

ORIGINAL

BEFORE THE
Federal Communications Commission

WASHINGTON, D.C. 20554

ORIGINAL
FILE

In the Matter of

Amendment of the Commission's
Rules to Establish New
Personal Communication Services

-) Gen. Docket No. 90-314
-) ET Docket No. 92-100
-)
-) RM-7140, RM-7175,
-) RM-7617, RM-7618,
-) RM-7760, RM-7782,
-) RM-7860, RM-7977,
-) RM-7978, RM-7979,
-) RM-7980
-) PP-35 Through PP-40,
-) PP-79 Through PP-85

To: The Commission

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NOV - 9 1992

**COMMENTS
OF THE
AMERICAN PETROLEUM INSTITUTE**

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Wayne V. Black
Christine M. Gill
Rick D. Rhodes
Tamara Y. Davis

Keller and Heckman
1001 G Street, N.W.
Suite 500 West
Washington, D.C. 20001
(202) 434-4100

Its Attorneys

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SUMMARY

In API's view, ample evidence exists on the record in this proceeding to demonstrate the proposed reallocation of spectrum in the 1850-1990 MHz band to Personal Communications Services (PCS) is not in the public interest. Nevertheless, since the Commission is proceeding with implementing a reallocation of these bands to PCS, it must do so with the utmost care to ensure that Private Operational-Fixed (POFS) operations currently in this band are not disrupted. To accomplish this, API recommends that the Commission make the allocation of spectrum to PCS operators in 20 MHz rather than 30 MHz blocks. The existing POFS frequencies are paired in 10 MHz blocks and, consequently, using 20 MHz blocks avoids the problem of one-half of a frequency pair remaining fallow during the transition period. This will cause less disruption to existing POFS operations and will still provide adequate spectrum for initial service requirements.

In addition, it is incumbent upon the Commission to provide existing licensees with a reasonable transition framework to reconfigure or replace existing facilities. The voluntary negotiation period should be, at a minimum, five years. This will allow parties to fairly negotiate

with each other for payment of relocation costs. The Commission must also ensure that while these systems are operated in a shared environment that adequate interference criteria are employed to protect critical POFS operations. API is submitting in these comments interference criteria calculations to assist the Commission in implementing realistic standards. Adequate interference protection is absolutely essential in order for the Commission to address concerns expressed by Congress and all users in the POFS community. The forced sharing of these bands must not result in unacceptable interference to the critical communication systems used widely throughout American industries. API supports the use of Bulletin 10-E standards with the appropriate implementation criteria.

API believes that the Commission's proposal to allow unlicensed PCS operations in the 1910-1930 MHz band will create significant problems for POFS licensees. Systems now operating in this band have generally been forced to do so because of the unavailability of other spectrum. These facilities provide services just as critical as those performed in other portions of the 1850-1990 MHz band. There is no rational basis for second-class treatment of these licensees. Accordingly, API recommends that the Commission implement a one-year transition period during

which any existing licensee could relocate to a different frequency band immediately. Manufacturers interested in marketing equipment operating on these frequencies would be required to establish an escrow fund to pay for relocation costs of any current licensee that wishes to relocate immediately. The Commission must also assure that adequate replacement spectrum is available. This approach recognizes that it is impossible to operate critical microwave links in an environment with unlicensed services. Since users will be forced out of this band immediately, the Commission must provide for an orderly transition.

Finally, API strongly believes that the Commission should adopt standards for PCS operations. As potential users of this technology, interoperability and universality are keys to making this a truly nationwide and international service. Since the Commission has indicated that these are important priorities, it should ensure that standardization occurs. While API does not take a position on the appropriate structure for the PCS industry, it would encourage the Commission to seek the most competitive market possible as this will be the most beneficial for potential customers. The Commission should also take appropriate steps to study any potential harmful biological effects of

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operating these types of consumer devices in the
1850-1990 MHz band.

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To: The Commission

COMMENTS
OF THE
AMERICAN PETROLEUM INSTITUTE

The American Petroleum Institute ("API"), by its attorneys, pursuant to the invitation extended by the Federal Communications Commission ("FCC" or "Commission") in its Notice of Proposed Rule Making and Tentative Decision^{1/} in the above-referenced proceeding, respectfully submits the following Comments for consideration by the Commission.

