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

INPUT BLOCK

CHEMICAL	Nitrate	

INFILTRATION	Total Drainage Area:	1,311,270	ft^2
	Unreclaimned Infiltration Rate:	9	in/yr
	Reclaimed Infilgration Rate:	4.5	in/yr

SPENT ORE	Porewater Concentration:	100	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	0.000	0.04	0	0
	2	Unsaturated Bedrock	20,628,698	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	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
TIME DEPENDENT DATA	Infiltration Rate	in/yr	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
	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	5,317,649	4,066,837	15,514	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATION BLOCK

CELL 1 - Spent Ore

DATA	VARIABLE		FORMULA	UNITS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
ROCK	Initial Solids in Cell	A1	C1 from previous year	tons	0	5,317,649	9,384,486	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000
	Material Added	B1		tons	5,317,649	4,066,837	15,514	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Solids in Cell	C1	A1 + B1	tons	5,317,649	9,384,486	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000
WATER	Initial Mass Water in Cell	D1	V1 from previous year	tons	0	212,706	375,379	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000
	Inflow from Infiltration	E1	infiltration rate x area x conversion factor	tons	30,694	30,694	30,694	30,694	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
	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	319,059	244,010	931	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Water in Cell	H1	D1 + E1 + F1 + G1	tons	349,752	487,410	407,004	406,694	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347
CHEMICALS	Initial Chemicals	I1	Z1 from previous year	tons	0.000	19.404	33.736	31.253	28.894	27.761	26.672	25.626	24.621	23.656	22.728	21.837	20.980	20.158	19.367	18.608	17.878	17.177
	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	31.906	24.401	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
	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	31.906	24.401	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
	Total Chemicals on Solids	O1	I1 + M1	tons	0.000	19.404	33.736	31.253	28.894	27.761	26.672	25.626	24.621	23.656	22.728	21.837	20.980	20.158	19.367	18.608	17.878	17.177
	Total Chemicals in Cell	P1	O1 + N1	tons	31.906	43.805	33.830	31.253	28.894	27.761	26.672	25.626	24.621	23.656	22.728	21.837	20.980	20.158	19.367	18.608	17.878	17.177
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	31.906	43.805	33.830	31.253	28.894	27.761	26.672	25.626	24.621	23.656	22.728	21.837	20.980	20.158	19.367	18.608	17.878	17.177
	Liquid Concentration	U1	T1 / H1 x 10e6	ppm	91.224	89.873	83.118	76.845	73.832	70.937	68.155	65.482	62.914	60.447	58.077	55.799	53.611	51.509	49.489	47.548	45.683	43.892
OUTFLOW	Water Remaining	V1	C1 x % moisture	tons	212,706	375,379	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000
	Water Out	W1	H1 - V1	tons	137,047	112,030	31,004	30,694	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
	Chemicals Out in Water	X1	W1 x U1 / 10e6	tons	12.502	10.068	2.577	2.359	1.133	1.089	1.046	1.005	0.966	0.928	0.891	0.856	0.823	0.790	0.759	0.730	0.701	0.674
	Chemicals Remaining in Water	Y1	T1 - X1	tons	19.404	33.736	31.253	28.894	27.761	26.672	25.626	24.621	23.656	22.728	21.837	20.980	20.158	19.367	18.608	17.878	17.177	16.503
	Total Chemicals Remaining	Z1	R1 + Y1	tons	19.404	33.736	31.253	28.894	27.761	26.672	25.626	24.621	23.656	22.728	21.837	20.980	20.158	19.367	18.608	17.878	17.177	16.503

