dti

the department for Enterprise

The Rt. Hon. Lord Young of Graffham
Secretary of State for Trade and Industry

The Rt Hon Douglas Hurd CBE MP
Secretary of State for the
Home Department
Home Office
50 Queen Anne's Gate
LONDON
SW1H 9AT

**Department of Trade and Industry**

1-19 Victoria Street
London SW1H 0ET

Switchboard
01-215 7877

*Telex* 8811074/5 DTHQ G
*Fax* 01-222 2629

Direct line 215 5422
Our ref PS2CDJ
Your ref
Date 7 April 1989

Dear Secretary of State,

You will recall that the technical studies which led to our decision to establish a fifth terrestrial UHF television network (Channel 5) also identified, subject to further study, the possibility that there might be scope for a limited sixth UHF network (Channel 6). MISC 128 subsequently decided that the possibility should be pursued further, and we announced in the Broadcasting White Paper (paragraph 5.8) that we had put in hand the necessary further study.

I have concluded that, subject to your view and those of MISC 128 colleagues, I would propose to announce that in the light of the results of our technical studies so far, we have decided not to pursue further work on Channel 6 for the foreseeable future, and that we have agreed that the moratorium on the building of additional relay transmitters should be lifted. I attach a suggested form of words for such an announcement, which might be by way of a written Parliamentary Answer, timed to coincide with your announcement at the end of this month of further decisions on the local service aspects of the White Paper.

I append to this letter a copy of the Executive Summary and Conclusions of the technical feasibility report.

the Enterprise initiative

dti

the department for Enterprise

Broadly, the report concludes that:

- The best prospects of achieving a sixth UHF television network lie in making a more intensive use of the 44 channels currently used to provide the four existing UHF services.

- If off-air reception of the four existing UHF services is to remain intact, Channel 6 would be unable to achieve more than about 17% of UK households and there would, for example, be no coverage of all of the London area.

- But Channel 6 coverage might be extended to as much as 40% of UK households if we could agree that perhaps 20,000 viewers in up to 10 areas (mainly in London and the North West) should lose the ability to receive off-air one of the four existing UHF services. The Channel 6 franchisee could be required to restore the lost service by cable or some other means to those viewers, who would also generally be unable to receive off-air either Channel 5 or Channel 6.

- Other adverse consequences would include the virtual abandonment of the programme to instal some 200 further relay transmitters to bring the four existing UHF services to many of the 350,000 people who are still unable to receive them.

- Additionally, because the broadcasters currently make as much use as they can of the remaining "spare capacity" within the 44 channels to accommodate some of their programme-making requirements, the loss of this capacity to Channel 6 would create a major problem in finding suitable alternative spectrum for the programme-making (including outside broadcast) activities of the broadcasters. Even without this, there is already the greatest difficulty in accommodating the programme-making needs of Sky, BSB and the other new wave of broadcasters.

- Most viewers would need to instal a third UHF aerial to receive Channel 6.

- The results of the study might be better viewed as offering the possibility of a number of separate regional franchises rather than a limited further

national channel, though substantial further work would be needed to take the study forward in this or any other direction.

My own view is that the very considerable costs and penalties attached to Channel 6 on this basis are simply not justified by such a limited result, especially at a time when there is the promise of a considerable proliferation of new television networks - satellite, local cable/MVDS, and Channel 5. I see little point in pursuing the studies further for the foreseeable future.

If we wished to preserve the options on Channel 6 until the picture on other new services has become clearer, the present moratorium on the building of additional relay transmitters would need to be extended for perhaps several more years. The broadcasters' planning and installation teams would inevitably have to be disbanded fairly quickly, and this would in effect spell the end of the relay transmitter building programme. I do not believe that this would be right.

I am sending copies of this letter and its attachments to the Prime Minister, to our MISC 128 colleagues, and to Sir Robin Butler.

