

Shannon Protection Alliance

Report of Meeting with the Nevitt Lusk Action Group

Tuesday 29 May 2007

Present:

Nevitt Lusk Action Group: Gemma Larkin
Paddy Boyle, BE
Declan White

Shannon Protection Alliance: PJ Walsh
Martin McEnroe
Noel Sharkey
Jack O'Sullivan

Paddy Boyle, on behalf of the Nevitt Lusk Action Group, welcomed members of SPA to the meeting.

1. Groundwater as a Source of Potable Water in Ireland

Paddy Boyle outlined the groundwater situation, pointing out that between 10 and 20 % of rainfall goes into groundwater, and he referred to the very small amount of groundwater used in Ireland as a source of drinking water supply. For example, in Denmark 99 % of the public water supply comes from groundwater, in Italy 92 %, in Switzerland 83 %, in Germany 72 %. By contrast, in Ireland less than 5 % of our public water supply comes from groundwater resources and we are totally dependant on surface waters. Furthermore, the quality of our surface waters has deteriorated considerably in recent years, as shown by the EPA Report entitled "*Key Indicators of the Aquatic Environment; Water Quality in Ireland, 2005*". He pointed out that this Report shows high faecal coliform counts in many surface waters and also aquifers, particularly in the western counties. A copy of Figure 9b from the EPA report is appended.

2. Groundwater Potential in the Nevitt and Tooman areas, and the Attitude of Fingal County Council

Maps in that EPA Report show a very poor yielding aquifer in most of County Dublin except for a narrow strip trending east-west (in bedrock known as the Lucan formation). This is described as a productive fissured bedrock aquifer, and extends south-westwards into Counties Meath and Kildare. The North County Dublin and Fingal portion of this aquifer is a small percentage of the total, but has either zero or very low coliform counts and the water is therefore quite clean. As will be seen from Figure 9b, there are very few areas of productive fissured bedrock aquifer in Ireland, the only other principal area being in the south-east across Counties Wexford and Waterford.

The aquifer is contained in dolomitised limestone, which is high in calcium and magnesium, and the principal groundwater movement is from west to east.

In response to a question from Jack O'Sullivan, Paddy Boyle said that County Dublin, and Fingal County in particular, have no aquifer protection plan, and that Fingal County Council does not carry out any monitoring of water quality in private wells in the County.

In connection with their objection against the proposed large-scale landfill in the townlands of Nevitt and Tooman, the Group has mapped all the horticultural boreholes in the area, of which there are several hundred. One of these wells delivers approximately 2 million litres of water per day. Another large well is operated by Tim Bergin who is a large scale potato grower and processor; his business depends totally on groundwater obtained from a borehole located directly south of the proposed dump site, on the aquifer beneath which the landfill would be located, if permitted.

The lands of north County Dublin have always been known for horticulture and vegetable growing, but this industry is now being squeezed out of the Rush and Lusk areas because the excellent fertile soil in this area is being taken over for housing (as result of bad land use planning). The main centre of the industry is now moving inland, i.e., westwards, and the growers are consolidating into larger farms. These farms depend heavily on groundwater supplies, and their owners are very concerned about the proposal for the landfill at Nevitt and Tooman. They feel that, in addition to the very likely contamination of groundwater, the public knowledge that their water supply comes from an aquifer underneath or very close to a large landfill could damage their business. For these growers, for whom the production of clean food is vital, even the perception of this fact by the public could be disastrous to their business.

To provide for domestic, commercial and industrial water supplies, Fingal County requires approximately 80 million litres per day, but only 4 million litres per day (5 % of the total) are abstracted from groundwater at the "Bog of the Ring". If the proposed landfill were to be permitted, this percentage would reduce to zero. The group are extremely concerned that Fingal County Council were engaging in a number of activities designed to undermine the use of groundwater so as to make it more likely that the dump would be granted permission. For example, it is widely believed that the County Council had been turning off the water softeners used to reduce the hardness of the groundwater supplies to domestic users. As result of this action, people are complaining about the hardness of the water, and the County Council believes this will encourage users to believe that the groundwater is not a good source of supply.

