

§ 21.17 [Amended]

2. By amending § 21.17 by adding “, §§ 27.2, 29.2,” immediately after “25.2” in the introductory text of paragraph (a).

§ 21.101 [Amended]

3. By amending § 21.101 by adding “, §§ 27.2, 29.2,” immediately after “§ 25.2” in the introductory text of paragraph (a).

PART 27—AIRWORTHINESS STANDARDS: NORMAL CATEGORY ROTORCRAFT

4. The authority citation for part 27 continues to read as follows:

Authority: 49 U.S.C. 1344, 1354(a), 1355, 1421, 1423, 1425, 1428, 1429, 1430; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

5. By adding a new § 27.2 after § 27.1 and before the heading “Subpart B—Flight” to read as follows:

§ 27.2 Special retroactive requirements.

Notwithstanding §§ 21.17 and 21.101 of this chapter and irrespective of the type certification basis, each rotorcraft manufactured after (1 year after publication of the amendment in the *Federal Register*), or any such foreign manufactured rotorcraft for entry into the United States, must meet the requirements of § 27.785(b) and (c) in effect (30 days after publication of the amendment in the *Federal Register*). For the purpose of this paragraph, the date of manufacture is—

(a) The date the inspection acceptance records, or equivalent, reflect that the rotorcraft is complete and meets the FAA-Approved Type Design Data; or

(b) In the case of a foreign-manufactured rotorcraft, the date the foreign civil airworthiness authority

certifies the rotorcraft is complete and issues an original standard airworthiness certificate, or equivalent, in that country.

PART 29—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY ROTORCRAFT

6. The authority citation for part 29 continues to read as follows:

Authority: 49 U.S.C. 1344, 1354(a), 1355, 1421, 1423, 1424, 1425, 1428, 1429, 1430; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

7. By adding a new § 29.2 after § 29.1 and before the heading “Subpart B—Flight” to read as follows:

§ 29.2 Special retroactive requirements.

Notwithstanding §§ 21.17 and 21.101 of this chapter and irrespective of the type certification basis, each rotorcraft manufactured after (1 year after publication of the amendment in the *Federal Register*), or any such foreign manufactured rotorcraft for entry into the United States, must meet the requirements of § 29.785(b) and (c) in effect (30 days after publication of the amendment in the *Federal Register*). For the purpose of this paragraph, the date of manufacture is—

(a) The date the inspection acceptance records, or equivalent, reflect that the rotorcraft is complete and meets the FAA-Approved Type Design Data; or

(b) In the case of a foreign manufactured rotorcraft, the date the foreign civil airworthiness authority certifies the rotorcraft is complete and issues an original standard airworthiness certificate, or equivalent, in that country.

PART 91—GENERAL OPERATING AND FLIGHT RULES

8. The authority citation for part 91 continues to read as follows:

Authority: 49 U.S.C. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat. 1180); 42 U.S.C. 4321 et seq.; E.O. 11514; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

9. By amending § 91.205¹ by adding a new paragraph (b)(16) to read as follows:

§ 91.205 Powered civil aircraft with standard category U.S. airworthiness certificates; instrument and equipment requirements.

* * * * *

(b) * * *

(16) For rotorcraft manufactured after (1 year after publication of the amendment in the *Federal Register*), a shoulder harness for each seat that meets the requirements of § 27.785(b) and (c) or § 29.785(b) and (c) of this chapter in effect (30 days after publication of the amendment in the *Federal Register*).

* * * * *

Issued in Washington, DC, on November 30, 1989.

Thomas E. McSweeney,
Acting Director, Aircraft Certification Service.

[FR Doc. 89-28554 Filed 12-7-89; 8:45 am]

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¹ Note: This amendment would affect § 91.205 which becomes effective August 18, 1990 (see 54 FR 34284, August 18, 1989).

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Federal Register

Friday
December 8, 1989

Part III

Department of Commerce

National Telecommunications and
Information Administration

**Comprehensive Policy Review of Use
and Management of the Radio Frequency
Spectrum; Notice of Inquiry and Request
for Comments**

DEPARTMENT OF COMMERCE

National Telecommunications and Information Administration

Comprehensive Policy Review of Use and Management of the Radio Frequency Spectrum

AGENCY: National Telecommunications and Information Administration (NTIA), Commerce.

ACTION: Notice of inquiry; request for comments.

SUMMARY: NTIA is conducting a comprehensive policy review of the use and management of the radio frequency spectrum in the United States. Public comment is requested on issues relevant to such a review. After analyzing the comments, NTIA intends to issue a report, which may propose changes in the rules and regulations governing spectrum allocation and assignment.

DATES: Comments should be filed on or before February 23, 1990, and reply comments should be filed on or before March 30, 1990, to receive full consideration.

ADDRESSES: Comments (seven copies) should be sent to: Office of Policy Analysis and Development, NTIA, U.S. Department of Commerce, 14th Street and Constitution Avenue NW., room 4725, Washington, DC 20230.

FOR FURTHER INFORMATION CONTACT: Joseph L. Gattuso, Office of Policy Analysis and Development, 202-377-1890, or Michael Allen, Office of Spectrum Management, 202-377-0805.

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I. Introduction

1. The National Telecommunications and Information Administration (NTIA) is the Executive Branch Agency principally responsible for developing and articulating domestic and international telecommunications policies. Under Executive Order 12046, NTIA acts as the principal adviser to the President on telecommunications policies. Accordingly, NTIA conducts studies and makes recommendations regarding telecommunications policies, activities, and opportunities, and presents Executive Branch views on telecommunications matters to the Congress, the Federal Communications Commission (the FCC), state and local governments, and members of the public.

2. NTIA is undertaking a comprehensive policy review of the use and management of the radio frequency spectrum in the United States. NTIA has previously analyzed many aspects of spectrum use and management, both in the context of particular allocation and assignment decisions and as part of its long-range planning responsibility. This review, however, is the first major examination of fundamental spectrum policy objectives and issues by NTIA since its organization in 1978.

3. The value of spectrum, as an invisible resource, is sometimes overlooked. Yet over the years, demand for spectrum for both commercial and governmental purposes has continued to increase. Spectrum use underlies some of the most competitive and technologically sophisticated industries in the United States and is of great importance to the national economy. Radio communications and detection equipment shipments in the United States were valued at \$54 billion in 1988,¹ and represent only a portion of

¹ By comparison, the total cost of plant added in 1988 by local exchange carriers reporting to the FCC was \$17.9 billion, and the total revenues of those carriers were \$81.5 billion. (Unpublished data from FCC's Common Carrier Bureau, Industry Analysis Division.)

Para-
graph

industries that could be considered spectrum-related. For example, spectrum provides the backbone for many consumer and business services, including radio and television broadcasting, cellular telephones, and taxicab dispatch and other radio-based services. As a result, the effective use and management of the spectrum will increasingly play a critical role in promoting U.S. economic well-being and global competitiveness. In light of this, we request information on the role of spectrum use and management in the U.S. economy.

4. In addition, many key government services rely on the use of the spectrum to control air traffic; aid the public in law enforcement, public safety, and disaster relief; contribute to national security through command and control of military forces; protect our national parks and forests; and assist in the goals of the national space program. Clearly, in light of the broad range of critical public and private activities dependent on the spectrum, the effective use and management of this valuable and scarce resource should be a national policy objective.

5. Historically, U.S. spectrum management policies were designed to minimize interference among different radio systems and to create an efficient structure in which demand for spectrum could be met. Over time, the process has become increasingly complex as it has sought to accommodate a growing and increasingly diverse set of competing user demands and policy objectives. Ideally, spectrum policies should provide incentives for efficient use of the spectrum resource. At the same time, the spectrum management system should respond flexibly to changes in demand and technology. In particular, it should permit the rapid introduction of new services as they are developed. Finally, the system must also accommodate important public services, such as national defense, public safety, and law enforcement, among others.

6. While spectrum management in the United States continues to accommodate new users and telecommunications technologies, it does so through a variety of overlapping jurisdictions, processes, and standards. There is growing concern in the spectrum policy community that the present system may not always be operating in the most effective, efficient, and equitable manner. Accordingly, NTIA believes the U.S. spectrum management system should be reviewed, and potential improvements developed and evaluated, particularly in light of increases in the demand for

spectrum, rapidly changing developments in spectrum-related technology, and the new forms of spectrum management implemented in other countries.

7. Specific controversies pervade the spectrum management process, including whether or how much additional U.S. spectrum should be allocated for land mobile radio or "personal communications"; whether current use of the UHF television band should be amended to include additional sharing with land mobile and other services; and whether additional spectrum is required for Advanced Television (ATV). While we anticipate that comments on this Notice will address such conflicts, this study will focus on the broader and fundamental issues of spectrum management that underlie such conflicts, such as whether the current system has been successful in apportioning the spectrum resource in a way that achieves the greatest value for society; how Government and non-Government uses of the spectrum could be better coordinated and shared; and whether certain current uses of the spectrum might be more appropriate for other media, particularly in light of technological advances such as fiber optic cable. As discussed in detail below, we seek specific comments on these issues.

II. Background: Radio Frequency Use and Management

8. Spectrum management comprises two fundamental activities: (1) allocation—determining *how* a particular radio frequency band should be used by the various radio services; and (2) assignment—deciding who is authorized to use a discrete radio frequency or frequency channel under specified conditions.² As a resource, the spectrum has two characteristics that affect its management. First, given a specific level of technological development, the portion of the spectrum suitable for radiocommunication and other applications is finite, but can be re-used throughout the world with proper coordination and management. Second, the physical properties of various portions of the spectrum make some portions more suitable than others for specific communications functions.³ As

² An authorization given by the FCC for operation on a specified frequency is known as a "license." The term "assignment" will generally be used in this document for clarity in describing both federal and non-federal spectrum uses.

³ Largely because of physical characteristics such as propagation path loss, and technological factors, such as availability (or lack thereof) of high-powered amplifiers, some parts of the spectrum are

a result, demand for the use of some portions may be quite high, while other portions of the spectrum may be unused.

9. Historically, the spectrum has been treated as a public resource, subject to extensive management on both a national and international scale. Three major entities directly affect use of spectrum in the United States: The FCC, NTIA, and the International Telecommunication Union (ITU). The ITU establishes treaty-level obligations that affect both the nature and timing of any changes to domestic spectrum use. For example, the ITU classifies uses of the radio spectrum into 34 "Radio Services" (e.g., Broadcasting, Land Mobile, and Fixed). The International Table of Frequency Allocations represents the consensus of ITU member administrations, including the United States, regarding the frequency bands that specific services should use and acts as guidance for national plans of member nations.⁴

10. The FCC and NTIA share the ongoing U.S. spectrum management responsibilities. NTIA manages the Federal Government ("federal") uses, and the FCC manages all other U.S. uses, including state and local government ("non-federal" or "private sector").⁵ This jurisdictional division, established under the Communications Act of 1934,⁶ has a direct effect on the way spectrum is used and managed in the United States. Many formal and informal linkages exist between the FCC and NTIA in spectrum management, to determine the services in U.S. frequency bands through the National Table of Frequency Allocations. The most extensive is within the Interdepartment Radio Advisory Committee (IRAC) forum, which NTIA chairs.⁷ The FCC

more suited and desirable for some telecommunications applications than others. For example, operations at frequencies above 20 GHz are susceptible to higher propagation path loss plus potential losses due to precipitation. In addition, amplifier technology is not as advanced as it is in lower bands. As a result, for example, bands above 20 GHz are not as suited or desirable for terrestrial television as are the VHF or UHF bands. Thus, frequency bands, particularly when they differ by several orders of magnitude, are not always interchangeable for the same service.

⁴ Each nation retains the right to depart from the guidance of the International Table of Frequency Allocations in meeting its particular needs, subject to interference considerations.

⁵ The terms "Government" and "Non-Government" are usually employed to express this division. Since the NTIA manages Federal Government spectrum use only and the FCC manages state and local government spectrum use, the terms "federal" and "nonfederal" will generally be used in this Notice.

⁶ 47 U.S.C. 305.

⁷ The IRAC provides advice to NTIA on federal spectrum management issues. See *infra*, note 8.

has a liaison representative to the IRAC and the IRAC's major subcommittees. The FCC coordinates with the IRAC on non-federal spectrum issues that involve shared or exclusive federal bands or in bands where there might be an impact on or from federal operations.

11. Problems arise when there appear to be insufficient resources available to meet all requirements. This leads to questions as to whether the current system is sufficiently flexible to meet demands of accelerating technological developments, or whether alternative systems of allocating and assigning spectrum might better meet these demands. In addition, there are questions about how to encourage efficient technologies, whether the current organizational structures are adequate, and what planning techniques can be developed to help identify and meet future requirements. The following paragraphs discuss these issues in greater detail and request comment.

III. Areas of Inquiry

A. The Regulatory Process

1. Domestic Structure

12. NTIA relies heavily on advice from the IRAC to manage federal use of the spectrum.⁸ Each federal agency (as with private sector spectrum users) usually has a direct interest in only limited portions of the spectrum. For example, some federal agencies operate extensive land mobile networks, but have only minor interests in other uses of the spectrum, while other agencies have extensive interests in radionavigation and radiolocation applications.

