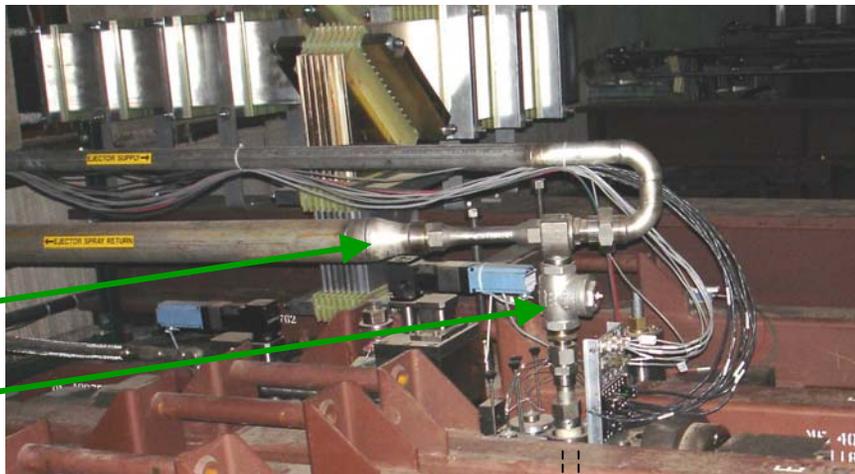




Horn 2 repair update

The symptom:

- Suction of water back from Horn 2 could not keep up with water spray rate to the horn – *water built up in the horn*
 - « Made several accesses, reducing spray rate, to keep this system running
 - « Progressively worse
 - « By using two pumps simultaneously to power the ejector pump, were able to keep running until shutdown



Ejection pump

Check valve

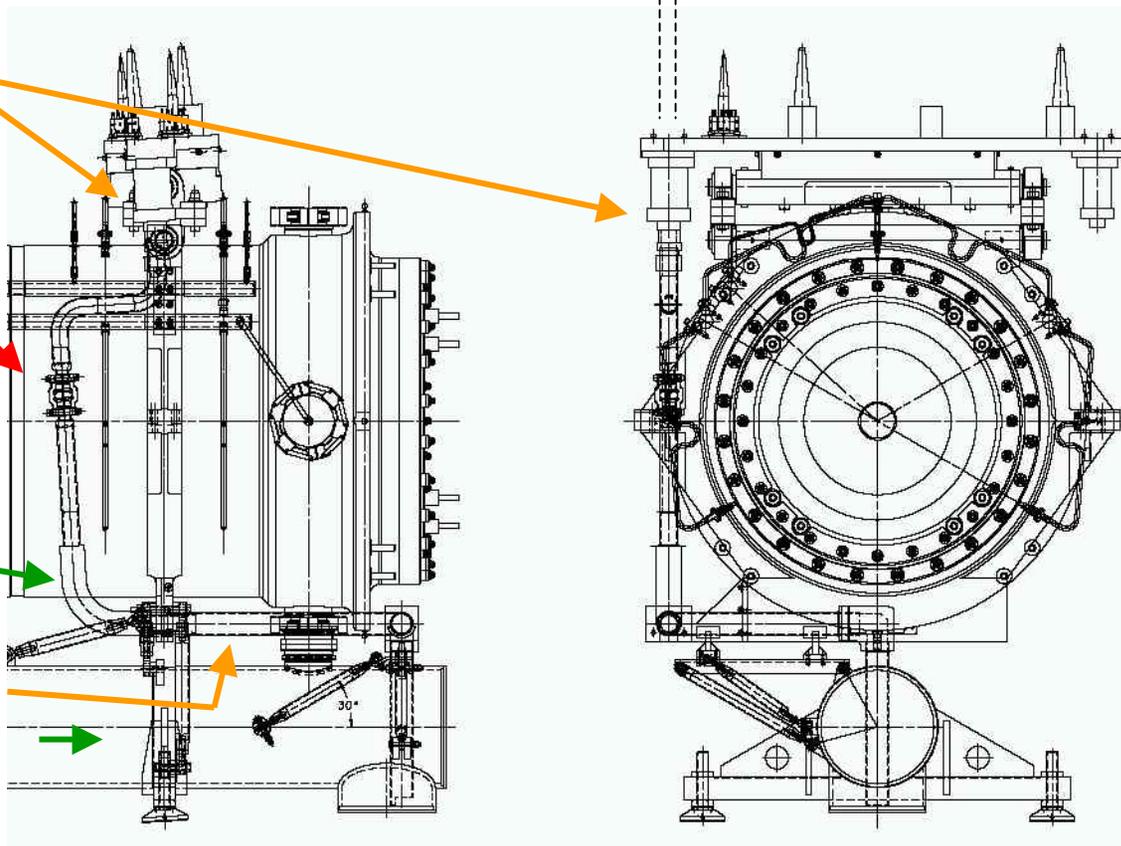
Remote swage-lock fitting
will disconnect here

