

FIBER OPTIC FOCUS

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Positive Train Control Update



PTC pole installation
at Cibolo, Texas
Control Point

Construction of the latest in cutting edge technology for railway operational safety publicly known as Positive Train Control “PTC” has begun to make significant inroads across the Union Pacific system.

The PTC system being developed by Union Pacific is the “IETMS” or Interoperable Electronic Train Management System. The system monitors the progress of trains with the ability to take control of a train exceeding its speed limit or authorized limits of operation to provide increased safety and to prevent collisions with other trains.

The initial construction phase of the system has involved the placement of poles along the right of way at selected points. The poles are equipped with the necessary antenna array to provide radio coverage needed to overcome terrain or other obstacles.

Union Pacific Telecom crews are installing these poles along rail corridors designated by a priority system for monitoring and controlling train movements.

In California, where the state has set an earlier date for system operation, crews have completed construction on the majority of Subdivisions where it has been determined IETMS will be required. Beginning in March 2012, Union Pacific will begin installing the radios on the Alhambra Subdivision in Los Angeles, California. Seven to nine radios will be installed along with two base stations to begin the preliminary tests of the system according to Union Pacific’s Telecom Director, Dennis Souba.

Currently, the IETMS Western Region crews are installing poles on the Nampa Subdivision from Pocatello to Nampa, Idaho managed by Telecom Regional Project Supervisor, Stan Zupancic. Following the completion of the Nampa Subdivision, crews will begin work on the La Grande Subdivision which extends from La Grande to Hinkle, Oregon and then on to the Ayer Subdivision from Hinkle to Fish Lake, Oregon.

Union Pacific’s Northern Region crews overseen by Telecom Regional Project Supervisor, Mike Fries have completed construction from Chicago to NorthPlatte, Nebraska with the exception of the Blair Subdivision

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Working Safely in Trenches By Bill Wright



Combining shore boxes for trench safety

Working in trenches is perhaps the most potentially dangerous activity performed by fiber optic contractors working on or off of Union Pacific property.

Trenches in excess of 5 feet must be protected before workers may enter the trench according to OSHA regulations unless the excavation is done in areas of solid rock. Two workers per month are killed in trench collapses in the United States and the willingness to enter an unprotected trench is generally one of the most commonly reported rule violations by Union Pacific's Fiber Construction Coordinators across the system.

A trench cave in is the most likely of excavation related events to result in a fatality. One cubic yard of soil can weigh as much as an automobile. Walking into an unprotected trench could be considered similar to digging one's own grave and walking down into it.

Often contractors arrive at the job site with plans to perform excavations but lack the proper safety devices to ensure their employees well being. A required first step is always to know what lies below the ground by obtaining a dig ticket at least 48 hours in advance of excavation. All work on Union Pacific property requires the excavator to acquire a Union Pacific dig ticket (800-336-9193) and a state one call ticket (811 call from anywhere).

Among others, OSHA regulations require the contractor to keep heavy equipment away from trench edges and all excavated spoils a minimum of 2 feet from the edge of the trench.

In addition, trenches should be inspected at the beginning of each shift and following rain storms or other water intrusions. When trenches are greater than 4 feet in depth they should be tested for fumes or low oxygen atmosphere.

There are four methods of trench protection approved by OSHA:

- **Benching**-which creates a series of horizontal steps
- **Sloping**-which involves cutting the trench wall back at a 2 to 1 angle
- **Shoring**-which involves installation of aluminum, hydraulic, or other types of supports to prevent soil movement
- **Shielding**-which protects workers by means of metal boxes or other supports to prevent trench failures

Many factors are involved in the design of a trench protection system such as soil type, depth of cut, the presence of water, surcharge loads (spoil pile, or vibration from passing trains) and other activities around the excavation.

OSHA requires a competent person to inspect trenches daily before occupation and as conditions change. A competent person is someone who is capable of identifying existing or predictable hazards, or conditions unsuitable, dangerous, or unhealthful to workers, soil types, and protective systems required. A competent person should also be authorized to take immediate corrective actions to resolve any issues found.

Trench workers should have a safe means of entrance and exit from all trenches in excess of 4 feet in depth. A ladder, step, or ramp should be accessible to each worker within 25 feet of work location. Union Pacific requires that all contractors and employees adhere to OSHA specifications when performing trenching work. Union Pacific's Construction Coordinators are empowered to stop any project where unsafe practices exist.



Structural shoring to support fiber facilities and railroad roadbed



James D. (Dave) Moser Joins Fiber Group

In May of this year Union Pacific's Ron Christensen, Construction Coordinator for Northern California and Nevada, will be retiring after forty years of service with the railroad.

Ron, who began his career with the Western Pacific Railroad, will hand over the reins to another "Feather River Route" veteran Dave Moser.

Dave comes to the Fiber Group from the Engineering Department where he has served as Manager Track Welding, Western Region, for the last 14 years headquartered out of Roseville, California. Dave started his Union Pacific career on August 8, 1984 as a laborer on a rail plate distribution gang.

