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VLA/VLBA NEWSLETTER

AUG 3 2000
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JULY WEATHER STATS	
HIGH	LOW
91.8° (28th)	47.8° (18th)
Rain: 2.86" (1.12" - 14th)	
VLA Operations	

From the World's Premier Centimeter Wave Radio Synthesis Telescopes

AROUND THE VLA

Congratulations to Terry Bartelt! He has recently been promoted to the new position of Lead Operator.

Welcome to Dallas Lupe, who was hired for the part time custodian position.

Senator Pete Domenici and Dr. Rita Colwell, Director of National Science Foundation, along with other dignitaries, will tour the VLA on August 22. The next day, there will be a ceremony to celebrate "Twenty Years of Operation of the VLA" in the AOC auditorium at 10:00 a.m. VLA Site employees are invited and transportation will be provided for those interested in attending.

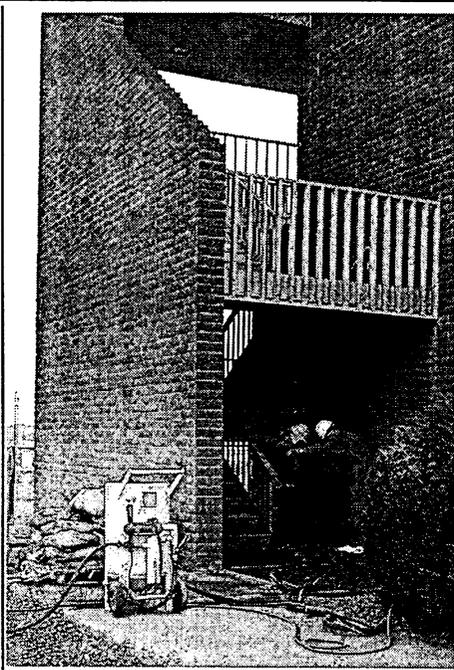
The VLBA Tiger Team will be in Fort Davis, Texas, August 14 through August 19.

The VLA recently enjoyed an unexpected visit from St. Croix VLBA Site Tech Herb Winchell. Herb is well known around these parts, since he was a regular VLA employee not too many years ago. Herb was well known then for his funny stories and practical jokes. It was good to see he hadn't lost his touch!

At 12:30 p.m. on Tuesday, August 8th, in the Cafeteria, there will be a tape shown of AUI president Riccardo Giacconi's talk to the Charlottesville staff last month. The title is "A Vision for AUI and the NRAO." Those who are interested are welcome to attend. For those who would like to see the talk at some other time, a copy is available for checkout from the AOC library.

STAIRWAYS

The Control Building balcony stairways are undergoing repair because of excessive corrosion on the steps and landings. The excessive corrosion is likely due to salting the stairs during icy periods. Salt will no



Charley Chavez and Pat Lewis Pictured Sandblasting the Stairway

longer be used to deice the stairways and balcony. There is a new product called Cryotech CMA® which offers several advantages. It is about as corrosive as tap water and safe for concrete. Cryotech is advertised as being environmentally safe and to actually reduce chloride corrosion. You can find the product specifications at <http://www.cryotech.com/cma.htm>.

L. Serna

SITE & WYE NEWS

The Grounds Crew has removed the three ponderosa trees that were dead or dying. They sprayed the remaining trees (including the pinons) with a concoction of Orthene, bleach and soap to try to help them recover. Lightning Protection System work on the East Arm is almost complete, but it will have to wait until the weeds get sprayed.

The Auto Shop has been working on the last dump truck, building a cab, changing the tail gate and building a new radiator protection grill. The truck may be ready for use in about two to three weeks, depending on other repairs and PM's.

The Track Crew is working on the west arm replacing bad ties. They will soon be out of ties; however, there is still a great deal of work to be done leveling, tamping and aligning track.

The Carpenter Shop has been ordering materials in preparation for the ALMA work, which will involve adding five offices in the CB-Annex and refurbishing the third VSQ building which may become quarters for the ALMA Construction Crews. Also, the Tape Room on the second floor of the Control Building will be cleared out and will become the new Computer Lab. The "old" Computer Lab will become the new ALMA Control Room.

P. Lewis

COMMON GOALS

The ES Division and the Electronics Division have a common goal; to make the VLA instrument work at its very best. Here are two examples of how the divisions worked together this month to solve problems.

Debra Shepherd uncovered system temperatures 200K too high on several new K-Band receivers during a rainy spell at the VLA. In response, the Cryo Shop and the Front End Group cleaned out the K-band receiver feedhorn on Antenna 18, purged it with dry nitrogen, and outfitted it with a desiccant/dry air "breathing" system in order to reduce moisture build-up. The static dry air system will take advantage of tiny purge holes which were installed in the feedhorns during initial manufacture, which most likely permitted introduction of moisture into the horns in the first place.

The results on Antenna 18 were good, so the Cryo Shop has now installed static purge systems on five K-Band feed horns. Antenna 17 will be modified after painting is complete. To keep debris off the feed windows during installation, Rudy Latasa worked with the Antenna Mechanics to develop an improved alignment mount that eliminates the need to remove the feed window during installation. Further tipper scan studies will be used to look for problems in other bands and with K-Band feed horns not having purge holes.

