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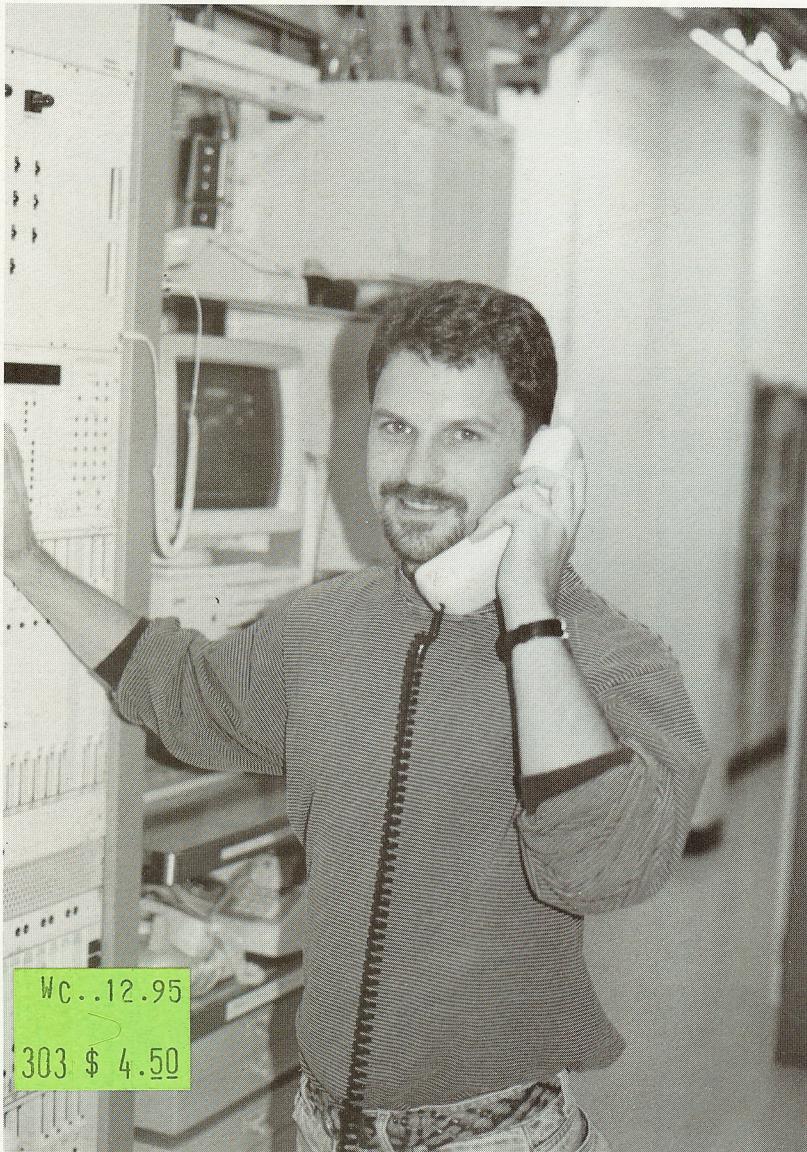
\$4.50



Alexander Graham Bell

# private line

a journal of inquiry into the telephone system



**CABLE  
STATION  
OPERATIONS**

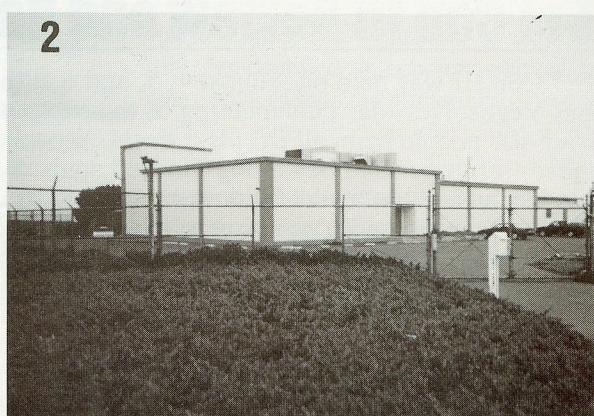
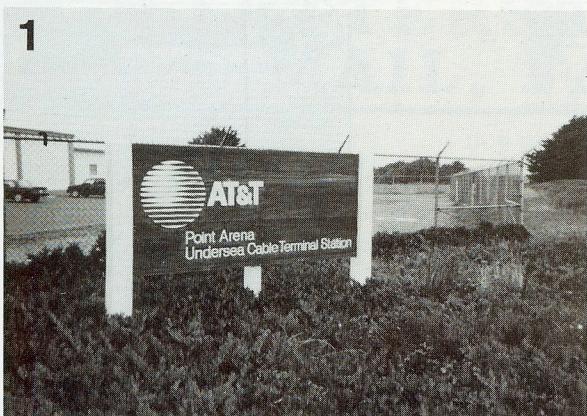
**CANADIAN  
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**CaStaNet**  
Connecting the People of the Global Cable Stations Operations District

June 1995 - August 1995 POINT ARENA, CALIFORNIA  
From Lighthouse to Lightguide

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The Point Arena lighthouse struts triumphantly towards the Pacific Ocean on the rugged Northern California Coast. Sometimes, in the morning, the sun shines between two eastern mountain peaks to spotlight the small spit of land supporting the lighthouse, marking the spot in California closest to the Hawaiian Islands. On such days, the billowy clouds and rolling foothills are bathed in soft morning colors and our most prominent landmark stands tall and brilliant with sunlight reflecting off its stark white surface. At night, light from this working beacon is visible for over fifty miles. This is its 125th year of operation. Since 1978, when the lighthouse was automated, it has been maintained as a California-registered historic tourist attraction by a group of local volunteers.

To the north of the lighthouse, Manchester State Beach sweeps, hook like, for five sandy miles. In 1956, the AT&T Long Lines engineers thought this beautiful beach would be the perfect site to land the HAW-1 ocean cable. The lighthouse and point loom large here, such that AT&T christened this site the "Point Arena Cable Station," even though the station is physically located in Manchester. This explains why our station's CLLI code reads "MNCHCA01" rather than "PNARCA01," a source of confusion over the years.

Establishing this station changed the lives of many local people. Farmers, construction workers, and hired hands were locally employed to pour foundations and to pull the transmit and receive cables up onto shore. Some locals were hired as technicians and later either retired from the station or transferred to other areas within AT&T. Some even returned. Gary Malik, station manager for the past two years, worked here as a technician in 1968-1970. His wife of twenty-eight years, Carol, grew up in this area. Since our station is so rich in history, technicians Jim and Floyd are busy now creating a small archival museum to contain artifacts collected from this station over the years, such as first-year black and white photos and an old pair of metal safety glasses. Floyd likes to point out that the techs of that era were doing okay; a 1956 station photo shows many 1957 automobiles.

Surrounding the station are the grassy bluffs and park lands of Manchester State Beach, resplendent now with wildflowers. Long rows of driftwood are casually strewn about by the ever changing tides on this stretch of beach, home to some of the best surf fishing on the West Coast. At one time this beach was proposed as a site for a nuclear power plant, but our proximity to the San Andreas earthquake fault nixed that idea. The San Andreas meets the ocean one quarter mile north of the station, at Alder Creek. The proposed nuclear power plant was then built down the coast at Diablo Canyon. Ironically, that location was later determined also to be near an earthquake fault.

The towns of Point Arena and Manchester, each with a population of just over 400 townsfolk, are six miles apart. We receive our U.S. mail at our P.O. Box in Manchester and we purchase many of our supplies in town at its only market, the S & B Country Market and Hardware store. To get gasoline for the company truck, we travel into Pt. Arena (no gas station in Manchester). This newsletter is published at Arena Press in Pt. Arena.

In 1988, the advent of fiber optic ocean cables rejuvenated our station with the installation of AT&T's second SL280 system, the HAW4 cable. The land radio towers were dismantled (forfeiting bandwidth), their associated gray equipment were removed, and the handful of existing analog circuits were regroomed to provide ample room for the new blue and white

# POINT ARENA, CALIFORNIA

## From Lighthouse to Lightguide

by John Cavalli, Paula Buckner & Dan Sitts

This article first appeared in the June-August 1995 edition of the CasStaNet, an excellent, engaging newsletter produced by technicians John Cavalli, Paula Buckner and Dan Sitts at the Point Arena Cable Station. It is not for public release. The photographs and sidebar pieces are mine; the text of the article belongs to the authors.