13. The FCC's operating bureaus manage non-federal spectrum for the numerous services within their jurisdictions.⁹ For example, the Mass Media Bureau manages the licensing process for broadcasting spectrum, the Common Carrier Bureau manages the process for cellular radiotelephone licenses, and the Private Radio Bureau manages the process for non-common-carrier land mobile systems. The Field Operations Bureau performs

⁸ The role of the IRAC was recognized in Exec. Order 12046, 3 CFR, 1978 Comp. 158, reprinted in 47 U.S.C. 305 app. at 115 (1989). The IRAC advises NTIA on a wide variety of spectrum management issues. One IRAC subcommittee advises NTIA on which frequency assignment requests it should grant. Another provides advice on whether spectrum requirements for major new federal systems can be satisfied. A third develops and coordinates Federal Government technical standards. See generally, Manual of Regulations & Procedures for Federal Radio Frequency ("NTIA Manual") (May 1989), incorporated by reference into 47 CFR part 300.

⁹ See generally, 47 CFR part 0, Commission Organization.

enforcement and other public contact information functions. The Office of Engineering Technology (OET) is responsible for coordinating, with NTIA, the development of national policies regarding use of the spectrum. OET also performs an international coordinating liaison function with the ITU. It develops non-federal, technical standards for the "type acceptance" of equipment and maintains the frequency assignment files for most non-federal assignments.¹⁰

14. Although the FCC's allocation and assignment processes can sometimes move quickly when all parties agree, these processes can be laborious and time-consuming when there is a dispute among the parties, as is frequently the case when the agency attempts to change the rules governing use of particular blocks of spectrum. For non-federal users, an FCC proceeding, which is governed by the Administrative Procedure Act,¹¹ and applies the "public interest" standard in allocating or assigning spectrum, can take years.¹² While regulatory procedures may serve an important purpose in ensuring due process and public participation in spectrum management, they may also act as unnecessary obstacles to radio service introduction, especially if regulatory procedures could address spectrum management concerns by other means. The assignment process is generally shorter than the allocation process, but can still be lengthy and can impose costs that affect the eventual development of a service. How could spectrum management procedures be streamlined to accommodate new services and technologies in a timely manner? What laws, regulations, or policies would have to be changed to do so?

15. In some cases, the FCC relies on private user groups for specific spectrum management functions. The FCC rules permit private groups to manage some

assignments in the private land mobile radio service via certified coordinators.¹³ In addition, coordination of frequency use by satellite earth stations in frequency bands shared with terrestrial microwave radio relay stations is performed by private companies. Such companies have developed extensive data bases, associated frequency management models, and automated coordination techniques. We invite parties to comment on the appropriate role of private groups and companies in spectrum management. How effective have these user groups been in equitably approving license requests for nonmembers? Should such user group frequency management be encouraged? Is it necessary to modify current processes so that the interests of parties not already using the spectrum are advanced? Could other types of services be managed through the use of private groups? What type of government oversight over such groups is needed?

16. The NTIA spectrum management process can be more rapid than the FCC process because NTIA manages fewer users and because NTIA's management procedures are not subject to the Administrative Procedure Act. The legal standards governing the FCC process provide for public comment and require the FCC to publish detailed rationales for its management decisions. On the other hand, the NTIA process is not open to the public because classified information may be involved.¹⁴ Similarly, although NTIA rationales for its management decisions are generally provided to the IRAC, they are not published as public documents. Are the FCC and NTIA spectrum management processes effective and efficient? If not, what can be done to make them so? Should the NTIA process be more accessible to the private sector? How might this be done?

17. There is no direct avenue for private sector requests for use of federal spectrum. The current procedure is a two-step process: The private sector requests federal spectrum by contacting the FCC, which then requests such spectrum from NTIA. Should there be a

formal procedure that addresses private sector requirements for federal spectrum?

2. Domestic Coordination

18. The jurisdictional division between NTIA and the FCC can make management of the spectrum complicated and possibly provides another obstacle to more efficient spectrum use. As previously discussed, there has been increased sharing of spectrum between jurisdictions. Nationally, the spectrum (up to 300 GHz) is allocated as follows: 1.4 percent is federal exclusive, 5.5 percent is non-federal exclusive, and 93.1 percent is shared between the two. When considering the more desirable spectrum below 30 GHz, about 7.5 percent is federal exclusive, 33 percent is non-federal exclusive, and 59.5 percent is shared.

19. It should be noted, however, that for many shared allocations, there are both primary and secondary services. Stations in the primary service have the highest rank. Stations in the secondary service cannot interfere with stations in the primary service or claim protection from such stations. In a shared band, the federal and non-federal allocated services may be both primary, or one primary and the other secondary.

20. While NTIA and the FCC expend considerable efforts on coordination of their spectrum activities, the division of management responsibilities between the two agencies can make efficient spectrum sharing more difficult in certain respects. For example, the absence of unified databases or a single source of information about spectrum use makes evaluations of such use more difficult. This split of jurisdiction and of information data bases also tends to make it more difficult for technology innovators and developers to find spectrum that might be used for a particular purpose, regardless of whether it is categorized as federal or non-federal.

21. NTIA seeks additional information on the strengths and weaknesses of the existing domestic coordination process as well as possible actions to correct any weaknesses. Parties should address in detail the administrative, economic, and technical factors that affect both perceived problems and possible solutions. Is the present sharing arrangement adequate to effectively manage the spectrum in a timely manner? If not, what improvements should be made? What steps should be taken to improve the process through which a potential new user can obtain information concerning the use or

¹⁰ The Private Radio Bureau maintains the frequency assignment files for some non-federal assignments.

¹¹ 5 U.S.C. 551-59, 701-706.

¹² Cellular telephone service is an often cited example of the long time it takes to institute a new use of spectrum. The first proceeding to allocate spectrum for cellular telephony was commenced in 1968; the spectrum allocation was made in 1975, although the first commercial cellular license was not granted until 1981. As part of that process, for example, the comparative analysis of non-wireline cellular applications in the 30 largest markets consumed, on average, 412 days (13.7 months) from hearing designation to grant of a construction permit. See *Rural Cellular Non-Wireline Licensing: Hearings Before the Subcomm. on Communications of the Senate Comm. on Commerce, Science, and Transportation*, 100th Cong., 2d Sess. 6 (1988) (testimony of G. Brock, FCC Common Carrier Bureau).

¹³ See 47 CFR, part 90, subpart H, *Policies Governing the Assignment of Frequencies*. Congress recognized the role of advisory coordinating committees when it amended the Communications Act in 1982. 47 U.S.C. 332(b). Congress has encouraged the Commission to develop mechanisms to monitor the performance of coordinating committees. The FCC has undertaken several proceedings since 1982. See, e.g., Notice of Proposed Rulemaking, *Frequency Coordination in the Private Land Mobile Radio Service*, PR Docket No. 88-548 (released August 15, 1989).

¹⁴ The FCC represents the non-federal sector interests in the NTIA process.

occupancy on specific frequencies or in the band(s) of interest? Should general data bases of frequency assignments and equipment characteristics be kept and made publicly accessible? Should there be a single authority to centralize or focus national telecommunications policy and coordination? If so, how should it be structured?

3. International Structure and Coordination

22. The ITU holds regional or world administrative radio conferences (RARCs or WARCAs) to revise the International Table of Frequency Allocations and the rules, regulations, and procedures that have treaty status among the signatories of the ITU. International coordination of frequencies and satellite orbital positions are performed under the auspices of the ITU. We request comment on how this process could be improved.

23. Preparation of U.S. proposals and positions for ITU conferences is a multi-year process of negotiation and planning by U.S. organizations involved in spectrum use and management, including NTIA, the FCC, and the Department of State. The agencies coordinate closely in developing the U.S. positions and proposals. The FCC issues notices of inquiry to obtain public comments and normally establishes a public advisory committee for additional advice. NTIA prepares its proposals and positions through the IRAC. Is the present planning for U.S. participation in international conferences satisfactory for advancing U.S. positions relative to international spectrum policies? How could this process be improved? What are the alternative processes that could make the conference preparation and implementation more effective, timely, and efficient? How could the United States more effectively participate in the ITU?

24. Other international events also require the U.S. to plan carefully its spectrum management policies. For example, the European Community is implementing a program to harmonize internal markets by 1992. This is likely to have an impact on European positions and proposals for spectrum use and management. In addition, unification could strengthen European advocacy of specific proposals for international spectrum regulation and standards development. NTIA requests comment on the effects of such developments on U.S. spectrum policies.

B. "Block" Allocation System Issues

25. The International and National Tables of Frequency Allocation divide

spectrum into "blocks" for use by particular radio services. Some advantages of the block allocation system are that it apportions spectrum to meet predicted future demand; allows relatively easy development of coordination procedures to avoid interference; increases design certainty for equipment manufacturers; and reserves spectrum for socially desirable, but otherwise uneconomic, uses. The block system also has the advantage of familiarity, since the allocations are well known, and its administration is proceeding on an ongoing basis, nationally and internationally.¹⁵

26. The block system also has several disadvantages, including a tendency to become rigid and difficult to change. This may retard innovation. There may be excess demand for spectrum in particular blocks or in particular geographic areas. In addition, once settled in a block, the same stability that allows design certainty for equipment manufacturers, entrenches user investment in the equipment needed for a particular service and commits use of that band to those services regardless of subsequent technological or marketplace developments. We ask parties to comment on the strengths and weaknesses of the block allocation system and to address the specific issues we raise below.

1. Impediments to Innovation

27. The current block allocation system is designed to provide simple technical and service rules for avoiding harmful interference. Since similar devices and radio services operate in a given allocation band, it is possible to establish a set of standard rules for their compatible development and operation. These rules permit straightforward management and use of the spectrum, since little or no interpretation or technical calculations are required to permit the interference-free operation of a new system. Over time, however, the rules become rigid and difficult to change to accommodate new technologies and services.

28. The current block allocation system operates with some flexibility through the use of "footnotes," which are exceptions to the allocations, and through accommodations performed on a case-by-case basis.¹⁶ However, there

¹⁵ See, e.g., A. Felker and K. Gordon, *A Framework for Decentralized Radio Service*, Federal Communications Commission, Office of Plans and Policy (September 1983); W. Longman, *Flexible Allocation of the Radio Spectrum*, in *Telecommunication Journal*, Vol. 55, no. X (1988) at 692-695.

¹⁶ In recent years both NTIA and the FCC have addressed some congestion concerns by introducing

is some question as to whether these measures address the needs of innovative services. How successfully does the current block allocation system accommodate growth of expanding and new services?

29. A rigid allocation structure can cause problems. New radio systems may be developed that, while more efficient, are not compatible with present systems, do not clearly fall into a single allocated service, or for which there is no suitable allocation at all. Restrictions in the current structure may cause users to operate out of band or to be denied use of the spectrum altogether. The frequency allocation process must be more responsive if it is to accommodate increasing demand and complexity of spectrum use as technology evolves. Would allocation flexibility improve if the definitions of certain radio services were amended? If so, which services? How should their definitions be amended?

30. A block allocation system can impose a considerable burden on the innovator—that is, the creator of a "new" radiocommunications service. The current system permits innovators to obtain experimental authorizations for developmental purposes. However, an innovator usually must determine what spectrum is potentially available in both the non-federal and federal sectors. Then, once the system is sufficiently developed, the innovator must petition for reallocation of the spectrum for the service, if necessary, and new service rules must be implemented before the product can be brought to market. Depending on the technical characteristics of the new service, spectrum may not be readily available. If so, the innovator must participate in an administrative process for reallocation of the spectrum. The outcome of such a proceeding is uncertain, and the innovator cannot be assured that any suitable spectrum will eventually be made available for the new service.

31. The accommodation of new technologies is particularly difficult when a radiocommunication application is developed that does not conform to one of the existing defined services. The existing users of the spectrum have little incentive to make room for such a new service. Examples are seen in the efforts to find spectrum for Lo-Jack¹⁷ and

additional flexibility in the way assignments are made in certain blocks. See *infra*, paras. 45-62.

¹⁷ See Report and Order, *Amendment of the Commission's Rules to Provide for Stolen Vehicle Recovery Systems*, Gen. Docket 88-506 (released October 16, 1989), otherwise known as "Lo-Jack."

BETRS.¹⁸ Another example of inflexibility in the allocation table occurs when a system is multiservice and capable of performing several functions.¹⁹

32. The current system may reduce incentives for the development of innovative, efficient, or new services. What types of services and users does the block allocation system favor? Which does it disadvantage? Can the process of introducing new and experimental systems be streamlined, particularly when a reallocation of spectrum would be required under the current system? If a new service is offered in a band that is allocated primarily for some other use, when should the service be moved? Alternatively, should the allocation be changed?

2. Excess Demand

33. Demand for a particular block of spectrum may exceed available supply in a given geographical area, especially in congested urban areas. For example, additional assignments within the VHF television allocation are not available in most metropolitan areas, a fact that cannot be changed without changing the underlying technical standards of the VHF television service. Similarly, the rapid growth in demand for services such as land mobile radio and cellular telephony, and the potential demand for an even greater number of mobile communications systems, places pressure on other allocations.²⁰ Does

After several years with an experimental license, the FCC granted the Lo-Jack system an allocation (by footnote to the allocation tables) on a co-primary basis with federal users in a previously exclusive federal land mobile allocation. This was after the FCC determined that it could not find a suitable nationwide allocation in non-federal allocations and NTIA provided federal spectrum for use on a permanent basis.

