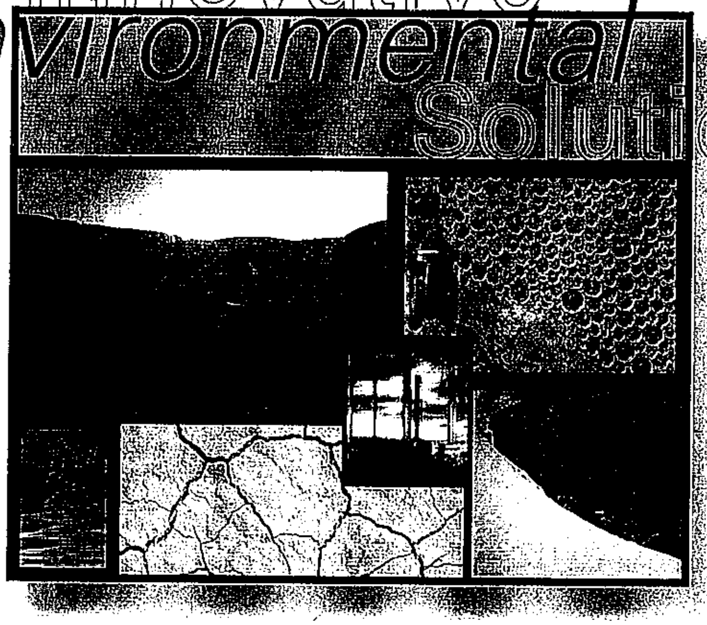
Appendix K

Post-mining Water Geochemistry Report

Innovative Environmental Solutions



Post-Mining
Groundwater Chemistry
Pogo Mine
Alaska

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Groundwater Hydrology • Geochemistry • Remediation

Post-Mining **Groundwater Chemistry** Pogo Mine **Alaska**

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Teck Corporation is proposing to develop the Pogo gold orebody, located east of Fairbanks, Alaska, using underground mining methods. In the proposed development, the Pogo Orebody will be mined, and the mine void will be filled with cemented and uncemented tailings, being a mixture of flotation tailings and cyanide-processed tailings. After closure, the mine voids will refill with water, and groundwater will then flow through the backfill materials. Post-closure flow through the mine will be predominantly to the northwest. Groundwater will ultimately flow through the mine voids, and move slowly through the country rock. As this flow passes through the rockmass downgradient of the mine, the dissolved concentration of the constituents dissolved in the moving groundwater will reduce due to interaction with the bedrock, dilution, and dispersion. The groundwater flow will ultimately emerge in the alluvium of the Goodpaster River, and will there mix with the groundwater flowing in the alluvium. The combined seepage will finally be discharged to and mix with the flow in the Goodpaster River, at and downstream of the minesite.

Post-closure groundwater chemistry conditions have been quantified by modeled integration of groundwater hydrology information obtained from the site, the proposed development and closure strategy, and the chemical characteristics of the orebody, host rock, and backfill. In particular, chemical fate and transport parameters for key chemical species have been determined by testing of site materials with pore fluids released by the mine backfill materials; these parameters have been used in the evaluation.

As a result of discharges of dissolved species from the mine backfill, concentrations of dissolved species will be temporarily increased in bedrock groundwater downgradient of the mine. However, the hydraulic conductivity of the materials in this area has been shown to be sufficiently low as to prevent usable water supply flows to be obtained from these materials, and the pre-mining quality of these waters in general exceed drinking water standards. Accordingly, these changes are not considered to be significant due to the lack of accessibility and potability of the water.

The first locations where groundwater could be extracted for consumption or emerge at the surface are the alluvium of the Goodpaster River valley or the surface water flow of the Goodpaster River. The expected post-mining changes in concentration of selected key species in the alluvium and surface water of the Goodpaster River are presented in the following table, together with the time for the peak concentration to be reached:

Parameter:	TDS	CN	As	Cd	Ni	Sb	Se
Slope (mg/L)	291	0.023	<0.001	<0.001	<0.001	<0.001	<0.001
Valley (mg/L)	16	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
River (mg/L)	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Time (years)	140	140	270,000	1,420,000	270,000	30,000	82,500

There are predicted to be small but generally undetectable elevations in concentrations of major ion species and metals in the alluvium and surface water of the Goodpaster River. The changes would occur in approximately a century for unretarded species (such as total dissolved solids and cyanide), to millennia for trace metals. In general, these predicted changes will not cause the water quality status in the alluvium or the Goodpaster River or the alluvium to change.

1. Introduction

Teck Corporation (Teck) is developing the Pogo Project, a gold mine and processing facility located 90 miles east of Fairbanks, Alaska. This project comprises an underground mine, a milling facility, and a surface dry-stack tailings storage facility. Mining will be by underground stoping; stopes will be backfilled with either cemented or uncemented tailings. After mining is completed, the mine will be decommissioned, the access drifts and shafts will be plugged, and the backfilled mine will be allowed to resaturate with groundwater. This report presents an evaluation of the post-closure impact of the mine to water resources in the vicinity of the mine.

2. Setting

2.1 Topography

The Pogo orebody is located on the east flank of the valley of the Goodpaster River, between Liese Creek and Pogo Creek (Plate 1). Surface drainage from the orebody area is primarily to Liese Creek.

2.2 Climate

The climate of the project is cold and dry. The average maximum summer temperatures are 68°F to 77°F. Temperatures of less than -40°F occur on an average of 14 days per year.

Precipitation is light. Teck believes site and regional data supports a precipitation estimate approximating 12 inches on an annual average. Published USGS maps for the region indicate a value of approximately 19 inches on an annual average. For the purposes of this evaluation, the 19-inch value will be used.

Evapotranspiration is highly seasonal, with a total annual evapotranspiration estimated to be 9.20 inches (EBA, 1998).

2.3 Geology

The geology of the orebody area has been evaluated in detail, based on surface drilling, installation of an underground exploration drift, and the drilling of in excess of 20,000 feet of underground exploration coreholes. The ore is located in two approximately parallel tabular quartz vein systems, averaging approximately 15 feet thick, and separated by approximately 400 feet vertically. The upper orebody is located approximately 400 feet below ground surface. The extent of the orebodies is indicated in Plate1, and two sections through the orebodies are shown in Plate 3.

The quartz ore veins are located within a metamorphic rock package, of which the predominant rock type is gneiss. The geologic system is complexly folded and faulted (Teck, 1999).

The geologic investigation and inspection of the development drift indicates that there are large scale faults and fault zones located in the host rockmass; one major fault zone intersects the orebody from north to south (the Mid-Ridge Fault), and another appears to run approximately parallel to the exploration drift. A structural feature also appears to lie approximately beneath Liese Creek (the Liese Creek Fault). These features have been intersected in underground exploration developments and underground drilling, and generally appear to be barriers to flow across the features (ABC, 2001). The Liese Creek Fault and the Mid-Ridge Fault strike approximately northwest, and have been identified as being associated with zones of enhanced permeability and measurable inflows to the underground openings, and to drill holes extending from those openings. The significance of these features to underground flow has been evaluated in detail in the mine inflow evaluation (ABC, 2001).

2.4 Groundwater

2.4.1 Groundwater Head and Flow

Before mining development, groundwater was encountered at a depth of approximately 300 feet below ground surface at the orebody location. The pre-mining piezometric surface in the site area has been determined based on the available data, and is shown on Plate 2. Permafrost is present above approximately this level on the north-facing slopes; intermittent permafrost exists on the south-facing slopes to approximately the same depth.

The groundwater contours show that the flow in the groundwater system is generally to the west-northwest, with flow from the mines passing through country rock, and ultimately entering the alluvial material in the valley of the Goodpaster River. Flow near the Liese Creek fault disrupts the general flow pattern in the vicinity of Liese Creek, resulting in a portion of the underground flow being captured in the alluvium of the creek. Based on pre-mining groundwater quality data (see Section 2.7.1 below), it appears that little bedrock flow enters the Liese Creek alluvium or surface flow.

2.4.2 Hydraulic conductivity

Testing of the site area hydrogeology has been performed over the life of the development. The testing programs that have been undertaken are as follows:

1. Alluvial area well tests (Golder, 1998; Teck-Sumitomo, 2000). A number of pumping tests of groundwater flow were conducted in 1998 to determine the availability of groundwater resources for project development, and the effects of injection of treated project discharge water to the alluvium of the Goodpaster River. In summary, the testing indicated that the hydraulic conductivity of the alluvial materials in the valley of the Goodpaster River averaged approximately 50,000 ft/yr[1], with a considerable range due to heterogeneities in the valley fill materials.

[1] The units used for hydraulic conductivity in this report are feet per year (ft/yr). This is consistent with the use of the Imperial unit system for the report. Conversion to metric units can be made using the following factors:

1 ft/yr = 1.0 x 10^{-6} cm/sec
1 ft/yr = 1.0 x 10^{-8} m/sec

2. Surface well tests of bedrock (Golder, 1998). During the drilling of the surface exploration program, a total of 41 hydrogeology tests were performed exploration coreholes, in particular those that were vertical. This testing comprised hydraulic conductivity testing using packer technology, and installation of permanent completions to allow measurement of groundwater pressure. The tested holes were concentrated in the vicinity of the orebodies. The median hydraulic conductivity of the rock evaluated in these tests was 5 ft/yr, with values ranging from 0.01 ft/yr to 500 ft/yr. In general the higher values were encountered in the rock down to 500 feet below ground surface, and the lower values were encountered at deeper levels, in the vicinity of the orebody.
3. Tailings area tests (Agra, 1999). The shallow bedrock in the vicinity of the proposed paste tailings disposal area to the southeast of the orebody has been extensively tested for hydraulic conditions, using tests in a total of 14 drill holes. The conductivity is approximately an order of magnitude higher than the deeper rock values, with an arithmetic mean hydraulic conductivity of approximately 50 ft/yr.
4. Underground testing (ABC, 2001). As a part of the study that comprised this evaluation, extensive testing of the rockmass was undertaken from the underground exploration drift system. This testing comprised measurement of flow and water quality to the drift, and testing of a total of in excess of 50 drill holes. This testing comprises both single-hole flow tests and multi-well flow response tests. The geometric mean hydraulic conductivity from the single-hole tests was 4.9 ft/yr, with a median of 19 ft/yr. Most of these drill holes intersected the relatively high permeability ore materials, which range in hydraulic conductivity from 10-100 ft/yr, while hydraulic conductivities measured in holes drilled in country rock range from 0.1 to 1 ft/yr.

The results of analysis of all the bedrock test data are presented in cumulative form in . The gneiss rocks that characterize the site have a low effective hydraulic conductivity; for this evaluation a range of 0.2 ft/yr to 0.75 ft/yr has been used, to reasonably bracket the impact of transport of dissolved constituents to the Goodpaster Valley. Within these rocks are located the tabular quartz veins that comprise the orebody, which have a relatively high hydraulic conductivity in the order of 100 ft/yr; before mining these units acted as conduits for groundwater flow within the system. However, this material is largely removed and replaced by backfill during mining, so its characteristics are replaced by the characteristics of the backfill.

2.4.3 Storage characteristics

Groundwater storage in the alluvial materials is expected to be high; a value of 30% is assumed for the purpose of computing volume of water in the alluvium.

Groundwater storage in the rockmass is limited. Based on the response of the groundwater system to the driving of the access decline for underground development, the drainable porosity of the rock appears to be in the order of 0.3% (ABC, 2001). Based on testing being performed in the underground development, the drainable porosity of the rockmass appears to be in the order of 0.1% (ABC, 2001). These relatively low values are consistent with the generally low hydraulic conductivity of the rockmass.

2.5 Surface Water

The site is located adjacent to and east of the Goodpaster River. To the north of the orebody is Liese Creek, and to the south is Pogo Creek. Both creeks are considered to be perennial, although surface flow does not always occur in the stream channels, due to flow in the moderate to highly permeable valley fill sediments, and due to infiltration into fan deposits at the mouths of each creek.

Regional evaluations indicate that the flow in streams is related to catchment area. Average streamflow is estimated to total the equivalent of 7.46 inches annual runoff (EBA, 1998). Most of the runoff occurs in the spring freshet. Flow in the Goodpaster River has been gauged downstream of the Pogo site at Big Delta since 1998. For the period of August 1998 to September 2000, the average flow in the Goodpaster River for the 677 square mile catchment has been 356 cubic feet per second (cfs), which is the equivalent of 7.15 inches per year of productivity.

Baseflow in streams in the area has been evaluated using stream flows in the period December to March, when surface flow to the streams is at a minimum, and most of the streamflow is expected to be the result of emerging groundwater. Using the baseflow as a gauge of deep groundwater infiltration, stream baseflow is estimated to be equivalent to a production rate of 1.0 inches per year (ABC, 2001).

Baseflow in the Goodpaster can be estimated from the three years of available record. For the months of January through March, the average flow in the Goodpaster (at Delta Junction, downstream of the site) is 33.3 cfs, which is the equivalent of 0.67 inches per year basin productivity. For the lowest flow month (March), the average flow is 24.8 cfs, or 0.50 inches per year.

2.6 Water Quality

A large number of water quality samples have been taken at the Pogo Project. These samples include coverage of the surface water in the Goodpaster River, the groundwater in the Goodpaster Alluvium, groundwater in the country rock, and groundwater in the orebody materials. A summary of the average water quality for waters of significance to this evaluation is presented in Table 2.

Surface water quality in the project area is good. The surface water is calcium-sulfate dominated, with total dissolved solids content of approximately 70 mg/L. Dissolved metal concentrations in the surface water are generally below or close to detection levels.

Groundwater in the valley sediments at the site area has a somewhat higher dissolved content, grading from 600 mg/L near the valley slope ("slope alluvium") to 300 mg/L near the river ("valley alluvium"). The chemistry of these waters is predominantly calcium-magnesium-bicarbonate-sulfate, with some iron and traces of other metals.

Groundwater in the gneiss rock away from the orebody is higher in dissolved solids with approximately 550 mg/L TDS. The water is calcium-magnesium-sulfate-bicarbonate water, and is hard. Arsenic is present in the water, at a concentration in the order of 0.05 mg/L. Other metals are predominantly below detection levels in this water.

Groundwater from locations where there is no orebody displays moderate dissolved solids content, with approximately 500 mg/L TDS. This is calcium-magnesium-sulfate-bicarbonate water, and is quite hard.

Arsenic is somewhat elevated in this water, averaging 0.05 mg/L. Some other metals are also present in the water at low levels, in particular iron, aluminum, cobalt, strontium, and zinc.

Groundwater in and near the orebody displays the highest dissolved solids content of all project waters, with approximately 1000 mg/L TDS calcium-magnesium-sulfate-bicarbonate water, and is very hard. Arsenic is elevated in this water, at concentrations ranging between 0.5 mg/L to 4 mg/L, and averaging around 1.6 mg/L. Some other metals are also present in the water at low levels, in particular zinc.

2.7 Water Dating

In order to obtain an understanding of the flow regime that exists at the Pogo site, a program of isotopic sampling and evaluation was performed in February 2001. Samples of water were taken from surface streams, shallow monitor wells, deep monitor wells, and from inflows to the underground exploration facility, and sent for chemical and isotopic analysis. The results are presented below (for species that showed significant differences between sample locations):

LOCATION	00U098C	00U098D	00U099	00U100	LT-009	SW-23
DESCRIPTION	Under-ground hole to Liese Creek Fault (high flow)	Under-ground hole to Liese Creek Fault (low flow)	Under-ground geology-drain hole near Mid-Ridge Fault	Under-ground geology-drain hole near Mid-Ridge Fault	Shallow alluvial well beside Liese Creek	Goodpaster River above Camp
DATE	26-Feb-01	26-Feb-01	26-Feb-01	26-Feb-01	25-Feb-01	28-Feb-01
Tritium	15.80	1.34	13.70	13.00	15.40	16.20
$\delta[^{18}$Oxygen](per mil)	-19.90	-19.45	-20.08	-19.90	-19.42	-20.22
$\delta[^{2}$Hydrogen](per mil)	-159.31	-155.04	-158.22	-158.56	-160.90	-160.49
COND-L (µS/cm)	477	1540	503	521	267	140
pH-L (pH units)	7.93	7.78	7.91	7.96	7.94	7.84
TDS (mg/L)	292	1150	315	311	167	82
ALK-T (mg/L)	168	441	170	168	98	47
SO4 (mg/L)	99	510	113	119	41	18
NO3 (mg/L)	0.044	0.005	0.005	0.005	1.1	0.365
CA-D (mg/L)	51	148	40	41	40	16
MG-D (mg/L)	24	113	33	35	8	4
NA-D (mg/L)	10	37	13	15	3	3
AS-D (µg/L)	108	2930	150	217	3.8	0.1
FE-D (mg/L)	0.14	2.48	0.22	0.38	0.03	0.03
MN-D (µg/L)	62	32	32	23	1	4
SR-D (µg/L)	978	7200	1250	1330	155	86.1

2.7.1 Chemical Analysis

The chemical analyses indicate that the pre-mining concentration of constituents in the subsurface increase as the orebody is approached. The pre-drainage orebody groundwater had water quality that is indicated by the underground drain hole 00U98D, a low flow hole drilled into an undisturbed area northeast of the exploration development. This water is mineralized, with 1540 mg/L TDS, and a range of dissolved minerals.

The remainder of the water chemistry indicates that the water entering the underground through the exploration holes (which have in general been allowed to drain for the last year or more) are relatively good quality, suggesting recent introduction of that water from the surface. This is consistent with the head information obtained in wells in the vicinity of the underground development, which show that the water table near the underground workings has dropped to a location close to the elevation of the workings.

Finally, the water in the alluvial well close to Liese Creek contains low concentrations of dissolved solids. This indicates that the groundwater in this location is predominantly derived from surface water, with only a small component of deep bedrock groundwater discharge to the alluvium (less than 25%). Liese Creek is in a groundwater discharge location, based on the groundwater level data, so it was expected that in the winter period when the sample was taken, bedrock groundwater discharge would dominate the quality of the water in the alluvium, as there would be no surface water flow available to dilute the discharge to the alluvium from the bedrock. The results indicate that there is only limited outflow of groundwater from the bedrock system to the alluvium, which is consistent with the observed low inflow to the underground workings, the low hydraulic conductivities measured in the country rock at the site, the low computed infiltration to the bedrock system, and the low baseflow from the bedrock in the region.

2.7.2 Stable Isotopic Evaluation

The abundances of stable isotopes of hydrogen and oxygen were evaluated for each of the samples taken. The results are compared with the isotopic abundances from Standard Mean Ocean Water (SMOW), and are expressed as differences in parts per thousand (per mil). The data for both the hydrogen and oxygen isotopes of water indicate that the waters are of very similar origin, and have not been significantly altered differentially by evaporation or other processes that would alter the isotopic abundances of the water.

The only water that is somewhat different isotopically is the sample from the low-flow underground hole, 00U98D. This water appears to have been introduced to the groundwater system when the precipitation was somewhat isotopically lighter than it has been in recent times. As it takes significant climatic changes to alter long-term precipitation isotopic abundances in a given location, this difference suggests that this may be considerably older than the other water in the system (perhaps hundreds or thousands of years).

2.7.3 Tritium Evaluation

Tritium is an unstable isotope of hydrogen, and has a half-life of 12.4 years. It was introduced into the atmosphere in large quantity as a result of atmospheric testing of thermonuclear devices from 1952 to 1965. Tritium levels in precipitation peaked in the mid-1960s, at levels in excess of 1,000 tritium units (TU) worldwide. Today, tritium in precipitation varies, but ranges from 10 to 20 TU. Water that has been in the groundwater system for more than 50 years (i.e. pre-bomb water) has essentially no tritium, due to the low pre-bomb tritium levels (estimated at 5 TU), and subsequent decay.

The tritium testing results provide the following conclusions:

1. Surface water (and presumably precipitation) at the Pogo site has about 16.2 TU.
2. Water in the Liese Creek alluvium has about 15.4 TU, which suggests that this is approximately 5% bedrock water (old) and 95% surface water (new).
3. Groundwater in the vicinity of the underground development, which has been subjected to drainage, has about 13.5 TU, which suggests that it is approximately 20% old water, and 80% new. This would be the result of removal of the old stored water by the drainage, and drawing of water infiltrated in the last 50 years into the drainage system.
4. Groundwater in the vicinity of the Liese Creek fault has about 15.8 TU, which is close to the tritium content of surface water, and higher than the Liese Creek alluvial water. This indicates that this water is largely surface water that has been transported through the Liese Creek fault from the Liese Creek alluvium and Liese Creek to the drainhole, and also indicates that the water removed from the drain hole has been sufficient to remove the (old) pre-exploration water from the fault.

The tritium data indicates that the Liese Creek fault is permeable, and acts as a conduit for surface water to enter subsurface workings when they intersect it. It also demonstrates that the drainage that has taken place to date in the vicinity of the underground exploration has been effective in removing stored water from the system in that area.

2.8 Mining and Ore Processing

Mining is currently planned to remove gold ore from two orebodies, the L1 and L2, the locations of which are shown on Plate 1. These orebodies are tabular, approximately 15 feet thick, and dip at approximately 30° to the northwest. They are separated by approximately 400 feet of country rock, with the L2 being stratigraphically below the L1. Mining will be by underground stoping, and will involve essentially total extraction of the orebody materials.

The ore produced by mining will be ground and processed using flotation to produce a sulfide concentrate, which will comprise approximately 10% of the material processed. The flotation underflow will be thickened and filtered to produce a flotation tailing paste. The concentrate will be reground and processed to extract gold by cyanidation. After cyanidation, and the resulting sulfide waste will processed to remove cyanide, and dewatered to form a sulfide-bearing tailing fraction. This will be mixed with flotation tailings in the ratio of approximately 1 part sulfide tailings to 4 parts flotation tailings, and the resulting mixture will be used for cemented and uncemented backfill for the underground mine. The remaining (non-sulfide) flotation tailings paste will be disposed of in a surface facility located in Liese Creek (Plate 1).

The underground mine voids will be backfilled with cemented and uncemented tailings material. At closure, all remaining underground openings will be backfilled, and all access openings (shafts, declines) will be plugged.

The quality of water that will be entrained in the backfill after closure has been tested and evaluated, and the results of this reconstruction are presented in Table 2. The interstitial water will have concentrations of TDS, pH, alkalinity, arsenic, molybdenum, and nickel that will be higher than currently exist in the groundwater in the orebody.

3. Evaluation Method

3.1 Approach

The post-mining groundwater chemistry evaluation has been performed using a mixing-cell geochemical transport model. This model is as follows:

1. The flow domain from the mine to the Goodpaster River is subdivided into a series of twelve cells, starting at the L2 orebody location, passing through the L1 orebody location, and proceeding through the river alluvium to the river, which is the final cell.
2. Groundwater flows downgradient from cell to cell at a rate consistent with the actual flow in the system, with infiltration to the ground surface in the location of each cell being added to the flow within the cell. In some cells, flow into the cell from the side ("side flow") is also considered (for example flow in the Goodpaster alluvium). The side flow is considered to enter the cell at right angles to the overall groundwater flow system, and then flows downgradient within the cell flow system, adding to the flow rate in the direction of the groundwater flow from the mine to the river.
3. While the water is within each cell, it is mixed and equilibrated with the solid phase material in that cell, resulting in either the uptake of chemical constituents to the liquid phase from the solid phase, or the transfer of chemical constituents from the liquid on the solid phase.
4. Water moves downgradient from cell to cell, with the water ultimately discharging from the last cell of the model (the Goodpaster River opposite the minesite) to the Goodpaster River downstream of the minesite location.

The mixing cell model has been built within a Microsoft Excel Spreadsheet Workbook. A copy of the workbook containing the mixing cell model, and summaries of the results of all the analyses performed for this evaluation, is provided in Attachment 2 to this report.

3.2 Chemistry

3.2.1 Chemical Process Modeled

The chemical processes that are modeled are:

1. Mixing. Mixing of groundwater within each cell is modeled as a conservative process, in which all constituents are assumed to remain in solution after the mixing occurs.
2. Adsorption. Adsorption of constituents onto the solid phase materials in each cell is modeled as a first-order linear, reversible equilibrium process. The process is controlled by the lumped

distribution coefficient (K_d) for each constituent and each solid phase material. K_d values have been determined by laboratory experiment for the Pogo site materials and key chemical constituents. Distribution of constituents between the solid phase and the liquid phase is governed by the following equation:

Concentration in solid phase (mg/kg) = K_d * Concentration in the liquid phase (mg/L)

No other chemical processes are explicitly modeled, although the laboratory determination of the lumped parameter K_d may include the effects of processes in addition to adsorption, including oxidation, reduction, dissolution, and precipitation. Assuming that all the removal of material from solution in the laboratory testing is reversible is in general conservative with respect to impact of dissolved materials on groundwater, in that many of the chemical processes that actually occur in the groundwater transport system have the effect of permanently removing chemical mass from the transport system, reducing the dissolved concentration of the constituents that precipitate. Oxidation of sulfides is not considered, because it is not expected that significant oxidation will occur in the mine voids after closure and refilling.

The possibility that chemical constituents might dissolve from the backfill in perpetuity has been considered by performing some analyses using a very high K_d in the mine backfill material. This has the effect of creating an essentially permanent source of dissolved constituents at the mine location.

3.2.2 Adsorption behavior

The effective adsorption behavior of the constituents of concern in the groundwater evaluation was established by laboratory testing of the materials found at the minesite, using liquors that simulate those that are expected to be created by the mine backfilling process. The laboratory testing performed, and the results obtained, are presented in detail in Attachment 1. In summary, the testing involved the following:

1. Crushing of the rock cores of site material.
2. Contacting the crushed material with synthetic liquor that approximates the fluids that will be encountered at the minesite, in particular lixiviant from the milling and cementing processes.
3. Measuring the changes in the concentrations of the constituents of concern in the liquor after contact with the crushed rock.
4. Computation of the distribution coefficient for the constituent and the rock type tested.

This process was carried out for the following cases:

1. The range of pH encountered or expected in the Pogo system.
2. A range of grainsizes of the test sample (to allow application to the rockmass).
3. The range of ionic strength solutions expected at the site.
4. The range of rock types found at the site.

In addition, the site rock materials were tested for leachable metal constituents using a distilled water lixiviant, to determine if any of the metals of concern were capable of being leached from the site rocks (as distinct from the mine backfill materials).

The results of the distribution coefficient testing were used to develop the values that are used in the model; these are presented in Table 1.

3.2.3 Rock and water chemistry

The water chemistry for the components present at the Pogo site was developed from information obtained at the site, and during testing of the tailings. The components are:

1. Cemented and uncemented backfill. Backfill materials were crushed and tested by leaching[2]. The original concentrations of constituents in the interstitial waters in the original backfill materials were computed by re-concentrating the constituents measured in the initial leach of these materials in the humidity cell tests back into the original moisture content in the sample[3].
2. Country rock. The water quality in the country rock (that is non-ore rock) was evaluated from analyses of water samples from wells completed in the rock remote from the orebody.
3. Alluvium. Alluvial water quality in the Goodpaster Valley was evaluated from tests of water sampled from alluvial wells located upgradient from disposal wells at the minesite.
4. Goodpaster River. Water quality in the Goodpaster River was evaluated from tests of surface water samples taken above and below the minesite during the exploration period.

Rock chemistry was determined by aquaregia digestion tests of the rock material.

The results are presented in Table 2.

3.3 Model

3.3.1 Construction

The model comprises twelve cells, arranged sequentially as shown conceptually in

. The cells are in general tabular, inclined at 30 degrees from the horizontal, generally parallel with the orebodies and with the steeper surface slopes in the mine area. The cells are oriented normal to the groundwater flow. Details of the cellular transport model are presented in Attachment 2.

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[2] The samples were taken in the initial flush of Humidity Cell Tests of all the materials relevant to the study. This is a 20:1 leach with distilled water, which is considered to remove all the leachable material from the sample, and to leave only a very limited amount of soluble material adsorbed to the backfill material.

[3] It is recognized that in concentrating the leached constituents back into the original porewater volume, some of the constituent concentrations may exceed the solubility of those constituents in the porewater solution. Assuming that all constituents remain soluble in the original porewater in the re-concentrated solution is conservative in that it maximizes the concentrations that will report to the receiving waters in the system.

3.3.2 Input Parameters

Input parameters for the modeling comprise a "base" case value, which is considered to be the value of the parameter that best reflects the actual behavior of the site area. In addition, an upper and lower value has been selected to characterize the range of each parameter; these values represent the reasonable range of the parameter that could occur at the site. These ranges in general include most of the available data, and are used in sensitivity evaluations of the system.

The parameters for the model were as follows:

1. Geometry. The model domain was divided 12 cells, in order to subdivide the model volume into discrete analysis portions. The cells represented (from upper to lower): the L2 backfilled mine (15 ft thick); the L1-L2 interburden (400 feet thick); the L1 backfilled mine (15 feet thick); country rock downgradient of the mine (6 cells totaling 2,800 ft thick); the alluvium of the Goodpaster River valley close to the slope (the "slope alluvium", 100 feet thick); the alluvium of the Goodpaster River valley close to the river (the "valley alluvium", 100 feet thick); and the Goodpaster River itself. Each cell was 2000 feet wide (i.e. the horizontal dimension normal to the flow direction), while thicknesses and depths varied according to the real material dimensions.
2. Hydraulic conductivity. The following conductivity values were selected:
   a. Country Rock. Based on measurement and the results of calibration of the Pogo flow model (ABC, 2000; ABC, 2001), the hydraulic conductivity of the bedrock was found to be between 0.2 ft/yr and 0.75 ft/yr; the base case value used in this evaluation was 0.5 ft/yr. This value enters into the analysis only in the computation of flow from rock above the modeled domain into the uppermost cell of the model; that is above the location of the L2 orebody.
   b. Slope Alluvium. A base case hydraulic conductivity value of 2,000 ft/yr was used for the slope alluvium; the range used was 1,000 ft/yr to 5,000 ft/yr. These values are somewhat lower than measured values of hydraulic conductivity for alluvium, reflecting the expectation that alluvium close to the edge of the valley will be less permeable than alluvium in the center of the valley, for which data have been obtained. This value enters into the evaluation only in the computation of the "side" flow in the portion of the alluvium close to the edge of the valley.
   c. Valley Alluvium. A base case hydraulic conductivity value of 40,000 ft/yr was selected for the valley alluvium, which is the approximate average of measured values for the hydraulic conductivity of the alluvium. The range of values is from 5,000 ft/yr to 72,000 ft/yr. This value is only used to compute the "side" flow in the portion of the alluvium adjacent to the river.
3. Porosity. The following base porosity values and porosity ranges were used for the transport analysis:
   a. Rock: 0.3% (0.1%-0.5%)
   b. Backfill: 25% (20%-50%)

c. Alluvium: 30% (25%-40%)

4. Infiltration: A base infiltration rate of 0.5 inches per year was selected, based on the productivity of the Goodpaster River and other information (ABC, 2001). The infiltration range selected was 0.18 in/yr to 0.75 in/yr, based on modeling and other evaluations of the flow at the Pogo site (ABC, 2000; ABC, 2001).

5. Goodpaster River flow. The Goodpaster River flow passes through the final cell in the model as "side" flow. The flow rate used for this evaluation is 33.3 cfs (14,952 gpm), the average low flow measured at Big Delta for the period of record.

3.3.3 Source Term

3.3.3.1 Expected source term

The expected source term for each constituent is set equal to the amount of each constituent that is leachable from the backfill material, using a 20:1 distilled water leach. This leachate was obtained in the first flush of the Humidity Cell Tests for the site materials, as noted above. The concentration used in the analysis was computed by numerically re-concentrating the constituents obtained in the leachate back into the moisture content in the original sample. The source concentrations of constituents thus computed are presented in Table 3, along with the computed K_d values used in the analysis. As this is considered to be the total amount of source constituents in the backfill, in the expected case analysis the backfill is given a K_d of zero, so that no additional material will be adsorbed onto the backfill (in the computation). This is equivalent to assuming that no further material is produced by, or leachable from, the backfill material.

3.3.3.2 Maximum source term

It is possible that after removal of the soluble materials from the backfill, long-term dissolution and/or decomposition of some of the solids in the backfill may occur. In particular, dissolution of the cementitious material used in the backfill might occur in the very long term. The maximum amount of source term material that could be dissolved has been computed for each constituent from the information in Table 3, using the following assumptions:

1. TDS. It is assumed that all the calcium and magnesium would be dissolved from the matrix as their respective carbonates, along with the arsenic as arsenite.

2. Metals. It is assumed that the maximum source term for each metal analyzed is the amount of metal that can be mobilized by aquaregia digestion.

As the source constituents will be leached from the backfill material, in the computation the source term was cast in terms of effective K_d (distribution coefficient) values. To achieve this, the computed available solid-phase source concentration for each constituent was divided by the computed concentration of each constituent in the interstitial liquid of the backfill material. These maximum source concentrations of constituents evaluated in this analysis are presented in Table 3, along with the computed K_d values used in the analysis. This computational approach has the effect that the constituents are removed or displaced from the backfill initially at the concentration that is computed to exist at mine closure time. Thereafter, the constituents that are computed to be available in the long term are removed from the backfill into the groundwater, at gradually decreasing concentrations, until all the potentially mobilizable materials are transported into the downgradient groundwater system.

4. Results

4.1 Constituents Evaluated

The model was run for seven chemical species: TDS, cyanide, arsenic, antimony, cadmium, nickel, and selenium. The selected parameters were based on those that were significantly present in the backfill material, and those for which drinking water and cold water aquatic standards were low. All other parameters have no human health or environmental impact potential at the concentrations at which they are present at source. The rationale for selection of these parameters is presented in more detail in the Bench Scale Testing Report (Attachment 1).

4.2 Flow

The flow conditions in the model are summarized as follows (for the expected case; flows are similar in all cases):

1. Groundwater inflow from above the mine. The expected groundwater inflow above the mine is computed to be 7 gallons per minute (gpm) through the mine cross-section.
2. Infiltration to the flow pathway. Infiltration from the ground surface takes place along the entire flow from the mine to the river. Total infiltration to the flow system in the expected case is 3 gpm. This water results in dilution of the mine water by approximately 1.4:1 by the time the flow exits the bedrock system.
3. Slope alluvial flow: The flow entering the slope alluvium from the bedrock is approximately 10 gpm. In the slope alluvium cell it mixes with a flow of 28 gpm in the alluvium from up-river. This mixing results in a dilution of the incoming rock water of 4:1, and a dilution of the original mine water of about 5:1. All outflow from the cell is assumed to be towards the river[4].
4. Valley alluvial flow. The alluvial flow in the center of the valley is computed to be approximately 1,140 gpm in the expected case, moving parallel to the river in the vicinity of the mine. This flow is assumed to mix with the 38 gpm of flow from the slope alluvium, resulting in a dilution at mixing of 30:1, and a total dilution of the original mine water of 170:1.
5. River flow. The expected flow in the Goodpaster River is 33.3 cubic feet per second, or approximately 15,000 gpm. This is the approximate low flow for the river. A total of 1,178 gpm of groundwater flows out of the valley alluvium into the river opposite the minesite in the

[4] It is recognized that in the real situation most of the discharge from the cell would be as groundwater flowing parallel to the river. However the model discharges all the flow from each cell toward the river, to ensure that in the model all the chemical mass from the vicinity of the mine is discharged into the river adjacent to the minesite. This assumption produces the greatest computed concentration changes in the river alluvium and the river, so is conservative.

expected case. The river water dilutes this water by a (minimum) factor of approximately 13:1. As the original mine water is already diluted in the incoming water by a factor of 170:1, the total (minimum) dilution of the mine water seepage in the river opposite the mine is approximately 2,300:1. These dilutions are minima because the river flow used is the minimum.

4.3 Expected Case

The "expected case" evaluation comprises the expected condition for the post-mining groundwater and surface water effects resulting from the mining and backfilling of the Pogo Mine. This case uses the expected values of each of the parameters that control post-closure groundwater system behavior, and the expected source term for each constituent. The results are presented for each of the constituents considered.

The analyzed maximum increases in concentration in the groundwater flow system after the cessation of mine operation and backfilling are summarized by species in the following table.

Location	TDS	CN	As	Cd	Ni	Sb	Se
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Backfill	5158	0.4	4.4	<0.001	0.348	0.052	0.049
Bedrock (mid-path)	2591	0.20	0.001	<0.001	<0.001	<0.001	<0.001
Slope Alluvium	291	0.023	<0.001	<0.001	<0.001	<0.001	<0.001
Valley Alluvium	16	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
River	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Years to reach peak	140	140	270,000	1,420,000	270,000	30,000	82,500

These changes result in the following peak concentrations in the indicated locations:

Location	TDS	CN	As	Cd	Ni	Sb	Se
	mg/L	mg/L	Mg/L	mg/L	mg/L	mg/L	mg/L
Backfill	5691	0.4	4.5	<0.001	0.363	0.053	0.050
Bedrock (mid-path)	3124	0.20	0.053	<0.001	0.015	0.001	0.001
Slope Alluvium	892	0.023	0.053	<0.001	0.002	<0.001	0.002
Valley Alluvium	310	0.001	0.030	<0.001	0.002	<0.001	0.001
River	71	<0.001	0.006	<0.001	0.001	<0.001	0.001
Years to reach peak	140	140	270,000	1,420,000	270,000	30,000	82,500

The results indicate that there will be some increase in concentrations of species at and close to the backfilled mine, but these effects are expected to reduce rapidly with distance away from the mine. None of these changes in water concentration would cause a change in the use of the water, or would cause the water to exceed relevant regulatory standards.

4.3.1 TDS

After closure and refill of the mine voids, materials dissolved in the backfill will be transported downgradient through the flow system by groundwater flow, resulting in increases in dissolved solids content downgradient of the mine. The amount of soluble material at source has been computed by reconcentrating the dissolved solids in a leached sample back into the moisture content of the original sample.

Total dissolved solids concentrations that are expected in the backfill are 5,691 mg/L, which is computed from the results of initial leaching of humidity cell testing. This concentration is 5,158 mg/L higher than the average TDS in groundwater in the country rock. In the Goodpaster alluvium against the valley wall, the increase in TDS is computed to be 291 mg/L; this would occur in a location where the groundwater naturally exceeds the TDS drinking water standard. The effect of this water quality change would be to somewhat increase the area of the alluvium where the TDS exceeds the secondary drinking standard of 500 mg/L (which the slope alluvium currently exceeds in places). A small increase of 16 mg/L is computed to occur in the alluvium beside the Goodpaster River, while there is computed to be no detectable concentration change in the Goodpaster. The results are presented in Figure 3.

4.3.2 Cyanide

Total cyanide concentrations are expected to be relatively low in the backfill: an average of 0.4 mg/L in the interstitial liquid (cyanide destruction will reduce the concentration of cyanide to 2 mg/L concentration in the sulfide fraction; this is 20% of the backfill material). It is assumed that the same concentration will exist in the backfill solids. Based on this input, the peak concentration of cyanide in the slope alluvium is computed to be 0.023 mg/L, and in the valley alluvium is 0.001 mg/L. Neither value approaches the drinking water concentration of 0.200 mg/L. No measurable change is expected in the Goodpaster River. It is computed that these peak values will be reached approximately 140 years after the end of the mining.

4.3.3 Arsenic

Arsenic concentrations in the interstitial waters in the backfill are expected to be high: nearly 4.5 mg/L. This dissolved arsenic will be displaced from the backfill with the seepage through the mine, and will migrate slowly towards the Goodpaster River, as arsenic is strongly adsorbed to the rockmass materials. Changes in the concentration of arsenic are expected to be undetectable in the slope alluvium, the valley alluvium, and the river; any change would take approximately 270,000 years to reach its peak, due to the high attenuation of arsenic in this system. The computed change in arsenic concentration in the river in the expected case is provided as Figure 4.

In the actual system, essentially no arsenic will actually be transported through this system to the alluvium. The actual source will be significantly lower than the maximum source, and in the long period of travel it is likely that geochemical processes not evaluated in the testing will occur which would result in the removal of arsenic from the groundwater. This is occurring now; the pre-mining information indicates that elevated arsenic only occurs in the groundwater system close to the orebody.

4.3.4 Other Metals

All the other metals evaluated for the expected case have no detectable increase in concentration in the alluvium or the water of the Goodpaster River. All changes are below 0.001 mg/L, which would be below any detectable levels when compared with the background metal levels in the river.

4.4 Maximum Source Case

Greater geochemical impacts result if the maximum source term is assumed for the backfill material. The summary of the changes in concentration for selected parameters for this case are presented below:

Location	TDS	CN	As	Cd	Ni	Sb	Se
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Backfill	5158	0.400	4.432	<0.001	0.348	0.052	0.049
Bedrock (mid-path)	4520	0.334	3.893	<0.001	0.305	0.046	0.042
Slope Alluvium	576	0.042	0.496	<0.001	0.039	0.006	0.005
Valley Alluvium	32	0.002	0.027	<0.001	0.002	<0.001	<0.001
River	2	<0.001	0.002	<0.001	<0.001	<0.001	<0.001
Years to reach peak	1,000	280	1,600,000	3,200,000	1,400,000	300,000	450,000

These changes result in the following peak concentrations in the indicated locations:

Location	TDS	CN	As	Cd	Ni	Sb	Se
	mg/L	mg/L	Mg/L	mg/L	mg/L	mg/L	mg/L
Backfill	5691	0.400	4.482	0.000	0.363	0.053	0.050
Bedrock (mid-path)	5053	0.334	3.943	0.000	0.320	0.046	0.043
Slope Alluvium	1,177	0.042	0.549	0.000	0.041	0.006	0.007
Valley Alluvium	326	0.002	0.057	0.000	0.005	0.000	0.001
River	72	0.000	0.008	0.000	0.001	0.000	0.001
Years to reach peak	1,000	280	1,600,000	3,200,000	1,400,000	300,000	450,000

4.4.1 TDS

Under the maximum source term assumption, the TDS concentration in the backfill is still 5,691 mg/L. In the Goodpaster slope alluvium the increase in TDS is computed to be 576 mg/L, in the valley alluvium it is 32 mg/L, and in the river it is 2 mg/L. If this maximal source term were to occur, TDS would somewhat increase the area of the alluvium where the TDS currently exceeds the secondary drinking standard of 500 mg/L (which the slope alluvium currently exceeds in places). The increases in the valley alluvium and the river would not be detectable due to current variations in TDS. The results of the maximum source analysis for TDS are presented in Figure 5.

4.4.2 Cyanide

The peak concentration of cyanide in the slope alluvium for the maximum source is computed to be 0.042 mg/L, and in the valley alluvium is 0.002 mg/L. Neither value approaches the drinking water concentration of 0.200 mg/L. No measurable change would occur in the Goodpaster River. It is computed that these peak values will be reached approximately 280 years after the end of the mining.

4.4.3 Arsenic

Under the maximum source assumption, the peak concentration of arsenic in the slope alluvium is computed to be 0.549 mg/L, and 0.047 mg/L in the valley alluvium. The computed change 0.002 mg/L in the river would not be detectable against the background of 0.006 mg/L. It is computed that in this case the peak value will not be reached for approximately 1,600,000 years after the end of the mining, due to the high attenuation of arsenic in this system. The results of the analysis are presented in Figure 6.

4.4.4 Other Metals

All the other metals evaluated for the maximum source case have no detectable increase in concentration in the alluvium or the water of the Goodpaster River. All changes are at or close to detection, except in the slope alluvium, where concentrations remain below drinking water standards. It is computed to take hundreds of thousands or millions of years for peak concentrations to be reached under this source scenario, which would be sufficient time for geologic mineralization processes to occur to remove metals from solution.

