

**United States Department of Agriculture
Fourth Annual Progress Report on Implementing the Goals of the
*President's Spectrum Policy Initiative*¹**

2008

Efforts to increase efficient and effective use of spectrum.

USDA purchases equipment that allows operational personnel the maximum available flexibility and dynamic use of spectrum for their operational environment. Current tools use the same operational concepts that future software defined radios will support, such as the ability to download software from a central site to program radios, interoperate with local agency personnel on either 25 kHz or 12.5 kHz bandwidth and interoperate with local agency personnel using analog or digital modes. Some radios can be used as portable base stations or repeaters to accommodate the changing traffic patterns associated with unpredictable wild land fire radio coverage requirements. This allows USDA to reduce the footprint of fixed spectrum dependent infrastructure and offload traffic between fixed repeaters.

USDA is also uses spread spectrum because it is much more spectrum efficient, handles interference more effectively, is more secure, and does not require USDA to obtain licenses. Spread spectrum has been particularly useful during incidents that lack available UHF frequencies, or in locations where available frequencies are typically saturated such as southern California. In those instances, spread spectrum enables firefighters to transmit from point-to-point, independent of radio infrastructure.

Participation in NTIA Working Level Group.

USDA participates in Working Level Group G, the subcommittee of the Federal Government Spectrum Task Force (Task Force), which was established as a component of the Spectrum Policy Initiative, and tasked to engage in Spectrum Planning and Reform. USDA encouraged co-members to utilize existing Capital Planning and Investment Control processes developed by the Office of Management and Budget (OMB) as a mechanism for tracking and reporting major radio system investments, and provide visibility into spectrum utilization.

¹ *President's Memorandum on Improving Spectrum Management for the 21st Century*, 49 Weekly Comp. Pres. Doc. 2875, § 3© (Nov. 29, 2004) (2004 Executive Memorandum)

Spectrum sharing with federal or state and local agencies.

USDA has been sharing spectrum with other federal, state, local and tribal agencies for many years. In fact, representatives of the National Interagency Fire Center (NIFC) believe they have maximized sharing opportunities by establishing Memorandums of Understanding at every level of the government throughout the country. NIFC representatives recently indicated that sharing today goes beyond government agencies. Increasingly, federal personnel are sharing frequencies with contractors and local cooperators who support the firefighting effort.

Since USDA firefighting is one of few Federal “first responder” operations, and the need for multiple-organization and cross-jurisdictional communications is critical from the onset of each incident, the Department promotes approaches and technologies that maximize interoperability. Sharing spectrum and radios with federal, state, local and industry partners is the single best short-term approach for USDA to achieve spectrum efficiency today. In many remote parts of the country, USDA’s spectrum dependent radio infrastructure is the only telecommunications technology available for shared use when fighting wild land fires. Where cooperators are unable to furnish their own radios with USDA assigned frequencies, USDA distributes radios from a national cache, which are returned and refurbished after each incident. Where feasible, USDA is installing Radio Control over Internet Protocol (RCoIP) connected to landline circuits to replace microwave links. USDA is moving toward the use of Radio over Internet Protocol (RoIP) to promote interoperability, and allow the bureaus to more effectively use existing frequency assignments. USDA supports the concept of next-generation software defined radios because they are ideally suited to wild land firefighting operations that are unpredictable and cross geographic and jurisdictional boundaries instantaneously, without warning.

USDA is committed to working closely with the Department of Interior (DOI) to improve radio support services and frequency management; and integrate business processes and policies. USDA and DOI personnel share field offices, and some firefighters work for both organizations. The Chief Information Officers of both agencies met with radio managers and firefighters at the jointly run National Interagency Fire Center located in Boise, Idaho in late August to identify what issues need to be addressed in order to improve information technology support for wild land firefighting operations.

Use of commercial services.

USDA has replaced many links between dispatcher systems and remote radio system controller sites with commercial landlines. These conversions result in a lower total-cost-of-ownership and save the USDA \$4K per system annually, since USDA is no longer paying the recurring labor and equipment costs for maintaining, upgrading and replacing repeaters used for wireless links. USDA plans to continue this conversion

to commercial services as infrastructure supporting similar links reaches the end of its lifecycle.

Automated Frequency Searches and Tracking:

Spectrum 21 is a program that serves as the front-end software to the Government Master File (GMF) of Federal frequencies. USDA uses that NTIA-furnished software to search for candidate frequencies and record frequency data.

USDA spectrum planning.

Spectrum is centrally managed by the Forest Service on behalf of USDA. Field personnel submit formal applications for frequency assignments to Forest Service headquarters where spectrum management personnel evaluate the most spectrum efficient options and effective alternatives to support business requirements. All system descriptions proposed in the frequency assignment application must reflect the actual installed configuration. If a proposed system has substantial spectrum requirements, USDA initiates a system review (SRV) by the Spectrum Planning Subcommittee of the IRAC, which must approve the installation before frequencies are assigned. USDA sets the standards for field radios and performs radio assessments and analyses to identify what options are the most spectrum-efficient for the operational environment. Spectrum sharing is USDA's top priority whenever feasible.

In addition, Forest Service headquarters staff members work with field personnel to plan and prioritize an annual work plan, called a Program of Work that determines what radio systems will be upgraded and replaced during the subsequent fiscal year. This allows the USDA Frequency Manager to maintain a consolidated frequency plan that remains up-to-date.