The first training programme for operators successfully completed

The presentation of the first results of the MBR research at Beverwijk suggested that the technology had taken a great step forward and therefore the scale up to demonstration scale could be responsibly initiated. At the same time, specific MBR operator training to a high level was required. Often this aspect is overlooked and the distance between the operators knowledge and the process requirements becomes too great.

An important aspect of the MBR process is that the permeate is produced outside the direct vision of the operator, and as a result the membrane separation process can only be followed via number crunching and trending. Clearly this is a major difference as compared to the traditional treatment concept where the separation of activated sludge and effluent visibly occurs in a sedimentation tank. Other non-standard 'operator training' involves the fact that membranes require 'cleaning' due to the 'fouling' aspects of the process.

The training programme

Four water authorities directly involved with the MBR research (DWR, USHN, WRIJ and ZHEW) selected seven operators to undergo an intensive training in April and May of 2001. In a period of four weeks the MBR theory has been introduced via DHV, and was directly coupled to practical experience at Beverwijk. During this theoretical stage the suppliers and membrane representatives also gave presentations, through which the participants could also get an insight into how membranes were fabricated.

From the basis of practical knowledge and recent designs of MBR installations the operational practical follow up of the training could be commenced after only two weeks. Here, the trainees were subjected to all daily MBR activities, thereby taking over a part of the DHV input, this was followed up with regular evaluation. Under supervision, special case studies were carried out and special circumstances were encountered at first hand such as membrane cleaning procedures. Through this strong interactive character of the training all queries could be affected by the trainees and where necessary the content of the training adjusted to meat the operators needs.

On completion of the training all operators were subjected to an in depth written examination made up of multiple choice and open questions. The exam was directed to a high level and contained many aspects of the known Dutch Wastewater courses such as TAZ, UTAZ, P&N and HTAZ.

In the presents of various members of the STOWA steering committee the training programme was presented via DHV and the operators and an overall evaluation made. The training was seen as being super intensive, but despite this a clear team building had been created and all parties reacted enthusiastically over the achieved results.

Since June 2001, the 'qualified' operators, under the supervision of DHV have run the four pilots at WWTP Beverwijk with the result that an in-depth understanding of the MBR process has been achieved.

Follow up

Due to the increased awareness of the MBR process, more Dutch water authorities have expressed an interest in operator training and training possibilities, as a result a second phase of courses will be commenced in the autumn of 2001 at WWTP Beverwijk. Process operators and wastewater specialists shall take part in the next programme and the process operators that were present in the first phase shall actively participate in the second trainings phase. One of the objectives of DHV is to develop the training to be applicable to all interested parties in 2002.

Through the participation of their own personnel the Dutch water authorities have increased their commitment to the development of the MBR technology. Through this commitment, enormous input and co-operation from all participants the chances of a successful introduction of the MBR technology have increased dramatically. ¶

The trainees and their colleagues, DHV instructors and STOWA. From left to right: Kees de Korte (DWR), Helle van der Roest (DHV), Darren Lawrence (DHV), Tijs Klop (ZHEW), Ron Corstens (DWR), Pascal van der Herberg (DHV), Huib Lammers (WRIJ), Tjeerd Zwart (ZHEW), Jacob Pruijssers (DWR), Paul Roeleveld (STOWA), Jeroen Goverde (USHN), Jac van Someren (WRIJ), Andy Schellen (ZHEW), Fons Geijsen (USHN), Nico van Dillen (DWR), Andre van Bentem (DHV), Leo Koreman (DHV) en Philip Schyns (WRIJ).

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