¹⁸ Report and Order, *In the Matter of Basic Exchange Telecommunications Radio Service*, 3 FCC Rcd 214 (64 Rad. Reg. 2d (P&F) 368) (1987) (referred to as "BETRS"). A BETRS system is used to extend basic telephone service to areas where, because of factors such as remoteness and geography, it is prohibitively expensive to provide such services over wires. The BETRS decision allowed Rural Radio Services (RRS), of which BETRS is a part, to construct radio loops between fixed subscriber points using frequencies allocated for land mobile use. RRS was upgraded to a co-primary user in two separate Public Land Mobile Service (PLMS) bands.

¹⁹ Some new radars are used for both radiolocation and radionavigation functions. The radar may be able to operate in a radiolocation band on a primary basis, but its radionavigation functions would be on a non-interference basis only.

²⁰ An example of this type of pressure over the years is reflected in the FCC's decisions to increase sharing and reallocate use of the UHF broadcasting spectrum to help relieve congestion in land mobile bands. In 1970, the FCC approved sharing of broadcast channels 14-20 with land mobile. First Report and Order, *Land Mobile UHF-TV Channel*

the block system adequately provide for future spectrum demand? What modifications might be desirable?

34. Most frequency blocks are allocated to the same services throughout the United States. Such allocations do not accommodate regional differences in spectrum use, and some blocks may be lightly used in certain geographic areas or at certain times of the day and heavily used in other areas or at other times. Moreover, lightly-used frequency blocks may not always be in the most desirable portions of the spectrum or in the geographic areas where overall demand for spectrum is greatest. What changes in the current system would enable it to more effectively accommodate regional, temporal, and other variations in spectrum usage?

3. Entrenched Technologies

35. In addition to limiting a service to a block of spectrum, the current system also tends to set *de facto* technical standards for equipment to be used in that block, based on the capabilities of the technology at the time the spectrum was allocated. A standard technology for a block provides certainty to equipment manufacturers and can result in heavy user investment in conforming equipment. Conversely, such standardization commits use of that band to that service. As a result, existing users may have few incentives to change to new, more spectrum-efficient technologies. The outdated technology thus becomes entrenched, since the current users would incur seemingly unwarranted costs to update their equipment. On the other hand, the costs to prospective users of introducing new technology can be high. The implementation of newer, more efficient communications systems can be hampered by the presence of older, less efficient ones. What is the effect of the current allocation system on such investment decisions?

36. Transitions from old to new technologies in specific bands do occur.

Sharing, Docket No. 18261, 23 FCC 2d 325 (19 Rad. Reg. 2d (P&F) 1585) (1970), and reallocated channels 70-83 exclusively to land mobile. First Report and Order and Second Notice of Inquiry, *Future Use of the Frequency Band 806-960 MHz*, Docket No. 18262, 35 FR 8644 (19 Rad. Reg. 2d (P&F) 1663) (1970). In 1985, the FCC proposed further sharing of the UHF broadcast spectrum, again to relieve congestion in the private land mobile frequency bands, particularly in the nation's largest metropolitan areas. In 1987, broadcast interests successfully petitioned the FCC to delay making a decision on further sharing of the UHF broadcasting band pending the completion of the FCC's ATV inquiry. Order, *Further Sharing of the UHF Television Band by Private Land Mobile Radio Service*, 2 FCC Rcd 6441 (63 Rad. Reg. 2d (P&F) 1695) (1987).

In the land mobile services, conditions became sufficiently crowded and technology improved through the years that federal channel plans for using the allocated bands, which were initially based on 100 kHz channels, were modified to channels of 50 kHz, then 25 kHz and now 12.5 kHz. The initial 100 kHz channel width was the minimum width technologically feasible in the 1940s. However, the combination of advancing technology and crowded spectrum produced a pressure for more channels and hence a narrower channel width. There have been similar decreases in channel widths in the non-federal land mobile arena.²¹ How can spectrum managers most efficiently expedite a transition from older, less efficient technologies, to newer, more efficient technologies under the existing block system? How could the current system be altered to encourage the deployment of "spectrum-conserving" technologies when crowding occurs? When new, more spectrum-efficient technologies or services are developed in bands where there is little crowding, should spectrum managers seek to force or encourage conversion to the new technology? What modifications to the present system would provide the right signals to spectrum managers and users to anticipate possible spectrum shortages in presently non-crowded bands and implement new technologies before shortages occur?

C. Alternatives to Apportioning and Valuing Spectrum

37. We recognize both the strengths and weaknesses of the existing allocation and assignment system and its usefulness in apportioning the spectrum resource. Apportionment²² involves choosing among competing uses or users of the spectrum. While ideally the requirements of all spectrum users should be met, any spectrum management process explicitly or implicitly establishes priorities for spectrum use in apportioning usable spectrum. We seek to examine the criteria used in the present management system and alternative systems for making apportionment decisions.

38. We request information regarding alternatives to the present system for apportioning spectrum among competing uses and users, the current issues that

²¹ Some private land mobile services currently use 12.5 kHz bandwidths. Both government and private sector land mobile users are testing 5 kHz "narrowband" technologies.

²² The term "apportionment," as used in this paper, refers to the overall process of spectrum resource distribution and as such, subsumes both "allocation" and "assignment."

such alternatives would address, and comparison of their costs and benefits. As part of such an analysis, we request information on the effects of changing the system on existing spectrum users. Should any new apportionment scheme be applied to the entire spectrum or only specific portions? What role would federal users play in any alternative allocation scheme? Should such a scheme be applied in exactly the same fashion to private and federal users? If not, what differences would apply? How would any alternative scheme preserve the strengths of the block allocation system—particularly its success in controlling interference and in promoting uniform national radio standards? Would gains in U.S. competitiveness result?

39. We also request parties to comment on the new spectrum management systems and techniques being introduced in other countries—such as New Zealand, Canada, and Australia.²³ What are the strengths and weaknesses of such systems? Could some or all of these techniques be adapted to the U.S. environment?

40. In addition, we invite parties to comment on what legal authority exists or would be needed to permit the FCC or NTIA to implement any proposed alternatives for apportioning spectrum. For example, would current statutory provisions provide the basis for implementing alternatives or would new statutory authority be necessary?

1. Present Apportionment Criteria: Equity Issues

41. Historically, the United States has managed spectrum for the public "in trust." Spectrum licensees under the Communications Act have been called "temporary permittees—fiduciaries—of this great public resource."²⁴ The Communications Act charges the FCC with determining whether a non-federal spectrum use serves "the public interest, convenience, or necessity."²⁵ An administrative finding of "the public interest" constitutes the primary formal standard for apportioning non-federal spectrum.

42. The Communications Act does not define the criteria by which the FCC is to judge the public interest; the FCC has broad discretion to elucidate and give

specific content to the public interest standard.²⁶

43. The specific criteria used by the FCC in making frequency assignments vary for the different services. For some services, such as private land mobile radio below 800 MHz or the amateur radio service, users are not assigned use of a frequency, there are no set limits on the number of applicants, and there are no competing applications for licenses.²⁷ Where there are competing applications for an exclusive license in a particular service, the FCC primarily uses two procedures for making assignments: comparative hearings²⁸ and lotteries.²⁹ The comparative hearing procedure, used for broadcast licenses, considers public interest factors such as "diversification of control" and "best practicable service to the public."³⁰ The lottery process was adopted both to expedite the assignment process and to choose fairly among applicants.³¹ To

²³ See, e.g., *FCC v. WNCN Listeners Guild*, 450 U.S. 582 (1981).

²⁷ For a discussion of sharing in the private land mobile radio services, see Report and Order, *Frequency Coordination in the Private Land Mobile Radio Services*, 103 FCC 2d 1093, 1095 (60 Rad. Reg. 2d (P&F) 41) (1986).

²⁸ 47 U.S.C. 307, 309(e); see also *Ashbacker Radio Corp. v. FCC*, 326 U.S. 327 (1945); *Johnston Broadcasting v. FCC*, 175 F.2d 351 (D.C. Cir. 1949).

²⁹ 47 U.S.C. 309(i). The FCC first employed lotteries in 1983 to process cellular telephone and low power television applications, and has increased the number of services licensed by random selection. In March 1989, the FCC proposed to introduce lottery procedures to the assignment of radio and television licenses. *Amendment of the Commission's Rules to Allow the Selection from Among Competing Applicants for New AM, FM, and Television Stations by Random Selection (Lottery)*, MM Docket No. 89-15, 4 FCC Rcd 2256 (1989).

³⁰ Using the comparative criteria, an administrative law judge must compare applicants and award preferences that ultimately will decide the assignment. The basic elements upon which evidence is taken at a comparative hearing were established in the FCC's *Policy Statement on Comparative Broadcast Hearings*, 1 FCC 2d 393 (5 Rad. Reg. 2d (P&F) 1901) (1965). Six specific factors are discussed in the *Policy Statement*: (1) Diversification of control of the media of mass communications, (2) full time participation in station operation by owners, (3) proposed program service, (4) past broadcast record, (5) efficient use of frequency, and (6) character. See also *West Michigan Broadcasting Co. v. FCC* 735 F.2d 601, 604-605 (D.C. Cir. 1984) cert. den. 470 U.S. 1027 (1985). In addition, the Commission considers other factors in the comparative setting, including minority or female ownership, which were added by case law. See, e.g., *TV 9, Inc. v. FCC*, 495 F.2d 929, 936-938 (D.C. Cir. 1973) cert. den. 419 U.S. 986 (1974), (merit for minority ownership), *Winter Park Communications, Inc. v. FCC*, 873 F.2d 601

³¹ Under 1982 legislation, preferences may be awarded to applicants who would increase the diversification of ownership of mass media communications and additional significant preferences awarded to applicants controlled by members of minority groups. 47 U.S.C. 309(i)(3)(A).

date it has been employed for such services as cellular telephone, low power television, and specialized mobile radio.³² Under the current U.S. spectrum management system, the FCC makes spectrum assignments essentially without charge to users, although it assesses certain administrative and other license fees to applicants for certain radio services.³³

44. NTIA apportions spectrum among federal users with the advice of the IRAC.³⁴ The basic role of representatives appointed to serve on the IRAC is to function "in the interest of the United States as a whole."³⁵ The IRAC negotiates a consensus among the various federal agencies, taking guidance from the goals, and in accordance with the procedures, set forth in the NTIA manual.³⁶ NTIA assigns spectrum to federal users with no charges or fees.

45. NTIA seeks comment on the current criteria for apportioning spectrum. Do these criteria provide for the efficient and fair use of spectrum? Is demand for spectrum being met? In what spectrum bands is demand not being met? What particular services require additional spectrum? Are new services and users being accommodated?

³² In the past decade, the FCC has moved away from pervasive management of non-federal spectrum through such deregulatory initiatives as giving operational and technical flexibility to licensees and by permitting frequency coordination by private organizations and privately negotiated interference agreements. See *infra*, para. 45-52 and *supra*, para 15. For an extensive discussion of recent FCC deregulatory measures, see D. Webbink, "Spectrum Deregulation and Market Forces," paper presented at a conference on "The Consequences of Current US Electromagnetic Spectrum Allocation Policies and Processes," Center for Telecommunications and Information Studies, Columbia University, (October 14, 1988, revised July 8, 1989).

³³ See generally, 47 CFR 1.1101 *et seq.* In addition, there may be costs incurred in securing a license (e.g., engineering and legal fees).

³⁴ See Exec. Order 12046, *supra*, note 8; see also NTIA Manual, *supra*, note 8, at 1.2, 1.3.

³⁵ NTIA Manual, *supra*, note 8, at 1.3.4, 1.4.2.

³⁶ The authority and organization of the IRAC are set out in Chapter 1 of the NTIA manual. Chapter 2 identifies the following objectives to be followed in spectrum management: "(a) to enhance the conduct of foreign affairs; (b) to serve the national security and defense; (c) to safeguard life and property; (d) to support crime prevention and law enforcement; (e) to support the national and international transportation systems; (f) to foster conservation of natural resources; (g) to provide for the national and international dissemination of educational, general, and public interest information and entertainment; (h) to make available rapid, efficient, nationwide and worldwide radiocommunication services; (i) to promote scientific research, development, and exploration; (j) to stimulate social and economic progress; and (k) in summary, to improve the well being of man." *Id.* at 2.1.

²³ See *infra*, note 62, regarding innovative spectrum management in Canada, New Zealand and Australia.

²⁴ *Office of Communications of the United Church of Christ v. FCC*, 425 F.2d 543, 548 (D.C. Cir. 1969) (broadcast regulation).

²⁵ See 47 U.S.C. 303, 307, 309(a), 310(d).

2. Flexible Use Proposals

46. As noted above, under a rigid allocation scheme, new technologies and services may develop that do not satisfy the requirements of existing blocks. To meet these needs, flexible use proposals for apportioning spectrum focus on encouraging flexibility in spectrum use, without substantially overhauling the spectrum management system.

47. Throughout the 1980s, spectrum managers have been moving toward permitting greater technical flexibility within frequency blocks, while not changing the block allocation system in its entirety. The FCC has addressed some congestion concerns by permitting certain new systems that employ advanced technologies to meet more flexible technical standards. For example, under rules established in 1982, cellular radio operators have flexibility to install innovative cellular technology that is neither based on older technical specifications nor otherwise defined by the FCC's regulations.³⁷ Alternatively, flexibility theoretically could be improved by redefining the radio services. Would allocation flexibility improve if the definitions of additional radio services were amended? If so, how should the definitions be amended? How should services that perform one or more functions, e.g. communications and navigation, be defined?

