Peak Signals, LLC
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Petersburg Borough
Public Safety Communication Tower
RFP

March 15, 2016

About Peak Signals

Peak Signals provides communications system maintenance and management services for large scale entities. We are first and foremost a critical infrastructure support company serving the DoD, Federal non-DoD, State and local public safety communities. We specialize in the conversion of legacy analog radio systems over to newer digital systems along with installation and support of the required infrastructure, including point-to-point microwave and digital trunking systems. Peak Signals has extensive experience working on remote high sites and has the skills and equipment to handle the associated logistics to support very remote and limited access installations.

Our staff takes the responsibility of maintaining a radio communications network very seriously. We pride ourselves on the ability to respond quickly to unforeseen outages and tap into all available resources until service is restored. There have been numerous instances in the past where our technicians and engineers have been working in remote regions of Alaska and received unsolicited accolades from public safety members. Examples are a Department of Transportation snow plow operator dependent on his radio through unsafe avalanche zones or a State Trooper who benefits from being able to reliably communicate with his dispatcher, hundreds of miles away, for the first time.

With a focus on Public Safety communications, we are dedicated to providing the highest level of service possible. Most of our prior work requires a target of "five-nines" for system availability which is the designator for 99.999% uptime.

Peak Signals personnel have also been involved in the design, build-out and maintenance of the Alaska Land Mobile Radio (ALMR) network, and the State of Alaska's Telecommunications System (SATS), which uses terrestrial microwave, fiber and satellite for data and Voice over IP (VoIP) traffic. Work for the State of Alaska's Enterprise Technology Service (ETS) has included

installation of microwave and repeater equipment on remote mountain top sites, building of new sites, including coordination with heavy lift helicopters, tower erection, hanging and aligning microwave dishes.

Relevant Experience

Since 2013, Peak Signals LLC., has been contracted both by Motorola Solutions and directly by the US Coast Guard to provide installation for the entire Rescue 21 control system throughout Alaska. This system was designed to replace the older generation Gold Elite equipment and provide a redundant, ring protected LMR network for Alaskan waters. This work comprised of the installation of four C-Sub master facilities and a total of 12 small and large operation consoles at 8 different geographical locations within the state.

This section is comprised of a sampling of the after-action reports on the installations and cable remediation of Rescue 21 support equipment and includes some redline drawings and network diagrams detailing the Installation Plan. Equipment was installed according to Motorola R56 and ANSI/NFPA 70standards.

The Program Director for the Rescue 21 Alaska regional deployment was Lt. Cmdr. Terry Holom, USCG, (907)-463-2958, e-mail: Terry.D.Holom@uscg.mil

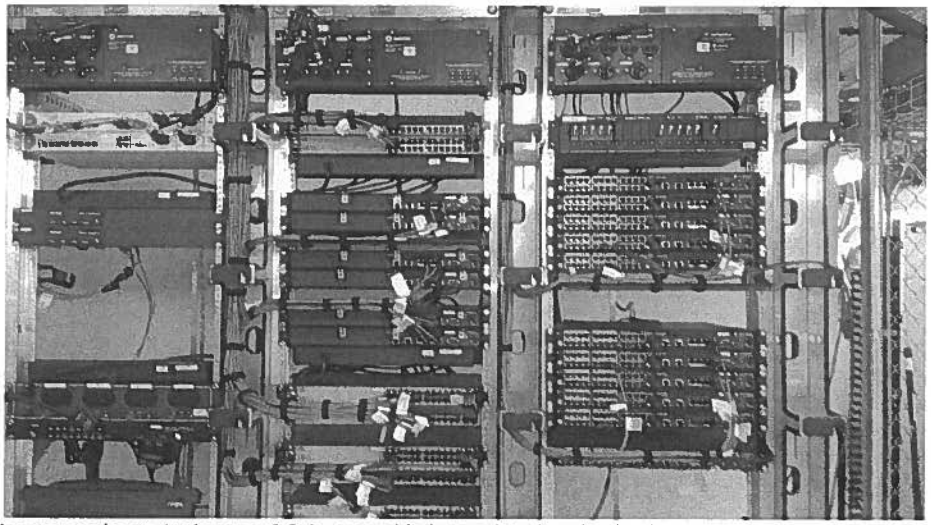


Figure 1. Equipment racks at Anchorage C-Sub, assembled, populated and cabled by Peak Signals, LLC, personnel for USCG Rescue 21, Alaska Region.