Ceramic electrical insulation
*hole here in suction line
drawing in air
reducing water suction*

Flex-hose section
of suction line

Will cut 2" stainless pipe here

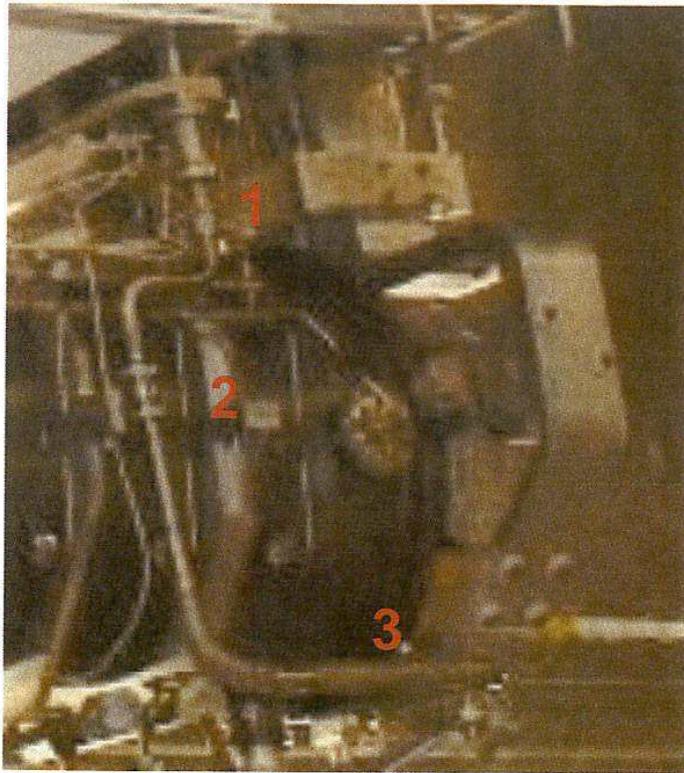
Water collection tank





The challenge for repair is the residual radiation field

30 R/hr – 50 R/hr in chase around horn before horn removal



All Doserates in R/hr

After horn removal	O.C.	1 foot	~ 18"
1	8	4.5	3
2	7	4	3
3	5	3	2.5

Allowable ~ 1 minute per person at arms length



Plan to replace tube section which includes ceramic

- Will turn horn module 180 deg, get one end sticking out of work cell (have tested this), with temporary shielding to give slot for access

- Vladimir Sidorov (target hall engineer) is testing methods on prototypes

Cutting:

band saw worked (25 sec), but chips are bad and requires cleanup
portable tube lathe worked – looks like tube facing not required
will test chain cutter

Clean-up:

tube facing machine required 50 seconds

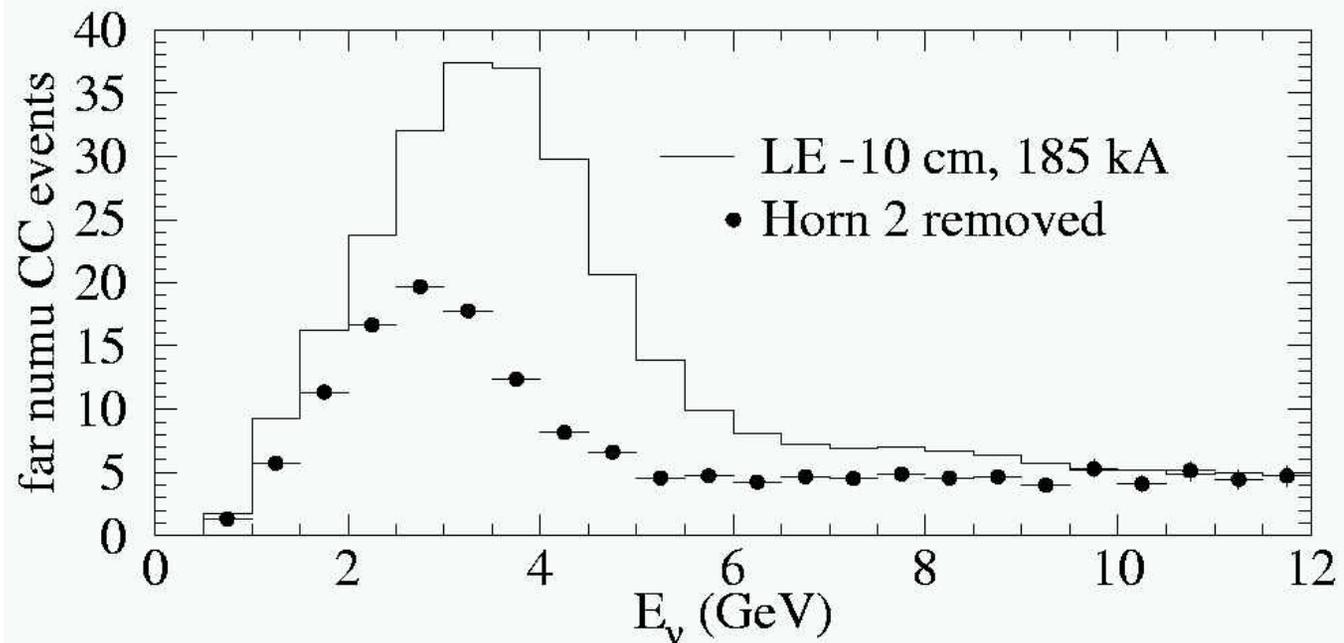
Making joint:

welding worked (but alignment is critical, and took longer)
tested Swagelok - OK
tested Hylock with hydraulic installation tool - OK



Horn 2 repair overview

- Don't know why ceramic failed – can't look at it yet
- Decent chance that we will be able to repair it ~ late April
- If cannot repair, will run with just horn 1
(should re-optimize target position and current)





-
- Original target / baffle / carrier still operating after 1.4×10^{20} POT
*helium usage by back-pressure system has increased,
but this patch is still working*
 - 1st Spare target / baffle / carrier finished and ready
 - 2nd spare target and baffle are in transit from IHEP (Russia)
Many pieces of the carrier have been constructed,
but significant assembly remains – late Fall ?



Target Hall Spares

Horn 1

-
- Original Horn 1 still operating after 7.8 Million pulses
 - 1st Spare
 - « Welding of inner conductor finished – out for nickel coating
 - « Outer conductor complete
 - « Scheduled to go on test stand ~ late May / beginning of June
 - Pulse testing and magnetic field mapping*
 - « Then attach hanger, water tank, etc
 - « Expected completion in August



Target Hall Spares

Horn 2

-
- Original Horn 2 under repair
 - 1st Spare
 - « Welding of inner conductor in progress, 2 of 6 welds done
 - « Outer conductor machined – out for anodization
 - « Expected completion in November
 - 2nd Spare
 - « Welding of inner conductor in progress, 2 of 6 welds done
 - « Preparing to order other long lead-time parts



Target Hall Spares

Strip-line Block / Remote Strip-line Clamp

-
- Both original strip-line blocks still operating
 - 1st spare strip-line block was modified after peeling of nickel coating was observed in target pile (causing horn ground faults ?)
 - *modifications are complete*
 - 2nd and 3rd spares are in progress, expected completion ~ July



Plan for increasing horn production rate

- Have approval for new Mechanical Engineer to add to horn production
Interviews done, about to make offer
- Vladimir Sidorov replacing Kris Anderson for most target hall support,
allowing Kris to concentrate on horn production
- Bob Wagner (ANL) has been brought on board to get the horn test stand back up
new field probes and DAQ
- Transition to batch production of horns, to reduce repeated setup times
 - « Have parts in hand to do 1st four welds on PH2-03 inner conductor in parallel with PH2-02 welds
 - « Proposing to do batch of 3 Horn 1's and batch of 3 Horn 2's after first set of spares is done – hope to start procurement of long lead time items soon