

SNS Instrument Systems Overview

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March 14, 2002

- SNS facility plan
- Construction status
- Instrument status and layout within the Target Building
- Participation in SNS instruments

SNS Site Plan



Construction Facts (Tennessee Context)



- 5,500 tons of steel rebar will be used for the project structures.
 - Approximately 1000 elephants
- The deep foundation system for the Target Building has 937 micropiles (concrete filled steel tubes) going to bedrock.
- Dirt moved is 1.4 million cubic yards
 - Enough dirt to fill the UT Volunteer Football Stadium above the press box
- 80,000 cubic yards of concrete to be used, equivalent to a 400 mile long sidewalk, 3 feet wide, 6 inches deep from Oak Ridge to Memphis.
- 500,000 safe hours of work on construction site without a lost workday.
- 200 - 250 construction workers on the site currently
- 500 ton capacity crane is being delivered (60 semi-trailer loads), the boom is so long (340 feet) that it requires an FAA permit.

Construction Status - 1



Arial View of SNS Site from Front End– Oct 2001

Construction Status - 2



Arial View of Entire SNS Site – Oct 2001

Construction Status - 3



Arial View Ring and Target Area – Oct 2001

Construction Status - 4



Linac Tunnel from Hill – Jan 2002

Construction Status - 5



Target Building and Water Tower from CLO End – Jan 2002

Construction Status - 6



Target Building from Ring End – Jan 2002

Construction Status - 7



Across Target Building Towards Linac – Feb 2002

Construction Status - 8



Ring Tunnel – Feb 2002

Proposed Instruments



- Twelve instruments have been approved by the SNS Experimental Facilities Advisory Committee (EFAC) and one by the SNS Advisory Board.
- Five are being funded within the project
 - High-resolution backscattering spectrometer
 - Magnetism reflectometer
 - Liquids reflectometer
 - Extended Q-range small-angle diffractometer
 - Third generation powder diffractometer
- Two more instruments have been funded by Instrument Development Teams (IDTs)
 - Wide-angle thermal chopper spectrometer (Brent Fultz, Caltech)
 - Cold neutron chopper spectrometer with 10-100 μeV resolution (Paul Sokol, Penn State)

- Funding not yet identified for remaining approved instruments
 - Fundamental physics beamline
 - Engineering materials diffractometer
 - High pressure diffractometer
 - Disordered materials diffractometer
 - High resolution thermal chopper spectrometer
 - Single crystal diffractometer
- Other instruments are in the discussion stage
 - Spin-echo spectrometer
 - Hybrid polarized neutron inelastic spectrometer
 - Chemical spectroscopy instrument
 - Protein crystallography

Instrument Layout



