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BEFORE THE

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Federal Communications Commission

WASHINGTON, D.C. 20554

JAN 13 1993

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

Redevelopment of Spectrum to
Encourage Innovation in the Use
of New Telecommunications
Technologies

)
)
) ET Docket No. 92-9
)
) RM-7981
) RM-8004

To: The Commission

COMMENTS
OF
QUESTAR SERVICE CORPORATION

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Dated: January 13, 1993

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SUMMARY

Incumbent licensees operating microwave systems in the 2 GHz range will be significantly affected by the Commission's decision to reallocate this spectrum for co-primary use by emerging new technologies. For this reason, Questar Service Corporation (Questar) strongly urges the Commission to adopt a transition plan that will ensure that incumbent users forced to relocate from current frequency assignments can do so without disruption to vital communication systems. For this reason, Questar supports a minimum of a five year voluntary period during which new technology service providers and incumbent licensees could freely negotiate the migration to new facilities. The Commission should encourage market-based mechanisms in which parties can negotiate the best resolution of these issues. This will minimize the need for regulatory oversight and generally smooth the transition process.

Furthermore, the systems which many incumbent licensees operate are technologically complex in that they tie together many inter-related company functions. The process of replacing discreet links within these systems will be time consuming and a five year transition to new facilities

is a reasonable time period in which this migration can be accomplished.

Questar agrees that new technology service providers must be required to provide comparable alternate facilities when seeking to displace 2 GHz microwave users. Comparability will be different for different users, but in most case will encompass comparable bandwidth, availability, reliability and performance. An incumbent licensee must never be forced to compromise its current level of reliability merely because the new technology service provider disagrees on whether or not the incumbent licensee needs that level of reliability. Incumbents must, as dictated by their unique telecommunications needs, be allowed to choose replacement spectrum or a replacement medium alternative and not be required to use common carrier facilities. Nor should displaced incumbent microwave licensees involuntarily be forced to relocate until comparable facilities are available and sufficient time allowed to make technical adjustments necessary to ensure a seamless hand-off. While Questar favors encouraging voluntary negotiations, once the involuntary relocation period begins, displaced licensees must have reasonable assurance that they will not be forced to leave current spectrum assignments until replacement facilities are in

operation and tested. The one-year period thereafter to allow licensees to determine whether or not the new facilities are adequate should provide reasonable assurance that any subsequent problems can be redressed.

Questar is vitally concerned that incumbent licensees have control over the replacement process. The Commission should not dictate that new technology service providers actually perform the activities required to install replacement facilities. Allowing incumbents to control this process will go far to ensure that they are satisfied with the replacement facilities and will help minimize disputes. Should disputes arise, Questar supports the use of arbitration and/or mediation to resolve these issues. Finally, Questar supports giving immediate access to government spectrum in the 1710-1850 MHz and 2220-2290 MHz federal government bands since these frequencies will provide the long haul propagation characteristics that will be necessary to accommodate some of the currently used 2 GHz links that cannot be adequately replaced by alternative media or higher range microwave spectrum.

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To: The Commission

**COMMENTS
OF THE
QUESTAR CORPORATION**

Questar Corporation ("Questar"), by its attorneys and pursuant to Section 1.415 of the rules and regulations of the Federal Communications Commission ("Commission" or "FCC"), hereby submits these Comments in response to the First Report and Order and Third Notice of Proposed Rule Making adopted by the Commission on September 17, 1992 in the above-styled proceeding.^{1/}

I. PRELIMINARY STATEMENT

1. Questar is an integrated natural gas company, comprised of exploration and production, distribution, and

^{1/} First Report and Order and Third Notice of Proposed Rule Making (Order), ET Docket No. 92-9, 7 FCC Rcd. 6886, (1992).

transmission subsidiaries. The distribution subsidiary provides natural gas to over a half-million customers throughout Utah and Wyoming. The transmission subsidiary brings gas to local distribution points via a pipeline network which covers a route of 2,400 miles through Utah, Wyoming, Idaho and Colorado. Questar's production subsidiaries explore and drill for natural gas throughout this four-state territory.