Peak Signals has extensive experience programming and installing Motorola XTL5000 and XTS5000 and installing code plugs to meet the January 2013 FCC Narrowbanding mandate.

Peak Signals has also performed installation and maintenance services for the State of Alaska's

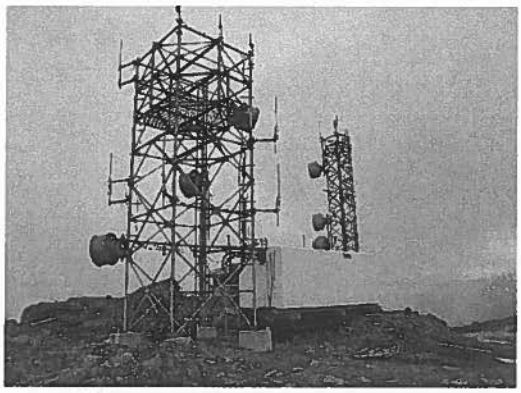


Figure 2. State of Alaska Telecommunications System's Saddle Mountain Site.

ETS has included installation of microwave and ALMR repeater equipment on remote mountain top sites, building of new sites, including coordination with heavy lift helicopters, hanging and aligning microwave dishes.

An example of the work that Peak Signals performed for the State of Alaska in 2011 and 2012, is the 11GHz microwave upgrades installed at six remote mountain-top sites in a protected ring topology in the Juneau, Alaska region and the reconfiguration of the ALMR Quantar and Daniels repeaters. The project scope included the staging, aerial transportation and installation of new Aviat Eclipse radios and supporting Alcatel-Lucent 7705 Service Aggregating Routers. The external infrastructure tasks included hang of new wave-guide and heavy wind-load antennas and alignment, as well as reconfiguring ALMR equipment to include frequency

Figure 3. Peak Signals technician aligning high wind-load microwave antenna.

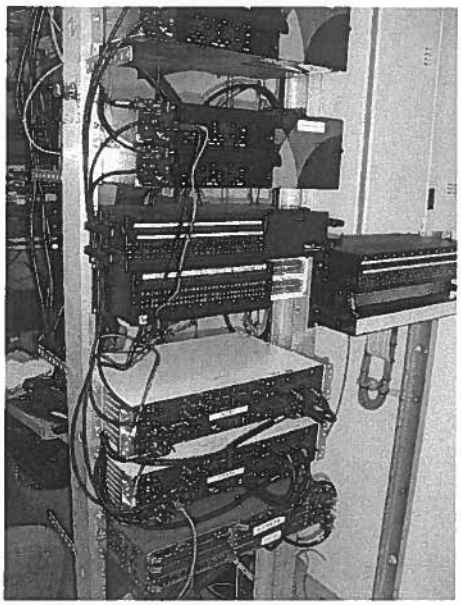


Figure 4. Peak Signals personnel monitoring Received Signal Levels (RSL) during antenna alignment.

combiners,Quantarand Daniels repeaters and hanging new transmit and receive antennas.

A project reference for the State of Alaska ETS is Mr. Dean Strid, P.E., (907)-269-4764, e-mail: dean.strid@alaska.gov

A previous fly-by inspection initiated by deteriorating performance of an FAAAutomatic Dependent Surveillance-Broadcast (ADS-B)site during the winter of 2012 had identified a number of potential necessary repairs due to falling rime ice. Peak Signals' engineers deployed to the FAA ADS-B site on the Williams mountain summit in conjunction with ITTExelis (FAA main contractor) and FAA personnel. Peak Signals personnel replaced the damaged antennas and mounting hardware, then swept the lines. Analysis of the Distance to Fault measurements showed that the repaired system was performing acceptably and the system was then brought back on line.

