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

INPUT BLOCK

CHEMICAL	Nitrate	

INFILTRATION	Total Drainage Area:	240,584	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	473,104	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	3	3	9	9	9	9	4.5	9	9	9	9	9	4.5	4.5	4.5	4.5	4.5	4.5
	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	165,501	1,458,873	597,463	0	0	-820,000	-1,398,438	0	1,230,000	0	0	0	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	165,501	1,624,375	2,221,838	2,221,838	2,221,838	1,401,838	3,401	3,401	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400
	Material Added	B1		tons	0	0	165,501	1,458,873	597,463	0	0	-820,000	-1,398,438	0	1,230,000	0	0	0	0	0	0	0
	Total Solids in Cell	C1	A1 + B1	tons	0	0	165,501	1,624,375	2,221,838	2,221,838	2,221,838	1,401,838	3,401	3,401	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400
WATER	Initial Mass Water in Cell	D1	V1 from previous year	tons	0	0	0	6,620	64,975	88,874	88,874	88,874	56,074	136	136	49,336	49,336	49,336	49,336	49,336	49,336	49,336
	Inflow from Infiltration	E1	infiltration rate x area x conversion factor	tons	1,877	1,877	5,631	5,631	5,631	5,631	2,816	5,631	5,631	5,631	5,631	5,631	2,816	2,816	2,816	2,816	2,816	2,816
	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	6,620	58,355	23,899	0	0	0	0	0	49,200	0	0	0	0	0	0	0
	Total Water in Cell	H1	D1 + E1 + F1 + G1	tons	1,877	1,877	12,252	70,606	94,505	94,505	91,689	94,505	61,705	5,767	54,967	54,967	52,152	52,152	52,152	52,152	52,152	52,152
CHEMICALS	Initial Chemicals	I1	Z1 from previous year	tons	0.000	0.000	0.000	0.127	2.029	2.708	2.547	2.469	1.465	0.003	0.000	1.572	1.411	1.335	1.263	1.195	1.130	1.069
	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	0.236	2.077	0.851	0.000	0.000	0.000	0.000	0.000	1.752	0.000	0.000	0.000	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	0.236	2.077	0.851	0.000	0.000	0.000	0.000	0.000	1.752	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Total Chemicals on Solids	O1	I1 + M1	tons	0.000	0.000	0.000	0.127	2.029	2.708	2.547	2.469	1.465	0.003	0.000	1.572	1.411	1.335	1.263	1.195	1.130	1.069
	Total Chemicals in Cell	P1	O1 + N1	tons	0.000	0.000	0.236	2.205	2.880	2.708	2.547	2.469	1.465	0.003	1.752	1.572	1.411	1.335	1.263	1.195	1.130	1.069
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	0.236	2.205	2.880	2.708	2.547	2.469	1.465	0.003	1.752	1.572	1.411	1.335	1.263	1.195	1.130	1.069
	Liquid Concentration	U1	T1 / H1 x 10e6	ppm	0.000	0.000	19.236	31.226	30.472	28.656	27.776	26.121	23.737	0.560	31.866	28.601	27.057	25.596	24.214	22.907	21.670	20.500
OUTFLOW	Water Remaining	V1	C1 x % moisture	tons	0	0	6,620	64,975	88,874	88,874	88,874	56,074	136	136	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336
	Water Out	W1	H1 - V1	tons	1,877	1,877	5,631	5,631	5,631	5,631	2,816	38,431	61,569	5,631	5,631	5,631	2,816	2,816	2,816	2,816	2,816	2,816
	Chemicals Out in Water	X1	W1 x U1 / 10e6	tons	0.000	0.000	0.108	0.176	0.172	0.161	0.078	1.004	1.461	0.003	0.179	0.161	0.076	0.072	0.068	0.064	0.061	0.058
	Chemicals Remaining in Water	Y1	T1 - X1	tons	0.000	0.000	0.127	2.029	2.708	2.547	2.469	1.465	0.003	0.000	1.572	1.411	1.335	1.263	1.195	1.130	1.069	1.011
	Total Chemicals Remaining	Z1	R1 + Y1	tons	0.000	0.000	0.127	2.029	2.708	2.547	2.469	1.465	0.003	0.000	1.572	1.411	1.335	1.263	1.195	1.130	1.069	1.011

