Office of Rail Regulation

Part A Independent Reporter Framework

Mandate: Review of Coal Spillage Charge (CSC)

Final | 17 April 2013

Job number 209830_21

Ove Arup & Partners Ltd
13 Fitzroy Street
London
W1T 4BQ
United Kingdom
www.arup.com

ARUP

Document Verification

ARUP

Job title	1TPart A Independent Reporter Framework		**Job number**	209830_21
Document title	Mandate: Review of Coal Spillage Charge (CSC)		**File reference**	
Document ref				

Revision	**Date**	**Filename**	AO40_CSC Review_Draft 180313		
Draft 1	18 Feb 2013	**Description**	First draft		
			Prepared by	Checked by	Approved by
		Name	Richard Spoors	Mark Morris	Mark Morris
		Signature			
Draft 2	27 Mar 2013	**Filename**	AO40_CSC Review_Amended Draft 270313		
		Description	Response to ORR and NR proposed amendments		
			Prepared by	Checked by	Approved by
		Name	Richard Spoors	Mark Morris	Mark Morris
		Signature			
Final	9th Apr 2013	**Filename**	AO40_CSC Review_Amended Final 090413		
		Description	Response to ORR and NR proposed amendments		
			Prepared by	Checked by	Approved by
		Name	Richard Spoors	Mark Morris	Mark Morris
		Signature			
Final	17th Apr 2013	**Filename**	AO40_CSC Review_Amended Final 170413		
		Description	Response to NR feedback on Hull and Chalmerston		
			Prepared by	Checked by	Approved by
		Name	Richard Spoors	Mark Morris	Mark Morris
		Signature			

Issue Document Verification with Document ✓

Contents

1 Introduction

This report presents the findings from a review of assumptions and cost estimates in Network Rail's (NR) Coal Spillage Charge (CSC) consultation. The CSC will form part of the Track Access Charge to rail freight operators in CP5.

This review has been undertaken considering the consultation document issued to the industry on December 18th 2012, industry feedback and NR's supporting documentation upon which their proposed charge has been based. This was augmented by telephone conference calls to NR Route Asset Managers (Track) who supplied additional information.

In particular, the review has looked at the deployment of Rail Vac, Tube Cube and manual interventions; the coal spillage cost estimates that underpinned the consultation document and the number of forecast incidents together with methods of treatment.

The current CSC was derived following a detailed investigation by Halcrow in 2007/8, which included site visits to loading facilities, power stations and locations on the network where coal spillage was prevalent. For CP5 Network Rail have used this work as a benchmark, and applied current knowledge and data to update the charges. This review has accepted that principle and supplements the work of Halcrow rather than undertake a completely new assessment.

2 Network Rail's Approach to CSC for CP5

Network Rails approach continues that from CP4 with the annual charge (at 2011/12 prices end CP4 efficiency) made up of four elements as follows:

Item	CP4	CP5
Cost of cleanup and delay minutes	£245,364	£126,135
Cost of Rail Vac & Tube Cube & Manual Intervention on Points failures	£664,170	£1,803,000
Cost of point end service life reductions	£1,208,114	£2,048,860
Cost of plain line service life reductions	£1,262,363	£1,673,010
Total	**£3,380,012**	**£5,651,005**

Fig. 1 Network Rail's proposed CSC for CP5 [NR CSC consultation[1]]

The clean-up and delay minutes item is an attempt to reflect the reactive cost of coal spillage, after a train delay has occurred by, say, a track circuit failure or the inability of the signaller to set a route due to points detection failure. The value for

[1] http://www.networkrail.co.uk/WorkArea/DownloadAsset.aspx?id=30064784388

CP5 is lower than CP4 due to a lower average number of such failures being reported over the three years to 2012.

Interventions are planned as a preventative measure to reduce the likelihood of points failures and also to remove heavy coal contamination in the ballast which, especially in times of wet weather, can severely impact the quality of track geometry. The volumes proposed for CP5 are considerably higher than those set for CP4.

The principal of coal dust reducing the service life of track for both plain line and switches and crossings (S&C) was established for CP4. Network Rail are not proposing to change the reduction factors, but have changed their assumptions of service life, based on the work done to establish their track asset policy for CP5 which includes the heavy refurbishment of track during the whole life cycle.

