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

INPUT BLOCK

CHEMICAL	Nitrate	

INFILTRATION	Total Drainage Area:	949,608	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	7,469,543	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	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
	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	2,156,000	3,710,000	0	0	0	0	0	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	0	0	2,156,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000
	Material Added	B1		tons	0	0	0	0	2,156,000	3,710,000	0	0	0	0	0	0	0	0	0	0	0	0
	Total Solids in Cell	C1	A1 + B1	tons	0	0	0	0	2,156,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000
WATER	Initial Mass Water in Cell	D1	V1 from previous year	tons	0	0	0	0	0	86,240	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640
	Inflow from Infiltration	E1	infiltration rate x area x conversion factor	tons	7,409	7,409	7,409	7,409	22,228	22,228	22,228	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
	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	86,240	148,400	0	0	0	0	0	0	0	0	0	0	0	0
	Total Water in Cell	H1	D1 + E1 + F1 + G1	tons	7,409	7,409	7,409	7,409	108,468	256,868	256,868	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754
CHEMICALS	Initial Chemicals	I1	Z1 from previous year	tons	0.000	0.000	0.000	0.000	0.000	2.441	7.056	6.445	6.154	5.875	5.610	5.356	5.114	4.882	4.662	4.451	4.250	4.057
	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	3.070	5.283	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 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	3.070	5.283	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 on Solids	O1	I1 + M1	tons	0.000	0.000	0.000	0.000	0.000	2.441	7.056	6.445	6.154	5.875	5.610	5.356	5.114	4.882	4.662	4.451	4.250	4.057
	Total Chemicals in Cell	P1	O1 + N1	tons	0.000	0.000	0.000	0.000	3.070	7.724	7.056	6.445	6.154	5.875	5.610	5.356	5.114	4.882	4.662	4.451	4.250	4.057
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	3.070	7.724	7.056	6.445	6.154	5.875	5.610	5.356	5.114	4.882	4.662	4.451	4.250	4.057
	Liquid Concentration	U1	T1 / H1 x 10e6	ppm	0.000	0.000	0.000	0.000	28.305	30.070	27.468	26.226	25.040	23.907	22.826	21.794	20.808	19.867	18.969	18.111	17.292	16.510
OUTFLOW	Water Remaining	V1	C1 x % moisture	tons	0	0	0	0	86,240	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640
	Water Out	W1	H1 - V1	tons	7,409	7,409	7,409	7,409	22,228	22,228	22,228	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
	Chemicals Out in Water	X1	W1 x U1 / 10e6	tons	0.000	0.000	0.000	0.000	0.629	0.668	0.611	0.291	0.278	0.266	0.254	0.242	0.231	0.221	0.211	0.201	0.192	0.183
	Chemicals Remaining in Water	Y1	T1 - X1	tons	0.000	0.000	0.000	0.000	2.441	7.056	6.445	6.154	5.875	5.610	5.356	5.114	4.882	4.662	4.451	4.250	4.057	3.874
	Total Chemicals Remaining	Z1	R1 + Y1	tons	0.000	0.000	0.000	0.000	2.441	7.056	6.445	6.154	5.875	5.610	5.356	5.114	4.882	4.662	4.451	4.250	4.057	3.874

