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

INPUT BLOCK

CHEMICAL	Nitrate	

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

BARREN ROCK	Porewater Concentration:	35.6	ppm
	Moisture at Offload:	0.04	wt %

CELLS	Cell No.	Material	Mass (tons)	Kd (L/kg)	Moisture (wt%)	GW Inflow (tons)	GW Conc. (ppm)
	1	Barren Rock	Time Dependent	0.000	0.04	0	0
	2	Unsaturated Bedrock	4,825,437	0.000	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	86,707	237,022	453,560	1,867,001	-259,096	-512,066	350,737	1,783,498	112,828	0	0	0	0

CALCULATION BLOCK

CELL 1 - Barren Rock

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	86,707	323,729	777,289	2,644,289	2,385,193	1,873,128	2,223,864	4,007,363	4,120,191	4,120,191	4,120,191	4,120,191
	Material Added	B1		tons	0	0	0	0	0	86,707	237,022	453,560	1,867,001	-259,096	-512,066	350,737	1,783,498	112,828	0	0	0	0
	Total Solids in Cell	C1	A1 + B1	tons	0	0	0	0	0	86,707	323,729	777,289	2,644,289	2,385,193	1,873,128	2,223,864	4,007,363	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191
WATER	Initial Mass Water in Cell	D1	V1 from previous year	tons	0	0	0	0	0	0	3,468	12,949	31,092	105,772	95,408	74,925	88,955	160,295	164,808	164,808	164,808	164,808
	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	3,468	9,481	18,142	74,680	0	0	14,029	71,340	4,513	0	0	0	0
	Total Water in Cell	H1	D1 + E1 + F1 + G1	tons	14,360	14,360	14,360	14,360	14,360	17,828	27,309	45,451	120,131	120,131	109,767	103,314	174,654	179,167	179,167	179,167	179,167	179,167
CHEMICALS	Initial Chemicals	I1	Z1 from previous year	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.171	0.559	2.833	2.250	1.536	1.752	3.939	3.771	3.469	3.191	2.935
	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	0.123	0.338	0.646	2.659	0.000	0.000	0.499	2.540	0.161	0.000	0.000	0.000	0.000
	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	0.000	0.000	0.000	0.000	0.000
	Total Chemicals in Liquid	N1	J1 + K1 + L1	tons	0.000	0.000	0.000	0.000	0.000	0.123	0.338	0.646	2.659	0.000	0.000	0.499	2.540	0.161	0.000	0.000	0.000	0.000
	Total Chemicals on Solids	O1	I1 + M1	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.171	0.559	2.833	2.250	1.536	1.752	3.939	3.771	3.469	3.191	2.935
	Total Chemicals in Cell	P1	O1 + N1	tons	0.000	0.000	0.000	0.000	0.000	0.123	0.362	0.817	3.218	2.833	2.250	2.035	4.292	4.100	3.771	3.469	3.191	2.935
PARTITION CHEMICALS	Kd	Q1		L/kg	0.000	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
	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	0.000	0.000	0.000	0.000	0.000
	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	0.000	0.000	0.000	0.000	0.000
	Dissolved Chemicals	T1	P1 - R1	tons	0.000	0.000	0.000	0.000	0.000	0.123	0.362	0.817	3.218	2.833	2.250	2.035	4.292	4.100	3.771	3.469	3.191	2.935
	Liquid Concentration	U1	T1 / H1 x 10e6	ppm	0.000	0.000	0.000	0.000	0.000	6.926	13.239	17.982	26.785	23.583	20.498	19.700	24.575	22.883	21.049	19.362	17.810	16.383
OUTFLOW	Water Remaining	V1	C1 x % moisture	tons	0	0	0	0	0	3,468	12,949	31,092	105,772	95,408	74,925	88,955	160,295	164,808	164,808	164,808	164,808	164,808
	Water Out	W1	H1 - V1	tons	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	14,360	24,723	34,842	14,360	14,360	14,360	14,360	14,360	14,360	14,360
	Chemicals Out in Water	X1	W1 x U1 / 10e6	tons	0.000	0.000	0.000	0.000	0.000	0.099	0.190	0.258	0.385	0.583	0.714	0.283	0.353	0.329	0.302	0.278	0.256	0.235
	Chemicals Remaining in Water	Y1	T1 - X1	tons	0.000	0.000	0.000	0.000	0.000	0.024	0.171	0.559	2.833	2.250	1.536	1.752	3.939	3.771	3.469	3.191	2.935	2.700
	Total Chemicals Remaining	Z1	R1 + Y1	tons	0.000	0.000	0.000	0.000	0.000	0.024	0.171	0.559	2.833	2.250	1.536	1.752	3.939	3.771	3.469	3.191	2.935	2.700

