

## **JULIAN HATHERALL**

### Director / Principal Hydrogeologist

#### **Professional Qualifications**

BSc (Hons)	Geology and Applied Geology 1 <sup>st</sup> Class	University of Glasgow, 1996
MSc	Hydrogeology	University of East Anglia, 1997
CGeol	Chartered Geologist	Geological Society of London, 2005
EurGeol	European Federation of Geologists	Geological Society of London, 2009
FGS	Fellow of the Geological Society of London	
IAH	Member International Association of Hydrogeologists	

#### **Summary**

A Chartered Geologist with over 22 years of experience providing advice on groundwater and hydrogeological issues, Julian has significant knowledge of the assessment and management of groundwater and water resources.

He has a wide range of skills and experience encompassing both contaminant and water resource hydrogeology that includes desk top and baseline groundwater studies, groundwater risk assessment, groundwater advice in relation to the development of infrastructure and buildings, groundwater in the extractive industry, waste management and the development and management of groundwater abstractions. He contributes to Environmental Impact Assessments, has previously provided specialist hydrogeological support to regulators and currently has an interest in the field of groundwater flooding and SuDS.

Julian has worked with clients across a number of sectors, both within the UK and overseas and has experience of working in a range of geological and hydrogeological environments.

He is a Geological Society Chartership Scrutineer and Chartership Review Panel Member.

#### **Selected Key Skills**

- The evaluation of impacts on the water environment resulting from major and minor development and infrastructure projects;
- Groundwater and water environment desk studies;
- Hydrogeological risk assessment (landfill and contaminated land);
- Water resource feasibility, resource assessment and development;
- Specialist input to Environmental Impact Assessments (EIA);
- Site investigation planning and supervision and the design of groundwater monitoring systems;
- Project management and direction.

## Work locations

Julian has worked on and visited projects located in the UK and NI, Republic of Ireland, Guinea, Senegal, Australia, Germany, Kazakhstan. He has remotely worked on projects in Kuwait, Saudi Arabia, and Russia.

## Publications and Presentations

Environmental Simulations International, 2002. Impact of Groundwater Abstractions on River Flows. Environment Agency NGWCL Report NC/00/28, Solihull, UK.

Hatherall, J. and Holmes, G., 2008. Case Study: Installation of a 200m Closed Loop Hole and Subsequent Thermal Response Testing for BAA at Stansted. Presented at GeothermalLive, Peterborough.

Hatherall, J., 2012. A Methodology to Assist Local Authorities and Developers in the Evaluation of Potential Groundwater Flooding Risk Resulting from Development. Presented at Sustainability Live, Birmingham NEC.

Hatherall, J., 2016. The Importance of Understanding Your Private Water Supply. Presented at the RHE Private Water Supply Conference, Birmingham.

## Previous Roles

*July 2013 to Present*    **JH Groundwater Ltd** – Director / Principal Hydrogeologist

*Jan 2012 to July 2013*    **Earth Systems** – Principal Hydrogeologist

*May 2007 to Dec 2011*    **WSP Environment and Energy** - Associate Director

*Jan 2006 to May 2007*    **Freelance Consultant** - Consultant Hydrogeologist

*July 2003 to Jan 2006*    **Atkins** - Senior Hydrogeologist

*May 2000 to July 2003*    **Zenith International** - Senior Hydrogeologist

*Dec 1997 to May 2000*    **Environmental Simulations International** - Project Hydrogeologist

## SELECTED EXPERIENCE

### Property/Roads/Infrastructure/Local Authorities

**Subterranean water Basement Impact Assessments (BIA), London and Gloucestershire.** Production of groundwater impact assessments for basements at several properties.

**Tunnel dewatering claim, Confidential Client.** Preparation of hydrogeological review related to claim for excess groundwater dewatering for a service tunnel.

**Groundwater monitoring proposals for Windfarm Site, Southern Scotland.** Assessment of conceptual model and groundwater monitoring proposals for a windfarm with 22 turbines.

**Groundwater risk assessment for proposed windfarm, Southern Scotland.** Assessment of potential risk to groundwater Private Water Supply sources from proposed windfarms.

**Green burial site, Somerset.** Phase I and II cemetery Hydrogeological Risk Assessment for a proposed green burial site in Somerset.

