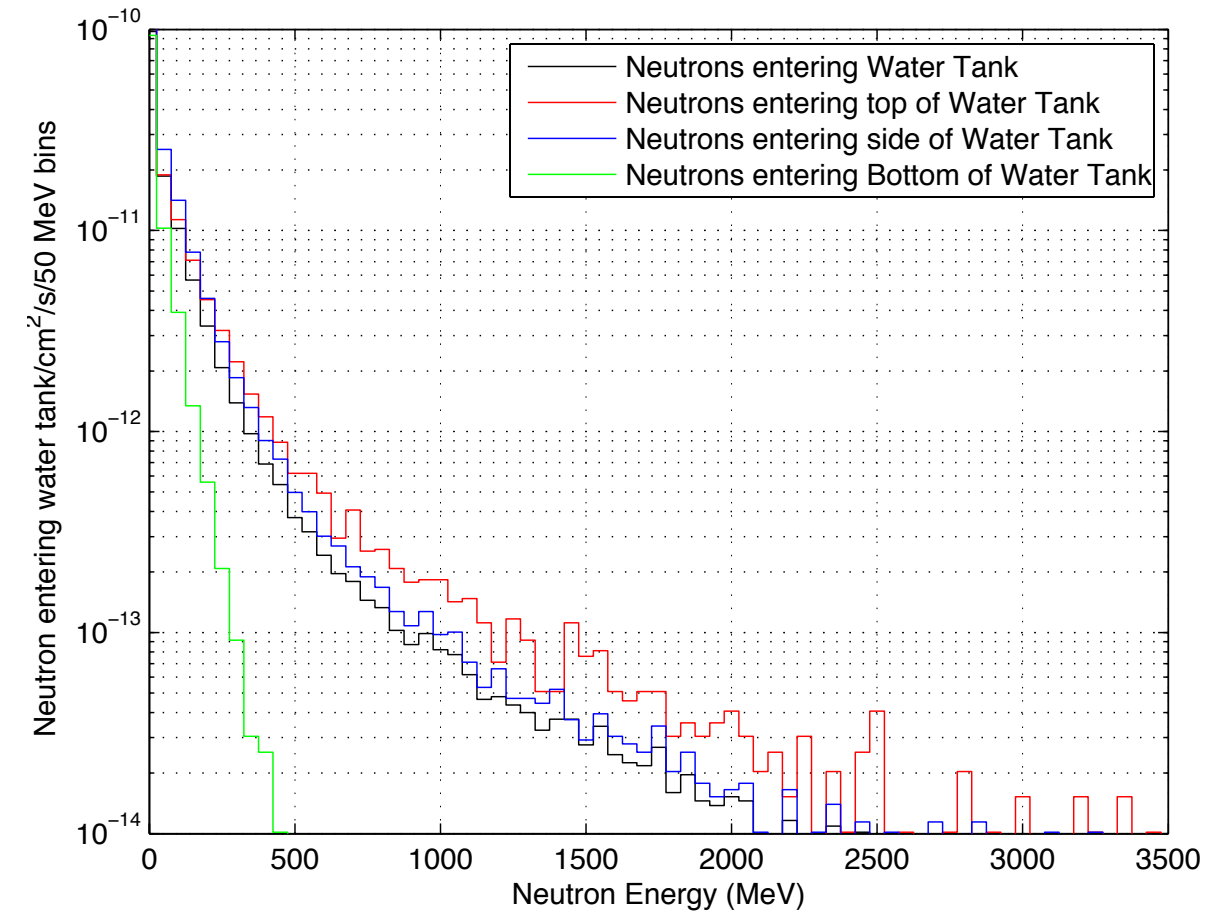
