

John Leamy - Drinking Water Compliance

In pursuit of scientific truth, that's what drives me



John Leamy's love for science began at a very young age. In secondary school he was inspired by two Science teachers, Mary Lenihan - wife of the famous *Seanchaí* Eddie Lenihan, who taught John Physics and Chemistry, and Sister John Bosco Griffin who provided the impetus for John to pursue a journey of scientific discovery in the areas of Biology and Biochemistry, and he has never looked back.

Originally from the beautiful county of Clare, John put roots down in Kilcormac, Co Offaly with his wife Sharon and three children Fiadhna (12), Rían (10) and Síomha (8) with Leinster now being his home. Science is not John's only passion. He has played the bagpipes competitively in both solo and in pipe band competitions and is an avid Clare hurling supporter and hopes one day that Limerick's crown is toppled by the Banner County.

John graduated in 1999 from NUI Galway with an honours degree in Biochemistry, and in 2000 he received a Masters' Degree in Biotechnology. He has had varied career to date across a wide range of industries and organisations, however all positions have been rooted in scientific, technical, and engineering disciplines. His first position was as a research assistant in the National Diagnostics Centre, NUI Galway, working in DNA Diagnostics. One of the technologies he used extensively in that role was Polymerase Chain Reaction or PCR, a phrase that has now become ingrained in the national psyche during pandemic times.

"Back then if you weren't working in that area, you might never have ever heard of PCR. However, the Covid 19 pandemic has introduced it as a familiar term to many in Ireland if not the world. I smile wryly to myself when I hear my elderly relatives talk about the PCR test and how it is much more accurate than a rapid antigen test."

“I remember vainly attempting to explain PCR to those same relatives when I started out my career and would have seen their eyes glaze over!! “

John’s mantra is that “Science in its purist form is the pursuit of truth”, and it is what continually drives him. With a myriad of scientific experience John worked as a Biochemist in the R&D Department at Olympus Diagnostica and was responsible for developing new formulations of diagnostic reagents used in clinical biochemistry labs. He admits that he was very fortunate to have had an excellent mentor from Germany, from whom he was encouraged as he embraced the role of Senior Biochemist in the R&D lab.

“He gave me a very firm grounding in scientific principles of logic, testing of hypotheses, troubleshooting, and problem solving”

Later in his career John joined the Water Services section of Offaly County Council. The role had a county wide scope, and he was fortunate to have a line manager that saw his potential and allowed him to run his own projects. While there, John worked extensively in process optimisation across both drinking water and wastewater and was eventually promoted to Energy Officer for the county.

In 2013 John joined the Irish Water family as Energy and Chemicals Contracts Lead where he was responsible for delivering Irish Water’s first ever Chemicals Framework. In 2014 he started as a permanent employee of Irish Water and has worked in drinking water compliance ever since.

“Never in a million years would I have predicted a career in a water utility when looking at the Biochemistry chapter in my Leaving Cert Biology book.”

Science is used constantly in John’s role at Irish Water, and he lives and breathes compliance to ensure that the water that gets to Irish household taps is clean and potable.

“One of the essential requirements we must undertake is to test drinking water across the country for a range of parameters including bacteria, protozoa, chemicals, and metals. The people who do this are trained scientists who must adhere to specific sampling and testing standards.

“If the science is wrong the result is wrong, which can have significant implications in terms of protecting public health. The compliance team must have expert knowledge of the chemical and physical processes involved in water treatment, as we must explain any issues arising to the Regulator and what Irish Water are doing about it.”

Every year Irish Water conducts approximately 180,000 tests from 9,000 samples across 730 supplies. This generates a lot of data, which must be analysed, processed, and reported. This data provides valuable information to the business in terms of how assets are performing (e.g., are trends getting better or worse). This huge task is then subsequently coordinated in the form of an annual sampling plan – which is rolled out to our local authority partners to implement.

Science Week further underscores how science is used in our everyday lives to ensure a healthy Ireland. Drinking Water compliance is an incredibly important piece of the jigsaw.

“It ensures Irish Water complies with the law – which in terms of drinking water quality is the Drinking Water Regulations. Irish Water is regulated by the Environmental Protection Agency (EPA), and it is their job to supervise Irish Water and assess how we comply with these Regulations.”

When Irish Water was established this consultation process took place mostly between the Local Authorities and the HSE. John worked with the HSE and LA representatives to develop a consistent national process called the Initial Notification Record (INR). This has brought national consistency in terms of how parametric failures (i.e., lab results that fail) and incidents are notified by the LAs to Irish Water, and thereafter standardises how consultation takes place with the HSE. The work is constantly evolving, and solution driven.

“We have also developed an integrated software solution in conjunction with the EPA which allows us to directly notify parametric failures, incidents, boil water notices, and Do Not Consume notices to the EPA. The system also allows the EPA to raise and track enforcement actions with us. This system is called the Environmental Information Management System (EIMS).”

For John science and water are inextricably linked and the work is never stagnant.

“In most manufacturing facilities where you manufacture a batch of product, you can take some of it aside, perform quality control checks and use the results from those checks to either release the product for sale or hold it back.

“You can’t really do that with drinking water. It is a continuous batch process. Therefore, we use water quality indicators to provide the statistical assurance that the water reaching people’s taps is safe to drink.”

Bringing safe drinking water to Irish households is a mission for John Leamy and Irish Water.