

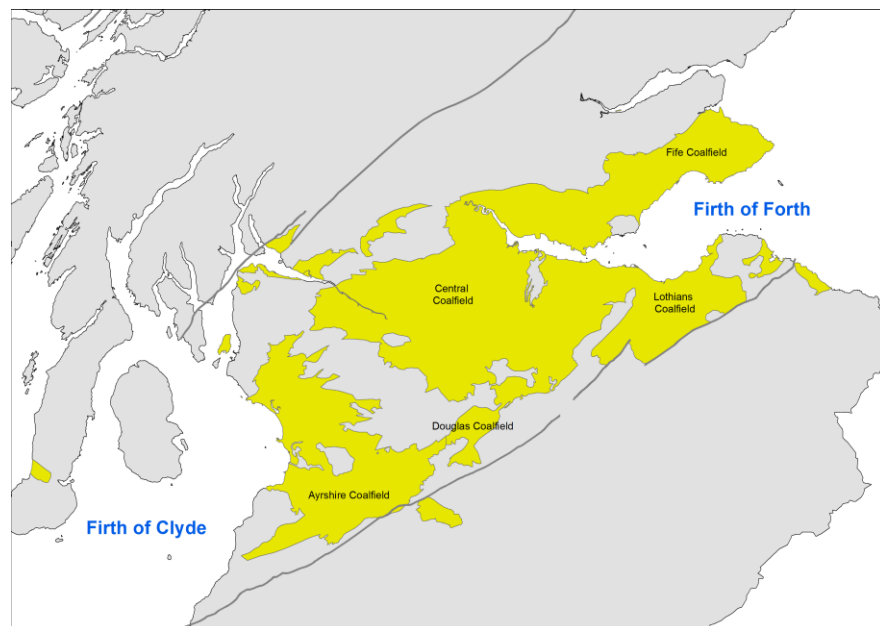


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# Scottish coal seam names and correlations

Energy Systems and Basin Analysis

Open Report OR/18/027





BRITISH GEOLOGICAL SURVEY

Energy Systems and Basin Analysis  
OPEN REPORT OR/18/027

# Scottish coal seam names and correlations

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Cover picture details

Scottish Midland Valley  
Coalfields

## *Bibliographical reference*

MCLEAN, WS2018.  
Scottish coal seam names and correlations. *British Geological Survey Open Report Report*, OR/18/027. 19pp.

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# Foreword

I have been working for the British Geological Survey for the past twenty one years. Before this appointment I worked for NCB/ British Coal for thirty one years as a mining surveyor and subsidence engineer in all areas of the Scottish Coalfield.

This report details the correlation of the coals in the Scottish Coalfield, a task never completed before due to the complexity of the areas and the various coal seam names.

I have tried to record and correlate all the different seam names, known correlations and aliases for coal seams. This information was collected from documents completed by BGS palaeontology, BGS reports and memoirs and other external coal publications as show below, plus my own personal knowledge within the Scottish Coalfields.

It includes the Sanquhar coalfield but does not take into consideration coalfields at Machrihanish, Brora and a few other isolated small coalfields.

The spreadsheet attached was created to give a base for future discussion as it is only one person's interpretation from the examined data.

# Acknowledgements

Coal Authority (for supplying the scans)