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	24,723	34,842	14,360	14,360	14,360	14,360	14,360	14,360	14,360
	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	72,978	83,097	62,614	62,614	62,614	62,614	62,614	62,614	62,614
CHEMICALS	Initial Chemicals	I2	Z2 from previous year	tons	0.000	0.000	0.000	0.000	0.000	0.000	0.077	0.206	0.357	0.572	0.764	0.858	0.879	0.950	0.985	0.992	0.979	0.951
	Chemicals from Above	J2	X1	tons	0.000	0.000	0.000	0.000	0.000	0.099	0.190	0.258	0.385	0.583	0.714	0.283	0.353	0.329	0.302	0.278	0.256	0.235
	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	0.099	0.267	0.464	0.742	1.155	1.478	1.141	1.232	1.278	1.287	1.270	1.235	1.187
PARTITION CHEMICALS	Kd	Q2		L/kg	0.000	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
	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	0.000	0.000	0.000	0.000	0.000
	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	0.000	0.000	0.000	0.000	0.000
	Dissolved Chemicals	T2	P2 - R2	tons	0.000	0.000	0.000	0.000	0.000	0.099	0.267	0.464	0.742	1.155	1.478	1.141	1.232	1.278	1.287	1.270	1.235	1.187
	Liquid Concentration	U2	T2 / H2 x 10e6	ppm	0.000	0.000	0.000	0.000	0.000	1.588	4.260	7.407	11.851	15.826	17.785	18.224	19.680	20.415	20.560	20.285	19.718	18.953
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	24,723	34,842	14,360	14,360	14,360	14,360	14,360	14,360	14,360
	Chemicals Out in Water	X2	W2 x U2 / 10e6	tons	0.000	0.000	0.000	0.000	0.000	0.023	0.061	0.106	0.170	0.391	0.620	0.262	0.283	0.293	0.295	0.291	0.283	0.272
	Chemicals Remaining in Water	Y2	T2 - X2	tons	0.000	0.000	0.000	0.000	0.000	0.077	0.206	0.357	0.572	0.764	0.858	0.879	0.950	0.985	0.992	0.979	0.951	0.915
	Total Chemicals Remaining	Z2	R2 + Y2	tons	0.000	0.000	0.000	0.000	0.000	0.077	0.206	0.357	0.572	0.764	0.858	0.879	0.950	0.985	0.992	0.979	0.951	0.915

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
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

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
4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191
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
4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191
164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808
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
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
179,167	179,167	179,167	179,167	179,167	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987
2.700	2.484	2.285	2.101	1.933	1.778	1.704	1.633	1.565	1.499	1.437	1.377	1.319	1.264	1.211	1.161	1.112	1.066	1.021	0.979	0.938	0.899	0.861	0.825	0.791	0.758
0.000	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	0.000	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
2.700	2.484	2.285	2.101	1.933	1.778	1.704	1.633	1.565	1.499	1.437	1.377	1.319	1.264	1.211	1.161	1.112	1.066	1.021	0.979	0.938	0.899	0.861	0.825	0.791	0.758
2.700	2.484	2.285	2.101	1.933	1.778	1.704	1.633	1.565	1.499	1.437	1.377	1.319	1.264	1.211	1.161	1.112	1.066	1.021	0.979	0.938	0.899	0.861	0.825	0.791	0.758
0.000	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
2.700	2.484	2.285	2.101	1.933	1.778	1.704	1.633	1.565	1.499	1.437	1.377	1.319	1.264	1.211	1.161	1.112	1.066	1.021	0.979	0.938	0.899	0.861	0.825	0.791	0.758
15.070	13.862	12.751	11.729	10.789	10.339	9.907	9.493	9.097	8.717	8.353	8.005	7.671	7.350	7.043	6.749	6.468	6.198	5.939	5.691	5.453	5.226	5.008	4.799	4.598	4.406
164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808
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
0.216	0.199	0.183	0.168	0.155	0.074	0.071	0.068	0.065	0.063	0.060	0.057	0.055	0.053	0.051	0.048	0.046	0.044	0.043	0.041	0.039	0.038	0.036	0.034	0.033	0.032
2.484	2.285	2.101	1.933	1.778	1.704	1.633	1.565	1.499	1.437	1.377	1.319	1.264	1.211	1.161	1.112	1.066	1.021	0.979	0.938	0.899	0.861	0.825	0.791	0.758	0.726
2.484	2.285	2.101	1.933	1.778	1.704	1.633	1.565	1.499	1.437	1.377	1.319	1.264	1.211	1.161	1.112	1.066	1.021	0.979	0.938	0.899	0.861	0.825	0.791	0.758	0.726

