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**NATIONAL RADIO ASTRONOMY OBSERVATORY**

Socorro, New Mexico

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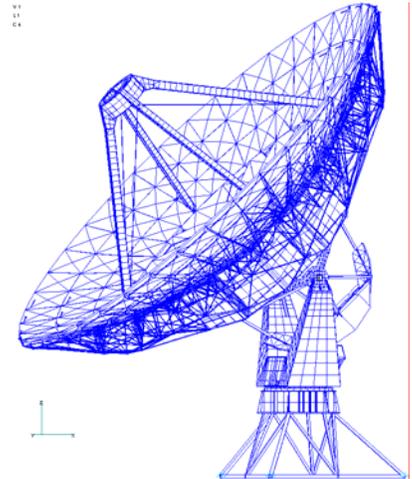
VLBA Antenna Memo Series No. 53

**Pie Town Rail Repair**

J. E. Thunborg

July 8, 2004

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The grout under the azimuth rail on the Pie Town, New Mexico VLBA antenna had degraded. On June 14 –18, 2004, a maintenance team consisting of Jay Apachito, Phillip Sanchez, Pat Trujillo, Jon Thunborg and John Wall were dispatched to repair the rail with the help of site technician Kelly Gatlin. An initial measurement of the rail showed that there was a high spot from bolt 33 to bolt 40. A hand grinder was used to diminish this high spot.

The grout was spot repaired at 58 bolt locations on the rail. At these spot repairs, the old grout between the rail plates and under the rail was removed to a depth of approximately 3 inches. Burke High Strength Epoxy grout was then poured in the hole under the rail. There are 40 bolt locations that were not repaired. The original grout at these locations appears to be performing satisfactory.

Four of the bolts that hold the rail clips to the rail plates were broken. When the loaded rail deflects into a section of degraded grout it causes the rail to lift at the adjacent rail plates thus breaking the rail plate bolts. The grout below these rail plates was removed and the broken bolts were replaced with new ones.

