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

INPUT BLOCK

CHEMICAL	Arsenic	

INFILTRATION	Total Drainage Area:	894,901	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	7,039,222	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	4.5	4.5	9	9	4.5	4.5	4.5	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	810,594	810,594	810,594	810,594	810,594

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	810,594	1,621,188	2,431,782	3,242,376
	Material Added	B1		tons	0	0	0	0	0	0	0	0	0	0	0	0	0	810,594	810,594	810,594	810,594	810,594
	Total Solids in Cell	C1	A1 + B1	tons	0	0	0	0	0	0	0	0	0	0	0	0	0	810,594	1,621,188	2,431,782	3,242,376	4,052,970
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	32,424	64,848	97,271	129,695
	Inflow from Infiltration	E1	infiltration rate x area x conversion factor	tons	20,947	20,947	20,947	20,947	20,947	20,947	10,474	10,474	20,947	20,947	10,474	10,474	10,474	20,947	20,947	20,947	20,947	20,947
	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	48,636	48,636	48,636	48,636	48,636
	Total Water in Cell	H1	D1 + E1 + F1 + G1	tons	20,947	20,947	20,947	20,947	20,947	20,947	10,474	10,474	20,947	20,947	10,474	10,474	10,474	69,583	102,007	134,431	166,854	199,278
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	0.993	1.986	2.979	3.972
	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	0.078	0.078	0.078	0.078	0.078
	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	0.973	0.973	0.973	0.973	0.973
	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	0.078	0.078	0.078	0.078	0.078
	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	0.973	1.966	2.959	3.951	4.944
	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	1.051	2.043	3.036	4.029	5.022
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	0.943	1.885	2.828	3.771	4.713
	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	0.108	0.158	0.208	0.259	0.309
	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	32,424	64,848	97,271	129,695	162,119
	Water Out	W1	H1 - V1	tons	20,947	20,947	20,947	20,947	20,947	20,947	10,474	10,474	20,947	20,947	10,474	10,474	10,474	37,159	37,159	37,159	37,159	37,159
	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	0.058	0.058	0.058	0.058	0.058
	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	0.050	0.101	0.151	0.201	0.251
	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	0.993	1.986	2.979	3.972	4.965

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	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222
WATER	Initial Mass Water in Cell	D2	V2 from previous year	tons	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392
	Inflow from Cell Above	E2	W1	tons	20,947	20,947	20,947	20,947	20,947	20,947	10,474	10,474	20,947	20,947	10,474	10,474	10,474	37,159	37,159	37,159	37,159	37,159
	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	91,340	91,340	91,340	91,340	91,340	91,340	80,866	80,866	91,340	91,340	80,866	80,866	80,866	107,551	107,551	107,551	107,551	107,551
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	0.058	0.115	0.172	0.229
	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	0.058	0.058	0.058	0.058	0.058
	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	0.058	0.115	0.173	0.230	0.287
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	0.057	0.115	0.172	0.229	0.286
	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	0.001	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	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392
	Water Out	W2	H2 - V2	tons	20,947	20,947	20,947	20,947	20,947	20,947	10,474	10,474	20,947	20,947	10,474	10,474	10,474	37,159	37,159	37,159	37,159	37,159
	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	0.001
	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	0.001	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	0.058	0.115	0.172	0.229	0.287

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
810,594	810,594	810,594	810,594	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
4,052,970	4,863,564	5,674,158	6,484,752	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346
810,594	810,594	810,594	810,594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4,863,564	5,674,158	6,484,752	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346
162,119	194,543	226,966	259,390	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814
20,947	20,947	20,947	20,947	20,947	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474
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
48,636	48,636	48,636	48,636	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
231,702	264,126	296,549	328,973	312,761	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288
4.965	5.957	6.950	7.943	8.936	8.904	8.888	8.872	8.855	8.839	8.823	8.807	8.791	8.775	8.760	8.744	8.728	8.712	8.696	8.680	8.665	8.649	8.633	8.618	8.602	8.586
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.078	0.078	0.078	0.078	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.973	0.973	0.973	0.973	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.078	0.078	0.078	0.078	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5.937	6.930	7.923	8.916	8.936	8.904	8.888	8.872	8.855	8.839	8.823	8.807	8.791	8.775	8.760	8.744	8.728	8.712	8.696	8.680	8.665	8.649	8.633	8.618	8.602	8.586
6.015	7.008	8.001	8.994	8.936	8.904	8.888	8.872	8.855	8.839	8.823	8.807	8.791	8.775	8.760	8.744	8.728	8.712	8.696	8.680	8.665	8.649	8.633	8.618	8.602	8.586
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
5.656	6.598	7.541	8.484	8.453	8.438	8.422	8.407	8.392	8.377	8.361	8.346	8.331	8.316	8.301	8.286	8.271	8.256	8.241	8.226	8.211	8.196	8.181	8.166	8.152	8.137
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
0.359	0.410	0.460	0.510	0.483	0.466	0.465	0.464	0.464	0.463	0.462	0.461	0.460	0.459	0.459	0.458	0.457	0.456	0.455	0.454	0.454	0.453	0.452	0.451	0.450	0.450
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
194,543	226,966	259,390	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814
37,159	37,159	37,159	37,159	20,947	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474
0.058	0.058	0.058	0.058	0.032	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
0.302	0.352	0.402	0.452	0.451	0.450	0.449	0.448	0.448	0.447	0.446	0.445	0.444	0.444	0.443	0.442	0.441	0.440	0.440	0.439	0.438	0.437	0.436	0.436	0.435	0.434
5.957	6.950	7.943	8.936	8.904	8.888	8.872	8.855	8.839	8.823	8.807	8.791	8.775	8.760	8.744	8.728	8.712	8.696	8.680	8.665	8.649	8.633	8.618	8.602	8.586	8.571