Cavalli began the CaStaNet on his own two years ago in order to "Connect The People of the Global Cable Stations Operations District." It reports on AT&T cable station activities worldwide as well as covering the work of other groups which support or relate to their operation. I wish this publication and other internal AT&T newsletters were made available to the public - I think they present a better corporate image than press releases or advertisements.

### About the Opposite Page

- 1 & 2. Outside the gate. The facility itself, decked out in white with blue trim. Very AT&T.
3. The Point Arena Lighthouse at the very edge of the point itself.
4. The wild Manchester beach, facing nearly square to the north.
5. Highway 1, dropping and curving as it does throughout Mendocino or Mendo county. The terrain changes from open country to dense brush.
6. The only market in Manchester. I got questioned severely by the owner for taking this picture, even though I was across the street.
- 7 & 8. Pirate's Cove.

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equipment bays to carry thousands of digital circuits through to Sacramento. Management was realigned under IOD and three additional technicians were hired to accommodate 24-hour/7-day coverage. The kitchen was remodeled, a Merlin phone system was installed, the office flooring was replaced, and we received our first computer (an AT&T 6300).

In 1992, the TPC4 cable system tripled the calling capacity of the station. Two Alcatel 560 systems were added, along with various mux and DACS equipment, increasing the work load and responsibilities of the station personnel. With its 56 RC48DF shelves and associated NCOE, the TPC4 system carries 36,456 channel-level circuits.

Abalone (a large, indigenous mollusk, highly prized for its meat and shell) season is now in full swing and eager divers abound at Manchester State Beach campground and at our other next door neighbor, the KOA Kampground. Our tech, Floyd, lives in his deluxe RV at the KOA during his work week, and commutes home to Fremont, California on his days off.

Since Ray Spor departed recently to work in Bandon, Oregon, taking his 21 years of Pt. Arena Cable Station experience with him, our techs Dan and Jim have now assumed "old man" status, each with eight years service here. Pt. Arena personnel have varied AT&T backgrounds, including ATTIS, WECO, TIRKS engineering, marine-land radio, building maintenance, microwave tower engineering and construction, private line, switch, and facilities.

The staff has an active community spirit. Dan and Jim are volunteer firemen in their little communities of Albion and 6 Sea Ranch, respectively. Kyle coaches football, basketball, and track at Point Arena High School. John is attending College of the Redwoods in Fort Bragg, California, and will graduate Phi Theta Kappa in December. Floyd regularly visits the Pirate's Cove coffee shop where much of the local politics are discussed and debated. Paula and George, being new to the station, are not so firmly planted yet, but are kept busy with OJT and with various AT&T training trips. Gary, has been busy fund-raising for Point Arena High School's Sober Grad Night with activities such as a dunk tank and a community abalone feed.

Today, in 1995, we still enjoy the same farmlands and surroundings that were here in 1956, when the office was noisy with the analog and radio technology of the day. Now, via lightguide, we quietly transmit thousands of voice and data calls under the shadow of the landmark Pt. Arena lighthouse.

**P**oint Arena, a long level plateau about 50 miles northwest of Fort Ross is the first prominent point on the California coast north of Point Reyes. Navigating north from Fort Ross, boaters will first pass the mouth of the Gualala River, which intersects the coast 15 miles southeast of Point Arena, Mendocino County, famous for its scenery, art colonies, and exotic lifestyles, begins here at Gualala River.

In the summer, small pleasure and fishing boats can anchor at Bourns Landing, a mile and a half northwest of the Gualala River, or at Havens Anchorage, 12 miles southeast of Point Arena.

