

in Newport but on the other hand they will be reducing water quality with the disposal of treated leachate with high levels of coliforms which may also contain viral contaminants?

The lab results for Derrinnumera untreated leachate and for the treated wastewater at Castlebar also showed very high levels for BOD, COD, Suspended Solids, all above the wastewater treatment standards.

- In selecting a treatment system Mayo County Council should base the decision upon treatability studies either in an approved laboratory or pilot scale using the actual leachate from Derrinnumera Landfill. Leachate may not behave like other wastewaters and its compositions vary with age of landfill, thus affecting design and operating criteria (e.g. chemical dosage requirements). The EIS should cover future plans for Derrinnumera Landfill and of the proposed Sludge Hub Centre.
- Detailed contingency plans and back up systems for leachate control and its treatment should be put in place, to rule out the possibility of any seepage or discharge of any untreated leachate to local groundwaters, to local freshwater rivers and/or to the marine environment of Clew Bay.
- The Leachate from Derrinnumera Dump must be rendered as clean as best current technology permits before dispatch from Derrinnumera Landfill to either Westport or Newport. Further cleaning of the leachate by filtration and active chemical treatment must take place at Derrinnumera and the material must be removed from the leachate before dispatch and remain in a closed waste cell at the Derrinnumera site.
- Monitoring of the leachate, identifying all constituents must be carried out on an ongoing basis and must be thorough and transparent, with results being available to the public in particular the Clew Bay Marine Forum, the Clew Bay Oyster Co-operative and the Clew Bay CLAMS Group.

Assignment plan in Westport area...
...to the water EIS and the plan was...

b) EIS - Proposed new Waste Water Treatment Plant (WWTP) and Sewerage Scheme in Newport and combined outfall from Derrinnumera and Newport WWTP.

It should be noted that with the initial scoping documents for the Newport WWTP did not mention the possible disposal of the leachate through the plant's outfall.

Is the provision of the Newport sewerage scheme dependant on providing a discharge point for treated leachate from Derrinnumera Landfill?

Is the proposed combined outfall pipe at Rosmore required to give the dilution factor for the leachate by the wastewater from Newport WWTP ?

Concern has also been expressed that no U.V. treatment equipment is to be installed in the new Newport WWTP. As bacterial and viral contamination in shellfish poses a clear risk to human health the Group request that U.V. equipment be installed in the Newport plant to further reduce final concentrations of faecal coliforms and viruses in the discharge. The Group will request the Department of Communications, Marine & Natural Resources to include the installation of a UV treatment system in Newport WWTP as part of the conditions of the foreshore licence for the outfall pipe.

Will the EIS investigate higher treatment methods for wastewater such as tertiary treatment systems, as Clew Bay is designated as an area for shellfish production?

Will the design of the new WWTP take into account future population growth over the next 20 years or more in the Newport area also taking into account new developments in the town such as the new hotel?

Will the new treatment plant have sufficient volume in the holding tanks to deal with storm overflows?

Will a system or a notification procedure be put in place by Mayo County Council to inform shellfish producers of storm overflows?

The EIS should address the number of storm overflows per year and look at the past 20 years rainfall records.

Is there going to be a separate drainage system for runoffs from road / street for rainwater to reduce storm overflows through the proposed new Newport sewerage scheme ?

The present location for sewage outfall at Newport would be preferable due its distance from shellfish beds.

From the lab results shown by Tobins Consultant Engineers at the consultation meeting 26/6/04 it appears that the levels of faecal and total coliforms in the leachate from Derrinnumera and in the treated wastewater at Castlebar WWTP are very high. The EIS should address the effective treatment of bacterial and viral

contaminants at Derrinumera to ensure that there will be no deterioration in water quality in Newport Bay and Clew Bay given that there will be new wastewater treatment plant in Newport.