Network Rail has also demonstrated that there are more coal traffic loading points in CP5 than were used in the CP4 calculations, thereby increasing the lengths of track and number of point ends affected by coal spillage.

3 The Reporter's view of Network Rail's approach

3.1 Predicted volumes of coal in CP5

In their consultation document [NR CSC Consultation[1]] a similar volume of coal is forecast to be carried on their network in CP5 as in CP4 as the chart below shows:

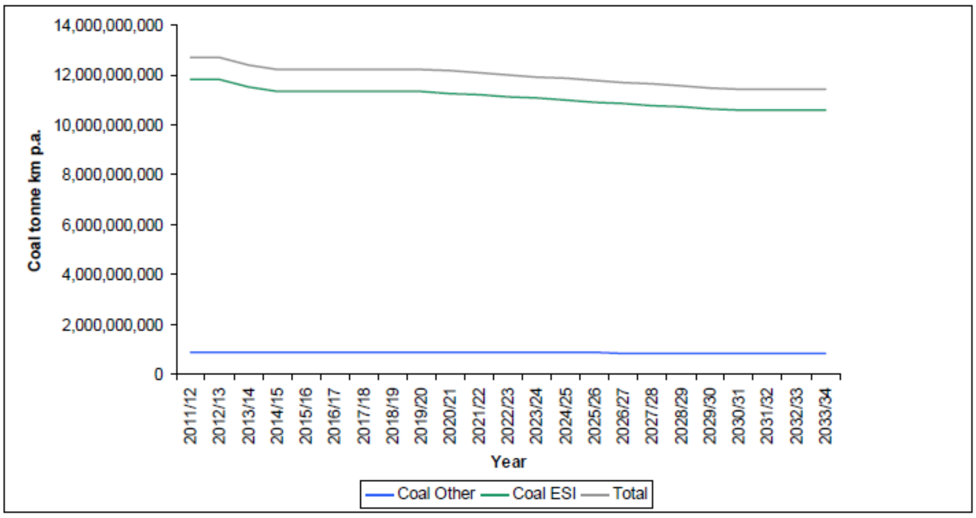

Fig. 2 NR forecast coal tonnages

The basis for Network Rail's CSC is the assumed traffic and costs estimated to be incurred in 2014/15. We are comfortable in Network Rail's assumption that for CP5 similar volumes of coal are likely to be carried across the network.

3.2 Types of rail vehicle used for coal traffics

In the CP4 review it was found that the old British Rail Merry-go-round two axle wagon was more prone to coal spillage than the more modern bogied 100 tonne vehicles. DB Schenker has stated that these older vehicles have now been withdrawn and have not been used since the end of 2008. We consider the withdrawal of these wagons to have only had a marginal impact on coal spillage overall.

3.3 Cost of clean-up and delay minutes

In their calculations of the cost of reactive clean-up, which we consider to be mainly removal of accumulated coal dust on switch slide baseplates, NR has assumed a cost based on 4 men attending site for 3 hours plus a small materials charge. Within this cost, the charge of £90 for new ballast materials appears reasonable for the occasions when ballast replacement is required. From an analysis of their records slightly less incidents of delay attributable to coal spillage have been recorded leading to a reduction in this element of the charge for CP5. NR has recognised that most incidents (75%) that occur are attended to and treated without train delay. Their charge is based on the assumption that 178 incidents occur in 2014/15 of which 45 will cause delay and Schedule 8 payments. We consider their calculations and this element of the CSC charge to be acceptable.

