WHARF MINE
LEAD, SOUTH DAKOTA
NIRATE/ARSENIC GEOCHEMICAL MIXING CELL MODEL
Area - South Trojan Pit Overlap 02 Spent Ore

INPUT BLOCK

CHEMICAL	Arsenic	

INFILTRATION	Total Drainage Area:	613,461	ft^2
	Unreclaimned Infiltration Rate:	9	in/yr
	Reclaimed Infilgration Rate:	4.5	in/yr

SPENT ORE	Porewater Concentration:	1.6	ppm
	Moisture at Offload:	0.06	wt %

CELLS	Cell No.	Material	Mass (tons)	Kd (L/kg)	Moisture (wt%)	GW Inflow (tons)	GW Conc. (ppm)
	1	Spent Ore	Time Dependent	0.750	0.04	0	0
	2	Unsaturated Bedrock	4,825,437	3.000	0.01	0	0
	3	Unused	0	0.000	0	0	0
	4	Unused	0	0.000	0	0	0
	5	Unused	0	0.000	0	0	0
	6	Unused	0	0.000	0	0	0
	7	Unused	0	0.000	0	0	0

TIME																					
	Start Time	yrs	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00
	Time Step	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	End Time	yrs	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00
	Calendar Year	year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016

TIME DEPENDENT DATA																				
	Infiltration Rate	in/yr	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	Chemicals in Infiltration	ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Backfill Added	tons	0	0	0	0	0	0	0	0	0	0	0	0	0	555,668	555,668	555,668	555,668	555,668

CALCULATION BLOCK

CELL 1 - Spent Ore

DATA	VARIABLE		FORMULA	UNITS	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ROCK	Initial Solids in Cell	A1	C1 from previous year	tons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	555,668	1,111,336	1,667,004	2,222,672
	Material Added	B1		tons	0	0	0	0	0	0	0	0	0	0	0	0	0	555,668	555,668	555,668	555,668	555,668
	Total Solids in Cell	C1	A1 + B1	tons	0	0	0	0	0	0	0	0	0	0	0	0	0	555,668	1,111,336	1,667,004	2,222,672	2,778,340
WATER	Initial Mass Water in Cell	D1	V1 from previous year	tons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22,227	44,453	66,680	88,907
	Inflow from Infiltration	E1	infiltration rate x area x conversion factor	tons	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360
	Inflow from Groundwater	F1		tons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	New ore Moisture	G1	B1 x % moisture at offload	tons	0	0	0	0	0	0	0	0	0	0	0	0	0	33,340	33,340	33,340	33,340	33,340
	Total Water in Cell	H1	D1 + E1 + F1 + G1	tons	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	47,700	69,926	92,153	114,380	136,607
CHEMICALS	Initial Chemicals	I1	Z1 from previous year	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.681	1.361	2.042	2.723
	Chemicals from Above	J1	E1 x infiltration chemical concentration	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Chemicals from Groundwater	K1	F1 x groundwater chemical concentration	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Chemicals in New Porewater	L1	G1 x porewater chemical concentration	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.053	0.053	0.053	0.053	0.053
	Adsorbed Chemicals in Ore	M1	B1 x Q1 x porewater chemical concentration	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.667	0.667	0.667	0.667
	Total Chemicals in Liquid	N1	J1 + K1 + L1	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.053	0.053	0.053	0.053	0.053
	Total Chemicals on Solids	O1	I1 + M1	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.667	1.347	2.028	2.709	3.389
	Total Chemicals in Cell	P1	O1 + N1	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.720	1.401	2.081	2.762	3.443
PARTITION CHEMICALS	Kd	Q1		L/kg	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750
	Adsorbed Chemicals	R1	(Q1 x C1 x P1) / (Q1 x C1 + H1)	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.646	1.292	1.939	2.585	3.231
	Solid Concentration	S1	R1 / C1 x 10e6	ppm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.163	1.163	1.163	1.163	1.163
	Dissolved Chemicals	T1	P1 - R1	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.074	0.108	0.143	0.177	0.212
	Liquid Concentration	U1	T1 / H1 x 10e6	ppm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.551	1.551	1.551	1.551	1.551
OUTFLOW	Water Remaining	V1	C1 x % moisture	tons	0	0	0	0	0	0	0	0	0	0	0	0	0	22,227	44,453	66,680	88,907	111,134
	Water Out	W1	H1 - V1	tons	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	25,473	25,473	25,473	25,473	25,473
	Chemicals Out in Water	X1	W1 x U1 / 10e6	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039	0.039	0.039	0.039	0.039
	Chemicals Remaining in Water	Y1	T1 - X1	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.034	0.069	0.103	0.138	0.172
	Total Chemicals Remaining	Z1	R1 + Y1	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.681	1.361	2.042	2.723	3.403