- It should be noted that shellfish and seaweeds are "bio-accumulators" and take up and fix contaminants in their tissues for as long as the contaminants are present in the marine environment. There is a high risk that toxic contaminants from the leachate would accumulate in shellfish and seaweed and enter the human food chain and therefore result in them being unfit for human consumption. In addition there is a risk over time that contamination will affect growth and reproduction, and this is unacceptable to producers particularly the Clew Bay Oyster Co-operative.
- The EIS should take into account seasonal factors for flora and fauna, such as larval counts for the different shellfish and fish species including migratory species of fish and birds.
- EIS should include toxicity testing on marine species. Toxicity limits are equivalent to emission limit values for chemical and physical parameters.
- Baseline studies and a full environmental impact assessment of the receiving waters are required to establish current state of the marine environment before any effluent or leachate material is discharged. The EIA should assess and identify the potential risks to the marine environment from the discharge of leachate and that the marine environment will not be put at risk from any additional loadings from the effluent and leachate.
- What procedures will be put in place to monitor the effects of both discharges?

The Group is opposed to the proposal that leachate from Derrinumera would be transported to the new treatment plant in Westport on a temporary basis until such time that the new plant in Newport is up and running and pipeline to it from landfill is complete. The disposal of leachate at Westport was not explored in the initial EIA and the plant was not designed to receive leachate. Further studies are necessary to ensure that the marine environment is not affected and that the S.I. No. 200/1994 is not contravened.

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Clew Bay Marine Forum Ltd.

Knockbreaga, Newport, Co. Mayo

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Mr. Pat Commons,
SEO, Capital Works,
Mayo County Council,
Aras an Chontae,
Castlebar,
Co. Mayo.

14th July 2004

Dear Sir,

Newport Sewerage Scheme and proposed Derrinnumera Sludge Hub Centre & Landfill Leachate outflow to Newport Bay

The members of the Clew Bay Marine Forum (CBMF) wish to thank Mayo County Council for the May 26th consultation regarding the proposals for a sewage treatment plant in Newport and the proposals for an outflow of treated Leachate from the Landfill site and 'Sludge Hub Centre at Derrinnumera. Unfortunately, time constraints made it difficult to discuss the proposals fully, so we have set out our comments and concerns below and we request that all of these be addressed in the EIS's under preparation for these proposals.

We are extremely concerned that the marine industries in Clew Bay will be adversely affected should these proposals go ahead. Whilst the provision of a WWTP in Newport offers some improvement to water quality, the treatment and discharge of leachate from the landfill and the sludge hub centre are separate proposals and threaten to reduce water quality considerably. Contrary to the benefits to be derived from the treatment of sewage currently being discharged in a raw state into the bay, the introduction of landfill and 'sludge hub centre' leachate treatment and discharge offers no benefits to human beings, flora and fauna, or in material assets to Newport's maritime activities. In fact, leachate discharge will reduce water quality in Newport Bay unless full treatment can be provided onsite at Derrinnumera for bacterial, viral, chemical contaminants, endocrine disruptors and if applicable, radiological contamination.

Newport WWTP

CBMF welcomes the proposal for a sewage treatment plant in Newport due to the improvement to the water quality of Clew Bay. However the members would prefer the discharge, including the storm outflow to remain in its current position in Newport and for UV treatment to be installed and used and we will request the Dept of Communications, Marine & Natural

without which expensive depuration is required to market produce. It is not reasonable to expect local people and businesses to pay the price of the commercial discharge of any additional levels of contamination from other areas and effective treatment must be put in place to protect local industry.

Endocrine Disruptors

Sewage wastes contain endocrine disruptors. Studies show that use of the female contraceptive pill is causing sewage wastes to contain high levels of female hormones. These hormones have been shown to have an effect on shellfish and fish reproduction in some cases causing sterility and even sex change. Oysters are particularly susceptible to the effects of these hormones and the reproductive cycles of the native oyster and other species will be put at risk, from the importation of sludge, if endocrine disruptors are unable to be removed prior to discharge.

Newly Emerging Contaminants

Recent studies show that sewage contains levels of PBDE chemical contaminants and levels of PBDE contamination are now being studied and recorded in fish. Whilst these chemicals are not yet on the banned list and are only one example, they are bioaccumulating in the food chain and are believed to possess endocrine disrupting abilities. It is imperative that the treatment facility in Derrynumera is sufficiently adaptive to remove these types of newly emerging contamination prior to discharge in Newport's food production area.

