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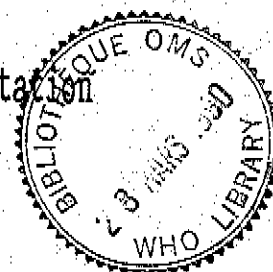
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REVISION OF THE WHO GUIDELINES
FOR DRINKING-WATER QUALITY

Report on a WHO Consultation



Copenhagen
4-5 September 1989

1990

EUR/HFA target20

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TARGET 20

Water pollution

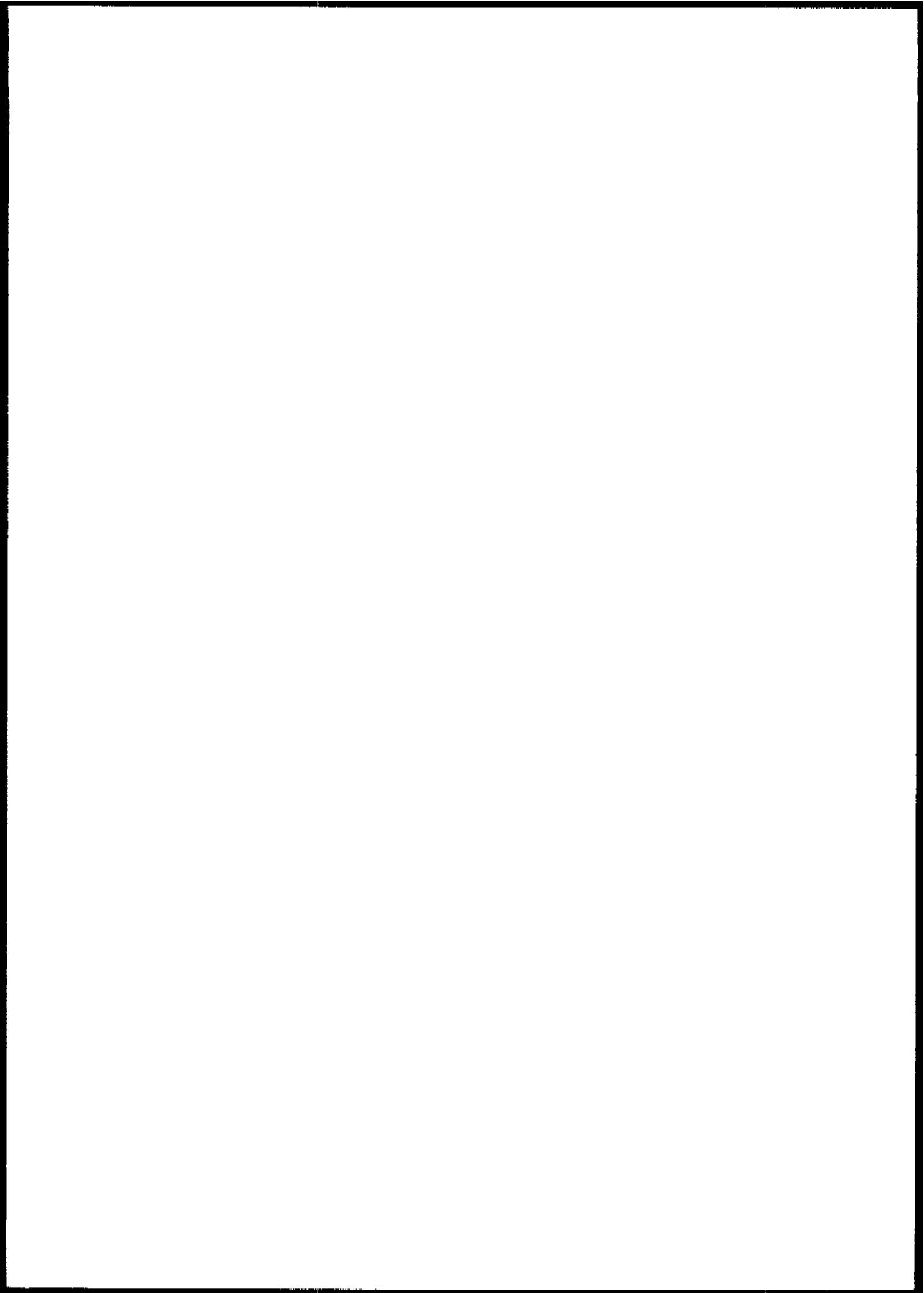
By 1990, all people of the Region should have adequate supplies of safe drinking-water, and by the year 1995 pollution of rivers, lakes and seas should no longer pose a threat to human health.

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DRINKING WATER
WATER QUALITY
EVALUATION STUDIES

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1. Introduction

The process of revision of the Guidelines was initiated through a consultation in Rome, Italy, from 17 to 19 October 1988. The report of that consultation is contained in document WHO/PEP/89.4 and provides not only the basis for the Guidelines revision but also a mechanism of cooperation among participating institutions and a workplan including a timetable of review meetings. The Rome consultation concentrated on the chemical aspects of drinking-water quality while the microbiological and biological aspects were the subject of a subsequent consultation in London, United Kingdom, on 28 June 1989, which is summarized in document WHO/PEP/89.21.

In light of the complexity of issues involved and the large number of national institutions participating in the exercise, it was considered necessary to bring together some of the national coordinators responsible for the preparation of draft evaluations and the related review mechanism.

