



The
Geological
Society

Geological Society Contaminated Land Specialist Group Annual Report 2019

Our committee

Full details of the current committee are published on our webpage:

<https://www.geolsoc.org.uk/contamland>

Summary of conference & events

We've had another packed 12 months as we celebrated our third year since forming the group in 2017.

March

Early career networking event at Leeds University on 7th March. Around 25 delegates attended. There was an opportunity to network over food and drinks with a series of very short talks given. It was considered to be a success and a good model for future events.

Career event held at Manchester University on 20th March jointly with the North West Regional Group arranged by Nik Reynolds and Molly Brown. The event involved having several early career professionals from different specialisms on hand to answer any queries in a 'speed-networking' style.

May

Joint conference with the Hydrogeological Group in May 2019 on unconsolidated/superficial deposit aquifers held on the 1st and 2nd May co-convened by Angela Haslam. Day 1 covered water resources and wetlands, Day 2 covered engineering and contamination. There were over 100 in attendance and good feedback has been provided. Paul Nathanail gave a presentation as part of the second day which had a water quality focus. Angela acted as co-convenor and represented our interests as the event programme was developed.

June



Engineering Geology of Contaminated Land at Burlington House on 4 June 2019. Organised by Amy Juden, Jenny Lightfoot and Chris Swainston jointly with the Engineering Group. There were approximately 80 attendees and a packed programme of 9 presentations and a panel discussion. Mentimeter was used for the first time at the start of the meeting to gauge attendees interests, backgrounds and aspirations for the day.

An early career event was held in London on 20th June. Around 30 early career professionals attended this event which functioned as a good networking opportunity. Insitu Europe sponsored which covered all the event costs (as food and drink was provided to those attending)



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September

The Group visited the Fakenham Museum of Gas on 21 September. The workshop was held as part of the Year of Carbon. The morning was taken up with lectures on various aspects of gas works and their contamination legacy. The afternoon was spent visiting England's only preserved gas works in the company of the Museum's chair of trustees. The meeting was convened by Dr Paul Nathanail (Land Quality Management Ltd). Paul closed the event by thanking the Museum volunteers and reminding delegates of the responsibilities geoscientists have in helping resolve the challenge of climate change, not least since our profession found the fossil fuels whose combustion plays a major role in man-made climate change.



November

Anna Hitchmough, Jane Dottridge and Kristian Fox convened a conference held at the priory Rooms Birmingham on 6th November entitled: *NAPL in the UK context: does it matter?* to support the Geological Society's Year of Carbon theme.

There were four sessions:

1. Keynotes on dense and light non aqueous phase liquids.
2. Existing guidance (US vs UK) and its application in the UK.
3. Assessing risks from non-aqueous phase liquid.
4. Remediation of non-aqueous phase liquid.



The day attracted over 100 delegates and was well attended by academics, regulators and consultants.



During the day we held a poster competition judged by the conference delegates. Congratulations to the consortium who produced the winning poster 'Sunshine on the Tyne'.

Sunshine on the Tyne

Solar Powered Gasholder DNAPL Remediation

Mark Blaney & Adam Wilson (mark.blaney@geo2.co.uk & adam.wilson@geo2.co.uk), Geo2 Remediation Ltd, Gordon House, Leake Street, Bradford, BD1 1BL; Tim Whelan & Emma King (tim.whelan@sweco.co.uk & emma.king@sweco.co.uk), Sweco UK Ltd, One Nine, Millennium Park, Leam, LE17 4NR; Neil Whalley (NWhalley@northern-gas.co.uk), Northern Gas Networks, 160 Century Way, Thorpe Sowerby Park, Colton, Leeds, LS15 8TG.

INTRODUCTION

Geo2 Remediation Ltd, SWECO UK Ltd and Northern Gas Networks (NGN) present findings, results and lessons learned from a collaborative DNAPL investigation and recovery project.

INDUSTRIAL LEGACY

Prior to the introduction of natural gas and the national network of transmission and distribution, gas was typically manufactured from coal and distributed locally. Potential contamination which may result from historic gas works includes tar, phenols, aromatic and cyanide. This project forms part of NGN's land contamination management programme, in place to ensure that NGN's sites pose no significant risk to environmental receptors from land contamination.

REDLEIGH GAS HOLDER

The NGN owned Gas Holder Station at Redleigh, Calverhead (1950's to c.1980) previously featured four gas holders, three of which have recently been demolished (2017-2018). The fourth gas holder was demolished and infilled during 1950's and is the subject of the remediation project. Site investigations by SWECO characterised thick (c.2m smearing) discontinuous lenses of DNAPL (crocostone, coal tar and phenols) within the hydraulically closed, deep (c.5m tgl) gas holder base.

REMEDIAL DESIGN

The remediation project comprised the development of a robust, field portable solar powered tar recovery system, designed to meet site specific demands; unattended & low maintenance; reliable recovery; targetable deployment and operation within a 'live' gas site undergoing decommissioning/demolition with no energy source or ability to use telemetry. The modular system was constructed of a bespoke solar array, quarantine tank, battery and compressor powering pneumatic down-hole pumps enabling intermittent pulsed recovery for optimum DNAPL recovery. Pumping times ranged from 1 min-30-50hrs to balance battery power demands and enable DNAPL recovery and recharge.