4.5 Sensitivity

The above analysis of the post-closure water quality in the vicinity of the Pogo Underground Mine presents the expected case, and the maximum source case. Some of the parameters that were used to develop the results are subject to uncertainty, so a series of sensitivity analyses were conducted to determine the sensitivity of the results to those uncertainties. The results of these analyses are presented in Table 4, and the changes in concentrations are summarized for TDS and arsenic in the river materials below:

Species	Change in TDS			Change in Arsenic		
Location	Slope	Valley	River	Slope	Valley	River
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Base Case	291	16	1	<0.001	<0.001	<0.001
Low Hydraulic Conductivity	276	53	1	<0.001	<0.001	<0.001
High Hydraulic Conductivity	90	11	2	<0.001	<0.001	<0.001
Low Porosity	345	19	1	<0.001	<0.001	<0.001
High Infiltration	291	16	1	<0.001	<0.001	<0.001
Low Distribution Coefficients	291	16	1	<0.001	<0.001	<0.001
No Adsorption	291	16	1	0.250	0.014	0.001
Maximum Source	576	32	2	0.496	0.027	0.002
Maximum Source, No Kd	577	32	2	0.497	0.027	0.002

4.5.1 Hydraulic Conductivity

The hydraulic conductivities of all materials including rock and river alluvium were set at the highest and lowest values consistent with the data. Increasing the hydraulic conductivity increases the mass rate of transport of dissolved materials from the backfill (by greater flow through the fill) but increases the dilution by flow in the alluvial materials. As a result, the high conductivity case decreases the concentrations in the alluvium, and increases the concentration in the river (and the opposite changes occur with reduction of the hydraulic conductivity). The changes are modest; below detection in the river, and not significant with respect to impacts.

4.5.2 Porosity

Reducing the porosity from the expected value to the lowest value in the range for all materials produced an increase in predicted concentrations in the Goodpaster Valley by up to 12%. These changes would not be detectable.

4.5.3 Infiltration

Increasing the infiltration to the highest values in the range for all materials produced a reduction in predicted concentrations in the Goodpaster alluvium of up to 50%, and an increase in predicted concentrations in the Goodpaster River of up to 50%. Decreasing the infiltration by a corresponding amount resulted in the opposite effects. None of the computed changes would be detectable.

4.5.4 Distribution Coefficient

Distribution coefficients of all materials were set at the lowest value consistent with the laboratory data. This reduced the extent to which metals are adsorbed, and increased the speed of transit and increases the concentrations in the Goodpaster Valley. The results were essentially unchanged, with concentration changes increasing approximately 2%, which is not detectable.

To evaluate the significance of the laboratory-determined distribution coefficients on the results, distribution coefficients for all species were set to zero. This eliminates adsorption of the rockmass and the alluvium. Peak concentration changes in the river valley increased by as much as four orders of magnitude in some cases as a result of this change; however the concentrations that resulted would still not be detectable except in the case of arsenic. Transit times for all species also dropped to about a century.

4.6 Summary

The results of the evaluation of solute transport at the Pogo site after mine closure are as follows:

1. In general, no measurable post-closure increases in concentration of mine-related constituents are expected to occur in the Goodpaster River or the riverside alluvial materials.

2. An increase in TDS may occur in alluvium close to the valley wall in about 100 years; this change may slightly increase the area of the alluvium in which the water exceeds the secondary drinking water standard for TDS of 500 mg/L.
3. A slight increase in cyanide concentrations may occur in the alluvium close to the valley wall in about 100 years; the computed change is 0.013 mg/L, which is well below the drinking water MCL of 0.200 mg/L. However it is expected that the cyanide will undergo some degradation in transit, so no change is likely to be identifiable.
4. A slight increase in arsenic is predicted for the alluvium close to the valley wall, but this will take geologic times to occur. This change would not be expected to be identifiable by site measurement.
5. Consideration of the maximum variation in all site parameters and of the source term does not significantly change the results of these analyses.

In summary, no significant change is expected to occur in concentrations of groundwater constituents, and no measurable change is expected to occur in concentrations of surface water constituents as a result of post-closure seepage through the Pogo Mine backfill.

5. Conclusions

The impact of backfilling the Pogo Mine with cemented and uncemented processed ore materials has been evaluated using a solute transport analysis model. As a result of the low hydraulic conductivity of the host rock, the high ability of the host rock and alluvium to adsorb metals, and the high dilution of the groundwater flow when it enters the Goodpaster River valley, no significant chemical impacts will occur to water resources in the Goodpaster River or its alluvium as a result of the backfilling and closure of the proposed underground mine.

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Table 1 – Laboratory Distribution Coefficients of Site Materials

Analyte Unit	TDS ml/g	CN ml/g	As ml/g	Cd ml/g	Ni ml/g	Sb ml/g	Se ml/g
Rock	0	0	4.5	45	4.5	0.5	1.4
Backfill	0	0	3	30	3	0.3	0.9
Alluvium-Slope	0	0	6	60	6	0.6	1.8
Alluvium-Valley	0	0	6	60	6	0.6	1.8
River	0	0	0	0	0	0	0

Table 2 - Water and Solid Chemistry Results

Parameter	Unit	Goodpaster River Water (1)	Valley Alluvium Ground-Water (2)	Slope Alluvium Ground-Water (3)	Non-Orebody Ground-water (4)	Orebody Ground-water (5)	Cemented Tailings Liquor (6)	Cemented Tails Solids (7)
Conductivity	µS/cm	71	383	854	766	1,416	7081	
pH	pH units	7.37	6.57	6.98	7.90	7.44	9.32	9.3
TDS	mg/L	70	294	601	553	987	5691	
TSS	mg/L	10	13	48	183	20		
Turbidity	NTU	2	7	224	89	24		
Bicarbonate	mg/L	38.6	75.5	205	410	338		
Alkalinity	mg/L	38.2	74.4	191	369	338	63	
Hardness	mg/L	53.0	188.8	513	408	709		
Ca	ppm	14.5	48.6	120	81	117	1545	25,500
Fe	ppm	0.04	11.4	27	0.9	1.1	1.0	30,600
K	ppm	2.8	2.2	3.0	3.5	3.3	69	2,200
Mg	ppm	3.7	16.3	50	49	99	16	4,100
Na	ppm	2.5	6.9	13	30	41	230	100
P	ppm	0.02	0.08	0.22	0.30	0.5	0.3	240
Cl	ppm	0.4	10.3	1.1	3.8		29	
NH3	ppm		0.3	0.35	0.40	0.1		
NO3	ppm	0.27	0.09	0.04	0.05	0.1		
SO4	ppm	15.5	111.3	332	168	431	3714	
CN	ppm						0.4	
Si	ppm		5.9	5.7	7.9		13	
F	ppm	0.1	0.1	0.17	1.2	0.6		
Ag	ppb	-0.02	-0.02	-0.02	-0.02	-0.02	181	800
Al	ppb	19	69	6	127	6	1,584	7,000,000
As	ppb	0.30	30	53	50	1,645	4,482	7,080,000
Ba	ppb	15.6	67.3	173	53	17	109	50,000
Be	ppb	2.1	0.5	0.9	0.7		-0.2	-500
B	ppb		2.8	2.9	11	11	167	
Bi	ppb		0.5	0.75	0.70	0.6	-0.2	82,000
Cd	ppb	0.04	0.07	0.07	0.11	0.034	-0.2	-500
Co	ppb	0.1	3.5	0.4	13	1.0	31	12,000
Cr	ppb	1.1	4.0	2.6	1.7	4.1	29	164,000
Cu	ppb	0.7	1.2	1.8	0.8	1.3	63	198,000
Fe	ppb	40	11,432	26,833	859	1,108	1,279	30,600,000
Hg	ppb		0.05	0.04	0.02	0.02	-0.4	-10,000
Mn	ppb	4	981	1,089	319	57	4.74	295,000
Mo	ppb	0.32	0.31	1.39	12	6.3	783	5,000
Ni	ppb	0.82	2.45	1.7	15	6.4	363	22,000
Pb	ppb	0.03	0.15	0.08	0.67	0.1	-9	42,000
Sb	ppb	0.10	0.14	0.12	0.76	2.4	53	4,000
Se	ppb	·	1.08	1.5	1.4	1.2	50	200(9)
Sn	ppb	0.40	0.12	0.15	0.14	0.1	6	
Sr	ppb	83	266	843	1,172	4,980	2,070	54,000

Parameter	Unit	Good-paster River Water (1)	Valley Alluvium Ground-Water (2)	Slope Alluvium Ground-Water (3)	Non-Orebody Ground-water (4)	Orebody Ground-water (5)	Cemented Tailings Liquor (6)	Cemented Tails Solids (7)
Ti	ppb		0.026	0.065	-10		-43	300,000
Tl	ppb		10	10	0	0.02	0.11	-10,000
U	ppb	0.41	2.70	8.3	4.8	20	0.41	-10,000
V	ppb	0.40	2.47	1.7	1.5	0.9	23	22,000
Zn	ppb	2.36	6.49	7.6	124	8.1	18	36,000

NOTES:
(1) Goodpaster River data averaged from locations SW-23 (upstream) and SW-15 (downstream) (n=26)
(2) Valley alluvium averaged from MW98-03 (shallow) and MW98-15 (deep) (n=20)
(3) Slope alluvium averaged from MW98-10A (n=6)
(4) Non-ore groundwater from MW98-80, -81, and -82 (n=20). Note elevated cobalt, zinc.
(5) Orebody groundwater samples are taken from flow from underground drill holes (n=42)
(6) Re-concentrated from initial Humidity Cell Test leachate
(7) Tailings from Tests 37, 38, and 39 of the Humidity Cell Test sequence; values are for solids
(8) Negative sign means "less than"
(9) Solid phase selenium value taken from total tailings analysis
(10) Except as noted, all values are for dissolved concentration (filtered with a 0.45 micron filter)

Table 3 – Maximum Source Term Constituent Availability

Parameter	Cemented Tailings Liquor (mg/L)	Cemented Tailings Solid (mg/Kg)	Effective Kd (4) (Distribution Coeff) (L/Kg)
TDS	5,679	78,000 (1)	14
CN	0.4	0.4 (2)	1
As	4.5	7,080	1,573
Cd	<0.001 (3)	<0.5 (3)	500
Ni	0.4	22	55
Sb	0.053	4	75
Se	0.050	0.2	4,000

(1) Computed from expected soluble and leachable constituents from Table 2

(2) Solid phase concentration assumed to be the same as liquid phase

(3) Concentrations set at detection limits

(4) Effective distribution coefficient = maximum concentration in solid /concentration in liquid

Table 4 - Results of Sensitivity Analyses

Species	Location	Unit	Base Case	High Hydraulic Conduct-ivity	Low Distribution Coefficients	No Adsorption	Low Porosity	High Infiltration	Low Hydraulic Conduct-ivity	Maximum Source	Maximum Source, No Kd
TDS	Backfill	mg/L	5158	5158	5158	5158	5158	5158	5158	5158	5158
	Rock	mg/L	2591	2554	2591	2591	2985	2591	2418	4520	4530
	Slope	mg/L	291	90	291	291	345	291	276	576	577
	Valley	mg/L	16	11	16	16	19	16	53	32	32
	River	mg/L	1	2	1	1	1	1	1	2	2
	Time	years	140	100	140	140	60	140	290	1000	390
CN	Backfill	mg/L	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400
	Rock	mg/L	0.201	0.198	0.201	0.201	0.231	0.201	0.188	0.334	0.336
	Slope	mg/L	0.023	0.007	0.023	0.023	0.027	0.023	0.021	0.042	0.043
	Valley	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.002	0.002
	River	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Time	years	140	100	140	140	60	140	290	280	250
As	Backfill	mg/L	4.432	4.432	4.432	4.432	4.432	4.432	4.432	4.432	4.432
	Rock	mg/L	0.001	0.001	0.002	2.226	0.001	0.001	0.001	3.893	3.898
	Slope	mg/L	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.496	0.497
	Valley	mg/L	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.027	0.027
	River	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.002
	Time	years	270000	190,000	190,000	140	270,000	270,000	540,000	1,600,000	720
Cd	Backfill	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Rock	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Slope	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Valley	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	River	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Time	years	1420000	1420000	500000	140	2700000	2700000	5400000	3200000	540
Ni	Backfill	mg/L	0.348	0.348	0.348	0.348	0.348	0.348	0.348	0.348	0.348
	Rock	mg/L	0.000	0.000	0.000	0.175	0.000	0.000	0.000	0.305	0.306
	Slope	mg/L	0.000	0.000	0.000	0.020	0.000	0.000	0.001	0.039	0.039
	Valley	mg/L	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.002
	River	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Time	years	270000	190000	150000	140	270000	270000	540000	1400000	680
Sb	Backfill	mg/L	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.052
	Rock	mg/L	0.000	0.000	0.000	0.026	0.000	0.000	0.000	0.046	0.046
	Slope	mg/L	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.006	0.006
	Valley	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	River	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Time	years	30000	21000	9000	140	30000	30000	60000	300000	620
Se	Backfill	mg/L	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049
	Rock	mg/L	0.000	0.000	0.000	0.025	0.000	0.000	0.000	0.042	0.043
	Slope	mg/L	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.005	0.005
	Valley	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	River	mg/L	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Time	years	82500	58500	48000	140	84000	84000	165000	450000	600

Figure 1- Hydraulic Conductivity Distributions

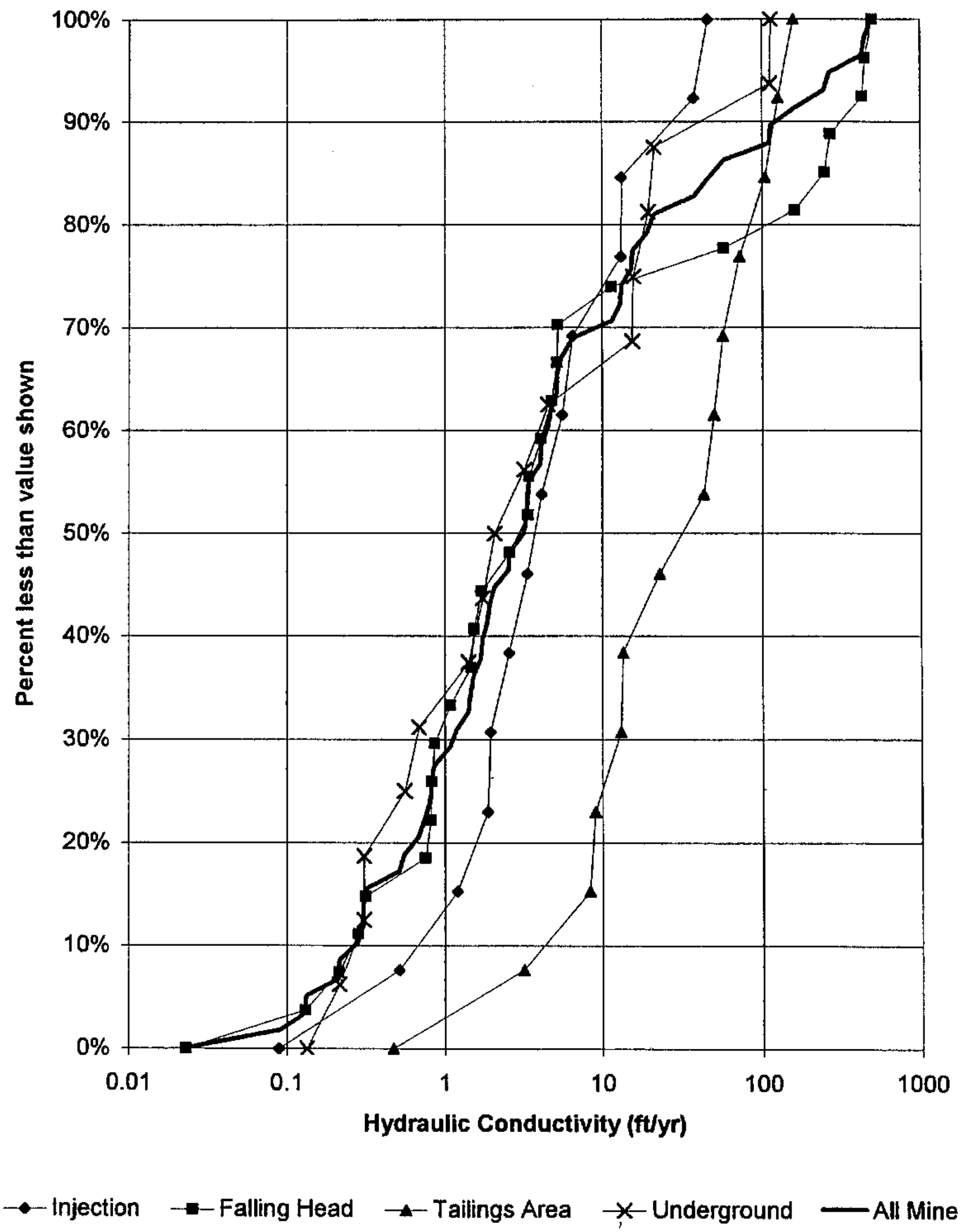


Figure 2 – Schematic of Mixing Cell Model

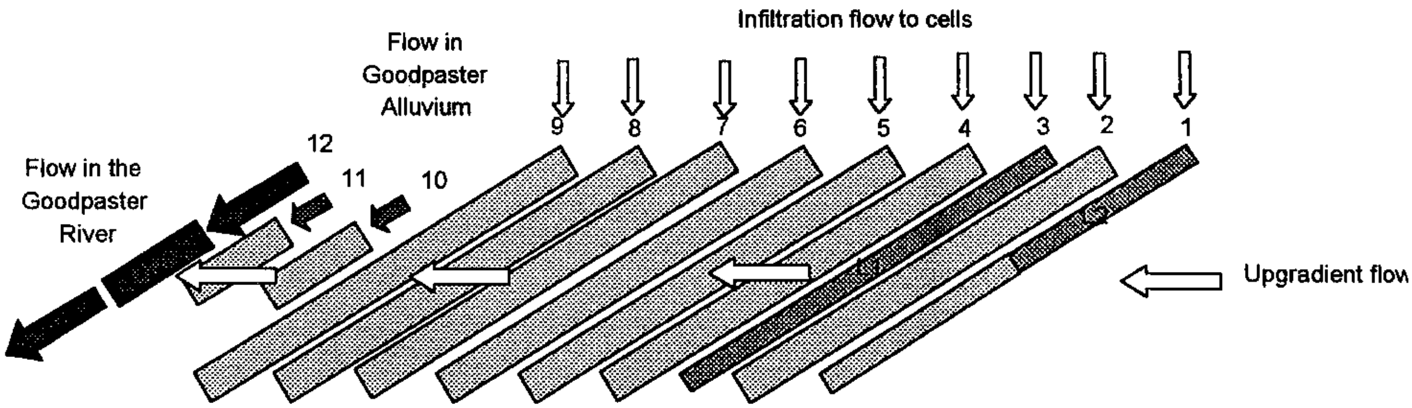


Figure 3 – Expected Case – TDS

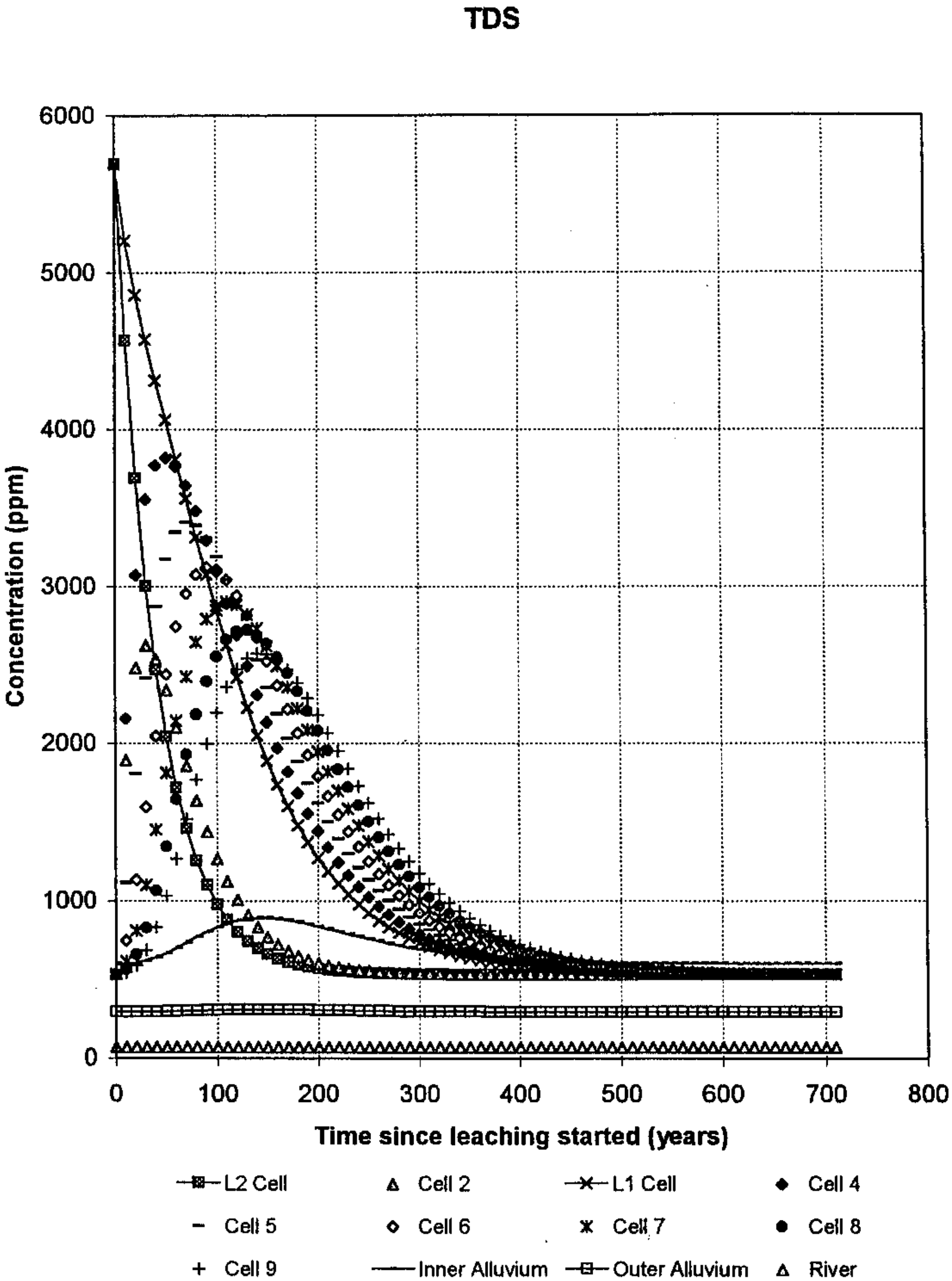


Figure 4 – Expected Case – Arsenic

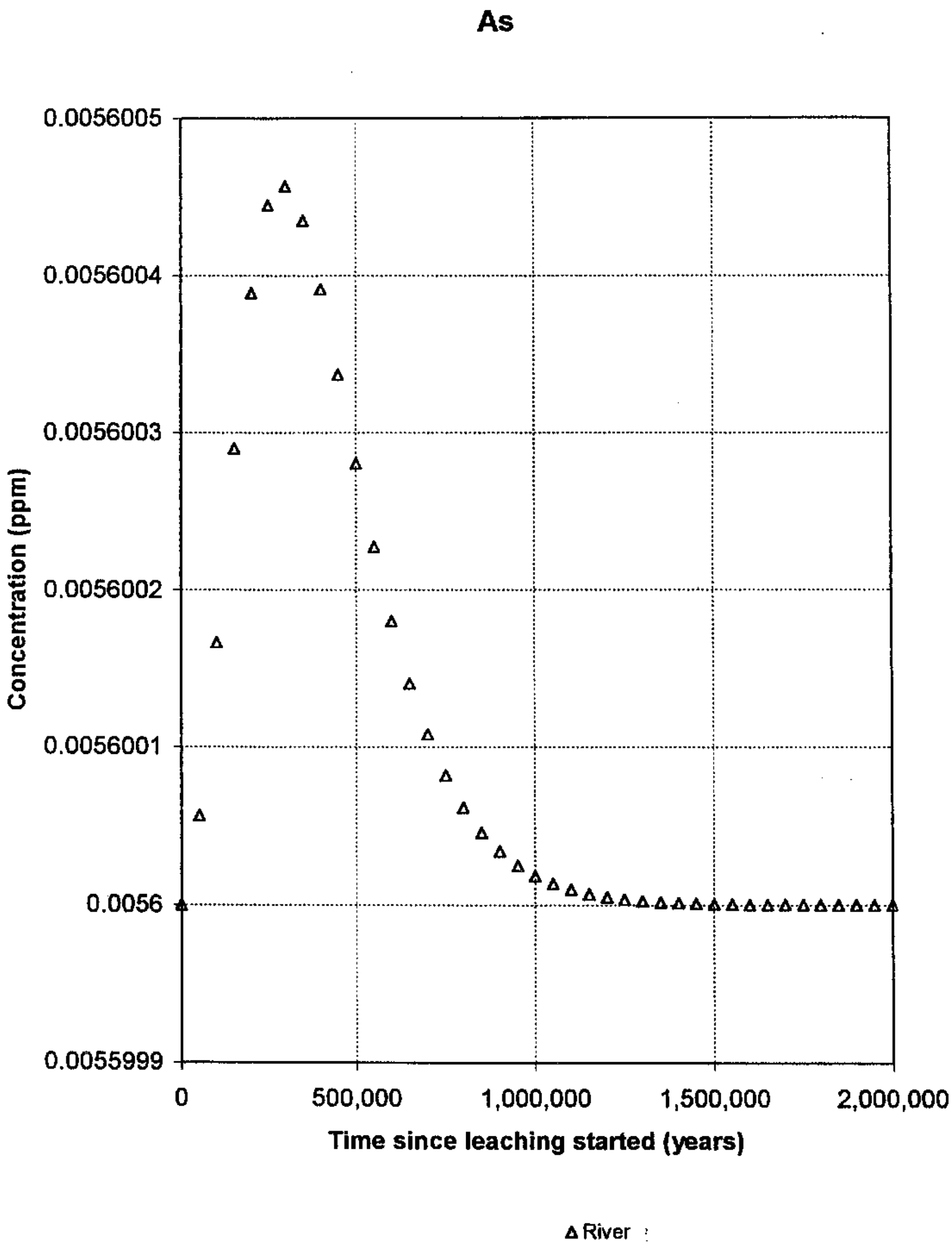


Figure 5 - Maximum Source - TDS

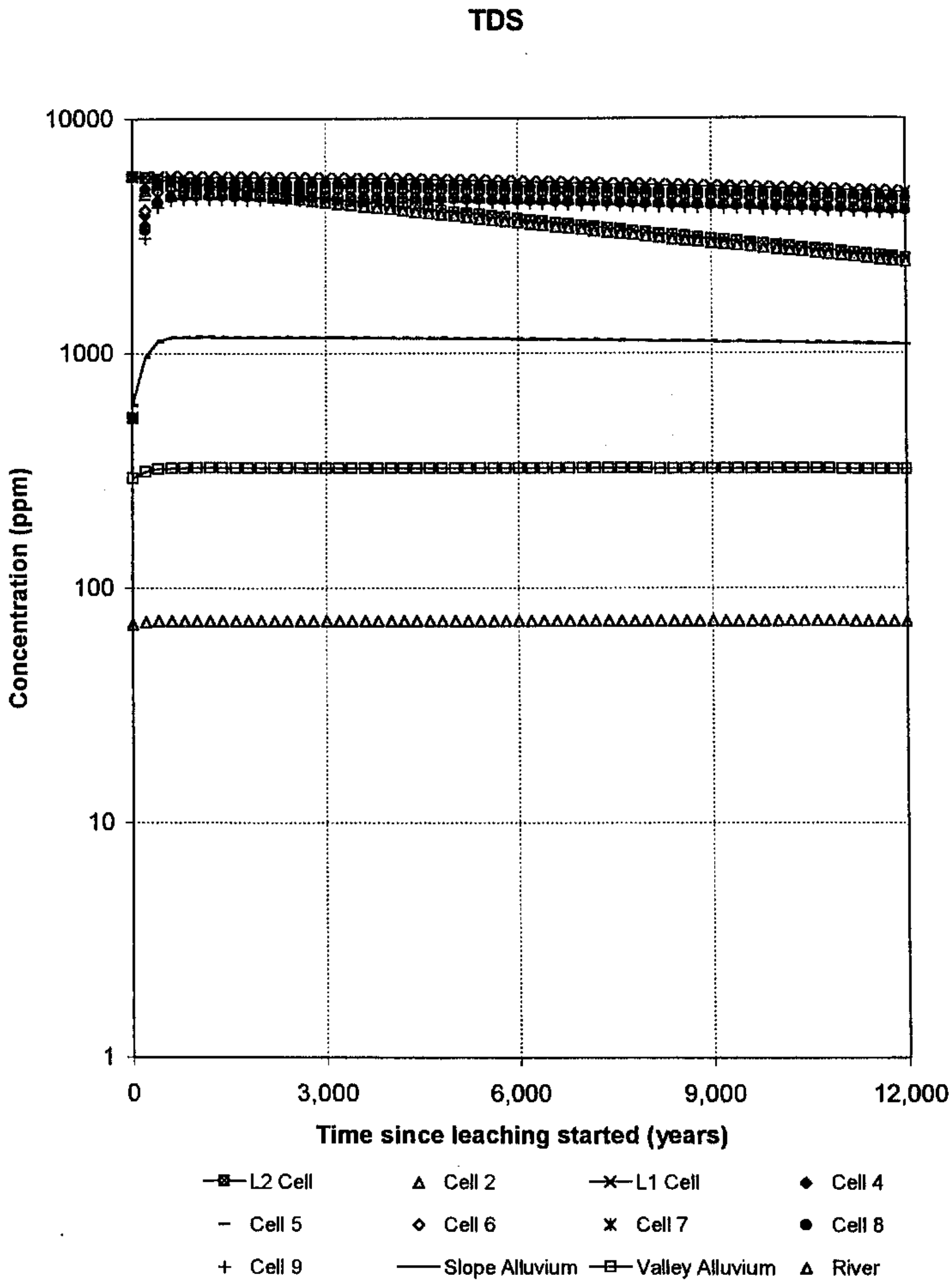
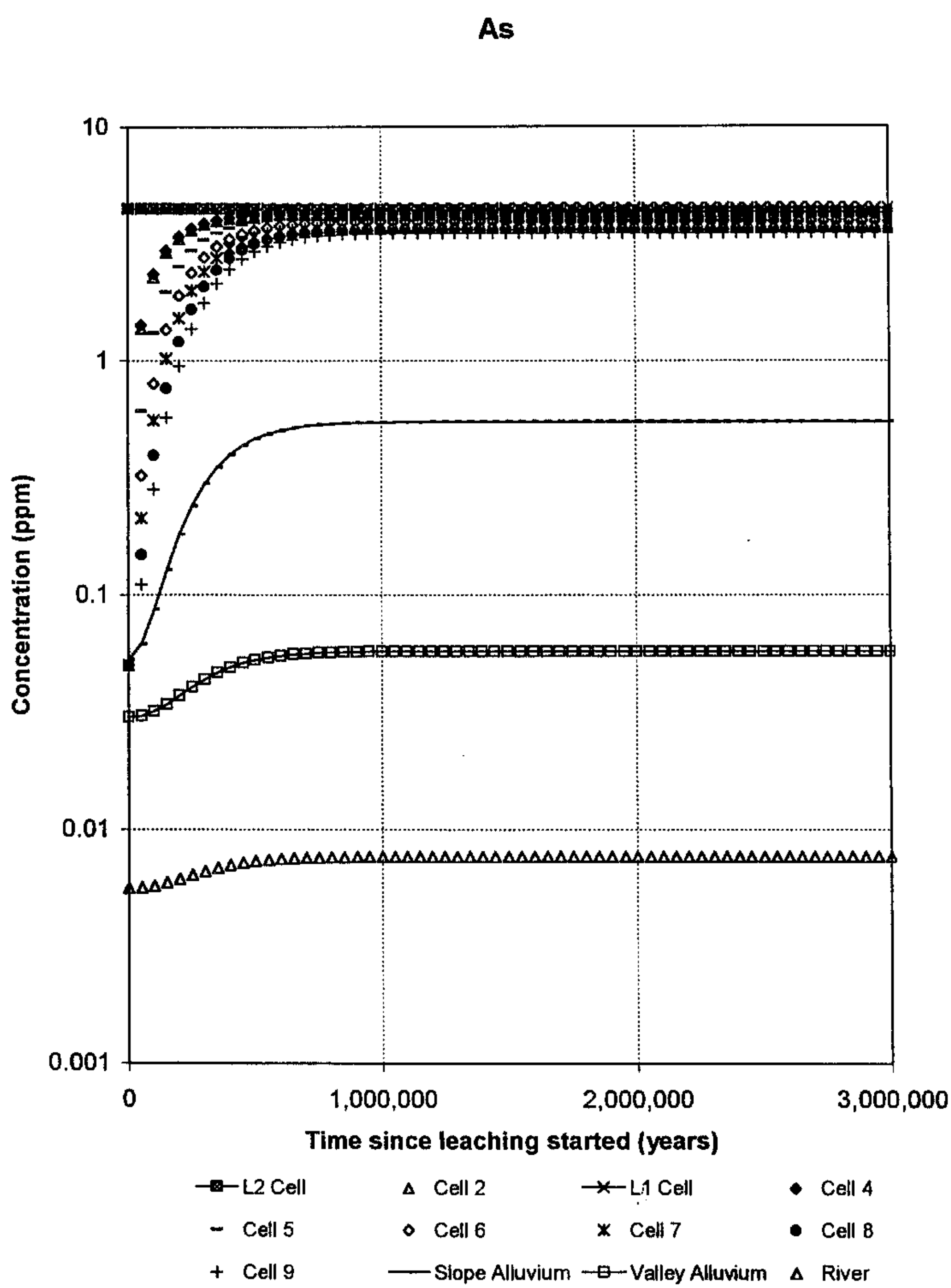
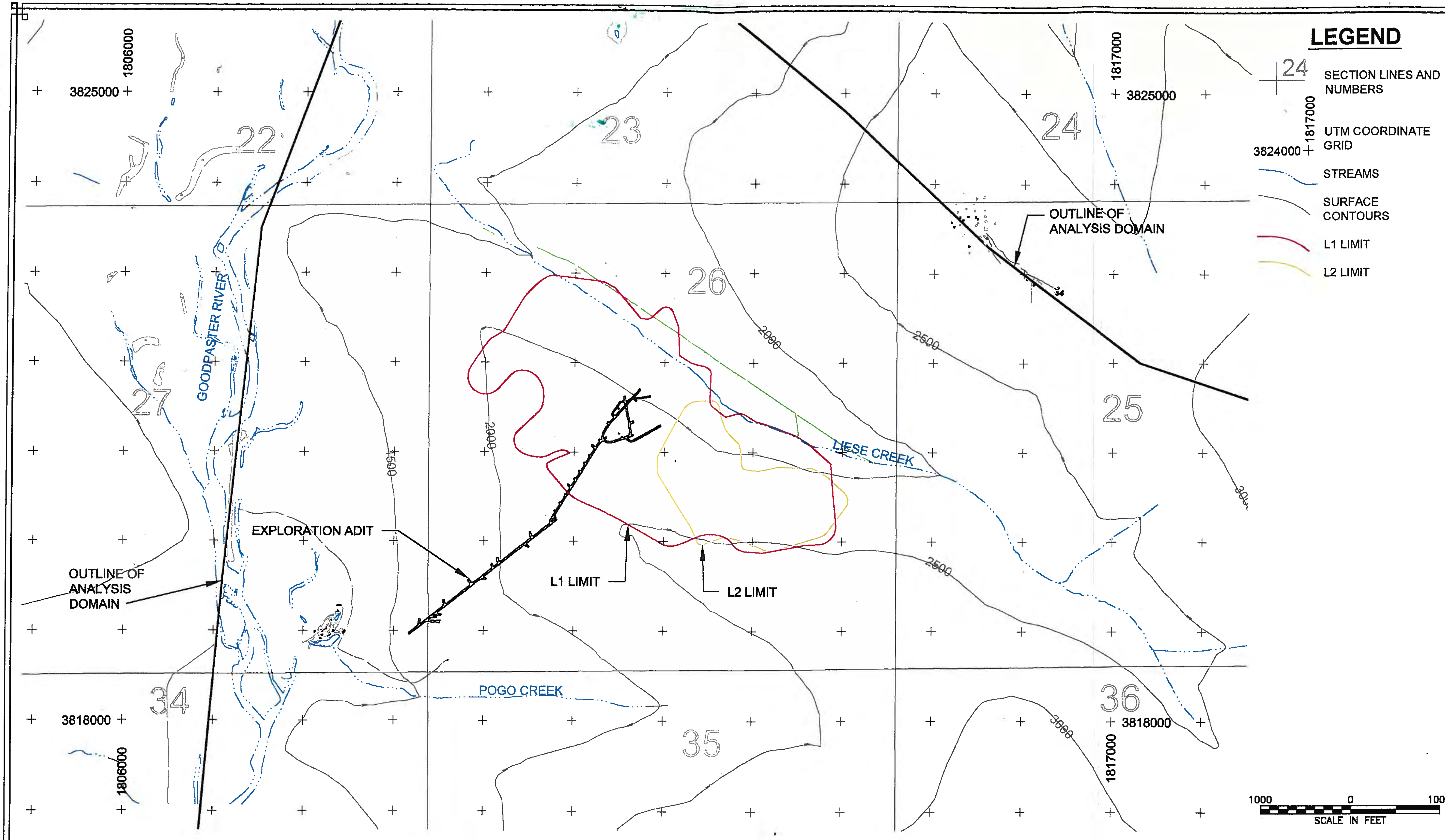


Figure 6 - Maximum Source - Arsenic





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TECK CORPORATION

LOCATION PLAN

POGO GOLD PROJECT, ALASKA

N

DESIGNED: A.B.	DATE: 12 JUNE 2001	FILE: //1543a\ 1543a-005.DWG; Basemap Date: 12 June 2001 14:00:00	PLATE NUMBER 1
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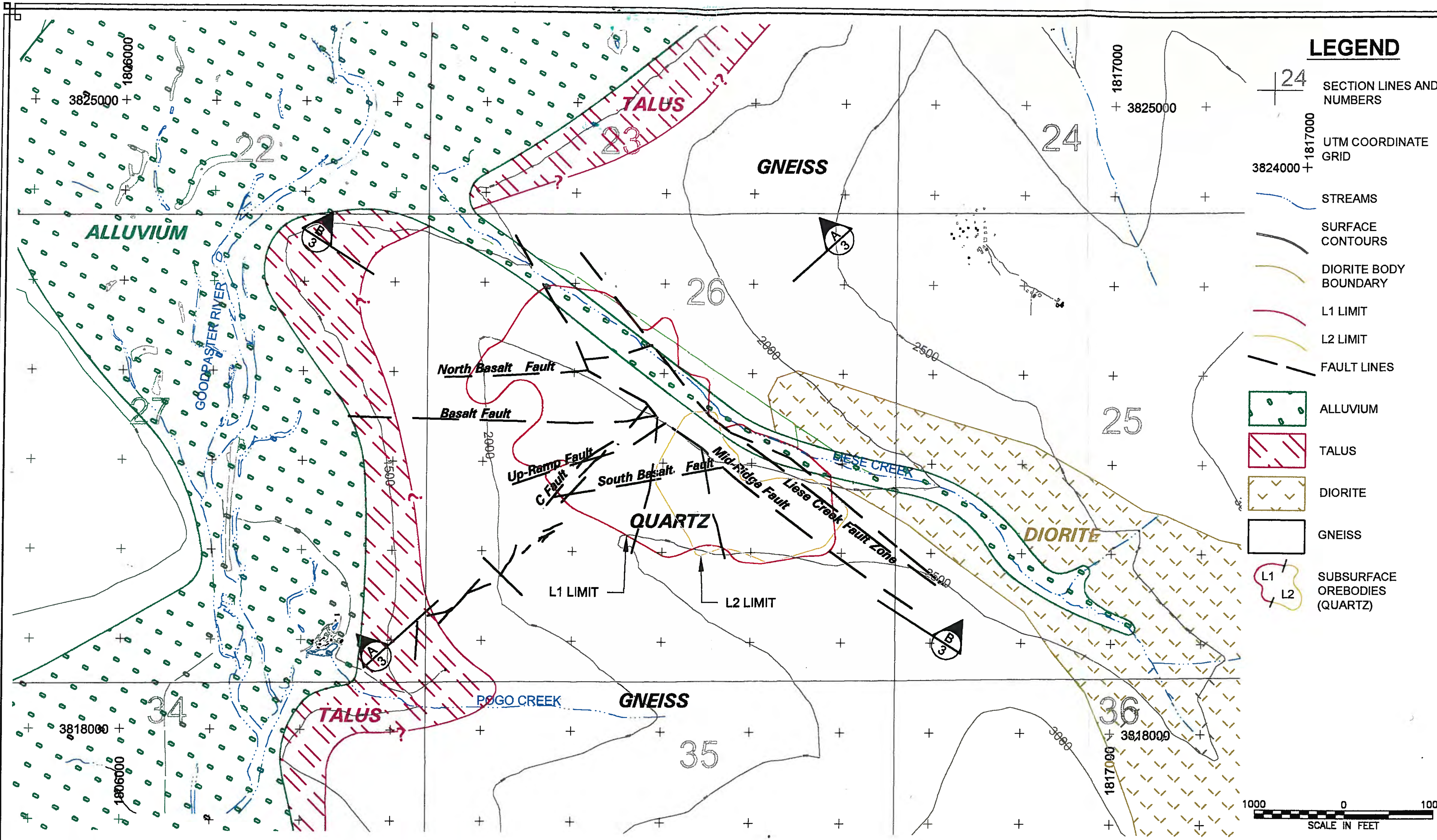
CHECKED: A.B.	DATE: 12 JUNE 2001		



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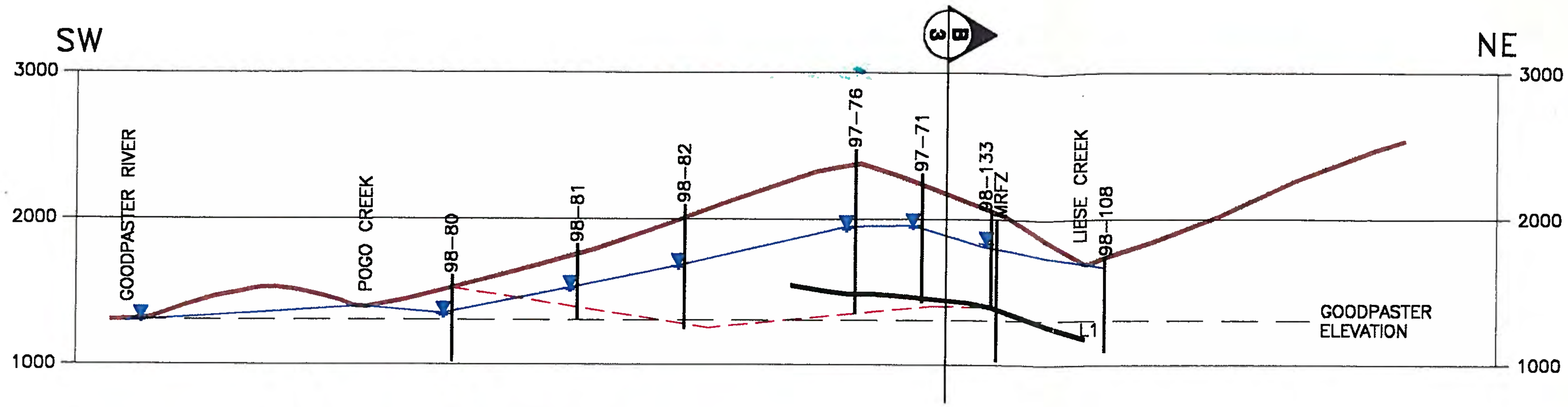

CROSS SECTION A 3

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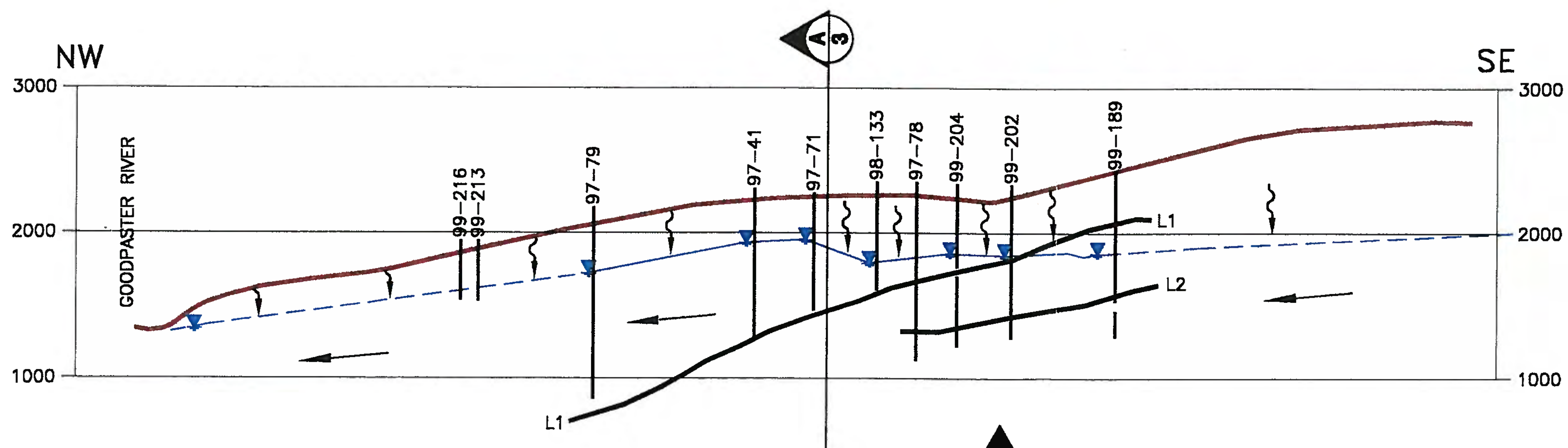

CROSS SECTION B 3

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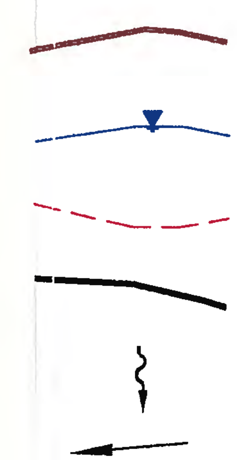
LEGEND



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GEOLOGIC CROSS SECTIONS

POGO GOLD PROJECT, ALASKA

DESIGNED: A.B.	DATE: 24 JANUARY 2001	FILE: //1543a\ 1543a-005.DWG; X-Sections Date: 24 Jan. 2001 14:10:00	PLATE NUMBER: 3
DRAWN: D.B.	DATE: 24 JANUARY 2001		
CHECKED: A.B.	DATE: 24 JANUARY 2001		

Attachment**One.** Chemical Testing

Bench-Scale Testing of **Attenuation Capacity of** Pogo Mine Lithologies

Prepared for:

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October 30, 2000
Report 1543A.001030

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1. INTRODUCTION

1.1 Overview and Purpose

The Goodpaster River is beside and downgradient of the proposed Pogo Mine, located 90 miles southeast of Fairbanks, Alaska. Paste tails which are used to backfill the underground mine void will contact groundwater as it flows toward the river. Between the Goodpaster River and the proposed mine is a flow-path of approximately 4000 feet of local bedrock. This bedrock will interact with any chemical constituents dissolved in groundwater, primarily through chemical adsorption processes.

