

The risk to marine ecosystems is obviously greatest for the ocean disposal option. Ocean outfall monitoring data from available studies indicate that, for the most part, water quality standards are met by most constituents at the edge of the permitted mixing zone (approximated by a circle with a 400-meter radius), with the occasional exception of nitrogen and some metals. It is recognized, however, that effluent plumes may well extend outside the 400-meter radius and that marine organisms exposed in and around such plumes can likewise travel farther distances. Pathogenic microorganisms in particular pose some concern, because effluent discharged to the ocean is not filtered and there is some evidence to suggest that aquatic organisms suffer from high concentrations of such microorganisms. The effects of pathogenic microorganisms on aquatic animals need to be better documented, as does their concentration in ocean discharges and resulting plumes.

Deep well injection could also pose a risk to marine ecology if contaminants can readily migrate and discharge to offshore waters. However, the extent to which this actually happens in South Florida and poses a real threat in the ocean is uncertain.

Two potential ecological effects of particular concern, should surface or ocean waters be sufficiently contaminated, include harmful algal blooms and bioconcentration of toxic contaminants in the food web. Algal blooms can cause a variety of toxic symptoms in aquatic organisms (including death) as well as nontoxic adverse effects such as clogging of gills and smothering of coral reefs and seagrass beds. Food web bioconcentration of metals and other contaminants can also cause a variety of toxic effects.

Finally, the ocean discharge option introduces the potential for the physical destruction of coral reefs traversed by discharge pipelines. The existing ocean outfalls in South Florida range from 0.9 to 3.6 miles offshore. Any widening or extension of existing pipelines leading to these outfalls could impair or destroy any nearby coral reefs. The same would be true if new outfalls and pipelines are constructed through coral reefs in the future to accommodate increased disposal needs.

#### *E. What Are the Important Data or Knowledge Gaps?*

For all four wastewater management options, the relative risk assessment found that there is a lack of definitive studies in South Florida that use a

physical or chemical tracer or indicator to identify the source and transport pathways of stressors detected in the environment. Ocean discharge is the only disposal option for which there is a known tracer study proving the source of stressors. In this study, a stable isotope tracer indicated that nitrogen was not being taken up in any significant amount by phytoplankton in the vicinity of the South Florida ocean outfalls. However, without more definitive tracer studies for each wastewater management option, it is difficult to assess the potential effects of local conditions on the fate and transport of treated wastewater after being released into the environment.

While results from ground water monitoring around some Class I municipal wells in South Florida confirm that fluids have migrated out of the permitted injection zone, the full areal extent of USDW impact is not known. This is not only because available monitoring data are limited, but also because the location and connectivity of natural conduits for fluid flow (fractures and solution cavities in the underground formation) are difficult to predict.

Specifically for the deep well injection and aquifer recharge options, the fate and transport of pathogens in South Florida's aquifers are not completely understood. For example, the rates of microbial survival, inactivation, and transport are difficult to predict. Also uncertain are the rates of microbial straining or filtration by geological materials under different fluid flow scenarios, including porous media and conduit flow. The fate and transport of pathogens is especially difficult to verify for deep well injection, even with the most sophisticated modeling or with expensive monitoring, since the receiving formations are thousands of feet underground.

Of particular relevance for the ocean disposal option, there is a lack of understanding regarding down-current impacts, risks to marine organisms passing through the mixing zone, and the potential for food web bioconcentration. Potential long-term ecological risks may exist inside and outside the mixing zone, but due to a lack of ongoing ecological monitoring studies around any of the existing ocean outfalls in South Florida, there is no information on actual biological receptors or exposure pathways that undoubtedly exist at the outfall sites. The lack of such long-term monitoring information makes it impossible to confirm that there are no long-term or

cumulative ecological or biological effects of discharged effluent.

With respect to surface discharges, there is significant uncertainty regarding the potential for food web bioconcentration and the severity of cumulative impacts caused by other sources of the same chemical and microbiological stressors contained in treated municipal wastewater.

These other sources of contamination include onsite sewage disposal systems, non-point source runoff from agricultural or urban areas, atmospheric deposition, or other point sources. The risks posed by surface water discharge need to be put into overall context of the cumulative risks posed by all sources of stressors in order to gain a sense of their relative importance.

Dated: April 17, 2003.

**G. Tracy Mehan III,**

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## **FEDERAL COMMUNICATIONS COMMISSION**

### **47 CFR Part 15**

**[ET Docket No. 03-65; FCC 03-54]**

### **Interference Immunity Performance Specifications for Radio Receivers**

**AGENCY:** Federal Communications Commission.

**ACTION:** Proposed rule; notice of inquiry.

**SUMMARY:** This document requests comment from the public on the possibility of incorporating receiver performance specifications into the Commission's spectrum policy on a broader basis. Such specifications could be in the form of incentives, guidelines or regulatory requirements (or a combination of these) in particular frequency bands, services or across bands and services. The Commission believes that incorporation of receiver performance specifications could serve to promote more efficient utilization of the spectrum and create opportunities for new and additional use of radio communications by the American public.

**DATES:** Written comments are due on or before July 21, 2003, and reply comments are due on or before August 18, 2003.

**ADDRESSES:** Federal Communications Commission, 445 12th Street, SW., Washington, DC 20554. See **SUPPLEMENTARY INFORMATION** for filing instructions.