M A E Browne

Peter Brand

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# 1 Introduction

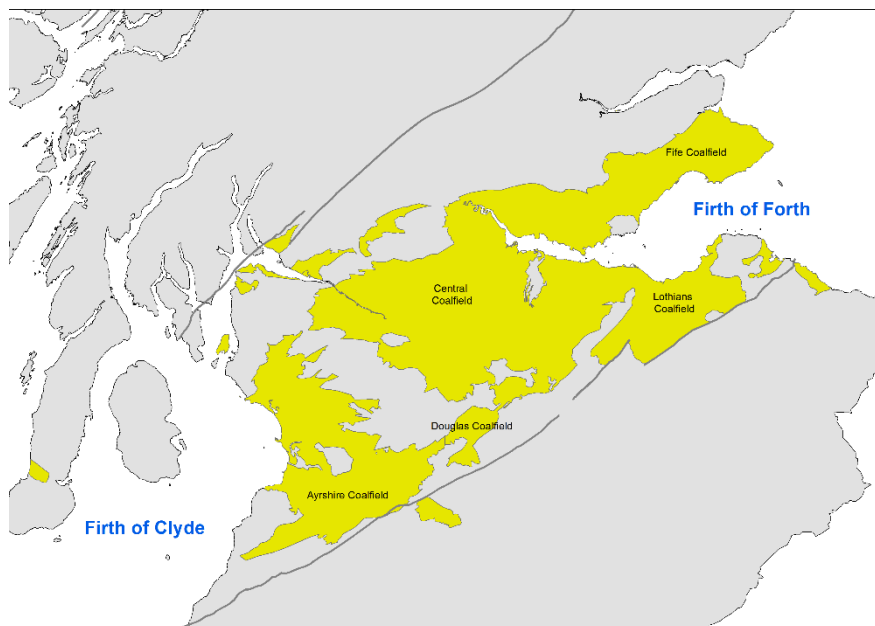
This report correlates the coals in the Scottish Coalfield and provides a key by which local coals, and their local names, can be fitted in to the BGS Carboniferous Stratigraphy. It attempts to collect together all the various seam names, correlations and aliases for coal seams. This information was collected from documents completed by BGS palaeontology, BGS reports and memoirs, NCB/British Coal sections, other external coal publications plus my own personal knowledge within the Scottish Coalfields.

It includes the Sanquhar coalfield but does not take into consideration coalfields at Machrihanish, Brora and a few other isolated small coalfields.

The spreadsheet shows:

1. An indication of where the coal seam name first originated. (they could also be within other sources) denoted by colour of lines round spreadsheet cells
2. Speckled cells show correlations within areas.
3. Solid lines round hatched or speckled boxes show known correlations whereas dashed line indicate possible correlations.
4. Horizontal lines in cells show BGS correlation across different areas.
5. Vertical lines in cells indicate NCB/Coal Authority correlations across areas.
6. Cross hatching indicates agreement with BGS and NCB/Coal Authority correlations

The spreadsheet was initially created to try to show where every coal seam name on any coal plan or publication was located within the geological strata for any area within the Scottish Coalfield (Figure 1). Correlations for the coal seams within the same area and in different areas were added later. As it was impossible to have headings for every area in Scotland, all the coal seam names in a column may not exist in the places listed at the heading as the seam names are merely within any location name in the headed areas.



**Figure 1 The Scottish Coalfields marked in yellow**

Other aliases may exist within the British Geological memoirs as only sections were used for this spreadsheet. Only the mine plans digitised to date were used and these are listed in appendix 1.

## 2 Method and Correlations

The spreadsheet was created as part of the process of digitising abandonment coal plans in the Midland Valley of Scotland. The full Scottish Coal Seam Correlation spreadsheet was created from the individual coal field areas. The initial areas created were Ayrshire, Douglas, South Lanarkshire, West Central, Central, East Central (including West Lothian), Stirling/Clackmannan, Fife, Lothians and Sanquhar. Later they were further sub-divided into smaller areas to enable more localised names to be added.

Any known correlation between seams in the various areas are coloured/hatched and shown in the index at the top of the sheet. Areas were then subdivided into smaller districts to establish more localised coal seam names. Each area was firstly created to show the name of the coal seams in order of sequence and establishing their position in the relevant geological formation. As some coal seams had different names within the same area these were added to the relevant cells within the spreadsheet and other additional local names for the same coal seams were added later. Distances between coal seams varied and cells within the spreadsheet were crossed out showing the narrowing of the strata between the seams.

The spreadsheet has various stippled and hatched colouring to try to identify the known different correlations of the coal seams across the Scottish Coalfield. Some seam names do not have any stipple or hatched colouring correlation but are on the spreadsheet to show where they are in the geological sequence for a particular area. As the correlation process expanded it became too complicated to show areas of strata that did not exist between coal seams. The cells crossed out showing strata that did not exist were left on the spreadsheet. The correlation within areas were shown by stippling the cells the same colour which also identified the source.