Hospital Wastes

Derrynumera Landfill operated as an unlicensed landfill from the 1970's and no records are available of what went into the dump during that period. Since Derrynumera is the closest landfill to Castlebar hospital, there is a strong possibility that the landfill received hospital wastes prior to the granting of the license. Since certain types of hospital wastes contain and emit radiological contamination, analysis is required to identify radiological contamination and if necessary steps should be taken to prevent access or radiation to the environment via the leachate.

Independent Risk Assessment

An extensive Risk Assessment should be carried out detailing a comprehensive profile of the current and expected chemical and physical characteristics of the leachate by reference to both domestic and internationally published data on leachates, giving detailed information outlining forecasting methods.

The Risk Assessment should describe the likely significant effects, direct and indirect, on the environment of each one of the chemicals identified in the above leachate profile explained by reference to its possible impact on:- All species of flora and fauna referred to in the SAC list for species, their food sources and all of the life stages of those species particularly the larval, juvenile and reproductive stages. The risk assessment should identify which contaminants may escape the treatment process and what their effects will be. If adequate information is not available in the published scientific literature then studies should be carried out including ecotoxicology testing on bivalve development & bioaccumulation to determine the risks that

Resources to include UV treatment as part of the conditions for the foreshore license.

WWTP Discharge Location

Bacterial sampling and analysis currently being carried out in Newport estuary indicates that there is a considerable reduction in e-coli levels by the time the effluent from the local population reaches the native oyster beds closest to the existing discharge and we would expect that the WWTP should safeguard and improve this area's classification. However, discharge at the proposed site in Rosmore is too close to the oyster beds and poses an additional threat to Lough Furnace. It is clear from the Westport WWTP that depth of water / navigation is not an absolute requirement for a WWTP discharge. If depth is required for additional dilution of the landfill / sludge hub centre leachate, then a higher level of treatment than is currently being considered for this discharge is needed.

Chemical and heavy metal contamination

Chemical and heavy metal contamination in the food chain has become a global problem. The discharge into Newport Bays shellfish production area of landfill leachate carrying elevated levels of chemical and heavy metal contamination increases the risk of higher than background levels being present in shellfish and other produce. Dilution or bioaccumulative contaminants with waste water and after discharge may hide the pollution by transferring it to another medium, but it does not reduce the contamination risks to shellfish. Substances with the ability to bioaccumulate, such as heavy metals, PCB's, dioxins, furans, priority substances and other relevant pollutants must be identified and removed prior to discharge.

International Standards

Clew Bays produce is marketed primarily in mainland Europe; it is therefore imperative that the treatment of leachate conforms to the highest European expectations to prevent a reduction in market value and perception. There should be a full review of available treatments with a full assessment of alternatives worldwide with references to international examples of discharges to shellfish waters.

Sludge Hub Centre

The creation of a commercial sludge hub centre at Derrynumera, with sewage wastes imported from all of Mayo and other counties introduces many additional risks. Sewage wastes contain bacterial and viral contaminants. At present, classification is directly related to e-coli and faecal coliform levels in shellfish flesh and for 'A' classification must be lower than 230 e-coli or 300 faecal coliform per 100g. Indicative water levels of e-coli to achieve 'A' classification are less than 1 per 100ml. The proposal to discharge faecal coliform levels of 2000 per 100ml puts Clew Bay North in danger of being declassified to 'C' or worse still, unfit for shellfish production. The method of determining classification may change in the future with more emphasis on viral contamination. Since Newport already has areas that are struggling to conform to 'A' classification, it is essential that bacterial and viral contaminants are eradicated at the treatment works at Derrynumera. Shellfish production relies on pristine water quality;

particular contaminants, which may escape the treatment process, pose to human health.

Planning and Design

The capacity of the leachate treatment facility and lifespan of the landfill is of concern to the members since there are so many variables associated with the proposals. What is the anticipated lifespan of cell linings in the landfill and what long term plan is in place in the event of failure / expiration of the cell linings? It is crucial that there are no discharges of untreated leachate effluent and the planning phase should factor all of the variables into the design capacity to ensure that, population growth, 10 year storm events, additional landfill cells and climate change scenarios are scientifically assessed for a 20+ year life span. There should also be an emergency contingency plan in the event of overload with notification procedures laid out to prevent contaminated produce reaching the consumer. This plan should specify compensation measures agreed with producers and backed by an appropriate insurance bond, in the event of disruption to production, product contamination, market recall and loss of market image.