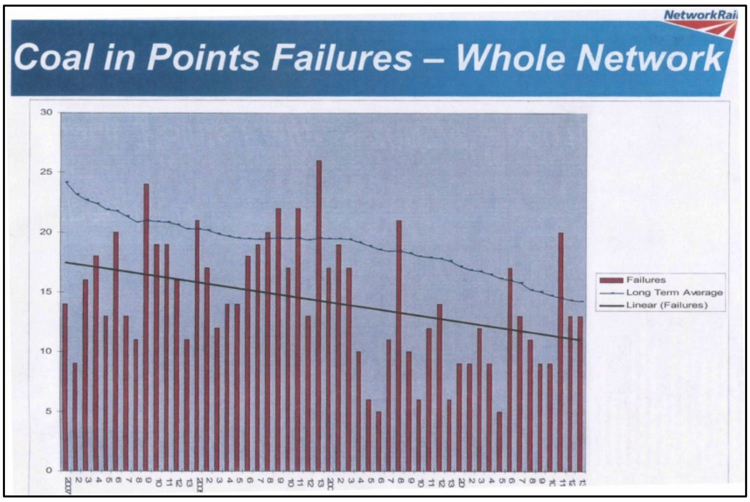

Fig. 3 Coal in points failures show a falling trend in 2011 (Note: NR considers that coal related points failures tend to be under attributed to coal as a root cause)

During the interviews with Network Rail Route staff we were told by all Routes that whilst fault recording systems are used to record incidents where points have failed in traffic due to coal spillage, this description of the cause is not always used, making direct reference to the fault system (FMS) an unreliable source of accurate information on which to base the charge. We note this, and make further reference to fault recording in our recommendations.

3.4 Preventative clean-up of coal spillage

This is the estimate of planned work during CP5 to remove and replace ballast contaminated with coal spillage from plain line locations and switches and crossings. Routes submitted many photographs as part of the review illustrating sites where there can be no doubt that ballast is contaminated and is in need of replacement. Three examples are shown below:

Fig. 4 Ferrybridge North Junction. Empty trains leaving Ferrybridge Power Station

Fig. 5 Foxhall Junction where empty coal trains having left Didcot Power Station join the GWML

Fig. 6 Plain line in Severn Tunnel

In CP4 this maintenance work would probably have been recorded in Elipse (the NR national track maintenance work scheduling software) as either manual wet bed removal or mechanical wet bed removal. NR does not have a specific description in its track maintenance organisation for ballast replacement due to coal spillage. This has made any accurate assessment of work done in CP4 problematic. In estimating the volume of preventative work for CP5, NR therefore invited Routes to submit bottom up plans which are shown below. To give an indication of the extent of the spillage, a fifth column has been added which shows the volumes of coal moved in 2011/12 provided by Network Rail.

Planned preventative Coal Spillage Interventions				Coal Volumes moved 2011/12 ktonne km
Route	Rail Vac	Tube Cube	Manual Intervention	
LNE	12	8	190	6,246,582
Wales	14	0	0	786,305
East Midlands	0	4	4	501,248
Scotland	0	2	31	2,606,355
Western	0	0	8	382,654
LNW North	0	0	17	2,187,193
Total	**26**	**14**	**250**	**12,710,336**

Fig. 7 Proposed annual work volumes by NR in CP5

3.5 Manual Intervention

Routes were asked to provide information on the number of planned manual interventions that take place each year. In the model cost estimate a manual intervention is defined as the treatment of one point end in a 10 hour possession by a gang of 8 men including materials (new ballast). In telephone interviews we were advised that some interventions take place on weekdays and with less manpower. On that basis we consider the forecast cost estimate to be slightly larger than the current levels for this type of work. In order to make a judgement of an appropriate number of necessary condition based planned manual interventions that can be directly attributable to coal spillage in point ends for 2014/15 we propose the following;

Planned preventative Manual Interventions	
Route	Manual Intervention
LNE	113
Wales	0
East Midlands	4
Scotland	19
Western	8
LNW North	17
Total	**161**

Fig. 8 Proposed work volumes following review

Network Rail's cost estimate for manual intervention is based on direct labour, (£1,600) materials (£500) and supervision and planning overheads. We have not been provided with a detailed breakdown of the supervision and planning element of the estimate (100% of the direct labour cost), which, if available, could lead to a slight reduction in the total.

Greater confidence in Network Rails estimate for manual intervention could be achieved with a provision of a comparison with manual wet bed removal costs in the Maintenance Unit Cost (MUC) framework. Notwithstanding this, we accept that Network Rail's cost estimate is broadly reasonable and have retained the estimate for the purposes of review.

Manual intervention to replace contaminated ballast in points is an easier job to plan and arrange than one with equipment such as RailVac. We consider that the use of RailVac is the best and most long lasting means to replace ballast contaminated with coal dust.