Seams correlated across different districts were shown colour hatched. Every cell with a coal seam name in it has a coloured border to show the origin of the name and these are shown in the index at the top of the spreadsheet. Some names were found in various sources and so the first origin for the name was used for the colour coding for the cell. Where additional coal seam information was known text was added to cells.

Other boxes coloured yellow on the spreadsheet showed data about local coal seam conditions. Although they may not have colouring or hatching to show this coal seams with the same name on the same line in different areas on the same line correlate with each other. It should be noted that the spreadsheet only shows the order of the named coal seam in each column and does not refer to another coal seam on the same line unless the cell is stippled, hatched or has the same name. Some seam names do not have any stipple colour correlation but are on the spreadsheet to show where they are in the geological sequence for a particular area. Major coal seam names in one area often had different names in others.

The spreadsheet for the areas were created using the following articles but not necessarily in the order shown:

1. Peter Brand's '*Stratigraphical palaeontology of the Westphalian of the Ayrshire Coalfield, Scotland*' for Ayrshire
2. BGS sections in Geological new Sheet Memoirs for Irvine, Glasgow, Hamilton, Airdrie, Falkirk, Haddington and Greenock
3. I H Forsyth report WA/93/51R for Glasgow
4. Bulletins of the Geological Survey of Great Britain



5. BGS sections in Geological Memoirs (old)
6. BGS sections in brief Sheet descriptions for Sheet 15W New Cumnock, Sheet 22E Kilmarnock and Sheet 40E Kirkcaldy
7. Names from abandonment coal plans digitised by Bill McLean for BGS
8. NCB/British Coal seam Correlations (including data from Bill McLean)
9. 10k geological Keys
10. Robert W Dron 'The coal-fields of Scotland'

The newer memoir information was always accepted before the older as more data would be available to establish the correlations.

Only certain limestone bands were included in the spreadsheet.

## **AYRSHIRE**

The Lower and Middle Coal Measures of Ayrshire were initially correlated using the seam names as in Brand (1983). Additional coals seam names were added using the new Geological Sheet Memoirs for Irvine 22W and Kilmarnock 22E and the brief sheet descriptions for New Cumnock 15W and Kilmarnock 22E. The old British Geological Memoirs Ayrshire were checked and any additional coal seam names or aliases were added to the spreadsheet. Additional seam names were added from the various area correlations created by Bill McLean while digitising the Abandonment mine plans for projects within the BGS. Finally Bill McLean's own local knowledge of coal seam names was added, any sections drawn up by NCB/British Coal and articles in the above mentioned list were checked. Some of the correlations on the NCB/British Coal sections do not agree with this spreadsheet as they were created before additional information became available

The Cronberry Seven Foot correlation with the Dalmellington area differed from BGS and NCB/British Coal. The former correlated the Cronberry Seven Foot with the Minnivey of Dalmellington and NCB/British Coal with the Chalmerston.

The correlation from BGS was accepted as it was obtained from Brand (1983).

## **Douglas**

The correlation of Douglas Coalfield was drawn up initially using the Lumsden (1965; 1967a; 1967b) and Lumsden *et al.* (1964). Sections of the area drawn up by BGS Memoirs were checked against the Bulletin correlation and any additional information was added. Finally data from digitisation of the abandonment coal plans of the area was added by Bill McLean.

## **Sanquhar/Kirkconnel**

The Sanquhar Coalfield correlation was created using the BGS Geological Memoirs and Geological sections drawn up by NCB/British Coal. Additional correlations and seam names were added from Bill McLean's local knowledge. There were differences between the BGS Geological Memoirs and the NCB/Coal Authority correlation with the Chalmerston Coal of Dalmellington. The Geological Memoirs correlated this seam with the Kirkconnel Splint whereas NCB/British Coal correlated it with the Daugh coal of Sanquhar. The Daugh correlation was taken as the BGS memoir was dated 1936 and the NCB/British Coal correlation was taken from data dated 1960/70s created by the NCB geologist. This data showed the Chalmerston Coal seam in the Middle Coal Measures and Kirkconnel Splint in the Lower Coal Measures.

