

**Status Report
May, 2011**

Linac #1 in May

Specific

- Electric cables were partially damaged, so that electric supplies are still very limited. Low-voltage systems are OK though. Using low-voltages many investigations are in progress.
- Crane on the ceiling and crane rail are distorted. Limited usage of the crane.

Acceleration Cavity

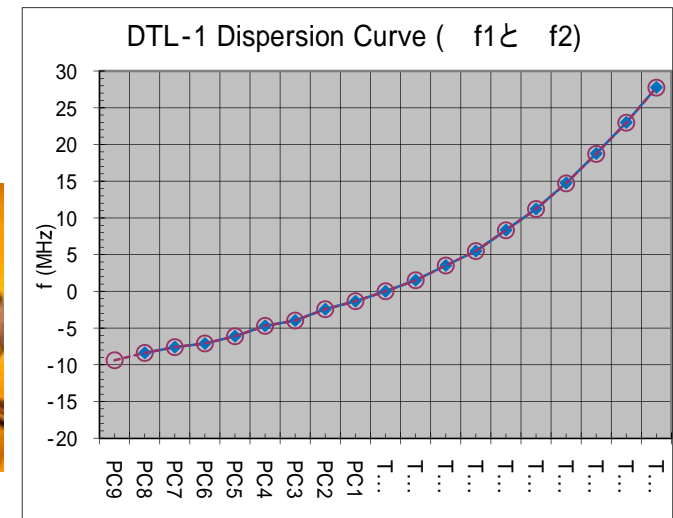
- Test of the vacuum. No serious problems. Mass spectroscopy detected H₂O.
- Q-value and Frequency for DTL measured. No serious problems.
- Inspection of the cavity has been continues. No serious problems.



Low power test for DTL.



Using pick-up board , tests for high frequencies with low power is tested.



Red Before the earthquake.
Blue: After the earthquake.

No significant change observed
Before and After.

Linac #2 in May

Monitors

- Many CT's (Current Transformer) and BPM's (Beam Profile Monitor) were damaged.
- Vacuum leak test for individual BPM was done. Test for wire movement, etc performed.
- Purchase orders for damaged CT's and BPM's done.

Ion Source and Its Power Supplies

- High voltage test up to 50 kV. No big issues.

RF (incl. Klystron)

- No serious problems found in so far.
- Need recoveries for Crane, High Voltage Power and Cooling Water.



BPM (Beam Profile Monitor) extracted from Q-Magnet. Bellow was destroyed.



Measurement by laser for Klystron (10 mrad distortion toward west side was observed) .



Crane rail in the Klystron Gallery (partial damage detected).



Air conditioning Pipe is falling down.



One room on the side. By digging a hole, 50 cm hole (gap) was detected.

RCS #1 in May

Road Repair

- Repair started. This place is important to fix cooling tower and electric power stations.



Electric Power Stations

- Leaned electric power supplies. Jacking up the entire floor will be tried.



RCS #2 in May

Water Piping

5/18



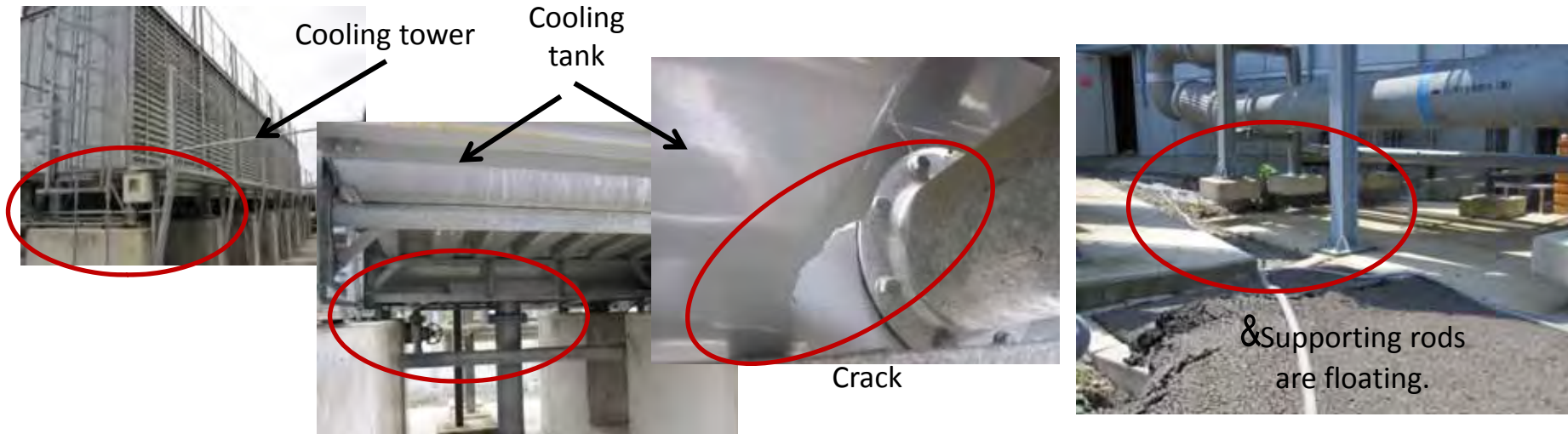
Temporarily fixed.