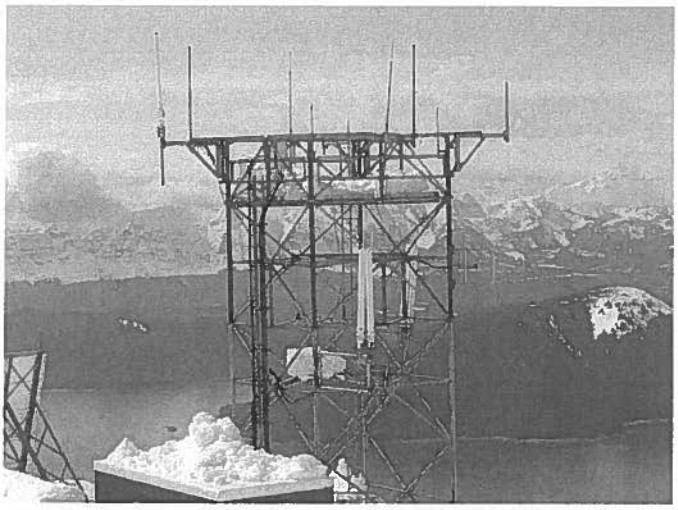


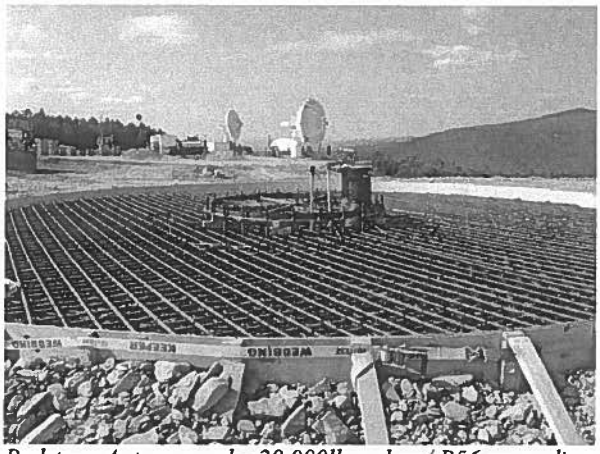
Figure 5. FAA tower, Williams Mountain, Alaska.

A project reference for the FAA/ITT Exelis work is Mr. Chuck Holmes, (703)-581-5763, e-mail: charles.holmes@exelisinc.com

Currently, Peak Signals has Master Service Agreements with Motorola Federal Systems Group, L-3 National Security Systems, General Dynamics Mission Systems, ITT/Harris Government Systems and Aviat Networking, along with several commercial carriers.
The engineering staff at Peak Signals has a wide range of backgrounds, including development of terrestrial transmission WANs, control programming development for transportable satellite telemetry systems at the Alaska Synthetic Aperture Center, Scientific Atlanta and NASA JPL, signal processing for Naval communications and detection applications, and Semiconductor analysis software and tool packages. Members of the engineering team have also had many years of experience interfacing with the Office of the Secretary of Defense Office of Technology

Transition (OSD/OTT) and DoD researchers in technology transfer programs, specializing technologies such as enhanced RF design, information assurance and telemetry.

In 2013, Peak Signals staff were given the opportunity to erect the Redstone Tracking Antenna (8m) for NASA-Wallops Island at the Poker Flats Rocket Range 40 miles north of Fairbanks. The preparation was significant with this project as the installation pad (30ft in diameter) had to be constructed. The foundation pad was comprised of 65yds of concrete with over 20,000lbs of rebar.



Redstone Antenna pad – 20,000lbs rebar / R56 grounding

Redstone 8meter Tracking Antenna – NASA (Fairbanks, AK 2013)

Peak Signals tower crew (Donnley Dome, AK 2014)

Scope of work for Petersburg project:
Provide certified tower crew, logistics and technical support for the installation of an approximately 55 foot bracketed communications tower at the Petersburg Volunteer Fire Department (PVFD) in Petersburg, Alaska. This project will include the foundation and tower erection. Also included will be the building entry ports along with exterior R56 grounding.

