

NuMI Target Installation to the Module Check List

Mike Stiemann, Oct. 30, 2018

- Thermocouple readout checks for every thermocouple on each spike before the Target is placed into the hot cell. There is a sheet for this with the readouts taken previously at MI-8 for reference.
- Make sure all nuts/jam nuts are tight as well as all wire tied fasteners.
- Make sure everything that needs white lithium grease has it. Thermocouples, threaded inserts in the hangers for the draw bars (also the base inside the hanger) all water cup threads, etc.
- Make sure all the protection devices for the water lines, baffle, target Be window, etc. are taken off before the Target goes into the hot cell.
- The Target hangers have a system that allows them to be set at the proper 3.4° angle for alignment to the bottom of the module. This is the time to set them at that angle.
- Once the Target is in the hot cell, the Target will be raised up by the hydraulic lift tables. If the Target is in the correct location for the connection to the module, the draw bars will thread in BY HAND, and that is the only way they should be installed. If they can't be driven in by hand, then the Target isn't in the correct location and needs to be adjusted by the technicians operating the lifting tables.
- Once each draw bar is torqued down (175-200ft/lbs) the water lines can be installed. The water lines go the same as the draw bars, they must be threaded in by hand. If they can't be threaded in by hand, something isn't lined up. Once they are tightened down by hand, they need to be tightened with a wrench.
- Once the water lines are tightened down, the instrumentation lines need to be installed. This step requires at least 3 people. One person to lift the line so the second person can remove the clamp holding it up, and the 3rd person will be down near the lead glass window monitoring the orientation of the line as the 1st technician lowers it and spins it into place. There is a dowel pin with a location hole that aligns the spike on the Target hanger, up with the instrumentation line.
- With everything installed, the next step is to get the leak checking fixtures on the water lines and pressurize each set of two (one for the Target hanger/Target helix and the other for the Target cooling rail) to 10psi.
- Once the water lines are pressurized to ~10psi, the next step is to start checking the instrumentation lines. Each thermocouple needs to be ohm checked with a DVOM as well as temperature checked by a thermocouple reading device.