**Package Treatment Plant discharges to ground, Wales and Bristol.** Hydrogeological Risk Assessment for proposed discharge of treated effluent to ground including a borehole soakaway for a domestic property.

**Existing Cemetery, Somerset.** Cemetery Hydrogeological Risk Assessment for an existing Local Authority cemetery in the low-lying Somerset Levels to satisfy the Environment Agency of the absence of contamination.

**Water Features Survey, Groundwater Engineering, Cambridge.** Hydrogeological impact assessment and water features survey for construction dewatering in central Cambridge.

**Groundwater risk assessments for large pig and poultry units, Lincs and Yorkshire.** Groundwater risk assessments for several proposed agricultural developments with underground storage of waste water and slurry in and out of Source Protection Zones.

**Provision of advice on groundwater and SuDS in relation to development.** Provision of advice on the influence of groundwater on development for residents groups.

**Critical review of drainage proposals for a housing development, Essex.** Critical appraisal of SuDS proposals for a single housing development in the context of groundwater flooding risk.

**Assessment of water source affecting development.** A number of assessments across the UK to identify and remediate groundwater sources impacting development of property. Private and Commercial Clients.

**Expert witness support, Confidential Client.** Preparation of hydrogeological assessment for the nominated expert in relation to a claim against a LA for flooding beneath a flood bund.

**Assessment of the source of seepages to a number of trunk roads, Aone+.** Assessment of the source of seepages at a number of locations on UK highways and advice on mitigation.

**Groundwater flooding susceptibility/risk assessment methodology, Sandwell MBC.** Development of a methodology for Flood Risk and Planning Officers assessing the risk from groundwater flooding across Sandwell Borough.

**Lincolnshire Lakes master planning, Lincs.** Development of a baseline groundwater model and integration of this with surface water assessment for the masterplan of a proposed 20km<sup>2</sup> mixed use development located in floodplain close to sea level in North Lincolnshire.

**Expert witness support, Confidential Client.** Preparation of hydrogeological assessment for a claim related to groundwater flooding considered to be related to installation of new drainage infrastructure from development of a large retail unit.

**Water Cycle Studies, Confidential Clients, Southern UK.** Evaluation of the groundwater impact and opportunities for several sites including two eco towns and two areas of major urban expansion developments.

**EIA water chapter, Ashton Gateway Football Stadium, Bristol.** Baseline hydrogeology assessment and production of the water resources chapter (flood risk, contamination, surface water and groundwater) for the proposed stadium development.

**Habitats Regulation Assessments, Local Authorities.** Specialist water environment input for HRA assessments for Wiltshire County Council and Adur District Council.

**Groundwater assessment - Wadi Hanifah Comprehensive Development Project.** Providing hydrogeological expertise to a project to improve and protect the environmental condition and infrastructure of a major wadi system passing through the city of Riyadh, Saudi Arabia. Production of a water resources management plan as part of a wider study on the development potential.

**Baseline hydrogeological assessment, Danetree Village Consortium, Daventry.** Project director of a baseline hydrogeological assessment analysing potential risk to water resources posed by a 200Ha residential and commercial development.

**Baseline hydrogeological assessment, Northstowe, Cambridgeshire.** Project director of a baseline hydrogeological assessment analysing potential risk to water resources posed by a mixed 600Ha residential and commercial development.

**Hydroecology assessment APUK, Moxley, West Midlands, Muller Properties.** Review of existing and new water chemistry data taken from ponds within a former brick pit and landfill. Assessment of the trophic status and development of drainage and treatment proposals.

**Roman Baths World Heritage Site and the Bath Spa Project, Bath and North East Somerset.** Operational management of the permanent and temporary groundwater logging at Bath Hot Springs. Collection and interpretation of groundwater flow and temperature data in response to legal requirements during excavation works for the Bath Spa project.

**Roman Baths World Heritage Site, Bath and North East Somerset.** Management of design, and implementation of new logging system for Bath Hot Springs.

**Construction dewatering of basements on sub surface excavations, UK.** Production of assessments for clients undertaking dewatering of structures below ground.

