

RECEIVED

JAN - 3 1994

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

DOCKET FILE NO. 90-314

In the Matter of)	
)	
Amendment of the Commission's)	GEN Docket No. 90-314
Rules to Establish New Personal)	RM-7140, RM-7175, RM-7618
Communications Services)	

To: The Commission

RESPONSE TO PETITIONS FOR RECONSIDERATION

Pursuant to Section 1.429 of the Commission's Rules,¹ the Fixed Point-to-Point Communication Section of the Network Equipment Division of the Telecommunications Industry Association ("TIA")² hereby responds to various petitions for the Commission to reconsider or clarify provisions in the above-captioned decision³ regarding interference protection for fixed microwave operations from PCS.⁴

Herein, TIA addresses two issues raised in these petitions:

¹47 C.F.R. Section 1.429 (1992).

²TIA is the principal industry association representing fixed point-to-point microwave manufacturers. TIA members serve, among others, companies licensed by the Commission to use the 2 GHz private and common carrier bands to provide important and essential telecommunications services, including telephone companies, utilities, railroads, state and local governments, and cellular carriers. Thus, TIA's members are interested in protecting fixed microwave users from personal communications service ("PCS") interference.

³Second Report and Order, 8 FCC Rcd 7700 (1993) ("Order").

⁴The Order was published in the Federal Register on November 8, 1993. 58 FR 59174 (Nov. 8, 1993). The Commission's Public Notice, listing all the petitions for reconsideration and clarification of the Order, was published in the Federal Register on December 15, 1993. 58 FR 65595 (Dec. 15, 1993). The deadline for filing this pleading was extended to January 3, 1994. Order Denying Extension of Time, GEN Docket No. 90-314 (DA 93-1575, released Dec. 29, 1993).

No. of Copies rec'd
List ABCDE

0411

- In the Order and in its Appendix D, the Commission prescribes a standard for calculating PCS-to-microwave interference. This standard generally was opposed. Instead, there was unanimous industry support for adopting TIA's nearly completed methodology as the only standard for determining PCS-to-microwave interference.⁵ TIA greatly appreciates this support and urges the Commission to adopt Bulletin 10-F as the only acceptable standard. However, to ensure a seamless transition to PCS deployment, TIA, consistent with other petitioners, recommends that Appendix D be revised so that alternative accredited industry group standards could be used pending adoption of Bulletin 10-F.
- Several parties propose increasing the PCS power base station limit from 100 watts EIRP to at least 1600 watts EIRP. TIA does not oppose this proposed power increase, provided appropriate corresponding coordination criteria also are adopted.

I. THE PCS AND MICROWAVE INDUSTRIES OVERWHELMINGLY SUPPORT USING ONLY TIA'S FORTHCOMING BULLETIN 10-F TO DETERMINE PCS-TO-MICROWAVE INTERFERENCE

A. Once Adopted, Bulletin 10-F Must Be The Only PCS-To-Microwave Interference Standard.

In its Petition for Reconsideration ("Petition"), TIA generally supports the Commission's decisions in the Order regarding PCS, but it requests clarification of the procedures for calculating PCS-to-microwave interference levels. These necessary changes are:

- Revise the new rules to specify that accredited industry procedures for calculating PCS signal levels at microwave receivers, at a minimum, have the same status as the procedures set forth in Appendix D of the Order, with respect to governing the relationship between microwave licensees and prospective PCS operators. In addition, the Commission, in its decision on reconsideration in the captioned proceeding, expressly should

⁵TIA's working group, TIA TR14.11, currently is preparing "Telecommunications Systems Bulletin No. 10-F, Interference Criteria for Microwave Systems" ("Bulletin 10-F"). This standard updates TIA's "Telecommunications System Bulletin No. 10-E, Interference Criteria for Microwave Systems in the Private Radio Services," (Nov. 1990) ("Bulletin 10-E"). Specifically, Bulletin 10-F will include a separate annex addressing PCS-to-microwave interference criteria based upon the Commission's new microwave channel plans adopted in the Second Report and Order (ET Docket No. 92-9), 8 FCC Rcd 6495 (1993); standards for spectrum etiquette; separate requirements for short-haul and long-haul microwave paths; and procedures for prior coordination notice. No other recognized standard-setting organization is preparing comparable criteria. The TIA TR14.11 working group expects Bulletin 10-F to be completed in January 1994 and to be approved within 30-60 days thereafter. Once approved by TIA TR14.11, Bulletin 10-F becomes a standard adopted by an ANSI-accredited body.

