Map 1

The Derbyshire Dome

Drainage, Outline Geology, Mineral Veins & Smelter Locations

Total Lead Distribution & Lead Extractability in Selected Stream Sediment Samples

Classification of Selected Anomalies using Pb:Zn Ratio & Lead Extractability in Combination

scale: 1:63360

Dennis Taylor Ph.D.

KINDERSCOUT
LADYBOWER RESEVOIR
SHEFFIELD
R. DON
NEW MILLS
GOYT TROUGH
GALENA IN GRITS
CASTLETON
CALOW CUPOLA WORKS
HATHERSAGE
BEAUSHEAF
TOTLEY
WESTERN LIMIT OF FLUORITE ZONE
EYAM
DRONFIELD ALLOY STEEL WORKS
CALVER
RAMSLEY MOOR
BOLE
BASLOW CUPOLA WORKS
BASLOW
RIVER ROTHER
BUXTON
BARYTES IN SANDSTONE QUARRY
CHESTERFIELD
HOLYMOORSIDE
STONE EDGE CUPOLA WORKS
UPPERTOWN ANTICLINE
RIVER WYE
ALPORT
DARLEY DALE
MILL CLOSE
ASHOVER BOLE
ASHOVER ANTICLINE
GREGORY VEIN
HIGHOREDISH ANTICLINE
LUMSDALE CUPOLA WORKS
MATLOCK
SLAG HILLS BUTTERLEY
COLDHARBOUR BOLEHILL
ECTON
MIXON
RIVER DOVE
ALFREDON CUPOLA WORKS
1 MILE
LEA LEAD WORKS
GOLCONDA MINE
BRASSINGTON
WIRKSWORTH
CROMFORD MOOR
CRICH ANTICLINE
RIVER DERWENT
RIVER AMBER
BRASS & COPPER ROLLING MILLS
WHISTON Cu WORKS
WEAVER HILLS
ASHBOURNE
RIVER CHURNET
BRASS & COPPER ROLLING MILLS
CHEADLE BRASS COMPANY
MANSELLPARK LEAD HEARTH
BELPER
DENBY Cu WORKS
RIVER ECCLESBOURNE
DERBY

390000N
380000N
370000N
360000N
350000N
340000N
335000N
400000E
410000E
420000E
430000E
440000E

STREAM SEDIMENT SAMPLE LOCATION WITH PPM Pb AFTER 25% HNO_3 ATTACK & PERCENT OF Pb EXTRACTED BY 0·025% HNO_3 ATTACK

X 1120 36%
O 710 21%
● 740 3%

STREAM SEDIMENT SAMPLE LOCATION WITH PPM Pb BY SPECTROGRAPHIC ANALYSIS

100

CLASSIFICATION OF SELECTED STREAM SEDIMENT ANOMALIES BY A COMBINATION OF Pb:Zn RATIO & LEAD EXTRACTABILITY IN 0·025% HNO_3

SEE FIG. 94

X CONTAMINATION
O INTERMEDIATE
● NATURAL

◇ RED LEAD WORKS
△ OTHER SITES, TYPE NOT KNOWN
▲ LEAD HEARTH SMELTERS
▲ CUPOLA WORKS
□ BOLEHILLS

Legend

OUTCROPPING MINERAL VEINS

Map 2

The Derbyshire Dome

Drainage, Outline Geology, Mineral Veins & Smelter Locations

Total Zinc Distribution & Zinc Extractability in Selected Stream Sediment Samples

Classification of Selected Anomalies using Two Strengths of Acid Extraction in Combination

scale: 1:63360

Dennis Taylor Ph.D.