Monitoring and Review Procedures

The EIS's should address proposals to agree transparent procedures to monitor the discharge effects, the method of disposal of leachate solids and the estimated future flows of leachate. The EIS should include a detailed review of all the alternative technologies available for the disposal of leachate together with a Cost-Benefit analysis of each. The EIS should also state what review procedures are proposed as scientific understanding grows and leachate treatment methods improve?

Treatment

Almost no information was available regarding the level of treatment that the leachate will receive. The EIS should incorporate a comprehensive description of the treatment technology and processes. We also request to be consulted in the decision making process on the effectiveness of primary, tertiary, polishing and additional chemical removal at extracting contaminants from the leachate to agree what is the most suitable treatment for this effluent.

Previous correspondence

As stated in our letter of 12th December 2002, CBMF remain strongly opposed to proposals to treat and discharge leachate in Westport WWTP as a temporary measure until the Derrinmera plant & pipeline is operational. This facility was not built for this type of treatment and we do not believe that this activity would conform to SI No. 200/1994 & the Quality of Shellfish Waters Directive. In that letter we urged the council to carry out an expert and independent assessment of the long-term effects that leachate discharge has had on the Castlebar River over the past 2-3 years, we would like to know if this work has been carried out and if so we request copies of the findings. We also expressed our surprise at the consultant's plans to conform to the wastewater treatment standards only after initial dilution. We do not believe that dilution is in itself a solution and are now even more concerned since it appears that our comments have been

disregarded. The consultants propose to use dilution to disguise the contamination levels of the leachate and that this is the main method of achieving discharge standards. We do not believe that this offers Newport's food production area sufficient protection and that it makes nonsense of the discharge standards. The EIS's should specify true values in the form of the total quantities of contaminants that will be discharged per annum over the anticipated lifespan of the facilities.

Further Comments

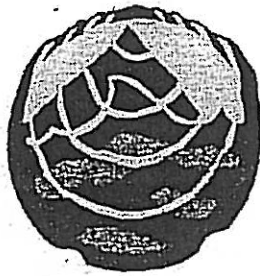
The treatment of the leachate will need to be of a uniquely high standard to achieve the requirements of The Quality of Shellfish Waters Regulations, under which Clew Bay is designated. The members recognise that a reasonable stance regarding this designation should be taken, but we feel that these proposals place too much emphasis on dilution and not enough on treatment and are a threat to our survival. Unfortunately, to date, consultation and follow-up communication have failed to reassure and our concerns have increased. At this point it must be asked how reasonable is it to expect the sensitive food production waters in Newport and Clew Bay to withstand the deterioration in water quality that these proposals will cause?

At the International Conference on Molluscan Shellfish Safety held in Galway last month, no fewer than 27 presentations of papers from all over the world were given on:- the microbiological status of shellfish, shellfish viruses & pathogens and chemical contamination of shellfish. The studies agree that shellfish act as 'sentinel' bioindicators of water quality and many of them are looking at ways of detecting contaminants to prevent them reaching the table. Clew Bay shellfish are able to withstand Newport's relatively low levels of pollution and still produce a top quality product. After absorption of sewage and landfill contamination from all over Connaught, what quality of shellfish will Clew Bay export to European tables?

We would be grateful for the opportunity to discuss these points further at your earliest convenience and look forward to your reply.

Yours sincerely,

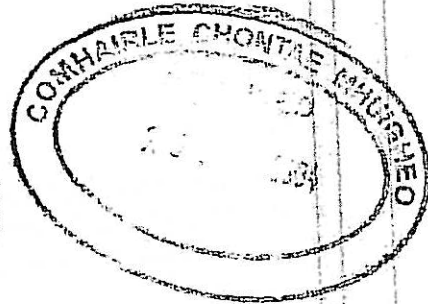
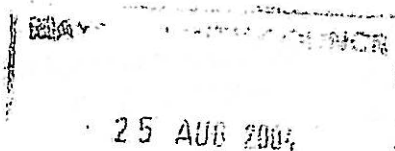
Niall O'Boyle.
CBMF Secretary.