encourage all affected parties (e.g., PCS or microwave applicants, licensees and equipment manufacturers) to use, once it is adopted, the accredited industry standard, in lieu of Appendix D, for determining PCS-to-microwave interference. Reliance upon a single standard would eliminate any uncertainty regarding what criteria to use, thereby facilitating system design, expediting negotiations between microwave and PCS representatives, and promoting rapid deployment of PCS while protecting the needs of microwave users.

- Revise Appendix D, as detailed in its Attachment to the Petition, TIA TR14.11 Recommendations for Change to Appendix D ("TIA Recommendations"), to ensure optimal protection for microwave licensees until the industry standard is adopted.⁶

Among the petitioners representing PCS and microwave interests, there is unanimity favoring reliance only on Bulletin 10-F, once adopted, in lieu of the Commission's procedures set forth in Appendix D. Underlying this support is the broad-based PCS and microwave industry representation, along with Commission involvement, in TIA TR14.11. As one PCS entrepreneur, American Personal Communications ("APC"), notes, "[p]articipation in the TIA TR14.11 Committee by equipment manufacturers, incumbent[] microwave licensees, prospective PCS licensees and FCC staff members ensures that this committee represents the interests of all parties in the difficult task of crafting PCS-OFS interference criteria."⁷

Given the draft status of Bulletin 10-F, the Commission understandably developed Appendix D to guide PCS applicants in designing their proposed systems while protecting fixed microwave licensees from interference. However, TIA and other PCS and microwave industry

⁶Petition at 2.

⁷Petition for Reconsideration of American Personal Communications ("APC Petition") at 11. See also Telocator Petition for Reconsideration ("Telocator Petition") at 10 ("[u]tilizing the consensus positions of an accredited industry standards group to deal with the technical issues involved in PCS-microwave frequency coordination is consistent with the positions advocated by both microwave users and PCS entrants alike"); The American Petroleum Institute's ("API") Petition for Reconsideration of the Second Report and Order ("API Petition") at 3.

members are concerned that the interference calculation procedures in the Order could result in the use of multiple, possibly conflicting coordination methodologies.⁸

Such potential chaos is unacceptable. In this initial phase of PCS deployment, which will include coordination with microwave users relocating to other bands, "it is critical that the Commission establish precise and uniform appropriate benchmarks."⁹ Indeed, both microwave and PCS industry representatives agree completely that Bulletin 10-F must be the only standard.

Microwave Industry -- A microwave industry representative, API, strongly advocates that the Commission revise its rules so that only Bulletin 10-F is used:

API asks that the Commission not allow various interference calculation methods to be used, since a single, more appropriate calculation method is proposed for inclusion within the revised TIA Bulletin TSB10-F. Using the method proposed in TSB10-F will not delay deployment of PCS systems since, as the Commission notes, the new TIA Bulletin should be forthcoming in the very near future, and should be available prior to the licensing of any PCS systems. Moreover, the TIA calculation method has broad support due to the fact that it is being devised by a wide spectrum of industry participants as part of a voluntary consensus standard process. Certainly, a method with such wide support is preferable, since hasty adoption of a method not widely-recognized as technically valid or widely agreed-upon by the affected community, will create significant difficulties which will impede the negotiation process as well as the implementation of PCS.¹⁰

Similarly, Alcatel Network Systems, Inc. ("ANS"), a fixed microwave equipment manufacturer, urges the Commission to require that PCS-to-microwave interference calculations be based only on Bulletin 10-F, once it is adopted:

Inconsistencies in the text of the Order, in new Part 99 and in Appendix D will handicap PCS-microwave coordination and could increase the likelihood for harmful interference to microwave stations. To remedy this problem . . . the Commission, in its decision on reconsideration in the

⁸See, e.g., API Petition at 5.

⁹Petition at 6.