2. Questar's 2 GHz microwave system is absolutely essential to safe pipeline operation and natural gas production activities. Transportation of natural gas via pipeline has proven to be the safest method available. Nonetheless, to prevent potentially severe mishaps, Questar must follow a strict pipeline maintenance and repair schedule. Effective operation of the 2 GHz system is extremely critical to this process. Voice communications on the Questar system coordinates maintenance and repair operations and keeps Questar personnel on alert in the event of an accident. During routine pipeline maintenance activities, aged pipe is regularly replaced to ensure against leaks of highly volatile natural gas. In such operations, the product flow is stopped and the pipe cut open. Any interference to these operations will severely

jeopardize worker and public safety, especially in the populated regions through which the pipeline runs.

3. Moreover, Questar's 2 GHz system supports various data operations, the most critical of which is the "supervisory control and data acquisition" (SCADA) function. Depending on demand, Questar draws gas from up to 200 well sites at any given time. Many of these sites are located in remote rural areas which often have no communication facilities other than Questar's. The SCADA system remotely operates the well-head valves which send gas into the Questar transmission system. During the sensitive transmission and distribution processes, the SCADA system monitors and controls the flow of gas, maintaining pressure and alerting repair crews should data suggest the possibility of pipeline rupture. Certainly, in an operation as critical as the Questar SCADA system there is no tolerance whatsoever for communication link failures. Accordingly, Questar is greatly concerned about the instant proceeding and urges the Commission to move cautiously with the transition of use of 2 GHz spectrum to "merging technologies".

II. COMMENTS

A. **The Commission Must Establish a Transition Period Adequate to Accommodate Complex Migration Planning Activities**

4. The Commission's decision to permit co-equal sharing of the 2 GHz band with PCS operations holds the potential to create significant harmful interference to existing Private Operational-Fixed Service ("POFS") operations such as those now conducted by Questar. Accordingly, it is incumbent upon the Commission to take every possible measure to ensure that the transition from POFS to new technology operations in the band occurs with a minimum of harmful impact on incumbent licensees and the public safety. While Questar applauds the Commission's attempt to establish a transition framework which will ease the burden of migration upon POFS licensees, Questar respectfully seeks clear assurance that the transition plan will take into account and accommodate the complexities and difficulties of the proposed migration of POFS licensees from their current spectrum assignments.

5. The Commission is well aware that many of the presently authorized fixed microwave systems, including Questar's, are technologically complex and span great

geographic distances. It is likely that the specific spectrum needs of new technology licensees could create the loss of "pieces" of numerous large systems since specific "links" in those systems may have to be replaced. Accordingly, it will take considerable time and engineering effort to evaluate the most feasible and effective means to replace critical microwave links within existing systems with alternative spectrum and/or technologies. Establishing even a single link or rerouting and reconfiguring an existing system has, in the experience of Questar, required lengthy planning cycles in order to ensure a "seamless handoff" of the critical communications carried over these facilities.^{2/}

6. Normal problems encountered with system reconfiguration will be considerably heightened by the instant proceeding, since the availability of adequate long-haul microwave replacement spectrum will be diminished by the 2 GHz reallocation. Accordingly, the Commission must make certain that the proposed transition will provide sufficient time to permit existing POFS licensees to work with new technology proponents to ensure that the transition

^{2/} Questar has found over time, that due to the complexities of planning, funding, construction, and testing of POFS system facilities, an implementation schedule of up to 18-24 months is not uncommon.

proceeds without creating potentially hazardous lapses of telecommunications services for incumbent licensees.

7. Questar is convinced that a minimum five-year transition period, during which only voluntary negotiations between new technology proponents and incumbent licensees may occur, is necessary to ensure that the long-range planning for migration from present assignments may be performed adequately. Questar further submits that the minimum five-year "purely voluntary" transition period must be applied uniformly. Questar is concerned with the Commission's concept that, should it adopt a "lengthy transition period" for those "geographic areas where there may be little or no spectrum available", such a process will frustrate the introduction of new services and a shorter transition period of three years should apply.^{3/} In those geographic areas where 2 GHz spectrum is scarce, it will be even more difficult for incumbent licensees to find adequate replacement transmission capability since the possibility of spectrum assignments in other bands clearly will be diminished. Accordingly, incumbent licensees in those locations must be given, at a minimum, a transition period equal to that provided other incumbents.

^{3/} Order, ¶ 28.