The purpose of the chemical attenuation test program presented here is to quantify the extent to which local bedrock will attenuate trace metal concentrations in groundwater. The approach used was to collect representative bedrock samples from the volume between the proposed mine void and the Goodpaster River, and to measure the distribution coefficient (K_d) of the rock using the standardized method.

1.2 Approach

When an aqueous solution contacts a solid, chemical constituents dissolved in the solution will, to varying extents, adsorb onto the solid. It is commonly observed that as the concentration of a species in solution increases, the amount of it adsorbed to contacting solid surfaces also increases. A graph of the amount of species adsorbed as a function of the solution concentration is called an isotherm. The distribution coefficient, K_d, is the simplest numerical description of an isotherm. It is defined by the following equation, with the adsorption reaction at equilibrium:

$$K_d = \frac{\text{concentration of the constituent in the solid phase (mg/kg)}}{\text{concentration of the constituent in the liquid phase (mg/L)}}$$

A range of factors, including solution pH and salinity, affects the magnitude of Kd. Its magnitude cannot easily be predicted and is best determined empirically, using materials and conditions that most closely mirror site circumstances.

The present evaluation of the K_d for trace metal interaction with Pogo lithologies considered an expected base case and a range of variations intended to provide a sensitivity evaluation, increasing the reliability of the base case measurements and constraining uncertainty. The specifics of the base case and each of the variations is presented below in a discussion of methods.

2. METHODS

2.1 Evaluation Approach

The present evaluation considered a best or most likely case for determination of K_d. Additionally, a range of variations on this base case was considered to provide a sensitivity check on the base case determination. The base case scenario for this evaluation considers paragneiss, the dominant rock type in using paragneiss, and a test solution with a pH of 9. Individual experiments were conducted on each grainsize.

2.1.4 Ionic Strength

As the ionic strength (TDS) of the bulk solution increases, adsorption of trace metals onto mineral surfaces would be expected to decrease, as a result of increased interaction of ions in solution and the increased competition for adsorption sites on the mineral surfaces. A check on the effects of ionic strength was performed in the present evaluation by using paragneiss, a 50/50 grainsize mixture and a bulk solution pH of 9. A high TDS bulk solution was prepared to be consistent with the TDS anticipated for porewaters from paste tails. A second TDS solution was used that was consistent with porewater from paste tails diluted with local groundwater.

2.1.5 Rock Type

Different mineral surfaces have varying capacities for trace metal adsorption and, thus, K_d. At the Pogo site, paragneiss is the dominant rock type and, accordingly, forms the foundation for the base case. However, an orthogneiss and a granitic material are also present. The present evaluation performed tests using these materials in addition to the tests with paragneiss to characterize their contributions. Tests were performed using bulk solutions with a pH of 9 and a 50/50 grainsize mixture.

2.1.6 Leach Blank

An evaluation of metal uptake necessarily considers the potential release of metals from tested minerals due to the action of the bulk solutions. As described above, solutions with elevated pH conditions will react with silicate minerals in an acid-base reaction to decrease the pH, simultaneously dissolving the mineral. The present evaluation performed a check on the potential release of trace metals from the local lithologies. The test was performed using paragneiss, at a 50/50 grainsize mixture, and a distilled water solution adjusted to pH 9 with slaked lime ($Ca(OH)_2$). The test was conducted in a procedurally identical manner to the metal attenuation tests.

2.2 Methods

2.2.1 Testing Procedure

The approach to testing used in this study involved contacting the site bedrock types with synthetically prepared metal-laden water, with pH and bulk solute concentrations established to be consistent with expected aqueous chemistry conditions at the Pogo site after mine closure. The specific details and procedure of the testing methodology are found in Attachment One to this report.

The testing procedure provided for the combination of a selected solid with a selected solution at a ratio of 100 grams of solid to 500 mL of solution. The mixtures were agitated and allowed to remain in contact for 24 hours. At the end of 24 hours, the experimental solutions were filtered through a 0.45-micron filter and samples were collected for laboratory analysis of dissolved metals. Metals selected for analysis these standards were included in the testing program. Some elements (e.g. cadmium) did not exceed any identified standard, but were included as a result of expected environmental sensitivity. Using this process, the following trace metals were selected for testing:

- Silver
- Arsenic
- Cadmium
- Copper
- Antimony
- Selenium

Table 3a presents the formulations for the test solutions used in the present study. Table 3b presents the corresponding calculated concentrations. Table 4 (Experimental Results) reports the analytically determined trace metal concentrations in starting test solutions, as well as their concentrations following testing (discussed below).

2.3 Materials

Figure 1 is a generalized cross-section that incorporates all of the lithological data from the underground pilot holes and is a reasonable depiction of the relative abundance of the main rock types.

1. Paragneiss. As seen in Figure 1, the most abundant rock type is paragneiss, which includes variants of biotite-quartz-feldspar gneiss. This material accounts for approximately 85% of the rock mass between the proposed mine void and the river. Other rock types include sub-equal volumes of orthogneiss and non-foliated granitic dykes. The sample is from drillhole UP99-2, taken from a distance of 793 to 800.5 feet from the hole collar.

2. Orthogneiss. The orthogneiss is a heterogeneous rock type that includes augengneiss and textural varieties of meta-granite. This rock type accounts for approximately 10% of the rockmass between the proposed mine void and the river. The sample used in the present study is augengneiss and is from drillhole UP99-2, taken from a distance of 813 to 820 feet from the collar.

3. Granite. Granitic rocks occur in the rockmass as varieties of equigranular granite to coarse-grained pegmatite. These occur as dykes and sills that average 3 ft thick, but are up to 60 ft thick. They are widely distributed, and account for approximately 5% of the rockmass between the proposed mine void and the river. Frequently the equigranular granites exhibit pervasive phyllic alteration. The sample used in the present study is equigranular granite that exhibits weak phyllic alteration and comes from drillhole UP99-2, taken from a distance of 239.5 to 243 feet from the collar.

All three rock types were received as two-inch core. On receipt, they were separately milled at two distinct size fractions: less than 0.25-inch, and less than 0.1-inch. An intermediate size fraction was obtained by mixing equal parts of both of these fractions. Apart from crushing and sieving, the materials were not pre-treated prior to adsorption testing.

Element	As	Cd	Ni	Sb	Se
Average K_d (mL/g)	9.6	>44.5	~16.7	0.9	3.6

The base case results for arsenic and selenium appear in Figure 2 and Figure 3 as diamond shaped points. For both elements, the mass adsorbed (mg/kg) increases with the concentration in solution (mg/L), as is expected from theoretical considerations. Note that the points plotted in these figures represent equilibrium conditions, so the solution concentration plotted is lower than the initial concentration. The mass adsorbed (mg/kg) represents the mass lost from the volume of the initial solution distributed over the mass of the solid used in the test. Given the absence of leachable quantities of these elements in the blank run (see Section 3.7 below), this calculus is validated.

As illustrate in Figure 4 for the case of arsenic, the specific form of the adsorption isotherm is not clearly defined. This figure illustrates the conventional difference between a site-specific adsorption mechanism (curved fit) where there is an upper limit to adsorption capacity and a multi-layer mechanism where adsorption capacity rises linearly with solution concentration. Because the present program conducted measurements with trace element concentrations that exceed the expected site concentrations, either mechanistic view is suitable for use in analysis, as there is no need to forecast chemical responses beyond the range of that tested.

For simplicity, and to avoid undue consideration of suitability of one isotherm fit over another, the present evaluation calculated the K_d at each individual measurement point and then averaged them all, for each element. The individual results and the calculated average are reported in Table 5.

3.3 pH Effects

The effect of changing pH on the value of K_d for arsenic and selenium is illustrated on Figure 5. The effect was more pronounced for arsenic than for selenium. For both elements, a decrease in pH of the initial solution resulted in an increase in K_d. Note that the regression lines shown in Figure 5 are for the purpose of highlighting the trends in the data and do not represent any meaningful chemical relationship.

A summary of results of the variation of K_d with pH for otherwise relatively constant conditions (paragneiss, medium grainsize, constant ionic strength) is presented below. Values which are indicated with a ">" sign are for analyses where the initial concentration of the constituent in the test was measurable, but the final concentration was below the MDL. Based on these results, it would appear that all test results are consistent with K_d values decreasing with increasing pH in the tested range (7 to 9). Further, the variation of arsenic and selenium with pH identified in Figure 5 is supported by these data.

Grainsize	K_d (mL/g)				
	As	Cd	Ni	Sb	Se
Small (<0.1 inch)	10.2	42.6	>2.5	0.7	3.9
Medium (mix of <0.1 and <0.25 inch)	9.7	44.5	11.2	0.9	3.6
Large (<0.25 inch)	6.3	16.1	>2.5	0.7	2.7
Estimated rockmass value	5	15	5	0.5	2
Factor: medium to rockmass value	0.5	0.5	0.5	0.5	0.5

3.5 Ionic Strength Effects

Ionic strength affected the measured value of K_d in the present evaluation. However, the effect was poorly constrained and somewhat variable. Ionic strength effects were most noticeable for arsenic than selenium (Figure 7).

The variation of K_d with ionic strength as measured by conductivity[1] is shown below for medium size paragneiss, for tests restricted to those with final pH within the range 7.9 to 8.1; the table includes an estimate of the standard deviation of the value of K_d for variation over the entire range of ionic strength[2]:

Conductivity (uS/cm)	Estimated TDS[1] (mg/L)	K_d (mL/g)				
		As	Cd	Ni	Sb	Se
3800	2800	10	45	11	0.9	3.6
4400	3200	13	20	>3	1.3	3.3
5200	3800	8	14	>5	1.3	2.9
Estimated standard error on mean K_d[2]		10%	40%	20%	30%	20%

As can be seen, K_d generally decreases as TDS and ionic strength increases; this is expected, as competition for adsorptive sites increases as the ionic strength increase. However, the effect is in general not great; only cadmium shows any significant reduction, with K_d dropping from 45 to 14 as the TDS rises from 2,800 mg/L to 3,800 mg/L. Accordingly, the ionic strength dependence is treated as an uncertainty in the computation of effective K_d, using the estimated standard error.

3.6 Rock Type Effects

As reported in Table 5, the measured K_d values for orthogneiss and granite were lower than the values obtained for paragneiss. This relationship held for arsenic as well as selenium. Thus, the present evaluation indicates that the predominant rock type in downgradient from the proposed underground mine

1 Conductivity is related to Total Dissolved Solids by the approximate relationship TDS (mg/L) = 0.73 Conductivity (uS/cm), which has been developed from 120 analyses of Pogo groundwaters.

2 The estimated standard error is computed by assuming that the range of K_d values include 95% of the total range (that is approximately 4 standard deviations); the value shown is therefore approximately ¼ of the total range expressed as a percentage of the mean value.

Element	As	Cd	Ni	Sb	Se	All
Relative Percentage Difference	22%	21%	na	44%	13%	20%
Estimated Standard Error	11%	10%	na	22%	7%	10%

Based on these results, the RPD of all analyses is relatively low. The RPD for Antimony is higher because the absolute value of the K_d (the numerator in the expression for RPD) is low.

4. CONCLUSIONS

The testing and evaluation presented above has demonstrated that the subsurface geologic material along the groundwater flow path from the proposed underground Pogo mine workings has an appreciable capacity to adsorb the trace metals which have been evaluated. Determinations of K_d for arsenic, cadmium, nickel, antimony, and selenium show a moderate sensitivity to fluid pH and ionic strength, and rockmass grainsize and rock type. These observed effects are consistent with theoretical expectations.

4.1 Rockmass Distribution Coefficients

The overall rockmass K_d values for the elements evaluated are computed as follows:

1. The values obtained for the three pH values of 7, 8, and 9 are used as the base for paragneiss of medium grainsize (Section 3.3).
2. To convert to the rockmass particle size, the K_d values are halved (Section 0).
3. To allow for the (less adsorptive) minor rock types in the orebody, the K_d values found for paragneiss are multiplied by a factor of 0.9 (Section 3.6).

Making these adjustments, the overall rockmass K_d values for each element for the range of pH values of relevance in the Pogo project are as follows:

pH	Rockmass K_d (mL/g)				
	As	Cd	Ni	Sb	Se
7	9.0	90.0	9.0	0.9	2.7
8	4.5	45.0	4.5	0.5	1.4
9	2.3	22.5	2.3	0.2	0.7

The uncertainty of these values can be estimated by consideration of the variability introduced by the following factors:

1. Testing. The testing standard error has been estimated as being approximately 10%, based on the replication of each test; actual values for each element are computed in Section 3.8.

Based on these considerations, the K_d values for backfill are as follows:

pH	Backfill K_d (mL/g)				
	As	Cd	Ni	Sb	Se
7	5.9	59	5.9	0.6	1.8
8	3.0	30	3.0	0.3	0.9
9	1.5	15	1.5	0.1	0.4

The variability of these values is the same as for the rockmass.

4.3 Alluvium

The alluvial materials of the Goodpaster River are made up of a mixture of transported granitic and volcanic particles, grading from boulders to fine sand. Accordingly, the distribution coefficients for the alluvium will also differ from the rockmass, as follows:

4. Size: The size will be equivalent to the medium grind, which is the base case (Section 3.4).
5. pH: The pH of the backfill will be in the order of 7 for the post-closure period; this is considered in Section 3.3.
6. Rock Type: The rock type of the alluvium is a mix of volcanic and granitic materials. This mixture will have a lower K_d than the base rock, paragneiss. The ratio between paragneiss and granite is 0.2 (Section 3.6), so assuming that the alluvium is 50% granite and 50% paragneiss, the K_d factor to convert paragneiss to backfill is computed to be 0.6.

Based on these considerations, the K_d values for backfill are as follows:

pH	Alluvium K_d (mL/g)				
	As	Cd	Ni	Sb	Se
7	12	120	12	1.2	3.6
8	6	60	6	0.6	1.8
9	3	30	3	0.3	0.9

The variability of these values is the same as for the rockmass.

TABLES

Table 1. Overview of testing conditions.

Case	Rock	Grainsize		pH	TDS		Metal Concentrations		Other
		0.1"	0.25"		Raw	Diluted	High	Low	
BASE	Paragneiss	50%	50%	9		X	X	X	Mixture of grainsizes
pH Check	Paragneiss	50%	50%	8		X	X		Mixture of grainsizes
	Paragneiss	50%	50%	9		X	X		Mixture of grainsizes
Grainsize Check	Paragneiss	100%		9		X	X		
	Paragneiss		100%	9		X	X		
Ionic Strength Check	Paragneiss	50%	50%	9	X		X		Raw tailing porewater
	Paragneiss	50%	50%	9		X	X		Raw tailing porewater
Rock Type Check	Orthogneiss	50%	50%	9		X	X		Mixture of grainsizes
	Granite	50%	50%	9		X	X		Mixture of grainsizes
Leach Blank	Paragneiss	50%	50%	9					pH adjusted with lime.

Table 2. Estimation of Paste Tails Porewater Chemistry.

Parameter	Units	Water Chemistry			Water Standards			
		Ground-water (1)	Cemented Tailings Liquor (2)	Diluted Cemented Tailings Liquor (2)	Primary MCL (5)	Secondary MCL	Fresh Water Acute LOEL (4)	Fresh Water Chronic LOEL (4)
Conductivity	µS/cm	1,416	7080.67					
pH	pH units	7.44	9.30	8.372		6.5-8.5		6.5-9.0
TDS	mg/L	987				500		
TSS	mg/L	20						
Turbidity	NTU	24				0.5-1.0		
Bicarbonate	mg/L	338						
Alkalinity	mg/L CaCO3	338	63	200.393				20
Acidity	mg/L CaCO3		0	0.000				
Hardness	mg/L	709						
Anions	meq/L	15.55						
Cations	meq/L	15.66						
Error	%	-1%						
Ca	ppm	117	1545	831.102				
Fe	ppm	1.14	1.00	1.071		0.30		1
K	ppm	3	69	36.166				
Mg	ppm	99	16	57.483				
Na	ppm	41	230	135.622				
P	ppm	0.54	0.3	0.420				
Cl	ppm		29	14.307		250		
NH3	ppm	0.06					0.02	0.00
NO3	ppm	0.11			10			
TKN	ppm	0.17						
SO4	ppm	431	3714	2072.517	500	250		
CN	ppm				0			
Si	ppm		13	6.263				
F	ppm	0.57			4	2		
Ag	ppb	0.0	181	90.298		100	4.1	0.12
Al	ppb	6.4	1,584	795.124	L	50-200		
As	ppb	1,645	4,482	3063.750	50		360	190
Ba	ppb	17	109	63.143	2,000			
Be	ppb		-0.21	-0.107	4			
B	ppb	11	167	89.158	L			
Bi	ppb	0.6	-0.24	0.162				
Cd	ppb	0.0	-0.21	-0.090	5		3.9	1.1
Co	ppb	1.0	31	15.894				
Cr	ppb	4.1	29	16.354	100			
Cu	ppb	1.3	63	32.339	1,300	1,000	18	12
Fe	ppb	1,108	1,279	1193.664		300		1,000
Ga	ppb		11	5.730				
Hg	ppb	0.0	-0.43	-0.203	2		2.4	0.012
La	ppb		-0.04	-0.021				
Mn	ppb	57	4.74	30.840	L	50		
Mo	ppb	6.3	783	394.667	L			
Ni	ppb	6.4	363	184.593	100		1,400	160
Pb	ppb	0.1	-9	-4.260	15		82	3.2
Sb	ppb	2.4	53	27.687	6		9,000	1,600
Sc	ppb		4.42	2.210				
Se	ppb	1.2	50	25.406	50		260	35
Sn	ppb	0.1	6	2.891				
Sr	ppb	4,980	2,070	3524.607	L			
Ti	ppb		-43	-21.461				
Tl	ppb	0.0	0.11	0.069	2		1,400	40
U	ppb	20	0.41	10.301	20			
V	ppb	0.9	23	11.916	T			
W	ppb		74	36.841				
Zn	ppb	8.1	18	13.148	L	5	120	110

NOTES:

(1) Groundwater samples are taken from flow from underground drill holes

(2) Humidity Cell Test Liquors are computed concentrations from leachate, reconcentrated to original moisture content

(3) Tailings solid phase taken from Tests 37, 38, and 39 of the Humidity Cell Test sequence

(4) "LOEL" means "lowest observed effect level"

(5) "T" indicates "Tentative (not officially proposed); "L" = listed for regulation

(6) Negative sign means less than (for averages means that at least one value was below detection and set equal to detection)

Table 3a. Formulation of synthetic test solutions.

Sample ID	Distilled Water (L)	Sulfuric Acid (18 M) (ml)	CaO (g)	NaOH (g)	HCl (ml)	HCl Normality	Ag (ml)	As (ml)	Cd (ml)	Cu (ml)	Ni (ml)	Sb (ml)	Se (ml)	pH	cond (ms)	Analyte Conc	TDS
Pogo 101	8	9.6	9.6	3.45	14	0.05	4.0	36.0	4.0	4.0	4.0	0.8	0.8	9.36	4.03	Hi	Lo
Pogo 102	3	3.6	3.6	1.01	1.75	0.50	0.4	8.0	0.4	0.4	0.4	0.4	0.4	8.86	3.69	Lo	Lo
Pogo 103	1	1.2	1.2	1.10	18.25	0.05	0.5	4.5	0.5	0.5	0.5	0.1	0.1	7.79	5.09	Hi	Lo
Pogo 104	1	1.2	1.2	0.85	14.2	0.05	0.5	4.5	0.5	0.5	0.5	0.1	0.1	6.73	5.04	Hi	Lo
Pogo 105	2	4.8	4.8	2.20	28.9	0.50	1.0	9.0	1.0	1.0	1.0	0.2	0.2	8.89	5.20	Hi	Hi
Pogo 106	2	4.8	4.8	1.10	11.4	0.50	0.1	2.0	0.1	0.1	0.1	0.1	0.1	8.72	4.39	Lo	Hi

Table 3b. Calculated chemical concentrations of synthetic test solutions.

Sample ID	SO4	Ca	Na	Cl	Ag	As	Cd	Cu	Ni	Sb	Se
Pogo 101	2074	857	248	1	0.5	4.5	0.5	0.5	0.5	0.1	0.1
Pogo 102	2074	857	194	5	0.13	2.67	0.13	0.13	0.13	0.13	0.13
Pogo 103	2074	857	633	16	0.5	4.5	0.5	0.5	0.5	0.1	0.1
Pogo 104	2074	857	489	12	0.5	4.5	0.5	0.5	0.5	0.1	0.1
Pogo 105	4147	1714	633	123	0.5	4.5	0.5	0.5	0.5	0.1	0.1
Pogo 106	4147	1714	316	48	0.05	1.0	0.05	0.05	0.05	0.05	0.05
Low TDS	2073	831	135	14	0.090	3.1	0.0009	0.032	0.184	0.028	0.025
High TDS	3714	1545	230	29	0.181	4.4	0.00021	0.063	0.363	0.053	0.050

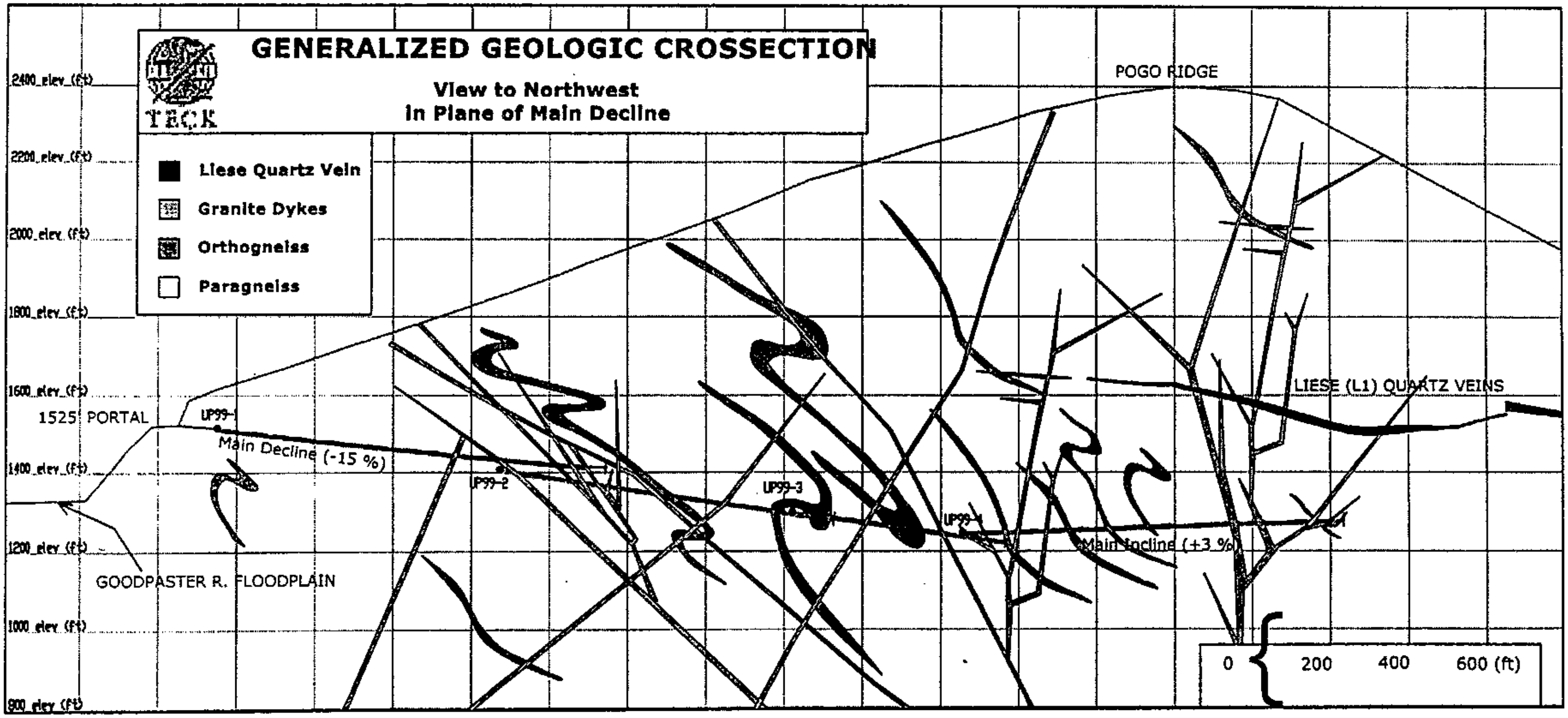
Table 4. Experimental results.

Test Sample ID	Fine (g)	Coarse (g)	Initial Soln ID	Volume (ml)	pH initial	cond initial (ms)	pH final	cond final (ms)	Ag		As		Cd		Cu		Ni		Sb		Se	
									init	fin	init	fin	init	fin	init	fin	init	fin	init	fin	init	fin
Base Case- Paragneiss (50/50 mix of grainsizes), pH=9, Hi and Lo analytes																						
201	50	50	101	500	9.36	4.02	7.97	4.15	0.01	0.01	3.6	1.35	0.074	0.006	0.02	0.02	0.03	0.02	0.08	0.07	0.105	0.061
202	50	50.1	101	500	9.36	4.05	8.26	4.15	0.01	0.01	3.6	1.62	0.074	0.006	0.02	0.02	0.03	0.02	0.08	0.07	0.105	0.067
203	50.2	50.1	102	500	8.86	3.69	7.91	3.76	0.02	0.01	1.83	0.57	0.045	0.006	0.02	0.02	0.1	0.02	0.11	0.09	0.134	0.077
204	50.1	50.2	102	500	8.86	3.69	7.82	3.75	0.02	0.01	1.83	0.51	0.045	0.006	0.02	0.02	0.1	0.03	0.11	0.09	0.134	0.072
pH effects- Paragneiss (50/50 mix of grainsizes), pH= 8, 7																						
205	25.2	26.2	103	250	7.79	5.09	7.69	5.11	0.01	0.01	3.1	0.61	0.273	0.006	0.02	0.02	0.2	0.04	0.08	0.06	0.104	0.054
206	25	25.3	103	250	7.79	5.09	7.57	5.1	0.01	0.01	3.1	0.74	0.273	0.007	0.02	0.02	0.2	0.04	0.08	0.061	0.104	0.06
207	25	25	104	250	6.73	5.04	7.61	5.11	0.01	0.01	3.1	0.82	0.424	0.017	0.04	0.02	0.41	0.1	0.08	0.07	0.112	0.06
208	24.9	25.3	104	250	6.73	5.04	7.33	4.86	0.01	0.01	3.1	0.62	0.424	0.021	0.04	0.02	0.41	0.11	0.08	0.062	0.112	0.052
Grainsize effects- pH =9, Hi analytes, Paragneiss- small and large																						
209	100.3	0	101	500	9.36	4.02	8.04	4.13	0.01	0.01	3.6	1.18	0.074	0.006	0.02	0.02	0.03	0.02	0.08	0.07	0.105	0.059
210	99.6	0	101	500	9.36	4.02	8.01	4.03	0.01	0.01	3.6	1.19	0.074	0.011	0.02	0.02	0.03	0.02	0.08	0.08	0.105	0.059
211	0	100	101	500	9.36	4.02	8.21	3.97	0.01	0.01	3.6	1.8	0.074	0.018	0.02	0.02	0.03	0.02	0.08	0.07	0.105	0.07
212	0	100.6	101	500	9.36	4.02	8.01	4.17	0.01	0.01	3.6	1.42	0.074	0.017	0.02	0.02	0.03	0.03	0.08	0.08	0.105	0.066
Ionic strength effects- Paragneiss (50/50 mix of grainsizes), pH=9, Hi and Lo TDS																						
213	49.9	50.1	105	500	8.89	5.2	8.11	5.26	0.03	0.01	2.6	1.07	0.023	0.006	0.02	0.02	0.04	0.02	0.09	0.073	0.101	0.064
214	50.9	49.7	105	500	8.89	5.2	8.06	5.23	0.03	0.01	2.6	0.99	0.023	0.006	0.02	0.02	0.04	0.02	0.09	0.07	0.101	0.064
215	50.1	49.9	106	500	8.72	4.39	7.95	4.06	0.01	0.01	0.74	0.23	0.03	0.006	0.02	0.02	0.03	0.02	0.047	0.037	0.053	0.033
216	50.3	49.3	106	500	8.72	4.39	7.86	4.16	0.01	0.01	0.74	0.18	0.03	0.006	0.02	0.02	0.03	0.02	0.047	0.038	0.053	0.031
Blank- Paragneiss (50/50 mix of grainsizes), Distilled water at pH =9																						
217	50	49.8	Distilled	500	9.09	6	8.79	90.9	0	0.01	0	0.007	0	0.006	0	0.02	0	0.02	0	0.003	0	0.001
Rock Type Effects- pH=9, Hi analytes, Ortho gneiss (1) and granite (2)(50/50 size mix)																						
218 (1)	50	50.2	101	500	9.36	4.02	8.47	4.1	0.01	0.01	3.6	2.3	0.074	0.022	0.02	0.02	0.03	0.02	0.08	0.08	0.105	0.082
218 (1)	50.1	49.8	101	500	9.36	4.02	8.42	4.05	0.01	0.01	3.6	2.1	0.074	0.018	0.02	0.02	0.03	0.02	0.08	0.08	0.105	0.08
220 (2)	50.3	50.6	101	500	9.36	4.02	8.66	4.13	0.01	0.01	3.6	2.6	0.074	0.027	0.02	0.02	0.03	0.02	0.08	0.07	0.105	0.088
220 (2)	50.5	49.6	101	500	9.36	4.02	8.6	4.14	0.01	0.01	3.6	2.6	0.074	0.042	0.02	0.02	0.03	0.02	0.08	0.08	0.105	0.088

Table 5. Calculated values of Kd

Sample		Ag	As	Cd	Cu	Ni	Sb	Se
Base Case- Paragneiss (50/50 mix of grainsizes), pH=9, Hi and Lo analytes								
201	Con		8.3	56.7		2.5	0.7	3.6
202	Con		6.1	56.6		2.5	0.7	2.8
203	Dil		11.0	32.4		19.9	1.1	3.7
204	Dil		12.9	32.4		11.6	1.1	4.3
Average			9.6	44.5		9.1	0.9	3.6
pH effects- Paragneiss (50/50 mix of grainsizes), pH= 8, 7								
205	8		19.9	216.4		19.5	1.6	4.5
206	8		15.9	188.9		19.9	1.5	3.6
207	7		13.9	119.7		15.5	0.7	4.3
208	7		19.9	95.6		13.6	1.4	5.7
Average								
Grainsize effects- pH =9, Hi analytes, Paragneiss- small and large								
209	Sm		10.2	56.5		2.5	0.7	3.9
210	Sm		10.2	28.8		2.5	0.0	3.9
211	Lg		5.0	15.6		2.5	0.7	2.5
212	Lg		7.6	16.7		0.0	0.0	2.9
Average								
Ionic strength effects- Paragneiss (50/50 mix of grainsizes), pH=9, Hi and Lo TDS								
213	Hi		7.1	14.2		5.0	1.2	2.9
214	Hi		8.1	14.1		5.0	1.4	2.9
215	Lo		11.1	20.0		2.5	1.4	3.0
216	Lo		15.6	20.1		2.5	1.2	3.6
Average								
Rock Type Effects- pH=9, Hi analytes, Ortho gneiss (1) and granite (2)(50/50 size mix)								
218 (1)			2.8	11.8		2.5	0.0	1.4
218 (1)			3.6	15.6		2.5	0.0	1.6
220 (2)			1.9	8.6		2.5	0.7	1.0
220 (2)			1.9	3.8		2.5	0.0	1.0
Average								

FIGURES


GENERALIZED GEOLOGIC CROSSECTION
View to Northwest
in Plane of Main Decline
TECK
Liese Quartz Vein
Granite Dykes
Orthogneiss
Paragneiss
2400_elev_(ft)
2200_elev_(ft)
2000_elev_(ft)
1800_elev_(ft)
1600_elev_(ft)
1400_elev_(ft)
1200_elev_(ft)
1000_elev_(ft)
800_elev_(ft)
POGO RIDGE
1525' PORTAL
GOODPASTER R. FLOODPLAIN
Main Decline (-15 %)
Main Incline (+3 %)
LIESE (L1) QUARTZ VEINS
UP99-2
UP99-3
0
200
400
600 (ft)

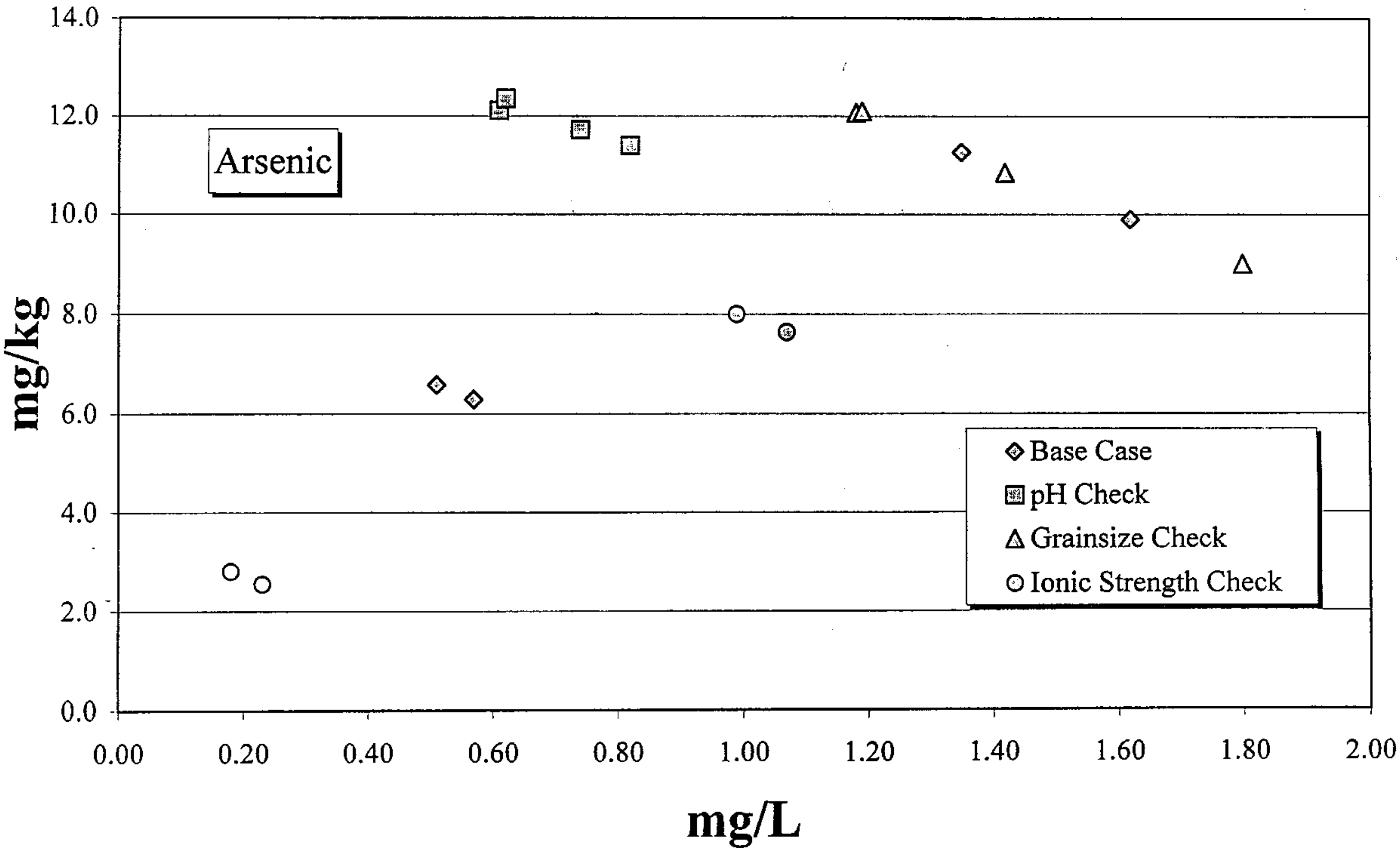


Figure 2. Experimental resutls for arsenic.

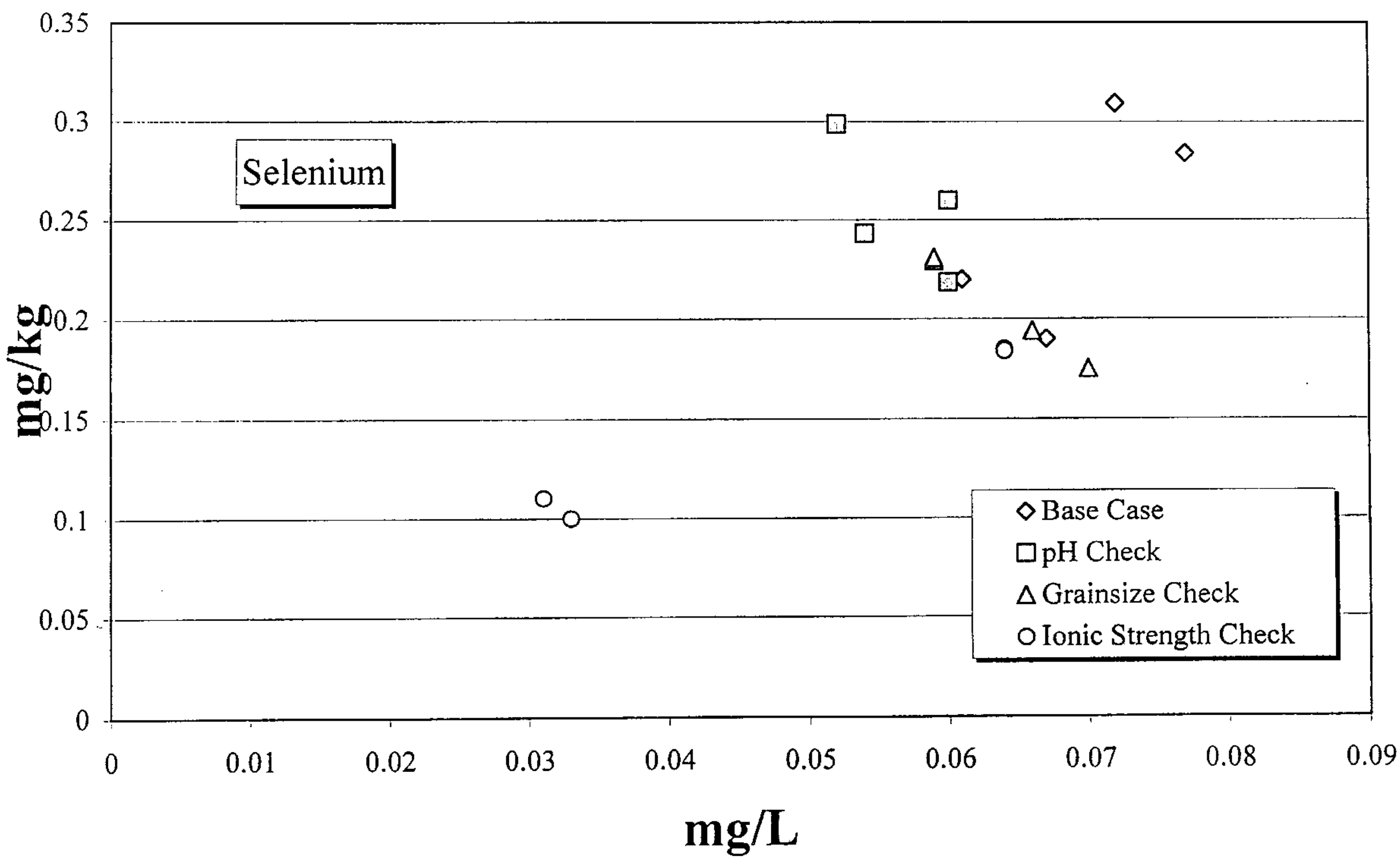


Figure 3. Experimental results for selenium.