CALOW CUPOLA WORKS

DRONFIELD ALLOY STEEL WORKS

RAMSLEY MOOR BOLE

BASLOW CUPOLA WORKS

STONE EDGE CUPOLA WORKS

UPPERTOWN ANTICLINE

ASHOVER BOLE

MILL CLOSE

GREGORY VEIN

HIGHORDISH ANTICLINE

LUMSDALE CUPOLA WORKS

ALFREDON CUPOLA WORKS 1 MILE

WHISTON BRASS & COPPER ROLLING MILLS Cu WORKS

BRASS & COPPER ROLLING MILLS

CHEADLE BRASS COMPANY

DENBY Cu WORKS

Legend

- STREAM SEDIMENT SAMPLE SITE WITH PPM Zn EXTRACTED IN 0·025% HNO_3 & PERCENT ZINC EXTRACTED IN 0·20% HNO_3
- STREAM SEDIMENT SAMPLE SITE WITH PPM Zn BY COLORIMETRIC ANALYSIS
- CONTAMINATION OR MIXED MECHANICAL - HYDROMORPIC DERIVATION
- NATURAL MECHANICAL DERIVATION FROM SOIL ANOMALY OR WEATHERED ROCK
- VERY UNEXTRACTABLE IE SULPHIDE OR UNWEATHERED ROCK
- HYDROMORPIC OR WEATHERED ROCK
- HYDROMORPIC OR SMELTER CONTAMINATION
- RED LEAD WORKS
- OTHER SMELTING WORKS
- BRASSWORKS
- CUPOLA WORKS
- BOLEHILL
- OUTCROPPING MINERAL VEINS

CLASSIFICATION OF SELECTED STREAM SEDIMENT ANOMALIES By A COMPARISON OF ZINC EXTRACTABILITIES IN TWO STRENGTHS OF NITRIC ACID

SEE FIG. 95

Map 3

The Derbyshire Dome

Drainage, Outline Geology, Mineral Veins & Smelter Locations

Pb:Zn Ratio Distribution in Anomalous Samples & Favourability Classification of Selected Anomalies

scale: 1:63360

Dennis Taylor Ph.D.

400000E 410000E 420000E 430000E 440000E

390000N 380000N 370000N 360000N 350000N 340000N 335000N

CALOW CUPOLA WORKS

RAMSLEY MOOR BOLE

BASLOW CUPOLA WORKS

STONE EDGE CUPOLA WORKS

UPPERTOWN ANTICLINE

ASHOVER BOLE

ASHOVER ANTICLINE

MILL CLOSE

GREGORY VEIN

HIGHOREDISH ANTICLINE

LUMSDALE CUPOLA WORKS

CRICH ANTICLINE

HULLAND WARD

CHEADLE BRASS WORKS

DENBY Cu SMELTERS

Legend

OUTCROPPING MINERAL VEINS

BOLEHILL

BRASS WORKS

CUPOLA WORKS

LEADHEARTH

RED LEAD WORKS

OTHER SMELTER SITES

ASSESSMENT OF FAVOURABILITY OF STREAM SEDIMENT Pb, Pb-Zn & Zn ANOMALIES USING THE COMBINATION OF CRITERIA RECOMMENDED IN CHAPTER 7C

MOST FAVOURABLE

FAVOURABLE

UNFAVOURABLE

MOST UNFAVOURABLE

4:1 ANOMALOUS STREAM SEDIMENT WITH Pb:Zn RATIO

M HIGH MOLYBDENUM SAMPLE

C HIGH MANGANESE-COBALT SAMPLE

Map 4

The Derbyshire Dome

Drainage, Outline Geology, Mineral Veins & Smelter Locations

Distribution of Barium in Stream Sediments

scale: 1:63360

Dennis Taylor Ph.D.

400000E 410000 420000 430000 440000

390000N 380000 370000 360000 350000 340000N

GALENA IN GRITS

BARYTES IN SANDSTONE QUARRY

OUTER LIMIT OF FLUORITE ZONE

RAMSLEY MOOR BOLE

BASLOW CUPOLA WORKS

STONE EDGE CUPOLA WORKS

UPPERTOWN ANTICLINE

ASHOVER BOLE

MILL CLOSE

GREGORY VEIN

HIGHOREDISH ANTICLINE

GOLCONDA BARYTES MINE

Cu

Legend

- BOLEHILL
- BRASS & COPPER WORKS
- CUPOLA WORKS
- RED LEAD WORKS
- OTHER SMELTERS
- LEADHEARTH SMELTERS
- BARIUM CONTENT OF STREAM SEDIMENTS
  - 0 - 600 PPM
  - 600 - 1200
  - 1200 - 2400
  - 2400 - 4800
  - 4800 - 9600
  - +1%