Therefore, a consultation was organized in Copenhagen from 4 to 5 September 1989 having as primary purpose to analyse the mechanism for coordinating and implementing the reviews of organic chemicals for the WHO Drinking-Water Quality Guidelines.

The consultation was opened by Dr S. Tarkowski, Director, Environment and Health, WHO/EURO, who welcomed the participants on behalf of WHO/EURO and explained the background and purpose of the consultation. This was followed by a status report on the revision of the guidelines, given by Dr R. Helmer of WHO/HQ. There were 8 participants from 5 countries attending the consultation with a complete list of participants provided in Annex 5.

Specific objectives of the consultation were:

- (1) to analyze the workload in relation to the number of organic substances under review and expected time for completion.
- (2) to review the list of participating institutions and contributors and to identify changes as needed.
- (3) To identify additional issues which may need to be addressed during the revision.
- (4) to review the workplan and timetable for the revision process and to further discuss review procedures.
- (5) to define coordination mechanisms.

The discussions of the group were coordinated by the WHO secretariat and the responsibilities of rapporteur were jointly assumed by Mr J. Fawell and Dr G. Burin. A draft report summarizing the decisions and commitments made during the Consultation was prepared and circulated to all participants for comments prior to its finalization and distribution.

2. Preparation of draft evaluation documents

The group reviewed the list of substances agreed upon at the Rome consultation (see Annex III of document WHO/PEP/89.4). Some minor modifications were required, e.g. further specificity in the scope of a review and there were also a small number of changes in the lead and supporting countries. A revised list is given in Annex 3 (changes indicated).

Practical issues of draft evaluation documents preparation were also discussed. In order to facilitate the task of the coordinators (see item (d) below) it is of paramount importance that these documents be submitted in hard copy and machine readable format. The reception facilities at the different coordinators' offices are specified in Annex 4. In Annex 4.1 the WRC instructions (inorganics) are given and in Annex 4.2 those for WHO/EURO (organics).

The mechanism for the preparation and review of the draft evaluations on individual substances was also discussed. In particular, the roles of the lead countries, support countries, review institutions and coordinators were determined to be as follows:

(a) Lead country

The lead country should prepare critical reviews of the data, preferably not exceeding 10 pages in length, and including a detailed critical evaluation of key studies. If an existing review is not available, a more comprehensive document should be prepared. A summary of available national and international reviews is included in Annex 1. The lead country should contact support countries to obtain any appropriate data or reviews. Assistance from IPCS (working with the International Registry of Potentially Toxic Chemicals) is available in making detailed literature searches. Original study reports should be used where available unless substantive reviews by internationally recognized bodies exist. Key reports or studies must be made available for consultation at the expert group meeting. In cooperation with the coordinator, draft evaluations will be sent to support countries and other review centres for review and comment. Comments will be integrated into the draft document.

The group emphasized the necessity of following the review format agreed in the Rome consultation. Review documents should include appropriate sub-headings, e.g. pharmacokinetics, human health effects, health effects in animals (see Annex IV of document WHO/PEP/89.4).

Arrangements for the use of confidential pesticide data are being coordinated with GIFAP. Lead countries will be required to commit to handling this confidential material in accordance with the procedures agreed upon by EURO and IPCS. GIFAP has requested that companies having an interest in the pesticides under review contact the lead country (and copy IPCS), indicating their interest in cooperating in the supply of data. Pesticide manufacturers will be allowed to comment on pesticide draft evaluations prior to review group meetings and these comments will be available at the review group meeting. Requests for additional data from pesticide manufacturers should be routed through IPCS to GIFAP.

(b) Support countries

The support country should provide any relevant data or information on the substance(s) to the appropriate lead country.

The support country should critically review the draft evaluation document paying particular attention to the quality of the studies mentioned and the appropriateness of studies for guideline derivation. Comments should be sent to the lead country or coordinator, as appropriate, within 6 weeks of receipt of the document. Any new information should be supported by copies of appropriate documentation.

(c) Other review institutions

Other review institutions should critically examine the draft evaluation documents. Comments should be sent to coordinators and lead institutions with copies of appropriate documentation within 6 weeks of receiving the draft evaluation document.

(d) Coordinators

The coordinators will handle relevant correspondence regarding the updating of the Guidelines and check that the draft evaluations fall within the format set by the Rome consultation.

The coordinators will distribute the draft evaluation to support countries and review institutions in collaboration with lead countries as appropriate. Areas in need of particular consideration will be highlighted to aid support countries and review institutions in targeting their comments. The coordinators will work with the lead countries to incorporate the comments received or prepare short addenda setting out the points of dispute or controversy requiring resolution at the review group meeting.

The coordinators will also summarize and focus the comments and scientific issues for each chemical prior to the review group meetings. He or she will finalize the draft evaluation for inclusion in Volume 2 of the Guidelines for Drinking-Water Quality. Coordinators will also attend the relevant review group meetings in order to assist the groups in their deliberations.

It was confirmed that there will be a coordinator for each major aspect as follows:

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3. Mechanism for the review process

It was emphasized that this review procedure should be sufficiently thorough to enable the expert groups on toxicology and other areas to concentrate on the preparation of guideline values.