**SUGGESTED PARLIAMENTARY ANSWER ANNOUNCING DISCONTINUATION OF FURTHER STUDIES ON CHANNEL 6 AND LIFTING OF MORATORIUM ON ADDITIONAL RELAY TRANSMITTERS**

Paragraph 5.7 of the Government's White Paper "Broadcasting in the '90s: Competition, Choice and Quality" stated:

> "In the longer term, a sixth network at UHF covering up to 50 per cent of the population might be feasible. But this has not yet been studied in detail, and the cost and interference implications could be significant. Further study is also needed of the implications for existing users of the spectrum involved. The Government has put these studies in hand."

After careful consideration of the results of the technical feasibility studies carried out so far, the Government have decided not to pursue the studies further for the foreseeable future.

The studies show that the best prospects of achieving a sixth terrestrial UHF television network (Channel 6) lie in making a more intensive use of the 44 channels currently used to provide the four existing UHF services. However, if off-air reception of the four existing UHF services is to remain intact, Channel 6 would be unable to achieve more than about 17% coverage of UK households and there would, for example, be no coverage at all of the London area. The technical studies have shown that it might be possible to extend Channel 6 coverage to as much as 40% of UK households, but the price would be that perhaps 20,000 viewers in up to 10 areas (mainly in London and the North West) would lose the ability to receive off-air one of the four existing UHF services. The Channel 6 franchisee could of course be required to restore the lost service by cable or some other means to those viewers, who would

also generally be unable to receive off-air either Channel 5 or Channel 6.

There would however be other adverse consequences. These would include the virtual abandonment of the programme to instal some 200 further relay transmitters to bring the four existing UHF services to many of the 350,000 people who are still unable to receive them. Additionally, because the BBC and the independent television programme companies currently make as much use as they can of the remaining "spare capacity" within the 44 channels to accommodate some of their programme-making requirements, the loss of this capacity to Channel 6 would create a major problem in finding suitable alternative spectrum for the programme-making activities (including outside broadcasts) of the broadcasters, at a time when spectrum for these purposes is at a premium to meet the needs of the new wave of satellite and other broadcasters. A further disadvantage is that most viewers would need to instal a third UHF aerial to receive Channel 6.

Substantial further study would now be needed to take this work further forward. The Government have taken the view on a careful analysis of the studies so far that the very considerable costs and penalties attached to TV6 on this basis are simply not justified by such a limited result, especially at a time when there is the promise of a considerable proliferation of new television networks - satellite, local cable/MVDS, and Channel 5. If we wished to preserve the options on Channel 6 until the picture on other new services has become clearer, the present moratorium on the building of additional relay transmitters, which has now been in force for some eighteen months, would need to be extended for perhaps several more years. This would almost certainly spell the end of the programme to extend progressively the UHF network to cover those who are at present unserved, or inadequately

served, by it. We do not regard this as an acceptable consequence, and we have agreed that the moratorium should now be lifted.

# REPORT OF THE STEERING GROUP ON THE TECHNICAL FEASIBILITY OF A SIXTH TELEVISION NETWORK AT UHF

## EXECUTIVE SUMMARY AND CONCLUSIONS

1. In making public, by means of a written Parliamentary answer on 28 July 1988, the broad conclusions of the study into the technical feasibility of a fifth terrestrial television network at UHF, the Secretary of State for Trade and Industry said:

> "A more intensive use of the 44 current broadcasting channels might, however, play a part in the provision of a sixth UHF network. Although the Group's terms of reference did not include the feasibility of a sixth UHF network, they concluded that such a network covering over 50% of the population should not be ruled out as a possibility in the slightly longer term, though its cost could be significantly greater. Further study would be needed to identify this possibility with greater precision. It would depend on securing access to one or more of channels 36, 38, and 69, all of which are currently used for other purposes and may also be crucial to accommodate users displaced from channels 35 and 37. It is possible that benefits in coverage could be obtained if the fifth and sixth services were planned together using all the available channels, although they could thereafter be implemented over different timescales. Nevertheless this would probably delay the introduction of the fifth service bevond 1992."