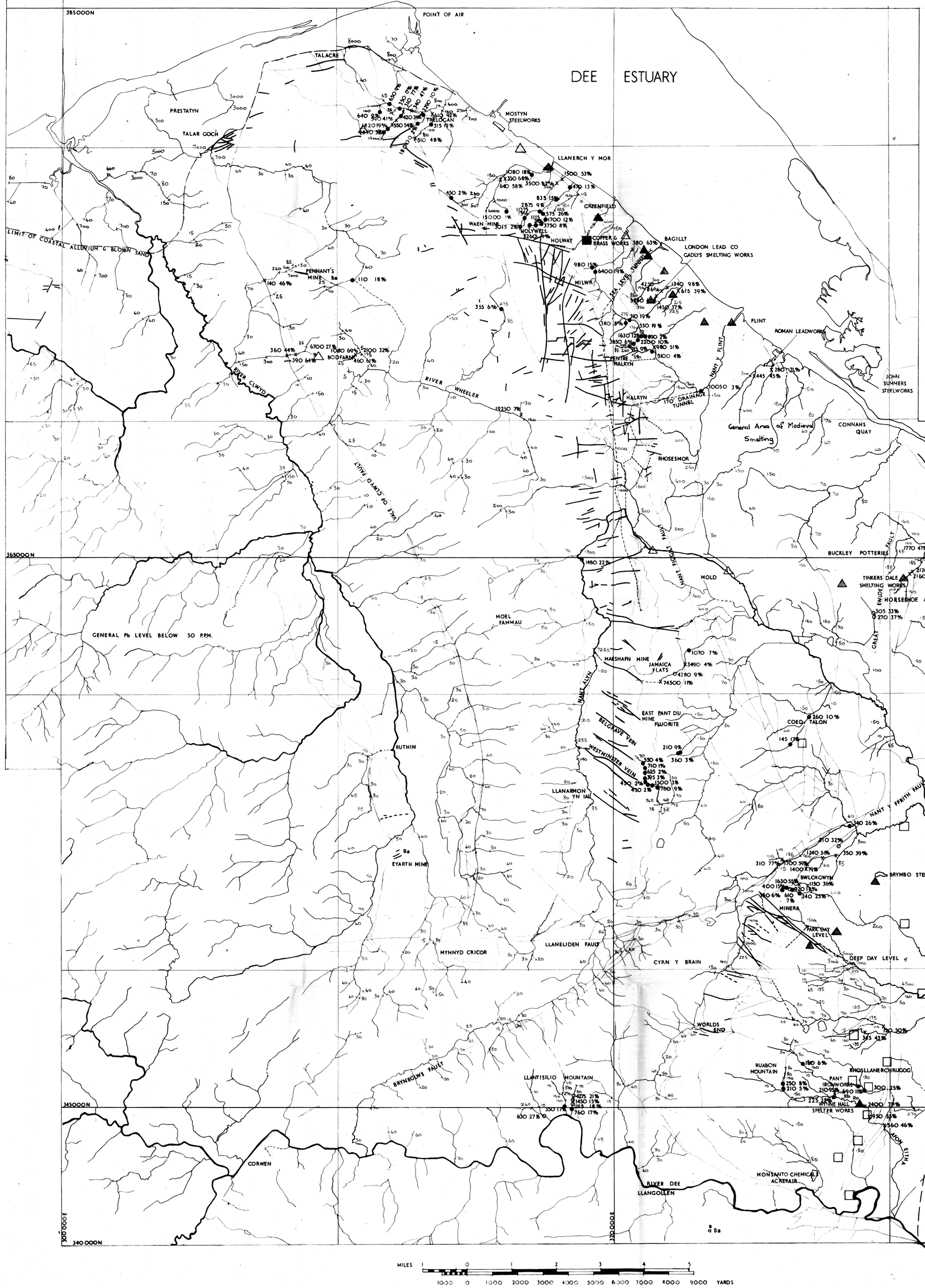
Map 5

Halkyn-Minera Mining Field Flint-Denbigh North Wales

Drainage Mineral Veins Principal Mine Tunnels Smelting & Metal Fabricating Sites

Total Lead Distribution in Stream Sediments & Lead Extractability from Selected Anomalous Samples