CELL 2 - Unsaturated Bedrock

DATA	VARIABLE		FORMULA	UNITS	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ROCK	Total Solids in Cell	C2		tons	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437
WATER	Initial Mass Water in Cell	D2	V2 from previous year	tons	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254
	Inflow from Cell Above	E2	W1	tons	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	25,473	25,473	25,473	25,473	25,473
	Inflow from Groundwater	F2		tons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Water in Cell	H2	D2 + E2 + F2	tons	62,614	62,614	62,614	62,614	62,614	62,614	62,614	62,614	62,614	62,614	62,614	62,614	62,614	73,727	73,727	73,727	73,727	73,727
CHEMICALS	Initial Chemicals	I2	Z2 from previous year	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039	0.079	0.118	0.157
	Chemicals from Above	J2	X1	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039	0.039	0.039	0.039	0.039
	Chemicals from Groundwater	K2	F2 x groundwater chemical concentration	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Total Chemicals in Cell	P2	I2 + J2 + K2	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039	0.079	0.118	0.158	0.197
PARTITION CHEMICALS	Kd	Q2		L/kg	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
	Adsorbed Chemicals	R2	(Q2 x C2 x P2) / (Q2 x C2 + H2)	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039	0.079	0.118	0.157	0.196
	Solid Concentration	S2	R2 / C2 x 10e6	ppm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.016	0.024	0.032	0.041
	Dissolved Chemicals	T2	P2 - R2	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001
	Liquid Concentration	U2	T2 / H2 x 10e6	ppm	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.005	0.008	0.011	0.014
OUTFLOW	Water Remaining	V2	D2	tons	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254
	Water Out	W2	H2 - V2	tons	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	25,473	25,473	25,473	25,473	25,473
	Chemicals Out in Water	X2	W2 x U2 / 10e6	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Chemicals Remaining in Water	Y2	T2 - X2	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001
	Total Chemicals Remaining	Z2	R2 + Y2	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039	0.079	0.118	0.157	0.196

18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00	29.00	30.00	31.00	32.00	33.00	34.00	35.00	36.00	37.00	38.00	39.00	40.00	41.00	42.00	43.00
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00	29.00	30.00	31.00	32.00	33.00	34.00	35.00	36.00	37.00	38.00	39.00	40.00	41.00	42.00	43.00	44.00
2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042

9	9	9	9	9	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
555,668	555,668	555,668	555,668	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
2,778,340	3,334,008	3,889,676	4,445,344	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012
555,668	555,668	555,668	555,668	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3,334,008	3,889,676	4,445,344	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012

111,134	133,360	155,587	177,814	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040
14,360	14,360	14,360	14,360	14,360	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33,340	33,340	33,340	33,340	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158,833	181,060	203,287	225,513	214,400	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220

3.403	4.084	4.765	5.445	6.126	6.104	6.093	6.082	6.071	6.059	6.048	6.038	6.027	6.016	6.005	5.994	5.983	5.972	5.961	5.950	5.940	5.929	5.918	5.907	5.897	5.886
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.053	0.053	0.053	0.053	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.667	0.667	0.667	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.053	0.053	0.053	0.053	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4.070	4.751	5.431	6.112	6.126	6.104	6.093	6.082	6.071	6.059	6.048	6.038	6.027	6.016	6.005	5.994	5.983	5.972	5.961	5.950	5.940	5.929	5.918	5.907	5.897	5.886
4.123	4.804	5.485	6.165	6.126	6.104	6.093	6.082	6.071	6.059	6.048	6.038	6.027	6.016	6.005	5.994	5.983	5.972	5.961	5.950	5.940	5.929	5.918	5.907	5.897	5.886

0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750
3.877	4.523	5.169	5.816	5.795	5.784	5.774	5.763	5.753	5.742	5.732	5.721	5.711	5.701	5.690	5.680	5.670	5.659	5.649	5.639	5.629	5.618	5.608	5.598	5.588	5.578
1.163	1.163	1.163	1.163	1.159	1.157	1.154	1.152	1.150	1.148	1.146	1.144	1.142	1.140	1.138	1.136	1.134	1.132	1.130	1.128	1.126	1.123	1.121	1.119	1.117	1.115
0.246	0.281	0.315	0.350	0.331	0.320	0.319	0.318	0.318	0.317	0.317	0.316	0.316	0.315	0.314	0.314	0.313	0.313	0.312	0.312	0.311	0.310	0.310	0.309	0.309	0.308
1.551	1.551	1.551	1.551	1.545	1.542	1.539	1.537	1.534	1.531	1.528	1.525	1.523	1.520	1.517	1.514	1.512	1.509	1.506	1.503	1.501	1.498	1.495	1.493	1.490	1.487

133,360	155,587	177,814	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040
25,473	25,473	25,473	25,473	14,360	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180
0.039	0.039	0.039	0.039	0.022	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
0.207	0.241	0.276	0.310	0.309	0.308	0.308	0.307	0.307	0.306	0.306	0.305	0.305	0.304	0.303	0.303	0.302	0.302	0.301	0.301	0.300	0.300	0.299	0.299	0.298	0.297
4.084	4.765	5.445	6.126	6.104	6.093	6.082	6.071	6.059	6.048	6.038	6.027	6.016	6.005	5.994	5.983	5.972	5.961	5.950	5.940	5.929	5.918	5.907	5.897	5.886	5.875