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	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543
WATER	Initial Mass Water in Cell	D2	V2 from previous year	tons	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695
	Inflow from Cell Above	E2	W1	tons	7,409	7,409	7,409	7,409	22,228	22,228	22,228	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
	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	82,105	82,105	82,105	82,105	96,923	96,923	96,923	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809
CHEMICALS	Initial Chemicals	I2	Z2 from previous year	tons	0.000	0.000	0.000	0.000	0.000	0.485	0.889	1.155	1.260	1.339	1.397	1.437	1.461	1.473	1.475	1.467	1.452	1.432
	Chemicals from Above	J2	X1	tons	0.000	0.000	0.000	0.000	0.629	0.668	0.611	0.291	0.278	0.266	0.254	0.242	0.231	0.221	0.211	0.201	0.192	0.183
	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	0.629	1.153	1.499	1.447	1.538	1.604	1.650	1.679	1.693	1.694	1.686	1.669	1.645	1.615
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	0.629	1.153	1.499	1.447	1.538	1.604	1.650	1.679	1.693	1.694	1.686	1.669	1.645	1.615
	Liquid Concentration	U2	T2 / H2 x 10e6	ppm	0.000	0.000	0.000	0.000	6.491	11.899	15.469	16.862	17.922	18.697	19.232	19.564	19.725	19.743	19.643	19.444	19.166	18.822
OUTFLOW	Water Remaining	V2	D2	tons	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695
	Water Out	W2	H2 - V2	tons	7,409	7,409	7,409	7,409	22,228	22,228	22,228	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
	Chemicals Out in Water	X2	W2 x U2 / 10e6	tons	0.000	0.000	0.000	0.000	0.144	0.264	0.344	0.187	0.199	0.208	0.214	0.217	0.219	0.219	0.218	0.216	0.213	0.209
	Chemicals Remaining in Water	Y2	T2 - X2	tons	0.000	0.000	0.000	0.000	0.485	0.889	1.155	1.260	1.339	1.397	1.437	1.461	1.473	1.475	1.467	1.452	1.432	1.406
	Total Chemicals Remaining	Z2	R2 + Y2	tons	0.000	0.000	0.000	0.000	0.485	0.889	1.155	1.260	1.339	1.397	1.437	1.461	1.473	1.475	1.467	1.452	1.432	1.406

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
5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000

234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640
11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754

3.874	3.699	3.531	3.372	3.219	3.074	2.935	2.802	2.675	2.554	2.439	2.328	2.223	2.123	2.027	1.935	1.847	1.764	1.684	1.608	1.535	1.466	1.400	1.336	1.276	1.218
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.874	3.699	3.531	3.372	3.219	3.074	2.935	2.802	2.675	2.554	2.439	2.328	2.223	2.123	2.027	1.935	1.847	1.764	1.684	1.608	1.535	1.466	1.400	1.336	1.276	1.218
3.874	3.699	3.531	3.372	3.219	3.074	2.935	2.802	2.675	2.554	2.439	2.328	2.223	2.123	2.027	1.935	1.847	1.764	1.684	1.608	1.535	1.466	1.400	1.336	1.276	1.218

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.874	3.699	3.531	3.372	3.219	3.074	2.935	2.802	2.675	2.554	2.439	2.328	2.223	2.123	2.027	1.935	1.847	1.764	1.684	1.608	1.535	1.466	1.400	1.336	1.276	1.218
15.763	15.050	14.370	13.720	13.099	12.507	11.941	11.401	10.886	10.393	9.923	9.475	9.046	8.637	8.246	7.873	7.517	7.177	6.853	6.543	6.247	5.965	5.695	5.437	5.191	4.957

234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640
11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
0.175	0.167	0.160	0.152	0.146	0.139	0.133	0.127	0.121	0.116	0.110	0.105	0.101	0.096	0.092	0.088	0.084	0.080	0.076	0.073	0.069	0.066	0.063	0.060	0.058	0.055
3.699	3.531	3.372	3.219	3.074	2.935	2.802	2.675	2.554	2.439	2.328	2.223	2.123	2.027	1.935	1.847	1.764	1.684	1.608	1.535	1.466	1.400	1.336	1.276	1.218	1.163
3.699	3.531	3.372	3.219	3.074	2.935	2.802	2.675	2.554	2.439	2.328	2.223	2.123	2.027	1.935	1.847	1.764	1.684	1.608	1.535	1.466	1.400	1.336	1.276	1.218	1.163

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
7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543

74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695
11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809

1.406	1.376	1.344	1.309	1.272	1.234	1.195	1.156	1.116	1.077	1.038	1.000	0.962	0.925	0.889	0.853	0.819	0.786	0.753	0.722	0.692	0.663	0.635	0.607	0.581	0.556
0.175	0.167	0.160	0.152	0.146	0.139	0.133	0.127	0.121	0.116	0.110	0.105	0.101	0.096	0.092	0.088	0.084	0.080	0.076	0.073	0.069	0.066	0.063	0.060	0.058	0.055
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.581	1.544	1.503	1.461	1.417	1.373	1.328	1.283	1.237	1.193	1.148	1.105	1.062	1.021	0.980	0.941	0.902	0.865	0.829	0.795	0.761	0.729	0.698	0.668	0.639	0.611