Recognizing the need to solicit comments and exposure information from as many sources as possible, the group recommended that all draft evaluations be sent to all institutions identified in the Rome report and other selected institutions that may contribute useful comments and information. A complete list is provided in Annex 2.

The draft evaluations should be sent to the coordinators who will have the task of making necessary revisions in the documents to ensure consistency in format and depth of review. Coordinators will duplicate documents and send them to appropriate institutions. In some cases, lead countries may wish to assume the task of distributing documents for comment after revisions have been made by the coordinators.

Comments on the draft evaluations should be sent to the coordinator and to the lead country. Further revisions in the draft evaluations will be made jointly by the lead country and the coordinator. Final draft evaluations will then be sent to those individuals invited to participate in the review group meetings.

The dossier which will be sent to participants at least 4 weeks before each of the review group meetings will thus include the following:

- (a) Draft evaluations (revised on the basis of comments) and edited by coordinators;
- (b) Comments submitted by other countries;
- (c) Separate document prepared by coordinator to summarize and focus comments and scientific issues for each chemical.

Review group meetings should contain a balance of scientific expertise and geographical distribution. The International Agency for Research on Cancer (IARC) will be invited to participate as appropriate. Lead and support countries, as well as countries that have expressed an interest through written comments on draft evaluations, will be given preference in review group participation. Areas of scientific expertise relevant to each task group meeting will be identified jointly by coordinators and secretariat and additional invitations will be extended as necessary. The number of participants in each meeting will generally be limited to 15, excluding the secretariat and observers.

4. Schedule of review group meetings

The group discussed the list of meetings and the timetable proposed by the Rome consultation (see page 12 of WHO/PEP/89.4). Bearing in mind the many newly evaluated organic substances and the long list of inorganic substances to be reviewed, it was agreed to organize a total of 4 meetings on organics, 2 on inorganics and 1 related to disinfection. All other review group meetings were confirmed as proposed. Great financial and technical merit was seen in always organizing two meetings back-to-back on similar groups of substances, with most participants attending both meetings.

Consequently the review group meetings on chemical aspects were scheduled as follows:

| SUBJECT | SPONSOR | VENUE | DATES |
|---------------------------------|-------------|-------------|---------------------|
| Pesticides I | DANIDA | Denmark | 18-23 June 1989 |
| Pesticides II | DANIDA | Denmark | 25-29 June 1990 |
| Disinfection-related substances | USEPA | USA | 4-7 September 1990 |
| Other organics I | DANIDA | Denmark | 29 Oct.-3 Nov. 1990 |
| Other organics II | DANIDA | Denmark | 5-9 November 1990 |
| Inorganics I | Netherlands | Netherlands | 4-9 March 1991 |
| Inorganics II | CIP/UNEP | USSR | April 1991 |

As concerns the other meetings proposed at the Rome consultation, the group outlined the following general schedule.

| SUBJECT | SPONSOR | VENUE | DATES |
|----------------------------------|-----------------------------|------------|----------------|
| Microbiology/biology | Netherlands | Calcutta | November 1990 |
| Radioactive materials | Canada, USEPA | Canada/USA | Early 1991 |
| Analytical and treatment methods | UK | UK | June 1991 |
| Preparatory consultation | Canada | Canada | September 1991 |
| Final task group | All participating countries | Geneva | Nov./Dec. 1991 |

5. Follow-up recommendations

The group agreed that the exchange of views and experience with the evaluation process was very useful and not only assisted in better understanding the role of the participating institutes but also contributed to streamlining coordination of the review process. The group further agreed that it would be useful and timely if the same group, with additional members as required, could meet again in about March 1990. Thus, a critical assessment of the revision status could be undertaken following the receipt and first screening of most draft evaluation documents and before the series of review group meetings starts. At this follow-up consultation, detailed planning of these meetings will be undertaken, including lists of substances to be reviewed, proposed participants, provisional agendas as well as administrative arrangements.

LIST OF EXISTING REVIEWS

This list summarizes the available review that have been conducted through JECFA, JMPR, IARC, EHCs, EURO, USEPA, FRG and Canada. Only 22 of the 106 chemicals and physical factors being considered in the Revision do not have existing national or international reviews. All available national reviews have been sent to lead countries.

| CHEMICALS | Lead Country Supporting Country(ies) | Documents |
|---------------------|---|---|
| 1 Acrylamide | JAP FRG | EHC 49 (to be req) USEPA 87 IARC 39 - 85 |
| 2 Alachlor | IT DK | USEPA 2.88 RECT 104 EURO 87 |
| 3 Aldicarb | CAN DK | EHC (TG 11.89) USEPA 3.87 RECT 104 JMPR 82 |
| 4 Aldrin / Dieldrin | UK US DK | EHC 91 (to be req) IARC sup 7 - 87 USEPA 8.88 |
| 5 Aluminium | UK SWE GDR NOR FRG US CAN | JECFA 88 IARC sup 7 - 87 |
| 6 Ammonia | FRG | EHC 54 (to be req) |
| 7 Antimony | US | Canadian b.d. 2.79 |
| 8 Arsenic | CAN NL FRG JAP | EHC 18 (to be req) JECFA 83 IARC sup 7 - 87 IARC 23 - 80 JECFA 88 |
| 9 Asbestos | CAN NL IT US FRG | EHC 53 (to be req) IARC sup 7 - 87 |
| 10 Atrazine | IT DK | USEPA 8.88 EURO 87 |
| 11 Barium | CAN IT | EHC (tg 10.89) USEPA 3.87 RECT 107 |
| 12 Bentazon | IT DK | USEPA 8.88 EURO 87 |

