From Project to Project…

Stephanie Houghton

How I Got Here….

- Graduated with MEng Chemical Engineering with Environmental Engineering from Edinburgh University

- Applied to TATA Steel

- Started work 5/9/11 as a Graduate Chemical Engineer

TATA STEEL
TATA
#STEELMATTERS
POWERING BRITAIN
Our Hartlepool site is reknowned for its world-leading line pipe operation, which has produced
1 million tonnes of line pipe
for North Sea oil and gas projects in the last 20 years.
LANDMARKS AND LEGENDS
Nearly 1000 tonnes of steel galvanised at our Shotton site went into The Shard, which is Western Europe's tallest building.
300 tonnes of steel tubes produced at our Corby and Hartlepool plants were used in The Kelpies, two monumental steel sculptures standing 30 metres high in Falkirk, Scotland.
LEAN AND GREEN
Steel is the most recycled packaging material and can be used and recycled infinitely with no loss of quality.
Tata Steel has its own rail terminal which supplies steel coil for customers in the West Midlands, the main steel-consuming region of the UK.
19 trains a week transporting
750,000 tonnes
which means
30,000
fewer lorry journeys a year!
BREAKING RECORDS
Port Talbot hot strip mill produced a record 3.2 million tonnes last year, helping to improve manufacturing efficiencies.
3,200,000 TONNES
LIGHTER, FASTER, SAFER TRANSPORT
Tata Steel UK supplies almost 50% of UK carmakers' steel requirements – everything from body panels and chassis to engine components and wheels.
BACKING WINNING BRANDS
Many leading car manufacturers use our steel. The Zodiac Line at our Llanwern plant for example supplies Nissan with coil that is used to produce the exterior body panels of some of its models.
SPENDING POWER
Nearly all 1p, 2p, 5p and 10p UK coins in circulation originate from steel made in Port Talbot and are further processed at our Wednesfield site.
GOING GLOBAL
Our Hartlepool and Corby sites make steel tubes for globally famous construction projects, including part of the 22,000 tonnes of steel products used in total in London's Wembley Stadium. Other iconic structures using our steel tubular products include the London Eye, Arsenal's Emirates Stadium, the Singapore Sports Hub, the Middle East Louvre and the New York Freedom Tower.
22,000 TONNES
KEY MARKETS
Key markets served by Tata Steel's UK business include automotive, construction, lifting and excavating, energy and power and aerospace.
TATA STEEL
STEEL IS THE FOUNDATION TO OUR SOCIETY
Our UK made steel is everywhere around us, even in places you might not expect like crash barriers, food cans, aerosols, aeroplane undercarriages, tumble dryers, tractors and office furniture.
www.tatasteeleurope.com
@TataSteelEurope
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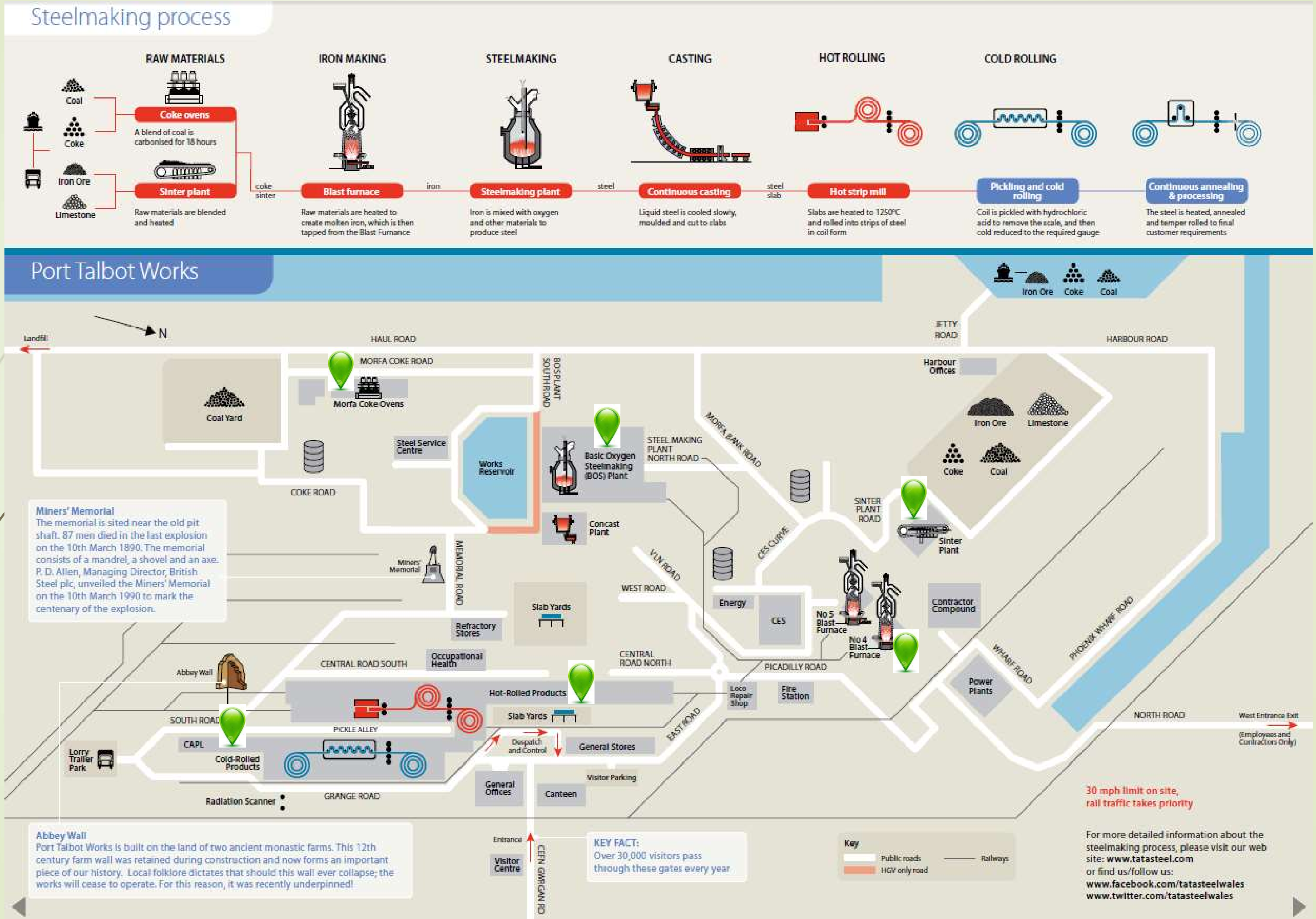