**Underground storage tanks (USTs) – emergency planning, Nottingham NHS Treatment Centre, Nottingham.** Production of an operational and emergency response procedure document to enable the operators of the site to understand the risk posed by two 40,000l fuel oil storage USTs located in Zone I of a groundwater source protection zone for supply to the adjacent hospital.

**Flood defence scheme - groundwater flooding, Cardiff.** Production of groundwater flooding assessments for a number of flood defence scheme sites across South Wales using simple analytical modelling to complement engineering design considerations of surface water flooding.

**Road realignment - groundwater flooding, Cardiff.** Production of a groundwater flooding assessment for a road improvement scheme in South Wales using simple analytical modelling to predict the likely inflows through abutments adjacent to a lowered road for a range of groundwater/surface water conditions.

**Major road realignment – EIA, South Wales.** Production of Stage 1 and 2 Environmental Appraisal Report for a major road scheme in South Wales for a number of route options. Protection of surface water and groundwater quality and quantity was the key issue. The assessment used the STAG methodology.

**Groundwater lowering feasibility, Defence Estates, Germany.** Production of a hydrogeological assessment on the feasibility of long term groundwater lowering to alleviate issues of basement flooding in several buildings.

**DMRB and STAG reviewer, Transport Scotland.** Five reviews for Transport Scotland of water environment under DMRB Stage1, 2 and 3 assessments for schemes in Scotland.

### **Mines & Quarries**

**Baseline groundwater conditions and water level rebound prediction. Northern Ireland and Scotland.** Prediction of long term water levels in limestone and sand and gravel quarries.

**Quarry restorations, Devon and Berkshire.** Groundwater risk assessments for inert fill quarry restorations.

**Quarry restoration, Gloucestershire.** Groundwater risk assessment for a quarry restoration in Carboniferous Limestone utilising an exemplar ecological scheme.

**Water resource viability for a new gold mine, Northern Territories, Australia.** Review of bedrock and palaeochannel water resources in Western Australia to establish viability and sustainability of groundwater resource abstraction in arid region. Regulatory approval of study achieved.

**Mine closure planning, Western Australia.** Hydrogeological reporting and recommendations for closure plan reporting at a major iron ore mine in The Pilbara, Western Australia.

**Leachate migration potential from a dump leaching project, Central Asia.** Evaluation of potential pregnant leach solution loss to groundwater for a copper dump leach operation.

**Baseline soil and groundwater conditions for a dump leaching project, Central Asia.** Development of a baseline soil and groundwater condition report using historic data.

**Estimation of mine water abstraction for water supply to a dump leaching project, Central Asia.** Ongoing assessment and reporting of potential behaviour of the abstraction using flow and drawdown data.

**Hydrogeological baseline studies, Senegal and Guinea, West Africa.** Hydrogeological baseline studies for two proposed gold mines in West Africa. Site visits to collect and interpret available data. EIA baseline reporting.

**Groundwater monitoring programme, Guinea, West Africa.** Definition of a hydrogeological monitoring programme to collect baseline water quality and quantity data. Initial field work to install proposed piezometers and abstraction boreholes.

**Hydrogeological baseline studies, Victoria, Australia.** Development of an initial hydrogeological baseline for a proposed iron mine. Site visit, collection and interpretation of available data and advice on future monitoring. Development of a short baseline report.

**Risk to water environment of dewatering at quarry, HMC, Surrey.** The definition of impacts on the local ground and surface water regime during the excavation of sands at a quarry extension using dewatering.

**EIA for a major open cast lignite mine, Ballymoney Power, Ireland.** Analysis of field investigation programme for use in an Environmental Statement in support of the planning application for the scheme. Production of the hydrogeological element of the EIA.

**Limestone quarry, Midlands, Ireland.** Supervision of installation of piezometers, baseline groundwater data collection, pumping test analysis and interpretation.

**EIA for a limestone quarry and cement works, Kaluga, Russia.** EIA reporting for impacts on Hydrology and Hydrogeology resulting from the development of the quarry to IFC and EBRD Standards.

**Land restoration at former open cast pit, Scott Doherty, County Durham.** Use of stochastic methods to assess risk to groundwater and human health from PAH contaminated soils used in a remediation scheme.

**Jackdaw Quarry, WRG, Yorkshire.** Specialist water environment input for EIA for a quarry extension in north Yorkshire located in a Source Protection Zone.