5/25



Cooling Tower

· Several places are damaged. Need to replace to a new one.



Cooling tower

Cooling tank

Crack

& Supporting rods are floating.

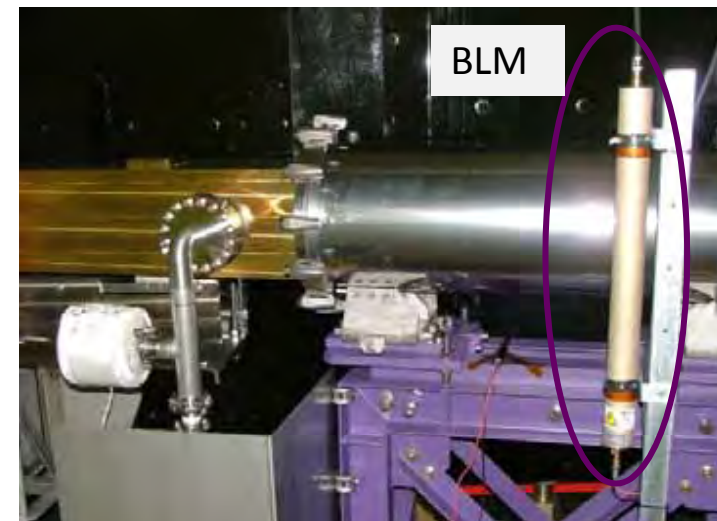
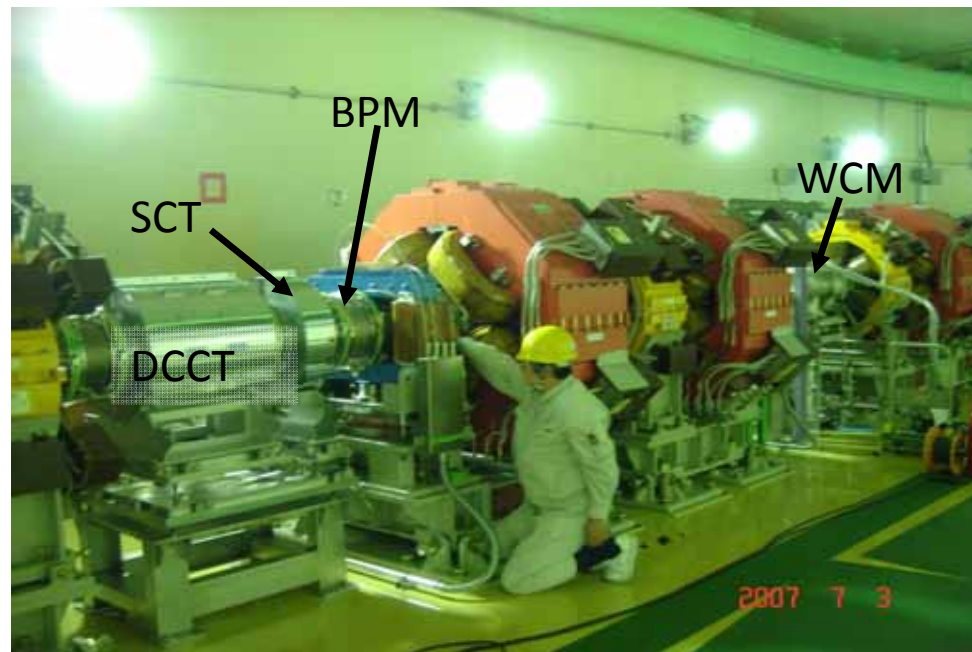
RCS #3 in May

Electric Power Supplies

- Not fully recovered (partial recovery).
- Crane and Elevator are now working.
- Air conditioning and cooling water still take time.

Inside Tunnel

- Inspection continues. Spurious signals were injected to BPM (Beam Profile Monitor) and insulations and conductance are tested. So far, no serious problems are found.
- CT (Current Transformer) was also tested by spurious signals. No serious problems were found.



Main Ring in May

Water Leakage inside Tunnel

- Inserted urethane to stop water leak.

Cooling Water

- Some places need to be fixed, but overall no serious problems.

Magnets

- In some dipole magnets ceramics or castings had certain damage, as shown below. All of them are changed to new spares.



Casting that was broken (Dipole magnet)



Test cooling water. Arrowed are the places to be fixed.