Steelmaking process
RAW MATERIALS
IRON MAKING
STEELMAKING
CASTING
HOT ROLLING
COLD ROLLING
Coal
Coke
Iron Ore
Limestone
Coke ovens
A blend of coal is carbonised for 18 hours
Sinter plant
Raw materials are blended and heated
coke
sinter
Blast furnace
Raw materials are heated to create molten iron, which is then tapped from the Blast Furnance
iron
Steelmaking plant
Iron is mixed with oxygen and other materials to produce steel
steel
Continuous casting
Liquid steel is cooled slowly, moulded and cut to slabs
steel slab
Hot strip mill
Slabs are heated to 1250°C and rolled into strips of steel in coil form
Pickling and cold rolling
Coil is pickled with hydrochloric acid to remove the scale, and then cold reduced to the required gauge
Continuous annealing & processing
The steel is heated, annealed and temper rolled to final customer requirements
Port Talbot Works
Iron Ore
Coke
Coal
N
Landfill
HAUL ROAD
MORFA COKE ROAD
Morfa Coke Ovens
Coal Yard
BOSPLANT SOUTH ROAD
JETTY ROAD
HARBOUR ROAD
Harbour Offices
Iron Ore
Limestone
Coke
Coal
Steel Service Centre
Works Reservoir
Basic Oxygen Steelmaking (BOS) Plant
STEEL MAKING PLANT NORTH ROAD
MORFA BANK ROAD
COKE ROAD
Concast Plant
SINTER PLANT ROAD
Sinter Plant
Miners' Memorial
The memorial is sited near the old pit shaft. 87 men died in the last explosion on the 10th March 1890. The memorial consists of a mandrel, a shovel and an axe. P. D. Allen, Managing Director, British Steel plc, unveiled the Miners' Memorial on the 10th March 1990 to mark the centenary of the explosion.
Miners' Memorial
MEMORIAL ROAD
VLN ROAD
CES CURVE
WEST ROAD
Energy
CES
Slab Yards
Refractory Stores
No 5 Blast Furnace
No 4 Blast Furnace
Contractor Compound
Occupational Health
CENTRAL ROAD SOUTH
CENTRAL ROAD NORTH
PICADILLY ROAD
WHARF ROAD
PHOENIX WHARF ROAD
Abbey Wall
Hot-Rolled Products
Loco Repair Shop
Fire Station
Power Plants
SOUTH ROAD
Slab Yards
PICKLE ALLEY
EAST ROAD
NORTH ROAD
West Entrance Exit
(Employees and Contractors Only)
CAPL
Lorry Trailer Park
Cold-Rolled Products
Despatch and Control
General Stores
Radiation Scanner
GRANGE ROAD
General Offices
Canteen
Visitor Parking
30 mph limit on site, rail traffic takes priority
Abbey Wall
Port Talbot Works is built on the land of two ancient monastic farms. This 12th century farm wall was retained during construction and now forms an important piece of our history. Local folklore dictates that should this wall ever collapse; the works will cease to operate. For this reason, it was recently underpinned!
Entrance
Visitor Centre
CEFN GWRGAN RD
KEY FACT:
Over 30,000 visitors pass through these gates every year
Key
Public roads
HGV only road
Railways
For more detailed information about the steelmaking process, please visit our web site: www.tatasteel.com
or find us/follow us:
www.facebook.com/tatasteelwales
www.twitter.com/tatasteelwales

