

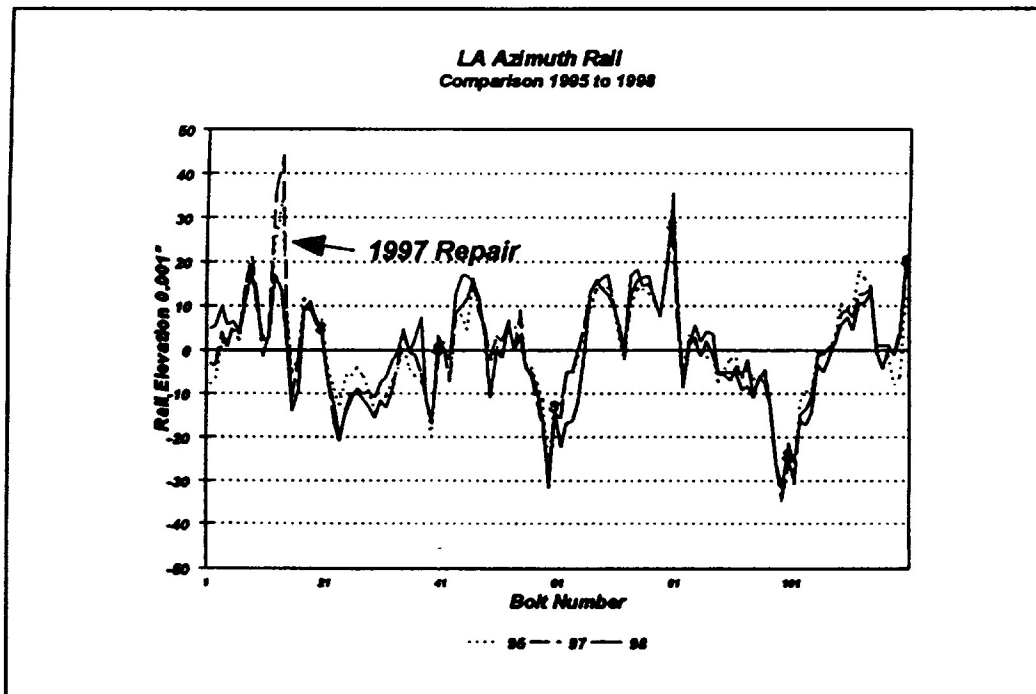
VLBA  
Antenna Memo #7

**National Radio Astronomy Observatory**

New Mexico  
April 7<sup>th</sup>, 1998

**TO:** Clint Janes, Paul Rhodes, Jim Ruff, Lew Serna, Dick Sramek, Guy Stanzione, Jon Thunborg, LAVLBA  
**FROM:** Bob Broilo  
**SUBJECT:** Los Alamos, NM VLBA Site Azimuth Rail Inspection, February 19<sup>th</sup>

On Thursday, February 19<sup>th</sup>, 1998, Guy Stanzione and I arrived at the Los Alamos, NM VLBA Site. Our goal was to investigate the grout at the site and evaluate the condition of the rail. This site had a dramatic failure in 1997 in which the grout cracked and was forced out of the Vulkem on the side. This occurred at bolts 12 and 13. We set up the optical level and measured the elevations of the Azimuth Rail. We were able to compare these to previous elevations. A plot comparing the rail elevations throughout several years is shown in Figure 1.



The most apparent feature on the chart is at bolts 12 and 13. This is the area where the grout cracked and was spot repaired in 1997. The development of the deepening hole was arrested and corrected by the spot repair. There may be deteriorating areas at bolts 1-5, 37, and 44, but the damage here is slight. We investigated these and other suspicious areas by removing the Vulkem for a visual inspection. We only found damage to the very top layer of grout. The damage

was similar but less extensive than that found at Mauna Kea, and consisted of loose, sandy grout immediately under the rail.

Due to the dramatic failure of the LA grout last year we wanted to check the integrity of the grout. We used a small hammer drill to compare the original grout in various areas to the new epoxy grout at the spot repair. The grout is mostly very hard and is difficult to drill. There are two areas adjacent to bolts 12 and 13 that seem weaker.

These results indicate that there are no large holes forming at Los Alamos. The grout appears to be strong, with some slight damage to the very top layer. We should perform some spot repairs at bolts 1-5, 37, and 44. These repairs should probably span three bolts and should be covered in Vulkem when complete.