

Water Chemistry of various Synchrotrons

Synchrotron	pH	DO (ppb)	Resistivity (Mohm-cm)	Inlet Temp. (°F)	Outlet Temp. (°F)	Inlet Pressure to the absorbers (psi)	Outlet Pressure from the absorbers (psi)	Comments
NSLS	~ 6	Not measured	HPC System - 4 to 6 LPC System - 6 to 8 Alum System - 2 to 4 Exp System - .5 to 1	74	84			Some of the observations and hypothesis are listed at the bottom **
ESRF	~ 5.5	Very Low (~ 1)	~ 1			~ 145	~ 29	DO goes up during maintenance but No information about the effect of sudden change in DO.
NSRRC	7		10					Flow decreases as resistivity decreases or pH increases
SLS	Not measured	Not measured	0.5~ 5	~ 75.2	~93.2	145	29	No information about any operational difficulty.
APS	Not measured	4 ~ 5	~ 9	78	81		30	* Accidental increase in DO (~ 500 ppb) increases flow. * As the DO decreases to 4 ~ 5 ppb from 500 ppb a drop in flow rate is observed near the absorbers .

* NSLS water system consists of four subsystems

* Once one of four systems ran at 11 MOhm-cm resistivity & at regular temperature - non-aggressive water

* Once main RF-system water ran at ~0.02 MOhm-cm for months - did not experience any operational difficulty

- NSLS Hypothesis - 1. System can be run at very low resistivity of water

2. Resistivity does not affect the aggressiveness of water

* When one of the four systems ran at 0.5-1 MOhm-cm resistivity & at 150 °F temperature - aggressive water

- NSLS Hypothesis -Higher temperature might be detrimental to water quality