| | | | |
|----|------------------------|----------------------------|--|
| 13 | Benzene | NL UK | JECFA 79 IARC sup 7 - 87 USEPA 3.87 RECT 106 Canadian b.d. 10.87 IARC 29 - 82 FRG 88 |
| 14 | Beryllium | UK | EHC (tg 3.7.89) IARC sup 7 - 87 IARC 23 - 80 |
| 15 | Bromoform | US GDR CAN JAP FRG | |
| 16 | Boron | NL UK IT | Canadian b.d. 12.78 |
| 17 | Bromate | US UK IT | |
| 18 | Cadmium | NL JAP SWE CZECH | EHC (tg 12.89) JECFA 88 IARC sup 7 - 87 USEPA 3.87 RECT 107 |
| 19 | Carbofuran | IT DK | Canadian b.d. 9.86 JMPR 80 USEPA 3.87 RECT 104 |
| 20 | Carbon tetrachloride | US NL CAN JAP GDR IT | EHC awaited IARC s7 - 87, 20 - 79 USEPA 3.87 RECT 106 Canadian b.d. 8.86 |
| 21 | Chloramines (mono, di) | US UK NL FRG JAP | |
| 22 | Chlordane | IT DK | EHC 34 (to be req) IARC s7 - 87, 20 - 79 JMPR 82, 86 USEPA 3.87 RECT 104 |
| 23 | Chloride | UK NL CAN | EHC 21 (to be req) |
| 24 | Chlorinated benzenes | UK NL | EHC (tg 1.90) USEPA 3.87 RECT 106 Canadian b.d. 1.88 FRG 88 |

| | | | |
|----|--------------------------------------|--------------------------------------|---|
| 25 | other Chlorination reaction products | US NL (MX only) NOR FIN UK JAP NL | |
| 26 | Chlorine dioxide | US UK NL FRG JAP IT | |
| 27 | residual Chlorine | US UK NL FRG JAP | |
| 28 | other Chlorophenoxies | CAN US DK | IARC s7 - 87, 41 - 86 USEPA 87 |
| 29 | Chloroform | US | EHC awaited IARC s7 - 87. 20 - 79 JECFA 79 |
| 30 | Chlorotoluron | UK DK | |
| 31 | Chromium | NL US | EHC 61 (to be req) IARC s7 - 87, 23 - 80 USEPA 3.87 RECT 107 Canadian b.d. 9.86 |
| 32 | Colour | UK NOR CAN | Canadian b.d. 5.79 |
| 33 | Copper | FRG NL UK SWE | JECFA 82 Canadian b.d. 1.79 |
| 34 | Cyanide | UK SWE US | USEPA 3.87 RECT 107 Canadian b.d. 5.79 |
| 35 | Dibromochloromethane | CAN GDR DK | EHC 29, 84 (to be req) USEPA 3.87 RECT 104 IARC s7 - 87, 41 - 86 |
| 36 | DDT | GDR DK | JMPR 84 EHC 9 (to be req) IARC s7 - 87 |
| 37 | Dibromochloromethane | US | |
| 38 | 1,2-Dibromo-3-chloromethane | US DK NOR | IARC s7 - 87, 20 - 79 RECT 104 USEPA 3.87 |
| 39 | Dichlorobromomethane | US NL | |

| | | | |
|----|----------------------|-------------------------------|--|
| 40 | 1,1-Dichloroethane | US FRG | JECFA 79 |
| 41 | 1,2-Dichloroethane | US NL CAN | EHC 62 (to be req) JECFA 79 USEPA 3.87 RECT 106 Canadian b.d. 8.88 IARC 20 - 79 |
| 42 | 1,1-Dichloroethene | US FRG | USEPA 3.87 RECT 106 IARC 39 - 85, 19 - 79, s7 - 87 |
| 43 | 1,2-Dichloroethene | US FRG | USEPA 3.87 RECT 106 |
| 44 | Dichloromethane | US NL CAN IT | EHC 32 (to be req) JECFA 83 IARC s7 - 87, 41 - 86, 20 - 79 Canadian b.d. 10.87 |
| 45 | 1,2-Dichloropropane | US DK | EHC draft USEPA 3.87 RECT 104 IARC 41 - 86 |
| 46 | 1,3-Dichloropropane | US DK | EHC (tg late 90) |
| 47 | 1,3-Dichloropropene | US DK | EHC draft IARC s7 - 87, 41 - 86 USEPA 8.88 |
| 48 | Diethylhexyladipate | SWE NL JAP | EHC (tg 90) JECFA 88 ? IARC 29 - 82 |
| 49 | Diethylhexylphtalate | NL SWE JAP IARC 29 - 82 | EHC (tg 90) JECFA 88 |
| 50 | EDTA | FRG CAN NL | |
| 51 | Epichlorohydrin | JAP FRG | EHC 33 (to be req) IARC s7 - 87 USEPA 3.87 RECT 107 |

