Extreme draft

Linac

- Finish water pump up Grade
- If ready replace drift tube in tank 5 A
- Maintance
- NTf may be running??
- Replace LLRF on all klystron systems but station 1 (1 is already done)
- Change the way that the chopper works so that beam goes naturally to the Booster.

Booster

- Rework long 13 (start 2nd week) A
- Change water hoses off gradient magnets and change to peak hose.
- Install 1 large aperture RF cavities A
- Add one new cavity station(Station 19 BE) A
- Finish up some vertical alignment A
- Complete Horizontal network A Laser tracker
- Possible add some quads in 400 mev line ??? A
- Fix cavity stands for horizontal Movement A

Re-cycler

- Install FW cans A
- Addition shielding ring wide
- Install magnetic shielding 609 to 615 (numi area) A
- Install pinger or spool piece at 304 location A
- Check shielding on BPM's ring wide.
- Add more shielding to 620 expansion loop.
- Replace as many LEP correctors as possible.(max 12)
- Install 4 missing bladders at RR 204 and 205.
- Rotate IP609
- Install 3 skew quads for RR40
- Remove lam 402 I Recycler.
- Pull 3 stochastic cooling tanks pull,fix replace A could be done ahead of time
- As found Lamb(optical) at Mi 221 location A

MI

- 52 days of LCW work (maintance)
- Stand maintance.
- Move equipment out of way of pelletron.
- Remove dcct septum A
- Fix cavity 6 in Mi60(vacuum leak). A
- Fix vacuum leak on lambertson. A
- Add steel to corrector dipoles.
- Misc. areas of new activity A
- Install new vacuum valves in A150 and P150
- MI 300 area, rotate 3 ion pumps, move QXR to new location.

Pbar 1 (crew 1st month)

- 20 days flushing headers with turbidimeter skid
- Install 20 motor drive stands under quads. A (Could do before August(as founds)
- Rebuild injector kicker area A
- Move DRF 2 A
- Install new debuncher beam tube in extraction kicker.
- Ap1 to ap2 network A
- Ap1 dipole unrolls A

E-cool (1 alignment CREW FOR WHOLE SHUTDOWN)

The major driver to the shutdown length AAAA

- Modify/relocate LCW headers (1-week)
- Modify/relocate quad & Dipole bus and shield (2-weeks)
- Modifications to Recycler: relocate Leps, BPM's, add valves (1-week)
- Modifications to MI: Relocate Septum, DCCT, gate (1-week)
- Pull cables from MI-31 to all components (3-weeks)
- Install Transfer line stands, magnets and vacuum system (2-weeks)
- Install 90-degree bend magnets (1-week)
- Install Cooling section stands, solenoids and vacuum system (2-weeks)
- Install Return line stands, magnets and vacuum system (2-weeks)
- Terminate all cables to devices (2-weeks)
- Install magnetic shielding (2-weeks)
- Magnetic measurements of cooling solenoids (2-weeks)
- Pump down, leak check, bake vacuum sectors (2-weeks)
- Alignment (this is a separate list) (8-10 weeks)

- Manpower: The following work requires 5 vac. techs, 6 mech. techs, and 2 elec. techs. which we already have (from AD, PPD, & TD) and they are dedicated through the shutdown for this project. Also we will have T&M electricians pulling cables, outside contractors doing the LCW & Bus work, and we need an alignment crew at 80% for the full shutdown.

Numi

- Finish installing vacuum system.
- Finish installation correctors
- Finish installing magnetic shielding.
- Putting chill plates on some quads
- Install instrumentation A
- Install kickers. A
- Final alignment A
- Minos planes are a walking A

Tevatron

- Aligment 100 worst magnets quads and dipoles.
- Realign 6 seperators at B0 A
- Realign 6 seperators at D0 A
- Realign 8 low beta magnets at B0 A
- Realign 8 low beta magnets at D0 A
- Install 2 seperators at D17 A
- Install Ipm at E0 A
- Install crystal collimater at E0 A
- Change out D49 spool A
- Warm up D4 and E4 to work on Vacuum A
- Warm up F2, F3 A
- Stand replacement dipoles 16 around ring A1,A2,B1,E2 A
- Stand replacement quads 2 in E2 A
- Stand replacement Q1 and Q5 at B1,C4,D1 6 total A
- Stand replacement quads D4 E4,F2, F3 A
- Stand replacement spools D4 E4, F2,F3 A
- 15 days LCW maintance
- Rebuild E0 A
    - Install bake out system at E0
    - Install hydrogen gas tubing
- Replace all 24 air compressors?
- Re shim magnets

- Install new A4 collimator
- Kaiser coil measurments

B0 work

- Replace vacuum pipe to CDF with Sputtered niobium evaporative getter (SNEG) tubing A
- Install water level B0

D0 work

- Replace vacuum pipe to D0 with Sputtered niobium evaporative getter (SNEG) tubing A
- Muon CF/EF stick mike jobs pre opening and post close up A
- Check survey of a few points on each EMC truss. A
- Contingency for Muon A layer PDT's A
- Contingency for ECS or ECN if D0 opens calorimeter. A
- Contingency for survey of muon Pixels A
- Maintance.

Sy120

- Enclosure C install 2 multi wires A
- F1 remove epb dipole install quad and sem A (do 1-2 days before shutdown)
- P2 line install 2 correctors.(big correctors) A
- Several magnets in P2 and P3 that have leaks.
- Vacuum leak on FW can at F11.

Mini boone

- Realign 631 in Mi 12b A (could be done ahead of time)

Fess (Mostly maintance)

- 2 Master sub power outages.
- 2 Kautz road sub power outages
- Cub off for 2 days.
- Standard yearly feeder maintance (more power outages)
- Feeder 45 upgrade turns off A1,A2,A3 for 2 weeks.
- Feeder 44 work, feeder 32 and 31 work.
- Tev power panel outlets list