The closest anchorage to Point Arena is Arena Cove, 2.5 miles to the south east. This slight indentation, with a high yellow cliff on its south head, affords shelter to small vessels in northwesterly weather. A wharf, a three ton hoist, plus gas, fuel, water and groceries are available at the cove. The town of Point Arena is a mile to the east. Point Arena Light, at the western end of Point Arena, is in a white tower with a black gallery 155 feet above the water. Arena Rock is 1.4 miles north of the lighthouse. Although it is covered by 13 feet of water, navigators can usually mark the presence of Arena Rock by the breakers that form over it except in very smooth weather. Stay well outside of Arena Rock in thick weather, since shoaling can be abrupt in those conditions.

*NYNEX Boaters Directory, Northern California Edition, 1988*

### About the Opposite Page

1. Part of the AT&T SL 280 system for the Haw 4 cable. The first bay houses the multiplexer, the second the line terminating and muldex monitor and the third contains the demultiplexor. The fourth bay contains the maintenance panel.

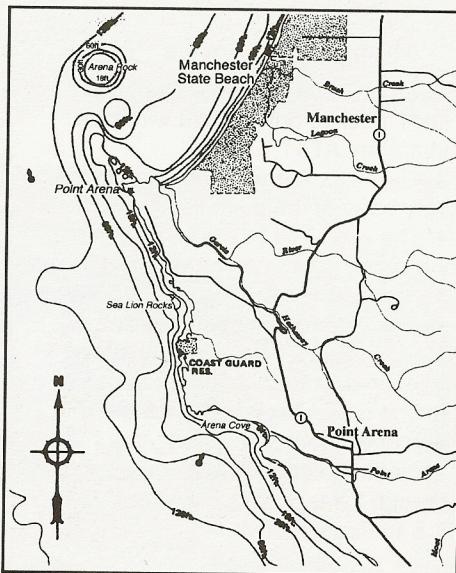
2. Close-up of the maintenance panel. This equipment can run a variety of self diagnostic routines on the system automatically. It provides reports in plain English on the display above the keypad.