Martin McEnroe asked if the farmers (the horticulturalists) would feel threatened if Fingal County Council or Dublin County Council decided to abstract large amounts of water from the aquifer. PJ Walsh asked if the size of the aquifer and its potential for water supply had been properly evaluated. Declan White responded that a more detailed borehole and well survey would be needed, and Gemma Larkin added that the Group had obtained figures from Dunnes Well Drilling, showing that the total amount of groundwater abstracted was 197 million litres per day. She pointed out that this is only the current amount being

abstracted, and does not indicate the maximum theoretical production from the aquifer.

Paddy Boyle referred to another part of the same fissured bedrock aquifer named the "*Bog of the Ring*"; which produces 4 million litres per day of good quality water. The Bog of the Ring groundwater abstraction scheme is operated by Fingal County Council, and it supplies water to Balbriggan.

Work undertaken by Kevin Cullen in opposition to the proposed landfill has shown that the area south of the Bog of the Ring could produce an equally large supply of approximately 4 million litres per day, and therefore some 8 million litres per day could be produced from this small area. At Annsbrook, there is another potential supply of at least 4 million litres per day, and there is a further high yielding area to the east where the bedrock has been heavily faulted and the aquifer is highly productive. A well-field or system of abstraction boreholes located in the area of the proposed landfill at Nevitt-Tooman could yield a further 4 million litres per day.

Paddy Boyle pointed out that RPS on behalf of Fingal County Council had initially stated that there was no aquifer of any importance in the area, but they were forced to retract this information and to supply details of the groundwater abstraction in an Article 14 Information Response to the Environmental Protection Agency as part of waste licence application W 0231-01.

The Nevitt Lusk Action Group has also commissioned from the GSI a study of aquifer potential in the area, and the map produced by the GSI showed 150 square kilometres of moderately productive bedrock aquifer.

In response to a question from Jack O'Sullivan, Paddy Boyle pointed out that there is a further huge aquifer contained in the superficial gravel deposits, some of which are of up to 11 metres thick in places, and even 14 metres thick in a few areas. Fingal County Council was aware of these gravel deposits but kept the data hidden from the Nevitt Lusk Action Group and from the EPA; in fact the Council had denied the existence of gravel beneath the proposed dump site.

Not only were these gravel deposits highly productive from the groundwater point of view but the groundwater was under artesian pressure, i.e. when wells were drilled the water came out under pressure and did not need pumping. This was because of the heavy layer of clay above the aquifer which is therefore regarded as a "confined aquifer". It was intended that the dump, if permitted, would remove some 10 metres of soil above the gravel; this would reduce the effectiveness of the confining layer of clay and would seriously damage the aquifer.

Fingal County Council had ignored all the data showing the presence of this artesian pressure, until they were forced to agree with it after the results were presented to them. The EPA then asked the Council to respond to the arguments made by the Group. Paddy Boyle pointed out that there were many instances of where people had dug into the soil in the area and large amounts of water emerged under pressure. For example, when "Country Crest" tried to dig a metre or two into the ground in order to reduce the height above ground

level of their proposed warehouse, the foundation trenches became filled with groundwater.

Our discussion clearly showed that if the area of the aquifer was considered to be 160 square kilometres and if 8 square kilometres can yield approximately 4 million litres per day, then the potential of the aquifer in that local area around the proposed dump site would be at least 80 million litres per day. In response to a question from PJ Walsh, Paddy Boyle pointed out that there would be no wayleave or land purchases needed to exploit this aquifer, and he quoted from the text book by Michael Price entitled "*Introducing Groundwater*" which states on page 206 that

"In the areas underlain by an aquifer ... wells could be located in or near the areas they serve, avoiding the need for costly pipelines. If demand increases, additional wells can be sunk so that the water supply system can keep pace with the demand. This convenience makes groundwater cheap to develop. The capital costs of boreholes and pumping stations are usually much lower than those of a reservoir or a river intake with the same output. Furthermore, because groundwater needs little treatment other than routine disinfection, the running costs of a groundwater source are usually much less than those of equivalent of surface-water sources, which usually need complex water treatment processes to filter and clarify the water."