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.581	1.544	1.503	1.461	1.417	1.373	1.328	1.283	1.237	1.193	1.148	1.105	1.062	1.021	0.980	0.941	0.902	0.865	0.829	0.795	0.761	0.729	0.698	0.668	0.639	0.611
18.426	17.988	17.520	17.028	16.519	15.999	15.474	14.946	14.420	13.899	13.384	12.877	12.381	11.896	11.424	10.964	10.517	10.085	9.666	9.262	8.871	8.495	8.132	7.783	7.447	7.125

74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695
11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
0.205	0.200	0.195	0.189	0.184	0.178	0.172	0.166	0.160	0.154	0.149	0.143	0.138	0.132	0.127	0.122	0.117	0.112	0.107	0.103	0.099	0.094	0.090	0.087	0.083	0.079
1.376	1.344	1.309	1.272	1.234	1.195	1.156	1.116	1.077	1.038	1.000	0.962	0.925	0.889	0.853	0.819	0.786	0.753	0.722	0.692	0.663	0.635	0.607	0.581	0.556	0.532
1.376	1.344	1.309	1.272	1.234	1.195	1.156	1.116	1.077	1.038	1.000	0.962	0.925	0.889	0.853	0.819	0.786	0.753	0.722	0.692	0.663	0.635	0.607	0.581	0.556	0.532

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
5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000	5,866,000

234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640
11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754	245,754

1.163	1.110	1.060	1.012	0.966	0.923	0.881	0.841	0.803	0.767	0.732	0.699	0.667	0.637	0.608	0.581	0.555	0.530
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	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	1.110	1.060	1.012	0.966	0.923	0.881	0.841	0.803	0.767	0.732	0.699	0.667	0.637	0.608	0.581	0.555	0.530
1.163	1.110	1.060	1.012	0.966	0.923	0.881	0.841	0.803	0.767	0.732	0.699	0.667	0.637	0.608	0.581	0.555	0.530

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	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	1.110	1.060	1.012	0.966	0.923	0.881	0.841	0.803	0.767	0.732	0.699	0.667	0.637	0.608	0.581	0.555	0.530
4.732	4.518	4.314	4.119	3.933	3.755	3.585	3.423	3.268	3.120	2.979	2.844	2.716	2.593	2.476	2.364	2.257	2.155

234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640	234,640
11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
0.053	0.050	0.048	0.046	0.044	0.042	0.040	0.038	0.036	0.035	0.033	0.032	0.030	0.029	0.028	0.026	0.025	0.024
1.110	1.060	1.012	0.966	0.923	0.881	0.841	0.803	0.767	0.732	0.699	0.667	0.637	0.608	0.581	0.555	0.530	0.506
1.110	1.060	1.012	0.966	0.923	0.881	0.841	0.803	0.767	0.732	0.699	0.667	0.637	0.608	0.581	0.555	0.530	0.506

2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543	7,469,543

74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695
11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809	85,809

0.532	0.509	0.487	0.466	0.445	0.425	0.407	0.389	0.371	0.355	0.339	0.324	0.310	0.296	0.283	0.270	0.258	0.246
0.053	0.050	0.048	0.046	0.044	0.042	0.040	0.038	0.036	0.035	0.033	0.032	0.030	0.029	0.028	0.026	0.025	0.024
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.585	0.559	0.535	0.511	0.489	0.467	0.447	0.427	0.408	0.390	0.372	0.356	0.340	0.325	0.310	0.296	0.283	0.270

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.585	0.559	0.535	0.511	0.489	0.467	0.447	0.427	0.408	0.390	0.372	0.356	0.340	0.325	0.310	0.296	0.283	0.270
6.815	6.517	6.232	5.958	5.696	5.445	5.204	4.973	4.752	4.541	4.339	4.145	3.960	3.783	3.614	3.452	3.297	3.149

74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695	74,695
11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114	11,114
0.076	0.072	0.069	0.066	0.063	0.061	0.058	0.055	0.053	0.050	0.048	0.046	0.044	0.042	0.040	0.038	0.037	0.035
0.509	0.487	0.466	0.445	0.425	0.407	0.389	0.371	0.355	0.339	0.324	0.310	0.296	0.283	0.270	0.258	0.246	0.235
0.509	0.487	0.466	0.445	0.425	0.407	0.389	0.371	0.355	0.339	0.324	0.310	0.296	0.283	0.270	0.258	0.246	0.235