CLEW BAY OYSTER Co-Operative Society Limited

THE QUAY, NEWPORT, COUNTY MAYO, IRELAND. (098) 41402.

Mr. Pat Commons,
SEO, Capital Works,
Mayo County Council,
Aras an Chontae,
Castlebar,
Co. Mayo.



20th July, 2004.

Dear Sir,

Environmental Impact Studies for Derrinumera Leachate Treatment and Sludge Hub Centre and Newport Waste Water Treatment Plant.

The Board of Directors of the Clew Bay Oyster Co-operative would like to thank the Mayo County Council's invitation to the meeting on May 26th, at which the Mayo County Council's proposals for the Newport Waste Water Treatment Plant, the Derrinumera Leachate Treatment Plant, the Derrinumera Sludge Hub Centre and the discharge pipe locations for these projects were discussed.

However, it is this Board's view that any Environmental Impact/Assessment Studies that precede the installation of any of the above projects that are commissioned by the Developer, Mayo County Council, must take into account the following items:

- **A full review of all legislation, both national and European, that has a bearing on the quality of both fresh water and marine ecosystems.** The Developer must demonstrate that the research into this legislation has been exhaustive.
- **The water leaving Derrinumera must be cleaner than the water into which it is to be discharged.** The best available technology must be researched to ensure that any risks through bio-accumulation of toxins discharged into Clew Bay are eliminated by removal of all toxins at their source in Derrinumera.
- **The Waste Water Treatment Plant in Newport must be equipped with UV or ozonation** to reduce the faecal coliform loading in the final effluent entering Clew Bay.
- **Alternative discharge points** need to be considered, and the reasoning behind the inclusion or exclusion of these alternative sites must be clearly and thoroughly demonstrated.



CLEW BAY OYSTER Co-Operative Society Limited

THE QUAY, NEWPORT, COUNTY MAYO, IRELAND. (098) 41402.

- Comparisons must be made with other countries faced with similar problems of effluent discharge into shellfish producing waters, and the best practice for Clew Bay be developed from this comparison.

I look forward to your reply, and an opportunity to discuss these matters further at your earliest convenience.

Yours sincerely,

fp Francis O'Donnell
Secretary.

cc: Board Members,
B.I.M.
Clew Bay Marine Forum,
Marine Institute,
Cllr Frank Chambers, Newport.
Cllr Micheal Holmes, Tiernaur.

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J. Berme Dos
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Ry Nicks D/CM.

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Mayo County Council
Aras an Chontae
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County Mayo

Re **Clew Bay Oyster Co-Operative Limited**

Proposed waste water treatment plant at Newport Bay, County Mayo

Proposed sludge hub centre and leachate treatment plant at Derrinumera Landfill near Newport, County Mayo

Dear Sir,

We act for the Clew Bay Oyster Co-Operative Limited ("CBOC"). We refer to the above mentioned proposed developments and to previous correspondence and submissions by individual members of CBOC to Mayo County Council in relation to concerns regarding the potential impact of those proposed developments on water quality in Clew Bay, and in particular, on Newport Bay. Please note that our client has no objection in principle to the proposed development of the Newport waste water treatment plant, (which technically, is a separate proposed development), save insofar as it may adversely affect water quality in Clew Bay.

We have been advised that Mayo County Council is currently revising an Environmental Impact Statement ("EIS") for the proposed treatment plants at Derrinumera Landfill and may shortly submit the EIS to An Bord Pleanála for approval.

Mayo County Council is hereby put on notice that the relevant receiving waters in Newport Bay meet all of the criteria for designation as "Shellfish Waters" under Council Directive 79/923/EEC on the quality required of shellfish waters ("the Directive"). Newport Bay constitutes coastal and brackish water requiring protection or improvement in order to support shellfish life and growth and thus to contribute to the high quality of shellfish products directly edible by man¹. The European Court of Justice has held in proceedings *Commission v Italy*² that there is

¹ Article 1 of Council Directive 79/923/EEC
² C-225/96