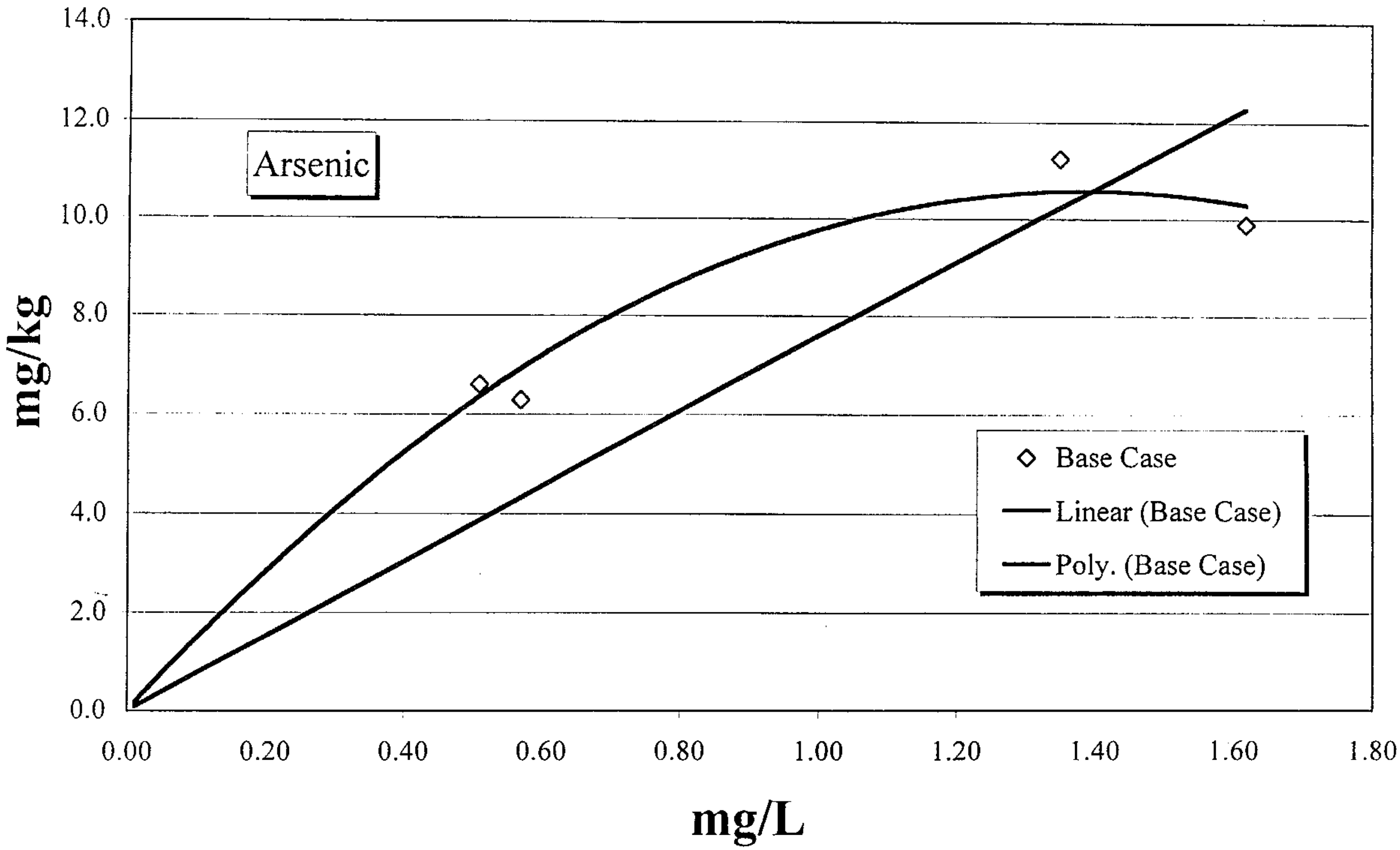


Figure 4. Base case arsenic performance.

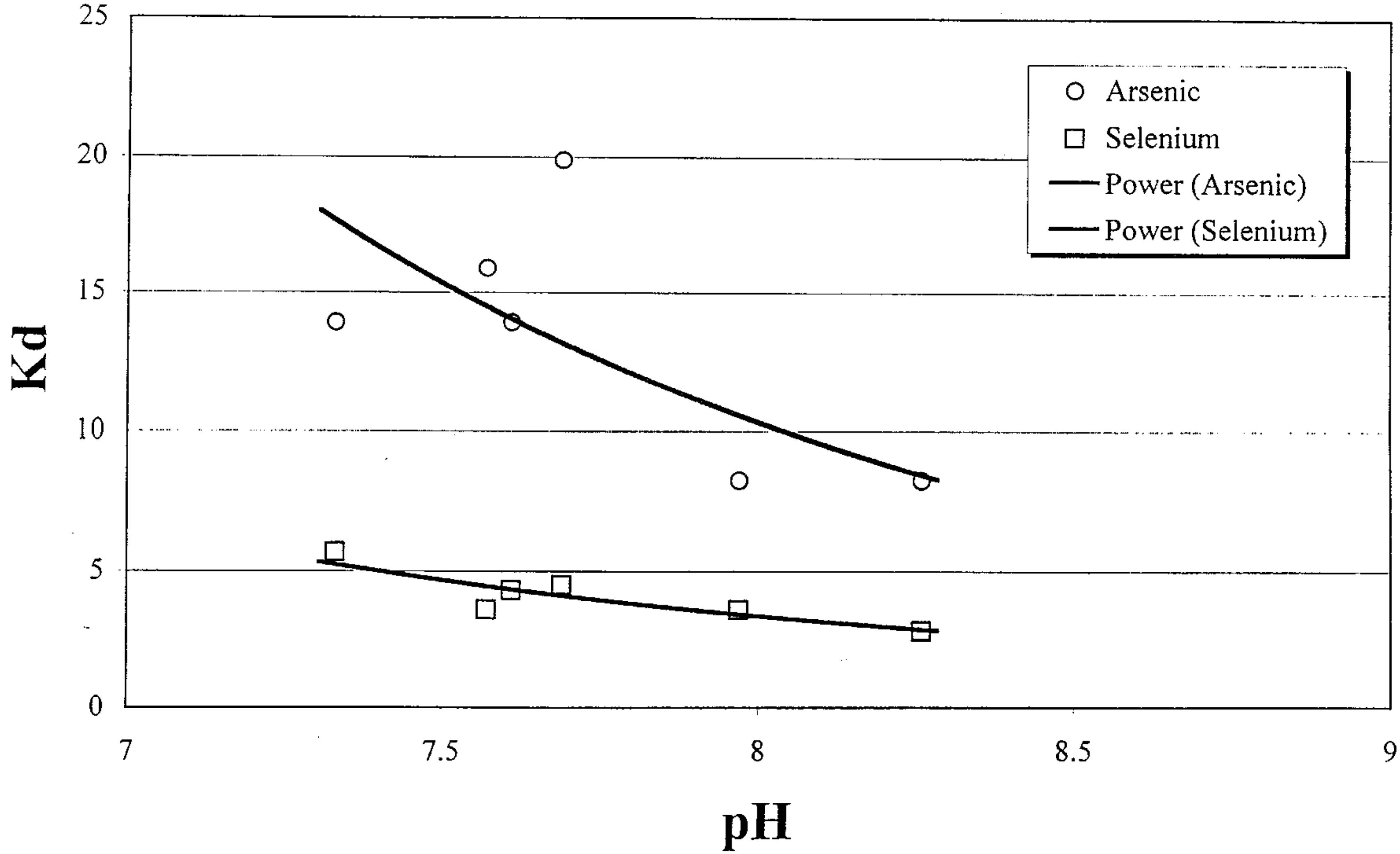


Figure 5. Variation of Kd with pH.

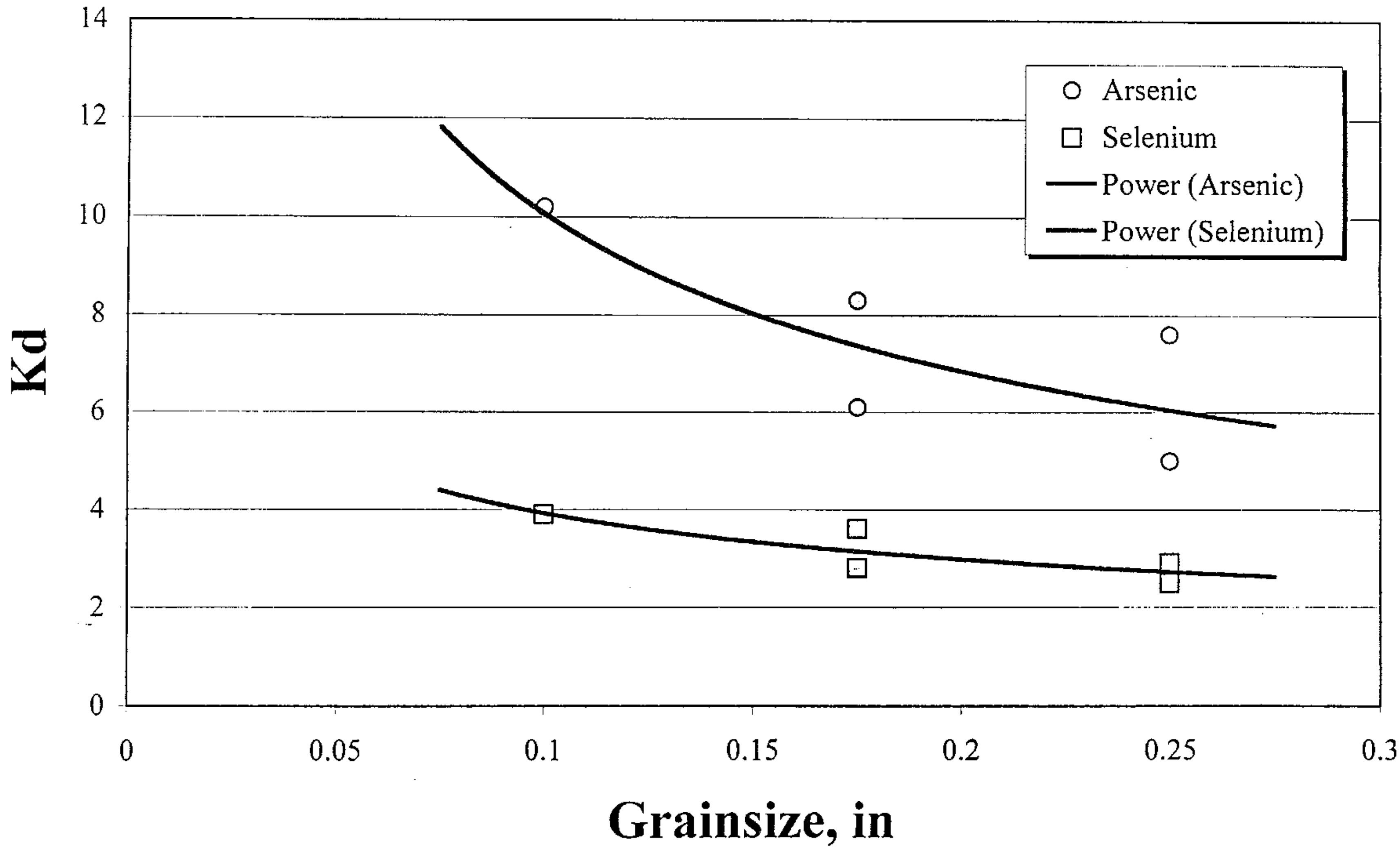


Figure 6. Variation of Kd with grainsize.

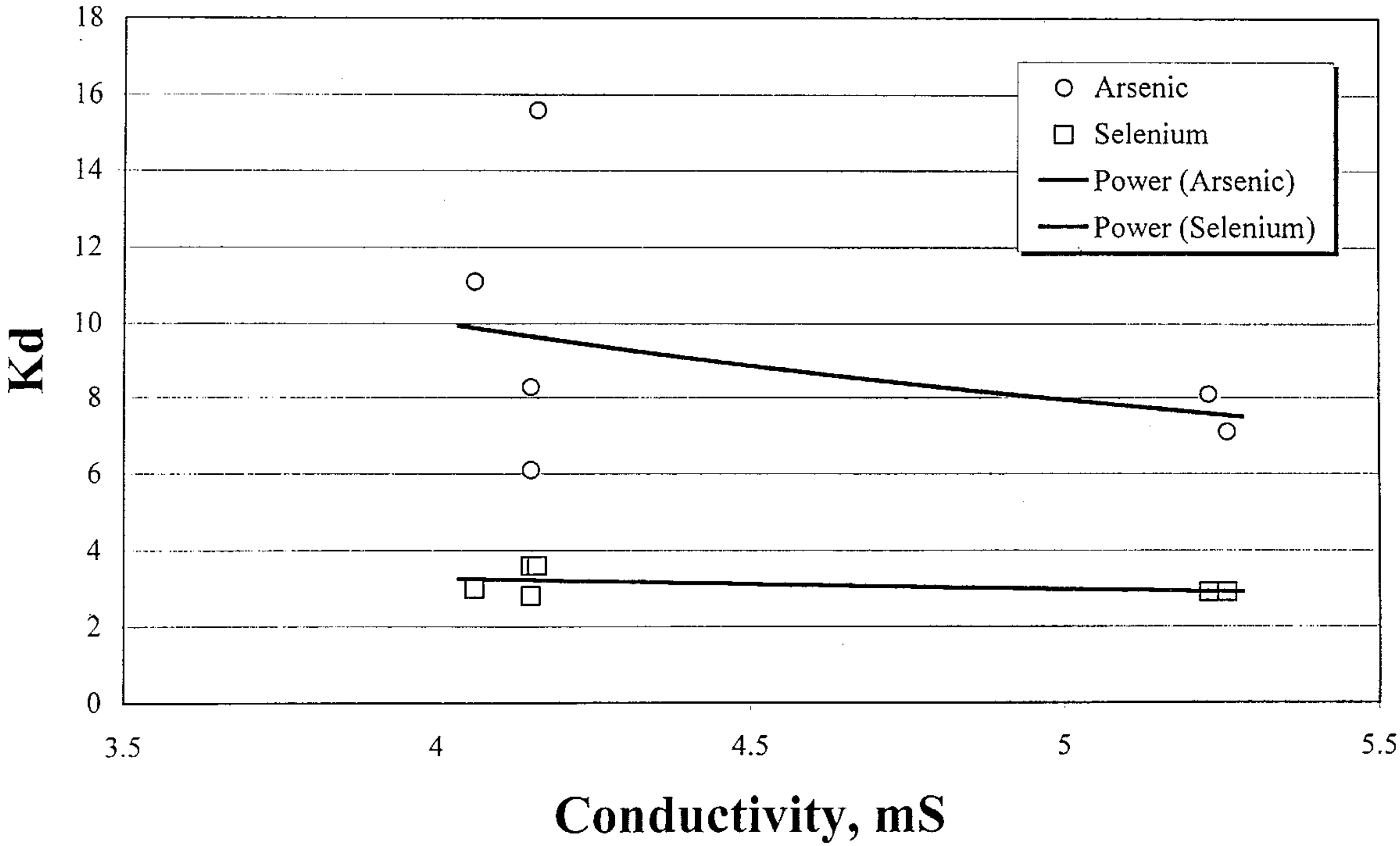


Figure 7. Variation of Kd with total dissolved solids.

ATTACHMENT ONE

STANDARD OPERATING PROCEDURE for

Partition Coefficient Determination

Prepared for:

General Procedures
For All Clients and Projects

June 16, 1998
SOP-TST056

AdrianBrown
Groundwater Hydrology, Geochemistry, Remediation
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1. PURPOSE

This document defines the Standard Operating Procedure (SOP) for laboratory determination of the partition coefficient, or K_d. The partition coefficient is used to determine he extent to which dissolved solutes may adsorb onto the surfaces of solids phases that the solution contacts. It is, a linear adsorption isotherm and allows for infinite adsorption.

This procedure is designed to provide a determination of K_d using study site solid materials and, when available, solutions collected at the site. Because the valid value of K_d is dependant upon specific solid phase charactertistics and solution bulk composition, the use of site-specific materials extends the defensibility of K_d values obtained using this procedure.

This procedure is not suitable for combining low pH solutions with acid neutralizing materials like limestone, or other forms of calcium carbonate. Attenuation of metals or other solution solutes under these neutralization conditions is governed more by solubility concerns than simple adsorption.

2. MATERIALS REQUIRED

2.1 Apparatus

- 1 L polyethylence bottles that have been acid rinsed with a nitric acid solution (~10% will suffice)
- A scale or balance capable of measuring 100 ± 0.5 g
- A 500 mL graduated cylinder
- Solution filtration equipment (0.45μm)

2.2 Reagents

- Solids collected from the study site
- Ground or surface water collected at the study site. If waters are not available from the site, a synthetic stock solution must be prepared
- 1000±1 mg/L metal standard solutions for the solutes of interest

3. SAMPLE MATERIAL

3.1 Field Sampling

Solids for laboratory analysis may be obtained from surface or subsurface locations, depending on whether ground or surface water fate and transport of particular interest. Solids should be collected from locations that are as representative of the solid as possible. For site wide modeling efforts, composite samples of various lithologies are appropriate to develop representative K_d's.

5. DATA ANALYSIS

The K_d for solids tested is calculated simply as determining the mass of an element of concern that is removed from solution and dividing that mass by the weight of the solid used in the testing. This ratio is subsequently graphed against the final concentration of the solution used in the test. The data point of 0 mg/kg and 0 mg/L is valid (indicating no adsorption when concentration is zero) and is made part of the graph. The resulting data are linearly regressed and the slope of the fit is the value of the partition coefficient, K_d. Otherwise, under certain circumstances, a simple average of the K_d values measured for each point may be averaged. The specifics of this procedure are presented below.

1. Calculate the difference in concentration between the initial and final solution (C_L), with the units of mg/L
2. Multiply this difference by the volume of the solution used in the experiment (0.5 L) to produce a value for the mass of the specific element removed from solution (mg).
3. Divide the value mg by the mass of the solid used in the test (kg) to yield a concentration of the element adsorbed onto the solid (mg/kg = C_S)
4. Prepare a graph of C_S against the corresponding C_L, being certain the include the point 0,0.
5. Produce a linear least squares regression of the graphed data and determine the slope.
6. Report the K_d for the solid toward the specific element considered as the slope of the best fit.

ATTACHMENT TWO

ACZ

Analytical Results

ACZ Laboratories, Inc.
2773 Downhill Drive
Steamboat Springs, CO 80487
(800) 334-5493

Adrian Brown Consultants, Inc.
333 W. Bayaud Ave.
Denver, CO 80223
Mark Williamson

Lab Sample ID: *L28695-05*
Client Sample ID: *Pogo 105*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127153*

Date Sampled: *08/23/2000 4:30:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.09		mg/L	0.01	0.05	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	2.6		mg/L	0.1	0.5	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP	0.023	B	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP	0.04	B	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.101		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP	0.03	B	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)
U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

R Poulsen

Ralph Poulsen (VP) / Scott Habermehl (PM)

E

ACZ

'CZ Laboratories, Inc.
.773 Downhill Drive
Steamboat Springs, CO 80487
(800) 334-5493

Analytical Results

Lab Sample ID:	L28695-03
Client Sample ID:	Pogo 103
Client Project ID:	1543A-Pogo Mine
ACZ Report ID:	RG127151
Date Sampled:	08/24/2000 2:05:00 PM
Date Received:	08/25/2000
Date Reported:	08/28/2000
Sample Matrix:	Ground Water

Adrian Brown Consultants, Inc.
333 W. Bayaud Ave.
Denver, CO 80223
Mark Williamson

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.08		mg/L	0.01	0.05	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	3.1		mg/L	0.1	0.5	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP	0.273		mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP	0.20		mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.104		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP	0.01	B	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL

B = Analyte concentration detected at a value between MDL and PQL

PQL = Practical Quantitation Limit

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Adrian Brown Consultants, Inc.
333 W. Bayaud Ave.
Denver, CO 80223
Mark Williamson

Lab Sample ID: *L28695-01*
Client Sample ID: *Pogo 101*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127149*

Date Sampled: *08/24/2000 2:10:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.08		mg/L	0.01	0.05	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	3.6		mg/L	0.1	0.5	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP	0.074		mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP	0.03	B	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.105		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP	0.01	B	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: *L28695-07*
Client Sample ID: *Pogo 201*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127155*

Adrian Brown Consultants, Inc.
333 W. Bayaud Ave.
Denver, CO 80223
Mark Williamson

Date Sampled: *08/24/2000 3:05:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	* Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.07		mg/L	0.01	0.05	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	1.35		mg/L	0.05	0.3	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP		U	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP	0.02	B	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.061		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)
U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: L28695-09
Client Sample ID: Pogo 203
Client Project ID: 1543A-Pogo Mine
ACZ Report ID: RG127157

Adrian Brown Consultants, Inc.
333 W. Bayaud Ave.
Denver, CO 80223
Mark Williamson

Date Sampled: 08/24/2000 3:10:00 PM
Date Received: 08/25/2000
Date Reported: 08/28/2000

Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.09		mg/L	0.01	0.05	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	0.57		mg/L	0.03	0.1	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP		U	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP	0.02	B	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.077		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: *L28695-11*
Client Sample ID: *Pogo 205*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127159*

Date Sampled: *08/24/2000 3:20:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.060		mg/L	0.004	0.02	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	0.61		mg/L	0.03	0.1	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP		U	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP	0.04	B	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.054		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)
U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: *L28695-13*
Client Sample ID: *Pogo 207*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127161*

Date Sampled: *08/24/2000 3:27:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.07		mg/L	0.01	0.05	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	0.82		mg/L	0.03	0.1	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP	0.017	B	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP	0.10	B	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.060		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: *L28695-15*
Client Sample ID: *Pogo 209*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127163*

Date Sampled: *08/24/2000 3:40:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.07		mg/L	0.01	0.05	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	1.18		mg/L	0.03	0.1	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP	0.006	B	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.059		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)
U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: *L28695-17*
Client Sample ID: *Pogo 211*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127165*

Date Sampled: *08/24/2000 3:47:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.07		mg/L	0.01	0.05	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	1.8		mg/L	0.1	0.5	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP	0.018	B	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP	0.02	B	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.070		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: *L28695-19*
Client Sample ID: *Pogo 213*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127167*

Adrian Brown Consultants, Inc.
333 W. Bayaud Ave.
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Date Sampled: *08/24/2000 4:30:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.073		mg/L	0.008	0.04	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	1.07		mg/L	0.03	0.1	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP		U	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.064		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: L28695-21
Client Sample ID: Pogo 215
Client Project ID: 1543A-Pogo Mine
ACZ Report ID: RG127169

Adrian Brown Consultants, Inc.
333 W. Bayaud Ave.
Denver, CO 80223
Mark Williamson

Date Sampled: 08/24/2000 4:37:00 PM
Date Received: 08/25/2000
Date Reported: 08/28/2000

Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.037		mg/L	0.002	0.01	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	0.23		mg/L	0.01	0.05	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP		U	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.033		mg/L	0.001	0.005	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: *L28695-23*
Client Sample ID: *Pogo 217*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127171*

Adrian Brown Consultants, Inc.
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Date Sampled: *08/24/2000 4:45:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.003	B	mg/L	0.002	0.01	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	0.007		mg/L	0.001	0.005	8/27/2000	jl
Cadmium, dissolved	M200.7 ICP		U	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride		U	mg/L	0.001	0.005	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: *L28695-25*
Client Sample ID: *Pogo 219*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127173*

Date Sampled: *08/24/2000 4:58:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.08		mg/L	0.01	0.05	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	2.1		mg/L	0.1	0.5	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP	0.018	B	mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP	0.02	B	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.080		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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Lab Sample ID: *L28695-27*
Client Sample ID: *Pogo 221*
Client Project ID: *1543A-Pogo Mine*
ACZ Report ID: *RG127175*

Date Sampled: *08/24/2000 5:10:00 PM*
Date Received: *08/25/2000*
Date Reported: *08/28/2000*

Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	Units	MDL	PQL	Date	Analyst
Antimony, dissolved	M204.2 GFAA	0.08		mg/L	0.01	0.05	8/26/2000	jl
Arsenic, dissolved	M206.2 GFAA	2.6		mg/L	0.1	0.5	8/26/2000	jl
Cadmium, dissolved	M200.7 ICP	0.042		mg/L	0.006	0.03	8/28/2000	kr
Copper, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Nickel, dissolved	M200.7 ICP		U	mg/L	0.02	0.1	8/28/2000	kr
Selenium, dissolved	SM 3500-Se C, AA-Hydride	0.088		mg/L	0.005	0.03	8/25/2000	sjs
Silver, dissolved	M200.7 ICP		U	mg/L	0.01	0.05	8/28/2000	kr

Inorganic Qualifiers (based on EPA CLP 3/90)

U = Analyte was analyzed for but not detected at the indicated MDL
B = Analyte concentration detected at a value between MDL and PQL
PQL = Practical Quantitation Limit

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2

Attachment **Two** – Transport Model

Material	Analyte	Units	TDS	CN	As	Cd	Ni	Sb	Se
	Analysis timestep	year	10	10	10000	20000	10000	1500	1500
Rock	Concentration of infiltration	mg/L	533	0	0.05	0.00011	0.015	0.00076	0.0012
	Concentration in side flow	mg/L	533	0	0.05	0.00011	0.015	0.00076	0.0012
	Initial Concentration in water	mg/L	533	0	0.05	0.00011	0.015	0.00076	0.0012
	Distribution coefficient (pH=8)	ml/g	0	0	4.5	45	4.5	0.5	1.4
Backfill	Concentration of infiltration	mg/L	533	0	0.05	0.00011	0.015	0.00076	0.0012
	Concentration in side flow	mg/L	533	0	0.05	0.00011	0.015	0.00076	0.0012
	Concentration in water	mg/L	5691	0.4	4.482	0.000215	0.363	0.053	0.05
	Distribution coefficient (pH=8)	ml/g	0	0	0	0	0	0	0
Alluvium-Slope	Concentration of infiltration	mg/L	601	0	0.053	0.00007	0.0017	0.00012	0.0015
	Concentration in side flow	mg/L	601	0	0.053	0.00007	0.0017	0.00012	0.0015
	Concentration in water	mg/L	601	0	0.053	0.00007	0.0017	0.00012	0.0015
	Distribution coefficient (pH=8)	ml/g	0	0	6	60	6	0.6	1.8
Alluvium-Valley	Concentration of infiltration	mg/L	294	0	0.03	0.00007	0.00245	0.00014	0.00108
	Concentration in side flow	mg/L	294	0	0.03	0.00007	0.00245	0.00014	0.00108
	Concentration in water	mg/L	294		0.03	0.00007	0.00245	0.00014	0.00108
	Distribution coefficient (pH=8)	ml/g	0	0	6	60	6	0.6	1.8
River	Concentration of infiltration	mg/L	0	0	0	0	0	0	0
	Concentration in side flow	mg/L	70	0	0.0056	0.00004	0.00082	0.0001	0.001
	Concentration in water	mg/L	70	0	0.0056	0.00004	0.00082	0.0001	*0.001*
	Distribution coefficient (pH=8)	ml/g	0	0	0	0	0	0	0
Notes (italics):	*1. Selenium in river not measured; estimated based on groundwater beside river (MW98-05)*								

Parameter	Type	Unit	Backfill	Rock	Alluvium-Slope	Alluvium-Valley	River
Effective Porosity	current	%	0.3	0.003	0.3	0.3	1
	base	%	0.3	0.003	0.3	0.3	1
	lower	%	0.2	0.001	0.25	0.25	1
	upper	%	0.5	0.005	0.4	0.4	1
Hydraulic Conductivit	current	ft/yr	n/a	0.5	2,000	40,000	infinity
	base	ft/yr	n/a	0.5	2,000	40,000	infinity
	lower	ft/yr	n/a	0.2	1,000	5000	infinity
	upper	ft/yr	n/a	0.75	10,000	72000	infinity
Infiltration	current	in/yr	0.5	0.5	2	2	0
	base	in/yr	0.5	0.5	2	2	0
	lower	in/yr	0.18	0.18	1	1	0
	upper	in/yr	0.75	0.75	4	4	0
Kd(TDS)	current	mL/g	0	0	0	0	0
	base	mL/g	0	0	0	0	0
	lower	mL/g	0	0	0	0	0
	upper	mL/g	0	0	0	0	0
Kd(CN)	current	mL/g	0	0	0	0	0
	base	mL/g	0	0	0	0	0
	lower	mL/g	0	0	0	0	0
	upper	mL/g	0	0	0	0	0
Kd (As)	current	mL/g	0	4.5	6.0	6.0	0
	base	mL/g	0	4.5	6.0	6.0	0
	lower	mL/g	0	3.2	4.3	4.3	0
	upper	mL/g	3	5.8	7.7	7.7	0
Kd (Cd)	current	mL/g	0	45.0	60.0	60.0	0
	base	mL/g	0	45.0	60.0	60.0	0
	lower	mL/g	0.0	8.6	11.4	11.4	0
	upper	mL/g	30	81.5	108.6	108.6	0
Kd (Ni)	current	mL/g	0	4.5	6.0	6.0	0
	base	mL/g	0	4.5	6.0	6.0	0
	lower	mL/g	0.0	2.5	3.4	3.4	0
	upper	mL/g	3	6.5	8.6	8.6	0
Kd (Sb)	current	mL/g	0	0.5	0.6	0.6	0
	base	mL/g	0	0.5	0.6	0.6	0
	lower	mL/g	0.0	0.1	0.2	0.2	0
	upper	mL/g	0.3	0.9	1.0	1.0	0
Kd (Se)	current	mL/g	0	1.4	1.8	1.8	0
	base	mL/g	0	1.4	1.8	1.8	0
	lower	mL/g	0.0	0.8	1.0	1.0	0
	upper	mL/g	1	2.0	2.6	2.6	0

As	Unit	1	2	3	4	5	6	7	8	9	10	11	12
Material in cell		**Backfill**	**Rock**	**Backfill**	**Rock**	**Rock**	**Rock**	**Rock**	**Rock**	**Rock**	**Alluvium-Slope**	**Alluvium-Valley**	**River**
Constants													
Solid unit mass	ton/cuft	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Liquid unit mass	ton/cuft	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031
Moisture content (by volume)	%	30%	0%	30%	0%	0%	0%	0%	0%	0%	30%	30%	100%
Solid mass per unit volume	ton/cuft	0.058	0.083	0.058	0.083	0.083	0.083	0.083	0.083	0.083	0.058	0.058	0.000
Water mass per unit volume	ton/cuft	0.00936	0.00009	0.00936	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00936	0.00936	0.03120
Dimensions													
Height of individual cell	ft	4000	4000	4000	4000	4000	4000	4000	4000	4000	100	100	100
Width of analysis zone	ft	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Thickness of cell	ft	7.5	400	15	400	400	400	400	400	400	100	100	100
Volume	cuft	60000000	3.2E+09	120000000	3.2E+09	3.2E+09	3.2E+09	3.2E+09	3.2E+09	3.2E+09	20000000	20000000	20000000
Dip of slices from the horizontal	deg	30	30	30	30	30	30	30	30	30	90	90	90
Area of cell normal to flow	sqft	4000000	4000000	4000000	4000000	4000000	4000000	4000000	4000000	4000000	200000	200000	200000
Area for infiltration to cell	sqft	30000	1600000	60000	1600000	1600000	1600000	1600000	1600000	1600000	200000	200000	200000
Infiltration													
Infiltration rate to cell surface	ft/yr	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.0833333	0.0833333	0
Infiltration mass rate to cell	ton/yr	14	749	28	749	749	749	749	749	749	520	520	0
Concentration in infiltration	mg/L	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0530	0.0300	0.0000
Chemical in infiltrating flow	ton/yr	7.0E-07	3.7E-05	1.4E-06	3.7E-05	3.7E-05	3.7E-05	3.7E-05	3.7E-05	3.7E-05	2.8E-05	1.6E-05	0.0E+00
Side Flow													
Side flow rate to cell	ton/yr	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E+05	2.5E+06	3.3E+07
Concentration of side flow	mg/L	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0535	0.0287	0.0036
Chemical in side flow	ton/yr	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.7E-03	7.2E-02	1.2E-01
Liquid Phase in Cell													
Liquid mass in cells	ton/cell	5.6E+05	3.0E+05	1.1E+06	3.0E+05	3.0E+05	3.0E+05	3.0E+05	3.0E+05	3.0E+05	1.9E+05	1.9E+05	6.2E+05
Initial water concentration	mg/L	4.48200	0.05000	4.48200	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05300	0.03000	0.00560
Solid:Liquid Relationship													
pH 8 Distribution Coefficient	ml/g	0	4.500	0	4.500	4.500	4.500	4.500	4.500	4.500	6.000	6.000	0.000
Rockmass pH assumed	s.u.	9.0	8.5	9.0	8.5	8.0	7.5	7.0	7.0	7.0	7.0	7.0	7.0
pH Distribution Coefficient Factor		2.000	1.500	2.000	1.500	1.000	0.750	0.500	0.500	0.500	0.500	0.500	0.500
Distribution coefficient	ml/g	0	6.750	0	6.750	4.500	3.375	2.250	2.250	2.250	3.000	3.000	0.000
Solid Phase in Cell													
Solid Mass in cells	ton/cell	3.5E+06	2.7E+08	7.0E+06	2.7E+08	2.7E+08	2.7E+08	2.7E+08	2.7E+08	2.7E+08	1.2E+06	1.2E+06	0.0E+00
Initial solid concentration	mg/kg	0	0.338	0	0.338	0.225	0.169	0.113	0.113	0.113	0.159	0.090	0.000
Initial chemical mass in solid	ton	0.0E+00	9.0E+01	0.0E+00	9.0E+01	6.0E+01	4.5E+01	3.0E+01	3.0E+01	3.0E+01	1.9E-01	1.0E-01	0.0E+00
INITIAL CONCENTRATION		Note that this is computed by evaluating the concentration that would occur by mixing infiltration, side, and cell above inputs at ss											
Initial flows													
Infiltration to cell	ton/yr	1.4E+01	7.5E+02	2.8E+01	7.5E+02	7.5E+02	7.5E+02	7.5E+02	7.5E+02	7.5E+02	5.2E+02	5.2E+02	0
Flow from cell above	ton/yr	1.6E+04	1.6E+04	1.6E+04	1.6E+04	1.7E+04	1.8E+04	1.9E+04	1.9E+04	2.0E+04	2.1E+04	1.5E+05	2,642,724
Side flow to cell	ton/yr	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E+05	2.5E+06	32,754,803
Total flow to cell	ton/yr	1.6E+04	1.6E+04	1.6E+04	1.7E+04	1.8E+04	1.9E+04	1.9E+04	2.0E+04	2.1E+04	1.5E+05	2.6E+06	35,397,527
Flow out of cell (all downgradient)	ton/yr	1.6E+04	1.6E+04	1.6E+04	1.7E+04	1.8E+04	1.9E+04	1.9E+04	2.0E+04	2.1E+04	1.5E+05	2.6E+06	35,397,527
Side Flow Concentration (computed to avoid an initial jump in concentration at the alluvium and the stream													
Concentration of infiltration	mg/L	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.053	0.030	0.0000
Concentration from cell above	mg/L	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.053	0.030
Final concentration in cell	mg/L	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.053	0.030	0.0056
Computed side flow conc in	**mg/L**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.054**	**0.029**	**0.004**

Time	Initial solids	Initial chemical in solid	Initial water	Initial chemical in water	Incoming water from cell above	Incoming chemical from cell above	Incoming water from side	Incoming chemical from side	Incoming water from infiltration	Incoming chemical from infiltration	Total water in cell	Total chemical in cell	Mass on solids	Mass in liquids	Concentration in solids	Concentration in liquids	Outgoing liquid to next cell	Outgoing chemical to next cell	Final solid in cell	Final liquid in cell	Final chemical on solid	Final chemical in liquid	Final chemical in cell
year	ton	ton	ton	ton	ton	ton	ton	ton	ton	ton		ton	ton	ton	mg/kg	mg/L	tons	tons	tons	tons	tons	tons	tons
0					156000000	7.8	0	0	140400	0.00702			0		0	4.492			3498768	561600	0	2.517091	2.517091
10000	3498768	0	561600	2.517091	156000000	7.8	0	0	140400	0.00702	156702000	10.32411	0	10.32411	0	0.065084	156140400	10.26711	3498768	561600	0	0.037	0.037
20000	3498768	0	561600	0.037	156000000	7.8	0	0	140400	0.00702	156702000	7.84402	0	7.84402	0	0.050067	156140400	7.815908	3498768	561600	0	0.028112	0.028112
30000	3498768	0	561600	0.028112	156000000	7.8	0	0	140400	0.00702	156702000	7.835132	0	7.835132	0	0.05	156140400	7.807052	3498768	561600	0	0.02808	0.02808
40000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
50000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
60000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
70000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
80000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
90000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
100000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
110000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
120000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
130000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
140000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
150000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
160000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
170000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
180000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
190000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
200000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
210000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
220000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
230000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
240000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
250000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
260000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
270000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
280000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
290000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
300000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
310000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
320000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
330000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
340000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
350000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
360000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
370000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
380000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
390000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
400000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
410000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
420000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
430000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
440000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
450000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
460000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
470000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
480000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
490000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
500000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
510000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
520000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
530000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
540000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
550000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
560000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
570000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
580000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
590000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
600000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
610000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
620000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
630000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
640000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
650000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
660000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
670000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
680000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
690000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
700000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808
710000	3498768	0	561600	0.02808	156000000	7.8	0	0	140400	0.00702	156702000	7.8351	0	7.8351	0	0.05	156140400	7.80702	3498768	561600	0	0.02808	0.02808