The location of the Swallowcraig Coal within the Lower Coal Measures was different in the BGS memoir and the NCB/Coal Authority sections. The BGS memoirs correlated them with the Beoch Musselband whereas NCB/British Coal had them much further down the LCMS below the horizon of the Pennyvenie Low Coking. Since there was no information on the NCB/Coal Authority

section to say where the Swallowcraig Coals position had come from the British Geological Memoir Correlation was accepted.

**Stirling/Clackmannan, South Lanarkshire, West Central, Central and East Central (including West Lothian)**

The Glasgow area correlation was initially created using Forsyth (1993) and other areas within the report checked with spreadsheet.

The other areas were initially created using the available correlation from the digitisation of the abandonment Coal plans of the areas. Later information from the BGS Geological Memoirs were added with any seam correlations and the other data sources checked.

**Fife**

This area was first sub-divided into West, Central and East and then further divided into smaller more localised districts to enable the correlation to be more accurate. The already digitised coal plans, the Geological memoirs and a brief explanation of the geological map Sheet 40E Kirkcaldy' were used to create an order of coal seams in the areas with their correlations.

The coal seam correlations for the Neuk of Fife were created using Dron, R.W. (1902).

**Lothians (Mid and East)**

The Mid Lothian coals were first correlated using the abandonment coal mine plans which were digitised for a BGS project to identify the location of The Southern Uplands Fault within the area. The BGS memoirs were then checked to see if any information was needed to be amended or added.

The new Sheet memoir correlation of the Limestone Coal Group from Newtongrange to Wallyford was accepted as it differed from the old Geological memoir.

The East Lothian coal seam correlations were started using the above mentioned BGS project and this data was checked against the new Haddington Geological memoir and the older memoirs for the area.







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- British Geological 10k Geological map keys

# Appendix 1    Abandonment Plans

Abandonment plans checked from scans supplied by the Coal Authority

160/1/1	2268/1/4	4409/3/4	5376/4/6
174/1/2	2268/2/4	4418/2/2	5391/1/1
174/2/2	2268/3/4	4453/1/1	5401/2/5
200/1/2	2269/1/1	4502/1/2	5458/1/1
214/1/1	2344/1/2	4529/1/1	5467/2/2
336/1/2	2344/2/2	4541/1/1	5586/1/1
348/1/1	2432/1/1	4583/1/1	5630/1/5
383/3/6	2437/1/1	4632/1/2	5650/1/1
528/1/1	2516/2/2	4655/3/5	5660/2/5
591/1/1	2591B/1/1	4655/4/5	5689/1/1
741/1/1	2698/1/1	4655/5/5	5699/1/2
794/3/3	2810/1/1	4695/1/3	5699/2/2
798/1/1	2953/2/3	4722/1/2	5720/1/3
850/1/1	3032/1/1	4734/1/5	5720/2/3
886/1/1	3063/1/1	4748/1/1	5720/3/3
1041/1/1	3327/1/1	4802/1/2	5792/1/4
1177D/1/1	3328/1/1	4822/1/1	5792/2/4
1196/1/4	3382/1/1	4831/3/3	5792/3/4
1205/1/1	3388/1/1	4939/1/1	5792/4/4
1206/1/1	3424/1/1	4939/1/1	5867/1/1
1248/1/1	3446A/4/5	4941/1/1	5871/2/2
1346/1/1	3446/2/2	4961/1/1	5878/3/4
1348/1/2	3511/1/3	5000/1/1	5888/4/4
1348/2/2	3511/2/3	5011/1/1	5965/1/1
1350/4/4	3536/1/1	5046/1/1	5971/2/2
1357/1/1	3547/2/2	5112/2/2	6032/1/1
1425/1/1	3548/1/2	5112/1/2	6414/1/1
1462/1/1	3548/2/2	5150/2/6	6504/1/6
1483A/1/2	3690/1/1	5150/3/6	6504/2/6
1483A/2/2	3716/1/2	5150/4/6	6504/3/6
1647/1/2	3729/4/4	5150/5/6	6504/4/6
1869/4/4	3814/1/1	5150/6/6	6504/5/6
1906/6/7	3882/1/1	5153/1/2	6504/6/6
1906/7/7	3937/1/1	5153/2/2	6582/1/1
1922/1/2	4289/2/2	5165/1/1	6583/1/1
1967/1/1	4293/1/1	5180/2/3	6616/2/2
2166/2/10	4305/1/2	5201/1/2	6680/1/1
2166/3/10	4305/2/2	5208/1/2	6810/2/6
2166/4/10	4311/1/2	5222/1/1	6832/3/4
2251/1/2	4314/2/2	5239/1/2	6933/1/1

