NCSX Conceptual Design Cost Estimate Summary Form
(Attachment 1a)

SUMMARY DESCRIPTION

WBS Number: 36	**Title: Edge and Divertor Diagnostics**
Originator: Dave Johnson	

Description

This WBS element consists of diagnostics required to characterize the plasma edge and divertor regions. Quantities measureed include the hydrogen recycling, the edge neutral pressure, the edge temperature and density profiles, the divertor radiated power, the divertor target temperature, and edge and divertor flows. This information is important in the understanding of edge transport and plasma wall interactions. A variety of diagnostic techniques will be used. This WBS is responsible for the vacuum interface, including windows, shutters, valves or electrical feedthrus. Responsibility also includes sensors, mounting structures and sensor cabling near the vacuum vessel. Sensor electronics and racks are also included. Other WBS units are responsible for field cabling and junction boxes, rack terminal blocks, rack AC power and grounding, and data acquisition hardware.

For the Fabrication Project, the following is included in Phase 1:

- WBS 361 – Visible Cameras (3 Wide Angle Views)

Upgrades in this area include for Phase 4:

- WBS 362 – Movable Edge Langmuir Probe
- WBS 363 – Neutral Pressure Gauges
- WBS 364 – Compact IR Camera

And for Phase 5:

- WBS 365 – Fast IR Camera
- WBS 366 – Plate Mounted Langmuir Probes
- WBS 367 – Fast Scanning Edge Probe
- WBS 368 – Divertor Thermocouples

And for Phase 6:

- WBS 369 – Divertor Thomson Scattering

Space and infrastructure allocation, in terms of port space, rack space, data acquisition capacity, etc., should be made with these upgrades in mind.

Description of Existing Equipment/Facilities to be Reused: **None.**

Description of Major Modifications Required to Existing Equipment/Facilities: **None.**

Date: 9/15/03