Projects I've Worked On

Graduate:

- Site-wide Steam Distribution Model
- BF4 Rebuild – SIL Systems

Process Engineering Department:

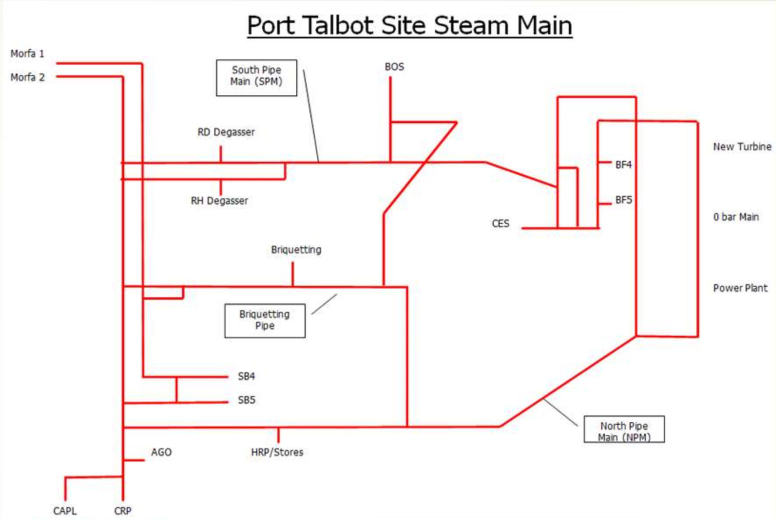
- Water Treatment Trial
- Energy Efficiency Wave – Llanwern Zodiac

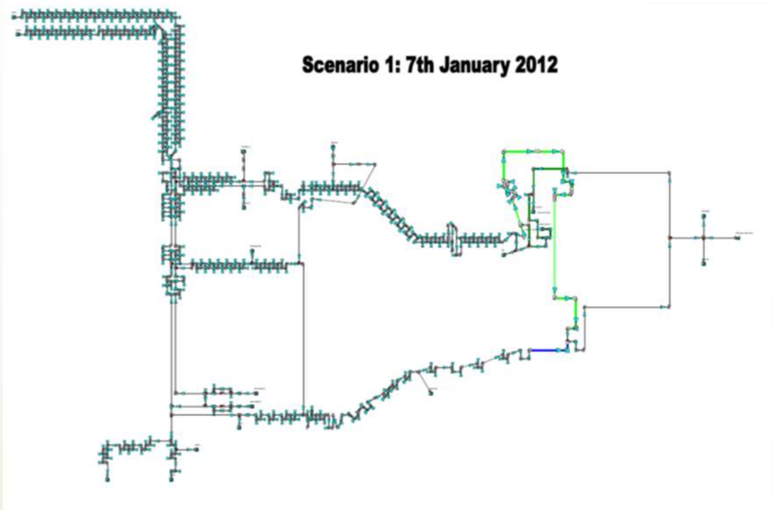
Current Work:

- Sinter Plant De-dust System
- Sinter Plant De-dust System Filter Replacement Project

Site-wide Steam Distribution Model

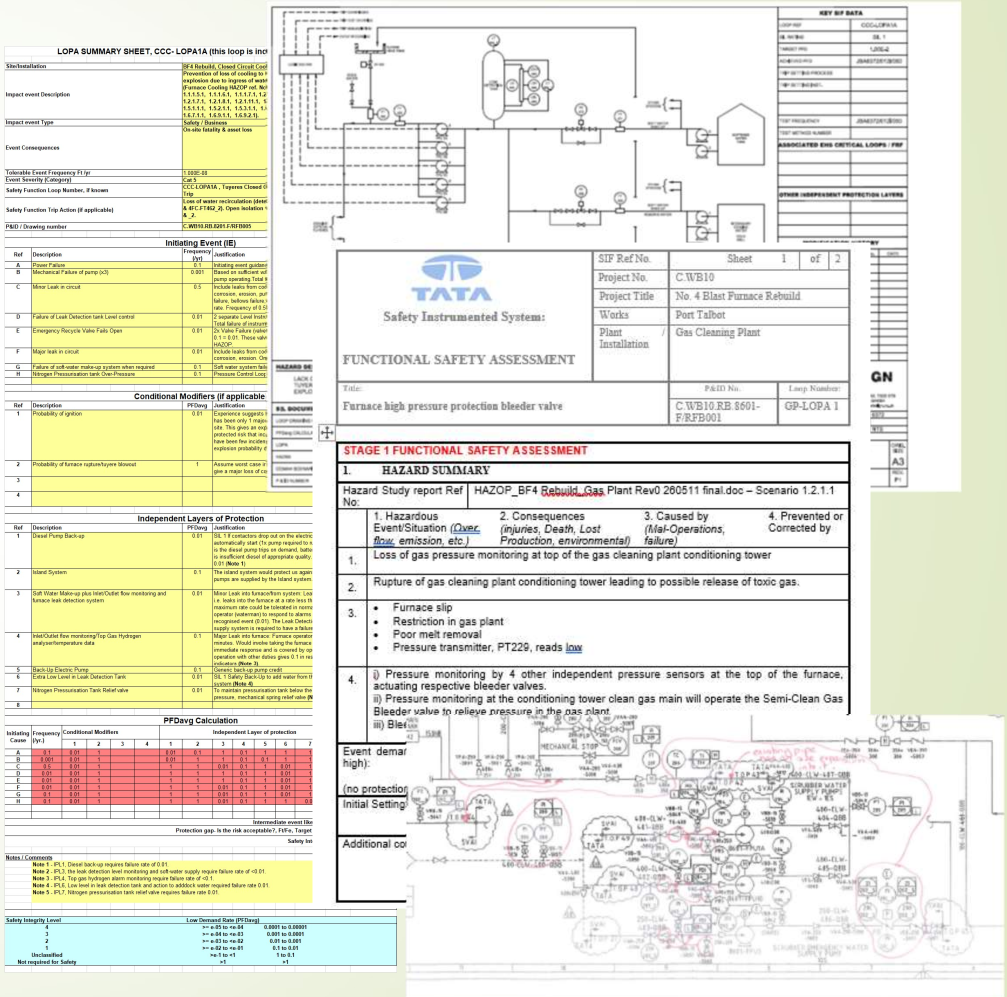
- Brief: Carry out a process study on how the site-wide 11barg steam ringmain system would 'evolve' from CAPEX projects.
- Used a previously created model to run different scenarios and analyse the resultant pressures and temperatures at the different steam users.