6978/2/2	8217/1/2	9883/4/4	11854/2/5
6982/1/1	8217/2/2	9907/1/1	11854/3/5
7148/1/1	8218/1/1	9921/2/2	11854/4/5
7238/2/3	8335/2/2	9922/1/1	11854/5/5
7309/1/5	8379/2/2	10032/1/2	11991/1/1
7309/2/5	8426/1/3	10032/2/2	12022/1/1
7309/3/5	8426/2/3	10059/2/3	12103/1/1
7309/4/5	8426/3/3	10064/1/2	12203/3/4
7309/5/5	8427/1/2	10064/2/2	12208/1/2
7318/5/5	8427/2/2	10150/1/2	12218/1/1
7334/1/5	8448/1/1	10180/1/1	12221/1/1
7334/2/5	8496/1/2	10252/1/1	12223/2/3
7334/3/5	8496/2/2	10263/1/1	12331/1/1
7334/4/5	8662/3/4	10357/1/1	12467/1/1
7334/5/5	8741/1/1	10481/2/3	12472/1_1
7363/3/5	8749/1/4	10481/3/3	12574/1/1
7365/1/3	8766/1/1	10514/1/1	12656/1/1
7365/2/3	8821/1/1	10645/1/1	12657/5/8
7365/3/3	8941/1/1	10769/1/1	12657/8/8
7460/1/1	9020/1/6	10791/2/2	12753/1/4
7462/1/2	9020/3/6	10794/2/3	12753/2/4
7462/2/2	9020/4/6	10811/5/5	12877/1/1
7508/1/2	9020/5/6	10869/6/6	13037/1/1
7508/2/2	9020/6/6	10921/2/8	13307/1/1
7511/1/3	9062/7/7	10921/4/8	13322/1/1
7511/3/3	9070/1/11	10921/7/8	13341/2/3
7513/1/6	9070/2/11	10921/8/8	13345/1/1
7516/1/1	9070/4/11	10922/1/6	13377/1/1
7525/3/4	9070/5/11	10922/2/6	13392/1/2
7686/5/6	9070/6/11	10922/3/6	13439/1/1
7710/5/6	9070/8/11	10922/4/6	13506/1/1
7720/2/2	9070/9/11	10922/5/6	13553/1/1
7731/2/2	9073/1/1	10922/6/6	13668/2/3
7771/2/8	9122/1/2	10941/2/2	13692/4/5
7771/3/8	9122/2/2	10942/1/1	13698/1/1
7771/4/8	9138/1/2	10974/2/3	13750/1/1
7771/5/8	9437/1/1	10983/3/4	13762/1/1
7771/6/8	9518/1/1	11072/1/4	13803/1/1
7771/7/8	9635/1/1	11133/2/5	13904/1/4
7771/8/8	9636/1/1	11191/1/4	13904/2/4
7782/1/2	9637/1/1	11191/4/4	13904/3/4
7819/1/1	9732/2/2	11220/3/3	13904/4/4
7846/1/1	9771/1/3	11259/3/3	13970/2/2
7952/2/11	9824/1/1	11569/2/3	13983/1/2
7961/1/1	9878/1/1	11655/1/2	13993/1/1
8106/1/1	9883/1/4	11655/2/2	14023/1/1
8137/1/1	9883/2/4	11691/1/1	14031/5/5
8138/1/1	9883/3/4	11854/1/5	14036/1/1