¹⁰API Petition at 4.

captioned proceeding, expressly should encourage all affected parties (e.g., PCS or microwave applicants, licensees and equipment manufacturers) to use, once it is adopted, the accredited industry standard, in lieu of Appendix D, for determining PCS-to-microwave interference.¹¹

PCS Industry -- Telocator, an industry association representing many PCS interests, recommends that, "[i]n order to avoid having to reform the rules as TSB10 gets updated to version 10-F and beyond, the FCC should clarify that the appropriate reference is the latest version of TSB10, regardless of the version letter."¹² In addition, Motorola Inc. ("Motorola"), a PCS equipment manufacturer, "supports the use of the updated Bulletin 10 TIA will soon finalize and also supports the Petition for Reconsideration being filed by TIA's Fixed Microwave Section."¹³

B. TIA's Proposed Interim Revisions to Appendix D Are In The Public Interest.

Until Bulletin 10-F is finalized, viable interference standards must be available. The criteria in Appendix D, which incorporate certain draft iterations of the proposed Bulletin 10-F revisions, are a good start. However, as TIA and several other parties note in their petitions, should adoption of Bulletin 10-F be delayed, minor revisions to Appendix D, detailed in the TIA Recommendations, are necessary.

¹¹ANS Petition for Reconsideration ("ANS Petition") at 4-5. The law firm of Blooston, Mordkofsky, Jackson, and Dickens ("BMJ&D") requests that the interference protection rules include not only Operational Fixed Service ("OFS") licensees, but also Part 21 Point-to-Point Microwave Radio service licensees. BMJ&D Petition for Reconsideration or for Clarification at 1-2. API and the Utilities Telecommunications Council ("UTC") request that rules be adopted requiring prior coordination with microwave licensees by PCS applicants. API Petition at 6-9; Utilities Telecommunications Council Petition for Reconsideration at 17-18. TIA supports adoption of these proposals.

¹²Telocator Petition at 11.

¹³Motorola Petition for Reconsideration and Clarification of PCS Second Report and Order ("Motorola Petition") at 7.

Most notably, in Appendix D, the Commission states that path loss will be based upon the Longley-Rice propagation model.¹⁴ Mandating use of the Longley-Rice model, and excluding use of any other model, at this time, is inappropriate and is "inconsistent with current TIA discussions."¹⁵ Instead, as Telocator states, TIA's current modified Hata propagation model "appears no less accurate than the Longley/Rice model" and thus, the "Hata model, as modified, is also appropriate for coordinator use within the applicant's boundaries."¹⁶ Consequently, the record supports the Commission adopting TIA's recommended changes to Appendix D¹⁷ and permitting use of accredited industry group propagation models, other than Longley-Rice, in the interim before Bulletin 10-F is adopted:

Because TIA's efforts are consistent with the FCC's basic approach, but include contextual detail that would assist in resolving similar coordination problems in a consistent manner, . . . the Commission [must] consider modifying the coordination assumptions in the rules to place greater reliance on TSB10 and TIA consensus positions.¹⁸

II. ANY INCREASE IN PCS BASE STATION POWER MUST BE
ACCOMPANIED BY APPROPRIATE COORDINATION CRITERIA

Numerous parties petition the Commission to increase the maximum PCS base station power limit, set forth in new Section 99.231(a), from 100 watts EIRP to as much as 1600 watts

¹⁴Order, 8 FCC Rcd at 7771-72.

¹⁵Telocator Petition at 11.

¹⁶Telocator Petition at 11-12 (Telocator recommends that "the best policy would be to default to the Longley/Rice model only in the event that TIA members cannot achieve consensus agreement on the use of other models in the process to revise TSB10"). See also Motorola Petition at 7; Ameritech's Petition for Reconsideration ("Ameritech Petition") at 3; ANS Petition at 7.

¹⁷Petition, TIA Recommendations at 1-3.

¹⁸Telocator Petition at 13.