CELL 2 - Unsaturated Bedrock

DATA	VARIABLE		FORMULA	UNITS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
ROCK	Total Solids in Cell	C2		tons	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698
WATER	Initial Mass Water in Cell	D2	V2 from previous year	tons	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287
	Inflow from Cell Above	E2	W1	tons	137,047	112,030	31,004	30,694	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
	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	343,334	318,317	237,291	236,981	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634
CHEMICALS	Initial Chemicals	I2	Z2 from previous year	tons	0.000	7.512	11.393	12.145	12.625	12.805	12.932	13.010	13.044	13.040	13.000	12.930	12.831	12.709	12.564	12.401	12.222	12.028
	Chemicals from Above	J2	X1	tons	12.502	10.068	2.577	2.359	1.133	1.089	1.046	1.005	0.966	0.928	0.891	0.856	0.823	0.790	0.759	0.730	0.701	0.674
	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	12.502	17.580	13.970	14.503	13.758	13.894	13.978	14.015	14.010	13.967	13.892	13.786	13.654	13.499	13.324	13.131	12.923	12.702
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	12.502	17.580	13.970	14.503	13.758	13.894	13.978	14.015	14.010	13.967	13.892	13.786	13.654	13.499	13.324	13.131	12.923	12.702
	Liquid Concentration	U2	T2 / H2 x 10e6	ppm	36.413	55.228	58.872	61.200	62.075	62.689	63.067	63.234	63.212	63.021	62.678	62.202	61.607	60.908	60.117	59.247	58.308	57.309
OUTFLOW	Water Remaining	V2	D2	tons	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287
	Water Out	W2	H2 - V2	tons	137,047	112,030	31,004	30,694	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
	Chemicals Out in Water	X2	W2 x U2 / 10e6	tons	4.990	6.187	1.825	1.878	0.953	0.962	0.968	0.970	0.970	0.967	0.962	0.955	0.945	0.935	0.923	0.909	0.895	0.880
	Chemicals Remaining in Water	Y2	T2 - X2	tons	7.512	11.393	12.145	12.625	12.805	12.932	13.010	13.044	13.040	13.000	12.930	12.831	12.709	12.564	12.401	12.222	12.028	11.822
	Total Chemicals Remaining	Z2	R2 + Y2	tons	7.512	11.393	12.145	12.625	12.805	12.932	13.010	13.044	13.040	13.000	12.930	12.831	12.709	12.564	12.401	12.222	12.028	11.822

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
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040

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

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000
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
9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000

376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000
15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347

16.503	15.856	15.234	14.637	14.063	13.511	12.982	12.473	11.983	11.513	11.062	10.628	10.211	9.811	9.426	9.057	8.701	8.360	8.032	7.717	7.415	7.124	6.845	6.576	6.318	6.070
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16.503	15.856	15.234	14.637	14.063	13.511	12.982	12.473	11.983	11.513	11.062	10.628	10.211	9.811	9.426	9.057	8.701	8.360	8.032	7.717	7.415	7.124	6.845	6.576	6.318	6.070
16.503	15.856	15.234	14.637	14.063	13.511	12.982	12.473	11.983	11.513	11.062	10.628	10.211	9.811	9.426	9.057	8.701	8.360	8.032	7.717	7.415	7.124	6.845	6.576	6.318	6.070

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16.503	15.856	15.234	14.637	14.063	13.511	12.982	12.473	11.983	11.513	11.062	10.628	10.211	9.811	9.426	9.057	8.701	8.360	8.032	7.717	7.415	7.124	6.845	6.576	6.318	6.070
42.171	40.517	38.928	37.401	35.935	34.525	33.172	31.871	30.621	29.420	28.266	27.158	26.093	25.070	24.087	23.142	22.234	21.363	20.525	19.720	18.947	18.204	17.490	16.804	16.145	15.512

376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000
15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
0.647	0.622	0.597	0.574	0.551	0.530	0.509	0.489	0.470	0.452	0.434	0.417	0.400	0.385	0.370	0.355	0.341	0.328	0.315	0.303	0.291	0.279	0.268	0.258	0.248	0.238
15.856	15.234	14.637	14.063	13.511	12.982	12.473	11.983	11.513	11.062	10.628	10.211	9.811	9.426	9.057	8.701	8.360	8.032	7.717	7.415	7.124	6.845	6.576	6.318	6.070	5.832
15.856	15.234	14.637	14.063	13.511	12.982	12.473	11.983	11.513	11.062	10.628	10.211	9.811	9.426	9.057	8.701	8.360	8.032	7.717	7.415	7.124	6.845	6.576	6.318	6.070	5.832

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698

206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287
15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634

11.822	11.606	11.381	11.149	10.911	10.669	10.423	10.175	9.926	9.676	9.426	9.177	8.930	8.684	8.441	8.201	7.963	7.730	7.499	7.273	7.051	6.834	6.621	6.412	6.208	6.009
0.647	0.622	0.597	0.574	0.551	0.530	0.509	0.489	0.470	0.452	0.434	0.417	0.400	0.385	0.370	0.355	0.341	0.328	0.315	0.303	0.291	0.279	0.268	0.258	0.248	0.238
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12.469	12.228	11.978	11.723	11.463	11.199	10.932	10.665	10.396	10.128	9.860	9.594	9.330	9.069	8.811	8.556	8.305	8.057	7.814	7.576	7.342	7.113	6.889	6.670	6.456	6.247