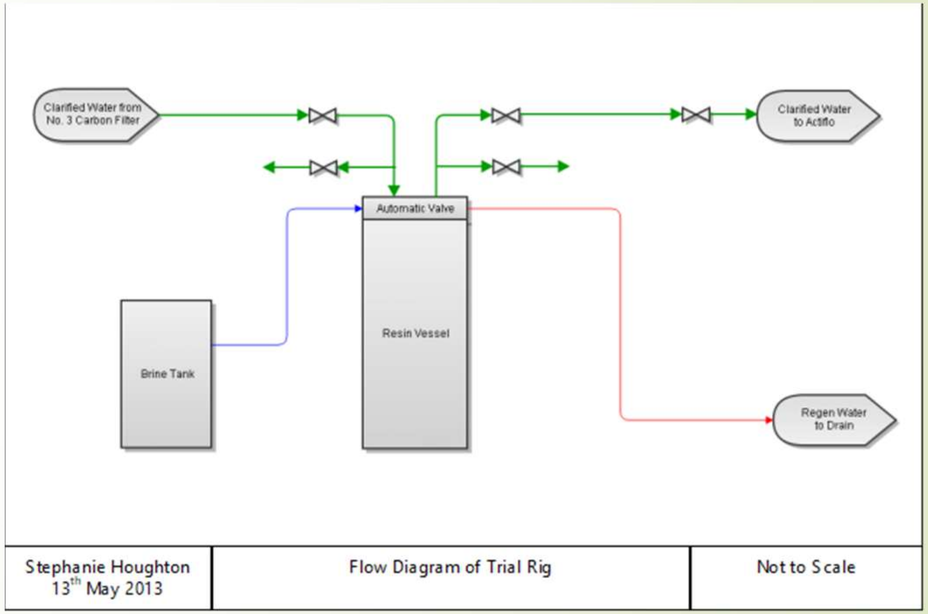
BF4 Rebuild – SIL Systems, P&ID Checks

- Brief: To collate the relevant information for the SIL systems on the BF4 Rebuild; To carry out P&ID Checks on the BF4 Gas Plant.
- Collated information (loop drawings, SIL calculations, instrument data) on the SIL systems that had been identified by LOPAs.
- Carried out P&ID Checks on the BF4 Gas Plant and fed back findings to project team.



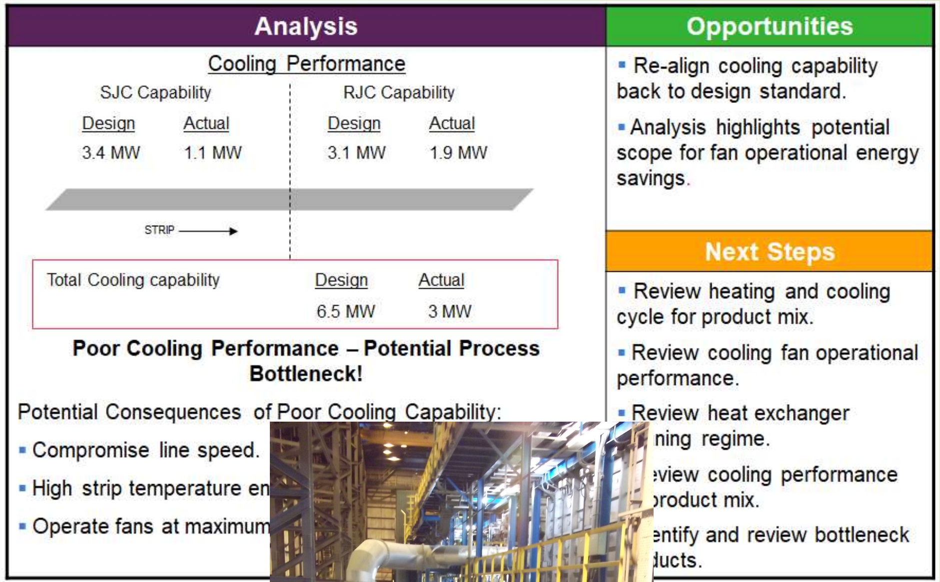
Water Treatment Trial

- Brief: To determine whether a resin would help to minimize the fouling of Reverse Osmosis membranes used in our water treatment plant.
- Designed a trial plant, set up the plant within the treatment plant and ran trials to determine the effectiveness of the resin.