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	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104
WATER	Initial Mass Water in Cell	D2	V2 from previous year	tons	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731
	Inflow from Cell Above	E2	W1	tons	1,877	1,877	5,631	5,631	5,631	5,631	2,816	38,431	61,569	5,631	5,631	5,631	2,816	2,816	2,816	2,816	2,816	2,816
	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	6,608	6,608	10,363	10,363	10,363	10,363	7,547	43,163	66,300	10,363	10,363	10,363	7,547	7,547	7,547	7,547	7,547	7,547
CHEMICALS	Initial Chemicals	I2	Z2 from previous year	tons	0.000	0.000	0.000	0.049	0.103	0.125	0.131	0.131	0.124	0.113	0.053	0.106	0.122	0.124	0.123	0.120	0.116	0.111
	Chemicals from Above	J2	X1	tons	0.000	0.000	0.108	0.176	0.172	0.161	0.078	1.004	1.461	0.003	0.179	0.161	0.076	0.072	0.068	0.064	0.061	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	0.108	0.225	0.274	0.287	0.209	1.135	1.586	0.116	0.233	0.267	0.198	0.196	0.191	0.184	0.177	0.168
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	0.108	0.225	0.274	0.287	0.209	1.135	1.586	0.116	0.233	0.267	0.198	0.196	0.191	0.184	0.177	0.168
	Liquid Concentration	U2	T2 / H2 x 10e6	ppm	0.000	0.000	10.454	21.743	26.486	27.665	27.707	26.295	23.919	11.225	22.442	25.789	26.262	26.014	25.342	24.434	23.403	22.320
OUTFLOW	Water Remaining	V2	D2	tons	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731
	Water Out	W2	H2 - V2	tons	1,877	1,877	5,631	5,631	5,631	5,631	2,816	38,431	61,569	5,631	5,631	5,631	2,816	2,816	2,816	2,816	2,816	2,816
	Chemicals Out in Water	X2	W2 x U2 / 10e6	tons	0.000	0.000	0.059	0.122	0.149	0.156	0.078	1.011	1.473	0.063	0.126	0.145	0.074	0.073	0.071	0.069	0.066	0.063
	Chemicals Remaining in Water	Y2	T2 - X2	tons	0.000	0.000	0.049	0.103	0.125	0.131	0.131	0.124	0.113	0.053	0.106	0.122	0.124	0.123	0.120	0.116	0.111	0.106
	Total Chemicals Remaining	Z2	R2 + Y2	tons	0.000	0.000	0.049	0.103	0.125	0.131	0.131	0.124	0.113	0.053	0.106	0.122	0.124	0.123	0.120	0.116	0.111	0.106

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

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	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
1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400
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
1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400

49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336
2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816
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
52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152

1.011	0.957	0.905	0.856	0.810	0.766	0.725	0.686	0.649	0.614	0.581	0.549	0.520	0.492	0.465	0.440	0.416	0.394	0.372	0.352	0.333	0.315	0.298	0.282	0.267	0.253
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.011	0.957	0.905	0.856	0.810	0.766	0.725	0.686	0.649	0.614	0.581	0.549	0.520	0.492	0.465	0.440	0.416	0.394	0.372	0.352	0.333	0.315	0.298	0.282	0.267	0.253
1.011	0.957	0.905	0.856	0.810	0.766	0.725	0.686	0.649	0.614	0.581	0.549	0.520	0.492	0.465	0.440	0.416	0.394	0.372	0.352	0.333	0.315	0.298	0.282	0.267	0.253

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.011	0.957	0.905	0.856	0.810	0.766	0.725	0.686	0.649	0.614	0.581	0.549	0.520	0.492	0.465	0.440	0.416	0.394	0.372	0.352	0.333	0.315	0.298	0.282	0.267	0.253
19.393	18.346	17.356	16.419	15.532	14.694	13.900	13.150	12.440	11.768	11.133	10.532	9.963	9.425	8.916	8.435	7.979	7.549	7.141	6.756	6.391	6.046	5.719	5.411	5.118	4.842

49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336
2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816
0.055	0.052	0.049	0.046	0.044	0.041	0.039	0.037	0.035	0.033	0.031	0.030	0.028	0.027	0.025	0.024	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.014
0.957	0.905	0.856	0.810	0.766	0.725	0.686	0.649	0.614	0.581	0.549	0.520	0.492	0.465	0.440	0.416	0.394	0.372	0.352	0.333	0.315	0.298	0.282	0.267	0.253	0.239
0.957	0.905	0.856	0.810	0.766	0.725	0.686	0.649	0.614	0.581	0.549	0.520	0.492	0.465	0.440	0.416	0.394	0.372	0.352	0.333	0.315	0.298	0.282	0.267	0.253	0.239