48. Other "flexible use" proposals would permit the operation of multiple systems, determined primarily by users, in one frequency block. For example, the FCC has allowed broadcasters to offer "auxiliary services" on their assigned frequency when the primary services they provide remain unchanged. Thus, FM stations may use their so-called subsidiary communications authorization (SCA) for both broadcasting and other non-broadcast uses such as paging.³⁸ In 1985, the FCC proposed to give certain UHF television licensees a high degree of flexibility in determining how to use their assigned

channels.³⁹ This proposal, which is pending until the completion of the FCC's Advanced Television (ATV) inquiry⁴⁰, would allow licensees to decide whether to (a) maintain certain neighboring channels now set aside for interference protection in their current "unused" status, (b) operate other services (such as land mobile) in those channels, or (c) allow others to operate on those channels. The proposal would have allowed the user, rather than the FCC, a limited degree of choice in providing spectrum access to new users. In a separate proceeding, the FCC has suggested granting AM broadcast licensees permission to reduce interference by mutual agreement.⁴¹

49. We seek comment on the extent to which such flexible use proposals would increase spectrum efficiency and fairness. Could these proposals be adapted for portions of spectrum other than those already proposed? Are such proposals workable? What problems are associated with them?

50. An increasingly important method of allocating spectrum relies on the avoidance of interference as its apportionment criterion. This can be used to make the existing block allocation system more flexible by responding to the introduction of new technologies on the basis of whether they meet technical "interference limits." For example, radio services could be allowed to operate within a given band of frequencies, with limitations only on emissions outside of the band or out of the user's authorized geographic area. As long as any station in any service does not affect the spectrum in another service by more than a predetermined interference limit, that station would be acceptable. NTIA seeks information on how the current block allocation system can be made more flexible through the use of interference criteria to provide spectrum to new users. How useful would such a method be in providing spectrum to new systems? Which existing bands could accommodate new users through interference criteria and which could not? What types of new users could these bands accommodate? How should the use of interference criteria in

management decisions be combined with other existing criteria?

51. A more limited example of a system based on "interference criteria" is one that operates today for assignments in the Low Power Television (LPTV) service. Each new LPTV station is "engineered" into the existing assignments, with new locations defined on the basis of predicted desired-to-undesired (D/U) signal strength at the edge of the stations' service areas.⁴² This provides more flexibility since the location of stations is not predetermined, but is designated to fit into the service areas of existing stations.⁴³ This concept does not eliminate the need for band boundaries and services, but may allow new technologies to be accommodated in previously unavailable frequency bands. We request comment on the degree to which such a scheme promotes efficiency and fairness.

52. Finally, the FCC's rules already permit flexibility in the operation of certain devices that emit low levels of radio frequency energy but are not regulated as authorized radio services. These range from systems that transmit low-power signals for communications purposes (such as garage door openers), to systems that emit signals incidental to their operation (for example, the low-level signals emitted by personal computers). Such systems are covered by part 15 of the FCC rules and are non-licensed. Part 18 of the FCC Rules covers a similar group known as Industrial, Scientific, and Medical (ISM) equipment, which is also non-licensed. ISM equipment, such as microwave ovens and industrial heaters, uses radio frequency technology. As non-licensed equipment, these devices and systems operate without radio service status. They must not cause harmful interference to authorized services, and must accept interference from such services. In some cases, such as powerline-carrier systems, continued electrical service to the community depends on such "nonstatus" equipment.

53. As use of such non-licensed devices proliferates, the potential for their interference with radio services also increases. At the same time, pressure from users of these devices is becoming a significant factor in resolving interference problems. How

³⁷ Second Report and Order, *800 MHz Reserve Channel Release, Private Land Mobile Radio Service*, 90 FCC 2d 1281 (52 Rad. Reg. 2d [P&F] 1) (1982). For other examples of current and proposed technical flexibility see Webbink, *supra*, note 32.

³⁸ See Report and Order, *Subsidiary Communications Authorization*, BC Docket No. 81-352, 47 Fed. Reg. 1386 (50 Rad. Reg. 2d [P&F] 1169) (1982); First Report and Order, *Subsidiary Communications Authorization*, BC Docket No. 82-536, 48 Fed. Reg. 28445, 53 Rad. Reg. 2d [P&F] 1519 (1983). Operational flexibility using the SCA has progressed incrementally since 1955. For a discussion of this area, see Webbink, *supra*, note 32 at 9.

³⁹ Notice of Proposed Rulemaking, *Further Sharing of the UHF Television Band by Private Land Mobile Radio Services*, Gen. Docket 85-172, 50 Fed. Reg. 25587 (released June 10, 1985). See generally Felker and Gordon *supra*, note 15.

⁴⁰ Order, *Further Sharing of the UHF Television Band by Private Land Mobile Radio Service*, *supra*, 2 FCC Rcd 6441. See also, *supra*, note 20.

⁴¹ Notice of Proposed Rulemaking, *Policies to Encourage Interference Reduction Between AM Broadcast Stations*, MM Docket 89-46, 54 Fed. Reg. 11972 (released March 17, 1989).

⁴² See Felker and Gordon, *supra*, note 15, at 17, 18.

⁴³ This process would be somewhat limited since the technical characteristics of certain types of services may preclude the operation of other services within the same band.

does the increasing use of spectrum by non-licensed devices affect other spectrum users? How should the value of non-licensed devices be determined in comparison to authorized radio services for purposes of spectrum management? How should the spectrum manager consider desires of consumers? What role should technical standards play, whether for the non-licensed devices or the authorized radio equipment? In cases of interference to or from authorized services, should the burden of eliminating the interference be changed, and if so, how? Should non-licensed safety or security devices continue to operate on an unprotected basis?

3. Market-Based Systems General Principles—Auctions

54. For years there have been proposals to manage spectrum through a market system—that is, by using economic value to the user as a criterion for setting priorities among competing demands for the spectrum resource. Under such proposals, decisions concerning spectrum use would be based, at least in part, on users' willingness to pay for spectrum, rather than on administrative determinations of what constitutes appropriate allocations for types of service and assignments for individual users.⁴⁴ One commonly advanced proposal is for the FCC to distribute currently unassigned frequency channels in certain bands through auctions.⁴⁵ A bill now pending in the Senate, for example, would authorize competitive bidding on an experimental basis for part of the currently unassigned spectrum.⁴⁶ Auctions, however, constitute just one type of market-based approach to spectrum management. Other specific market-based proposals have been made over the years.⁴⁷

55. Proponents of market-based spectrum management argue that it would provide an efficient and equitable way of apportioning the spectrum resource. Such a system, they claim, would allow users to determine how spectrum should be allocated and assigned based on their perceived needs as expressed by willingness to pay, thus bringing demand into equilibrium with supply. Allocations of spectrum would tend to increase for uses with the highest economic value to society and decrease for those with the lowest value. Since users are paying for spectrum, they would have incentives to employ the resource efficiently by, for example, not seeking more spectrum than they need and deploying cost-effective spectrum-conserving technology.⁴⁸

56. Some claim that an organized market system would also add flexibility by allowing usage to change with technology and consumer demand. Such a system, supporters claim, could be administratively less burdensome than comparative hearings, and under some proposals, could be self-regulating, requiring fewer management resources.⁴⁹

opponents of such proposals are contained in the testimony given in the Congress. See, e.g., *Spectrum Auctions: FCC Proposals for the Airwaves: Hearing Before Subcomm. on Telecommunications, Consumer Protection, and Finance of the House Comm. on Energy and Commerce*, 99th Cong., 2d Sess. (Oct. 1, 1986); and *Communications Transfer Fee Act of 1987: Hearing on S. 1935 Before the Subcomm. on Communications of the Senate Comm. on Commerce, Science, and Transportation*, 100th Cong., 2d Sess. (April 27, 1988).

Market principles have also been studied previously within the Executive Branch, particularly in the late 1960s and early 1970s. See, e.g., E. Rostow, *Final Report: President's Task Force on Communications Policy* (Dec. 7, 1968); Office of Telecommunications Policy, Executive Office of the President, *Economic Efficiency and the Allocation, Allotment and Assignment of Government Spectrum-Space* (report by G.B. Thompson, consultant) (March 1973); Office of Telecommunications Policy, Executive Office of the President, *Management of Federal Spectrum Use Through Shadow Prices: Can it be Rendered Practicable?* (technical proposal submitted by General Electric Company—TEMPO Center for Advanced Studies) (April 3, 1972); and Office of Telecommunications Policy, Executive Office of the President, *Paying for Airwaves Use—Concept and Experiment for Including the Economic Value of Spectrum in OTP/IRAC Process to Allocate and Assign Airwaves Use within the U.S. Government* (June 1973).

⁴⁴ By "cost-effective," we mean that users would have spectrum-conserving incentives to deploy technology up to, but not beyond, the point at which the cost of saving an additional unit of spectrum through technology equals the cost of "purchasing" an equivalent unit through the market-based spectrum management system.

⁴⁹ Market-based systems for spectrum allocation and assignment could also produce significant revenues for the public Treasury. The issues raised by such potential "revenue enhancement" are discussed *infra*, at subsection 4, para. 67-70.

57. Opponents of the use of market principles question their fairness and efficacy and, among other things, contend that such a system would favor users with "deep pockets."⁵⁰ They also express concern whether the "public interest" standard of the Communications Act could be satisfied if there were wholesale conversion to market principles as the basis for allocating spectrum or assigning frequencies. For example, comparative hearings for broadcast licenses consider "non-economic" public interest factors, such as minority ownership, to promote social goals. Furthermore, the present system is designed to accommodate socially desirable uses such as public safety communications and remote sensing of weather that might not compete successfully in a market environment.

58. Opponents also contend that a market-based process would in fact require greater resources than the present system to perform the basic tasks of spectrum management: limiting interference and protecting the rights of users. They also argue that a change to a market system could cause coordination problems with neighboring countries such as Canada and Mexico and in the ITU process.

59. NTIA seeks comment on the extent to which further application of market principles to spectrum management is appropriate. Would such a proposed system be any more efficient or fair than the current system? How could such a system more effectively prevent "warehousing" of spectrum by users? To what degree can reliance on market principles be reconciled with the public interest requirement of the Communications Act? What would be the role of NTIA, and of federal spectrum users, in such a system? Who is likely to gain, and who is likely to lose, from such a system? How would spectrum needs for such purposes as public safety uses be accommodated? Are such principles more appropriate for some types of services than others? Should such principles be applied to current, as well as new, users? What modification would be necessary to the present system of shared and exclusive allocations?

⁵⁰ See, e.g., testimony given in *Spectrum Auctions: FCC Proposals for the Airwaves*, *supra*, note 47, (statement of John J. McDonnell, Jr. on behalf of the Information and Telecommunications Technologies Group of the Electronic Industries Association at 81-83). See also statements of Emmett B. Kitchen Jr. on behalf of the National Association of Business and Educational Radio, Inc., and Michael E. Brunner, on behalf of the National Telephone Cooperative Association.

⁴⁴ See, e.g., R. Coase, *The Federal Communications Commission*, 2 J. of L. and Econ. 1 (Oct. 1959); A.S. DeVany, et al., *A Property System for Market Allocation of the Electromagnetic Spectrum: a Legal-Economic-Engineering Study*, 21 Stan. L. Rev. 1499 (June 1969); D.R. Ewing, *Economic Efficiency: The Objective of Spectrum Management*, IEEE Transactions on Electromagnetic Compatibility, Vol. 20 (Nov. 1978); J.R. Minasian, *Property Rights in Radiation: An Alternative Approach to Radio Frequency Allocation*, 18 J. of L. and Econ. 221 (April 1975); M. Mueller, *Property Rights in Radio Communication: The Key to the Reform of Telecommunications Regulation* (CATO Institute) (1982).

⁴⁵ See E. Kwerel and A.D. Felker, *Using Auctions to Select FCC Licensees*, Federal Communications Commission, Office of Plans and Policy (working paper, May 1985).

⁴⁶ S. 170, the *Spectrum Assignment Improvements Act of 1989*, 101st Cong., 1st Sess. (1989).

⁴⁷ Numerous proposals for using market principles have been considered by the Congress in recent years. The views of both proponents and

60. Finally, some foreign countries, such as New Zealand and Australia, have recently adopted market-based systems for apportioning at least part of their spectrum. We wish to examine the experiences of these and other countries in this area. What types of market-based systems have been employed? What benefits were realized and what problems were encountered? How relevant to U.S. spectrum issues is the experience of these other countries?

Property Rights

61. Proposals for using market principles in spectrum management often include the creation of unambiguous and enforceable spectrum "property rights" that could be more or less freely transferred at a price. Such transferable rights, it is argued, would permit a true market in spectrum to develop in which the value of various parts of spectrum would be determined through their sale. Currently, a non-federal licensee has no recognized property right in its assigned spectrum and may not "buy" or "sell" spectrum rights.⁵¹ In practice, however, existing assignments have substantial monetary value on a "secondary market" among private users, and are bought and sold in what have been called "private auctions."⁵² Such "auctions" are possible because non-federal licenses are transferable. Frequently, licensees transfer their assignments as part of a sale of a spectrum-related business to another firm.⁵³ While such transfers are subject to FCC review and approval, it is rare for such a license transfer to be disapproved.⁵⁴ The prices paid by the

acquiring firms in such cases suggest that often the economic value of the spectrum assignment represents a substantial part of the value of the overall transaction.⁵⁵

62. The current system may be said to create "quasi-property rights" in spectrum. To the extent that the current system is unsatisfactory, is it because these rights operate within the current allocation and assignment system, with the disadvantages described above? Is it because the value of spectrum is captured by private parties receiving a "windfall" in receiving a license, and not by the public?