8. Questar questions why the commencement date of the transition period must begin upon the effective date of the Commission's final decision in the related Further Notice of Proposed Rule Making in this proceeding.^{4/} It is unlikely that significant deployment of new technology systems will commence immediately, since it is uncertain precisely when new technologies will be licensed and whether new technology licensees will enjoy sufficient commercial success to make such systems viable in the near term. Accordingly, Questar believes that the commencement date of the transition period should be deferred until the Commission begins granting authorizations to construct new technology systems. Until such time as at least one new technology proponent demonstrates to the Commission the showing necessary to obtain operational and/or construction authorization, there is no need to begin a transition and relocation process.

9. Furthermore, it is highly unlikely that any potential new technology service provider would enter into serious negotiations until it is certain that it will receive a license to operate in a particular geographic area. Beginning any voluntary transition before this point

^{4/} Order, ¶ 24.

will, without justification, shorten the time when actual market negotiations will take place. Questar therefore urges the Commission to begin the transition period for each affected frequency band with the date on which the first actual full-term new technology authorization in that frequency band is granted.

10. Questar enthusiastically agrees that no incumbent licensee must face a sudden or unexpected demand for involuntary relocation and supports the concept that there be a minimum time period for voluntary negotiations after the grant of a license for an emerging technology service provider. Since Questar has recommended that the Commission not start the clock on the voluntary negotiation period until the grant of a license to an emerging technology service provider, the issue of an unexpectedly short transition period should not arise if the Commission adopts Questar's proposal. The Commission appears concerned with the fact that it has proposed to start the clock on the voluntary period at the conclusion of the rule making on the re-channelization plan for the bands above 3 GHz. As discussed, this approach has the effect of artificially shortening the amount of time in which voluntary negotiations may occur. Realistically, few, if any, potential new technology licensees are likely to expend

resources to relocate incumbent 2 GHz licensees before they know whether they will be awarded an operating license in a particular area. Therefore, no real market for 2 GHz frequencies will develop until there are new technology licensees with a significant need for additional spectrum and concomitant interest in relocating existing microwave users. Consequently, Questar submits that the Commission should simply begin the transition period upon the actual issuance of licenses to new technology service providers. Moreover, Questar asks that the Commission provide clear notice to incumbent POFS licensees of the actual date upon which the transition period will commence. Further, Questar believes that the Commission should require that applicants proposing to establish new technology operations in a given market area provide existing POFS licensees who may be impacted by the proposed operation with a timely written notice of the application filing.

11. In the case of any allocations made for unlicensed services, the Commission must establish a separate regulatory approach which will ensure that existing 2 GHz microwave users forced from present spectrum assignments will be fairly compensated. Questar believes the Commission should establish a one (1) year minimum transition period during which any licensee operating in the band proposed for

unlicensed operations would have an opportunity to relocate to other spectrum. Manufacturers intending to market equipment for use in these bands should contribute to an escrow fund which would be used to compensate users' relocation costs. During this one-year transition period, the Commission should not authorize any equipment to operate on an unlicensed basis (such as the proposed data PCS in the band 1910-1930 MHz). This would ensure that existing licensees could vacate the band in an orderly manner without risk of hazardous interference to critical communication systems. Further, such a plan would enable the Commission to establish an equitable compensation mechanism funded by the manufacturers who wish to market the equipment which will use this spectrum on an unlicensed basis.

12. In the case of data PCS, Questar believes that the Commission should establish a baseline figure for average replacement costs (e.g., \$100,000 per station). The Commission could then determine the total number of potential stations that would need to be replaced and each manufacturer requesting equipment certification would pay an equal pro rata share of the total estimated cost of relocating all microwave stations licensed in the reallocated frequency band. The baseline replacement cost figure would not be equated to a maximum amount that a

licensee could recover as actual replacement cost for each "link", rather it would simply be a figure used for purposes of funding the escrow account. Licensees could then submit their actual replacement cost figures and be compensated for these costs from the fund. Should additional funds be required (for example in the case where the average replacement costs exceed \$100,000 per station) manufacturers should be obligated to contribute additional funds to meet any shortfall.

