North Butte Water Balance

20-Jan-18

Assumes 9 Pore Volumes of Treatment (1 P.V. GWS and 8 P.V. RO)

20-Jan-18

Year								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
								2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Production Flows																													
Total Production Flow (gpm) (end of year)								1100	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Production Bleed (gpm)								11	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Misc. GWS								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Control Bleed (gpm)								10	10	10	10	10	10	10	10	5	5	0	0	0	0	0	0	0	0	0	0	0	0
Restoration Flows																													
	PV With Flare (Kgal)	GWS PV to Finish	RO PV to Finish	Average Flow (gpm)	Treatment Time (Yrs.)																								
									36784000	496000	0																		
North Butte	**64,000,000**	64,000,000	512,000,000						403136000	257984000	112832000	0																	
MU 1 (gal) (RO)	**64,000**	1	8	270	3.8				216	288	288	288																	
GWS (gal)				68	1.9				54	72	72	72																	
Total Disposal (gal)									54	72	72	72																	
													42712000	6424000	0	0	0												
North Butte	**79,000,000**	79,000,000	632,000,000										486848000	341696000	196544000	51392000	0												
MU 2 (gal) (RO)	**79,000**	1	8	288	4.4								288	288	288	288	288												
GWS (gal)				72	2.2								72	72	72	72	72												
Total Disposal (gal)													72	72	72	72	72												
Total Restoration Disposal (gpm)								**0**	**54**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Installed RO Capacity (gpm) (feed)	**Feed (gpm)**	**Feed (Future)**		**Premate Out**	**Concentrate (gpm)**	**Concentrate (gpm)**	**Availability**
	400			320	**80**	**60**	**288**
	100			80	**20**	**15**	**72**
					0	**0**	
					0	**0**	
					0	**0**	
					0	**0**	
Total RO Capacity (gpm)	**500**	**0**			**100**	**75**	

Deep Disposal Well Capacity (gpm)	**Permitted**	**Current**	**Future**	**Online Time (95%)**																									
North Butte 1	**150**	**100**		**95**				95	93.6	92.2	90.8	89.4	88.1	86.8	85.5	84.2	82.9	81.7	80.5	79.3	78.1	76.9	75.7	74.6	73.5	72.4	71.3	70.2	69.1
North Butte 2	**75**							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Butte 3								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Butte 4								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		100	**0**																										
Total Available								95	93.6	92.2	90.8	89.4	88.1	86.8	85.5	84.2	82.9	81.7	80.5	79.3	78.1	76.9	75.7	74.6	73.5	72.4	71.3	70.2	69.1
Total Production Bleed (gpm)								11	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Misc. Process Water								3	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0
Misc. GWS								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Control Bleed (gpm)								10	10	10	10	10	10	10	10	5	5	0	0	0	10	10	0	0	0	0	0	0	0
Total Restoration Disposal (gpm)								0	54	72.0	72.0	72.0	72.0	72	72	72.0	72	0	0	0	0	0	0	0	0	0	0	0	0
Total Disposal Required (gpm)								24	72	85.0	85.0	85.0	85.0	85	85	80.0	80	3	3	3	10	10	0	0	0	0	0	0	0
Total Disposal Balance								**71**	**22**	**7**	**6**	**4**	**3**	**2**	**1**	**4**	**3**	**79**	**78**	**76**	**68**	**67**	**76**	**75**	**74**	**72**	**71**	**70**	**69**
Equivalent RO Feed Rate (gpm)								**473**	**147**	**47**	**40**	**27**	**20**	**13**	**7**	**27**	**20**	**527**	**520**	**507**	**453**	**447**	**507**	**500**	**493**	**480**	**473**	**467**	**460**