I. BACKGROUND STATEMENT

1. The American Petroleum Institute is a national trade association representing over 200 companies involved in all

^{1/} Notice of Proposed Rule Making and Tentative Decision (FCC 92-333), adopted July 16, 1992, released August 14, 1992.

aspects of the oil and gas industries, including exploration, production, refining, marketing and pipeline transportation of petroleum, petroleum products and natural gas. Among other activities, API acts on behalf of its members as a spokesperson before federal and state regulatory agencies. The API Telecommunications Committee is one of the standing committees of the organization's General Committee on Transportation. The Committee evaluates and develops responses to state and federal proposals affecting telecommunications facilities used in the oil and gas industries.

2. API member companies are authorized by the Commission to operate, among other telecommunications facilities, thousands of point-to-point microwave stations in the Private Operational-Fixed Microwave Service ("POFS"). These facilities support the search for, and the production and pipeline transportation of oil and natural gas. These systems also ensure the safe processing and refining of these energy sources, and expedite safe delivery of petroleum products and natural gas to industrial, commercial, and residential customers. Consequently, API is concerned with the outcome of this proceeding since the radio spectrum the Commission has allocated for personal communication services ("PCS") is the same as that now used by the oil and natural

gas industries for the operation of critical microwave systems.

3. API's participation in this proceeding commenced with the Commission's original PCS Notice of Inquiry.^{2/} Since the inception of this proceeding in 1990, API has made every effort to inform the Commission of the extreme concern with which the oil and gas industries view the potential reallocation of spectrum in the 1-3 GHz range. API's members use the frequency bands in this range to ensure the safety and efficiency of inherently hazardous operations relating to the production and distribution of petroleum and natural gas energy sources. API reiterates its belief that the Commission's headlong drive to reallocate the frequency bands 1850-1990 MHz, 2110-2150 MHz and 2160-2200 MHz for PCS, whether on a shared or exclusive basis, holds potentially grave consequences for the public welfare. It is contrary to the public interest for the Commission to reallocate the spectrum in this band for PCS activity.

4. Nonetheless, since it appears that the Commission clearly has decided to make this spectrum available for nationwide PCS use as quickly as is possible, it remains for

^{2/} Notice of Inquiry, Docket No. 90-314, 5 FCC Rcd. 3995 (1990).

API to urge the Commission to proceed with the reallocation in a manner which will create the least harmful impact on the essential POFS operations now conducted in these bands.

II. COMMENTS

5. The Commission's proposal to reallocate this 2 GHz spectrum for PCS will create significant harm to existing POFS operations. These operations help ensure the safe and efficient production and delivery of the nation's vital energy sources. Nevertheless, since it appears that the Commission will proceed with a rapid reallocation of this spectrum, the Commission must take all possible measures to ensure that the transition from POFS to PCS operations in these bands occurs with a minimum of harmful impact on incumbent licensees and the public safety. Moreover, the Commission must ensure that incumbent licensees may obtain adequate replacement spectrum and/or technologies to provide the services now available in these bands. Further, the Commission must take steps to ensure that the incumbent licensees who are removed from the band receive adequate compensation for the costs of their transition.

A. The Commission Must Carefully Allocate Spectrum Blocks in Order to Minimize Short Term Impact on POFS Operations

6. In API's view, ample evidence exists on the record in this proceeding to demonstrate that the proposed reallocation is not in the public interest since it could create dire consequences for the public safety.^{3/} However, since the Commission is proceeding with implementing the reallocation of these bands to PCS, it must do so in a manner which will minimize the immediate harmful consequences on existing POFS operations.

7. The Commission may make adequate spectrum available for the commencement of PCS operations as well as minimize harmful impact on existing POFS operations by allocating spectrum in 20 MHz rather than 30 MHz blocks. By allocating spectrum to PCS in 20 MHz blocks, the Commission will provide adequate spectrum resources to PCS interests while minimizing potential interference problems between PCS and POFS interests, since less total spectrum initially will be affected. Further, by using a 20 MHz allocation approach, the Commission will be able to ensure faster and more efficient PCS deployment because the current POFS allocation provides

^{3/} See, e.g., Comments of API in response to the Commission's December 5, 1991 En Banc Hearings, Gen. Docket No. 90-314, pp. 18-20 (January 9, 1992).

10 MHz bandwidth operations. By employing a "10 MHz transmit and 10 MHz receive" scheme, PCS operators may more rapidly deploy systems even in "spectrum crowded" areas since negotiation with only one POFS licensee could result in the availability of 20 MHz for paired PCS operation. Such an approach would not be the case should the Commission allocate 30 MHz blocks to PCS because PCS operators would likely have to negotiate with two or more POFS licensees to provide 15 MHz on either side of a paired configuration. A 30 MHz scheme may also produce the unintended consequence of creating significant amounts of fallow spectrum, since the POFS operator who negotiates away the added 10 MHz to a PCS operator, would be unlikely to continue operation of one-way transmission over the remaining 10 MHz "half" of the frequency pair. Accordingly, API believes the best interests of POFS licensees and PCS proponents will be served by implementing a 20 MHz allocation plan.

