WHARF MINE
LEAD, SOUTH DAKOTA
NIRATE/ARSENIC GEOCHEMICAL MIXING CELL MODEL
Area - Northwest American Eagle Pit

INPUT BLOCK

CHEMICAL	Nitrate	

INFILTRATION	Total Drainage Area:	294,068	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	6,014,102	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	3	3	3	3	3	3	3	9	9	9	9	9	9	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	0	0	0	0	0	0	0	0	75,956	493,711	782,342	113,933	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	0	0	0	0	0	75,956	569,667	1,352,009	1,465,942	1,465,942	1,465,942	1,465,942
	Material Added	B1		tons	0	0	0	0	0	0	0	0	0	0	75,956	493,711	782,342	113,933	0	0	0	0
	Total Solids in Cell	C1	A1 + B1	tons	0	0	0	0	0	0	0	0	0	0	75,956	569,667	1,352,009	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942
WATER	Initial Mass Water in Cell	D1	V1 from previous year	tons	0	0	0	0	0	0	0	0	0	0	0	3,038	22,787	54,080	58,638	58,638	58,638	58,638
	Inflow from Infiltration	E1	infiltration rate x area x conversion factor	tons	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	6,883	6,883	6,883	6,883	6,883	6,883	3,442	3,442	3,442
	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	3,038	19,748	31,294	4,557	0	0	0	0
	Total Water in Cell	H1	D1 + E1 + F1 + G1	tons	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	6,883	9,922	29,670	60,964	65,521	65,521	62,079	62,079	62,079
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	0.033	0.565	1.490	1.478	1.323	1.250	1.181
	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	0.108	0.703	1.114	0.162	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	0.000	0.000	0.000	0.000	0.000	0.108	0.703	1.114	0.162	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	0.000	0.000	0.000	0.000	0.000	0.033	0.565	1.490	1.478	1.323	1.250	1.181
	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	0.108	0.736	1.679	1.652	1.478	1.323	1.250	1.181
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	0.000	0.000	0.000	0.000	0.000	0.108	0.736	1.679	1.652	1.478	1.323	1.250	1.181
	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	10.902	24.812	27.548	25.214	22.565	21.314	20.132	19.016
OUTFLOW	Water Remaining	V1	C1 x % moisture	tons	0	0	0	0	0	0	0	0	0	0	3,038	22,787	54,080	58,638	58,638	58,638	58,638	58,638
	Water Out	W1	H1 - V1	tons	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	6,883	6,883	6,883	6,883	6,883	6,883	3,442	3,442	3,442
	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	0.075	0.171	0.190	0.174	0.155	0.073	0.069	0.065
	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	0.033	0.565	1.490	1.478	1.323	1.250	1.181	1.115
	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	0.033	0.565	1.490	1.478	1.323	1.250	1.181	1.115

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	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102
WATER	Initial Mass Water in Cell	D2	V2 from previous year	tons	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141
	Inflow from Cell Above	E2	W1	tons	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	6,883	6,883	6,883	6,883	6,883	6,883	3,442	3,442	3,442
	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	62,435	62,435	62,435	62,435	62,435	62,435	62,435	62,435	62,435	67,024	67,024	67,024	67,024	67,024	67,024	63,583	63,583	63,583
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	0.067	0.214	0.362	0.480	0.570	0.609	0.642
	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	0.075	0.171	0.190	0.174	0.155	0.073	0.069	0.065
	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	0.075	0.238	0.403	0.535	0.636	0.644	0.678	0.707
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	0.000	0.000	0.000	0.000	0.000	0.075	0.238	0.403	0.535	0.636	0.644	0.678	0.707
	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	1.120	3.553	6.017	7.989	9.486	10.126	10.668	11.119
OUTFLOW	Water Remaining	V2	D2	tons	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141
	Water Out	W2	H2 - V2	tons	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	2,294	6,883	6,883	6,883	6,883	6,883	6,883	3,442	3,442	3,442
	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	0.008	0.024	0.041	0.055	0.065	0.035	0.037	0.038
	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	0.067	0.214	0.362	0.480	0.570	0.609	0.642	0.669
	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	0.067	0.214	0.362	0.480	0.570	0.609	0.642	0.669

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
1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942
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
1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942

58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638
3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442
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
62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079

1.115	1.053	0.995	0.940	0.888	0.838	0.792	0.748	0.707	0.667	0.630	0.595	0.562	0.531	0.502	0.474	0.448	0.423	0.399	0.377	0.356	0.337	0.318	0.300	0.284	0.268
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.115	1.053	0.995	0.940	0.888	0.838	0.792	0.748	0.707	0.667	0.630	0.595	0.562	0.531	0.502	0.474	0.448	0.423	0.399	0.377	0.356	0.337	0.318	0.300	0.284	0.268
1.115	1.053	0.995	0.940	0.888	0.838	0.792	0.748	0.707	0.667	0.630	0.595	0.562	0.531	0.502	0.474	0.448	0.423	0.399	0.377	0.356	0.337	0.318	0.300	0.284	0.268

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.115	1.053	0.995	0.940	0.888	0.838	0.792	0.748	0.707	0.667	0.630	0.595	0.562	0.531	0.502	0.474	0.448	0.423	0.399	0.377	0.356	0.337	0.318	0.300	0.284	0.268
17.962	16.966	16.026	15.137	14.298	13.505	12.757	12.049	11.381	10.750	10.154	9.591	9.060	8.557	8.083	7.635	7.212	6.812	6.434	6.077	5.740	5.422	5.122	4.838	4.569	4.316