In accordance with the subsequent remit from Ministers we have carried out such a study within the constraints of time and resources available to us.

2. Contrary to earlier hopes, we have found that no use can be made of channel 69 to provide coverage for a sixth television network at UHF (TV6), and that the constraints on the use of channels 36 and 38 are so substantial that the resulting minimal coverage would in no way justify the costs, delays, uncertainties and disadvantages that would be involved. However, our study has revealed that some low power use of channel 36 in particular might in future be made, perhaps most usefully to extend slightly the coverage of TV5. Further work would be needed to identify these possibilities with greater precision.

3. Based therefore entirely on what might be achieved through a more intensive use of the 44 channels currently used to provide the four existing UHF television programme services, we have found that the coverage achievable by a sixth UHF television network would be unlikely to exceed some 17% of the population. There would, for example, be no coverage at all of the London area.

4. This finding is based on the assumption that Ministers may be unwilling to countenance any diminution, however small, of the almost universal coverage achieved by the four existing UHF programme services. But if some small diminution in the off-air coverage of one of the existing four services can be accepted, subject to its restoration to viewers by some other means, we have found that it would then become possible to extend the coverage of TV6 from around 17% to perhaps as much as 40% of the population, including much of London (the coverage map at Annex A gives further detail). It should prove possible to introduce such a service within the same timescale as that envisaged for TV5 (1 January 1993). This finding is however subject to a number of uncertainties, and its implementation would carry with it several important penalties beyond the diminution in off-air coverage of an existing service referred to above.

5. The extent of this diminution is that a number of pockets of viewers - perhaps 10 such areas at most, spread throughout the country, and amounting in total to some 20,000 viewers - served at present by relay stations would lose the ability to receive off-air one of the existing four programme services - and it would no doubt fall to Ministers to decide which one. Further details are shown in the table at Annex B. The people so disadvantaged would also be unable to receive either TV5 or TV6 broadcasts. We have assumed that acceptance of this diminution - if indeed it can be accepted at all - would be wholly dependent on a requirement that the TV6 franchisee should restore, by an alternative delivery mechanism, the missing service to all those who had been deprived of the ability to receive it off-air. We have accordingly had a very brief and preliminary look at the practicalities of using cable for this purpose. Unsurprisingly, these appear to vary substantially depending on whether the homes of the viewers concerned are already passed by a broadband cable network, or whether a purpose-built system would need to be provided at an average initial capital cost of perhaps £0.8 million.

6. It should also be noted that TV6 will almost invariably be available only in areas also covered by TV5 transmitters (though because the coverage of TV6 will be substantially less, many TV5 viewers will be unable to receive it). Thus TV6 will be of no recompense to the minority of viewers unable to receive TV5. Indeed, its existence may cause them to feel doubly deprived. Further, because there will generally be no spare channels with which to provide in-fill relay stations, even within the nominal coverage area of a TV6 transmitter actual coverage is likely to prove somewhat more patchy than the near-universal coverage achieved by the four existing programme services.

7. The uncertainties referred to in paragraph 4 above include the need for international clearance of the frequency channels we envisage for use at the specific sites, powers and emission characteristics on which our planning has been based. Modifications which we might need to make to secure international agreement could reduce coverage still further, and prolonged negotiation could jeopardise the start date for the new service. But because the

frequency channels used in the plan are all from within the 44 channels already used for UHF television, problems of obtaining the necessary international clearance may be less than if we had been able to make use of channels 36, 38 and/or 69 as originally hoped.

8. A second uncertainty relates to ability of the existing transmitter masts to accommodate the additional aerials that would be needed to transmit TV6. If in some instances new masts were required, or existing structures had to be strengthened, or the new aerials could only be accommodated at lower apertures on existing masts, there could be delay to the introduction of TV6, and coverage might be less than we have projected.

9. The penalties or disadvantages of attempting to squeeze provision for TV6 from the present 44 broadcasting channels include major consequences for the ongoing programme of the broadcasters to install around 25 new relay stations each year for the foreseeable future to bring the present services to established or new communities not covered, or inadequately covered by the existing transmitter network. The current coverage of 99.4% is rightly regarded as an impressive achievement, but the remaining 0.6% nevertheless represents some 350,000 people. The broadcasters have already identified some 200 communities, each typically of between 200 and 1,000 people, for inclusion in their forward programme of building relay transmitters. Over much of the UK further progress towards completion of the transmitter network would be much curtailed or halted altogether.

10. However, the most intractable problem would be the repercussions on the spectrum available for programme-making. It is the production of programming that represents, by orders of magnitude, the highest value element in broadcasting. Programme makers rely fundamentally on access to the spectrum for a wide variety of specialist uses - often referred to as services ancillary to broadcasting, or outside broadcast links - such as the links needed to convey an outside broadcast (eg sporting events and State occasions) back to the studio, the links needed for electronic news gathering, links with mobile units (eg cameras in helicopters), talkback links between a director and all camera and other units under his control, links for cue and camera control, and various types of radiomicrophones. The Merrriman Committee in their 1983 review of the spectrum between 30 and 960 MHz drew particular attention to the need to make reasonable provision of spectrum for these purposes, especially for the emerging independent sector. Despite a subsequent major review by consultants of the spectrum needs of the the broadcasting organisations and the independent sector for programme-making purposes, finding sufficient spectrum for these purposes has remained an intractable problem. In particular we have singularly failed to meet even the most modest aspirations of the now burgeoning independent programme-making sector, to whom in other respects it has been government policy to give every encouragement.

11. We would doubtless have been in almost equal difficulty with the BBC and the ITV programme companies had we not adopted the

policy - advocated by Merriman - of encouraging them to make the maximum possible use of the 44 channels to accommodate their needs for spectrum for programme-making purposes. This ability will become even more important with the reallocation of channel 35 for the provision of TV5, and with the expected proliferation of new broadcasting services over the next few years, all requiring programme-making facilities. The implementation of the TV6 transmitter network would very seriously inhibit the use that could be made of these "in band" channels for services ancillary to broadcasting over large areas of the country (including inevitably those where demand for such services is greatest), and we see no prospect of finding sufficient suitable alternative spectrum in which to accommodate them, other than by withdrawing spectrum from another group or groups of users such as private mobile radio or the Ministry of Defence. Ministers may recall the outcry from the mobile radio lobby last year during our study to establish whether a limited reintroduction of television into VHF bands I and III was feasible. We see this problem as representing the largest single factor militating against the introduction of TV6.

12. The study on TV5, in identifying the need for videorecorders and some home computers to be retuned from channel 36 if the adjacent channels 35 and 37 are used to transmit TV5, referred to the growing problem of finding spare channels within the tuning range of most VCRs and home computers on which to communicate with television receivers. New services such as BSB's and Astra's satellite broadcasts will also need such channels for viewers' reception equipment to communicate with their television receivers (except for the minority equipped with peritelevision sockets). A more intensive use of the 44 channels to provide TV6 could only serve to exacerbate that problem.

13. Despite these disadvantages, use of the 44 channels to provide TV6 also has some inherent advantages. Because the channels are already used for broadcasting, there are no existing non-broadcasting users to be displaced, rehoused and possibly compensated (though the cost of changing the frequencies or of adding precision frequency control at some relay stations will have to be met, together with the cost referred to above of restoring service to small communities who lose one channel from their relay station). Thus both the cost of, and the potential for delay to, the introduction of the new service are minimised.

14. Most viewers served by TV6 transmitters will find that neither the aerial with which they receive the four existing programmes, nor the additional aerial needed for TV5 reception, will provide satisfactory reception of TV6. But the cost of a third aerial (at perhaps around £50, including installation) will represent only a fraction of the cost that viewers will need to incur to equip themselves to receive, for example, the satellite-delivered programmes of Astra and BSB (though of course for their money viewers will have the potential to receive 10 - 12 English language programme channels from Astra, and 5 from the UK DBS satellite).