B. The Involuntary Relocation Mechanism Must Ensure Incumbent Licensees of Minimal Service Disruptions and Adequate Compensation for Migration Costs

13. Questar generally agrees with the Commission's plan that would not permit new technology proponents that initiate involuntary relocation proceedings to access an existing licensee's spectrum until finalization of all activities necessary to implement the incumbent's replacement facilities, including adequate testing and analysis of the efficacy of those facilities. In this regard, Questar strongly supports the Commission's proposal that all existing fixed microwave licensees will retain co-primary status in the 2 GHz band until such time as they are either voluntarily or involuntarily relocated to new frequency bands or transmission media. As has been

documented extensively throughout these proceedings, the microwave facilities now licensed in the 2 GHz band serve critical operational needs. Incumbent users forced to abandon these facilities must be adequately compensated, and they must be able to ensure that any replacement facilities are adequate and that overall system reliability levels are not compromised.

14. With regard to replacement costs, Questar agrees that the emerging technology service provider must guarantee the payment of all relocation costs including engineering, equipment, site acquisition and preparation costs, construction and equipment testing, and application preparation and FCC filing fees, as well as any additional costs that the relocated microwave licensee may incur as a result of operation in a different fixed microwave band or migration to other telecommunications media. In addition, the Commission must ensure that the costs of all activities necessary for implementing the new facilities, such as frequency coordination and cost analysis of the complete relocation procedure, are assumed by the emerging technology service provider. This also includes identifying and obtaining, on an incumbent's behalf, new microwave frequency assignments or other facilities where applicable. Further, compensated costs must include the expenditure of time by

personnel of the displaced licensees who, by necessity, must be involved in the relocation activities.

15. While Questar agrees with the Commission that the emerging technology service provider must compensate incumbent licensees for building a new microwave system (or alternative facilities), and for testing of such systems and/or alternative facilities for service comparability to the existing 2 GHz system, Questar does not believe that the Commission should dictate exactly how the parties may agree to accomplish this task. Questar prefers that its own personnel, or contractors selected exclusively by Questar, be used in order to meet internal quality assurance requirements. Questar must have control over the implementation of the replacement facilities. Questar personnel and contractors have extensive experience in microwave engineering and construction, and have established company standards and practices for implementing these systems. Furthermore, Questar personnel must be able to closely control and supervise anyone who will have access to Questar facilities for any purpose. Accordingly, the Commission must ensure that incumbents will be able to follow normal company procedures for implementation of any replacement facilities. It would be totally unacceptable for the Commission to allow new technology service

providers, who have little or no experience with Questar's microwave system or communication requirements, to have any unnecessary involvement in the actual engineering and construction of the replacement facilities. Incumbent licensees such as Questar should be permitted to follow normal intra-company procedures in engineering, vendor selection, and implementation. This will considerably streamline the process and will be beneficial both to the emerging technology service provider and the incumbent licensee. Using this procedure should help ensure that the replacement facilities will be acceptable to the incumbent licensee when finally installed and activated.

16. While Questar generally agrees with the Commission's proposed transition plan, Questar seeks assurance that any replacement frequencies or technologies will offer adequate interoperability and provide full interface capability with the remainder of Questar's telecommunication system even when only a "partial migration" from a single (or small number of) link(s) in a multi-link system is mandated. Further, Questar seeks assurances that such "partial system buyouts" would be adequately compensated by new technology licensees. For example, any costs associated with ensuring that a displaced POFS system's integrity is maintained must also be the

responsibility of the new technology service provider. Because additional costs may be involved in successfully integrating a hybrid system (e.g. adding a 6 GHz path to a 2 GHz network), these costs must also be the responsibility of the new technology service provider. Moreover, the ultimate choice of whether a new frequency or alternative media technology will be employed to replace the existing link(s) must remain solely in the hands of the displaced incumbent licensee since that licensee is in the best position to fully evaluate its telecommunications needs.

C. Comparable Alternate Facilities Must Be Guaranteed to Displaced 2 GHz Licensees

17. Questar agrees that "comparable alternate facilities" must be provided for purposes of establishing whether the requirement of providing adequate replacement facilities has been met. Questar again suggests that the incumbent licensee have the option of deciding on the equipment vendor, and employment of engineering and/or construction services, whether these be provided in-house or under contract. However, Questar believes that some general parameters of comparability can be established.

18. Questar believes that the concept of comparability must, at a minimum, include comparable bandwidth, availability, reliability and performance. An incumbent licensee must never be forced to compromise its current level of reliability merely because the new technology service provider disagrees on whether or not the incumbent licensee needs that level of reliability. The incumbent licensee must be able to maintain, at a minimum, the current level of quality and reliability on its communications system, particularly when a new technology service provider may only be purchasing discrete links within a complicated long distance microwave system such as that operated by Questar. Furthermore, incumbent licensees must never be required to use common carrier facilities as a replacement for 2 GHz microwave links unless such a replacement is specifically chosen by the given displaced incumbent.

