

Proton Driver Ring Vacuum System

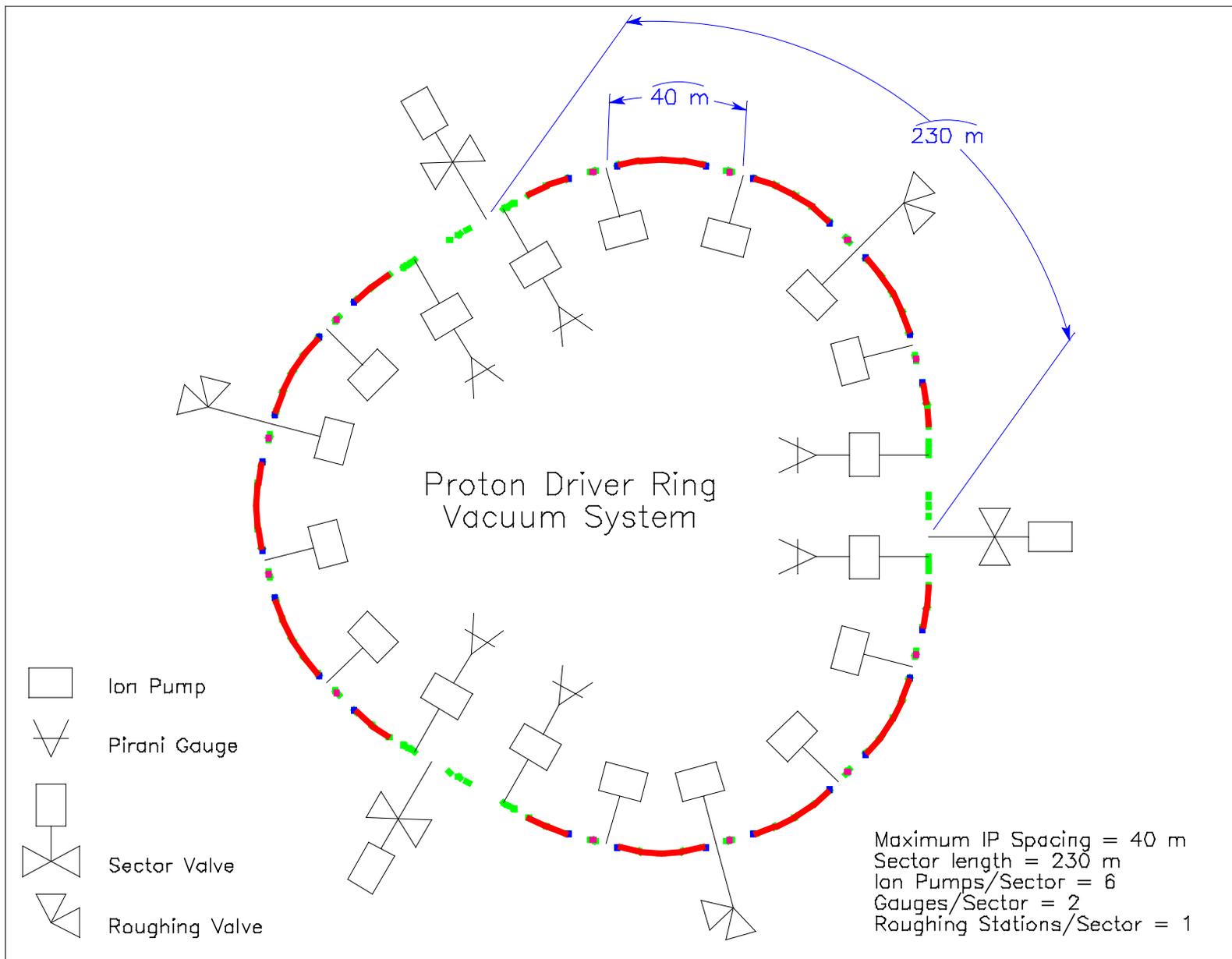
Terry Anderson

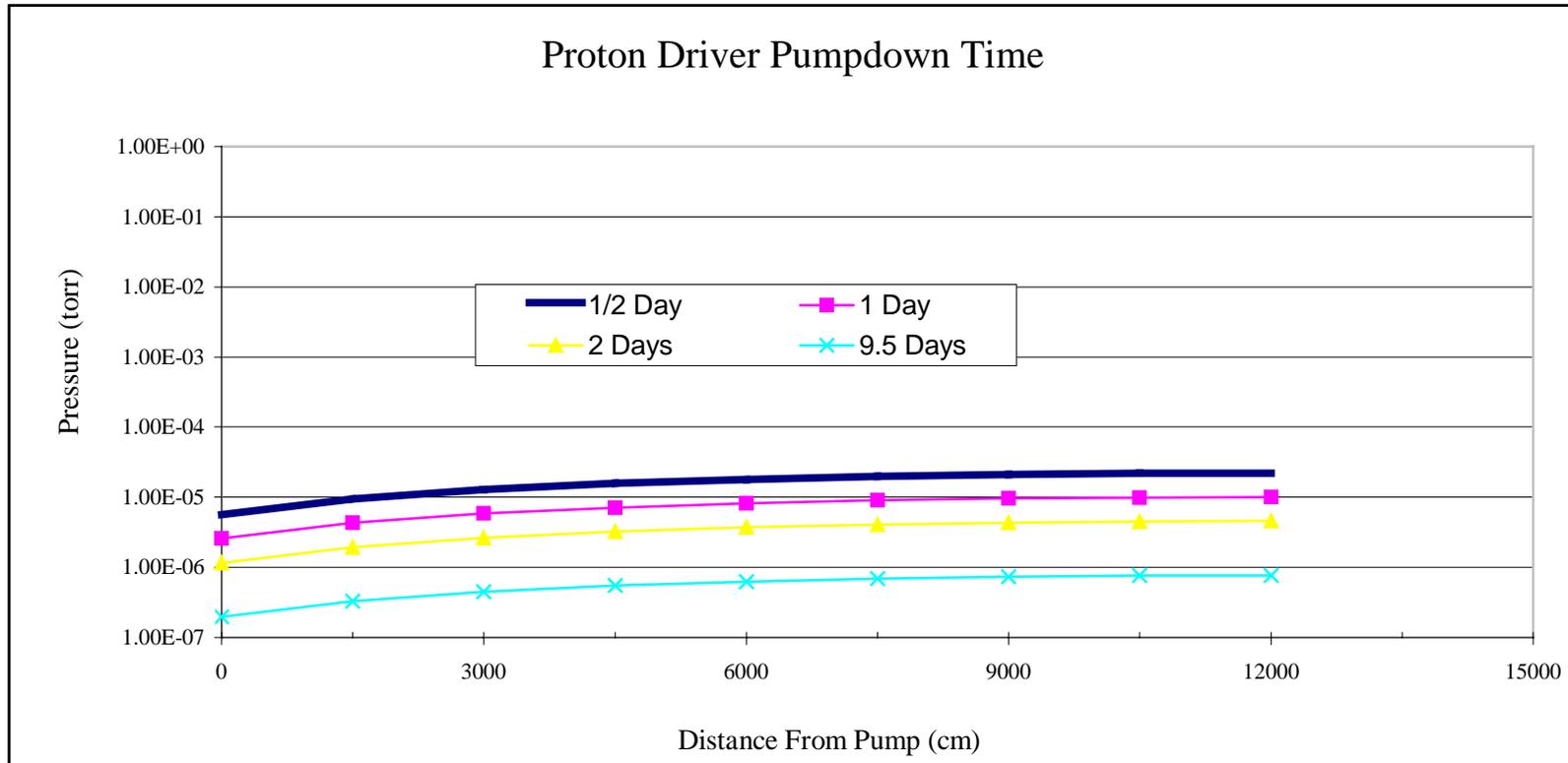
Vacuum System Design Parameters:

Average Pressure Range	~1e-8 torr
Total System Length	690 m
Vacuum Sector Length	230 m
Vacuum Aperture	5" x 9" ellipse
Maximum Pump Spacing	40 m
Primary Pump Type	Ion Pump, 150 l/s
Roughing Pump Type	Turbo Molecular, 125 l/s
Sector Pump-down Time	1/2 - 1 day
Vacuum Gauging	Pirani and Ion Pump Read-back

