

**AMP3 UID'S**  
**SO YOU THINK YOU THINK YOU KNOW WHAT**  
**YOU HAVE TO DO AND HOW TO DO IT ?**

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**Introduction**

The story starts in 1997 (the middle of AMP2).

The process of determining what work will be included in AMP3 and how much it will cost got under way.

The EA started the process by producing a list of ID's that they deemed to be unsatisfactory together with the reasons why.

A lot of discussion took place with UU (United Utilities) and eventually a list of UID's and their individual drivers was agreed.

This was then costed by UU and a bid submitted to OFWAT.

OFWAT looked in detail at the bid and told us how much money we could spend.

UU agreed to accept OFWAT's final determination and the serious work started. How can we carry out a programme of work 3.5 times the size of that we did in AMP2 for what seemed like a very small sum of money ?

Throughout this entire process answers to some essential questions remained unclear :-

1. Exactly what is required to achieve the EA sign off of each UID ?
2. What exactly do each of the drivers mean ?
3. Exactly what standards we are required to work to for each driver ?
4. Do we have the required technology to prove we can achieve the required standard ?
5. Can we physically carryout all the work required, within the AMP3 period ?

Looking at each question in turn.

### **1. Exactly what is required to achieve the EA sign off of each UID**

From the EA's point of view the answer would probably be "You have to prove to our satisfaction that the proposed solution will achieve the required standard"

From UU's point of view the answer would probably be "We will build whatever we think will solve the problem and you will sign it off".

In reality the answer will lie somewhere in between.

For UU this took the form of an Approvals Process. This sets out the various activities for each project and at which points we would ask the EA for their agreement to what we were doing. This process would get the EA's buy in at each stage of the project and enable them to sign off the output at the end of the year and be confident that the solution would meet the required standard.

UU's current approvals process with the EA can take up to 16 weeks for each project. During this time the project is on hold while UU and the EA agree details before progressing to the next stage. This is a massive amount of time in what is already a very tight programme.

Because of this UU is currently reviewing the process with a view to continuing the dialogue with the EA while also continuing to work on the project.

### **2. What exactly do each of the drivers mean**

Each UID has one or more of the following drivers A, E, G and W

A – Aesthetic, E – Bathing Water, G – Shellfish Water, W – River Impact

This is one of the areas where some assumptions seem to have been made.

**Aesthetic** means fit a screening device.

**Bathing Water** means reduce the spill frequency of the UID to < 3 spills/BS/overflow averaged over 10 years and fit a screening device

**Shellfish Water** means reduce the spill frequency of the UID to < 3 spills/BS/overflow and fit a screening device. Because 3spill/BS is the same as 10/year.

**River Impact** means resolve the UID using the UPM2 guidelines to either an FIS, 99%ile or a spill frequency standard.

Reality is of course just a little bit different.

Aesthetic actually means anything that definitely is not Bathing Water, Shellfish Water or River Impact. So it could be a colour or odour problem or in the case of Emergency Overflow's the fact that it spills at all.

Bathing Water actually means various things depending what part of the country you are in. In Blackpool it means < 3 spills/Bathing Season/overflow averaged over 10 years and fit a screening device. In other areas the word agglomeration comes in to play.

There is also the outfall issue :-

if the outfall soffit is above MHWS it is a 1 spill/5 year standard

if the outfall soffit is at MLWS it is a 3 spills/5 BS standard

if the outfall soffit is below MLWS it is a 3 spills/BS standard

if the outfall soffit is between MHWS & MLWS it is a standard somewhere between 1 spill / 5 years and 3 spills / BS.

Shellfish Water actually means < 10 spills/year/agglomeration averaged over 10 years and fit a screening device. But what is an agglomeration ?

River Impact actually means design a solution based 99%ile for low and medium significance areas and FIS on high significance areas.

### **3. Exactly what standards we are required to work to for each driver**

We shall assume that the Aesthetic standard is for the screening device and hence gives a variety of choices for different flows. However, UU decided early in the programme

that we would be screening everything up to a 1 in 5 year storm to 6mm in 2 directions (a sound decision). The only problem has been finding different 6mm devices for the full range of flow rates, 1l/s to 11,000l/s, that everyone is happy with. But that's a different story.