Base Case – Cell 1

Time	Initial solids	Initial chemical in solid	Initial water	Initial chemical in water	Incoming water from cell above	Incoming chemical from cell above	Incoming water from side	Incoming chemical from side	Incoming water from infiltration	Incoming chemical from infiltration	Total water in cell	Total chemical in cell	Mass on solids	Mass in liquids	Concentration in solids	Concentration in liquids	Outgoing liquid to next cell	Outgoing chemical to next cell	Final solid in cell	Final liquid in cell	Final chemical on solid	Final chemical in liquid	Final chemical in cell
year	ton	ton	ton	ton	ton	ton	ton	ton	ton	ton		ton	ton	ton	mg/kg	mg/L	tons	tons	tons	tons	tons	tons	tons
0							0	0	7488000	0.3744			6.76		0.3376	0.05			2.66E+08	299520	89.69842	0.014976	89.71339
10000	2.66E+08	89.69842	299520	0.014976	156140400	10.28711	0	0	7488000	0.3744	163927920	100.3749	91.97086	8.404045	0.34605	0.051267	163628400	8.38869	2.66E+08	299520	91.97086	0.015355	91.98621
20000	2.66E+08	91.97086	299520	0.015355	156140400	7.815909	0	0	7488000	0.3744	163927920	100.1765	91.78908	8.387436	0.345366	0.051166	163628400	8.372111	2.66E+08	299520	91.78908	0.015325	91.80441
30000	2.66E+08	91.78908	299520	0.015325	156140400	7.807062	0	0	7488000	0.3744	163927920	99.98586	91.61439	8.371472	0.344709	0.051068	163628400	8.356177	2.66E+08	299520	91.61439	0.015296	91.62968
40000	2.66E+08	91.61439	299520	0.015296	156140400	7.80702	0	0	7488000	0.3744	163927920	99.8111	91.45426	8.356841	0.344107	0.050979	163628400	8.341572	2.66E+08	299520	91.45426	0.015269	91.46953
50000	2.66E+08	91.45426	299520	0.015269	156140400	7.80702	0	0	7488000	0.3744	163927920	99.66095	91.30752	8.343432	0.343554	0.050897	163628400	8.328187	2.66E+08	299520	91.30752	0.015245	91.32277
60000	2.66E+08	91.30752	299520	0.015245	156140400	7.80702	0	0	7488000	0.3744	163927920	99.50419	91.17304	8.331143	0.343048	0.050822	163628400	8.315921	2.66E+08	299520	91.17304	0.015222	91.18827
70000	2.66E+08	91.17304	299520	0.015222	156140400	7.80702	0	0	7488000	0.3744	163927920	99.36969	91.0498	8.319882	0.342585	0.050753	163628400	8.304681	2.66E+08	299520	91.0498	0.015202	91.065
80000	2.66E+08	91.0498	299520	0.015202	156140400	7.80702	0	0	7488000	0.3744	163927920	99.24642	90.93686	8.309562	0.34216	0.05069	163628400	8.294379	2.66E+08	299520	90.93686	0.015183	90.95205
90000	2.66E+08	90.93686	299520	0.015183	156140400	7.80702	0	0	7488000	0.3744	163927920	99.13347	90.83336	8.300104	0.34177	0.050633	163628400	8.284939	2.66E+08	299520	90.83336	0.015165	90.84853
100000	2.66E+08	90.83336	299520	0.015165	156140400	7.80702	0	0	7488000	0.3744	163927920	99.02995	90.73851	8.291437	0.341413	0.05058	163628400	8.276287	2.66E+08	299520	90.73851	0.01515	90.75366
110000	2.66E+08	90.73851	299520	0.01515	156140400	7.80702	0	0	7488000	0.3744	163927920	98.93508	90.65159	8.283494	0.341086	0.050531	163628400	8.268369	2.66E+08	299520	90.65159	0.015135	90.66672
120000	2.66E+08	90.65159	299520	0.015135	156140400	7.80702	0	0	7488000	0.3744	163927920	98.84814	90.57193	8.276215	0.340787	0.050487	163628400	8.261083	2.66E+08	299520	90.57193	0.015122	90.58705
130000	2.66E+08	90.57193	299520	0.015122	156140400	7.80702	0	0	7488000	0.3744	163927920	98.76847	90.49892	8.269544	0.340512	0.050446	163628400	8.254436	2.66E+08	299520	90.49892	0.01511	90.51403
140000	2.66E+08	90.49892	299520	0.01511	156140400	7.80702	0	0	7488000	0.3744	163927920	98.69545	90.43202	8.263431	0.34026	0.050409	163628400	8.248332	2.66E+08	299520	90.43202	0.015098	90.44712
150000	2.66E+08	90.43202	299520	0.015098	156140400	7.80702	0	0	7488000	0.3744	163927920	98.62864	90.37071	8.257829	0.34003	0.050376	163628400	8.24274	2.66E+08	299520	90.37071	0.015088	90.3858
160000	2.66E+08	90.37071	299520	0.015088	156140400	7.80702	0	0	7488000	0.3744	163927920	98.56722	90.31453	8.252694	0.339818	0.050343	163628400	8.237616	2.66E+08	299520	90.31453	0.015079	90.3296
170000	2.66E+08	90.31453	299520	0.015079	156140400	7.80702	0	0	7488000	0.3744	163927920	98.51102	90.26303	8.247989	0.339624	0.050315	163628400	8.232919	2.66E+08	299520	90.26303	0.01507	90.27811
180000	2.66E+08	90.26303	299520	0.01507	156140400	7.80702	0	0	7488000	0.3744	163927920	98.45953	90.21586	8.243678	0.339447	0.050288	163628400	8.228616	2.66E+08	299520	90.21586	0.015062	90.23091
190000	2.66E+08	90.21586	299520	0.015062	156140400	7.80702	0	0	7488000	0.3744	163927920	98.41233	90.1726	8.239726	0.339284	0.050264	163628400	8.224671	2.66E+08	299520	90.1726	0.015055	90.18766
200000	2.66E+08	90.1726	299520	0.015055	156140400	7.80702	0	0	7488000	0.3744	163927920	98.36908	90.13297	8.236105	0.339136	0.050242	163628400	8.221056	2.66E+08	299520	90.13297	0.015049	90.14802
210000	2.66E+08	90.13297	299520	0.015049	156140400	7.80702	0	0	7488000	0.3744	163927920	98.32944	90.09666	8.232786	0.338998	0.050222	163628400	8.217744	2.66E+08	299520	90.09666	0.015042	90.1117
220000	2.66E+08	90.09666	299520	0.015042	156140400	7.80702	0	0	7488000	0.3744	163927920	98.29312	90.06337	8.229746	0.338873	0.050203	163628400	8.214708	2.66E+08	299520	90.06337	0.015037	90.07841
230000	2.66E+08	90.06337	299520	0.015037	156140400	7.80702	0	0	7488000	0.3744	163927920	98.25983	90.03287	8.226958	0.338758	0.050186	163628400	8.211926	2.66E+08	299520	90.03287	0.015032	90.0479
240000	2.66E+08	90.03287	299520	0.015032	156140400	7.80702	0	0	7488000	0.3744	163927920	98.22932	90.00492	8.224404	0.338653	0.050171	163628400	8.209377	2.66E+08	299520	90.00492	0.015027	90.01995
250000	2.66E+08	90.00492	299520	0.015027	156140400	7.80702	0	0	7488000	0.3744	163927920	98.20137	89.97931	8.222063	0.338557	0.050157	163628400	8.20704	2.66E+08	299520	89.97931	0.015023	89.99433
260000	2.66E+08	89.97931	299520	0.015023	156140400	7.80702	0	0	7488000	0.3744	163927920	98.17575	89.95583	8.219918	0.338469	0.050143	163628400	8.204899	2.66E+08	299520	89.95583	0.015019	89.97085
270000	2.66E+08	89.95583	299520	0.015019	156140400	7.80702	0	0	7488000	0.3744	163927920	98.15227	89.93432	8.217952	0.338398	0.050131	163628400	8.202937	2.66E+08	299520	89.93432	0.015015	89.94933
280000	2.66E+08	89.93432	299520	0.015015	156140400	7.80702	0	0	7488000	0.3744	163927920	98.13075	89.9146	8.216161	0.338313	0.050121	163628400	8.201138	2.66E+08	299520	89.9146	0.015012	89.92961
290000	2.66E+08	89.9146	299520	0.015012	156140400	7.80702	0	0	7488000	0.3744	163927920	98.11103	89.89653	8.2145	0.338245	0.05011	163628400	8.199491	2.66E+08	299520	89.89653	0.015009	89.91154
300000	2.66E+08	89.89653	299520	0.015009	156140400	7.80702	0	0	7488000	0.3744	163927920	98.09296	89.87998	8.212987	0.338183	0.050101	163628400	8.19798	2.66E+08	299520	89.87998	0.015006	89.89498
310000	2.66E+08	89.87998	299520	0.015006	156140400	7.80702	0	0	7488000	0.3744	163927920	98.0764	89.8648	8.2116	0.338126	0.050093	163628400	8.196596	2.66E+08	299520	89.8648	0.015004	89.87981
320000	2.66E+08	89.8648	299520	0.015004	156140400	7.80702	0	0	7488000	0.3744	163927920	98.06123	89.8509	8.210329	0.338074	0.050085	163628400	8.195326	2.66E+08	299520	89.8509	0.015001	89.8659
330000	2.66E+08	89.8509	299520	0.015001	156140400	7.80702	0	0	7488000	0.3744	163927920	98.04732	89.83815	8.209165	0.338026	0.050078	163628400	8.194166	2.66E+08	299520	89.83815	0.014999	89.85315
340000	2.66E+08	89.83815	299520	0.014999	156140400	7.80702	0	0	7488000	0.3744	163927920	98.03457	89.82648	8.208098	0.337982	0.050071	163628400	8.1931	2.66E+08	299520	89.82648	0.014997	89.84147
350000	2.66E+08	89.82648	299520	0.014997	156140400	7.80702	0	0	7488000	0.3744	163927920	98.02289	89.81577	8.20712	0.337942	0.050065	163628400	8.192124	2.66E+08	299520	89.81577	0.014996	89.83077
360000	2.66E+08	89.81577	299520	0.014996	156140400	7.80702	0	0	7488000	0.3744	163927920	98.01219	89.80597	8.206224	0.337905	0.05006	163628400	8.19123	2.66E+08	299520	89.80597	0.014994	89.82096
370000	2.66E+08	89.80597	299520	0.014994	156140400	7.80702	0	0	7488000	0.3744	163927920	98.00238	89.79698	8.205402	0.337871	0.050055	163628400	8.19041	2.66E+08	299520	89.79698	0.014992	89.81197
380000	2.66E+08	89.79698	299520	0.014992	156140400	7.80702	0	0	7488000	0.3744	163927920	97.99339	89.78874	8.20465	0.33784	0.05005	163628400	8.189659	2.66E+08	299520	89.78874	0.014991	89.80373
390000	2.66E+08	89.78874	299520	0.014991	156140400	7.80702	0	0	7488000	0.3744	163927920	97.98515	89.78119	8.20396	0.337811	0.050046	163628400	8.18897	2.66E+08	299520	89.78119	0.01499	89.79618
400000	2.66E+08	89.78119	299520	0.01499	156140400	7.80702	0	0	7488000	0.3744	163927920	97.9776	89.77427	8.203328	0.337785	0.050042	163628400	8.188339	2.66E+08	299520	89.77427	0.014989	89.78926
410000	2.66E+08	89.77427	299520	0.014989	156140400	7.80702	0	0	7488000	0.3744	163927920	97.97068	89.76793	8.202748	0.337762	0.050039	163628400	8.187761	2.66E+08	299520	89.76793	0.014988	89.78292
420000	2.66E+08	89.76793	299520	0.014988	156140400	7.80702	0	0	7488000	0.3744	163927920	97.96434	89.76212	8.202217	0.33774	0.050036	163628400	8.187231	2.66E+08	299520	89.76212	0.014987	89.77711
430000	2.66E+08	89.76212	299520	0.014987	156140400	7.80702	0	0	7488000	0.3744	163927920	97.95853	89.7568	8.201731	0.33772	0.050033	163628400	8.186745	2.66E+08	299520	89.7568	0.014986	89.77178
440000	2.66E+08	89.7568	299520	0.014986	156140400	7.80702	0	0	7488000	0.3744	163927920	97.9532	89.75192	8.201286	0.337701	0.05003	163628400	8.1863	2.66E+08	299520	89.75192	0.014985	89.7669
450000	2.66E+08	89.75192	299520	0.014985	156140400	7.80702	0	0	7488000	0.3744	163927920	97.94832	89.74745	8.200877	0.337684	0.050027	163628400	8.185892	2.66E+08	299520	89.74745	0.014984	89.76243
460000	2.66E+08	89.74745	299520	0.014984	156140400	7.80702	0	0	7488000	0.3744	163927920	97.94385	89.74336	8.200502	0.337669	0.050025	163628400	8.185519	2.66E+08	299520	89.74336	0.014984	89.75833
470000	2.66E+08	89.74336	299520	0.014984	156140400	7.80702	0	0	7488000	0.3744	163927920	97.93975	89.73959	8.200159	0.337655	0.050023	163628400	8.185176	2.66E+08	299520	89.73959	0.014983	89.75458
480000	2.66E+08	89.73959	299520	0.014983	156140400	7.80702	0	0	7488000	0.3744	163927920	97.936	89.73615	8.199844	0.337642	0.050021	163628400	8.184862	2.66E+08	299520	89.73615	0.014982	89.75114
490000	2.66E+08	89.73615	299520	0.014982	156140400	7.80702	0	0	7488000	0.3744	163927920	97.93256	89.733	8.199556	0.33763	0.050019	163628400	8.184574	2.66E+08	299520	89.733	0.014982	89.74798
500000	2.66E+08	89.733	299520	0.014982	156140400	7.80702	0	0	7488000	0.3744	163927920	97.9294	89.73011	8.199292	0.337619	0.050018	163628400	8.184311	2.66E+08	299520	89.73011	0.014981	89.74509
510000	2.66E+08	89.73011	299520	0.014981	156140400	7.80702	0	0	7488000	0.3744	163927920	97.92651	89.72746	8.19905	0.337609	0.050016	163628400	8.184069	2.66E+08	299520	89.72746	0.014981	89.74244
520000	2.66E+08	89.72746	299520	0.014981	156140400	7.80702	0	0	7488000	0.3744	163927920	97.92386	89.72503	8.198828	0.3376	0.050015	163628400	8.183848	2.66E+08	299520	89.72503	0.01498	89.74001
530000	2.66E+08	89.72503	299520	0.01498	156140400	7.80702	0	0	7488000	0.3744	163927920	97.92143	89.72281	8.198625	0.337592	0.050014	163628400	8.183645	2.66E+08	299520	89.72281	0.01498	89.73779
540000	2.66E+08	89.72281	299520	0.01498	156140400	7.80702	0	0	7488000	0.3744	163927920	97.91921	89.72077	8.198439	0.337584	0.050012	163628400	8.183459	2.66E+08	299520	89.72077	0.01498	89.73575
550000	2.66E+08	89.72077	299520	0.01498	156140400	7.80702	0	0	7488000	0.3744	163927920	97.91717	89.7189	8.198268	0.337577	0.050011	163628400	8.183289	2.66E+08	299520	89.7189	0.014979	89.73388
560000	2.66E+08	89.7189	299520	0.014979	156140400	7.80702	0	0	7488000	0.3744	163927920	97.9153	89.71719	8.198112	0.337571	0.05001	163628400	8.183132	2.66E+08	299520	89.71719	0.014979	89.73217
570000	2.66E+08	89.71719	299520	0.014979	156140400	7.80702	0	0	7488000	0.3744	163927920	97.91359	89.71562	8.197968	0.337565	0.050009	163628400	8.182989	2.66E+08	299520	89.71562	0.014979	89.7306
580000	2.66E+08	89.71562	299520	0.014979	156140400	7.80702	0	0	7488000	0.3744	163927920	97.91202	89.71418	8.197837	0.337559	0.050009	163628400	8.182858	2.66E+08	299520	89.71418	0.014979	89.72916
590000	2.66E+08	89.71418	299520	0.014979	156140400	7.80702	0	0	7488000	0.3744	163927920	97.91058	89.71286	8.197716	0.337554	0.050008	163628400	8.182738	2.66E+08	299520	89.71286	0.014978	89.72784
600000	2.66E+08	89.71286	299520	0.014978	156140400	7.80702	0	0	7488000	0.3744	163927920	97.90926	89.71166	8.197606	0.33755	0.050007	163628400	8.182628	2.66E+08	299520	89.71166	0.014978	89.72664
610000	2.66E+08	89.71166	299520	0.014978	156140400	7.80702	0	0	7488000	0.3744	163927920	97.90806	89.71055	8.197505	0.337546	0.050007	163628400	8.182527	2.66E+08	299520	89.71055	0.014978	89.72553
620000	2.66E+08	89.71055	299520	0.014978	156140400	7.80702	0	0	7488000	0.3744	163927920	97.90695	89.70954	8.197412	0.337542	0.050006	163628400	8.182434	2.66E+08	299520	89.70954	0.014978	89.72451
630000	2.66E+08	89.70954	299520	0.014978	156140400	7.80702	0	0	7488000	0.3744	163927920	97.90593	89.70861	8.197327	0.337538	0.050006	163628400	8.18235	2.66E+08	299520	89.70861	0.014978	89.72358
640000	2.66E+08	89.70861	299520	0.014978	156140400	7.80702	0	0	7488000	0.3744	163927920	97.905	89.70775	8.197249	0.337535	0.050005	163628400	8.182272	2.66E+08	299520	89.70775	0.014978	89.72273
650000	2.66E+08	89.70775	299520	0.014978	156140400	7.80702	0	0	7488000	0.3744	163927920	97.90415	89.70697	8.197178	0.337532	0.050005	163628400	8.182201	2.66E+08	299520	89.70697	0.014977	89.72195
660000	2.66E+08	89.70697	299520	0.014977	156140400	7.80702	0	0	7488000	0.3744	163927920	97.90337	89.70626	8.197113	0.33753	0.050004	163628400	8.182136	2.66E+08	299520	89.70626	0.014977	89.72124
670000	2.66E+08	89.70626	299520	0.014977	156140400	7.80702	0	0	7488000	0.3744	163927920	97.90266	89.7056	8.197053	0.337527	0.050004	163628400	8.182076	2.66E+08	299520	89.7056	0.014977	89.72058
680000	2.66E+08	89.7056	299520	0.014977	156140400	7.80702	0	0	7488000	0.3744	163927920	97.902	89.705	8.196998	0.337525	0.050003	163628400	8.182021	2.66E+08	299520	89.705	0.014977	89.71998
690000	2.66E+08	89.705	299520	0.014977	156140400	7.80702	0	0	7488000	0.3744	163927920	97.9014	89.70445	8.196948	0.337523	0.050003	163628400	8.181971	2.66E+08	299520	89.70445	0.014977	89.71943
700000	2.66E+08	89.70445	299520	0.014977	156140400	7.80702	0	0	7488000	0.3744	163927920	97.90085	89.70396	8.196902	0.337521	0.050003	163628400	8.181925	2.66E+08	299520	89.70396	0.014977	89.71892
710000	2.66E+08	89.70396	299520	0.014977	156140400	7.80702	0	0	7488000	0.3744	163927920	97.90034	89.70349	8.196859	0.337519	0.050003	163628400	8.181882	2.66E+08	299520	89.70349	0.014977	89.71846

Base Case – Cell 2

Time year	Time year	Initial solids ton	Initial chemical in solid ton	Initial water ton	Initial chemical in water ton	Incoming water from cell above ton	Incoming chemical from cell above ton	Incoming water from side ton	Incoming chemical from side ton	Incoming water from infiltration ton	Incoming chemical from infiltration ton	Total water in cell	Total chemical in cell ton	Mass on solids ton	Mass in liquids ton	Concentration in solids mg/kg	Concentration in liquids mg/L	Outgoing liquid to next cell tons	Outgoing chemical to next cell tons	Final solid in cell tons	Final liquid in cell tons	Final chemical on solid tons	Final chemical in liquid tons	Final chemical in cell tons	Time to peak concentration years
0	0							0	0	7488000	0.3744			8.75		0.3375	0.05			2.66E+08	299520	89.69842	0.014976	89.71309	710000
10000	10	2.66E+08	89.69842	299520	0.014976	10.28711	3498768	0	0	7488000	0.3744	7787530	3498868	0	3498858	0	449289.82	7488010	3364287	2.66E+08	299520	0	134571.3	134571.3	10000
20000	10010	2.66E+08	0	299520	134571.29	7.816908	3498768	0	0	7488000	0.3744	7787528	3633340	0	3633340	0	466558.8	7488008	3493696	2.66E+08	299520	0	139743.7	139743.7	20000
30000	20010	2.66E+08	0	299520	139743.69	7.807052	3498768	0	0	7488000	0.3744	7787528	3638612	0	3638612	0	467223	7488008	3498669	2.66E+08	299520	0	139942.6	139942.6	30000
40000	30010	2.66E+08	0	299520	139942.63	7.80702	3498768	0	0	7488000	0.3744	7787529	3638711	0	3638711	0	467249.64	7488008	3498761	2.66E+08	299520	0	139960.3	139960.3	40000
50000	40010	2.66E+08	0	299520	139960.28	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.62	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	50000
60000	50010	2.66E+08	0	299520	139960.58	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	60000
70000	60010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	70000
80000	70010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	80000
90000	80010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	90000
100000	90010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	100000
110000	100010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	110000
120000	110010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	120000
130000	120010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	130000
140000	130010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	140000
150000	140010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	150000
160000	150010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	160000
170000	160010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	170000
180000	170010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	180000
190000	180010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	190000
200000	190010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	200000
210000	200010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	210000
220000	210010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	220000
230000	220010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	230000
240000	230010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	240000
250000	240010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	250000
260000	250010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	260000
270000	260010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	270000
280000	270010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	280000
290000	280010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	290000
300000	290010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	300000
310000	300010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	310000
320000	310010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	320000
330000	320010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	330000
340000	330010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	340000
350000	340010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	350000
360000	350010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	360000
370000	360010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	370000
380000	370010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	380000
390000	380010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	390000
400000	390010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	400000
410000	400010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	410000
420000	410010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	420000
430000	420010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	430000
440000	430010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	440000
450000	440010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	450000
460000	450010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	460000
470000	460010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	470000
480000	470010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	480000
490000	480010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	490000
500000	490010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	500000
510000	500010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	510000
520000	510010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	520000
530000	520010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	530000
540000	530010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	540000
550000	540010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	550000
560000	550010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	560000
570000	560010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	570000
580000	570010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	580000
590000	580010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	590000
600000	590010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	600000
610000	600010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	610000
620000	610010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	620000
630000	620010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	630000
640000	630010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	640000
650000	640010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	650000
660000	650010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	660000
670000	660010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	670000
680000	670010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	680000
690000	680010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	690000
700000	690010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	700000
710000	700010	2.66E+08	0	299520	139960.59	7.80702	3498768	0	0	7488000	0.3744	7787528	3638719	0	3638719	0	467249.66	7488008	3498768	2.66E+08	299520	0	139960.6	139960.6	710000

Base Case – Cell 3

Time	Initial solids	Initial chemical in solid	Initial water	Initial chemical in water	Incoming water from cell above	Incoming chemical from cell above	Incoming water from side	Incoming chemical from side	Incoming water from infiltration	Incoming chemical from infiltration	Total water in cell	Total chemical in cell	Mass on solids	Mass in liquids	Concentration in solids	Concentration in liquids	Outgoing liquid to next cell	Outgoing chemical to next cell	Final solid in cell	Final liquid in cell	Final chemical on solid	Final chemical in liquid	Final chemical in cell
year	Time	Time	Initial solids	Initial chemical in solid	Initial water	Initial chemical in water	Incoming water from cell above	Incoming chemical from cell above	Incoming water from side	Incoming chemical from side	Incoming water from infiltration	Incoming chemical from infiltration	Total water in cell	Total chemical in cell	Mass on solids	Mass in liquids	Concentration in solids	Concentration in liquids	Outgoing liquid to next cell	Outgoing chemical to next cell	Final solid in cell	Final liquid in cell	Final chemical on solid
0	year	year	ton	ton	ton	ton	ton	ton	ton	ton	ton	ton		ton	ton	ton	mg/kg	mg/L	tons	tons	tons	tons	tons
10000	0	0							0	0	7488000	0.3744			6.75		0.3376	0.05			2.66E+08	299520	89.69842
20000	533	0	2.66E+08	89.69842	299520	0.014976	3498768	561600	0	0	7488000	0.3744	11286288	561690.1	0	561690.1	0	49767.48	10986768	546783.7	2.66E+08	299520	0
30000	10533	10000	2.66E+08	0	299520	14906.35	3498768	561600	0	0	7488000	0.3744	11286288	576506.7	0	576506.7	0	51080.28	10986768	561207.2	2.66E+08	299520	0
40000	20533	20000	2.66E+08	0	299520	15299.56	3498768	561600	0	0	7488000	0.3744	11286288	576899.9	0	576899.9	0	51115.17	10986768	561589.9	2.66E+08	299520	0
50000	30533	30000	2.66E+08	0	299520	15310	3498768	561600	0	0	7488000	0.3744	11286288	576910.4	0	576910.4	0	51116.04	10986768	561600.1	2.66E+08	299520	0
60000	40533	40000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
70000	50533	50000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
80000	60533	60000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
90000	70533	70000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
100000	80533	80000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
110000	90533	90000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
120000	100533	100000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
130000	110533	110000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
140000	120533	120000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
150000	130533	130000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
160000	140533	140000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
170000	150533	150000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
180000	160533	160000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
190000	170533	170000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
200000	180533	180000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
210000	190533	190000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
220000	200533	200000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
230000	210533	210000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
240000	220533	220000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
250000	230533	230000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
260000	240533	240000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
270000	250533	250000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
280000	260533	260000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
290000	270533	270000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
300000	280533	280000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
310000	290533	290000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
320000	300533	300000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
330000	310533	310000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
340000	320533	320000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
350000	330533	330000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
360000	340533	340000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
370000	350533	350000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
380000	360533	360000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
390000	370533	370000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
400000	380533	380000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
410000	390533	390000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
420000	400533	400000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
430000	410533	410000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
440000	420533	420000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
450000	430533	430000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
460000	440533	440000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
470000	450533	450000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
480000	460533	460000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
490000	470533	470000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
500000	480533	480000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
510000	490533	490000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
520000	500533	500000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
530000	510533	510000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
540000	520533	520000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
550000	530533	530000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
560000	540533	540000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
570000	550533	550000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
580000	560533	560000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
590000	570533	570000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
600000	580533	580000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
610000	590533	590000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
620000	600533	600000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
630000	610533	610000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
640000	620533	620000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
650000	630533	630000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
660000	640533	640000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
670000	650533	650000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
680000	660533	660000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
690000	670533	670000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
700000	680533	680000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0
710000	690533	690000	2.66E+08	0	299520	15310.28	3498768	561600	0	0	7488000	0.3744	11286288	576910.7	0	576910.7	0	51116.07	10986768	561600.4	2.66E+08	299520	0

Base Case – Cell 4

Time year	Initial solids ton	Initial chemical in solid ton	Initial water ton	Initial chemical in water ton	Incoming water from cell above ton	Incoming chemical from cell above ton	Incoming water from side ton	Incoming chemical from side ton	Incoming water from infiltration ton	Incoming chemical from infiltration ton	Total water in cell	Total chemical in cell ton	Mass on solids ton	Mass in liquids ton	Concentration in solids mg/kg	Concentration in liquids mg/L	Outgoing liquid to next cell tons	Outgoing chemical to next cell tons	Final solid in cell tons	Final liquid in cell tons	Final chemical on solid tons	Final chemical in liquid tons	Final chemical in cell tons
0							0	0	7488000	0.3744			4.5		0.225	0.05			2.66E+08	299520	59.79894	0.014976	59.81392
10000	2.66E+08	59.79894	299520	0.014976	0.3375	0.05	0	0	7488000	0.3744	7787520	60.23832	59.84862	0.389699	0.225187	0.050042	7488000.3	0.374711	2.66E+08	299520	59.84862	0.014988	59.86361
20000	2.66E+08	59.84862	299520	0.014988	0	49767.48	0	0	7488000	0.3744	7787520	49827.72	49505.37	322.3502	186.2693	41.39318	7488000	309.9521	2.66E+08	299520	49505.37	12.39808	49517.76
30000	2.66E+08	49505.37	299520	12.39808	0	51080.28	0	0	7488000	0.3744	7787520	100598.4	99947.62	650.8006	376.0637	83.66972	7488000	625.77	2.66E+08	299520	99947.62	25.0308	99972.65
40000	2.66E+08	99947.62	299520	25.0308	0	51115.12	0	0	7488000	0.3744	7787520	151088.1	150110.7	977.4338	564.8076	125.5128	7488000	939.8401	2.66E+08	299520	150110.7	37.59361	150148.3
50000	2.66E+08	150110.7	299520	37.59361	0	51116.04	0	0	7488000	0.3744	7787520	201264.7	199962.7	1302.041	752.3812	167.1958	7488000	1251.962	2.66E+08	299520	199962.7	50.07849	200012.8
60000	2.66E+08	199962.7	299520	50.07849	0	51116.07	0	0	7488000	0.3744	7787520	251129.2	249504.6	1624.629	938.7879	208.6195	7488000	1562.143	2.66E+08	299520	249504.6	62.48673	249567.1
70000	2.66E+08	249504.6	299520	62.48673	0	51116.07	0	0	7488000	0.3744	7787520	300683.5	298738.3	1945.21	1124.035	249.7856	7488000	1870.394	2.66E+08	299520	298738.3	74.81578	298813.1
80000	2.66E+08	298738.3	299520	74.81578	0	51116.07	0	0	7488000	0.3744	7787520	349929.5	347665.7	2263.797	1308.13	290.6956	7488000	2176.728	2.66E+08	299520	347665.7	87.06913	347752.8
90000	2.66E+08	347665.7	299520	87.06913	0	51116.07	0	0	7488000	0.3744	7787520	398869.3	396288.9	2580.403	1491.08	331.351	7488000	2481.157	2.66E+08	299520	396288.9	99.24627	396388.1
100000	2.66E+08	396288.9	299520	99.24627	0	51116.07	0	0	7488000	0.3744	7787520	447604.5	444609.6	2895.039	1672.891	371.7536	7488000	2783.691	2.66E+08	299520	444609.6	111.3477	444720.8
110000	2.66E+08	444609.6	299520	111.3477	0	51116.07	0	0	7488000	0.3744	7787520	495837.3	492629.6	3207.718	1853.572	411.9049	7488000	3084.344	2.66E+08	299520	492629.6	123.3738	492752.9
120000	2.66E+08	492629.6	299520	123.3738	0	51116.07	0	0	7488000	0.3744	7787520	543869.4	540350.9	3518.452	2033.129	451.8064	7488000	3383.127	2.66E+08	299520	540350.9	135.3251	540486.3
130000	2.66E+08	540350.9	299520	135.3251	0	51116.07	0	0	7488000	0.3744	7787520	591602.7	587775.4	3827.252	2211.569	491.4597	7488000	3680.06	2.66E+08	299520	587775.4	147.202	587922.7
140000	2.66E+08	587775.4	299520	147.202	0	51116.07	0	0	7488000	0.3744	7787520	639039.1	634905	4134.132	2388.899	530.8664	7488000	3975.127	2.66E+08	299520	634905	159.0051	635064
150000	2.66E+08	634905	299520	159.0051	0	51116.07	0	0	7488000	0.3744	7787520	686180.4	681741.3	4439.104	2565.126	570.0279	7488000	4268.369	2.66E+08	299520	681741.3	170.7348	681912
160000	2.66E+08	681741.3	299520	170.7348	0	51116.07	0	0	7488000	0.3744	7787520	733028.5	728286.3	4742.178	2740.256	608.9458	7488000	4559.786	2.66E+08	299520	728286.3	182.3914	728468.7
170000	2.66E+08	728286.3	299520	182.3914	0	51116.07	0	0	7488000	0.3744	7787520	779585.1	774541.8	5043.366	2914.297	647.6216	7488000	4849.391	2.66E+08	299520	774541.8	193.9756	774735.7
180000	2.66E+08	774541.8	299520	193.9756	0	51116.07	0	0	7488000	0.3744	7787520	825852.2	820509.5	5342.682	3087.256	686.0569	7488000	5137.194	2.66E+08	299520	820509.5	205.4878	820715
190000	2.66E+08	820509.5	299520	205.4878	0	51116.07	0	0	7488000	0.3744	7787520	871831.4	866191.3	5640.135	3259.139	724.253	7488000	5423.207	2.66E+08	299520	866191.3	216.9283	866408.2
200000	2.66E+08	866191.3	299520	216.9283	0	51116.07	0	0	7488000	0.3744	7787520	917524.7	911588.9	5935.738	3429.952	762.2116	7488000	5707.44	2.66E+08	299520	911588.9	228.2976	911817.2
210000	2.66E+08	911588.9	299520	228.2976	0	51116.07	0	0	7488000	0.3744	7787520	962933.7	956704.2	6229.502	3599.703	799.934	7488000	5989.906	2.66E+08	299520	956704.2	239.6962	956943.8
220000	2.66E+08	956704.2	299520	239.6962	0	51116.07	0	0	7488000	0.3744	7787520	1008060	1001539	6521.439	3768.398	837.4218	7488000	6270.614	2.66E+08	299520	1001539	250.8246	1001790
230000	2.66E+08	1001539	299520	250.8246	0	51116.07	0	0	7488000	0.3744	7787520	1052906	1046094	6811.56	3936.044	874.6764	7488000	6549.577	2.66E+08	299520	1046094	261.9831	1046356
240000	2.66E+08	1046094	299520	261.9831	0	51116.07	0	0	7488000	0.3744	7787520	1097473	1090373	7099.876	4102.647	911.6992	7488000	6826.804	2.66E+08	299520	1090373	273.0722	1090646
250000	2.66E+08	1090373	299520	273.0722	0	51116.07	0	0	7488000	0.3744	7787520	1141763	1134376	7386.399	4268.213	948.4918	7488000	7102.307	2.66E+08	299520	1134376	284.0923	1134660
260000	2.66E+08	1134376	299520	284.0923	0	51116.07	0	0	7488000	0.3744	7787520	1185777	1178106	7671.139	4432.75	985.0556	7488000	7376.095	2.66E+08	299520	1178106	295.0438	1178401
270000	2.66E+08	1178106	299520	295.0438	0	51116.07	0	0	7488000	0.3744	7787520	1229517	1221563	7954.108	4596.263	1021.392	7488000	7648.181	2.66E+08	299520	1221563	305.9272	1221869
280000	2.66E+08	1221563	299520	305.9272	0	51116.07	0	0	7488000	0.3744	7787520	1272985	1264750	8235.317	4758.759	1057.502	7488000	7918.574	2.66E+08	299520	1264750	316.743	1265067
290000	2.66E+08	1264750	299520	316.743	0	51116.07	0	0	7488000	0.3744	7787520	1316163	1307668	8514.777	4920.244	1093.388	7488000	8187.286	2.66E+08	299520	1307668	327.4914	1307996
300000	2.66E+08	1307668	299520	327.4914	0	51116.07	0	0	7488000	0.3744	7787520	1359112	1350320	8792.499	5080.724	1129.05	7488000	8454.326	2.66E+08	299520	1350320	338.173	1350658
310000	2.66E+08	1350320	299520	338.173	0	51116.07	0	0	7488000	0.3744	7787520	1401774	1392706	9068.492	5240.207	1164.49	7488000	8719.704	2.66E+08	299520	1392706	348.7882	1393055
320000	2.66E+08	1392706	299520	348.7882	0	51116.07	0	0	7488000	0.3744	7787520	1444171	1434828	9342.769	5398.697	1199.71	7488000	8983.432	2.66E+08	299520	1434828	359.3373	1435188
330000	2.66E+08	1434828	299520	359.3373	0	51116.07	0	0	7488000	0.3744	7787520	1486304	1476689	9615.34	5556.202	1234.711	7488000	9245.52	2.66E+08	299520	1476689	369.8208	1477059
340000	2.66E+08	1476689	299520	369.8208	0	51116.07	0	0	7488000	0.3744	7787520	1528176	1518269	9886.216	5712.726	1269.496	7488000	9505.977	2.66E+08	299520	1518269	380.2391	1518649
350000	2.66E+08	1518269	299520	380.2391	0	51116.07	0	0	7488000	0.3744	7787520	1569796	1559630	10155.41	5868.277	1304.062	7488000	9764.813	2.66E+08	299520	1559630	390.6925	1560021
360000	2.66E+08	1559630	299520	390.6925	0	51116.07	0	0	7488000	0.3744	7787520	1611137	1600714	10422.92	6022.861	1338.414	7488000	10022.04	2.66E+08	299520	1600714	400.8816	1601115
370000	2.66E+08	1600714	299520	400.8816	0	51116.07	0	0	7488000	0.3744	7787520	1652232	1641543	10688.77	6176.463	1372.552	7488000	10277.87	2.66E+08	299520	1641543	411.1067	1641954
380000	2.66E+08	1641543	299520	411.1067	0	51116.07	0	0	7488000	0.3744	7787520	1693070	1682117	10952.97	6329.149	1406.478	7488000	10531.7	2.66E+08	299520	1682117	421.2681	1682539
390000	2.66E+08	1682117	299520	421.2681	0	51116.07	0	0	7488000	0.3744	7787520	1733655	1722440	11215.53	6480.865	1440.192	7488000	10784.16	2.66E+08	299520	1722440	431.3684	1722871
400000	2.66E+08	1722440	299520	431.3684	0	51116.07	0	0	7488000	0.3744	7787520	1773987	1762511	11476.45	6631.638	1473.697	7488000	11035.06	2.66E+08	299520	1762511	441.4018	1762952
410000	2.66E+08	1762511	299520	441.4018	0	51116.07	0	0	7488000	0.3744	7787520	1814069	1802333	11735.76	6781.473	1506.994	7488000	11284.37	2.66E+08	299520	1802333	451.3749	1802784
420000	2.66E+08	1802333	299520	451.3749	0	51116.07	0	0	7488000	0.3744	7787520	1853901	1841907	11993.43	6930.376	1540.084	7488000	11532.15	2.66E+08	299520	1841907	461.2858	1842369
430000	2.66E+08	1841907	299520	461.2858	0	51116.07	0	0	7488000	0.3744	7787520	1893485	1881236	12249.51	7078.353	1572.967	7488000	11778.36	2.66E+08	299520	1881236	471.1352	1881707
440000	2.66E+08	1881236	299520	471.1352	0	51116.07	0	0	7488000	0.3744	7787520	1932823	1920319	12504	7225.409	1605.646	7488000	12023.08	2.66E+08	299520	1920319	480.9237	1920800
450000	2.66E+08	1920319	299520	480.9237	0	51116.07	0	0	7488000	0.3744	7787520	1971917	1959160	12756.91	7371.55	1638.122	7488000	12266.26	2.66E+08	299520	1959160	490.6604	1959650
460000	2.66E+08	1959160	299520	490.6604	0	51116.07	0	0	7488000	0.3744	7787520	2010767	1997759	13008.24	7516.783	1670.396	7488000	12507.93	2.66E+08	299520	1997759	500.3171	1998259
470000	2.66E+08	1997759	299520	500.3171	0	51116.07	0	0	7488000	0.3744	7787520	2049375	2036117	13258.01	7661.112	1702.469	7488000	12748.09	2.66E+08	299520	2036117	509.9236	2036627
480000	2.66E+08	2036117	299520	509.9236	0	51116.07	0	0	7488000	0.3744	7787520	2087744	2074237	13506.23	7804.543	1734.343	7488000	12986.76	2.66E+08	299520	2074237	519.4704	2074757
490000	2.66E+08	2074237	299520	519.4704	0	51116.07	0	0	7488000	0.3744	7787520	2125973	2112120	13752.9	7947.082	1766.018	7488000	13223.94	2.66E+08	299520	2112120	528.9578	2112649
500000	2.66E+08	2112120	299520	528.9578	0	51116.07	0	0	7488000	0.3744	7787520	2163766	2149768	13998.04	8088.734	1797.496	7488000	13459.66	2.66E+08	299520	2149768	538.3861	2150306
510000	2.66E+08	2149768	299520	538.3861	0	51116.07	0	0	7488000	0.3744	7787520	2201423	2187181	14241.65	8229.505	1828.779	7488000	13693.9	2.66E+08	299520	2187181	547.7559	2187729
520000	2.66E+08	2187181	299520	547.7559	0	51116.07	0	0	7488000	0.3744	7787520	2238846	2224361	14483.76	8369.401	1859.867	7488000	13926.68	2.66E+08	299520	2224361	557.0673	2224918
530000	2.66E+08	2224361	299520	557.0673	0	51116.07	0	0	7488000	0.3744	7787520	2276036	2261311	14724.34	8508.426	1890.761	7488000	14158.02	2.66E+08	299520	2261311	566.3208	2261877
540000	2.66E+08	2261311	299520	566.3208	0	51116.07	0	0	7488000	0.3744	7787520	2312993	2298030	14963.44	8646.586	1921.464	7488000	14387.92	2.66E+08	299520	2298030	575.5168	2298605
550000	2.66E+08	2298030	299520	575.5168	0	51116.07	0	0	7488000	0.3744	7787520	2349722	2334521	15201.04	8783.887	1951.975	7488000	14616.39	2.66E+08	299520	2334521	584.6555	2335105
560000	2.66E+08	2334521	299520	584.6555	0	51116.07	0	0	7488000	0.3744	7787520	2386222	2370785	15437.17	8920.334	1982.296	7488000	14843.44	2.66E+08	299520	2370785	593.7374	2371378
570000	2.66E+08	2370785	299520	593.7374	0	51116.07	0	0	7488000	0.3744	7787520	2422495	2406823	15671.83	9055.932	2012.429	7488000	15069.07	2.66E+08	299520	2406823	602.7629	2407426
580000	2.66E+08	2406823	299520	602.7629	0	51116.07	0	0	7488000	0.3744	7787520	2458542	2442637	15905.04	9190.687	2042.375	7488000	15293.3	2.66E+08	299520	2442637	611.7321	2443249
590000	2.66E+08	2442637	299520	611.7321	0	51116.07	0	0	7488000	0.3744	7787520	2494365	2478229	16136.79	9324.604	2072.134	7488000	15516.14	2.66E+08	299520	2478229	620.6456	2478849
600000	2.66E+08	2478229	299520	620.6456	0	51116.07	0	0	7488000	0.3744	7787520	2529966	2513599	16367.09	9457.687	2101.708	7488000	15737.59	2.66E+08	299520	2513599	629.5036	2514228
610000	2.66E+08	2513599	299520	629.5036	0	51116.07	0	0	7488000	0.3744	7787520	2565345	2548749	16595.97	9589.943	2131.098	7488000	15957.66	2.66E+08	299520	2548749	638.3066	2549387
620000	2.66E+08	2548749	299520	638.3066	0	51116.07	0	0	7488000	0.3744	7787520	2600503	2583680	16823.42	9721.375	2160.306	7488000	16176.37	2.66E+08	299520	2583680	647.0547	2584327
630000	2.66E+08	2583680	299520	647.0547	0	51116.07	0	0	7488000	0.3744	7787520	2635443	2618394	17049.46	9851.991	2189.331	7488000	16393.71	2.66E+08	299520	2618394	655.7485	2619050
640000	2.66E+08	2618394	299520	655.7485	0	51116.07	0	0	7488000	0.3744	7787520	2670166	2652892	17274.09	9981.794	2218.176	7488000	16609.7	2.66E+08	299520	2652892	664.3882	2653656
650000	2.66E+08	2652892	299520	664.3882	0	51116.07	0	0	7488000	0.3744	7787520	2704673	2687176	17497.33	10110.79	2246.842	7488000	16824.36	2.66E+08	299520	2687176	672.9741	2687849
660000	2.66E+08	2687176	299520	672.9741	0	51116.07	0	0	7488000	0.3744	7787520	2738965	2721246	17719.17	10238.98	2275.329	7488000	17037.67	2.66E+08	299520	2721246	681.5066	2721927
670000	2.66E+08	2721246	299520	681.5066	0	51116.07	0	0	7488000	0.3744	7787520	2773044	2755104	17939.64	10366.38	2303.639	7488000	17249.56	2.66E+08	299520	2755104	689.9861	2755794
680000	2.66E+08	2755104	299520	689.9861	0	51116.07	0	0	7488000	0.3744	7787520	2806911	2788752	18158.73	10492.98	2331.773	7488000	17460.32	2.66E+08	299520	2788752	698.4128	2789450
690000	2.66E+08	2788752	299520	698.4128	0	51116.07	0	0	7488000	0.3744	7787520	2840567	2822190	18376.46	10618.8	2359.732	7488000	17669.68	2.66E+08	299520	2822190	706.7871	2822897
700000	2.66E+08	2822190	299520	706.7871	0	51116.07	0	0	7488000	0.3744	7787520	2874013	2855421	18592.84	10743.83	2387.518	7488000	17877.73	2.66E+08	299520	2855421	715.1093	2856136
710000	2.66E+08	2855421	299520	715.1093	0	51116.07	0	0	7488000	0.3744	7787520	2907252	2888444	18807.87	10868.08	2415.13	7488000	18084.49	2.66E+08	299520	2888444	723.3797	2889168