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|----|-----------------------------------|------------------------------|---|
| 52 | Ethyl benzene | NL FRG UK | EHC to be adapted USEPA 3.87 RECT 106 Canadian b.d. 8.88 |
| 53 | Ethylene dibromide | IT DK | IARC s7 - 87 USEPA 3.87 RECT 104 |
| 54 | Fluoride | NL UK JAP DK FRG US IT | EHC 36 (to be req) IARC s7 - 87 Canadian b.d. 4.79 |
| 55 | Formaldehyde | UK JAP POL FRG US | EHC 89 (to be req) IARC s7 - 87, 29 - 82 |
| 56 | Hardness | UK IT | Canadian b.d. 2.79 |
| 57 | HCH (Lindane) | NL DK | EHC (tg 11.89) JMPR 89 ? USEPA 3.87 RECT 104 IARC 20 - 79 |
| 58 | Heptachlor/ Heptachlor epoxide | IT DK | EHC 38 (to be req) IARC s7 - 87, 20 - 79 USEPA 3.87 RECT 104 |
| 59 | Hexachlorobenzene | IT DK | IARC s7 - 87, 20 - 79 RECT 106 USEPA 3.87 |
| 60 | Hexachlorobutadiene | JAP | EHC awaited IARC 20 - 79 |
| 61 | Hydrogen sulfide | UK | EHC 19 |
| 62 | Iodine | US UK | JECFA 88 |
| 63 | Iron | DK UK JAP IT | JECFA 83, 88 IARC s7 - 87 |
| 64 | Isoproturon | UK DK | |
| 65 | Lead | CAN SWE UK US | EHC 3, 85 (Env. Aspects). 3 2nd ed. - (to be req) IARC 23 - 80, s7 - 87 |
| 66 | Manganese | US FRG IT DK | EHC 17 (to be req) |

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|----|----------------------|--|---|
| 67 | MCPA | IT DK | USEPA 8.88 IARC 30 - 83, 87 - 87 EURO 87 |
| 68 | Mercury | JAP SWE | EHC 1 (to be req) JECFA 88 USEPA 3.87 RECT 197 Canadian b.d. 9.86 |
| 69 | Methoxychlor | FRG DK | USEPA 3.87 RECT 104 IARC 20 - 79 |
| 70 | Metolachlor | IT DK | USEPA 8.88 EURO 87 |
| 71 | Microbiology/Biology | UK US NL JAP FRG DK IT | |
| 72 | Molinate | IT DK | EURO 87 |
| 73 | Molybdenum | US UK | |
| 74 | Nickel | DK US CAN | EHC (tg 14.4.89) IARC 87 - 87 USEPA 3.87 RECT 107 |
| 75 | Nitrate and Nitrite | NL CAN JAP NOR FRG CZECH HUNG US UK | EHC 5 (to be req) USEPA 3.87 RECT 107 SYMP. BAD ELSTER 86 ECETOC 88 |
| 76 | NTA | CAN FRG NL NOR | FRG 88 |
| 77 | Organotin | UK JAP | EHC 15 (to be req) |
| 78 | Oxygen, dissolved | UK IT | |
| 79 | Pendimethalin | IT DK | EURO 87 |
| 80 | pH Level | UK FRG | Canadian b.d. 5.79 |

| | | | |
|----|-----------------------------------|----------------------|---|
| 81 | Polynuclear aromatic hydrocarbons | CAN UK JAP NL | |
| 82 | Propanil | IT DK | EURO 87 |
| 83 | Pyrethroids | UK DK | |
| | Dimethrin | | USEPA 87 |
| | Fenvalerate | | JMPR 81, 84 EHC 95 (to be req) |
| | Fluocythrinat | | JMPR 85 |
| | Permethrin | | EHC 94 (to be req) JMPR 81, 87 |
| | d-Phenothrin | | EHC 96 (to be req) JMPR 88 |
| | Tetramethrin | | EHC 98 (to be req) |
| 84 | Pyridate | IT DK | EURO 87 |
| 85 | Radiactive materials | CAN US FRG | |
| 86 | Selenium | NOR JAP US | EHC 58 (to be req) Canadian b.d. 9.86 |
| 87 | Silver | FRG CAN US | Canadian b.d. 9.86 |
| 88 | Simazine | IT DK | USEPA 8.88 EURO 87 |
| 89 | Sodium | US NL FRG DK | Canadian b.d. 9.86 |
| 90 | Styrene | NL GDR FRG UK | EHC 26 (to be req) JECFA 84 IARC s7 - 87. 19 - 79 USEPA 3.87 RECT 107 |
| 91 | Sulfate | CAN UK | |
| 92 | Taste and Odour | NOR JAP NL DK SWE | |
| 93 | Temperature | UK | Canadian b.d. 5.79 |

