LA Desalination Project 2018, Single Shaft Energy Balance, 1 BGD

Fresh Water Engine Stats

Haiwee Res elevation	3774	ft	
Sylmar surface elevation	1200	ft	
Fresh Water Engine Total Fall	2574	ft WC	
Fresh Water Engine OSE	87.1	%	
Fresh Water Engine flow	240000	gpm	345.6 MGD
Fresh Water Engine Theoritical power	156000	HP	116.3 MW

Fresh Water Pump Stats

Membrane Bank elevation	0	ft	
Sylmar surface elevation	1200	ft	
Fresh Water Pump Total Lift	1200	ft WC	
Fresh Water Pump OSE	94	%	
Fresh Water Pump flow	694445	gpm	1000.0 MGD
Fresh Water Pump Theoritical power	210438	HP	156.9 MW

Seawater Pump Stats

Sea Water Underground Res elevation	-50	ft	
Membrane Bank elevation	0	ft	
Membrane Bank DP	1850	ft WC	800.9 psi
Seawater Pump Total Lift	1900	ft WC	
Seawater Pump OSE	94	%	
Seawater Pump flow	1388889	gpm	2000.0 MGD
Seawater Pump Theoritical power	666386	HP	496.9 MW

Brine Engine Stats

Brine Engine supply pressure	1480	ft WC	640.7 psi
Membrane Bank elevation	0	ft	
Brine Conduit elevation	200	ft WC	
Brine Engine Total Fall	1280	ft WC	
Brine Engine OSE	94	%	
Brine Engine flow	694445	gpm	1000.0 MGD
Brine Engine Theoritical power	224467	HP	167.4 MW

Membrane Bank Stats

Membrane sea water input flow	1388889	gpm	2000.0 MGD
Membrane brine water discharge ratio	50	%	
Membrane fresh water discharge ratio	50	%	
Membrane brine water output flow	694445	gpm	1000.0 MGD
Membrane fresh water output flow	694445	gpm	1000.0 MGD

Membrane/Conduit fresh water ratio	2.9	to 1

Motor-Gen Stats

Fresh Water Engine Available power	135876	HP	101.3 MW
Fresh Water Pump Required power	223870	HP	166.9 MW
Brine Engine Available power	210999	HP	157.3 MW
Seawater Pump Required power	708921	HP	528.6 MW
Motor-Gen Required power	585916	HP	436.9 MW

LA Desal w/ THP, Energy per Volume	3.42	MW*Hr/Acre*ft
LA Desal w/o THP, Energy per Volume	4.21	MW*Hr/Acre*ft
Electric Water Capacity	563717	gpm 811.8 MGD
THP Capacity	130728	gpm 188.2 MGD

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