Measurement of Leveling for Accelerators

Linac

- Measurement of the Leveling is being done periodically. Also, measurement using laser tracker is also being conducted.
- Based on the recent leveling measurement, 1 mm drop is observed from March 31 to April 12 and 0.2 mm drop from April 12 to 28.
- Still sinking slightly.

RCS (3 GeV Synchrotron)

- At the joint point between Linac and RCS, which is L 3 B T, 1.1 ~ 3.0mmdrop is observed.
- Degree of leaning was also measured. From place to place, this leaning is different.
- From the past measurement, inward leaning is observed.

MR (50 GeV Synchrotron)

- This time, slow extraction was examined. No serious problems.
- + 3mm ~ - 5mm displacement over 300m distance is observed. In particular, a large displacement was observed in the place where a crack is observed.
- In the past the displacement was ± 2 mm over the entire ~ 1600 m. Therefore, the displacement this time is larger than this ± 2 mm.

MLF #1 in May

3NBT (RCS-MLF Beamline)

- From RCS (3 GeV Synchrotron), MLF is dropped by 12mm.



3NBT tunnel

Neutron Source Beam Shutter

- Shutter has some problems.
- Due to strong earthquake, bolts were either damaged or unscrewed.



Inspection of Shutter blocks with crane.

MLF #2 in May

Movement of Shielding Walls

- BL20... Removal of the shield was successfully done.



Operation of how removal was done.

Muon Target

- By removing shield wall, the interior was inspected. No serious damage was observed.

Low Temperature Hydrogen System

- Inspection is in progress, as shown below.



Interior for muon target.

Neutrino in May

Magnet

- Both superconducting magnets and normal magnets have no serious problems.
- However, 3.5 mm drop for normal conducting magnet at the joint point. Also, a gradual drop up to 2.5mm for superconducting magnets.

Target Station

- Helium has not leakages.
- Further investigation will be done after air circulation.
- Target and the First Horn will be replaced. The Second and Third Horn is presently inspected.

Outside Areas

- Many repairs for roads, etc. are being in progress. See below pictures.



On-Site Detector

- Elevator and Crane are still not working.
- Interior inspection will be done after the arrival of non-Japanese participants.

Hadron #1 in May

Cooling Water, Air Conditioning, Electricity

- Cooling water are now working. Electricity is also working.
- Air conditioning is now possible for 24 hours.



Cracks for cooling water



Cooling tower and cooling pipe (both bent, but possible to use as it is.)

Buildings

- Roads were repaired at the entrance hall. Crane is working.

Experimental Hall

- Part of the shields was removed. Currently working to prepare temporary space for shields.
- Transfer primary beam line: about 16 mm drop after ~ 35m length.
- ~ 4mm drop observed at the switchyard. Alignment is planned in the future.



Temporary space for shields

Hadron #2 in May

Removal of Shield around the Target



· Inspection is in progress around the target.

Recovery Work for Swtchyard



· Removal of Vacuum pipes.



· Magnets were also removed.

Summary in May

Linac

- Inside Building: Damage is large for Crane, etc
- For Accelerator: Inspection and alignment are in progress.

RCS (3 GeV Synchrotron)

- Recovery of the road around the 3 GeV started.
- Partial recovery for electric powers. Inspection in progress inside.

MR (50GeV Synchrotron)

- Cooling water and air condition are back on. Repair of road to allow big vehicle.
- Acceleration cavity and beam monitor: Inspection in progress.

MLF (Materials and Life Experimental Hall)

- Removal of shield. Continuation of inside inspection.
- Inspection and measurements inside.

Neutrino Experimental Hall

- Repair roads around the hall.
- Water cooling test. Vacuum test.

Hadron Experimental Facility

- Repair roads. Cooling water recovered.
- Removal of shields. Inspection of various instruments.



Inspection off crane rail on the ceiling at Linac.



Repair work for roads to allow big vehicle



On J-PARC Recovery Schedule

J-PARC Center

Since the earthquake occurred on March 11, we, members of the J-PARC center team, have dedicated to promote an action program to recover the facility performance which suffered from damage due to a tremendous strong quake. Right after the event, we have worked on in creating a recovery master schedule. Although the present plan is by one week later than anticipated, we came to a result for the master plan which gives a goal for endeavor from now on, as follows:

- 1) We will confirm the facility recovery by a beam injection.**
- 2) User program will be restarted with beam time of about 50 days that will be provided to users until the end of March 2012. (within Japanese fiscal year of 2011)**

Please see a time chart of the schedule for the recovery on the next page.

- * Note that, the schedule is assumed to be valid when the budget requested in each action program is delivered on time.
- * In addition, the schedule is strongly influenced by the progress of infrastructural recovery, e.g., access roads, electric power supplies, cooling water supplies, etc.

J-PARC Recovery Schedule (@2011.5.20)