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
7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222
70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392
37,159	37,159	37,159	37,159	20,947	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474
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
107,551	107,551	107,551	107,551	91,340	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866
0.287	0.344	0.401	0.457	0.514	0.546	0.562	0.578	0.593	0.609	0.625	0.641	0.656	0.672	0.687	0.703	0.718	0.734	0.749	0.765	0.780	0.795	0.811	0.826	0.841	0.856
0.058	0.058	0.058	0.058	0.032	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.344	0.401	0.458	0.515	0.546	0.562	0.578	0.594	0.609	0.625	0.641	0.657	0.672	0.688	0.703	0.719	0.734	0.750	0.765	0.780	0.796	0.811	0.826	0.842	0.857	0.872
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
0.342	0.399	0.456	0.512	0.544	0.560	0.576	0.591	0.607	0.623	0.638	0.654	0.670	0.685	0.701	0.716	0.731	0.747	0.762	0.778	0.793	0.808	0.823	0.838	0.854	0.869
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
0.002	0.002	0.002	0.003	0.002	0.002	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	0.003	0.003
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
70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392
37,159	37,159	37,159	37,159	20,947	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474
0.001	0.001	0.001	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
0.001	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	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
0.344	0.401	0.457	0.514	0.546	0.562	0.578	0.593	0.609	0.625	0.641	0.656	0.672	0.687	0.703	0.718	0.734	0.749	0.765	0.780	0.795	0.811	0.826	0.841	0.856	0.872

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
7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346	7,295,346
291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814
10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474
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
302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288	302,288
8.571	8.555	8.540	8.524	8.509	8.493	8.478	8.463	8.447	8.432	8.417	8.401	8.386	8.371	8.356	8.340	8.325	8.310
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8.571	8.555	8.540	8.524	8.509	8.493	8.478	8.463	8.447	8.432	8.417	8.401	8.386	8.371	8.356	8.340	8.325	8.310
8.571	8.555	8.540	8.524	8.509	8.493	8.478	8.463	8.447	8.432	8.417	8.401	8.386	8.371	8.356	8.340	8.325	8.310
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
8.122	8.107	8.093	8.078	8.063	8.049	8.034	8.019	8.005	7.990	7.976	7.961	7.947	7.933	7.918	7.904	7.889	7.875
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
0.449	0.448	0.447	0.446	0.445	0.445	0.444	0.443	0.442	0.441	0.441	0.440	0.439	0.438	0.437	0.437	0.436	0.435
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
291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814	291,814
10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474
0.016	0.016	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
0.433	0.432	0.432	0.431	0.430	0.429	0.428	0.428	0.427	0.426	0.425	0.425	0.424	0.423	0.422	0.422	0.421	0.420
8.555	8.540	8.524	8.509	8.493	8.478	8.463	8.447	8.432	8.417	8.401	8.386	8.371	8.356	8.340	8.325	8.310	8.295

2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222	7,039,222
70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392
10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866	80,866
0.872	0.887	0.902	0.917	0.932	0.947	0.962	0.977	0.991	1.006	1.021	1.036	1.050	1.065	1.080	1.094	1.109	1.124
0.016	0.016	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	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
0.887	0.902	0.917	0.932	0.947	0.962	0.977	0.992	1.007	1.022	1.036	1.051	1.066	1.080	1.095	1.110	1.124	1.139
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
0.884	0.899	0.914	0.929	0.944	0.958	0.973	0.988	1.003	1.018	1.032	1.047	1.062	1.076	1.091	1.105	1.120	1.134
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
0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
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
70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392	70,392
10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474	10,474
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
0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004
0.887	0.902	0.917	0.932	0.947	0.962	0.977	0.991	1.006	1.021	1.036	1.050	1.065	1.080	1.094	1.109	1.124	1.138