



2012 Richland/Hanford Site Radio & Spectrum Report



Richland Operations Office (RL),
Office of River Protection (ORP), &
Pacific Northwest National Laboratory (PNNL)

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LOCKHEED MARTIN





Mission

- Restoring the Columbia River Corridor
 - Transitioning Central Hanford Plateau for Waste Treatment and Long-Term Storage
 - Retrieve and Treat Hanford's Tank Waste and Close the Tank Farms to Protect the Columbia River
 - Develop technologies to solve environmental problems
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Organization Chart

- CIO, DOE Richland Operations Office
 - CIO, Mission Support Alliance
 - Manager, Wireless Communications Systems,
Lockheed Martin Information Technology
 - Hanford Site Frequency Coordinator,
Lockheed Martin Information Technology
 - Manager, Radio Field Support Services,
Lockheed Martin Information Technology
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Hanford Site





Spectrum Use Government Owned Systems



Key User Communities: Protective Force, Fire Protection, Emergency Preparedness, & Emergency Support

Land Mobile Radio (LMR)

- Band(s) of Operation: VHF
UHF
 - Number of Mobiles: ~140
 - Number of Portables: ~390
 - Number of Base Stations ~70
 - Number of Repeaters 10
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Spectrum Use Government Owned Systems



Key User Communities: Protective Force, Fire Protection, Emergency Preparedness, Emergency Support, Operations & Maintenance

Pagers:

- Band(s) of Operation: VHF
- Number of Pagers: ~500
- Number of Transmitters: ~8



Spectrum Use Government Owned Systems



Key User Communities: Emergency Preparedness & Everyone Working on the Site

Hanford Site Emergency Alerting System:

- Band(s) of Operation: UHF
- Number of Sirens: ~42
- Number of Message Reader Boards: ~5
- Number of Tone Alert Receivers ~50
- Number of Repeaters: 2



Spectrum Use Government Owned Systems



Key User Communities: Pacific Northwest National Laboratory (PNNL) - Environmental Characterization and Risk Assessment Group

Hanford Seismic Network & Eastern Regional Network:

- Band(s) of Operation: VHF
- Number of Seismic Locations: ~42
- Number of Seismic Relay Sites: ~15



Spectrum Use Government Owned Systems



Key User Communities: Operations and Maintenance

Remote Control Crane Operations:

- Band(s) of Operation: UHF
- Number of Remote Controlled Cranes: ~6



Spectrum Use Government Owned Systems



Key User Communities: Fire Protection

Radio Fire Alarm Reporting (RFAR) System:

- Band(s) of Operation: UHF
- Number of Building Served: ~220



Spectrum Use Government Owned Systems



Unlicensed Systems:

900 MHz Wireless Systems

- Used for Remote Monitoring
- Number of Devices ~100

2.4 GHz Wireless Systems

- Used for LAN Access & Remote Monitoring
- Number of Access Points ~250

3.65 GHz Wireless Systems (FCC Part 90 Registered)

- Used for Data, Video and Voice Transport
- Number of Links ~50

5.4 GHz Wireless Systems (FCC Part 90 Registered)

- Used for Data, Video and Voice Transport
- Number of Links ~10

5.8 GHz Wireless Systems

- Used for Links between AP
- Number of Links ~65



Spectrum Use Government Owned Systems



Key User Communities: Protective Force, Fire Protection, & Emergency Preparedness

Microwave WiMAX Wireless System

- Number of Links: ~2
- Data Connectivity Between Major Radio Sites

Microwave WiMAX Public Safety Broadband (MOA):

- Number of Links: ~20
- Used for Video Transport
- Data Connectivity Between Major Radio Sites



Spectrum Use Commercial Systems



Leased Equipment or Services

Commercial Radio Service:

- Used by Construction, Operations, & Maintenance
- Operate in VHF & 800 MHz
- Quantity ~2400

Pagers:

- Band(s) of Operation: VHF
- Number of Pagers: ~120

Cellular Telephones:

- Quantity ~2600

INMARSAT Telephones:

- Quantity ~2

IRIDIUM Telephones:

- Quantity ~6



Equipment Refresh Plans



Equipment Type:

- VHF Radio Equipment (Repeaters, Base, Mobile, & Portables)
- UHF Radio Equipment (Repeaters, Base, Mobile, & Portables)

Years Already in Service:

- Infrastructure (VHF & UHF Repeaters) ~ 3 years
- End Devices (Base, Mobile, & Portables) ~ 5 - 10 years

Projected Timeframe for Replacement (if known)

- Infrastructure Equipment ~ 10 to 15 years use
- End Devices (Base, Mobile, & Portables) ~ 6 to 9 years use



Interoperability / Public Safety / Sharing



Memorandums of Understanding (MOU)/Memorandums of Agreement (MOA)

- MOA with Washington State & Benton County Emergency Management (Microwave Links)
- MOU with various Local City and County Fire Protection Agencies (Sharing of Federal and Non-Federal Frequencies)
- MOU with Energy Northwest for Emergency Alerting (Sharing of Non-Federal Frequencies)
- MOU with Southeast Communications Center (SECOMM) (Interoperability between SECOMM and DOE Protective Forces)

Shared Federal Frequencies

- Forest Service
- U.S. Fish & Wildlife

Shared non-Federal Frequencies

- Law Enforcement Radio Network (LERN)



Issues / Challenges



- NTIA Red Book Section 4.3.7 - Paired Frequency Operations Compliance
- Waste Treatment Plant - Remote Control Cranes ~40 Frequencies
- Shrinking Budgets



Hanford Site





Hanford Site





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