Base Case – Cell 5

Time	Initial solids	Initial chemical in solid	Initial water	Initial chemical in water	Incoming water from cell above	Incoming chemical from cell above	Incoming water from side	Incoming chemical from side	Incoming water from infiltration	Incoming chemical from infiltration	Total water in cell	Total chemical in cell	Mass on solids	Mass in liquids	Concen-tration in solids	Concen-tration in liquids	Outgoing liquid to next cell	Outgoing chemical to next cell	Final solid in cell	Final liquid in cell	Final chemical on solid	Final chemical in liquid	Final chemical in cell
year	ton	ton	ton	ton	ton	ton	ton	ton	ton	ton		ton	ton	ton	mg/kg	mg/L	tons	tons	tons	tons	tons	tons	tons
0							0	0	7488000	0.3744			3.375		0.16875	0.05			2.66E+08	299520	44.84921	0.014976	44.86418
10000	2.66E+08	44.84921	299520	0.014976	7488000.3	0.374711	0	0	7488000	0.3744	15275520	45.61329	44.84951	0.763781	0.168751	0.06	14976000	0.748806	2.66E+08	299520	44.84951	0.014976	44.86449
20000	2.66E+08	44.84951	299520	0.014976	7488000	309.9521	0	0	7488000	0.3744	15275520	355.191	349.2434	5.947569	1.314066	0.389353	14976000	5.83095	2.66E+08	299520	349.2434	0.116619	349.3601
30000	2.66E+08	349.2434	299520	0.116619	7488000	625.77	0	0	7488000	0.3744	15275520	975.6045	959.17	16.33454	3.606981	1.068328	14976000	16.01425	2.66E+08	299520	959.17	0.320265	959.4902
40000	2.66E+08	959.17	299520	0.320265	7488000	939.8401	0	0	7488000	0.3744	15275520	1898.705	1867.895	31.81	7.028156	2.082417	14976000	31.18627	2.66E+08	299520	1867.895	0.623725	1868.519
50000	2.66E+08	1867.895	299520	0.623725	7488000	1251.962	0	0	7488000	0.3744	15275520	3120.855	3068.597	52.2578	11.54593	3.421016	14976000	51.23314	2.66E+08	299520	3068.597	1.024663	3069.622
60000	2.66E+08	3068.597	299520	1.024663	7488000	1562.143	0	0	7488000	0.3744	15275520	4632.14	4554.576	77.56382	17.13708	5.077656	14976000	76.04296	2.66E+08	299520	4554.576	1.520859	4556.097
70000	2.66E+08	4554.576	299520	1.520859	7488000	1870.394	0	0	7488000	0.3744	15275520	6426.866	6319.25	107.616	23.77686	7.044986	14976000	105.5059	2.66E+08	299520	6319.25	2.110117	6321.36
80000	2.66E+08	6319.25	299520	2.110117	7488000	2176.728	0	0	7488000	0.3744	15275520	8498.462	8356.158	142.3043	31.44095	9.315837	14976000	139.514	2.66E+08	299520	8356.158	2.79028	8358.948
90000	2.66E+08	8356.158	299520	2.79028	7488000	2481.167	0	0	7488000	0.3744	15275520	10840.48	10658.96	181.6206	40.10549	11.88311	14976000	177.9614	2.66E+08	299520	10658.96	3.559228	10662.52
100000	2.66E+08	10658.96	299520	3.559228	7488000	2783.691	0	0	7488000	0.3744	15275520	13446.58	13221.42	225.1691	49.74704	14.73986	14976000	220.7442	2.66E+08	299520	13221.42	4.414884	13225.84
110000	2.66E+08	13221.42	299520	4.414884	7488000	3084.344	0	0	7488000	0.3744	15275520	16310.56	16037.44	273.1156	60.34261	17.87929	14976000	267.7603	2.66E+08	299520	16037.44	5.355206	16042.8
120000	2.66E+08	16037.44	299520	5.355206	7488000	3383.127	0	0	7488000	0.3744	15275520	19426.3	19101.01	325.2077	71.86962	21.2947	14976000	318.9095	2.66E+08	299520	19101.01	6.378189	19107.39
130000	2.66E+08	19101.01	299520	6.378189	7488000	3680.05	0	0	7488000	0.3744	15275520	22787.81	22406.24	381.5752	84.3059	24.97953	14976000	374.0934	2.66E+08	299520	22406.24	7.481868	22413.72
140000	2.66E+08	22406.24	299520	7.481868	7488000	3975.127	0	0	7488000	0.3744	15275520	26389.22	25947.34	441.8798	97.52989	28.92731	14976000	433.2156	2.66E+08	299520	25947.34	8.664309	25956.01
150000	2.66E+08	25947.34	299520	8.664309	7488000	4268.369	0	0	7488000	0.3744	15275520	30224.75	29718.65	506.1046	111.8196	33.13174	14976000	496.1809	2.66E+08	299520	29718.65	9.923619	29728.57
160000	2.66E+08	29718.65	299520	9.923619	7488000	4559.766	0	0	7488000	0.3744	15275520	34288.73	33714.67	574.1647	126.8547	37.58669	14976000	562.8968	2.66E+08	299520	33714.67	11.25794	33725.93
170000	2.66E+08	33714.67	299520	11.25794	7488000	4849.391	0	0	7488000	0.3744	15275520	38575.6	37929.66	645.937	142.7145	42.28576	14976000	633.2716	2.66E+08	299520	37929.66	12.66543	37942.33
180000	2.66E+08	37929.66	299520	12.66543	7488000	5137.194	0	0	7488000	0.3744	15275520	43079.89	42358.53	721.3602	159.3786	47.22328	14976000	707.2159	2.66E+08	299520	42358.53	14.14432	42372.68
190000	2.66E+08	42358.53	299520	14.14432	7488000	5423.207	0	0	7488000	0.3744	15275520	47796.26	46995.93	800.3343	176.8273	52.39326	14976000	784.6415	2.66E+08	299520	46995.93	15.69283	47011.62
200000	2.66E+08	46995.93	299520	15.69283	7488000	5707.44	0	0	7488000	0.3744	15275520	52719.43	51836.66	882.7714	195.0411	57.78994	14976000	865.4622	2.66E+08	299520	51836.66	17.30924	51853.97
210000	2.66E+08	51836.66	299520	17.30924	7488000	5989.906	0	0	7488000	0.3744	15275520	57844.26	56875.67	968.586	214.0009	63.40766	14976000	949.5931	2.66E+08	299520	56875.67	18.99186	56894.66
220000	2.66E+08	56875.67	299520	18.99186	7488000	6270.614	0	0	7488000	0.3744	15275520	63165.65	62107.96	1057.69	233.6879	69.24086	14976000	1036.951	2.66E+08	299520	62107.96	20.73902	62128.7
230000	2.66E+08	62107.96	299520	20.73902	7488000	6549.577	0	0	7488000	0.3744	15275520	68670.65	67520.64	1150.004	254.0838	75.2841	14976000	1127.455	2.66E+08	299520	67520.64	22.54909	67543.19
240000	2.66E+08	67520.64	299520	22.54909	7488000	6826.804	0	0	7488000	0.3744	15275520	74370.37	73132.93	1245.444	275.1706	81.53202	14976000	1221.023	2.66E+08	299520	73132.93	24.42047	73157.35
250000	2.66E+08	73132.93	299520	24.42047	7488000	7102.307	0	0	7488000	0.3744	15275520	80260.03	78916.1	1343.931	296.9304	87.97937	14976000	1317.579	2.66E+08	299520	78916.1	26.35158	78942.45
260000	2.66E+08	78916.1	299520	26.35158	7488000	7376.095	0	0	7488000	0.3744	15275520	86318.92	84873.53	1445.385	319.3459	94.621	14976000	1417.044	2.66E+08	299520	84873.53	28.34088	84901.87
270000	2.66E+08	84873.53	299520	28.34088	7488000	7648.181	0	0	7488000	0.3744	15275520	92550.43	91000.7	1549.73	342.4	101.4518	14976000	1519.343	2.66E+08	299520	91000.7	30.38686	91031.09
280000	2.66E+08	91000.7	299520	30.38686	7488000	7918.574	0	0	7488000	0.3744	15275520	98950.04	97293.15	1656.889	366.076	108.467	14976000	1624.401	2.66E+08	299520	97293.15	32.48802	97325.63
290000	2.66E+08	97293.15	299520	32.48802	7488000	8187.286	0	0	7488000	0.3744	15275520	105513.3	103746.5	1766.789	390.3575	115.6616	14976000	1732.146	2.66E+08	299520	103746.5	34.64292	103781.1
300000	2.66E+08	103746.5	299520	34.64292	7488000	8454.326	0	0	7488000	0.3744	15275520	112235.8	110356.5	1879.356	415.2283	123.0306	14976000	1842.506	2.66E+08	299520	110356.5	36.85012	110393.3
310000	2.66E+08	110356.5	299520	36.85012	7488000	8719.704	0	0	7488000	0.3744	15275520	119113.4	117118.9	1994.519	440.6726	130.5696	14976000	1955.411	2.66E+08	299520	117118.9	39.10822	117158
320000	2.66E+08	117118.9	299520	39.10822	7488000	8983.432	0	0	7488000	0.3744	15275520	126141.8	124029.6	2112.208	466.6746	138.274	14976000	2070.792	2.66E+08	299520	124029.6	41.41584	124071
330000	2.66E+08	124029.6	299520	41.41584	7488000	9245.52	0	0	7488000	0.3744	15275520	133316.9	131084.6	2232.353	493.2199	146.1397	14976000	2188.591	2.66E+08	299520	131084.6	43.77162	131128.3
340000	2.66E+08	131084.6	299520	43.77162	7488000	9505.977	0	0	7488000	0.3744	15275520	140634.7	138279.8	2354.887	520.2927	154.1608	14976000	2308.712	2.66E+08	299520	138279.8	46.17425	138326
350000	2.66E+08	138279.8	299520	46.17425	7488000	9764.613	0	0	7488000	0.3744	15275520	148091.2	145611.4	2479.743	547.8787	162.3344	14976000	2431.121	2.66E+08	299520	145611.4	48.62241	145660
360000	2.66E+08	145611.4	299520	48.62241	7488000	10022.04	0	0	7488000	0.3744	15275520	155682.5	153075.6	2606.857	575.9635	170.6559	14976000	2555.742	2.66E+08	299520	153075.6	51.11484	153126.7
370000	2.66E+08	153075.6	299520	51.11484	7488000	10277.67	0	0	7488000	0.3744	15275520	163404.8	160668.6	2736.165	604.533	179.1209	14976000	2682.514	2.66E+08	299520	160668.6	53.65029	160722.2
380000	2.66E+08	160668.6	299520	53.65029	7488000	10531.7	0	0	7488000	0.3744	15275520	171254.3	168386.7	2867.603	633.5733	187.7254	14976000	2811.376	2.66E+08	299520	168386.7	56.22752	168442.9
390000	2.66E+08	168386.7	299520	56.22752	7488000	10784.16	0	0	7488000	0.3744	15275520	179227.5	176226.4	3001.111	663.0708	196.4654	14976000	2942.266	2.66E+08	299520	176226.4	58.84532	176285.2
400000	2.66E+08	176226.4	299520	58.84532	7488000	11036.05	0	0	7488000	0.3744	15275520	187320.6	184184	3136.629	693.0123	205.337	14976000	3075.126	2.66E+08	299520	184184	61.50253	184245.5
410000	2.66E+08	184184	299520	61.50253	7488000	11284.37	0	0	7488000	0.3744	15275520	195530.3	192256.2	3274.097	723.3846	214.3367	14976000	3209.899	2.66E+08	299520	192256.2	64.19797	192320.4
420000	2.66E+08	192256.2	299520	64.19797	7488000	11532.15	0	0	7488000	0.3744	15275520	203852.9	200439.4	3413.456	754.175	223.4593	14976000	3346.526	2.66E+08	299520	200439.4	66.93052	200506.3
430000	2.66E+08	200439.4	299520	66.93052	7488000	11778.38	0	0	7488000	0.3744	15275520	212285.1	208730.5	3554.652	785.3709	232.7025	14976000	3484.953	2.66E+08	299520	208730.5	69.69905	208800.2
440000	2.66E+08	208730.5	299520	69.69905	7488000	12023.08	0	0	7488000	0.3744	15275520	220823.6	217126	3697.626	816.96	242.0622	14976000	3625.124	2.66E+08	299520	217126	72.50248	217198.5
450000	2.66E+08	217126	299520	72.50248	7488000	12266.26	0	0	7488000	0.3744	15275520	229465.1	225622.8	3842.326	848.9302	251.5349	14976000	3766.986	2.66E+08	299520	225622.8	75.33972	225698.1
460000	2.66E+08	225622.8	299520	75.33972	7488000	12507.93	0	0	7488000	0.3744	15275520	238206.4	234217.7	3988.697	881.2686	261.1169	14976000	3910.487	2.66E+08	299520	234217.7	78.20974	234296.9
470000	2.66E+08	234217.7	299520	78.20974	7488000	12748.09	0	0	7488000	0.3744	15275520	247044.4	242907.7	4136.686	913.9666	270.8049	14976000	4055.674	2.66E+08	299520	242907.7	81.11149	242988.8
480000	2.66E+08	242907.7	299520	81.11149	7488000	12986.76	0	0	7488000	0.3744	15275520	255976	251689.7	4286.242	947.0098	280.5955	14976000	4202.198	2.66E+08	299520	251689.7	84.04397	251773.8
490000	2.66E+08	251689.7	299520	84.04397	7488000	13223.94	0	0	7488000	0.3744	15275520	264998.1	260560.8	4437.315	980.3881	290.4054	14976000	4350.309	2.66E+08	299520	260560.8	87.00618	260647.8
500000	2.66E+08	260560.8	299520	87.00618	7488000	13459.65	0	0	7488000	0.3744	15275520	274107.8	269518	4589.856	1014.09	300.4713	14976000	4499.857	2.66E+08	299520	269518	89.99715	269607.9
510000	2.66E+08	269518	299520	89.99715	7488000	13693.9	0	0	7488000	0.3744	15275520	283302.2	278558.4	4743.812	1048.106	310.56	14976000	4650.796	2.66E+08	299520	278558.4	93.01593	278651.4
520000	2.66E+08	278558.4	299520	93.01593	7488000	13926.68	0	0	7488000	0.3744	15275520	292578.5	287679.3	4899.141	1082.426	320.7184	14976000	4803.079	2.66E+08	299520	287679.3	96.06158	287775.4
530000	2.66E+08	287679.3	299520	96.06158	7488000	14158.02	0	0	7488000	0.3744	15275520	301933.8	296878	5055.793	1117.036	330.9736	14976000	4956.659	2.66E+08	299520	296878	99.13319	296977.1
540000	2.66E+08	296878	299520	99.13319	7488000	14387.92	0	0	7488000	0.3744	15275520	311365.4	306151.7	5213.723	1151.929	341.3123	14976000	5111.493	2.66E+08	299520	306151.7	102.2299	306253.9
550000	2.66E+08	306151.7	299520	102.2299	7488000	14616.39	0	0	7488000	0.3744	15275520	320870.7	315497.8	5372.886	1187.096	351.7318	14976000	5267.536	2.66E+08	299520	315497.8	105.3507	315603.2
560000	2.66E+08	315497.8	299520	105.3507	7488000	14843.44	0	0	7488000	0.3744	15275520	330447	324913.7	5533.237	1222.523	362.2291	14976000	5424.743	2.66E+08	299520	324913.7	108.4949	325022.2
570000	2.66E+08	324913.7	299520	108.4949	7488000	15069.07	0	0	7488000	0.3744	15275520	340091.7	334396.9	5694.735	1258.205	372.8014	14976000	5583.074	2.66E+08	299520	334396.9	111.6615	334508.6
580000	2.66E+08	334396.9	299520	111.6615	7488000	15293.3	0	0	7488000	0.3744	15275520	349802.3	343944.9	5857.336	1294.13	383.446	14976000	5742.487	2.66E+08	299520	343944.9	114.8497	344059.8
590000	2.66E+08	343944.9	299520	114.8497	7488000	15516.14	0	0	7488000	0.3744	15275520	359576.3	353555.3	6021	1330.29	394.16	14976000	5902.941	2.66E+08	299520	353555.3	118.0588	353673.4
600000	2.66E+08	353555.3	299520	118.0588	7488000	15737.69	0	0	7488000	0.3744	15275520	369411.3	363225.7	6185.684	1366.676	404.941	14976000	6064.396	2.66E+08	299520	363225.7	121.2879	363346.9
610000	2.66E+08	363225.7	299520	121.2879	7488000	15957.66	0	0	7488000	0.3744	15275520	379305	372953.6	6351.35	1403.278	415.7862	14976000	6226.814	2.66E+08	299520	372953.6	124.5363	373078.2
620000	2.66E+08	372953.6	299520	124.5363	7488000	16176.37	0	0	7488000	0.3744	15275520	389254.9	382736.9	6517.959	1440.089	426.6931	14976000	6390.156	2.66E+08	299520	382736.9	127.8031	382864.8
630000	2.66E+08	382736.9	299520	127.8031	7488000	16393.71	0	0	7488000	0.3744	15275520	399258.8	392573.4	6685.477	1477.1	437.6592	14976000	6554.384	2.66E+08	299520	392573.4	131.0877	392704.5
640000	2.66E+08	392573.4	299520	131.0877	7488000	16609.7	0	0	7488000	0.3744	15275520	409314.5	402460.7	6853.852	1514.302	448.682	14976000	6719.467	2.66E+08	299520	402460.7	134.3892	402595.1
650000	2.66E+08	402460.7	299520	134.3892	7488000	16824.35	0	0	7488000	0.3744	15275520	419419.8	412396.7	7023.061	1551.687	459.7592	14976000	6885.364	2.66E+08	299520	412396.7	137.7071	412534.4
660000	2.66E+08	412396.7	299520	137.7071	7488000	17037.67	0	0	7488000	0.3744	15275520	429572.5	422379.4	7193.065	1589.246	470.8884	14976000	7052.024	2.66E+08	299520	422379.4	141.0405	422520.5
670000	2.66E+08	422379.4	299520	141.0405	7488000	17249.65	0	0	7488000	0.3744	15275520	439770.5	432406.7	7363.828	1626.977	482.0672	14976000	7219.439	2.66E+08	299520	432406.7	144.3888	432551
680000	2.66E+08	432406.7	299520	144.3888	7488000	17460.32	0	0	7488000	0.3744	15275520	450011.7	442476.4	7535.314	1664.866	493.2935	14976000	7387.563	2.66E+08	299520	442476.4	147.7513	442624.2
690000	2.66E+08	442476.4	299520	147.7513	7488000	17669.68	0	0	7488000	0.3744	15275520	460294.2	452586.7	7707.497	1702.907	504.5649	14976000	7556.364	2.66E+08	299520	452586.7	151.1273	452737.9
700000	2.66E+08	452586.7	299520	151.1273	7488000	17877.73	0	0	7488000	0.3744	15275520	470616	462735.6	7880.326	1741.093	515.8794	14976000	7725.81	2.66E+08	299520	462735.6	154.5167	462890.2
710000	2.66E+08	462735.6	299520	154.5167	7488000	18084.49	0	0	7488000	0.3744	15275520	480975	472921.2	8053.785	1779.417	527.2348	14976000	7895.868	2.66E+08	299520	472921.2	157.9124	473079.2

Base Case – Cell 6

Time	Initial solids	Initial chemical in solid	Initial water	Initial chemical in water	Incoming water from cell above	Incoming chemical from cell above	Incoming water from side	Incoming chemical from side	Incoming water from infiltration	Incoming chemical from infiltration	Total water in cell	Total chemical in cell	Mass on solids	Mass in liquids	Concentration in solids	Concentration in liquids	Outgoing liquid to next cell	Outgoing chemical to next cell	Final solid in cell	Final liquid in cell	Final chemical on solid	Final chemical in liquid	Final chemical in cell
year	ton	ton	ton	ton	ton	ton	ton	ton	ton	ton	in cell	ton	ton	ton	mg/kg	mg/L	tons	tons	tons	tons	tons	tons	tons
0							0	0	7488000	0.3744			2.25		0.1125	0.05			2.66E+08	299520	29.89947	0.014976	29.91445
10000	2.66E+08	29.89947	299520	0.014976	14976000	0.748805	0	0	7488000	0.3744	22763520	31.03765	29.89948	1.138176	0.1125	0.05	22464000	1.1232	2.66E+08	299520	29.89948	0.014976	29.91445
20000	2.66E+08	29.89948	299520	0.014976	14976000	5.83095	0	0	7488000	0.3744	22763520	36.1198	34.79526	1.324543	0.130921	0.058187	22464000	1.307115	2.66E+08	299520	34.79526	0.017428	34.81269
30000	2.66E+08	34.79526	299520	0.017428	14976000	16.01425	0	0	7488000	0.3744	22763520	51.20134	49.32374	1.877696	0.185586	0.082483	22464000	1.85289	2.66E+08	299520	49.32374	0.024705	49.34845
40000	2.66E+08	49.32374	299520	0.024705	14976000	31.18627	0	0	7488000	0.3744	22763520	80.90912	77.94212	2.967004	0.293266	0.13034	22464000	2.927964	2.66E+08	299520	77.94212	0.03904	77.98116
50000	2.66E+08	77.94212	299520	0.03904	14976000	51.23914	0	0	7488000	0.3744	22763520	129.5887	124.8366	4.752124	0.469711	0.208761	22464000	4.689596	2.66E+08	299520	124.8366	0.062528	124.8991
60000	2.66E+08	124.8366	299520	0.062528	14976000	76.04296	0	0	7488000	0.3744	22763520	201.3165	193.934	7.38244	0.729698	0.32431	22464000	7.285302	2.66E+08	299520	193.934	0.097137	194.0312
70000	2.66E+08	193.934	299520	0.097137	14976000	105.5059	0	0	7488000	0.3744	22763520	299.9114	288.9134	10.998	1.087068	0.483141	22464000	10.85329	2.66E+08	299520	288.9134	0.14471	289.0581
80000	2.66E+08	288.9134	299520	0.14471	14976000	139.514	0	0	7488000	0.3744	22763520	428.9465	413.2167	15.72982	1.554773	0.69101	22464000	15.52286	2.66E+08	299520	413.2167	0.206971	413.4237
90000	2.66E+08	413.2167	299520	0.206971	14976000	177.9614	0	0	7488000	0.3744	22763520	591.7695	570.0692	21.70031	2.144909	0.953293	22464000	21.41477	2.66E+08	299520	570.0692	0.28553	570.3447
100000	2.66E+08	570.0692	299520	0.28553	14976000	220.7442	0	0	7488000	0.3744	22763520	791.4633	762.4397	29.02361	2.868762	1.275006	22464000	28.64172	2.66E+08	299520	762.4397	0.38189	762.8216
110000	2.66E+08	762.4397	299520	0.38189	14976000	267.7803	0	0	7488000	0.3744	22763520	1030.956	993.1503	37.80601	3.736836	1.660816	22464000	37.30856	2.66E+08	299520	993.1503	0.497448	993.6477
120000	2.66E+08	993.1503	299520	0.497448	14976000	318.9095	0	0	7488000	0.3744	22763520	1312.932	1264.785	48.14628	4.758892	2.115063	22464000	47.51277	2.66E+08	299520	1264.785	0.633604	1265.419
130000	2.66E+08	1264.785	299520	0.633604	14976000	374.0934	0	0	7488000	0.3744	22763520	1639.887	1579.751	60.13599	5.943983	2.64177	22464000	59.34477	2.66E+08	299520	1579.751	0.791263	1580.542
140000	2.66E+08	1579.751	299520	0.791263	14976000	433.2155	0	0	7488000	0.3744	22763520	2014.132	1940.272	73.85986	7.300483	3.244659	22464000	72.88802	2.66E+08	299520	1940.272	0.97184	1941.244
150000	2.66E+08	1940.272	299520	0.97184	14976000	496.1809	0	0	7488000	0.3744	22763520	2437.799	2348.403	89.39609	8.83612	3.927166	22464000	88.21983	2.66E+08	299520	2348.403	1.176264	2349.579
160000	2.66E+08	2348.403	299520	1.176264	14976000	562.8968	0	0	7488000	0.3744	22763520	2912.85	2806.034	106.8168	10.55801	4.692447	22464000	106.4111	2.66E+08	299520	2806.034	1.405482	2807.439
170000	2.66E+08	2806.034	299520	1.405482	14976000	633.2716	0	0	7488000	0.3744	22763520	3441.085	3314.898	126.1874	12.47266	5.543406	22464000	124.5271	2.66E+08	299520	3314.898	1.660361	3316.558
180000	2.66E+08	3314.898	299520	1.660361	14976000	707.2159	0	0	7488000	0.3744	22763520	4024.148	3876.58	147.5688	14.58606	6.482689	22464000	145.6271	2.66E+08	299520	3876.58	1.941696	3878.521
190000	2.66E+08	3876.58	299520	1.941695	14976000	784.6415	0	0	7488000	0.3744	22763520	4663.537	4492.521	171.0157	16.9036	7.51271	22464000	168.7656	2.66E+08	299520	4492.521	2.250207	4494.772
200000	2.66E+08	4492.521	299520	2.250207	14976000	865.4622	0	0	7488000	0.3744	22763520	5360.608	5164.03	196.5779	19.43022	8.635656	22464000	193.9914	2.66E+08	299520	5164.03	2.586651	5166.617
210000	2.66E+08	5164.03	299520	2.586651	14976000	949.6931	0	0	7488000	0.3744	22763520	6116.584	5892.284	224.3002	22.17036	9.853492	22464000	221.3468	2.66E+08	299520	5892.284	2.951318	5895.236
220000	2.66E+08	5892.284	299520	2.951318	14976000	1038.961	0	0	7488000	0.3744	22763520	6932.561	6678.338	254.2227	25.12797	11.16798	22464000	250.8777	2.66E+08	299520	6678.338	3.345036	6681.683
230000	2.66E+08	6678.338	299520	3.345036	14976000	1127.455	0	0	7488000	0.3744	22763520	7809.519	7523.131	286.3812	28.3066	12.58071	22464000	282.6131	2.66E+08	299520	7523.131	3.768174	7526.899
240000	2.66E+08	7523.131	299520	3.768174	14976000	1221.023	0	0	7488000	0.3744	22763520	8748.297	8427.49	320.8072	31.70904	14.09304	22464000	316.5861	2.66E+08	299520	8427.49	4.221148	8431.711
250000	2.66E+08	8427.49	299520	4.221148	14976000	1317.579	0	0	7488000	0.3744	22763520	9749.665	9392.136	357.5282	35.33893	15.70619	22464000	352.8239	2.66E+08	299520	9392.136	4.704318	9396.841
260000	2.66E+08	9392.136	299520	4.704318	14976000	1417.044	0	0	7488000	0.3744	22763520	10814.26	10417.69	396.5678	39.19769	17.4212	22464000	391.3498	2.66E+08	299520	10417.69	5.217997	10422.91
270000	2.66E+08	10417.69	299520	5.217997	14976000	1519.343	0	0	7488000	0.3744	22763520	11942.63	11504.68	437.9459	43.28761	19.23894	22464000	432.1836	2.66E+08	299520	11504.68	5.762446	11510.44
280000	2.66E+08	11504.68	299520	5.762446	14976000	1624.401	0	0	7488000	0.3744	22763520	13135.22	12653.54	481.6793	47.61031	21.16014	22464000	476.3414	2.66E+08	299520	12653.54	6.337885	12659.88
290000	2.66E+08	12653.54	299520	6.337885	14976000	1732.146	0	0	7488000	0.3744	22763520	14392.4	13864.62	527.781	52.16712	23.18539	22464000	520.8366	2.66E+08	299520	13864.62	6.944487	13871.56
300000	2.66E+08	13864.62	299520	6.944487	14976000	1842.506	0	0	7488000	0.3744	22763520	15714.44	15136.18	578.2615	56.95904	25.31513	22464000	568.6791	2.66E+08	299520	15136.18	7.582366	15143.76
310000	2.66E+08	15136.18	299520	7.582366	14976000	1955.411	0	0	7488000	0.3744	22763520	17101.55	16474.42	627.1276	61.98679	27.54989	22464000	618.6761	2.66E+08	299520	16474.42	8.251682	16482.67
320000	2.66E+08	16474.42	299520	8.251682	14976000	2070.792	0	0	7488000	0.3744	22763520	18553.84	17873.45	680.3845	67.25081	29.88925	22464000	671.4321	2.66E+08	299520	17873.45	8.952427	17882.41
330000	2.66E+08	17873.45	299520	8.952427	14976000	2188.581	0	0	7488000	0.3744	22763520	20071.36	19335.33	736.0333	72.75127	32.3339	22464000	726.3487	2.66E+08	299520	19335.33	9.684649	19345.01
340000	2.66E+08	19335.33	299520	9.684649	14976000	2308.712	0	0	7488000	0.3744	22763520	21664.1	20860.03	794.0736	78.48611	34.8836	22464000	783.6253	2.66E+08	299520	20860.03	10.44834	20870.47
350000	2.66E+08	20860.03	299520	10.44834	14976000	2431.121	0	0	7488000	0.3744	22763520	23301.97	22447.47	854.6023	84.46103	37.53823	22464000	843.2589	2.66E+08	299520	22447.47	11.24345	22458.71
360000	2.66E+08	22447.47	299520	11.24345	14976000	2555.742	0	0	7488000	0.3744	22763520	25014.89	24097.51	917.3142	90.6695	40.29756	22464000	905.2443	2.66E+08	299520	24097.51	12.06992	24109.58
370000	2.66E+08	24097.51	299520	12.06992	14976000	2682.514	0	0	7488000	0.3744	22763520	26792.47	25809.97	982.5019	97.11261	43.16125	22464000	969.5743	2.66E+08	299520	25809.97	12.92766	25822.9
380000	2.66E+08	25809.97	299520	12.92766	14976000	2811.376	0	0	7488000	0.3744	22763520	28634.65	27584.59	1050.056	103.79	46.12889	22464000	1036.239	2.66E+08	299520	27584.59	13.81653	27598.41
390000	2.66E+08	27584.59	299520	13.81653	14976000	2942.268	0	0	7488000	0.3744	22763520	30541.05	29421.08	1119.966	110.7	49.20001	22464000	1105.229	2.66E+08	299520	29421.08	14.73639	29435.82
400000	2.66E+08	29421.08	299520	14.73639	14976000	3075.126	0	0	7488000	0.3744	22763520	32511.32	31319.1	1192.217	117.8416	52.37401	22464000	1176.53	2.66E+08	299520	31319.1	15.68706	31334.79
410000	2.66E+08	31319.1	299520	15.68706	14976000	3209.899	0	0	7488000	0.3744	22763520	34546.06	33278.27	1266.796	125.2131	55.65026	22464000	1250.127	2.66E+08	299520	33278.27	16.66837	33294.94
420000	2.66E+08	33278.27	299520	16.66837	14976000	3345.526	0	0	7488000	0.3744	22763520	36641.84	35298.16	1343.686	132.8131	59.02805	22464000	1326.006	2.66E+08	299520	35298.16	17.68008	35315.83
430000	2.66E+08	35298.15	299520	17.68008	14976000	3484.953	0	0	7488000	0.3744	22763520	38801.16	37378.29	1422.87	140.6399	62.5066	22464000	1404.148	2.66E+08	299520	37378.29	18.72198	37397.01
440000	2.66E+08	37378.29	299520	18.72198	14976000	3625.124	0	0	7488000	0.3744	22763520	41022.51	39518.18	1504.329	148.6914	66.08508	22464000	1484.535	2.66E+08	299520	39518.18	19.7938	39537.97
450000	2.66E+08	39518.18	299520	19.7938	14976000	3768.986	0	0	7488000	0.3744	22763520	43305.33	41717.29	1588.042	156.9658	69.76259	22464000	1567.147	2.66E+08	299520	41717.29	20.89529	41738.19
460000	2.66E+08	41717.29	299520	20.89529	14976000	3910.487	0	0	7488000	0.3744	22763520	45649.05	43976.06	1673.988	166.4609	73.53819	22464000	1661.967	2.66E+08	299520	43976.06	22.02616	43997.09
470000	2.66E+08	43975.06	299520	22.02616	14976000	4056.574	0	0	7488000	0.3744	22763520	48063.03	46290.89	1762.144	174.1746	77.41088	22464000	1738.968	2.66E+08	299520	46290.89	23.18611	46314.08
480000	2.66E+08	46290.89	299520	23.18611	14976000	4202.198	0	0	7488000	0.3744	22763520	50516.65	48664.16	1852.487	183.1042	81.37964	22464000	1828.112	2.66E+08	299520	48664.16	24.37483	48688.54
490000	2.66E+08	48664.16	299520	24.37483	14976000	4350.309	0	0	7488000	0.3744	22763520	53039.22	51094.23	1944.992	192.2476	85.44336	22464000	1919.4	2.66E+08	299520	51094.23	25.592	51119.82
500000	2.66E+08	51094.23	299520	25.592	14976000	4499.857	0	0	7488000	0.3744	22763520	55620.05	53580.42	2039.633	201.6021	89.60096	22464000	2012.796	2.66E+08	299520	53580.42	26.83728	53607.26
510000	2.66E+08	53580.42	299520	26.83728	14976000	4650.796	0	0	7488000	0.3744	22763520	58258.43	56122.04	2136.384	211.1653	93.85123	22464000	2108.274	2.66E+08	299520	56122.04	28.11032	56150.15
520000	2.66E+08	56122.04	299520	28.11032	14976000	4803.079	0	0	7488000	0.3744	22763520	60953.61	58718.39	2235.219	220.9343	98.19302	22464000	2205.808	2.66E+08	299520	58718.39	29.41077	58747.8
530000	2.66E+08	58718.39	299520	29.41077	14976000	4956.669	0	0	7488000	0.3744	22763520	63704.83	61368.72	2336.108	230.9066	102.6251	22464000	2305.37	2.66E+08	299520	61368.72	30.73827	61399.46
540000	2.66E+08	61368.72	299520	30.73827	14976000	5111.493	0	0	7488000	0.3744	22763520	66511.33	64072.3	2439.025	241.079	107.1462	22464000	2406.933	2.66E+08	299520	64072.3	32.09243	64104.4
550000	2.66E+08	64072.3	299520	32.09243	14976000	5267.535	0	0	7488000	0.3744	22763520	69372.31	66828.37	2543.939	251.449	111.7551	22464000	2510.467	2.66E+08	299520	66828.37	33.47289	66861.84
560000	2.66E+08	66828.37	299520	33.47289	14976000	5424.743	0	0	7488000	0.3744	22763520	72286.96	69636.14	2650.822	262.0135	116.4504	22464000	2615.943	2.66E+08	299520	69636.14	34.87924	69671.01
570000	2.66E+08	69636.14	299520	34.87924	14976000	5583.074	0	0	7488000	0.3744	22763520	75254.46	72494.82	2759.643	272.7696	121.2309	22464000	2723.332	2.66E+08	299520	72494.82	36.31109	72531.13
580000	2.66E+08	72494.82	299520	36.31109	14976000	5742.487	0	0	7488000	0.3744	22763520	78273.99	75403.62	2870.371	283.7143	126.0957	22464000	2832.603	2.66E+08	299520	75403.62	37.76806	75441.39
590000	2.66E+08	75403.62	299520	37.76805	14976000	5902.941	0	0	7488000	0.3744	22763520	81344.7	78361.73	2982.977	294.8445	131.042	22464000	2943.727	2.66E+08	299520	78361.73	39.2497	78400.98
600000	2.66E+08	78361.73	299520	39.2497	14976000	6064.396	0	0	7488000	0.3744	22763520	84456.76	81368.32	3097.428	306.1671	136.0698	22464000	3056.673	2.66E+08	299520	81368.32	40.75663	81409.07
610000	2.66E+08	81368.32	299520	40.75563	14976000	6226.814	0	0	7488000	0.3744	22763520	87636.26	84422.57	3213.694	317.6491	141.1774	22464000	3171.408	2.66E+08	299520	84422.57	42.28544	84464.85
620000	2.66E+08	84422.67	299520	42.28544	14976000	6390.156	0	0	7488000	0.3744	22763520	90856.38	87523.64	3331.741	329.3172	146.3632	22464000	3287.903	2.66E+08	299520	87523.64	43.8387	87567.48
630000	2.66E+08	87523.64	299520	43.8387	14976000	6554.384	0	0	7488000	0.3744	22763520	94122.24	90670.7	3451.54	341.1583	151.6259	22464000	3406.125	2.66E+08	299520	90670.7	45.415	90716.12
640000	2.66E+08	90670.7	299520	45.415	14976000	6719.462	0	0	7488000	0.3744	22763520	97435.95	93862.9	3573.066	353.1693	156.9641	22464000	3526.047	2.66E+08	299520	93862.9	47.0139	93909.91
650000	2.66E+08	93862.9	299520	47.0139	14976000	6886.364	0	0	7488000	0.3744	22763520	100795.6	97099.38	3696.259	366.3469	162.3764	22464000	3647.624	2.66E+08	299520	97099.38	48.63498	97148.01
660000	2.66E+08	97099.38	299520	48.63498	14976000	7052.024	0	0	7488000	0.3744	22763520	104200.4	100379.3	3821.116	377.686	167.8613	22464000	3770.837	2.66E+08	299520	100379.3	50.27782	100429.6
670000	2.66E+08	100379.3	299520	50.27782	14976000	7219.439	0	0	7488000	0.3744	22763520	107649.4	103701.8	3947.591	390.1892	173.4174	22464000	3895.649	2.66E+08	299520	103701.8	51.94199	103753.7
680000	2.66E+08	103701.8	299520	51.94199	14976000	7387.963	0	0	7488000	0.3744	22763520	111141.7	107066	4075.657	402.8475	179.0439	22464000	4022.029	2.66E+08	299520	107066	53.62706	107119.6
690000	2.66E+08	107066	299520	53.62706	14976000	7556.364	0	0	7488000	0.3744	22763520	114676.4	110471.1	4205.277	415.6596	184.7376	22464000	4149.945	2.66E+08	299520	110471.1	55.33259	110526.4
700000	2.66E+08	110471.1	299520	56.33259	14976000	7725.81	0	0	7488000	0.3744	22763520	118252.6	113916.2	4336.421	428.6221	190.4987	22464000	4279.363	2.66E+08	299520	113916.2	57.05817	113973.3
710000	2.66E+08	113916.2	299520	57.05817	14976000	7895.868	0	0	7488000	0.3744	22763520	121869.5	117400.6	4469.066	441.7319	196.3253	22464000	4410.251	2.66E+08	299520	117400.6	58.80336	117459.3