Paddy Boyle pointed out that vegetable grower Tim Bergin is producing 2 million litres per day from his well, located 3 km due south of the proposed dump site, and he is currently supplying several other farmers with water. Tim Bergin's well is not even within the recognised area of the aquifer, yet it is extremely productive. Peter Keogh, another vegetable producer on the same rock-fault line, is producing 1.5 million litres per day from his well. The Nevitt-Lusk Group has identified 150 major boreholes, while Fingal County Council on their previous list said there were only 6 private commercial boreholes in the County ! He noted that Meath County Council and Kildare County Council are also planning to use greater quantities of groundwater in public water supplies.

3. Estimated Cost of Supplying 200 million litres per day from Groundwater

During discussion it was agreed that each well sunk in the area of north Fingal could yield an average of 1,000,000 litres per day. This is a high figure, given that any groundwater production of over 400,000 litres per day is considered significant by the EPA, but was considered to be realistic on the basis of the data collected by the Nevitt Lusk Action Group. Therefore, if a network of 200 wells could be constructed, and connected to provide a public water supply, some 200 million litres of water per day could be produced. At an average cost of between € 5,000 and € 10,000 per well, a 200-well field could cost a maximum of € 20 million to implement. If the pipework, basic water treatment plant and other parts of the system were to cost approximately a similar amount, then the entire Fingal County and the Greater Dublin Area could be supplied with 200 million litres per day for some €40 million capital cost, and a

much smaller running costs than that envisaged by Dublin County Council for the proposed abstraction from Lough Ree.

4. Final Comments

Martin McEnroe stated that the approach of the Shannon Protection Alliance is based on the existence of a sustainable alternative water supply which has not been explored, and this water supply from groundwater, if proven, would make the proposed abstraction from Lough Ree unnecessary.

Paddy Boyle responded that Dr Paul Ashley (Mott McDonald and Partners) had stated in a report prepared on behalf of the Group that the aquifer under Tooman and Nevitt townlands would be compromised if the proposed dump went ahead.

Martin McEnroe added that Lough Ree is already slightly polluted, and the water from it is marginally treatable. Therefore a major public water supply from Lough Ree could be at risk.

Paddy Boyle added that the data (in the report by the EPA on Water Quality in Ireland, 2005) on the quality of groundwater appeared to be accurate, and showed significant coliform contamination in some areas; however the surface water data must be inaccurate as it showed much lower coliform counts, i.e., too high a degree of water quality. The most likely reason for this discrepancy is that the data on surface water quality appears to be based on information from local authorities, and was therefore unreliable.

Martin McEnroe pointed out that the consulting firm Kirk McClure and Morton are doing a survey of the Shannon River basin for the Shannon River Basin Authority.

Paddy Boyle pointed out that Fingal County Council had already spent some €19.5 million on the study for the proposed dump, and yet no construction work has been undertaken, and the Council's plans are being vigorously challenged. The Group is thinking seriously about bringing a case to the European Commission against Ireland in relation to this proposal for a large-scale landfill over a major aquifer. He added that the whole food production sector depends locally on clean water and could be compromised if the dump went ahead.

Paddy Boyle pointed out that a school is to be built within some 250 metres of the proposed landfill which, if constructed, would be the largest in Ireland and possibly in Europe. It would be alongside the M1 and therefore any fires from it, resulting in smoke blowing across the motorway, would create a serious traffic hazard.

Jack O'Sullivan added that fires were very frequent in the 1980s and 1990s on a number of landfills which he had examined, including the landfill at Doora near Ennis in County Clare; and he undertook to supply photographs of fires on this landfill to the Group.

Martin McEnroe added that if the fresh water lamprey was found in any of the local rivers, this would increase the arguments against the dump, as this is a protected species.

The meeting was considered by everyone to be an excellent exchange of information and very helpful to both sides. PJ Walsh added that if there was any way in which the Shannon Protection Alliance could assist the Nevitt Lusk Action Group with publicity or advice to achieve a higher public profile for their work, he would be happy to help.

Jack O'Sullivan

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LoughRee-23 Report of Meeting with Nevitt-Lusk Action Group 29-May-07.doc



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Appendix – Figure 9b from EPA Report

WATER QUALITY IN IRELAND 2005

Key Indicators of the Aquatic Environment

Figure 9b Maximum Faecal Coliform Count/100ml during 2003-2005