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|-----|------------------------|----------------------|--|
| 94 | Tetrachloroethene | US CAN JAP UK | EHC 31 ??? (to be req) USEPA 3.87 ??? RECT 106 ??? |
| 95 | Tin | NL UK | EHC 15 (to be req) JECFA 82, 88 |
| 96 | Toulene | NL UK | EHC 52 (to be req) JECFA 81 USEPA 3.87 RECT 106 Canadian b.d. 8.88 |
| 97 | Total dissolved solids | CAN | |
| 98 | 1,1,1-Trichloroethane | US UK CAN JAP GDR | EHC (tg 1990) JECFA 81 USEPA 3.87 IARC 20 - 79 |
| 99 | Trichloroethene | US CAN JAP NL UK | EHC 50 (to be req) USEPA 3.87 RECT 106 IARC s7 - 87, 20 - 79 |
| 100 | 2,4,6-Trichlorophenol | US CAN CZECH FRG | EHC 93 (to be req) Canadian b.d. 10.87 IARC 41 - 86, 20 - 79 |
| 101 | Trifluralin | IT DK | USEPA 8.87 EURO 87 |
| 102 | Turbidity | UK | Canadian b.d. 5.79 |
| 103 | Uranium | CAN US | |
| 104 | Vinyl Chloride | POL NL FRG | EHC 100 (to be req) JECFA 84 IARC s7 - 87, 19 - 79 USEPA 3.87 RECT 107 |
| 105 | Xylene | NL UK | EHC to be adapted USEPA 3.87 RECT 106 Canadian b.d. 8.88 |
| 106 | Zinc | FIN | Canadian b.d. 11.87 |

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REVISED LIST OF DRAFT EVALUATIONS

ORGANICS

| | | <u>Lead</u> <u>Country</u> | <u>Supporting</u> <u>Country</u> |
|-----|------------------------------------|-------------------------------|-------------------------------------|
| (i) | <u>Chlorinated organics</u> | | |
| a. | Chlorinated alkanes | | |
| 1. | carbon tetrachloride ¹ | US | NL, CAN, JAP, GDR IT |
| 2. | 1,2-dichloroethane ¹ | US | NL, CAN |
| 3. | 1,1,1-trichloroethane ³ | US | UK, CAN, JAP, GDR |
| 4. | dichloromethane ³ | US | NL, CAN, IT |
| 5. | 1,1-dichloroethane | US | FRG |

Footnotes:

1. Compound with a guideline value; recommended for re-evaluation at Medmenham consultation
2. Compound with no guideline value; recommended for consideration with high priority at Medmenham consultation
3. Compound with no guideline value; recommended for consideration with medium priority at Medmenham consultation
4. Compound with no guideline value; recommended for consideration with low priority at Medmenham consultation; only to be reviewed if documentation readily available or can be produced at low cost
5. Evaluated at one of two consultations sponsored by EURO in Rome in 1987; not given a priority rating at Medmenham consultation.

| | | <u>Lead</u> <u>Country</u> | <u>Supporting</u> <u>Country</u> |
|-------|--|-------------------------------|-------------------------------------|
| b. | Chlorinated ethenes | | |
| 1. | 1,1-dichloroethene ¹ | US | FRG |
| 2. | 1,2-dichloroethene ³ | US | FRG |
| 3. | trichloroethene ¹ | US | CAN, JAP, NL, UK |
| 4. | tetrachloroethene ¹ | US | CAN, JAP, UK |
| 5. | Vinyl chloride ² | POL | NL, FRG |
| c. | Chlorinated benzenes | UK | NL |
| (ii) | <u>Aromatic hydrocarbons</u> [*] | | |
| a. | Benzene, lower alkyl benzenes and vinyl benzene | | |
| 1. | styrene ² | NL | GDR, FRG, UK |
| 2. | toluene ² | NL | UK |
| 3. | xylene ² | NL | UK |
| 4. | ethyl benzene ² | NL | FRG, UK |
| 5. | benzene | NL | UK |
| b. | Polynuclear aromatic hydrocarbons ¹ | CAN | UK, JAP, NL |
| (iii) | <u>Disinfection by-products, including trihalomethanes</u> | | |
| a. | Trihalomethanes | | |
| 1. | chloroform ¹ | } US | GDR, CAN, JAP, FRG |
| 2. | bromoform ² | | |
| 3. | dichlorobromomethane ² | | |
| 4. | dibromochloromethane ² | | |
| | | | NL, IT |
| b. | Formaldehyde | UK | JAP, POL, FRG, US, IT |

^{*} available by 31 March 1990 only.

| | <u>Lead</u> <u>Country</u> | <u>Supporting</u> <u>Country</u> |
|--|-------------------------------|-------------------------------------|
| c. Chlorophenols | | |
| 1. 2,4,6-trichlorophenol ¹ | US | CAN, CZECH, FRG |
| d. Other chlorination reaction products ² , incl. MX | US | NOR, FIN, UK, JAP NL |
| (iv) <u>Pesticides</u> | | |
| aldrin/dieldrin ¹ | UK | US, DK |
| chlordane ¹ | IT | DK |
| 2,4-D ¹ | CAN | GDR, DK |
| DDT ¹ | GDR | DK |
| HCH (lindane) ¹ | NL | DK |
| heptachlor and heptachlor epoxide ¹ | IT | DK |
| hexachlorobenzene | IT | DK |
| methoxychlor ¹ | FRG | DK |
| atrazine ^{2,5} | IT | DK |
| simazine ^{2,5} | IT | DK |
| alachlor ⁵ | IT | DK |
| bentazon ⁵ | IT | DK |
| MCPA ⁵ | IT | DK |
| metalachlor ⁵ | IT | DK |
| molinate ⁵ | IT | DK |
| pendimethalin ⁵ | IT | DK |
| pyridate ⁵ | IT | DK |
| propanil ⁵ | IT | DK |

| | <u>Lead</u> <u>Country</u> | <u>Supporting</u> <u>Country</u> |
|--|-------------------------------|-------------------------------------|
| trifluralin ⁵ | IT | DK |
| permethrin | UK | DK |
| ethylene dibromide ⁴ (incl. automobile exhaust) | IT | DK |
| 1,2-dibromo- 3-chloropropane ⁴ | US | DK, NOR, IT |
| 1,3-dichloropropane ⁴ | US | DK |
| 1,2-dichloropropane ⁴ | US | DK, IT |
| 1,3-dichloropropene ⁴ | US | DK |
| aldicarb ⁴ | CAN | DK |
| carbofuran ⁴ | IT | DK |
| chlortoluron | UK | DK |
| isoproturon | UK | DK |
| other chlorophenoxies | CAN | US, DK |