**Hydroecology assessment APUK, Moxley, West Midlands, Muller Properties.** Review of existing and new water chemistry data taken from ponds within a former brick pit and landfill. Development of drainage and treatment proposals to ensure no degradation of water quality when used for surface water runoff balancing.

**Assessment of Acid Rock Discharge (ARD) site, Coal Authority, Ammanford.** Assessment of Acid Rock Discharge (ARD) in an historical coal mining area. Initial assessment with intrusive investigations and monitoring of groundwater installations leading to the production of a capture and treatment scheme.

### **Risk Assessment and Landfill**

**Risk assessment for a proposed redevelopment of a former garage, NRW, South Wales.** P20 risk assessment for a former garage premises.

**Package sewage treatment plant, Private Client, South Wales.** Risk assessment and environmental permit application for a new sewage treatment plant in SPZ1 for the Great Spring, South Wales.

**Controlled waters risk assessments and specialist groundwater contamination support, M25 Widening, Skanska Balfour Beatty.** Production of controlled waters risk assessments associated with geotechnical solutions in sections of road widening where these cross historic landfill on the M25, Surrey.

**Numerous stochastic modelling projects using Landsim and bespoke software, UK wide and Kuwait.** Project management and production of hydrogeological technical assessment of PPC applications for a large number of new and existing Non-Hazardous and Inert landfill sites. The assessments have included stochastic modelling to assess contaminant concentrations in specified receptors at landfill sites.

**Revisions of a landfill PPC application and submission, CES, Cornwall.** Analysis and revision of existing PPC application undertaken by another consultant following receipt of a 'Schedule 4 notice' from the EA. Extensive liaison with the EA and client and quantitative stochastic risk assessment for a contentious site.

**Review of closed landfill sites, Northamptonshire County Council.** Review of the possible environmental impacts of a number of closed landfill sites and the environmental risk posed by these..

**Patteson Court landfill assessment, Biffa, Surrey.** Assessment of the geological and hydrogeological impact on a Major Aquifer (Lower Greensand) for a proposed sub water table landfill site. Field studies, drilling, monitoring and sample collection, development of conceptual model and quantitative risk assessment.

**Docksway Landfill, Newport, South Wales.** Technical specialist support to the Environment Agency regarding permitting of an existing and proposed landfill in a technically challenging environment.

**Proposed sub water table landfill in Karstic limestone, SW UK.** Hydrogeological risk assessment for a soils based landfill in a principal karstic aquifer.

## **Ground Source Heating and Cooling**

**Open Loop GSHC feasibility study, Confidential Client, London.** Assessment of the viability for using an open loop ground source heating and cooling system for a refurbishment at a site in central London including abstraction and reinjection viability.

**Open loop GSHC, Confidential Client, Yorkshire.** Assessment of the viability for using an open loop ground source heating and cooling system for a building refurbishment at a site in Yorkshire. Drilling and installation of two large diameter boreholes, licensing.

**GSHC feasibility, sites in Yorkshire and Devon.** High level assessment to establish feasibility of open and closed loop GSHC schemes for residential and educational developments.

**Permit application and management for a GSHC system, London.** Client support and advice on obtaining a new environmental permit for an existing GSHC system in central London. Advice on derogation of the source due to the impact of a major infrastructure project.

**Failure of abstraction at two GSHC systems, London.** Assessment of reasons for pump failure and management of borehole re-equipping.

## **Water Supply/Bottled Water**

**Borehole prognosis and Water Features Surveys, UK.** Production of abstraction prognosis reports and water feature surveys for a number of clients across the UK.

**Abstraction Licence application for a Previously Exempt Licence, Berkshire.** Assessment to secure ongoing abstraction for a major polo club.

**Private Water Supply, SW Wales.** Assessment of risk to a private water supply from power line installation.

**Windfarm, Southern Scotland.** Assessment of risk to a private water supply and provision of advice on mitigation.

**Large private water supply, Confidential Client, London.** Advice on the possible source of elevated iron and ammonium and management of source for in a large borehole water supply in central London. Ongoing advice on possible impact to the supply from a major infrastructure project.