63. While proponents argue that broad spectrum property rights are necessary to an effective market-based apportionment system, others object that instituting property rights for spectrum users would be a major and unwarranted departure from the traditional "public trust" theory of spectrum management. They question the fairness of such a move, which would alter the current status of spectrum users as "fiduciaries" of the public. Opponents of recognizing property rights in spectrum argue that while license revocations, failure to renew, and denials of transfers of licenses are all rare, they do occur⁵⁶ and serve the salutary purpose of deterring behavior by licenses that is inconsistent with the public interest. We seek comment on the extent to which property rights in spectrum should be recognized. To what extent are such rights desirable? To what extent should they be limited or conditioned by the imposition of some of the public interest

obligations that apply in the present system? Would the existence of such rights add efficiency to the use of spectrum? Are they more appropriate for some types of users than others (for example, mobile communications v. broadcasting)?

Leases

64. One specific market-based apportionment alternative we wish to examine is the assessment of a fee on use of a particular portion of spectrum, in exchange for the right to operate on that spectrum for a defined duration—in effect, a "lease" of spectrum.

65. Such an approach may be an appropriate way to make spectrum currently allocated for federal use available to the private sector, while maintaining the government's ability to reclaim the spectrum at a later date if needed. The process would be akin to common Federal Government leases of various economic rights to resources, such as rights to oil, minerals, grazing land, timber, or water.⁵⁷ It appears that, if well-designed, these leases, by permitting the economic exploitation of valuable resources under government control while preserving the rights and interests of the government in the underlying property, could well serve the interests of both the private and public sectors. In the present context, federal leases potentially could provide spectrum for valuable commercial purposes while still allowing the government the right to reclaim the spectrum if future demands or critical public purposes, such as national defense or public safety, so require.

66. Leases might also provide an attractive alternative to innovators and entrepreneurs who find it difficult to obtain any spectrum under the present regulatory system, but who might not be able to afford to "purchase" spectrum in an alternative system based on auctions.⁵⁸

67. NTIA seeks comment on whether spectrum leases would be a viable spectrum management alternative. What types of users would be best served by spectrum leases? What terms (for

⁵¹ 47 U.S.C. 301. See also, *FCC v. Sanders Bros. Radio Station*, 309 U.S. 470, 475 (1940).

⁵² For example, see *Spectrum Auctions: FCC Proposals for the Airwaves, Hearing Before the Subcomm. on Telecommunications, Consumer Protection, and Finance of the House Committee on Energy and Commerce*; *supra*, note 47 (statement of Mark S. Fowler, Chairman of the Federal Communications Commission at 8-12, and opening statement of Hon. Thomas J. Tauke at 16.) See also discussion in H. Geller and D. Lampert, *Charging for Spectrum Use*, Benton Foundation Project on Communications and Information Policy Options, at 13 (1989).

⁵³ It has been estimated that over 65 percent of commercial TV stations and 75 percent of commercial radio stations are not owned by the initial licensee, with similar turnover in the newer cellular and SMRS markets. *Spectrum Auctions: FCC Proposals for the Airwaves; Hearing Before the Subcomm. on Telecommunications, Consumer Protection, and Finance of the House Committee on Energy and Commerce*, *supra*, note 47 (testimony of Mark S. Fowler, Chairman, Federal Communications Commission, at 9).

⁵⁴ In 1982 the FCC eliminated its antitrafficking policy and rule requiring that applications for assignment of broadcast facilities held less than three years be designated for hearing and substituted a one-year rule for licenses obtained in a comparative hearing or license lottery. Report and

Order, *Broadcast Station Voluntary Assignments or Transfers of Control*, BC Docket No. 81-897, 47 Fed. Reg. 55924 (52 Rad. Reg. 2d (P&F) 1081) (1982), *recon. den.* 50 Fed. Reg. 6944 (57 Rad. Reg. 2d (P&F) 1149 (1985)). In 1983, the FCC also eliminated its antitrafficking rules with respect to common carrier paging systems. Report and Order, *Public Mobile Services Rule Revision*, CC Docket No. 80-57, 95 FCC 2d 769 (54 Rad. Reg. 2d (P&F) 1661) (1983).

⁵⁵ It has been estimated over half the value of a mass media property is attributable to its license, as opposed to physical assets. *Communications Transfer Fee Act of 1987: Hearing on S. 1935 Before the Subcomm. on Communications of the Senate Comm. on Commerce, Science and Transportation*, *supra*, note 47 (statement of Charles H. Kadlec at 59). Mr. Kadlec also stated that mass media accounts for two-thirds to three quarters of total communications spectrum transactions, and that the average broadcast (radio or television) station sale was for \$4.3 million. He stated, however, that averages are misleading, citing examples of transactions with much higher sales prices, including the purchase of VHF television station KTLA in Los Angeles for more than \$500 million.

⁵⁶ See, e.g., *Fidelity Television, Inc. v. FCC*, 502 F. 2d 443 (D.C. Cir. 1974); *Fidelity Television, Inc. v. FCC*, 515 F. 2d 684 (D.C. Cir.), *cert. den.* 423 U.S. 926 (1975); *RKO General, Inc. v. FCC*, 670 F. 2d 215 (D.C. Cir. 1981), *cert. den.* 456 U.S. 927, 457 U.S. 1119 (1982).

⁵⁷ For example, under 43 U.S.C. 1337(a)(1), the Secretary of the Interior is authorized to grant certain oil and gas leases to the highest bidder by a competitive bidding process. The Secretary may, under this section, accept several types of bids, including "cash bonus" bids with an accompanying royalty or "variable royalty" bids. See also the Mineral Leasing Act of 1920, 30 U.S.C. 181-287.

⁵⁸ A lease system allowing for an up-front payment with the payment of a fee (or royalty) based on gross revenues thereafter, similar to oil and gas leases (*supra*, previous note), could benefit entrepreneurial spectrum users by lowering barriers to entry.

example, length, conditions, termination rights, subleasing rights) would make leases attractive?⁶⁹ What would be the best method of setting lease rates?

4. Revenue Enhancement Proposals

68. Distinct from the use of market principles to achieve the goals of economically efficient spectrum use and equitable spectrum apportionment, certain proposals for spectrum management reform include revenue enhancement for the Federal Government as an explicit goal. Under the current spectrum management system, the question arises whether the United States, as the nation's "supplier" of spectrum, should earn a return on spectrum used by the public. Such use fees or other mechanisms could potentially be a large source of revenue for the government.⁶⁹ We request comment on how such a system could operate.

69. Most market-based proposals for spectrum reform would produce revenue enhancement benefits, as well as the efficiency and equity benefits discussed above. However, revenue enhancement does not require a market-based solution. Recent proposals for realizing revenue from spectrum assignments would use a variety of mechanisms for assessing spectrum use charges. One proposal for broadcasting suggests

⁶⁹ While long-term leases provide certainty to a lessee, they also increase the risk to the lessor that needed spectrum will be unavailable in the future should circumstances change. We ask commenters to address various lease alternatives that could satisfy both the need of the lessee for certainty (so that investment in equipment and, if a new offering, start-up costs can be prudently made), with the need of the lessor for protection against future contingencies. For example, would "rolling" lease terms, with an initial specified period (e.g., five years) renewable annually thereafter for additional one-year periods, provide sufficient stability to permit private investment in their use for at least some applications?

⁶⁹ For example, FCC Chairman Alfred C. Sikes recently testified that "the 200 MHz of spectrum which H.R. 2965 proposed to transfer to non-Government use could be valued as high as \$100 billion." *The Emerging Technologies Act of 1989: Hearings on H.R. 2965 before the Subcomm. on Telecommunications and Finance of the House Comm. on Energy and Commerce*, Nov. 2, 1989, (prepared statement of Alfred C. Sikes, Chairman of the Federal Communications Commission, at 11).

Moreover, the Administration's 1990 budget package contains a competitive bidding proposal for licenses in unassigned UHF spectrum, for the revenue-enhancement reasons discussed above. See *Building a Better America* at 154 (Feb. 9, 1989). Estimates of revenues generated by auctions vary from \$500 million for the sale of four megahertz (Congressional Budget Office, *Reducing the Deficit: Spending and Revenue Options*, at 226) to \$3.38 billion for the six megahertz that would be auctioned under the proposal in S. 170 (*supra*, note 46). See generally, *Raising Revenues with the Auction Option for the Telecommunications Spectrum*, Heritage Foundation Issue Bulletin (May 1989) at 8.

granting licenses for 30 to 40 years, and charging licensees an annual fee of one or two percent of gross revenues for the duration of the license.⁶¹ We also note that certain other countries⁶² are considering or have implemented proposals to sell or lease the spectrum or obtain revenues from license fees. We request comment on whether the current spectrum management system should be modified for purposes of revenue enhancement, or whether a new system should be established. What would be an appropriate and accurate way to assess charges for spectrum use? How would such proposals affect current and future users? Should government spectrum users be included in any such proposals?

70. While some revenue enhancement proposals are designed to raise general revenue for the Treasury, others would use the proceeds from any fees to establish specialized telecommunications programs. For example, a bill introduced in the Senate in 1987 would have imposed a fee on license transfers and used the proceeds to fund public broadcasting.⁶³

71. Opponents of fees question their appropriateness, especially when applied to non-commercial services, such as amateur radio or public safety, or for federal users. We request comment on whether proceeds from any such fee program should be targeted, and, if so, for what purposes?

D. Spectrum Conservation: Technology Issues

1. Accommodating Demand for Spectrum Through Technology

72. Under the current allocation system, technological innovations can increase the supply of usable spectrum, through either the use of spectrum at higher frequencies, or techniques that allow more users in the same frequency bands. Since, as noted above, certain frequency bands have physical properties more desirable than others

⁶¹ Geller and Lampert, *supra*, note 52, at 14-15.

⁶² Canada, for example, is currently charging both private and public sector entities for use of the spectrum, with prices set at a rate that covers the cost of spectrum management operations. New Zealand plans to begin implementation of a free market system of auctioning spectrum by the end of the year. We also understand that Australia has recently auctioned, in a closed tender limited to existing AM broadcasters, the use of 2 FM broadcast stations in 4 cities, with the intention to auction additional FM stations next year.

⁶³ S. 1935, the *Communications Transfer Fee Act of 1987*, 100th Cong., 1st Sess. (1987); see Hearings cited *supra*, note 47. See also *Broadcasting Magazine* (May 2, 1983) at 68. It has also been suggested that any proceeds derived from competitive bidding could be used for the same purpose.

for some uses, continuous expansion to higher frequencies over time becomes difficult.⁶⁴ Under these conditions, the most feasible options are either to develop technologies that use the spectrum more efficiently or to reallocate portions of the spectrum.

73. Although advanced technologies can allow more options and potentially greater use of the spectrum, existing rules and regulations are not always able to accommodate this flexibility. We request comment on how policy-makers can develop spectrum management techniques that accommodate unanticipated innovative use in order to avoid spectrum waste.

74. One of the difficulties with evaluating spectrum conservation techniques is in quantifying spectrum use. Several models that do so have been proposed.⁶⁵ NTIA has also developed computer models that graphically portray spectrum use and assess spectrum conservation techniques.⁶⁶ One of these models is the Spectrum Use Measure (SUM), which graphically illustrates spectrum use (by using assignment data) as a function of geography and frequency bands. SUM can be used as an indicator for planning the use of frequency bands in certain parts of the country and determining locations for the application of tighter spectrum standards to accommodate increased demand. How effective are such models? What are their strengths and limitations? Are there other models that might be more effective? We request information and procedures on how to assess relative levels of spectrum use by different services. How can one evaluate efficient use of the spectrum when comparing disparate services, such as land mobile to broadcasting?

⁶⁴ In addition, as noted above, the current U.S. block allocation plan restricts the frequencies available to users in each class.

⁶⁵ CCIR, *Definition of Spectrum Use and Efficiency*, Report 602-2, Vol. 1, XVth Plenary Assembly, Dubrovnik, Yugoslavia, International Radio Consultative Committee, International Telecommunication Union, Geneva, Switzerland, (1986); R.L. Hinkle and A. Farrar, *Spectrum Conservation Techniques for Fixed Microwave Systems*, NTIA Report No. 89-243, National Telecommunications and Information Administration, U.S. Department of Commerce, (May 1989).

⁶⁶ R. Mayher, R. Haines, et al., *The SUM Data Base: A New Measure of Spectrum Use*, NTIA Report 88-236, National Telecommunications and Information Administration, U.S. Department of Commerce, (Aug. 1988); R. Haines and Litts, *The SUM Land Mobile Model: Application of the Spectrum Use Measure to the Land Mobile Model*, NTIA Report 89-248, National Telecommunications and Information Administration, U.S. Department of Commerce, (Sept. 1989).