3.6 Machine Interventions: TubeCube

During CP4 a number of Routes have started to use a novel machine to assist in the removal of coal impregnated ballast. This is the TubeCube.

Fig. 9 TubeCube is a road rail vehicle attachment for cleaning ballast

The estimated 2014/15 annual usage of TubeCube is shown in figure 7 above. One of the issues to be considered when planning the use of TubeCube is its limited capacity to excavate and remove material at one time. When reballasting S&C the only bespoke machine available is the RailVac. Usually between 10 and 20 cubic metres of ballast are replaced when a single S&C unit is reballasted. The TubeCube has a capacity of one cubic metre and therefore is not an appropriate machine for the full replacement of coal impregnated ballast in points. Therefore, the 14 examples per annum where NR proposes to use it should only be for cleaning the surface of the ballast. Certainly, it would be a good machine for that purpose as the two photographs at Figures 3 and 4 illustrate, before the coal spillage has settled beneath the underside of the bearer.

We therefore accept the 14 uses per annum, but propose that the cost per shift be reduced from £7,000 to £4,000 reflecting the use of the machine with only a small site support staffing and reduced new materials. Our estimate is based on machine hire for one shift with 2 operators and 2 NR site staff with only the removal of surface coal spillage.

No further evidence in the form of Maintenance Unit Costs has been provided to support the application of the higher intervention cost.

We consider TubeCube a suitable machine to be used when after a short period a covering of coal spillage can be seen on the top of the ballast and before that coal settles into the ballast bed. Consideration of its use in this way may initiate more deployments than currently forecast.

3.7 Machine Interventions: RailVac

The RailVac is a Swedish on track machine that has been available for hire in the UK for several years. The first machine was built for UIC gauge in Sweden and brought to the UK for trials. It was referred to in Halcrow's CP4 report.

In June of 2012 a new machine was introduced, compliant with the UK loading gauge, and the original returned to Sweden. The machine is operated on a hire basis by a company based in Nottinghamshire, Bridgeway Railcare. It has become popular with Routes and is fully booked for weekend work, mostly reballasting switches and crossings and removing wet beds in the track, 12 months ahead.

Fig.10 RailVac. The machine has an on board storage for 15 cubic metres of material

RailVac is a self-propelled rail vehicle that deploys an industrial vacuum extraction unit that can remove material from restricted places. It is therefore a suitable machine to work on track, and especially switches and crossings, to remove fouled ballast between and from underneath the bearers without having to remove any cables, point machines and other connections to the track work. It also has the advantage that should work be stopped for any reason, new material can be provided to the area excavated and the site returned to traffic.

NR proposes to use this machine 26 times per annum to remove coal impregnated ballast from S&C each year in CP5. We consider this to be an excellent machine for the purpose; however, we challenge the ability to procure the machine for the frequency stated, simply as this machine is the only one in the UK and is in high demand for other critical trackwork.

In order to learn more about this machine, an opportunity was taken to speak with the supplier. We were advised that the machine is by no means restricted to weekend use, and that at present this is the only time NR's Routes request it. Therefore, in our review, we challenged the Route managers we spoke to about this. It became clear that in some instances, not only with improved planning could the machine be used during the week, but it might be possible in certain instances to use it during weekdays on freight only routes. We also learned that it is reasonable to consider treating one point end in a 12 hour weekend possession.

We therefore do not propose to reduce the number of point ends to be treated per annum, but propose that 50% of the use of RailVac be assumed to be in local campaigns for one or two weeks duration each year combining weekend only access with weeknights or even weekdays. We consider that for a week long campaign where RailVac is used in five shifts, four of which are weeknights, that three point ends can be treated, the cost per point end could be reduced to £20,000. We have therefore assumed that 50% of the annual point ends to be treated could be tackled during the week in local geographical campaigns, thereby reducing the hire charges for the machine. We accept the £30,000 NR figure for a weekend shift to treat a single point end, and propose to use £10,000 for a weeknight shift to treat half a point end. This reduced cost is based on NR's estimate for a manual intervention per point end and a reduced RailVac hire charge per weeknight shift. This is dependent on reaching new contract terms with the supplier of RailVac.