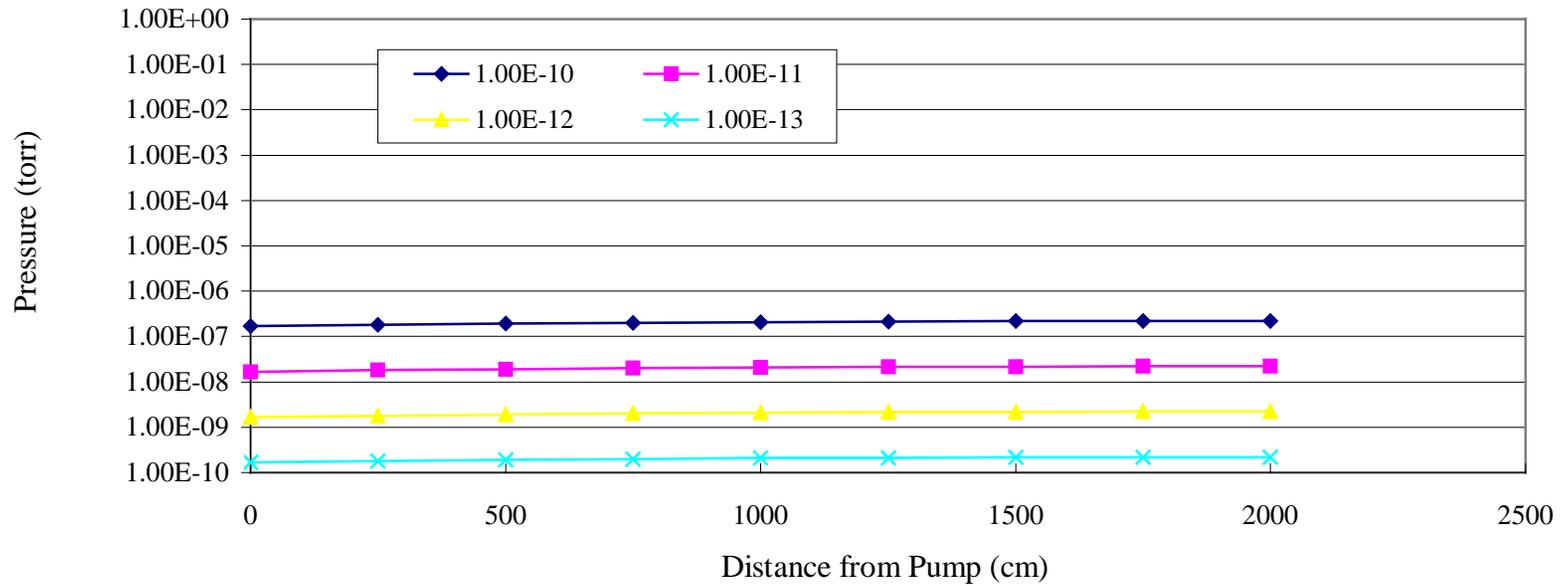
Vacuum System Design Parameters: cont.

Vacuum Chamber Material	??? <u>Inconel?</u> , Titanium?, Ceramic?, Composite?
Vacuum Interface Type	??? <u>Flanged w/bellows?</u> , Welded w/bellows? Depends on vacuum chamber material and slot length
Bake-out System	??? Depends on vacuum chamber material and out gassing rate
Chamber Cooling System	??? Depends on eddy current heating, material thickness, and material type





Proton Driver Ring Vacuum Profile for Various Outgassing Rates



Vacuum System Technical Issues:

Vacuum Chamber Material	??? Inconel?, Titanium?, Ceramic?, Composite? Evan Malone is working on prototypes.
Bake-out System	??? Depends on vacuum chamber material and out gassing rate
Chamber Cooling System	??? Depends on eddy current heating, material thickness, and material type

Vacuum System Technical Issues: cont.

Vacuum Interface Type

??? Flanged w/bellows?
Welded w/bellows? Depends on
vacuum chamber material,
activation levels, and slot length