75. Direct measurement of spectrum usage using computer controlled monitoring or measuring equipment is another way of determining whether particular frequency bands are becoming crowded. To measure actual use of an assigned frequency, NTIA uses the Radio Spectrum Measurement System (RSMS), a van equipped with radiocommunication measurement devices, capable of measuring radio signals within most of the usable spectrum. The RSMS provides information that assists in determining the level of spectrum occupancy, assuring compliance with standards, evaluating whether equipment will interfere with operations in other bands, and assessing the extent of sharing within a particular frequency band. This information, while valuable, is necessarily limited because there is only one RSMS van for the entire United States. The FCC has several monitoring vans used primarily for enforcement and interference resolution. These vans are equipped for limited occupancy studies, but are not fully automated. Is direct measurement a worthwhile technique for determining band crowding? Should the government use an RSMS-type of system to monitor and evaluate the use of the spectrum on a more comprehensive basis? If so, how should it be funded? Would more comprehensive governmental monitoring by either NTIA or the FCC lead to improved assignment practices and thus assist in more efficient use of the spectrum or would it in some way contribute to unnecessary regulatory or administrative burden? Would market-based apportionment of frequencies increase the need for this type of monitoring (for example, to detect spurious emissions and larger-than-permitted bandwidths), or would it permit government to rely more on private enforcement activities?

2. The Role of Technical Standards

76. Technical standards for radiocommunication operations, which directly affect the adoption of new technologies, are established for a number of reasons. First, individual users seek to establish an acceptable level of quality in the systems offered to them by vendors. Second, several users may seek to minimize their individual costs and increase their flexibility by procuring similar equipment from several vendors. Third, operators may need to maintain interoperability with other systems throughout an area, country, region, or the world, as in the services used by broadcasters, police, or common carriers. Fourth, manufacturers may seek to minimize the costs of

producing equipment by establishing regional or worldwide standards that ensure larger markets for their products. Fifth, standards are used to "conserve spectrum" by adopting technologies that use less bandwidth, such as narrowband technology. On the other hand, standard-setting may be avoided when the benefits to particular parties are too small to justify participation in developing or using a standard.⁶⁷

77. If set prematurely, standards can restrict the development of a technology. If set too rigidly, they can restrict the development of new replacement technologies. When standards are set they may be selected so that most of the existing equipment can meet them or so that one particularly desirable technology is used.

78. Standards based on norms for existing technologies can be clear and detailed. In theory, they act to preclude the offering of equipment inferior to the standard. In fact, they may remove a manufacturer's motivation to exceed the standard with a new, more effective, or efficient technology. Depending on the extent to which a standard is enforced and actively implemented, instead of being a "floor" for technological development, a standard may become a "ceiling," controlling technology subsequently made available. Are there effective alternatives to such standards for radiocommunication systems?

79. Standards that attempt to promote a specific technology often do so while restricting innovation of newer and possibly more desirable technologies. For example, the establishment of standards for UHF television channels 40 years ago created a number of "taboo" channels that cannot be used in a given geographic area. Television receivers, although improved since that time, are designed to rely on such taboos, even though better designs are feasible. As a result, a large portion of the UHF broadcasting band cannot be used. This represents an inefficient use of a very valuable portion of the spectrum. While technological advances, such as improved television receiver design, could allow some of the taboos to be relaxed, changes in the UHF service could not occur without significant impact on the industry and, potentially, millions of households with television sets. In light of this example, what are the costs and benefits of the existing types for standards of radiocommunication systems? How can standards be set to encourage

innovation while retaining other benefits of standardization?

80. NTIA also wishes to examine the effects of standards established for one radio service on other services. For example, new, more spectrum-efficient technologies are sometimes more sensitive to interference than older, less efficient technologies. As a result, stations in one service that use new state-of-the-art technology may be sensitive to extraneous emissions from stations in another service operating in a nearby frequency band, even though the latter fully conforms to all existing standards. Conversely, new technology might cause interference to stations in other services. U.S. spectrum management policies have usually given priority to existing users, and new uses have been expected to adjust to the existing environment. As technology develops and the spectrum become more crowded, should existing users be required to adjust their operations to accommodate new users deploying more efficient technology? Who should bear economic costs of replacing or refitting the existing systems? Can flexible standards be designed so that they change as technology changes?

81. Standards are also important in terms of trade and U.S. competitiveness in industries that rely on spectrum use. We request comments on whether other countries' spectrum standards serve as trade barriers. If so, what actions should the United States take to eliminate these barriers?

3. Alternatives to Spectrum Use

82. The primary alternatives to spectrum use are wire or fiberbased technologies. Wire and fiber are, by their nature, fixed communications links, and therefore cannot entirely replace use of spectrum for mobile or radar applications. For applications where both the transmission facility and the receiver are fixed, however, wire seems a logical choice for a transmission medium. This is especially true when radio spectrum is in short supply relative to demand. In the past, certain technical characteristics of wire, including both bandwidth limitations of copper wires into the home and amplification requirements of coaxial cables in long distance, made radio a preferred communications medium for certain applications. Fiber optic cables have neither limitation. For many applications—when reliability and security are crucial, when very wide bandwidths or high data rates are required, or when digital transmission is desired—fiber may be a more desirable medium than radio, even putting aside

⁶⁷ See S. Besen and G. Saloner, "The Economics of Telecommunications Standards," in *Changing the Rules*, R.W. Crandall and K. Flamm (eds.), The Brookings Institution, Washington, DC, (1989).

any consideration of potential spectrum shortages.⁶⁸ What are the general trends in the shifts from radiocommunications to wire or fiber or vice versa? How will these trends affect the management and use of the spectrum? How do current spectrum management practices encourage or discourage these trends?

83. Deployment of fiber optic cable in telecommunication networks has grown rapidly in recent years, creating large amounts of capacity available for point-to-point communications, particularly in the long distance telephone market. In this particular market, is it realistic to assume that fiber could soon replace or at least reduce the importance of microwave communications, both terrestrial and satellite? Could this be possible for other than long distance uses of microwave technologies? What other types of services could use this spectrum? Should radiocommunication uses be granted when nonradio means are readily available?

84. Further deployment of fiber networks, throughout the public network and also to the home, could have the effect of preserving the finite spectrum resource for those applications for which it is better suited. The growth of fiber communications, where appropriate, and the reclamation of spectrum previously used for such communications could ultimately free additional spectrum for services more suited to radio. Future types of advanced television systems might be better suited to transmission over fiber than radio, both because of potentially wider bandwidth requirements than current broadcast television, which may be difficult to accommodate in the radio spectrum, and because of the fixed nature of television.⁶⁹ It is important to note, however, that each of these potential transitions from spectrum use to fiber use, in particular that for television, are infused with public interest concerns.⁷⁰ These concerns

⁶⁸ For example, consortia of electrical utilities, such as Norlight in the Midwest, have replaced their utilities' private microwave radio networks with fiber networks for reliability reasons.

⁶⁹ There is some use of portable television today (such as through Sony "Watchman" and similar receivers). This use, we believe, is still quite small compared both to overall television viewing and other broadcast uses, including AM and FM radio.

⁷⁰ Television broadcast "over-the-air" (i.e., using the radio spectrum) has traditionally been fully funded by advertisers, or, in the case of public television, by government grants and private donations, and provided to viewers at no charge. Television delivered over wire—i.e., cable television—has traditionally been supported in substantial part by charges to viewers. This difference raises substantial public interest concerns about a shift of television from spectrum-based to wire- or fiber-based delivery systems.

should be carefully evaluated before taking steps to encourage such transitions from spectrum use to fiber. Are there any conditions under which the government should take action to encourage trends toward using technologies other than radio? What types of policies could be implemented to reclaim spectrum that is not being used or is determined to be under used? How should the government allocate reclaimed spectrum to new, competing uses?

E. Forecasting Future Spectrum Requirements

85. Two of the goals of any spectrum management system are to provide for the current and future requirements of spectrum users and to avoid congestion and interference. In order to ensure that spectrum is available for these requirements, the management process must be accessible and responsive to user needs. This depends on the adequacy and timeliness of the information that spectrum managers receive on specific requirements. The radiocommunications environment is extremely dynamic. There has been tremendous technological growth during the past three decades, expanding the level and variety of spectrum use. Growth and expansion are expected to accelerate in the future, and will make the need for timely information and better forecasting methods even greater.

1. Planning Spectrum Allocations Through Requirements Identification

86. In order to satisfy U.S. spectrum requirements, NTIA and the FCC must identify current and future needs within their individual spheres of oversight and jointly determine how these needs can best be accommodated. When requirements for new allocations of the spectrum are identified, are the existing procedures used by the FCC and NTIA adequate to provide timely access to spectrum when the requirement (a) is within an existing radio service; (b) creates a new radio service; or (c) introduces a new government agency or type of user not represented in either the FCC or NTIA plans?

(a) Federal Requirements Planning

87. NTIA maintains information on federal frequency assignments within the "Government Master File." In order to accommodate new requirements of federal agencies on an ongoing basis, NTIA relies on the IRAC Spectrum Planning Subcommittee. The IRAC's member agencies submit documentation of major new systems for review. Consideration is given to changing the allocation table if the new system

cannot be otherwise accommodated. The Spectrum Planning Subcommittee essentially provides a short-to-medium term forecast of federal spectrum use, since systems proposed to it will be deployed in 2 to 5 years and will remain in use for 5 to 10 years. NTIA also periodically conducts spectrum assessments to study the adequacy of the allocation tables to meet demand for particular services. These data could provide the basis for more accurate forecasts if all, rather than only major, new systems were included. Furthermore, there is no formal process for considering any potential non-federal demand for the spectrum in bands that are shared.

88. NTIA seeks comment on the adequacy of these processes in determining requirements for federal spectrum. Does the Spectrum Planning Subcommittee process adequately identify legitimate requirements for Federal Government spectrum? If not, in what ways can it be improved? What improvements can be made to contribute to the realistic portrayal of current federal spectrum use through assignment data?

(b) Non-Federal Requirements Planning

89. The FCC's source of information for present spectrum requirements is its files of non-federal license information.⁷¹ Non-federal users must petition the FCC for changes to the allocation table when their needs cannot be met because of limitations in the table, and these petitions are subject to comment and FCC decision. Does the FCC process of responding to petitions for changes to the allocation table adequately identify and define non-federal requirements for spectrum? If not, what are potential ways for the FCC to improve its process of forecasting spectrum requirements? What improvements can be made to contribute to the realistic portrayal of current spectrum use through license data?

2. Spectrum Use Forecasting

90. Past efforts to forecast spectrum use have been only marginally successful. In the early 1980s, terrestrial services were shifted in order to accommodate direct broadcast satellites (DBS), for which serious demand in the United States has yet to materialize. On the other hand, most forecasts of the market for cellular telephone service failed to anticipate the phenomenal

⁷¹ If the FCC has permitted the control of spectrum uses to user groups, such groups maintain the data themselves.

popularity and growth of this technology and thus the need for additional spectrum to support it.

91. Little progress has been made toward planning spectrum allocations based upon methods of forecasting other than projections based on what spectrum has been used in the past. Not only is it sometimes difficult to determine what spectrum use has been in the past, since data is collected by assignment only and not by actual use of the assignment, but these projections make certain assumptions about growth patterns. Such "straightline" projections of future use based upon past activity appear to have limited success in such a rapidly changing field.

92. NTIA seeks information on forecasting techniques and methodologies available from other disciplines that, using spectrum use data as input, can contribute most effectively to a realistic portrayal of future spectrum requirements. What heuristic and non-heuristic analysis methods could be applied to spectrum forecasting? What data formats would be most useful.

93. Another important component of forecasting is the ability to define the eventual market for spectrum-based services. Generally, market assessments use historical data about licenses and radiocommunications systems and components, interviews with the potential participants in new equipment markets, and estimates by persons most familiar with support requirements. Often market assessments have relied on trend analysis in combination with highly qualitative subjective judgment. How can market assessments be made more rigorous and objective and thus provide a sounder basis for identifying future use? Are there ways to incorporate computer-based techniques,

such as expert systems, into market assessment models?

94. Research and development (R&D) activities are often important indications of the general direction of the technology, missing, however, the crucial market demand component. Can monitoring of such activities prove useful in predicting future requirements? Are there useful and proven ways of determining the relationship of current R&D to the eventual marketplace and thus demand? Are there any areas of spectrum use in which significant changes in use can be predicted?

95. Not all spectrum requirements are anticipated in the spectrum management process. The demands on certain portions of the spectrum may actually depend on decisions not yet made or on technology not yet developed. As a result, managers may not accommodate some existing requirements and may not foresee other future requirements. Are any radiocommunications requirements currently unsatisfied due to the lack of available spectrum? If so, what requirements? Are any future requirements envisioned to go unmet due to the lack of available spectrum? If so, what requirements? In making such projections, commenters are asked to consider future requirements based both on the growth of current technologies and on technologies yet to be developed. How can spectrum be provided for unforeseen requirements? Are resources sufficient to identify and accommodate radiocommunications requirements? If not, where are they lacking?

3. Long-Range Planning

96. Long-range planning by spectrum managers is an important part of an efficient and equitable management system. Indeed, NTIA is required to "[d]evelop, in cooperation with the

[FCC], a comprehensive long-range plan for improved management of all electromagnetic spectrum resources." ⁷² NTIA, with the FCC, developed a long-range plan for federal spectrum issues in June, 1989. ⁷³

97. We believe that a long-range plan, if properly formulated, can provide an important "window to the future" of spectrum use. Such a plan must be developed not to define rigidly the technologies of the future, but to promote flexibility and innovative spectrum developments. Such a plan should reduce, as much as possible, reliance on *ad hoc* decision-making on management questions. How can NTIA best plan to permit innovation and new developments in spectrum use while still maintaining order and continuity in the process? How would the existence of classified information regarding some federal uses affect such planning? How can the current long-range planning process be improved? How can cooperation between the FCC and NTIA be improved? How can the public best be included in the long-range planning process?