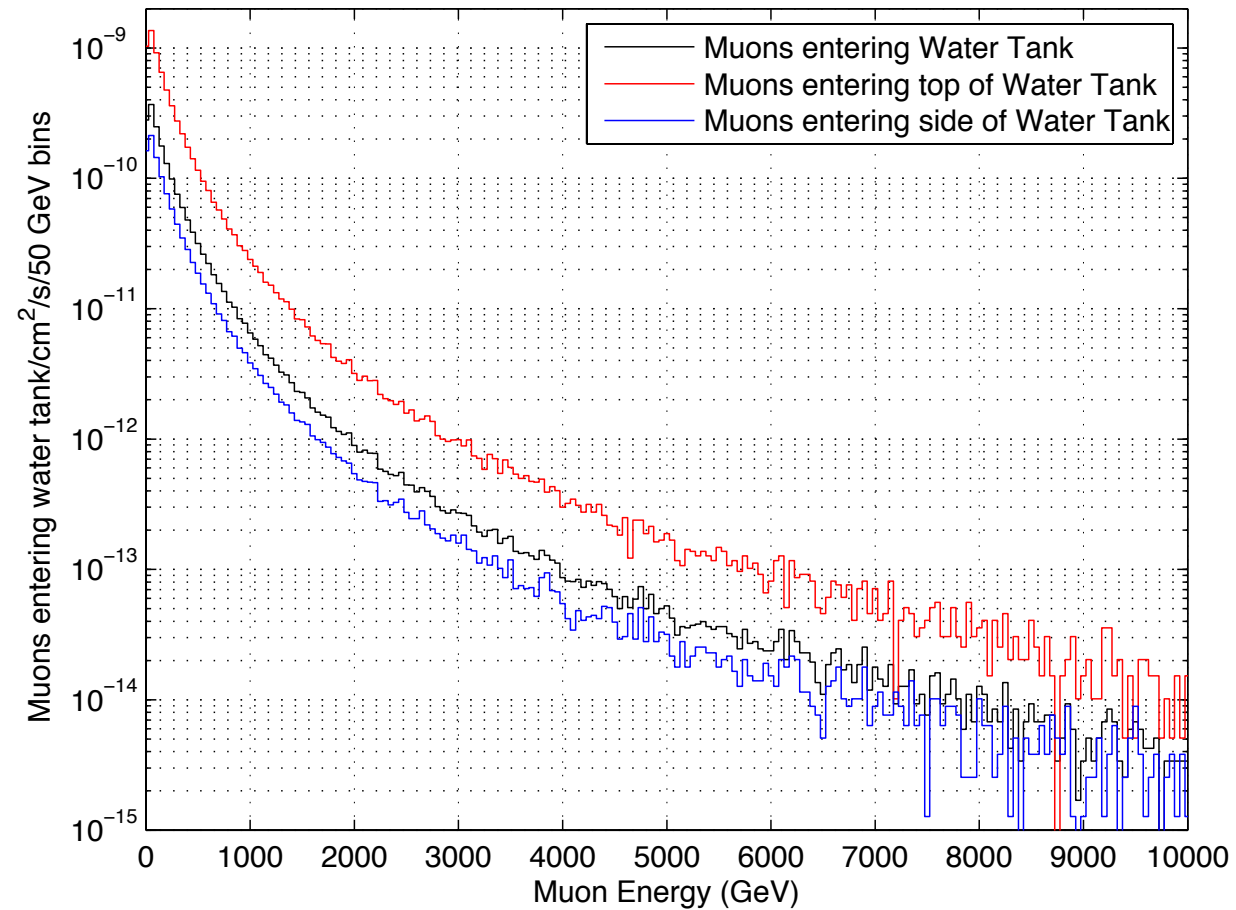