19. Issues of comparability are more complex when a replacement medium other than spectrum is chosen. For example, if fiber optic should be selected to replace microwave in a particular instance, the cost of maintaining the physical security of the system must be taken into account since fiber is vulnerable to breakage at any point, whereas a microwave network is vulnerable generally only at transmitter locations. Questar believes that disputes as to

comparability will be minimized when the incumbent licensee chooses the alternate facilities and directs the process from initial engineering to final construction and testing. However, in the event that disputes do arise, mediation should be available to help the parties resolve such disagreements. In the event that mediation fails to bring about a solution within a reasonable time frame, the Commission should establish a mechanism to provide final resolution of such disputes. Questar suggests that the Commission explore the possibility of using third party arbitration as a part of the dispute resolution process.^{5/}

20. Questar agrees with the Commission's proposal that incumbent POFS licensees displaced involuntarily should not be forced to relocate until comparable facilities are available and sufficient time is made available to make any technical adjustments necessary to ensure a seamless handoff. Therefore, in every case a new technology provider should be required to file as part of its FCC application for use of 2 GHz spectrum, a statement from any effected incumbent licensee confirming that the seamless handoff has taken place. Further, Questar agrees that if the 2 GHz incumbent can demonstrate within one year after moving to

^{5/} See Section D, infra.

new frequencies or facilities that those facilities are not comparable in service to the previously employed 2 GHz microwave link, the new technology proponent must remedy those deficiencies or pay the cost of relocating the POFS licensee back to the former frequency assignment.

D. Mediation and Arbitration are Preferred for Dispute Resolution

21. If a sufficient voluntary transition period is allowed and incumbents are assured control of the replacement process, disputes will be minimized. However, Questar supports employment of alternative dispute resolution methods for solving arguments that may arise over involuntary relocation and/or comparability of service. Provided that any dispute resolution method employed includes review by decision makers with demonstrated competence to pass on such issues, and that the burden of proof concerning "actual comparability" falls on the new technology service provider, reasonable assurance would exist that disputes can be fairly resolved. Questar believes that the use of an actual "negotiated rule making" for determining definitions of comparability will be of limited value. While Questar believes that there will be objective parameters by which comparability can be

determined, the factors most important in each licensee's system will vary widely by system. A licensee that is being forced to accept substitute facilities must be satisfied that the replacement facilities are comparable and will provide service equal to that which it is able to obtain on the existing 2 GHz system. Placing the acquisition of equipment and system engineering and construction in the hands of the existing licensee will contribute to ensuring that the licensee is satisfied that the new facilities being acquired are comparable to those being lost. As long as the licensee is assured that it will not have to abandon its current system until the replacement facilities have been adequately tested, and given the fact that licensees will have a one-year grace period in which to evaluate the performance of the system, there should be adequate safeguards for the licensee and the new technology service provider to come to terms on the adequacy of comparable facilities. Accordingly, with the availability of mediation for a set period, followed by legitimate arbitration service availability to resolve what Questar believes will be limited instances of actual dispute, the FCC should not have to engage in a rule making or extensive adjudicatory activities to further refine the definition of comparability.

E. Fixed Microwave Licensing Policy

22. Questar is somewhat disturbed with the Commission's proposal to retreat on the issue of what types of modifications can be made to existing 2 GHz systems without licensees losing their primary status. The Commission has now announced that only "minor" modifications will be given co-primary status in the band. These minor modifications will include changes in antenna azimuth, antenna beamwidth, antenna height, authorized power, channel loading, emission, station location, changes in ownership or control, reductions in authorized frequencies, or addition of frequencies not in the 2 GHz band. There is no indication that necessary system expansion or modification, which would encompass adding new paths, will be permitted on a co-primary basis. The Commission previously announced that new 2 GHz paths would be permitted to be added to existing systems on a case-by-case basis, but that totally new stand-alone 2 GHz microwave systems could only be licensed on a secondary basis. Nevertheless, the Commission now indicates that any new paths added to existing systems will only be allowed on a secondary basis. This policy retreat will considerably hamper existing 2 GHz microwave users who will require new paths to meet unforeseen circumstances. Questar takes strong exception to the