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12.469	12.228	11.978	11.723	11.463	11.199	10.932	10.665	10.396	10.128	9.860	9.594	9.330	9.069	8.811	8.556	8.305	8.057	7.814	7.576	7.342	7.113	6.889	6.670	6.456	6.247
56.261	55.171	54.046	52.894	51.719	50.529	49.327	48.118	46.907	45.696	44.489	43.289	42.098	40.919	39.753	38.603	37.470	36.354	35.258	34.182	33.127	32.094	31.083	30.094	29.128	28.185

206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287
15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
0.863	0.847	0.829	0.812	0.794	0.775	0.757	0.738	0.720	0.701	0.683	0.664	0.646	0.628	0.610	0.592	0.575	0.558	0.541	0.525	0.508	0.493	0.477	0.462	0.447	0.433
11.606	11.381	11.149	10.911	10.669	10.423	10.175	9.926	9.676	9.426	9.177	8.930	8.684	8.441	8.201	7.963	7.730	7.499	7.273	7.051	6.834	6.621	6.412	6.208	6.009	5.814
11.606	11.381	11.149	10.911	10.669	10.423	10.175	9.926	9.676	9.426	9.177	8.930	8.684	8.441	8.201	7.963	7.730	7.499	7.273	7.051	6.834	6.621	6.412	6.208	6.009	5.814

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	62.00	63.00
1	1	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	63.00	64.00
2041	2042	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	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

2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000	9,400,000

376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000
15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347	391,347

5.832	5.604	5.384	5.173	4.970	4.775	4.588	4.408	4.235	4.069	3.909	3.756	3.609	3.467	3.331	3.201	3.075	2.955	2.839	2.727
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5.832	5.604	5.384	5.173	4.970	4.775	4.588	4.408	4.235	4.069	3.909	3.756	3.609	3.467	3.331	3.201	3.075	2.955	2.839	2.727
5.832	5.604	5.384	5.173	4.970	4.775	4.588	4.408	4.235	4.069	3.909	3.756	3.609	3.467	3.331	3.201	3.075	2.955	2.839	2.727

0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5.832	5.604	5.384	5.173	4.970	4.775	4.588	4.408	4.235	4.069	3.909	3.756	3.609	3.467	3.331	3.201	3.075	2.955	2.839	2.727
14.903	14.319	13.758	13.218	12.700	12.202	11.723	11.263	10.822	10.397	9.990	9.598	9.221	8.860	8.512	8.179	7.858	7.550	7.254	6.969

376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000	376,000
15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
0.229	0.220	0.211	0.203	0.195	0.187	0.180	0.173	0.166	0.160	0.153	0.147	0.142	0.136	0.131	0.126	0.121	0.116	0.111	0.107
5.604	5.384	5.173	4.970	4.775	4.588	4.408	4.235	4.069	3.909	3.756	3.609	3.467	3.331	3.201	3.075	2.955	2.839	2.727	2.620
5.604	5.384	5.173	4.970	4.775	4.588	4.408	4.235	4.069	3.909	3.756	3.609	3.467	3.331	3.201	3.075	2.955	2.839	2.727	2.620

2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698	20,628,698

206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287
15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634	221,634

5.814	5.625	5.440	5.259	5.084	4.913	4.748	4.586	4.430	4.277	4.130	3.986	3.848	3.713	3.582	3.456	3.333	3.215	3.100	2.989
0.229	0.220	0.211	0.203	0.195	0.187	0.180	0.173	0.166	0.160	0.153	0.147	0.142	0.136	0.131	0.126	0.121	0.116	0.111	0.107
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6.043	5.844	5.651	5.462	5.279	5.101	4.927	4.759	4.596	4.437	4.283	4.134	3.989	3.849	3.713	3.581	3.454	3.331	3.211	3.096

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
6.043	5.844	5.651	5.462	5.279	5.101	4.927	4.759	4.596	4.437	4.283	4.134	3.989	3.849	3.713	3.581	3.454	3.331	3.211	3.096
27.266	26.369	25.496	24.646	23.819	23.014	22.232	21.473	20.735	20.019	19.325	18.651	17.998	17.366	16.753	16.159	15.584	15.028	14.489	13.969

206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287	206,287
15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347	15,347
0.418	0.405	0.391	0.378	0.366	0.353	0.341	0.330	0.318	0.307	0.297	0.286	0.276	0.267	0.257	0.248	0.239	0.231	0.222	0.214
5.625	5.440	5.259	5.084	4.913	4.748	4.586	4.430	4.277	4.130	3.986	3.848	3.713	3.582	3.456	3.333	3.215	3.100	2.989	2.882
5.625	5.440	5.259	5.084	4.913	4.748	4.586	4.430	4.277	4.130	3.986	3.848	3.713	3.582	3.456	3.333	3.215	3.100	2.989	2.882