14118/1/5	S25/1/1	S371/4/6	S528/1/1
14118/5/5	S49/1/1	S371/5/6	S533/1/2
14146/1/1	S63/1/1	S371/6/6	S536/5/22
14450/1/1	S114/1/1	S383/1/1	S536/21/22
14471/1/1	S115/5/5	S394/1/1	S541/1/1
14479/1/1	S116/1/7	S395/1/1	S546/3/21
14677/1/1	S116/2/7	S397/1/1	S546/20/21
14703/1/4	S116/3/7	S400/5/9	S548/3/3
14703/2/4	S116/4/7	S401/3/4	S568/2/2
14703/3/4	S116/5/7	S408/1/2	S573/1/2
14703/4/4	S116/6/7	S408/2/2	S576/1/1
14714/5/6	S116/7/7	S409/1/ 1	S584/3/12
14792/1/1	S141/1/6	S414/1/2	S584/7/12
14957/2/3	S145/3/4	S418/1/3	S601/1/1
14979/1/2	S147/4/4	S418/2/3	S605/1/1
14980/3/4	S158/1/1	S418/3/3	S608/1/1
16546/2/2	S162/5/5	S419/1/1	S619/2/4
16546/1/2	S163/4/4	S422/1/2	S619/3/4
16573/1/1	S169/3/3	S423/1/1	S619/4/4
16881/1/1	S173/1/1	S427/13/14	S619/4/4
16930/1/5	S174/6/7	S427/14/14	S619/1/4
16930/3/5	S197/1/1	S436/1/5	S627/1/2
16930/5/5	S201/1/1	S436/5/5	S637/2/3
17391/1/	S209/1/1	S437/1/5	S637/3/3
17590/2/7	S218/1/3	S437/2/5	S639/1/1
17617/1/1	S231/1/1	S437/3/5	S643/1/2
17634/1/3	S239/1/3	S437/4/5	S648/1/1
17634/2/3	S239/2/3	S437/5/5	S660/1/20
17634/3/3	S239/3/3	S439/2/2	S660/14/20
17636/4/6	S290/5/12	S445/3/7	S660/15/20
17653/1/3	S292/2/5	S445/4/7	S660/19/20
17657/5/8	S292/4/5	S446/6/8	S673/1/1
17658/1/3	S292/5/5	S459/1/1	S674/1/1
17658/2/3	S307/4/4	S463/2/5	S675/1/2
17658/3/3	S320/2/4	S470/1/2	S675/2/2
17663/4/7	S320/1/4	S472/1/2	S681/3/3
17671/2/8	S331/2/12	S486/1/1	S686/1/1
17679/3/6	S331/12/12	S489/2/7	S689/1/1
17697/1/1	S359/1/2	S491/1/2	S694/1/1
17700/1/7	S365/1/1	S491/2/2	S705/1/6
17700/2/7	S366/1/1	S492/3/8	S705/3/6
17715/1/9	S367/1/3	S492/4/8	S705/5/6
17736/1/1	S367/2/3	S495/1/3	S718/3/3
17738/2/3	S367/3/3	S495/2/3	S719/2/2
17836/1/1	S370/1/4	S495/3/3	S723/1/4
R390A/1/1	S371/1/6	S497/8/8	S723/3/4
S12/2/2	S371/2/6	S501/1/2	S723/4/4
S22/1/1	S371/3/6	S522/4/4	S726/1/2