58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638
3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442
0.062	0.058	0.055	0.052	0.049	0.046	0.044	0.041	0.039	0.037	0.035	0.033	0.031	0.029	0.028	0.026	0.025	0.023	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015
1.053	0.995	0.940	0.888	0.838	0.792	0.748	0.707	0.667	0.630	0.595	0.562	0.531	0.502	0.474	0.448	0.423	0.399	0.377	0.356	0.337	0.318	0.300	0.284	0.268	0.253
1.053	0.995	0.940	0.888	0.838	0.792	0.748	0.707	0.667	0.630	0.595	0.562	0.531	0.502	0.474	0.448	0.423	0.399	0.377	0.356	0.337	0.318	0.300	0.284	0.268	0.253

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
6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102

60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141
3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442
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
63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583

0.669	0.691	0.709	0.723	0.733	0.740	0.744	0.745	0.744	0.741	0.735	0.729	0.721	0.711	0.700	0.689	0.676	0.663	0.649	0.635	0.621	0.606	0.591	0.575	0.560	0.545
0.062	0.058	0.055	0.052	0.049	0.046	0.044	0.041	0.039	0.037	0.035	0.033	0.031	0.029	0.028	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
0.731	0.749	0.764	0.775	0.782	0.786	0.788	0.786	0.783	0.778	0.770	0.762	0.752	0.740	0.728	0.715	0.701	0.687	0.672	0.656	0.640	0.624	0.608	0.592	0.576	0.559

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.731	0.749	0.764	0.775	0.782	0.786	0.788	0.786	0.783	0.778	0.770	0.762	0.752	0.740	0.728	0.715	0.701	0.687	0.672	0.656	0.640	0.624	0.608	0.592	0.576	0.559
11.490	11.786	12.016	12.185	12.299	12.364	12.386	12.367	12.314	12.229	12.117	11.980	11.822	11.646	11.453	11.246	11.028	10.799	10.563	10.320	10.072	9.821	9.566	9.310	9.054	8.797

60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141
3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442
0.040	0.041	0.041	0.042	0.042	0.043	0.043	0.043	0.042	0.042	0.042	0.041	0.041	0.040	0.039	0.039	0.038	0.037	0.036	0.036	0.035	0.034	0.033	0.032	0.031	0.030
0.691	0.709	0.723	0.733	0.740	0.744	0.745	0.744	0.741	0.735	0.729	0.721	0.711	0.700	0.689	0.676	0.663	0.649	0.635	0.621	0.606	0.591	0.575	0.560	0.545	0.529
0.691	0.709	0.723	0.733	0.740	0.744	0.745	0.744	0.741	0.735	0.729	0.721	0.711	0.700	0.689	0.676	0.663	0.649	0.635	0.621	0.606	0.591	0.575	0.560	0.545	0.529

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
1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942	1,465,942
58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638
3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442
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
62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079	62,079
0.253	0.239	0.226	0.213	0.201	0.190	0.180	0.170	0.160	0.151	0.143	0.135	0.128	0.121	0.114	0.108	0.102	0.096
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.253	0.239	0.226	0.213	0.201	0.190	0.180	0.170	0.160	0.151	0.143	0.135	0.128	0.121	0.114	0.108	0.102	0.096
0.253	0.239	0.226	0.213	0.201	0.190	0.180	0.170	0.160	0.151	0.143	0.135	0.128	0.121	0.114	0.108	0.102	0.096
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.253	0.239	0.226	0.213	0.201	0.190	0.180	0.170	0.160	0.151	0.143	0.135	0.128	0.121	0.114	0.108	0.102	0.096
4.077	3.851	3.637	3.436	3.245	3.065	2.895	2.735	2.583	2.440	2.305	2.177	2.056	1.942	1.835	1.733	1.637	1.546
58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638	58,638
3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442
0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005
0.239	0.226	0.213	0.201	0.190	0.180	0.170	0.160	0.151	0.143	0.135	0.128	0.121	0.114	0.108	0.102	0.096	0.091
0.239	0.226	0.213	0.201	0.190	0.180	0.170	0.160	0.151	0.143	0.135	0.128	0.121	0.114	0.108	0.102	0.096	0.091

2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102	6,014,102
60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141
3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583	63,583
0.529	0.514	0.498	0.483	0.468	0.454	0.439	0.425	0.411	0.397	0.383	0.370	0.357	0.344	0.332	0.320	0.308	0.297
0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.543	0.527	0.511	0.495	0.479	0.464	0.449	0.434	0.419	0.405	0.391	0.377	0.364	0.351	0.338	0.326	0.314	0.302
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.543	0.527	0.511	0.495	0.479	0.464	0.449	0.434	0.419	0.405	0.391	0.377	0.364	0.351	0.338	0.326	0.314	0.302
8.542	8.288	8.036	7.787	7.541	7.299	7.061	6.826	6.597	6.372	6.152	5.936	5.726	5.522	5.322	5.128	4.939	4.755
60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141	60,141
3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442
0.029	0.029	0.028	0.027	0.026	0.025	0.024	0.023	0.023	0.022	0.021	0.020	0.020	0.019	0.018	0.018	0.017	0.016
0.514	0.498	0.483	0.468	0.454	0.439	0.425	0.411	0.397	0.383	0.370	0.357	0.344	0.332	0.320	0.308	0.297	0.286
0.514	0.498	0.483	0.468	0.454	0.439	0.425	0.411	0.397	0.383	0.370	0.357	0.344	0.332	0.320	0.308	0.297	0.286