IV. Conclusion

98. NTIA hereby requests comments in this inquiry to be filed on or before February 23, 1990, and reply comments to be filed on or before March 30, 1990.

Dated: December 4, 1989.

Janice Obuchowski,

Assistant Secretary of Commerce for Communications and Information.

[FR Doc 89-28675 Filed 12-7-89; 8:45 am]

BILLING CODE 3510-60-M

⁷² Exec. Order 12046, *supra*, note 8.

⁷³ *Long Range Plan for Management and Use of the Radio Spectrum by Agencies and Establishments of the Federal Government*, NTIA Special Publication 89-22 (June 1989).

Friday
December 8, 1989



Part IV

**Department of
Defense**

**Corps of Engineers, Department of the
Army**

**33 CFR Part 326
Permit Regulations for Controlling Certain
Activities in Waters of the United States;
Final Rule**

DEPARTMENT OF DEFENSE

Corps of Engineers, Department of the Army

33 CFR Part 326

RIN 0710-AA15

Permit Regulations for Controlling Certain Activities in Waters of the United States

AGENCY: U.S. Army Corps of Engineers, DOD.

ACTION: Final rule.

SUMMARY: The Department of the Army amends the Corps of Engineers permit regulations at 33 CFR part 326 to adopt a new section to implement the Secretary of the Army's Class I administrative civil penalties authority under section 309(g) of the Clean Water Act, 33 U.S.C. 1319(g). The Army is taking this action in response to amendments to the Act made by the Water Quality Act of 1987, which authorize the Secretary of the Army to assess administrative civil penalties for a violation of any condition or limitation in a permit issued under section 404 of the Act. The provisions will provide a new enforcement tool offering Corps District Engineers the ability to bring timely, and cost efficient enforcement proceedings against Corps issued Clean Water Act permit condition violations.

EFFECTIVE DATE: January 8, 1990.

FOR FURTHER INFORMATION CONTACT: Mr. Jack Chowning, HQUSACECW-OR, Washington, DC, 20314-1000, (202) 272-0199, or Mr. Martin Cohen, Office of the Chief Counsel, Washington, DC, 20314-1000, (202) 272-0027.

SUPPLEMENTARY INFORMATION: These regulations finalize the draft regulations published in the *Federal Register* for comment May 12, 1989 and complete the rulemaking process for the Class I administrative penalty authority provided in section 309(g) of the Water Quality Act of 1987, 33 U.S.C. 1319 (g). Only one comment letter was received concerning the draft regulation. The changes made in the final regulation reflect that comment letter and demonstrate the Corps desire to ensure that the procedures for these penalties are implemented in an effective and efficient manner. Transcription errors are also corrected.

Discussion of Comment and Changes

Part 326—Enforcement

The Authority line for this section is changed to read as follows:

Authority: 33 U.S.C. 401 et seq.; 33 U.S.C. 1344; 33 U.S.C. 1413; 33 U.S.C. 2101.

This change recognizes the civil penalty authority provided for in section 25 of the National Fishing Enhancement Act of 1984. This Act provided the Corps with authority to assess a civil penalty for violations of the terms and conditions of Corps section 10 and section 404 permits issued for artificial reefs. This section of the National Fishing Enhancement Act is compatible with Class I administrative penalties provided for in section 309(g) of the Clean Water Act and therefore these procedures apply to both authorities.

Section 326.6 (a)(2): This section has been reworded to clarify that an administrative penalty may be pursued in conjunction with cease and desist orders and requests for restoration and/or mitigation. The intent is to insure that the intensity of the effort required in pursuit of the action is commensurate with the severity of the violation. Thus, a cease and desist order may be issued and an administrative penalty assessed. If the cease and desist order is complied with, the administrative penalty action could continue to completion. However, if a violation continues and requires seeking a judicial injunction, then it may be more appropriate to continue the action in a judicial setting rather than seeking the administrative penalty. In such instance, the administrative penalty would be discontinued and a case filed in court. It is not intended that an administrative penalty action precludes seeking judicial action for future violations by the same permittee. Each violation should be evaluated on its own merits and in the light of past action by the permittee.

Section 326.6 (a)(3)(i): The definition of "agency" has been deleted and a definition of "Corps" substituted to be consistent with the rest of the Corps regulation.

Section 326.6 (a)(3)(iv): A definition of "permittee" has been inserted that defines permittee as the person alleged to be responsible for the violation. The term permittee has been inserted in lieu of each use of the term respondent in the draft. The remaining sections were renumbered to accommodate this insertion.

Section 326.6 (a)(2)(v): This section has been changed to indicate that the Presiding Officer will be chosen by the District Engineer (DE). The DE may choose to use a member of the Corps counsel staff or any other qualified person designated by the DE. This change will allow the DE greater flexibility in appointing Presiding Officers and will avoid delays by ensuring that cases can be referred to a wider group of qualified individuals.

Section 326.6 (c)(4): This section has been changed to eliminate the requirement that a legal notice be placed in a paper of general circulation in the area. This was done in the interest of reducing the cost of implementing the penalty authority. Also, the public notice mailing lists maintained for regulatory purposes may be used or modified for use as the mailing list for a proposed penalty notice. The description of the content of the public notice has been simplified by referencing the information to be provided the permittee at the time of notice of the proposed penalty.

Section 326.6 (c)(4)(ii): This section was modified to indicate that the same public notice mailing lists used for the evaluation process may be used in developing the mailing lists for administrative penalty notices.

Section 326.6 (c)(5): This section was modified to require the same information in the public notice that is required in the notice to the permittee.

Section 326.6 (g)(4): This section was modified to indicate the district engineer could hold the hearing at a location of his choice.

Section 326.6 (h): This section was changed to reflect a requirement that the Presiding Officer shall be any qualified person designated by the DE.

Section 326.6 (h)(8): This section has been changed to eliminate the prohibition against cross-examination of the permittee. This was done to respond to the concern that the permittee was given special consideration in being allowed to cross-examine witnesses without being subject to the same rule.

Section 326.6 (j)(3): This section was modified to clarify that communications between the district engineer and his staff prior to the issuance of a proposed order do not constitute "ex parte communications."

Note 1: The Department of the Army has determined that the regulations do not contain a major provision requiring the preparation of a regulatory impact analysis under E.O. 12291.

Note 2: The Department of the Army has determined that this rule will not have a significant impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

Note 3: The Department of the Army has determined that these regulations will not affect the use or value of private property and therefore do not require a "Takings Impact Assessment" under Executive Order 12630.

Note 4: The use of the term "he" and its derivatives used in these regulations is generic and should be considered as applying to both male and female.

List of Subjects in 33 CFR Part 326

Investigations, Intergovernmental relations, Law enforcement, Navigation, Water, Pollution control, Waterways.

Dated: November 28, 1989.

Robert W. Page,

Assistant Secretary of the Army (Civil Works).

Accordingly, the Department of the Army is amending 33 CFR part 326 as follows:

PART 326—ENFORCEMENT

The authority citation for part 326 is revised to read as follows:

Authority: 33 U.S.C. 401 et seq.; 33 U.S.C. 1344; 33 U.S.C. 1413; 33 U.S.C. 2101.

2. Section 326.6 is added to read as follows:

§ 326.6 Class I Administrative penalties.

(a) *Introduction.* (1) This section sets forth procedures for initiation and administration of Class I administrative penalty orders under section 309(g) of the Clean Water Act, and section 205 of the National Fishing Enhancement Act. Section 309(g)(2)(A) specifies that Class I civil penalties may not exceed \$10,000 per violation, except that the maximum amount of any Class I civil penalty shall not exceed \$25,000. The National Fishing Enhancement Act, section 205(e), provides that penalties for violations of permits issued in accordance with that Act shall not exceed \$10,000 for each violation.

(2) These procedures supplement the existing enforcement procedures at §§ 326.1 through 326.5. However, as a matter of Corps enforcement discretion once the Corps decides to proceed with an administrative penalty under these procedures it shall not subsequently pursue judicial action pursuant to § 326.5. Therefore, an administrative penalty should not be pursued if a subsequent judicial action for civil penalties is desired. An administrative civil penalty may be pursued in conjunction with a compliance order, request for restoration and/or request for mitigation issued under § 326.4.

(3) Definitions. For the purposes of this section of the regulation:

(i) "Corps" means the Secretary of the Army, acting through the U.S. Army Corps of Engineers, with respect to the matters covered by this regulation.

(ii) "Interested person outside the Corps" includes the permittee, any person who filed written comments on the proposed penalty order, and any other person not employed by the Corps with an interest in the subject of proposed penalty order, and any attorney of record for those persons.

(iii) "Interested Corps staff" means those Corps employees, whether temporary or permanent, who may investigate, litigate, or present evidence, arguments, or the position of the Corps in the hearing or who participated in the preparation, investigation or deliberations concerning the proposed penalty order, including any employee, contractor, or consultant who may be called as a witness.

(iv) "Permittee" means the person to whom the Corps issued a permit under section 404 of the Clean Water Act, (or section 10 of the Rivers and Harbors Act for an Artificial Reef) the conditions and limitations of which permit have allegedly been violated.

(v) "Presiding Officer" means a member of Corps Counsel staff or any other qualified person designated by the District Engineer (DE), to hold a hearing on a proposed administrative civil penalty order (hereinafter referred to as "proposed order") in accordance with the rules set forth in this regulation and to make such recommendations to the DE as prescribed in this regulation.

(vi) "Ex parte communication" means any communication, written or oral, relating to the merits of the proceeding, between the Presiding Officer and an interested person outside the Corps or the interested Corps staff, which was not originally filed or stated in the administrative record or in the hearing. Such communication is not an "ex parte communication" if all parties have received prior written notice of the proposed communication and have been given the opportunity to participate herein.

(b) *Initiation of action.* (1) If the DE or a delegatee of the DE finds that a recipient of a Department of the Army permit (hereinafter referred to as "the permittee") has violated any permit condition or limitation contained in that permit, the DE is authorized to prepare and process a proposed order in accordance with these procedures. The proposed order shall specify the amount of the penalty which the permittee may be assessed and shall describe with reasonable specificity the nature of the violation.

(2) The permittee will be provided actual notice, in writing, of the DE's proposal to issue an administrative civil penalty and will be advised of the right to request a hearing and to present evidence on the alleged violation. Notice to the permittee will be provided by certified mail, return receipt requested, or other notice, at the discretion of the DE when he determines justice so requires. This notice will be accompanied by a copy of the proposed

order, and will include the following information:

(i) A description of the alleged violation and copies of the applicable law and regulations;

(ii) An explanation of the authority to initiate the proceeding;

(iii) An explanation, in general terms, of the procedure for assessing civil penalties, including opportunities for public participation;

(iv) A statement of the amount of the penalty that is proposed and a statement of the maximum amount of the penalty which the DE is authorized to assess for the violations alleged;

(v) A statement that the permittee may within 30 calendar days of receipt of the notice provided under this subparagraph, request a hearing prior to issuance of any final order. Further, that the permittee must request a hearing within 30 calendar days of receipt of the notice provided under this subparagraph in order to be entitled to receive such a hearing;

(vi) The name and address of the person to whom the permittee must send a request for hearing;

(vii) Notification that the DE may issue the final order on or after 30 calendar days following receipt of the notice provided under these rules, if the permittee does not request a hearing; and

(viii) An explanation that any final order issued under this section shall become effective 30 calendar days following its issuance unless a petition to set aside the order and to hold a hearing is filed by a person who commented on the proposed order and such petition is granted or an appeal is taken under section 309(g)(8) of the Clean Water Act.

(3) At the same time that actual notice is provided to the permittee, the DE shall give public notice of the proposed order, and provide reasonable opportunity for public comment on the proposed order, prior to issuing a final order assessing an administrative civil penalty. Procedures for giving public notice and providing the opportunity for public comment are contained in § 326.6(c).

(4) At the same time that actual notice is provided to the permittee, the DE shall provide actual notice, in writing, to the appropriate state agency for the state in which the violation occurred. Procedures for providing actual notice to and consulting with the appropriate state agency are contained in § 326.6(d).

(c) *Public notice and comment.* (1) At the same time the permittee and the appropriate state agency are provided actual notice, the DE shall provide

public notice of and a reasonable opportunity to comment on the DE's proposal to issue an administrative civil penalty against the permittee.

(2) A 30 day public comment period shall be provided. Any person may submit written comments on the proposed administrative penalty order. The DE shall include all written comments in an administrative record relating to the proposed order. Any person who comments on a proposed order shall be given notice of any hearing held on the proposed order. Such persons shall have a reasonable opportunity to be heard and to present evidence in such hearings.

(3) If no hearing is requested by the permittee, any person who has submitted comments on the proposed order shall be given notice by the DE of any final order issued, and will be given 30 calendar days in which to petition the DE to set aside the order and to provide a hearing on the penalty. The DE shall set aside the order and provide a hearing in accordance with these rules if the evidence presented by the commenter in support of the commenter's petition for a hearing is material and was not considered when the order was issued. If the DE denies a hearing, the DE shall provide notice to the commenter filing the petition for the hearing, together with the reasons for the denial. Notice of the denial and the reasons for the denial shall be published in the *Federal Register* by the DE.