We do not believe that enough effort is being made within NR to transfer the current weekend only work pattern into weeknights. We accept that the productivity may be less in say a 6 hour track possession when compared to an eight or ten hour weekend possession, however, consideration should be given to spreading the utilisation of scarce resources such as RailVac, thereby reducing hire costs.

3.8 Proposed new charges for planned interventions

Based on the foregoing, we consider the following analysis to be a more representative CSC for CP5.

Arup view of annual CSC charge for planned interventions			
	Points Treated	Intervention unit cost	Total £s
Manual Interventions	161	3,700	595,700
CubeTube interventions	14	4,000	56,000
RailVac weekend interventions	13	30,000	390,000
RailVac midweek interventions	13	20,000	260,000
Total per annum	201		1,301,700

Fig. 11 Arup proposed revised CSC for planned intervention

3.9 Cost of Track Service Life Reductions

This element of the annual charge is based principally on the impact coal spillage has on reducing the life of track ballast and the track system it supports. There are several factors to be taken into account.

Track ballast has a finite life due to the accumulation of fines in the ballast which when wet reduce the loads that can be placed upon it from rail traffic through the rails and sleepers. This causes track geometry defects, and when the rate at which these defects occur is beyond economic maintenance, the ballast must be renewed. Generally speaking, at the second time fouled ballast must be renewed, the supported track system is also due for renewal.

Fines generally enter the ballast from wind blown soil and vegetation. They also occur during the maintenance process and through carrying traffic as the stones are crushed and pieces flake off. The carriage of pulverised coal traffic will accelerate the degradation of track ballast when the coal is spilled from the wagons. The faster the rate at which fines are introduced to track ballast the shorter the life of the asset. Therefore, NR has estimated that coal spillage reduces track life by 9% for plain line and 22.5% for switches and crossings. Even where the treatment of ballast is undertaken, S&C track life is reduced by 15%.

It is these particular coal spillage impacts that give rise to the depreciation charges, i.e. the additional capital costs that NR will bear in having to renew track on which coal spills prematurely. We consider that NR's approach to depreciation costs as a consequence of coal spillage is reasonable.

In calculating depreciation costs caused by coal spillage, there are several factors to be taken into account, however, the most critical is the rate at which coal is spilled into the tracks.

Initially the routes between loading points and power stations (or industrial installations) should be known. NR published the following list in its consultation document:

Ref	***Location***	***Location type***
1	Aberthaw	Power station
2	Uskmouth	Power station
3	Longannet	Power station
4	Port of Hull	Port
5	Ferrybridge	Power station
6	Drax	Power station
7	West Burton	Power station
8	Cottam	Power station
9	Port of Liverpool	Port
10	Ellesmere port	Port
11	Ratcliffe	Power station
12	Fiddlers Ferry	Power station
13	Rugeley	Power station
14	Didcot [expected to close]	Power station
15	Avonmouth (Bennets) industrial coal	Loading point
16	Avonmouth (BBHT)	Loading point

Ref	***Location***	***Location type***
17	Avonmouth (Portbury)	Port
18	Port of Newport	Port
19	Hunterston	Port
20	Immingham	Port
21	Port of Tyne	Port
22	Redcar port	Port
23	Ayrshire opencast (Killoch)	Loading point
24	Ayrshire opencast (Chalmerston [re-opened 2012])	Loading point
25	Ayrshire opencast (New Cumnock)	Loading point
26	Ayrshire opencast (Ravenstruther)	Loading point
27	Earls Seat	Loading point
28	Northumbrian opencast (Butterwell)	Loading point
29	Northumbrian opencast (Widdrington)	Loading point
30	Wales opencast (Cwmbargoed)	Loading point
31	Wales opencast (Onllwyn)	Loading point
32	Wales opencast (Cwmgwrach)	Loading point
33	Wales opencast (Gwaun-Cae-Gurwen)	Loading point
34	Yorkshire / Notts deep mines (Kellingley).	Loading point
35	Yorkshire / Notts deep mines (Thoresby).	Loading point
36	Yorkshire / Notts deep mines (Hatfield)	Loading point
37	Daw Mill deep mine	Loading point
38	Scunthorpe (Tata) - industrial coal	Delivery point
39	Hope (Lafarge) - industrial coal	Delivery point
40	Lackenby - industrial coal	Delivery point

Fig. 12 Loading and Unloading points shown in NR's consultation document

In February and March 2008 the CSC was reviewed for CP4, with visits to Killwinning, Hunterston, East Kilbride and Falkland, in Western Scotland; Knottingley, Drax Branch, Whitley Bridge Jct and Kellingly in South Yorkshire and Didcot and Foxhall Jct in the Western Territory.