S726/2/2	S936/1/1	S2495/2/2	S3654/1/1
S734/1/1	S984/1/3	S2570/1/1	S3827/1/1
S743/1/2	S984/2/3	S2589/1/1	S3871/1/1
S750/1/2	S995/1/1	S2643/1/1	S3927/1/1
S750/2/2	S1016/1/1	S2675/1/2	S3943/1/1
S751/2/2	S1026/1/1	S2678/1/1	S3963/1/1
S753/1/1	S1027/1/1	S2693/1/1	S3965/1/2
S760/2/2	S1055/1/1	S2862/1/1	S3994/1/3
S760/1/2	S1066/1/1	S2946/1/1	S4049/1/1
S760/2/2	S1069/1/1	S2955/1/1	S4075/1/2
S779/1/4	S1076/1/1	S3081/1/5	S4096/1/1
S779/2/4	S1085/1/1	S3084/1/1	S4100/1/1
S779/3/4	S1183/1/1	S3102/2/3	S4106/1/1
S779/4/4	S1346/1/1	S3117/1/1	S4128/1/2
S781/1/3	S1347/1/1	S3144/1/1	S4129/1/1
S795/1/1	S1351/1/1	S3153/1/1	S4131/1/1
S804/1/1	S1357/1/1	S3168/1/1	S4135/1/1
S807/1/1	S1418/1/1	S3171/1/1	S4136/1/1
S822/2/2	S1422/1/1	S3175/1/1	S4143/2/2
S841/1/3	S1548/1/1	S3191/1/1	S4145/1/1
S841/2/3	S1554/1/1	S3212/1/1	S4156/1/1
S841/3/3	S1641/1/1	S3215/1/1	S4166/1/1
S848/1/2	S1806/1/1	S3232/1/1	S4168/1/4
S848/2/2	S1959/1/9	S3242/1/1	S4168/2/4
S851/1/23	S1959/9/9	S3268/1/3	S4168/3/4
S851/2/23	S1979/1/1	S3268/1/1	S4168/4/4
S851/3/23	S2065/1/1	S3269/1/1	S4178/1/1
S862/2/2	S2070/1/3	S3270/1/1	S4179/1/1
S869/5/8	S2070/3/3	S3278/1/1	S4182/1/1
S869/6/8	S2091/1/1	S3280/1/2	S4184/1/1
S878/2/3	S2182/1/1	S3286/1/3	S4185/1/1
S879/1/1	S2198/1/1	S3286/2/3	S4191/1/1
S882/1/3	S2311/1/1	S3292/1/1	S4199/1/1
S882/2/3	S2349/1/1	S3293/1/1	S4208/1/1
S883/1/2	S2351/1/1	S3296/1/1	S4210/2/2
S893/2/2	S2355/3/4	S3320/1/3	S4220/1/1
S894/1/2	S2377B/1/1	S3320/2/3	S4225/2/3
S901/1/1	S2407/1/1	S3320/3/3	S4234/1/2
S907/1/2	S2417/1/1	S3326/1/1	S4276/1/3
S907/2/2	S2433/1/1	S3338/1/1	S4285/1/1
S908/1/2	S2435/1/1	S3388/1/1	S4289/1/1
S908/2/2	S2457/1/1	S3389/1/1	S4292/1/1
S910/1/1	S2458/1/1	S3413/1/1	S4341/1/1
S911/1/2	S2463/1/1	S3416/1/1	S4343/1/1
S911/2/2	S2475/1/1	S3458/1/1	S4429/1/1
S913/1/2	S2476/2/3	S3583/1/3	S4430/1/1
S934/1/1	S2476/3/3	S3583/3/3	S4433/1/1
S935/1/1	S2485/1/1	S3619/1/1	S4438/1/1

S4440/1/1	S4541/1/1	S4674/1/1	S4705/1/1
S4461/1/1	S4545/1/1	S4686/1/1	S4712/1/1
S4469/1/1	S4566/1/1	S4693/1/1	S4730/1/1
S4478/1/1	S4567/1/1	S4695/1/1	S4748/1/1
S4479/3/4	S4569/1/1	S4697/1/1	S4962/1/1
S4487/1/1	S4571/1/2	S4702/1/1	S5031/1/1
S4502/1/1	S4571/2/2	S4703/1/1	S5792/4/4
			S637/1/3

### ***COMMENTS***

It should be noted that about a third of the abandonment coal plans have been examined and remainder yet to be checked could contain other coal seam names not on the spreadsheet.

## Appendix 2   Excel Spreadsheet showing coal seam names and correlations

This spreadsheet is a combination of a lot of hard work and research. It was created to enable people to locate where any coal seam name exists within the geological strata in the Scottish Coalfield.