EIRP.¹⁹ This request is made to ensure that PCS licensees are able to cover less congested areas,²⁰ to provide cost effective service,²¹ to utilize current digital radio technology,²² and to be competitive with other mobile services.²³

TIA does not oppose this request. As several parties recognize, the Commission is obligated to protect fixed microwave licensees from interference regardless of the PCS power level.²⁴ However, as APC proposes, if higher PCS base station power limits are adopted, the coordination distance criteria set forth in new Section 99.233(a) must be revised to incorporate the calculation method proposed in Annex F of Bulletin 10-F.²⁵

CONCLUSION

In the Order, the Commission reiterates its intention to protect fixed microwave licensees from PCS interference.²⁶ The rules adopted in the Order go a long way towards meeting this

¹⁹APC Petition at 2-8; Telocator Petition at 2-7; Ameritech Petition at 1-2; MCI Telecommunications Corporation Petition for Reconsideration and Clarification ("MCI Petition") at 7-8; Sprint Corporation Petition for Reconsideration and Clarification at 15; US WEST Petition for Expedited Partial Reconsideration and For Clarification ("US WEST Petition") at 2-16; Motorola Petition at 7-8; Northern Telecom Inc. Petition for Reconsideration ("Northern Telecom Petition") at 5-22. A limited number of parties prefer no PCS base station power limitations. PacTel Corporation Petition for Partial Clarification ("PacTel Petition") at 5; Petition for Partial Reconsideration of Time Warner Telecommunications at 12-13; Pacific Bell and Nevada Bell Petition for Reconsideration at 3.

²⁰See, e.g., US WEST Petition at 10-12; Northern Telecom Petition at 4-5.

²¹See, e.g., US WEST Petition at 10-12; Telocator Petition at 3; APC Petition at 3.

²²See, e.g., MCI Petition at 7-8; Telocator Petition at 3-5; APC Petition at 3-4.

²³See, e.g., US WEST Petition at 3; Telocator Petition at 5.

²⁴APC Petition at 7; Telocator Petition at 7; PacTel Petition at 7; US WEST Petition at 15; Northern Telecom Petition at 17-18.

²⁵APC Petition at 8-9. See also Northern Telecom Petition at 5.

²⁶Order, 8 FCC Rcd at 7755.

appropriate goal. With adoption of the changes regarding the standard for determining PCS-to-microwave interference and regarding PCS base station power limits, proposed herein, this task will be complete.

Respectfully submitted,

FIXED POINT-TO-POINT COMMUNICATION
SECTION OF THE NETWORK EQUIPMENT
DIVISION OF THE TELECOMMUNICATIONS
INDUSTRY ASSOCIATION

A handwritten signature in black ink, appearing to read "Eric Schimmel", written over a horizontal line.

Eric Schimmel
Vice President

Dated: January 3, 1994

gw03:164818

CERTIFICATE OF SERVICE

I do hereby certify that copies of the foregoing Response to Petitions for Reconsideration will be served by first class mail, postage paid, on the following parties on the 3rd day of January, 1994:

J. Barclay Jones
Vice President, Engineering
American Personal Communications
1025 Connecticut Ave., N.W.
Washington, D.C. 20036

Thomas A. Stroup
Telocator
1019 19th Street, N.W., Suite 1100
Washington, D.C. 20036

Gary M. Epstein, Esq.
Latham & Watkins
1001 Pennsylvania Ave., N.W., Suite 1300
Washington, D.C. 20004-2505
Counsel for Bell Atlantic Personal Communications, Inc.

Robert J. Miller, Esq.
Gardere & Wynne, L.L.P.
1601 Elm Street, Suite 3000
Dallas, Texas 75201
Counsel for Alcatel Network Systems, Inc.

Stuart E. Overby
Manager, Regulatory Programs
Motorola Inc.
1350 I Street, N.W., Suite 400
Washington, D.C. 20005

Robert M. Jackson, Esq.
Blooston, Mordkofsky, Jackson & Dickens
2120 L Street, N.W., Suite 300
Washington, D.C. 20037

Jeffrey L. Sheldon, Esq.
General Counsel
Utilities Telecommunications Council
1140 Connecticut Avenue N.W., Suite 1140
Washington, D.C. 20036

Frank Michael Panek, Esq.
Ameritech
2000 Center Drive
Hoffman Estates, Illinois 60196

Wayne V. Black, Esq.
Keller & Heckman
1001 G Street, Suite 500 West
Washington, D.C. 20001
Counsel for The American Petroleum Institute

Catherine Wang, Esq.
Swidler & Berlin, Chartered
3000 K Street N.W., Suite 300
Washington, D.C. 20007
Counsel for Spectralink Corporation

R. Michael Senkowski, Esq.
Wiley, Rein & Fielding
1776 K Street N.W.
Washington, D.C. 20036
Counsel for Wireless Information Network Forum
and UTAM, Inc.