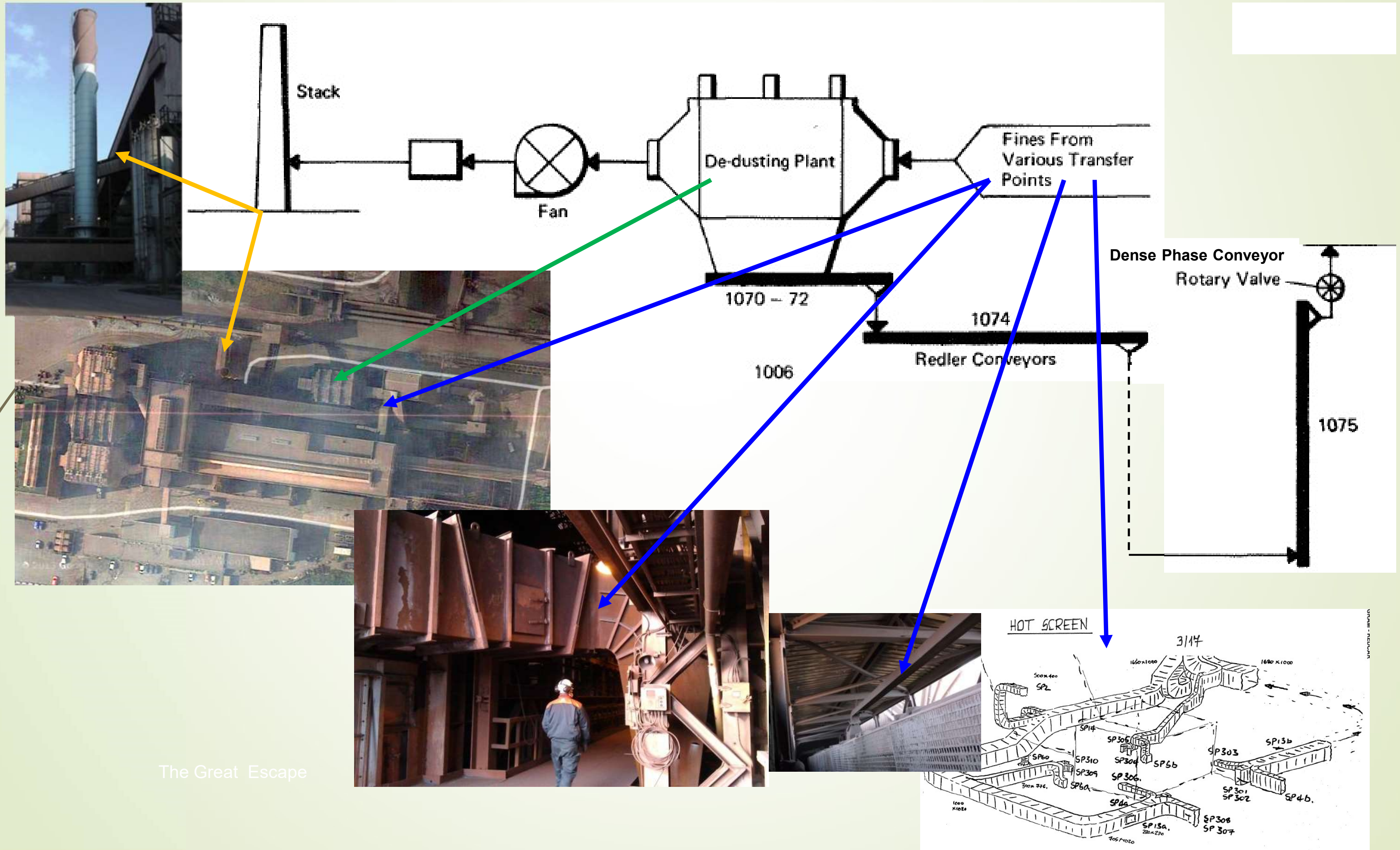
Energy Efficiency Wave – Llanwern Zodiac

- Brief: To determine energy efficiency projects for the Zodiac Plant at Llanwern works.
- Participated in brainstorming & analysing the potential of the ideas generated.
- Progressed ideas so that they are straight forward to implement.

