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VLA/VLBA NEWSLETTER

From the World's Premier Centimeter Wave Radio Synthesis Telescopes

AROUND THE VLA

Welcome to Joe Sanchez, a seasonal temporary worker here for years, who is now a permanent part time Guard/Janitor.

LEAVE TIME

What Can I Use and When Can I Use It?

As the year draws to a close, it's time to consider cut off dates for your paid leave benefits. There are some items to consider when you look at cut off dates - classification (non-exempt or exempt), work week, and the type of leave under consideration (vacation, sick leave, doctor visit leave).

VACATION. If you are classified as non-exempt, you will have until January 14-16 (ending date on your time card) to use the amount in excess of 38* days. The specific date depends on your reporting cycle. If you are classified as exempt, you will have until January 20 to use the time in excess of 38 days.

SICK LEAVE. If you have in excess of 864 hours (108 days), your sick leave will be adjusted to the maximum carry over. If you are classified as non-exempt, the effective date is December 17-19; if you are classified as exempt, the effective date is December 20. The amount in excess of the maximum carry over will be paid FOR THE FINAL TIME this year to regular non-exempt employees.

DOCTOR VISIT HOURS. If you are classified as non-exempt, your balance of Doctor Visit Hours will be replenished on December 18-20, depending on the last reporting date of your time card. If you are exempt, your doctor visit hours will be replenished on December 21.

If you have specific questions about your cut off date, please call Nancy Ortiz in the NM Fiscal office.

*NOTE: Your Employee Handbook states "Up to 36 days of your vacation credit may be carried over to the next year." The 38 days referred to above includes your January vacation accrual.

A. Lewis

OBSERVATORY WIDE MEETING

Many thanks to the distinguished and eloquent speakers who visited the VLA on November 9th. Miller Goss reviewed our many accomplishments in spite of the strained budget this year. He hopes to have next year's budget figures by February or March.

Peggy Perley encouraged all of us to bring new ideas to the Employee Committee to promote morale and improve working conditions within the organization. VLA Site Employee Committee members are Dean Otero, Patty Lindsey, Melcolm Peralta and Paul Savedra.

Peter Napier presented an excellent video on the ALMA project. He also gave us an update of the ALMA scheduling and funding. Rick Perley tells us that the we are seeking VLA Expansion Project funds which would make the VLA several times more powerful than it is now. Two Science talks, "Science with the Pie Town Link" and "VLA & VLBA Observations of Gamma Ray Afterglows", received rave reviews by the VLA staff. Allen Lewis reminded us that the all important Performance Evaluation Process begins on December 1.

L. Sema

SAFETY NUMBERS

The ES Division has the highest incidence of accidents of all NRAO-NM. The good news is that the overall number of incidents have dropped 17% from last year and 22% from the year before. The top five types of incidents we will concentrate our efforts to improve on are strains/sprains, contusions/cuts/bruises, overexertion, trips/falls and puncture/crushing injuries. Look for more on safety awareness in a future issue of this newsletter.

G. Cole

DECEMBER SKIES

☼ Throughout December, Mars, Jupiter and Saturn will be visible during the early evening Reddish Mars is visible in the Southwest setting about 9 p.m. Jupiter is the very bright planet high in the Southeast and is followed by Saturn (not quite so bright) a few degrees to the East. Saturn's rings have opened up quite nicely and are a beautiful sight through even a small telescope. One can easily imagine why Galileo described Saturn as a "star with ears."

☼ On December 13th and 14th get ready for a real show of bright meteors as the Geminid Meteor Shower puts on its annual show. The peak will be on the 14th. The best viewing will be around midnight 14/15th just after the moon sets.

☼ December 22nd, at 12:44 am local time, marks the Winter Solstice or the first day of Winter, the shortest day of the year!

J. Spargo

FALL ARREST

Serious testing of the new Fall Arrest system began in November. A stout steel cylinder was fitted with a harness and dropped about a dozen times. Everything seemed to be working fine until one drop when the 'victim' slid right off the end of the rail. Convinced us that a real person couldn't fall like that, we covered the rescue dummy with packing foam and started dropping him. We then discovered that if you positioned the dummy just right, he would slide right off. A video in slow motion showed that the dummy and trolley were sliding down at exactly the same speed, so we installed a brake on the trolley.

Again, if you positioned the dummy just right, he would slide off. This time, the video tape showed that the rope used to haul the dummy up was pulling him into the ladder as he fell, keeping the trolley from locking. We cut the rope, and everything

worked properly after repositioning the rope pulley directly over the ladder. (It had been off to one side.) We dropped the dummy many times and were unable to kill him, so we declared the trolley a 'working unit'.

Next was the static load test. For this, we hooked the trolley to the rail, a scale to the trolley, and a backhoe to the scale. The trolley withstood a full 5000# pull without sustaining any damage. The rail was bent, but did not come off the ladder. Another successful test.