Base Case – Cell 7

Time year	Initial solids ton	Initial chemical in solid ton	Initial water ton	Initial chemical in water ton	Incoming water from cell above ton	Incoming chemical from cell above ton	Incoming water from side ton	Incoming chemical from side ton	Incoming water from infiltration ton	Incoming chemical from infiltration ton	Total water in cell	Total chemical in cell ton	Mass on solids ton	Mass in liquids ton	Concentration in solids mg/kg	Concentration in liquids mg/L	Outgoing liquid to next cell tons	Outgoing chemical to next cell tons	Final solid in cell tons	Final liquid in cell tons	Final chemical on solid tons	Final chemical in liquid tons	Final chemical in cell tons
0							0	0	7488000	0.3744			2.25		0.1125	0.05			2.66E+08	299520	29.89947	0.014976	29.91445
10000	2.66E+08	29.89947	299520	0.014976	22464000	1.1232	0	0	7488000	0.3744	30251520	31.41205	29.89947	1.512576	0.1125	0.05	29952000	1.4976	2.66E+08	299520	29.89947	0.014976	29.91445
20000	2.66E+08	29.89947	299520	0.014976	22464000	1.307115	0	0	7488000	0.3744	30251520	31.59596	30.07453	1.521432	0.113159	0.050293	29952000	1.506368	2.66E+08	299520	30.07453	0.015064	30.08958
30000	2.66E+08	30.07463	299520	0.015064	22464000	1.65289	0	0	7488000	0.3744	30251520	32.31688	30.76074	1.556146	0.115741	0.05144	29952000	1.540739	2.66E+08	299520	30.76074	0.015407	30.77615
40000	2.66E+08	30.76074	299520	0.015407	22464000	2.927964	0	0	7488000	0.3744	30251520	34.07851	32.43754	1.640973	0.12205	0.054244	29952000	1.624726	2.66E+08	299520	32.43754	0.016247	32.45378
50000	2.66E+08	32.43754	299520	0.016247	22464000	4.689596	0	0	7488000	0.3744	30251520	37.51778	35.7112	1.806584	0.134367	0.059719	29952000	1.788697	2.66E+08	299520	35.7112	0.017887	35.72908
60000	2.66E+08	35.7112	299520	0.017887	22464000	7.285302	0	0	7488000	0.3744	30251520	43.38878	41.2996	2.089269	0.155394	0.069064	29952000	2.068603	2.66E+08	299520	41.2996	0.020686	41.32018
70000	2.66E+08	41.2995	299520	0.020686	22464000	10.85329	0	0	7488000	0.3744	30251520	52.54787	50.01755	2.530324	0.188196	0.083643	29952000	2.505271	2.66E+08	299520	50.01755	0.025053	50.0426
80000	2.66E+08	50.01755	299520	0.025053	22464000	15.52285	0	0	7488000	0.3744	30251520	65.93985	62.76466	3.175184	0.236159	0.104959	29952000	3.143747	2.66E+08	299520	62.76466	0.031437	62.7961
90000	2.66E+08	62.76466	299520	0.031437	22464000	21.41477	0	0	7488000	0.3744	30251520	84.68528	80.61226	4.073012	0.302936	0.134638	29952000	4.032686	2.66E+08	299520	80.61226	0.040327	80.65259
100000	2.66E+08	80.61226	299520	0.040327	22464000	28.64172	0	0	7488000	0.3744	30251520	109.6687	104.2927	5.276033	0.392412	0.174406	29952000	5.223796	2.66E+08	299520	104.2927	0.052238	104.3449
110000	2.66E+08	104.2927	299520	0.052238	22464000	37.30656	0	0	7488000	0.3744	30251520	142.0279	135.1888	6.839031	0.508663	0.226072	29952000	6.771318	2.66E+08	299520	135.1888	0.067713	135.2566
120000	2.66E+08	135.1888	299520	0.067713	22464000	47.51277	0	0	7488000	0.3744	30251520	189.1437	174.3249	8.818872	0.655916	0.291518	29952000	8.731556	2.66E+08	299520	174.3249	0.087316	174.4122
130000	2.66E+08	174.3249	299520	0.087316	22464000	59.34472	0	0	7488000	0.3744	30251520	234.1913	222.8572	11.27406	0.838524	0.372678	29952000	11.16244	2.66E+08	299520	222.8572	0.111624	222.9689
140000	2.66E+08	222.8572	299520	0.111624	22464000	72.88602	0	0	7488000	0.3744	30251520	296.2313	281.9669	14.26435	1.060931	0.471525	29952000	14.12312	2.66E+08	299520	281.9669	0.141231	282.1082
150000	2.66E+08	281.9669	299520	0.141231	22464000	88.21983	0	0	7488000	0.3744	30251520	370.7024	352.8521	17.85033	1.327644	0.590064	29952000	17.6736	2.66E+08	299520	352.8521	0.176736	353.0288
160000	2.66E+08	352.8521	299520	0.176736	22464000	105.4111	0	0	7488000	0.3744	30251520	458.8143	436.7212	22.09316	1.643211	0.730316	29952000	21.87442	2.66E+08	299520	436.7212	0.218744	436.9399
170000	2.66E+08	436.7212	299520	0.218744	22464000	124.5271	0	0	7488000	0.3744	30251520	561.8414	534.7872	27.0542	2.012195	0.894309	29952000	26.78633	2.66E+08	299520	534.7872	0.267863	535.055
180000	2.66E+08	534.7872	299520	0.267863	22464000	145.6271	0	0	7488000	0.3744	30251520	681.0566	648.2618	32.79474	2.439155	1.084069	29952000	32.47004	2.66E+08	299520	648.2618	0.3247	648.5865
190000	2.66E+08	648.2618	299520	0.3247	22464000	168.7855	0	0	7488000	0.3744	30251520	817.7365	778.3507	39.37577	2.928629	1.301613	29952000	38.98591	2.66E+08	299520	778.3507	0.389859	778.7406
200000	2.66E+08	778.3507	299520	0.389859	22464000	193.9614	0	0	7488000	0.3744	30251520	973.1063	926.2486	46.85773	3.485111	1.548938	29952000	46.39379	2.66E+08	299520	926.2486	0.463938	926.7125
210000	2.66E+08	926.2486	299520	0.463938	22464000	221.3468	0	0	7488000	0.3744	30251520	1148.436	1093.135	55.30032	4.11304	1.828018	29952000	54.76279	2.66E+08	299520	1093.136	0.547628	1093.683
220000	2.66E+08	1093.135	299520	0.547628	22464000	250.8777	0	0	7488000	0.3744	30251520	1344.935	1280.173	64.7623	4.816789	2.140796	29952000	64.12109	2.66E+08	299520	1280.173	0.641211	1280.814
230000	2.66E+08	1280.173	299520	0.641211	22464000	282.6131	0	0	7488000	0.3744	30251520	1563.801	1488.5	75.30131	5.600643	2.489175	29952000	74.55576	2.66E+08	299520	1488.5	0.745558	1489.246
240000	2.66E+08	1488.5	299520	0.745558	22464000	316.5661	0	0	7488000	0.3744	30251520	1806.206	1719.232	86.97376	6.468798	2.875021	29952000	86.11264	2.66E+08	299520	1719.232	0.861126	1720.093
250000	2.66E+08	1719.232	299520	0.861126	22464000	352.8239	0	0	7488000	0.3744	30251520	2073.292	1973.457	99.83467	7.425346	3.300154	29952000	98.84521	2.66E+08	299520	1973.457	0.988452	1974.446
260000	2.66E+08	1973.457	299520	0.988452	22464000	391.3498	0	0	7488000	0.3744	30251520	2366.17	2252.232	113.9375	8.474267	3.766341	29952000	112.8094	2.66E+08	299520	2252.232	1.128094	2253.36
270000	2.66E+08	2252.232	299520	1.128094	22464000	432.1636	0	0	7488000	0.3744	30251520	2685.918	2556.684	129.3343	9.619424	4.275299	29952000	128.0538	2.66E+08	299520	2556.684	1.280538	2557.964
280000	2.66E+08	2556.684	299520	1.280538	22464000	475.3414	0	0	7488000	0.3744	30251520	3033.56	2887.505	146.0752	10.86455	4.828689	29952000	144.6268	2.66E+08	299520	2887.505	1.446268	2888.951
290000	2.66E+08	2887.505	299520	1.446269	22464000	520.6366	0	0	7488000	0.3744	30251520	3410.162	3245.954	164.2086	12.21325	5.428112	29952000	162.5828	2.66E+08	299520	3245.954	1.625828	3247.579
300000	2.66E+08	3245.954	299520	1.625828	22464000	568.6791	0	0	7488000	0.3744	30251520	3816.633	3632.852	183.7813	13.669	6.07511	29952000	181.9617	2.66E+08	299520	3632.852	1.819617	3634.671
310000	2.66E+08	3632.852	299520	1.819617	22464000	618.8761	0	0	7488000	0.3744	30251520	4253.922	4049.084	204.838	15.23512	6.771163	29952000	202.8099	2.66E+08	299520	4049.084	2.028099	4051.112
320000	2.66E+08	4049.084	299520	2.028099	22464000	671.4321	0	0	7488000	0.3744	30251520	4722.918	4495.497	227.4214	16.91479	7.517686	29952000	225.1697	2.66E+08	299520	4495.497	2.251697	4497.749
330000	2.66E+08	4495.497	299520	2.251697	22464000	726.3487	0	0	7488000	0.3744	30251520	5224.472	4972.899	251.5726	18.71107	8.316032	29952000	249.0818	2.66E+08	299520	4972.899	2.490818	4975.39
340000	2.66E+08	4972.899	299520	2.490818	22464000	783.6263	0	0	7488000	0.3744	30251520	5759.39	5482.059	277.3304	20.62684	9.167486	29952000	274.5846	2.66E+08	299520	5482.059	2.745845	5484.805
350000	2.66E+08	5482.059	299520	2.745845	22464000	843.2589	0	0	7488000	0.3744	30251520	6328.438	6023.707	304.7316	22.66486	10.07327	29952000	301.7145	2.66E+08	299520	6023.707	3.017145	6026.724
360000	2.66E+08	6023.707	299520	3.017145	22464000	905.2443	0	0	7488000	0.3744	30251520	6932.343	6598.531	333.8113	24.82769	11.03453	29952000	330.5062	2.66E+08	299520	6598.531	3.305062	6601.836
370000	2.66E+08	6598.531	299520	3.305062	22464000	969.5743	0	0	7488000	0.3744	30251520	7571.785	7207.183	364.6022	27.11781	12.05236	29952000	360.9922	2.66E+08	299520	7207.183	3.609922	7210.793
380000	2.66E+08	7207.183	299520	3.609922	22464000	1036.239	0	0	7488000	0.3744	30251520	8247.407	7850.271	397.1362	29.5375	13.12778	29952000	393.2032	2.66E+08	299520	7850.271	3.932032	7854.204
390000	2.66E+08	7850.271	299520	3.932032	22464000	1105.229	0	0	7488000	0.3744	30251520	8959.807	8528.368	431.4392	32.08891	14.26174	29952000	427.1675	2.66E+08	299520	8528.368	4.271675	8532.639
400000	2.66E+08	8528.368	299520	4.271675	22464000	1176.53	0	0	7488000	0.3744	30251520	9709.543	9242.002	467.6411	34.77403	15.45513	29952000	462.912	2.66E+08	299520	9242.002	4.62912	9246.631
410000	2.66E+08	9242.002	299520	4.62912	22464000	1250.127	0	0	7488000	0.3744	30251520	10497.13	9991.668	505.4657	37.59473	16.70877	29952000	500.4611	2.66E+08	299520	9991.668	5.004611	9996.672
420000	2.66E+08	9991.668	299520	5.004611	22464000	1326.006	0	0	7488000	0.3744	30251520	11323.05	10777.82	545.236	40.5527	18.02342	29952000	539.8376	2.66E+08	299520	10777.82	5.398376	10783.22
430000	2.66E+08	10777.82	299520	5.398376	22464000	1404.148	0	0	7488000	0.3744	30251520	12187.74	11600.87	586.8729	43.64951	19.39978	29952000	581.0623	2.66E+08	299520	11600.87	5.810623	11606.68
440000	2.66E+08	11600.87	299520	5.810623	22464000	1484.535	0	0	7488000	0.3744	30251520	13091.59	12461.19	630.3956	46.88658	20.83848	29952000	624.1541	2.66E+08	299520	12461.19	6.241541	12467.43
450000	2.66E+08	12461.19	299520	6.241541	22464000	1567.147	0	0	7488000	0.3744	30251520	14034.95	13359.13	675.8213	50.26518	22.34008	29952000	669.13	2.66E+08	299520	13359.13	6.6913	13365.82
460000	2.66E+08	13359.13	299520	6.6913	22464000	1651.962	0	0	7488000	0.3744	30251520	15018.16	14294.99	723.1654	53.78646	23.90509	29952000	716.0064	2.66E+08	299520	14294.99	7.160064	14302.15
470000	2.66E+08	14294.99	299520	7.160064	22464000	1738.968	0	0	7488000	0.3744	30251520	16041.49	15269.04	772.4414	57.45143	25.53397	29952000	764.7936	2.66E+08	299520	15269.04	7.647936	15276.69
480000	2.66E+08	15269.04	299520	7.647935	22464000	1828.112	0	0	7488000	0.3744	30251520	17106.18	16281.52	823.6611	61.26097	27.2271	29952000	815.5061	2.66E+08	299520	16281.52	8.155061	16289.67
490000	2.66E+08	16281.52	299520	8.155061	22464000	1919.4	0	0	7488000	0.3744	30251520	18209.45	17332.61	876.8347	65.21583	28.98481	29952000	868.1531	2.66E+08	299520	17332.61	8.681531	17341.29
500000	2.66E+08	17332.61	299520	8.681531	22464000	2012.796	0	0	7488000	0.3744	30251520	19354.46	18422.49	931.9704	69.31663	30.80739	29952000	922.7429	2.66E+08	299520	18422.49	9.227429	18431.72
510000	2.66E+08	18422.49	299520	9.227429	22464000	2108.274	0	0	7488000	0.3744	30251520	20540.37	19551.29	989.075	73.56366	32.69506	29952000	979.2821	2.66E+08	299520	19551.29	9.792821	19561.08
520000	2.66E+08	19551.29	299520	9.792821	22464000	2205.808	0	0	7488000	0.3744	30251520	21767.27	20719.12	1048.154	77.95792	34.64796	29952000	1037.776	2.66E+08	299520	20719.12	10.37776	20729.49
530000	2.66E+08	20719.12	299520	10.37776	22464000	2305.37	0	0	7488000	0.3744	30251520	23035.24	21926.03	1109.21	82.49906	36.66626	29952000	1098.227	2.66E+08	299520	21926.03	10.98227	21937.01
540000	2.66E+08	21926.03	299520	10.98227	22464000	2406.933	0	0	7488000	0.3744	30251520	24344.32	23172.07	1172.245	87.18743	38.74987	29952000	1160.639	2.66E+08	299520	23172.07	11.60639	23183.68
550000	2.66E+08	23172.07	299520	11.60639	22464000	2510.467	0	0	7488000	0.3744	30251520	25694.52	24457.26	1237.261	92.02308	40.89915	29952000	1225.011	2.66E+08	299520	24457.26	12.25011	24469.51
560000	2.66E+08	24457.26	299520	12.25011	22464000	2615.943	0	0	7488000	0.3744	30251520	27085.83	25781.57	1304.257	97.00596	43.11376	29952000	1291.343	2.66E+08	299520	25781.57	12.91343	25794.48
570000	2.66E+08	25781.57	299520	12.91343	22464000	2723.332	0	0	7488000	0.3744	30251520	28518.19	27144.96	1373.229	102.1369	45.39371	29952000	1359.632	2.66E+08	299520	27144.96	13.59637	27158.56
580000	2.66E+08	27144.96	299520	13.59637	22464000	2832.503	0	0	7488000	0.3744	30251520	29991.53	28547.36	1444.174	107.4125	47.7389	29952000	1429.876	2.66E+08	299520	28547.36	14.29876	28561.66
590000	2.66E+08	28547.36	299520	14.29876	22464000	2943.727	0	0	7488000	0.3744	30251520	31505.76	29988.67	1517.089	112.8366	50.14917	29952000	1502.068	2.66E+08	299520	29988.67	15.02068	30003.69
600000	2.66E+08	29988.67	299520	15.02068	22464000	3056.673	0	0	7488000	0.3744	30251520	33060.74	31468.77	1591.966	118.4047	52.6243	29952000	1576.203	2.66E+08	299520	31468.77	15.76203	31484.54
610000	2.66E+08	31468.77	299520	15.76203	22464000	3171.408	0	0	7488000	0.3744	30251520	34656.32	32987.52	1668.797	124.1191	55.16406	29952000	1652.274	2.66E+08	299520	32987.52	16.52274	33004.05
620000	2.66E+08	32987.52	299520	16.52274	22464000	3287.903	0	0	7488000	0.3744	30251520	36292.32	34544.75	1747.575	129.9784	57.76816	29952000	1730.272	2.66E+08	299520	34544.75	17.30272	34562.05
630000	2.66E+08	34544.75	299520	17.30272	22464000	3406.125	0	0	7488000	0.3744	30251520	37968.55	36140.26	1828.289	135.9816	60.43629	29952000	1810.188	2.66E+08	299520	36140.26	18.10188	36158.36
640000	2.66E+08	36140.26	299520	18.10188	22464000	3526.042	0	0	7488000	0.3744	30251520	39684.78	37773.85	1910.931	142.1282	63.16809	29952000	1892.011	2.66E+08	299520	37773.85	18.92011	37792.77
650000	2.66E+08	37773.85	299520	18.92011	22464000	3647.624	0	0	7488000	0.3744	30251520	41440.77	39445.28	1995.486	148.4171	65.96317	29952000	1975.729	2.66E+08	299520	39445.28	19.75729	39465.04
660000	2.66E+08	39445.28	299520	19.75729	22464000	3770.837	0	0	7488000	0.3744	30251520	43236.25	41154.31	2081.944	154.8476	68.82117	29952000	2061.33	2.66E+08	299520	41154.31	20.6133	41174.92
670000	2.66E+08	41154.31	299520	20.6133	22464000	3895.649	0	0	7488000	0.3744	30251520	45070.94	42900.65	2170.289	161.4184	71.74149	29952000	2148.801	2.66E+08	299520	42900.65	21.48801	42922.14
680000	2.66E+08	42900.65	299520	21.48801	22464000	4022.029	0	0	7488000	0.3744	30251520	46944.54	44684.04	2260.508	168.1285	74.72379	29952000	2238.127	2.66E+08	299520	44684.04	22.38127	44706.42
690000	2.66E+08	44684.04	299520	22.38127	22464000	4149.945	0	0	7488000	0.3744	30251520	48856.74	46504.15	2352.585	174.9769	77.76751	29952000	2329.293	2.66E+08	299520	46504.15	23.29293	46527.44
700000	2.66E+08	46504.15	299520	23.29293	22464000	4279.363	0	0	7488000	0.3744	30251520	50807.18	48360.68	2446.505	181.9623	80.87213	29952000	2422.282	2.66E+08	299520	48360.68	24.22282	48384.9
710000	2.66E+08	48360.68	299520	24.22282	22464000	4410.251	0	0	7488000	0.3744	30251520	52796.53	50253.28	2542.249	189.0834	84.03706	29952000	2517.078	2.66E+08	299520	50253.28	25.17078	50278.45

Base Case – Cell 8

Time year	Initial solids ton	Initial chemical in solid ton	Initial water ton	Initial chemical in water ton	Incoming water from cell above ton	Incoming chemical from cell above ton	Incoming water from side ton	Incoming chemical from side ton	Incoming water from infiltration ton	Incoming chemical from infiltration ton	Total water in cell	Total chemical in cell ton	Mass on solids ton	Mass in liquids ton	Concentration in solids mg/kg	Concentration in liquids mg/L	Outgoing liquid to next cell tons	Outgoing chemical to next cell tons	Final solid in cell tons	Final liquid in cell tons	Final chemical on solid tons	Final chemical in liquid tons	Final chemical in cell tons
0							0	0	7488000	0.3744			2.25		0.1125	0.05			2.66E+08	299520	29.89947	0.014976	29.91445
10000	2.66E+08	29.89947	299520	0.014976	29952000	1.4976	0	0	7488000	0.3744	37739520	31.78645	29.89947	1.886976	0.1125	0.05	37440000	1.872	2.66E+08	299520	29.89947	0.014976	29.91445
20000	2.66E+08	29.89947	299520	0.014976	29952000	1.506368	0	0	7488000	0.3744	37739520	31.79522	29.90772	1.887497	0.112531	0.050014	37440000	1.872516	2.66E+08	299520	29.90772	0.01498	29.9227
30000	2.66E+08	29.90772	299520	0.01498	29952000	1.540739	0	0	7488000	0.3744	37739520	31.83764	29.94781	1.890027	0.112682	0.050081	37440000	1.876027	2.66E+08	299520	29.94781	0.015	29.96281
40000	2.66E+08	29.94781	299520	0.015	29952000	1.624726	0	0	7488000	0.3744	37739520	31.96194	30.06454	1.897394	0.113121	0.050276	37440000	1.882335	2.66E+08	299520	30.06454	0.015059	30.0796
50000	2.66E+08	30.06454	299520	0.015059	29952000	1.788697	0	0	7488000	0.3744	37739520	32.2427	30.32864	1.914061	0.114115	0.050718	37440000	1.89887	2.66E+08	299520	30.32864	0.015191	30.34383
60000	2.66E+08	30.32864	299520	0.015191	29952000	2.068603	0	0	7488000	0.3744	37739520	32.78683	30.84047	1.946363	0.116041	0.051574	37440000	1.930916	2.66E+08	299520	30.84047	0.015447	30.85592
70000	2.66E+08	30.84047	299520	0.015447	29952000	2.605271	0	0	7488000	0.3744	37739520	33.73559	31.7329	2.002685	0.119398	0.053066	37440000	1.986791	2.66E+08	299520	31.7329	0.015894	31.7488
80000	2.66E+08	31.7329	299520	0.015894	29952000	3.143747	0	0	7488000	0.3744	37739520	35.26694	33.17335	2.093593	0.124818	0.055475	37440000	2.076977	2.66E+08	299520	33.17335	0.016616	33.18997
90000	2.66E+08	33.17335	299520	0.016616	29952000	4.032685	0	0	7488000	0.3744	37739520	37.69705	35.36513	2.231918	0.133066	0.05914	37440000	2.214204	2.66E+08	299520	35.36513	0.017714	35.38285
100000	2.66E+08	35.36513	299520	0.017714	29952000	6.223795	0	0	7488000	0.3744	37739520	40.98104	38.54824	2.432805	0.145042	0.064463	37440000	2.413498	2.66E+08	299520	38.54824	0.019308	38.56755
110000	2.66E+08	38.54824	299520	0.019308	29952000	6.771318	0	0	7488000	0.3744	37739520	45.71326	42.99953	2.71373	0.16179	0.071907	37440000	2.692192	2.66E+08	299520	42.99953	0.021538	43.02107
120000	2.66E+08	42.99953	299520	0.021538	29952000	8.731566	0	0	7488000	0.3744	37739520	52.12703	49.03256	3.094479	0.18449	0.081996	37440000	3.069918	2.66E+08	299520	49.03256	0.024559	49.05711
130000	2.66E+08	49.03255	299520	0.024559	29952000	11.16244	0	0	7488000	0.3744	37739520	60.59395	56.99684	3.597109	0.214457	0.095314	37440000	3.568561	2.66E+08	299520	56.99684	0.028548	57.02539
140000	2.66E+08	56.99684	299520	0.028548	29952000	14.12312	0	0	7488000	0.3744	37739520	71.5229	67.277	4.246897	0.253137	0.112505	37440000	4.2122	2.66E+08	299520	67.277	0.033698	67.3107
150000	2.66E+08	67.277	299520	0.033698	29952000	17.6736	0	0	7488000	0.3744	37739520	85.3587	80.29145	5.067248	0.302106	0.134269	37440000	5.027032	2.66E+08	299520	80.29145	0.040216	80.33167
160000	2.66E+08	80.29145	299520	0.040216	29952000	21.87442	0	0	7488000	0.3744	37739520	102.6805	96.49088	6.089606	0.363067	0.161369	37440000	6.041276	2.66E+08	299520	96.49088	0.04833	96.53921
170000	2.66E+08	96.49088	299520	0.04833	29952000	26.78633	0	0	7488000	0.3744	37739520	123.6999	116.3566	7.343344	0.437804	0.19458	37440000	7.285064	2.66E+08	299520	116.3566	0.058281	116.4149
180000	2.66E+08	116.3566	299520	0.058281	29952000	32.47004	0	0	7488000	0.3744	37739520	149.2593	140.3987	8.860655	0.528265	0.234785	37440000	8.790333	2.66E+08	299520	140.3987	0.070323	140.469
190000	2.66E+08	140.3987	299520	0.070323	29952000	38.98591	0	0	7488000	0.3744	37739520	179.8293	169.1539	10.67542	0.63646	0.282871	37440000	10.59069	2.66E+08	299520	169.1539	0.084726	169.2386
200000	2.66E+08	169.1539	299520	0.084726	29952000	46.39379	0	0	7488000	0.3744	37739520	216.0068	203.1837	12.82306	0.764501	0.339778	37440000	12.72129	2.66E+08	299520	203.1837	0.10177	203.2855
210000	2.66E+08	203.1837	299520	0.10177	29952000	54.75279	0	0	7488000	0.3744	37739520	258.4127	243.0722	15.34046	0.914586	0.406483	37440000	15.2187	2.66E+08	299520	243.0722	0.12175	243.194
220000	2.66E+08	243.0722	299520	0.12175	29952000	64.12109	0	0	7488000	0.3744	37739520	307.6895	289.4237	18.26573	1.088988	0.483995	37440000	18.12076	2.66E+08	299520	289.4237	0.144966	289.5687
230000	2.66E+08	289.4237	299520	0.144966	29952000	74.55576	0	0	7488000	0.3744	37739520	364.4989	342.8607	21.63817	1.290061	0.573356	37440000	21.46644	2.66E+08	299520	342.8607	0.171732	343.0324
240000	2.66E+08	342.8607	299520	0.171732	29952000	86.11264	0	0	7488000	0.3744	37739520	429.5195	404.0214	25.49807	1.520174	0.675633	37440000	25.2957	2.66E+08	299520	404.0214	0.202366	404.2230
250000	2.66E+08	404.0214	299520	0.202366	29952000	98.84621	0	0	7488000	0.3744	37739520	503.4444	473.5578	29.88656	1.781813	0.791917	37440000	29.64936	2.66E+08	299520	473.5578	0.237195	473.795
260000	2.66E+08	473.5578	299520	0.237195	29952000	112.8094	0	0	7488000	0.3744	37739520	586.9789	552.1334	34.84551	2.077482	0.923318	37440000	34.55896	2.66E+08	299520	552.1334	0.276552	552.4099
270000	2.66E+08	552.1334	299520	0.276552	29952000	129.0538	0	0	7488000	0.3744	37739520	680.8381	640.4207	40.41739	2.409662	1.070957	37440000	40.09661	2.66E+08	299520	640.4207	0.320773	640.7415
280000	2.66E+08	640.4207	299520	0.320773	29952000	144.6289	0	0	7488000	0.3744	37739520	785.7447	739.0997	46.64508	2.780943	1.235974	37440000	46.27488	2.66E+08	299520	739.0997	0.370199	739.4699
290000	2.66E+08	739.0997	299520	0.370199	29952000	162.5826	0	0	7488000	0.3744	37739520	902.4271	848.8552	53.57183	3.19391	1.419515	37440000	53.14666	2.66E+08	299520	848.8552	0.425173	849.2804
300000	2.66E+08	848.8552	299520	0.425173	29952000	181.9617	0	0	7488000	0.3744	37739520	1031.617	970.3755	61.24106	3.651143	1.62273	37440000	60.75502	2.66E+08	299520	970.3755	0.48604	970.8615
310000	2.66E+08	970.3755	299520	0.48604	29952000	202.8099	0	0	7488000	0.3744	37739520	1174.046	1104.35	69.69626	4.155235	1.846771	37440000	69.1431	2.66E+08	299520	1104.35	0.553145	1104.903
320000	2.66E+08	1104.35	299520	0.553145	29952000	225.1897	0	0	7488000	0.3744	37739520	1330.447	1251.466	78.98087	4.708776	2.092789	37440000	78.35403	2.66E+08	299520	1251.466	0.626832	1252.093
330000	2.66E+08	1251.466	299520	0.626832	29952000	249.0818	0	0	7488000	0.3744	37739520	1501.549	1412.411	89.1382	5.314348	2.361933	37440000	88.43076	2.66E+08	299520	1412.411	0.707445	1413.118
340000	2.66E+08	1412.411	299520	0.707445	29952000	274.5845	0	0	7488000	0.3744	37739520	1688.077	1587.866	100.2113	5.974517	2.655341	37440000	99.41596	2.66E+08	299520	1587.866	0.795328	1588.661
350000	2.66E+08	1587.866	299520	0.795328	29952000	301.7145	0	0	7488000	0.3744	37739520	1890.75	1778.607	112.2428	6.691826	2.974145	37440000	111.352	2.66E+08	299520	1778.607	0.890816	1779.398
360000	2.66E+08	1778.607	299520	0.890816	29952000	330.5062	0	0	7488000	0.3744	37739520	2110.279	1985.004	125.2749	7.468791	3.319463	37440000	124.2807	2.66E+08	299520	1985.004	0.994245	1985.998
370000	2.66E+08	1985.004	299520	0.994245	29952000	360.9922	0	0	7488000	0.3744	37739520	2347.365	2208.015	139.3493	8.307886	3.692398	37440000	138.2434	2.66E+08	299520	2208.015	1.105947	2209.121
380000	2.66E+08	2208.015	299520	1.105947	29952000	393.2032	0	0	7488000	0.3744	37739520	2602.899	2448.192	154.507	9.211586	4.094038	37440000	153.2808	2.66E+08	299520	2448.192	1.226246	2449.418
390000	2.66E+08	2448.192	299520	1.226246	29952000	427.1675	0	0	7488000	0.3744	37739520	2876.96	2706.172	170.7883	10.18226	4.52546	37440000	169.4329	2.66E+08	299520	2706.172	1.355463	2707.527
400000	2.66E+08	2706.172	299520	1.355463	29952000	462.912	0	0	7488000	0.3744	37739520	3170.813	2982.581	188.2327	11.22226	4.987681	37440000	186.7368	2.66E+08	299520	2982.581	1.49391	2984.075
410000	2.66E+08	2982.581	299520	1.49391	29952000	500.4611	0	0	7488000	0.3744	37739520	3484.91	3278.031	206.8788	12.33386	5.481764	37440000	205.2368	2.66E+08	299520	3278.031	1.641895	3279.673
420000	2.66E+08	3278.031	299520	1.641895	29952000	539.8376	0	0	7488000	0.3744	37739520	3819.865	3593.121	226.7643	13.51951	6.008668	37440000	224.9646	2.66E+08	299520	3593.121	1.799717	3594.921
430000	2.66E+08	3593.121	299520	1.799717	29952000	581.0523	0	0	7488000	0.3744	37739520	4176.357	3928.431	247.926	14.78115	6.569399	37440000	245.9583	2.66E+08	299520	3928.431	1.967666	3930.399
440000	2.66E+08	3928.431	299520	1.967666	29952000	624.1541	0	0	7488000	0.3744	37739520	4554.927	4284.528	270.3995	16.121	7.164869	37440000	268.2534	2.66E+08	299520	4284.528	2.146028	4286.674
450000	2.66E+08	4284.528	299520	2.146028	29952000	689.13	0	0	7488000	0.3744	37739520	4956.178	4661.959	294.2194	17.54113	7.796056	37440000	291.8843	2.66E+08	299520	4661.959	2.335075	4664.294
460000	2.66E+08	4661.959	299520	2.335075	29952000	716.0064	0	0	7488000	0.3744	37739520	5380.674	5061.256	319.4192	19.04352	8.463786	37440000	316.8941	2.66E+08	299520	5061.256	2.536073	5063.79
470000	2.66E+08	5061.255	299520	2.536073	29952000	764.7935	0	0	7488000	0.3744	37739520	5826.968	5482.926	346.0312	20.6301	9.168936	37440000	343.2849	2.66E+08	299520	5482.926	2.746279	5486.673
480000	2.66E+08	5482.926	299520	2.746279	29952000	815.5061	0	0	7488000	0.3744	37739520	6301.563	5927.467	374.0865	22.30274	9.912327	37440000	371.1175	2.66E+08	299520	5927.467	2.96894	5930.436
490000	2.66E+08	5927.467	299520	2.96894	29952000	868.1531	0	0	7488000	0.3744	37739520	6798.963	6395.348	403.6148	24.06319	10.69475	37440000	400.4115	2.66E+08	299520	6395.348	3.203292	6398.552
500000	2.66E+08	6395.348	299520	3.203292	29952000	922.7429	0	0	7488000	0.3744	37739520	7321.669	6887.024	434.6448	25.91317	11.51697	37440000	431.1952	2.66E+08	299520	6887.024	3.449562	6890.474
510000	2.66E+08	6887.024	299520	3.449562	29952000	979.2821	0	0	7488000	0.3744	37739520	7870.13	7402.927	467.2037	27.85431	12.37969	37440000	463.4968	2.66E+08	299520	7402.927	3.707966	7406.634
520000	2.66E+08	7402.927	299520	3.707966	29952000	1037.776	0	0	7488000	0.3744	37739520	8444.785	7943.467	501.3176	29.88816	13.28367	37440000	497.3389	2.66E+08	299520	7943.467	3.978711	7947.446
530000	2.66E+08	7943.467	299520	3.978711	29952000	1098.227	0	0	7488000	0.3744	37739520	9046.048	8509.037	537.0111	32.01617	14.22941	37440000	532.7491	2.66E+08	299520	8509.037	4.261993	8513.299
540000	2.66E+08	8509.037	299520	4.261993	29952000	1160.639	0	0	7488000	0.3744	37739520	9674.312	9100.005	574.3075	34.23975	15.21767	37440000	569.7496	2.66E+08	299520	9100.005	4.557996	9104.563
550000	2.66E+08	9100.005	299520	4.557996	29952000	1225.011	0	0	7488000	0.3744	37739520	10329.95	9716.719	613.2288	36.56021	16.24898	37440000	608.3619	2.66E+08	299520	9716.719	4.866895	9721.586
560000	2.66E+08	9716.719	299520	4.866895	29952000	1291.343	0	0	7488000	0.3744	37739520	11013.3	10359.51	653.7956	38.97877	17.3239	37440000	648.6068	2.66E+08	299520	10359.51	5.188654	10364.7
570000	2.66E+08	10359.51	299520	5.188654	29952000	1359.632	0	0	7488000	0.3744	37739520	11724.7	11028.68	696.0273	41.49659	18.44293	37440000	690.5033	2.66E+08	299520	11028.68	5.524026	11034.2
580000	2.66E+08	11028.68	299520	5.524026	29952000	1429.876	0	0	7488000	0.3744	37739520	12464.45	11724.51	739.9417	44.11473	19.60665	37440000	734.0697	2.66E+08	299520	11724.51	5.872553	11730.38
590000	2.66E+08	11724.61	299520	5.872563	29952000	1602.068	0	0	7488000	0.3744	37739520	13232.82	12447.27	785.6556	46.83418	20.8152	37440000	779.321	2.66E+08	299520	12447.27	6.234668	12453.6
600000	2.66E+08	12447.27	299520	6.234568	29952000	1676.203	0	0	7488000	0.3744	37739520	14030.08	13197.2	832.884	49.65588	22.06928	37440000	826.2738	2.66E+08	299520	13197.2	6.610191	13203.81
610000	2.66E+08	13197.2	299520	6.610191	29952000	1652.274	0	0	7488000	0.3744	37739520	14856.45	13974.51	881.9411	52.58062	23.36916	37440000	874.9415	2.66E+08	299520	13974.51	6.999532	13981.51
620000	2.66E+08	13974.51	299520	6.999532	29952000	1730.272	0	0	7488000	0.3744	37739520	15712.16	14779.42	932.7393	55.60917	24.71519	37440000	925.3366	2.66E+08	299520	14779.42	7.402692	14786.82
630000	2.66E+08	14779.42	299520	7.402692	29952000	1810.188	0	0	7488000	0.3744	37739520	16597.38	15612.09	985.2899	58.7427	26.10764	37440000	977.4702	2.66E+08	299520	15612.09	7.819761	15619.91
640000	2.66E+08	15612.09	299520	7.819761	29952000	1892.011	0	0	7488000	0.3744	37739520	17512.3	16472.7	1039.603	61.9803	27.5468	37440000	1031.357	2.66E+08	299520	16472.7	8.250818	16480.95
650000	2.66E+08	16472.7	299520	8.250818	29952000	1975.729	0	0	7488000	0.3744	37739520	18457.05	17361.36	1095.687	65.32401	29.03289	37440000	1086.997	2.66E+08	299520	17361.36	8.695932	17370.06
660000	2.66E+08	17361.36	299520	8.695932	29952000	2061.33	0	0	7488000	0.3744	37739520	19431.76	18278.21	1153.56	68.77376	30.56611	37440000	1144.396	2.66E+08	299520	18278.21	9.155163	18287.37
670000	2.66E+08	18278.21	299520	9.155163	29952000	2148.801	0	0	7488000	0.3744	37739520	20436.54	19223.36	1213.198	72.32992	32.14663	37440000	1203.57	2.66E+08	299520	19223.36	9.628659	19232.97
680000	2.66E+08	19223.35	299520	9.628569	29952000	2238.127	0	0	7488000	0.3744	37739520	21471.40	20196.84	1274.536	75.99279	33.77458	37440000	1264.52	2.66E+08	299520	20196.84	10.11616	20206.96
690000	2.66E+08	20196.84	299520	10.11616	29952000	2329.293	0	0	7488000	0.3744	37739520	22536.62	21198.75	1337.868	79.76261	35.45006	37440000	1327.25	2.66E+08	299520	21198.75	10.618	21209.37
700000	2.66E+08	21198.75	299520	10.618	29952000	2422.282	0	0	7488000	0.3744	37739520	23637.03	22229.13	1402.896	83.63952	37.17312	37440000	1391.762	2.66E+08	299520	22229.13	11.13409	22240.27
710000	2.66E+08	22229.13	299520	11.13409	29952000	2617.078	0	0	7488000	0.3744	37739520	24757.72	23288	1469.721	87.62362	38.94383	37440000	1458.067	2.66E+08	299520	23288	11.66446	23299.66

Base Case – Cell 9

Time year	Initial solids ton	Initial chemical in solid ton	Initial water ton	Initial chemical in water ton	Incoming water from cell above ton	Incoming chemical from cell above ton	Incoming water from side ton	Incoming chemical from side ton	Incoming water from infiltration ton	Incoming chemical from infiltration ton	Total water in cell	Total chemical in cell ton	Mass on solids ton	Mass in liquids ton	Concentration in solids mg/kg	Concentration in liquids mg/L	Outgoing liquid to next cell tons	Outgoing chemical to next cell tons	Final solid in cell tons	Final liquid in cell tons	Final chemical on solid tons	Final chemical in liquid tons	Final chemical in cell tons
0							1.248E+09	66.77051	5200000	0.2756			3		0.159	0.053			1166256	187200	0.185435	0.009922	0.195356
10000	1166256	0.185435	187200	0.009922	37440000	1.872	1.248E+09	66.77051	5200000	0.2756	1290827200	69.11347	0.186825	68.92664	0.160192	0.053397	1.291E+09	68.91665	1166256	187200	0.186825	0.009996	0.196821
20000	1166256	0.186825	187200	0.009996	37440000	1.872516	1.248E+09	66.77051	5200000	0.2756	1290827200	69.11545	0.18683	68.92862	0.160196	0.053399	1.291E+09	68.91862	1166256	187200	0.18683	0.009996	0.196826
30000	1166256	0.18683	187200	0.009996	37440000	1.875027	1.248E+09	66.77051	5200000	0.2756	1290827200	69.11796	0.186837	68.93113	0.160202	0.053401	1.291E+09	68.92113	1166256	187200	0.186837	0.009997	0.196833
40000	1166256	0.186837	187200	0.009997	37440000	1.882336	1.248E+09	66.77051	5200000	0.2756	1290827200	69.12528	0.186857	68.93842	0.160219	0.053406	1.291E+09	68.92843	1166256	187200	0.186857	0.009998	0.196854
50000	1166256	0.186857	187200	0.009998	37440000	1.89887	1.248E+09	66.77051	5200000	0.2756	1290827200	69.14184	0.186901	68.95493	0.160258	0.053419	1.291E+09	68.94493	1166256	187200	0.186901	0.01	0.196901
60000	1166256	0.186901	187200	0.01	37440000	1.930916	1.248E+09	66.77051	5200000	0.2756	1290827200	69.17393	0.186988	68.98694	0.160332	0.053444	1.291E+09	68.97694	1166256	187200	0.186988	0.010005	0.196993
70000	1166256	0.186988	187200	0.010005	37440000	1.986791	1.248E+09	66.77051	5200000	0.2756	1290827200	69.2299	0.187139	69.04276	0.160462	0.053487	1.291E+09	69.03274	1166256	187200	0.187139	0.010013	0.197152
80000	1166256	0.187139	187200	0.010013	37440000	2.076977	1.248E+09	66.77051	5200000	0.2756	1290827200	69.32024	0.187384	69.13286	0.160671	0.053557	1.291E+09	69.12283	1166256	187200	0.187384	0.010026	0.197409
90000	1166256	0.187384	187200	0.010026	37440000	2.214204	1.248E+09	66.77051	5200000	0.2756	1290827200	69.45773	0.187755	69.26997	0.16099	0.053663	1.291E+09	69.25992	1166256	187200	0.187755	0.010046	0.197801
100000	1166256	0.187755	187200	0.010046	37440000	2.413498	1.248E+09	66.77051	5200000	0.2756	1290827200	69.65741	0.188296	69.46912	0.161453	0.053818	1.291E+09	69.45904	1166256	187200	0.188296	0.010075	0.19837
110000	1166256	0.188296	187200	0.010075	37440000	2.692192	1.248E+09	66.77051	5200000	0.2756	1290827200	69.93667	0.18905	69.74762	0.1621	0.054033	1.291E+09	69.73751	1166256	187200	0.18905	0.010115	0.199165
120000	1166256	0.18905	187200	0.010115	37440000	3.089918	1.248E+09	66.77051	5200000	0.2756	1290827200	70.33519	0.190073	70.14512	0.162977	0.054326	1.291E+09	70.13495	1166256	187200	0.190073	0.01017	0.200243
130000	1166256	0.190073	187200	0.01017	37440000	3.566561	1.248E+09	66.77051	5200000	0.2756	1290827200	70.81291	0.191424	70.62149	0.164135	0.054712	1.291E+09	70.61125	1166256	187200	0.191424	0.010242	0.201666
140000	1166256	0.191424	187200	0.010242	37440000	4.2122	1.248E+09	66.77051	5200000	0.2756	1290827200	71.45998	0.193168	71.26681	0.165631	0.05521	1.291E+09	71.25647	1166256	187200	0.193168	0.010336	0.203503
150000	1166256	0.193168	187200	0.010336	37440000	5.027032	1.248E+09	66.77051	5200000	0.2756	1290827200	72.27665	0.195376	72.08127	0.167523	0.055841	1.291E+09	72.07082	1166256	187200	0.195376	0.010453	0.205829
160000	1166256	0.195376	187200	0.010453	37440000	6.041276	1.248E+09	66.77051	5200000	0.2756	1290827200	73.29322	0.198123	73.09509	0.16988	0.056627	1.291E+09	73.08449	1166256	187200	0.198123	0.0106	0.208724
170000	1166256	0.198123	187200	0.0106	37440000	7.286084	1.248E+09	66.77051	5200000	0.2756	1290827200	74.5399	0.201493	74.33841	0.172769	0.05759	1.291E+09	74.32763	1166256	187200	0.201493	0.010781	0.212274
180000	1166256	0.201493	187200	0.010781	37440000	8.790933	1.248E+09	66.77051	5200000	0.2756	1290827200	76.04872	0.205572	75.84315	0.176266	0.058755	1.291E+09	75.83215	1166256	187200	0.205572	0.010999	0.216571
190000	1166256	0.205572	187200	0.010999	37440000	10.59069	1.248E+09	66.77051	5200000	0.2756	1290827200	77.85337	0.21045	77.64292	0.180449	0.06015	1.291E+09	77.63166	1166256	187200	0.21045	0.01126	0.22171
200000	1166256	0.21045	187200	0.01126	37440000	12.72129	1.248E+09	66.77051	5200000	0.2756	1290827200	79.98911	0.216223	79.77289	0.185399	0.0618	1.291E+09	79.76132	1166256	187200	0.216223	0.011569	0.227792
210000	1166256	0.216223	187200	0.011569	37440000	15.2187	1.248E+09	66.77051	5200000	0.2756	1290827200	82.49261	0.222991	82.26962	0.191202	0.063734	1.291E+09	82.25789	1166256	187200	0.222991	0.011931	0.234922
220000	1166256	0.222991	187200	0.011931	37440000	18.12076	1.248E+09	66.77051	5200000	0.2756	1290827200	85.4018	0.230856	85.17094	0.197945	0.065982	1.291E+09	85.15869	1166256	187200	0.230856	0.012352	0.243208
230000	1166256	0.230856	187200	0.012352	37440000	21.46644	1.248E+09	66.77051	5200000	0.2756	1290827200	88.75576	0.239921	88.51584	0.205719	0.068573	1.291E+09	88.503	1166256	187200	0.239921	0.012837	0.252758
240000	1166256	0.239921	187200	0.012837	37440000	25.2967	1.248E+09	66.77051	5200000	0.2756	1290827200	92.59457	0.250298	92.34427	0.214616	0.071539	1.291E+09	92.33088	1166256	187200	0.250298	0.013397	0.26369
250000	1166256	0.250298	187200	0.013392	37440000	29.64936	1.248E+09	66.77051	5200000	0.2756	1290827200	96.95916	0.262096	96.69707	0.224733	0.074911	1.291E+09	96.68304	1166256	187200	0.262096	0.014023	0.276119
260000	1166256	0.262096	187200	0.014023	37440000	34.56896	1.248E+09	66.77051	5200000	0.2756	1290827200	101.8912	0.275428	101.6158	0.236164	0.078721	1.291E+09	101.601	1166256	187200	0.275428	0.014737	0.290165
270000	1166256	0.275428	187200	0.014737	37440000	40.09681	1.248E+09	66.77051	5200000	0.2756	1290827200	107.4329	0.290408	107.1425	0.249009	0.083003	1.291E+09	107.1269	1166256	187200	0.290408	0.015538	0.305946
280000	1166256	0.290408	187200	0.015538	37440000	46.27488	1.248E+09	66.77051	5200000	0.2756	1290827200	113.6269	0.307152	113.3198	0.263366	0.087789	1.291E+09	113.3034	1166256	187200	0.307152	0.016434	0.323586
290000	1166256	0.307152	187200	0.016434	37440000	53.14666	1.248E+09	66.77051	5200000	0.2756	1290827200	120.5164	0.325775	120.1906	0.279334	0.093111	1.291E+09	120.1732	1166256	187200	0.325775	0.01743	0.343205
300000	1166256	0.325775	187200	0.01743	37440000	60.75502	1.248E+09	66.77051	5200000	0.2756	1290827200	128.1443	0.346394	127.7979	0.297014	0.099005	1.291E+09	127.7794	1166256	187200	0.346394	0.018534	0.364928
310000	1166256	0.346394	187200	0.018534	37440000	69.1431	1.248E+09	66.77051	5200000	0.2756	1290827200	136.5641	0.369127	136.195	0.316506	0.105502	1.291E+09	136.1663	1166256	187200	0.369127	0.01975	0.388877
320000	1166256	0.369127	187200	0.01975	37440000	78.35403	1.248E+09	66.77051	5200000	0.2756	1290827200	145.789	0.394091	145.3949	0.337911	0.112637	1.291E+09	145.3738	1166256	187200	0.394091	0.021086	0.415176
330000	1166256	0.394091	187200	0.021086	37440000	88.43076	1.248E+09	66.77051	5200000	0.2756	1290827200	155.892	0.421401	155.4706	0.361328	0.120443	1.291E+09	155.4481	1166256	187200	0.421401	0.022547	0.443948
340000	1166256	0.421401	187200	0.022547	37440000	99.41596	1.248E+09	66.77051	5200000	0.2756	1290827200	166.906	0.451173	166.4548	0.386856	0.128952	1.291E+09	166.4307	1166256	187200	0.451173	0.02414	0.475313
350000	1166256	0.451173	187200	0.02414	37440000	111.352	1.248E+09	66.77051	5200000	0.2756	1290827200	178.8734	0.483523	178.3899	0.414594	0.138198	1.291E+09	178.364	1166256	187200	0.483523	0.025871	0.509394
360000	1166256	0.483523	187200	0.025871	37440000	124.2807	1.248E+09	66.77051	5200000	0.2756	1290827200	191.8362	0.518564	191.3176	0.44464	0.148213	1.291E+09	191.2899	1166256	187200	0.518564	0.027746	0.546309
370000	1166256	0.518564	187200	0.027746	37440000	138.2434	1.248E+09	66.77051	5200000	0.2756	1290827200	205.8358	0.556407	205.2794	0.477088	0.159029	1.291E+09	205.2496	1166256	187200	0.556407	0.02977	0.586177
380000	1166256	0.556407	187200	0.02977	37440000	153.2808	1.248E+09	66.77051	5200000	0.2756	1290827200	220.9131	0.597163	220.3159	0.512034	0.170678	1.291E+09	220.284	1166256	187200	0.597163	0.031951	0.629114
390000	1166256	0.597163	187200	0.031951	37440000	169.4329	1.248E+09	66.77051	5200000	0.2756	1290827200	237.1081	0.640941	236.4671	0.549571	0.18319	1.291E+09	236.4329	1166256	187200	0.640941	0.034293	0.676234
400000	1166256	0.640941	187200	0.034293	37440000	186.7388	1.248E+09	66.77051	5200000	0.2756	1290827200	254.4601	0.687846	253.7723	0.58979	0.196597	1.291E+09	253.7355	1166256	187200	0.687846	0.036803	0.724649
410000	1166256	0.687846	187200	0.036803	37440000	205.2369	1.248E+09	66.77051	5200000	0.2756	1290827200	273.0076	0.737983	272.2697	0.63278	0.210927	1.291E+09	272.2302	1166256	187200	0.737983	0.039485	0.777468
420000	1166256	0.737983	187200	0.039485	37440000	224.9646	1.248E+09	66.77051	5200000	0.2756	1290827200	292.7882	0.791453	291.9967	0.678627	0.226209	1.291E+09	291.9544	1166256	187200	0.791453	0.042346	0.833799
430000	1166256	0.791453	187200	0.042346	37440000	245.9583	1.248E+09	66.77051	5200000	0.2756	1290827200	313.8382	0.848354	312.9899	0.727417	0.242472	1.291E+09	312.9445	1166256	187200	0.848354	0.045391	0.893745
440000	1166256	0.848354	187200	0.045391	37440000	268.2534	1.248E+09	66.77051	5200000	0.2756	1290827200	336.1933	0.908784	335.2845	0.779232	0.259744	1.291E+09	335.2369	1166256	187200	0.908784	0.048624	0.957408
450000	1166256	0.908784	187200	0.048624	37440000	291.8843	1.248E+09	66.77051	5200000	0.2756	1290827200	359.8878	0.972834	358.915	0.834151	0.27805	1.291E+09	358.863	1166256	187200	0.972834	0.052051	1.024886
460000	1166256	0.972834	187200	0.052051	37440000	316.8841	1.248E+09	66.77051	5200000	0.2756	1290827200	384.9551	1.040595	383.9145	0.892252	0.297417	1.291E+09	383.8589	1166256	187200	1.040595	0.055677	1.096271
470000	1166256	1.040595	187200	0.055677	37440000	343.2849	1.248E+09	66.77051	5200000	0.2756	1290827200	411.4273	1.112153	410.3152	0.95361	0.31787	1.291E+09	410.2557	1166256	187200	1.112153	0.059505	1.171658
480000	1166256	1.112153	187200	0.059505	37440000	371.1176	1.248E+09	66.77051	5200000	0.2756	1290827200	439.3353	1.187593	438.1477	1.018295	0.339432	1.291E+09	438.0841	1166256	187200	1.187593	0.063542	1.251134
490000	1166256	1.187593	187200	0.063542	37440000	400.4115	1.248E+09	66.77051	5200000	0.2756	1290827200	468.7087	1.266994	467.4417	1.086377	0.362126	1.291E+09	467.374	1166256	187200	1.266994	0.06779	1.334784
500000	1166256	1.266994	187200	0.06779	37440000	431.1952	1.248E+09	66.77051	5200000	0.2756	1290827200	499.5761	1.350433	498.2257	1.157922	0.385974	1.291E+09	498.1534	1166256	187200	1.350433	0.072254	1.422688
510000	1166256	1.350433	187200	0.072254	37440000	463.4958	1.248E+09	66.77051	5200000	0.2756	1290827200	531.9646	1.437984	530.5266	1.232992	0.410997	1.291E+09	530.4496	1166256	187200	1.437984	0.076939	1.514923
520000	1166256	1.437984	187200	0.076939	37440000	497.3369	1.248E+09	66.77051	5200000	0.2756	1290827200	565.8999	1.529717	564.3702	1.311648	0.437216	1.291E+09	564.2884	1166256	187200	1.529717	0.081847	1.611564
530000	1166256	1.529717	187200	0.081847	37440000	532.7491	1.248E+09	66.77051	5200000	0.2756	1290827200	601.4068	1.625698	599.7811	1.393946	0.464649	1.291E+09	599.6941	1166256	187200	1.625698	0.086982	1.71268
540000	1166256	1.625698	187200	0.086982	37440000	569.7496	1.248E+09	66.77051	5200000	0.2756	1290827200	638.5083	1.725989	636.7823	1.47994	0.493313	1.291E+09	636.6889	1166256	187200	1.725989	0.092348	1.818337
550000	1166256	1.725989	187200	0.092348	37440000	608.3619	1.248E+09	66.77051	5200000	0.2756	1290827200	677.2263	1.83065	675.3957	1.569681	0.523227	1.291E+09	675.2977	1166256	187200	1.83065	0.097948	1.928598
560000	1166256	1.83065	187200	0.097948	37440000	648.6068	1.248E+09	66.77051	5200000	0.2756	1290827200	717.5815	1.939736	715.6417	1.663217	0.554406	1.291E+09	715.538	1166256	187200	1.939736	0.103785	2.043521
570000	1166256	1.939736	187200	0.103785	37440000	690.6033	1.248E+09	66.77051	5200000	0.2756	1290827200	759.5929	2.0533	757.5396	1.760591	0.586864	1.291E+09	757.4297	1166256	187200	2.0533	0.109861	2.163161
580000	1166256	2.0533	187200	0.109861	37440000	734.0692	1.248E+09	66.77051	5200000	0.2756	1290827200	803.2785	2.171389	801.1071	1.861846	0.620615	1.291E+09	800.9909	1166256	187200	2.171389	0.116179	2.287568
590000	1166256	2.171389	187200	0.116179	37440000	779.321	1.248E+09	66.77051	5200000	0.2756	1290827200	848.6547	2.294048	846.3606	1.967019	0.655673	1.291E+09	846.2379	1166256	187200	2.294048	0.122742	2.41679
600000	1166256	2.294048	187200	0.122742	37440000	826.2738	1.248E+09	66.77051	5200000	0.2756	1290827200	895.7367	2.421318	893.3164	2.076145	0.692049	1.291E+09	893.1869	1166256	187200	2.421318	0.129552	2.56087
610000	1166256	2.421318	187200	0.129552	37440000	874.9415	1.248E+09	66.77051	5200000	0.2756	1290827200	944.5305	2.553237	941.9853	2.18926	0.729763	1.291E+09	941.8487	1166256	187200	2.553237	0.13661	2.689847
620000	1166256	2.553237	187200	0.13661	37440000	925.3386	1.248E+09	66.77051	5200000	0.2756	1290827200	995.0725	2.689839	992.3827	2.306388	0.768796	1.291E+09	992.2388	1166256	187200	2.689839	0.143919	2.833757
630000	1166256	2.689839	187200	0.143919	37440000	977.4702	1.248E+09	66.77051	5200000	0.2756	1290827200	1047.35	2.831153	1044.519	2.427657	0.809186	1.291E+09	1044.367	1166256	187200	2.831153	0.15148	2.982633
640000	1166256	2.831153	187200	0.15148	37440000	1031.362	1.248E+09	66.77051	5200000	0.2756	1290827200	1101.301	2.977207	1098.404	2.55279	0.85093	1.291E+09	1098.245	1166256	187200	2.977207	0.159294	3.136501
650000	1166256	2.977207	187200	0.159294	37440000	1086.992	1.248E+09	66.77051	5200000	0.2756	1290827200	1157.174	3.128025	1154.046	2.682108	0.894036	1.291E+09	1153.879	1166256	187200	3.128025	0.167364	3.295388
660000	1166256	3.128025	187200	0.167364	37440000	1144.396	1.248E+09	66.77051	5200000	0.2756	1290827200	1214.737	3.283626	1211.453	2.815628	0.938609	1.291E+09	1211.277	1166256	187200	3.283626	0.175689	3.459316
670000	1166256	3.283626	187200	0.175689	37440000	1203.57	1.248E+09	66.77051	5200000	0.2756	1290827200	1274.075	3.444027	1270.631	2.953053	0.984354	1.291E+09	1270.447	1166256	187200	3.444027	0.184271	3.628298
680000	1166256	3.444027	187200	0.184271	37440000	1264.57	1.248E+09	66.77051	5200000	0.2756	1290827200	1335.195	3.609242	1331.585	3.094725	1.031575	1.291E+09	1331.392	1166256	187200	3.609242	0.193111	3.802353
690000	1166256	3.609242	187200	0.193111	37440000	1327.25	1.248E+09	66.77051	5200000	0.2756	1290827200	1398.098	3.779281	1394.319	3.240524	1.080175	1.291E+09	1394.117	1166256	187200	3.779281	0.202209	3.98149
700000	1166256	3.779281	187200	0.202209	37440000	1391.762	1.248E+09	66.77051	5200000	0.2756	1290827200	1462.789	3.954151	1458.835	3.390466	1.130155	1.291E+09	1458.624	1166256	187200	3.954151	0.211565	4.165716
710000	1166256	3.954151	187200	0.211565	37440000	1458.057	1.248E+09	66.77051	5200000	0.2756	1290827200	1529.269	4.133866	1525.135	3.544553	1.181518	1.291E+09	1524.914	1166256	187200	4.133866	0.22118	4.356036