A lap top VLA ACU (Antenna Control Unit) test facility was successfully used to move an antenna this month. The lap top controller replaces a large, back-breaking, and obsolete test box. Mack Stephenson wrote the controller software in Delphi, a Visual Basic-based language suitable for control applications. Mack, Tom Frost, and the Servo Shop worked closely to specify and test the lap top tester.

C. Janes

TRACK WORK 2000

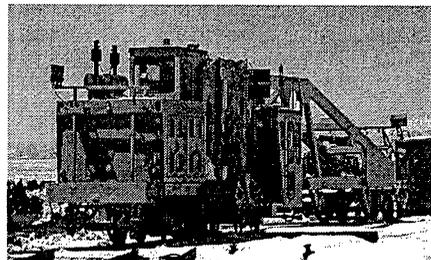
Due to budgetary constraints we were unable to purchase any railroad ties this year. Only twelve hundred ties remained at the beginning of year 2000 from prior years' stockpiles. In the previous two years we were able to purchase five thousand ties per year. The West Arm has had all bad ties replaced from the center of the array to BW6 on both the inside and outside tracks. The East Arm is good from the center of the array to State Road 52 and all bad ties on the North Arm from the center of the array to US Highway 60 are replaced. The philosophy has been to effect tie replacement from the center of the array out, since the traffic becomes more moderate as you go out to the ends of the arms.

In 1998, a track test with an instrumented vehicle revealed weaknesses in the VLA track system due to clusters of bad ties. These areas have been identified and logged. Recent repairs on bad tie clusters on the West Arm have diminished the remaining stockpile to 200 ties. Bad clusters have been repaired from BW6 to AW7 on the inside track and all bad tie clusters have been repaired on the West Arm outside track. The remaining 200 ties will be held in reserve for emergency repairs such as replacement of a broken tie or an obviously rotted tie.

Paul Savedra says, "The new yellow pine railroad ties used at the VLA measure 6" X

8" X 8' and weigh two hundred pounds per tie. A new railroad tie should last about 50 years. There are 48 ties per bundle. One bundle weighs about 10,000 pounds. There is six pounds of creosote per square foot of tie. Creosote is the oily substance used to preserve the railroad tie against the elements." (Current prices are about \$28.50 per tie.)

The track crew will align and level remaining portions of the North and West Arms where more than eight thousand ties have been replaced in the last two years. Approximately 1.2 tons (1 yard) of ballast is required to replace 1 railroad tie. With current budget constraints, we are stockpiling ballast rock, as it is the most essential material for doing track work. Ballast is needed for replacing ties as well as for aligning and leveling track. 2800 tons of ballast have been ordered this year at a cost of about \$18 per ton. The track crew plans to align and level from CN9 to Highway 60 on the North Arm and from BW5 to BW6 on the West Arm by year's end. These sections of track have had all bad ties replaced in the last couple of years and now need to be lined and leveled.



The Switch Tamper

A switch tamper was acquired in March. The newly acquired tamper is expected to align, level and tamp track at a rate of 1 mile per day. This same work would take our six-man crew about two weeks to accomplish. The tamper is being debugged at this time. Approximately \$12,000 worth of repairs will be necessary to get the newly acquired tamper working properly. Using the tamper to align, level, and tamp should make the job a faster and much safer operation.

L. Serna

SAFETY TIP - TORCH CUTTING

An oxy-fuel cutting process consists of preheating base metal to a bright cherry red. Then, a stream of cutting oxygen is introduced. This ignites and burns the metal, carrying away slag or oxidized residue. Oxy-fuel cutting can be applied to plain

carbon steels, low alloy steels and some other ferrous metals.

One important aspect to oxy-fuel cutting is to inspect the areas where molten metal and sparks will fall. Serious fires and explosions are caused by careless torch operations. Take all possible precautions. Have fire extinguishers available. Remove or protect flammable substances, including oxygen and fuel hoses, before starting to work. Wear protective clothing and use proper goggles to shield the eyes from bright light.

Torch cutting is common practice for several employees at the VLA. Just remember, working safely is the key to completing the job successfully.

G. Cole

POWER

There are some things you take for granted: Your dog will always love you, the government will collect lots of taxes, and the Utility electrical power will be completely reliable. Well the VLA Electrical Group, whose very nature is to question and probe, will disagree and will tell you that ac power is less than perfect. Several power failures occurred in the last couple of months, which caused numerous problems at the VLA. A catastrophic brownout spurred them to investigate possible solutions to surviving the effects of future brownouts.

The Electrical Group is investigating modern line-monitoring equipment, which will be used to automatically start up generators and separate us from the Utility power during periods of bad power or no power. A plan to automate generators to return to Utility power once it has stabilized for a period of time is also underway. Improvements to the standby generators and Control Building chillers have helped us survive the numerous power outages and glitches we have been experiencing this year. (The Electrical Group also has doubts about the constancy of your dog's love, but reports the government's tendency to reach into your pocket is still rock-solid.)

L. Serna

BACK TO SCHOOL REMINDER:

Be aware that school begins this month. While driving, keep an eye out for children crossing the street. Be prepared to stop for school buses and be sure to slow down while driving through school zones.