
- The advantage of retaining the versatility of Distington Foundry for the sole survivor role is long-term steel plant developments.
- Distington fixed costs are £1.8m greater than Dowlais - there may be potential to reduce this difference.

Option (b) shows an £8.1m p.a. advantage over the current practice, retains a capability to service steelmaking up to 20m t.p.a. but is £2.2m p.a. more expensive than option (c).

A decision on the best option cannot readily be made until the forecast demand beyond 1981/82 is more clearly appreciated.

(3) 10 MILLION TONNES PER YEAR LIQUID STEEL MAKE

Maximum ingot mould and bottom plate requirement of 110,800 t.p.a. This could be met by:-

- (a) Retaining all three foundries on their lowest capacity manning levels leaving 25% spare in the system.

Distington	- Cold Metal 15 Shifts	57,500 t.p.a.
Dowlais	- Single Foundry 15 Shifts	35,000 t.p.a.
Fullwood	- Single Furnace 15 Shifts	46,000 t.p.a.
TOTAL		<u>138,500 t.p.a.</u>
		<u>Cost - £17.3m p.a.</u>

- (b) Operate Distington on 15 shifts and Fullwood on a single furnace maximum output allowing 2½% spare capacity.

Distington	- Cold Metal 15 Shifts	57,500 t.p.a.
Fullwood	- Single Furnace Maximum	56,000 t.p.a.
TOTAL		<u>113,500 t.p.a.</u>
		<u>Cost - £15.7m p.a.</u>

- (c) Operate Dowlais at present level and Fullwood on 2 furnaces allowing 12.8% spare capacity.

Dowlais	- Current Arrangement 15 Shifts	50,000 t.p.a.
Fullwood	- 2 Furnace 15 Shift	75,000 t.p.a.
TOTAL		<u>125,000 t.p.a.</u>
		<u>Cost £14.3m p.a.</u>

A case cannot be made for operating more than 2 sites at this output level.

While option (c) shows cost advantage, this may be eroded by equipment purchase/transfer cost considerations making option (b) more desirable. It is suggested that if demand does fall to this level, a more detailed review will be necessary as the capital/redundancy/flexibility considerations may erode the apparent advantage of option (c) over option (b) at the very low levels of working.

J. Manning Implications

The foundry manning levels and productivity indices for the various options are indicated on Appendices 1, 2 and 3 attached.

It should be noted that Distington shares the use of workshops, services and functional services and overheads with other activities on the Chapel Bank and Moss Bay sites, the cost of three services are included in the main body of the report but the number of people employed in them are not shown in the appendices.

FOUNDRY MANNING/PRODUCTIVITY LEVELS

Distington Foundry

	126,000 tpa Hot Metal 15 Shifts		75,000 tpa Cold Metal 21 Shifts		57,500 tpa Cold Metal 15 Shifts	
	Men	Tonnes/ Man Year	Men	Tonnes/ Man Year	Men	Tonnes/ Man Year
Melting	41	3,073	32	2,344	28	2,053
Moulding	270	467	179	419	129	446
Finishing	98	1,286	57	1,316	50	1,150
Maintenance	156	808	115	662	110	522
Pattern Shop	21	6,000	11	6,818	9	6,389
Staff	78	1,615	49	1,530	43	1,337
TOTAL	664	190	443	169	269	156

FOUNDRY MANNING/PRODUCTIVITY LEVELS

DOWLAI'S FOUNDRY

	80,000 t.p.a. maximum capacity 15 shifts		50,000 t.p.a. as currently operated 15 shifts		35,000 t.p.a. Single Foundry	
	Men	tonnes man year	Men	tonnes man year	Men	tonnes man year
Melting	18	4,444	16	3,125	14	2,500
Moulding	147	544	107	467	58	603
Finishing	24	3,333	19	2,632	14	2,500
Maintenance	107	748	84	595	70	500
Pattern Shop	4	20,000	3	16,667	2	17,000
Staff	100	800	79	633	67	522
Total	400	200	308	162	225	155
Services	33	2,424	27	1,852	23	1,522
TOTAL	433	184	335	149	248	141

FOUNDRY MANNING/PRODUCTIVITY LEVELSFULLWOOD FOUNDRY

	75,000 t.p.a. 2 Furnace 15 Shifts		56,000 t.p.a. Maximum Single Furnace		46,000 t.p.a. Current Loading Furnace	
	Men	Tonnes man year	Men	Tonnes man year	Men	Tonnes man year
Melting	12	6,250	12	4,667	12	3,833
Moulding	104	721	75	747	62	741
Finishing	37	2,027	26	2,154	24	1,917
Maintenance	31	2,419	29	1,931	26	1,769
Pattern Shop	3	25,000	3	18,667	3	15,333
Staff	35	2,143	29	1,931	29	1,586
Total	222	338	174	322	156	295
Services	16	4,688	12	4,667	12	3,833
TOTAL	238	315	186	301	168	274