Classification of Selected Anomalies using Pb:Zn Ratio & Lead Extractability in Combination



Legend

100 STREAM SEDIMENT SAMPLE LOCATION WITH PPM Pb BY SPECTROGRAPHIC ANALYSIS

X 380 63% STREAM SEDIMENT SAMPLE LOCATION WITH PPM Pb AFTER 25% NITRIC ACID ATTACK & PERCENT OF Pb EXTRACTED BY 0·025% NITRIC ACID ATTACK
O 530 19%
● 450 2%

CLASSIFICATION OF SELECTED STREAM SEDIMENT ANOMALIES BY A COMBINATION OF Pb:Zn RATIO & LEAD EXTRACTABILITY IN 0·025% NITRIC ACID. (SEE FIG 96)

X CONTAMINATION
O INTERMEDIATE
● NATURAL

OUTCROPPING MINERAL VEINS SHOWN ON GEOLOGICAL SURVEY MAPS

MAJOR MINE DRAINAGE TUNNELS

REVERBERATORY LEAD SMELTING WORKS & CALAMINE ROASTING WORKS

OTHER LEAD SMELTING WORKS

SPELTER WORKS

COPPER & BRASS WORKS

IRON WORKS

MILES 1 0 1 2 3 4 5

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 YARDS

Dennis Taylor Ph. D.

Map 6

Halkyn-Minera Mining Field Flint-Denbigh North Wales

Drainage Mineral Veins Principal Mine Tunnels Smelting & Metal Fabricating Sites

Total Zinc Distribution in Stream Sediments & Zinc Extractabilities from Selected Stream Sediments

Classification of Selected Anomalies using Two Strengths of Acid Extraction in Combination

Legend

200 STREAM SEDIMENT SAMPLE LOCATION WITH PPM Zn BY COLORIMETRIC ANALYSIS

STREAM SEDIMENT SAMPLE LOCATION WITH PPM Zn
520 7% PERCENT Zn EXTRACTED BY 0·025% NITRIC ACID ATTACK &
65% PERCENT Zn EXTRACTED BY 0·20 % NITRIC ACID ATTACK

CLASSIFICATION OF SELECTED STREAM SEDIMENT ANOMALIES BY A COMPARISON OF ZINC EXTRACTABILITIES IN TWO STRENGTHS OF NITRIC ACID (SEE FIG 95)

- CONTAMINATION OR MIXED MECHANICAL HYDROMORHIC DERIVATION
- NATURAL MECHANICAL DERIVATION FROM SOIL ANOMALY OR WEATHERED ROCK
- VERY UNEXTRACTABLE — SULPHIDE OR FRESH ROCK
- HYDROMORPHIC OR WEATHERED ROCK
- VERY EXTRACTABLE HYDROMORPIC OR SMELTER CONTAMINATION