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437

48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254
25,473	25,473	25,473	25,473	14,360	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73,727	73,727	73,727	73,727	62,614	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434

0.196	0.236	0.275	0.313	0.352	0.374	0.385	0.396	0.407	0.418	0.428	0.439	0.450	0.461	0.471	0.482	0.492	0.503	0.514	0.524	0.535	0.545	0.556	0.566	0.577	0.587
0.039	0.039	0.039	0.039	0.022	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.236	0.275	0.314	0.353	0.375	0.385	0.396	0.407	0.418	0.429	0.439	0.450	0.461	0.471	0.482	0.493	0.503	0.514	0.524	0.535	0.546	0.556	0.566	0.577	0.587	0.598

3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
0.235	0.274	0.312	0.351	0.373	0.384	0.395	0.405	0.416	0.427	0.438	0.448	0.459	0.470	0.480	0.491	0.501	0.512	0.522	0.533	0.543	0.554	0.564	0.575	0.585	0.595
0.049	0.057	0.065	0.073	0.077	0.080	0.082	0.084	0.086	0.088	0.091	0.093	0.095	0.097	0.100	0.102	0.104	0.106	0.108	0.110	0.113	0.115	0.117	0.119	0.121	0.123
0.001	0.001	0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.016	0.019	0.022	0.024	0.026	0.027	0.027	0.028	0.029	0.029	0.030	0.031	0.032	0.032	0.033	0.034	0.035	0.035	0.036	0.037	0.038	0.038	0.039	0.040	0.040	0.041

48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254
25,473	25,473	25,473	25,473	14,360	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180
0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.236	0.275	0.313	0.352	0.374	0.385	0.396	0.407	0.418	0.428	0.439	0.450	0.461	0.471	0.482	0.492	0.503	0.514	0.524	0.535	0.545	0.556	0.566	0.577	0.587	0.597

44.00	45.00	46.00	47.00	48.00	49.00	50.00	51.00	52.00	53.00	54.00	55.00	56.00	57.00	58.00	59.00	60.00	61.00
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
45.00	46.00	47.00	48.00	49.00	50.00	51.00	52.00	53.00	54.00	55.00	56.00	57.00	58.00	59.00	60.00	61.00	62.00
2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060

4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012	5,001,012

200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040
7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220	207,220

5.875	5.865	5.854	5.843	5.833	5.822	5.812	5.801	5.791	5.780	5.770	5.759	5.749	5.738	5.728	5.717	5.707	5.697
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5.875	5.865	5.854	5.843	5.833	5.822	5.812	5.801	5.791	5.780	5.770	5.759	5.749	5.738	5.728	5.717	5.707	5.697
5.875	5.865	5.854	5.843	5.833	5.822	5.812	5.801	5.791	5.780	5.770	5.759	5.749	5.738	5.728	5.717	5.707	5.697

0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750
5.568	5.558	5.548	5.537	5.527	5.517	5.507	5.497	5.487	5.477	5.468	5.458	5.448	5.438	5.428	5.418	5.408	5.398
1.113	1.111	1.109	1.107	1.105	1.103	1.101	1.099	1.097	1.095	1.093	1.091	1.089	1.087	1.085	1.083	1.081	1.079
0.308	0.307	0.306	0.306	0.305	0.305	0.304	0.304	0.303	0.303	0.302	0.302	0.301	0.300	0.300	0.299	0.299	0.298
1.484	1.482	1.479	1.476	1.474	1.471	1.468	1.466	1.463	1.460	1.458	1.455	1.452	1.450	1.447	1.445	1.442	1.439

200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040	200,040
7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180
0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
0.297	0.296	0.296	0.295	0.295	0.294	0.294	0.293	0.293	0.292	0.292	0.291	0.291	0.290	0.289	0.289	0.288	0.288
5.865	5.854	5.843	5.833	5.822	5.812	5.801	5.791	5.780	5.770	5.759	5.749	5.738	5.728	5.717	5.707	5.697	5.686

2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437	4,825,437

48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254
7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434	55,434

0.597	0.608	0.618	0.628	0.639	0.649	0.659	0.669	0.680	0.690	0.700	0.710	0.720	0.730	0.740	0.750	0.760	0.770
0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.608	0.618	0.629	0.639	0.649	0.660	0.670	0.680	0.690	0.700	0.710	0.720	0.731	0.741	0.751	0.761	0.771	0.781

3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
0.606	0.616	0.626	0.637	0.647	0.657	0.667	0.677	0.687	0.698	0.708	0.718	0.728	0.738	0.748	0.758	0.768	0.778
0.126	0.128	0.130	0.132	0.134	0.136	0.138	0.140	0.142	0.145	0.147	0.149	0.151	0.153	0.155	0.157	0.159	0.161
0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
0.042	0.043	0.043	0.044	0.045	0.045	0.046	0.047	0.047	0.048	0.049	0.050	0.050	0.051	0.052	0.052	0.053	0.054

48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254	48,254
7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180	7,180
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003
0.608	0.618	0.628	0.639	0.649	0.659	0.669	0.680	0.690	0.700	0.710	0.720	0.730	0.740	0.750	0.760	0.770	0.780