SUSTAINABILITY OUTCOMES

System Feature	Environmental Benefit	Social Benefit	Economic Benefit
Renewable energy source	66 t of Carbon offset and 1,100 t of CO ₂ e recovered over 2 years	Quiet	£26,000 life time saving over 2 years
In situ method	Minimal waste Limited vehicle movements	No odours Low visual impact	Optimised waste disposal costs
Remote operation	Low Maintenance Frequency - limiting vehicle emissions	Minimal maintenance requirements	Minimal maintenance costs

LESSONS LEARNED

This is a successful remediation technology suitable for deployment where DNAPL recovery requires slow sustained pumping.

6,100 litres of DNAPL recovered over 2 years using 100% renewable energy

Collaborative and creative approaches between Client, Consultant and Contractor can result in innovative technology development for resolution of complex DNAPL contamination.

Illustrated by: Ugras Antikova



December

Abigail Brooks organized a Speed-networking event at Cardiff University on the 6th of December. All 30 masters students from Cardiff University (MSc Applied Environment Geology) attended and were able to speak to 6 early career professionals specializing in the contaminated land industry. Group of 5/6 asked questions for 15 minutes at each table before moving onto the next. As all the speakers were from slightly different backgrounds (contracting, consulting etc.) they were able to give them an indication of what to expect in the industry. The university would love this to become an annual event.

Other items to note

Chris Swainston represented the group at the annual specialist groups gathering on 13th May.

Becky Corps has been representing the group at the Environmental Network.

Paul Nathanail represented us on the Brownfield Forum and is taking over as Chair of the Forum from March 2020. The minutes from these meetings are available online:

<https://www.claire.co.uk/projects-and-initiatives/land-forum>

Amy Juden attended the launch event of the early career network at Burlington house on 22nd February.

Anna Hitchmough and Chris Swainston attended a meeting with Shaun Richardson and John Talbot to discuss how our chartership working group could help the Geological Society and its Chartership Committee. The subgroup will consider next steps in 2020.

Sarah Hey and Abi Brooks acted as early career reps on the CL:AIRE technology and research group.

We've continued liaising with the regional groups to seek opportunity to co-badge meetings and assist each other in organising events covering land contamination topics.



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Finances

Our accounts were managed centrally at Burlington House during 2018 and 2019 and our best understanding of our closing balance remaining at 30 September 2018, as stated in the 2019 report, was **£5383.84. This total has since been corrected to £5069.95 as shown below.** Our income and expenditure during 2019 are summarised below:

Description	Income	Expenditure	Balance
Opening balance 30 September 2018			£5,069.95
Early career networking events in Leeds (March) and London (June)			
Income from sponsorship	£600.00		
Expenditure on food and drink		-£831.80	£4,838.15
Joint conference with the Engineering Group at Burlington House in June			
Balance of half the income received from EGGS	£1,644.87		£6,483.02
Fakenham gas works museum field trip in September			
Income from delegate fees	£888.00		
Speaker expenses		-£666.56	£6,704.46
University networking events at Manchester, Cardiff and Southampton			
Catering costs		-£77.40	£6,627.06
NAPL conference in Birmingham in November			
Income from sponsorship	£1,000.00		
Income from delegate fees	£8,804.00		
Venue hire and catering costs		-£3,349.20	
Expenses		-£62.68	
Closing balance 31 December 2019			£13,019.18

For 2020, we have opened our own independent bank account with Lloyds and will be handling our own finances.

Election to committee

During 2019, Emma Small, Clive Williams, Sarah Hey, Jane Dottridge and Paul Nathanail stepped down from the committee. We thank them for their efforts during their involvement with the group.

A call for volunteers was circulated in Summer 2019 and over 17 requests to join the committee were received (7 of which were from early career professionals). Five new committee members were co-opted and formally elected at our AGM on 6th November 2019. They are:

- Ruth Easterbrook
- Alison Carruthers
- John Cleland
- Matthew Wright (early careers)
- Harriet Wood (early careers)



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Plans for 2020

The Geological Society's theme for 2020 is 'Year of Life'. As part of this we have so far planned:

- Joint event with the Contaminated Land Forum North East Thames (CLFNET) at Burlington House on 20th January 2020
- Co-badged event with the Environment Network on the topic of plastics in the environment on 14th May 2020
- Talk from Chris Swainston at the Geological Discussion Forum on 14th April 2020
- Joint event with the Hydrogeology Group on Sandstone Aquifers on 28th/29th April 2020
- Joint event with Royal Society of Chemistry in late 2020

We will also continue working with other groups and organisations including the regional groups, regional contaminated land forums and other professional bodies to develop events and other initiatives to promote the profession.

We are establishing a working group to discuss how to best spend our surplus funds in line with our constitution.

The chartership working group will discuss ways to both help the society attract candidates for chartership with the society and facilitate candidate's applications.

Anna Hitchmough

Contaminated Land Specialist Group Secretary

February 2020