Foundation design

After reviewing the specifications, engineers at Rohn Towers recommend a self-support RSL model tower. The RSL tower is a light weight self-supporting tower designed specifically for use in public safety applications.

The recommended standard foundation for a 60ft RSL self-supporting tower is 8'-6"square with a 4'-3" depth on compacted normal soil. This would require a concrete volume of approximately 11.6cu.yds.

We plan on utilizing a high strength mix of concrete with additive. The concrete strength of 5000lbs will exceed the manufacturer's recommendation, thus eliminating the need for testing after the cure.

Installation services

In order to both expedite this work, we are proposing to hire local subcontractors as needed.

Possible areas have been identified as the following:

- Excavation assistance (backhoe / excavator / dirt removal / concrete disposal)
- Concrete (delivery / finishing)
- Electrical work (lighting system)
- Boom truck service

It is anticipated that the installation will consist of one week effort for the foundation work, followed by a second week with the tower erection.

The first week of effort shall include:

- Site preparation
    - Location determination
    - Concrete cutting and demolition
        - Concrete saw and Hilti work
    - Excavation of foundation
- Grounding system installation
    - Exothermic / CadWelds
    - 5/8" Copper plated 8ft ground rods (approximately 10 rods for an R56 compliant ring)
    - #6 and #2 copper ground wire for Motorola R56 standards
- Form building
- Rebar - #7 bars @ 12" OC for two levels, tied to anchor section
- Tower anchor base section
- Concrete pour and finishing

The second week of effort shall include:

- Tower erection
- Antenna stand-offs installed
- Wall bracket installation
- Tower grounding and bus bars
- Building external bus bar
- Building through ports
- Clean-up work

Logistics

We intend to have all materials, including the tower, shipped directly into Petersburg on AML. A three man crew with work truck and tools will be arriving via the AMHS.

Tower structure

- Tower sections
- Anchor base
- Antenna standoffs
- Top plate
- Safety climbing cable
- Obstruction lighting

Concrete foundation

The standard foundation will be utilized:

- Excavation with heavy equipment and/or hand tools
- Form construction
- Rebar and anchor base
- Grounding rods and ring
- Concrete (approximately 11.6yds)

Other

- Wall penetrations / Ports
- Building ground bus bar
- Exothermic (Cadweld) welding

Cost Estimate

CLN 001 Foundation design and site inspection		
• Standard foundation design		***$ (included)***
CLN 002 Installation services		
• Week (1)		
o Certified Tower Climber / Laborer (x2) @ $95/hr	x 50hrs	$ 9,500
o Engineer/Manager (x1) @ $118/hr x 50hrs		$ 5,900
o Equipment		$ 850
• Week (2)		
o Certified Tower Climber/Laborer (x2) @ $95/hr x 50hrs		$ 9,500
o Engineer/Manager (x1) @$118/hr x 50hrs		$ 5,900
		$ 31,650
CLN 003 Logistics		
• Travel (AMHS/Air)		$ 2,300
• Lodging		$ 3,000
• PerDiem ($50/day)		$ 1,500
		$ 6,800
CLN 004 Tower structure		
• Tower – Rohn RSL 60' Self-support		$ 8,600
• Lighting system – Red, medium intensity w/ controller		$ 7,800
• Lighting system - Electrical work (locally subcontracted)		$ 1,200
		$ 17,600
CLN 005 Concrete foundation, grounding and wall penetration work		
• *Excavation*		*$ 2,100*
• Concrete – High strength mix @ 5000lbs		*$ 4,900*
• Grounding		$ 3,400
o Wall penetration w/ bus bars		$ 1,200
		$ 11,600
CLN 006 Project Management		
• Reporting and Project Management		***$ (included)***
CLN 007 Tower licensing		
• FAA / FCC		***$ 2,200***
Total Quote		***$ 69,850***