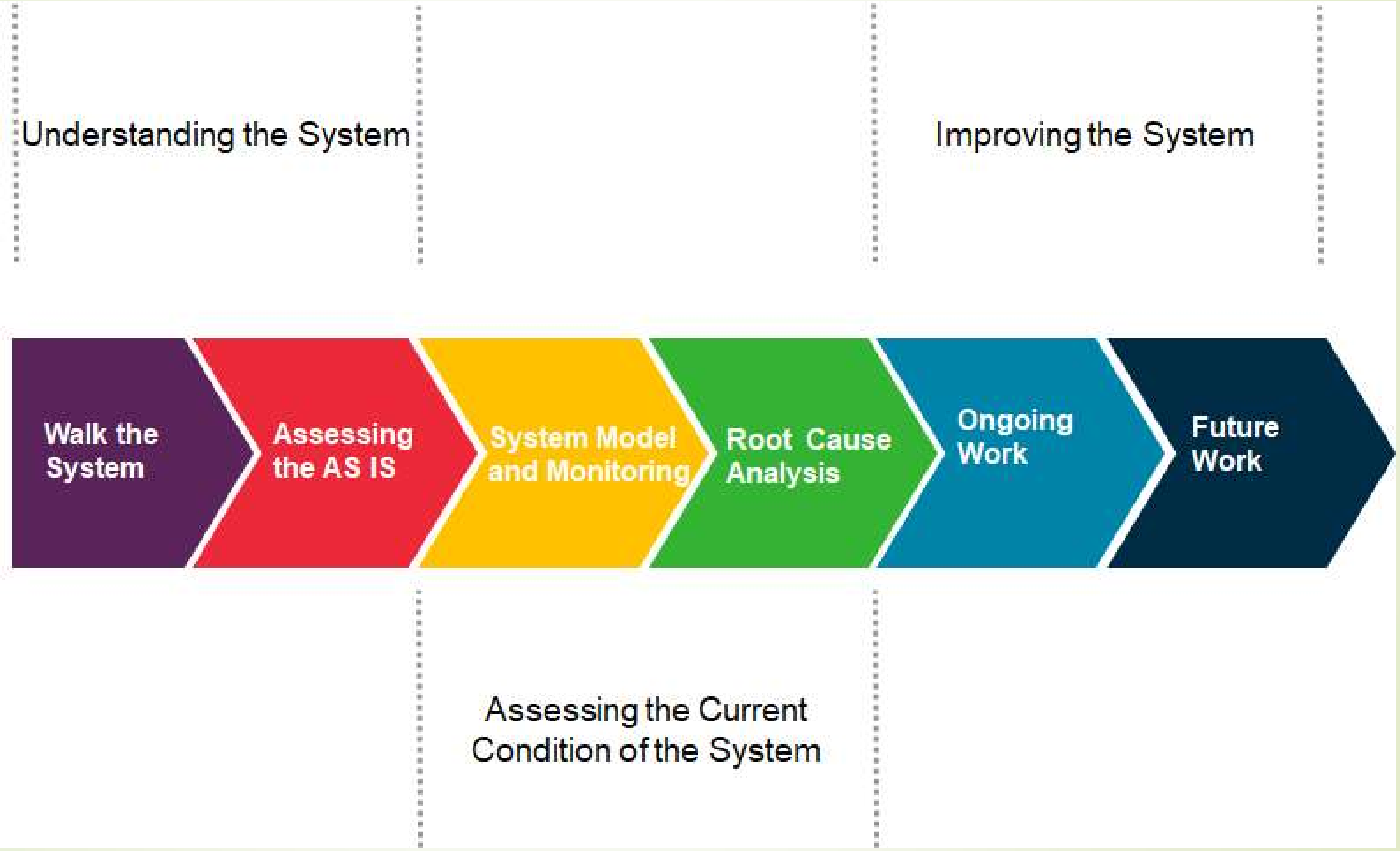


Current Work

The De-dusting “System”



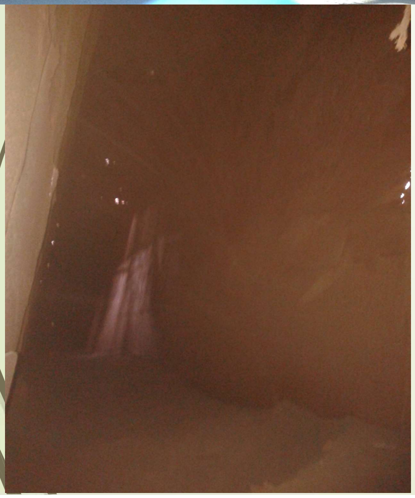
Why Have a De-dust System?



Understanding the System
Improving the System
Walk the System
Assessing the AS IS
System Model and Monitoring
Root Cause Analysis
Ongoing Work
Future Work
Assessing the Current Condition of the System

De-dust Maintenance Work




De-dust Project

- “Sinter Plant De-dust System Filter Replacement Project”
- Replacing the existing De-dust System ESP (built 1970’s) with a bag filter to meet new IED emissions limits.