**Review of the abstraction licencing reform, Private Client.** Review of the impact and opportunities related to abstraction licencing reform with particular emphasis on the bottled water industry.

**Spring Water supply monitoring scheme, Gleneagles Spring Water, Perthshire.** Design and installation of a groundwater monitoring scheme to define the catchment of the natural mineral water source. Groundwater monitoring and provision of a source protection plan.

**New private water supply borehole, livestock market, South Wales.** Advice on the feasibility, installation and testing of a new borehole water supply in Wales.

**Private Water Supply advice and additional private water supply borehole, large country estate, Oxfordshire.** Advice on the feasibility, installation and testing of a new borehole water supply in Oxfordshire. Advice on discharge a Local Authority Private Water Supply Enforcement Notice.

**Major Natural Mineral Water source, Nestle Waters (UK), Derbyshire.** Intrusive investigation and assessment of potential environmental impacts from abstraction for a major new bottled water. Routine water level, flow and quality monitoring for a number of sources (both for process and natural mineral waters) at two other sites.

**Source catchment assessment, Radnor Hills Mineral Water, Wales.** Review of five Natural Mineral Water sources and Groundwater investigation programme to provide advice on source protection policy.

**Due diligence for a proposed bottled water source, Stretton Hills Mineral Water.** Site survey, borehole yield and water quality testing and due diligence reporting for the client on the feasibility of using an existing but currently abandoned borehole supply at a former factory for water bottling.

**Replacement boreholes, Gerber foods Ltd, Bridgewater.** Design, construction supervision and testing of three new boreholes at a major fruit juice producer. Further work included Cryptosporidium risk assessment through modelling of the three replacement sources.

**Water supply and back up options study, C2C.** Project management of a project assessing the supply options and the feasibility and cost of alternative water supply options and back up supplies at 13 MOD sites for C2C under the MOD Project Aquatrine initiative. Review of large volumes of data. Advice on the feasibility of returning two boreholes to potable supply. Feasibility for five further groundwater abstractions.

**Replacement borehole drilling, testing and proposals for acidisation, Dairy Crest, Somerset.** Supervision of the drilling and installation of a replacement borehole for a dairy in the Inferior Oolite. Acidisation plan to increase the yield in a sensitive location downgradient of a public water supply.

## **Industry**

**Bath CSO project with investigation of potential impact on thermal waters, Wessex Water/Carl Bro.** Hydrogeological site investigation interpretation and reporting on the risk to The Bath Hot Springs from this £28M capital project which involved the construction of a number of deep storage shafts and transfer tunnels.

**Dewatering - Channel Tunnel Rail Link (CTRL) tender, Buro Happold.** Numerical groundwater flow modelling to assess the likely abstractions required to maintain dewatering during construction of the cut and cover sections of the CTRL to the north (Essex) and south (Kent) where this passes below the River Thames.

## **Regulation**

**Impact of Groundwater Abstractions on River Flows (IGARF R&D project), EA.** Development of a methodology to enable EA licensing staff to assess the potential impact of groundwater abstractions on river flows.

**Source Protection Zone (SPZ) modelling, Environment Agency, Midlands.** Groundwater modelling to define Source Protection Zones around a number of public water supplies in the Midlands and North West of England using numerical modelling.

**Environment Agency secondment, Environment Agency Wales.** Technical Specialist support for a wide range of projects, predominantly contaminated land and water resources received through both planning and voluntary submission routes. Liaison with Local Authority planning officers and developers advising on controlled water risks of new developments, Part IIA sites and landfill PPC application technical review. Assessment of groundwater abstractions and their potential impact on river flows as part of the Habitats Directive assessment requirements.

**Closed landfill, Environment Agency Landfill PPC Group.** Senior input to a project evaluating and ranking all of the closed landfill sites in England and Wales using a spreadsheet based model developed specifically for this process.

**Technical review, Environment Agency, Midlands.** The technical review of a number of Tranche 2 Landfill PPC applications for the Environment Agency's Strategic Permitting Group. Advice to permitting officers as to requirements for applications to make them compliant.

**Environment Agency secondment, Environment Agency, Midlands.** The screening and technical analysis of 700 Groundwater Regulations applications in the Upper Severn Catchment area. Development of a methodology to allow future review of the applications.