LZ Update

Monica Pangilinan
DWG Meeting
November 1, 2012

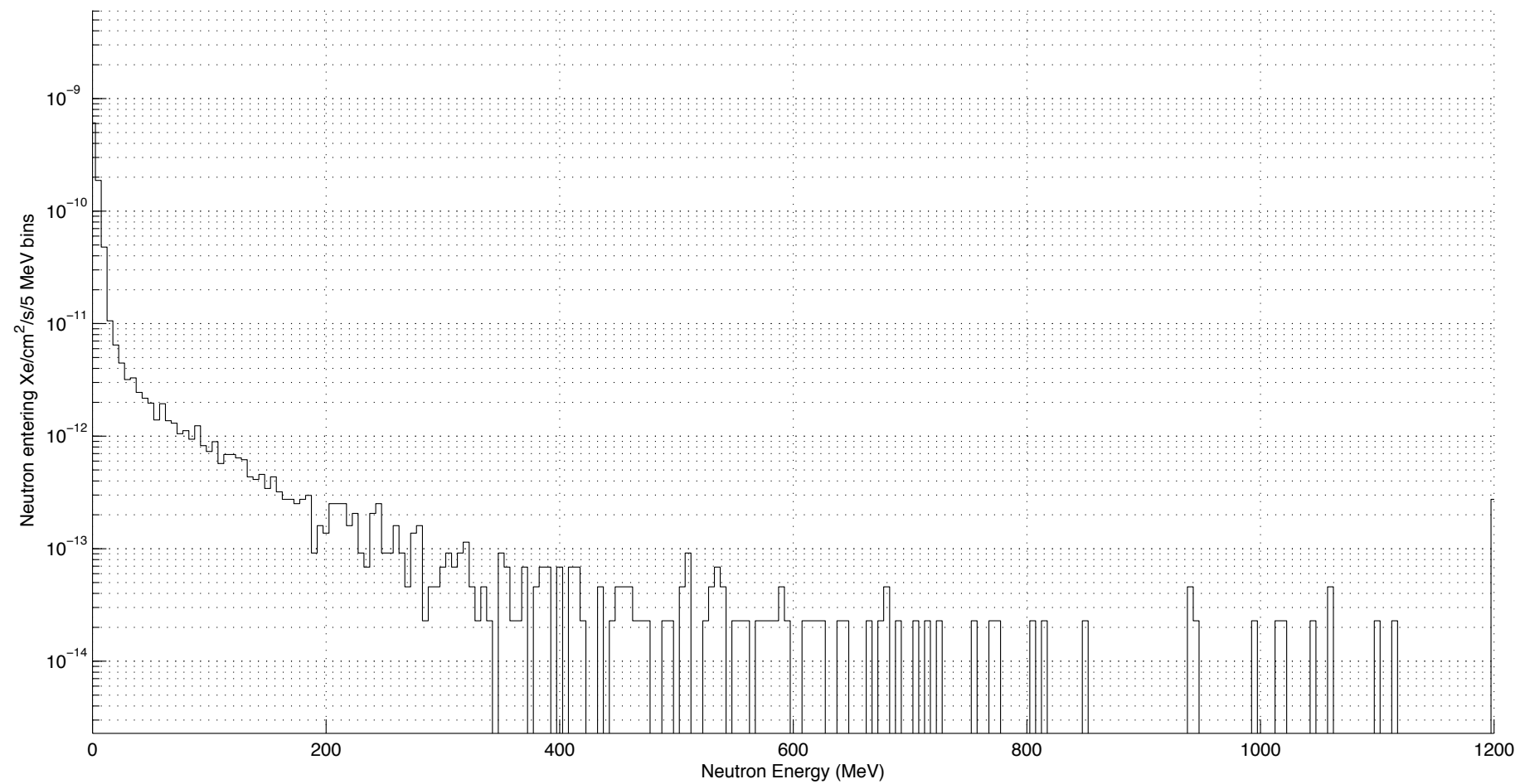
- 5.5 years of livetime analyzed so far (last update at 3.6 years)
- energy cuts on particles > 100 keV
- NR > 5 keVnr

Particles Entering Water Tank



	Flux entering Tank	Flux entering Top of Tank
Muon	$1.76 \times 10^{-5} \text{ mu/m}^2/\text{s}$	$6.46 \times 10^{-5} \text{ mu/m}^2/\text{s}$
Neutron	$1.68 \times 10^{-6} \text{ n/m}^2/\text{s}$	$2.70 \times 10^{-6} \text{ n/cm}^2/\text{s}$

Neutrons Entering Xenon Tank



	Flux entering Tank	1000 day live time
Neutrons entering Xe	$9.0 \times 10^{-6} \text{ n/m}^2/\text{s}$	-
NR/s	1.2×10^{-4}	~ 10000
Single Scatter NR/s**	5.7×10^{-9} (still 1 event)	0.49

**No EM veto, fiducial cut, or muon veto applied

Comparisons using same file numbers

file#	# muons entering top of water tank (MP)	# muons entering top of water tank (AR)	# neutrons entering top of water tank (MP)	# neutrons entering top of water tank (AR)	#neutrons with unique track/evt# combos within 80cm of center (MP)	#neutrons with unique track/evt# combos within 80cm of center (AR)	#NR events in Xe (MP)	#NR events in Xe (AR)
119	1146	572	23	11	56	29617	21	7955
140	1101	563	32	14	15	29446	16	7959
144	1169	560	15	11	6	29321	18	7952
146	1129	578	19	13	7	29315	24	7927
148	1146	607	57	81	10	30309	14	8037
153	1140	575	30	11	18	29726	27	8002
161	1114	550	47	53	13	29464	21	7889
186	1146	605	26	5	45	29727	17	7926
204	1154	568	36	14	4	29292	17	7923
214	1214	643	18	12	61	30451	25	7960
215	1155	580	29	37	20	30449	19	7978

- factor 2 difference in # muon entering top of water tank
- as much as factor 2 difference in # of neutrons entering top of water tank
- but still 3 order magnitude difference in number of neutrons “entering” Xe and 2 order magnitude difference in # NR events in Xe

tried making same short cut value but so far for me,
my values are comparable for 1 micron vs 1 cm case

- continuing to analyze and run events...9 weeks to finish up which also includes regoing over events missed while pushing through the sets (2200/3000)
- more investigation needed on discrepancies
 - shortcut value - need check with both MCs
 - same random number?