15. We have found it difficult, with a coverage unlikely to exceed

40%, to envisage TV6 configured as a national or quasi-national channel. We feel instead that the results of our study might be better viewed as offering the opportunity for a number of separate regional franchises covering major parts of certain conurbations such as London, Birmingham, Manchester, Glasgow/Edinburgh, and Newcastle.

CONCLUSIONS

16. This initial study has demonstrated that, if Ministers consider the price worth paying, there is in technical terms potential for a sixth TV network at UHF covering up to perhaps 40% of the population, including major parts of the main conurbations. But the price would be heavy, and would include:

- Acceptance that up to about 20,000 viewers in perhaps 10 areas spread throughout the country (including 5,000 viewers in two areas of London) would lose the ability to receive off-air one of the four existing programme services - and would be unable to receive either TV5 or TV6. The TV6 franchisee could be required to restore the lost service by some other means, such as cable, at an average initial capital cost for a currently uncabled area of perhaps £0.8 million. Without acceptance of this proviso, the coverage achievable would fall to around 17% of the population, and there would be no coverage at all of the London area.

- Acceptance that the resulting loss of spectrum for programme-making purposes by the broadcasting organisations could only be made good by withdrawing significant amounts of spectrum from some other group or groups of users (for example private mobile radio services or the Ministry of Defence). The alternative, and this is a problem we already face with the independent sector, is that producers will find it increasingly difficult to make programmes in the United Kingdom.

- Acceptance that the programme of the BBC and IBA to build in excess of 200 further low power relay transmitters to bring programmes to unserved pockets of population, each typically between 200 and 1,000 people (a total of around 350,000 people remain unserved), would have to be virtually abandoned.

- Acceptance that coverage of TV6, even within the nominal coverage areas of transmitters, would be patchy; and that there would be little scope to serve alternative areas to those shown on the attached map, or to achieve any significant increase in the overall coverage.

- A very substantial further planning exercise, supported by field work, would need to be undertaken to draw up a detailed plan for the new network, to specify the technical changes that would need to be introduced, and to seek to find a replacement channel wherever possible for relay transmitters from which an existing channel had been reallocated to TV6.