(v) Miscellaneous organics

| | | |
|----------------------------------|-----|------------------|
| acrylamide ² | JAP | FRG |
| plasticizers: | | |
| - diethylhexylphthalate * | NL | SWE, JAP |
| - diethylhexyladipate | SWE | NL, JAP |
| hexachlorobutadiene ⁴ | JAP | |
| epichlorohydrin ⁴ | JAP | FRG |
| EDTA ⁴ | FRG | CAN, NL, IT |
| NTA ⁴ | CAN | FRG, NL, NOR, IT |
| organotin | UK | JAP, IT |

* by 31 March 1990 only.

INORGANICS

| | <u>Lead</u> <u>Country</u> | <u>Supporting</u> <u>Country</u> |
|---|-------------------------------|-------------------------------------|
| (i) <u>Health-related inorganics and aesthetic/organoleptic aspects</u> | | |
| aluminium | UK | SWE, GDR, NOR FRG, US, CAN, IT |
| ammonia | FRG | |
| antimony | US | |
| arsenic | CAN | NL, FRG, JAP |
| asbestos | CAN | NL, IT, US, FRG |
| barium | CAN | IT |
| beryllium | UK | US |
| boron* | NL | UK, IT |
| bromate | US | |
| cadmium* | NL | JAP, SWE, CZECH, IT |
| chloride | UK | NL, CAN |
| chromium* | NL | US |
| colour | UK | NOR, CAN |
| copper | FRG | NL, UK, SWE |
| cyanide | UK | SWE, US |
| fluoride* | NL | UK, JAP, DK, FRG US, IT |
| hardness | UK | IT |
| hydrogen sulfide | UK | |
| iodine | US | UK |
| iron | DK | UK, JAP, IT |

*by 30 June 1990 only.

| | <u>Lead</u> <u>Country</u> | <u>Supporting</u> <u>Country</u> |
|------------------------|-------------------------------|---|
| lead | CAN | SWE, UK, US, IT |
| manganese | US | FRG, IT, DK |
| mercury | JAP | SWE, IT |
| molybdenum | US | UK |
| nickel | DK | US, CAN |
| nitrate and nitrite* | NL | CAN, JAP, NOR, FRG, CZECH, HUNG, US, UK, IT |
| oxygen, dissolved | UK | IT |
| pH level | UK | FRG |
| selenium | NOR | JAP, US |
| silver | FRG | CAN, US |
| sodium | US | NL, FRG, DK |
| sulfate | UK | CAN |
| taste and odour | NOR | JAP, NL, DK, SWE, FIN, FRA |
| temperature | UK | |
| tin* | NL | UK |
| total dissolved solids | CAN | |
| turbidity | UK | |
| uranium | CAN | US |
| zinc | FINLAND | |

* by 30 June 1990 only.

| | <u>Lead</u> <u>Country</u> | <u>Supporting</u> <u>Country</u> |
|--|-------------------------------|-------------------------------------|
| (ii) <u>Disinfectants</u> | | |
| residual chlorine | US | UK, NL, FRG, JAP |
| chlorine dioxide, incl. chlorite and chlorate | US | UK, NL, FRG, JAP IT |
| chloramines (mono-, di-) | US | UK, NL, FRG, JAP |
| MICROBIOLOGY/BIOLOGY | UK | US, NL, JAP, FRG DK, IT, GDR |
| RADIOACTIVE MATERIALS | CAN US | FRG, IAEA |

INSTRUCTIONS TO AUTHORS FOR SUBMISSION OF MANUSCRIPTS

4.1 Instructions to authors of draft evaluation documents on inorganics (Coordinator at WRC)

Authors of working documents supporting WRC in revision of the designated topics in Volume 2 of the WHO Drinking Water Guidelines, are requested to submit their material as 'hard copy' (ie typewritten) and, if possible, also on magnetic digital media.

WRC operates the VAX VMS V5.1 system on two VAX 8820 computers. We can accept the following forms of software:

Tape reel: density from 800 to 6250 bits per inch (first choice)
Floppy disks: 3½", 5¼", 7" (second choice)
TK50 tape cartridge (third choice)

WRC prefers the data to be on magnetic tape, ASCII format, 1600 bits per inch. We can also accept IBM or ICL formats.

We would advise you to send us tapes or floppy disks in protective 'mailers' and to label the envelope, "contains magnetic media - do not X-ray".

For any technical queries, please consult Mr Andrew Gehrman, Computer Support Specialist at WRC Medmenham Laboratory, telephone: international code +44-491-571-531 (United Kingdom 0491-571-531), extension 4041.