David C. Jatlow, Esq.
Young & Jatlow
2300 N Street N.W., Suite 600
Washington, D.C. 20037
Counsel for the Ericsson Corporation

Linda C. Sadler
Manager, Governmental Affairs
Rockwell International Corporation
1745 Jefferson Davis Highway
Arlington, Virginia 22202

James F. Lovette
Apple Computer, Inc.
One Infinite Loop, MS:301-4J
Cupertino, California 95014

M. John Bowen, Jr., Esq.
McNair & Sanford, P.A.
1155 15th Street, N.W.
Washington, D.C. 20005
Counsel for PMN, Inc.

Larry A. Blosser, Esq.
MCI Telecommunications Corporation
1801 Pennsylvania Ave. N.W.
Washington, D.C. 20006

Jay C. Keithley, Esq.
Sprint Corporation
1850 M Street N.W., Suite 1100
Washington, D.C. 20036

Gail L. Polivy, Esq.
GTE Service Corporation
1850 M Street N.W., Suite 1200
Washington, D.C. 20036

James P. Tuthill, Esq.
Pacific Bell/Nevada Bell
140 New Montgomery Street, Room 1529
San Francisco, California 94105

Gene A. Bechtel, Esq.
Bechtel & Cole, Chartered
1901 L Street N.W., Suite 250
Washington, D.C. 20036
Counsel for Advanced Cordless Technologies, Inc.

Leonard J. Kennedy, Esq.
Dow, Lohnes & Albertson
1255 23rd Street N.W.
Washington, D.C. 20037
Counsel for Comcast Corporation

John Hearne, Chairman
Point Communications Company
100 Wilshire Boulevard, Suite 1000
Santa Monica, California 90401

Jeffrey S. Bork, Esq.
US WEST
1020 19th Street N.W., Suite 700
Washington, D.C. 20036

John D. Lane, Esq.
Wilkes, Artis, Hedrick & Lane, Chartered
1666 K Street N.W.
Washington, D.C. 20036
Counsel for Association of Public-Safety Communications Officials-International, Inc.

Brian D. Kidney, Esq.
PacTel Corporation
2999 Oak Road, MS 1050
Walnut Creek, California 94596

Henry M. Rivera, Esq.
Ginsburg, Feldman & Bress, Chartered
1250 Connecticut Ave. N.W.
Washington, D.C. 20036
Counsel for Metricom, Inc.

Stuart F. Feldstein, Esq.
Fleischman & Walsh
1400 16th Street N.W.
Washington, D.C. 20036
Counsel for Time Warner Telecommunications

Francine J. Berry, Esq.
AT&T
Room 3244J1, 295 N. Maple Avenue
Basking Ridge, New Jersey 07920

Stephen L. Goodman
Halprin, Temple & Goodman
1301 K Street N.W., Suite 1020, East Tower
Washington, D.C. 20005
Counsel for Northern Telecom, Inc.

George Y. Wheeler, Esq.
Koteen & Naftalin
1150 Connecticut Ave. N.W., Suite 1000
Washington, D.C. 20036
Counsel for Telephone & Data Systems, Inc.

W. Scott McCollough
Assistant Attorney General
State of Texas
Counsel for TX-ACSEC
P. O. Box 12548
Austin, Texas 78711-2548

Lisa M. Zaina, Esq.
General Counsel
OPASTCO
21 DuPont Circle N.W., Suite 700
Washington, D.C. 20036

David L. Nace, Esq.
Lukas, McGowan, Nace & Gutierrez, Chartered
1819 H Street N.W., 7th Floor
Washington, D.C. 20006
Counsel for Pacific Telecom Cellular, Inc. and
Alliance of Rural Area Telephone and Cellular Service Providers

James E. Meyers, Esq.
Baraff, Koerner, Olender & Hochberg, P.C.
5335 Wisconsin Avenue N.W., Suite 300
Washington, D.C. 20015-2003
Counsel for Pegasus Communications, Inc.

E. Ashton Johnston, Esq.
Bryan Cave
700 13th Street N.W., Suite 700
Washington, D.C. 20005-3960
Counsel for Personal Network Services Corp.