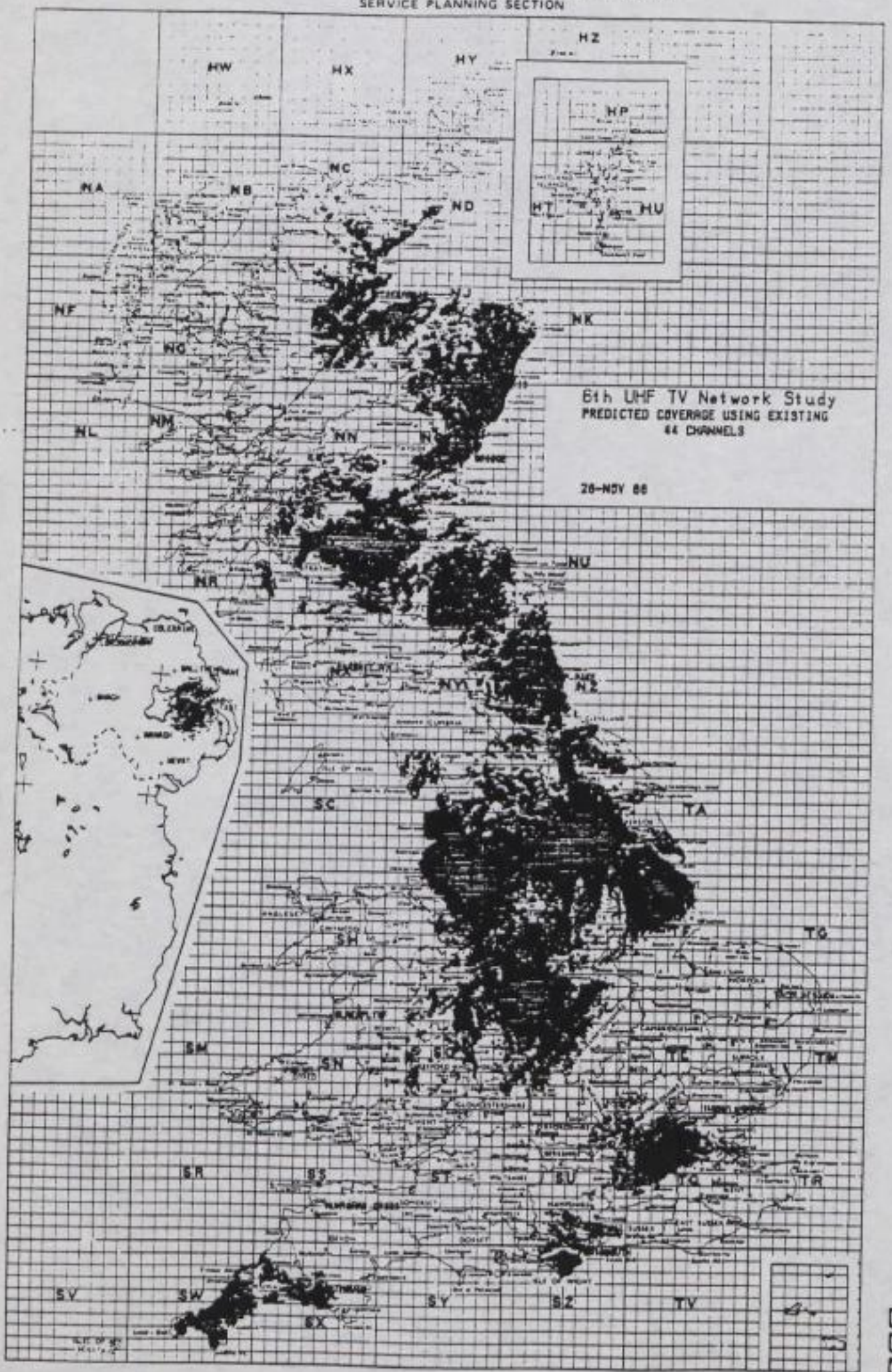
- Further study would also be needed of the practicalities of serving viewers who lose the ability to receive off-air one of the four existing programme services by some other means.

- Most viewers would need to equip themselves with a third UHF aerial (ie in addition to the aerial on which they receive the four existing programme services, and the second aerial which they will need for TV5).

- There are some uncertainties stemming from the need to secure international clearance of the proposed plan, and concerning the abilities of existing masts to accommodate the TV6 transmitting aerials. Difficulties on either of these could lead to reductions in the projected coverage, to substantial additional costs, to delay to the timescale for implementation of TV6, or to all three.

ANNEX A

ISSUED BY BBC RESEARCH DEPARTMENT TADWORTH SURREY
SERVICE PLANNING SECTION






BBC

ANNEX B

## RELAY TRANSMITTERS WHICH WOULD LOSE ONE PROGRAMME SERVICE UNDER TV6 40% COVERAGE PLAN

| RELAY TRANSMITTER | POPULATION COVERAGE | MAIN TRANSMITTER AREA |
|---|---|---|
| Chingford | 3,500 | Crystal Palace |
| New Barnet | 1,500 | Crystal Palace |
| Ramsbottom | 7,400 | Winter Hill |
| Middleton | 1,400 | Winter Hill |
| Over Biddulph | 450 | Winter Hill |
| Harborne | 1,800 | Sutton Coldfield |

NB It is probable that further study would identify additional relay transmitters at which, in order to avoid interference from a new TV6 transmitter, one existing programme service would have to be discontinued. It is also possible that further study might identify an alternative frequency for one or more of the relay transmitters listed above.