8. Additionally, the Commission may make adequate PCS service options available to the public by the provision of spectrum to three PCS entities per market area.^{4/} By granting 20 MHz blocks to three entities per market, the initial

^{4/} Indeed, PCS proponents have agreed that three PCS providers per market will ensure adequate service choices to consumers. See, e.g., Statement of S. Barclay Jones, American Personal Communications, FCC En Banc Hearings (December 5, 1991).

spectrum reallocation would affect 60 MHz rather than 90 MHz during the transition phase. This plan will minimize interference potential to POFS operations, thereby assuring more rapid deployment of PCS services.

9. The Commission should also give serious consideration to setting standards for PCS systems. The Commission has emphasized repeatedly that universality of service is an important goal for this new service. Although API member companies are adversely affected by this reallocation, they are also potential users of PCS. If the Commission is to proceed with PCS it should do so on a technically sound basis. API believes standards are essential for the type of inter-operability that will make nationwide PCS service a reality. Standards will also ease, to some degree, the difficulties of POFS licensees operating in the midst of multiple PCS systems. Overall, the public will be better served if the Commission takes the additional time needed to develop standards. Furthermore, with the ready availability of other mobile services such as cellular and specialized mobile radio systems, the public has adequate mobile services to meet immediate needs. Consequently, the Commission has the time to take a systematic approach, which should include the development of standards, in introducing PCS.

B. The Commission Must Establish a Transition Plan Which Will Ensure an Orderly and Safe Transition for Existing POFS Operations

10. In any reallocation scheme that creates such a sweeping impact as that proposed, it is incumbent upon the Commission to provide existing licensees with a reasonable transition framework in which to reconfigure or replace existing facilities. Not only the principles of equity and fairness, but the public safety demand that the Commission provide every possible accommodation to displaced POFS operations during an adequate transition period.

11. Accordingly, the Commission must establish a reasonable period during which incumbent POFS licensees will retain primary status for use of frequencies in the 2 GHz bands. During this period, any relocation by incumbent licensees must occur strictly on a voluntary basis. Following the termination of this period, the Commission should provide an open framework for involuntary relocation as proposed in the Notice. Such a plan must allow the incumbent POFS licensee to maintain primary status until such time as a PCS proponent is willing to provide adequate compensation and suitable facilities can be licensed to replace the licensee's 2 GHz facilities.

12. In order to establish as much certainty as possible within the transition framework, API urges the Commission to allow POFS operators to maintain primary status in the 2 GHz band for an absolute period of five years, after which the indefinite, involuntary relocation period would take effect. POFS licensees should remain primary during the involuntary period as well. This approach will allow incumbent licensees to be assured of continued use of their frequency assignments for an established transition period, and will provide PCS proponents with some measure of certainty that spectrum will be made available in the band within a defined time frame if it is needed. Moreover, this time frame would provide incumbents with a further incentive to enter early spectrum negotiations with PCS proponents because manufacturers who produce POFS equipment for operation in the 2 GHz band will likely curtail the production and availability of such equipment upon learning of a definite termination date. Moreover, by leaving room for considerable discretion in migration arrangement negotiations between PCS and POFS licensees, the Commission will encourage earnest negotiations in an expeditious time frame.

13. The Commission must also ensure that any non-conforming systems in these bands which were grandfathered when the Commission adopted Part 94 of its rules^{5/} are protected to the same degree as all other POFS systems in these bands. As part of this grandfathering, for example, the Commission permitted the use of non-standard antennas and channeling arrangements. These systems provide the same critical services as other microwave systems and should be protected from harmful interference without being required to be upgraded to accommodate PCS.

C. The Commission Must Ensure that Adequate Interference Criteria are Employed to Protect Critical POFS Operations

14. The Commission has posed questions concerning the parameters of technical and operational information which PCS applicants must provide within the licensing process. API is convinced that significant technical details of proposed PCS systems must be made available so that interference problems which occur during the transition phase may be expeditiously resolved. To this end, it is clear that, at a minimum, PCS applicants must file sufficient technical information with the Commission to provide incumbent POFS operators with adequate

^{5/} See, for example, 47 C.F.R. § 94.61(a) allowing the use of non-conforming antennas. Report and Order in Docket No. 19869, 52 F.C.C.2d 894 (1975).