OUTCROPPING MINERAL VEINS SHOWN ON GEOLOGICAL SURVEY MAPS

MAJOR MINE DRAINAGE TUNNELS

REVERBERATORY LEAD SMELTING WORKS & CALAMINE ROASTING WORKS

OTHER LEAD SMELTING WORKS

SPELTER WORKS

COPPER & BRASS WORKS

IRON WORKS

DEE ESTUARY

TALACRE

TALAR GOCH

MOSTYN STEELWORKS

TRELOGAN

LLANERCH Y MOR

GREENFIELD ZINC WORKS

DEE BANK LEAD & ZINC WORKS BAGILLT

COPPER & BRASS WORKS

HOLYWELL

LONDON LEAD CO GADLYS SMELTING WORKS

FLINT

ROMAN LEADWORKS

JOHN SUMMERS STEELWORKS

LIMIT OF COASTAL ALLUVIUM & BLOWN SAND

BODFARI

CENTRE HALKYN

HALKYN

170' DRAINAGE TUNNEL

General Area of Medieval Smelting

SEA LEVEL TUNNEL

MOLD

CHESTER

TINKERS DALE SMELTING WORKS

HORSESHOE ANTICLINE

BELGRAVE VEIN

WESTMINSTER VEIN

LLANARMON

APPROX LIMIT OF MANGANESE ENHANCEMENT

NANT Y FFRITH FAULT

LIMIT OF DEEP EXOTIC DRIFT

BRYMBO STEELWORKS

MINERA

"WREXHAM DELTA TERRACE"

LLANELIDEN FAULT

TRACES OF MINERALIZATION

DEEP DAY LEVEL

WREXHAM

MARCHWIEL EXPLOSIVES FACTORY SITE NOW WREXHAM INDUSTRIAL ESTATE

BRYNEGLWYS FAULT

LLANTISILIO MOUNTAIN

RUABON MOUNTAIN

PANT IRONWORKS

WYNNE HALL SPELTER WORKS

MONSANTO CHEMICALS

385000N 365000N 345000N 1340 000N

300 000E 320 000E 340 000E

MILES 1 0 1 2 3 4 5

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 YARDS

Dennis Taylor Ph.D.

Map 7

Halkyn-Minera Mining Field Flint-Denbigh North Wales

Drainage Mineral Veins Principal Mine Tunnels Smelting & Metal Fabricating Sites

Distribution of Pb:Zn Ratio in Anomalous Samples & Favourability Classification of Selected Anomalies

385000N

385000N

Dee Estuary

1:2·2 1:7 1:4 1:3 1:2·5 1:5·2 1:3 1:3·7 1:5·6 1:3·7 1:2·9 1:3·7 1:4·6 1:1 1:1 1:5·1 1:2·2 1:1·2 1:5 1:3 1:8·1 >2:1 2:1 2:5·1 1:3·2 2:1 8:1 1:3·8 1:3·4 1:4 1:2 1:3·1 1:4·8 1:2·3 1:4·8 1:2 1:1 1:3·1 1:2·7 1:3 1:1·6 1:5·1 5:1 10:1 25:1 17:1 5:1 3·2:1 2:1 1:2·8 1:2·1 1:4·1 1:1·7 1:3·1 4:1 2·5:1 1:3·1 66:1 8:1 3:1 2·7:1 5:1 1:8·1 1:2 4·2:1 1:8·1 1:1·1 1:4·1 3·2:1 7:1 3:1 3·3:1 15:1 10:1 9:1 1:6 1:4 1:3 1:1·8 1:2 3:1 1:7·1 2:1 1:4·1 1:1·2 1:6·1 1:6·1 1:2·4 1:2·1 1:2·1 1:6 1:8 1:7 1:6·5 1:4·2 1:1·5 1:1 1:5·1 4:1 4·6:1 4:1 1:3·1 20:1 2·4:1 4:1 2·8:1 2·5:1 1:5·1 2·7:1 1:1 1:3·1 1:6·5 1:8 1:6·1 1:7 1:1 1:3·5 1:3·2 1:2·5 1:7·7 1:8·3 1:3 1:6 1:1·7 1:2 1:2·2 1:5 1:9 1:1 1:4·5 1:2·4 1:7·2 1:6·5 1:1·3·7 4:1 10:1 1:3 3:1 1:2 1:5·5 1:4 1:1·5 1:5·1 1:4·4 1:6 1:40 1:40 5:2:1 3·1:1 2·9:1 1:8:1 2:1 1:2:1 1:2:1 3·5:1 1:3 1:2·7 1:3 1:1·6 1:5:1 5:1 10:1 25:1 17:1 1:3 1:4 1:6 1:3 1:3 1:2 1:3 1:6·5 1:3 1:4 1:3 1:3 1:3