

Is there a window of practical, safe pit production at LANL's PF-4? It is unlikely. (Los Alamos Study Group, 18 May 2019)																						
Year	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Needed TA-55 and TA-50 infrastructure tests, analysis, and upgrades, not all-inclusive																						
Column testing, seismic analysis; could be fatal to PF-4 operation as HC II Nuclear Facility; analysis may also limit MAR	(DNFSB WSR 12/28/18)	Necessity, feasibility, scope, and duration of possible PF-4 alterations are unknown at present					If needed, design and construction of a greenfield PF-4 replacement could begin in ~2022, with 30 ppy ops in ~2035. There is no room for a PF-4 replacement at TA-55. A separate 30 ppy production facility could not be built at TA-55 without massive disruption & risk. See other slides. PF-4 replacement, which is unlikely to be possible for a number of reasons, would be vastly expensive (>\$10 B).															
PC-3 fire suppression system upgrade	(DNFSB WSR 1/4/19)																					
Internal firewall upgrade to 2 hours	(DNFSB WSR 1/4/19)																					
PC-3 active ventilation, fire alarm upgrade	(DNFSB WSR 1/4/19)																					
Fire water loop integrity	(DNFSB WSR 1/4/19)																					
CMRR subproject REI2	(DOE CBR)																					
CMRR subproject PEI1	(DOE CBR)																					
CMRR subproj. PEI2 (to Pu Pit Prod. Project, PPP)	(DOE CBR) Scope, cost, & duration of Pu Pit Proj. (PPP) unknown; purpose is to take LANL from 10 to 30 ppy so duration shown accordingly																					
CMRR subproj. RC3 (to PPP)																						
TA-55 Reinvest. Project III	Duration: >2024 (CBR) by ~2 yrs (estimate)																					
TRU liquid waste (TA-50)	Duration unclear but >2024 (CBR)																					
War reserve (WR) pit production expected (pits per year, ppy)																						
1	(funded by Pu Sustainment Ops)		X																			
10				X																		
20	(funded by Pu Pit Production Project, scope TBD)					X																
30 (average)						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
≥30 (NNSA: 41 average)	Infeasible (AoA p. 2)		We believe multi-shift production would lead to fairly prompt and repeated pauses and shut-downs due to single-point failures and overwhelmed chokepoints. Inadequate and inappropriate facilities, management, training, and institutional culture would be exposed. Existing PF-4 missions would be threatened, as would worker and public safety. Recovery could be difficult and might not be successful.																			
≥50 (NNSA: 84 average)	Infeasible (AoA p. 2)																					
≥80 (NNSA: 103 average)	Infeasible (AoA p. 2)																					
Cumulative WR pits (theoretical, 30 ppy average)	1	11	31	61	91	121	151	181	211	241	271	301	331	361	391	421	451	481				
Model (heuristic only): probability of effective PF-4 end of life (EOL) by given year assuming normal distribution, 10 year standard deviation																						
2039 est. EOL (NNSA, FY2014 CBR p. WA-211)	.02	.03	.04	.04	.05	.07	.08	.10	.12	.14	.16	.18	.21	.24	.27	.31	.34	.38	.42	.46	.50	.54
2034 est. EOL (assumed earlier EOL with 30 ppy)	.07	.08	.04	.04	.05	.07	.08	.21	.24	.27	.31	.34	.38	.42	.46	.50	.54	.58	.62	.66	.69	.73