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
473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104

4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731
2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816
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
7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547

0.106	0.100	0.095	0.090	0.086	0.081	0.077	0.073	0.069	0.065	0.062	0.058	0.055	0.052	0.049	0.047	0.044	0.042	0.040	0.037	0.035	0.033	0.032	0.030	0.028	0.027
0.055	0.052	0.049	0.046	0.044	0.041	0.039	0.037	0.035	0.033	0.031	0.030	0.028	0.027	0.025	0.024	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.014
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.160	0.152	0.144	0.137	0.129	0.122	0.116	0.110	0.104	0.098	0.093	0.088	0.083	0.079	0.074	0.070	0.067	0.063	0.060	0.056	0.053	0.050	0.048	0.045	0.043	0.040

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.160	0.152	0.144	0.137	0.129	0.122	0.116	0.110	0.104	0.098	0.093	0.088	0.083	0.079	0.074	0.070	0.067	0.063	0.060	0.056	0.053	0.050	0.048	0.045	0.043	0.040
21.228	20.153	19.109	18.105	17.145	16.231	15.361	14.536	13.754	13.013	12.312	11.647	11.019	10.424	9.862	9.329	8.826	8.349	7.898	7.472	7.069	6.687	6.326	5.984	5.661	5.356

4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731
2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816
0.060	0.057	0.054	0.051	0.048	0.046	0.043	0.041	0.039	0.037	0.035	0.033	0.031	0.029	0.028	0.026	0.025	0.024	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015
0.100	0.095	0.090	0.086	0.081	0.077	0.073	0.069	0.065	0.062	0.058	0.055	0.052	0.049	0.047	0.044	0.042	0.040	0.037	0.035	0.033	0.032	0.030	0.028	0.027	0.025
0.100	0.095	0.090	0.086	0.081	0.077	0.073	0.069	0.065	0.062	0.058	0.055	0.052	0.049	0.047	0.044	0.042	0.040	0.037	0.035	0.033	0.032	0.030	0.028	0.027	0.025

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
1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400	1,233,400

49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336
2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816
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
52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152	52,152

0.239	0.226	0.214	0.202	0.191	0.181	0.171	0.162	0.153	0.145	0.137	0.130	0.123	0.116	0.110	0.104	0.098	0.093
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.239	0.226	0.214	0.202	0.191	0.181	0.171	0.162	0.153	0.145	0.137	0.130	0.123	0.116	0.110	0.104	0.098	0.093
0.239	0.226	0.214	0.202	0.191	0.181	0.171	0.162	0.153	0.145	0.137	0.130	0.123	0.116	0.110	0.104	0.098	0.093

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.239	0.226	0.214	0.202	0.191	0.181	0.171	0.162	0.153	0.145	0.137	0.130	0.123	0.116	0.110	0.104	0.098	0.093
4.581	4.333	4.099	3.878	3.669	3.471	3.283	3.106	2.938	2.780	2.630	2.488	2.353	2.226	2.106	1.992	1.885	1.783

49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336	49,336
2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816
0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005
0.226	0.214	0.202	0.191	0.181	0.171	0.162	0.153	0.145	0.137	0.130	0.123	0.116	0.110	0.104	0.098	0.093	0.088
0.226	0.214	0.202	0.191	0.181	0.171	0.162	0.153	0.145	0.137	0.130	0.123	0.116	0.110	0.104	0.098	0.093	0.088

2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104	473,104

4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731
2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547	7,547

0.025	0.024	0.023	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010
0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.038	0.036	0.034	0.032	0.031	0.029	0.027	0.026	0.025	0.023	0.022	0.021	0.020	0.019	0.018	0.017	0.016	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
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.038	0.036	0.034	0.032	0.031	0.029	0.027	0.026	0.025	0.023	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015
5.066	4.793	4.534	4.289	4.058	3.839	3.631	3.435	3.250	3.074	2.908	2.751	2.603	2.462	2.329	2.204	2.085	1.972

4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731	4,731
2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816
0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006
0.024	0.023	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009
0.024	0.023	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009