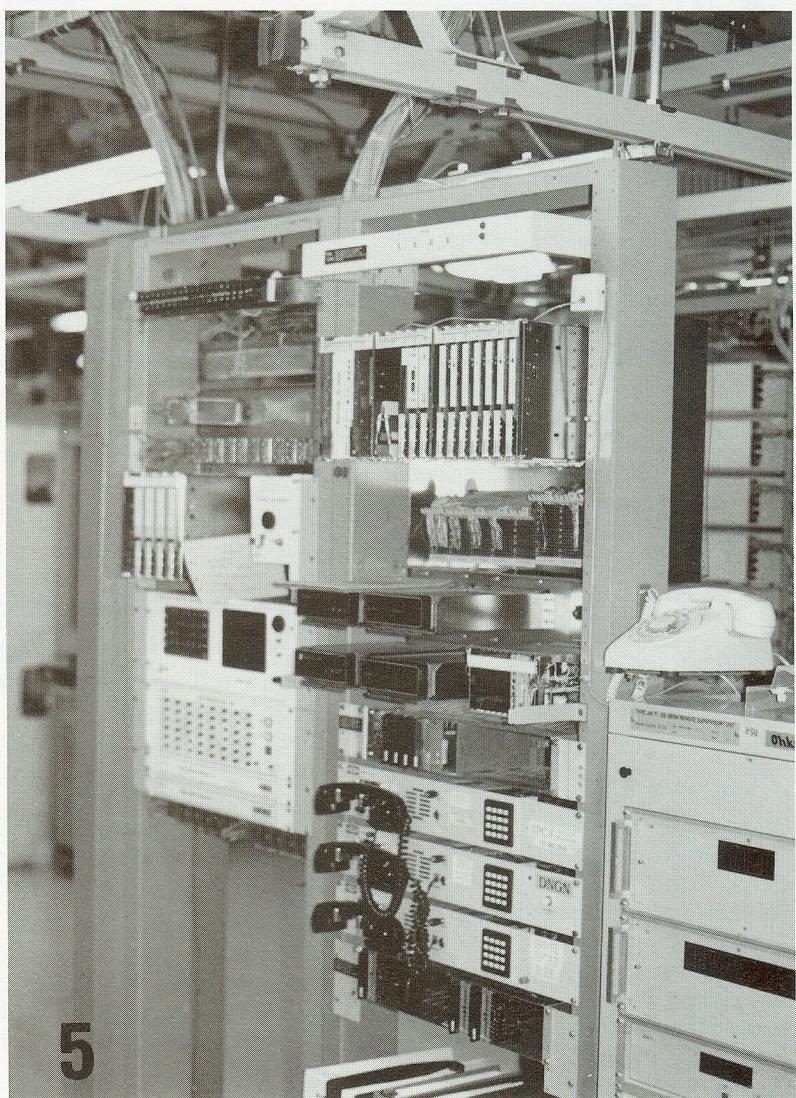
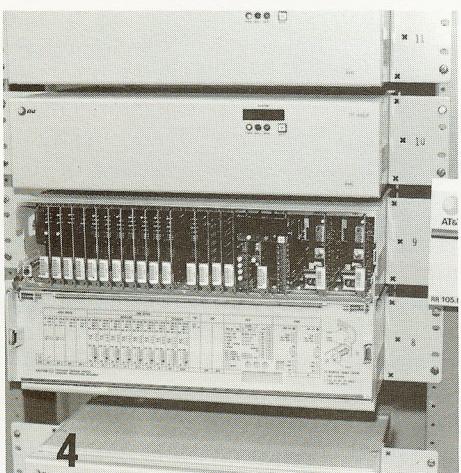
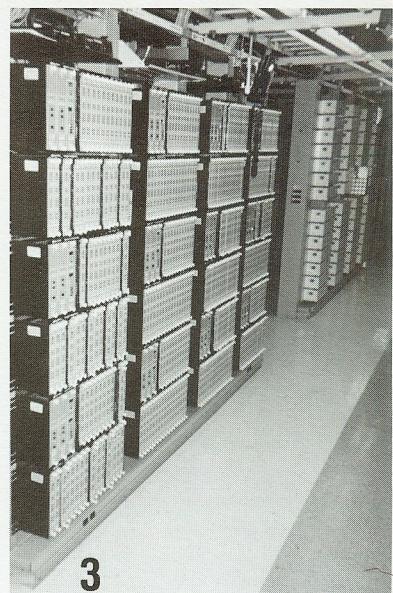
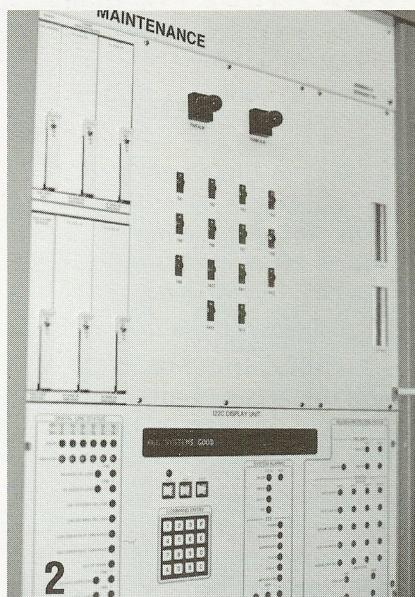
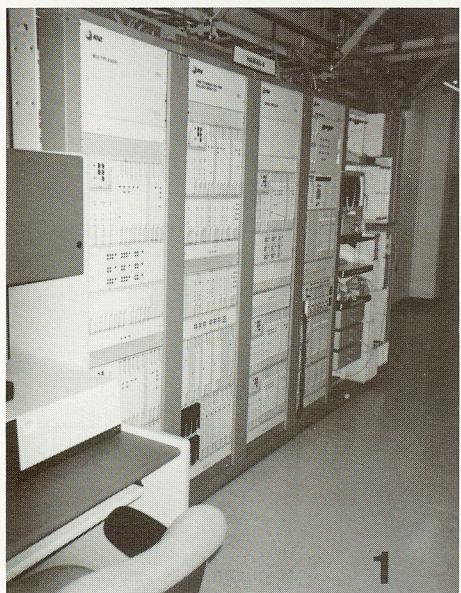
3. More equipment! Channel banks for the TPC4 cable. The 56 RC48DF shelves are in the background.