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
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
62,614	62,614	62,614	62,614	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
0.915	0.872	0.825	0.777	0.729	0.681	0.657	0.634	0.611	0.589	0.567	0.546	0.525	0.505	0.486	0.467	0.449	0.431	0.414	0.397	0.381	0.366	0.351	0.337	0.323	0.310
0.216	0.199	0.183	0.168	0.155	0.074	0.071	0.068	0.065	0.063	0.060	0.057	0.055	0.053	0.051	0.048	0.046	0.044	0.043	0.041	0.039	0.038	0.036	0.034	0.033	0.032
0.000	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
1.131	1.071	1.008	0.945	0.884	0.755	0.728	0.702	0.677	0.652	0.627	0.603	0.580	0.558	0.536	0.515	0.495	0.475	0.456	0.438	0.421	0.404	0.387	0.372	0.356	0.342
0.000	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
1.131	1.071	1.008	0.945	0.884	0.755	0.728	0.702	0.677	0.652	0.627	0.603	0.580	0.558	0.536	0.515	0.495	0.475	0.456	0.438	0.421	0.404	0.387	0.372	0.356	0.342
18.062	17.099	16.102	15.099	14.111	13.622	13.141	12.668	12.206	11.754	11.314	10.885	10.469	10.065	9.673	9.295	8.929	8.575	8.233	7.904	7.587	7.281	6.987	6.703	6.431	6.168
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
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
0.259	0.246	0.231	0.217	0.203	0.098	0.094	0.091	0.088	0.084	0.081	0.078	0.075	0.072	0.069	0.067	0.064	0.062	0.059	0.057	0.054	0.052	0.050	0.048	0.046	0.044
0.872	0.825	0.777	0.729	0.681	0.657	0.634	0.611	0.589	0.567	0.546	0.525	0.505	0.486	0.467	0.449	0.431	0.414	0.397	0.381	0.366	0.351	0.337	0.323	0.310	0.298
0.872	0.825	0.777	0.729	0.681	0.657	0.634	0.611	0.589	0.567	0.546	0.525	0.505	0.486	0.467	0.449	0.431	0.414	0.397	0.381	0.366	0.351	0.337	0.323	0.310	0.298

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
4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191	4,120,191

164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808
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
171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987	171,987

0.726	0.696	0.667	0.639	0.612	0.587	0.562	0.539	0.516	0.495	0.474	0.454	0.435	0.417	0.400	0.383	0.367	0.352
0.000	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
0.726	0.696	0.667	0.639	0.612	0.587	0.562	0.539	0.516	0.495	0.474	0.454	0.435	0.417	0.400	0.383	0.367	0.352
0.726	0.696	0.667	0.639	0.612	0.587	0.562	0.539	0.516	0.495	0.474	0.454	0.435	0.417	0.400	0.383	0.367	0.352

0.000	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
0.726	0.696	0.667	0.639	0.612	0.587	0.562	0.539	0.516	0.495	0.474	0.454	0.435	0.417	0.400	0.383	0.367	0.352
4.222	4.046	3.877	3.715	3.560	3.412	3.269	3.133	3.002	2.877	2.757	2.641	2.531	2.426	2.324	2.227	2.134	2.045

164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808	164,808
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
0.030	0.029	0.028	0.027	0.026	0.024	0.023	0.022	0.022	0.021	0.020	0.019	0.018	0.017	0.017	0.016	0.015	0.015
0.696	0.667	0.639	0.612	0.587	0.562	0.539	0.516	0.495	0.474	0.454	0.435	0.417	0.400	0.383	0.367	0.352	0.337
0.696	0.667	0.639	0.612	0.587	0.562	0.539	0.516	0.495	0.474	0.454	0.435	0.417	0.400	0.383	0.367	0.352	0.337

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

0.298	0.285	0.274	0.263	0.252	0.241	0.231	0.222	0.213	0.204	0.196	0.187	0.180	0.172	0.165	0.158	0.152	0.145
0.030	0.029	0.028	0.027	0.026	0.024	0.023	0.022	0.022	0.021	0.020	0.019	0.018	0.017	0.017	0.016	0.015	0.015
0.000	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
0.328	0.315	0.302	0.289	0.277	0.266	0.255	0.244	0.234	0.225	0.215	0.206	0.198	0.190	0.182	0.174	0.167	0.160

0.000	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
0.328	0.315	0.302	0.289	0.277	0.266	0.255	0.244	0.234	0.225	0.215	0.206	0.198	0.190	0.182	0.174	0.167	0.160
5.916	5.674	5.441	5.218	5.003	4.797	4.599	4.409	4.227	4.052	3.884	3.723	3.569	3.421	3.279	3.143	3.012	2.887

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
0.042	0.041	0.039	0.037	0.036	0.034	0.033	0.032	0.030	0.029	0.028	0.027	0.026	0.025	0.024	0.023	0.022	0.021
0.285	0.274	0.263	0.252	0.241	0.231	0.222	0.213	0.204	0.196	0.187	0.180	0.172	0.165	0.158	0.152	0.145	0.139
0.285	0.274	0.263	0.252	0.241	0.231	0.222	0.213	0.204	0.196	0.187	0.180	0.172	0.165	0.158	0.152	0.145	0.139