(4) The DE shall give public notice by mailing a copy of the information listed in paragraph (c)(5), of this section to:

- (i) Any person who requests notice;
- (ii) Other persons on a mailing list developed to include some or all of the following sources:

(A) Persons who request in writing to be on the list;

(B) Persons on "area lists" developed from lists of participants in past similar proceedings in that area, including hearings or other actions related to section 404 permit issuance as required by § 325.3(d)(1). The DE may update the mailing list from time to time by requesting written indication of continued interest from those listed. The DE may delete from the list the name of any person who fails to respond to such a request.

(5) All public notices under this subpart shall contain at a minimum the information provided to the permittee as described in § 326.6(b)(2) and:

- (i) A statement of the opportunity to submit written comments on the proposed order and the deadline for submission of such comments;
- (ii) Any procedures through which the public may comment on or participate in

proceedings to reach a final decision on the order;

(iii) The location of the administrative record referenced in § 326.6(e), the times at which the administrative record will be available for public inspection, and a statement that all information submitted by the permittee and persons commenting on the proposed order is available as part of the administrative record, subject to provisions of law restricting the public disclosure of confidential information.

(d) *State consultation.* (1) At the same time that the permittee is provided actual notice, the DE shall send the appropriate state agency written notice of proposal to issue an administrative civil penalty order. This notice will include the same information required pursuant to § 326.6(c)(5).

(2) For the purposes of this regulation, the appropriate State agency will be the agency administering the 401 certification program, unless another state agency is agreed to by the District and the respective state through formal/informal agreement with the state.

(3) The appropriate state agency will be provided the same opportunity to comment on the proposed order and participate in any hearing that is provided pursuant to § 326.6(c).

(e) *Availability of the administrative record.* (1) At any time after the public notice of a proposed penalty order is given under § 326.6(c), the DE shall make available the administrative record at reasonable times for inspection and copying by any interested person, subject to provisions of law restricting the public disclosure of confidential information. Any person requesting copies of the administrative record or portions of the administrative record may be required by the DE to pay reasonable charges for reproducing the information requested.

(2) The administrative record shall include the following:

(i) Documentation relied on by the DE to support the violations alleged in the proposed penalty order with a summary of violations, if a summary has been prepared;

(ii) Proposed penalty order or assessment notice;

(iii) Public notice of the proposed order with evidence of notice to the permittee and to the public;

(iv) Comments by the permittee and/or the public on the proposed penalty order, including any requests for a hearing;

(v) All orders or notices of the Presiding Officer;

(vi) Subpoenas issued, if any, for the attendance and testimony of witnesses and the production of relevant papers,

books, or documents in connection with any hearings;

(vii) All submittals or responses of any persons or comments to the proceeding, including exhibits, if any;

(viii) A complete and accurate record or transcription of any hearing;

(ix) The recommended decision of the Presiding Officer and final decision and/or order of the Corps issued by the DE; and

(x) Any other appropriate documents related to the administrative proceeding;

(f) *Counsel.* A permittee may be represented at all stages of the proceeding by counsel. After receiving notification that a permittee or any other party or commenter is represented by counsel, the Presiding Officer and DE shall direct all further communications to that counsel.

(g) *Opportunity for hearing.* (1) The permittee may request a hearing and may provide written comments on the proposed administrative penalty order at any time within 30 calendar days after receipt of the notice set forth in § 326.6(b)(2). The permittee must request the hearing in writing, specifying in summary form the factual and legal issues which are in dispute and the specific factual and legal grounds for the permittee's defense.

(2) The permittee waives the right to a hearing to present evidence on the alleged violation or violations if the permittee does not submit the request for the hearing to the official designated in the notice of the proposed order within 30 calendar days of receipt of the notice. The DE shall determine the date of receipt of notice by permittee's signed and dated return receipt or such other evidence that constitutes proof of actual notice on a certain date.

(3) The DE shall promptly schedule requested hearings and provide reasonable notice of the hearing schedule to all participants, except that no hearing shall be scheduled prior to the end of the thirty day public comment period provided in § 326.6(c)(2). The DE may grant any delays or continuances necessary or desirable to resolve the case fairly.

(4) The hearing shall be held at the district office or a location chosen by the DE, except the permittee may request in writing upon a showing of good cause that the hearing be held at an alternative location. Action on such request is at the discretion of the DE.

(h) *Hearing.* (1) Hearings shall afford permittees with an opportunity to present evidence on alleged violations and shall be informal, adjudicatory hearings and shall not be subject to section 554 or 556 of the Administrative

Procedure Act. Permittees may present evidence either orally or in written form in accordance with the hearing procedures specified in § 326.6(i).

(2) The DE shall give written notice of any hearing to be held under these rules to any person who commented on the proposed administrative penalty order under § 326.6(c). This notice shall specify a reasonable time prior to the hearing within which the commenter may request an opportunity to be heard and to present oral evidence or to make comments in writing in any such hearing. The notice shall require that any such request specify the facts or issues which the commenter wishes to address. Any commenter who files comments pursuant to § 326.6(c)(2) shall have a right to be heard and to present evidence at the hearing in conformance with these procedures.

(3) The DE shall select a member of the Corps counsel staff or other qualified person to serve as Presiding Officer of the hearing. The Presiding Officer shall exercise no other responsibility, direct or supervisory, for the investigation or prosecution of any case before him. The Presiding Officer shall conduct hearings as specified by these rules and make a recommended decision to the DE.

(4) The Presiding Officer shall consider each case on the basis of the evidence presented, and must have no prior connection with the case. The Presiding Officer is solely responsible for the recommended decision in each case.

(5) *Ex Parte Communications.* (i) No interested person outside the Corps or member of the interested Corps staff shall make, or knowingly cause to be made, any ex parte communication on the merits of the proceeding.

(ii) The Presiding Officer shall not make, or knowingly cause to be made, any ex parte communication on the proceeding to any interested person outside the Corps or to any member of the interested Corps staff.

(iii) The DE may replace the Presiding Officer in any proceeding in which it is demonstrated to the DE's satisfaction that the Presiding Officer has engaged in prohibited ex parte communications to the prejudice of any participant.

(iv) Whenever an ex parte communication in violation of this section is received by the Presiding Officer or made known to the Presiding Officer, the Presiding Officer shall immediately notify all participants in the proceeding of the circumstances and substance of the communication and may require the person who made the communication or caused it to be made, or the party whose representative made

the communication or caused it to be made, to the extent consistent with justice and the policies of the Clean Water Act, to show cause why that person or party's claim or interest in the proceedings should not be dismissed, denied, disregarded, or otherwise adversely affected on account of such violation.

(v) The prohibitions of this paragraph apply upon designation of the Presiding Officer and terminate on the date of final action or the final order.

(i) *Hearing Procedures.* (1) The Presiding Officer shall conduct a fair and impartial proceeding in which the participants are given a reasonable opportunity to present evidence.

(2) The Presiding Officer may subpoena witnesses and issue subpoenas for documents pursuant to the provisions of the Clean Water Act.

(3) The Presiding Officer shall provide interested parties a reasonable opportunity to be heard and to present evidence. Interested parties include the permittee, any person who filed a request to participate under 33 CFR 326.6(c), and any other person attending the hearing. The Presiding Officer may establish reasonable time limits for oral testimony.

(4) The permittee may not challenge the permit condition or limitation which is the subject matter of the administrative penalty order.

(5) Prior to the commencement of the hearing, the DE shall provide to the Presiding Officer the complete administrative record as of that date. During the hearing, the DE, or an authorized representative of the DE may summarize the basis for the proposed administrative order. Thereafter, the administrative record shall be admitted into evidence and the Presiding Officer shall maintain the administrative record of the proceedings and shall include in that record all documentary evidence, written statements, correspondence, the record of hearing, and any other relevant matter.

(6) The Presiding Officer shall cause a tape recording, written transcript or other permanent, verbatim record of the hearing to be made, which shall be included in the administrative record, and shall, upon written request, be made available, for inspection or copying, to the permittee or any person, subject to provisions of law restricting the public disclosure of confidential information. Any person making a request may be required to pay reasonable charges for copies of the administrative record or portions thereof.

(7) In receiving evidence, the Presiding Officer is not bound by strict rules of evidence. The Presiding Officer may

determine the weight to be accorded the evidence.

(8) The permittee has the right to examine, and to respond to the administrative record. The permittee may offer into evidence, in written form or through oral testimony, a response to the administrative record including, any facts, statements, explanations, documents, testimony, or other exculpatory items which bear on any appropriate issues. The Presiding Officer may question the permittee and require the authentication of any written exhibit or statement. The Presiding Officer may exclude any repetitive or irrelevant matter.

(9) At the close of the permittee's presentation of evidence, the Presiding Officer should allow the introduction of rebuttal evidence. The Presiding Officer may allow the permittee to respond to any such rebuttal evidence submitted and to cross-examine any witness.

(10) The Presiding Officer may take official notice of matters that are not reasonably in dispute and are commonly known in the community or are ascertainable from readily available sources of known accuracy. Prior to taking official notice of a matter, the Presiding Officer shall give the Corps and the permittee an opportunity to show why such notice should not be taken. In any case in which official notice is taken, the Presiding Officer shall place a written statement of the matters as to which such notice was taken in the record, including the basis for such notice and a statement that the Corps or permittee consented to such notice being taken or a summary of the objections of the Corps or the permittee.

(11) After all evidence has been presented, any participant may present argument on any relevant issue, subject to reasonable time limitations set at the discretion of the Presiding Officer.

(12) The hearing record shall remain open for a period of 10 business days from the date of the hearing so that the permittee or any person who has submitted comments on the proposed order may examine and submit responses for the record.

(13) At the close of this 10 business day period, the Presiding Officer may allow the introduction of rebuttal evidence. The Presiding Officer may hold the record open for an additional 10 business days to allow the presentation of such rebuttal evidence.

(j) *The decision.* (1) Within a reasonable time following the close of the hearing and receipt of any statements following the hearing and after consultation with the state pursuant to § 326.6(d), the Presiding

Officer shall forward a recommended decision accompanied by a written statement of reasons to the DE. The decision shall recommend that the DE withdraw, issue, or modify and issue the proposed order as a final order. The recommended decision shall be based on a preponderance of the evidence in the administrative record. If the Presiding Officer finds that there is not a preponderance of evidence in the record to support the penalty or the amount of the penalty in a proposed order, the Presiding Officer may recommend that the order be withdrawn or modified and then issued on terms that are supported by a preponderance of evidence on the record. The Presiding Officer also shall make the complete administrative record available to the DE for review.

(2) The Presiding Officer's recommended decision to the DE shall become part of the administrative record and shall be made available to the parties to the proceeding at the time the DE's decision is released pursuant to § 326.6(j)(5). The Presiding Officer's recommended decision shall not become part of the administrative record until the DE's final decision is issued, and shall not be made available to the permittee or public prior to that time.

(3) The rules applicable to Presiding Officers under § 326.6(h)(5) regarding ex parte communications are also applicable to the DE and to any person who advises the DE on the decision or the order, except that communications between the DE and the Presiding Officer do not constitute ex parte communications, nor do communications between the DE and his staff prior to issuance of the proposed order.

(4) The DE may request additional information on specified issues from the

participants, in whatever form the DE designates, giving all participants a fair opportunity to be heard on such additional matters. The DE shall include this additional information in the administrative record.

(5) Within a reasonable time following receipt of the Presiding Officer's recommended decision, the DE shall withdraw, issue, or modify and issue the proposed order as a final order. The DE's decision shall be based on a preponderance of the evidence in the administrative record, shall consider the penalty factors set out in section 309(g)(3) of the CWA, shall be in writing, shall include a clear and concise statement of reasons for the decision, and shall include any final order assessing a penalty. The DE's decision, once issued, shall constitute final Corps action for purposes of judicial review.

(6) The DE shall issue the final order by sending the order, or written notice of its withdrawal, to the permittee by certified mail. Issuance of the order under this subparagraph constitutes final Corps action for purposes of judicial review.

(7) The DE shall provide written notice of the issuance, modification and issuance, or withdrawal of the proposed order to every person who submitted written comments on the proposed order.

(8) The notice shall include a statement of the right to judicial review and of the procedures and deadlines for obtaining judicial review. The notice shall also note the right of a commenter to petition for a hearing pursuant to 33 CFR 326.6(c)(3) if no hearing was previously held.

(k) *Effective date of order.* (1) Any final order issued under this subpart shall become effective 30 calendar days

following its issuance unless an appeal is taken pursuant to section 309(g)(8) of the Clean Water Act, or in the case where no hearing was held prior to the final order, and a petition for hearing is filed by a prior commenter.

(2) If a petition for hearing is received within 30 days after the final order is issued, the DE shall:

(i) Review the evidence presented by the petitioner.

(ii) If the evidence is material and was not considered in the issuance of the order, the DE shall immediately set aside the final order and schedule a hearing. In that case, a hearing will be held, a new recommendation will be made by the Presiding Officer to the DE and a new final decision issued by the DE.

(iii) If the DE denies a hearing under this subparagraph, the DE shall provide to the petitioner, and publish in the *Federal Register*, notice of, and the reasons for, such denial.

(l) *Judicial review.* (1) Any permittee against whom a final order assessing a civil penalty under these regulations or any person who provided written comments on a proposed order may obtain judicial review of the final order.

(2) In order to obtain judicial review, the permittee or commenter must file a notice of appeal in the United States District Court for either the District of Columbia, or the district in which the violation was alleged to have occurred, within 30 calendar days after the date of issuance of the final order.

(3) Simultaneously with the filing of the notice of appeal, the permittee or commenter must send a copy of such notice by certified mail to the DE and the Attorney General.

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