4. Close-up of the cards in the shelf of an RC48DF. Each one is bar-coded.

5. Order wire phones for the TPC4 cable. Canada and Japan lie on the other end of those phones.

6. Heavy duty round cell battery. AT&T favors these for their equipment's power supply.







Mid 1970's Bell System ad showing the relative difference in call carrying capacity between twisted pair cable and fiber. Metallic undersea cables use coax and not twisted pair, however, the huge difference between copper and glass remains. A single fiber optic thread, no larger than 20 pound fishing line, can carry tens of thousands of calls simultaneously.

KDD's involvement in TCP5 and a couple of the other cables, that they would be the best provider of that equipment. So that's the way equipment gets put in – anything from NEC to Alcatel to KDD, it depends on the system and the requirements of that system.

*The article I'm reprinting contains many acronyms peculiar to cable stations. What, for example, is the ITMC?*

That's our international test center. We have one in Conyers, Georgia and one in Denver. Those are the centers that actually do the testing and the restoral work should there be a break in the cable.

*What is the ITSC?*

That's the service center that does the provisioning.

*What is an RC48DF shelf? Line cards?*

That's basically what they are. They're the interface equipment required by the FCC for us to do a connection between our circuits and others.

*Is a channel level circuit the same as a voice grade circuit?*

No. Channel gets back to the facility. As in channel banks. It's better than voice grade because we transmit all sorts of data over it. It's a higher grade. That's the actual facility and what it's geared to.

*I know you're working on some problems in the Caribbean right now. Are most cables in that area glass or coax?*

You've got a combination. The newest cables, the America's and the Columbus cables [Puerto Rico to Brazil and Puerto Rico to Europe, respectively] are glass and most of the older cables, the Tina Carib and some of the others are coax.

*What kind of hurricane problems do you have in Saint Thomas?*

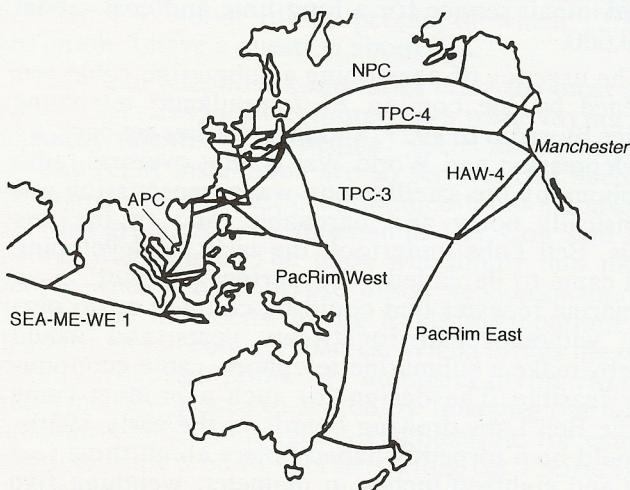
The cable stations have no problems. The cables are up and running. It's the links to the shore end. For instance, AT&T's link was a microwave tower from the station up to the POP. That got taken out. All of ITELCO's land lines are down, too.

*What are you doing to restore service?*

We've got a bunch of things going on. The first thing we did was to get together with the president of ITELCO over the weekend. They had a fiber they were putting up to one of their local offices. What they agreed to do was to basically unroll that fiber for us. They're splicing it now. We've brought it in through a window at the cable station and we're in the process of hooking it up for long distance service using emergency gear we flew in last night on chartered aircraft.

In the meantime we're doing some other things. We've still got some communications with Puerto Rico. We took Puerto Rican dial tone and extended it out to the gate of the station, 'cause we can't have people in there. We've hooked up six phones where they can make long distance calls over our lines. I was just talking to the station a few minutes ago. There's a thousand people lined up out there right now to make their calls.

*Thank you for your time.*



Asia-Pacific optical fibre cables 1985-1995. Diagram from Thronton and Lily, appearing in Submarine Fiber Optic Newsletter, July, 1995.