Based on these observations, and dialogue with local track engineers, it was decided to introduce the principle of a radius of track from the loading or discharge point over which coal spillage would affect track. The figures of 25 miles and 20 miles respectively for discharge and loading did recognise that there were a small number of reports of spillage outside this radius. For the number of point ends affected an estimate, based on the national population of S&C point ends per track mile was used. (Halcrow Report for CSC PR08 section 3).

For CP4 a total of 515 miles of plain line track was considered to be affected and there were 486 point ends included in the calculations.

For CP5 Network Rail, in their consultation document, included 870 miles of plain line track and 910 point ends in their total volumes of affected track, with a similar volume of coal to be carried, based mainly on an increase in loading points.

Arup has seen no evidence to suggest that more tracks are affected that was the case in the review of the CSC for CP4. Therefore, in reviewing the increased number of loading points in particular, we asked NR to indicate the volumes of coal being conveyed to and from loading and unloading points. They were not able to provide specific volumes, but did provide a high level indication of tonnages in three categories, high, medium and low. We have added these categories to figure 13. We consider it reasonable to argue that coal is spilled from wagons proportionally to the tonnages carried. Based on the High, Medium and Low tonnages provided by NR, and calculated our view of the affected mileages as follows:

Unloading points
High tonnage: 30 miles or 31 point ends
Medium tonnage: 22.5 miles or 23 point ends
Low tonnage: 15 miles or 16 point ends

Loading Points
High tonnage: 24 miles or 25 point ends
Medium tonnage: 18 miles or 19 point ends
Low tonnage: 12 miles or 12 point ends

These values create the following revisions to the table in Fig. 12:

List of loading / unloading locations in use in CP5	Fitted with wagon rave cleaner	Route	Track Miles	Annual Tonnage	Point ends	Location type
Aberthaw	Yes	Wales	7.5	**H**	8	Power station
Uskmouth		Wales	15	**L**	16	Power station
Longannet		Scotland	30	**H**	31	Power station
Port of Hull		LNE	18	**M**	19	Port
Ferrybridge		LNE	30	**H**	31	Power station
Drax		LNE	30	**H**	31	Power station
West Burton		LNE	30	**H**	31	Power station
Cottam		LNE	30	**H**	31	Power station
Port of Liverpool		LNW	24	**H**	25	Port
Ellesmere port		LNW	24	**H**	25	Port
Ratcliffe		MML	15	**L**	16	Power station
Fiddlers Ferry		LNW	30	**H**	31	Power station
Rugeley		LNW	30	**H**	31	Power station
Didcot [expected to close]		Western	0		0	Power station
Avonmouth (Bennets) industrial coal		Western	12	**L**	12	Loading point
Avonmouth (BBHT)	Yes	Western	6	**H**	6	Loading point
Avonmouth (Portbury)	Yes	Western	6	**H**	6	Port
Port of Newport	Yes	Wales	3	**L**	3	Port
Hunterston		Scotland	12	**L**	12	Port
Immingham	Yes	LNE	6	**H**	6	Port
Port of Tyne	Yes	LNE	6	**H**	6	Port