**4. Do we have the required technology to prove we can achieve the required standard**

Screening devices – at the start of the programme the answer was NO. Now, well we're getting there. UU has actually built a full scale test rig to ensure that the screens it selects will perform as required

The WaPUG Code of Practice has been published and has gone some way to say what we should be building. However, we all need to remember that this is only guidance document and should not be treated as a simple yes/no decision tree.

Bathing Water modelling – When you are looking at a spill frequency standard the only way to ensure success is to use Continuous Simulation modelling techniques. UU had previously used SIMPOL (a spreadsheet based tool working at hourly timesteps) for this type of work but made an early decision that it would use InfoWorks for all sewer network modelling work in AMP3 as Wallingford Software assured us that it had all the capabilities we needed. However, when we tried to use it in Continuous Simulation mode it failed, but thanks to Wallingford's speedy rewrite it now works properly.

The difficulty we now face is that InfoWorks takes a very long time to run in this mode, 3 days on a 1.9GHz machine for a 2000 node system (not including RTC) and is sometimes giving very different answers to those from SIMPOL.

This poses some interesting questions in terms of how many different options you can look at for solution development. UU approach is to run a small subset of storms for the various options and only run the full 10 year series for the final checks.

Shellfish Water modelling – Again this is Continuous Simulation modelling technique. If the standard of 10 spills/year has to be met then this is a different order of magnitude

from Bathing Water work. This is due to the requirement to run full years which means having to take account of the difference between summer and winter infiltration rates.

This is not something that the data collection, models, software or methodologies were designed for. So how much faith can we put in the results ? It raises some serious questions about what direction flow surveys should be taking in future. To properly assess infiltration you should be looking for at least 12-24 months of continuous flow data not the 6-8 weeks from a short term flow survey.

STORMPAC – although the software has been recently updated there remains the issue that it does not accurately represent rainfall in all areas of the country, in UU’s case the Lake District.

SIMPOL – There remains the issue of time of travel on long river systems and exactly how do we account for it.

#### **5. Can we physically carryout all the work required, within the AMP3 period**

The original proposals for AMP3 made sense to a lot of people, but then Mr Meacher stood and up and stated that what was a 15 year programme of was now a 5 year programme of work.

Why did the industry accept it ?

We are now in the position of having to deliver a massive programme in a very shot timescale and at a very low cost. Raising all sorts of resourcing issues from availability of equipment for flow surveys to modellers, designers and contractors.

### **Fundamental Things**

#### **Sustainability**

One of the key words these days is “sustainability” and more and more of our actions are scrutinised to see if they are sustainable.

UU can look at its area of work (design and construction of solutions) to ensure that it is carried out in a sustainable way who is looking at the standards side of things.

The vast majority, if not all the original drivers to do the work we are doing are to meet new legislation produced by the EU. How much consideration is given to sustainability when the various bits of legislation are drafted ?

Sustainability is something that cannot be achieved by just one of the participants. Everybody and every organisation has a part to play from the EU ministers and their scientific advisors to the UK Government to the EA to UU.

### Regulation

The whole industry is currently driven by 5 year Asset Management plans as a result of the way that OFWAT regulates the industry. It may be a very good way of controlling the price that customers have to pay but it is not a good way of updating major infrastructure systems.

Because of this limit on time and money, the opportunity to develop an infrastructure system with a long term view never exists. These result in us going back to redo the work we did 5 years previously. This results in not just bad PR for the individual companies but the entire industry and ultimately means a bad deal for the customer. Is it not time we all took a serious look at how the entire industry is organised ?

### Conclusions

Having read all this you would be surprised if any outputs would actually be achieved in AMP3. The story so far is quite good in Year 1 UU achieved 44 outputs against a requirement of 42 and yes before you ask a lot of these were the easy ones. But remember apart from few of the complex UPM projects work only started in March 2000. The forecast for the current year is that the required number of outputs will be achieved.

The programme is constantly under review as more information continues to come to light regarding the full extent of the problems and work required to solve them. This has already lead to some outputs being brought forward and some being pushed further back.

However, the challenge to deliver the outputs in future years still remains.

None of us can afford to forget that the UID programme is a team effort involving not just United Utilities, but our Engineering Service Provider Montgomery Watson Harza, the Environment Agency, OFWAT and numerous other organisations and individuals. With the current levels of commitment and dedication shown by all parties I have no doubt that at the on 31<sup>st</sup> March 2005 UU's UID programme will have achieved all its requirements in terms of numbers of outputs, delivery dates and at the desired cost and quality.