## Submarine System International (SSI)

Cable Administration and Interconnect  
 Cable Systems Installation and Test  
 Global Cable Station Operations (GCSO)  
 Installation and Maintenance  
 Technical Support  
 International Maintenance Agreements  
 International Maintenance Financials  
 Marine Operations  
 Systems Maintenance Engineering  
 Transoceanic Cable Ship Company

**A**T&T's worldwide undersea cable company is an enormous organization. Cable stations are just one part. In addition to the above divisions or *districts*, SSI also has a sales and marketing force, called Submarine Systems Supply. SSI installs and maintain systems, in whole or in part, for themselves or for others. For example, AT&T and KDD are building the FLAG project (Fiber-optic Link Around the Globe) but they will not be co-owners of the system, nor will they maintain the cable or the network. HAW4, on the other hand, the cable that runs from Hawaii to Manchester, was built by AT&T and is maintained by them. In this case, MCI and Sprint are co-owners.

### AT&T Cable Station Locations

Bandon, Oregon  
 Battery Pratt, Panama  
 Green Hill, Rhode Island  
 Jamaica  
 Keawaula, Hawaii  
 Makakaha, Hawaii  
 Manchester, California  
 Manahawkin, New Jersey  
 Puerto Rico  
 San Luis Obispo, California  
 Shirley, Long Island, New York  
 Saint Thomas, U.S. Virgin Islands  
 Tanguisson, Guam  
 Tuckerton, New Jersey  
 Tumon Bay, Guam  
 Vero Beach, Florida  
 West Palm Beach, Florida

## An Interview With Stephen J. Novotny Jr., District Manager, Global Cable Stations Operations

*Thanks to Elizabeth Park of AT&T for arranging this interview. Stephen J. Novotny Jr. graciously allowed me to conduct this telephone interview with him, despite the fact that he and his people were directing communication relief efforts at the time for St. Thomas and the Virgin Islands after Hurricane Marilyn.*

*Could you tell me about your current job and background?*

I'm the District Manager for Global Cable Stations Operations. [GCSO] I'm in charge of all of the cable stations that AT&T is responsible for. I've got 45 years with AT&T. I came up through Long Lines and I actually started as a janitor. I've held just about every position with AT&T.

*How many stations does AT&T operate worldwide?*

We have 17 stations and we are trying to build the 18th in St. Croix and, of course, with the hurricane, I'm not sure what we're going to do [in the near term]. The newest station is Bandon, Oregon and that goes on line next year. That's built right now and we have some equipment in it already. That station is built for TCP-5, the Trans-Pacific 5, the new cable.

*What exactly is a cable station?*

A cable station is the landing point for undersea cable that provides the link for those owners of the cable to whatever they want to hook it to, i.e., the domestic network for AT&T, MCI's network, Sprint's network, in whatever their agreement calls for. It hooks that cable to the domestic link or a link to somewhere else. It usually handles domestic links or long distance traffic for them coming from overseas.

*Are calls switched at the station or routed elsewhere?*

Calls are routed to the nearest toll center, the nearest POP, depends on what the situation is. MCI will, for example, build a building right next to the cable station. Part of the agreement is that another company can't be in the AT&T building, generally, even if they are a part owner of the cable. They'll build a small interface right on the premises and we then provide an interconnect to their cable.

*How many calls does a cable station pass every minute?*

We don't look at that but I'd say 35,000 or more per minute. What we look at are the facilities. The job of a cable station is to keep the facility working. So they really don't know what traffic is going over that unless they provide a private circuit. We're the facilities' provider so we really don't have any idea of the numbers of calls that go over it.

*AT&T seems to use a lot of Alcatel equipment. Any reason?*

Let me tell you how equipment gets established for a cable system. When there's a decision to put a cable in and the owners have agreed to put that cable in, part of that agreement, the Cable and Maintenance Agreement, determines which equipment will be used. AT&T doesn't determine it. It's the owners of the cable system who determine whether we use Toshiba, Alcatel, KDD Nippon equipment, whatever it may be. It's usually the best solution from the viewpoint of the owners for what they're trying to accomplish with the system they're putting in.

Like the SL 2000 systems, - we're using the Alcatel DACS for the interface because the owners felt it was the best thing to go with. They were the ones that could deliver a DACS that we needed to meet the requirements of that system, because that is an SL 2000 system. Toshiba was awarded the contract for the restoration equipment, the Network Provisioning Equipment, because it was felt, based on →