He soon transferred to the Bridge and Building Department as a carpenter, spending 4 plus years in that position before again transferring to the Welding Department in 1989. He rose through the ranks from welder to Welding Supervisor in 1992, and finally to the position of Manager Track Welding in 1998.

Dave makes his home in Quincy, California just a stone's throw below the U.P. tracks at Quincy Junction. A Quincy native, Dave grew up in that small Northern California town and graduated from Quincy High School. Dave and his wife Tina, also a Quincy native, have three children, two boys and one girl. Dave enjoys fishing, hunting, and camping with bass fishing being his number one hobby.

Dave is looking forward to this new step in his service with the Union Pacific. He will serve as Construction Coordinator for Northern California, Nevada, and Utah. Dave is presently visiting many areas and meeting with other Construction Coordinators to gain perspective on his new job responsibilities. If you happen to meet him in his travels, say hello and welcome him to his new career in the I.T. Department.

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from Missouri Valley, Iowa to Fremont, Nebraska. "Shallow water tables became an obstacle in parts of Nebraska" said Supervisor Fries, requiring additional steps to be taken to provide the needed stability for the poles and antenna arrays. Water tables were sometimes four feet below the surface according to Fries.

Next in line for the Northern Region crews are the Sedalia and Jefferson City Subdivisions which comprise one of Union Pacific's routes from Kansas City to St. Louis, Missouri. Following the work in Missouri, the crews will return to the Chicago area and begin work on the Harvard Subdivision leading from Chicago to Crystal Lake Jct. and north to Harvard. The Kenosha Subdivision from Chicago to St. Francis and the McHenry Subdivision from Ringwood to Crystal Lake Jct. will be in the schedule as well.

Union Pacific's Southern Region crews have completed the railroad's "Sunset Route" from San Bernardino, California to Houston, Texas and will soon be starting on the Beaumont Subdivision running from

Houston, Texas to Livonia, Louisiana. Work will carry over to the Anchorage Subdivision from Livonia to near Baton Rouge, Louisiana and down the Avoyelles Subdivision through Port Allen, Louisiana. IETMS installation crews will then return to Houston on the former Southern Pacific track comprising the remainder of the Sunset Route through Southern Louisiana. The Lafayette Subdivision Telecom crews completed the approximate 1,298 mile span between Tucson, Arizona and Houston, Texas in a six month time period with John McKenzie Jr., Telecom Regional Project Supervisor. Union Pacific's "Fiber Optic Group" has committed its assistance to the PTC project and to coordinating activities with its fiber optic customers to assist with any issues should the need arise.

UP employees can access Fiber Optic Focus on the employee homepage under "News and Info / Your Local News"



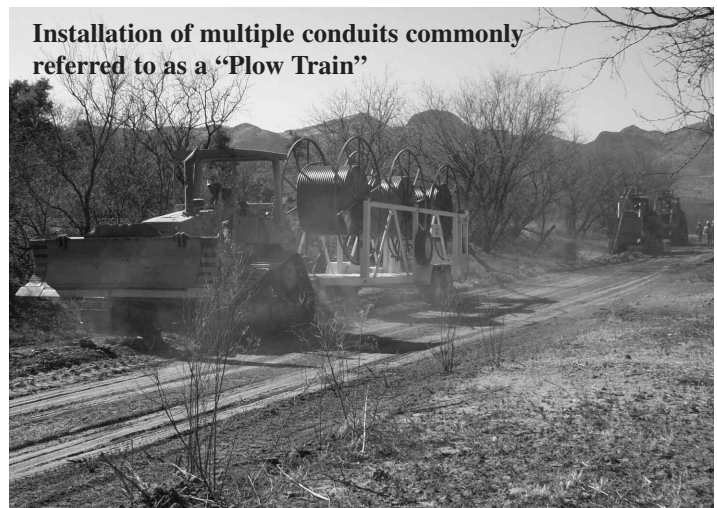
New Builds Continue – Tucson to Nogales

Beginning in late summer 2011, another new fiber optic cable system began installation along the Union Pacific rail corridor. This one in Sahuarita, Arizona headed for the Mexican border at Nogales, Arizona.

Tim Neumaier is the Union Pacific Regional Construction Coordinator for this new customer project. He is responsible to insure all fiber optic customers and workers are safety trained and familiar with On Track Safety to be on or about railroad property. Tim also serves as a liason between our fiber optic customer and other railroad departments.

Union Pacific's Nogales Subdivision extending nearly 65 miles long connects the Port of Tucson with the Union Pacific main line and international rail connections to the customers in Northern Mexico and the community of Nogales.

Winding its way through pecan orchards and sandy arroyos, sometimes filled to the top with water in Arizona's "Monsoon" season, this single track carries interchange traffic with Mexico. This location in southern Arizona has offered a number of logistical



Installation of multiple conduits commonly referred to as a "Plow Train"

challenges which have been addressed.

The new cable, currently scheduled to be completed this coming summer, will provide additional telecom and data resources to customers in southern Arizona as well as Mexico and beyond. This new 45 mile long fiber optic system will become the first to occupy the Union Pacific right of way to Nogales, Arizona.