(f) <u>User Problems and General Discussion</u>

C Jeffries, Dundee College
> Reminded the group of the problem raised by R Ashley at Glasgow
> involving a looped system where the flow was controlled at
> bifurcations by gates which could be closed across either outlet
> but only reached half pipe level.
> Some success had been achieved using on-line tanks and comparisons
> were shown between modelled and measured flow. An appeal was made
> to the group for possible solutions.

M Osborne
> Expressed surprise at the success of fit considering the low
> intensities of the measured rainfall (max. 2mm/hr) that had been
> used.

A Harden, Travers Morgan and Partners
> Given that a WASSP-SIM analysis has been undertaken how do users
> decide when improvements are warranted.

A Eadon, Severn Trent Water Authority
> Each Water Authority will set its own levels of service which will
> include trigger levels below which the service is unsatisfactory.
> These are calculated from other levels of service. The levels set
> for STWA were set out in a paper presented to WaPUG in November '86.

B Young, Yorkshire Water Authority
> For YWA a trigger level at the low end of the scale is flooding of
> occupied premises not more frequent than once in two years.
> Priorities then depend on the numbers of properties affected and
> the cost. The most cost effective scheme has the highest
> priority. Design is then carried out on HYD for a 1 in 2 year
> storm and checked on SIM for 1 in 25 year and 1 in 50 year storms.

G Catterson, North West Water Authority
> For NWWA flooding of occupied premises is not more frequent than
> once in ten years. However this must be actual flooding which has
> been reported rather than flooding predicted by a SIM model.
> Design is then carried out iteratively using SIM. A matrix of
> solutions must be considered as NWW employs flexible cost effective
> solution.

P Deakin, Northumbrian Water Authority
> Northumbrian Water are in a state of flux and still considering the
> various implications. There is concern as it can't be said that a
> 1 in N year storm produces 1 in N year flooding.

g)   User Problems and General Discussion

    D. Wilkins, Sir Frederick Snow and Partners
        Are there plans to introduce free surface backwater modelling
        into WASSP, and could the limitation of 480 minutes simulation
        time be increased as it makes the micro unsuitable for
        modelling tidal systems.

M. Osborne
At the end of 1987 H.R. hope to release a new programme called WALRUS. It will be based on WASSP but will allow the user to specify pipes in which he or she will want free surface backwater effects to be modelled, although this facility will increase run times. The programme will run interactive and thus there will be no limit on simulation time.

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J. Booth, Havant B.C.
When is it suitable to use the sewered sub-area model.

M. Osborne
Never. It is always better to put in a few pipes of your own than to use this facility.

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D. Williams, WRC
There are problems with modelling pumping stations. Can the routine be improved to make it more flexible as it is too simple at present. It would also be useful to use in conjunction with real time control. Were other users finding the pumping station facility restrictive and over simple.

Secretary's Note: There ensued a general discussion on pumping with the following points being raised:-

1. The rising main is represented approximately as an archmidean screw in WASSP.
2. Pumps can only be operated via switch-on and switch-off levels although in WALRUS the facility will be available for the user to switch pumps on and off during the programme.
3. Variable speed pumps cannot be modelled in WASSP.
4. In Version 7.52 the overflow from the wet well must be specified and surface flooding at the pumping station must not be allowed to occur.
5. More flexibility would be required in the routine if Real Time Control was ever considered.

M. Osborne will be reviewing the Pumping Station routine with regard to WALRUS and noted users comments.

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Dr. D. Wright, Applied Research and Project Management Services
TRRL method would not predict hydrographs to any usable degree. Are users making use of the accuracy that WASSP affords to assess the probability of flooding with regard to analysing economic benefits. In Vol. 1, Chapter 16 there is a discussion of economic benefits are users taking their schemes this far.

D. Wall, Wessex Water
Now use a Cost of Benefit approach based on the Middlesex Polytechnic system.

P. Ambrose, Bournemouth B.C.
Found the Middlesex Polytechnic system extensive and time consuming. The cost of relief could also be transferred across boundaries. It is a good system but should be extended or rationalised.

P. Sunderland, West Dorset D.C.

As agents, the use of the Middlesex Polytechnic system is mandatory. It is time consuming and could become endless, even then it does not give the whole answer.

T. Atkins, Gloucester C.C.

Problem modelling grids systems, how can these be overcome.

M. Osborne

WASSP is only really suitable for modelling tree systems. H.R. are asked to carry out trials on SPIDA, a programme specificially built to analyse looped networks. It is likely to be complex to use and will be much slower than WASSP.

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Mr. Melhuish, Grove Consultants

What are users experiences regarding the design of balancing ponds.

M. Osborne

Seminars are held at H.R. on this topic, the next seminar will be held in October. Generally, L.H. Davis, COPAS, etc., give carrying results; WASSP takes account of more variables and should therefore be more accurate. Winter conditions are usually more critical in storage considerations and there the Flood Studies method should also be applied to check these conditions.

D. Balmforth

WASSP was developed to examine the peak flow conditions rather than maximum volume of runoff. Long duration storms are more critical to storage and therefore these must be considered.

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P. Boyle, Slough B.C.

How should a modeller deal with areas that are actually 100% impermeable.

M. Osborne

They should be entered as 100% impermeable. However, this will affect the PR equation and thus a sensitivity test should be carried out on PR. In this case WASSP will overpredict runoff, the degree of overprediction being dependant on the sensitivity of PR.

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D. Bialas, Havant B.C.

Experiencing problems modelling sewered areas where they are only 10 - 15% impermeable. A match can be obtained on the rising limb and peak, but not on the falling limb.

M. Osborne

The problem becomes more acute around 10% impermeable. Suggest the omission of some pervious areas which cannot contribute to the system although this is against the general rules. It is advisable to use Flood Sudies method as a check.

T. Webster

It would be useful to have further guidance on the problems associated with the variability of pervious and paved areas.

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M. Osborne

How many people have problems with the configuration of one-line off-line tanks in WASSP.

Secretary's note: There ensued a general discussion on off-line tanks with the following points being raised:-

1. It would be desirable to have the facility to route flow from the off-line tank back into the on-line tank or to a designated manhole.

2. WASSP cannot compute from the off-line tank to the downstream pipe from the difference in levels as it would require solving four interdependant levels simultaneously.

3. Users generally modelled on-line to off-line tanks as on-line to on-line tanks.

4. The problems of reverse flow across overflows can only be accommodated in SPIDA, not WASSP.

M. Osborne noted the users comments and will consider the problems further.

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M. Osborne
Outlined long term development plans for the Wallingford procedure in particular above ground flood routes (major/minor systems), the computation of PIMP for individual pipe lengths. It is not yet known whether there is sufficient data available on which to build the model, however these improvements may be introduced in 18 - 24 months time

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The Chairman expressed his tanks to all the speakers and to M. Osborne in particular for exhaustive efforts.