E B Pike
WRC Medmenham
27.6.89

EBP/agg

INSTRUCTIONS TO AUTHORS FOR SUBMISSION OF MANUSCRIPTS

4.2 Instructions to authors of draft evaluation documents on organics (Coordinator at WHO/EURO)

EURO-MEMORANDUM

From ~~ISS~~ To All staff Date 28 February 1989
Attn
Our ref 0069y Subject EXCHANGE OF DOCUMENTS WITH NON-EURO
AGM/mfb USERS AND WHO EURO STANDARDS FOR
Your ref DATA/TEXT EXCHANGE

Increasingly, requests arise to exchange 'text processing' documents with persons or institutions outside the Regional Office. This note is intended to make you aware of the requirements and capabilities available to you.

The term 'text processing' is a generic term for the capability of typing into a video terminal correcting and printing a text. This capability is made available to the user by a computer programme, written by the supplier (Wang, IBM, etc. or an independent software house). If you have used other text processing than Wang you will know that not all such programmes operate in the same way.

The facilities provided by these programmes, such as tab, centre, page, format etc. are made possible by storing with your typed text special characters and by storing your text in a predetermined manner, which does not correspond to the text as seen on the screen or as printed. Also these conventions are different from one type of text processing to the other. So a Wang document can only be used on a Wang, an IBM only on IBM, etc. This is one aspect of the matter.

Another aspect is the physical manner in which electronically recorded data can be exchanged. The most common manner presently is by the use of diskettes. However, not all diskettes are the same! Wang has used diskettes for a long time and is therefore committed to usage of 8 inch (diameter) diskettes.

The PC generation is largely equipped with 5 1/4 inch diskettes and 3 1/2 inch diskettes. This is the same type of situation as with music records. Either you have the capability to 'play' a diskette or you do not.

Presently in EURO we can 'play' 8 inch, 5 1/4 inch and 3 1/2 inch.

You may feel that this is confusing and you would be right. However, this situation of flux and change is typical in a rapidly developing technology. Also typical is the fact that there is always some new development which probably is 'better' but which makes the situation more involved.

When you wish to 'import' or 'export' a document, you must bear in mind both the type of system (IBM, Wang or other) and the type of diskette. (If diskettes are not available, magnetic tape can be used. However, for this you will need special help.)

As stated above, it is no use merely receiving a diskette with a non-Wang text processing document, even if we can 'play' the diskette, as the document cannot be managed by a Wang text processing programme.

There is a general way to exchange the text of a text processing document. This is done by generating a 'TEXT' or 'ASCII' file from the document. This can be done by Wang PCs (both document to text and text to document) and can also be done by most other text processing programmes (even though the users of these often do not know that this is the case!). So a way is open to exchange texts. We have now a software package called Software Bridge which allows us to convert documents created with one word processing package into documents of another word processing package. See attached list. In each Service a PC focal point is being trained to operate these conversions. This is done by a software package and is usually reliable. In some cases however there may be difficulties.

The equipment in the Regional Office is such that we can read data files, be they transcripts of 'alien' documents or be they data files of other type such as statistics, etc. when these conform to WHO standards.

The WHO standards for physical data exchange are as follows:

- 1) In the Regional Office, we run Wang text processing. Documents produced on external Wang text processing equipment and stored on 8 inch, 5 1/4 inch or 3 1/2 inch diskettes can be read directly into EURO's equipment and if necessary edited further.
- 2) 1/2 inch magnetic tape recorded at 1600 bpi. The tapes should preferably be recorded in ASCII and be without labels, specifically none of the information should be packed. The data should be recorded as fixed length records and may be blocked. (Please specify record length and number of records per block on the tape).
- 3) 5 1/4 inch soft-sectored diskette recorded in MS/PC-DOS compatible ASCII file format (160K single-sided, 40 tracks, 8 sectors/track or 320/360K double-sided, double density, 40 tracks, 8 or 9 sectors/track).
- 4) 3 1/2 inch 720KB double-sided, high density, 135 tracks per inch (TPI).
- 5) 8 inch single-sided diskette recorded in IBM Basic exchange format.
- 6) By telecommunication, using TELETEx (2381-118785 UNISANTE) or following electronic mail networks: ITT Dialcom 71:DKA110; UN network 141:UNC355; or EARN/BITNET: WHOEURO at NEUVMI.

We have no capability at present to read any other type of machine readable medium.

If you intend to collect data on machine readable media, please ensure that it is given to you on one of the media described above as otherwise you may end up having it typed again.

Word processors supported by Software Bridge

| | |
|--------------------------|-----------------------|
| CEOwrite | versions through 2.0 |
| DEC WPS PLUS (DX) | versions through 1.0 |
| *DisplayWrite 2, 3 and 4 | releases through 1.00 |
| Microsoft Word | versions through 4.0 |
| MultiMate Advantage II | revisions through 1.0 |
| Samna Word IV | revisions through 1.0 |
| Sprint | versions through 1.0 |
| Volkswriter 3 | versions through 1.0 |
| Wang PC (IWP) | versions through 2.6 |
| WordMARC | composer |
| WordPerfect | versions through 4.2 |
| WordStar | releases through 4.0 |
| WordStar 2000 | releases through 3.00 |

*Software Bridge supports DisplayWrite 4 through its DCA/RFT conversion.

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