Stephen G. Kraskin, Esq.
Kraskin & Associates
2120 L Street N.W., Suite 810
Washington, D.C. 20037
Counsel for U.S. Intelco Networks, Inc. and
Rural Cellular Association

John A. Prendergrast, Esq.
Blooston, Mordkofsky, Jackson & Dickens
2120 L Street N.W., Suite 300
Washington, D.C. 20037
Counsel for Radiofone, Inc.

Ronald L. Plessner, Esq.
Piper & Marbury
1200 19th Street N.W., 7th Floor
Washington, D.C. 20036
Counsel for PCS Action, Inc.

Thomas Gutierrez, Esq.
Lukas, McGowan, Nace & Gutierrez, Chartered
1819 H Street N.W., 7th Floor
Washington, D.C. 20006
Counsel for Columbia Cellular Corporation

R. E. Sigmon
Vice President-Regulatory Affairs
Cincinnati Bell Telephone
P. O. Box 2301
Cincinnati, Ohio 45201

John S. Hannon, Jr., Esq.
COMSAT Corporation
22300 COMSAT Drive
Clarksburg, Maryland 20871

James D. Ellis, Esq.
Southwestern Bell Corporation
175 E. Houston, R. 1218
San Antonio, Texas 78205

David L. Hill, Esq.
O'Connor & Hannan
1919 Pennsylvania Ave. N.W., Suite 800
Washington, D.C. 20006-3483
Counsel for Florida Cellular RSA Limited Partnership

Kathy L. Shobert
Director, Federal Regulatory Affairs
General Communication, Inc.
888 16th Street N.W., Suite 600
Washington, D.C. 20006

Carl W. Northrop, Esq.
Bryan Cave
700 13th Street N.W., Suite 700
Washington, D.C. 20005-3960
Counsel for George E. Murray

Lon C. Levin, Esq.
Vice President and Regulatory Counsel
AMSC Subsidiary Corporation
10802 Parkridge Boulevard
Reston, Virginia 22091

Paul J. Berman, Esq.
Covington & Burling
P. O. Box 7566
Washington, D.C. 20044-7566
Counsel for Anchorage Telephone Utility

Paul R. Schwedler, Esq.
Assistant Chief Regulatory Counsel
Defense Information Systems Agency
701 S. Courthouse Road
Arlington, Virginia 22204

David Cosson, Esq.
National Telephone Cooperative Association
2626 Pennsylvania Ave. N.W.
Washington, D.C. 20037

Harold K. McCombs, Jr., Esq.
Duncan, Weinberg, Miller & Pembroke, P.C.
1615 M Street N.W., Suite 800
Washington, D.C. 20036

Robert S. Foosaner, Esq.
Sr. Vice President, Government Affairs
Nextel Communications, Inc.
601 13th Street N.W., Suite 1100 South
Washington, D.C. 20005

Chandos A. Rypinski
LACE, Inc.
655 Redwood Highway, Suite 340
Mill Valley, California 94941

Norman P. Leventhal, Esq.
Leventhal, Senter & Lerman
2000 K Street N.W., Suite 600
Washington, D.C. 20006
Counsel for TRW, Inc.

William B. Barfield, Esq.
BellSouth Corporation
1155 Peachtree Street N.E.
Atlanta, Georgia 30367-6000

Michael F. Altschul, Esq.
Vice President, General Counsel
Cellular Telecommunications Industry Association
1133 21st Street N.W.
Washington, D.C. 20036

Edward R. Wholl, Esq.
NYNEX Corporation
120 Bloomingdale Road
White Plains, New York 10605

Timothy E. Welch, Esq.
Hill & Welch
1330 New Hampshire Ave. N.W., Suite 113
Washington, D.C. 20036
Counsel for MEBTEL, Inc.

Scott K. Morris, Esq.
Vice President - Law
McCaw Cellular Communications, Inc.
5400 Carillon Point
Kirkland, Washington 98033

Michael Killen, President
Killen & Associates, Inc.
382 Fulton Street
Palo Alto, California 94301

James U. Troup, Esq.
Arter & Hadden
1801 K Street N.W., Suite 400K
Washington, D.C. 20006
Counsel for Iowa Network Services, Inc.

Barry R. Rubens
Manager-Regulatory Affairs
The Concord Telephone Company
P. O. Box 227
Concord, North Carolina 28026-0227



Dated: January 3, 1994

164836/gw03