R-4 REACTOR
(NCSCR-4)

GENERAL

REACTOR TYPE: Aqueous homogenous, fully enriched (93%) uranium, light water moderated, graphite reflected, uncooled

HISTORY: December 1958  Modified from NCSCR-2 to NCSCR-4 during relocation to the Bureau of Mines Building
          April 1959  Reactor Operational
          1961  Reactor Shutdown

DESIGNER/BUILDER: North Carolina State College

REACTOR PHYSICS

MAXIMUM POWER: 100 watts thermal

NEUTRON FLUX: Average Thermal - $1 \times 10^9$ n/cm$^2$·sec, Average Fast - $1 \times 10^9$ n/cm$^2$·sec.

CORE PARAMETERS: Excess Reactivity = 1.0% Δk/k

CORE LOADING

SHAPE: Cylinder, 10.6875 inch diameter, 5.71 inches high with hemispherical bottom with 5.344 inch radius

CRITICAL MASS: 766.5 grams $^{235}$U

CORE LOADING: 793 grams $^{235}$U in form of 1.32 kg UO$_2$SO$_4$ enrichment 93%, diluted in H$_2$O 13.9 liter solution

POWER DENSITY: 0.007 kW/liter

FUEL ASSEMBLY DATA

FORM & COMPOSITION: (not applicable)

CLADDING: (not applicable)

SUBASSEMBLIES: (not applicable)