List of loading / unloading locations in use in CP5	Fitted with wagon rave cleaner	Route	Track Miles	Annual Tonnage	Point ends	Location type
Redcar port		LNE	24	**H**	25	Port
Ayrshire opencast (Killoch)		Scotland	18	**M**	19	Loading point
Ayrshire opencast (Chalmerston, re-opened 2012)		Scotland	12	**L**	12	Loading point
Ayrshire opencast (New Cumnock)		Scotland	18	**M**	19	Loading point
Ayrshire opencast (Ravenstruther)		Scotland	12	**L**	12	Loading point
Earls Seat		Scotland	12	**L**	12	Loading point
Northumbrian opencast (Butterwell)		LNE	12	**L**	12	Loading point
Northumbrian opencast (Widdrington)		LNE	0		0	Loading point
Wales opencast (Cwmbargoed)		Wales	18	**M**	19	Loading point
Wales opencast (Onllwyn)		Wales	18	**M**	19	Loading point
Wales opencast (Cwmgwrach)		Wales	12	**L**	12	Loading point
Wales opencast (Gwaun-Cae-Gurwen)		Wales	12	**L**	12	Loading point
Yorkshire / Notts deep mines (Kellingley).		LNE	18	**M**	19	Loading point
Yorkshire / Notts deep mines (Thoresby).		LNE	18	**M**	19	Loading point
Yorkshire / Notts deep mines (Hatfield)		LNE	24	**H**	25	Loading point
Daw Mill deep mine		CLOSED	0		0	Loading point
Scunthorpe (Tata) - industrial coal		LNE	22.5	**M**	23	Delivery point
Hope (Lafarge) - industrial coal		LNW	15	**L**	16	Delivery point
Lackenby - industrial coal		LNE	15	**L**	16	Delivery point
Port of Blyth	Yes	LNE	3	L	3	Port
Total			**648**		**671**	

Fig. 13 List of coal loading/unloading facilities for CP5 (Source: Network Rail) with coal spillage impact (Arup)

During the review we have been advised that Port of Blyth and Chalmerston will recommence loading coal in CP5. We have therefore added both to the list above. We have also deleted a number of locations that will not be used in CP5 and these are highlighted. To this revised chart we have also shown those facilities where wagon rave cleaning has been installed.

For CP4 NR introduced the Coal Spillage Reduction Investment Charge. This is a separate charge set to one side for investment in equipment to clean wagons. NR does not propose reintroducing this charge for CP5. We have seen photographic evidence of two types of wagon cleaner illustrated below:

Figs. 14 and 15: examples of investment in coal wagon spillage cleaning

It is interesting to note the large quantities of coal that have been brushed off the raves of wagons by these fairly basic devices. Following discussion with NR, who accepted that this investment was reducing spillage outside terminals, we have reduced the extent of track miles on which coal is spilled from wagons where these facilities have been installed by 75%. This is shown in figure 13 above.

NR, in their CP5 Track Asset Policy, have introduced within their track renewals plans two new types of track refurbishment interventions that they have demonstrated will create a lower whole life cost of track. These are heavy and medium refurbishments. It is the heavy refurbishment that is of interest to the calculation of the CSC. Previously track was renewed as a complete system when one major component was life expired. This might have been the rail, sleeper or ballast. For CP5, the policy will be only to renew that component of the track system that is life expired, and retain the remaining components until one of them triggers the next major intervention. For a heavy refurbishment on both plain line and S&C the ballast will be renewed. NR expects that this single intervention will extend the life of track by 50%. They have applied this principle to the CSC. This can be shown in the following chart:

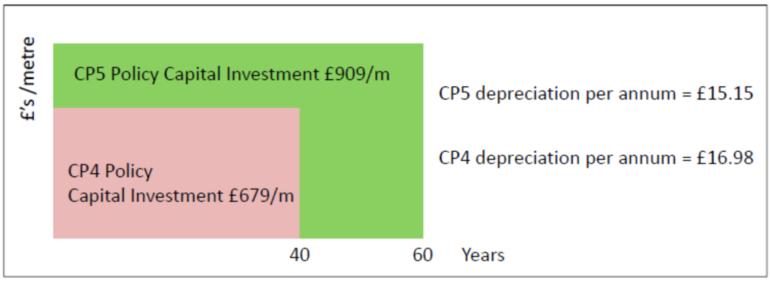

Fig 16. Chart to demonstrate the lower unit cost of depreciation for track in CP5 (plain line example shown)

Following our review of the locations from which coal is loaded and to which it is discharged, we have recalculated the plain line and S&C depreciation charges using the same figures as NR but with reduced miles of plain line and a reduced number of point ends as illustrated.