Base Case – Cell 10

Time	Initial solids	Initial chemical in solid	Initial water	Initial chemical in water	Incoming water from cell above	Incoming chemical from cell above	Incoming water from side	Incoming chemical from side	Incoming water from infiltration	Incoming chemical from infiltration	Total water in cell	Total chemical in cell	Mass on solids	Mass in liquids	Concentration in solids	Concentration in liquids	Outgoing liquid to next cell	Outgoing chemical to next cell	Final solid in cell	Final liquid in cell	Final chemical on solid	Final chemical in liquid	Final chemical in cell
year	ton	ton	ton	ton	ton	ton	ton	ton	ton	ton		ton	ton	ton	mg/kg	mg/L	tons	tons	tons	tons	tons	tons	tons
0							2.496E+10	715.1731	5200000	0.156			3		0.09	0.03			1166256	187200	0.104963	0.006616	0.110579
10000	1166256	0.104963	187200	0.005616	1290640000	68.91665	2.496E+10	715.1731	5200000	0.156	26256027200	784.3964	0.104506	784.2619	0.089608	0.029869	2.626E+10	784.2463	1166256	187200	0.104506	0.005592	0.110098
20000	1166256	0.104506	187200	0.005592	1290640000	68.91862	2.496E+10	715.1731	5200000	0.156	26256027200	784.3679	0.104506	784.2634	0.089608	0.029869	2.626E+10	784.2478	1166256	187200	0.104506	0.005592	0.110098
30000	1166256	0.104506	187200	0.005592	1290640000	68.92113	2.496E+10	715.1731	5200000	0.156	26256027200	784.3604	0.104507	784.2559	0.089609	0.02987	2.626E+10	784.2503	1166256	187200	0.104507	0.005592	0.110098
40000	1166256	0.104507	187200	0.005592	1290640000	68.92843	2.496E+10	715.1731	5200000	0.156	26256027200	784.3677	0.104508	784.2632	0.08961	0.02987	2.626E+10	784.2576	1166256	187200	0.104508	0.005592	0.110099
50000	1166256	0.104508	187200	0.005592	1290640000	68.94493	2.496E+10	715.1731	5200000	0.156	26256027200	784.3842	0.10451	784.2797	0.089611	0.02987	2.626E+10	784.2741	1166256	187200	0.10451	0.005592	0.110102
60000	1166256	0.10451	187200	0.005592	1290640000	68.97694	2.496E+10	715.1731	5200000	0.156	26256027200	784.4162	0.104514	784.3117	0.089615	0.029872	2.626E+10	784.3061	1166256	187200	0.104514	0.005592	0.110106
70000	1166256	0.104514	187200	0.005592	1290640000	69.03274	2.496E+10	715.1731	5200000	0.156	26256027200	784.472	0.104522	784.3676	0.089621	0.029874	2.626E+10	784.3619	1166256	187200	0.104522	0.005592	0.110114
80000	1166256	0.104522	187200	0.005592	1290640000	69.12283	2.496E+10	715.1731	5200000	0.156	26256027200	784.5621	0.104534	784.4578	0.089632	0.029877	2.626E+10	784.452	1166256	187200	0.104534	0.005593	0.110127
90000	1166256	0.104534	187200	0.005593	1290640000	69.25992	2.496E+10	715.1731	5200000	0.156	26256027200	784.6992	0.104552	784.5946	0.089647	0.029882	2.626E+10	784.589	1166256	187200	0.104552	0.005594	0.110146
100000	1166256	0.104552	187200	0.005594	1290640000	69.45904	2.496E+10	715.1731	5200000	0.156	26256027200	784.8983	0.104578	784.7938	0.08967	0.02989	2.626E+10	784.7882	1166256	187200	0.104578	0.005595	0.110174
110000	1166256	0.104578	187200	0.005595	1290640000	69.73751	2.496E+10	715.1731	5200000	0.156	26256027200	785.1768	0.104615	785.0722	0.089702	0.029901	2.626E+10	785.0666	1166256	187200	0.104615	0.005597	0.110213
120000	1166256	0.104615	187200	0.005597	1290640000	70.11495	2.496E+10	715.1731	5200000	0.156	26256027200	785.5543	0.104666	785.4496	0.089745	0.029915	2.626E+10	785.444	1166256	187200	0.104666	0.0056	0.110266
130000	1166256	0.104666	187200	0.0056	1290640000	70.61325	2.496E+10	715.1731	5200000	0.156	26256027200	786.0527	0.104732	785.9479	0.089802	0.029934	2.626E+10	785.9423	1166256	187200	0.104732	0.005604	0.110336
140000	1166256	0.104732	187200	0.005604	1290640000	71.25647	2.496E+10	715.1731	5200000	0.156	26256027200	786.696	0.104818	786.5911	0.089875	0.029958	2.626E+10	786.5855	1166256	187200	0.104818	0.005608	0.110426
150000	1166256	0.104818	187200	0.005608	1290640000	72.07082	2.496E+10	715.1731	5200000	0.156	26256027200	787.5104	0.104926	787.4055	0.089969	0.02999	2.626E+10	787.3998	1166256	187200	0.104926	0.005614	0.11054
160000	1166256	0.104926	187200	0.005614	1290640000	73.08449	2.496E+10	715.1731	5200000	0.156	26256027200	788.5242	0.105061	788.4191	0.090084	0.030028	2.626E+10	788.4135	1166256	187200	0.105061	0.005621	0.110683
170000	1166256	0.105061	187200	0.005621	1290640000	74.32763	2.496E+10	715.1731	5200000	0.156	26256027200	789.7675	0.105227	789.6622	0.090226	0.030075	2.626E+10	789.6566	1166256	187200	0.105227	0.00563	0.110857
180000	1166256	0.105227	187200	0.00563	1290640000	75.83215	2.496E+10	715.1731	5200000	0.156	26256027200	791.2721	0.105428	791.1667	0.090398	0.030133	2.626E+10	791.1611	1166256	187200	0.105428	0.005641	0.111068
190000	1166256	0.105428	187200	0.005641	1290640000	77.63166	2.496E+10	715.1731	5200000	0.156	26256027200	793.0719	0.105667	792.9662	0.090604	0.030201	2.626E+10	792.9606	1166256	187200	0.105667	0.005654	0.111321
200000	1166256	0.105667	187200	0.005654	1290640000	79.76132	2.496E+10	715.1731	5200000	0.156	26256027200	795.2016	0.105951	795.0958	0.090847	0.030282	2.626E+10	795.0902	1166256	187200	0.105951	0.005669	0.11162
210000	1166256	0.105951	187200	0.005669	1290640000	82.25769	2.496E+10	715.1731	5200000	0.156	26256027200	797.6985	0.106284	797.5922	0.091132	0.030377	2.626E+10	797.5865	1166256	187200	0.106284	0.005687	0.11197
220000	1166256	0.106284	187200	0.005687	1290640000	85.15859	2.496E+10	715.1731	5200000	0.156	26256027200	800.5997	0.10667	800.493	0.091464	0.030488	2.626E+10	800.4873	1166256	187200	0.10667	0.005707	0.112378
230000	1166256	0.10667	187200	0.005707	1290640000	88.503	2.496E+10	715.1731	5200000	0.156	26256027200	803.9446	0.107116	803.8374	0.091846	0.030615	2.626E+10	803.8317	1166256	187200	0.107116	0.005731	0.112847
240000	1166256	0.107116	187200	0.005731	1290640000	92.33088	2.496E+10	715.1731	5200000	0.156	26256027200	807.7729	0.107626	807.6652	0.092283	0.030761	2.626E+10	807.6595	1166256	187200	0.107626	0.005758	0.113385
250000	1166256	0.107626	187200	0.005758	1290640000	96.68304	2.496E+10	715.1731	5200000	0.156	26256027200	812.1255	0.108205	812.0174	0.092781	0.030927	2.626E+10	812.0116	1166256	187200	0.108205	0.00579	0.113996
260000	1166256	0.108205	187200	0.00579	1290640000	101.601	2.496E+10	715.1731	5200000	0.156	26256027200	817.0442	0.108861	816.9353	0.093343	0.031114	2.626E+10	816.9295	1166256	187200	0.108861	0.005825	0.114686
270000	1166256	0.108861	187200	0.005825	1290640000	107.1269	2.496E+10	715.1731	5200000	0.156	26256027200	822.5708	0.109598	822.4612	0.093974	0.031325	2.626E+10	822.4553	1166256	187200	0.109598	0.005864	0.115462
280000	1166256	0.109598	187200	0.005864	1290640000	113.3034	2.496E+10	715.1731	5200000	0.156	26256027200	828.748	0.110421	828.6375	0.09468	0.03156	2.626E+10	828.6316	1166256	187200	0.110421	0.005908	0.116329
290000	1166256	0.110421	187200	0.005908	1290640000	120.1732	2.496E+10	715.1731	5200000	0.156	26256027200	835.6186	0.111336	835.5073	0.095465	0.031822	2.626E+10	835.5013	1166256	187200	0.111336	0.005957	0.117293
300000	1166256	0.111336	187200	0.005957	1290640000	127.7794	2.496E+10	715.1731	5200000	0.156	26256027200	843.2258	0.11235	843.1135	0.096334	0.032111	2.626E+10	843.1075	1166256	187200	0.11235	0.006011	0.118361
310000	1166256	0.11235	187200	0.006011	1290640000	136.1653	2.496E+10	715.1731	5200000	0.156	26256027200	851.6128	0.113467	851.4993	0.097292	0.032431	2.626E+10	851.4932	1166256	187200	0.113467	0.006071	0.119538
320000	1166256	0.113467	187200	0.006071	1290640000	145.3738	2.496E+10	715.1731	5200000	0.156	26256027200	860.8225	0.114694	860.7078	0.098344	0.032781	2.626E+10	860.7017	1166256	187200	0.114694	0.006137	0.120831
330000	1166256	0.114694	187200	0.006137	1290640000	155.4481	2.496E+10	715.1731	5200000	0.156	26256027200	870.8981	0.116037	870.782	0.099495	0.033165	2.626E+10	870.7758	1166256	187200	0.116037	0.006208	0.122245
340000	1166256	0.116037	187200	0.006208	1290640000	166.4307	2.496E+10	715.1731	5200000	0.156	26256027200	881.8821	0.1175	881.7646	0.10075	0.033583	2.626E+10	881.7583	1166256	187200	0.1175	0.006287	0.123787
350000	1166256	0.1175	187200	0.006287	1290640000	178.364	2.496E+10	715.1731	5200000	0.156	26256027200	893.8169	0.11909	893.6979	0.102113	0.034038	2.626E+10	893.6915	1166256	187200	0.11909	0.006372	0.125462
360000	1166256	0.11909	187200	0.006372	1290640000	191.2899	2.496E+10	715.1731	5200000	0.156	26256027200	906.7445	0.120813	906.6237	0.10359	0.03453	2.626E+10	906.6172	1166256	187200	0.120813	0.006464	0.127277
370000	1166256	0.120813	187200	0.006464	1290640000	205.2496	2.496E+10	715.1731	5200000	0.156	26256027200	920.7061	0.122673	920.5834	0.105186	0.035062	2.626E+10	920.5768	1166256	187200	0.122673	0.006564	0.129237
380000	1166256	0.122673	187200	0.006564	1290640000	220.284	2.496E+10	715.1731	5200000	0.156	26256027200	935.7424	0.124676	935.6177	0.106903	0.035634	2.626E+10	935.611	1166256	187200	0.124676	0.006671	0.131347
390000	1166256	0.124676	187200	0.006671	1290640000	236.4329	2.496E+10	715.1731	5200000	0.156	26256027200	951.8933	0.126828	951.7665	0.108748	0.036249	2.626E+10	951.7597	1166256	187200	0.126828	0.006786	0.133614
400000	1166256	0.126828	187200	0.006786	1290640000	253.7355	2.496E+10	715.1731	5200000	0.156	26256027200	969.1982	0.129134	969.0691	0.110725	0.036908	2.626E+10	969.0622	1166256	187200	0.129134	0.006909	0.136043
410000	1166256	0.129134	187200	0.006909	1290640000	272.2302	2.496E+10	715.1731	5200000	0.156	26256027200	987.6954	0.131599	987.5638	0.112839	0.037613	2.626E+10	987.5567	1166256	187200	0.131599	0.007041	0.13864
420000	1166256	0.131599	187200	0.007041	1290640000	291.9544	2.496E+10	715.1731	5200000	0.156	26256027200	1007.422	0.134227	1007.288	0.115092	0.038364	2.626E+10	1007.281	1166256	187200	0.134227	0.007182	0.141409
430000	1166256	0.134227	187200	0.007182	1290640000	312.9445	2.496E+10	715.1731	5200000	0.156	26256027200	1028.415	0.137024	1028.278	0.117491	0.039164	2.626E+10	1028.271	1166256	187200	0.137024	0.007331	0.144355
440000	1166256	0.137024	187200	0.007331	1290640000	335.2359	2.496E+10	715.1731	5200000	0.156	26256027200	1050.709	0.139994	1050.569	0.120038	0.040013	2.626E+10	1050.562	1166256	187200	0.139994	0.00749	0.147486
450000	1166256	0.139994	187200	0.00749	1290640000	358.863	2.496E+10	715.1731	5200000	0.156	26256027200	1074.34	0.143143	1074.196	0.122737	0.040917	2.626E+10	1074.189	1166256	187200	0.143143	0.007659	0.150802
460000	1166256	0.143143	187200	0.007659	1290640000	383.8588	2.496E+10	715.1731	5200000	0.156	26256027200	1099.339	0.146474	1099.192	0.125693	0.041864	2.626E+10	1099.185	1166256	187200	0.146474	0.007837	0.154311
470000	1166256	0.146474	187200	0.007837	1290640000	410.2557	2.496E+10	715.1731	5200000	0.156	26256027200	1125.739	0.149991	1125.589	0.128609	0.04287	2.626E+10	1125.581	1166256	187200	0.149991	0.008025	0.158016
480000	1166256	0.149991	187200	0.008025	1290640000	438.0841	2.496E+10	715.1731	5200000	0.156	26256027200	1153.571	0.1537	1153.418	0.131789	0.04393	2.626E+10	1153.409	1166256	187200	0.1537	0.008224	0.161923
490000	1166256	0.1537	187200	0.008224	1290640000	467.374	2.496E+10	715.1731	5200000	0.156	26256027200	1182.865	0.157603	1182.707	0.135136	0.045045	2.626E+10	1182.699	1166256	187200	0.157603	0.008432	0.166036
500000	1166256	0.157603	187200	0.008432	1290640000	498.1534	2.496E+10	715.1731	5200000	0.156	26256027200	1213.649	0.161704	1213.487	0.138652	0.046217	2.626E+10	1213.478	1166256	187200	0.161704	0.008652	0.170356
510000	1166256	0.161704	187200	0.008652	1290640000	530.4496	2.496E+10	715.1731	5200000	0.156	26256027200	1245.949	0.166008	1245.783	0.142343	0.047448	2.626E+10	1245.774	1166256	187200	0.166008	0.008882	0.17489
520000	1166256	0.166008	187200	0.008882	1290640000	564.2884	2.496E+10	715.1731	5200000	0.156	26256027200	1279.792	0.170517	1279.622	0.146209	0.048736	2.626E+10	1279.613	1166256	187200	0.170517	0.009123	0.17964
530000	1166256	0.170517	187200	0.009123	1290640000	599.6941	2.496E+10	715.1731	5200000	0.156	26256027200	1315.203	0.175235	1315.028	0.150254	0.050085	2.626E+10	1315.018	1166256	187200	0.175235	0.009376	0.184611
540000	1166256	0.175235	187200	0.009376	1290640000	636.6899	2.496E+10	715.1731	5200000	0.156	26256027200	1352.204	0.180165	1352.024	0.154402	0.051494	2.626E+10	1352.014	1166256	187200	0.180165	0.00964	0.189805
550000	1166256	0.180165	187200	0.00964	1290640000	675.2977	2.496E+10	715.1731	5200000	0.156	26256027200	1390.817	0.18531	1390.631	0.158893	0.052964	2.626E+10	1390.621	1166256	187200	0.18531	0.009916	0.195226
560000	1166256	0.18531	187200	0.009915	1290640000	715.538	2.496E+10	715.1731	5200000	0.156	26256027200	1431.062	0.190672	1430.872	0.163491	0.054497	2.626E+10	1430.861	1166256	187200	0.190672	0.010202	0.200874
570000	1166256	0.190672	187200	0.010202	1290640000	757.4297	2.496E+10	715.1731	5200000	0.156	26256027200	1472.96	0.196254	1472.763	0.168277	0.056092	2.626E+10	1472.753	1166256	187200	0.196254	0.0105	0.206756
580000	1166256	0.196254	187200	0.0105	1290640000	800.9909	2.496E+10	715.1731	5200000	0.156	26256027200	1516.527	0.202059	1516.325	0.173254	0.057751	2.626E+10	1516.314	1166256	187200	0.202059	0.010811	0.21287
590000	1166256	0.202059	187200	0.010811	1290640000	846.2379	2.496E+10	715.1731	5200000	0.156	26256027200	1561.78	0.208089	1561.572	0.178424	0.059475	2.626E+10	1561.561	1166256	187200	0.208089	0.011134	0.219222
600000	1166256	0.208089	187200	0.011134	1290640000	893.1859	2.496E+10	715.1731	5200000	0.156	26256027200	1608.734	0.214345	1608.52	0.183788	0.061263	2.626E+10	1608.508	1166256	187200	0.214345	0.011468	0.225813
610000	1166256	0.214345	187200	0.011468	1290640000	941.8487	2.496E+10	715.1731	5200000	0.156	26256027200	1657.404	0.220829	1657.183	0.189349	0.063116	2.626E+10	1657.171	1166256	187200	0.220829	0.011815	0.232645
620000	1166256	0.220829	187200	0.011815	1290640000	992.2388	2.496E+10	715.1731	5200000	0.156	26256027200	1707.801	0.227544	1707.573	0.195106	0.065036	2.626E+10	1707.561	1166256	187200	0.227544	0.012175	0.239719
630000	1166256	0.227544	187200	0.012175	1290640000	1044.367	2.496E+10	715.1731	5200000	0.156	26256027200	1759.936	0.23449	1759.702	0.201063	0.067021	2.626E+10	1759.689	1166256	187200	0.23449	0.012546	0.247037
640000	1166256	0.23449	187200	0.012546	1290640000	1098.245	2.496E+10	715.1731	5200000	0.156	26256027200	1813.821	0.24167	1813.579	0.207219	0.069073	2.626E+10	1813.566	1166256	187200	0.24167	0.01293	0.2546
650000	1166256	0.24167	187200	0.01293	1290640000	1153.879	2.496E+10	715.1731	5200000	0.156	26256027200	1869.462	0.249084	1869.213	0.213575	0.071192	2.626E+10	1869.2	1166256	187200	0.249084	0.013327	0.262411
660000	1166256	0.249084	187200	0.013327	1290640000	1211.277	2.496E+10	715.1731	5200000	0.156	26256027200	1926.889	0.256732	1926.612	0.220134	0.073378	2.626E+10	1926.599	1166256	187200	0.256732	0.013736	0.270469
670000	1166256	0.256732	187200	0.013736	1290640000	1270.447	2.496E+10	715.1731	5200000	0.156	26256027200	1986.047	0.264617	1985.782	0.226894	0.075631	2.626E+10	1985.768	1166256	187200	0.264617	0.014158	0.278775
680000	1166256	0.264617	187200	0.014158	1290640000	1331.392	2.496E+10	715.1731	5200000	0.156	26256027200	2047	0.272738	2046.727	0.233858	0.077953	2.626E+10	2046.713	1166256	187200	0.272738	0.014593	0.287331
690000	1166256	0.272738	187200	0.014593	1290640000	1394.117	2.496E+10	715.1731	5200000	0.156	26256027200	2109.733	0.281097	2109.452	0.241025	0.080342	2.626E+10	2109.437	1166256	187200	0.281097	0.01504	0.296137
700000	1166256	0.281097	187200	0.01504	1290640000	1458.624	2.496E+10	715.1731	5200000	0.156	26256027200	2174.249	0.289693	2173.959	0.248395	0.082798	2.626E+10	2173.944	1166256	187200	0.289693	0.0155	0.305193
710000	1166256	0.289693	187200	0.0155	1290640000	1524.914	2.496E+10	715.1731	5200000	0.156	26256027200	2240.548	0.298526	2240.25	0.25597	0.085323	2.626E+10	2240.234	1166256	187200	0.298526	0.015973	0.314499

Base Case – Cell 11

Time year	Initial solids ton	Initial chemical in solid ton	Initial water ton	Initial chemical in water ton	Incoming water from cell above ton	Incoming chemical from cell above ton	Incoming water from side ton	Incoming chemical from side ton	Incoming water from infiltration ton	Incoming chemical from infiltration ton	Total water in cell	Total chemical in cell ton	Mass on solids ton	Mass in liquids ton	Concentration in solids mg/kg	Concentration in liquids mg/L	Outgoing liquid to next cell tons	Outgoing chemical to next cell tons	Final solid in cell tons	Final liquid in cell tons	Final chemical on solid tons	Final chemical in liquid tons	Final chemical in cell tons
0						0.029869	3.28E+11	1189.444	0	0		0.005578	0		0	0.0056			0	624000	0	0.003494	0.003494
10000	0	0	624000	0.003494	2.63E+10	784	3.28E+11	1189	0	0	353804497280	1974	0	1974	0	0	3.54E+11	1974	0	624000	0	0	0
20000	0	0	624000	0.003481	2.63E+10	784.2478	3.28E+11	1189.444	0	0	353804497280	1973.696	0	1973.696	0	0.005578	3.54E+11	1973.692	0	624000	0	0.003481	0.003481
30000	0	0	624000	0.003481	2.63E+10	784.2503	3.28E+11	1189.444	0	0	353804497280	1973.698	0	1973.698	0	0.005578	3.54E+11	1973.695	0	624000	0	0.003481	0.003481
40000	0	0	624000	0.003481	2.63E+10	784.2576	3.28E+11	1189.444	0	0	353804497280	1973.705	0	1973.705	0	0.005579	3.54E+11	1973.702	0	624000	0	0.003481	0.003481
50000	0	0	624000	0.003481	2.63E+10	784.2741	3.28E+11	1189.444	0	0	353804497280	1973.722	0	1973.722	0	0.005579	3.54E+11	1973.718	0	624000	0	0.003481	0.003481
60000	0	0	624000	0.003481	2.63E+10	784.3061	3.28E+11	1189.444	0	0	353804497280	1973.754	0	1973.754	0	0.005579	3.54E+11	1973.75	0	624000	0	0.003481	0.003481
70000	0	0	624000	0.003481	2.63E+10	784.3619	3.28E+11	1189.444	0	0	353804497280	1973.81	0	1973.81	0	0.005579	3.54E+11	1973.806	0	624000	0	0.003481	0.003481
80000	0	0	624000	0.003481	2.63E+10	784.452	3.28E+11	1189.444	0	0	353804497280	1973.9	0	1973.9	0	0.005579	3.54E+11	1973.896	0	624000	0	0.003481	0.003481
90000	0	0	624000	0.003481	2.63E+10	784.589	3.28E+11	1189.444	0	0	353804497280	1974.037	0	1974.037	0	0.005579	3.54E+11	1974.033	0	624000	0	0.003482	0.003482
100000	0	0	624000	0.003482	2.63E+10	784.7882	3.28E+11	1189.444	0	0	353804497280	1974.236	0	1974.236	0	0.00558	3.54E+11	1974.233	0	624000	0	0.003482	0.003482
110000	0	0	624000	0.003482	2.63E+10	785.0666	3.28E+11	1189.444	0	0	353804497280	1974.514	0	1974.514	0	0.005581	3.54E+11	1974.511	0	624000	0	0.003482	0.003482
120000	0	0	624000	0.003482	2.63E+10	785.444	3.28E+11	1189.444	0	0	353804497280	1974.892	0	1974.892	0	0.005582	3.54E+11	1974.888	0	624000	0	0.003483	0.003483
130000	0	0	624000	0.003483	2.63E+10	785.9423	3.28E+11	1189.444	0	0	353804497280	1975.39	0	1975.39	0	0.005583	3.54E+11	1975.387	0	624000	0	0.003484	0.003484
140000	0	0	624000	0.003484	2.63E+10	786.5855	3.28E+11	1189.444	0	0	353804497280	1976.033	0	1976.033	0	0.005585	3.54E+11	1976.03	0	624000	0	0.003485	0.003485
150000	0	0	624000	0.003485	2.63E+10	787.3998	3.28E+11	1189.444	0	0	353804497280	1976.848	0	1976.848	0	0.005587	3.54E+11	1976.844	0	624000	0	0.003487	0.003487
160000	0	0	624000	0.003487	2.63E+10	788.4135	3.28E+11	1189.444	0	0	353804497280	1977.861	0	1977.861	0	0.00559	3.54E+11	1977.858	0	624000	0	0.003488	0.003488
170000	0	0	624000	0.003488	2.63E+10	789.6566	3.28E+11	1189.444	0	0	353804497280	1979.104	0	1979.104	0	0.005594	3.54E+11	1979.101	0	624000	0	0.003491	0.003491
180000	0	0	624000	0.003491	2.63E+10	791.1611	3.28E+11	1189.444	0	0	353804497280	1980.609	0	1980.609	0	0.005598	3.54E+11	1980.605	0	624000	0	0.003493	0.003493
190000	0	0	624000	0.003493	2.63E+10	792.9606	3.28E+11	1189.444	0	0	353804497280	1982.408	0	1982.408	0	0.005603	3.54E+11	1982.405	0	624000	0	0.003496	0.003496
200000	0	0	624000	0.003496	2.63E+10	795.0902	3.28E+11	1189.444	0	0	353804497280	1984.538	0	1984.538	0	0.005609	3.54E+11	1984.535	0	624000	0	0.0036	0.0036
210000	0	0	624000	0.0035	2.63E+10	797.5865	3.28E+11	1189.444	0	0	353804497280	1987.034	0	1987.034	0	0.005616	3.54E+11	1987.031	0	624000	0	0.003505	0.003505
220000	0	0	624000	0.003505	2.63E+10	800.4873	3.28E+11	1189.444	0	0	353804497280	1989.935	0	1989.935	0	0.005624	3.54E+11	1989.932	0	624000	0	0.00351	0.00351
230000	0	0	624000	0.00351	2.63E+10	803.8317	3.28E+11	1189.444	0	0	353804497280	1993.28	0	1993.28	0	0.005634	3.54E+11	1993.276	0	624000	0	0.003516	0.003516
240000	0	0	624000	0.003516	2.63E+10	807.6595	3.28E+11	1189.444	0	0	353804497280	1997.107	0	1997.107	0	0.005645	3.54E+11	1997.104	0	624000	0	0.003522	0.003522
250000	0	0	624000	0.003522	2.63E+10	812.0116	3.28E+11	1189.444	0	0	353804497280	2001.459	0	2001.459	0	0.005657	3.54E+11	2001.456	0	624000	0	0.00353	0.00353
260000	0	0	624000	0.00353	2.63E+10	816.9295	3.28E+11	1189.444	0	0	353804497280	2006.377	0	2006.377	0	0.005671	3.54E+11	2006.374	0	624000	0	0.003539	0.003539
270000	0	0	624000	0.003539	2.63E+10	822.4563	3.28E+11	1189.444	0	0	353804497280	2011.903	0	2011.903	0	0.005686	3.54E+11	2011.9	0	624000	0	0.003548	0.003548
280000	0	0	624000	0.003548	2.63E+10	828.6316	3.28E+11	1189.444	0	0	353804497280	2018.08	0	2018.08	0	0.005704	3.54E+11	2018.076	0	624000	0	0.003559	0.003559
290000	0	0	624000	0.003559	2.63E+10	835.5013	3.28E+11	1189.444	0	0	353804497280	2024.949	0	2024.949	0	0.005723	3.54E+11	2024.946	0	624000	0	0.003571	0.003571
300000	0	0	624000	0.003571	2.63E+10	843.1075	3.28E+11	1189.444	0	0	353804497280	2032.555	0	2032.555	0	0.005745	3.54E+11	2032.552	0	624000	0	0.003585	0.003585
310000	0	0	624000	0.003585	2.63E+10	851.4932	3.28E+11	1189.444	0	0	353804497280	2040.941	0	2040.941	0	0.005769	3.54E+11	2040.938	0	624000	0	0.0036	0.0036
320000	0	0	624000	0.0036	2.63E+10	860.7017	3.28E+11	1189.444	0	0	353804497280	2050.15	0	2050.15	0	0.005795	3.54E+11	2050.146	0	624000	0	0.003616	0.003616
330000	0	0	624000	0.003616	2.63E+10	870.7758	3.28E+11	1189.444	0	0	353804497280	2060.224	0	2060.224	0	0.005823	3.54E+11	2060.22	0	624000	0	0.003634	0.003634
340000	0	0	624000	0.003634	2.63E+10	881.7583	3.28E+11	1189.444	0	0	353804497280	2071.206	0	2071.206	0	0.005854	3.54E+11	2071.203	0	624000	0	0.003653	0.003653
350000	0	0	624000	0.003653	2.63E+10	893.6915	3.28E+11	1189.444	0	0	353804497280	2083.14	0	2083.14	0	0.005888	3.54E+11	2083.136	0	624000	0	0.00367	0.00367
360000	0	0	624000	0.003674	2.63E+10	906.6172	3.28E+11	1189.444	0	0	353804497280	2096.065	0	2096.065	0	0.005924	3.54E+11	2096.062	0	624000	0	0.00370	0.00370
370000	0	0	624000	0.003697	2.63E+10	920.5768	3.28E+11	1189.444	0	0	353804497280	2110.025	0	2110.025	0	0.005964	3.54E+11	2110.021	0	624000	0	0.00372	0.00372
380000	0	0	624000	0.003721	2.63E+10	935.611	3.28E+11	1189.444	0	0	353804497280	2125.059	0	2125.059	0	0.006006	3.54E+11	2125.056	0	624000	0	0.00375	0.00375
390000	0	0	624000	0.003748	2.63E+10	951.7597	3.28E+11	1189.444	0	0	353804497280	2141.208	0	2141.208	0	0.006052	3.54E+11	2141.204	0	624000	0	0.00378	0.00378
400000	0	0	624000	0.003776	2.63E+10	969.0622	3.28E+11	1189.444	0	0	353804497280	2158.51	0	2158.51	0	0.006101	3.54E+11	2158.507	0	624000	0	0.00381	0.00381
410000	0	0	624000	0.003807	2.63E+10	987.5567	3.28E+11	1189.444	0	0	353804497280	2177.005	0	2177.005	0	0.006153	3.54E+11	2177.001	0	624000	0	0.00384	0.00384
420000	0	0	624000	0.00384	2.63E+10	1007.281	3.28E+11	1189.444	0	0	353804497280	2196.729	0	2196.729	0	0.006209	3.54E+11	2196.725	0	624000	0	0.00387	0.00387
430000	0	0	624000	0.003874	2.63E+10	1028.271	3.28E+11	1189.444	0	0	353804497280	2217.719	0	2217.719	0	0.006268	3.54E+11	2217.715	0	624000	0	0.00391	0.00391
440000	0	0	624000	0.003911	2.63E+10	1050.562	3.28E+11	1189.444	0	0	353804497280	2240.01	0	2240.01	0	0.006331	3.54E+11	2240.006	0	624000	0	0.00395	0.00395
450000	0	0	624000	0.003951	2.63E+10	1074.189	3.28E+11	1189.444	0	0	353804497280	2263.637	0	2263.637	0	0.006398	3.54E+11	2263.633	0	624000	0	0.00399	0.00399
460000	0	0	624000	0.003992	2.63E+10	1099.185	3.28E+11	1189.444	0	0	353804497280	2288.633	0	2288.633	0	0.006469	3.54E+11	2288.629	0	624000	0	0.00404	0.00404
470000	0	0	624000	0.004036	2.63E+10	1125.581	3.28E+11	1189.444	0	0	353804497280	2315.03	0	2315.03	0	0.006543	3.54E+11	2315.025	0	624000	0	0.00408	0.00408
480000	0	0	624000	0.004083	2.63E+10	1153.409	3.28E+11	1189.444	0	0	353804497280	2342.858	0	2342.858	0	0.006622	3.54E+11	2342.854	0	624000	0	0.00413	0.00413
490000	0	0	624000	0.004132	2.63E+10	1182.699	3.28E+11	1189.444	0	0	353804497280	2372.148	0	2372.148	0	0.006705	3.54E+11	2372.143	0	624000	0	0.00418	0.00418
500000	0	0	624000	0.004184	2.63E+10	1213.478	3.28E+11	1189.444	0	0	353804497280	2402.927	0	2402.927	0	0.006792	3.54E+11	2402.923	0	624000	0	0.00424	0.00424
510000	0	0	624000	0.004238	2.63E+10	1245.774	3.28E+11	1189.444	0	0	353804497280	2435.223	0	2435.223	0	0.006883	3.54E+11	2435.219	0	624000	0	0.00429	0.00429
520000	0	0	624000	0.004295	2.63E+10	1279.613	3.28E+11	1189.444	0	0	353804497280	2469.061	0	2469.061	0	0.006979	3.54E+11	2469.057	0	624000	0	0.00435	0.00435
530000	0	0	624000	0.004355	2.63E+10	1315.018	3.28E+11	1189.444	0	0	353804497280	2504.467	0	2504.467	0	0.007079	3.54E+11	2504.463	0	624000	0	0.00442	0.00442
540000	0	0	624000	0.004417	2.63E+10	1352.014	3.28E+11	1189.444	0	0	353804497280	2541.463	0	2541.463	0	0.007183	3.54E+11	2541.458	0	624000	0	0.00448	0.00448
550000	0	0	624000	0.004482	2.63E+10	1390.621	3.28E+11	1189.444	0	0	353804497280	2580.07	0	2580.07	0	0.007292	3.54E+11	2580.066	0	624000	0	0.00455	0.00455
560000	0	0	624000	0.00455	2.63E+10	1430.861	3.28E+11	1189.444	0	0	353804497280	2620.31	0	2620.31	0	0.007406	3.54E+11	2620.306	0	624000	0	0.00462	0.00462
570000	0	0	624000	0.004621	2.63E+10	1472.763	3.28E+11	1189.444	0	0	353804497280	2662.202	0	2662.202	0	0.007525	3.54E+11	2662.197	0	624000	0	0.00470	0.00470
580000	0	0	624000	0.004695	2.63E+10	1516.314	3.28E+11	1189.444	0	0	353804497280	2705.763	0	2705.763	0	0.007648	3.54E+11	2705.758	0	624000	0	0.00477	0.00477
590000	0	0	624000	0.004772	2.63E+10	1561.561	3.28E+11	1189.444	0	0	353804497280	2751.01	0	2751.01	0	0.007776	3.54E+11	2751.005	0	624000	0	0.00486	0.00486
600000	0	0	624000	0.004852	2.63E+10	1608.509	3.28E+11	1189.444	0	0	353804497280	2797.958	0	2797.958	0	0.007909	3.54E+11	2797.953	0	624000	0	0.00493	0.00493
610000	0	0	624000	0.004935	2.63E+10	1657.171	3.28E+11	1189.444	0	0	353804497280	2846.62	0	2846.62	0	0.008046	3.54E+11	2846.615	0	624000	0	0.00502	0.00502
620000	0	0	624000	0.005021	2.63E+10	1707.561	3.28E+11	1189.444	0	0	353804497280	2897.01	0	2897.01	0	0.008188	3.54E+11	2897.006	0	624000	0	0.00511	0.00511
630000	0	0	624000	0.005109	2.63E+10	1759.689	3.28E+11	1189.444	0	0	353804497280	2949.139	0	2949.139	0	0.008336	3.54E+11	2949.134	0	624000	0	0.00520	0.00520
640000	0	0	624000	0.005201	2.63E+10	1813.566	3.28E+11	1189.444	0	0	353804497280	3003.016	0	3003.016	0	0.008488	3.54E+11	3003.01	0	624000	0	0.00530	0.00530
650000	0	0	624000	0.005296	2.63E+10	1869.2	3.28E+11	1189.444	0	0	353804497280	3058.65	0	3058.65	0	0.008645	3.54E+11	3058.644	0	624000	0	0.00539	0.00539
660000	0	0	624000	0.005394	2.63E+10	1926.599	3.28E+11	1189.444	0	0	353804497280	3116.048	0	3116.048	0	0.008807	3.54E+11	3116.043	0	624000	0	0.00550	0.00550
670000	0	0	624000	0.005496	2.63E+10	1985.768	3.28E+11	1189.444	0	0	353804497280	3175.218	0	3175.218	0	0.008974	3.54E+11	3175.212	0	624000	0	0.00560	0.00560
680000	0	0	624000	0.0056	2.63E+10	2046.713	3.28E+11	1189.444	0	0	353804497280	3236.163	0	3236.163	0	0.009147	3.54E+11	3236.157	0	624000	0	0.00571	0.00571
690000	0	0	624000	0.005708	2.63E+10	2109.437	3.28E+11	1189.444	0	0	353804497280	3298.887	0	3298.887	0	0.009324	3.54E+11	3298.881	0	624000	0	0.00582	0.00582
700000	0	0	624000	0.005818	2.63E+10	2173.944	3.28E+11	1189.444	0	0	353804497280	3363.394	0	3363.394	0	0.009506	3.54E+11	3363.388	0	624000	0	0.00593	0.00593
710000	0	0	624000	0.005932	2.63E+10	2240.234	3.28E+11	1189.444	0	0	353804497280	3429.684	0	3429.684	0	0.009694	3.54E+11	3429.678	0	624000	0	0.00606	0.00606

Base Case – Cell 12