details with which to solve or forestall potential interference problems. API reminds the Commission that absolute reliability is essential to the operations now conducted in the POFS by petroleum and natural gas company licensees. Even a brief system outage could create adverse consequences for the public safety.^{6/}

15. Accordingly, PCS applicants must specify every PCS base station antenna site within the proposed area of operations prior to any Commission grant of system authorization. Moreover, PCS licensees who desire to modify either applications or constructed PCS systems to add base stations must be required to file applications providing full technical particulars of the proposed modifications. Additionally, since PCS operations will co-exist on a shared basis with POFS operations, all fixed PCS facilities must be coordinated under the same criteria as those now required for POFS systems.^{7/} While this approach may create minimal compliance burdens for PCS applicants, it will lessen interference potential to POFS operations and ensure rapid remediation of any interference which PCS base station transmissions may create.

^{6/} See API Comments in response to the Commission's En Banc Hearings, f.3, supra.

^{7/} See 47 C.F.R. § 94.63 (1991).

16. Moreover, API is concerned that the Commission proposes to allow PCS operations to be conducted with sufficient power, antenna gain and antenna height levels to create, in effect, a full-fledged "second cellular service" in the 2 GHz band.^{8/} API does not understand the Commission's proposed technical operating parameters for PCS, particularly since PCS proponents claim to have successfully operated experimental PCS systems with significantly lower output power, antenna gain and tower heights than are suggested by the Commission.^{9/} Accordingly, the Commission should set a transmitter output power limitation of 5 watts per PCS base station unit and 1 watt for handheld transceivers. This limitation will provide what PCS experimenters claim are adequate power output levels for PCS operations, while minimizing interference potential to POFs operations.

17. Irrespective of the final configuration and technical output parameters of PCS systems, the Commission bears an affirmative and undeniable obligation to ensure that emerging technologies do not inflict harmful interference on critical point-to-point microwave services. API firmly

^{8/} Notice, ¶¶ 114-116.

^{9/} See APC Report on Spectrum Sharing in the 1850-1990 MHz Band, pp. 16-18 (July 1991).

believes that the only option available to the Commission is to rigorously apply an interference criteria which will protect POFS licensees. API therefore endorses the Commission's proposed approach to utilize the EIA Bulletin 10-E requirements as an interference standard for spectrum-shared PCS/POFS operations.

18. In addition to suggesting that the Bulletin 10-E standard be employed as an interference threshold, the Commission questioned what statistical techniques might be employed to predict with accuracy the aggregate levels of interference to POFS operations from "fleets" of PCS mobiles. While API believes that Bulletin 10-E provides an adequate interference standard, this standard must be coupled with engineering analysis techniques which are adequate to ensure that interference will not occur to critical POFS operations.

19. Certainly, API understands the significant complexities presented by the problem of engineering mobile PCS systems into the preexisting POFS environment. Nonetheless, API is convinced that these difficult engineering problems must be solved since interference considerations will effect PCS system growth as well as the negotiation process with incumbent POFS licensees. API strongly suggests that while Bulletin 10-E is an appropriate starting point, specific

PCS/POFS engineering practices must be developed by an appropriate technical committee with participation from both the POFS and PCS communities. While the CCIR has begun an effort to establish such practices, and while API representatives will be pleased to participate in this effort, API understands that it is unlikely that such efforts will be concluded in sufficient time to assist the Commission in its initial establishment of interference analysis standards for PCS/POFS services. API therefore suggests that an interim engineering practice be established to help minimize the interference problems which are likely to occur between PCS and POFS operations in a shared environment.

20. Accordingly, attached hereto as "Exhibit A" is a technical proposal by which API believes potential interference to POFS systems created by PCS base stations and mobile units may be accurately calculated and by which, in turn, interference may be forestalled. API requests that the Commission review this proposal, and further requests that the factors identified be carefully considered by the Commission in conducting analysis of potential interference to pre-existing POFS operations from proposed PCS operations.

D. The Proposal to Allow Unlicensed PCS Operations at 1910-1930 MHz Will Create Significant Problems for POFS Licensees

21. The Commission's proposal to allow unlicensed PCS operations at 1910-1930 MHz is unworkable. The concept of unlicensed operations in any portion of the band poses significant operational hazards which are unacceptable to incumbent licensees. Interference to existing operations cannot be tolerated in any portion of the band. While the Commission is correct in its assumption that this portion of the band 1850-1990 MHz is less heavily used than other spectrum, this conclusion belies the fact that significant numbers of critical POFS operations are conducted in this spectrum. Specifically, operations in this band have been authorized for "one-way" as well as "non-standard pairing" two-way operations in spectrum-congested areas. Channel assignments in this range often have provided the "last best hope" for point-to-point telecommunications service provision in locations where the band 1850-1990 MHz is crowded.