The resulting figures are shown below:

For plain line track the annual depreciation charge should reduce from £1,673,010 to £1,246,104 (648miles x £1,923/m).

For S&C the calculation is a little more complex as a revised allowance has to be made for the reduced number of point ends to be treated. Using NR's figures for the depreciation cost of untreated point ends as £2,545 and for treated point ends as £1,624, the total depreciation charge for S&C would be 671 (from fig.13) minus 201 (from fig.11) multiplied by £2,545; plus the depreciation charge for treated point ends which is 201 multiplied by £1,624. This gives a total annual charge of £1,522,574.

We therefore consider that a more representative CSC annual charge for CP5 to be as follows:

Item	Charge
Cost of clean-up and delay minutes	£126,135
Cost of Rail Vac & Tube Cube & Manual Intervention on Points failures	£1,301,700
Cost of point end service life reductions	£1,522,574
Cost of plain line service life reductions	£1,246,104
Total	**£4,196,513**

4 Conclusions

Following a review of the consultation document, the supporting calculations and further evidence received from Network Rail and Route Asset Managers we believe that the proposed CSC for CP5 should be reduced in two areas.

The first is the annual payments for planned interventions to remove contaminated ballast from point ends. We have formed the view that the annual charge for planned interventions should be reduced by circa £500k based on the lack of evidence to attribute all planned interventions to coal spillage and the need for more efficient applications of machine based interventions such as TubeCube and RailVac.

The second concern is the annual payment sought by Network Rail as compensation for loss of track asset service life. Whilst accepting the principle and the background calculations, we consider that NR has overestimated the volumes of coal spillage that will fall into the track thereby impacting on track asset service life in CP5.

Overall therefore, we have reduced the annual proposed CSC for CP5 from £5,651,005 to £4,196,513.

5 Recommendations

We have been concerned at the lack of written evidence taken during CP4 by NR to justify the volumes of work that can be directly attributable to coal spillage. We therefore recommend that steps be put in place for CP5 to justify the CSC charge to freight customers and provide evidence for future control periods.

In the use of novel machinery to treat track with coal spillage we recommend that within NR a lead Route is selected to establish good practice and encourage the spread of resource utilisation across the whole week in order to reduce unit costs and improve efficiency.

6 References and Meetings/Telephone Calls

Date	Meeting/Telephone conference call
7th March - Kick Off	Ben Worley (NR), Caitlin Scarlett (NR), Richard Creagh (ORR), Richard Spoors (Arup)
11th March – Scotland West	Steven Crosbie (NR), Caitlin Scarlett (NR), Ben Worley (NR), Richard Creagh (ORR), Richard Spoors (Arup)
11th March – Scotland East	Gordon Milne (NR), Caitlin Scarlett (NR), Ben Worley (NR), Richard Creagh (ORR), Richard Spoors (Arup)
11th March – LNE Route	Richard Iggulden (NR), Caitlin Scarlett (NR), Ben Worley (NR), Richard Creagh (ORR), Richard Spoors (Arup)
12th March – LNE Route	Peter Cushing (NR), Caitlin Scarlett (NR), Ben Worley (NR), Richard Creagh (ORR), Richard Spoors (Arup)
13th March – Western Route	Steven Pearson (NR), Caitlin Scarlett (NR), Ben Worley (NR), Richard Creagh (ORR), Richard Spoors (Arup)
14th March – Wales Route	Andy Franklin (NR), Caitlin Scarlett (NR), Ben Worley (NR), Richard Creagh (ORR), Richard Spoors (Arup)
11th March – Tube Cube	Richard Spoors (Arup) and Tasty Plant Sales office
13th March - Railcare	Steve Mugglestone (Railcare) and Richard Spoors (Arup)
25th March – LNE Route	Peter Cushing (NR), Caitlin Scarlett (NR), Richard Creagh (ORR), Richard Spoors (Arup)
References	NR CSC Consultation Document; CP5 Track Policy; NR freight only traffics 2012; Specification for RailVac (Railcare)
Photographic Credits	Figs 3, 4, 5 and 13 Network Rail; Fig 8 Tasty Plant Sales Ltd; Fig 9 Bridgeway Railcare LLP; Fig 14 A Torn Construction Ltd