It looks like we have a workable system, so where do we go from here? First, management will have to decide the build or buy question. Assuming they decide to build, we will order some extruded rail and build a couple more trolleys. These will undergo some more testing. If the tests are successful we can start outfitting antennas, probably as soon as March, 2000.

By the way, it's not too late to get your two cents in. If you would like to try the new design and/or the French Creek system, see Jim Ruff.

J. Ruff

SITE & WYE NEWS

Even though there is no money, there is no shortage of work for Site & Wye. Godin and Johnny have begun the Long Line Potential measurements over the waveguide that are done every three years. The Track Crew has been leveling track on the North Arm. They will complete all but one stretch on the west arm and two on the North. They will soon be out of ballast!! The Auto Shop has begun modifying the dump trucks in order to put load covers on them. We cannot use them on any highway without covers. Fortunately, most of the supplies needed for these jobs were purchased early in the year.

P. Lewis

SHRINK FIT

The hub that connects the VLBA azimuth drive shaft to the gearbox is attached to the axle with a shrink fit. The diameter of the axle is 0.005" larger than the bore of the hub. In order to assemble the hub on the axle, the hub must be heated to 450°F where thermal expansion increases its bore diameter. The hub is then quickly slipped over the axle and allowed to cool, resulting in an interference joint that requires over 200 tons of force to separate.

Since we did not have an oven large enough to heat the wheel hub, the wheel assemblies had to be assembled by Vertex Machine in Albuquerque at a cost of $1000 each. A large oven constructed from surplus steel and approximately $300 dollars worth of temperature control electronics was assembled by Steve Aragon, Shane Baca, Ed Gray and Melcolm Peralta. This oven will allow us to assemble VLBA drive wheels in house. Thus, saving the $1000 assembly charge on every axle we replace.

J. Thunborg

DOWNTIME STATS

Dave VanHorn prepares a monthly report on downtime statistics for the VLA. Downtime is basically unuseable time for the instrument– time that is paid for but during which no data are produced. Dave's report shows that downtime as a result of hardware failures varies from around 1.5% to 2% of total available time.

How much does down time cost? One way of looking at it is to divide the NRAO New Mexico annual budget by the number of apertures in use (37) and then divide by the total number of useable hours in a year. The calculation shows each hour of antenna downtime can be considered a productivity loss of $35/hour. But downtime for an array means that all the antennas for the array are down, so downtime for the VLA is multiplied by 27 and for the VLBA by 10. As a result VLA downtime costs $950/hour and for the VLBA, $350/hour. With those numbers, 2% downtime on the VLA costs $166,000 per year in lost production.

The production of data pays for the operation; let's find ways to reduce our downtime cost.

C. Janes

V/C ROOF

The Visitor Center roof has been in need of repair for a few years. The building is owned by the State of New Mexico. When the Visitor Center was constructed, NRAO signed an agreement with the state pertaining to maintenance and operation of the building. Recently, there has been some discussion about converting another site building into a Visitor Center, so Lew Serna was reviewing the agreement to see if we could tear down the current building. In the agreement, Lew ran across some language that separated maintenance responsibilities for the building - the state is responsible for major structural maintenance while the NRAO is responsible for other non structural items.

We asked John Dowling to contact the state and clarify this language in the agreement and mention that the roof was in need of repair. A week later, two people from the State's Property Division were at the site inspecting the roof. Rick Sandoval, a construction manager for the state, has prepared a request through the State's Property Control Division to replace the Visitor Center Roof. And there is more. Rick Sandoval is planning on having a structural engineer look at the building's slump block veneer. There are several large cracks in the slump block. Wow!

G. Stanzione

NEW VLA FIRE ALARM ANNUNCIATOR

The big red Fire Alarm Annunciator Panel in the VLA Control Room has been replaced. The Annunciator is the piece of equipment that "announces" a fire alarm at all the remote buildings at the VLA. It can tell if any of the fire alarm systems have a fire alarm or trouble condition by monitoring a voltage level. The level of voltage present indicates if the system is in normal, alarm, or trouble condition.

The old system had been moved several times over the years, and the wiring associated with the system had become confusing, difficult to troubleshoot, and prone to false alarms. Once again the annunciator was to be relocated to complete the Control Room remodeling project. It was time to completely rewire the system to improve reliability.

With help from Lew Serna, Ed Gray, and Bob Broilo, a new Annunciator System was designed, built, and installed by Tom Baldwin and Pete Ulbricht. A new surge suppression panel, to protect the equipment from lightning surges, was also put together and mounted in the Control Building electrical room. New conduit, wire and panels were put into place in September. On October 5, the new system was hooked up and the old system was disconnected.

Rewiring the Annunciator helped us find wiring bugs, and with some additional work, all zones will soon be fully functional.

C. Janes

The VLA/VLBA Newsletter is printed monthly to keep VLA site personnel and others informed. Submit copy to Patty Lindsey (plindsey).