ANNEX C

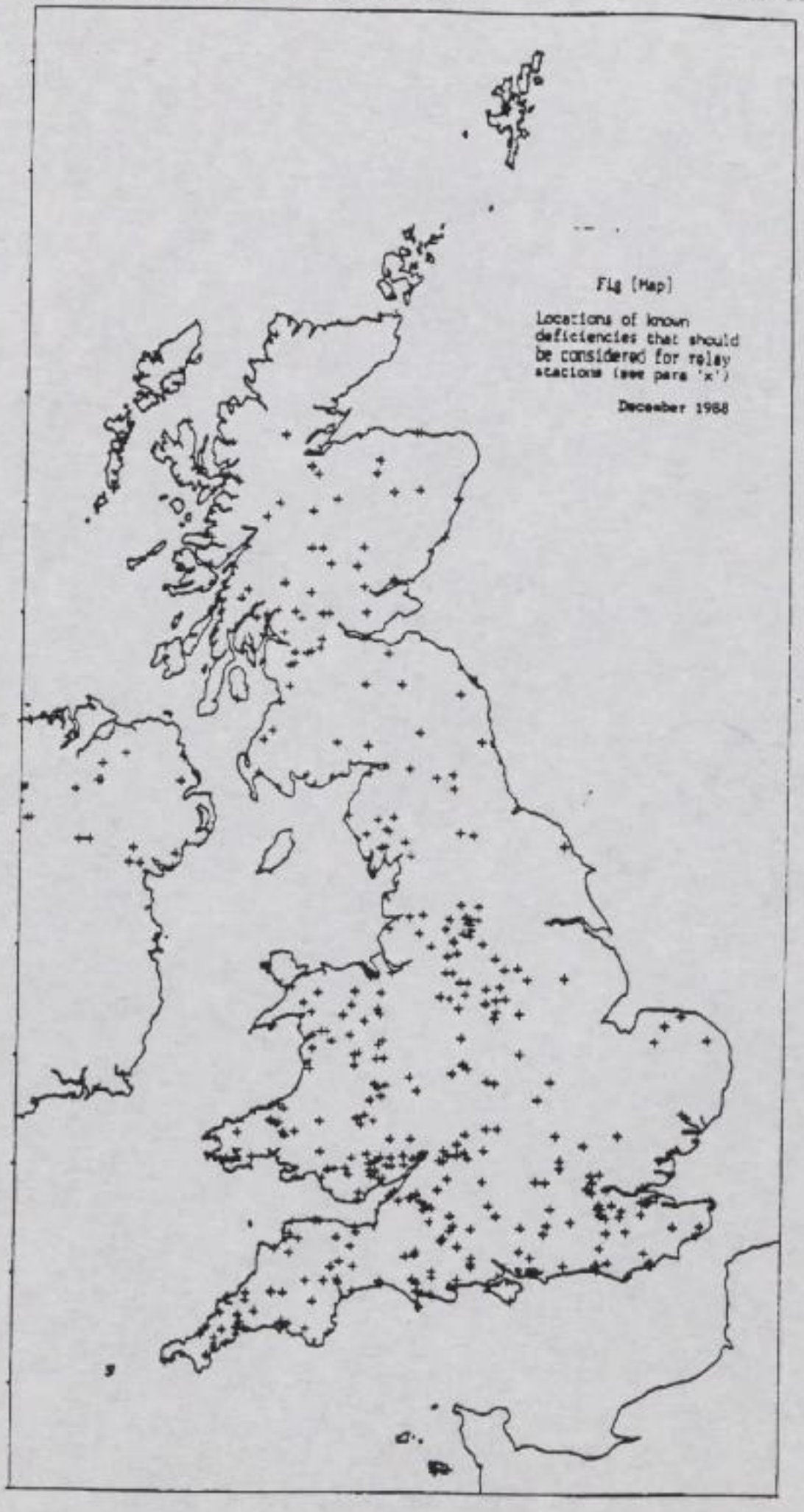


Fig (Map)

Locations of known deficiencies that should be considered for relay actions (see para 'x')

December 1988