22. Because POFS systems in this portion of the band serve the same critical functions, the Commission should protect POFS operations in this band on the same basis as the POFS systems operated elsewhere in the band 1850-1990 MHz. API believes that the best approach is to make data-PCS a licensed rather than an unlicensed service, and that the

Commission require that PCS operations conducted in this spectrum block be subject to the same application/coordination procedures and technical limitations imposed upon PCS operation in the other portions of these bands.

23. Despite the severe impact that unlicensed operations would have on the 1910-1930 MHz band, API recognizes that the Commission may nevertheless proceed to authorize unlicensed operations. Should this occur, API members with systems in the band 1910-1930 MHz would be forced to vacate the band immediately because they could not tolerate operating in such an interference plagued environment. Because of this forced migration, it is essential that the Commission provide a transition mechanism whereby POFS users forced from the band could find adequate replacement spectrum and be compensated for the cost of relocation. Should the Commission go forward with unlicensed operations at 1910-1930 MHz, API recommends that the Agency establish a one-year transition period beginning from the date of the conclusion of the proceedings in ET Docket No. 92-9 which propose rechannelizing the bands above 3 GHz for displaced 2 GHz users. During this one-year period, licensees in the 1910-1930 MHz band could relicense affected paths in other frequency bands. However, the Commission should be aware that the primary reason why paths are licensed in the 1910-1930 MHz band is because no other

spectrum alternative was available to the licensee. These paths tend to be in congested areas, where standard pairs are unavailable. Consequently the replacement spectrum issue is a difficult one. If during this transition period the displaced licensee cannot find suitable replacement spectrum as a result of the Commission's rechannelization of the bands above 3 GHz, the incumbent licensee should be allowed immediate access to the federal government band at 1710-1850 MHz. Since there would be a relatively small number of licensees in this position, this should not have an adverse effect on government operation in this band.

24. During this one-year transition period, the Commission should not authorize any equipment to operate in the 1910-1930 MHz band. This would ensure that the existing licensees could vacate the band in an orderly manner without risk of hazardous interference to critical communications systems. Furthermore, this would enable the Commission to establish a compensation mechanism whereby the cost of this relocation could be paid by the manufacturers who wish to market equipment using this spectrum. API recommends that the Commission require the establishment of an escrow fund which would be contributed to by each manufacturer requesting certification for PCS equipment to operate in the band 1910-1930 MHz. These funds would be used to pay the

relocation costs of licensees who find it necessary to vacate the spectrum immediately in order to maintain the reliability of their communications system operating in these bands. Estimates of the total amount required could be based on figures that have been submitted to the Commission of average replacement costs (e.g. \$100,000 per station). The Commission could then tally the total number of potential links that would need to be replaced. Each manufacturer requesting certification would pay an equal pro rata share of the total estimated cost of replacing all POFS stations in the 1910-1930 MHz range. The Notice indicates that there are 28 microwave stations licensed in the 1910-1930 MHz range with ten miles of the center of the top 50 MSAs.^{10/} Although API believes that there are more stations that could be adversely affected immediately, these numbers could be easily calculated. Once the fund was established, licensees could submit applications for relicensing to the Commission and at the same time submit requests for payment of their relocation costs. The reasonable cost to be paid would be the same as those indicated for replacement of microwave paths in other portions of the 2 GHz bands. Once the one-year transition period had expired, the remaining licensees who have not chosen to re-license their paths could be designated as secondary, and the FCC could grant the certification for the

^{10/} Notice at 19, n.31.

unlicensed PCS equipment. Full marketing of PCS equipment on an unlicensed basis could then begin. The funds not expended could be returned pro rata to the manufacturers who paid into the fund.

25. A one-year transition period under these conditions seems reasonable. Equipment manufacturers who apparently believe that this will be an extremely lucrative market should be willing to fund the relocation costs in order to assure their product can have access to the market without fear that its customers may cause serious harm by interfering with critical microwave links or that their systems would be subject to interference from POFs operations. This would also assure that the Commission addresses the very serious concerns expressed by Congress, that microwave paths vital to American industries not be unduly disrupted or forced off the air without an orderly transition.

26. If the Commission is unwilling to adopt this very reasonable transition plan, it must ensure at a minimum that EIRP levels are kept extremely low and that tight restrictions are imposed on band edges to ensure that "sloppy" transmissions do not cause unintended interference.