ENTRY No. 100

NAME OF MACHINE W.U. Med. School Cyclotron II DATE 7/15/81
INSTITUTION Washington University Medical School, Barnard Hospital
ADDRESS St. Louis, Missouri, 63110, U.S.A.
TEL 314-454-3596 TELEX
IN CHARGE J.T. Hood, Director REPORTED BY John T. Hood
M.M. Ter-Pogossian, Professor of Radiation Sciences

HISTORY AND STATUS

DESIGN, date ... Model tests
ENG DESIGN, date Cyc. Corp. CS-15
CONSTRUCTION, date
FIRST BEAM, date (or goal) June, 1978
MAJOR ALTERATIONS
COST, ACCELERATOR $650,000
COST, FACILITY, total $900,000
FUNDED BY NIH (Heart and Lung)

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT

SCIENTISTS 2 ENGINEERS 1
TECHNICIANS 2 CRAFTS 2
GRAD STUDENTS involved during year
OPERATED BY ... Research staff or X ... Operators
OPERATION ... hr/wk, On target ... hr/wk
TIME DISTR. in house ... %, Outside ... %
BUDGET, op & dev
FUNDED BY NIH

RESEARCH STAFF, not included above

USERS, in house 6 outside
GRAD STUDENTS involved during year 2
RESEARCH BUDGET, in house
FUNDED BY NIH

MAGNET

POLE FACE, diameter (compact) 81 cm, R extraction 35 cm
R injection ... cm
GAP, min ... cm, Field ... kG
max ... cm, Field ... kG } at ...
AVERAGE FIELD at R ext 16.5 ... kG } Ampere turns
B max/ <B>
NUMBER OF SECTORS { compact 3 / separated ... } Spiral, max .. deg
SECTOR ANGLE (SSC) ... deg
TRIMMING COILS
CONDUCTOR, material and type Aluminum ribbon
STORED ENERGY (cryogenic) ... MJ
POWER : main coils 60 .. max, kW ; current stability ...
trimming coils ... max, kW ; current stability ...
WEIGHT : Fe ... tons ; coils ... tons
COOLING system Water
ION ENERGY (bending limit) E/A = ... q^2/a^2 MeV/amu
(focusing limit) E/A = ... q /a MeV/amu

ACCELERATION SYSTEM

DEES, number 2 ; angle 120 deg
BEAM APERTURE ... cm ; DC Bias ... kV
TUNED by, coarse short ... fine
RF 12 to 25 mHz, stable ±
Orb F ... to ... mHz
HARMONICS, RF/Orb F, used
DEE - Gnd, max ... kV, min gap ... cm
STABILITY, (pk-pk noise)/(pk RF volt)
ENERGY GAIN, max ... kV/turn
RF PHASE, stable to ± ... deg
RF POWER input, max ... kW
FREQUENCY MODULATION, rate ... /s
modulator, type
beam pulse, width

VACUUM SYSTEM

OPERATING PRESSURE 10 μ Torr or mbar
PUMPS, No, Type, Size 1 - Oil diffusion
Ten inch

ION SOURCES

Penning

INJECTION SYSTEM

EXTRACTION SYSTEM

Electrostatic and Magnetic Channel

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed ... m^2 ; movable ... m^2
TARGET STATIONS 3 in 1 rooms
STATIONS served at same time, max
MAG SPECTROGRAPH, type
COMPUTER model
OTHER FACILITIES

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	ENERGY (MeV) Achieved	CURRENT (pμA) Internal	CURRENT (pμA) External
p		15		50
d		8		75
α		16		
^{3}He		20		50
SECONDARY			(part/s)	

BEAM PROPERTIES

	MEASURED	CONDITIONS
PULSE WIDTH	RF deg	pμ A of MeV ... ions
PHASE EXC, max	RF deg	pμ A of MeV ... ions
EXTRACT eff	%	pμ A of MeV ... ions
RESOL ΔE/E	1 %	pμ A of MeV ... ions
EMITTANCE (π mm. mrad)	{ .50 axial / .50. rad }	pμA of MeV ... ions

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS ... SOLID STATES PHYSICS ...
BIOMEDICAL APPLICAT. 100% ISOTOPE PRODUCTIONS ...

REFERENCES/NOTES

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS