

Hanford Grout Technology Program

Leach Test of Cladding Removal Waste Grout Using Hanford Groundwater

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Summary

This report describes laboratory experiments performed during 1986-1990 designed to produce empirical leach rate data for cladding removal waste (CRW) grout. At the completion of the laboratory work funding was not available for report completion, and only now during final grout closeout activities, is the report published. The leach rates serve as inputs to computer codes used in assessing the potential risk from the migration of waste species from disposed grout. This report discusses chemical analyses conducted on samples of CRW grout, and the results of geochemical computer code calculations that help identify mechanisms involved in the leaching process.

The semi-infinite solid diffusion model was selected as the most representative model for describing leaching of grouts. The use of this model with empirically derived leach constants yields conservative predictions of waste release rates, provided no significant changes occur in the grout leach processes over long time periods.

The test methods included three types of leach tests--the American Nuclear Society (ANS) 16.1 intermittent solution exchange test, a static leach test, and a once-through flow column test. The synthetic CRW used in the tests was prepared in five batches using simulated liquid waste spiked with several radionuclides: iodine (^{125}I), carbon (^{14}C), technetium (^{99}Tc), cesium (^{137}Cs), strontium (^{85}Sr), americium (^{241}Am), and plutonium (^{238}Pu). The grout was formed by mixing the simulated liquid waste with dry blend containing Type I and Type II Portland cement, class F fly ash, Indian Red Pottery clay, and calcium hydroxide. The mixture was allowed to set and cure at room temperature in closed containers for at least 46 days before it was tested.

When a typical Hanford groundwater was used as the CRW grout leachant, only seven stable constituents (Na, K, F, B, Al, SO_4 and NO_3) and the three radionuclides (^{125}I , ^{99}Tc , and ^{85}Sr) leached in measurable concentrations. The rate of leaching and the chemical composition of the leachates were dependent upon how often the groundwater leachant was exchanged. The leach rates (expressed in terms of cumulative effective diffusion coefficients, D_e) showed that Na, SO_4 , and ^{125}I leached faster than K and NO_3 , all with effective diffusivities ranging from 10^{-9} to 10^{-10} cm^2/s . Species that leached considerably slower include ^{85}Sr , B, F, Al, and ^{99}Tc , with effective diffusivities of approximately 10^{-12} cm^2/s . The other radionuclides (^{14}C , ^{137}Cs , ^{241}Am , and ^{238}Pu), which showed little to no leaching, had effective diffusivities of 10^{-13} cm^2/s or less.

The general trend of leaching behavior of CRW grout is similar to that experienced with another previously studied grouted Hanford liquid waste, phosphate/sulfate waste (PSW), despite the fact that CRW grout generated more alkalinity. Both PSW and CRW waste grouts showed a continued decrease in release rate for most species with time, even after extended periods of contact. Both PSW and CRW grouts exhibited calcite precipitation on the surface, resulting in an "armoring" phenomenon that may reduce the effective diffusivity of some species. An overall comparison of mass balance data from all leach test methods showed that in tests during which large amounts of groundwater contacted the grouts, relatively large amounts of Ca and Mg were precipitated.

The diffusion-based leach theory appears to adequately describe upper limit (bounding) release values in the short laboratory experiments conducted. However, accurate and detailed predictions

should consider chemical reactions that lower leach rates below that predicted by diffusion alone. Trace metals, such as Cd, Cr, Cu, Pb, and Zn, were present in the simulated waste in low concentrations, while the actual CRW liquid waste may contain higher concentrations of these metals. We did not find any measurable releases of Ba, Cd, Cr, Cu, Fe, Mn, Pb, or Zn in the leachates. We hypothesize that solubility will control trace metal leach rates at insignificant levels because of the high pH aqueous environment. One element of particular abundance in the CRW grout is Zr. No appreciable levels of Zr were observed in the leachate. Zirconium is readily hydrolyzed and is fairly insoluble at high pH environments.

In the flow-through column leach test, the initial contact between the groundwater and grout produced a white fibrous precipitate (believed to be calcium carbonate) in the solution surrounding the grout sample. The effluent samples showed a release of F^- , NO_3^- , SO_4^{2-} , and $B(OH)_4^-$. The general release trend for these elements was an initially high concentration that dropped off to near or ambient concentrations. The trace metal behavior (no appreciable leaching) was similar to that observed in both the static and ANS 16.1 leach tests.

Several combined leach-adsorption tests were also run where grout was packed along with Hanford soil into a column through which groundwater was percolated. The pH of leachate in combined grout/sediment leach tests and the once-through column test (no sediment present) gradually decreased with time. The CRW grout generates more alkalinity than the PSW grouts; therefore, the pH of CRW grout systems remains more alkaline for longer periods of time. The calcium and magnesium concentrations in the effluent from all leach tests were lower than those in the influent, possibly indicating that calcite and brucite precipitation reactions are controlling these elements.

The combined sediment/grout leach tests performed with crushed grout in several configurations showed a number of similarities with the leach test using intact grout embedded in sediment: 1) the lowered Ca, Mg, and Sr values suggested that precipitation of these elements occurred; 2) the NO_3^- and SO_4^{2-} values returned to ambient groundwater concentrations over time; 3) the F^- and borate effluent concentrations reached steady-state; and 4) the Cl^- concentrations remained fairly constant. The disaggregated grout allowed for the more rapid flushing of alkalinity, Na, K, and anions, suggesting that the release of these elements is diffusion controlled in intact grout specimens. Past experiments using crushed PSW grout gave similar results. These similarities help enforce our assumptions about the controlling leach mechanisms for certain species, and provide defensible data for use in performance assessment predictions.

Comparison of results with grouts leached in sediment to those without sediment demonstrated that an ion exchange process where K replaces Na and Ca on soil sites occurs during early leaching time.

The data presented in this report were compared to results from similar tests previously performed on PSW grouts. Many of the trends observed in the two sets of tests are similar, suggesting that differences in starting liquid waste composition may be muted after solidification occurs in optimal grout blends.

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1.0 Introduction

A Grout Treatment Facility (GTF) was constructed on the Hanford Site near Richland, Washington, and was to be used to immobilize and dispose of the low-level fraction of liquid, radioactive wastes as a solidified grout. The grout disposal program was funded through the U.S. Department of Energy (DOE) and managed by Westinghouse Hanford Company (Westinghouse), with technical support from Oak Ridge National Laboratory (ORNL) and Pacific Northwest Laboratory (PNL).^(a) In 1993 a decision was made to halt grouting activities until other solidification methods, such as glass vitrification, could be further developed.

In the GTF, low-level fractions of liquid wastes are mixed with blends of grout-forming solids (Portland cement, fly ash, clays, and other components) to produce a slurry. This slurry is pumped to near-surface disposal sites (engineered vaults) where the grout hardens, thus immobilizing the waste. As part of the program to demonstrate the acceptability of grout as a final disposal method, performance assessment studies are being conducted (e.g. Sewart et al. 1987 and Kincaid et al. 1995). These studies generated computer-model predictions that are used to assess the impact of the grout disposal method on long-term public health and safety.

An assessment of the long-term risks posed by grout requires data on the ability of grout to resist leaching and/or diffusion of waste species contained in the grout via contact with water that would percolate into the waste after the engineered vault degrades. Leaching data are also needed for determining the ability of the soil (sediment) that surrounds the grout vaults to retard the mobility of any wastes released from the grout. Any changes that may occur with time (up to 10,000 years) in the ability of grout to contain wastes and the ability of sediment to retard waste migration must also be factored into a credible performance assessment.

This report describes specific laboratory experiments performed during 1986-1990 that produced empirical leach rate data for a particular waste stream, cladding removal waste (CRW). At the completion of the laboratory work funding was not available for report completion, and only now during final grout closeout activities, is the report published. The report provides empirical leach rates for several radionuclides and stable chemicals. The leach rate values are direct inputs to the performance assessment models used to forecast environmental impacts. This report also discusses other chemical analyses and geochemical computer code simulations that were used to help identify mechanisms that control the release of species from the solid grout waste form during contact with groundwater. Knowledge of the controlling chemical and physical processes is necessary to justify the extrapolation of the empirical laboratory data to long time periods and the very large scale of the grout disposal system.

The report is divided into sections that discuss the hydrologic and chemical processes controlling grout leaching, models used to understand such processes, materials and methods used in the leaching tests, and data generated from the experiments. Appendices A through C contain the data used to support the analyses.

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2.0 Hydrologic and Chemical Processes

Controlling Leachate Generation and Subsequent Migration

Hanford grouts are formed by mixing liquid wastes with dry solids, including Portland cement, fly ash, and other additives. The cement acts as a binder and the fly ash is added to react with excess calcium hydroxide from the cement, thereby reducing permeability and leach rates. Fly ash also improves the ability of the slurry to be pumped. Additives such as clay may be used as suspending agents and to adsorb or sequester specific contaminants. The wastes and solids used in the formulation may affect reactions that control the rate and composition of leachate generation, and the subsequent migration of leached species. For each specific type of liquid waste, a grout recipe was developed by other project participants to optimize the processing characteristics of the grout and the stability of the waste form, and to mitigate long-term leaching. A specific description of the CRW grout recipe used in these leach tests is given in Section 5.0.

2.1 Reactions During Grout Hydration

The Portland cement used in grout formulation is a mixture of tricalcium silicate ($3\text{CaO}\cdot\text{SiO}_2$), dicalcium silicate ($2\text{CaO}\cdot\text{SiO}_2$), tricalcium aluminate ($3\text{CaO}\cdot\text{Al}_2\text{O}_3$), tetracalcium aluminoferrite ($4\text{CaO}\cdot\text{Al}_2\text{O}_3\cdot\text{Fe}_2\text{O}_3$), and other constituents. Upon wetting, these minerals hydrate, forming polymeric chains of mostly amorphous calcium silicates, crystalline aluminoferrites and aluminates, and portlandite [$\text{Ca}(\text{OH})_2$]. When other chemicals are present, such as sulfate in wastes or bicarbonates in the groundwater leachant, other reactions occur, forming compounds such as ettringite ($3\text{CaO}\cdot\text{Al}_2\text{O}_3\cdot 3\text{CaSO}_4\cdot 31\text{H}_2\text{O}$), gypsum ($\text{CaSO}_4\cdot 2\text{H}_2\text{O}$), calcite (CaCO_3), and carbonated calcium aluminates and ferrites.

During hydration and curing, the permeability of the grout decreases significantly. This decrease in permeability retards the mobility of waste components inside the grout. Furthermore, some of the waste constituents chemically react with the grout minerals or additives and become more strongly bound in the grout matrix. Cations that hydrolyze at high pH values, such as many metals and the actinides (e.g., ^{241}Am and ^{238}Pu), could be expected to form highly insoluble hydroxides in the high pH environment inside the grout. Certain clay additives adsorb cations such as cesium and Sr. Matsuzuru and Ito (1978a) show that the addition of 10% to 20% by weight of zeolite (a form of clay) to the dry grout ingredients can decrease the effective leach rate of cesium by two to three orders of magnitude. In the CRW grout formulation, Indian Red Pottery clay is added to adsorb cesium, plutonium, and americium. Thus, some waste constituents are sequestered in the grout by strong chemical interactions through adsorption and precipitation. However, other waste constituents are physically isolated in the small pores of the grout and migration is controlled by diffusion processes.

2.2 Durability of Grout-Like Materials

Roy and Langton (1982) studied ancient human artifacts from Cyprus and Greece (water containers, aqueducts, and other findings) that were made using materials similar to Portland cement, and

found those artifacts to be relatively intact. Nearly 40 samples from Greece and Cyprus dating from 400 B.C. to 200 A.D. were extensively studied by these investigators. Mineralogic, surface, and bulk chemical analyses confirmed that the cementitious materials in the artifacts had remained relatively intact for up to 3000 years in the presence of surface and subsurface waters. Many of the artifacts, such as aqueducts, bath basins, and drinking mugs, were used to contain water or were in contact with water nearly continuously over this length of time. Reaction products of the kind previously discussed were identified (e.g., hydrated calcium aluminate and hydrated calcium ferrite crystals as well as calcite and carbonated calcium aluminates and ferrites). The presence of these reaction products attests to the durability of the artifacts, and suggests that modern cementitious materials will be at least as durable as the artifacts.

2.3 Contaminant Leaching

Water percolating through Hanford sediments may contact the solid waste forms and leach waste constituents from the grout once the integrity of the engineered vaults is breached. Currently, the groundwater recharge rate at Hanford is not known with certainty, but for bounding calculations, a value between 0.5 and 5.0 cm/yr was adopted for the environmental impact statement for the disposal of Hanford defense waste (HDW-EIS) (U.S. DOE 1987).

Qualitative permeability tests conducted at PNL have shown that more than 7.6 bars [110 lb/in.²] over-pressure is required to force water to flow through grout. Thus, it seems reasonable that any recharge water that is not diverted around the grout by the various proposed interbarriers in the engineered vault will encounter the low permeability grout monolith, provided that the waste forms are not fractured. Because the surrounding sediments are rather coarse and permeable, any significant water flow should be diverted through the sediments as opposed to directly flowing through the grout. Thus, a waste release model based on diffusion and chemical reaction processes seems appropriate in order to project the long-term impacts of grout disposal.

For grouts containing radioactive and chemically hazardous wastes, the release of wastes is most often described as an effective diffusion process—dissolved wastes diffuse through interconnected pores out of the grout waste form and the engineered vault that contains it into the surrounding sediments. In reality, the actual processes that control grout leaching are complex, but most of the available literature on grout and cement leaching argue fairly conclusively that an effective (or lumped) diffusion model satisfactorily explains the observed short-term laboratory data. Using the effective diffusion model, most radionuclides, and, by inference, inorganic hazardous chemicals leaching from cementitious waste forms exhibit a wide range of diffusion coefficients ranging from 10^{-6} to less than 10^{-13} cm²/s (see Tables in Appendices A and B). For comparison, most cations and anions exhibit a diffusion coefficient of approximately 10^{-5} cm²/s in water (Dayal, Arora and Morcos 1983). The large range in the effective diffusion coefficients observed for species in grout is a reflection of the other processes, such as adsorption, precipitation, and mineral substitution, that impede the release of some constituents.

An effective diffusion model is used for understanding contaminant release because it is simple and yet satisfactorily describes most laboratory leach data collected from tests that were conducted over periods ranging from several months to several years. More complicated models usually require a complete analysis of the chemical and mineralogical nature of the grout both before and after contact

with leachant, as well as a complete chemical characterization of the leachate solution versus time. Furthermore, the grout and its interstitial water probably vary, both chemically and physically, with position relative to the grout surface such that bulk analyses of the grout solid and bulk leachate are only approximate estimates of the reacting system. The use of microanalytical techniques that allow analyses at the surface of the grout and at various depths may be necessary to accurately describe all of the interactions and to predict long-term changes in the waste retentive properties of the grout. Very few researchers experimenting with leaching from low-level radioactive waste forms have attempted detailed analyses of the bulk solids and leachates, let alone the potentially numerous microenvironments that can exist in a grout matrix.

Should long-term performance assessment analyses indicate that release and transport of contaminants from grout must be reduced, a moisture barrier could be placed around and/or over the disposed grout and engineered vault to further reduce advection of water and therefore reduce contaminant transport rates. Though a moisture barrier may reduce the advective transport of waste constituents from grout waste forms, diffusive transport of contaminants through the pore water may still be significant. It follows that the diffusive transport pathway could control the release and transport of wastes buried beneath an intact protective barrier. The diffusion-dominated water pathway would conduct contaminants in all directions to advection-dominated water transport pathways outside the barrier's influence.

A coupled advection-diffusion and chemical reaction transport model may be required to describe release and transport because both of these processes may provide significant contributions to the overall transport rate. Such a combined advection-diffusion with chemical reaction transport model will require detailed hydrologic knowledge of the neighboring barrier and unsaturated sediments, and an understanding of the mechanisms of release of contaminants from the grout surface.

2.4 Leachate-Sediment Interactions

It is assumed that after contaminants from within the grout matrix diffuse to the surface of the grout waste form (and any additional vault barriers), they will contact the partially saturated sediments that surround the vault. Upon contacting the sediments, the leached contaminants can be advected away by percolating water or diffused away through the pore water contained in the partially saturated vadose sediments. By either pathway, the leached contaminant species will travel through two types of sediments before reaching the biosphere: the vadose zone and the saturated aquifer. In both the vadose and saturated aquifer sediments, chemical reactions, such as adsorption and precipitation, and physical processes, such as diffusion and dispersion, will change the composition and concentration of the leachate. In the semiarid climate at Hanford, it is likely that the concentrations of many chemical constituents in solution at the vault-sediment interface will be at their maximum values (i.e., limited by their solubilities). Also, after an initial stabilization period, it is unlikely that redox and pH conditions will change dramatically as the leachate is transported away from the sediments surrounding the grout. From these two assumptions, it is inferred that any dissolution/precipitation reactions that might occur would happen near and/or within the surface of the grout, the vault engineered barriers, and the sediment directly contacting the vault.

Beyond the barrier-sediment interface the contaminants will likely be present at such low concentrations that adsorption reactions onto the sediment will be the only chemical process to further reduce contaminant transport.

3.0 Conceptual Models

Laboratory leaching and adsorption tests that were outlined in the literature were reviewed to help identify the proper conceptual models. The conceptual models or the constructs used to analyze the empirical data are especially important because they dictate the types of experiments that should be run and what parameters should be measured or controlled.

The categories of leach models discussed here include semi-infinite solid diffusion, solubility-controlled release, constant release rate, and exponential release rate. These models were developed to explain empirical leaching data. Each of these models is described in the following section.

3.1 Semi-Infinite Solid Diffusion Leach Model

This type of diffusion model is the most common release model used to describe the leaching of grouts and other cement waste forms. This model is used by researchers at Brookhaven National Laboratory (Kalb and Columbo 1984; Arora and Dayal 1984; Dayal, Schweitzer and Davis 1984; Dayal, Arora and Morcos 1983); ORNL (Moore, Godbee and Kibbey 1977; Godbee, Anders and Nielson 1980; Clark 1977); the Japan Atomic Energy Research Institute (Matsuzuru and Moriyama 1982; Moriyama, Dojiri and Matsuzuru 1977); and the United Kingdom Atomic Energy Authority, Harwell (Sambell, Smitton and Elsdon 1982). The model is used to analyze laboratory leach data on cylindrical specimens of cement or grout waste forms in which nuclear wastes are incorporated. This model is endorsed by the American Nuclear Society (ANS) and is the basis for their recommended leach test ANS-16.1, "Measurement of the Leachability of Solidified Low-Level Radioactive Wastes by a Short-Term Test Procedure" (ANS 1986). The theoretical equations for diffusion-controlled leaching are based on the following assumptions:

1. Once leaching commences, the concentration of the species being leached is zero in the solution at the waste form surface. In other words, dissolved waste is swept away from the surface as soon as it diffuses out of the waste form.
2. The leachant solution is continually moving past the waste form and its composition never changes significantly.
3. The solid waste form is homogeneous and remains essentially unchanged chemically and physically during the leach process. In other words, no significant chemical alterations occur and the mass of constituents removed from the waste form is negligible in comparison to the total mass of each constituent in the waste form. This is known as the semi-infinite requirement.
4. The surface is smooth and does not deteriorate with time or acquire a protective layer (i.e., the surface area is constant and equal to the geometric surface area).
5. There are no time-dependent interactions among the leachable species, the leachant, and the solid matrix.

6. Each radionuclide and hazardous chemical of interest is present as only one chemical species.
7. The leachable species are mobilized by the leachant such that bulk diffusion is the limiting process.

Although the semi-infinite solid diffusion leach model is based on these seven simplifying assumptions, it has been accepted by many researchers. It is used to interpret laboratory leach tests on cement and grout waste forms in which the leachant is changed periodically. This diffusion model appears to successfully describe most empirical data collected to date.

The mathematical description of a diffusion model that meets the above assumptions yields a diffusion coefficient for each measured species. The effective diffusion coefficient combines all of the chemical and physical interactions that may actually be occurring into a single value that defines release rate.

Two mathematical descriptions of this model exist that are commonly used to analyze laboratory data based on the leaching of semi-infinite cylindrical solids, as follows:

$$D_e = \frac{\pi}{4} \left[\frac{\sum_{n=1}^N a_n}{A_o} \right]^2 \left[\frac{V}{S} \right]^2 \frac{1}{t} \quad (3.1)$$

Equation (3.1) is used to calculate the diffusion coefficient over all cumulative time, whereas the following equation (3.2) is used to calculate diffusion coefficient during each incremental time interval.

$$D'_e = \pi \left(\frac{a_n}{A_o} \right)^2 \left(\frac{V}{S} \right)^2 \frac{T}{(\Delta t)_n^2} \quad (3.2)$$

- where D_e = effective cumulative diffusion coefficient (cm^2/s), D'_e = instantaneous diffusion coefficient (cm^2/s)
- a_n = amount of species of interest leached during each leach interval (e.g., g or μCi)
- A_o = total amount of species in solid waste form (e.g., g or μCi)
- V = volume of solid waste form (cm^3)
- S = geometric surface area of waste form (cm^2)
- t = total elapsed time since start of leaching(s) = $\sum(\Delta t)_n = t_n$
- T = $[\frac{1}{2}(\sqrt{t_n} + \sqrt{t_{n-1}})]^2$
- $(\Delta t)_n$ = time duration of interval n (s)
- n = number of time intervals
- N = total number of time intervals

If the leach experiments satisfy the seven conditions previously mentioned, both equations (3.1) and (3.2) will give the same effective diffusion coefficient at all times (i.e., $D_e = D_e'$).

At Hanford an asphalt/aggregate diffusion barrier was planned to be placed around the CRW grout waste forms to further impede the release of contaminants into the surrounding soil. According to the proposed disposal system design, the water flow rate in the sediments around the engineered vault/diffusion barrier was expected to be fast relative to the diffusion rate of contaminants through the various engineered barriers. However, it is doubtful that the flow rate of water around grout within the engineered vault will be fast enough to meet the first of the several assumptions, namely, that dissolved waste diffusing out of the grout will be swept away from the surface and satisfy the boundary condition, concentration = 0 at $t > 0$. If diffusion is in fact the controlling process, the semi-infinite diffusion model should overpredict the release of species from CRW grout, because any buildup of leached material near the grout surface will decrease the diffusive driving force. Furthermore, if protective barriers remain intact, the water within the various barriers will not flow but instead will transmit leached species via diffusion. Some of the barriers may have lower effective diffusion coefficients than the CRW grout and thus these barriers would further slow down contaminant transport. Diffusion in the partially saturated sediments surrounding the engineered vault is assumed to occur more rapidly than diffusion from the grout and engineered barriers. Again, the assumption that all leached species are rapidly swept away from the waste form surface would lead to an overprediction of the actual mass released from grout placed within an engineered barrier.

Over a 10,000-year time frame (which is assumed in the HDW-EIS to be the length of time that the grout disposal system must provide protection of public health and safety), the mass removed from the grout could begin to deplete the original waste inventory such that the third assumption, that for a semi-infinite solid, would lead to higher calculated releases than would calculations for a finite solid. Thus, the semi-infinite approach is conservative. The ANS 16.1 procedure (ANS 1986) gives correction tables for various geometries to correct predicted release rates if the semi-infinite criterion is violated. Furthermore, Moriyama et al. (1975) and Nestor (1980) give exact mathematical expressions for calculating D_e values for certain finite geometric shapes. To ascertain whether more accurate results could be obtained using finite solid corrections, a useful rule of thumb is that corrections become important only if more than 20% of the total mass of a constituent of interest has leached from the waste form. A second check is to test whether the product, $D_e \cdot \sqrt{t}$, is much less than r , the characteristic length parameter for a solid shape. If so, to use the semi-infinite model equations over the time frame of interest is technically justifiable.

The D_e (cumulative values) listed in Appendix B are corrected when $\Sigma a_i/A_0$ exceeds 20%. The corrections are based on the characteristic lengths (diameter and height) of the sample cylinders per the protocol given by the ANS 16.1 procedure (ANS 1986).

It seems quite likely that CRW grout and concrete disposed in Hanford sediments will react with the carbon dioxide and carbonate-rich groundwaters to form calcite and carbonate-rich solids similar to those found in the artifacts from Cyprus and Greece (Roy and Langton 1982). From a few exploratory results on CRW grout using scanning electron microscopy, the calcite produced in these interactions forms a protective layer on the grout that would impede the diffusion process of most species. The

actual extent of the reduction in diffusion has not yet been explored and the impact over long periods of time is less certain.

Three other diffusion-based models for release by a semi-infinite medium include the effects of 1) concentration-dependent dissolution; 2) surface dissolution represented by a moving boundary; and 3) time-dependent, first-order dissolution. Mathematical expressions for the cumulative fraction leached, $\Sigma a_n/A_o$, by these three models can be found in Moore, Godbee and Kibbey (1977). These three models have rarely been used by experimenters, probably because each requires identification of one or two additional parameters for which no *a priori* values are known.

If Equation (3.1) is rearranged, we can get a relationship that, when plotted as a function of the square root of time, should yield a straight line:

$$\frac{\sum_{n=1}^N a_n}{A_o} \frac{V}{S} = 2 \left(\frac{D_e}{\pi} \right)^{1/2} t^{1/2} \quad (3.3)$$

It is often found that actual leach data indicate a much faster release in the early time periods of the leach test and later satisfy the linear dependence with the square root of time. This situation occurred in the leaching experiments performed on all Hanford grouts (see Serne et al. 1987, 1989a,b and 1992). Matsuzuru and Moriyama (1982); Godbee, Anders and Nielson (1980); Matsuzuru and Ito (1978b), and Dayal, Arora and Morcos (1983) discuss leach experiments that show a similar initially rapid release. Data can be analyzed using linear regression on Equation (3.4) to provide a best-fit D_e value (from the slope), and an empirical "instantaneous wash-off fraction, " α ", from the intercept at $t = 0$:

$$\frac{\Sigma a_n}{A_o} \frac{V}{S} = 2 \left(\frac{D_e}{\pi} \right)^{1/2} t^{1/2} + \alpha \quad (3.4)$$

The actual mechanism or cause of the "instantaneous wash-off" has not been conclusively identified and perhaps could reflect that the experiments themselves do not satisfy all seven model assumptions discussed earlier. At any rate, after a relatively short time period, the data do start obeying Equations (3.1) and (3.3)—i.e., leach rate being proportional to the square root of time. If we assume that the leach data would continue to follow Equation (3.4) for very long time periods, we would predict an initial pulse release (the magnitude equal to α) followed by a release rate proportional to the square root of time until the inventory of contaminant in the grout is exhausted.

3.2 Solubility-Controlled Release Model

If the laboratory data show that a constant or steady-state concentration is rapidly established in the leachate for a particular chemical or radionuclide, it can be speculated that a solid phase within the grout or a reaction product at the grout surface is limiting the solution concentration. Predictions of

release over the long term can then be determined assuming that the concentration in the leachate remains constant until the controlling solid phase is exhausted. This constant concentration model is the simplest of the solubility-controlled release models. The solubility of any solid is defined by the product of the thermodynamic activity of each of the species formed upon dissolution. For example, if the release of ^{90}Sr and ^{60}Co from the grouted waste happened to be controlled by the solubility of SrCO_3 and $\text{Co}(\text{OH})_2$ solids, then the products $[\text{Sr}^{+2}][\text{CO}_3^{-2}]$ and $[\text{Co}^{+2}][\text{OH}^-]^2$ would remain constant during dissolution. The symbol $[]$ denotes thermodynamic activity of aqueous species that can be related to solution concentration. If the pH of the leachate changes, both $[\text{OH}^-]$ and $[\text{CO}_3^{-2}]$ would change, and thus the $[\text{Sr}^{+2}]$ and $[\text{Co}^{+2}]$ would also change to maintain a constant solubility product. Thus, additional information, particularly the effects of pH changes, must be considered when applying solubility-controlled release models. Therefore, concentrations of dissolved species can vary even though solubility is being controlled by a single solid phase.

To manage all of the ancillary information and calculate the resulting solubility-controlled concentrations (which, as mentioned, can vary), a thermodynamic equilibrium code is often used. Examples of how to use such codes are found in Deutsch, Jenne and Krupka (1982); Strachan, Krupka and Grambow (1984); and Peterson et al. (1984). These codes may be used to evaluate whether certain solids could be controlling the concentrations of species in various leachates. Peterson et al. (1984) and Peterson, Martin and Serne (1986) show how such codes can be used to estimate limiting solution concentrations that should result when a liquid waste equilibrates with a sediment. The approach requires specifying precipitation and dissolution reactions. The leaching of Hanford grout can be evaluated using the same principles. An analysis of CRW grout leach data using these principles is discussed in Chapter 6.0 of this report.

3.3 Constant Rate Leach Model

One of the simplest release models is based on the assumption that a constituent leaches at a constant rate from the solid waste under all conditions and over all times until the waste form is depleted. The mathematical description of such a release is

$$\frac{dA}{dt} = \lambda_L A_o \quad \text{or} \quad A = \lambda_L A_o \Delta t \quad (3.5)$$

where A = mass released from waste solid (g)
 A_o = initial mass of constituent in the waste solid (g)
 λ_L = constant leach rate (t^{-1})
 Δt = elapsed time for leaching (t).

This type of model is often used for bounding or scoping calculations when actual data on solid waste leaching are not available. Laboratory leach data on cement and grout low-level nuclear waste forms do not show constant leach rate behavior. In general, the cement waste forms exhibit a release rate that decreases with advancing time from an initially high release rate. The constant rate leach model is not considered to be technically realistic for analyses of Hanford grouts, although it may be adequate for bounding calculations.

3.4 Exponential Leach Model

A second simple release model is based on the assumption that the solid leaches such that the constituents are removed at an exponentially decreasing rate until the total waste form completely dissolves. The mathematical description of such a release model is

$$\frac{dA}{dt} = \lambda_L A_o e^{-\lambda_L t} \quad \text{or} \quad A = A_o (1 - e^{-\lambda_L t})$$

(3.6)

where the symbols have the same meaning and units as Equation 3.5. This model allows the mass released from the waste solid (A) to increase rapidly at first and change more slowly at longer times. This type of behavior better describes the leaching of cement waste forms, but is not as accurate as the diffusion-based models previously described. There is no physical process that relates exponential decay to the rate of leaching; thus, this model is typically not used.

4.0 Materials

The materials used in these experiments (radioactive grout, groundwater, and sediment) are described in this section. The fabrication of the CRW grouts, their chemical and radiologic contents are discussed. The chemical composition of the groundwater and particle size of the sediment are also provided.

4.1 Radioactive Grout

The grout waste form used in this experiment was made from CRW, a low-level radioactive, liquid waste. For purposes of this study, CRW was prepared according to a neutralization process that involves neutralizing the acidic waste solution to $\text{pH} \geq 12$ using concentrated sodium hydroxide (NaOH). The slurry was allowed to settle, and approximately 60% of the supernatant was decanted. The solution was analyzed using the solution analysis techniques outlined in Chapter 5.0. Results from the analyses are listed in Table 4.1. The waste solution used was a chemically simulated liquid waste spiked with known quantities of radionuclides. Five batches of spiked liquid waste were prepared from a large nonradioactive stock solution. Predetermined amounts of radionuclides were added to each batch (Table 4.2). This waste slurry (the settled solids and liquid [40%] not decanted and discarded) was mixed with the dry blend described in Table 4.3.

The composition of the CRW grout is listed in Table 4.4. A ratio of 7 lb of grout-forming solids per gallon of liquid waste (840 g/L) was used to produce the grout. The grout slurry was poured into plastic containers of various sizes that were capped to prevent moisture loss. The grout samples were cured at room temperature in the sealed plastic containers. A 28-day curing period is required prior to beginning the leach tests; the actual curing times reflect additional time prior to the initiation of experiments.

Just before starting each experiment, the individual grout samples were removed from their containers, weighed, and measured. Obvious cracks or defects were noted, and severely cracked samples were discarded. Cracking was usually a result of removing the sample from its hard plastic container. On all the samples, a few specks of loose grout clung to the main piece of grout. The specks were wiped off before weighing the sample.

Several small samples of grout were crushed and dried overnight at 105°C . These samples on average contained 50% water as determined by simple weight loss measurement. Subsamples of the dried grout were submitted for total chemical analyses by two methods: 1) total fusion with lithium metaborate and dissolution followed by measurements with inductively coupled plasma (ICP), and 2) direct analyses of solid samples by x-ray fluorescence (XRF). The dried grout also contained water of hydration or bound water (about 3.5% by weight), as determined by further heating to 300°C . Upon igniting at 1000°C for 24 hours, the grout lost an additional 4.5% to 5.0% of its weight.

Because neither ICP nor XRF analyses alone provide complete information on all the chemical constituents, a composite of the results from both analyses was used (Table 4.4). Therefore, an

Table 4.1. Chemical Composition of CRW Waste Solution

<u>Constituents</u>	<u>Acidic Solution</u>	<u>Neutralized Supernatant Solution</u>
	mg/L	
Al	—	35
As	89	—
B	5	—
Ca	—	0.3
Cd	1	—
Co	7	—
Cr	42	0.15
Fe	82	—
Gd	88	—
K	—	25
La	12	—
Li	15	—
Mg	46	—
Mn	4	—
Mo	9	0.33
Na	50	19,900
Ni	26	—
P	166	—
Pb	28	—
Si	302	31
Zn	—	0.068
Zr	41,200	1.2
NH ₄	22,500	12,582
NO ₂	#	400
NO ₃	4,700	2,540
F	62,000	10,617
Cl	710	507

(—) Below detection limits.

(#) Not determined.

Table 4.2. Waste Batches Spiked with Radionuclides

<u>Batch Number</u>	<u>Radionuclide</u>	<u>Quantity Added, mCi/L</u>
1	²⁴¹ Am	0.5
	²³⁸ Pu	0.538
2	¹⁴ C	0.5
3	⁹⁹ Tc	0.02-0.05
4	¹²⁵ I	0.5
5	¹³⁷ Cs	0.1
	⁸⁵ Sr	0.1

Table 4.3. Dry Blend for CRW Grout

<u>Material</u>	<u>Fraction, wt%</u>
Portland cement LA (Type III)	42
Class F fly ash (Centralia, WA)	40
Calcium hydroxide	10
Indian Red Pottery Clay	8

Table 4.4. Chemical Composition of the CRW Grout

<u>Constituent</u>	<u>Percent Weight in Grout</u>
Al ₂ O ₃	10.2
BaO	0.1
CaO	36.6
SiO ₂	28.8
Fe ₂ O ₃	3.82
Na ₂ O	9.47
MgO	1.26
TiO ₂	1.5
MnO ₂	0.04
SrO	0.13
ZrO ₂	5.56
SO ₄	0.65
K ₂ O	0.49
NO ₃	0.19
NO ₂	0.02
Cl	0.02
F	4.08
NH ₄	0.5

accurate mass balance is not possible. However, the values reported in Table 4.4 were assumed to be correct and were used to establish initial inventories, A_0 , in the leach equations presented previously [i.e., Equations (3.1) through (3.4)]. Tables 4.5 and 4.6 give the A_0 values for nonradioactive and radioactive components, respectively, of the grout samples used in each leach test performed.

4.2 Hanford Groundwater

Using data from the Hanford Groundwater Monitoring Program, a PNL-managed program, a well (#6-S3-25) was identified on the Hanford Site that is free of contamination and provides water representative of natural waters in the unconfined aquifer underlying Hanford. Periodically, large volumes of water were pumped from the well into pre-rinsed plastic containers. The well water was filtered through a 0.45- μ m membrane and stored for use in various laboratory experiments. A complete chemical analysis of the water was conducted on each new batch. No significant changes in the water composition from batch to batch and during storage in the laboratory were observed. Cation/anion balances were reasonable, suggesting that all significant dissolved constituents were measured and accounted.

The chemical composition of seven batches of this groundwater is listed in Table 4.7. The computer code MINTEQ (Felmy, Girvin and Jenne 1984) was used to determine whether or not this groundwater is in equilibrium with carbon dioxide and any common minerals found in Hanford sediments. Using average analyses based on values from Table 4.7, MINTEQ calculations showed the Hanford groundwater to be slightly enriched in dissolved CO_2 ($\text{CO}_2 = -2.9$ atm versus -3.5 atm in equilibrium with air). MINTEQ also indicated that the groundwater might be in equilibrium with several minerals, including barite (BaSO_4), boehmite [$\text{AlO}(\text{OH})$], dolomite [$\text{Ca, Mg} (\text{CO}_3)_2$], calcite (CaCO_3), magnesite (MgCO_3), sepiolite [$\text{Mg}_4(\text{Si}_6\text{O}_{15})(\text{OH})_2 \cdot 6\text{H}_2\text{O}$], gibbsite [$\text{Al}(\text{OH})_3$], amorphous silica SiO_2 , MnHPO_4 , willemite (Zn_2SiO_4), otavite (CdCO_3), cerrusite (PbCO_3) and analcime ($\text{NaAlSi}_2\text{O}_6 \cdot \text{H}_2\text{O}$). The sediments are known to contain trace quantities of calcite and amorphous silica.

Thus, the concentrations of calcium and magnesium in the groundwater appear to be controlled by either the pure carbonates or the mixed carbonate dolomite. Either gibbsite or boehmite might be controlling the aluminum concentration. Amorphous SiO_2 appears to be controlling silicon concentrations. The carbonate system might also be controlling cadmium and lead concentrations, and a zinc silicate and barium sulfate may be controlling the zinc and barium concentrations, respectively. The concentrations of most trace metals appear to be below the solubility limits of common minerals and, thus, may be controlled by adsorption reactions.

We are assuming that the groundwater used in the leach tests is chemically similar to pore waters formed by meteoric water percolating through the vadose sediments near the land surface. This assumption is reasonable because in previous experiments, pore water from extracted vadose zone core samples that were contacted with deionized water for up to several days was similar to the groundwater (Serne et al. 1993).

Table 4.5. Initial Inventory of Elemental Components for Each Sample Tested, mg

A. ANS 16.1 Leach Test

Element	Sample			
	ANS2-4	ANS3-4	ANS4-8	ANS5-5
Al	1669.2	1705.51	1538.62	1656.08
Ca	8086.36	8262.24	7453.75	8022.8
K	125.81	128.24	115.97	124.82
Mg	234.92	240.03	216.55	233.08
Na	2166.87	2214	1997.35	2149.84
Si	4160.64	4251.14	3835.15	4127.94
NO ₃	58.73	60.01	54.14	58.27
SO ₄	200.92	205.29	185.2	199.34
F	1261.17	1288.61	1162.51	1251.26
H ₃ BO ₃	191.03	195.19	176.09	189.53

B. Static Leach Test

Element	Sample			
	ST2-17	ST3-18	ST4-13	ST5-17
Al	1727.78	1652.11	1736.63	1743.95
Ca	8370.14	8003.59	8413	8448.48
K	130.22	124.52	130.89	131.44
Mg	243.17	232.52	244.41	245.44
Na	2242.92	2144.69	2254.4	2263.91
Si	4306.65	4118.05	4328.71	4346.96
NO ₃	60.79	58.13	61.1	61.36
SO ₄	207.97	198.86	209.04	209.92
F	1305.43	1248.26	1312.12	1317.65
H ₃ BO ₃	197.73	189.07	198.75	199.58

C. Column Experiment

Element	Sample (a)			Element	Sample (a)		
	COLC1	COLT1	COLT1		COLLT1	COLLT2	COLLT3
Al	2096.65	2111.9	2060.34	Al	2060.34	2120.44	2066.75
Ca	10157.09	10230.99	9981.2	Ca	9981.2	10272.38	10012
K	158.02	159.17	155.29	K	155.29	159.82	155.77
Mg	295.08	297.23	289.97	Mg	289.97	298.43	290.87
Na	2721.76	2741.56	2674.63	Na	2674.63	2752.65	2682.94
Si	522.09	5264.11	5135.59	Si	5135.59	5285.4	5151.56
NO ₃	73.77	74.31	72.49	NO ₃	72.49	74.61	72.72
SO ₄	252.37	254.21	248	SO ₄	248	255.24	248.77
F	1584.13	1595.66	1556.7	F	1566.7	1602.11	1561.54
H ₃ BO ₃	239.95	241.69	235.79	H ₃ BO ₃	235.79	242.67	236.53

(a) Column experiment, no sediment.

(b) Column experiment, sediment present.

D. Crushed Grout Tests

Samples CGT, CGC, SCGI (in sediments)		Samples BCGT, BCGI, BCGC (no sediments present)	
Al	1547.15	Al	270
Ca	7495.1	Ca	1308
K	116.61	K	20.35
Mg	217.75	Mg	38
Na	2008.43	Na	350.5
Si	3856.42	Si	673
NO ₃	54.55	NO ₃	9.5
SO ₄	186.23	SO ₄	32.5
F	1168.96	F	204
H ₃ BO ₃	177.06	H ₃ BO ₃	30.9

Table 4.6. Initial Inventory of the Radioactive Components in the Samples Tested, μCi

A. Column Experiments

<u>Sample Name</u>	<u>Isotope</u>	<u>Quantity</u>
COL T1	^{99}Tc	1.834E+00
COL T2	^{99}Tc	1.827E+00
COL 3A	^{99}Tc	1.795E+00
COL 3B	^{99}Tc	1.870E+00
CRUSHED SCGT	^{99}Tc	1.351E+00
CRUSHED CGT	^{99}Tc	1.351E+00
CRUSHED BCGT	^{99}Tc	2.650E-01
COL I1	^{125}I	9.723E-01
COL I2	^{125}I	1.007E+00
COL 2A	^{125}I	9.320E-01
COL 2B	^{125}I	9.320E-01
CRUSHED SCGI	^{125}I	3.800E-01
CRUSHED CGI	^{125}I	3.800E-01
CRUSHED BCGI	^{125}I	1.759E-02
COL C1	^{137}Cs	4.103E+00
COL C1	^{85}Sr	7.768E-02
COL C2	^{137}Cs	4.196E+00
COL C2	^{85}Sr	7.945E-02
COL 1A	^{137}Cs	4.124E+00
COL 1A	^{85}Sr	7.318E-02
COL 1B	^{137}Cs	4.130E+00
COL 1B	^{85}Sr	7.328E-02
CRUSHED SCGC	^{137}Cs	3.045E+00
CRUSHED SCGC	^{85}Sr	3.165E-02
CRUSHED CGC	^{137}Cs	3.045E+00
CRUSHED CGC	^{85}Sr	3.165E-02
CRUSHED BCGC	^{137}Cs	5.970E-01
CRUSHED BCGC	^{85}Sr	1.605E-03

B. ANS 16.1 Leach Test

<u>Sample Name</u>	<u>Isotope</u>	<u>Quantity</u>
ANS 1-B	^{241}Am	1.344E+01
ANS 1-B	^{239}Pu	1.440E+01
ANS 1-13	^{241}Am	1.289E+01
ANS 1-13	^{239}Pu	1.382E+01
ANS 2-4	^{14}C	1.646E+00
ANS 2-5	^{14}C	1.676E+00
ANS 3-4	^{99}Tc	1.481E+00
ANS 3-5	^{99}Tc	1.473E+00
ANS 3-19	^{99}Tc	1.484E+00
ANS 4-8	^{125}I	9.214E+00

Table 4.6. (contd)

B. ANS 16.1 Leach Test (cont'd)

<u>Sample Name</u>	<u>Isotope</u>	<u>Quantity</u>
ANS 4-9	¹²⁵ I	9.410E+00
ANS 5-5	¹³⁷ Cs	3.241E+00
ANS 5-5	⁸⁵ Sr	6.438E-01
ANS 5-14	¹³⁷ Cs	3.418E+00
ANS 5-14	⁸⁵ Sr	6.791E-01

C. Static Leach Test

<u>Sample Name</u>	<u>Isotope</u>	<u>Quantity</u>
STA 1-17	²⁴¹ Am	1.373E+01
STA 1-17	²³⁹ Pu	1.472E+01
STA 1-18	²⁴¹ Am	1.273E+01
STA 1-18	²³⁹ Pu	1.364E+01
STA 2-17	¹⁴ C	1.704E+00
STA 2-18	¹⁴ C	1.659E+00
STA 3-18	⁹⁹ Tc	1.435E+00
STA 4-13	¹²⁵ I	1.040E+01
STA 4-19	¹²⁵ I	9.487E+00
STA 5-17	¹³⁷ Cs	3.412E+00
STA 5-17	⁸⁵ Sr	6.779E-01
STA 5-19	¹³⁷ Cs	3.387E+00
STA 5-19	⁸⁵ Sr	6.729E-01

Table 4.7. Chemical Composition of Hanford Well Water Over Time

Item	Quantity	Date Sampled						
		Date Unknown	1-30-86	5-7-86	8-8-86	9-3-86	11-10-86	5-11-87
pH	9.1	8.1	8.5	7.82	7.99	8.05	8.36	
Eh	mv	295	380	297	325	382	315	351
Al	mg/L	<0.100	<0.03	<0.03	<0.03	<0.03	0.029	<0.03
B	mg/L	0.28	0.08	0.074	0.076	0.08	0.077	0.08
H ₃ BO ₃	mg/L	1.6	0.46	0.4231	0.043	0.46	0.44	0.46
Ba	mg/L	0.06	0.052	0.054	0.27	0.057	0.053	0.056
Ca	mg/L	56	53.7	55	55	54.9	51.7	50.6
Cd	mg/L	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/L	<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/L	<0.005	<0.004	<0.004	<0.004	<0.004	0.005	<0.004
Fe	mg/L	<0.010	<0.005	<0.005	<0.005	<0.005	0.008	<0.005
K	mg/L	7.8	7.1	4.9	6.1	6	7.3	8
Mg	mg/L	14.4	14.4	14.1	14	14.3	13.2	13.4
Mn	mg/L	<0.010	0.026	0.068	<0.002	0.13	0.117	0.087
Na	mg/L	25	25	25.6	24	26	23.8	24.9
P	mg/L	<0.100	<0.100	<0.100	<0.1	<0.1	<0.1	<0.1
as PO ₄	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/L	<0.050	<0.06	<0.050	<0.06	<0.06	<0.06	<0.06
S	mg/L	28	--	--	--	--	--	--
as SO ₄	mg/L	85	--	--	--	--	--	--
Si	mg/L	15	15.1	15.5	14.5	15.6	14.6	14.9
Sr	mg/L	0.25	0.242	0.238	0.234	0.25	0.229	0.236
Zn	mg/L	<0.010	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
F ⁻	mg/L	<0.05	<0.1	0.7	0.6	0.7	0.68	<0.7
Cl ⁻	mg/L	22	21	22	25	27	21	21
NO ₂ ⁻	mg/L	<0.03	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1
NO ₃ ⁻	mg/L	0.1	<1.0	0.2	<0.3	<0.5	<0.5	19
SO ₄ ²⁻	mg/L	86	69	78	78	73	63	67
PO ₄ ³⁻	mg/L	<1.2	<3.0	<1.0	<0.1	<0.1	<0.1	<0.1
HCO ₃ ⁻	mg/L	171	150	176.9	183.6	183.6	251.7	--
CO ₃ ²⁻	mg/L	2.1	6	0	0.0	0.0	0.0	--
TOT. ALK.	mg/L	92.16	81.0	87	90.3	90.3	123.8	92.4
OH ⁻	mg/L	0	0	0	0	0	0	--
TOC	mg/L	1	1.3	1.7	0.45	1.05	0.27	0.45
IC	mg/L	34.1	32.77	34.8	33.94	26.91	35.2	34.48
Cations	meq/L	5.28	5.14	5.15	5.11	5.21	4.90	--
Anions	meq/L	5.55	4.85	5.22	5.38	5.33	6.07	--

4.3 Hanford Sediment

The sediment used for this study was obtained from the AP Tank Farm excavation in the 200 East Area of the Hanford Site and represents the sediments expected to exist in the nearby grout disposal site. The sediment sample was air dried, mixed, and sieved through 2-mm screens prior to its use in the laboratory experiments.

The particle size analysis was performed by a combination of wet sieving and the hydrometer method, ASTM D-422. The results from the analysis, which are portrayed in Figure 4.1, show that the sediment is 93% sand, 5% silt, and 2% clay. Chemical characterization data on the sediment have not been collected to date.

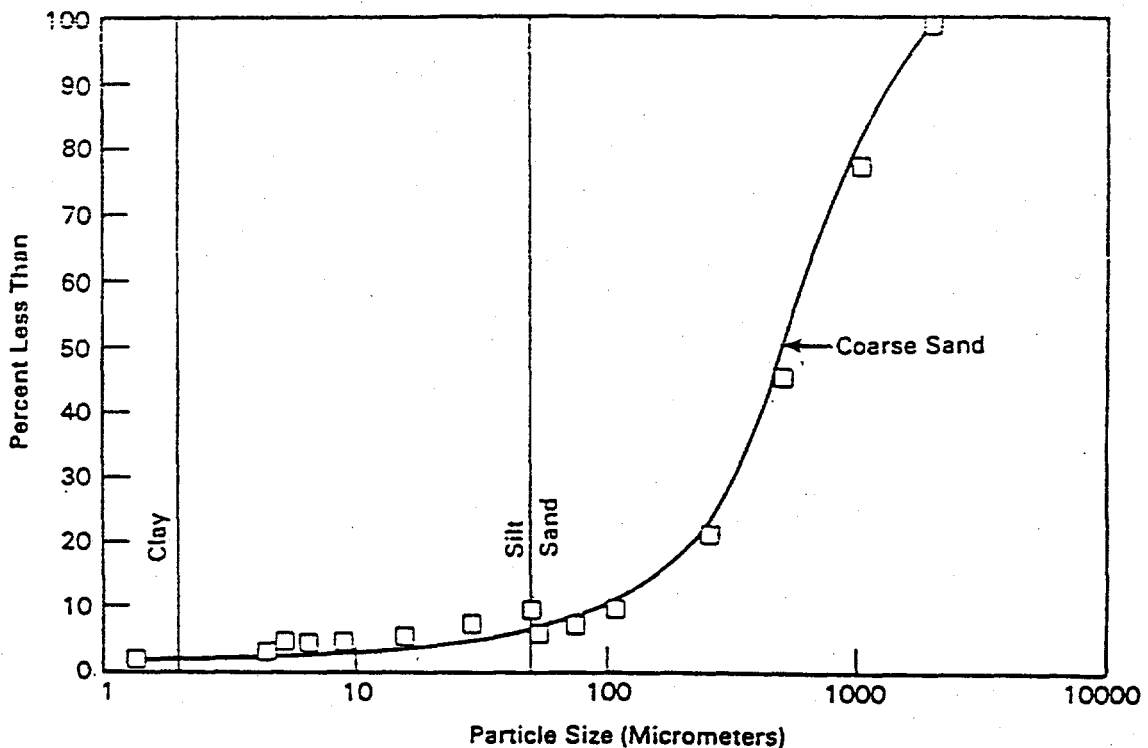


Figure 4.1. Particle-Size Distribution of Hanford Sediment

5.0 Test Methods

In this section we outline the details of the procedures used in determining leaching characteristics of CRW grout.

5.1 Leach Testing

Three types of leach tests were conducted on the CRW grout: 1) an intermittent solution exchange test (ANS 16.1 leach test), 2) a static leach test, and 3) a flow-through column test.

5.1.1 ANS 16.1 Leach Tests

The ANS 16.1 leach test consists of a procedure whereby the leachate is sampled and replaced at specific intervals (ANS 1986). All the ANS 16.1 leach tests on CRW grout were conducted using intact right cylinders of 3.2 cm in diameter and 4.5 to 4.6 cm in length. The leachant was Hanford groundwater from well #6-S3-25. The groundwater was filtered through a 0.45- μ m filter prior to use. Duplicate ANS 16.1 experiments were conducted at room temperature. Table 5.1 lists the sampling schedule.

To initiate the ANS 16.1 leach tests, 600 mL of leachant was added to 1000-mL wide-mouth polyethylene jars. Using unwaxed dental floss, the grout specimens were anchored securely to the lids of each jar and then suspended in the leachant. Two containers were used for each specimen in an alternating sequence that allowed the amount of radionuclide adsorbed on the inside surface of the containers to be determined while the waste specimen was leaching in the other container.

Table 5.1. Sampling Schedule for ANS 16.1 Leach Tests

<u>Sample #</u>	<u>Cumulative Time</u>	<u>Sample #</u>	<u>Cumulative Time</u>
1	30 seconds	9	27 days
2	2 hours	10	50 days
3	7 hours	11	63 days
4	24 hours	12	92 days
5	48 hours	13	122 days
6	72 hours	14	134 days
7	13 days	15	182 days
8	20 days	16	302 days

At each sampling interval the leachate was removed, filtered through a 0.45- μ m Millex Millipore MF membrane filter, and analyzed. Measurements of pH, Eh, and alkalinity were taken as quickly as possible before any of these parameters changed following exposure to ambient atmosphere. The pH was measured using a Corning Model 130 pH meter and a combination electrode. The Eh was measured using a Corning Model 130 pH meter and a Bradley James combination reference-platinum electrode. The alkalinity, reported as mg/L carbonate, was measured by standard methods using a Mettler DL-40 memotitrator and a micro-combination pH electrode [Method #403 from Greenberg et al. (1981)]. The remaining samples were preserved in 25-mL plastic scintillation vials for additional analyses, as follows:

1. Approximately 20 mL was provided for anion analyses by ion chromatography (IC).
2. Approximately 20 mL was provided for cation and other dissolved constituent analysis by ICP emission spectrometry. This sample was acidified with ultra-pure HCl to a pH of <2.
3. Approximately 15 mL was provided for total organic carbon (TOC) analysis.
4. Exactly 15 mL acidified to pH <2 was provided for radionuclide counting.
5. To monitor radionuclide and chemical plateout on containers at each sampling interval, the containers were rinsed with a solution consisting of 10 mL of deionized water and 10 mL of a pH 2 nitric acid solution.

The cation and other dissolved constituents in solution were measured using an ICP Jarrell Ash model #975 plasma autocomp spectrophotometer. We report data for the following elements: Al, boron, Ba, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Na, phosphorous, Pb, sulfur, silicon, Sr, and Zn. The anions in solution, F⁻, Cl⁻, NO₂⁻, NO₃⁻, SO₄²⁻, and PO₄³⁻, were measured using a Dionex Model #12 ion chromatograph. The TOC and inorganic carbon were measured using a Dohrmann DC80 carbon analyzer.

The radionuclide analyses were performed for gamma emitters using a 5- in. x 5- in. sodium iodide detector and an intrinsic germanium detector connected to a Nuclear Data 6700 analyzer. The alpha and beta emitters were analyzed using a Beckman LS 9800 liquid scintillator.

The counting geometries were 15 mL of solution in a 25-mL scintillation vial for the gamma emitters, and 1 to 2 mL of sample in 15 mL of scintillation cocktail placed in a 25-mL scintillation vial for alpha and beta emitters.

The excess leachate was archived in 500-mL polyethylene bottles in case further analyses would be necessary. All samples were stored at room temperature.

5.1.2 Static Leach Tests

Ten right cylinders of CRW grout, two from each batch of waste, were suspended in separate 1-L, wide-mouthed polyethylene jars filled with 600 mL of Hanford groundwater. At the prescribed time, 50 mL of leachate was removed from the container and filtered through a 0.45- μ m membrane.

The effluents were analyzed for the same constituents and treated exactly as described for the ANS 16.1 test leachates. To replenish the leachate removed for analysis, 50 mL of fresh Hanford groundwater was added and the experiment was continued. It is believed that the impact of replenishing the leachate with 50 mL of groundwater should have little effect on the solution chemistry--i.e., by the time a given leachate is sampled again, the solution is assumed to have re-equilibrated as if there never was a disturbance.

The sampling schedule for the static leach tests is shown in Table 5.2.

5.1.3 Flow-through Column Leach Test

Flow-through column leach tests were conducted to determine the impact of flowing leachant on leach rates. We performed this test on two types of grout: 1) a right cylinder of CRW grout and 2) 5 g of crushed grout suspended in a nylon mesh bag in the lower section of a column. The dimensions of the column used for this experiment were length, 11.2 to 13.6 cm, and inner diameter, 5.2 cm. Inlet and outlet tubes in the end caps of the column were used to add leachant (Hanford groundwater) and to collect leachate, respectively. The leachant flowed into the bottom of the column, around the grout sample, and out the top of the column. The flow rate, which was controlled by a syringe pump, was approximately 0.20 mL/h. The respective linear pore velocities ranged from 1.7×10^{-3} cm/h (15 cm/yr) to 1.98×10^{-1} cm/h (17.5 m/yr). For comparison, the actual recharge rate expected in Hanford sediments is estimated to be between 0.5 to 5 cm/yr.

The effluent from the flow-through test was collected in a sealed container to minimize evaporation and loss or gain of CO_2 . Samples were collected daily. When the solution chemistry began to indicate signs of stabilizing, samples were collected at progressively longer time intervals. Each aliquot was split into four samples that were analyzed for 1) Eh, pH, and alkalinity; 2) major cations and selected trace metals; 3) major anions, inorganic carbon, and organic carbon; and 4) radionuclide content using methods described earlier. The aliquots were filtered to remove any suspended particulates. Thus, only dissolved and colloidal species ($<0.45 \mu\text{m}$) were assumed to be present in the solution analyses.

Table 5.2. Sampling Schedule for Static Leach Tests

<u>Sample Number</u>	<u>Cumulative Time</u>	<u>Sample Number</u>	<u>Cumulative Time</u>
1	7 days	9	70 days
2	13 days	10	76 days
3	20 days	11	104 days
4	27 days	12	134 days
5	41 days	13	190 days
6	48 days	14	315 days
7	55 days	15	424 days
8	62 days		

5.2 Combined Leach Test

Cladding removal waste (CRW) grouts were packed within Hanford sediment in a flow-through column test to study the impacts of this more realistic case. In these column experiments, CRW grout samples of the same composition (except for the radionuclide content) were placed in the lower part of a column with the same dimensions as described in Section 5.1.3. The grout sample was supported on approximately 50 g of Hanford sediment, which filled 1.0 cm of the column. Additional sediment was packed around the grout sample and added to fill the remaining void space to the top of the column.

The crushed grout samples were arranged in two configurations, as illustrated in Figure 5.1. Configuration C was a layer of grout that filled the inner diameter of the column. This configuration ensured total contact with the solution as the groundwater passed through the column. Configuration B had the same shape as the intact grout sample and was located in the middle of the column, surrounded by sediment. Both configurations used 35 g of grout samples, which is approximately that of the intact samples. Hanford groundwater was pumped into the bottom of the column where it flowed through the bottom layer of sediment, around and/or through the grout sample, and then through the upper layer of sediment. The same syringe pump and flow rates as described in Section 5.1.3 were used. Effluent

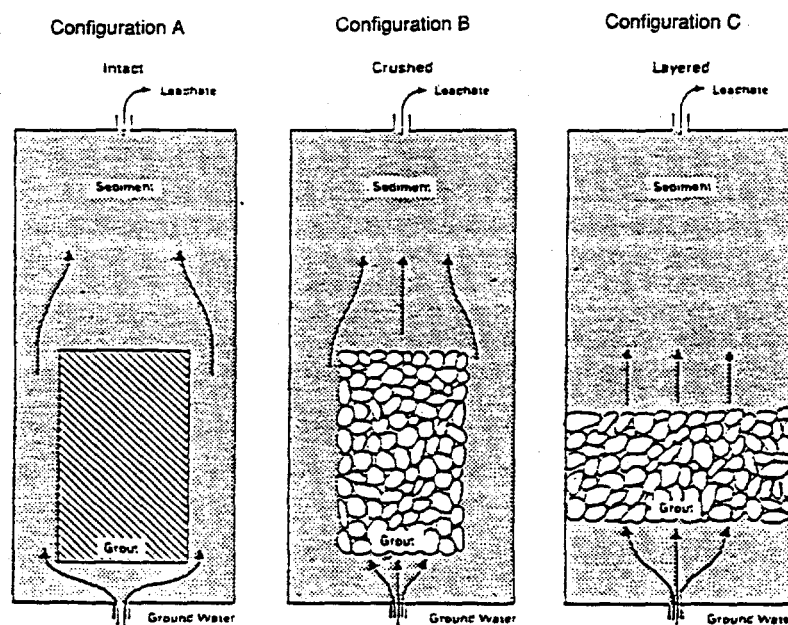


Figure 5.1. Various Configurations of Combined Tests

from this experiment was collected in covered containers to minimize evaporation and incorporation of CO₂ gas. The effluent had been sampled periodically and total chemical characterization performed as previously described.

5.3 Solids Analysis

The solid samples for radionuclide counting were prepared by thoroughly mixing 1 g of sample with 4 g of cellulose and 14 g of clean sand in a scintillation vial. The contents of the vial were then pressed into a wafer using a Carver Model M laboratory press. The wafers were pressed at 50,000 psi (345 MPa) for 2 minutes, yielding a wafer 2.25 in. (5.7 cm) in diameter and 0.125 in. (0.32 cm) thick.

The solid samples were counted using an intrinsic germanium detector or a coaxial germanium detector connected to a Nuclear Data 6700 analyzer. Samples showing high activity were counted for 10 minutes, and those exhibiting a low level of activity were counted for 1 hour.

Trace metal contents in the sediments are determined either directly by energy-dispersive XRF or by lithium metaborate total fusion-acid dissolution followed by ICP analysis, depending on the sensitivity of the method for each particular element.

The results of these analyses were used for characterization and determination of the initial inventories presented previously (Table 4.1).

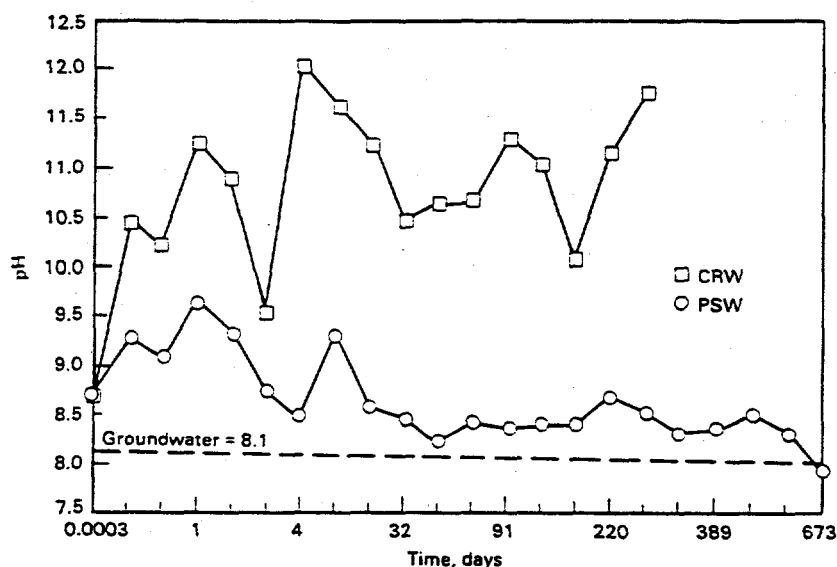
6.0 Results and Discussion

This chapter summarizes and discusses results from the leach tests on CRW grout.

6.1 Chemical Analysis of Leachates From ANS 16.1 Leach Tests on Intact CRW Grouts

Four of the eight leachates from synthetic CRW grout specimens that were tested using ANS 16.1 methodology were analyzed. The results are provided in Tables A.1 through A.4 of Appendix A. The leachant solution was Hanford groundwater.

Cladding removal waste grout is very reactive and quickly forces the solution pH to values above 10. The pH values rise above 11 when contact times reach at least 20 days between solution exchanges. The maximum pH observed in leachates was 12.15 for the sample with a 10-day contact time and 13-day total elapsed time. The long-term, steady-state pH after 410 days of contact (18 solution exchanges) was 11.7. In contrast, previous experiments with 60% phosphate/40% sulfate (PSW) grout samples produced leachates that never exceeded a pH of 10 and reached a steady-state pH of 8.3 (see Serne et al. 1987, 1989b). The comparison of the pH values for PSW and CRW grout leachate is shown in Figure 6.1. The difference in pH values is likely caused by the dissolution of excess calcium hydroxide present in the CRW solid blend or the initial high NaOH content of the CRW liquid. PSW was the first Hanford waste to be grouted. It originates from spent ion exchange resin and various N reactor cleanup activities. PSW wastes are considered less dangerous than CRW wastes.

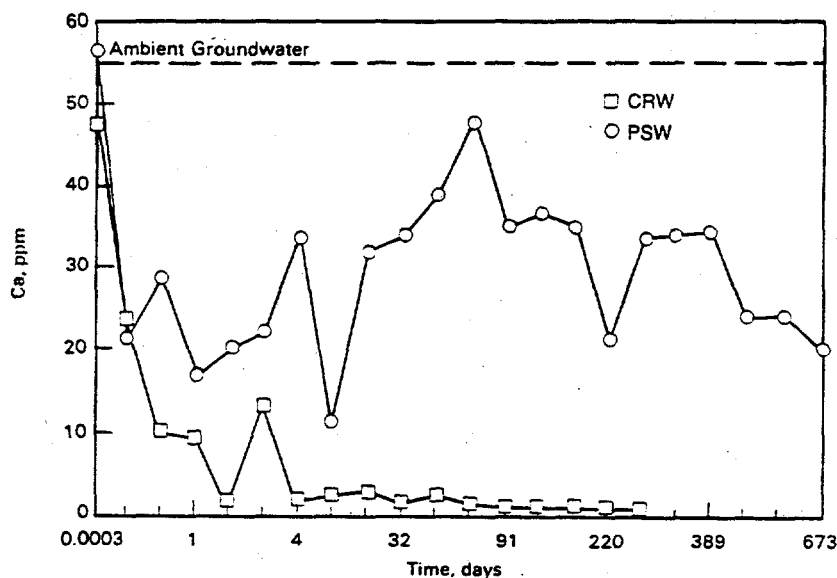


Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.1. Comparison of ANS 16.1 Test Leachates for PSW and CRW Grouts

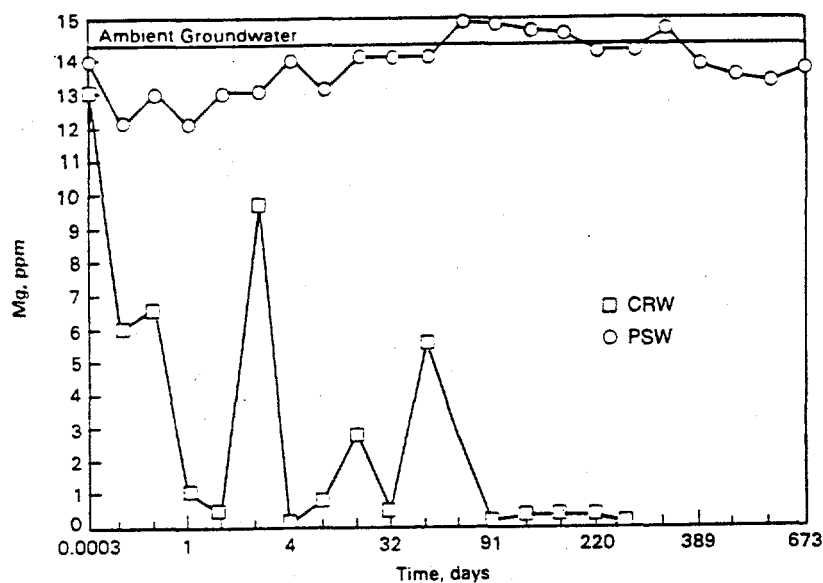
Excluding the 1-day and 13-day leachate, none of the CRW leach solutions contained significant concentrations of aluminum. Generally, the aluminum concentrations in the leachates were less than 0.03 mg/L. It appears that the pH must exceed 12 before appreciable amounts of aluminum dissolve from CRW grouts. Calcium concentrations in the CRW leachates were always less than concentrations in the ambient groundwater (Figure 6.2). For those samples with residence times greater than 20 days, the calcium concentrations were around 1 mg/L. In general, the results also show systematic losses of inorganic carbon (HCO_3 and CO_3), suggesting significant precipitation of calcium carbonate on the CRW grout specimen surfaces. After similar test periods, CRW and PSW grouts removed 500 mg and 300 mg of calcium, respectively, from the leachant. Figure 6.2 shows that CRW grout removes substantially more calcium from the groundwater. Therefore one might expect a thicker reaction layer of CaCO_3 to form on CRW grout specimens than PSW specimens.

Magnesium concentrations in the CRW leachates were always less than those in the ambient groundwater and, when pH values were greater than 11, the magnesium concentrations were typically less than 1 mg/L (Figure 6.3). In contrast, the previously tested PSW grouts did not show any significant precipitation of magnesium. Mass balance calculations showed that CRW grouts removed 120 mg of magnesium, while PSW grouts removed only 8 mg. In the CRW grout tests, precipitation of brucite $[\text{Mg}(\text{OH})_2]$ or coprecipitation of Mg with calcite is suspected.



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.2. Calcium Values for PSW and CRW Grouts, ANS 16.1 Test (Grout Leachates in Hanford Groundwater)



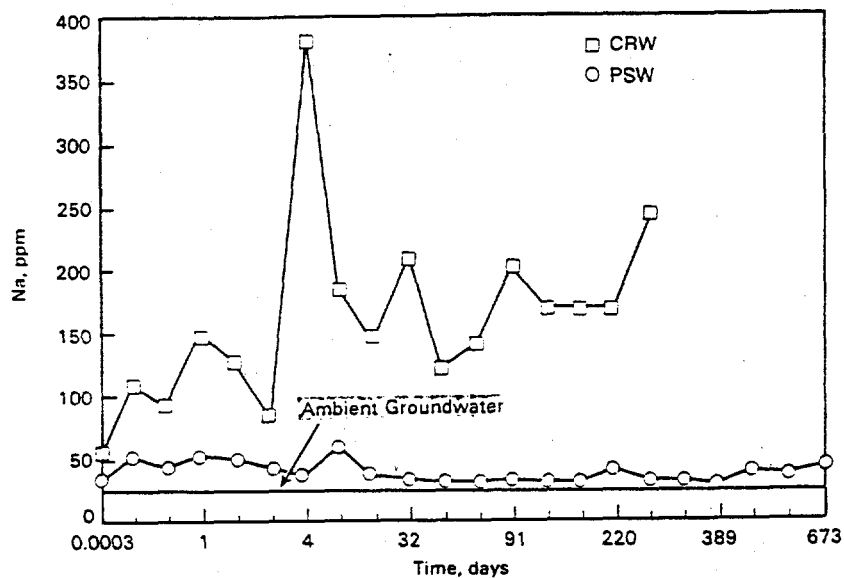
Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.3. Magnesium Values for PSW and CRW Grouts, ANS 16.1 Test (Grout Leachates in Hanford Groundwater)

The CRW leachates showed continual leaching of potassium and sodium (Figure 6.4 and 6.5). After 302 days, the cumulative mass leached ranged from 39 to 47 mg for potassium and from 1300 to 1500 mg for sodium. Continual leaching of these alkali metals is similar to that observed for the PSW grout samples, except the magnitude of release is higher for CRW leachates. The PSW tests released only 13 and 150 mg of potassium and sodium, respectively. The higher mass leached from CRW grout was caused by the much higher concentrations of salts in the CRW liquid waste stream.

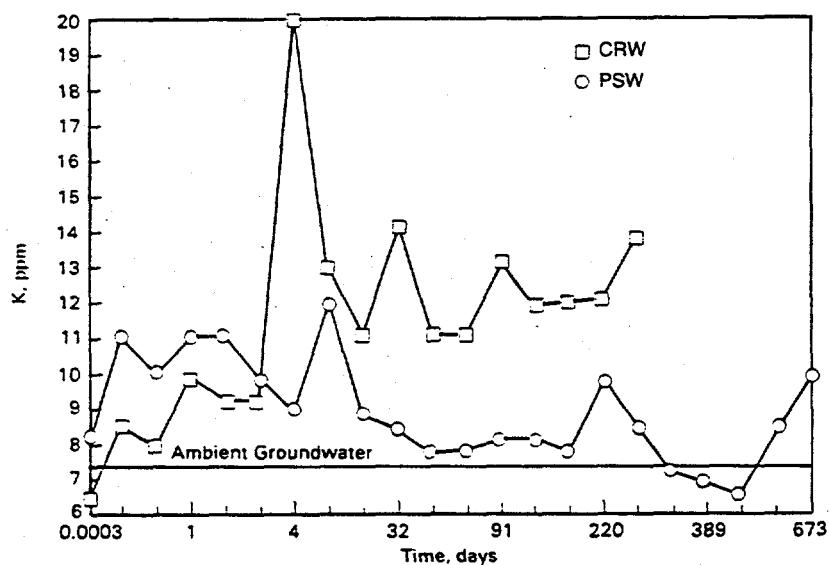
Silicon concentrations in the CRW leachates were lower than in the ambient Hanford groundwater, suggesting that precipitation occurred. Similarly, strontium concentrations were lower in the CRW leachates than in the groundwater used to leach the grout (Figure 6.6). Perhaps strontium is incorporated into the calcium, magnesium, and carbonate precipitates that coat the grout surfaces. The net strontium precipitation should minimize strontium-90 leaching from the actual CRW grout. The sampling numbering system consisted of two numbers. The first signifies which batch the sample came from (see Table 4.2) while the second number signifies which hardened specimen (replicate) was used.

Although the CRW grouts contained significant concentrations of zirconium (4.12% by dry weight), no appreciable concentrations of zirconium were observed in the leachates. This is not surprising, because zirconium readily hydrolyzes and is rather insoluble in all aqueous solutions that are not strong acids.



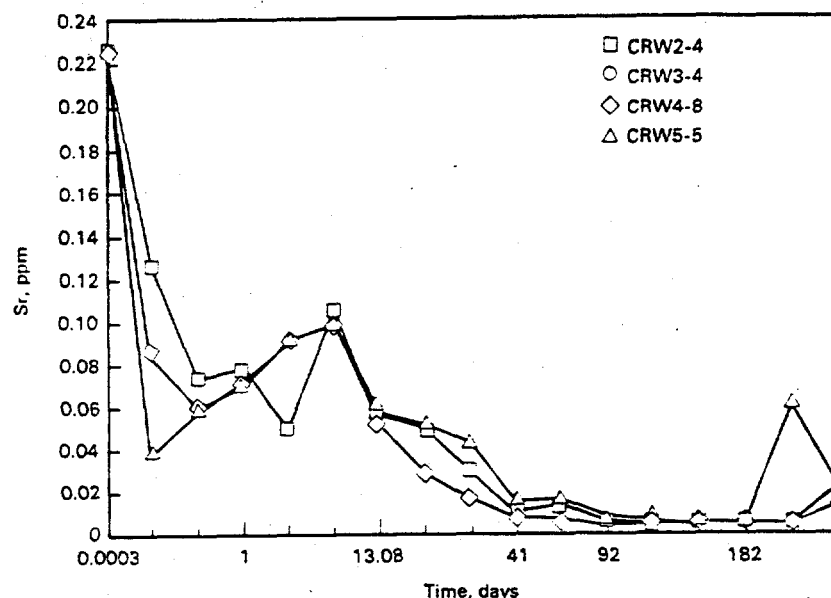
Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.4. Sodium Concentrations for PSW and CRW Grouts, ANS 16.1 Test (Grout Leachates in Hanford Groundwater)



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.5. Potassium Concentrations for PSW and CRW Grouts, ANS 16.1 Test (Grout Leachates in Hanford Groundwater)



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.6. Strontium Concentration vs. Time for ANS 16.1 Test Using CRW Grout

The CRW grout also contained about 4% (by dry weight) fluoride, which slowly leaches from the grout. The fluorine behavior suggests that a low-solubility compound is slowly releasing fluoride, but geochemical code calculations have not identified the controlling compound. Fluorite (CaF_2) is apparently not the controlling phase, because the leachates were significantly undersaturated with respect to fluorite. If fluorite was the controlling phase, the leachates would have had much higher fluoride concentrations. Less soluble, mixed $\text{PO}_4\text{-F}$ minerals from the apatite family are possibly controlling fluoride concentrations. Phosphate present at 0.22% (by dry weight) did not appear to leach from the CRW grout, probably because of the insolubility of apatite (alkaline-earth phosphates) minerals.

The grout contained a very small amount of chloride (0.02% by dry weight) that may have been sporadically released in the ANS 16.1 test. In general, the chloride concentrations in the CRW leachates were similar to that in the ambient groundwater, but frequently the leachate appeared to contain a measurable increase of chloride. No patterns appeared among the four replicates.

The CRW grout contained 0.19% (by dry weight) nitrate, which leaches from the grout. (Additional discussion on nitrate appears in Section 6.6.) Sulfate leached from the grouts for the first 100 days and then perhaps actually started precipitating out of solution at longer times. Because various batches of groundwater were used over the years of the leach experiment and the various batches of groundwater showed some fluctuation in ambient sulfate concentration, this variation may

have caused the apparent change from leaching to removal of sulfate. Groundwater samples were obtained periodically throughout the year as demand warranted. The variation in ambient groundwater chemistry was shown in Table 4.7.

The grout contained 0.11 % boron (by dry weight). Leachates showed a fairly rapid leaching of boron followed by a slow release, suggesting diffusion-controlled release of this constituent.

The synthetic CRW grouts did not leach appreciable amounts of organic carbon; however, actual CRW waste streams probably contain larger amounts of more complex organics. Therefore, no conclusions should be drawn on the fate of organic carbon in CRW grouts based on these data for synthetic grouts.

In general, the leach behavior of major CRW grout constituents was similar to that for PSW grout. The exception was magnesium, which appeared to precipitate in the higher pH environment caused by the excess lime or high NaOH content in the CRW grout. The agreement in leachate chemical composition among the four replicates was good, as evidenced in Figures 6.7 through 6.10 for sodium, potassium, fluoride, nitrate, and borate. Thus it could appear that each CRW grout specimen behaves in a similar fashion.

The synthetic CRW grout did not leach appreciable amounts of Ba, Cd, Cr, Cu, Fe, Mn, Pb, or Zn, although actual CRW wastes may contain higher concentrations of these metals. Thus, we cannot make conclusive statements regarding the fates of these metals in actual CRW grout. However, we speculate that, barring strong organic chelation, these metals will not leach at significant concentrations in the highly alkaline aqueous environment. The ANS 16.1 tests suggest that, among nonradioactive species, fluoride leaching may be the most significant potential problem in terms of assessing performance of grouted CRW over time despite the apparent solubility limit on fluoride release.

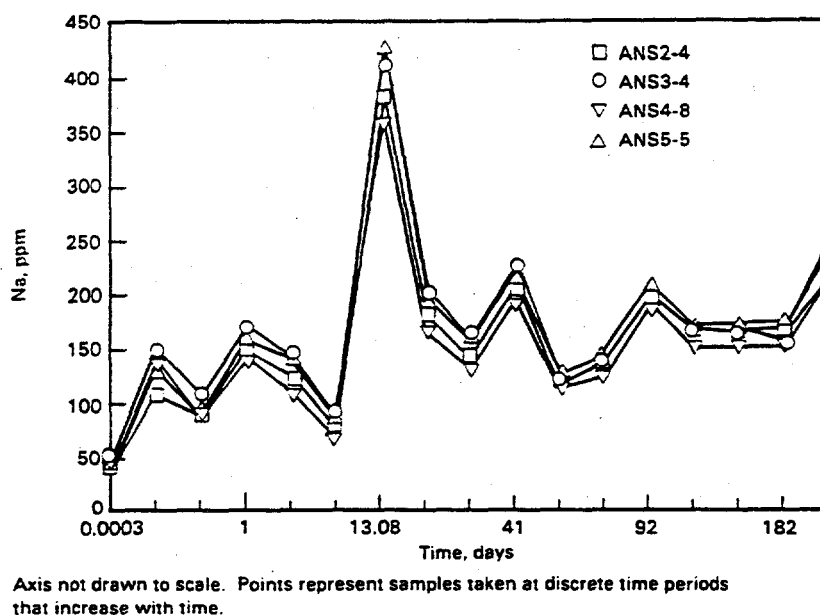
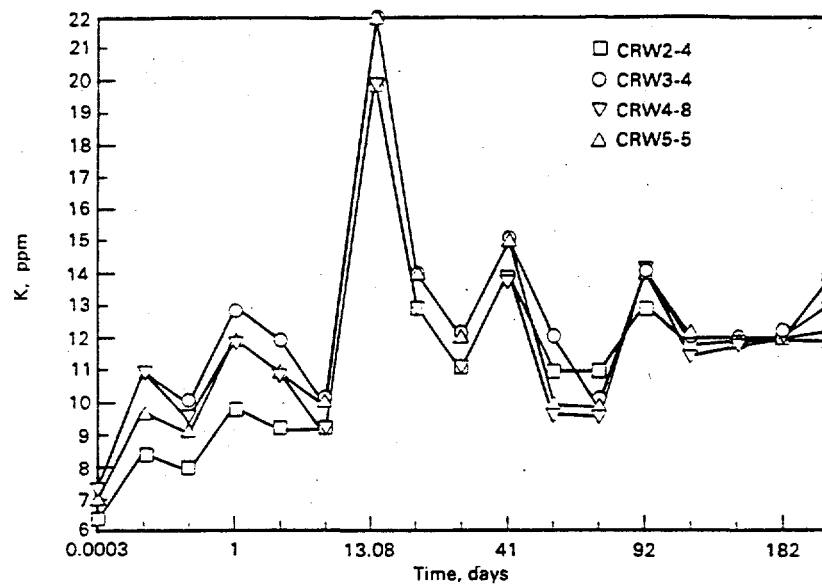
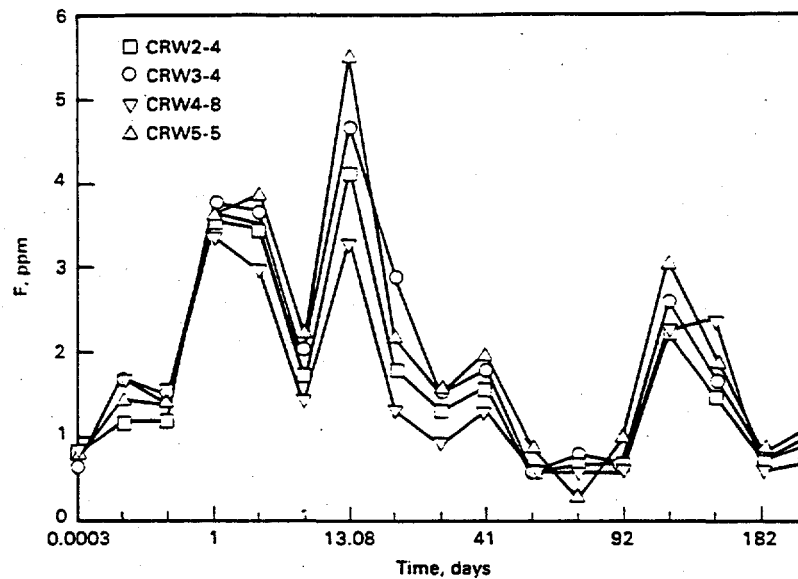


Figure 6.7. Sodium Concentration vs. Time for CRW Grout (ANS 16.1 Test)



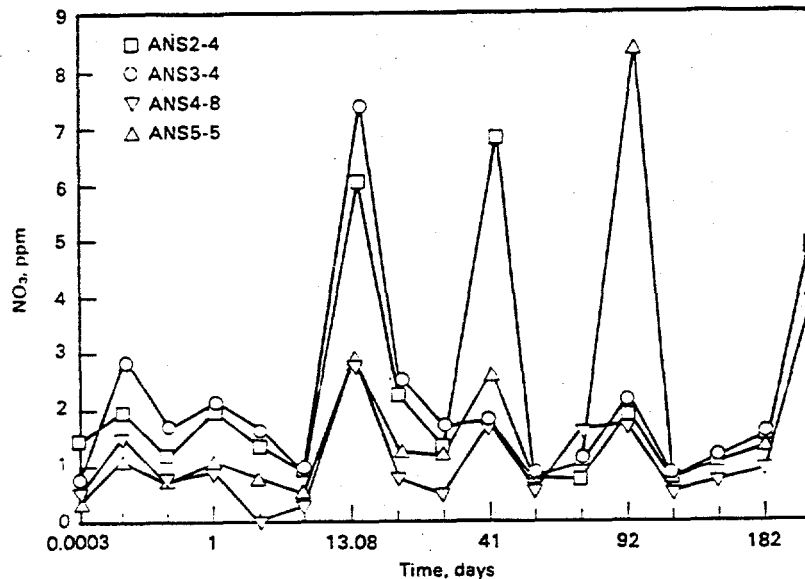
Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.8. Potassium Concentration vs. Time for CRW Grout (ANS 16.1 Test)



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.9. Fluoride Concentration vs. Time for CRW Grout (ANS 16.1 Test)



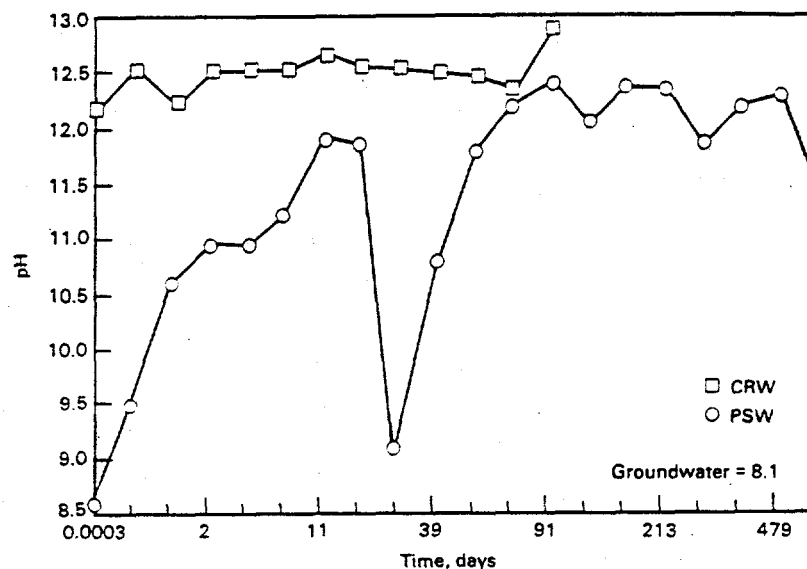
Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.10. Nitrate Concentration vs. Time for CRW Grout (ANS 16.1 Test)

6.2 Chemical Analysis of Leachates from Static Leach Tests on Intact CRW Grouts

Leachates from synthetic CRW grout specimens that were subjected to static leach tests were analyzed. The results are provided in Tables A.5 through A.8 of Appendix A. For the first 55 days of contact in the leachant solution, all eight samples were analyzed; after that time, only one leachate from each set (total of 4) was analyzed. The pH of the static leachates rose to above 12 within the first sampling period and appeared to reach steady state in the range of 12.5 ± 0.3 . This value is about 0.7 to 1.0 pH units higher than that for the CRW leachates from the ANS 16.1 test, where complete solution exchange occurs numerous times. The pH value is in the same range as that for the static leach tests previously performed on PSW grout, which suggests that all grouts will tend to force the pH to a value near 12.5 when the volume of water is limited. The pH values of the static leachates from the two grout leach tests are compared in Figure 6.11.

The leachate calcium concentrations for the static leach tests reached a steady-state value of 4 ± 1 mg/L after 7 days. The magnesium concentrations dropped below detection limits throughout the tests. Thus, alkaline earth metals, including strontium, appeared to be precipitating from the groundwater leachant. The likely reaction products are pure carbonates, mixed calcium-magnesium-strontium carbonates, and brucite $[\text{Mg}(\text{OH})_2]$. We found that these reactions may also occur in the ANS 16.1 test on CRW grout and the static leach test on PSW grout. Less precipitation, especially of



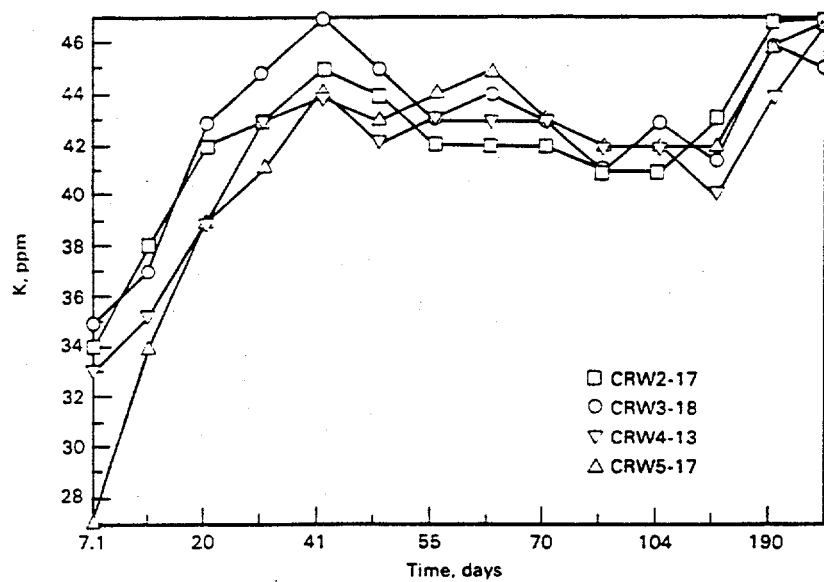
Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.11. pH Values for Grout Leachates in Hanford Groundwater (Static Leach Test)

Mg, was found in the PSW grout tests using the ANS 16.1 protocol. The masses of calcium, magnesium, and inorganic carbon removed in the static CRW leach tests (67 mg of calcium, 18 mg of magnesium, and 11 mg of inorganic carbon) were about 15% of the values measured in the ANS 16.1 tests. Therefore, we speculated that the surface coatings for the static leach tests will be less copious because of the smaller amounts of these ions that are available for precipitation.

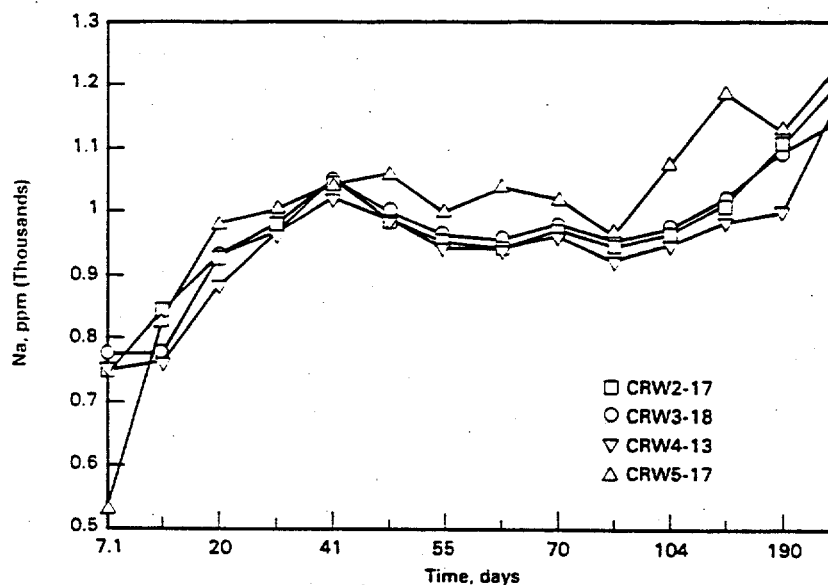
The high pH in the static test permitted some aluminum dissolution from the CRW grout, in contrast to the ANS 16.1 tests. There may have been a small amount of silicon precipitation (as evidenced by low silicon concentrations in leachates) in the early portion of the CRW static tests, but by the 200-day contact time, there did not appear to be significant losses of silicon. In contrast, the CRW ANS 16.1 test produced measurable amounts of silicon precipitation. (See mass balance tables in Appendix C.)

The potassium in the CRW static test leachates rapidly reached a steady-state value of 45 ± 5 mg/L (within 20 days); the sodium rapidly reached a concentration of 1050 ± 150 mg/L (Figures 6.12 and 6.13). Thus, it appears that leaching of these alkali metals from the CRW grout occurs rapidly and then stops. Alternatively, these concentrations may represent solubility limits of some compounds yet to be identified. In contrast, the ANS 16.1 CRW leachates continually removed small amounts of potassium and sodium with each solution exchange. On a mass balance basis, the ANS 16.1 CRW tests leached ~ 1500 mg of sodium and 42 ± 3 mg of potassium, while the static CRW leach test leached 1400 mg of sodium and 51 mg of potassium. A comparison to mass leached from PSW grout



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.12. Potassium Concentration vs. Time for the CRW Static Leach Test



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.13. Sodium Concentration vs. Time for the CRW Static Leach Test

is shown in Table 6.1. The mass of sodium and potassium leached from CRW grouts did not differ very much between the two test methods. On the other hand, results for the PSW grout showed significantly larger masses of the two elements leached by the static-leach test. We have speculated that the PSW static leach tests did not allow much carbonate precipitation onto the grout surfaces. For CRW grouts, carbonate precipitation occurred under both test conditions; however, we still suggest that much more carbonate armoring occurs under ANS 16.1 test conditions. It is not clear why there is no difference in the CRW grout leach data for the two types of Na and K tests, if carbonate armoring is in fact different. The large difference in mass leached for sodium, and to a lesser extent potassium, between the grout types (CRW vs. PSW) reflects the much larger inventories of those elements in CRW grout.

The fluoride concentrations in static test leachates rapidly reached 10 ± 1 mg/L (within the first 7 days) and slowly increased to 15 ± 5 mg/L after 100 days. (This leaching trend will be discussed in Section 6.6.) There was little difference in the mass of fluoride leached between the ANS 16.1 and static CRW leach tests: 12.9 ± 2.3 and 15.6 ± 1.2 mg, respectively.

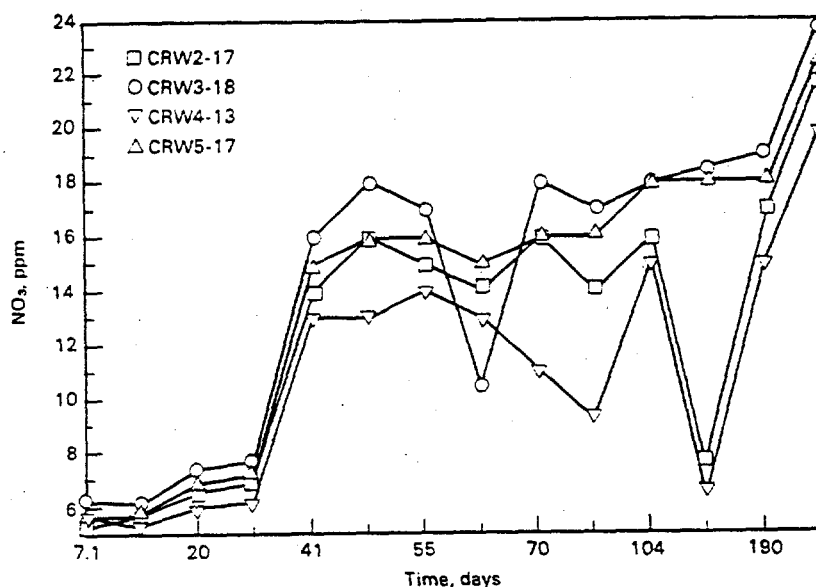
The nitrate concentrations in static leach test leachates reached 6 mg/L within the first sampling period (7 days), and then seemed to level out through 27 days; between 27 and 41 days, all the samples showed an abrupt jump to 15 mg/L. Nitrate concentrations increased very slightly through 190 days, and then increased to 23 ± 2 mg/L beyond 300 days. These trends are shown in Figure 6.14. The total mass of nitrate leached was similar for the two tests.

Sulfate concentrations rapidly rose to values around 170 ± 10 mg/L within the first sample period. Between 7 and 190 days, the sulfate concentrations remained in the range of 160 ± 20 , while an increase to about 200 mg/L occurred between 190 and 300 days.

Boron, reported as boric acid (H_3BO_3), quickly reached a concentration of 4 ± 1 mg/L, and, after 190 days, reached values of 6 ± 1 mg/L. Barium, cadmium, chromium, copper, iron, manganese, phosphate, lead, zinc, and zirconium remained near or below detection limits in all the static leach test leachates. These results are similar to leachates from the ANS 16.1 test.

Table 6.1. Sodium and Potassium Mass Leached (mg) from CRW and PSW Grouts Using Two Test Methods

Element	CRW Grout		PSW Grout	
	ANS 16.1	Static	ANS 16.1	Static
Na	1500	1400	145	281
K	42	51	12	37



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

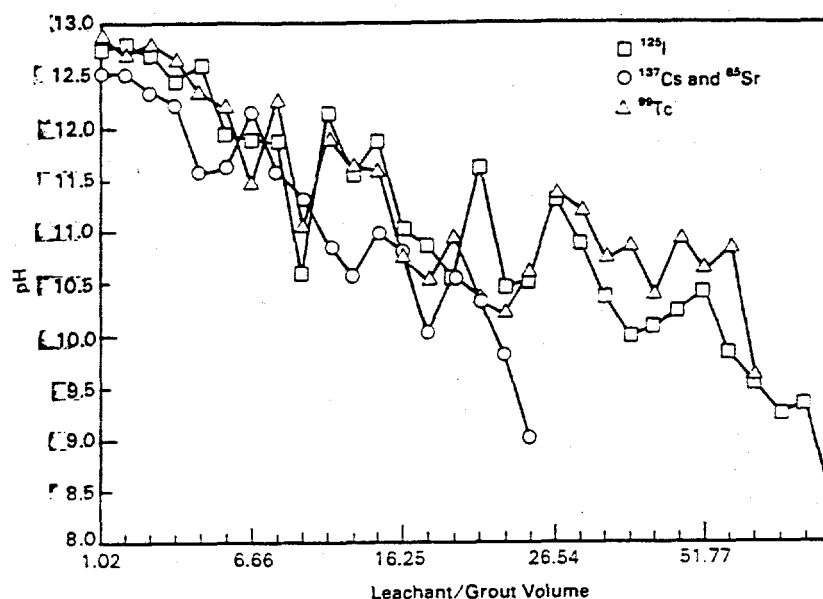
Figure 6.14. Nitrate Concentration vs. Time for CRW Grout (Static Leach Test)

From a regulatory standpoint, the CRW static leachates exceeded maximum permissible concentrations in drinking water for fluoride, while nitrate reached about 50% of the allowable maximum.

6.3 Chemical Analysis of Leachates From Flow-Through Leach Tests on Intact CRW Grouts

For the flow-through leach tests, an intact grout cylinder was suspended in the middle of a Plexiglas column and groundwater flowed past the specimen at a fairly constant rate of 0.4 to 0.6 grout volumes per day. The leachates were collected in small aliquots (a few pore volumes per sample). Complete chemical and radionuclide characterization was performed on almost every sample. Details of the chemical analyses are presented in Tables A.12 through A.14 (Appendix A); radionuclide data are in Appendix B.

The initial effluent was quite alkaline, with a pH range of 12.5 to 12.9. Later effluents showed erratic but generally decreasing trends in pH to values as low as 8.5 (Figure 6.15). The legends on Figures 6.15 - 6.17 designate which radionuclide was present in the grout. For these plots we can ignore this distinction and consider the separate specimens as replicates. The calcium and magnesium concentrations of the initial effluent were reduced to a range of 1 to 4 mg/L and less than 0.06 mg/L, respectively. Strontium concentrations also decreased from the ambient groundwater value. For the CRW grout ANS 16.1 and static leach tests, it appeared that calcium carbonate, mixed carbonates, and brucite may have formed on the grout surface. A visible white "fibrous" material was seen growing on the surface soon after the groundwater contacted the grout in all three types of leach tests.



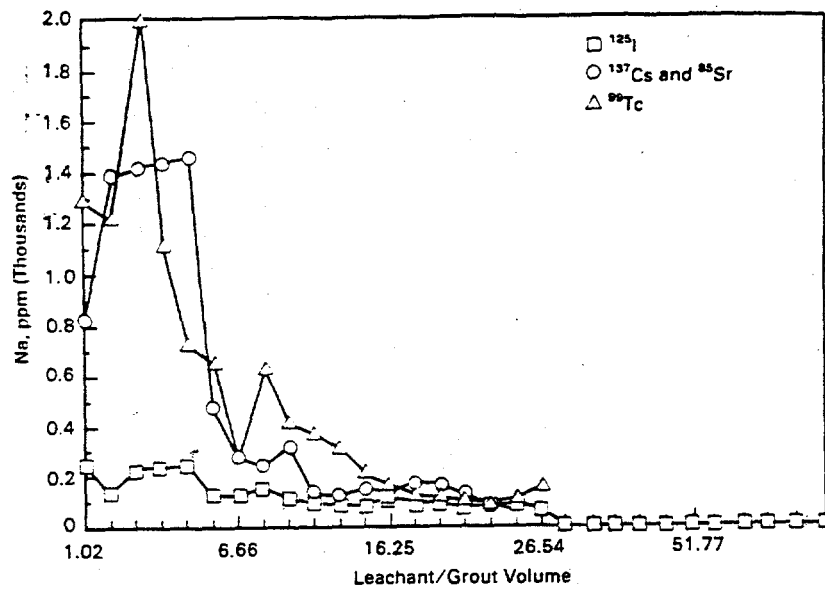
Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.15. pH vs. Grout Volume for Intact CRW (Grouts in Hanford Groundwater). (Three separate tests; each specimen contains different radionuclides.)

Large concentrations of potassium and sodium were present in the initial effluents from the flow-through CRW leach tests. Throughout the 80- to 288-day test period, the effluents contained higher-than-ambient concentrations of potassium and sodium. Figures 6.16 and 6.17 show the Na and K leachate data plotted versus number of grout volumes of effluent collected.

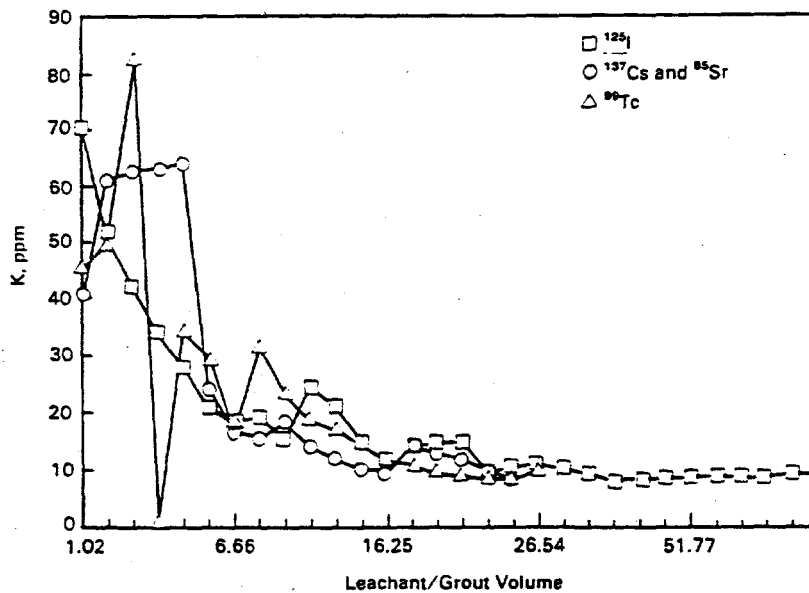
The initial aluminum concentrations in the flow-through column effluent reached values as large as 33 mg/L, then the concentrations dropped to below detection limits (<0.03 mg/L). The aluminum concentrations appeared to be controlled by the pH. At pH values of greater than 11.5, aluminum dissolution occurred. Silicon concentrations in the flow-through column effluent were consistently somewhat less than the ambient groundwater concentrations.

The effluents from the flow-through leach test showed that CRW grouts released fluoride, nitrate, sulfate, and borate. The initial effluents showed the highest concentrations, then concentrations dropped to near-ambient groundwater values for sulfate. However, fluoride, nitrate, and borate concentrations remained above the ambient groundwater levels for the duration of the test. Fluoride concentrations leveled off at about 6 ± 1 mg/L, a value approximately 4 times larger than the maximum permissible concentration (MPC) in drinking water. This steady-state concentration suggests a solubility control. Nitrate effluent concentrations leveled off at 1 ± 1 mg/L, a value much below the drinking water MPC (44 mg/L). Boric acid effluent concentrations leveled off at a value of 1 ± 0.5 mg/L. Phosphate concentrations in the effluents were consistently below the detection limit (<0.3 mg/L).



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.16. Sodium Concentration vs. Leachant/Grout Volume for Intact CRW Grouts in Hanford Groundwater (three separate tests; each specimen contains different radionuclides).



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

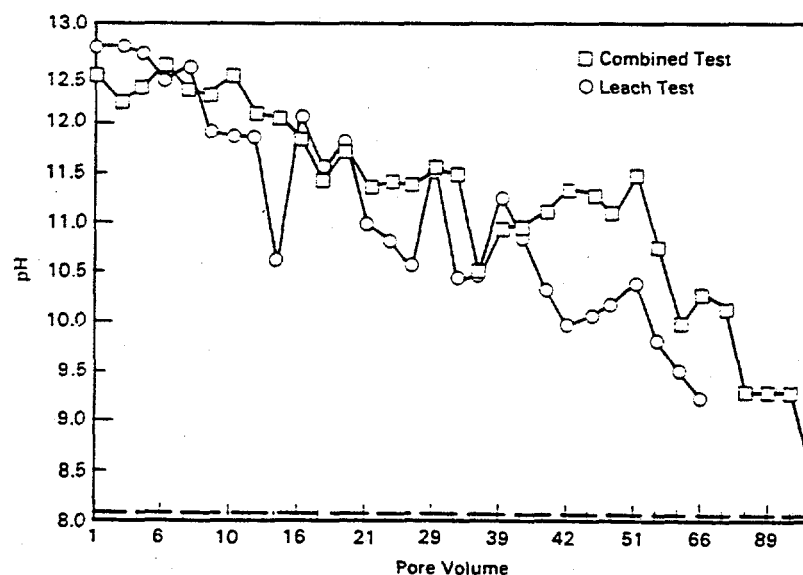
Figure 6.17. Potassium Concentration vs. Leachant/Grout Volume for Intact CRW Grouts in Hanford Groundwater (three separate tests; each specimen contains different radionuclides).

The total organic carbon content of the leachate was 10 to 20 mg/L in initial effluents, decreasing to near-detection limits at later times. The source of the organic carbon in the synthetic grout was not identified. As for other components, there was no release of barium, cadmium, chromium, copper, iron, manganese, lead, or zinc. These results agree with CRW grout leachate results for the ANS 16.1 and static leach tests. The zinc concentrations in the flow-through column effluent were quite sporadic, but they do suggest that some zinc was leached in the first three grout volumes.

6.4 Chemical Analysis of Leachates from Combined Leach/Adsorption Tests on Intact CRW Grouts

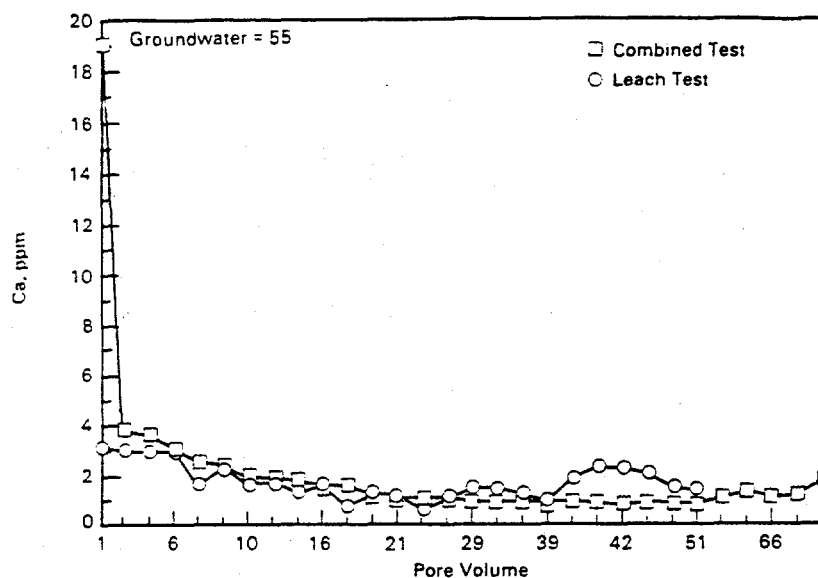
For the combined leach/adsorption tests, intact grout specimens were packed in Hanford sediment and groundwater was flowed through the column. The effluent pH values for the combined test were similar to the results for the leach tests without sediment, as shown in Figure 6.18. Initial effluent pH values were 12.2 to 12.4, suggesting that the sediment-buffering capacity was quickly depleted. With continual flushing, the effluent pH dropped below 10 (after 65 to 75 pore volumes) and finally reached about 8.1, the ambient groundwater pH (after 120 pore volumes). The CRW grout generated much more alkalinity than PSW grout and forced the effluent pH to remain highly alkaline for long periods of time.

The effluent calcium, magnesium, and strontium concentrations remained below ambient groundwater concentrations throughout the combined leach/adsorption test periods. Figure 6.19 shows the calcium concentrations in the effluents for the flow-through leach and combined leach/adsorption test. As with the other three test methodologies (ANS 16.1, static, and flow-through leach test), we suspect that carbonate and brucite precipitation reactions control the leachate concentrations of these alkaline earths.



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.18. pH Values for Leach Test vs. Combined Leach Test



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.19. Calcium Concentration for Leach Test vs. Combined Leach Test

The effluents from the combined leachate/adsorption tests initially contained large concentrations of sodium (800 to 1100 mg/L). Later effluents still contained higher than-ambient sodium concentrations, as did effluents from all the test methodologies studied (Figure 6.20). In contrast, initial effluents from the combined grout/sediment test contained lower-than-ambient concentrations of potassium, whereas all other leach tests without sediment showed significant amounts of potassium release. In these combined tests, a pulse of potassium was released after 80 pore volumes (see Figure 6.21). Again the legend on Figure 6.21 reflects which radionuclide was present in the grout specimens packed into sediment. For this discussion ignore the nuclides and consider the data as coming from replicate tests. The delay in potassium release was likely caused by potassium exchanging onto the sediment cation exchange sites and releasing other cations such as sodium and calcium. At later times, the exchange dynamics forced potassium from the sediment and a pulse of potassium occurred in the effluent.

Aluminum concentrations in the effluents from the combined leach test were larger than those for the ambient groundwater. The initial large release observed in the flow test without sediment was dampened in tests with sediment; however, by the end of the tests, the tests with sediment released more aluminum mass. There was a much larger release of silicon from the combined tests than from the leach-only tests. The sediment contained large amounts of relatively soluble silicon under alkaline conditions.

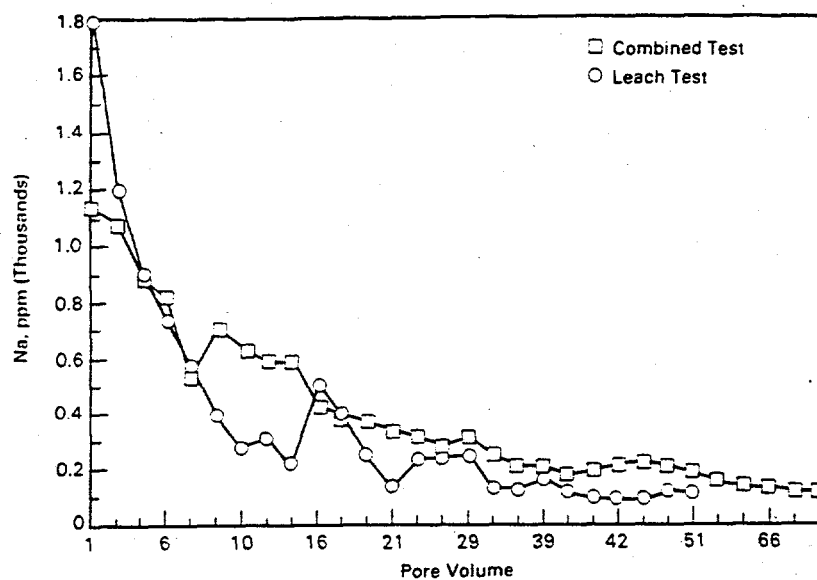


Figure 6.20. Sodium Concentration for Leach Test vs. Combined Leach Test

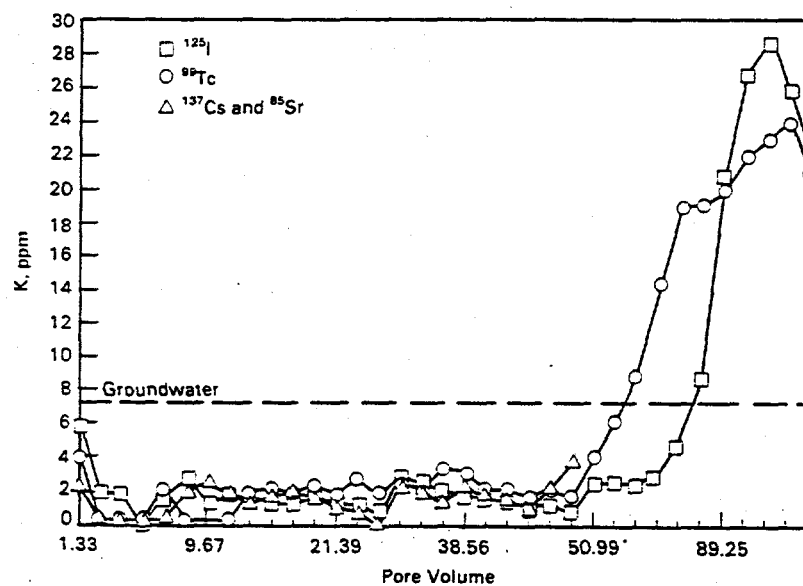
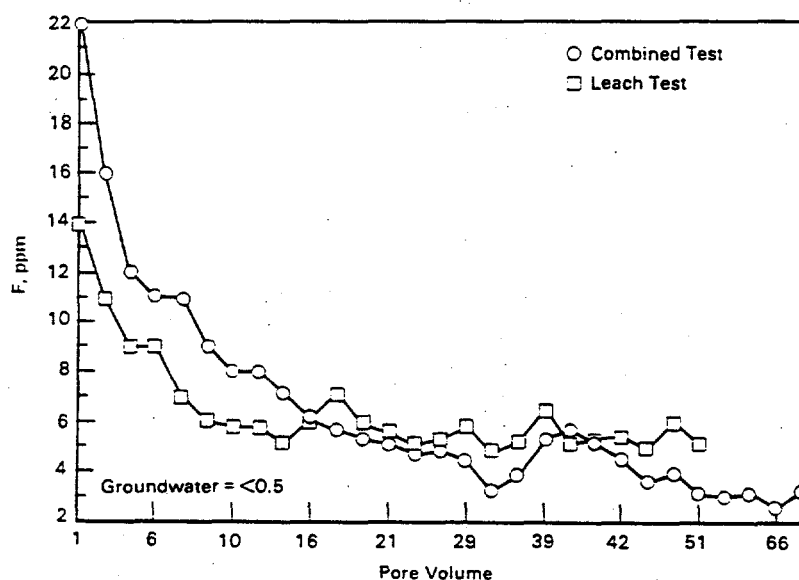


Figure 6.21. Potassium Concentration vs. Pore Volume for Intact CRW Grouts Packed in Sediment

The anion concentrations in effluents from the flow-through tests with sediment were very high initially, eventually dropping to values similar to those observed in the flow-through tests without sediment. The first pore volume of effluent from the combined tests contained 13 to 22 mg/L fluoride, 40 to 90 mg/L nitrate, up to 880 mg/L sulfate, and 10 to 30 mg/L boric acid.

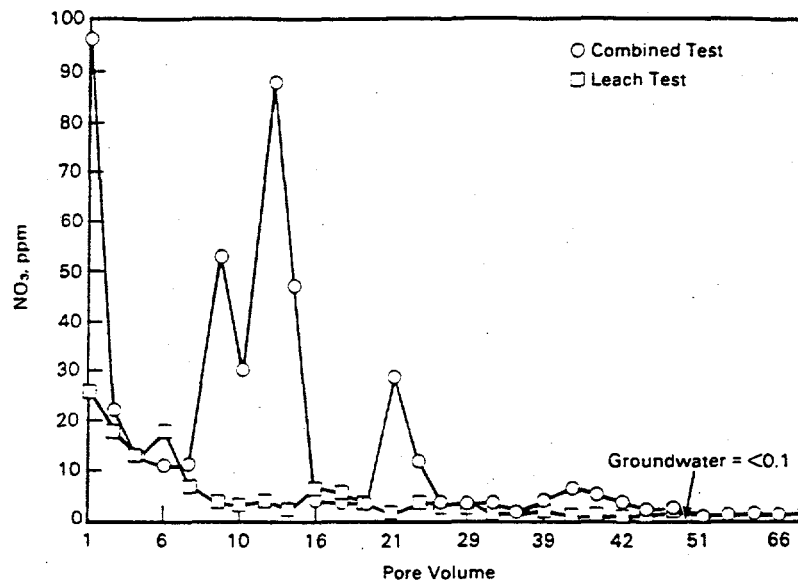
The effluent concentrations of fluoride, nitrate, and sulfate from flow-through tests with and without sediments are shown in Figures 6.22, 6.23, and 6.24, respectively. The first two species exceeded allowable drinking water limits in the initial effluent.

It is not clear at this time why the presence of sediment seems to enhance the initial concentrations of anions found in effluents. Dissolution of soluble salts within the sediment may contribute to this effect. After this initial flux, the fluoride concentrations from the combined test reached steady state at about 4 mg/L, slightly less than the 6 mg/L for tests without sediment. The nitrate in the combined test effluent suggests that a second pulse of nitrate exited the sediment columns near the end of the tests. The steady-state concentrations of sulfate and boric acid in the effluent were similar to the values from the tests without sediment.



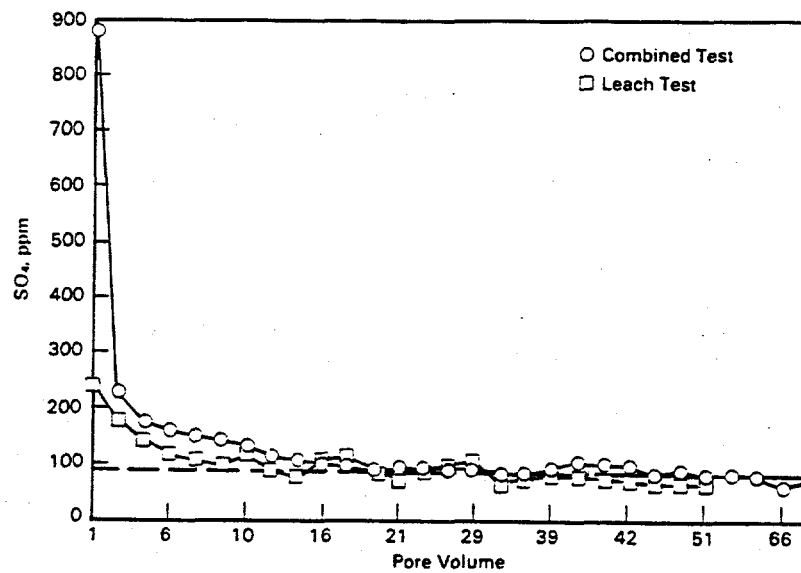
Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.22. Fluoride Concentration for Leach Test vs. Combined Leach Test



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.23. Nitrate Concentration for Leach Test vs. Combined Leach Test



Axis not drawn to scale. Points represent samples taken at discrete time periods that increase with time.

Figure 6.24. Sulfate Concentration for Leach Test vs. Combined Leach Test

Table 6.2 shows a comparison of the mass balance calculations for constituents in the effluents for the four test methods. The mass balance data for the flow-through tests are those for the tests that were run the longest, and that had total effluent volumes more similar to the total volume of solution exchanges in the ANS 16.1 tests.

For those tests in which greater volumes of groundwater contacted the grout (ANS 16.1 and both column flow tests), relatively large amounts of calcium and magnesium were precipitated out of the groundwater. All of the tests showed that comparable masses of sodium and potassium were leached from the grout, but recall that the potassium shows up in the combined leach test effluent at the very end, while the bulk of the potassium leached in the other three tests shows up immediately.

All tests showed a net leaching of fluoride, nitrate, and boron. Both flow tests suggested that significantly greater amounts of fluoride were leached compared to the static and ANS 16.1 leach tests. The combined leach/adsorption test appeared to release significantly larger amounts of nitrate, although there was high variability between replicate tests.

Table 6.2. Mass Balance Relationships for Various Test Methodologies [(-) mg precipitated from groundwater and (+) mg leached from grout]

Constituent	Type of Test			
	ANS 16.1	Static	Flow-Through Leach	Combined Leach/ Adsorption
Ca	-504.0 ± 18.0	-67.4 ± 3.9	-576.0	-571.0
Na	+1434.0 ± 107.0	+1328.0 ± 68	+1366.0	+1683.0
K	+42.0 ± 3.0	+46.4 ± 2.8	+41.0	+40.0
Mg	-118.0 ± 11.0	-18.3 ± 0.7	-143.0	-150.0
Al	+0.4 ± 0.4	+21.4 ± 2.7	+8.7	+29.6
Si	-68.0 ± 4.0	-0.4 ± 1.8	-62.0	+91.0
F	+12.9 ± 2.9	+15.6 ± 1.2	+63.0	+41.0
NO ₃	+28.0 ± 20.0	+21.9 ± 1.2	+24.0	+60.0
B(OH) ₄ ⁻	+3.6 ± 1.9	+6.7 ± 0.8	+9.0	+14.3
SO ₄	-35.0 ± 27.0	+127.0 ± 17	-18.0	+88.0

The combined adsorption test released silicon, probably from dissolution of sediment material rather than grout. The ANS 16.1 and flow-through leach tests showed net silicon precipitation. The static test (with the highest average pH conditions) and combined grout/sediment leach test showed net aluminum leaching. In the combined leach/adsorption test the sediment may be the source. In the static test, silicon release must have come from the grout itself. Sulfate shows variable behavior, with apparent precipitation in two leach tests and apparent leaching in the static and combined tests.

6.5 Chemical Analysis of Effluents from Grout Leach Tests and Combined Leach/Adsorption Tests Using Crushed Grout

For conservative-bounding purposes, several grout specimens were disaggregated and used in two test methodologies. Five grams of crushed grout were placed in fine-mesh nylon bags, suspended in Plexiglas columns, and contacted with groundwater in a once-through flow mode. In the combined tests, a weight equivalent to that of the intact samples (i.e., 35 g) of disaggregated grout was packed into Hanford sediment columns in either of the two configurations previously shown (see Figure 4.1). The two configurations are called the "standing" and "layer" configurations ("B" and "C," respectively).

The leach experiment on the bag of disaggregated grout showed leachates that instantly rose to pH values of around 12. However, after two pore volumes the pH of the effluents started to drop; by eight pore volumes the pH was similar to that of ambient groundwater.

As with the other leach tests, the calcium, magnesium, and strontium concentrations were initially quite low compared to those in the groundwater, suggesting precipitation. After about 12 pore volumes, the calcium, magnesium, and strontium effluent concentrations had risen to about 30, 10, and 0.2 mg/L, respectively, which represents 54%, 69%, and 80%, respectively, of the ambient groundwater values. The initial potassium and sodium effluent concentrations were high, but after 9 to 15 pore volumes, the effluents were similar to those in ambient groundwater.

The initial leachates from the bagged, crushed grout showed a net leaching of aluminum and silicon. However, after the first three pore volumes the aluminum concentrations dropped to values near the ambient groundwater, and silicon values dropped below the ambient groundwater value. As in the other leach tests there was an initial flush of anions, but the peak concentrations were higher than those for tests with intact grouts, and the pulse duration was shorter. Nitrate and sulfate effluent concentrations dropped to ambient conditions within 3 to 4 pore volumes. Fluoride and boric acid rapidly reached steady-state effluent concentrations of 9 and 0.8 mg/L, respectively. The chloride concentrations remained constant at the ambient groundwater value; phosphate concentrations remained near the detection limit throughout the leach test. The rapid flushing of alkalinity, sodium, potassium, and anions suggests that disaggregated grout allows the leaching to rapidly reach completion for readily soluble species. The chemical reactions remain the same, but the effects of the slow diffusion of leachable species out of the intact grout are removed by disaggregation. Further, it may be possible that more components are released before the carbonate shell (coating) can form over all the pieces. The detailed chemical analysis data for flow-through leach tests on bagged, crushed grout are presented in Tables A.15 through A.17.

The chemical analysis of effluents from disaggregated grout packed in Hanford sediment is presented in Tables A.18 through A.20. The effluent pH values were very basic at first (12.0 to 13.2) and remained basic for the duration of the tests (30 to 185 pore volumes). In contrast to the effluents from intact grouts packed in sediment, the effluents from the crushed grout tests did not consistently drop below pH 10 after 65 to 75 pore volumes. One test of crushed grout continued beyond 30 pore volumes (see Table A.19), and the pH finally dropped below 10 after 110 pore volumes. This release of extra alkalinity from the crushed grout tests is not surprising. The more the monolith is compromised (crushed), the faster the excess Ca(OH)_2 can dissolve and interact with the soil. On the other hand, the initial pH values for the crushed grout combined leach/adsorption tests were not significantly higher than the pH values for the tests of intact grout. Apparently, chemical reactions controlled the effluent pH at values near 12.5 ± 0.2 no matter how much alkalinity was available. Ca(OH)_2 in equilibrium with water fixes the pH at 12.5, thus we believe that the excess Ca(OH)_2 in the CRW grout controls system pH until it is completely dissolved.

In general, the alkaline earth cations (calcium, magnesium, and strontium) in crushed grout/sediment combined tests showed the same trends (net precipitation) as did the other leach and combined leach/adsorption tests. The calcium concentrations in the effluent from the crushed grout/sediment column test were initially low, but rose to about 40 mg/L after 60 pore volumes. In contrast, combined tests with intact grout had calcium effluents that remained low throughout the test. The data for inorganic carbon also suggest that the crushed test removed more carbonate ions from the inflowing groundwater and, to maintain saturation, allowed more calcium to be present in solution. The intact grouts removed less carbonate and thus, to maintain a fixed activity product ($[\text{Ca}^{2+}][\text{CO}_3^{2-}]$), the solutions contacting intact grout specimens have less dissolved calcium. As with the crushed grout leach test (no sediment), later effluents showed higher concentrations of strontium. In fact, between 60 pore volumes and the end of the experiment (185 pore volumes), effluent strontium concentrations exceeded the groundwater ambient value. This suggests that strontium initially precipitates or is bound by adsorption reactions and later redissolves or desorbs. In no other test configuration did effluent concentrations for strontium rise above ambient groundwater values.

As occurred in the crushed grout leach test and the intact grout/sediment flow-through test, sodium effluent concentrations in the crushed grout/sediment tests were initially high, suggesting rapid leaching. The sodium effluent concentrations of tests with crushed grouts dropped to ambient groundwater values within 15 pore volumes in the leach test (no sediment) and after 50 pore volumes in the combined grout/sediment test. This suggests that crushing allows rapid leaching, which exhausts the leachable sodium source from the grout. For intact grout, the tests continue to slowly remove sodium.

The potassium concentrations in effluents that have contacted soil, whether from intact or crushed grout, are low initially in contrast to the potassium concentrations for the leach-only tests. We speculate that the potassium is leaching from the grout but exchanges onto the sediments. After 40 pore volumes for crushed grout and 60 to 70 pore volumes for intact grout, the potassium values in the effluent rose above ambient groundwater values, suggesting desorption. A similar trend was observed in tests of PSW grout (see Serne et al. 1987).

The most striking chemical data from the tests with crushed grout packed in sediment resulted from the very rapid flushing of nitrate and sulfate (within 10 pore volumes). Later effluents contained essentially ambient groundwater concentrations of these two constituents. For intact grouts packed in

sediment, nitrate effluent concentrations remained above ambient for as long as tests were run. This again suggests that crushing grout allows rapid depletion of readily soluble constituents. There was also a very large release of fluoride and boric acid from the crushed grouts packed in sediment, but instead of dropping off to groundwater concentrations the effluent remained above ambient. This suggests either two distinct sources with differing leach kinetics or solubility control. In the crushed grout tests packed in sediments, initial concentrations of fluoride, nitrate, sulfate, and sodium exceeded primary and secondary drinking water standards.

Table 6.3 compares the total mass of selected elements that precipitated or leached in combined leach/adsorption tests of equal weights of crushed and intact grout. For each method, the tests that ran for the longest time are presented.

There are no clear trends in the data for the totals leached or precipitated. Thus, although crushing the grout caused material to be rapidly released, by the end of the tests the total mass released or precipitated was not distinctly different than those tests using intact specimens. In fact, it appeared that the intact grout precipitated more calcium and actually leached more sodium, potassium, and nitrate. The crushed samples released more fluoride and boron. Silicon behavior seemed to vary between the two tests.

6.6 Cumulative Effective Diffusion Coefficients for Samples of Intact Grout

Appendix B contains all of the diffusion coefficient data. Both instantaneous and cumulative diffusion coefficient values are reported for each test (except the static leach tests) for selected species that leached from the grout. Leach rates for the flow-through column tests were also calculated using

Table 6.3. Comparison of Mass Balances for the Combined Leach/Adsorption Test of Crushed and Intact Grout (mg) (-precipitated, + leached)

Component	Crushed Grout	Intact Grout
Ca	-232.0	-571.0
Na	+1240.0	+1683.0
K	+22.4	+40.0
Mg	-137.0	-150.0
Al	+52.8	+29.6
Si	-9.0	+91.0
F	+89.8	+41.0
NO ₃	+23.8	+59.5
B(OH) ₄ ⁻	+28.2	+14.3
SO ₄	+62.9	+87.8

Materials Characterization Center (MCC)-4 protocol. However, only the cumulative effective diffusion coefficients are discussed here; until large-scale leaching tests are performed and the "surface wash-off" phenomenon is explored further, we suggest that cumulative effective diffusion coefficients are the best representation of the leach data from a performance assessment standpoint. The cumulative effective diffusion coefficient includes all the mass leached and is calculated at the longest time period of study. The values are smaller (by up to two orders of magnitude) than some of the initial instantaneous values, and generally larger (by a factor of two) than instantaneous diffusion coefficients at the later times.

Table 6.4 lists effective cumulative diffusion coefficients for the intact CRW grouts leached in Hanford groundwater. For the species potassium, sodium, fluoride, nitrate, ^{14}C , ^{125}I , ^{137}Cs , ^{241}Am , and ^{238}Pu , there were no significant differences in the diffusion coefficients between ANS 16.1 and static leach tests. Boron, aluminum, technetium, and perhaps ^{85}Sr leached more rapidly in the static leach test. Furthermore, sulfate leached from grout in the static leach tests but not in the ANS 16.1 tests. The apparently higher leach rates from the static leach tests for several constituents are counter to expectations based solely on diffusion theory. As with the PSW grout, we suspect that coatings of carbonate minerals on the CRW grout surfaces may be lowering the leachability of ANS 16.1

Table 6.4. Effective Diffusion Coefficient (cumulative D_c) Values Obtained From Standard Leach Tests (cm^2/s)

Component	ANS 16.1 Test	Static Test
K	$1.3 \times 10^{-9} \pm 0.4 \times 10^{-9}$	$1.6 \times 10^{-9} \pm 0.2 \times 10^{-9}$
Na	$6.4 \times 10^{-9} \pm 2.1 \times 10^{-9}$	$5.2 \times 10^{-9} \pm 0.7 \times 10^{-9}$
Al	*	$1.6 \times 10^{-12} \pm 0.4 \times 10^{-12}$
H_3BO_3	$2.4 \times 10^{-12} \pm 1.0 \times 10^{-12}$	$1.6 \times 10^{-10} \pm 2.9 \times 10^{-10}$
F	$2.0 \times 10^{-12} \pm 1.8 \times 10^{-12}$	$1.4 \times 10^{-12} \pm 0.4 \times 10^{-12}$
NO_3	$1.2 \times 10^{-9} \pm 0.5 \times 10^{-9}$	$1.7 \times 10^{-9} \pm 0.3 \times 10^{-9}$
SO_4	*	$7.0 \times 10^{-9} \pm 3.0 \times 10^{-9}$
^{14}C	2.0×10^{-13}	1.0×10^{-13}
^{99}Tc	2.0×10^{-12}	2.0×10^{-11}
^{125}I	3.4×10^{-9}	$2.0 \times 10^{-9} \text{ to } 7.0 \times 10^{-8}$
^{137}Cs	1.0×10^{-15}	4.0×10^{-15}
^{85}Sr	5.0×10^{-12}	$10.0^{-12} \text{ to } 10.0^{-10}$
^{241}Am	6.0×10^{-16}	1.0×10^{-17}
^{238}Pu	1.0×10^{-16}	2.0×10^{-16}

* did not leach.

specimens more so than in the static leach test specimens. The loss of calcium and inorganic carbon in ANS 16.1 tests of CRW grout was 8 to 10 times greater than for static leach tests. Thus, we expect a greater degree of coating on specimens from the ANS 16.1 tests.

The data in Table 6.4 suggest the following trends. Sodium and ^{125}I leach slightly faster than K and NO_3^- . The species ^{85}Sr , B, F, and ^{99}Tc leach significantly slower than these four. Even slower leach rates are found for ^{14}C ; and the slowest leach rates of all are found for the species ^{137}Cs , ^{241}Am , and ^{238}Pu . In the static leach tests, sulfate leached at rates similar to Na and ^{125}I .

In comparison, PSW grout showed an effective diffusion coefficient for Na that was one-tenth as large, and an effective diffusion coefficient for K that was one-tenth to one-hundredth as large. The effective diffusion coefficient for nitrite from PSW grout was quite variable, but the largest value found is similar to the nitrate value for CRW grout. The effective diffusion coefficient for ^{85}Sr in PSW grout was similar to the lower values ($10^{-12} \text{ cm}^2/\text{s}$) found for CRW grout. The effective diffusion coefficient for ^{137}Cs in PSW grout was 100 times higher than that in CRW grout. We speculate that the observed higher diffusion coefficients for Na and K from CRW grout versus PSW grout are caused by the larger fraction of these cations found in the liquid waste stream as compared to the total inventory in the grout, which includes contributions from the dry blend. That is, much more of the Na and K in PSW grout is present in the cement, fly ash, and clay and, therefore, may not be as leachable as the Na and K originally present in the CRW liquid waste.

Effective diffusion coefficients were also calculated from the flow-through leach and combined grout/sediment tests. The effective diffusivities (cumulative) at the end of the tests are shown in Table 6.5. For most constituents, the presence or absence of the sediment makes little difference in the calculated diffusion coefficients. The one exception is nitrate, for which the diffusion coefficient was actually larger when sediment was present. A water leach test of the sediment shows that it contains nitrates that contribute to the mass leached and thus bias the diffusion coefficient to a larger value.

The presence of sediment did not change the leaching of ^{99}Tc and ^{125}I , although it significantly lowered the leaching of ^{137}Cs and perhaps ^{85}Sr . Batch adsorption tests with CRW leachate from the ANS 16.1 tests showed no adsorption of ^{99}Tc and ^{125}I (unpublished data). Previous adsorption tests with PSW leachates has shown considerable adsorption of ^{85}Sr and ^{137}Cs (see Serne et al. 1987). Thus, it appears that ^{129}I and ^{99}Tc that leach from grout waste forms will travel through sediment with little, if any, additional retardation by adsorption reactions.

A comparison between the flow-through leach test (Table 6.5) and the ANS 16.1 and static leach tests (Table 6.4) shows that most constituents (except ^{137}Cs and ^{85}Sr) leach more rapidly in the flow-through test. The effective diffusion coefficients (cumulative) for the flow-through leach test were 2 to 5 times larger than the static and ANS 16.1 test results for Na, K, F, and ^{125}I . The flow-through leach test values for boric acid and ^{99}Tc tend to be 10 to 100 times larger than those measured in comparable "jar" tests. Some of the differences may be caused by the shorter time periods used in the flow-through tests and the fact that there is more inherent scatter in the data from flow-through tests. The data in Table 6.5 represent only those tests carried out for longer time periods, and thus they contain minimal replication. More tests using the flow-through methodology would be needed to better establish whether perceived test differences are real.

Table 6.5. Flow-Through Column Data for Intact Grouts D_e (cumulative) (cm²/s)

Component	Leach	Combined Leach/Adsorption
K	1.5 to 6.5 x 10 ⁻⁹	0.0 to 2.2 x 10 ⁻⁹
Na	0.6 to 2.0 x 10 ⁻⁸	0.5 to 1.0 x 10 ⁻⁸
Al	0.9 to 2.9 x 10 ⁻¹²	1.4 to 3.7 x 10 ⁻¹²
H ₃ BO ₃	1.5 to 5.0 x 10 ⁻¹¹	1.8 to 4.4 x 10 ⁻¹¹
F	2.0 to 4.6 x 10 ⁻¹¹	4.6 to 8.3 x 10 ⁻¹²
NO ₃	1.6 to 5.5 x 10 ⁻⁹	0.3 to 1.5 x 10 ⁻⁸
¹⁴ C	no data	no data
⁹⁹ Tc	0.3 to 1.2 x 10 ⁻¹⁰	0.6 to 3.3 x 10 ⁻¹⁰
¹²⁵ I	0.1 to 3.4 x 10 ⁻⁸	0.8 to 4.0 x 10 ⁻⁸
¹³⁷ Cs	10 ⁻²⁶	10 ⁻²⁷
⁸⁵ Sr	10 ⁻²³	10 ⁻²³
²⁴¹ Am	no data	no data
²³⁸ Pu	no data	no data

Radionuclide leach data from the flow-through tests with crushed grout are reported in Appendix B, Tables B.20-B.23. Aside from Tc for which leachate data suggest more ⁹⁹Tc was leached than was present in the starting inventory, the cumulative effective diffusion coefficients do not differ greatly from those in Table 6.5 (right-hand column) for intact grout. The ⁹⁹Tc data show much faster release for the crushed grout packed in sediments but mass balance is bad (more Tc leached than present). The release of other mobile species, Na, ¹²⁵I and NO₃ from crushed grout packed in sediment is a factor of 1 to 3 larger than for intact grout placed in sediment. This small increase is caused by the crushing that exposes much larger surface area of the waste form.

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Appendix A

Chemical Compositions of Leachates and Column Effluents

Appendix A

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TABLE A.1. ANS 16.1 Leach Test on Whole Grout with Groundwater (ANS2-4)

SAMPLE #	-----	WELL WATER	1	2	3	4	5	6	7	8	9
TIME	days	-----	0.0003	0.0833	0.292	1	2	3	13	20	27
pH		8.1	8.72	10.44	10.19	11.30	10.88	9.51	12.08	11.65	11.25
Eh	mv	295	259	180	201	324	325	330	309	228	169
Al	mg/l	<0.1	0.11	0.05	<0.03	0.04	<0.03	0.05	1.08	<0.03	<0.03
Ba	mg/l	0.06	0.041	0.016	0.005	0.008	0.003	0.017	0.006	0.006	0.004
Ca	mg/l	56	49.6	23.5	9.9	9.3	1.1	13.2	1.6	2.4	3.0
Cd	mg/l	<0.005	<0.004	<0.004	<0.004	0.005	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.01	0.041	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005
K	mg/l	7.6	6.3	8.5	7.9	9.9	9.2	9.2	20.0	13.0	11.0
Mg	mg/l	14.4	13.10	5.94	6.63	1.00	0.32	9.70	<0.06	0.75	2.86
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	46	109	91	149	125	80	383	183	143
P	mg/l	<0.1	0.37	<0.1	0.14	0.21	<0.1	0.15	<0.1	<0.1	<0.1
as PO4	mg/l	<0.31	1.13	<0.31	0.43	0.64	<0.31	0.46	<0.31	<0.31	<0.31
Fb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15	13.5	11.7	11.4	10.6	8.6	12.4	10.3	8.9	8.6
Sr	mg/l	0.25	0.227	0.127	0.073	0.079	0.049	0.106	0.056	0.050	0.030
Zn	mg/l	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	0.0	0.0	<0.008	0.0	<0.008	0.0	0.0	<0.008	<0.008
F-	mg/l	<0.5	0.8	1.2	1.2	3.6	3.5	1.7	4.2	1.8	1.3
Cl-	mg/l	22	36	37	32	24	26	24	23	23	25
NO2-	mg/l	<0.03	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	0.1	1.4	2.0	1.2	2.0	1.4	0.9	6.1	2.3	1.3
SO4--	mg/l	86	81	93	84	89	84	75	107	82	82
HCO3-	mg/l	171	164.7	290.4	192.4	0.0	234.2	73.2	0.0	0.0	50.4
CO3--	mg/l	2.1	3.6	10.8	121.4	96.0	14.4	52.8	100.0	84.0	126.0
OH-	mg/l	0	0.0	0.0	0.0	24.5	0.0	0.0	189.0	32.3	0.0
B	mg/l	0.06	0.101	0.182	0.127	0.111	0.090	0.173	0.076	0.076	0.072
as H3BO3	mg/l	0.34	0.58	1.04	0.73	0.63	0.51	0.99	0.43	0.43	0.41
TGC	mg/l	1	1.25	1.55	0.97	1.40	1.49	1.29	1.48	1.25	1.40
PO4---	mg/l	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
CATIONS	meq/l	5.28	5.73	6.63	5.21	7.31	2.92	3.38	8.57	8.47	6.68
ANIONS	meq/l	5.54	5.75	6.36	10.10	7.54	6.51	5.46	17.84	8.85	7.71
TOT. ALK. *	mg/l	92.16	85	154	216	139	130	89	434	186	151
IC	mg/l	34.1	23.98	25.02	17.33	20.51	20.27	21.97	20.16	19.85	17.10

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.1. contd

SAMPLE #	-----	10	11	12	13	14	15	16	17	18
TIME	days	41	50	63	92	122	134	182	302	410
pH		10.50	10.65	10.66	11.29	11.05	10.03	11.12	11.74	11.66
Eh	mv	132	205	168	201	214	327	228	235	295
Al	mg/l	<0.03	<0.03	<0.03	<0.03	<0.03	----	<0.03	<0.03	<0.03
Ba	mg/l	<0.002	0.002	<0.002	<0.002	<0.002	----	<0.002	0.002	<0.002
Ca	mg/l	1.4	2.7	1.6	1.1	1.0	----	1.0	0.8	0.9
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	----	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	----	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	----	<0.004	<0.004	<0.004
Fe	mg/l	<0.005	0.006	0.036	0.008	<0.005	----	<0.005	<0.005	<0.005
K	mg/l	14.0	11.0	11.0	13.0	11.8	----	12.0	13.8	12.6
Hg	mg/l	0.46	5.53	2.57	0.13	0.31	----	0.28	<0.06	0.15
Mn	mg/l	<0.002	0.002	<0.002	<0.002	<0.002	----	<0.002	<0.002	<0.002
Na	mg/l	210	118	138	200	168	----	169	241	205
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.1	<0.1
as PO4	mg/l	<0.31	<0.31	<0.31	<0.31	<0.31	----	<0.31	<0.31	<0.31
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	----	<0.06	<0.06	<0.06
Si	mg/l	7.6	8.6	6.2	5.1	4.3	----	4.8	5.2	3.4
Sr	mg/l	0.011	0.014	0.006	0.006	0.005	----	0.005	0.021	0.008
In	mg/l	<0.02	0.022	<0.02	<0.02	<0.02	----	<0.02	0.033	<0.02
Ir	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	----	<0.008	<0.008	<0.008
F-	mg/l	1.6	0.6	0.7	0.7	2.3	----	0.7	1.0	0.7
Cl-	mg/l	26	55	24	28	52	----	22	23	23
NO2-	mg/l	<0.3	<0.2	<0.2	<0.5	<0.2	----	<0.3	<0.1	<0.3
NO3-	mg/l	6.9	0.8	0.8	2.0	0.8	----	1.6	5.0	2.4
SO4--	mg/l	72	84	81	83	60	----	71	75	70
HCO3-	mg/l	128.1	153.7	0.0	0.0	244.0	51.2	0.0	0.00	0.00
CO3--	mg/l	176.4	50.4	100.8	102.0	60.0	63	126	84.00	110.40
OH-	mg/l	0.0	0.0	24.9	74.9	0.0	0.0	66.3	98.60	46.92
B	mg/l	0.097	0.066	0.066	0.080	0.071	----	0.062	0.101	0.070
as H3BO3	mg/l	0.55	0.38	0.39	0.46	0.41	----	0.46	0.58	0.40
TOC	mg/l	1.37	1.46	2.76	1.35	0.80	----	0.9	----	2.0
PO4---	mg/l	<5.0	<1.0	<2.0	<3.0	<2.0	----	<5	<5	<5.0
CATIONS	meq/l	9.60	6.00	6.57	9.10	7.68	----	7.73	10.87	9.29
ANIONS	meq/l	10.56	6.39	7.31	10.46	8.92	----	10.26	10.96	8.62
TOT.ALK.:	mg/l	239	126	145	233	85	88	243	258	193
IC	mg/l	19.71	19.14	49.11	20.16	19.20	----	21.5	----	75.9

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.2. ANS 16.1 Leach Test on Whole Grout with Groundwater (ANS3-4)

SAMPLE #	-----	WELL WATER	1	2	3	4	5	6	7	8	9
TIME	days	-----	0.0003	0.0833	0.292	1	2	3	13	20	27
pH		8.1	8.66	11.00	10.61	11.32	11.28	10.55	12.15	11.74	11.31
Eh	mv	295	258	162	183	320	306	321	241	277	174
Al	mg/l	<0.1	0.13	0.08	0.05	0.63	0.10	0.09	1.71	0.04	0.04
Ba	mg/l	0.06	0.044	0.010	0.006	0.009	0.013	0.015	0.005	0.003	0.003
Ca	mg/l	56	51.9	13.9	7.8	7.5	12.8	13.5	14.2	2.0	2.6
Cd	mg/l	<0.005	0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.005	<0.005
Cr	mg/l	<0.015	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.01	0.013	0.005	0.005	0.005	<0.005	0.010	<0.005	<0.005	0.007
K	mg/l	7.8	7.4	11.0	10.0	13.0	12.0	10.0	22.0	14.0	12.0
Mg	mg/l	14.4	13.20	2.48	4.70	0.29	1.69	8.50	<0.06	0.20	1.60
Mn	mg/l	<0.01	0.003	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002
Na	mg/l	25	36	152	108	173	144	86	418	206	161
P	mg/l	<0.1	0.31	<0.1	0.13	0.12	<0.1	0.11	<0.1	<0.1	<0.1
as PO4	mg/l	<0.31	0.95	<0.31	0.39	0.37	<0.31	0.34	<0.31	<0.31	<0.31
Fb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15	13.8	11.3	11.0	10.0	10.5	11.9	10.3	9.3	8.3
Sr	mg/l	0.25	0.224	0.083	0.060	0.070	0.092	0.099	0.051	0.029	0.017
Zn	mg/l	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	0.012	<0.008	<0.008	<0.008	0.017	<0.008	<0.008	<0.008
F-	mg/l	<0.5	0.6	1.7	1.5	3.8	3.7	2.0	4.7	2.9	1.5
Cl-	mg/l	22	29	34	30	25	26	24	24	36	24
NO2-	mg/l	<0.03	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	0.1	0.6	2.9	1.7	2.2	1.7	0.9	7.5	2.6	1.7
SO4--	mg/l	86	79	102	91	95	86	82	107	84	82
HCO3-	mg/l	171	---	448.0	294.6	269.0	166.5	166.5	0.0	320.3	25.6
CO3--	mg/l	2.1	---	76	176	12.6	50	25	202	76	164
OH-	mg/l	0	---	0.0	0.0	0.0	0.0	0.0	671.2	0.0	0.0
B	mg/l	0.06	0.093	0.250	0.177	0.217	0.150	0.097	0.207	0.098	0.081
as H3BO3	mg/l	0.34	0.53	1.43	1.01	1.24	0.86	0.55	1.18	0.56	0.46
TOC	mg/l	1	----	----	----	----	----	----	----	----	----
PO4---	mg/l	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
CATIONS	meq/l	5.28	5.44	7.78	5.72	8.25	7.35	5.36	19.44	9.43	7.56
ANIONS	meq/l	5.54	---	13.25	13.71	7.92	9.01	7.07	49.64	10.89	8.52
TOT. ALK. #	mg/l	92.16	---	296	321	145	183	132	1386	233	176
IC	mg/l	34.1	----	----	----	----	----	----	----	----	----

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.2. contd

SAMPLE #	-----	10	11	12	13	14	15	16	17
TIME	days	41	50	63	92	122	134	182	302
pH		11.69	10.96	10.69	11.32	11.06	9.76	10.93	11.61
Eh	av	175	193	165	186	209	214	267	332
Al	mg/l	0.05	0.04	<0.03	0.03	<0.03	----	<0.03	<0.03
Ba	mg/l	<0.002	0.002	<0.002	<0.002	<0.002	----	<0.002	<0.002
Ca	mg/l	1.2	1.9	1.3	1.0	1.2	----	0.9	0.8
Cd	mg/l	<0.005	0.006	<0.004	<0.004	<0.004	----	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	----	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	0.005	<0.004	----	<0.004	<0.004
Fe	mg/l	<0.005	0.006	<0.005	0.008	<0.005	----	<0.005	0.005
K	mg/l	15.0	12.0	10.0	14.0	12.0	----	12.0	12.2
Mg	mg/l	0.16	4.07	1.91	0.14	0.34	----	0.34	<0.06
Mn	mg/l	<0.002	0.002	<0.002	<0.002	<0.002	----	<0.002	<0.002
Na	mg/l	229	126	140	200	169	----	161	217
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.1
as PO ₄	mg/l	<0.31	<0.31	<0.31	<0.31	<0.31	----	<0.31	<0.31
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	----	<0.06	<0.06
Si	mg/l	7.3	7.6	11.5	4.3	4.6	----	4.9	4.7
Sr	mg/l	0.008	0.008	0.004	0.005	0.005	----	0.004	0.014
Zn	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	----	<0.02	0.054
Zr	mg/l	<0.008	<0.008	0.024	<0.008	<0.008	----	<0.008	<0.008
F-	mg/l	1.8	0.6	0.8	0.7	2.6	----	0.7	0.9
Cl-	mg/l	26	36	31	31	51	----	35	22
NO ₂ -	mg/l	<0.3	<0.2	<0.2	<0.5	<0.2	----	<0.3	<0.3
NO ₃ -	mg/l	1.9	0.8	1.1	2.3	0.8	----	1.6	5.0
SO ₄ --	mg/l	75	87	78	82	60	----	68	71
HCO ₃ -	mg/l	0.0	205.0	0.0	0.0	0.0	38.43	0.0	0.00
CO ₃ --	mg/l	265	25	113	113	139	63.00	198	92.80
OH-	mg/l	0.0	0.0	28.6	71.4	28.6	0.00	25.5	93.61
S	mg/l	0.100	0.076	0.065	0.080	0.065	----	0.080	0.096
as H ₃ BO ₃	mg/l	0.57	0.43	0.37	0.46	0.37	----	0.45	0.55
TGC	mg/l	----	----	----	----	0.8	----	----	----
PO ₄ ---	mg/l	<0.5	<1.0	<2.0	<2.0	<2.0	----	<0.5	<0.5
CATIONS	meq/l	10.41	6.22	6.57	9.12	7.74	0.00	7.38	9.79
ANIONS	meq/l	11.26	5.88	8.09	10.70	9.21	2.73	10.57	10.85
TOT. ALK.*	mg/l	265	126	164	239	189	82	243	258
IC	mg/l	----	----	----	----	19.1	----	----	----

(---) Data not available.

(#) Total Alkalinity as CO₃--.

TABLE A.3. ANS 16.1 Leach Test on Whole Grout with Groundwater (ANS4-8)

WELL WATER	1	2	3	4	5	6	7	8	9	10	11
-----	0.0003	0.0833	0.292	1	2	3	13	20	27	41	50
8.1	8.61	10.91	10.30	11.22	10.90	10.14	12.05	11.54	11.15	11.54	11.01
295	239	159	193	307	309	322	269	264	170	187	217
<0.1	0.12	0.05	0.12	0.29	0.09	0.08	0.67	<0.03	<0.03	<0.03	<0.03
0.06	0.040	0.014	0.006	0.100	0.013	0.016	0.005	0.003	0.003	<0.002	0.003
56	50.6	19.2	9.1	9.9	12.4	14.5	1.7	2.7	2.5	1.4	2.3
<0.005	<0.004	<0.004	<0.004	<0.004	0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
<0.015	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02
<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
<0.01	0.011	0.007	0.015	0.005	0.010	0.009	<0.005	0.006	0.006	<0.005	0.004
7.8	7.4	11.0	9.5	12.0	11.0	9.0	20.0	13.0	11.0	14.0	9.7
14.4	12.90	2.70	6.50	1.20	4.20	10.20	<0.06	2.40	4.22	1.10	7.80
<0.01	0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
25	34	141	92	144	112	71	360	169	132	195	112
<0.1	0.31	<0.1	<0.1	0.14	<0.1	0.28	<0.1	0.12	0.27	0.24	<0.1
<0.31	0.95	<0.31	<0.31	0.43	<0.31	0.86	<0.31	0.37	0.83	0.74	<0.31
<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.12	0.27	<0.06	<0.06
15	13.5	11.2	11.8	10.2	10.4	12.5	9.9	9.7	8.8	7.3	9.6
0.25	0.220	0.106	0.073	0.083	0.091	0.105	0.047	0.019	0.013	0.008	0.010
<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.029
<0.008	0.011	0.012	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
<0.5	0.7	1.7	1.4	3.4	3.0	1.4	3.3	1.3	0.9	1.3	0.6
22	25	31	30	31	26	25	24	24	26	22	42
<0.03	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.2
0.1	0.4	1.5	0.7	0.9	1.3	0.3	2.9	0.8	0.5	1.8	0.6
86	80	106	111	90	85	104	97	109	83	73	81
171	12.3	307.1	585.6	36.6	42.7	91.5	0.0	0.0	115.3	0.0	230.6
2.1	0	11	72	120	114	24	246	132	113	214	13
0	0.0	0.0	0.0	0.0	0.0	0.0	54.4	28.9	0.0	0.0	0.0
0.06	0.086	0.250	0.169	0.198	0.110	0.077	0.138	0.079	0.071	0.082	0.065
0.34	0.50	1.46	0.97	1.13	0.63	0.44	0.79	0.45	0.41	0.47	0.37
1	---	---	---	---	---	---	---	---	---	---	---
<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<1.0
5.28	5.26	7.58	5.23	7.16	6.11	4.90	16.24	8.01	6.49	9.00	5.88
5.54	2.78	8.76	15.41	7.69	7.35	5.41	14.40	9.29	6.35	9.40	6.00
92.16	6.12*	162	360	138	135	69	342	183	170	214	126
34.1	---	---	---	---	---	---	---	---	---	---	---

(---) Data not available.

(#) Total Alkalinity as CO3---

TABLE A.3. contd

12	13	14	15	16	17	-
64	92	122	134	182	302	
10.54	10.98	11.10	9.86	10.65	11.60	
172	216	202	197	266	336	
<0.03	0.03	<0.03	----	<0.03	<0.03	
<0.002	<0.002	<0.002	----	<0.002	<0.002	
1.3	1.1	0.9	----	0.9	0.9	
0.004	<0.004	<0.004	----	<0.004	<0.004	
<0.02	<0.02	<0.02	----	<0.02	<0.02	
<0.004	0.004	<0.004	----	<0.004	<0.004	
<0.005	0.008	0.024	----	<0.005	<0.005	
9.6	14.0	11.5	----	12.0	13.0	
3.67	0.24	0.82	----	0.71	<0.06	
<0.002	<0.002	<0.002	----	<0.002	<0.002	
124	190	151	----	152	218	
<0.1	<0.1	<0.1	----	0.10	<0.1	
<0.31	<0.31	<0.31	----	0.31	<0.3	
<0.06	<0.06	<0.06	----	<0.06	<0.06	
6.4	5.2	4.4	----	5.0	5.0	
0.004	0.005	0.004	----	0.004	0.012	
<0.02	<0.02	<0.02	----	<0.02	0.093	
<0.008	<0.008	<0.008	----	<0.008	<0.008	
0.6	0.6	2.2	----	0.6	0.7	
23	32	32	----	21	23	
<0.2	<0.5	<0.2	----	<0.3	<0.1	
1.7	1.8	0.6	----	1.0	4.0	
85	84	58	----	69	76	
0.0	0.0	0.0	89.7	0.0	0.00	
114	113	126	38	108	93.00	
17.8	53.6	17.9	0.0	66.3	87.66	
0.065	0.080	0.068	----	0.079	0.090	
0.37	0.46	0.39	----	0.45	0.51	
----	----	0.7	----	----	----	
<2.0	<3.0	<2.0	<5.0	<5.0	<5.0	
6.00	8.70	6.97	0.00	7.02	9.86	
7.36	9.75	8.12	2.73	9.74	10.61	
145	208	158	82	225	248	
----	----	19.1	----	----	----	

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.4. ANS 16.1 Leach Test on Whole Grout with Groundwater (ANS5-5)

SAMPLE #	-----	WELL WATER	1	2	3	4	5	6	7	8	9
TIME	days	-----	0.0003	0.0833	0.292	1	2	3	13	20	27
pH		8.1	8.58	10.98	10.47	11.05	11.21	10.59	12.13	11.73	11.35
Eh	mv	295	243	171	188	248	251	256	313	272	185
Al	mg/l	<0.1	0.09	<0.03	<0.03	0.19	0.10	0.08	2.11	0.09	0.04
Ba	mg/l	0.06	0.040	<0.002	0.004	0.006	0.014	0.013	0.005	0.005	0.004
Ca	mg/l	56	50.6	1.6	7.8	8.0	12.6	13.1	1.5	2.3	2.7
Cd	mg/l	<0.005	<0.004	0.005	<0.004	<0.004	<0.004	0.010	<0.004	<0.004	0.005
Cr	mg/l	<0.015	<0.02	<0.02	<0.02	0.08	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.01	<0.005	0.014	<0.005	<0.005	0.010	0.009	<0.005	0.010	0.088
K	mg/l	7.8	6.9	9.8	9.1	12.0	11.0	10.0	22.0	14.0	12.0
Mg	mg/l	14.4	13.00	2.00	5.09	0.25	2.59	8.70	<0.06	0.30	1.50
Mn	mg/l	<0.01	0.004	<0.002	<0.002	<0.002	0.002	0.002	<0.002	<0.002	0.002
Na	mg/l	25	38	132	94	161	142	90	430	200	159
P	mg/l	<0.1	0.11	<0.1	0.21	<0.1	0.20	0.20	0.14	0.15	<0.1
as PO4	mg/l	<0.31	0.34	<0.31	0.60	<0.31	0.61	0.61	0.43	0.46	<0.31
Pb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	0.10	<0.06	0.09	0.11
Si	mg/l	15	13.5	10.2	10.8	10.1	10.7	12.3	11.1	8.7	8.0
Sr	mg/l	0.25	0.222	0.038	0.058	0.072	0.091	0.100	0.058	0.052	0.043
Zn	mg/l	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	<0.5	0.7	1.5	1.4	3.7	3.9	2.2	5.5	2.2	1.5
Cl-	mg/l	22	27	34	29	31	27	25	26	24	32
NO2-	mg/l	<0.03	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	0.1	0.3	1.1	0.7	1.1	0.8	0.5	3.0	1.3	1.2
SO4--	mg/l	66	80	102	90	94	90	83	106	85	85
HCO3-	mg/l	171	128.1	0.0	0.0	666.3	0.0	76.9	0.0	0.0	0.0
CO3--	mg/l	2.1	13	294	193	29	126	76	176	101	176
OH-	mg/l	0	0.0	41.7	27.4	0.0	21.4	0.0	288.4	46.4	0.0
B	mg/l	0.06	0.107	0.227	0.140	0.192	0.136	0.104	0.225	0.093	0.083
as H3BO3	mg/l	0.34	0.61	1.30	0.80	1.09	0.78	0.59	1.29	0.53	0.47
TOC	mg/l	1	----	----	----	----	----	----	----	----	----
PO4---	mg/l	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
CATIONS	meq/l	5.28	5.43	6.24	5.94	7.73	7.29	5.53	19.34	9.19	7.47
ANIONS	meq/l	5.54	5.15	10.68	7.61	10.34	8.47	6.50	22.75	8.85	8.82
TOT. ALK. =	mg/l	92.16	76	221	145	214	164	113	580	183	176
IC	mg/l	34.1	----	----	----	----	----	----	----	----	----

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.4. contd

SAMPLE #	-----	10	11	12	13	14	15	16	17
TIME	days	41	50	64	92	122	134	182	302
pH		11.57	11.20	10.75	11.32	11.06	9.76	10.58	11.74
Eh	mv	187	199	172	186	209	214	242	356
Al	mg/l	0.06	0.09	<0.03	0.04	<0.03	----	<0.03	<0.03
Ba	mg/l	<0.002	0.002	<0.002	<0.002	<0.002	----	<0.002	0.003
Ca	mg/l	1.4	2.6	1.8	1.1	1.2	----	0.9	0.8
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	----	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	----	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	0.005	<0.004	----	<0.004	<0.004
Fe	mg/l	<0.005	<0.005	<0.005	0.011	0.007	----	<0.005	<0.005
K	mg/l	15.0	10.0	9.9	14.0	11.8	----	12.0	13.5
Mg	mg/l	0.32	3.88	1.86	0.14	0.20	----	0.15	0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	----	<0.002	<0.002
Na	mg/l	223	128	143	210	170	----	175	250
P	mg/l	0.10	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.1
as PO4	mg/l	0.31	<0.31	<0.31	<0.31	<0.31	----	<0.31	<0.31
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	----	<0.06	<0.06
Si	mg/l	7.4	8.0	6.9	4.9	4.8	----	4.9	5.4
Sr	mg/l	0.016	0.017	0.009	0.007	0.006	----	0.060	0.022
Zn	mg/l	<0.02	0.037	<0.02	<0.02	<0.02	----	<0.02	0.035
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	----	<0.008	<0.008
F-	mg/l	2.0	0.9	0.3	1.0	3.1	----	0.8	1.1
Cl-	mg/l	25	26	25	33	52	----	21	24
NO2-	mg/l	<0.3	<0.2	<0.2	<0.1	<0.2	----	<0.3	<0.1
NO3-	mg/l	2.7	0.8	1.1	8.5	0.9	----	1.4	5.0
SO4--	mg/l	89	84	83	84	57	----	66	79
HCO3-	mg/l	371.5	230.6	0.0	0.0	0.0	51.2	0.00	0.00
CO3--	mg/l	63	13	151	88	126	63	108.00	113.60
OH-	mg/l	0.0	0.0	14.3	85.7	42.8	0.0	96.90	96.45
B	mg/l	0.105	0.071	0.073	0.090	0.071	----	0.080	0.101
as H3BO3	mg/l	0.60	0.41	0.42	0.51	0.41	----	0.45	0.58
TOC	mg/l	----	----	----	----	1.0	----	----	----
PD4---	mg/l	<0.5	<1.0	<2.0	<3.0	<2.0	----	<5.0	<5.0
CATIONS	meq/l	10.17	6.27	6.71	9.56	7.77	0.00	7.98	11.26
ANIONS	meq/l	8.35	5.58	8.42	10.95	9.62	2.94	11.98	11.94
TOT. ALK.*	mg/l	246	126	176	239	202	88	279	284
IC	mg/l	----	----	----	----	18.6	----	----	----

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.5. Static Leach Test on Whole Grout with Groundwater (ST2-1718)

SAMPLE #	-----	WELL WATER	17-1	18-1	17-2	18-2	17-3	18-3	17-4	18-4	17-6	18-6
TIME	days	-----	7	7	13	13	20	20	27	27	41	41
pH		8.1	12.17	12.43	12.53	12.23	12.23	12.58	12.51	12.49	12.52	12.53
Eh	mv	295	286	281	279	232	219	217	123	113	139	135
Al	mg/l	<0.1	10.8	14.2	11.4	12.4	12.2	13.1	12.6	10.8	13.0	4.9
Ba	mg/l	0.06	0.009	0.009	0.009	0.008	0.011	0.008	0.012	0.009	0.006	0.005
Ca	mg/l	56	3.3	3.5	3.1	0.7	4.2	0.7	4.6	3.7	0.3	3.5
Cd	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02
Cu	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.01	0.014	0.051	0.010	0.006	0.014	<0.005	0.010	0.008	0.196	<0.005
K	mg/l	7.8	34	35	38	37	42	40	43	42	45	46
Mg	mg/l	14.4	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.09	<0.06	<0.06	<0.06
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	740	808	840	830	930	904	980	949	1055	1054
P	mg/l	<0.1	<0.1	0.14	<0.1	<0.1	<0.1	0.15	<0.1	0.10	<0.1	<0.1
as PO4	mg/l	<0.31	<0.31	0.43	<0.31	<0.31	<0.31	0.46	<0.31	0.31	<0.31	<0.31
Pb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15	10.8	10.4	11.0	10.2	11.3	10.3	11.6	8.6	12.8	5.2
Sr	mg/l	0.25	0.083	0.088	0.094	0.073	0.108	0.084	0.112	0.095	0.041	0.079
Zn	mg/l	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	0.021	<0.008	0.031	0.010	0.020	<0.008	0.017	0.009	<0.008	<0.008
F-	mg/l	<0.5	9.1	9.8	9.4	9.4	10.0	9.4	10.0	10.0	11.0	11.0
Cl-	mg/l	22	27	28	27	27	27	27	29	28	22	22
NO2-	mg/l	<0.03	0.3	0.4	0.3	0.4	0.5	0.4	0.4	0.5	0.3	<0.3
NO3-	mg/l	0.1	5.2	6.2	5.8	6.0	6.6	6.0	6.9	6.9	14.0	14.0
SO4--	mg/l	86	161	184	158	158	168	168	170	170	148	150
HCO3-	mg/l	171	0.0	0.0	0.0	0.0	12.2	0.0	0.0	----	0.0	----
CO3--	mg/l	2.1	318	138	476	210	768	168	252	----	504	----
OH-	mg/l	0	329.8	241.0	228.0	280.5	0.0	496.4	599.5	----	499.8	----
B	mg/l	0.06	0.650	0.806	0.699	0.714	0.721	0.756	0.776	0.785	0.870	0.862
as H3BO3	mg/l	0.34	3.72	4.61	3.99	4.08	4.12	4.32	4.44	4.49	4.97	4.07
TOC	mg/l	1	3.1	---	2.8	----	2.9	----	3.0	----	2.0	----
PO4---	mg/l	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<5	<5	<5.0
CATIONS	meq/l	5.28	33.21	36.20	37.66	37.09	41.72	40.47	43.95	33.00	47.04	47.18
ANIONS	meq/l	5.54	34.87	24.21	40.36	28.32	30.87	39.86	48.83	----	50.87	----
TOT. ALK. #	mg/l	92.16	900	564	1068	705	774	1044	1310	----	1366	----
IC	mg/l	34.1	20.5	---	20.0	----	18.7	----	18.1	----	19.3	----

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.5. contd

SAMPLE #	-----	17-7	18-7	17-8	18-8	17-9	17-10	17-11	17-12	17-13	18-14
TIME	days	48	48	55	55	62	70	76	104	134	190
pH		12.51	12.52	12.63	13.14	12.55	12.53	12.48	12.44	12.33	12.36
Eh	mv	139	143	153	160	114	164	164	132	137	153
Al	mg/l	12.1	13.3	11.5	12.6	11.3	11.5	11.2	12.1	13.5	16.4
Ba	mg/l	0.012	0.012	0.012	0.013	0.012	0.011	0.011	0.014	0.010	0.110
Ca	mg/l	4.4	4.4	4.0	4.3	4.1	4.1	4.0	4.0	4.2	4.7
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	0.006	0.005	<0.004	<0.004	<0.004	<0.004	<0.004	0.005	<0.004	<0.004
Fe	mg/l	0.014	0.010	0.008	0.007	0.031	0.014	0.026	0.021	0.010	0.011
K	mg/l	44	45	42	43	42	42	41	41	43	47
Mg	mg/l	0.07	<0.06	<0.06	<0.06	0.05	<0.06	<0.06	<0.06	<0.06	0.12
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002
Na	mg/l	982	990	950	964	939	970	940	960	1008	1100
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
as PO4	mg/l	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	0.31
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	12.4	11.9	12.3	11.9	12.5	14.6	13.7	13.5	14.3	14.6
Sr	mg/l	0.116	0.122	0.115	0.121	0.115	0.115	0.116	0.117	0.119	0.130
Zn	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.060	<0.02	0.076
Zr	mg/l	<0.008	<0.008	0.102	0.035	0.047	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	9.9	9.9	10.0	9.9	9.9	9.5	9.4	11.0	12.0	13.0
Cl-	mg/l	26	27	27	26	23	24	20	22	23	23
NO2-	mg/l	0.3	0.4	0.3	0.3	0.4	0.3	3.4	<0.1	<0.2	<0.3
NO3-	mg/l	16.0	15.0	15.0	16.0	14.0	16.0	14.0	16.0	7.6	17.0
SO4--	mg/l	165	168	159	161	160	159	150	150	175	166
HCO3-	mg/l	0.0	----	0.0	----	0.0	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l	202	----	176	----	202	178	454	177	189	315
OH-	mg/l	621.1	----	600.1	----	599.5	577.4	385.6	635.3	678.3	785.4
B	mg/l	0.660	0.811	0.740	0.780	0.731	0.750	0.750	0.760	0.846	1.0
as H3BO3	mg/l	3.77	4.64	4.23	4.46	4.18	4.33	4.33	4.34	4.65	5.60
TDC	mg/l	2.4	----	2.3	----	2.4	5.1	4.4	2.2	2.9	----
PO4---	mg/l	<1.0	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<3.0	<1.0	<0.5
CATIONS	meq/l	44.10	44.42	42.6	43.2	42.1	43.46	42.12	42.99	45.14	49.27
ANIONS	meq/l	45.62	----	46.05	----	46.80	44.81	42.44	47.95	51.29	61.81
TOT. ALK. #	mg/l	1298	----	1235	----	1260	1197.00	1134.00	1298.00	1386.00	1701.00
IC	mg/l	18.3	----	22.1	----	17.1	41.5	30.3	14.9	31.5	----

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.5. contd

17-15	18-16
315	424
12.85	11.79
233	304
19.4	21.0
0.009	0.002
3.6	1.6
<0.004	<0.004
<0.02	<0.02
<0.004	<0.004
0.024	<0.005
47	48
<0.06	<0.06
<0.002	<0.002
1200	1163
<0.1	<0.1
<0.3	<0.3
<0.06	<0.06
16.9	17.4
0.101	0.046
<0.02	<0.02
<0.008	<0.008
15.0	12.0
23	27
<0.1	<0.1
22.0	22.0
213	200
0.00	0.00
774.00	276.08
365.50	749.11
1.110	1.240
6.35	7.09
4.5	----
<0.5	<0.5
53.56	51.87
53.53	59.18
1419.00	1598.04
48.7	----

(---) Data not available.

(#) Total Alkalinity as CO₃--.

TABLE A.6. Static Leach Test on Whole Grout with Groundwater (ST3-1819)

SAMPLE #	WELL WATER	18-1	19-1	18-2	19-2	18-3	19-3	18-4	19-4	18-6
TIME	days	7	7	13	13	20	20	27	27	41
pH		8.1	12.49	12.51	12.40	12.43	12.30	12.59	12.52	12.53
Eh	mv	295	284	289	304	263	229	202	119	116
Al	mg/l	<0.1	14.0	15.1	11.9	15.4	15.1	15.9	15.4	16.1
Ba	mg/l	0.06	0.008	0.009	0.009	0.011	0.009	0.008	0.011	0.005
Ca	mg/l	56	3.3	4.3	3.6	3.9	1.4	5.2	4.1	0.7
Cd	mg/l	<0.005	0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	0.03
Cu	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.005
Fe	mg/l	<0.01	0.015	0.018	0.006	0.010	0.005	0.009	0.007	0.013
K	mg/l	7.8	35	37	37	42	43	44	45	46
Mg	mg/l	14.4	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	776	808	776	900	932	956	969	1000
P	mg/l	<0.1	0.20	<0.1	<0.1	<0.1	0.17	0.10	<0.1	0.14
as PO4	mg/l	<0.31	0.61	<0.31	<0.31	<0.31	0.52	0.31	<0.31	0.43
Pb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15	9.8	9.7	9.1	9.9	9.7	9.9	10.0	9.2
Sr	mg/l	0.25	0.085	0.104	0.091	0.113	0.098	0.091	0.119	0.120
Zn	mg/l	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	0.0	<0.008	0.0	<0.008	0.0	<0.008	0.0	<0.008
F-	mg/l	<0.5	8.4	9.4	7.7	9.8	9.4	10.0	10.0	10.0
Cl-	mg/l	22	27.0	27	25	25	27	27	27	28
NO2-	mg/l	<0.03	0.7	0.7	0.5	0.7	0.7	0.8	0.7	0.8
NO3-	mg/l	0.1	6.2	6.2	6.1	7.3	7.4	7.7	7.7	8.4
SO4--	mg/l	86	184.0	180	156	180	179	187	182	191
HCO3-	mg/l	171	0.0	0.0	0.0	0.0	0.0	0.0	0.0	---
CO3--	mg/l	2.1	328	403	378	415	277	743	327	---
OH-	mg/l	0	392.7	442.7	385.6	510.7	535.0	324.9	557.1	---
B	mg/l	0.06	0.881	0.895	0.750	0.916	0.900	0.946	0.910	0.985
as H3BO3	mg/l	0.34	5.04	5.12	4.29	5.24	5.15	5.41	5.20	5.63
TDC	mg/l	1	---	---	---	---	---	---	---	---
PO4---	mg/l	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
CATIONS	meq/l	5.28	34.80	36.28	38.87	40.39	41.69	42.95	43.49	44.93
ANIONS	meq/l	5.54	39.32	44.76	39.83	49.15	46.01	49.37	49.04	---
TOT. ALK. #	mg/l	92.16	1021	1184	1058	1317	1222	1317	1310	---
IC	mg/l	34.1	---	---	---	---	---	---	---	---

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.6. contd

SAMPLE #	-----	19-6	18-7	19-7	18-8	19-8	18-9	18-10	18-11	18-12	18-13
TIME	days	41	48	48	55	55	62	70	76	104	134
pH		12.55	12.54	12.57	12.58	12.60	12.57	12.43	12.52	12.43	12.38
Eh	mv	127	135	178	149	151	101	210	181	145	139
Al	mg/l	16.8	15.6	15.9	14.5	15.2	14.6	14.9	14.3	15.9	17.0
Ba	mg/l	0.004	0.013	0.014	0.015	0.013	0.012	0.012	0.012	0.010	0.010
Ca	mg/l	1.2	4.5	5.5	3.9	5.2	4.0	4.2	4.1	4.0	4.2
Cd	mg/l	<0.004	0.008	<0.004	<0.004	<0.004	0.008	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	0.008	0.008	<0.004	<0.004	<0.004	0.011	0.004	<0.004	<0.004
Fe	mg/l	0.006	1.580	0.019	0.006	0.010	0.012	0.015	0.009	0.017	0.014
K	mg/l	48	45	47	43	45	44	43	41	43	42
Hg	mg/l	<0.06	<0.06	0.08	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Nn	mg/l	<0.002	0.008	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	1075	1000	1020	962	998	955	980	950	970	1015
P	mg/l	0.26	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	0.80	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	11.0	11.2	11.2	11.3	11.2	10.1	12.7	12.7	12.8	13.6
Sr	mg/l	0.049	0.129	0.140	0.128	0.140	0.126	0.126	0.125	0.128	0.124
Zn	mg/l	<0.02	<0.02	<0.02	0.028	0.022	<0.02	0.270	<0.02	<0.02	<0.02
Zr	mg/l	0.1	<0.008	<0.008	0.0	0.0	0.0	0.3	0.0	<0.008	<0.008
F-	mg/l	12.0	10.2	10.2	9.9	10.0	9.9	11.0	9.7	11.0	----
Cl-	mg/l	22	26	26	26	27	19	24	23	22	----
NO2-	mg/l	<0.3	0.7	0.7	0.6	0.6	0.6	0.5	0.4	<0.1	----
NO3-	mg/l	17.0	18.0	18.0	17.0	18.0	10.5	18.0	17.0	18.0	----
SO4--	mg/l	167	183	183	172	179	173	178	173	150	----
HCO3-	mg/l	---	0.0	0.0	0.0	---	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l	---	202	378	252	---	202	226	454	176	378
OH-	mg/l	---	671.2	589.1	621.2	---	571.1	593.0	407.0	635.5	571.2
B	mg/l	1.090	0.946	0.987	0.920	0.950	0.906	0.930	0.890	0.960	1.100
as H3BO3	mg/l	6.23	5.41	5.64	5.26	5.43	5.18	5.37	5.14	5.49	6.29
TDC	mg/l	---	---	---	---	---	---	---	---	---	---
PO4---	mg/l	<5.0	<1.0	<1.0	<1.0	<1.0	<2.0	<0.5	<0.5	<0.5	----
CATIONS	meq/l	48.03	44.86	45.83	43.12	44.82	41.42	43.93	42.56	43.48	45.40
ANIONS	meq/l	---	48.72	49.77	50.10	---	45.24	47.82	44.26	47.97	---
TOT. ALK. #	mg/l	---	1386	1418	1348	---	1210	1272	1172	1298	1386
IC	mg/l	---	---	---	---	---	---	---	---	---	---

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.6. contd

19 14	18-15
190	315
12.21	12.8
190	231
18.6	22
0.012	0.007
5.47	3.5
<0.004	<0.004
<0.02	<0.02
<0.004	<0.004
0.014	0.018
46	45
<0.06	<0.06
<0.002	<0.002
1090	1140
0.2	<0.1
0.61	<0.3
<0.06	<0.06
13.5	16.5
0.143	0.097
0.052	0.03
<0.008	<0.008
13	16
23	23
<0.3	<0.1
19	24
191	237
0.0	0.00
252	412.80
767.6	364.04
1.16	1.26
6.63	7.2
----	----
<0.5	<0.5
48.85	50.89
59.18	41.79
1606.5	1055.22
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(---) Data not available.

(#) Total Alkalinity as CO₃--.

TABLE A.7. Static Leach Test on Whole Grout with Groundwater (ST4-1319)

SAMPLE #	-----	WELL WATER									
			13-1	19-1	13-2	19-2	13-3	19-3	13-4	19-4	13-6
TIME	days	-----	7	7	13	13	20	20	27	27	41
pH		8.1	12.47	12.43	12.38	12.34	12.59	12.54	12.51	12.48	12.50
Eh	mv	295	294	294	278	304	215	215	133	126	123
Al	mg/l	<0.1	12.3	11.8	10.7	10.3	12.2	11.2	4.9	11.8	8.0
Ba	mg/l	0.06	0.011	0.009	0.007	0.010	0.008	0.012	0.007	0.013	0.005
Ca	mg/l	56	4.0	4.0	0.5	0.7	1.5	4.2	4.4	4.8	3.1
Cd	mg/l	<0.005	<0.004	<0.005	<0.004	<0.005	<0.004	<0.005	<0.004	<0.005	<0.004
Cr	mg/l	<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.008	<0.004
Fe	mg/l	<0.01	0.016	0.016	0.007	0.013	0.005	0.012	<0.005	0.015	<0.005
K	mg/l	7.8	33	30	35	32	39	35	43	37	44
Mg	mg/l	14.4	<0.06	<0.06	<0.06	0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	748.0	672.0	762.0	685.0	883	765	964	813	1020
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.12	<0.1
as PD4	mg/l	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	0.37	0.31
Pb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15	10.00	9.70	9.70	9.60	10.2	9.8	6.1	10.2	5.0
Sr	mg/l	0.25	0.099	0.098	0.068	0.082	0.091	0.117	0.104	0.122	0.059
Zn	mg/l	<0.01	<0.02	0.020	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	0.036	<0.008	0.029	0.017	<0.008	<0.008	<0.008	<0.008	0.093
F-	mg/l	<0.5	9.8	9.4	8.8	8.8	10.0	9.4	9.8	9.8	11.0
Cl-	mg/l	22	27	26	25	27	24	25	26	25	22
NO2-	mg/l	<0.03	0.7	0.5	0.5	0.5	0.7	0.7	0.7	0.5	<0.3
NO3-	mg/l	0.1	5.6	6.2	5.3	6.2	6.0	5.3	6.2	5.7	13.0
SO4--	mg/l	86	170	161	149	144	156	158	161	191	137
HCO3-	mg/l	171	170.8	0.0	0.0	0.0	0.0	0.0	0.0	---	0.0
CO3--	mg/l	2.1	27	192	192	480	216	216	227	---	328
OH-	mg/l	0	0.0	374.0	442.0	204.0	510.0	414.8	721.1	---	599.6
B	mg/l	0.06	0.709	0.681	0.655	0.623	0.710	0.628	0.752	0.669	0.772
as H3BO3	mg/l	0.34	4.05	3.89	3.75	3.56	4.06	3.59	4.30	3.82	4.41
TOC	mg/l	1	---	---	---	---	---	---	---	---	---
PD4---	mg/l	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5
CATIONS	meq/l	5.28	33.57	30.17	34.05	30.57	39.48	34.37	43.23	36.55	45.63
ANIONS	meq/l	5.54	35.08	33.15	36.92	32.46	41.90	36.38	54.86	---	50.49
TOT. ALK. *	mg/l	92.16	900	852	972	840	1116	948	1499	---	1386
IC	mg/l	34.1	---	---	---	---	---	---	---	---	---

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.7. contd

SAMPLE #	-----	19-6	13-7	19-7	13-8	19-8	13-9	13-10	13-11	13-12	13-13
TIME	days	41	48	48	55	55	62	70	76	104	134
pH		12.45	12.51	12.49	12.59	12.55	12.31	12.31	12.51	12.42	12.41
Eh	av	127	127	123	152	155	161	161	199	148	135
Al	mg/l	12.2	12.3	12.0	11.8	11.6	11.7	11.7	11.2	12.8	13
Ba	mg/l	0.004	0.012	0.017	0.016	0.014	0.012	0.015	0.013	0.011	0.012
Ca	mg/l	3.3	4.9	4.9	4.6	4.9	4.6	4.6	4.1	4.6	5.18
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.007	0.005	<0.004	<0.004
Fe	mg/l	<0.005	0.010	0.017	0.012	0.011	0.017	0.020	0.009	0.026	0.06
K	mg/l	41	42	38	43	40	43	43	42	42	40
Mg	mg/l	<0.06	<0.06	<0.06	<0.06	0.10	<0.06	0.07	<0.06	<0.06	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	914	989	892	940	857	938	960	920	945	980
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	11.2	11.8	11.7	12.0	11.9	12.4	13.3	13.4	13.6	13.4
Sr	mg/l	0.070	0.137	0.130	0.137	0.132	0.138	0.139	0.133	0.133	0.138
In	mg/l	<0.02	0.041	0.056	0.023	<0.02	<0.02	0.030	<0.02	<0.02	<0.02
Zr	mg/l	0.042	0.043	0.025	<0.008	0.021	0.011	0.030	<0.008	<0.006	<0.008
F-	mg/l	10.0	8.7	9.3	9.9	9.2	9.5	10.4	9.5	11.0	12
Cl-	mg/l	23	23	24	26	26	17	22	23	22	23
NO2-	mg/l	<0.3	0.5	0.5	0.6	0.6	0.6	1.6	0.4	<0.1	<0.2
NO3-	mg/l	12.0	13.0	12.0	14.0	12.0	13.0	71.0	9.2	15.0	6.5
SO4--	mg/l	133	144	147	150	143	147	172	143	140	150
HCO3-	mg/l	---	0.0	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l	---	227	---	227	265	176	255	830	202	302
OH-	mg/l	---	556.9	---	614.0	492.4	614.0	577.5	129.2	670.9	610.5
B	mg/l	0.710	0.713	0.651	0.688	0.634	0.691	0.710	0.670	0.730	0.765
as H3BO3	mg/l	4.01	4.08	3.72	3.93	3.63	3.95	4.10	3.87	4.17	4.49
TOC	mg/l	---	---	---	---	---	---	---	---	---	---
PD4---	mg/l	<0.5	<1.0	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<3.0	<1.0
CATIONS	meq/l	40.96	44.32	40.00	42.20	38.53	42.12	43.08	41.29	42.40	43.50
ANIONS	meq/l	---	42.37	---	48.33	42.23	46.33	48.55	39.71	50.66	50.54
TGT.ALK.*	mg/l	---	1210	---	1310	1134	1260	1274	1058	1386	1379.7
IC	mg/l	---	---	---	---	---	---	---	---	---	---

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.7. contd

13-14 13-15

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190	315
12.24	12.87
207	243
14.5	17
0.012	0.013
4.84	5.7
<0.004	<0.004
<0.02	<0.02
<0.004	<0.004
0.14	0.018
44	47
<0.06	<0.06
<0.002	<0.002
995	1170
<0.1	<0.1
<0.31	<0.31
<0.06	<0.06
14.8	15.7
0.13	0.139
<0.05	<0.05
<0.008	<0.008
12	14
22	21
<0.3	<0.1
15	20
153	193
0.0	0.00
252	774.00
642.6	190.60
0.77	0.95
4.4	5.43
----	----
<0.5	<0.5
44.64	52.36
50.89	42.65
1386	1109.4
----	----

(---) Data not available.

(#) Total Alkalinity as CO₃--.

TABLE A.8. Static Leach Test on Whole Grout with Groundwater (ST5-1719)

SAMPLE #	-----	WELL WATER	17-1	19-1	17-2	19-2	17-3	19-3	17-4	19-4	17-6
			7	7	13	13	20	20	27	27	41
TIME	days	-----	7	7	13	13	20	20	27	27	41
pH		8.1	12.29	12.44	12.39	12.01	12.80	12.78	12.49	12.70	12.51
Eh	mv	295	303	302	303	304	214	217	111	112	114
Al	mg/l	<0.1	5.3	13.4	11.8	11.3	14.7	14.1	14.8	13.6	15.7
Ba	mg/l	0.06	0.007	0.006	0.008	0.008	0.007	0.007	0.009	0.007	<0.002
Ca	mg/l	56	3.4	3.4	2.6	2.3	1.6	1.5	2.4	2.6	1.2
Cd	mg/l	<0.005	0.007	<0.007	<0.004	<0.007	<0.004	<0.007	<0.004	<0.007	<0.004
Cr	mg/l	<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.01	0.011	0.008	<0.005	<0.005	<0.005	0.007	0.115	0.010	<0.005
K	mg/l	7.8	27	33	34	34	39	40	41	40	44
Hg	mg/l	14.4	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	523	818	828	818	981	975	1000	993	1042
P	mg/l	<0.1	0.19	<0.1	<0.1	0.20	<0.1	<0.1	0.12	0.20	0.17
as PO4	mg/l	<0.31	0.58	<0.31	<0.31	0.58	<0.31	<0.31	0.37	0.61	0.52
Pb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15	8.8	10.1	9.7	9.8	10.3	10.6	10.7	10.5	12.0
Sr	mg/l	0.25	0.063	0.085	0.087	0.084	0.090	0.086	0.098	0.084	0.040
Zn	mg/l	<0.01	0.024	0.027	0.039	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.007
F-	mg/l	<0.5	9.4	4.5	8.1	8.8	10.0	10.0	10.0	11.0	11.0
Cl-	mg/l	22	27	20	25	24	26	25	27	26	23
NO2-	mg/l	<0.03	0.5	0.3	0.5	0.5	0.7	0.7	0.7	0.7	<0.3
NO3-	mg/l	0.1	5.7	3.0	5.7	5.7	6.9	7.0	7.2	7.3	15.0
SO4--	mg/l	86	170	99	149	153	156	172	161	172	153
HCO3-	mg/l	171	0.0	0.0	0.0	307.0	0.0	---	0.0	0.0	0.0
CO3--	mg/l	2.1	428	504	327	958	454	---	277	340	252
OH-	mg/l	0	128.5	324.9	421.0	0.0	492.7	---	656.3	578.3	664.0
B	mg/l	0.06	0.914	0.814	0.739	0.674	0.829	0.829	0.844	0.807	0.738
as H3BO3	mg/l	0.34	2.37	4.65	4.23	3.85	4.74	4.74	4.83	4.61	5.36
TOC	mg/l	1	---	---	---	---	---	---	---	---	---
PO4---	mg/l	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CATIONS	meq/l	5.28	23.61	41.90	37.00	41.89	43.73	49.84	44.64	50.79	46.50
ANIONS	meq/l	5.54	26.89	38.84	40.05	41.39	48.74	---	52.67	50.40	52.14
TOT. ALK. #	mg/l	92.16	655	1077	1071	1108	1323	---	1436	1361	1424
IC	mg/l	34.1	---	---	---	---	---	---	---	---	---

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.8. contd

SAMPLE #	-----	19-6	17-7	19-7	17-8	19-8	17-9	17-10	17-11	17-12	17-13
TIME	days	41	48	48	55	55	62	70	76	104	134
pH		12.51	12.55	12.53	12.62	12.57	12.55	12.29	12.50	12.42	12.40
Eh	mv	117	126	113	152	153	112	143	160	146	142
Al	mg/l	12.3	16.1	15.4	15.2	14.7	15.9	15.4	14.6	----	17.7
Ba	mg/l	<0.002	0.012	0.011	0.013	0.010	0.011	0.011	0.011	----	0.008
Ca	mg/l	1.3	3.2	3.0	2.8	2.3	3.4	3.5	2.9	----	3.1
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	0.008	<0.004	<0.004	<0.004	----	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	----	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	0.005	<0.004	0.005	<0.004	<0.004	----	<0.004
Fe	mg/l	<0.005	0.026	0.034	0.011	0.019	0.023	0.018	0.017	----	0.018
K	mg/l	44	43	42	44	43	45	43	42	----	42
Mg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	----	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	----	<0.002
Na	mg/l	1034	1060	1027	1000	980	1040	1020	960	----	1185
P	mg/l	<0.1	<0.1	0.10	<0.1	<0.1	<0.1	0.10	0.10	----	<0.1
as PO4	mg/l	<0.31	<0.31	0.31	<0.31	<0.31	<0.31	0.31	0.31	----	<0.31
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	----	<0.06
Si	mg/l	8.0	12.5	13.2	12.8	13.6	13.8	14.3	14.3	----	16.5
Sr	mg/l	0.037	0.103	0.088	0.103	0.084	0.107	0.099	0.094	----	0.090
Zn	mg/l	<0.02	0.072	0.054	0.046	0.047	<0.02	0.030	0.020	----	0.030
Zr	mg/l	0.090	<0.008	<0.008	<0.008	0.018	<0.008	<0.008	<0.008	----	<0.008
F-	mg/l	12.0	10.8	11.4	11.0	11.0	11.0	11.2	11.5	14.0	----
Cl-	mg/l	22	26	25	27	26	19	22	24	23	----
NO2-	mg/l	<0.3	0.5	0.5	0.6	0.6	0.6	0.5	0.4	<0.1	----
NO3-	mg/l	15.0	16.0	16.0	16.0	16.0	15.0	16.0	16.0	18.0	----
SO4--	mg/l	150	174	171	168	165	168	167	166	160	----
HCO3-	mg/l	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l	302	277	1285	253	983	353	227	227	176	315
OH-	mg/l	610.5	656.9	42.6	685.2	257.0	549.8	614.0	599.8	685.4	676.3
B	mg/l	0.900	0.916	0.875	0.876	0.860	0.909	0.880	0.830	----	0.83
as H3BO3	mg/l	5.15	5.24	5.00	5.01	4.92	5.20	5.03	4.74	----	4.74
TGC	mg/l	----	----	----	----	----	----	----	----	----	----
PO4---	mg/l	<0.5	<1.0	<1.0	<1.0	<1.0	<2.0	<5.0	<5.0	<3.0	----
CATIONS	meq/l	46.15	47.36	45.68	44.76	43.84	43.80	45.63	42.97	----	----
ANIONS	meq/l	50.63	50.31	47.75	53.88	52.93	49.03	46.80	48.01	51.31	----
TOT. ALK. #	mg/l	1380	1436	1361	1462	1436	1323	1310	1285	1366	1512
IC	mg/l	----	----	----	----	----	----	----	----	----	----

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.8. contd

17-14 17-15

190	315
12.21	12.83
172	243
19.6	22.6
0.007	0.006
1.8	2.6
<0.004	<0.004
<0.02	<0.02
<0.004	<0.004
0.044	0.026
46	47
<0.06	<0.06
<0.002	<0.002
1125	1230
<0.1	<0.1
<0.31	<0.31
<0.06	<0.06
21.2	20.0
0.055	0.073
0.065	0.030
<0.008	<0.008
20	17
23	23
<0.3	<0.1
18	23
176	229
0.0	0.00
504	774.00
571.2	453.22
1.1	1.21
6.29	6.92
----	----
<0.5	<0.5
50.18	54.81
56.08	59.15
1512	1573.8
----	----

(---) Data not available.
 (#) Total Alkalinity as CO3--.

TABLE A.9. Column Absorption Test on Whole Grout in Sediment (COLT1)

SAMPLE #	TIME	WELL WATER	WELL								
			1	2	3	4	5	6	7	8	9
	days		3	6	9	13	17	20	23	27	30
pH		8.1	12.27	12.13	12.30	12.37	12.31	12.12	12.12	11.88	12.05
Eh	mv	295	192	269	165	125	160	185	154	278	155
Al	mg/l	<0.1	1.52	3.70	4.50	6.40	6.30	5.56	6.60	7.77	7.90
Ba	mg/l	0.06	0.008	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l	56	19.1	3.6	3.3	2.9	2.2	2.0	2.2	2.1	1.8
Cd	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	0.060	0.008	0.020	<0.004	0.009	0.014	0.011	0.100	<0.004
Fe	mg/l	<0.01	<0.005	0.012	0.016	0.014	0.049	<0.005	<0.005	<0.005	0.030
K	mg/l	7.8	4.2	<0.3	<0.3	<0.3	2.3	<0.3	<0.3	<0.3	2.0
Mg	mg/l	14.4	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	794	930	810	760	600	540	570	550	550
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.14
as PO4	mg/l	<0.3	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	0.43
Pb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15	116.0	167.0	152.0	121.0	93.0	97.4	96.3	90.9	81.6
Sr	mg/l	0.25	0.114	0.018	0.018	0.014	0.010	0.011	0.010	0.010	0.008
Zn	mg/l	<0.01	<0.02	<0.02	0.050	0.060	0.080	<0.02	<0.02	<0.02	<0.008
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	<0.5	13.0	8.5	8.5	13.0	5.7	6.0	5.0	5.0	4.0
Cl-	mg/l	22	32	21	23	11	22	23	16	23	21
NO2-	mg/l	<0.03	<0.1	<3.0	<3.0	<3.0	<0.1	<0.1	<0.1	<0.1	<0.5
NO3-	mg/l	0.1	70.0	13.0	12.0	7.7	11.0	8.0	10.0	5.0	5.0
SO4--	mg/l	86	540	130	140	110	100	117	108	100	110
HCO3-	mg/l	171	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l	2.1	378	315	252	189	1235	265	225	412	959.7
OH-	mg/l	0	321.3	464.1	374.9	339.2	14.3	235.5	283.7	139.4	0.0
B	mg/l	0.06	3.300	1.100	0.940	0.610	0.420	0.470	0.392	0.320	0.299
as H3BO3	mg/l	0.34	18.87	6.29	5.37	3.49	2.40	2.68	2.24	1.83	1.71
TGC	mg/l	1	22.9	11.8	15.6	6.3	5.6	7.7	5.6	4.7	----
PO4---	mg/l	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
CATIONS	meq/l	5.28	35.59	40.63	35.40	33.20	26.26	23.59	24.90	24.03	24.06
ANIONS	meq/l	5.54	45.63	41.98	34.88	29.88	45.34	26.37	27.47	25.17	22.28
TOT. ALK. #	mg/l	92.16	945	1134	914	788	1260	660	725	658	573
IC	mg/l	34.1	34.3	65.1	233.7	26.1	35.9	39.2	26.5	63.2	----
F. VOL.			1.44	2.91	4.49	6.66	8.47	9.65	11.47	14.36	16

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.9. contd

SAMPLE #	-----	10	11	12	13	14	15	16	17	18	19
TIME	days	34	37	41	44	49	52	58	62	65	69
pH		11.50	11.86	11.74	11.54	11.46	11.75	11.66	11.32	11.32	10.96
Eh	mv	230	304	196	177	235	253	191	280	220	261
Al	mg/l	7.17	6.91	6.68	6.46	11.00	10.80	10.00	7.34	6.01	5.65
Ba	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l	1.6	1.6	1.4	1.4	0.7	1.0	0.8	0.8	0.8	0.7
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	0.033	0.038	0.032	0.024	0.038	0.041	0.031	0.032	0.041	0.032
K	mg/l	2.2	1.9	2.4	1.8	2.7	1.8	2.8	2.0	3.4	3.2
Mg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	414	363	348	346	402	354	347	241	203	195
P	mg/l	0.15	0.12	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	0.12	0.11
as PO4	mg/l	0.45	0.36	0.40	<0.3	<0.3	<0.3	<0.3	<0.3	0.37	0.34
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	67.6	58.4	55.0	52.9	50.6	42.0	41.0	24.9	21.1	22.0
Sr	mg/l	0.007	0.007	0.007	0.005	0.003	0.003	0.003	0.002	0.005	0.003
Zn	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	0.020	<0.006	<0.006	<0.006	<0.006
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.006	<0.006	<0.006
F-	mg/l	4.0	3.5	3.4	5.6	3.5	4.8	4.9	3.6	4.1	4.4
Cl-	mg/l	24	20	21	25	25	23	23	23	18	23
NO2-	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NO3-	mg/l	4.3	3.6	3.5	5.0	3.8	4.1	3.9	1.7	2.1	2.3
SO4--	mg/l	96	88	88	100	105	98	88	86	85	98
HCO3-	mg/l	0.0	0.0	146.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l	754.4	849.9	660.8	567.3	614.1	630.3	597.8	341.6	124	154
OH-	mg/l	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.2	26.6
B	mg/l	0.243	0.211	0.202	0.193	0.397	0.340	0.330	0.188	0.195	0.211
as H3BO3	mg/l	1.39	1.21	1.16	1.10	2.27	1.94	1.88	1.07	1.11	1.21
TDC	mg/l	----	----	----	----	----	----	----	----	----	----
PO4---	mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
CATIONS	meq/l	18.14	15.92	15.27	15.17	17.59	15.49	15.20	10.57	8.96	6.60
ANIONS	meq/l	20.26	20.44	26.73	16.57	19.04	17.11	15.71	11.26	9.50	9.66
TOT. ALK.*	mg/l	519	534	722	402	477	423	387	258	209.0	201
IC	mg/l	----	----	----	----	----	----	----	----	----	----
F. VOL.		18.56	20.64	23.36	25.27	21.75	23.7	27.25	31.44	33.26	37.15

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.9. contd

SAMPLE #	-----	20	21	22	23	24	26	28	30	32	34	36
TIME	days	72	76	80	84	87	94	100	107	115	121	128
pH		11.20	10.72	10.85	10.37	10.93	10.6	10.83	9.62	9.67	9.51	9.99
Eh	av	204	286	257	151	401	209	259	276	275	235	349
Al	mg/l	5.02	4.32	4.15	3.51	3.12	2.8	2.3	1.31	1.23	1.14	1.13
Ba	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002
Ca	mg/l	0.7	0.8	0.8	0.8	0.9	0.97	1.1	1.67	1.57	4.74	1.9
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.006
Fe	mg/l	0.018	0.017	0.009	0.007	0.009	0.019	0.01	0.014	0.009	0.009	0.008
K	mg/l	2.1	2.1	1.7	2.2	1.7	4	6.2	9	14.4	19	19.1
Mg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	171	168	163	151	148	135	119	100	103	104	101
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	19.8	20.2	18.7	15.8	16.9	15.8	11.1	8.34	10.9	11.9	13
Sr	mg/l	0.003	0.004	0.003	0.006	0.004	0.004	0.004	0.009	0.008	0.022	0.014
Zn	mg/l	0.054	<0.008	<0.008	0.066	0.078	0.060	0.06	0.031	0.022	<0.02	0.021
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	4.0	4.0	3.6	3.8	4.3	----	3	3.6	3.3	3.6	3.7
Cl-	mg/l	25	28	25	25	26	----	23	24	23	22	21
NO2-	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.3	<0.3	4.7	3.4
NO3-	mg/l	2.2	2.0	1.8	2.1	2.8	----	2	4.8	4.5	7	7
SO4--	mg/l	91	107	91	91	100	----	83	87	79	97	81
HCO3-	mg/l	0.0	0.0	0.0	22.4	141.64	31.48	828.87	41.97	89.18	104.92	31.48
CO3--	mg/l	134	154	104	144	51.50	118.68	123.84	41.28	30.96	25.86	61.92
OH-	mg/l	26.1	9.1	31.7	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B	mg/l	0.193	0.219	0.183	0.176	0.209	0.17	0.15	0.164	0.175	0.191	0.177
as H3BO3	mg/l	1.10	1.25	1.04	1.01	1.19	0.97	0.85	0.93	1	1.09	1.13
TOC	mg/l	----	----	----	----	----	----	----	3.13	2.58	1.6	2.31
PO4---	mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	----	<0.3	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	7.53	7.40	7.18	6.67	6.53	6.03	5.39	4.67	4.93	5.25	4.96
ANIONS	meq/l	9.01	9.09	8.31	8.16	7.13	----	20.28	4.82	5.05	5.63	5.25
TOT. ALK. *	mg/l	180	170	160	155	121	134.16	531.48	61.92	74.82	77.4	77.4
IC	mg/l	----	----	----	----	----	----	----	21.66	19.64	27.23	28.93
F. VOL.		39.13	41.76	46.26	49.11	51.02	56.32	64.06	67.83	72.3	74.56	79.24

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.9. contd

SAMPLE #	-----	39	41	43	45	47	49	50
TIME	days	142	153	163	172	181	221	251
pH		9.89	9.49	9.4	9.5	8.45	7.99	8.02
Eh	mv	359	236	371	367	353	332	283
Al	mg/l	1.23	0.871	0.611	0.468	0.38	0.297	0.165
Ba	mg/l	<0.002	<0.002	<0.002	0.004	0.004	0.004	0.008
Ca	mg/l	1.88	2.42	3.22	4.9	5.07	6.65	14.1
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	0.005	0.012	0.007	<0.005	0.01	0.01	<0.005
K	mg/l	20	22	23	24	21	17	16
Hg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.519
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	0.003	<0.003	<0.002
Na	mg/l	85.4	74	67	64.8	77.2	62.3	52.7
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	9.11	6.5	6.29	6.78	8.43	6.6	7.08
Sr	mg/l	0.008	0.012	0.015	0.022	0.025	0.032	0.084
In	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	3.7	4	3.6	4.3	4.2	3.6	3.02
Cl-	mg/l	23.7	23.7	23.3	27	23	23	22.1
NO2-	mg/l	1.4	1.1	1	1.4	1.4	<0.3	<0.3
NO3-	mg/l	6.2	7.8	6.9	6.8	19	<0.5	4.92
SO4--	mg/l	82	81	78	82	84	80	78.8
HCO3-	mg/l	42.05	62.95	47.21	15.74	52.46	56.12	56.12
CO3--	mg/l	46.40	20.64	20.64	30.96	15.48	0.00	0.00
OH-	mg/l	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B	mg/l	0.143	0.138	0.13	0.162	0.198	0.146	0.14
as H3BO3	mg/l	0.82	0.79	0.74	0.93	1.13	0.83	0.8
TOC	mg/l	6.91	2.37	2.49	----	0.9	0.82	----
PO4---	mg/l	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	4.32	3.91	3.67	3.68	4.15	3.48	3.45
ANIONS	meq/l	4.95	4.45	4.08	4.14	4.34	3.43	3.42
TOT. ALK.*	mg/l	67.08	51.6	43.86	38.7	41.28	27.6	27.6
IC	mg/l	18.82	17.18	15.58	----	13.94	10.5	----
P. VOL.		90.19	95.45	101.7	107.75	111.33	133.14	151.85

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.10. Column Absorption Test on Whole Grout in Sediment (COL1)

SAMPLE #	TIME	days	WELL WATER	1	2	3	4	5	6	7	8	9
				3	6	9	13	17	20	23	27	30
pH			8.1	12.45	12.21	12.35	12.59	12.35	12.29	12.48	12.10	12.08
Eh	mv		295	257	180	310	173	252	220	160	202	294
Al	mg/l		<0.1	1.52	7.50	4.80	7.50	9.30	8.90	9.94	10.00	10.30
Ba	mg/l		0.06	0.008	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l		56	19.1	3.8	3.6	3.0	2.5	2.4	1.9	1.9	1.7
Cd	mg/l		<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l		<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l		<0.005	0.076	0.038	0.022	0.016	0.008	0.018	0.005	<0.004	<0.004
Fe	mg/l		<0.01	<0.005	0.020	<0.005	0.024	<0.005	<0.005	<0.005	<0.005	0.038
K	mg/l		7.8	6.3	1.9	1.9	<0.3	1.6	2.8	1.4	1.9	1.8
Mg	mg/l		14.4	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l		<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l		25	1130	1080	890	820	530	710	640	590	590
P	mg/l		<0.1	0.20	<0.1	<0.1	<0.1	<0.1	0.17	0.13	0.15	<0.1
as PO4	mg/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.52	0.39	0.46	<0.3
Pb	mg/l		<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l		15	103.0	150.0	159.0	115.0	103.0	108.0	89.4	85.9	76.8
Sr	mg/l		0.25	0.126	0.020	0.018	0.014	0.012	0.012	0.009	0.010	0.008
Zn	mg/l		<0.01	<0.02	<0.02	0.040	<0.02	0.050	<0.02	<0.02	<0.02	<0.02
Zr	mg/l		<0.008	<0.008	<0.008	<0.008	0.1	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l		<0.5	22.0	16.0	12.0	11.0	11.0	9.0	8.0	8.0	7.0
Cl-	mg/l		22	34	22	23	21	21	24	24	23	22
NO2-	mg/l		<0.03	<0.1	<3.0	<3.0	<3.0	<0.1	<0.1	<0.1	<0.1	<0.5
NO3-	mg/l		0.1	96.0	22.0	13.0	11.0	11.0	8.8	3.0	5.3	5.0
SO4--	mg/l		86	880	230	175	160	150	144	137	116	110
HCO3-	mg/l		171	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l		2.1	504	315	378	252	378	378	223	314	266
OH-	mg/l		0	392.7	589.1	303.5	392.7	396.3	310.6	300.4	214.2	218.2
B	mg/l		0.06	5.240	2.300	1.400	1.200	1.400	0.846	0.870	0.804	0.523
as H3BO3	mg/l		0.34	29.97	13.16	8.00	6.86	8.00	4.84	4.90	4.60	2.99
TOC	mg/l		1	21.4	11.6	11.1	6.2	5.9	7.4	4.9	3.9	----
PO4---	mg/l		<0.1	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
CATIONS	meq/l		5.28	50.25	47.20	38.93	35.82	23.21	31.07	27.96	25.80	25.78
ANIONS	meq/l		5.54	62.06	51.98	35.81	36.40	40.54	35.16	29.11	26.64	25.06
TOT. ALK. #	mg/l		92.16	1197	1355	914	945	1077	926	753	692	651
IC	mg/l		34.1	45.4	56.2	56.7	30.3	48.6	46.2	37.1	39.6	----
P. VOL.				1.33	2.72	4.15	5.89	6.92	8.01	9.67	11.94	13.74

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.10. contd

SAMPLE #	-----	10	11	12	13	14	15	16	17	18	19
TIME	days	34	37	41	44	49	52	58	62	65	69
pH		11.87	11.44	11.76	11.37	11.43	11.39	11.56	11.51	10.46	10.98
Eh	mv	285	289	264	175	241	270	190	280	234	243
Al	mg/l	10.60	10.30	9.29	8.41	8.07	7.65	7.77	6.66	5.67	4.45
Ba	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l	1.6	1.6	1.2	1.1	1.0	1.1	1.0	1.0	1.0	0.9
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	0.019	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	0.028	0.035	0.033	0.043	0.042	0.039	0.030	0.030	0.035	0.035
K	mg/l	1.3	1.3	1.8	1.4	1.3	0.7	3.0	2.6	2.1	1.9
Hg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	428	387	364	330	308	280	313	239	204	202
P	mg/l	0.15	0.15	0.13	0.12	0.11	<0.1	<0.1	0.12	0.16	0.13
as PO4	mg/l	0.45	0.45	0.39	0.36	0.34	<0.3	0.31	0.37	0.49	0.40
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	65.5	56.9	51.1	45.4	41.3	35.3	41.9	28.0	24.4	29.7
Sr	mg/l	0.006	0.008	0.008	0.004	0.004	0.004	0.005	0.004	<0.002	0.006
Zn	mg/l	0.065	0.02	<0.02	0.018	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	6.2	5.7	5.3	5.1	4.7	4.9	4.5	3.3	4.0	5.5
Cl-	mg/l	21	21	21	25	25	24	23	22	22	22
NO2-	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NO3-	mg/l	4.2	3.7	3.4	29.0	12.0	3.5	3.5	1.6	2.0	4.5
SO4--	mg/l	102	97	93	97	96	96	98	88	82	98
HCO3-	mg/l	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l	310	628.3	660.8	488.0	567.3	471.7	504.3	345.7	200	186
OH-	mg/l	131.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	26.1
B	mg/l	0.452	0.392	0.332	0.302	0.311	0.280	0.307	0.185	0.207	0.291
as H3BO3	mg/l	2.58	2.24	1.89	1.72	1.77	1.60	1.75	1.05	1.18	1.66
TOC	mg/l	---	---	---	---	---	---	---	---	---	---
PO4---	mg/l	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5
CATIONS	meq/l	18.73	16.94	15.94	14.45	13.48	12.25	13.74	10.51	8.98	8.88
ANIONS	meq/l	21.80	16.22	19.37	16.10	16.05	14.09	13.82	10.69	9.77	10.76
TOT. ALK. *	mg/l	542	397	495	379	387	333	325	240	216	232
IC	mg/l	---	---	---	---	---	---	---	---	---	---
F. VOL.		15.78	17.41	19.68	21.39	24.16	25.35	28.83	32.37	34.97	38.56

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.10. contd

SAMPLE #	-----	20	22	23	24	26	28	30	32	34	36
TIME	days	72	80	84	87	94	100	107	115	121	128
pH		10.98	11.38	11.33	11.08	11.52	10.8	9.99	10.31	10.17	9.3
Eh	mv	210	319	151	385	261	227	258	230	246	341
Al	mg/l	4.69	5.75	5.84	5.13	5.1	3.9	2.44	1.97	1.68	1.27
Ba	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l	1.0	0.8	0.9	0.9	0.85	1.1	1.37	1.11	1.19	1.81
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	0.020	0.023	0.008	0.011	0.015	0.017	0.028	0.024	<0.005	0.007
K	mg/l	1.8	1.2	1.3	0.9	2.6	2.6	2.5	3	4.9	8.7
Mg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	171	250	216	202	177	147	129	123	104	101
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	33.0	39.0	30.3	28.0	21.5	14.3	11.9	13.4	11.1	9.95
Sr	mg/l	0.004	0.007	0.005	0.006	0.004	0.005	0.008	0.006	0.004	0.009
Zn	mg/l	0.092	0.019	0.205	0.062	0.04	0.02	0.025	0.021	<0.02	0.053
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.016	0.01	0.013	<0.008
F-	mg/l	5.8	4.6	3.7	4.1	3.2	3.1	3.3	3.1	2.6	3.3
Cl-	mg/l	25	24	23	25	23	24	24	23	21	23
NO2-	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.3	2.5	4.3
NO3-	mg/l	6.8	3.7	2.3	2.8	1.6	1.5	1.9	1.6	1.4	2.3
SO4--	mg/l	110	106	91	97	86	88	86	79	72	81
HCO3-	mg/l	0.0	0.0	22.4	299.02	0.00	365.76	141.64	99.67	26.23	57.71
CO3--	mg/l	184	154	144	30.96	129.00	10.32	20.64	41.28	77.40	36.12
OH-	mg/l	32.9	67.4	0.0	0.00	33.63	0.00	0.00	0.00	0.00	0.00
B	mg/l	0.313	0.302	0.207	0.223	0.17	0.15	0.167	0.167	0.138	0.155
as H3BO3	mg/l	1.79	1.72	1.18	1.27	0.97	0.85	0.96	0.96	0.79	0.887
TGC	mg/l	---	---	---	---	---	---	---	2.13	---	---
PO4---	mg/l	<.5	<.5	<.5	<.5	<.5	<.5	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	7.53	10.95	9.48	8.86	7.81	6.52	5.75	5.49	4.71	4.71
ANIONS	meq/l	11.48	12.31	7.96	8.94	8.93	9.06	5.70	5.28	5.66	4.79
TOT. ALK. #	mg/l	242	273	155	178	188.34	190.2	90.3	90.3	90.3	64.5
IC	mg/l	---	---	---	---	---	---	---	18.7	---	---
P. VOL.		39.63	42.29	44.7	46.18	50.99	57.84	61.38	66.4	72.36	77.15

(---) Data not available.

Total Alkalinity as CO3--.

TABLE A.10. contd

SAMPLE #	-----	39	41	43	45	47	49	50
TIME	days	142	149	156	168	177	213	243
pH		9.33	9.32	8.42	9.16	8.17	8.08	8.11
Eh	mv	364	301	383	372	322	326	287
Al	mg/l	0.898	0.666	0.515	0.376	0.205	0.101	0.171
Ba	mg/l	0.003	0.004	0.006	0.007	0.011	0.009	0.01
Ca	mg/l	2.69	3.58	5.1	6.48	13	12.5	14.6
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	0.01	0.005	0.008	0.005	0.005	<0.005	<0.005
K	mg/l	21	27	29	26	22	13	12
Mg	mg/l	<0.06	<0.06	0.151	0.371	1.66	2.16	3.45
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	84.2	69.6	64.1	64.3	51.8	56.5	52.9
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	8.65	7.19	7.31	8.05	8.53	8.5	7.08
Sr	mg/l	0.012	0.018	0.029	0.037	0.08	0.072	0.084
Zn	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	0.016	<0.008
F-	mg/l	3.1	3.1	2.7	3	4.2	3	2.95
Cl-	mg/l	25.8	22.6	23	22.6	23	27	22.6
NO2-	mg/l	3.1	2.5	1.8	0.8	1.4	<0.3	<0.3
NO3-	mg/l	3.6	5.3	5.3	4.4	5.7	<0.5	9.58
SO4--	mg/l	79	77	76	80	72	80	78.8
HCO3-	mg/l	47.25	52.46	57.71	57.71	69.05	49.29	39.28
CO3--	mg/l	30.96	20.64	15.48	15.48	10.32	0.00	11.04
OH-	mg/l	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B	mg/l	0.135	0.132	0.125	0.137	0.117	0.136	0.134
as H3BO3	mg/l	0.772	0.75	0.71	0.78	0.67	0.78	0.77
TOC	mg/l	----	----	----	----	----	----	----
PO4---	mg/l	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	4.34	3.90	3.80	3.82	3.60	3.59	3.62
ANIONS	meq/l	4.48	4.10	3.97	4.02	3.97	3.39	3.60
TOT. ALK. #	mg/l	54.2	46.44	43.86	43.86	44.28	24.24	30.36
IC	mg/l	----	----	----	----	----	----	----
P. VOL.		89.25	94.68	102.67	111.94	123.04	149.07	169.17

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.11. Column Absorption Test on Whole Grout in Sediment (COLC1)

		WELL									
SAMPLE #	-----	WATER	1	2	3	4	5	6	7	8	9
TIME	days	-----	3	6	9	13	17	20	23	27	30
pH		8.1	12.59	12.16	12.45	12.37	12.02	12.18	12.10	11.76	11.97
Eh	mv	295	181	284	136	156	210	231	162	312	183
Al	mg/l	<0.1	4.72	5.80	8.40	7.80	6.50	7.70	8.84	9.80	9.48
Ba	mg/l	0.06	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l	56	10.2	3.0	3.1	2.4	2.0	1.9	1.7	1.8	1.6
Cd	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	0.058	0.008	0.008	<0.004	0.008	0.011	0.009	<0.004	<0.004
Fe	mg/l	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	0.031	0.016
K	mg/l	7.8	2.4	0.3	0.3	0.3	0.3	2.0	2.6	1.8	1.3
Mg	mg/l	14.4	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	1120	940	940	610	530	540	524	470	490
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.12	0.15	0.15	0.12
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.37	0.45	0.45	0.37
Pb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15	158.0	160.0	135.0	82.0	80.0	87.2	76.2	72.0	65.5
Sr	mg/l	0.25	0.020	0.020	0.020	0.014	0.010	0.012	0.010	0.010	0.009
In	mg/l	<0.01	0.044	0.020	0.020	0.020	0.020	0.087	0.057	0.025	0.027
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	<0.5	15.0	9.6	8.2	5.5	6.0	7.0	6.0	6.0	6.0
Cl-	mg/l	22	26	21	22	21	20	22	23	23	20
NO2-	mg/l	<0.03	<0.1	<3	<3	<3	<0.1	<0.1	<0.1	<0.1	<0.1
NO3-	mg/l	0.1	42.0	15.0	10.0	5.0	7.5	8.0	9.0	4.0	6.0
SO4--	mg/l	86	380	140	125	100	110	126	109	103	120
HCO3-	mg/l	171	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l	2.1	378	126	315	252	252	136	167	222	186
OH-	mg/l	0	535.5	571.2	428.4	267.8	178.5	340.5	284.7	139.4	179.6
B	mg/l	0.06	3.080	1.100	0.750	0.390	0.480	0.563	0.445	0.360	0.339
as H3BO3	mg/l	0.34	9.49	6.29	4.28	2.23	2.74	3.22	2.54	2.05	1.93
TOC	mg/l	1	15.8	9.4	6.8	3.7	6.5	4.3	3.0	2.5	3.0
PO4---	mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1
CATIONS	meq/l	5.28	49.27	41.03	41.04	26.65	23.16	23.63	23.44	20.58	21.42
ANIONS	meq/l	5.54	54.25	42.15	39.61	27.29	22.23	28.35	25.71	18.78	20.25
TOT. ALK. *	mg/l	92.16	1323	1134	1071	725	567	737	670	468	503
IC	mg/l	34.1	43.4	45.3	40.7	27.1	54.1	23.0	23.1	31.4	28.3
PORE VOL.			1.78	3.94	6.52	9.8	10.78	11.99	13.53	15.73	17.31

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.11. contd

SAMPLE #	-----	10	11	12	13	14	15	16	17	18	19
TIME	days	34	37	41	44	49	52	58	62	65	69
pH		11.79	11.78	11.71	11.73	11.49	11.57	11.42	11.25	10.80	10.91
Eh	mv	268	271	215	241	237	252	179	270	217	266
Al	mg/l	9.19	8.73	8.23	7.70	6.78	7.16	6.87	5.45	3.91	3.56
Ba	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l	1.4	1.3	1.2	1.1	1.0	1.3	1.2	1.0	0.9	0.8
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	0.016	0.028	0.027	0.016	<0.005	0.150	0.025	0.029	0.041	0.028
K	mg/l	1.8	1.9	1.7	1.0	0.9	<0.3	2.5	2.2	1.3	2.4
Mg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	0.022	<0.002	<0.002	<0.002	<0.002
Na	mg/l	362	327	297	300	282	284	308	222	168	167
P	mg/l	0.15	0.15	0.15	0.12	<0.1	<0.1	0.10	0.10	<0.1	<0.1
as PO4	mg/l	0.45	0.45	0.45	0.36	<0.3	<0.3	0.31	0.31	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	56.2	49.8	46.6	43.6	41.8	39.1	42.7	23.8	18.1	20.2
Sr	mg/l	0.009	0.009	0.007	0.006	0.005	0.005	0.006	0.004	0.005	0.005
Zn	mg/l	0.071	0.047	0.065	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	4.8	4.7	4.7	4.8	4.8	4.7	5.2	3.0	4.1	4.5
Cl-	mg/l	21	21	20	25	25	24	22	17	22	23
NO2-	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NO3-	mg/l	3.6	3.4	3.2	4.3	3.7	3.4	3.3	1.2	1.5	1.8
SO4--	mg/l	93	91	88	94	97	91	98	63	78	81
HCO3-	mg/l	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l	218	628.3	707.6	976.0	504.3	378.2	488.0	288.7	202	124
OH-	mg/l	130.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	17.6
B	mg/l	0.282	0.257	0.282	0.267	0.249	0.240	0.271	0.135	0.138	0.168
as H3BO3	mg/l	1.61	1.47	1.61	1.52	1.42	1.37	1.55	0.77	0.78	0.96
TDC	mg/l	2.4	2.3	2.5	3.0	2.4	2.5	2.4	1.3	1.2	1.3
PO4---	mg/l	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CATIONS	meq/l	15.75	14.34	13.02	13.13	12.34	12.43	13.52	9.76	7.39	7.37
ANIONS	meq/l	17.81	15.93	17.73	28.25	14.41	11.91	14.59	9.27	9.79	7.77
TOT. ALK. #	mg/l	449	394	451	758	341	271	348	219	219	155
IC	mg/l	33.6	26.4	25.6	31.7	27.0	27.7	35.1	26.1	45.4	21.5
FORE VOL.		19.79	21.84	24.34	26.2	28.68	30.69	33.67	38	41.07	45.41

(---) Data not available.

#) Total Alkalinity as CO3--.

TABLE A.11. contd

SAMPLE #	-----	20	21	22	23	24
TIME	days	72	76	80	84	87
pH		10.94	10.80	10.21	10.31	11.32
Eh	mv	226	276	313	212	391
Al	mg/l	3.16	2.71	2.21	2.46	3.28
Ba	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l	0.9	1.1	1.0	1.1	1.5
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	0.019	0.013	0.017	0.008	0.008
K	mg/l	1.7	1.6	0.9	2.2	3.7
Hg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	151	151	165	199	226
P	mg/l	<0.1	0.10	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	0.30	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	19.3	20.6	24.6	33.6	36.9
Sr	mg/l	0.006	0.009	0.008	0.009	0.012
Zn	mg/l	0.269	0.091	0.043	0.074	0.032
Zr	mg/l	0.013	0.013	<0.008	<0.008	<0.008
F-	mg/l	4.8	5.5	6.7	7.0	5.7
Cl-	mg/l	25	25	23	24	25
NO2-	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1
NO3-	mg/l	1.9	3.3	4.4	4.4	4.6
SO4--	mg/l	95	91	115	135	100
HCO3-	mg/l	0.0	63.0	0.0	0.0	99.67
CO3--	mg/l	110	72	134	176	154.80
OH-	mg/l	17.0	0.0	11.9	2.8	0.00
B	mg/l	0.169	0.205	0.283	0.359	0.291
as H3BO3	mg/l	0.97	1.17	1.62	2.05	1.66
TDC	mg/l	1.4	2.5	3.4	3.3	2.9
PO4---	mg/l	<0.5	<0.5	<0.5	<0.5	<0.5
CATIONS	meq/l	6.66	6.67	7.25	8.77	10.00
ANIONS	meq/l	7.64	6.38	8.64	9.96	9.96
TOT. ALK.*	mg/l	140	103	155	181	204
IC	mg/l	21.7	33.9	28.2	44.5	62.2
FORE VOL.		47.79	48.63	49.54	51.04	53

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.12. Flow Through Leach Test on Whole Grout with Groundwater (COLLT3)

SAMPLE #		WELL	1	2	3	4	5	6	7	9	11
		WATER									
TIME	days		3	9	16	19	25	29	32	39	45
pH		8.10	12.51	12.51	12.34	12.21	11.56	11.61	12.16	11.55	11.32
Eh	mv	295	204	208	123	244	317	172	358	283	278
Al	mg/l	<0.1	12.70	22.00	----	----	2.34	6.09	3.38	2.88	4.23
Ba	mg/l	0.060	0.008	0.008	----	----	0.010	0.002	0.008	0.005	0.005
Ca	mg/l	56.0	1.6	1.3	----	----	4.8	1.3	1.4	1.4	2.0
Cd	mg/l	<0.005	<0.004	<0.004	----	----	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	<0.02	0.02	----	----	0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	<0.005	0.008	----	----	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.001	0.010	0.020	----	----	<0.005	<0.005	0.013	<0.005	<0.005
K	mg/l	7.8	38.0	61.0	----	----	64.0	24.0	16.4	15.2	18.2
Mg	mg/l	14.40	<0.06	<0.06	----	----	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.01	<0.002	<0.002	----	----	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	827	1380	----	----	1460	469	275	241	324
P	mg/l	<0.1	<0.1	0.13	----	----	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.31	<0.3	0.40	----	----	0.30	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.05	<0.06	<0.06	----	----	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15.0	13.2	16.7	----	----	16.0	10.4	12.2	11.3	12.7
Sr	mg/l	0.250	0.062	0.071	----	----	0.104	0.043	0.058	0.054	0.062
Zn	mg/l	<0.01	0.064	0.065	----	----	0.068	<0.02	0.030	0.037	0.044
Zr	mg/l	<0.008	<0.008	<0.008	----	----	<0.008	<0.008	0.009	<0.008	0.1
F-	mg/l	<0.5	12.7	21.0	----	----	15.0	6.0	6.2	5.6	7.0
Cl-	mg/l	22	20	20	----	----	20	22	23	23	23
NO2-	mg/l	<0.03	<0.1	<0.5	----	----	<0.1	<0.1	<0.1	<0.1	<0.1
NO3-	mg/l	0.1	13.0	22.0	----	----	24.0	5.9	3.9	3.0	4.7
SO4--	mg/l	86	102	215	----	----	210	109	99	88	79
HCO3-	mg/l	171.0	----	0.0	0.0	205.4	0.0	0.0	188.86	435.42	0.00
CO3--	mg/l	2	----	670	412	448	218	122	108.36	118.68	93.00
OH-	mg/l	0.0	----	731.0	936.0	0.0	47.6	85.6	0.00	0.00	23.35
B	mg/l	0.060	1.440	1.230	----	----	1.610	0.440	0.301	0.229	0.315
as H3BO3	mg/l	0.34	8.24	7.03	----	----	9.15	2.53	1.72	1.30	1.80
TOC	mg/l	1.0	----	----	----	----	----	----	----	----	----
PO4---	mg/l	<0.1	<0.5	<0.5	----	----	<0.5	<0.5	<0.5	<0.5	<0.5
CATIONS	meq/l	5.28	37.01	61.63	----	----	65.36	21.07	12.45	10.74	14.66
ANIONS	meq/l	5.54	----	71.86	----	----	16.20	12.42	9.83	13.74	7.65
TOT. ALK. #	mg/l	92	----	1960	2064	549	302	273	201	333	134
IC	mg/l	34.1	----	----	----	----	----	----	----	----	----
PORE VOL.			1.06	1.7	3.18	6.6	9.94	12.36	13.93	18.95	24.89

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.12. contd

SAMPLE #	-----	13	15	17	19	22	24	26	28	30
TIME	days	52	60	67	73	87	94	101	113	122
pH		10.89	10.56	10.98	10.79	9.99	10.56	10.37	9.82	9.03
Eh	mv	289	298	272	323	347	268	345	327	348
Al	mg/l	0.32	0.06	1.01	0.86	1.35	1.22	0.52	<0.03	<0.03
Ba	mg/l	0.004	0.006	0.002	0.002	0.005	0.004	0.007	0.013	0.015
Ca	mg/l	1.1	1.8	1.1	0.9	1.7	0.8	1.7	4.7	6.6
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	0.005	0.009	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.005	0.007	1.100	<0.005	0.005	0.019	0.006	<0.005	0.013
K	mg/l	9.9	9.9	10.0	9.8	14.0	13.0	12.0	10.0	8.4
Mg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	3.45
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	132	121	155	132	175	165	123	79	61
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	9.7	9.6	12.4	10.0	12.6	11.4	9.3	6.5	9.3
Sr	mg/l	0.046	<0.002	0.034	0.032	0.051	0.046	0.070	0.114	<0.002
Zn	mg/l	0.029	<0.02	<0.02	0.024	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	0.012	0.015	<0.008	<0.008	0.025	0.014	<0.008	<0.008	0.018
F-	mg/l	5.0	5.2	6.0	5.3	6.3	6.3	5.1	5.3	5.6
Cl-	mg/l	22	25	23	24	24	24	24	22	23
NO2-	mg/l	<0.3	<0.3	<0.1	<0.5	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	1.6	1.5	2.7	2.0	3.5	3.2	2.3	1.4	1.2
SO4--	mg/l	77	82	83	81	89	87	81	76	74
HCO3-	mg/l	188.86	31.48	0.41	0.00	89.10	41.97	0.00	31.48	26.23
CO3--	mg/l	108.36	72.24	185.60	72.24	118.68	108.36	72.24	103.20	25.80
OH-	mg/l	0.00	0.00	0.00	32.16	0.00	0.00	13.16	0.00	0.00
B	mg/l	0.133	0.138	0.208	0.144	0.195	0.169	0.127	0.118	0.143
as H3BO3	mg/l	0.76	0.79	1.19	0.82	1.11	0.97	0.73	0.67	0.82
TOC	mg/l	----	----	----	----	----	----	----	----	----
PO4---	mg/l	<0.5	<0.5	<0.5	<0.5	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	6.05	5.61	7.05	6.04	8.05	7.55	5.74	3.91	3.49
ANIONS	meq/l	6.15	2.73	8.95	7.00	8.34	7.17	5.85	6.46	3.79
TOT. ALK. *	mg/l	201	88	186	129	163	129	95	119	39
IC	mg/l	----	----	----	----	----	----	----	----	----
PORE VOL.		30.42	35.89	38.91	42.29	47.29	48.65	54.58	64.77	73.33

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.12. contd

32	33
158	188
8.31	8.48
323	258
<0.03	<0.03
0.028	0.041
17.4	26.4
<0.004	<0.004
<0.02	<0.02
<0.004	<0.004
0.006	<0.006
8.4	7
10.70	13.4
<0.002	<0.002
46	40.1
<0.1	<0.1
<0.3	<0.3
<0.06	<0.06
13.4	14.9
0.209	0.221
<0.02	<0.02
<0.008	<0.008
4.0	2.57
23	22.1
<0.3	<0.3
1.4	<0.5
78	74.6
84.18	101.20
5.52	11.04
0.00	0.00
0.117	0.111
0.67	0.634
----	----
<0.4	<0.4
3.77	4.35
4.07	4.34
47	60.72
----	----
89.62	104.2

(---) Data not available.

(#) Total Alkalinity as CO₃---

TABLE A.13. Flow Through Leach Test on Whole Grout with Groundwater (COLLT2)

SAMPLE #	-----	WELL WATER	1 2 3 4 5 6 7 8 9								
			3	10	14	17	21	24	28	31	35
TIME	days	-----	3	10	14	17	21	24	28	31	35
pH		8.1	12.78	12.79	12.70	12.43	12.59	11.93	11.89	11.87	10.60
Eh	mv	295	135	149	156	144	263	168	221	259	221
Al	mg/l	<0.1	24.00	17.00	13.00	12.00	8.85	5.49	4.16	4.75	2.50
Ba	mg/l	0.06	<0.002	0.007	0.007	0.006	0.006	<0.002	0.005	0.004	0.004
Ca	mg/l	56	3.2	3.0	3.0	3.0	1.6	2.3	1.6	1.7	1.3
Cd	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	<0.004	0.010	0.010	0.014	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.01	0.022	0.013	0.025	0.029	0.015	0.007	<0.005	0.005	0.144
K	mg/l	7.8	70.0	51.0	42.0	34.0	28.0	21.0	18.0	19.0	15.0
Mg	mg/l	14.4	0.06	0.06	0.08	0.06	0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	1800	1200	910	760	570	400	278	317	212
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.31	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15	14.5	12.0	10.8	10.0	10.5	9.7	10.3	10.4	10.2
Sr	mg/l	0.25	0.106	0.082	0.080	0.076	0.080	0.077	0.075	0.068	0.064
Zn	mg/l	<0.01	0.140	0.090	0.052	0.100	<0.02	<0.02	0.102	0.021	0.022
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	<0.5	14.0	11.0	9.0	9.0	7.0	6.0	5.8	5.8	5.2
Cl-	mg/l	22	22	23	21	20	22	23	23	23	22
NO2-	mg/l	<0.03	<3.0	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1
NO3-	mg/l	0.1	26.0	18.0	13.0	18.0	7.0	4.0	3.3	4.1	2.4
SD4--	mg/l	86	240	180	144	120	110	100	120	90	80
HCO3-	mg/l	171	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO3--	mg/l	2.1	4060.1	2615.1	2636.5	2150.7	1079.1	786.9	597.8	707.6	341.6
OH-	mg/l	0	83.6	101.5	58.3	39.2	61.3	0	0	0	0
S	mg/l	0.06	1.000	1.200	0.900	0.780	0.489	0.3	0.260	0.284	0.163
as H3BO3	mg/l	0.34	5.72	6.86	5.15	4.46	2.79	1.62	1.49	1.62	0.93
TDC	mg/l	1	13.6	9.5	8.4	6.9	4.3	3.5	3.7	3.5	2.9
PO4---	mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
CATIONS	meq/l	5.28	80.22	53.64	40.80	34.07	25.59	18.05	12.64	14.36	9.67
ANIONS	meq/l	5.54	86.64	58.80	52.58	44.73	29.50	18.36	15.64	17.10	11.64
TOT. ALK. #	mg/l	92.16	2394	1606	1449	1227	783	457	364	426	271
IC	mg/l	34.1	41.1	49.9	28.7	19.3	30.1	20.9	24.3	24.3	34.9
P. VOL.			1.02	1.88	2.65	3.05	4.69	5.89	6.66	7.83	9.62

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.13. contd

SAMPLE #	-----	10	11	12	13	14	15	16	17	18	19
TIME	days	45	52	56	59	63	66	70	74	78	81
pH		12.11	11.55	11.85	11.00	10.85	10.55	11.63	10.45	10.51	11.31
Eh	mv	168	178	220	209	222	234	219	304	192	331
Al	mg/l	7.29	5.97	3.17	0.35	2.42	----	2.43	0.06	0.17	0.73
Ba	mg/l	0.006	0.004	0.005	0.004	0.004	----	0.006	0.005	0.005	0.004
Ca	mg/l	1.7	0.8	1.2	1.2	0.7	----	1.5	1.4	1.2	1.0
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	----	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	----	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	----	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.005	<0.005	<0.005	0.010	0.006	----	<0.005	<0.005	<0.005	<0.005
K	mg/l	24.4	21.0	15.0	11.0	14.0	----	15.0	9.7	10.6	11.4
Mg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	----	<0.06	0.28	0.17	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	----	<0.002	<0.002	<0.002	<0.002
Na	mg/l	509	391	243	137	235	----	248	120	121	160
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	----	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	----	<0.06	<0.06	<0.06	<0.06
Si	mg/l	11.4	11.0	11.0	9.5	12.8	----	11.9	9.9	10.6	13.5
Sr	mg/l	0.084	0.057	0.074	0.064	0.056	----	0.069	0.067	0.064	0.050
Zn	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	----	<0.02	<0.02	0.043	0.057
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	0.045	----	<0.008	<0.008	0.009	<0.008
F-	mg/l	6.1	7.2	5.9	5.6	5.1	----	5.9	4.8	5.3	6.6
Cl-	mg/l	22	23	22	23	24	----	27	23	23	23
NO2-	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.1	<0.1	<0.1
NO3-	mg/l	6.8	5.6	3.3	1.5	3.7	----	4.3	1.4	1.6	2.5
SO4--	mg/l	114	119	92	80	98	----	112	76	80	84
HCO3-	mg/l	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	178.32
CO3--	mg/l	1179.3	488.0	455.5	108	200	312	124	92	82	51.66
OH-	mg/l	0	0	0	26.6	22.7	38.5	109.4	9.1	26.6	0.00
B	mg/l	0.470	0.350	0.242	0.126	0.266	----	0.271	0.146	0.164	0.216
as H3BO3	mg/l	2.68	2.00	1.38	0.72	1.52	----	1.55	0.83	0.93	1.24
TDC	mg/l	----	4.5	19.1	19.9	46.7	20.9	----	----	----	----
PO4---	mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
CATIONS	meq/l	22.85	17.58	11.02	6.30	10.62	----	11.25	5.56	5.61	7.30
ANIONS	meq/l	25.10	15.97	12.20	7.80	11.05	----	14.04	6.14	6.95	7.46
TOT. ALK. *	mg/l	650	371	279	155	240	380	317	108	129	139
IC	mg/l	----	63.5	16.3	17.0	42.6	17.3	----	----	----	----
P. VOL.		10.24	12.09	14.72	16.25	17.18	17.38	20.06	23.52	25.71	26.54

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.13. contd

SAMPLE #	-----	21	23	25	27	29	31	34	36	38	40
TIME	days	88	94	101	109	115	122	136	143	150	162
pH		10.88	10.35	9.97	10.07	10.23	10.42	9.84	9.53	9.27	9.36
Eh	mv	288	284	288	286	268	307	356	304	345	334
Al	mg/l	0.14	<0.03	<0.03	<0.03	0.15	0.18	0.07	0.028	0.069	0.162
Ba	mg/l	0.006	0.008	0.007	0.006	0.003	0.004	0.008	0.012	0.008	0.008
Ca	mg/l	1.9	2.4	2.3	2.1	1.5	1.36	3.35	4.17	3.17	3.74
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	0.007	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	0.006	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
K	mg/l	10.5	9.5	8.3	8.4	8.8	9	9.2	8.8	8.6	9.2
Mg	mg/l	0.41	0.70	0.54	0.39	0.06	0.215	0.649	1.22	0.883	1.24
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	110	91	88	87	115	102	93.3	79.2	87.8	93.1
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	9.8	8.9	9.5	9.1	12.1	10.5	9.53	8.62	10.5	10.4
Sr	mg/l	0.061	0.076	0.075	0.066	0.041	0.05	0.085	0.12	0.089	0.086
Zn	mg/l	0.040	0.030	0.047	0.033	<0.02	0.024	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	0.01	0.1	0.03	0.035	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	5.2	5.4	5.5	5.0	6.1	5.2	6.3	6.5	6.6	6.8
Cl-	mg/l	23	23	24	23	21	21	21	23	23	22
NO2-	mg/l	<0.1	<0.1	0.3	<0.3	<0.1	<0.1	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	1.6	1.2	1.2	1.3	2.0	1.6	2.2	1.5	1.7	2.4
SO4--	mg/l	84	82	78	74	75	73	71	78	79	80
HCO3-	mg/l	----	31.52	57.71	94.43	0.00	0.00	31.48	47.21	31.48	62.95
CO3--	mg/l	----	46.40	30.96	20.64	103.20	25.80	51.60	20.64	41.28	41.28
OH-	mg/l	----	0.00	0.00	0.00	5.84	42.40	0.00	0.00	0.00	0.00
B	mg/l	0.140	0.150	0.155	0.145	0.202	0.164	0.137	0.139	0.171	0.18
as H3BO3	mg/l	0.80	0.85	0.89	0.83	1.15	0.94	0.78	0.79	0.98	1.02
TOT	mg/l	----	2.3	2.6	2.2	2.0	3.52	5.66	4.52	3.55	3.08
PO4---	mg/l	<1.0	<1.0	<0.4	<0.4	<0.5	<0.5	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	5.18	4.38	4.22	4.14	5.31	4.75	4.51	3.98	4.27	4.57
ANIONS	meq/l	----	4.73	4.61	4.73	6.31	5.76	4.67	4.10	4.57	2.41
TOT. ALK. #	mg/l	----	62	59	67	114	100.62	67.08	43.86	56.76	72.24
IC	mg/l	----	15.0	18.8	12.0	38.5	21.9	24.74	17.47	20.9	21.26
P. VOL.		31.79	37.23	41.3	45.59	46.17	51.77	59.13	62.75	65.77	71.31

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.13. contd

42	44	45
171	207	237
8.49	8.81	8.67
348	306	242
0.106	0.059	<0.03
0.013	0.013	0.016
6.82	6.55	10.5
<0.004	<0.004	<0.004
<0.02	<0.02	<0.02
<0.004	<0.004	<0.004
0.027	<0.005	<0.005
9	9.2	8.1
1.63	2.01	3.31
<0.002	<0.002	<0.002
64.8	66.4	56.1
<0.1	<0.1	<0.1
<0.3	<0.3	<0.3
<0.06	<0.06	<0.06
7.51	8.19	8.34
0.153	0.156	0.224
<0.02	<0.02	<0.02
0.024	<0.008	<0.008
6.3	6.6	6
23	23	22.6
<.3	<.3	<.3
1.1	1.4	<0.5
74	82	78.8
62.95	61.73	50.51
10.32	11.04	11.04
0.00	0.00	0.00
0.138	0.171	0.169
0.79	0.98	0.97
0.82	1.06	
<0.4	<0.4	<0.4
3.53	3.62	3.45
3.92	4.11	3.79
41.28	41.4	35.88
14.32	11.37	
77.55	93.28	112.87

(---) Data not available.

(#) Total Alkalinity as CO₃--.

TABLE A.14. Flow Through Leach Test on Whole Grout with Groundwater (COLLT1)

		WELL										
SAMPLE #	-----	WATER	1	2	3	4	5	6	7	8	9	
TIME	days	-----	3	10	14	17	21	24	28	31	35	
pH		8.1	12.90	12.70	12.81	12.65	12.33	12.17	11.43	12.27	11.03	
Eh	mv	295	130	172	123	114	239	163	241	197	193	
Al	mg/l	<0.1	21.00	18.00	33.00	18.10	12.50	10.30	4.14	4.75	7.06	
Ba	mg/l	0.06	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	
Ca	mg/l	56	3.3	4.5	4.3	1.2	1.2	1.8	0.9	1.7	0.6	
Cd	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	
Cr	mg/l	<0.015	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Cu	mg/l	<0.005	0.012	0.005	0.024	0.024	0.009	0.006	<0.004	<0.004	<0.004	
Fe	mg/l	<0.01	0.114	0.028	0.067	0.037	0.033	1.620	<0.005	0.013	0.005	
K	mg/l	7.8	45.0	49.0	83.0	49.0	34.0	29.0	16.0	31.0	23.0	
Mg	mg/l	14.4	<0.06	<0.06	<0.06	<0.06	<0.06	0.09	<0.06	<0.06	<0.06	
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	
Na	mg/l	25	1280	1210	2000	1100	720	643	262	630	410	
P	mg/l	<0.1	<0.1	<0.1	0.20	0.14	<0.1	<0.1	<0.1	<0.1	<0.1	
as PO4	mg/l	<0.31	<0.3	<0.3	0.61	0.43	<0.3	<0.3	<0.3	<0.3	<0.3	
Pb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	
Si	mg/l	15	8.5	13.0	15.1	11.6	11.3	11.1	10.8	10.4	11.2	
Sr	mg/l	0.25	0.046	0.090	0.094	0.089	0.061	0.070	0.055	0.069	0.053	
Zn	mg/l	<0.01	0.670	0.100	0.285	0.158	0.027	0.026	0.110	0.024	<0.02	
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	
F-	mg/l	<0.5	11.0	11.0	18.0	11.0	9.0	8.0	5.8	8.6	6.3	
Cl-	mg/l	22	12	22	22	20	23	20	21	21	23	
NO2-	mg/l	<0.03	<3.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
NO3-	mg/l	0.1	19.0	18.0	9.0	15.0	30.0	6.0	2.9	8.5	5.1	
SO4--	mg/l	86	150	180	270	160	130	120	80	120	100	
HCO3-	mg/l	171	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CO3--	mg/l	2.1	6276.9	3074.4	5315.9	3062.2	1747.2	1259.0	488.0	246	410	
OH-	mg/l	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	250.5	52.7	
B	mg/l	0.06	1.500	1.200	2.210	2.200	1.150	0.511	1.300	0.587	0.368	
as H3BO3	mg/l	0.34	8.57	6.90	12.64	12.66	6.60	2.92	7.47	3.35	2.10	
TOC	mg/l	1	17.1	7.4	20.1	11.4	6.9	----	----	----	----	
PO4---	mg/l	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
CATIONS	meq/l	5.28	56.97	54.09	89.30	47.90	32.24	28.80	11.85	28.28	18.45	
ANIONS	meq/l	5.54	119.00	61.03	102.00	60.68	38.88	26.80	13.45	26.62	19.91	
TOT. ALK. #	mg/l	92.16	3433	1669	2835	1674	1032	697	325	688	503	
IC	mg/l	34.1	71.5	27.2	62.9	28.4	56.3	----	----	----	----	
PORE VOL.			0.31	0.51	1.37	1.98	3.16	4.12	4.83	5.67	6.37	

(---) Data not available.

#) Total Alkalinity as CO3--.

TABLE A.14. contd

SAMPLE #	-----	10	11	12	13	14	15	16	17	18	19
TIME	days	45	52	56	59	63	66	70	74	78	81
pH		11.92	11.63	11.59	10.73	10.51	10.95	10.33	10.19	10.61	11.37
Eh	mv	122	180	243	207	241	219	256	310	194	373
Al	mg/l	3.47	3.17	1.66	1.04	0.11	0.12	<0.03	<0.03	<0.03	0.38
Ba	mg/l	0.019	<0.002	0.003	0.004	0.004	0.005	0.008	0.006	0.004	0.002
Ca	mg/l	1.2	0.9	1.2	0.7	1.3	1.4	3.9	2.6	1.4	1.2
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	0.036	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
K	mg/l	18.4	17.0	14.0	12.0	11.0	9.4	9.1	8.4	8.6	10.1
Mg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	0.19	2.50	1.06	0.14	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	366	305	204	162	125	110	99	95	114	159
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	13.6	13.2	11.4	10.0	9.6	9.3	9.0	9.9	11.9	14.9
Sr	mg/l	0.065	0.051	0.063	0.064	0.063	0.058	0.092	0.081	0.055	0.042
Zn	mg/l	0.023	<0.02	<0.02	<0.02	<0.02	0.049	<0.02	<0.02	0.101	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	0.1	<0.008	0.1	<0.008	<0.008
F-	mg/l	4.8	5.6	6.6	5.7	5.8	5.6	5.1	6.0	5.9	7.4
Cl-	mg/l	23	22	23	23	23	25	24	24	23	23
NO2-	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NO3-	mg/l	4.9	3.6	3.6	2.0	1.3	1.2	0.9	1.1	1.4	2.3
SO4--	mg/l	96	88	96	83	79	85	83	76	76	84
HCO3-	mg/l	0.0	0.0	0.0	0.0	0.0	0.0	2.0	20.3	0.0	173.0
CO3--	mg/l	172	488.0	345.7	124	110	78	76	62	52	52
OH-	mg/l	146.5	0.0	0.0	13.0	3.4	13.0	0.0	0.0	20.4	0.0
B	mg/l	0.310	0.257	0.181	0.156	0.129	0.142	0.119	0.159	0.234	0.261
as H3BO3	mg/l	1.77	1.47	1.03	0.89	0.74	0.81	0.68	0.91	1.33	1.49
TOC	mg/l	----	----	----	----	----	----	----	1.4	1.5	2.2
PO4---	mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
CATIONS	meq/l	16.45	13.75	9.29	7.39	5.79	5.11	4.94	4.57	5.26	7.23
ANIONS	meq/l	17.45	14.18	10.29	7.61	6.49	6.16	5.26	4.99	5.50	7.39
TOT. ALK. #	mg/l	434	341	217	147	116	101	77	72	68	137
IC	mg/l	----	----	----	----	----	----	----	22.5	27.5	28.8
PORE VOL.		8.13	9.76	11.7	13.61	15.91	18.13	20.62	33.09	34.96	36.21

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.15. Flow Through Leach Test on Crushed Grout with Groundwater (BCGT)

		WELL									
SAMPLE #	-----	WATER	1	2	3	4	5	6	7	8	9
TIME	days		3	7	10	14	17	21	24	27	31
pH		8.10	11.89	12.06	11.95	10.95	10.53	10.02	9.55	8.52	8.76
Eh	mv	295	360	285	354	225	294	241	370	258	353
Al	mg/l	<0.1	11	17.3	12.6	5.76	1.35	0.17	0.13	0.07	0.122
Ba	mg/l	0.060	0.004	0.003	<0.002	<0.002	0.003	0.011	0.01	0.014	0.012
Ca	mg/l	56.0	1.44	1.62	1.76	1.28	1.71	5.84	5.83	8.51	6.71
Cd	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	0.027	0.034	0.025	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	0.01	0.005	0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.001	0.025	0.017	0.007	<0.005	<0.005	<0.005	<0.005	0.005	<0.005
K	mg/l	7.8	22	20	15	11	8.7	8.2	6.4	7.9	9
Hg	mg/l	14.40	<0.06	<0.06	<0.06	<0.06	0.421	5.07	5.86	6.87	5.55
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	681	639	433	262	158	91.9	80	65	68
P	mg/l	<0.1	<0.1	0.09	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PD4	mg/l	<0.3	<0.3	0.27	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.05	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15.0	16.5	25.6	24.3	17.4	12.1	10.3	9.92	9.57	9.62
Sr	mg/l	0.250	0.028	0.022	0.019	0.022	0.036	0.073	0.077	0.095	0.088
Zn	mg/l	<0.01	0.037	0.027	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	0.018	0.018	0.019	0.041	0.061	0.036	0.009	0.009
F-	mg/l	<0.5	40	51	35	21	13	9	10	8	10
Cl-	mg/l	22	27	27	25	25	24	27	27	27	23
NO2-	mg/l	<0.03	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	0.1	40	17	8.5	3.8	0.9	<0.05	<0.05	<0.05	<0.05
SO4--	mg/l	86	470	250	150	110	84	79	77	77	75
HCO3-	mg/l	171.0	0.00	0.00	0.00	0.00	0.00	44.90	61.73	84.18	50.51
CO3--	mg/l	2	541.80	441.60	358.80	440.00	132.48	55.20	22.08	5.52	11.04
OH-	mg/l	0.0	75.03	117.30	86.02	31.73	0.00	0.00	0.00	0.00	0.00
B	mg/l	0.060	2.13	2.64	1.75	0.954	0.487	0.27	0.22	0.184	0.208
as H3BO3	mg/l	0.34	12.18	15.1	10.09	5.41	2.78	1.54	1.26	1.05	1.59
TCC	mg/l	1.0	----	----	----	----	----	----	----	----	----
PD4---	mg/l	<0.1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	5.28	30.25	28.38	19.30	11.74	7.21	4.92	4.47	4.02	3.98
ANIONS	meq/l	5.54	36.97	30.55	22.83	20.70	7.54	5.46	4.64	4.35	3.93
TGT. ALK.*	mg/l	92	709.5	648.6	510.6	496	132.48	77.28	52.44	46.92	35.88
IC	mg/l	34.1	----	----	----	----	----	----	----	----	----
PORE VOL.			0.37	1.14	1.66	2.55	3.31	4.53	5.07	5.82	6.15

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.15. contd

SAMPLE #	-----	10	11	12	13	14	15	16
TIME	days	38	45	49	52	56	61	64
pH		8.65	8.31	8.13	8.28	8.17	7.84	7.94
Eh	mv	284	341	396	397	385	370	413
Al	mg/l	0.11	0.034	0.032	0.039	<0.03	<0.03	<0.03
Ba	mg/l	0.012	0.018	0.017	0.02	0.018	0.014	0.012
Ca	mg/l	9.52	20.3	24.4	29.7	28.8	28.0	29.2
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005
K	mg/l	9.4	8.8	8.2	8.3	7.7	7.0	7.0
Mg	mg/l	5.92	9.37	9.85	11.3	10.80	9.95	9.97
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	61	38	29.9	27.6	29	29	28
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PD4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	8.93	9.1	8.97	10.3	9.8	8.9	8.9
Sr	mg/l	0.107	0.16	0.177	0.201	0.203	0.203	0.208
Zn	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.1
F-	mg/l	10	7.3	7.6	7.4	8.8	9.1	9.8
Cl-	mg/l	24	22	21	21	23	21	23
NO2-	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SO4--	mg/l	75	71	69	66	77	73	78
HCO3-	mg/l	67.34	50.51	56.12	69.79	56.12	22.45	50.51
CO3--	mg/l	5.52	5.52	0.00	0.00	5.52	0.00	0.00
OH-	mg/l	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B	mg/l	0.2	0.135	0.126	0.125	0.143	0.152	0.150
as H3BO3	mg/l	1.14	0.77	0.72	0.71	0.82	0.87	0.86
TOC	mg/l	----	----	----	----	----	----	----
PO4---	mg/l	<0.5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	3.86	3.67	3.54	3.63	3.78	2.39	3.69
ANIONS	meq/l	4.05	3.50	3.35	3.87	3.82	2.97	3.62
TOT. ALK. #	mg/l	38.64	30.36	27.6	44.16	33	11	25
IC	mg/l	----	----	----	----	----	----	----
PGRE VOL.		7.58	9.04	10.21	11.16	11.67	12.43	12.85

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.16. Flow Through Leach Test on Crushed Grout with Groundwater (BCGI)

SAMPLE #	WELL WATER									
		1	2	3	4	5	6	7	8	9
TIME	days	3	7	10	14	17	21	24	27	31
pH		8.10	11.91	12.15	12.1	11.32	11.01	9.96	9.53	8.15
Eh	mv	295	347	273	349	227	286	219	366	297
Al	mg/l	<0.1	17.9	22.4	16.5	7.71	2.14	0.27	0.2	0.103
Ba	mg/l	0.060	<0.002	0.003	<0.002	<0.002	0.003	0.007	0.008	0.01
Ca	mg/l	56.0	1.97	1.58	1.97	1.35	1.37	4.02	4.65	6.27
Cd	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	0.054	0.049	0.035	0.019	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	0.007	0.007	0.006	0.005	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.001	0.072	0.051	0.027	0.038	<0.005	<0.005	<0.005	<0.005
K	mg/l	7.8	28	25	18	12	10	8.2	9.5	8.4
Mg	mg/l	14.40	0.06	0.06	0.06	0.06	0.166	8.4	3.42	4.89
Mn	mg/l	<0.01	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	1030	816	525	297	179	74.2	94.4	74
F	mg/l	<0.1	0.15	0.17	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as F04	mg/l	<0.3	0.46	0.52	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Si	mg/l	15.0	20	29	27.2	19	13.3	11.8	9.91	8.92
Sr	mg/l	0.250	0.022	0.023	0.023	0.022	<0.002	0.11	0.072	0.087
Zn	mg/l	<0.01	0.03	0.051	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ir	mg/l	<0.008	0.01	0.011	<0.008	0.009	0.028	<0.008	0.015	<0.008
F-	mg/l	<0.5	57	61	43	24	14	11	12	9.3
Cl-	mg/l	22	29	28	26	24	24	29	29	23
NO2-	mg/l	<0.03	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	0.1	40	24	12	5	1.8	0.7	<0.5	<0.5
SO4--	mg/l	86	470	310	190	120	89	86	83	74
HCO3-	mg/l	171.0	0.00	0.00	0.00	0.00	0.00	44.90	112.48	72.96
CO3--	mg/l	2	928.80	607.20	469.20	441.60	136.00	55.20	33.00	16.56
OH-	mg/l	0.0	58.48	125.12	78.20	62.56	15.64	0.00	0.00	0.00
F	mg/l	0.060	2.83	3.3	2.26	1.11	0.56	0.21	0.2	0.21
as H3BO3	mg/l	0.34	16.18	18.87	12.9	6.34	3.2	1.2	1.14	1.2
TDC	mg/l	1.0	----	----	----	----	----	----	----	----
PO4---	mg/l	<0.1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	5.28	45.60	36.20	23.39	13.29	8.12	4.33	4.86	4.15
ANIONS	meq/l	5.54	48.68	38.45	27.39	22.92	8.82	5.78	6.12	4.43
TOT. ALK.*	mg/l	92	1032	828	607.2	552	165.6	77.28	88.32	52.44
IC	mg/l	34.1	----	----	----	----	----	----	----	----
FGRE VOL.		0.39	1.11	1.58	2.35	3.01	4.07	4.54	5.16	5.44

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.16. contd

SAMPLE #	-----	10	11	12	13	14	15	16
TIME	days	38	45	49	52	56	61	64
pH		8.76	8.32	8.16	8.29	7.85	7.78	7.96
Eh	mv	276	335	390	386	371	367	409
Al	mg/l	0.18	0.041	<0.03	<0.03	<0.03	<0.03	<0.03
Ba	mg/l	0.011	0.017	0.018	0.023	0.021	0.018	0.016
Ca	mg/l	9.23	17.4	22.9	30.1	28.1	27.8	28.8
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.011
K	mg/l	11	9.4	8.2	7.9	7.2	7.2	7.3
Mg	mg/l	3.21	7.36	9.14	11.2	9.87	9.29	9.46
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	67	38.7	29.1	26.3	28	28	27
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.06	<0.06
Si	mg/l	7.66	7.47	8.19	10.2	9.0	8.4	8.6
Sr	mg/l	0.113	0.165	0.185	0.209	0.208	0.208	0.213
Zn	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.0
F-	mg/l	11	7.8	7.1	6.5	8.5	9.1	8.9
Cl-	mg/l	24	25	22	22	23	23	23
NO2-	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SO4--	mg/l	77	78	75	75	77	80	79
HCO3-	mg/l	44.90	33.67	50.51	78.57	50.43	56.12	44.90
CO3--	mg/l	11.04	5.52	0.00	0.00	0.00	5.52	0.00
OH-	mg/l	0.00	0.00	0.00	0.00	0.00	0.00	0.00
δ	mg/l	0.22	0.149	0.129	0.12	0.142	0.148	0.145
as H3BO3	mg/l	1.26	0.85	0.74	0.68	0.81	0.85	0.83
TGC	mg/l	----	----	----	----	----	----	----
PO4---	mg/l	<0.5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	3.92	3.40	3.38	3.78	3.62	3.54	3.59
ANIONS	meq/l	3.96	3.48	3.38	3.81	3.53	3.90	3.50
TOT. ALK. #	mg/l	33.12	22.08	24.84	38.64	25	33	22
IC	mg/l	----	----	----	----	----	----	----
FORE VOL.		6.57	7.83	9.05	9.86	10.29	11.11	11.55

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.17. Flow Through Leach Test on Crushed Grout with Groundwater (BCGC)

		WELL									
SAMPLE #	-----	WATER	1	2	3	4	5	6	7	8	9
TIME	days		3	7	10	14	17	21	24	27	31
pH		8.10	11.94	12.23	12.09	10.99	10.66	9.35	9.56	8.36	8.94
Eh	mv	295	336	307	345	224	289	243	410	305	343
Al	mg/l	<0.1	11.6	19.3	12	3.5	0.271	0.04	0.06	<0.3	0.116
Ba	mg/l	0.060	<0.002	0.003	0.003	0.004	0.008	0.018	0.015	0.02	0.013
Ca	mg/l	56.0	1.4	2.23	1.85	1.63	3.7	8.63	7.16	10.6	6.77
Cd	mg/l	<0.005	0.006	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	0.04	0.044	0.027	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	0.013	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fe	mg/l	<0.001	0.094	0.036	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
K	mg/l	7.8	25	23	15	10	8	8.2	8.3	7.4	8.9
Mg	mg/l	14.40	<0.06	<0.06	<0.06	0.195	2.6	8.4	8.46	9.29	5.65
Mn	mg/l	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	25	815	760	436	221	123	74.2	74.4	60	71
P	mg/l	<0.1	0.2	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PD4	mg/l	<0.3	0.613	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.05	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15.0	19.2	26.1	23.1	14.9	11.1	11.8	11.4	11.2	10.8
Sr	mg/l	0.250	0.018	0.032	0.031	0.035	0.058	0.11	0.1	0.121	0.091
Zn	mg/l	<0.01	0.031	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	0.027	0.01	<0.008	<0.008	<0.008	<0.008	0.013	0.032	0.014
F-	mg/l	<0.5	44	52	34	16	9.6	7	9	7.2	11
Cl-	mg/l	22	28	28	25	24	24	28	28	23	23
NO2-	mg/l	<0.03	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	0.1	40	23	9.4	3.4	<0.5	<0.5	<0.5	<0.5	<0.5
SO4--	mg/l	86	380	290	150	99	80	79	77	75	75
HCO3-	mg/l	171.0	0.00	0.00	0.00	0.00	0.00	61.73	50.75	84.18	50.51
CO3--	mg/l	2	670.80	414.00	358.80	220.80	82.80	27.60	33.00	5.52	22.08
OH-	mg/l	0.0	87.72	156.40	86.02	78.20	14.80	0.00	0.00	0.00	0.00
B	mg/l	0.060	2.17	3.1	1.76	0.787	0.354	0.21	0.2	0.168	0.226
as H3BO3	mg/l	0.34	12.42	17.73	10.06	4.5	2.02	1.2	1.14	0.96	1.27
TOC	mg/l	1.0	----	----	----	----	----	----	----	----	----
PO4---	mg/l	<0.1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	5.28	36.15	33.74	19.43	9.96	5.95	4.56	4.50	4.10	4.12
ANIONS	meq/l	5.54	39.21	32.94	22.79	15.60	6.45	4.74	4.80	4.15	4.35
TOT. ALK.*	mg/l	92	825.6	690	510.6	358.8	107.64	57.96	57.96	46.92	46.92
IC	mg/l	34.1	----	----	----	----	----	----	----	----	----
FORE VOL.			0.32	1.22	1.92	2.96	3.94	5.42	6.04	6.87	7.21

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.17. contd

SAMPLE #	-----	10	11	12	13	14	15	16
TIME	days	38	45	49	52	56	61	64
pH		9.13	8.4	8.25	8.3	8.09	7.85	7.85
Eh	mv	235	331	390	388	380	363	430
Al	mg/l	0.12	0.038	0.046	0.042	<0.03	<0.03	<0.03
Ba	mg/l	0.014	0.022	0.014	0.018	0.017	0.014	0.010
Ca	mg/l	8.45	17.5	19.7	26.9	27.6	27.8	29.2
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fe	mg/l	<0.005	<0.005	<0.005	0.006	<0.005	0.008	<0.005
K	mg/l	9	8.5	8.6	8.4	7.3	7.8	7.3
Mg	mg/l	6.35	9.08	7.64	10.5	10.60	10.00	10.20
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	66	42.9	37.1	30.9	30	29	29
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	9.57	9.25	8.09	9.61	9.1	8.6	8.9
Sr	mg/l	0.109	0.153	0.153	0.19	0.200	0.202	0.210
Zn	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	0.012	0.014	<0.008	0.0	0.0	0.0
F-	mg/l	9.2	7.8	9.4	7.3	9.6	8.8	9.3
Cl-	mg/l	21	24	23	23	24	21	22
NO2-	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SO4--	mg/l	69	76	75	76	81	68	71
HCO3-	mg/l	61.73	50.51	28.06	84.18	50.43	72.96	44.90
CO3--	mg/l	5.52	5.52	5.52	0.00	0.00	0.00	0.00
OH-	mg/l	0.00	0.00	0.00	0.00	0.00	0.00	0.00
δ	mg/l	0.3	0.147	0.147	0.127	0.140	0.147	0.147
as H3BO3	mg/l	1.71	0.84	0.84	0.73	0.60	0.84	0.84
TGC	mg/l	----	----	----	----	----	----	----
PO4---	mg/l	<0.5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	4.05	3.71	3.45	3.77	3.75	3.69	3.74
ANIONS	meq/l	3.71	3.68	3.35	4.00	3.70	3.65	3.33
TOT. ALK. #	meq/l	35.88	30.36	19.32	41.4	25	36	22
IC	mg/l	----	----	----	----	----	----	----
PORE VOL.		8.51	9.75	10.36	11.58	12.2	13.07	13.59

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.18. Column Adsorption Test on Crushed Grout in Sediment (CGT)

SAMPLE #	WELL ----- WATER	1	2	3	4	5	6	7	8	9
		3	7	11	15	18	22	25	29	32
TIME	days									
pH		8.10	12.29	12.5	11.78	11.91	11.78	11.07	11.41	11.19
Eh	av	295	259	349	357	285	327	233	274	237
Al	mg/l	<0.1	6.23	18.3	9.97	9.34	5.42	4.88	4.73	4.46
Ba	mg/l	0.060	0.008	0.011	0.009	0.005	0.006	0.004	0.007	0.003
Ca	mg/l	56.0	30.3	4.01	4.16	3.14	4.02	3.07	4.37	2.97
Cd	mg/l	<0.005	0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	0.073	0.022	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	0.159	0.081	0.064	0.024	0.018	0.012	0.012	0.005
Fe	mg/l	<0.001	0.028	0.097	0.159	0.071	0.136	0.048	0.166	0.052
K	mg/l	7.8	7.7	2.7	1.5	1	0.6	0.8	0.7	0.8
Mg	mg/l	14.40	0.322	0.166	0.163	0.062	<0.06	<0.06	<0.06	0.07
Mn	mg/l	<0.01	<0.002	0.005	0.006	<0.002	0.006	<0.002	0.006	<0.002
Na	mg/l	25	1260	774	549	452	361	310	272	233
P	mg/l	<0.1	0.36	0.63	0.61	0.56	0.62	0.64	0.61	0.6
as PO4	mg/l	<0.3	1.1	1.93	1.87	1.72	1.9	1.96	1.87	1.84
Pb	mg/l	<0.05	<0.05	<0.05	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15.0	126	132	119	110	91.3	72.5	63.2	47.1
Sr	mg/l	0.250	0.13	0.013	0.01	0.007	0.007	0.005	0.007	0.007
Zn	mg/l	<0.01	<0.02	<0.02	<0.02	0.054	0.026	0.041	0.035	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	<0.5	35	30	19	12	9.3	7	6.5	6.1
Cl-	mg/l	22	40	24	23	20	21	20	20	23
NO2-	mg/l	<0.03	0.3	0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	0.1	58	6	1.9	0.6	0.6	<0.5	<0.5	<0.5
SO4--	mg/l	86	540	130	86	69	73	74	74	76
HCO3-	mg/l	171.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO3--	mg/l	2	542.80	516.00	412.80	303.60	248.40	552.00	248.40	253.92
OH-	mg/l	0.0	291.83	270.47	146.20	132.94	101.66	62.56	46.92	6.26
B	mg/l	0.060	9.26	2.49	1.4	0.731	0.535	0.393	0.355	0.3
as H3BO3	mg/l	0.34	28.39	7.63	4.29	4.18	3.06	2.24	2.03	1.71
TOC	mg/l	1.0	---	---	---	---	---	---	---	---
PO4---	mg/l	<0.1	<0.4	<0.4	<0.4	1.2	1.4	1.4	1.3	1.2
CATIONS	meq/l	5.28	56.52	33.94	24.13	19.84	15.91	13.65	12.06	10.31
ANIONS	meq/l	5.54	50.44	36.19	25.85	20.62	16.92	24.60	13.53	11.42
TOT. ALK. #	mg/l	92	1057.6	993.3	670.8	538.2	427.8	662.4	331.2	264.96
IC	mg/l	34.1	---	---	---	---	---	---	---	---
FGRE VOL.			2.66	4.8	5.76	8.29	9.18	11.13	12.36	14.93

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.18. contd

SAMPLE #	-----	10	11	12	13	14	15	16	17	18
TIME	days	35	39	46	53	57	60	64	69	72
pH		10.19	10.47	10.47	10.56	10.53	10.30	10.23	9.87	10.58
Eh	mv	241	330	258	309	354	348	367	319	368
Al	mg/l	3.63	3.58	2.99	2.08	1.93	1.64	1.41	1.05	0.84
Ba	mg/l	<0.002	0.005	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l	2.87	4.04	3.13	1.7	1.7	1.9	2.0	2.5	5.1
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	0.008	<0.004	<0.004	<0.004	0.006	<0.004	<0.004	<0.004
Fe	mg/l	0.045	0.176	0.119	0.027	0.027	0.027	0.023	0.016	0.071
K	mg/l	0.5	0.8	0.6	1.2	0.9	0.8	<0.3	2.1	3.6
Mg	mg/l	0.064	0.152	0.09	0.089	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.002	0.006	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	194	202	186	163	144	130	121	109	95
P	mg/l	0.45	0.46	0.4	0.33	0.25	0.18	0.18	0.13	<0.1
as PO4	mg/l	1.38	1.41	1.23	1.01	0.77	0.55	0.55	0.40	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	37.2	47.8	43.4	33.1	26.0	22.7	21.6	19.5	18.1
Sr	mg/l	0.005	0.006	0.005	0.004	0.004	0.003	0.003	0.004	0.010
Zn	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	0.01	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	5.7	6.4	6.6	6.4	6.8	6.5	6.5	6.5	7.3
Cl-	mg/l	22	23	24	23	22	22	22	22	24
NO2-	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SO4--	mg/l	73	79	77	77	77	76	75	75	82
HCO3-	mg/l	22.45	0.00	61.73	33.67	0.00	22.45	16.75	11.22	16.84
CO3--	mg/l	176.64	204.20	149.04	121.44	99.36	88.32	71.80	60.72	55.20
OH-	mg/l	0.00	0.00	0.00	0.00	9.38	0.00	0.00	0.00	0.00
B	mg/l	0.259	0.329	0.3	0.258	0.228	0.214	0.228	0.214	0.208
as H3BO3	mg/l	1.49	1.67	1.71	1.47	1.30	1.22	1.30	1.22	1.19
TOC	mg/l	----	----	----	----	----	----	----	----	----
PO4---	mg/l	1	0.9	0.9	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	8.60	9.02	8.27	7.21	6.37	5.77	5.36	4.92	4.47
ANIONS	meq/l	8.73	9.47	8.64	7.19	6.45	5.86	5.19	4.73	4.86
TOT. ALK. #	mg/l	187.68	204.24	179.4	138	116	99	80	66	63
IC	mg/l	----	----	----	----	----	----	----	----	----
PORE VOL.		17.68	18.66	20.67	23.15	25.16	26.74	28.42	30.86	33

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.19. Column Adsorption Test on Crushed Grout in Sediment (CGC)

SAMPLE #	-----	WELL	1	2	3	4	5	6	7	8	9
TIME	days	WATER	3	7	9	13	16	20	24	28	31
pH		7.99	13.17	12.76	12.31	11.90	11.97	11.10	10.51	10.47	10.80
Eh	mv	382	185	134	203	246	118	248	304	194	330
Al	mg/l	<0.3	62.60	41.80	22.40	13.70	9.62	7.12	5.45	4.31	3.31
Ba	mg/l	0.027	<0.002	<0.002	0.006	0.004	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l	53.8	7.0	2.3	1.5	1.5	1.5	1.6	1.3	1.2	1.2
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	0.106	<0.004	0.014	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.005	<0.005	<0.005	0.036	0.080	0.050	0.051	0.036	0.039	0.020
K	mg/l	6.1	13.0	4.2	4.0	2.0	1.9	1.9	<0.3	<0.3	<0.3
Mg	mg/l	14.00	<0.06	<0.06	<0.06	<0.06	<0.06	0.12	<0.06	<0.06	<0.06
Mn	mg/l	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002
Na	mg/l	26	4770	1650	692	388	266	210	168	146	132
P	mg/l	<0.1	1.10	0.60	0.60	0.53	0.45	0.34	0.15	0.11	<0.1
as PD4	mg/l	<0.3	3.40	1.84	1.84	1.62	1.37	1.04	0.46	0.34	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15.6	139.0	89.2	77.0	51.6	37.6	28.7	23.2	21.7	22.1
Sr	mg/l	0.240	0.026	0.012	0.008	0.008	0.004	0.006	0.003	0.003	0.004
Zn	mg/l	0.120	<0.02	<0.02	<0.02	<0.02	0.065	0.071	<0.02	0.065	0.056
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	0.6	102.0	42.0	15.0	6.9	5.7	5.0	4.6	4.2	4.2
Cl-	mg/l	25	40	24	21	22	22	22	23	23	23
NO2-	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1
NO3-	mg/l	<0.3	150.0	22.0	1.6	0.3	0.2	0.1	<0.2	<0.2	<0.2
SO4--	mg/l	78	1550	246	65	63	67	67	72	72	72
HCO3-	mg/l	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	146.85
CO3--	mg/l	120	118	774	362	258	258	170	124	144	41.28
OH-	mg/l	17.0	1153.7	701.0	291.8	131.5	131.5	17.6	13.0	0.0	0.00
B	mg/l	0.076	21.600	5.400	1.110	0.356	0.313	0.300	0.293	0.282	0.281
as H3BO3	mg/l	0.43	123.50	30.80	6.30	2.03	1.79	1.72	1.67	1.60	1.60
TOC	mg/l	1.0	29.3	10.5	5.5	3.7	2.6	1.9	4.0	2.8	3.7
PO4---	mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CATIONS	meq/l	5.13	208.08	71.96	30.27	17.00	11.70	9.27	7.38	6.42	5.81
ANIONS	meq/l	7.37	113.01	75.44	32.00	18.64	18.65	8.98	7.31	7.18	6.17
TOT. ALK.*	mg/l	150	2154	2012	877	490	490	201	147	144	114
IC	mg/l	34.1	363.8	99.0	57.4	50.7	30.5	28.3	32.1	40.5	36.2
P. VOL.			2.00	5.52	9.32	12.91	16.64	21.70	26.66	30.15	31.47

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.19. contd

SAMPLE #	-----	11	13	15	17	19	21	24	26	28	30	32
TIME	days	38	44	51	60	66	73	87	94	104	113	122
pH		9.91	10.54	10.44	10.81	10.27	10.37	10.87	10.84	10.10	10.16	8.71
Eh	av	339	303	290	295	279	321	335	254	344	349	366.00
Al	mg/l	1.90	1.30	1.01	1.32	2.18	2.14	2.78	3.69	4.43	3.61	4.63
Ba	mg/l	<0.002	0.008	0.009	0.010	0.012	0.010	0.011	0.011	0.008	0.007	0.004
Ca	mg/l	2.2	18.0	28.7	39.6	50.9	36.5	49.0	49.1	39.4	52.5	40.30
Cd	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	0.016	<0.005	<0.005	0.014	<0.005	0.007	0.008	0.006	0.006	<0.005	0.01
K	mg/l	3.9	28.0	27.0	21.0	16.0	14.0	13.0	11.0	9.7	9.4	8.00
Mg	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Na	mg/l	96	45	26	26	25	25	25	26	25	26	25.70
P	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
as PO4	mg/l	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Pb	mg/l	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15.3	12.7	11.0	11.6	10.7	9.7	8.8	7.6	6.2	4.8	2.91
Sr	mg/l	0.010	0.117	0.201	0.289	0.409	0.452	0.613	0.698	0.716	0.762	0.67
Zn	mg/l	0.060	0.110	<0.2	0.054	<0.2	0.029	<0.02	<0.02	<0.02	<0.02	<0.02
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	7.5	7.6	4.6	5.2	5.2	5.9	7.2	7.8	8.0	8.5	8.90
Cl-	mg/l	25	24	24	24	20	21	22	22	22	22	23.00
NO2-	mg/l	<0.1	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
NO3-	mg/l	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SO4--	mg/l	82	80	71	73	69	69	73	73	72	73	71.00
HCO3-	mg/l	10.49	57.71	83.94	41.97	57.95	0.00	26.23	0.00	15.74	57.71	31.31
CO3--	mg/l	61.92	5.16	15.48	10.32	41.20	5.16	41.28	41.92	30.96	46.44	31.00
OH-	mg/l	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.56	0.00	0.00	0.00
Σ	mg/l	0.270	0.250	0.214	0.224	0.204	0.203	0.202	0.196	0.156	0.175	0.18
as H3BO3	mg/l	1.54	1.43	1.22	1.28	1.67	1.16	1.15	1.12	1.06	1.00	1.03
TOC	mg/l	1.5	1.5	2.1	2.2	1.9	3.6	6.3	3.5	10.4	2.8	0.62
PO4---	mg/l	<0.5	<0.5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
CATIONS	meq/l	4.39	3.58	3.27	3.64	4.07	3.30	3.89	3.87	3.33	4.00	3.36
ANIONS	meq/l	5.06	3.88	4.32	3.53	4.61	2.51	4.36	4.13	3.85	5.12	4.17
TOT. ALK.*	mg/l	67	34	57	31	70	5	54	46	39	75	46.40
IC	mg/l	11.7	11.7	4.7	4.5	16.7	5.4	4.3	3.4	4.2	5.0	7.54
P. VOL.		38.91	49.85	56.08	62.83	70.23	76.30	87.76	94.30	101.80	110.72	122.69

(---) Data not available.

(#) Total Alkalinity as CO3--.

TABLE A.19. contd

34	35
158	188
8.32	9.56
343.00	290.00
3.57	3.94
0.01	0.00
39.50	42.70
<0.004	<0.004
<0.02	<0.02
<0.004	<0.004
<0.005	<0.005
8.20	6.20
0.68	<0.06
<0.002	<0.002
26.10	26.40
<0.1	<0.1
<0.3	<0.3
<0.06	<0.06
3.54	3.27
0.53	0.52
<0.02	<0.02
<0.008	<0.008
8.70	11.00
23.00	22.10
<0.3	<0.3
<0.5	<0.5
73.00	74.60
22.45	39.28
38.64	16.56
0.00	0.00
0.15	0.15
0.85	0.88
----	----
<0.4	<0.4
3.39	3.45
4.28	3.95
49.68	35.88
----	----
160.26	185.00

(---) Data not available.
 (#) Total Alkalinity as CO₃--.

TABLE A.20. Column Adsorption Test on Crushed Grout in Sediment (SCGI)

SAMPLE #	-----	WELL	1	2	3	4	5	6	7	8	9
TIME	days	WATER	3	7	9	13	16	20	24	28	31
pH		7.99	11.95	12.48	12.72	12.03	11.87	11.86	11.27	11.02	11.49
Eh	mv	382	256	133	179	244	166	273	323	198	345
Al	mg/l	<0.1	0.17	25.60	20.80	19.30	17.40	14.60	11.70	8.59	7.54
Ba	mg/l	0.060	0.018	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ca	mg/l	56.0	45.2	2.7	1.9	1.6	1.4	1.2	1.2	1.3	1.1
Cd	mg/l	<0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Cr	mg/l	<0.015	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu	mg/l	<0.005	0.036	0.042	0.012	0.008	<0.004	<0.004	<0.004	<0.004	<0.004
Fe	mg/l	<0.01	<0.005	0.014	0.032	0.088	0.087	0.049	0.073	0.094	0.037
K	mg/l	7.8	8.3	4.3	3.0	3.0	2.2	2.1	<0.3	<0.3	<0.3
Mg	mg/l	14.40	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Mn	mg/l	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002
Na	mg/l	25	1030	1920	990	585	468	345	272	213	191
P	mg/l	<0.1	<0.1	0.20	<0.1	0.21	0.21	0.25	0.21	0.18	0.14
as PD4	mg/l	<0.3	<0.3	0.60	<0.3	0.64	0.64	0.77	0.64	0.55	0.43
Pb	mg/l	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Si	mg/l	15.0	72.0	169.0	107.0	70.5	57.6	43.4	33.6	29.9	27.3
Sr	mg/l	0.250	0.418	0.020	0.014	0.010	0.008	0.007	0.005	0.005	0.005
Zn	mg/l	<0.01	0.056	0.066	<0.02	<0.02	0.108	0.036	0.215	<0.02	0.024
Zr	mg/l	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
F-	mg/l	<0.5	32.0	34.0	19.0	13.0	10.0	7.3	5.8	5.0	4.2
Cl-	mg/l	22	47	27	21	21	20	21	22	24	23
NO2-	mg/l	<0.03	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NO3-	mg/l	0.1	160.0	56.0	6.4	0.8	0.2	0.1	<0.2	<0.2	<0.2
SO4--	mg/l	86	1440	560	181	106	79	68	68	68	66
HCO3-	mg/l	151.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	304.27
CO3--	mg/l	15	362	566	414	876	258	362	156	196	30.96
OH-	mg/l	0.0	57.8	863.0	438.0	117.3	204.6	14.2	82.7	29.5	0.00
B	mg/l	0.060	9.720	5.940	2.240	1.420	1.000	0.800	0.469	1.290	1.090
as H3BO3	mg/l	0.34	55.59	33.74	12.80	8.12	5.72	4.60	2.66	7.38	6.23
TOC	mg/l	1.0	----	----	----	----	----	----	----	----	----
PD4---	mg/l	<1.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
CATIONS	meq/l	5.28	47.06	83.73	43.22	25.60	20.48	15.12	11.89	9.33	8.36
ANIONS	meq/l	5.54	51.60	84.76	45.04	39.60	23.38	15.30	12.41	10.62	8.26
TOT. ALK. #	mg/l	90	464	2069	1187	1083	619	387	302	248	181
IC	mg/l	34.1	----	----	----	----	----	----	----	----	----
PORE VOL.			1.84	5.72	9.06	11.69	15.49	20.61	24.4	27.94	31.02

(---) Data not available.

(#) Total Alkalinity as CO3--.

Appendix B

Cumulative Fraction Leached and Effective Diffusion Coefficient Data

Appendix B

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Tables B.20 - Flow-Through Test--Crushed Grout/Sediment/Groundwater (DIFCGT)

Tables B.21 - Flow-Through Test--Crushed Grout/Sediment/Groundwater (DIFCGC)

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Tables B.23 - Flow-Through Test--Crushed Grout/Sediment/Groundwater (CGI)
(Radionuclides only)

TABLE B.1a. Potassium (K) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF2-4)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 2-4-1	-7.15E-03	-7.15E-03	3.00E+04	4.61E-02	4.61E-02
CRW 2-4-2	3.34E-03	-3.82E-03	8.33E-02	4.19E-10	5.47E-10
CRW 2-4-3	4.77E-04	-3.34E-03	2.92E-01	1.13E-11	1.20E-10
CRW 2-4-4	1.00E-02	6.68E-03	1.00E+00	1.48E-09	1.40E-10
CRW 2-4-5	6.68E-03	1.34E-02	2.10E+00	6.92E-10	2.66E-10
CRW 2-4-6	6.68E-03	2.00E-02	3.02E+00	1.67E-09	4.16E-10
CRW 2-4-7	5.82E-02	7.82E-02	1.31E+01	3.00E-09	1.46E-09
CRW 2-4-8	2.48E-02	1.03E-01	2.00E+01	2.63E-09	1.66E-09
CRW 2-4-9	1.53E-02	1.18E-01	2.70E+01	1.39E-09	1.62E-09
CRW 2-4-10	2.96E-02	1.48E-01	4.10E+01	1.88E-09	1.67E-09
CRW 2-4-11	1.53E-02	1.63E-01	5.00E+01	1.63E-09	1.66E-09
CRW 2-4-12	1.53E-02	1.78E-01	6.30E+01	9.71E-10	1.56E-09
CRW 2-4-13	2.48E-02	2.03E-01	9.20E+01	7.03E-10	1.40E-09
CRW 2-4-15	1.91E-02	2.22E-01	1.22E+02	5.39E-10	1.37E-09
CRW 2-4-14	1.96E-02	2.42E-01	1.34E+02	4.25E-09	1.48E-09
CRW 2-4-16	2.00E-02	2.62E-01	1.82E+02	2.10E-10	1.30E-09
CRW 2-4-17	2.86E-02	2.90E-01	3.02E+02	1.70E-10	9.93E-10
CRW 2-4-18	2.29E-02	3.13E-01	4.10E+02	1.99E-10	0.00E+00

TABLE B.1b. Sodium (Na) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF2-4)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 2-4-1	5.81E-03	5.81E-03	3.00E+04	3.05E-02	3.05E-02
CRW 2-4-2	2.33E-02	2.91E-02	8.33E-02	2.03E-08	3.16E-08
CRW 2-4-3	1.83E-02	4.73E-02	2.92E-01	1.65E-08	2.41E-08
CRW 2-4-4	3.43E-02	8.17E-02	1.00E+00	1.74E-08	2.09E-08
CRW 2-4-5	2.77E-02	1.09E-01	2.10E+00	1.19E-08	1.78E-08
CRW 2-4-6	1.52E-02	1.25E-01	3.02E+00	8.71E-09	1.61E-08
CRW 2-4-7	9.91E-02	2.24E-01	1.31E+01	8.71E-09	1.28E-08
CRW 2-4-8	4.37E-02	2.67E-01	2.00E+01	8.18E-09	1.29E-08
CRW 2-4-9	3.27E-02	3.00E-01	2.70E+01	6.37E-09	1.20E-08
CRW 2-4-10	5.12E-02	3.51E-01	4.10E+01	5.64E-09	1.12E-08
CRW 2-4-11	2.58E-02	3.77E-01	5.00E+01	4.63E-09	1.11E-08
CRW 2-4-12	3.13E-02	4.08E-01	6.30E+01	4.08E-09	1.05E-08
CRW 2-4-13	4.85E-02	4.57E-01	9.20E+01	2.68E-09	7.50E-09
CRW 2-4-14	3.96E-02	4.96E-01	1.22E+02	2.32E-09	5.81E-09
CRW 2-4-15	3.97E-02	5.36E-01	1.34E+02	1.76E-08	9.69E-09
CRW 2-4-16	3.99E-02	5.76E-01	1.82E+02	6.32E-10	5.63E-09
CRW 2-4-17	5.98E-02	6.36E-01	3.02E+02	7.41E-10	5.80E-09
CRW 2-4-18	4.98E-02	6.86E-01	4.10E+02	9.44E-10	0.00E+00

TABLE B.1e. Boron (as H3BO3) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF2-4)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 2-4-1	7.54E-04	7.54E-04	3.00E-04	5.12E-04	5.12E-04
CRW 2-4-2	2.20E-03	2.95E-03	8.33E-02	1.82E-10	3.27E-10
CRW 2-4-3	1.22E-03	4.18E-03	2.92E-01	7.42E-11	1.87E-10
CRW 2-4-4	9.11E-04	5.09E-03	1.00E+00	1.23E-11	8.10E-11
CRW 2-4-5	5.34E-04	5.62E-03	2.10E+00	4.42E-12	4.71E-11
CRW 2-4-6	2.04E-03	7.66E-03	3.02E+00	1.57E-10	6.09E-11
CRW 2-4-7	2.83E-04	7.95E-03	1.31E+01	7.08E-14	1.51E-11
CRW 2-4-8	2.83E-04	8.23E-03	2.00E+01	3.42E-13	1.06E-11
CRW 2-4-9	2.20E-04	8.45E-03	2.70E+01	2.89E-13	8.27E-12
CRW 2-4-10	6.60E-04	9.11E-03	4.10E+01	9.35E-13	6.33E-12
CRW 2-4-11	1.26E-04	9.23E-03	5.00E+01	1.11E-13	5.34E-12
CRW 2-4-12	1.57E-04	9.39E-03	6.30E+01	1.03E-13	4.38E-12
CRW 2-4-13	3.77E-04	9.77E-03	9.20E+01	1.62E-13	3.25E-12
CRW 2-4-14	2.20E-04	9.99E-03	1.22E+02	7.16E-14	2.56E-12
CRW 2-4-15	2.98E-04	1.03E-02	1.34E+02	9.90E-13	2.47E-12
CRW 2-4-16	3.77E-04	1.07E-02	1.82E+02	7.43E-14	1.96E-12
CRW 2-4-17	7.54E-04	1.14E-02	3.02E+02	1.18E-13	1.35E-12
CRW 2-4-18	1.88E-04	1.16E-02	4.10E+02	1.35E-14	1.03E-12

TABLE B.1f. Fluoride (F) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF2-4)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 2-4-1	1.43E-04	1.43E-04	3.00E-04	1.84E-05	1.84E-05
CRW 2-4-2	3.33E-04	4.76E-04	8.33E-02	4.17E-12	8.50E-12
CRW 2-4-3	3.33E-04	8.09E-04	2.92E-01	5.49E-12	7.02E-12
CRW 2-4-4	1.47E-03	2.28E-03	1.00E+00	3.22E-11	1.63E-11
CRW 2-4-5	1.43E-03	3.71E-03	2.10E+00	3.16E-11	2.05E-11
CRW 2-4-6	5.71E-04	4.28E-03	3.02E+00	1.22E-11	1.90E-11
CRW 2-4-7	1.76E-03	6.04E-03	1.31E+01	2.75E-12	8.73E-12
CRW 2-4-8	6.18E-04	6.66E-03	2.00E+01	1.64E-12	6.94E-12
CRW 2-4-9	3.81E-04	7.04E-03	2.70E+01	8.65E-13	5.75E-12
CRW 2-4-10	5.23E-04	7.56E-03	4.10E+01	5.88E-13	4.37E-12
CRW 2-4-11	4.76E-05	7.61E-03	5.00E+01	1.59E-14	3.63E-12
CRW 2-4-12	9.51E-05	7.71E-03	6.30E+01	3.78E-14	2.95E-12
CRW 2-4-13	9.51E-05	7.80E-03	9.20E+01	1.04E-14	2.07E-12
CRW 2-4-14	8.56E-04	8.66E-03	1.22E+02	1.09E-12	1.92E-12
CRW 2-4-15	4.76E-04	9.13E-03	1.34E+02	2.52E-12	1.95E-12
CRW 2-4-16	9.51E-05	9.23E-03	1.82E+02	4.74E-15	1.46E-12
CRW 2-4-17	2.38E-04	9.47E-03	3.02E+02	1.17E-14	9.29E-13
CRW 2-4-18	9.51E-05	9.56E-03	4.10E+02	3.44E-15	6.78E-13

TABLE B.1g. Nitrate (NO₃) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF2-4)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 2-4-1	1.33E-02	1.33E-02	3.00E-04	1.59E-01	1.59E-01
CRW 2-4-2	1.94E-02	3.27E-02	8.33E-02	1.42E-08	4.02E-08
CRW 2-4-3	1.12E-02	4.39E-02	2.92E-01	6.25E-09	2.07E-08
CRW 2-4-4	1.94E-02	6.33E-02	1.00E+00	5.57E-09	1.26E-08
CRW 2-4-5	1.33E-02	7.66E-02	2.10E+00	2.74E-09	8.75E-09
CRW 2-4-6	8.17E-03	8.48E-02	3.02E+00	2.51E-09	7.45E-09
CRW 2-4-7	6.13E-02	1.46E-01	1.31E+01	3.33E-09	5.11E-09
CRW 2-4-8	2.25E-02	1.69E-01	2.00E+01	2.16E-09	4.45E-09
CRW 2-4-9	1.23E-02	1.81E-01	2.70E+01	8.97E-10	3.79E-09
CRW 2-4-10	6.95E-02	2.50E-01	4.10E+01	1.04E-08	5.30E-09
CRW 2-4-11	7.15E-03	2.57E-01	5.00E+01	3.59E-10	4.72E-09
CRW 2-4-12	7.15E-03	2.65E-01	6.30E+01	2.13E-10	3.75E-09
CRW 2-4-13	1.94E-02	2.84E-01	9.20E+01	4.31E-10	3.02E-09
CRW 2-4-14	7.15E-03	2.91E-01	1.22E+02	7.57E-11	2.17E-09
CRW 2-4-15	8.48E-02	3.76E-01	1.34E+02	8.00E-08	3.30E-09
CRW 2-4-16	1.53E-02	3.91E-01	1.82E+02	1.23E-10	0.00E+00
CRW 2-4-17	5.01E-02	4.41E-01	3.02E+02	5.19E-10	2.60E-09
CRW 2-4-18	2.35E-02	4.65E-01	4.10E+02	2.10E-10	1.65E-09

TABLE B.1i. Carbon-14 (C-14) Leach Fractions from ANS 16.1 Leach Test--Whole Grout with Groundwater (2-4)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm ² /sec	D cum cm ² /sec
CRW 2-4-1	1.93E-04	0.012%	3.00E-04	1.21E-04	1.21E-04	1.13E-10	1.53E-10
CRW 2-4-2	6.87E-04	0.054%	8.33E-02	4.21E-04	5.43E-04	7.55E-12	1.11E-11
CRW 2-4-3	2.43E-04	0.069%	2.92E-01	1.52E-04	6.94E-04	1.14E-12	5.17E-12
CRW 2-4-4	8.42E-04	0.121%	1.00E+00	5.15E-04	1.21E-03	3.93E-12	4.58E-12
CRW 2-4-5	3.20E-04	0.141%	2.10E+00	1.99E-04	1.41E-03	6.12E-13	2.96E-12
CRW 2-4-6	3.19E-04	0.161%	3.02E+00	1.97E-04	1.61E-03	1.46E-12	2.67E-12
CRW 2-4-7	1.60E-03	0.258%	1.31E+01	9.77E-04	2.58E-03	8.47E-13	1.60E-12
CRW 2-4-8	1.93E-04	0.270%	2.00E+01	1.21E-04	2.70E-03	6.28E-14	1.14E-12
CRW 2-4-9	1.93E-04	0.283%	2.70E+01	1.21E-04	2.83E-03	8.77E-14	9.25E-13
CRW 2-4-10	1.93E-04	0.295%	4.10E+01	1.21E-04	2.95E-03	3.16E-14	6.63E-13
CRW 2-4-11	1.93E-04	0.307%	5.00E+01	1.21E-04	3.07E-03	1.03E-13	5.89E-13
CRW 2-4-12	1.93E-04	0.319%	6.40E+01	1.21E-04	3.19E-03	5.33E-14	4.97E-13
CRW 2-4-13	1.93E-04	0.331%	9.20E+01	1.21E-04	3.31E-03	1.81E-14	3.73E-13
CRW 2-4-14	1.93E-04	0.343%	1.22E+02	1.21E-04	3.43E-03	2.18E-14	3.02E-13
CRW 2-4-15	1.93E-04	0.355%	1.34E+02	1.21E-04	3.55E-03	1.63E-13	2.95E-13
CRW 2-4-16	9.79E-04	0.417%	1.82E+02	6.13E-04	4.17E-03	3.21E-13	2.98E-13
CRW 2-4-17	1.93E-04	0.429%	3.02E+02	1.29E-04	4.29E-03	3.46E-15	1.91E-13
CRW 2-4-18	1.93E-04	0.442%	4.10E+02	1.21E-04	4.42E-03	5.58E-15	1.49E-13

TABLE B.1i. Carbon-14 (C-14) Leach Fraction from ANS 16.1 Leach Test--Whole Grout in Groundwater (2-5)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm ² /sec	D cum cm ² /sec
CRW 2-5-1	2.43E-04	0.012%	3.00E-04	1.18E-04	1.18E-04	1.09E-10	1.48E-10
CRW 2-5-2	1.83E-03	0.099%	8.33E-02	8.72E-04	9.90E-04	3.27E-11	3.73E-11
CRW 2-5-3	6.29E-04	0.129%	2.92E-01	3.01E-04	1.29E-03	4.53E-12	1.81E-11
CRW 2-5-4	9.58E-04	0.175%	1.00E+00	4.57E-04	1.75E-03	3.13E-12	9.67E-12
CRW 2-5-5	8.17E-04	0.214%	2.10E+00	3.90E-04	2.14E-03	2.39E-12	6.89E-12
CRW 2-5-6	1.93E-04	0.223%	3.02E+00	9.45E-05	2.23E-03	3.39E-13	5.23E-12
CRW 2-5-7	1.58E-03	0.298%	1.31E+01	7.49E-04	2.98E-03	5.04E-13	2.15E-12
CRW 2-5-8	7.20E-04	0.333%	2.00E+01	3.44E-04	3.33E-03	5.12E-13	1.75E-12
CRW 2-5-9	1.93E-04	0.342%	2.70E+01	9.45E-05	3.42E-03	5.39E-14	1.37E-12
CRW 2-5-10	1.93E-04	0.352%	4.10E+01	9.45E-05	3.52E-03	1.94E-14	9.54E-13
CRW 2-5-11	3.26E-04	0.367%	5.00E+01	1.59E-04	3.67E-03	1.78E-13	8.55E-13
CRW 2-5-12	5.21E-04	0.392%	6.40E+01	2.50E-04	3.92E-03	2.29E-13	7.62E-13
CRW 2-5-13	2.70E-04	0.405%	9.20E+01	1.31E-04	4.05E-03	2.15E-14	5.66E-13
CRW 2-5-14	1.93E-04	0.415%	1.22E+02	9.45E-05	4.15E-03	1.34E-14	4.47E-13
CRW 2-5-15	1.93E-04	0.424%	1.34E+02	9.45E-05	4.24E-03	1.00E-13	4.25E-13
CRW 2-5-16	1.02E-03	0.473%	1.82E+02	4.91E-04	4.73E-03	2.68E-13	3.90E-13
CRW 2-5-17	1.93E-04	0.483%	3.02E+02	9.45E-05	4.83E-03	1.67E-15	2.44E-13

TABLE B.2a. Potassium (K) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF3-4)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 3-4-1	-1.87E-03	-1.87E-03	3.00E-04		
CRW 3-4-2	1.49E-02	1.31E-02	8.33E-02	8.39E-09	6.42E-09
CRW 3-4-3	1.03E-02	2.33E-02	2.92E-01	5.22E-09	5.84E-09
CRW 3-4-4	2.43E-02	4.76E-02	1.00E+00	8.72E-09	7.09E-09
CRW 3-4-5	1.96E-02	6.72E-02	2.10E+00	5.96E-09	6.73E-09
CRW 3-4-6	1.03E-02	7.75E-02	3.02E+00	3.96E-09	6.22E-09
CRW 3-4-7	6.63E-02	1.44E-01	1.31E+01	3.89E-09	4.95E-09
CRW 3-4-8	2.89E-02	1.73E-01	2.00E+01	3.58E-09	4.67E-09
CRW 3-4-9	1.96E-02	1.92E-01	2.70E+01	2.29E-09	4.29E-09
CRW 3-4-10	3.36E-02	2.26E-01	4.10E+01	2.43E-09	4.41E-09
CRW 3-4-11	1.96E-02	2.46E-01	5.00E+01	2.70E-09	4.34E-09
CRW 3-4-12	1.03E-02	2.56E-01	6.30E+01	4.40E-10	3.75E-09
CRW 3-4-13	2.89E-02	2.85E-01	9.20E+01	9.58E-10	3.02E-09
CRW 3-4-14	1.96E-02	3.04E-01	1.22E+02	5.69E-10	2.66E-09
CRW 3-4-15	1.96E-02	3.24E-01	1.34E+02	4.27E-09	2.80E-09
CRW 3-4-16	1.96E-02	3.44E-01	1.82E+02	2.01E-10	2.36E-09
CRW 3-4-17	2.05E-02	3.64E-01	3.02E+02	8.74E-11	1.62E-09

TABLE B.2b. Sodium (Na) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF3-4)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 3-4-1	2.98E-03	2.98E-03	3.00E-04	8.01E-03	8.01E-03
CRW 3-4-2	3.44E-02	3.74E-02	8.33E-02	4.45E-08	5.25E-08
CRW 3-4-3	2.25E-02	5.99E-02	2.92E-01	2.50E-08	3.85E-08
CRW 3-4-4	4.01E-02	1.00E-01	1.00E+00	2.38E-08	3.13E-08
CRW 3-4-5	3.22E-02	1.32E-01	2.10E+00	1.61E-08	2.61E-08
CRW 3-4-6	1.65E-02	1.49E-01	3.02E+00	1.03E-08	2.29E-08
CRW 3-4-7	1.07E-01	2.55E-01	1.31E+01	1.01E-08	1.81E-08
CRW 3-4-8	4.91E-02	3.04E-01	2.00E+01	1.03E-08	1.62E-08
CRW 3-4-9	3.69E-02	3.41E-01	2.70E+01	8.11E-09	1.59E-08
CRW 3-4-10	5.53E-02	3.96E-01	4.10E+01	6.57E-09	1.52E-08
CRW 3-4-11	2.74E-02	4.24E-01	5.00E+01	5.25E-09	1.40E-08
CRW 3-4-12	3.12E-02	4.55E-01	6.30E+01	4.05E-09	1.39E-08
CRW 3-4-13	4.74E-02	5.02E-01	9.20E+01	2.57E-09	1.17E-08
CRW 3-4-14	3.90E-02	5.41E-01	1.22E+02	2.26E-09	1.06E-08
CRW 3-4-15	-6.33E-03	5.35E-01	1.34E+02	4.45E-10	9.69E-09
CRW 3-4-16	3.69E-02	5.72E-01	1.82E+02	7.11E-10	8.24E-09
CRW 3-4-17	5.20E-02	6.24E-01	3.02E+02	5.61E-10	6.22E-09

TABLE B.2e. Boron (asH3BO3) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF3-4)

SAMPLE	An/Ao	cua. An/Ao	TIME days	D inc.	D cua.
CRW 3-4-1	5.84E-04	5.84E-04	3.00E-04	3.07E-04	3.07E-04
CRW 3-4-2	3.35E-03	3.93E-03	8.33E-02	4.22E-10	5.82E-10
CRW 3-4-3	2.06E-03	5.99E-03	2.92E-01	2.10E-10	3.65E-10
CRW 3-4-4	2.77E-03	8.76E-03	1.00E+00	1.13E-10	2.40E-10
CRW 3-4-5	1.60E-03	1.04E-02	2.10E+00	3.96E-11	1.60E-10
CRW 3-4-6	6.46E-04	1.10E-02	3.02E+00	1.56E-11	1.25E-10
CRW 3-4-7	2.58E-03	1.36E-02	1.31E+01	5.91E-12	4.42E-11
CRW 3-4-8	6.76E-04	1.43E-02	2.00E+01	1.96E-12	3.18E-11
CRW 3-4-9	3.69E-04	1.46E-02	2.70E+01	8.12E-13	2.48E-11
CRW 3-4-10	7.07E-04	1.53E-02	4.10E+01	1.07E-12	1.80E-11
CRW 3-4-11	2.77E-04	1.56E-02	5.00E+01	5.37E-13	1.53E-11
CRW 3-4-12	9.22E-05	1.57E-02	6.30E+01	3.55E-14	1.23E-11
CRW 3-4-13	3.69E-04	1.61E-02	9.20E+01	1.56E-13	8.79E-12
CRW 3-4-14	9.22E-05	1.62E-02	1.22E+02	1.26E-14	6.71E-12
CRW 3-4-15	2.15E-04	1.64E-02	1.34E+02	5.15E-13	6.27E-12
CRW 3-4-16	3.38E-04	1.67E-02	1.82E+02	5.98E-14	4.81E-12
CRW 3-4-17	6.46E-04	1.74E-02	3.02E+02	8.63E-14	3.13E-12

TABLE B.2f. Fluoride (F) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF3-4)

SAMPLE	An/Ao	cua. An/Ao	TIME days	D inc.	D cua.
CRW 3-4-1	0.00E+00	0.00E+00	3.00E-04	0.00E+00	0.00E+00
CRW 3-4-2	4.66E-05	4.66E-05	8.33E-02	8.15E-14	8.14E-14
CRW 3-4-3	5.59E-04	6.05E-04	2.92E-01	1.54E-11	3.93E-12
CRW 3-4-4	4.66E-04	1.07E-03	1.00E+00	3.21E-12	3.59E-12
CRW 3-4-5	1.54E-03	2.61E-03	2.10E+00	3.66E-11	1.01E-11
CRW 3-4-6	1.49E-03	4.10E-03	3.02E+00	8.34E-11	1.74E-11
CRW 3-4-7	6.98E-04	4.80E-03	1.31E+01	4.32E-13	5.50E-12
CRW 3-4-8	1.96E-03	6.75E-03	2.00E+01	1.64E-11	7.13E-12
CRW 3-4-9	1.12E-03	7.87E-03	2.70E+01	7.45E-12	7.18E-12
CRW 3-4-10	4.66E-04	8.33E-03	4.10E+01	4.66E-13	5.30E-12
CRW 3-4-11	6.05E-04	8.94E-03	5.00E+01	2.57E-12	5.00E-12
CRW 3-4-12	4.66E-05	8.99E-03	6.30E+01	9.04E-15	4.01E-12
CRW 3-4-13	1.40E-04	9.13E-03	9.20E+01	2.23E-14	2.83E-12
CRW 3-4-14	9.31E-05	9.22E-03	1.22E+02	1.28E-14	2.18E-12
CRW 3-4-15	5.35E-04	9.75E-03	1.34E+02	3.19E-12	2.22E-12
CRW 3-4-16	9.78E-04	1.07E-02	1.82E+02	5.00E-13	1.98E-12
CRW 3-4-17	9.31E-05	1.08E-02	3.02E+02	1.80E-15	1.21E-12

TABLE B.2g. Nitrate (NO3) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF3-4)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 3-4-1	5.00E-03	5.00E-03	3.00E-04	2.25E-02	2.25E-02
CRW 3-4-2	2.80E-02	3.30E-02	8.33E-02	2.95E-08	4.09E-08
CRW 3-4-3	1.60E-02	4.90E-02	2.92E-01	1.27E-08	2.57E-08
CRW 3-4-4	2.10E-02	7.00E-02	1.00E+00	6.52E-09	1.53E-08
CRW 3-4-5	1.60E-02	8.60E-02	2.10E+00	3.97E-09	1.10E-08
CRW 3-4-6	8.00E-03	9.40E-02	3.02E+00	2.40E-09	9.15E-09
CRW 3-4-7	7.40E-02	1.68E-01	1.31E+01	4.85E-09	6.75E-09
CRW 3-4-8	2.50E-02	1.93E-01	2.00E+01	2.67E-09	5.83E-09
CRW 3-4-9	1.60E-02	2.09E-01	2.70E+01	1.53E-09	5.60E-09
CRW 3-4-10	1.80E-02	2.27E-01	4.10E+01	6.96E-10	4.41E-09
CRW 3-4-11	7.00E-03	2.34E-01	5.00E+01	3.44E-10	3.61E-09
CRW 3-4-12	1.00E-02	2.44E-01	6.30E+01	4.17E-10	3.15E-09
CRW 3-4-13	2.20E-02	2.66E-01	9.20E+01	5.53E-10	2.80E-09
CRW 3-4-14	7.00E-03	2.73E-01	1.22E+02	7.25E-11	0.00E+00
CRW 3-4-15	1.10E-02	2.84E-01	1.34E+02	1.35E-09	2.07E-09
CRW 3-4-16	1.50E-02	2.99E-01	1.82E+02	1.18E-10	1.78E-09
CRW 3-4-17	4.90E-02	3.48E-01	3.02E+02	4.97E-10	1.52E-09

TABLE B.2g. Nitrate (NO3) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF3-4)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 3-4-1	5.00E-03	5.00E-03	3.00E-04	2.25E-02	2.25E-02
CRW 3-4-2	2.80E-02	3.30E-02	8.33E-02	2.95E-08	4.09E-08
CRW 3-4-3	1.60E-02	4.90E-02	2.92E-01	1.27E-08	2.57E-08
CRW 3-4-4	2.10E-02	7.00E-02	1.00E+00	6.52E-09	1.53E-08
CRW 3-4-5	1.60E-02	8.60E-02	2.10E+00	3.97E-09	1.10E-08
CRW 3-4-6	8.00E-03	9.40E-02	3.02E+00	2.40E-09	9.15E-09
CRW 3-4-7	7.40E-02	1.68E-01	1.31E+01	4.85E-09	6.75E-09
CRW 3-4-8	2.50E-02	1.93E-01	2.00E+01	2.67E-09	5.83E-09
CRW 3-4-9	1.60E-02	2.09E-01	2.70E+01	1.53E-09	5.60E-09
CRW 3-4-10	1.80E-02	2.27E-01	4.10E+01	6.96E-10	4.41E-09
CRW 3-4-11	7.00E-03	2.34E-01	5.00E+01	3.44E-10	3.61E-09
CRW 3-4-12	1.00E-02	2.44E-01	6.30E+01	4.17E-10	3.15E-09
CRW 3-4-13	2.20E-02	2.66E-01	9.20E+01	5.53E-10	2.80E-09
CRW 3-4-14	7.00E-03	2.73E-01	1.22E+02	7.25E-11	2.11E-09
CRW 3-4-15	1.10E-02	2.84E-01	1.34E+02	1.35E-09	2.07E-09
CRW 3-4-16	1.50E-02	2.99E-01	1.82E+02	1.18E-10	1.78E-09
CRW 3-4-17	4.90E-02	3.48E-01	3.02E+02	4.97E-10	1.52E-09

TABLE B.2h. Sulfate (SO₄) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF3-4)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 3-4-1	5.84E-04	5.84E-04	3.00E-04	3.07E-04	3.07E-04
CRW 3-4-2	3.35E-03	3.93E-03	8.33E-02	4.22E-10	5.82E-10
CRW 3-4-3	2.06E-03	5.99E-03	2.92E-01	2.10E-10	3.85E-10
CRW 3-4-4	2.77E-03	8.76E-03	1.00E+00	1.13E-10	2.40E-10
CRW 3-4-5	1.60E-03	1.04E-02	2.10E+00	3.96E-11	1.60E-10
CRW 3-4-6	6.46E-04	1.10E-02	3.02E+00	1.56E-11	1.25E-10
CRW 3-4-7	2.58E-03	1.36E-02	1.31E+01	5.91E-12	4.42E-11
CRW 3-4-8	6.76E-04	1.43E-02	2.00E+01	1.96E-12	3.18E-11
CRW 3-4-9	3.69E-04	1.46E-02	2.70E+01	8.12E-13	2.48E-11
CRW 3-4-10	7.07E-04	1.53E-02	4.10E+01	1.07E-12	1.80E-11
CRW 3-4-11	2.77E-04	1.56E-02	5.00E+01	5.37E-13	1.53E-11
CRW 3-4-12	9.22E-05	1.57E-02	6.30E+01	3.55E-14	1.23E-11
CRW 3-4-13	3.69E-04	1.61E-02	9.20E+01	1.56E-13	8.79E-12
CRW 3-4-14	9.22E-05	1.62E-02	1.22E+02	1.26E-14	6.71E-12
CRW 3-4-15	2.15E-04	1.64E-02	1.34E+02	5.15E-13	6.27E-12
CRW 3-4-16	3.38E-04	1.67E-02	1.82E+02	5.98E-14	4.61E-12
CRW 3-4-17	6.46E-04	1.74E-02	3.02E+02	8.63E-14	3.13E-12

TABLE B.2i. Technetium-99 (TC-99) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (3-4)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm ² /sec	D cum cm ² /sec
CRW 3-4-1	1.35E-04	0.009%	3.00E-04	9.42E-05	9.42E-05	6.97E-11	9.47E-11
CRW 3-4-2	3.98E-03	0.278%	8.33E-02	2.69E-03	2.78E-03	3.15E-10	2.98E-10
CRW 3-4-3	1.62E-03	0.388%	2.92E-01	1.09E-03	3.86E-03	6.05E-11	1.65E-10
CRW 3-4-4	3.28E-03	0.609%	1.00E+00	2.21E-03	6.09E-03	7.44E-11	1.19E-10
CRW 3-4-5	1.64E-03	0.720%	2.10E+00	1.11E-03	7.20E-03	1.96E-11	7.91E-11
CRW 3-4-6	5.98E-04	0.761%	3.02E+00	4.07E-04	7.61E-03	6.36E-12	6.14E-11
CRW 3-4-7	5.17E-03	1.110%	1.31E+01	3.49E-03	1.11E-02	1.11E-11	3.02E-11
CRW 3-4-8	1.36E-03	1.203%	2.00E+01	9.21E-04	1.20E-02	3.71E-12	2.32E-11
CRW 3-4-9	1.02E-03	1.272%	2.70E+01	6.93E-04	1.27E-02	2.93E-12	1.92E-11
CRW 3-4-10	1.64E-03	1.383%	4.10E+01	1.11E-03	1.38E-02	2.70E-12	1.49E-11
CRW 3-4-11	3.96E-04	1.410%	5.00E+01	2.70E-04	1.41E-02	5.23E-13	1.27E-11
CRW 3-4-12	5.13E-04	1.445%	6.40E+01	3.49E-04	1.44E-02	4.53E-13	1.04E-11
CRW 3-4-13	1.13E-03	1.521%	9.20E+01	7.66E-04	1.52E-02	7.41E-13	8.06E-12
CRW 3-4-14	8.79E-04	1.581%	1.22E+02	5.96E-04	1.58E-02	5.39E-13	6.56E-12
CRW 3-4-15	1.35E-04	1.590%	1.34E+02	9.42E-05	1.59E-02	1.01E-13	6.04E-12
CRW 3-4-16	1.44E-03	1.689%	1.82E+02	9.83E-04	1.69E-02	8.43E-13	5.02E-12
CRW 3-4-17	1.42E-03	1.785%	3.02E+02	9.60E-04	1.78E-02	1.95E-13	3.38E-12

TABLE B.2i. Technetium-99 (TC-99) Leach Fractions from ANS 16.1 Leach Test--
Whole Grout in Groundwater (3-5)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm ² /sec	D cum cm ² /sec
CRW 3-5-1	1.35E-04	0.010%	3.00E-04	9.51E-05	9.51E-05	6.63E-11	9.00E-11
CRW 3-5-2	2.36E-03	0.170%	8.33E-02	1.60E-03	1.70E-03	1.04E-10	1.03E-10
CRW 3-5-3	1.68E-03	0.284%	2.92E-01	1.14E-03	2.84E-03	6.12E-11	8.24E-11
CRW 3-5-4	1.88E-03	0.412%	1.00E+00	1.28E-03	4.12E-03	2.30E-11	5.06E-11
CRW 3-5-5	1.15E-03	0.490%	2.10E+00	7.82E-04	4.90E-03	9.05E-12	3.41E-11
CRW 3-5-6	1.35E-04	0.499%	3.02E+00	9.58E-05	4.99E-03	3.29E-13	2.46E-11
CRW 3-5-7	5.02E-03	0.842%	1.31E+01	3.42E-03	8.42E-03	9.91E-12	1.62E-11
CRW 3-5-8	1.21E-03	0.925%	2.00E+01	8.34E-04	9.25E-03	2.84E-12	1.28E-11
CRW 3-5-9	8.55E-04	0.983%	2.70E+01	5.83E-04	9.83E-03	1.94E-12	1.07E-11
CRW 3-5-10	1.31E-03	1.072%	4.10E+01	8.91E-04	1.07E-02	1.63E-12	8.37E-12
CRW 3-5-11	4.41E-04	1.103%	5.00E+01	3.03E-04	1.10E-02	6.13E-13	7.26E-12
CRW 3-5-12	6.57E-04	1.148%	6.40E+01	4.52E-04	1.15E-02	7.07E-13	6.15E-12
CRW 3-5-13	3.74E-04	1.174%	9.20E+01	2.57E-04	1.17E-02	7.77E-14	4.47E-12
CRW 3-5-14	9.64E-04	1.239%	1.22E+02	6.57E-04	1.24E-02	6.10E-13	3.76E-12
CRW 3-5-15	1.35E-04	1.249%	1.34E+02	9.47E-05	1.25E-02	9.51E-14	3.47E-12
CRW 3-5-16	1.36E-03	1.342%	1.82E+02	9.32E-04	1.34E-02	7.07E-13	2.95E-12
CRW 3-5-17	7.15E-04	1.391%	3.02E+02	4.89E-04	1.39E-02	4.72E-14	1.91E-12
CRW 3-5-18	2.72E-03	1.577%	4.10E+02	1.86E-03	1.58E-02	1.25E-12	1.81E-12

TABLE B.3a. Potassium (K) Leach Fractions from ANS 16.1 Leach Test--Whole
Grout in Groundwater (DIFF4-8)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 4-8-1	-2.07E-03	-2.07E-03	3.00E-04		
CRW 4-8-2	1.66E-02	1.45E-02	8.33E-02	1.03E-08	7.68E-09
CRW 4-8-3	8.80E-03	2.33E-02	2.92E-01	3.63E-09	5.82E-09
CRW 4-8-4	2.17E-02	4.50E-02	1.00E+00	6.99E-09	6.34E-09
CRW 4-8-5	1.66E-02	6.16E-02	2.10E+00	4.25E-09	5.65E-09
CRW 4-8-6	6.21E-03	6.78E-02	3.02E+00	1.45E-09	4.76E-09
CRW 4-8-7	6.31E-02	1.31E-01	1.31E+01	3.53E-09	4.10E-09
CRW 4-8-8	2.69E-02	1.58E-01	2.00E+01	3.09E-09	3.90E-09
CRW 4-8-9	1.66E-02	1.74E-01	2.70E+01	1.64E-09	3.52E-09
CRW 4-8-10	3.21E-02	2.06E-01	4.10E+01	2.21E-09	3.65E-09
CRW 4-8-11	9.83E-03	2.16E-01	5.00E+01	6.78E-10	3.35E-09
CRW 4-8-12	9.31E-03	2.26E-01	6.30E+01	3.62E-10	2.67E-09
CRW 4-8-13	3.21E-02	2.58E-01	9.20E+01	1.18E-09	2.57E-09
CRW 4-8-14	1.91E-02	2.77E-01	1.22E+02	5.43E-10	2.27E-09
CRW 4-8-15	2.04E-02	2.97E-01	1.34E+02	4.64E-09	2.42E-09
CRW 4-8-16	2.17E-02	3.19E-01	1.82E+02	2.47E-10	2.06E-09
CRW 4-8-17	2.69E-02	3.46E-01	3.02E+02	1.50E-10	1.52E-09

TABLE B.3b. Sodium (Na) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF4-8)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 4-B-1	2.70E-03	2.70E-03	3.00E-04	6.59E-03	6.59E-03
CRW 4-B-2	3.48E-02	3.75E-02	8.33E-02	4.56E-08	5.30E-08
CRW 4-B-3	2.01E-02	5.77E-02	2.92E-01	2.00E-08	3.57E-08
CRW 4-B-4	3.57E-02	9.34E-02	1.00E+00	1.89E-08	2.73E-08
CRW 4-B-5	2.61E-02	1.20E-01	2.10E+00	1.06E-08	2.13E-08
CRW 4-B-6	1.38E-02	1.33E-01	3.02E+00	7.17E-09	1.84E-08
CRW 4-B-7	1.01E-01	2.34E-01	1.31E+01	8.98E-09	1.38E-08
CRW 4-B-8	4.33E-02	2.77E-01	2.00E+01	8.00E-09	1.39E-08
CRW 4-B-9	3.21E-02	3.09E-01	2.70E+01	6.17E-09	1.28E-08
CRW 4-B-10	5.11E-02	3.60E-01	4.10E+01	5.60E-09	1.19E-08
CRW 4-B-11	2.61E-02	3.87E-01	5.00E+01	4.79E-09	1.18E-08
CRW 4-B-12	2.97E-02	4.16E-01	6.30E+01	3.69E-09	1.11E-08
CRW 4-B-13	4.96E-02	4.66E-01	9.20E+01	2.81E-09	1.00E-08
CRW 4-B-14	3.79E-02	5.04E-01	1.22E+02	2.12E-09	8.81E-09
CRW 4-B-15	3.79E-02	5.42E-01	1.34E+02	1.59E-08	9.69E-09
CRW 4-B-16	3.82E-02	5.80E-01	1.82E+02	7.62E-10	8.63E-09
CRW 4-B-17	5.80E-02	6.38E-01	3.02E+02	6.96E-10	6.50E-09

TABLE B.3e. Boron (as H3BO3) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF4-8)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 4-B-1	5.45E-04	5.45E-04	3.00E-04	2.68E-04	2.68E-04
CRW 4-B-2	3.82E-03	4.36E-03	8.33E-02	5.47E-10	7.15E-10
CRW 4-B-3	2.15E-03	6.51E-03	2.92E-01	2.28E-10	4.54E-10
CRW 4-B-4	2.69E-03	9.20E-03	1.00E+00	1.07E-10	2.65E-10
CRW 4-B-5	9.88E-04	1.02E-02	2.10E+00	1.51E-11	1.55E-10
CRW 4-B-6	3.41E-04	1.05E-02	3.02E+00	4.36E-12	1.15E-10
CRW 4-B-7	1.53E-03	1.21E-02	1.31E+01	2.08E-12	3.48E-11
CRW 4-B-8	3.75E-04	1.24E-02	2.00E+01	6.01E-13	2.42E-11
CRW 4-B-9	2.39E-04	1.27E-02	2.70E+01	3.40E-13	1.86E-11
CRW 4-B-10	4.43E-04	1.31E-02	4.10E+01	4.21E-13	1.31E-11
CRW 4-B-11	1.02E-04	1.32E-02	5.00E+01	7.33E-14	1.09E-11
CRW 4-B-12	1.02E-04	1.33E-02	6.30E+01	4.36E-14	8.82E-12
CRW 4-B-13	4.09E-04	1.37E-02	9.20E+01	1.91E-13	6.41E-12
CRW 4-B-14	1.70E-04	1.39E-02	1.22E+02	4.30E-14	4.96E-12
CRW 4-B-15	2.73E-04	1.42E-02	1.34E+02	8.26E-13	4.69E-12
CRW 4-B-16	3.75E-04	1.45E-02	1.82E+02	7.35E-14	3.64E-12
CRW 4-B-17	5.79E-04	1.51E-02	3.02E+02	6.95E-14	2.37E-12

TABLE B.3f. Fluoride (F) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF4-8)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 4-8-1	1.03E-04	1.03E-04	3.00E-04	9.60E-06	9.60E-06
CRW 4-8-2	6.19E-04	7.23E-04	8.33E-02	1.44E-11	1.96E-11
CRW 4-8-3	4.65E-04	1.19E-03	2.92E-01	1.07E-11	1.51E-11
CRW 4-8-4	1.50E-03	2.68E-03	1.00E+00	3.31E-11	2.25E-11
CRW 4-8-5	1.29E-03	3.97E-03	2.10E+00	2.58E-11	2.35E-11
CRW 4-8-6	4.65E-04	4.44E-03	3.02E+00	8.10E-12	2.04E-11
CRW 4-8-7	1.45E-03	5.88E-03	1.31E+01	1.85E-12	8.28E-12
CRW 4-8-8	4.13E-04	6.30E-03	2.00E+01	7.29E-13	6.20E-12
CRW 4-8-9	2.06E-04	6.50E-03	2.70E+01	2.54E-13	4.90E-12
CRW 4-8-10	4.13E-04	6.92E-03	4.10E+01	3.66E-13	3.65E-12
CRW 4-8-11	5.16E-05	6.97E-03	5.00E+01	1.87E-14	3.04E-12
CRW 4-8-12	5.16E-05	7.02E-03	6.30E+01	1.11E-14	2.45E-12
CRW 4-8-13	5.16E-05	7.07E-03	9.20E+01	3.05E-15	1.70E-12
CRW 4-8-14	8.77E-04	7.95E-03	1.22E+02	1.14E-12	1.62E-12
CRW 4-8-15	8.52E-04	8.80E-03	1.34E+02	8.06E-12	1.81E-12
CRW 4-8-16	8.26E-04	9.63E-03	1.82E+02	3.57E-13	1.59E-12
CRW 4-8-17	1.16E-02	2.12E-02	3.02E+02	2.79E-11	4.67E-12

TABLE B.3g. Nitrate (NO3) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF4-8)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 4-8-1	3.32E-03	3.32E-03	3.00E-04	9.96E-03	9.96E-03
CRW 4-8-2	1.55E-02	1.88E-02	8.33E-02	9.05E-09	1.33E-08
CRW 4-8-3	6.65E-03	2.55E-02	2.92E-01	2.19E-09	6.97E-09
CRW 4-8-4	8.87E-03	3.44E-02	1.00E+00	1.16E-09	3.69E-09
CRW 4-8-5	1.33E-02	4.77E-02	2.10E+00	2.74E-09	3.38E-09
CRW 4-8-6	2.22E-03	4.99E-02	3.02E+00	1.84E-10	2.58E-09
CRW 4-8-7	3.10E-02	8.09E-02	1.31E+01	8.54E-10	1.57E-09
CRW 4-8-8	7.76E-03	8.87E-02	2.00E+01	2.57E-10	1.23E-09
CRW 4-8-9	4.43E-03	9.31E-02	2.70E+01	1.17E-10	1.00E-09
CRW 4-8-10	1.88E-02	1.12E-01	4.10E+01	7.62E-10	9.56E-10
CRW 4-8-11	5.54E-03	1.17E-01	5.00E+01	2.15E-10	8.64E-10
CRW 4-8-12	1.77E-02	1.35E-01	6.30E+01	1.31E-09	9.06E-10
CRW 4-8-13	1.88E-02	1.54E-01	9.20E+01	4.06E-10	8.07E-10
CRW 4-8-14	5.54E-03	1.60E-01	1.22E+02	4.55E-11	6.53E-10
CRW 4-8-15	7.76E-03	1.67E-01	1.34E+02	6.69E-10	6.54E-10
CRW 4-8-16	9.97E-03	1.77E-01	1.82E+02	5.21E-11	5.41E-10
CRW 4-8-17	4.32E-02	2.21E-01	3.02E+02	3.87E-10	5.55E-10

TABLE B.3i. Iodine-125 (I-125) Leach Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (4-8)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm2/sec	D cum cm2/sec
CRW 4-8-1	3.39E-02	0.369%	3.00E-04	3.69E-03	3.69E-03	1.01E-07	1.37E-07
CRW 4-8-2	2.46E-01	3.036%	8.33E-02	2.67E-02	3.04E-02	2.91E-08	3.33E-08
CRW 4-8-3	1.27E-01	4.420%	2.92E-01	1.38E-02	4.42E-02	9.08E-09	2.01E-08
CRW 4-8-4	2.01E-01	6.604%	1.00E+00	2.18E-02	6.60E-02	6.80E-09	1.31E-08
CRW 4-8-5	1.21E-01	7.922%	2.10E+00	1.32E-02	7.92E-02	2.59E-09	8.99E-09
CRW 4-8-6	4.55E-02	8.416%	3.02E+00	4.94E-03	8.42E-02	8.81E-10	7.06E-09
CRW 4-8-7	4.37E-01	13.170%	1.31E+01	4.75E-02	1.32E-01	1.93E-09	3.99E-09
CRW 4-8-8	1.08E-01	14.342%	2.00E+01	1.17E-02	1.43E-01	5.66E-10	3.10E-09
CRW 4-8-9	7.55E-02	15.165%	2.70E+01	8.23E-03	1.52E-01	3.89E-10	2.56E-09
CRW 4-8-10	1.28E-01	16.555%	4.10E+01	1.39E-02	1.66E-01	3.99E-10	2.01E-09
CRW 4-8-11	1.31E-02	16.697%	5.00E+01	1.43E-03	1.67E-01	1.37E-11	1.68E-09
CRW 4-8-12	1.63E-02	16.875%	6.40E+01	1.78E-03	1.69E-01	1.10E-11	1.34E-09
CRW 4-8-13	7.23E-02	17.663%	9.20E+01	7.88E-03	1.77E-01	7.37E-11	1.02E-09
CRW 4-8-14	4.92E-02	18.198%	1.22E+02	5.35E-03	1.82E-01	4.07E-11	8.17E-10
CRW 4-8-15	1.50E-02	18.362%	1.34E+02	1.65E-03	1.84E-01	2.90E-11	7.57E-10
CRW 4-8-16	6.28E-02	19.047%	1.82E+02	6.85E-03	1.90E-01	3.85E-11	6.00E-10

TABLE B.3i. Iodine-125 (I-125) Leach Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (4-9)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm2/sec	D cum cm2/sec
CRW 4-9-1	3.42E-02	0.364%	3.00E-04	3.64E-03	3.64E-03	9.80E-08	1.33E-07
CRW 4-9-2	2.13E-01	2.630%	8.33E-02	2.27E-02	2.63E-02	2.10E-08	2.50E-08
CRW 4-9-3	5.87E-01	3.877%	2.92E-01	6.25E-02	8.88E-02	1.85E-07	8.12E-08
CRW 4-9-4	2.07E-01	11.081%	1.00E+00	2.20E-02	1.11E-01	6.92E-09	3.70E-08
CRW 4-9-5	1.50E-01	12.678%	2.10E+00	1.60E-02	1.27E-01	3.81E-09	2.30E-08
CRW 4-9-6	7.57E-02	13.485%	3.02E+00	8.07E-03	1.35E-01	2.35E-09	1.81E-08
CRW 4-9-7	5.04E-01	18.856%	1.31E+01	5.37E-02	1.89E-01	2.46E-09	8.18E-09
CRW 4-9-8	1.51E-01	20.463%	2.00E+01	1.61E-02	2.05E-01	1.06E-09	6.30E-09
CRW 4-9-9	1.02E-01	21.550%	2.70E+01	1.09E-02	2.16E-01	6.79E-10	5.79E-09
CRW 4-9-10	1.68E-01	23.340%	4.10E+01	1.79E-02	2.33E-01	6.62E-10	4.14E-09
CRW 4-9-11	1.83E-02	23.537%	5.00E+01	1.96E-03	2.35E-01	2.60E-11	3.74E-09
CRW 4-9-12	2.40E-02	23.794%	6.40E+01	2.58E-03	2.38E-01	2.31E-11	3.21E-09
CRW 4-9-13	9.33E-02	24.790%	9.20E+01	9.96E-03	2.48E-01	1.18E-10	2.23E-09
CRW 4-9-14	5.51E-02	25.378%	1.22E+02	5.88E-03	2.54E-01	4.93E-11	1.84E-09
CRW 4-9-15	1.18E-02	25.504%	1.34E+02	1.26E-03	2.55E-01	1.69E-11	1.82E-09
CRW 4-9-16	4.41E-02	25.973%	1.82E+02	4.69E-03	2.60E-01	1.81E-11	2.10E-09
CRW 4-9-17	8.00E-02	26.824%	3.02E+02	8.51E-03	2.68E-01	1.44E-11	1.06E-09

TABLE B.4a. Potassium (K) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF5-5)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 5-5-1	-4.33E-03	-4.33E-03	3.00E-04	1.69E-02	1.69E-02
CRW 5-5-2	9.61E-03	5.29E-03	8.33E-02	3.47E-09	1.05E-09
CRW 5-5-3	6.25E-03	1.15E-02	2.92E-01	1.93E-09	1.43E-09
CRW 5-5-4	2.02E-02	3.17E-02	1.00E+00	6.03E-09	3.15E-09
CRW 5-5-5	1.54E-02	4.71E-02	2.10E+00	3.67E-09	3.31E-09
CRW 5-5-6	1.06E-02	5.77E-02	3.02E+00	4.20E-09	3.45E-09
CRW 5-5-7	6.83E-02	1.26E-01	1.31E+01	4.13E-09	3.79E-09
CRW 5-5-8	2.98E-02	1.56E-01	2.00E+01	3.80E-09	3.80E-09
CRW 5-5-9	2.02E-02	1.76E-01	2.70E+01	2.43E-09	3.59E-09
CRW 5-5-10	3.46E-02	2.11E-01	4.10E+01	2.57E-09	3.69E-09
CRW 5-5-11	1.06E-02	2.21E-01	5.00E+01	7.84E-10	3.35E-09
CRW 5-5-12	1.01E-02	2.31E-01	6.30E+01	4.25E-10	2.87E-09
CRW 5-5-13	2.98E-02	2.61E-01	9.20E+01	1.02E-09	2.57E-09
CRW 5-5-14	1.92E-02	2.80E-01	1.22E+02	5.47E-10	1.27E-09
CRW 5-5-15	1.97E-02	3.00E-01	1.34E+02	4.32E-09	2.42E-09
CRW 5-5-16	2.02E-02	3.20E-01	1.82E+02	2.13E-10	2.06E-09
CRW 5-5-17	2.74E-02	3.48E-01	3.02E+02	1.55E-10	1.52E-09

TABLE B.4b. Sodium (Na) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF5-5)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 5-5-1	3.63E-03	3.63E-03	3.00E-04	1.19E-02	1.19E-02
CRW 5-5-2	2.99E-02	3.35E-02	8.33E-02	3.35E-08	4.21E-08
CRW 5-5-3	1.93E-02	5.27E-02	2.92E-01	1.84E-08	2.98E-08
CRW 5-5-4	3.80E-02	9.07E-02	1.00E+00	2.13E-08	2.57E-08
CRW 5-5-5	3.27E-02	1.23E-01	2.10E+00	1.65E-08	2.27E-08
CRW 5-5-6	1.81E-02	1.41E-01	3.02E+00	1.24E-08	2.07E-08
CRW 5-5-7	1.13E-01	2.55E-01	1.31E+01	1.13E-08	1.66E-08
CRW 5-5-8	4.88E-02	3.03E-01	2.00E+01	1.02E-08	1.62E-08
CRW 5-5-9	3.74E-02	3.41E-01	2.70E+01	8.35E-09	1.59E-08
CRW 5-5-10	5.53E-02	3.96E-01	4.10E+01	6.56E-09	1.52E-08
CRW 5-5-11	2.87E-02	4.25E-01	5.00E+01	5.80E-09	1.40E-08
CRW 5-5-12	3.29E-02	4.58E-01	6.30E+01	4.52E-09	1.39E-08
CRW 5-5-13	5.16E-02	5.09E-01	9.20E+01	3.05E-09	1.23E-08
CRW 5-5-14	4.05E-02	5.50E-01	1.22E+02	2.43E-09	1.11E-08
CRW 5-5-15	4.12E-02	5.91E-01	1.34E+02	1.88E-08	1.22E-08
CRW 5-5-16	4.19E-02	6.33E-01	1.82E+02	9.17E-10	1.08E-08
CRW 5-5-17	6.28E-02	6.96E-01	3.02E+02	8.17E-10	8.23E-09

TABLE B.4e. Boron (as H3BO3) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF5-5)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 5-5-1	8.55E-04	8.55E-04	3.00E-04	6.58E-04	6.58E-04
CRW 5-5-2	3.04E-03	3.89E-03	8.33E-02	3.47E-10	5.70E-10
CRW 5-5-3	1.46E-03	5.35E-03	2.92E-01	1.05E-10	3.07E-10
CRW 5-5-4	2.37E-03	7.72E-03	1.00E+00	8.34E-11	1.87E-10
CRW 5-5-5	1.39E-03	9.12E-03	2.10E+00	3.01E-11	1.24E-10
CRW 5-5-6	7.91E-04	9.91E-03	3.02E+00	2.35E-11	1.02E-10
CRW 5-5-7	3.01E-03	1.29E-02	1.31E+01	8.02E-12	3.99E-11
CRW 5-5-8	6.01E-04	1.35E-02	2.00E+01	1.55E-12	2.86E-11
CRW 5-5-9	4.12E-04	1.39E-02	2.70E+01	1.01E-12	2.25E-11
CRW 5-5-10	8.23E-04	1.48E-02	4.10E+01	1.46E-12	1.66E-11
CRW 5-5-11	2.22E-04	1.50E-02	5.00E+01	3.44E-13	1.40E-11
CRW 5-5-12	2.53E-04	1.52E-02	6.30E+01	2.68E-13	1.15E-11
CRW 5-5-13	5.38E-04	1.58E-02	9.20E+01	3.31E-13	8.45E-12
CRW 5-5-15	3.80E-04	1.61E-02	1.22E+02	2.14E-13	6.69E-12
CRW 5-5-14	2.22E-04	1.64E-02	1.34E+02	5.46E-13	6.26E-12
CRW 5-5-16	3.48E-04	1.67E-02	1.82E+02	6.35E-14	4.80E-12
CRW 5-5-17	7.60E-04	1.75E-02	3.02E+02	1.20E-13	3.16E-12

TABLE B.4f. Fluoride (F) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF5-5)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 5-5-1	9.59E-05	9.59E-05	3.00E-04	8.29E-06	8.29E-06
CRW 5-5-2	4.80E-04	5.75E-04	8.33E-02	8.64E-12	1.24E-11
CRW 5-5-3	4.32E-04	1.01E-03	2.92E-01	9.22E-12	1.09E-11
CRW 5-5-4	1.53E-03	2.54E-03	1.00E+00	3.48E-11	2.02E-11
CRW 5-5-5	1.63E-03	4.17E-03	2.10E+00	4.12E-11	2.59E-11
CRW 5-5-6	8.15E-04	4.99E-03	3.02E+00	2.50E-11	2.58E-11
CRW 5-5-7	2.40E-03	7.38E-03	1.31E+01	5.10E-12	1.30E-11
CRW 5-5-8	8.15E-04	8.20E-03	2.00E+01	2.84E-12	1.05E-11
CRW 5-5-9	4.80E-04	8.68E-03	2.70E+01	1.37E-12	8.73E-12
CRW 5-5-10	7.19E-04	9.40E-03	4.10E+01	1.11E-12	6.74E-12
CRW 5-5-11	1.92E-04	9.59E-03	5.00E+01	2.56E-13	5.76E-12
CRW 5-5-12	-9.59E-05	9.49E-03	6.30E+01	3.84E-14	4.48E-12
CRW 5-5-13	2.40E-04	9.73E-03	9.20E+01	6.57E-14	3.22E-12
CRW 5-5-14	1.25E-03	1.10E-02	1.22E+02	2.30E-12	3.09E-12
CRW 5-5-15	6.95E-04	1.17E-02	1.34E+02	5.36E-12	3.16E-12
CRW 5-5-16	1.44E-04	1.18E-02	1.82E+02	1.08E-14	2.40E-12
CRW 5-5-17	2.88E-04	1.21E-02	3.02E+02	1.71E-14	1.52E-12

TABLE B.4g. Nitrate (NO3) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (DIFF5-5)

SAMPLE	An/Ao	cum. An/Ao	TIME days	D inc.	D cum.
CRW 5-5-1	2.06E-03	2.06E-03	3.00E-04	3.82E-03	3.82E-03
CRW 5-5-2	1.03E-02	1.24E-02	8.33E-02	3.98E-09	5.74E-09
CRW 5-5-3	6.18E-03	1.85E-02	2.92E-01	1.89E-09	3.69E-09
CRW 5-5-4	1.03E-02	2.88E-02	1.00E+00	1.57E-09	2.60E-09
CRW 5-5-5	7.21E-03	3.60E-02	2.10E+00	8.06E-10	1.94E-09
CRW 5-5-6	4.12E-03	4.02E-02	3.02E+00	6.37E-10	1.67E-09
CRW 5-5-7	2.99E-02	7.00E-02	1.31E+01	7.90E-10	1.17E-09
CRW 5-5-8	1.24E-02	8.24E-02	2.00E+01	6.53E-10	1.06E-09
CRW 5-5-9	1.13E-02	9.37E-02	2.70E+01	7.66E-10	1.02E-09
CRW 5-5-10	2.68E-02	1.20E-01	4.10E+01	1.54E-09	1.11E-09
CRW 5-5-11	7.21E-03	1.28E-01	5.00E+01	3.64E-10	1.02E-09
CRW 5-5-12	1.03E-02	1.38E-01	6.30E+01	4.42E-10	9.46E-10
CRW 5-5-13	8.65E-02	2.24E-01	9.20E+01	8.55E-09	1.82E-09
CRW 5-5-14	8.24E-03	2.33E-01	1.22E+02	1.06E-10	1.48E-09
CRW 5-5-15	1.08E-02	2.44E-01	1.34E+02	1.30E-09	1.48E-09
CRW 5-5-16	1.34E-02	2.57E-01	1.82E+02	9.38E-11	1.30E-09
CRW 5-5-17	5.05E-02	3.07E-01	3.02E+02	5.27E-10	1.15E-09

TABLE B.4i. Cesium-137 (CS-137) Leach Fractions from ANS 16.1 Leach Test--Whole Grout in Groundwater (5-5)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm2/sec	D cum cm2/sec
CRW 5-5-1	0.00E+00	0.000%	3.00E-04	8.36E-09	8.36E-09	5.38E-19	7.30E-19
CRW 5-5-2	0.00E+00	0.000%	8.33E-02	8.36E-09	1.67E-08	2.97E-21	1.05E-20
CRW 5-5-3	0.00E+00	0.000%	2.92E-01	8.36E-09	2.51E-08	3.45E-21	6.75E-21
CRW 5-5-4	1.01E-03	0.031%	1.00E+00	3.13E-04	3.13E-04	1.45E-12	3.06E-13
CRW 5-5-5	0.00E+00	0.031%	2.10E+00	8.36E-09	3.13E-04	1.09E-21	1.46E-13
CRW 5-5-6	0.00E+00	0.032%	3.02E+00	2.53E-06	3.16E-04	2.40E-16	1.03E-13
CRW 5-5-7	0.00E+00	0.032%	1.31E+01	8.36E-09	3.16E-04	6.20E-23	2.38E-14
CRW 5-5-8	0.00E+00	0.032%	2.00E+01	5.35E-07	3.16E-04	1.23E-18	1.56E-14
CRW 5-5-9	0.00E+00	0.032%	2.70E+01	6.11E-06	3.22E-04	2.23E-16	1.20E-14
CRW 5-5-10	0.00E+00	0.032%	4.10E+01	8.36E-09	3.22E-04	1.50E-22	7.92E-15
CRW 5-5-11	0.00E+00	0.032%	5.00E+01	8.36E-09	3.22E-04	4.91E-22	6.50E-15
CRW 5-5-12	0.00E+00	0.032%	6.40E+01	8.36E-09	3.22E-04	2.54E-22	5.08E-15
CRW 5-5-13	0.00E+00	0.032%	9.20E+01	8.36E-09	3.22E-04	8.64E-23	3.53E-15
CRW 5-5-14	0.00E+00	0.032%	1.22E+02	3.36E-10	3.22E-04	1.04E-24	2.66E-15
CRW 5-5-15	0.00E+00	0.032%	1.34E+02	1.69E-06	3.24E-04	3.17E-17	2.45E-15
CRW 5-5-16	0.00E+00	0.032%	1.82E+02	1.05E-06	3.25E-04	9.37E-19	1.82E-15

TABLE B.4i. Cesium-137 (CS-137) Leach Fractions from ANS 16.1 Leach Test--
Whole Grout in Groundwater (5-14)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm2/sec	D cum cm2/sec
CRW 5-14-1	0.00E+00	0.000%	3.00E-04	8.04E-10	8.04E-10	5.09E-21	6.90E-21
CRW 5-14-2	0.00E+00	0.000%	8.33E-02	8.04E-10	1.61E-09	2.81E-23	9.95E-23
CRW 5-14-3	5.18E-05	0.002%	2.92E-01	1.51E-05	1.52E-05	1.16E-14	2.52E-15
CRW 5-14-4	0.00E+00	0.002%	1.00E+00	8.04E-10	1.52E-05	9.80E-24	7.35E-16
CRW 5-14-5	1.32E-04	0.005%	2.10E+00	3.85E-05	5.37E-05	2.36E-14	4.40E-15
CRW 5-14-6	8.00E-05	0.008%	3.02E+00	2.34E-05	7.71E-05	2.10E-14	6.31E-15
CRW 5-14-7	6.61E-05	0.010%	1.31E+01	1.93E-05	9.64E-05	3.39E-16	2.28E-15
CRW 5-14-8	5.85E-05	0.011%	2.00E+01	1.71E-05	1.14E-04	1.28E-15	2.06E-15
CRW 5-14-9	0.00E+00	0.011%	2.70E+01	8.04E-10	1.14E-04	3.95E-24	1.53E-15
CRW 5-14-10	0.00E+00	0.011%	4.10E+01	5.47E-08	1.14E-04	6.57E-21	1.01E-15
CRW 5-14-11	0.00E+00	0.011%	5.00E+01	8.04E-10	1.14E-04	4.64E-24	8.27E-16
CRW 5-14-12	0.00E+00	0.011%	6.40E+01	8.04E-10	1.14E-04	2.40E-24	6.46E-16
CRW 5-14-13	7.19E-05	0.014%	9.20E+01	2.16E-05	1.35E-04	5.90E-16	6.36E-16
CRW 5-14-14	8.01E-05	0.016%	1.22E+02	2.34E-05	1.59E-04	8.32E-16	6.60E-16
CRW 5-14-15	0.00E+00	0.016%	1.34E+02	8.04E-10	1.59E-04	7.36E-24	6.01E-16
CRW 5-14-16	0.00E+00	0.016%	1.82E+02	8.04E-10	1.59E-04	5.65E-25	4.43E-16

TABLE B.4j. Strontium-85 (SR-85) Leach Fraction from ANS 16.1 Leach Test--
Whole Grout in Groundwater (5-5)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc.	D cum.
CRW 5-5-1	0.00E+00	0.0222%	3.00E-04	2.22E-04	2.22E-04	3.82E+00	5.12E-10
CRW 5-5-2	0.00E+00	0.0311%	8.33E-03	8.99E-05	3.11E-04	4.62E-12	3.64E-11
CRW 5-5-3	7.55E-04	0.2316%	2.92E-01	2.00E-03	2.32E-03	6.23E-11	5.75E-11
CRW 5-5-4	0.00E+00	0.2479%	1.00E+00	1.63E-04	2.48E-03	3.95E-13	1.92E-11
CRW 5-5-5	0.00E+00	0.2661%	2.10E+00	1.82E-04	2.66E-03	5.11E-13	1.06E-11
CRW 5-5-6	0.00E+00	0.2757%	3.02E+00	9.62E-05	2.76E-03	3.48E-13	7.88E-12
CRW 5-5-7	1.49E-03	0.6899%	1.31E+01	4.14E-03	6.96E-03	1.52E-11	1.14E-11
CRW 5-5-8	8.75E-04	1.0577%	2.00E+01	3.68E-03	1.06E-02	5.79E-11	1.75E-11
CRW 5-5-9	1.28E-03	1.6143%	2.70E+01	5.57E-03	1.61E-02	1.85E-10	3.02E-11
CRW 5-5-10	0.00E+00	1.6143%	4.10E+01	1.50E-07	1.61E-02	4.84E-20	1.99E-11
CRW 5-5-11	0.00E+00	1.6156%	5.00E+01	1.27E-05	1.62E-02	1.14E-15	1.63E-11
CRW 5-5-12	0.00E+00	1.6454%	6.40E+01	2.99E-04	1.65E-02	3.23E-13	1.32E-11
CRW 5-5-13	9.22E-04	2.0616%	9.20E+01	4.16E-03	2.06E-02	2.14E-11	1.45E-11
CRW 5-5-14	0.00E+00	2.0685%	1.22E+02	6.76E-05	2.07E-02	6.76E-15	1.10E-11
CRW 5-5-15	1.84E-04	2.2021%	1.34E+02	1.34E-03	2.20E-02	1.98E-11	1.13E-11
CRW 5-5-16	1.25E-04	2.3655%	1.82E+02	1.63E-03	2.37E-02	2.28E-12	9.62E-12

TABLE B.4j. Strontium-85 (SR-85) Leach Fraction from ANS 16.1 Leach Test--
Whole Grout in Groundwater (5-14)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc.	D cum.
CRW 5-14-1	0.00E+00	0.0000%	3.00E-04	1.83E-07	1.83E-07	2.67E-06	3.58E-16
CRW 5-14-2	2.32E-04	0.1264%	8.33E-03	1.26E-03	1.26E-03	9.35E-10	6.14E-10
CRW 5-14-3	0.00E+00	0.1494%	2.92E-01	2.30E-04	1.49E-03	8.38E-13	2.45E-11
CRW 5-14-4	0.00E+00	0.1596%	1.00E+00	1.03E-04	1.60E-03	1.59E-13	8.16E-12
CRW 5-14-5	1.79E-04	0.2817%	2.10E+00	1.22E-03	2.82E-03	2.37E-11	1.21E-11
CRW 5-14-6	0.00E+00	0.2817%	3.02E+00	1.80E-07	2.82E-03	1.24E-18	8.42E-12
CRW 5-14-7	1.88E-04	0.3837%	1.31E+01	1.02E-03	3.84E-03	9.43E-13	3.60E-12
CRW 5-14-8	0.00E+00	0.3837%	2.00E+01	1.80E-07	3.84E-03	1.41E-19	2.36E-12
CRW 5-14-9	0.00E+00	0.3890%	2.70E+01	5.35E-05	3.89E-03	1.75E-14	1.80E-12
CRW 5-14-10	1.43E-04	0.4706%	4.10E+01	8.16E-04	4.71E-03	1.46E-12	1.73E-12
CRW 5-14-11	0.00E+00	0.4740%	5.00E+01	3.43E-05	4.74E-03	8.45E-15	1.44E-12
CRW 5-14-12	0.00E+00	0.4780%	6.40E+01	3.98E-05	4.78E-03	5.88E-15	1.14E-12
CRW 5-14-13	7.51E-05	0.5196%	9.20E+01	4.16E-04	5.20E-03	2.19E-13	9.40E-13
CRW 5-14-14	6.69E-05	0.5567%	1.22E+02	3.71E-04	5.57E-03	2.09E-13	8.14E-13
CRW 5-14-15	0.00E+00	0.5604%	1.34E+02	3.67E-05	5.60E-03	1.53E-14	7.51E-13
CRW 5-14-16	0.00E+00	0.5604%	1.82E+02	3.47E-07	5.60E-03	1.05E-19	5.53E-13

TABLE B.5i. Americium-241 (AM-241) Leach Fractions from ANS 16.1 Leach Test--
Whole Grout in Groundwater (1-8)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm ² /sec	D cum cm ² /sec
CRW 1-8-1	1.03E-04	0.001%	3.00E-04	1.11E-05	1.11E-05	9.29E-13	1.26E-12
CRW 1-8-2	1.58E-04	0.002%	8.33E-02	1.24E-05	2.36E-05	6.43E-15	2.04E-14
CRW 1-8-3	8.21E-05	0.003%	2.92E-01	6.31E-06	2.99E-05	1.92E-15	9.34E-15
CRW 1-8-4	1.58E-04	0.004%	1.00E+00	1.38E-05	4.37E-05	2.75E-15	5.82E-15
CRW 1-8-5	1.43E-04	0.005%	2.10E+00	1.11E-05	5.47E-05	1.85E-15	4.36E-15
CRW 1-8-6	1.58E-04	0.007%	3.02E+00	1.24E-05	6.72E-05	5.66E-15	4.56E-15
CRW 1-8-7	1.84E-04	0.008%	1.31E+01	1.41E-05	8.13E-05	1.73E-16	1.54E-15
CRW 1-8-8	1.17E-04	0.009%	2.00E+01	8.89E-06	9.02E-05	3.30E-16	1.24E-15
CRW 1-8-9	9.64E-05	0.010%	2.70E+01	7.56E-06	9.77E-05	3.33E-16	1.08E-15
CRW 1-8-10	9.03E-05	0.010%	4.10E+01	7.01E-06	1.05E-04	1.03E-16	8.18E-16
CRW 1-8-11	2.66E-04	0.013%	5.00E+01	2.03E-05	1.25E-04	2.82E-15	7.55E-16
CRW 1-8-12	8.21E-05	0.013%	6.40E+01	6.50E-06	1.32E-04	1.50E-16	6.26E-16
CRW 1-8-13	9.64E-05	0.014%	9.20E+01	7.41E-06	1.39E-04	6.62E-17	6.41E-16
CRW 1-8-14	3.76E-04	0.017%	1.22E+02	3.13E-05	1.70E-04	1.41E-15	7.25E-16
CRW 1-8-15	1.52E-04	0.018%	1.34E+02	1.18E-05	1.82E-04	1.51E-15	7.55E-16
CRW 1-8-16	4.21E-04	0.021%	1.82E+02	3.21E-05	2.14E-04	8.57E-16	7.69E-16
CRW 1-8-17	4.35E-04	0.025%	3.02E+02	3.36E-05	2.48E-04	2.28E-16	6.20E-16

TABLE B.5i. Americium-241 (AM-241) Leach Fractions from ANS 16.2 Leach Test-- Whole Grout in Groundwater (1-13)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm ² /sec	D cum cm ² /sec
CRW 1-13-1	1.37E-04	0.001%	3.00E-04	1.29E-05	1.29E-05	1.29E-12	1.75E-12
CRW 1-13-2	3.35E-04	0.004%	8.33E-02	2.65E-05	3.94E-05	3.03E-14	5.90E-14
CRW 1-13-3	1.37E-04	0.005%	2.92E-01	1.09E-05	5.03E-05	5.88E-15	2.74E-14
CRW 1-13-4	8.17E-05	0.006%	1.00E+00	6.62E-06	5.69E-05	6.57E-16	1.02E-14
CRW 1-13-5	8.17E-05	0.006%	2.10E+00	6.57E-06	6.35E-05	6.77E-16	6.07E-15
CRW 1-13-6	8.17E-05	0.007%	3.02E+00	6.64E-06	7.01E-05	1.67E-15	5.15E-15
CRW 1-13-7	1.17E-04	0.008%	1.31E+01	9.36E-06	7.95E-05	7.86E-17	1.53E-15
CRW 1-13-8	1.84E-04	0.009%	2.00E+01	1.50E-05	9.45E-05	9.72E-16	1.41E-15
CRW 1-13-9	2.13E-04	0.011%	2.70E+01	1.73E-05	1.12E-04	1.81E-15	1.46E-15
CRW 1-13-10	1.31E-04	0.012%	4.10E+01	1.09E-05	1.23E-04	2.56E-16	1.16E-15
CRW 1-13-11	1.52E-04	0.013%	5.00E+01	1.21E-05	1.35E-04	1.05E-15	1.15E-15
CRW 1-13-12	2.94E-04	0.016%	6.40E+01	2.31E-05	1.58E-04	1.95E-15	1.23E-15
CRW 1-13-13	8.17E-05	0.016%	9.20E+01	6.71E-06	1.65E-04	5.62E-17	9.31E-16
CRW 1-13-14	1.11E-04	0.017%	1.22E+02	8.80E-06	1.73E-04	1.16E-16	7.79E-16
CRW 1-13-15	2.39E-04	0.019%	1.34E+02	1.89E-05	1.92E-04	4.03E-15	8.73E-16
CRW 1-13-16	2.16E-04	0.021%	1.82E+02	1.72E-05	2.10E-04	2.56E-16	7.63E-16
CRW 1-13-17	3.82E-04	0.024%	3.02E+02	2.99E-05	2.39E-04	1.87E-16	6.00E-16

TABLE B.5j. Plutonium-238 (PU-238) Leach Fractions from ANS 16.1 Leach Test-- Whole Grout in Groundwater (1-8)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm ² /sec	D cum cm ² /sec
CRW 1-8-1	8.03E-05	0.001%	3.00E-04	5.76E-06	5.76E-06	2.47E-13	3.38E-13
CRW 1-8-2	8.03E-05	0.001%	8.33E-02	5.76E-06	1.15E-05	1.38E-15	4.87E-15
CRW 1-8-3	8.03E-05	0.002%	2.92E-01	5.76E-06	1.73E-05	1.60E-15	3.13E-15
CRW 1-8-4	8.03E-05	0.002%	1.00E+00	5.76E-06	2.31E-05	4.80E-16	1.62E-15
CRW 1-8-5	8.03E-05	0.003%	2.10E+00	5.76E-06	2.68E-05	5.03E-16	1.21E-15
CRW 1-8-6	1.20E-04	0.004%	3.02E+00	8.55E-06	3.74E-05	2.68E-15	1.41E-15
CRW 1-8-7	8.03E-05	0.004%	1.31E+01	5.76E-06	4.31E-05	2.88E-17	4.33E-16
CRW 1-8-8	8.03E-05	0.005%	2.00E+01	5.76E-06	4.39E-05	1.39E-16	3.65E-16
CRW 1-8-9	8.03E-05	0.005%	2.70E+01	5.76E-06	5.47E-05	1.94E-16	3.38E-16
CRW 1-8-10	8.03E-05	0.006%	4.10E+01	5.76E-06	6.04E-05	6.97E-17	2.72E-16
CRW 1-8-11	8.03E-05	0.007%	5.00E+01	5.76E-06	6.62E-05	2.26E-16	2.65E-16
CRW 1-8-12	8.03E-05	0.007%	6.40E+01	5.76E-06	7.20E-05	1.18E-16	2.47E-16
CRW 1-8-13	8.03E-05	0.008%	9.20E+01	5.76E-06	7.77E-05	4.01E-17	2.01E-16
CRW 1-8-14	8.03E-05	0.008%	1.22E+02	5.76E-06	8.35E-05	4.30E-17	1.75E-16
CRW 1-8-15	8.03E-05	0.009%	1.34E+02	5.76E-06	8.92E-05	3.61E-16	1.52E-16
CRW 1-8-16	8.03E-05	0.010%	1.82E+02	5.76E-06	9.50E-05	2.77E-17	1.52E-16
CRW 1-8-17	8.03E-05	0.010%	3.02E+02	5.76E-06	1.01E-04	8.74E-18	1.03E-16

TABLE B.5j. Plutonium-238 (PU-238) Leach Fractions from ANS 16.1 Leach Test--
Whole Grout in Groundwater (1-13)

SAMPLE	uCi	% LEACHED	TIME DAYS	An/Ao	cum An/Ao	D inc. cm2/sec	D cum cm2/sec
CRW 1-13-1	8.03E-05	0.001Z	3.00E-04	6.01E-06	6.01E-06	2.80E-13	3.80E-13
CRW 1-13-2	1.18E-04	0.001Z	8.33E-02	8.74E-06	1.47E-05	3.28E-15	8.26E-15
CRW 1-13-3	8.03E-05	0.002Z	2.92E-01	6.01E-06	2.07E-05	1.80E-15	4.67E-15
CRW 1-13-4	8.03E-05	0.003Z	1.00E+00	6.01E-06	2.68E-05	5.40E-16	2.27E-15
CRW 1-13-5	8.03E-05	0.003Z	2.10E+00	6.01E-06	3.28E-05	5.66E-16	1.62E-15
CRW 1-13-6	8.03E-05	0.004Z	3.02E+00	6.01E-06	3.88E-05	1.37E-15	1.57E-15
CRW 1-13-7	8.03E-05	0.004Z	1.31E+01	6.01E-06	4.48E-05	3.23E-17	4.85E-16
CRW 1-13-8	8.03E-05	0.005Z	2.00E+01	6.01E-06	5.08E-05	1.56E-16	4.08E-16
CRW 1-13-9	8.03E-05	0.006Z	2.70E+01	6.01E-06	5.68E-05	2.18E-16	3.76E-16
CRW 1-13-10	8.03E-05	0.006Z	4.10E+01	6.01E-06	6.28E-05	7.84E-17	3.04E-16
CRW 1-13-11	8.03E-05	0.007Z	5.00E+01	6.01E-06	6.88E-05	2.56E-16	3.00E-16
CRW 1-13-12	8.03E-05	0.007Z	6.40E+01	6.01E-06	7.48E-05	1.32E-16	2.77E-16
CRW 1-13-13	8.03E-05	0.008Z	9.20E+01	6.01E-06	8.08E-05	4.51E-17	2.25E-16
CRW 1-13-14	8.03E-05	0.009Z	1.22E+02	6.01E-06	8.68E-05	5.40E-17	1.95E-16
CRW 1-13-15	8.03E-05	0.009Z	1.34E+02	6.01E-06	9.28E-05	4.06E-16	2.03E-16
CRW 1-13-16	8.03E-05	0.010Z	1.82E+02	6.15E-06	9.90E-05	3.26E-17	1.70E-16
CRW 1-13-17	9.64E-05	0.011Z	3.02E+02	7.17E-06	1.06E-04	1.08E-17	1.18E-16

TABLE B.6a. Potassium (K) Leach Fractions from Static Leach Test--Whole
Grout in Groundwater (DIF2-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 2-17-1	1.21E-01	7.00E+00	6.59E-09
CRW 2-17-2	1.49E-01	1.30E+01	5.42E-09
CRW 2-17-3	1.79E-01	2.00E+01	5.08E-09
CRW 2-17-4	1.97E-01	2.70E+01	4.55E-09
CRW 2-17-5	3.26E-02	3.40E+01	9.91E-11
CRW 2-17-6	2.20E-01	4.10E+01	4.09E-09
CRW 2-17-7	2.28E-01	4.80E+01	3.76E-09
CRW 2-17-8	2.33E-01	5.50E+01	3.28E-09
CRW 2-17-9	2.46E-01	6.20E+01	3.50E-09
CRW 2-17-10	2.59E-01	7.00E+01	3.37E-09
CRW 2-17-11	2.68E-01	7.60E+01	3.39E-09
CRW 2-17-12	2.80E-01	1.04E+02	2.67E-09
CRW 2-17-13	3.02E-01	1.34E+02	2.42E-09
CRW 2-17-14	3.34E-01	1.90E+02	2.12E-09
CRW 2-17-15	3.49E-01	3.15E+02	1.45E-09

TABLE B.6b. Sodium (Na) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF2-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 2-17-1	1.91E-01	7.00E+00	1.65E-08
CRW 2-17-2	2.34E-01	1.30E+01	1.39E-08
CRW 2-17-3	2.76E-01	2.00E+01	1.39E-08
CRW 2-17-4	3.10E-01	2.70E+01	1.28E-08
CRW 2-17-5	3.42E-01	3.40E+01	1.26E-08
CRW 2-17-6	3.51E-01	4.10E+01	1.12E-08
CRW 2-17-7	3.77E-01	4.80E+01	1.16E-08
CRW 2-17-8	3.89E-01	5.50E+01	1.07E-08
CRW 2-17-9	4.07E-01	6.20E+01	1.07E-08
CRW 2-17-10	4.36E-01	7.00E+01	1.12E-08
CRW 2-17-11	4.49E-01	7.60E+01	1.09E-08
CRW 2-17-12	4.75E-01	1.04E+02	8.84E-09
CRW 2-17-13	5.08E-01	1.34E+02	8.41E-09
CRW 2-17-14	5.55E-01	1.90E+02	7.15E-09
CRW 2-17-15	6.06E-01	3.15E+02	5.73E-09
CRW 2-18-16	6.22E-01	4.24E+02	4.43E-09

TABLE B.6c. Aluminum (Al) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF2-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 2-17-1	3.72E-03	7.00E+00	6.24E-12
CRW 2-17-2	4.23E-03	1.30E+01	4.36E-12
CRW 2-17-3	4.84E-03	2.00E+01	3.70E-12
CRW 2-17-4	5.33E-03	2.70E+01	3.33E-12
CRW 2-17-5	5.76E-03	3.40E+01	3.09E-12
CRW 2-17-6	5.83E-03	4.10E+01	2.62E-12
CRW 2-17-7	6.26E-03	4.80E+01	2.58E-12
CRW 2-17-8	6.40E-03	5.50E+01	2.35E-12
CRW 2-17-9	6.66E-03	6.20E+01	2.26E-12
CRW 2-17-10	7.05E-03	7.00E+01	2.25E-12
CRW 2-17-11	7.28E-03	7.60E+01	2.20E-12
CRW 2-17-12	7.91E-03	1.04E+02	1.90E-12
CRW 2-17-13	8.74E-03	1.34E+02	1.80E-12
CRW 2-17-14	1.01E-02	1.90E+02	1.71E-12
CRW 2-17-15	1.17E-02	3.15E+02	1.36E-12

TABLE B.6e. Boron (as H3BO3) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF2-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 2-17-1	7.88E-02	7.00E+00	2.81E-09
CRW 2-17-2	9.17E-02	1.30E+01	2.05E-09
CRW 2-17-3	1.02E-01	2.00E+01	1.64E-09
CRW 2-17-4	1.17E-01	2.70E+01	1.59E-09
CRW 2-17-6	1.37E-01	4.10E+01	1.45E-09
CRW 2-17-7	1.18E-01	4.80E+01	9.17E-10
CRW 2-17-8	1.35E-01	5.50E+01	1.05E-09
CRW 2-17-9	1.42E-01	6.20E+01	1.03E-09
CRW 2-17-10	1.53E-01	7.00E+01	1.05E-09
CRW 2-17-11	1.60E-01	7.60E+01	1.07E-09
CRW 2-17-12	1.68E-01	1.04E+02	8.63E-10
CRW 2-17-13	1.88E-01	1.34E+02	8.36E-10
CRW 2-17-14	2.14E-01	1.90E+02	7.65E-10
CRW 2-17-15	2.42E-01	3.15E+02	5.89E-10

TABLE B.6f. Fluoride (F) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF2-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 2-17-1	3.95E-03	7.00E+00	7.06E-12
CRW 2-17-2	4.42E-03	1.30E+01	4.76E-12
CRW 2-17-3	5.04E-03	2.00E+01	4.01E-12
CRW 2-17-4	5.40E-03	2.70E+01	3.42E-12
CRW 2-17-5	5.99E-03	3.40E+01	3.34E-12
CRW 2-17-6	6.22E-03	4.10E+01	2.99E-12
CRW 2-17-7	6.50E-03	4.80E+01	2.79E-12
CRW 2-17-8	6.91E-03	5.50E+01	2.75E-12
CRW 2-17-9	7.23E-03	6.20E+01	2.67E-12
CRW 2-17-10	7.40E-03	7.00E+01	2.48E-12
CRW 2-17-11	7.70E-03	7.60E+01	2.47E-12
CRW 2-17-12	8.78E-03	1.04E+02	2.34E-12
CRW 2-17-13	9.64E-03	1.34E+02	2.19E-12
CRW 2-17-14	1.05E-02	1.90E+02	1.85E-12
CRW 2-17-15	1.19E-02	3.15E+02	1.43E-12
CRW 2-18-16	1.11E-02	4.24E+02	9.22E-13

TABLE B.6g. Nitrate (NO3) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF2-17)

SAMPLE	cua. An/Ao	TIME days	D cua.
CRW 2-17-1	5.03E-02	7.00E+00	1.15E-09
CRW 2-17-2	6.05E-02	1.30E+01	8.90E-10
CRW 2-17-3	7.30E-02	2.00E+01	8.44E-10
CRW 2-17-4	8.13E-02	2.70E+01	7.76E-10
CRW 2-17-5	1.22E-01	3.40E+01	1.38E-09
CRW 2-17-6	1.57E-01	4.10E+01	1.90E-09
CRW 2-17-7	1.97E-01	4.80E+01	2.55E-09
CRW 2-17-8	2.00E-01	5.50E+01	2.30E-09
CRW 2-17-9	2.02E-01	6.20E+01	2.09E-09
CRW 2-17-10	2.33E-01	7.00E+01	2.58E-09
CRW 2-17-11	2.27E-01	7.60E+01	2.38E-09
CRW 2-17-12	2.58E-01	1.04E+02	2.27E-09
CRW 2-17-13	1.88E-01	1.34E+02	8.36E-10
CRW 2-17-14	2.87E-01	1.90E+02	1.58E-09
CRW 2-17-15	3.50E-01	3.15E+02	1.45E-09

TABLE B.6h. Sulfate (SO4) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF2-17)

SAMPLE	cua. An/Ao	TIME days	D cua.
CRW 2-17-1	2.16E-01	7.00E+00	2.39E-08
CRW 2-17-2	2.26E-01	1.30E+01	1.39E-08
CRW 2-17-3	2.72E-01	2.00E+01	1.29E-08
CRW 2-17-4	2.97E-01	2.70E+01	1.20E-08
CRW 2-17-5	2.86E-01	3.40E+01	8.82E-09
CRW 2-17-6	2.54E-01	4.10E+01	5.30E-09
CRW 2-17-7	3.36E-01	4.80E+01	8.95E-09
CRW 2-17-8	3.37E-01	5.50E+01	7.81E-09
CRW 2-17-9	3.58E-01	6.20E+01	7.50E-09
CRW 2-17-10	3.73E-01	7.00E+01	7.44E-09
CRW 2-17-11	3.64E-01	7.60E+01	6.45E-09
CRW 2-17-12	3.80E-01	1.04E+02	5.35E-09
CRW 2-17-13	4.67E-01	1.34E+02	6.86E-09
CRW 2-17-14	4.68E-01	1.90E+02	4.84E-09
CRW 2-17-15	6.18E-01	3.15E+02	5.96E-09

TABLE B.6i. Carbon-14 (C-14) Leach Fractions from Static Leach Test--Whole Grout with Groundwater (2-17)

SAMPLE	uCi	TIME DAYS	An/Ao	D cm ² /sec
CRW 2-17-1	8.90E-03	7.00E+00	5.23E-03	1.25E-11
CRW 2-17-2	9.52E-03	1.30E+01	5.59E-03	7.71E-12
CRW 2-17-3	1.02E-02	2.00E+01	5.97E-03	5.70E-12
CRW 2-17-4	1.02E-02	2.70E+01	5.99E-03	4.26E-12
CRW 2-17-5	9.42E-03	3.40E+01	5.54E-03	2.89E-12
CRW 2-17-6	9.01E-03	4.10E+01	5.29E-03	2.19E-12
CRW 2-17-7	7.32E-03	4.80E+01	4.30E-03	1.23E-12
CRW 2-17-8	6.94E-03	5.50E+01	4.08E-03	9.68E-13
CRW 2-17-9	7.39E-03	6.20E+01	4.34E-03	9.74E-13
CRW 2-17-10	6.71E-03	7.00E+01	3.95E-03	7.12E-13
CRW 2-17-11	5.79E-03	7.60E+01	3.40E-03	4.88E-13
CRW 2-17-12	7.37E-03	1.04E+02	4.33E-03	5.77E-13
CRW 2-17-13	8.31E-03	1.34E+02	4.88E-03	5.70E-13
CRW 2-17-14	1.18E-02	1.90E+02	6.92E-03	8.08E-13
CRW 2-17-15	5.25E-03	3.15E+02	3.09E-03	9.69E-14

TABLE B.6i. Carbon-14 (C-14) Leach Fraction from Static Leach Test--Whole Grout in Groundwater (2-18)

SAMPLE	uCi	TIME DAYS	An/Ao	D cm ² /sec
CRW 2-18-1	1.24E-02	7.00E+00	7.49E-03	2.56E-11
CRW 2-18-2	9.02E-03	1.30E+01	5.44E-03	7.30E-12
CRW 2-18-3	9.65E-03	2.00E+01	5.82E-03	5.42E-12
CRW 2-18-4	9.09E-03	2.70E+01	5.48E-03	3.56E-12
CRW 2-18-5	6.83E-03	3.40E+01	4.12E-03	1.60E-12
CRW 2-18-6	6.02E-03	4.10E+01	3.63E-03	1.03E-12
CRW 2-18-7	7.86E-03	4.80E+01	4.74E-03	1.50E-12
CRW 2-18-8	7.47E-03	5.50E+01	4.56E-03	1.18E-12
CRW 2-18-9	6.69E-03	6.20E+01	4.03E-03	8.41E-13
CRW 2-18-10	1.20E-03	7.00E+01	7.29E-04	2.43E-14
CRW 2-18-11	5.58E-03	7.60E+01	3.37E-03	4.76E-13
CRW 2-18-12	7.70E-03	1.04E+02	4.65E-03	5.65E-13
CRW 2-18-13	7.96E-03	1.34E+02	4.80E-03	5.51E-13
CRW 2-18-14	1.18E-02	1.90E+02	7.13E-03	8.50E-13
CRW 2-18-15	5.01E-03	3.15E+02	3.02E-03	9.31E-14

TABLE B.7a. Potassium (K) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF3-18)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 3-18-1	1.31E-01	7.00E+00	7.77E-09
CRW 3-18-2	1.52E-01	1.30E+01	5.60E-09
CRW 3-18-3	1.92E-01	2.00E+01	5.85E-09
CRW 3-18-4	2.16E-01	2.70E+01	6.23E-09
CRW 3-18-5	2.36E-01	3.40E+01	5.86E-09
CRW 3-18-6	2.41E-01	4.10E+01	4.86E-09
CRW 3-18-7	2.62E-01	4.80E+01	4.94E-09
CRW 3-18-8	2.67E-01	5.50E+01	4.70E-09
CRW 3-18-9	2.86E-01	6.20E+01	4.86E-09
CRW 3-18-10	2.96E-01	7.00E+01	4.66E-09
CRW 3-18-11	3.01E-01	7.60E+01	4.29E-09
CRW 3-18-12	3.23E-01	1.04E+02	3.62E-09
CRW 3-18-13	3.33E-01	1.34E+02	3.02E-09
CRW 3-18-14	3.66E-01	1.90E+02	2.75E-09
CRW 3-18-15	3.76E-01	3.15E+02	1.77E-09

TABLE B.7b. Sodium (Na) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF3-18)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 3-18-1	2.10E-01	7.00E+00	2.17E-08
CRW 3-18-2	2.28E-01	1.30E+01	1.39E-08
CRW 3-18-3	2.89E-01	2.00E+01	1.51E-08
CRW 3-18-4	3.20E-01	2.70E+01	1.40E-08
CRW 3-18-5	3.53E-01	3.40E+01	1.35E-08
CRW 3-18-6	3.65E-01	4.10E+01	1.20E-08
CRW 3-18-7	3.98E-01	4.80E+01	1.31E-08
CRW 3-18-8	4.10E-01	5.50E+01	1.21E-08
CRW 3-18-9	4.30E-01	6.20E+01	1.20E-08
CRW 3-18-10	4.58E-01	7.00E+01	1.25E-08
CRW 3-18-11	4.72E-01	7.60E+01	1.21E-08
CRW 3-18-12	4.99E-01	1.04E+02	1.04E-08
CRW 3-18-13	5.34E-01	1.34E+02	9.29E-09
CRW 3-18-14	5.78E-01	1.90E+02	8.30E-09
CRW 3-18-15	6.17E-01	3.15E+02	5.98E-09

TABLE B.7c. Aluminum (Al) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF3-18)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 3-18-1	5.05E-03	7.00E+00	1.15E-11
CRW 3-18-2	4.71E-03	1.30E+01	5.39E-12
CRW 3-18-3	6.23E-03	2.00E+01	6.13E-12
CRW 3-18-4	6.79E-03	2.70E+01	5.40E-12
CRW 3-18-5	7.38E-03	3.40E+01	5.07E-12
CRW 3-18-6	7.51E-03	4.10E+01	4.35E-12
CRW 3-18-7	8.28E-03	4.80E+01	4.52E-12
CRW 3-18-8	8.35E-03	5.50E+01	4.01E-12
CRW 3-18-9	8.82E-03	6.20E+01	3.97E-12
CRW 3-18-10	9.08E-03	7.00E+01	3.73E-12
CRW 3-18-11	9.58E-03	7.60E+01	3.82E-12
CRW 3-18-12	1.06E-02	1.04E+02	3.41E-12
CRW 3-18-13	1.15E-02	1.34E+02	3.10E-12
CRW 3-18-14	1.26E-02	1.90E+02	2.63E-12
CRW 3-18-15	1.44E-02	3.15E+02	2.07E-12

TABLE B.7e. Boron (as H3BO3) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF3-18)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 3-18-1	1.49E-02	7.00E+00	1.01E-10
CRW 3-18-2	1.38E-02	1.30E+01	4.62E-11
CRW 3-18-3	1.76E-02	2.00E+01	4.87E-11
CRW 3-18-4	1.90E-02	2.70E+01	4.22E-11
CRW 3-18-5	2.17E-02	3.40E+01	4.39E-11
CRW 3-18-6	2.32E-02	4.10E+01	4.15E-11
CRW 3-18-7	2.39E-02	4.80E+01	3.76E-11
CRW 3-18-8	2.47E-02	5.50E+01	3.52E-11
CRW 3-18-9	2.58E-02	6.20E+01	3.39E-11
CRW 3-18-10	2.77E-02	7.00E+01	3.46E-11
CRW 3-18-11	2.83E-02	7.60E+01	3.33E-11
CRW 3-18-12	3.06E-02	1.04E+02	2.66E-11
CRW 3-18-13	3.45E-02	1.34E+02	2.82E-11
CRW 3-18-14	3.72E-02	1.90E+02	2.30E-11
CRW 3-18-15	4.07E-02	3.15E+02	1.66E-11

TABLE B.7f. Fluoride (F) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF3-18)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 3-18-1	3.80E-03	7.00E+00	6.52E-12
CRW 3-18-2	3.78E-03	1.30E+01	3.47E-12
CRW 3-18-3	4.88E-03	2.00E+01	3.77E-12
CRW 3-18-4	5.53E-03	2.70E+01	3.58E-12
CRW 3-18-5	6.15E-03	3.40E+01	3.52E-12
CRW 3-18-6	6.39E-03	4.10E+01	3.15E-12
CRW 3-18-7	6.83E-03	4.80E+01	3.07E-12
CRW 3-18-8	7.07E-03	5.50E+01	2.68E-12
CRW 3-18-9	7.45E-03	6.20E+01	2.83E-12
CRW 3-18-10	8.35E-03	7.00E+01	3.15E-12
CRW 3-18-11	8.15E-03	7.60E+01	2.76E-12
CRW 3-18-12	9.14E-03	1.04E+02	2.54E-12
CRW 3-18-13	9.08E-03	1.34E+02	1.95E-12
CRW 3-18-14	1.09E-02	1.90E+02	1.98E-12
CRW 3-18-15	1.28E-02	3.15E+02	1.66E-12

TABLE B.7g. Nitrate (NO3) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF3-18)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 3-18-1	6.30E-02	7.00E+00	1.79E-09
CRW 3-18-2	6.72E-02	1.30E+01	1.10E-09
CRW 3-18-3	8.58E-02	2.00E+01	1.16E-09
CRW 3-18-4	9.51E-02	2.70E+01	1.06E-09
CRW 3-18-5	1.45E-01	3.40E+01	1.94E-09
CRW 3-18-6	1.87E-01	4.10E+01	2.71E-09
CRW 3-18-7	2.32E-01	4.80E+01	3.78E-09
CRW 3-18-8	2.37E-01	5.50E+01	3.62E-09
CRW 3-18-9	1.84E-01	6.20E+01	1.73E-09
CRW 3-18-10	2.71E-01	7.00E+01	3.69E-09
CRW 3-18-11	2.76E-01	7.60E+01	3.66E-09
CRW 3-18-12	3.01E-01	1.04E+02	3.13E-09
CRW 3-18-13	3.06E-01	1.34E+02	2.59E-09
CRW 3-18-14	3.41E-01	1.90E+02	2.27E-09
CRW 3-18-15	4.09E-01	3.15E+02	2.11E-09

TABLE B.7h. Sulfate (SO₄) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF3-18)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 3-18-1	2.96E-01	7.00E+00	4.66E-08
CRW 3-18-2	2.36E-01	1.30E+01	1.53E-08
CRW 3-18-3	3.23E-01	2.00E+01	1.88E-08
CRW 3-18-4	3.55E-01	2.70E+01	1.82E-08
CRW 3-18-5	3.52E-01	3.40E+01	1.35E-08
CRW 3-18-6	3.25E-01	4.10E+01	9.86E-09
CRW 3-18-7	4.24E-01	4.80E+01	1.47E-08
CRW 3-18-8	4.15E-01	5.50E+01	1.28E-08
CRW 3-18-9	4.40E-01	6.20E+01	1.27E-08
CRW 3-18-10	4.77E-01	7.00E+01	1.39E-08
CRW 3-18-11	4.85E-01	7.60E+01	1.28E-08
CRW 3-18-12	4.37E-01	1.04E+02	7.58E-09
CRW 3-18-13	4.84E-01	1.34E+02	7.24E-09
CRW 3-18-14	5.96E-01	1.90E+02	9.11E-09
CRW 3-18-15	7.61E-01	3.15E+02	1.09E-08

TABLE B.7i. Technetium-99 (TC-99) Leach Fractions from Static Leach Test--Whole Grout with Groundwater (3-18)

SAMPLE	uCi	TIME DAYS	An/Ao	D cum cm2/sec
CRW 3-18-1	3.71E-03	7.00E+00	2.59E-03	3.03E-12
CRW 3-18-2	5.35E-03	1.30E+01	3.73E-03	3.40E-12
CRW 3-18-3	1.14E-02	2.00E+01	7.97E-03	1.01E-11
CRW 3-18-4	1.57E-02	2.70E+01	1.09E-02	1.40E-11
CRW 3-18-5	1.89E-02	3.40E+01	1.32E-02	1.62E-11
CRW 3-18-6	2.12E-02	4.10E+01	1.48E-02	1.68E-11
CRW 3-18-7	2.28E-02	4.80E+01	1.59E-02	1.66E-11
CRW 3-18-8	2.31E-02	5.50E+01	1.61E-02	1.49E-11
CRW 3-18-9	2.54E-02	6.20E+01	1.77E-02	1.60E-11
CRW 3-18-10	2.61E-02	7.00E+01	1.82E-02	1.49E-11
CRW 3-18-11	2.64E-02	7.60E+01	1.84E-02	1.41E-11
CRW 3-18-12	3.39E-02	1.04E+02	2.36E-02	1.70E-11
CRW 3-18-13	4.09E-02	1.34E+02	2.85E-02	1.92E-11
CRW 3-18-14	4.99E-02	1.90E+02	3.48E-02	2.02E-11
CRW 3-18-15	3.34E-02	3.15E+02	2.33E-02	5.44E-12
CRW 3-18-16	6.91E-02	4.24E+02	4.82E-02	1.73E-11

TABLE B.7i. Technetium-99 (TC-99) Leach Fractions from Static Leach Test--
Whole Grout with Groundwater (3-19)

SAMPLE	uCi	TIME DAYS	An/Ao	D cum cm2/sec
CRW 3-19-1	5.20E-03	7.00E+00	2.81E-03	3.62E-12
CRW 3-19-2	9.37E-03	1.30E+01	5.07E-03	6.33E-12
CRW 3-19-3	1.53E-02	2.00E+01	8.29E-03	1.10E-11
CRW 3-19-4	2.04E-02	2.70E+01	1.10E-02	1.44E-11
CRW 3-19-5	2.32E-02	3.40E+01	1.26E-02	1.48E-11
CRW 3-19-6	2.70E-02	4.10E+01	1.46E-02	1.66E-11
CRW 3-19-7	2.80E-02	4.80E+01	1.51E-02	1.53E-11
CRW 3-19-8	3.05E-02	5.50E+01	1.65E-02	1.58E-11
CRW 3-19-9	3.12E-02	6.20E+01	1.69E-02	1.47E-11
CRW 3-19-10	3.30E-02	7.00E+01	1.78E-02	1.46E-11
CRW 3-19-11	3.33E-02	7.60E+01	1.80E-02	1.37E-11
CRW 3-19-12	3.96E-02	1.04E+02	2.14E-02	1.41E-11
CRW 3-19-13	4.73E-02	1.34E+02	2.56E-02	1.56E-11
CRW 3-19-14	5.92E-02	1.90E+02	3.20E-02	1.73E-11

TABLE B.8a. Potassium (K) Leach Fractions from Static Leach Test--Whole Grout
in Groundwater (DIF4-13)

SAMPLE	cua. An/Ao	TIME days	D cum.
CRW 4-13-1	1.16E-01	7.00E+00	6.11E-09
CRW 4-13-2	1.34E-01	1.30E+01	4.45E-09
CRW 4-13-3	1.63E-01	2.00E+01	4.26E-09
CRW 4-13-4	1.93E-01	2.70E+01	4.44E-09
CRW 4-13-5	2.09E-01	3.40E+01	4.12E-09
CRW 4-13-6	2.11E-01	4.10E+01	3.70E-09
CRW 4-13-7	2.30E-01	4.80E+01	3.78E-09
CRW 4-13-8	2.47E-01	5.50E+01	3.76E-09
CRW 4-13-9	2.61E-01	6.20E+01	3.82E-09
CRW 4-13-10	2.74E-01	7.00E+01	3.69E-09
CRW 4-13-11	2.83E-01	7.60E+01	3.66E-09
CRW 4-13-12	2.96E-01	1.04E+02	3.13E-09
CRW 4-13-13	3.00E-01	1.34E+02	2.43E-09
CRW 4-13-14	3.31E-01	1.90E+02	2.13E-09
CRW 4-13-15	3.58E-01	3.15E+02	1.56E-09

TABLE B.8b. Sodium (Na) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF4-13)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 4-13-1	1.92E-01	7.00E+00	1.70E-08
CRW 4-13-2	2.12E-01	1.30E+01	1.17E-08
CRW 4-13-3	2.61E-01	2.00E+01	1.19E-08
CRW 4-13-4	3.01E-01	2.70E+01	1.21E-08
CRW 4-13-5	3.30E-01	3.40E+01	1.19E-08
CRW 4-13-6	3.37E-01	4.10E+01	1.05E-08
CRW 4-13-7	3.72E-01	4.80E+01	1.09E-08
CRW 4-13-8	3.81E-01	5.50E+01	1.01E-08
CRW 4-13-9	4.00E-01	6.20E+01	1.01E-08
CRW 4-13-10	4.16E-01	7.00E+01	1.01E-08
CRW 4-13-11	4.42E-01	7.60E+01	1.04E-08
CRW 4-13-12	4.72E-01	1.04E+02	8.88E-09
CRW 4-13-13	5.01E-01	1.34E+02	8.05E-09
CRW 4-13-14	5.15E-01	1.90E+02	6.24E-09
CRW 4-13-15	5.87E-01	3.15E+02	5.23E-09

TABLE B.8c. Aluminum (Al) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF4-13)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 4-13-1	4.22E-03	7.00E+00	8.14E-12
CRW 4-13-2	4.01E-03	1.30E+01	3.97E-12
CRW 4-13-3	4.84E-03	2.00E+01	3.75E-12
CRW 4-13-4	2.66E-03	2.70E+01	8.43E-13
CRW 4-13-5	3.34E-03	3.40E+01	1.05E-12
CRW 4-13-6	3.87E-03	4.10E+01	1.17E-12
CRW 4-13-7	5.77E-03	4.80E+01	2.22E-12
CRW 4-13-8	5.95E-03	5.50E+01	2.06E-12
CRW 4-13-9	6.25E-03	6.20E+01	2.02E-12
CRW 4-13-10	6.58E-03	7.00E+01	1.99E-12
CRW 4-13-11	6.74E-03	7.60E+01	1.92E-12
CRW 4-13-12	7.62E-03	1.04E+02	1.79E-12
CRW 4-13-13	8.05E-03	1.34E+02	1.55E-12
CRW 4-13-14	8.94E-03	1.90E+02	1.35E-12
CRW 4-13-15	1.02E-02	3.15E+02	1.06E-12

TABLE B.8e. Boron (as H₃BO₃) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF4-13)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 4-13-1	1.12E-02	7.00E+00	5.75E-11
CRW 4-13-2	1.12E-02	1.30E+01	3.11E-11
CRW 4-13-3	1.30E-02	2.00E+01	2.72E-11
CRW 4-13-4	1.47E-02	2.70E+01	2.56E-11
CRW 4-13-5	1.58E-02	3.40E+01	2.36E-11
CRW 4-13-6	1.60E-02	4.10E+01	2.01E-11
CRW 4-13-7	1.70E-02	4.80E+01	1.94E-11
CRW 4-13-8	1.75E-02	5.50E+01	1.79E-11
CRW 4-13-9	1.85E-02	6.20E+01	1.77E-11
CRW 4-13-10	1.99E-02	7.00E+01	1.81E-11
CRW 4-13-11	2.01E-02	7.60E+01	1.71E-11
CRW 4-13-12	2.19E-02	1.04E+02	1.48E-11
CRW 4-13-13	2.38E-02	1.34E+02	1.36E-11
CRW 4-13-14	2.46E-02	1.90E+02	1.02E-11
CRW 4-13-15	3.32E-02	3.15E+02	1.12E-11

TABLE B.8f. Fluoride (F) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF4-13)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 4-13-1	4.25E-03	7.00E+00	8.29E-12
CRW 4-13-2	4.15E-03	1.30E+01	4.25E-12
CRW 4-13-3	5.01E-03	2.00E+01	4.03E-12
CRW 4-13-4	5.29E-03	2.70E+01	3.32E-12
CRW 4-13-5	5.91E-03	3.40E+01	3.30E-12
CRW 4-13-6	6.19E-03	4.10E+01	3.00E-12
CRW 4-13-7	5.91E-03	4.80E+01	2.34E-12
CRW 4-13-8	6.78E-03	5.50E+01	2.68E-12
CRW 4-13-9	6.95E-03	6.20E+01	2.50E-12
CRW 4-13-10	7.71E-03	7.00E+01	2.72E-12
CRW 4-13-11	7.67E-03	7.60E+01	2.48E-12
CRW 4-13-12	8.70E-03	1.04E+02	2.33E-12
CRW 4-13-13	9.56E-03	1.34E+02	2.19E-12
CRW 4-13-14	1.00E-02	1.90E+02	1.69E-12
CRW 4-13-15	1.13E-02	3.15E+02	1.31E-12

TABLE B.8g. Nitrate (NO3) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF4-13)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 4-13-1	5.40E-02	7.00E+00	1.34E-09
CRW 4-13-2	6.44E-02	1.30E+01	1.02E-09
CRW 4-13-3	6.74E-02	2.00E+01	7.29E-10
CRW 4-13-4	7.42E-02	2.70E+01	6.54E-10
CRW 4-13-5	1.13E-01	3.40E+01	1.20E-09
CRW 4-13-6	1.46E-01	4.10E+01	1.67E-09
CRW 4-13-7	1.64E-01	4.80E+01	1.80E-09
CRW 4-13-8	1.85E-01	5.50E+01	1.99E-09
CRW 4-13-9	1.86E-01	6.20E+01	1.79E-09
CRW 4-13-10	7.66E-01	7.00E+01	5.16E-08
CRW 4-13-11	2.18E-01	7.60E+01	2.21E-09
CRW 4-13-12	2.82E-01	1.04E+02	2.68E-09
CRW 4-13-13	2.11E-01	1.34E+02	1.86E-09
CRW 4-13-14	2.99E-01	1.90E+02	1.72E-09
CRW 4-13-15	3.61E-01	3.15E+02	1.56E-09

TABLE B.8h. Sulfate (SO4) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF4-13)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 4-13-1	2.41E-01	7.00E+00	2.84E-08
CRW 4-13-2	2.01E-01	1.30E+01	9.96E-09
CRW 4-13-3	2.36E-01	2.00E+01	9.96E-09
CRW 4-13-4	2.67E-01	2.70E+01	9.57E-09
CRW 4-13-5	2.51E-01	3.40E+01	6.41E-09
CRW 4-13-6	2.16E-01	4.10E+01	4.10E-09
CRW 4-13-7	2.64E-01	4.80E+01	4.94E-09
CRW 4-13-8	2.95E-01	5.50E+01	5.47E-09
CRW 4-13-9	3.01E-01	6.20E+01	5.26E-09
CRW 4-13-10	3.88E-01	7.00E+01	8.47E-09
CRW 4-13-11	3.25E-01	7.60E+01	5.32E-09
CRW 4-13-12	3.30E-01	1.04E+02	3.89E-09
CRW 4-13-13	3.72E-01	1.34E+02	3.90E-09
CRW 4-13-14	3.96E-01	1.90E+02	3.30E-09
CRW 4-13-15	5.26E-01	3.15E+02	3.95E-09

TABLE B.8i. Iodine-125 (I-125) Leach Fractions from Static Leach Test--Whole Grout with Groundwater (4-19)

SAMPLE	uCi LEACH	TIME DAYS	An/Ao	D cum cm2/sec
CRW 4-19-1	1.07E+00	7.00E+00	1.13E-01	5.53E-09
CRW 4-19-2	1.11E+00	1.30E+01	1.17E-01	3.20E-09
CRW 4-19-3	1.36E+00	2.00E+01	1.43E-01	3.12E-09
CRW 4-19-4	1.58E+00	2.70E+01	1.67E-01	3.14E-09
CRW 4-19-5	1.69E+00	3.40E+01	1.78E-01	2.86E-09
CRW 4-19-6	1.82E+00	4.10E+01	1.92E-01	2.74E-09
CRW 4-19-7	1.91E+00	4.80E+01	2.02E-01	2.58E-09
CRW 4-19-8	1.96E+00	5.50E+01	2.06E-01	2.36E-09
CRW 4-19-9	2.06E+00	6.20E+01	2.18E-01	2.33E-09
CRW 4-19-10	2.15E+00	7.00E+01	2.26E-01	2.23E-09
CRW 4-19-11	2.22E+00	7.60E+01	2.34E-01	2.20E-09
CRW 4-19-12	2.59E+00	1.04E+02	2.73E-01	2.16E-09
CRW 4-19-13	2.86E+00	1.34E+02	3.02E-01	2.07E-09
CRW 4-19-14	3.23E+00	1.90E+02	3.40E-01	1.86E-09

TABLE B.8i. Iodine-125 (I-125) Leach Fractions from Static Leach Test--Whole Grout with Groundwater (4-13)

SAMPLE	uCi LEACH	TIME DAYS	An/Ao	D cum cm2/sec
CRW 4-13-1	8.55E-01	7.00E+00	8.23E-02	3.10E-09
CRW 4-13-2	8.35E-01	1.30E+01	8.02E-02	1.59E-09
CRW 4-13-3	9.28E-01	2.00E+01	8.93E-02	1.28E-09
CRW 4-13-4	7.18E-01	2.70E+01	6.91E-02	5.66E-10
CRW 4-13-5	1.03E+00	3.40E+01	9.87E-02	9.19E-10
CRW 4-13-6	1.03E+00	4.10E+01	9.92E-02	7.68E-10
CRW 4-13-7	1.01E+00	4.80E+01	9.73E-02	6.32E-10
CRW 4-13-8	9.96E-01	5.50E+01	9.58E-02	5.34E-10
CRW 4-13-9	9.58E-01	6.20E+01	9.21E-02	4.38E-10
CRW 4-13-10	9.46E-01	7.00E+01	9.09E-02	3.78E-10
CRW 4-13-11	9.46E-01	7.60E+01	9.09E-02	3.48E-10
CRW 4-13-12	9.33E-01	1.04E+02	8.97E-02	2.48E-10
CRW 4-13-13	1.22E+00	1.34E+02	1.18E-01	3.31E-10
CRW 4-13-14	1.36E+00	1.90E+02	1.31E-01	2.90E-10
CRW 4-13-15	1.54E+00	3.15E+02	1.48E-01	2.22E-10
CRW 4-13-16	4.81E+00	4.24E+02	4.62E-01	1.62E-09

TABLE B.9a. Potassium (K) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF5-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 5-17-1	8.76E-02	7.00E+00	3.52E-09
CRW 5-17-2	1.27E-01	1.30E+01	3.97E-09
CRW 5-17-3	1.60E-01	2.00E+01	4.09E-09
CRW 5-17-4	1.81E-01	2.70E+01	3.88E-09
CRW 5-17-5	2.00E-01	3.40E+01	3.78E-09
CRW 5-17-6	2.07E-01	4.10E+01	3.70E-09
CRW 5-17-7	2.29E-01	4.80E+01	3.78E-09
CRW 5-17-8	2.47E-01	5.50E+01	3.96E-09
CRW 5-17-9	2.66E-01	6.20E+01	4.17E-09
CRW 5-17-10	2.71E-01	7.00E+01	3.69E-09
CRW 5-17-11	2.80E-01	7.60E+01	3.66E-09
CRW 5-17-13	2.93E-01	1.34E+02	2.25E-09
CRW 5-17-14	3.24E-01	1.90E+02	1.98E-09
CRW 5-17-15	3.43E-01	3.15E+02	1.37E-09

TABLE B.9b. Sodium (Na) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF5-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 5-17-1	1.32E-01	7.00E+00	7.98E-09
CRW 5-17-2	2.24E-01	1.30E+01	1.24E-08
CRW 5-17-3	2.82E-01	2.00E+01	1.39E-08
CRW 5-17-4	3.08E-01	2.70E+01	1.29E-08
CRW 5-17-5	3.35E-01	3.40E+01	1.27E-08
CRW 5-17-6	3.41E-01	4.10E+01	1.05E-08
CRW 5-17-7	3.90E-01	4.80E+01	1.23E-08
CRW 5-17-8	3.97E-01	5.50E+01	1.14E-08
CRW 5-17-9	4.29E-01	6.20E+01	1.20E-08
CRW 5-17-10	4.30E-01	7.00E+01	1.06E-08
CRW 5-17-11	4.51E-01	7.60E+01	1.09E-08
CRW 5-17-13	5.31E-01	1.34E+02	9.29E-09
CRW 5-17-14	5.41E-01	1.90E+02	6.86E-09
CRW 5-17-15	5.93E-01	3.15E+02	5.23E-09

TABLE B.9c. Aluminum (Al) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF5-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 5-17-1	1.79E-03	7.00E+00	1.47E-12
CRW 5-17-2	4.17E-03	1.30E+01	4.30E-12
CRW 5-17-3	5.51E-03	2.00E+01	4.86E-12
CRW 5-17-4	5.96E-03	2.70E+01	4.22E-12
CRW 5-17-5	1.81E-03	3.40E+01	3.10E-13
CRW 5-17-6	6.69E-03	4.10E+01	3.50E-12
CRW 5-17-7	7.32E-03	4.80E+01	3.58E-12
CRW 5-17-8	7.47E-03	5.50E+01	3.25E-12
CRW 5-17-9	8.14E-03	6.20E+01	3.43E-12
CRW 5-17-10	8.42E-03	7.00E+01	3.25E-12
CRW 5-17-11	8.58E-03	7.60E+01	3.11E-12
CRW 5-17-13	1.01E-02	1.34E+02	2.43E-12
CRW 5-17-14	1.12E-02	1.90E+02	2.13E-12
CRW 5-17-15	1.28E-02	3.15E+02	1.67E-12

TABLE B.9e. Boron (as H3BO3) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF5-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 5-17-1	6.10E-03	7.00E+00	1.71E-11
CRW 5-17-2	1.22E-02	1.30E+01	3.67E-11
CRW 5-17-3	1.47E-02	2.00E+01	3.47E-11
CRW 5-17-4	1.61E-02	2.70E+01	3.07E-11
CRW 5-17-5	1.80E-02	3.40E+01	3.05E-11
CRW 5-17-6	1.88E-02	4.10E+01	2.77E-11
CRW 5-17-7	2.09E-02	4.80E+01	2.92E-11
CRW 5-17-8	2.14E-02	5.50E+01	2.68E-11
CRW 5-17-9	2.32E-02	6.20E+01	2.78E-11
CRW 5-17-10	2.39E-02	7.00E+01	2.61E-11
CRW 5-17-11	2.42E-02	7.60E+01	2.47E-11
CRW 5-17-13	2.61E-02	1.34E+02	1.63E-11
CRW 5-17-14	3.11E-02	1.90E+02	1.63E-11
CRW 5-17-15	3.45E-02	3.15E+02	1.21E-11

TABLE B.9f. Fluoride (F) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF5-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 5-17-1	4.05E-03	7.00E+00	7.53E-12
CRW 5-17-2	3.80E-03	1.30E+01	3.56E-12
CRW 5-17-3	4.95E-03	2.00E+01	3.93E-12
CRW 5-17-4	5.31E-03	2.70E+01	3.35E-12
CRW 5-17-5	5.90E-03	3.40E+01	3.28E-12
CRW 5-17-6	6.13E-03	4.10E+01	2.94E-12
CRW 5-17-7	6.82E-03	4.80E+01	3.10E-12
CRW 5-17-8	7.30E-03	5.50E+01	3.11E-12
CRW 5-17-9	7.70E-03	6.20E+01	3.06E-12
CRW 5-17-10	8.19E-03	7.00E+01	3.07E-12
CRW 5-17-11	8.73E-03	7.60E+01	3.21E-12
CRW 5-17-13	1.03E-02	1.34E+02	2.53E-12
CRW 5-17-14	1.35E-02	1.90E+02	3.09E-12
CRW 5-17-15	1.29E-02	3.15E+02	1.69E-12

TABLE B.9g. Nitrate (NO3) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF5-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 5-17-1	5.48E-02	7.00E+00	1.37E-09
CRW 5-17-2	5.93E-02	1.30E+01	8.68E-10
CRW 5-17-3	7.56E-02	2.00E+01	9.17E-10
CRW 5-17-4	8.41E-02	2.70E+01	8.40E-10
CRW 5-17-5	1.28E-01	3.40E+01	1.55E-09
CRW 5-17-6	1.66E-01	4.10E+01	2.16E-09
CRW 5-17-7	1.97E-01	4.80E+01	2.59E-09
CRW 5-17-8	2.10E-01	5.50E+01	2.57E-09
CRW 5-17-9	2.13E-01	6.20E+01	2.35E-09
CRW 5-17-10	2.35E-01	7.00E+01	2.84E-09
CRW 5-17-11	2.48E-01	7.60E+01	2.87E-09
CRW 5-17-13	2.81E-01	1.34E+02	2.08E-09
CRW 5-17-14	2.95E-01	1.90E+02	1.72E-09
CRW 5-17-15	3.59E-01	3.15E+02	1.56E-09

TABLE B.9h. Sulfate (SO₄) Leach Fractions from Static Leach Test--Whole Grout in Groundwater (DIF5-17)

SAMPLE	cum. An/Ao	TIME days	D cum.
CRW 5-17-1	2.40E-01	7.00E+00	2.84E-08
CRW 5-17-2	2.00E-01	1.30E+01	9.88E-09
CRW 5-17-3	2.35E-01	2.00E+01	9.96E-09
CRW 5-17-4	2.66E-01	2.70E+01	9.57E-09
CRW 5-17-5	2.72E-01	3.40E+01	7.60E-09
CRW 5-17-6	2.61E-01	4.10E+01	5.78E-09
CRW 5-17-7	3.54E-01	4.80E+01	9.58E-09
CRW 5-17-8	3.58E-01	5.50E+01	8.94E-09
CRW 5-17-9	3.77E-01	6.20E+01	9.00E-09
CRW 5-17-10	3.94E-01	7.00E+01	8.47E-09
CRW 5-17-11	4.10E-01	7.60E+01	8.76E-09
CRW 5-17-13	4.12E-01	1.34E+02	4.97E-09
CRW 5-17-14	4.76E-01	1.90E+02	5.11E-09
CRW 5-17-15	6.49E-01	3.15E+02	6.85E-09

TABLE B.9i. Cesium-137 (CS-137) Leach Fractions from Static Leach Test--Whole Grout with Groundwater (5-17)

SAMPLE	uCi	TIME DAYS	An/Ao	D cum ca2/sec
CRW-5-17-1	0.00E+00	7.00E+00	8.06E-09	2.98E-23
CRW-5-17-2	0.00E+00	1.30E+01	8.06E-09	1.60E-23
CRW-5-17-3	0.00E+00	2.00E+01	8.06E-09	1.04E-23
CRW-5-17-4	3.16E-03	2.70E+01	9.25E-04	1.02E-13
CRW-5-17-5	7.29E-04	3.40E+01	2.14E-04	4.30E-15
CRW-5-17-6	2.99E-03	4.10E+01	8.78E-04	6.02E-14
CRW-5-17-7	6.74E-04	4.80E+01	1.98E-04	2.61E-15
CRW-5-17-8	1.43E-03	5.50E+01	4.19E-04	1.02E-14
CRW-5-17-9	2.01E-03	6.20E+01	5.90E-04	1.80E-14
CRW-5-17-10	1.46E-03	7.00E+01	4.27E-04	8.33E-15
CRW-5-17-11	2.31E-03	7.60E+01	6.76E-04	1.93E-14
CRW-5-17-12	2.26E-03	1.04E+02	6.63E-04	1.35E-14
CRW-5-17-13	1.28E-03	1.34E+02	3.75E-04	3.37E-15

TABLE B.9i. Cesium-137 (CS-137) Leach Fractions from Static Leach Test--Whole Grout with Groundwater (5-19)

SAMPLE	uCi	TIME DAYS	An/Ao	D cum cm ² /sec
CRW-5-19-1	6.92E-04	7.00E+00	2.04E-04	1.91E-14
CRW-5-19-2	1.54E-03	1.30E+01	4.54E-04	5.09E-14
CRW-5-19-3	3.39E-03	2.00E+01	9.99E-04	1.60E-13
CRW-5-19-4	2.03E-03	2.70E+01	5.97E-04	4.23E-14
CRW-5-19-5	1.50E-03	3.40E+01	4.43E-04	1.85E-14
CRW-5-19-6	3.48E-03	4.10E+01	1.03E-03	8.25E-14
CRW-5-19-7	2.24E-03	4.80E+01	6.61E-04	2.92E-14
CRW-5-19-8	2.48E-03	5.50E+01	7.31E-04	3.11E-14
CRW-5-19-9	0.00E+00	6.20E+01	8.11E-09	3.40E-24
CRW-5-19-10	1.15E-03	7.00E+01	3.39E-04	5.25E-15
CRW-5-19-11	0.00E+00	7.60E+01	8.11E-09	2.77E-24
CRW-5-19-12	1.17E-03	1.04E+02	3.47E-04	3.70E-15
CRW-5-19-13	1.63E-03	1.34E+02	4.81E-04	5.52E-15
CRW-5-19-14	1.66E-03	1.90E+02	4.50E-04	4.65E-15

TABLE B.9j. Strontium-85 (SR-85) Leach Fraction from Static Leach Test--Whole Grout in Groundwater (5-17)

SAMPLE	TIME DAYS	An/Ao	D cum.	uCi LEACHED
CRW 5-17-1	7.00E+00	4.67E-08	9.98E-22	0.00E+00
CRW 5-17-2	1.30E+01	3.47E-03	2.96E-12	2.18E-04
CRW 5-17-3	2.00E+01	2.89E-04	1.34E-14	0.00E+00
CRW 5-17-4	2.70E+01	2.89E-04	9.90E-15	0.00E+00
CRW 5-17-5	3.40E+01	3.22E-03	9.74E-13	1.84E-04
CRW 5-17-6	4.10E+01	5.02E-03	1.97E-12	2.83E-04
CRW 5-17-7	4.80E+01	4.19E-03	1.17E-12	2.07E-04
CRW 5-17-8	5.50E+01	5.70E-03	1.89E-12	2.85E-04
CRW 5-17-9	6.20E+01	6.20E-03	1.99E-12	2.92E-04
CRW 5-17-10	7.00E+01	7.94E-03	2.89E-12	3.78E-04
CRW 5-17-11	7.60E+01	2.44E-03	2.52E-13	0.00E+00
CRW 5-17-12	1.04E+02	2.44E-03	1.84E-13	0.00E+00
CRW 5-17-13	1.34E+02	1.81E-02	7.82E-12	9.66E-04
CRW 5-17-14	1.90E+02	9.11E-03	1.40E-12	3.33E-04
CRW 5-17-15	3.15E+02	2.58E-02	6.75E-12	1.36E-03
CRW 5-17-16	4.24E+02	1.76E-01	2.34E-10	1.07E-02

TABLE B.9j. Strontium-85 (SR-85) Leach Fraction from Static Leach Test--
Whole Grout in Groundwater (5-19)

SAMPLE	TIME DAYS	An/Ao	D cum.	D inc.	uCi LEACHED
CRW-5-19-1	7.00E+00	6.01E-03	1.65E-11	3.31E-11	3.77E-04
CRW-5-19-2	1.30E+01	3.50E-03	3.01E-12	4.35E-11	1.88E-04
CRW-5-19-3	2.00E+01	7.51E-04	9.03E-14	2.43E-12	0.00E+00
CRW-5-19-4	2.70E+01	7.51E-04	6.69E-14	3.46E-12	0.00E+00
CRW-5-19-5	3.40E+01	6.28E-03	3.72E-12	3.15E-10	3.46E-04
CRW-5-19-6	4.10E+01	1.21E-03	1.15E-13	1.44E-11	0.00E+00
CRW-5-19-7	4.80E+01	1.14E-02	8.68E-12	1.51E-09	6.38E-04
CRW-5-19-8	5.50E+01	1.23E-02	8.82E-12	2.04E-09	6.41E-04
CRW-5-19-9	6.20E+01	1.20E-02	7.49E-12	2.22E-09	5.71E-04
CRW-5-19-10	7.00E+01	3.68E-03	6.18E-13	1.78E-10	0.00E+00
CRW-5-19-11	7.60E+01	3.68E-03	5.69E-13	3.51E-10	0.00E+00
CRW-5-19-12	1.04E+02	3.68E-03	4.16E-13	1.99E-11	0.00E+00
CRW-5-19-13	1.34E+02	9.76E-03	2.28E-12	1.61E-10	3.81E-04
CRW-5-19-14	1.90E+02	1.14E-02	2.21E-12	8.66E-11	4.55E-04

TABLE B.10i. Americium-241 (AM-241) Leach Fractions from Static Leach Test--
Whole Grout in Groundwater (1-17)

SAMPLE	uCi	TIME DAYS	An/Ao	D cum cm2/sec
CRW 1-17-1	1.78E-04	7.00E+00	1.32E-05	7.39E-17
CRW 1-17-2	8.17E-05	1.30E+01	6.14E-06	8.66E-18
CRW 1-17-3	2.05E-04	2.00E+01	1.51E-05	3.40E-17
CRW 1-17-4	8.17E-05	2.70E+01	6.14E-06	4.17E-18
CRW 1-17-5	1.23E-03	3.40E+01	8.94E-05	7.02E-16
CRW 1-17-6	1.58E-04	4.10E+01	1.17E-05	9.92E-18
CRW 1-17-7	8.17E-05	4.80E+01	6.14E-06	2.35E-18
CRW 1-17-8	1.64E-04	5.50E+01	1.21E-05	7.97E-18
CRW 1-17-9	1.11E-04	6.20E+01	8.25E-06	3.28E-18
CRW 1-17-10	1.52E-04	7.00E+01	1.13E-05	5.40E-18
CRW 1-17-11	2.66E-04	7.60E+01	1.96E-05	1.50E-17
CRW 1-17-12	1.58E-04	1.04E+02	1.17E-05	3.91E-18
CRW 1-17-13	1.58E-04	1.34E+02	1.17E-05	3.04E-18
CRW 1-17-14	2.45E-04	1.90E+02	1.80E-05	5.11E-18
CRW 1-17-15	4.70E-04	3.15E+02	3.44E-05	1.12E-17

TABLE B.10i. Americium-241 (AM-241) Leach Fractions from Static Leach Test--
Whole Grout in Groundwater (1-18)

SAMPLE	uCi	TIME DAYS	An/Ao	D cm ² /sec
CRW 1-18-1	1.04E-03	7.00E+00	7.56E-05	2.55E-15
CRW 1-18-2	8.17E-04	1.30E+01	5.97E-05	8.57E-16
CRW 1-18-3	8.02E-04	2.00E+01	5.86E-05	5.38E-16
CRW 1-18-4	8.72E-04	2.70E+01	6.37E-05	4.70E-16
CRW 1-18-5	7.21E-04	3.40E+01	5.27E-05	2.55E-16
CRW 1-18-6	8.31E-04	4.10E+01	6.07E-05	2.81E-16
CRW 1-18-7	7.62E-04	4.80E+01	5.57E-05	2.02E-16
CRW 1-18-8	7.62E-04	5.50E+01	5.57E-05	1.76E-16
CRW 1-18-9	7.62E-04	6.20E+01	5.57E-05	1.56E-16
CRW 1-18-10	7.62E-04	7.00E+01	5.57E-05	1.38E-16
CRW 1-18-11	9.33E-04	7.60E+01	6.81E-05	1.91E-16
CRW 1-18-12	7.96E-04	1.04E+02	5.82E-05	1.02E-16
CRW 1-18-13	7.96E-04	1.34E+02	5.82E-05	7.90E-17
CRW 1-18-14	7.96E-04	1.90E+02	5.82E-05	5.57E-17
CRW 1-18-15	4.35E-04	3.15E+02	3.19E-05	1.01E-17

TABLE B.10j. Plutonium-238 (PU-238) Leach Fractions from Static Leach Test--
Whole Grout in Groundwater (1-17)

SAMPLE	uCi	TIME DAYS	An/Ao	D cm ² /sec
CRW 1-17-1	1.16E-03	7.00E+00	7.90E-05	2.66E-15
CRW 1-17-2	1.46E-03	1.30E+01	9.95E-05	2.27E-15
CRW 1-17-3	1.27E-03	2.00E+01	8.62E-05	1.11E-15
CRW 1-17-4	1.39E-03	2.70E+01	9.46E-05	9.89E-16
CRW 1-17-5	1.20E-03	3.40E+01	8.18E-05	5.88E-16
CRW 1-17-6	1.44E-03	4.10E+01	9.79E-05	6.97E-16
CRW 1-17-7	1.19E-03	4.80E+01	8.07E-05	4.05E-16
CRW 1-17-8	1.20E-03	5.50E+01	8.18E-05	3.63E-16
CRW 1-17-9	1.15E-03	6.20E+01	7.85E-05	2.97E-16
CRW 1-17-10	1.22E-03	7.00E+01	8.29E-05	2.93E-16
CRW 1-17-11	1.29E-03	7.60E+01	8.80E-05	3.04E-16
CRW 1-17-12	1.20E-03	1.04E+02	8.15E-05	1.91E-16
CRW 1-17-13	1.16E-03	1.34E+02	7.90E-05	1.39E-16

TABLE B.10j. Americium-241 (Am-241) Leach Fractions from Static Leach Test--
Whole Grout in Groundwater (1-18)

SAMPLE	uCi	TIME DAYS	Am/Ao	D cur cm ² /sec
CRW 1-18-1	1.09E-03	7.00E+00	8.01E-05	2.86E-15
CRW 1-18-2	1.29E-03	1.30E+01	9.44E-05	2.15E-15
CRW 1-18-3	1.13E-03	2.00E+01	8.29E-05	1.07E-15
CRW 1-18-4	1.33E-03	2.70E+01	9.74E-05	1.10E-15
CRW 1-18-5	1.08E-03	3.40E+01	7.97E-05	5.85E-16
CRW 1-18-6	1.09E-03	4.10E+01	8.01E-05	4.89E-16
CRW 1-18-7	1.19E-03	4.80E+01	8.71E-05	4.95E-16
CRW 1-18-8	1.23E-03	5.50E+01	9.07E-05	4.68E-16
CRW 1-18-9	1.16E-03	6.20E+01	8.52E-05	3.67E-16
CRW 1-18-10	1.20E-03	7.00E+01	8.83E-05	3.48E-16
CRW 1-18-11	1.19E-03	7.60E+01	8.76E-05	3.16E-16
CRW 1-18-12	1.25E-03	1.04E+02	9.15E-05	2.52E-16
CRW 1-18-13	1.21E-03	1.34E+02	8.86E-05	1.84E-16

TABLE B.11a. Potassium (K) Leach Fractions from Flow Through Test Grout/Sediment with Groundwater (DIFCOLT2)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	0.00E+00	0.00E+00	3.00E+00	0.00E+00	0.00E+00
EFFLUENT 2	0.00E+00	0.00E+00	6.00E+00	0.00E+00	0.00E+00
EFFLUENT 3	0.00E+00	0.00E+00	9.00E+00	0.00E+00	0.00E+00
EFFLUENT 4	0.00E+00	0.00E+00	1.30E+01	0.00E+00	0.00E+00
EFFLUENT 5	0.00E+00	0.00E+00	1.70E+01	0.00E+00	0.00E+00
EFFLUENT 6	0.00E+00	0.00E+00	2.00E+01	0.00E+00	0.00E+00
EFFLUENT 7	0.00E+00	0.00E+00	2.30E+01	0.00E+00	0.00E+00
EFFLUENT 8	0.00E+00	0.00E+00	2.70E+01	0.00E+00	0.00E+00
EFFLUENT 9	0.00E+00	0.00E+00	3.00E+01	0.00E+00	0.00E+00
EFFLUENT 10	0.00E+00	0.00E+00	3.40E+01	0.00E+00	0.00E+00
EFFLUENT 11	0.00E+00	0.00E+00	3.70E+01	0.00E+00	0.00E+00
EFFLUENT 12	0.00E+00	0.00E+00	4.10E+01	0.00E+00	0.00E+00
EFFLUENT 13	0.00E+00	0.00E+00	4.40E+01	0.00E+00	0.00E+00
COLUMN 12					
EFFLUENT 16	0.00E+00	0.00E+00	5.80E+01	0.00E+00	0.00E+00
EFFLUENT 17	0.00E+00	0.00E+00	6.20E+01	0.00E+00	0.00E+00
EFFLUENT 18	0.00E+00	0.00E+00	6.50E+01	0.00E+00	0.00E+00
EFFLUENT 19	0.00E+00	0.00E+00	6.90E+01	0.00E+00	0.00E+00
EFFLUENT 20	0.00E+00	0.00E+00	7.20E+01	0.00E+00	0.00E+00
EFFLUENT 21	0.00E+00	0.00E+00	7.60E+01	0.00E+00	0.00E+00
EFFLUENT 22	0.00E+00	0.00E+00	8.00E+01	0.00E+00	0.00E+00
EFFLUENT 23	0.00E+00	0.00E+00	8.40E+01	0.00E+00	0.00E+00
EFFLUENT 24	0.00E+00	0.00E+00	8.70E+01	0.00E+00	0.00E+00
EFFLUENT 26	0.00E+00	0.00E+00	9.40E+01	0.00E+00	0.00E+00
EFFLUENT 28	0.00E+00	0.00E+00	1.00E+02	0.00E+00	0.00E+00
EFFLUENT 30	1.90E-03	1.90E-03	1.07E+02	7.73E-11	8.78E-14
EFFLUENT 32	1.24E-02	1.43E-02	1.15E+02	2.76E-09	4.60E-12
EFFLUENT 34	1.07E-02	2.50E-02	1.21E+02	3.90E-09	1.34E-11
EFFLUENT 36	2.21E-02	4.71E-02	1.28E+02	1.30E-08	4.51E-11
EFFLUENT 39	5.61E-02	1.03E-01	1.42E+02	2.26E-08	1.95E-10
EFFLUENT 41	3.14E-02	1.35E-01	1.49E+02	3.05E-08	3.16E-10
EFFLUENT 43	3.99E-02	1.75E-01	1.60E+02	2.12E-08	4.95E-10
EFFLUENT 45	4.11E-02	2.16E-01	1.72E+02	2.03E-08	7.03E-10
EFFLUENT 47	1.99E-02	2.36E-01	1.81E+02	8.98E-09	7.98E-10
EFFLUENT 49	8.43E-02	3.20E-01	2.21E+02	9.26E-09	1.20E-09
EFFLUENT 50	6.44E-02	3.84E-01	2.51E+02	1.13E-08	1.53E-09

TABLE B.11b. Sodium (Na) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DIFCOLT2)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	2.52E-02	2.52E-02	3.00E+00	5.53E-10	5.53E-10
EFFLUENT 2	3.04E-02	5.56E-02	6.00E+00	4.66E-09	1.34E-09
EFFLUENT 3	2.83E-02	8.40E-02	9.00E+00	6.90E-09	2.04E-09
EFFLUENT 4	3.65E-02	1.20E-01	1.30E+01	9.43E-09	2.90E-09
EFFLUENT 5	2.37E-02	1.44E-01	1.70E+01	5.46E-09	3.18E-09
EFFLUENT 6	1.39E-02	1.58E-01	2.00E+01	4.13E-09	3.25E-09
EFFLUENT 7	2.27E-02	1.81E-01	2.30E+01	1.28E-08	3.69E-09
EFFLUENT 8	3.10E-02	2.12E-01	2.70E+01	1.56E-08	5.45E-09
EFFLUENT 9	2.34E-02	2.35E-01	3.00E+01	1.80E-08	6.79E-09
EFFLUENT 10	2.27E-02	2.58E-01	3.40E+01	1.07E-08	6.81E-09
EFFLUENT 11	1.60E-02	2.74E-01	3.70E+01	1.05E-08	6.82E-09
EFFLUENT 12	2.00E-02	2.94E-01	4.10E+01	1.02E-08	7.20E-09
EFFLUENT 13	1.41E-02	3.08E-01	4.40E+01	9.70E-09	7.75E-09
COLUMN T2					
EFFLUENT 16	2.80E-02	3.36E-01	5.80E+01	2.11E-09	7.23E-09
EFFLUENT 17	2.21E-02	3.58E-01	6.20E+01	1.90E-08	7.71E-09
EFFLUENT 18	7.92E-03	3.66E-01	6.50E+01	4.61E-09	7.82E-09
EFFLUENT 19	1.61E-02	3.82E-01	6.90E+01	1.13E-08	7.83E-09
EFFLUENT 20	8.41E-03	3.90E-01	7.20E+01	5.77E-09	7.97E-09
EFFLUENT 21	7.82E-03	3.98E-01	7.60E+01	2.95E-09	8.01E-09
EFFLUENT 22	1.52E-02	4.13E-01	8.00E+01	1.17E-08	8.04E-09
EFFLUENT 23	8.73E-03	4.22E-01	8.40E+01	4.07E-09	8.11E-09
EFFLUENT 24	5.74E-03	4.28E-01	8.70E+01	3.26E-09	8.16E-09
EFFLUENT 26	1.42E-02	4.42E-01	9.40E+01	3.88E-09	8.08E-09
EFFLUENT 28	1.78E-02	4.60E-01	1.00E+02	8.84E-09	8.43E-09
EFFLUENT 30	6.89E-03	4.67E-01	1.07E+02	1.04E-09	8.33E-09
EFFLUENT 32	8.48E-03	4.75E-01	1.15E+02	1.30E-09	8.12E-09
EFFLUENT 34	4.38E-03	4.80E-01	1.21E+02	6.54E-10	7.72E-09
EFFLUENT 36	8.65E-03	4.88E-01	1.28E+02	1.98E-09	7.68E-09
EFFLUENT 39	1.61E-02	5.04E-01	1.42E+02	1.86E-09	7.27E-09
EFFLUENT 41	6.29E-03	5.11E-01	1.49E+02	1.22E-09	7.26E-09
EFFLUENT 43	6.40E-03	5.17E-01	1.60E+02	5.45E-10	7.12E-09
EFFLUENT 45	5.86E-03	5.23E-01	1.72E+02	4.13E-10	6.62E-09
EFFLUENT 47	4.57E-03	5.27E-01	1.81E+02	4.73E-10	6.61E-09
EFFLUENT 49	1.98E-02	5.47E-01	2.21E+02	5.13E-10	5.95E-09

TABLE B.11c. Aluminum (Al) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DIFCOLT2)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	6.05E-05	6.05E-05	3.00E+00	3.18E-15	3.18E-15
EFFLUENT 2	1.57E-04	2.17E-04	6.00E+00	1.24E-13	2.05E-14
EFFLUENT 3	2.06E-04	4.24E-04	9.00E+00	3.65E-13	5.19E-14
EFFLUENT 4	4.06E-04	8.29E-04	1.30E+01	1.17E-12	1.38E-13
EFFLUENT 5	3.32E-04	1.16E-03	1.70E+01	1.07E-12	2.06E-13
EFFLUENT 6	1.91E-04	1.35E-03	2.00E+01	7.82E-13	2.38E-13
EFFLUENT 7	3.51E-04	1.70E-03	2.30E+01	3.06E-12	3.28E-13
EFFLUENT 8	5.88E-04	2.29E-03	2.70E+01	5.62E-12	5.06E-13
EFFLUENT 9	4.51E-04	2.74E-03	3.00E+01	6.69E-12	6.52E-13
EFFLUENT 10	5.36E-04	3.28E-03	3.40E+01	5.97E-12	8.22E-13
EFFLUENT 11	4.19E-04	3.70E-03	3.70E+01	7.21E-12	9.61E-13
EFFLUENT 12	5.30E-04	4.23E-03	4.10E+01	7.11E-12	1.13E-12
EFFLUENT 13	3.61E-04	4.59E-03	4.40E+01	6.42E-12	1.24E-12
COLUMN T2					
EFFLUENT 16	1.12E-03	5.70E-03	5.80E+01	3.35E-12	1.46E-12
EFFLUENT 17	9.60E-04	6.66E-03	6.20E+01	3.60E-11	1.86E-12
EFFLUENT 18	3.41E-04	7.01E-03	6.50E+01	8.56E-12	1.96E-12
EFFLUENT 19	6.83E-04	7.69E-03	6.90E+01	2.03E-11	2.23E-12
EFFLUENT 20	3.68E-04	8.06E-03	7.20E+01	1.10E-11	2.35E-12
EFFLUENT 21	3.00E-04	8.36E-03	7.60E+01	4.32E-12	2.39E-12
EFFLUENT 22	5.79E-04	8.94E-03	8.00E+01	1.70E-11	2.60E-12
EFFLUENT 23	3.07E-04	9.24E-03	8.40E+01	5.02E-12	2.65E-12
EFFLUENT 24	1.83E-04	9.43E-03	8.70E+01	3.31E-12	2.66E-12
EFFLUENT 26	4.53E-04	9.88E-03	9.40E+01	3.94E-12	2.70E-12
EFFLUENT 28	5.40E-04	1.04E-02	1.00E+02	8.16E-12	2.82E-12
EFFLUENT 30	1.44E-04	1.06E-02	1.07E+02	4.58E-13	2.71E-12
EFFLUENT 32	1.59E-04	1.07E-02	1.15E+02	4.59E-13	2.60E-12
EFFLUENT 34	7.49E-05	1.08E-02	1.21E+02	1.91E-13	2.51E-12
EFFLUENT 36	1.52E-04	1.09E-02	1.28E+02	6.12E-13	2.44E-12
EFFLUENT 39	3.92E-04	1.13E-02	1.42E+02	1.10E-12	2.36E-12
EFFLUENT 41	1.29E-04	1.15E-02	1.49E+02	5.10E-13	2.30E-12
EFFLUENT 43	1.01E-04	1.16E-02	1.60E+02	1.36E-13	2.18E-12
EFFLUENT 45	7.04E-05	1.16E-02	1.72E+02	5.94E-14	2.05E-12
EFFLUENT 47	3.18E-05	1.17E-02	1.81E+02	2.30E-14	1.96E-12
EFFLUENT 49	1.36E-04	1.18E-02	2.21E+02	2.41E-14	1.64E-12
EFFLUENT 50	3.85E-05	1.18E-02	2.51E+02	4.04E-15	1.45E-12

TABLE B.11e. Boron (as H3BO3) Leach Fractions from Flow Through Test Grout/Sediment with Groundwater (DIFCOLT2)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	6.90E-03	6.90E-03	3.00E+00	4.13E-11	4.13E-11
EFFLUENT 2	2.26E-03	9.17E-03	6.00E+00	2.59E-11	3.64E-11
EFFLUENT 3	2.06E-03	1.12E-02	9.00E+00	3.64E-11	3.64E-11
EFFLUENT 4	1.77E-03	1.30E-02	1.30E+01	2.23E-11	3.38E-11
EFFLUENT 5	9.63E-04	1.40E-02	1.70E+01	9.01E-12	2.98E-11
EFFLUENT 6	7.16E-04	1.47E-02	2.00E+01	1.10E-11	2.80E-11
EFFLUENT 7	8.96E-04	1.56E-02	2.30E+01	1.99E-11	2.74E-11
EFFLUENT 8	9.99E-04	1.66E-02	2.70E+01	1.62E-11	2.65E-11
EFFLUENT 9	6.92E-04	1.73E-02	3.00E+01	1.58E-11	2.58E-11
EFFLUENT 10	6.95E-04	1.80E-02	3.40E+01	1.00E-11	2.47E-11
EFFLUENT 11	4.68E-04	1.84E-02	3.70E+01	8.99E-12	2.39E-11
EFFLUENT 12	5.77E-04	1.90E-02	4.10E+01	8.43E-12	2.29E-11
EFFLUENT 13	3.77E-04	1.94E-02	4.40E+01	7.00E-12	2.22E-11
COLUMN T2					
EFFLUENT 16	1.52E-03	2.09E-02	5.80E+01	6.20E-12	1.96E-11
EFFLUENT 17	8.46E-04	2.17E-02	6.20E+01	2.79E-11	1.98E-11
EFFLUENT 18	3.89E-04	2.21E-02	6.50E+01	1.11E-11	1.94E-11
EFFLUENT 19	9.36E-04	2.31E-02	6.90E+01	3.82E-11	2.01E-11
EFFLUENT 20	4.97E-04	2.36E-02	7.20E+01	2.01E-11	2.01E-11
EFFLUENT 21	5.65E-04	2.41E-02	7.60E+01	1.54E-11	1.99E-11
EFFLUENT 22	8.75E-04	2.50E-02	8.00E+01	3.88E-11	2.03E-11
EFFLUENT 23	5.27E-04	2.55E-02	8.40E+01	1.48E-11	2.02E-11
EFFLUENT 24	4.50E-04	2.60E-02	8.70E+01	2.00E-11	2.02E-11
EFFLUENT 26	9.23E-04	2.69E-02	9.40E+01	1.64E-11	2.00E-11
EFFLUENT 28	1.09E-03	2.80E-02	1.00E+02	3.35E-11	2.04E-11
EFFLUENT 30	6.15E-04	2.86E-02	1.07E+02	8.32E-12	1.99E-11
EFFLUENT 32	8.14E-04	2.94E-02	1.15E+02	1.19E-11	1.96E-11
EFFLUENT 34	4.72E-04	2.99E-02	1.21E+02	7.59E-12	1.92E-11
EFFLUENT 36	1.02E-03	3.09E-02	1.28E+02	2.75E-11	1.94E-11
EFFLUENT 39	1.45E-03	3.24E-02	1.42E+02	1.51E-11	1.92E-11
EFFLUENT 41	6.55E-04	3.30E-02	1.49E+02	1.33E-11	1.90E-11
EFFLUENT 43	6.92E-04	3.37E-02	1.60E+02	6.36E-12	1.85E-11
EFFLUENT 45	9.66E-04	3.47E-02	1.72E+02	1.17E-11	1.82E-11
EFFLUENT 47	7.84E-04	3.55E-02	1.81E+02	1.40E-11	1.81E-11
EFFLUENT 49	2.96E-03	3.84E-02	2.21E+02	1.14E-11	1.74E-11
EFFLUENT 50	2.90E-03	4.13E-02	2.51E+02	2.29E-11	1.77E-11

TABLE B.11f. Fluoride (F) Leach Fractions from Flow Through Test Grout/Sediment with Groundwater (DFCOLT2A)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	7.05E-04	7.05E-04	3.00E+00	5.23E-13	5.23E-13
EFFLUENT 2	4.61E-04	1.17E-03	6.00E+00	1.30E-12	7.15E-13
EFFLUENT 3	4.96E-04	1.66E-03	9.00E+00	2.56E-12	9.69E-13
EFFLUENT 4	1.07E-03	2.73E-03	1.30E+01	9.76E-12	1.81E-12
EFFLUENT 5	3.68E-04	3.10E-03	1.70E+01	1.60E-12	1.78E-12
EFFLUENT 6	2.55E-04	3.35E-03	2.00E+01	1.68E-12	1.77E-12
EFFLUENT 7	3.21E-04	3.67E-03	2.30E+01	3.11E-12	1.85E-12
EFFLUENT 8	4.57E-04	4.13E-03	2.70E+01	4.11E-12	1.99E-12
EFFLUENT 9	2.68E-04	4.40E-03	3.00E+01	2.86E-12	2.03E-12
EFFLUENT 10	3.51E-04	4.75E-03	3.40E+01	3.10E-12	2.09E-12
EFFLUENT 11	2.44E-04	4.99E-03	3.70E+01	2.97E-12	2.12E-12
EFFLUENT 12	3.09E-04	5.30E-03	4.10E+01	2.93E-12	2.16E-12
EFFLUENT 13	3.84E-04	5.69E-03	4.40E+01	8.76E-12	2.32E-12
COLUMN T2					
EFFLUENT 16	6.56E-04	6.34E-03	5.80E+01	1.41E-12	2.19E-12
EFFLUENT 17	5.44E-04	6.89E-03	6.20E+01	1.40E-11	2.41E-12
EFFLUENT 18	2.75E-04	7.16E-03	6.50E+01	6.74E-12	2.49E-12
EFFLUENT 19	6.35E-04	7.80E-03	6.90E+01	2.13E-11	2.78E-12
EFFLUENT 20	3.47E-04	8.14E-03	7.20E+01	1.19E-11	2.90E-12
EFFLUENT 21	3.29E-04	8.47E-03	7.60E+01	6.31E-12	2.98E-12
EFFLUENT 22	5.87E-04	9.06E-03	8.00E+01	2.12E-11	3.23E-12
EFFLUENT 23	3.93E-04	9.45E-03	8.40E+01	9.98E-12	3.35E-12
EFFLUENT 24	3.05E-04	9.76E-03	8.70E+01	1.11E-11	3.45E-12
EFFLUENT 26	8.43E-04	1.06E-02	9.40E+01	1.66E-11	3.77E-12
EFFLUENT 28	1.23E-03	1.18E-02	1.00E+02	5.17E-11	4.42E-12
EFFLUENT 30	4.90E-04	1.23E-02	1.07E+02	6.38E-12	4.48E-12
EFFLUENT 32	5.23E-04	1.28E-02	1.15E+02	5.98E-12	4.52E-12
EFFLUENT 34	2.95E-04	1.31E-02	1.21E+02	3.61E-12	4.50E-12
EFFLUENT 36	6.26E-04	1.38E-02	1.28E+02	1.25E-11	4.67E-12
EFFLUENT 39	1.47E-03	1.52E-02	1.42E+02	1.67E-11	5.15E-12
EFFLUENT 41	7.72E-04	1.60E-02	1.53E+02	9.16E-12	5.28E-12
EFFLUENT 43	8.12E-04	1.68E-02	1.60E+02	2.66E-11	5.58E-12
EFFLUENT 45	9.62E-04	1.78E-02	1.72E+02	1.35E-11	5.80E-12
EFFLUENT 47	5.57E-04	1.83E-02	1.81E+02	8.51E-12	5.86E-12
EFFLUENT 49	2.83E-03	2.12E-02	2.21E+02	1.27E-11	6.40E-12
EFFLUENT 50	1.98E-03	2.31E-02	2.51E+02	1.29E-11	6.73E-12

TABLE B.11g. Nitrate (NO3) Leach Fractions from Flow Through Test Grout/Sediment with Groundwater (DFCOLT2A)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	8.47E-02	8.47E-02	3.00E+00	7.53E-09	7.53E-09
EFFLUENT 2	1.60E-02	1.01E-01	6.00E+00	1.56E-09	5.32E-09
EFFLUENT 3	1.59E-02	1.16E-01	9.00E+00	2.62E-09	4.75E-09
EFFLUENT 4	1.39E-02	1.30E-01	1.30E+01	1.66E-09	4.12E-09
EFFLUENT 5	1.66E-02	1.47E-01	1.70E+01	3.23E-09	4.01E-09
EFFLUENT 6	7.87E-03	1.55E-01	2.00E+01	1.60E-09	3.78E-09
EFFLUENT 7	1.52E-02	1.70E-01	2.30E+01	6.94E-09	3.96E-09
EFFLUENT 8	1.07E-02	1.81E-01	2.70E+01	2.25E-09	3.81E-09
EFFLUENT 9	8.04E-03	1.89E-01	3.00E+01	2.58E-09	3.75E-09
EFFLUENT 10	9.04E-03	1.98E-01	3.40E+01	2.06E-09	3.63E-09
EFFLUENT 11	6.12E-03	2.04E-01	3.70E+01	1.86E-09	3.54E-09
EFFLUENT 12	7.78E-03	2.12E-01	4.10E+01	1.86E-09	3.59E-09
EFFLUENT 13	7.91E-03	2.20E-01	4.40E+01	3.73E-09	3.68E-09
COLUMN T2					
EFFLUENT 16	1.22E-02	2.32E-01	5.80E+01	4.84E-10	3.06E-09
EFFLUENT 17	6.03E-03	2.38E-01	6.20E+01	1.72E-09	3.28E-09
EFFLUENT 18	3.28E-03	2.41E-01	6.50E+01	9.59E-10	3.13E-09
EFFLUENT 19	7.70E-03	2.49E-01	6.90E+01	3.13E-09	3.08E-09
EFFLUENT 20	4.47E-03	2.53E-01	7.20E+01	1.97E-09	2.95E-09
EFFLUENT 21	3.84E-03	2.57E-01	7.60E+01	8.58E-10	3.05E-09
EFFLUENT 22	6.91E-03	2.64E-01	8.00E+01	2.93E-09	2.89E-09
EFFLUENT 23	5.11E-03	2.69E-01	8.40E+01	1.69E-09	3.00E-09
EFFLUENT 24	4.65E-03	2.74E-01	8.70E+01	2.59E-09	2.90E-09
EFFLUENT 26	1.29E-02	2.87E-01	9.40E+01	3.85E-09	3.14E-09
EFFLUENT 28	1.88E-02	3.05E-01	1.00E+02	1.20E-08	3.41E-09
EFFLUENT 30	1.59E-02	3.21E-01	1.07E+02	6.77E-09	3.42E-09
EFFLUENT 32	1.76E-02	3.39E-01	1.15E+02	6.81E-09	3.65E-09
EFFLUENT 34	1.41E-02	3.53E-01	1.21E+02	8.24E-09	3.70E-09
EFFLUENT 36	2.90E-02	3.82E-01	1.28E+02	2.69E-08	4.22E-09
EFFLUENT 39	6.01E-02	4.42E-01	1.42E+02	3.14E-08	5.35E-09
EFFLUENT 41	3.65E-02	4.79E-01	1.53E+02	2.05E-08	6.10E-09
EFFLUENT 43	3.83E-02	5.17E-01	1.60E+02	5.89E-08	7.12E-09
EFFLUENT 45	3.64E-02	5.53E-01	1.72E+02	1.93E-08	7.64E-09
EFFLUENT 47	6.10E-02	6.14E-01	1.81E+02	1.02E-07	9.47E-09
EFFLUENT 49	7.85E-03	6.22E-01	2.21E+02	9.74E-11	8.11E-09
EFFLUENT 50	8.11E-02	7.03E-01	2.51E+02	2.16E-06	9.97E-09

TABLE B.11h. Sulfate (SO₄) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DFCOLT2A)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.61E-01	1.61E-01	3.00E+00	2.72E-08	2.72E-08
EFFLUENT 2	1.59E-02	1.77E-01	6.00E+00	1.55E-09	1.64E-08
EFFLUENT 3	2.10E-02	1.98E-01	9.00E+00	4.60E-09	1.37E-08
EFFLUENT 4	1.28E-02	2.11E-01	1.30E+01	1.42E-09	1.13E-08
EFFLUENT 5	6.22E-03	2.17E-01	1.70E+01	4.56E-10	9.52E-09
EFFLUENT 6	9.02E-03	2.26E-01	2.00E+01	2.11E-09	8.88E-09
EFFLUENT 7	9.87E-03	2.36E-01	2.30E+01	2.93E-09	8.86E-09
EFFLUENT 8	6.92E-03	2.45E-01	2.70E+01	1.57E-09	7.54E-09
EFFLUENT 9	1.15E-02	2.56E-01	3.00E+01	5.30E-09	7.72E-09
EFFLUENT 10	6.29E-03	2.62E-01	3.40E+01	9.98E-10	6.81E-09
EFFLUENT 11	1.02E-03	2.63E-01	3.70E+01	5.20E-11	6.26E-09
EFFLUENT 12	1.34E-03	2.65E-01	4.10E+01	5.50E-11	5.65E-09
EFFLUENT 13	6.61E-03	2.71E-01	4.40E+01	2.60E-09	5.74E-09

COLUMN T2					
EFFLUENT 16	1.87E-03	2.73E-01	5.80E+01	1.15E-11	4.35E-09
EFFLUENT 17	0.00E+00	2.73E-01	6.20E+01	0.00E+00	4.07E-09
EFFLUENT 18	0.00E+00	2.73E-01	6.50E+01	0.00E+00	3.98E-09
EFFLUENT 19	1.23E-02	2.85E-01	6.90E+01	7.96E-09	4.28E-09
EFFLUENT 20	3.11E-03	2.89E-01	7.20E+01	9.54E-10	4.10E-09
EFFLUENT 21	1.24E-02	3.01E-01	7.60E+01	8.96E-09	4.18E-09
EFFLUENT 22	5.94E-03	3.07E-01	8.00E+01	2.17E-09	4.26E-09
EFFLUENT 23	3.74E-03	3.11E-01	8.40E+01	9.03E-10	4.06E-09
EFFLUENT 24	7.05E-03	3.18E-01	8.70E+01	5.95E-09	4.21E-09
EFFLUENT 26	1.95E-02	3.37E-01	9.40E+01	8.85E-09	4.46E-09
EFFLUENT 28	2.85E-02	3.66E-01	1.00E+02	2.77E-08	5.08E-09
EFFLUENT 30	9.91E-04	3.67E-01	1.07E+02	2.62E-11	4.75E-09
EFFLUENT 32	0.00E+00	3.67E-01	1.15E+02	0.00E+00	4.42E-09
EFFLUENT 34	6.58E-03	3.73E-01	1.21E+02	1.79E-09	4.20E-09

TABLE B.11i. Technetium-99 (TC-99) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (T1)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW T1-1	1.44E+00	1.55E-02	3.00E+00	8.46E-03	8.46E-03	6.69E-11	6.69E-11
CRW T1-2	2.91E+00	3.68E-03	6.00E+00	2.01E-03	1.05E-02	4.40E-11	5.12E-11
CRW T1-3	4.49E+00	4.50E-03	9.00E+00	2.45E-03	1.29E-02	6.56E-11	5.20E-11
CRW T1-4	6.66E+00	3.97E-03	1.30E+01	2.17E-03	1.51E-02	3.42E-11	4.91E-11
CRW T1-5	8.47E+00	2.67E-03	1.70E+01	1.46E-03	1.65E-02	1.74E-11	4.51E-11
CRW T1-6	9.65E+00	2.04E-03	2.00E+01	1.11E-03	1.77E-02	1.53E-11	4.37E-11
CRW T1-7	1.15E+01	2.21E-03	2.30E+01	1.20E-03	1.89E-02	1.58E-11	4.34E-11
CRW T1-8	1.41E+01	2.49E-03	2.70E+01	1.36E-03	2.02E-02	1.35E-11	4.25E-11
CRW T1-9	1.60E+01	1.78E-03	3.00E+01	9.70E-04	2.12E-02	1.16E-11	4.20E-11
CRW T1-10	1.86E+01	1.97E-03	3.40E+01	1.08E-03	2.23E-02	8.43E-12	4.09E-11
CRW T1-11	2.06E+01	2.91E-03	3.70E+01	1.59E-03	2.39E-02	3.10E-11	4.31E-11
CRW T1-12	2.34E+01	6.63E-03	4.10E+01	3.62E-03	2.75E-02	9.53E-11	5.16E-11
CRW T1-13	2.53E+01	4.30E-03	4.40E+01	2.34E-03	2.98E-02	6.78E-11	5.66E-11

TABLE B.11i. Technetium-99 (TC-99) Leach Fractions from Flow Through Test
Grout/Sediment (T2)

SAMPLE	PORE VOLUME	UCI	TIME DAYS	An/Ao	CUM An/Ao	DINC	CM2/SEC	DCUM	CM2/SEC
CRW T2-1	8.97E-01	7.67E-02	3.00E+00	4.20E-02	4.20E-02		1.53E-09		1.53E-09
CRW T2-2	1.85E+00	2.46E-02	6.00E+00	1.35E-02	5.55E-02		1.84E-09		1.34E-09
CRW T2-3	3.35E+00	3.94E-02	9.00E+00	2.16E-02	7.70E-02		4.72E-09		1.72E-09
CRW T2-4	5.68E+00	3.07E-02	1.30E+01	1.68E-02	9.39E-02		1.92E-09		1.77E-09
CRW T2-5	6.37E+00	6.74E-03	1.70E+01	3.69E-03	9.75E-02		1.03E-10		1.46E-09
CRW T2-6	7.36E+00	1.15E-02	2.00E+01	6.28E-03	1.04E-01		4.52E-10		1.41E-09
CRW T2-7	8.88E+00	1.60E-02	2.30E+01	8.74E-03	1.13E-01		7.74E-10		1.44E-09
CRW T2-8	1.09E+01	1.28E-02	2.70E+01	6.99E-03	1.20E-01		3.31E-10		1.38E-09
CRW T2-9	1.23E+01	1.33E-02	3.00E+01	7.26E-03	1.27E-01		6.05E-10		1.40E-09
CRW T2-10	1.42E+01	1.38E-02	3.40E+01	7.55E-03	1.34E-01		3.86E-10		1.38E-09
CRW T2-11	1.57E+01	1.15E-03	3.70E+01	6.29E-04	1.35E-01		4.54E-12		1.28E-09
CRW T2-12	1.76E+01	1.20E-03	4.10E+01	6.59E-04	1.36E-01		2.94E-12		1.17E-09
CRW T2-13	1.92E+01	2.93E-03	4.40E+01	1.60E-03	1.37E-01		2.95E-11		1.12E-09
CRW T2-14	2.18E+01	3.85E-03	4.90E+01	2.11E-03	1.39E-01		2.22E-11		1.03E-09
CRW T2-15	2.37E+01	1.97E-03	5.20E+01	1.08E-03	1.40E-01		1.47E-11		9.69E-10
CRW T2-16	2.73E+01	3.83E-03	5.80E+01	2.10E-03	1.43E-01		1.72E-11		9.13E-10
CRW T2-17	3.14E+01	4.79E-03	6.20E+01	2.62E-03	1.45E-01		6.24E-11		8.86E-10
CRW T2-18	3.33E+01	9.88E-04	6.50E+01	5.41E-04	1.46E-01		3.36E-12		8.52E-10
CRW T2-19	3.71E+01	2.36E-03	6.90E+01	1.29E-03	1.47E-01		1.13E-11		8.17E-10
CRW T2-20	3.91E+01	1.43E-03	7.20E+01	7.81E-04	1.48E-01		7.01E-12		7.91E-10
CRW T2-21	4.18E+01	2.50E-03	7.60E+01	1.37E-03	1.49E-01		1.27E-11		7.63E-10
CRW T2-22	4.63E+01	5.05E-03	8.10E+01	2.76E-03	1.52E-01		4.25E-11		7.43E-10
CRW T2-23	4.92E+01	1.46E-03	8.40E+01	8.01E-04	1.53E-01		8.17E-12		7.24E-10
CRW T2-24	5.10E+01	1.20E-03	8.70E+01	6.60E-04	1.53E-01		4.41E-12		7.05E-10
CRW T2-25	5.35E+01	1.52E-03	9.10E+01	8.34E-04	1.54E-01		4.72E-12		6.81E-10
CRW T2-26	5.63E+01	1.06E-03	9.40E+01	5.81E-04	1.55E-01		3.87E-12		6.65E-10
CRW T2-27	6.02E+01	1.21E-03	9.70E+01	6.64E-04	1.55E-01		4.47E-12		6.50E-10
CRW T2-28	6.41E+01	6.88E-04	1.00E+02	3.77E-04	1.56E-01		1.44E-12		6.33E-10
CRW T2-29	6.59E+01	5.49E-04	1.04E+02	3.01E-04	1.56E-01		6.12E-13		6.11E-10
CRW T2-30	6.78E+01	1.35E-03	1.07E+02	7.41E-04	1.57E-01		6.29E-12		6.00E-10
CRW T2-31	7.08E+01	8.63E-04	1.11E+02	4.72E-04	1.57E-01		1.51E-12		5.82E-10
CRW T2-32	7.23E+01	7.76E-04	1.15E+02	4.25E-04	1.58E-01		1.37E-12		5.64E-10
CRW T2-33	7.41E+01	8.44E-04	1.18E+02	4.62E-04	1.58E-01		2.45E-12		5.53E-10
CRW T2-34	7.46E+01	6.47E-04	1.21E+02	3.54E-04	1.59E-01		1.27E-12		5.42E-10
CRW T2-35	7.70E+01	1.53E-03	1.25E+02	8.36E-04	1.59E-01		4.76E-12		5.30E-10
CRW T2-36	7.92E+01	8.49E-04	1.28E+02	4.65E-04	1.60E-01		2.49E-12		5.21E-10
CRW T2-37	8.23E+01	7.45E-04	1.32E+02	4.08E-04	1.60E-01		1.13E-12		5.08E-10
CRW T2-38	8.68E+01	1.61E-03	1.39E+02	8.61E-04	1.61E-01		2.72E-12		4.97E-10
CRW T2-39	9.02E+01	5.59E-04	1.42E+02	3.06E-04	1.61E-01		1.41E-12		4.79E-10
CRW T2-40	9.29E+01	2.94E-04	1.46E+02	1.61E-04	1.62E-01		1.76E-13		4.67E-10
CRW T2-41	9.55E+01	4.83E-04	1.49E+02	2.65E-04	1.62E-01		8.04E-13		4.59E-10
CRW T2-42	9.95E+01	5.20E-04	1.57E+02	2.85E-04	1.62E-01		2.17E-13		4.37E-10
CRW T2-43	1.02E+02	4.22E-04	1.60E+02	2.31E-04	1.62E-01		6.62E-13		4.30E-10
CRW T2-44	1.04E+02	4.50E-04	1.63E+02	2.47E-04	1.63E-01		6.16E-13		4.23E-10
CRW T2-45	1.06E+02	1.21E-03	1.72E+02	6.62E-04	1.63E-01		1.01E-12		4.04E-10
CRW T2-46	1.08E+02	9.18E-05	1.78E+02	5.02E-05	1.63E-01		1.53E-14		3.91E-10
CRW T2-47	1.11E+02	6.07E-04	1.81E+02	4.42E-04	1.64E-01		2.71E-12		3.87E-10
CRW T2-48	1.14E+02	5.20E-04	1.85E+02	2.85E-04	1.64E-01		5.49E-13		3.80E-10
CRW T2-49	1.34E+02	3.35E-03	1.89E+02	1.85E-03	1.64E-01		2.61E-11		3.60E-10
CRW T2-50	1.52E+02	3.70E-03	2.21E+02	2.02E-03	1.66E-01		2.09E-12		3.33E-10

TABLE B.12a. Potassium (K) Leach Fractions from Flow Through Test Whole Grout with Groundwater (DFCOL3AC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.94E-02	1.94E-02	3.00E+00	4.18E-10	4.18E-10
EFFLUENT 2	2.05E-02	3.99E-02	9.00E+00	8.72E-10	5.90E-10
EFFLUENT 3	4.92E-02	8.90E-02	1.60E+01	8.07E-09	1.65E-09
EFFLUENT 4	1.13E-01	2.02E-01	1.90E+01	3.31E-07	7.18E-09
EFFLUENT 5	1.14E-01	3.16E-01	2.50E+01	1.05E-07	1.47E-08
EFFLUENT 6	2.35E-02	3.39E-01	2.90E+01	1.24E-08	1.45E-08
EFFLUENT 7	8.17E-03	3.47E-01	3.20E+01	3.02E-09	1.40E-08
EFFLUENT 9	2.24E-02	3.70E-01	3.90E+01	4.85E-09	1.30E-08
EFFLUENT 11	3.73E-02	4.07E-01	4.50E+01	2.16E-08	1.43E-08
EFFLUENT 13	3.10E-02	4.38E-01	5.20E+01	1.27E-08	1.46E-08
EFFLUENT 15	3.07E-02	4.69E-01	6.00E+01	1.10E-08	1.49E-08
EFFLUENT 17	4.01E-03	4.73E-01	6.70E+01	2.78E-10	1.33E-08
EFFLUENT 19	4.08E-03	4.77E-01	7.30E+01	4.33E-10	1.28E-08
EFFLUENT 22	1.51E-02	4.92E-01	8.70E+01	1.24E-09	1.13E-08
EFFLUENT 24	4.27E-03	4.96E-01	9.40E+01	4.50E-10	1.10E-08
EFFLUENT 26	1.50E-02	5.11E-01	1.01E+02	6.01E-09	1.07E-08
EFFLUENT 28	1.35E-02	5.25E-01	1.13E+02	1.81E-09	1.01E-08
EFFLUENT 30	3.10E-03	5.28E-01	1.22E+02	1.86E-10	9.80E-09
EFFLUENT 32	5.90E-03	5.34E-01	1.58E+02	5.00E-11	7.57E-09
EFFLUENT 33	0.00E+00	5.34E-01	1.88E+02	0.00E+00	6.36E-09

TABLE B.12b. Sodium (Na) Leach Fractions from Flow Through Test Whole Grout with Groundwater (DFCOL3AC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	2.99E-02	2.99E-02	3.00E+00	9.94E-10	9.94E-10
EFFLUENT 2	3.03E-02	6.02E-02	9.00E+00	1.91E-09	1.34E-09
EFFLUENT 3	7.28E-02	1.33E-01	1.60E+01	1.77E-08	3.69E-09
EFFLUENT 4	1.67E-01	3.00E-01	1.90E+01	7.26E-07	1.67E-08
EFFLUENT 5	1.68E-01	4.67E-01	2.50E+01	2.31E-07	3.57E-08
EFFLUENT 6	3.74E-02	5.06E-01	2.90E+01	3.15E-08	3.73E-08
EFFLUENT 7	1.38E-02	5.20E-01	3.20E+01	8.60E-09	3.56E-08
EFFLUENT 9	3.80E-02	5.58E-01	3.90E+01	1.39E-08	3.50E-08
EFFLUENT 11	6.22E-02	6.20E-01	4.50E+01	6.02E-08	3.98E-08
EFFLUENT 13	2.07E-02	6.41E-01	5.20E+01	5.68E-09	3.75E-08
EFFLUENT 15	1.84E-02	6.59E-01	6.00E+01	3.95E-09	3.54E-08
EFFLUENT 17	1.36E-02	6.73E-01	6.70E+01	3.27E-09	3.30E-08
EFFLUENT 19	1.27E-02	6.86E-01	7.30E+01	4.17E-09	3.29E-08
EFFLUENT 22	2.12E-02	7.07E-01	8.70E+01	2.46E-09	3.00E-08
EFFLUENT 24	6.68E-03	7.14E-01	9.40E+01	1.10E-09	2.78E-08
EFFLUENT 26	2.04E-02	7.34E-01	1.01E+02	1.10E-08	2.80E-08
EFFLUENT 28	1.93E-02	7.53E-01	1.13E+02	3.69E-09	2.73E-08
EFFLUENT 30	1.08E-02	7.64E-01	1.22E+02	2.26E-09	2.63E-08
EFFLUENT 32	1.20E-02	7.76E-01	1.58E+02	2.06E-10	2.21E-08
EFFLUENT 33	7.72E-03	7.84E-01	1.88E+02	1.53E-10	1.26E-08

TABLE B.12e. Boron (as H3BO3) Leach Fractions from Flow Through Test Whole Grout with Groundwater (DFCOL3AA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	3.34E-03	3.34E-03	3.00E+00	1.24E-11	1.24E-11
EFFLUENT 2	1.70E-03	5.04E-03	9.00E+00	5.98E-12	9.41E-12
EFFLUENT 3	4.62E-03	9.66E-03	1.60E+01	7.13E-11	1.95E-11
EFFLUENT 4	1.06E-02	2.03E-02	1.90E+01	2.93E-09	7.23E-11
EFFLUENT 5	1.19E-02	3.22E-02	2.50E+01	1.15E-09	1.38E-10
EFFLUENT 6	2.11E-03	3.43E-02	2.90E+01	1.00E-10	1.35E-10
EFFLUENT 7	8.63E-04	3.52E-02	3.20E+01	3.37E-11	1.29E-10
EFFLUENT 9	1.92E-03	3.71E-02	3.90E+01	3.54E-11	1.18E-10
EFFLUENT 11	3.44E-03	4.05E-02	4.50E+01	1.85E-10	1.22E-10
EFFLUENT 13	9.23E-04	4.14E-02	5.20E+01	1.13E-11	1.10E-10
EFFLUENT 15	9.78E-04	4.24E-02	6.00E+01	1.12E-11	1.00E-10
EFFLUENT 17	1.02E-03	4.34E-02	6.70E+01	1.80E-11	9.40E-11
EFFLUENT 19	6.45E-04	4.41E-02	7.30E+01	1.08E-11	8.89E-11
EFFLUENT 22	1.24E-03	4.53E-02	8.70E+01	8.32E-12	7.88E-11
EFFLUENT 24	3.41E-04	4.57E-02	9.40E+01	2.87E-12	7.41E-11
EFFLUENT 26	9.20E-04	4.66E-02	1.01E+02	2.25E-11	7.17E-11
EFFLUENT 28	1.00E-03	4.76E-02	1.13E+02	9.95E-12	6.69E-11
EFFLUENT 30	1.63E-03	4.92E-02	1.22E+02	5.17E-11	6.63E-11
EFFLUENT 32	2.14E-03	5.14E-02	1.58E+02	6.55E-12	5.57E-11
EFFLUENT 33	1.70E-03	5.31E-02	1.88E+02	7.44E-12	5.00E-11

TABLE B.12f. Fluoride (F) Leach Fractions from Flow Through Test Whole Grout with Groundwater (DFCOL3AA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	7.81E-04	7.81E-04	3.00E+00	6.79E-13	6.79E-13
EFFLUENT 2	7.88E-04	1.57E-03	9.00E+00	1.29E-12	9.13E-13
EFFLUENT 3	1.57E-03	3.14E-03	1.60E+01	8.22E-12	2.05E-12
EFFLUENT 4	3.61E-03	6.75E-03	1.90E+01	3.37E-10	8.00E-12
EFFLUENT 5	2.92E-03	9.67E-03	2.50E+01	6.95E-11	1.25E-11
EFFLUENT 6	7.96E-04	1.05E-02	2.90E+01	1.43E-11	1.26E-11
EFFLUENT 7	5.40E-04	1.10E-02	3.20E+01	1.32E-11	1.26E-11
EFFLUENT 9	1.54E-03	1.25E-02	3.90E+01	2.29E-11	1.35E-11
EFFLUENT 11	2.32E-03	1.49E-02	4.50E+01	8.39E-11	1.64E-11
EFFLUENT 13	1.50E-03	1.64E-02	5.20E+01	2.96E-11	1.72E-11
EFFLUENT 15	1.55E-03	1.79E-02	6.00E+01	2.79E-11	1.79E-11
EFFLUENT 17	1.00E-03	1.89E-02	6.70E+01	1.73E-11	1.78E-11
EFFLUENT 19	9.77E-04	1.99E-02	7.30E+01	2.48E-11	1.81E-11
EFFLUENT 22	1.41E-03	2.13E-02	8.70E+01	1.08E-11	1.74E-11
EFFLUENT 24	4.75E-04	2.18E-02	9.40E+01	5.57E-12	1.69E-11
EFFLUENT 26	1.64E-03	2.34E-02	1.01E+02	7.18E-11	1.81E-11
EFFLUENT 28	2.21E-03	2.56E-02	1.13E+02	4.83E-11	1.74E-11
EFFLUENT 30	2.63E-03	2.83E-02	1.22E+02	1.34E-10	2.19E-11
EFFLUENT 32	3.43E-03	3.17E-02	1.58E+02	1.69E-11	2.12E-11
EFFLUENT 33	1.82E-03	3.35E-02	1.88E+02	8.46E-12	1.99E-11

TABLE B.12g. Nitrate (NO₃) Leach Fractions from Flow Through Test Whole Grout with Groundwater (DFCOL3AA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.77E-02	1.77E-02	3.00E+00	3.50E-10	3.50E-10
EFFLUENT 2	1.81E-02	3.58E-02	9.00E+00	6.78E-10	4.76E-10
EFFLUENT 3	4.41E-02	7.99E-02	1.60E+01	6.49E-09	1.33E-09
EFFLUENT 4	1.01E-01	1.81E-01	1.90E+01	2.66E-07	5.77E-09
EFFLUENT 5	1.04E-01	2.85E-01	2.50E+01	8.71E-08	1.09E-08
EFFLUENT 6	1.80E-02	3.03E-01	2.90E+01	7.31E-09	1.10E-08
EFFLUENT 7	7.73E-03	3.11E-01	3.20E+01	2.70E-09	1.07E-08
EFFLUENT 9	1.88E-02	3.29E-01	3.90E+01	3.42E-09	1.01E-08
EFFLUENT 11	3.53E-02	3.65E-01	4.50E+01	1.94E-08	1.06E-08
EFFLUENT 13	1.07E-02	3.75E-01	5.20E+01	1.52E-09	1.04E-08
EFFLUENT 15	9.90E-03	3.85E-01	6.00E+01	1.14E-09	9.56E-09
EFFLUENT 17	1.02E-02	3.95E-01	6.70E+01	1.78E-09	9.08E-09
EFFLUENT 19	8.31E-03	4.04E-01	7.30E+01	1.79E-09	8.33E-09
EFFLUENT 22	1.78E-02	4.22E-01	8.70E+01	1.72E-09	7.83E-09
EFFLUENT 24	5.46E-03	4.27E-01	9.40E+01	7.34E-10	7.56E-09
EFFLUENT 26	1.69E-02	4.44E-01	1.01E+02	7.57E-09	7.52E-09
EFFLUENT 28	1.28E-02	4.57E-01	1.13E+02	1.63E-09	7.46E-09
EFFLUENT 30	1.22E-02	4.69E-01	1.22E+02	2.87E-09	7.31E-09
EFFLUENT 32	2.74E-02	4.96E-01	1.58E+02	1.08E-09	6.53E-09
EFFLUENT 33	7.54E-03	5.04E-01	1.88E+02	1.46E-10	5.49E-09

TABLE B.12i. Technetium-99 (TC-99) Leach Fractions from Flow Through Test Grout with Groundwater (3A)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
LT3A-1	1.06E+00	5.28E-03	3.00E+00	2.95E-03	2.95E-03	9.72E-12	9.72E-12
LT3A-2	1.70E+00	1.06E-03	9.00E+00	5.93E-04	3.55E-03	1.76E-12	4.67E-12
LT3A-3	3.18E+00	8.90E-03	1.60E+01	4.98E-03	8.53E-03	1.30E-10	1.52E-11
LT3A-4	6.60E+00	2.35E-02	2.00E+01	1.32E-02	2.17E-02	2.17E-09	7.86E-11
LT3A-5	9.94E+00	4.31E-02	2.50E+01	2.41E-02	4.58E-02	4.14E-09	2.80E-10
LT3A-6	1.24E+01	3.10E-03	2.90E+01	1.73E-03	4.75E-02	3.22E-11	2.60E-10
LT3A-7	1.39E+01	1.69E-03	3.20E+01	9.47E-04	4.85E-02	1.32E-11	2.45E-10
LT3A-8	1.65E+01	4.17E-03	3.60E+01	2.33E-03	5.08E-02	4.73E-11	2.40E-10
LT3A-9	1.89E+01	3.08E-03	3.90E+01	1.72E-03	5.25E-02	4.36E-11	2.36E-10
LT3A-10	2.24E+01	3.12E-03	4.20E+01	1.75E-03	5.43E-02	3.96E-11	2.34E-10
LT3A-11	2.49E+01	1.79E-03	4.50E+01	1.00E-03	5.53E-02	1.30E-11	2.27E-10
LT3A-12	2.83E+01	1.30E-03	4.90E+01	7.28E-04	5.60E-02	4.60E-12	2.14E-10
LT3A-13	3.04E+01	1.62E-03	5.20E+01	9.09E-04	5.69E-02	1.21E-11	2.08E-10
LT3A-14	3.45E+01	3.38E-03	5.60E+01	1.89E-03	5.88E-02	3.10E-11	2.06E-10
LT3A-15	3.59E+01	7.92E-04	6.00E+01	4.43E-04	5.93E-02	1.91E-12	1.96E-10
LT3A-16	3.75E+01	1.26E-03	6.30E+01	7.04E-04	6.00E-02	7.28E-12	1.91E-10
LT3A-17	3.89E+01	1.46E-03	6.60E+01	8.17E-04	6.08E-02	8.67E-12	1.87E-10
LT3A-18	4.10E+01	2.71E-03	7.00E+01	1.52E-03	6.23E-02	2.00E-11	1.85E-10
LT3A-19	4.23E+01	6.32E-04	7.30E+01	3.54E-04	6.27E-02	1.84E-12	1.80E-10
LT3A-20	4.32E+01	1.57E-03	7.70E+01	8.79E-04	6.35E-02	6.71E-12	1.75E-10
LT3A-21	4.59E+01	3.15E-03	8.40E+01	1.76E-03	6.53E-02	1.39E-11	1.70E-10
LT3A-22	4.73E+01	1.43E-03	8.70E+01	7.97E-04	6.61E-02	1.23E-11	1.68E-10
LT3A-23	4.83E+01	7.47E-04	9.10E+01	4.18E-04	6.65E-02	1.52E-12	1.62E-10
LT3A-24	4.86E+01	4.90E-04	9.40E+01	2.74E-04	6.68E-02	1.11E-12	1.58E-10
LT3A-25	5.21E+01	3.21E-03	9.80E+01	1.79E-03	6.86E-02	2.79E-11	1.60E-10
LT3A-26	5.46E+01	1.10E-03	1.01E+02	6.13E-04	6.92E-02	5.53E-12	1.58E-10
LT3A-27	5.71E+01	1.01E-03	1.04E+02	5.66E-04	6.98E-02	4.16E-12	1.56E-10
LT3A-28	6.48E+01	1.07E-02	1.13E+02	5.97E-03	7.57E-02	1.05E-10	1.70E-10
LT3A-29	7.04E+01	1.64E-03	1.19E+02	9.17E-04	7.66E-02	6.52E-12	1.65E-10
LT3A-30	7.33E+01	9.18E-04	1.22E+02	5.13E-04	7.72E-02	4.70E-12	1.63E-10
LT3A-31	7.69E+01	1.28E-03	1.26E+02	7.15E-04	7.79E-02	4.44E-12	1.61E-10
LT3A-32	8.96E+01	2.31E-03	1.58E+02	1.29E-03	7.92E-02	1.09E-12	1.33E-10
LT3A-33	1.04E+02	6.84E-03	1.88E+02	3.83E-03	8.30E-02	1.95E-11	1.22E-10

TABLE B.12i. Technetium-99 (TC-99) Leach Fractions from Flow Through Test,
Grout with Groundwater (3B)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
LT3B-1	1.89E+00	1.31E-03	3.00E+00	7.01E-04	7.01E-04	5.21E-13	5.21E-13
LT3B-2	3.66E+00	2.11E-03	6.00E+00	1.13E-03	1.83E-03	1.57E-11	1.77E-12
LT3B-3	4.62E+00	1.62E-03	9.00E+00	8.69E-04	2.70E-03	9.32E-12	2.57E-12
LT3B-4	7.10E+00	4.79E-03	1.30E+01	2.56E-03	5.26E-03	5.41E-11	6.75E-12
LT3B-5	9.11E+00	2.82E-03	1.60E+01	1.51E-03	6.77E-03	3.19E-11	9.09E-12
LT3B-6	1.19E+01	3.30E-03	2.00E+01	1.77E-03	8.53E-03	2.57E-11	1.16E-11
LT3B-7	1.51E+01	3.77E-03	2.50E+01	2.01E-03	1.05E-02	2.75E-11	1.41E-11
LT3B-8	1.75E+01	2.96E-03	2.90E+01	1.58E-03	1.21E-02	2.54E-11	1.61E-11
LT3B-9	1.86E+01	2.08E-03	3.20E+01	1.11E-03	1.32E-02	1.73E-11	1.74E-11
LT3B-10	2.12E+01	3.32E-03	3.60E+01	1.77E-03	1.50E-02	2.60E-11	1.99E-11
LT3B-11	2.36E+01	2.59E-03	3.90E+01	1.38E-03	1.64E-02	2.68E-11	2.19E-11
LT3B-12	2.70E+01	2.59E-03	4.20E+01	1.39E-03	1.78E-02	2.38E-11	2.39E-11
LT3B-13	2.94E+01	1.26E-03	4.50E+01	6.75E-04	1.85E-02	5.61E-12	2.40E-11
LT3B-14	3.28E+01	2.93E-03	4.90E+01	1.57E-03	2.00E-02	2.03E-11	2.60E-11
LT3B-15	3.50E+01	2.01E-03	5.20E+01	1.07E-03	2.11E-02	1.61E-11	2.72E-11
LT3B-16	3.89E+01	2.88E-03	5.60E+01	1.54E-03	2.26E-02	1.96E-11	2.91E-11
LT3B-17	4.04E+01	1.15E-03	6.00E+01	6.14E-04	2.33E-02	3.49E-12	2.86E-11
LT3B-18	4.19E+01	1.86E-03	6.30E+01	9.94E-04	2.42E-02	1.38E-11	2.96E-11
LT3B-19	4.33E+01	2.04E-03	6.60E+01	1.09E-03	2.53E-02	1.47E-11	3.09E-11
LT3B-20	4.55E+01	1.73E-03	7.00E+01	9.27E-04	2.63E-02	7.10E-12	3.13E-11
LT3B-21	4.64E+01	8.97E-04	7.30E+01	4.80E-04	2.67E-02	3.21E-12	3.11E-11
LT3B-22	4.73E+01	9.98E-04	7.70E+01	5.34E-04	2.73E-02	2.35E-12	3.07E-11
LT3B-23	5.12E+01	3.91E-03	8.20E+01	2.09E-03	2.94E-02	2.96E-11	3.34E-11
LT3B-24	5.39E+01	1.52E-03	8.50E+01	8.10E-04	3.02E-02	1.02E-11	3.40E-11
LT3B-25	5.65E+01	1.61E-03	8.90E+01	8.62E-04	3.10E-02	6.14E-12	3.44E-11
LT3B-26	5.80E+01	1.29E-03	9.20E+01	6.90E-04	3.17E-02	6.65E-12	3.48E-11
LT3B-27	6.02E+01	1.44E-03	9.60E+01	7.70E-04	3.25E-02	4.89E-12	3.49E-11
LT3B-28	6.11E+01	3.12E-03	9.90E+01	1.67E-03	3.42E-02	3.89E-11	3.75E-11
LT3B-29	6.19E+01	2.17E-03	1.02E+02	1.16E-03	3.53E-02	1.66E-11	3.89E-11
LT3B-30	6.51E+01	3.24E-03	1.11E+02	1.73E-03	3.71E-02	8.38E-12	3.93E-11
LT3B-31	6.78E+01	1.62E-03	1.17E+02	8.65E-04	3.79E-02	5.51E-12	3.90E-11
LT3B-32	6.87E+01	1.92E-03	1.20E+02	1.03E-03	3.90E-02	1.78E-11	4.02E-11
LT3B-33	7.04E+01	2.05E-03	1.24E+02	1.10E-03	4.01E-02	9.93E-12	4.11E-11
LT3B-34	8.32E+01	5.17E-04	1.52E+02	2.76E-04	4.03E-02	5.57E-14	3.40E-11
LT3B-35	1.08E+02	6.35E-04	1.82E+02	3.40E-04	4.07E-02	1.38E-13	2.65E-11

TABLE B.13a. Potassium (K) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DIFCOLI)

SAMPLE	An/Ao	cua. An/Ao	DAYS	D inc.	D cua.
EFFLUENT 1	0.00E+00	0.00E+00	3.00E+00	0.00E+00	0.00E+00
EFFLUENT 2	0.00E+00	0.00E+00	6.00E+00	0.00E+00	0.00E+00
EFFLUENT 3	0.00E+00	0.00E+00	9.00E+00	0.00E+00	0.00E+00
EFFLUENT 4	0.00E+00	0.00E+00	1.30E+01	0.00E+00	0.00E+00
EFFLUENT 5	0.00E+00	0.00E+00	1.70E+01	0.00E+00	0.00E+00
EFFLUENT 6	0.00E+00	0.00E+00	2.00E+01	0.00E+00	0.00E+00
EFFLUENT 7	0.00E+00	0.00E+00	2.30E+01	0.00E+00	0.00E+00
EFFLUENT 8	0.00E+00	0.00E+00	2.70E+01	0.00E+00	0.00E+00
EFFLUENT 9	0.00E+00	0.00E+00	3.00E+01	0.00E+00	0.00E+00
EFFLUENT 10	0.00E+00	0.00E+00	3.40E+01	0.00E+00	0.00E+00
EFFLUENT 11	0.00E+00	0.00E+00	3.70E+01	0.00E+00	0.00E+00
EFFLUENT 12	0.00E+00	0.00E+00	4.10E+01	0.00E+00	0.00E+00
EFFLUENT 13	0.00E+00	0.00E+00	4.40E+01	0.00E+00	0.00E+00
EFFLUENT 14	0.00E+00	0.00E+00	4.90E+01	0.00E+00	0.00E+00
EFFLUENT 15	0.00E+00	0.00E+00	5.20E+01	0.00E+00	0.00E+00
EFFLUENT 16	0.00E+00	0.00E+00	5.80E+01	0.00E+00	0.00E+00
EFFLUENT 17	0.00E+00	0.00E+00	6.20E+01	0.00E+00	0.00E+00
EFFLUENT 18	0.00E+00	0.00E+00	6.50E+01	0.00E+00	0.00E+00
EFFLUENT 19	0.00E+00	0.00E+00	6.90E+01	0.00E+00	0.00E+00
EFFLUENT 20	0.00E+00	0.00E+00	7.20E+01	0.00E+00	0.00E+00
EFFLUENT 22	0.00E+00	0.00E+00	8.00E+01	0.00E+00	0.00E+00
EFFLUENT 23	0.00E+00	0.00E+00	8.40E+01	0.00E+00	0.00E+00
EFFLUENT 24	0.00E+00	0.00E+00	8.70E+01	0.00E+00	0.00E+00
EFFLUENT 26	0.00E+00	0.00E+00	9.40E+01	0.00E+00	0.00E+00
EFFLUENT 28	0.00E+00	0.00E+00	1.00E+02	0.00E+00	0.00E+00
EFFLUENT 30	0.00E+00	0.00E+00	1.07E+02	0.00E+00	0.00E+00
EFFLUENT 32	0.00E+00	0.00E+00	1.15E+02	0.00E+00	0.00E+00
EFFLUENT 34	0.00E+00	0.00E+00	1.21E+02	0.00E+00	0.00E+00
EFFLUENT 36	1.88E-03	1.88E-03	1.28E+02	1.05E-10	8.08E-14
EFFLUENT 39	6.97E-02	7.16E-02	1.42E+02	3.92E-08	1.06E-10
EFFLUENT 41	4.55E-02	1.17E-01	1.49E+02	7.21E-08	2.70E-10
EFFLUENT 43	7.39E-02	1.91E-01	1.56E+02	1.99E-07	6.35E-10
EFFLUENT 45	7.36E-02	2.65E-01	1.68E+02	7.15E-08	1.22E-09
EFFLUENT 47	6.88E-02	3.33E-01	1.77E+02	1.18E-07	1.84E-09
EFFLUENT 49	5.90E-02	3.92E-01	2.13E+02	6.14E-09	2.12E-09
EFFLUENT 50	3.69E-02	4.29E-01	2.43E+02	4.03E-09	2.22E-09

TABLE B.13b. Sodium Leach Fractions from Flow Through Test Grout/Sediment with Groundwater (DIFCOLI)

SAMPLE	An/Ao	cu. An/Ao	DAYS	D inc.	D cu.
EFFLUENT 1	3.72E-02	3.72E-02	3.00E+00	1.35E-09	1.35E-09
EFFLUENT 2	3.71E-02	7.43E-02	6.00E+00	7.63E-09	2.70E-09
EFFLUENT 3	3.14E-02	1.06E-01	9.00E+00	9.52E-09	3.64E-09
EFFLUENT 4	3.51E-02	1.41E-01	1.30E+01	9.84E-09	4.47E-09
EFFLUENT 5	1.32E-02	1.54E-01	1.70E+01	1.91E-09	4.09E-09
EFFLUENT 6	1.90E-02	1.73E-01	2.00E+01	6.65E-09	4.38E-09
EFFLUENT 7	2.58E-02	1.99E-01	2.30E+01	1.86E-08	5.03E-09
EFFLUENT 8	3.25E-02	2.31E-01	2.70E+01	1.94E-08	4.78E-09
EFFLUENT 9	2.58E-02	2.57E-01	3.00E+01	2.47E-08	5.62E-09
EFFLUENT 10	2.08E-02	2.78E-01	3.40E+01	1.01E-08	5.83E-09
EFFLUENT 11	1.49E-02	2.93E-01	3.70E+01	1.03E-08	5.79E-09
EFFLUENT 12	1.95E-02	3.12E-01	4.10E+01	1.09E-08	6.03E-09
EFFLUENT 13	1.32E-02	3.25E-01	4.40E+01	9.69E-09	6.10E-09
EFFLUENT 14	1.99E-02	3.45E-01	4.90E+01	8.63E-09	6.68E-09
EFFLUENT 15	7.63E-03	3.53E-01	5.20E+01	3.83E-09	6.30E-09
EFFLUENT 16	2.54E-02	3.78E-01	5.80E+01	1.16E-08	6.85E-09
EFFLUENT 17	1.92E-02	3.97E-01	6.20E+01	1.62E-08	7.20E-09
EFFLUENT 18	1.18E-02	4.09E-01	6.50E+01	1.15E-08	7.30E-09
EFFLUENT 19	1.61E-02	4.25E-01	6.90E+01	1.27E-08	7.28E-09
EFFLUENT 20	3.71E-03	4.29E-01	7.20E+01	1.27E-09	7.37E-09
EFFLUENT 22	1.67E-02	4.46E-01	8.00E+01	3.86E-09	7.40E-09
EFFLUENT 23	1.07E-02	4.56E-01	8.40E+01	6.90E-09	7.43E-09
EFFLUENT 24	6.62E-03	4.63E-01	8.70E+01	4.88E-09	7.18E-09
EFFLUENT 26	1.85E-02	4.82E-01	9.40E+01	7.43E-09	7.35E-09
EFFLUENT 28	2.12E-02	5.03E-01	1.00E+02	1.42E-08	7.68E-09
EFFLUENT 30	9.33E-03	5.12E-01	1.07E+02	2.16E-09	7.53E-09
EFFLUENT 32	8.79E-03	5.21E-01	1.15E+02	1.57E-09	7.34E-09
EFFLUENT 34	1.19E-02	5.33E-01	1.21E+02	5.47E-09	7.32E-09
EFFLUENT 36	9.21E-03	5.42E-01	1.28E+02	2.53E-09	7.25E-09
EFFLUENT 39	1.81E-02	5.60E-01	1.42E+02	2.66E-09	7.25E-09
EFFLUENT 41	6.14E-03	5.66E-01	1.49E+02	1.31E-09	7.19E-09
EFFLUENT 43	7.91E-03	5.74E-01	1.56E+02	2.28E-09	6.87E-09
EFFLUENT 45	9.23E-03	5.83E-01	1.68E+02	1.12E-09	6.68E-09
EFFLUENT 47	7.54E-03	5.91E-01	1.77E+02	1.42E-09	6.63E-09
EFFLUENT 49	2.08E-02	6.12E-01	2.13E+02	7.59E-10	6.06E-09
EFFLUENT 50	1.42E-02	6.26E-01	2.43E+02	6.00E-10	5.80E-09

TABLE B.13c. Aluminum (Al) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DIFCOLI)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	6.20E-05	6.20E-05	3.00E+00	3.76E-15	3.76E-15
EFFLUENT 2	3.38E-04	4.00E-04	6.00E+00	6.49E-13	7.81E-14
EFFLUENT 3	2.21E-04	6.21E-04	9.00E+00	4.74E-13	1.26E-13
EFFLUENT 4	4.24E-04	1.04E-03	1.30E+01	1.44E-12	2.46E-13
EFFLUENT 5	3.13E-04	1.36E-03	1.70E+01	1.07E-12	3.18E-13
EFFLUENT 6	3.16E-04	1.67E-03	2.00E+01	2.40E-12	4.11E-13
EFFLUENT 7	5.35E-04	2.21E-03	2.30E+01	8.01E-12	6.22E-13
EFFLUENT 8	7.40E-04	2.95E-03	2.70E+01	1.00E-11	9.44E-13
EFFLUENT 9	6.04E-04	3.55E-03	3.00E+01	1.35E-11	1.23E-12
EFFLUENT 10	7.03E-04	4.26E-03	3.40E+01	1.16E-11	1.56E-12
EFFLUENT 11	5.45E-04	4.80E-03	3.70E+01	1.37E-11	1.83E-12
EFFLUENT 12	6.87E-04	5.49E-03	4.10E+01	1.35E-11	2.15E-12
EFFLUENT 13	4.68E-04	5.95E-03	4.40E+01	1.21E-11	2.36E-12
EFFLUENT 14	7.27E-04	6.68E-03	4.90E+01	1.15E-11	2.67E-12
EFFLUENT 15	2.93E-04	6.98E-03	5.20E+01	5.66E-12	2.74E-12
EFFLUENT 16	8.79E-04	7.85E-03	5.80E+01	1.38E-11	3.12E-12
EFFLUENT 17	7.64E-04	8.62E-03	6.20E+01	2.57E-11	3.51E-12
EFFLUENT 18	4.76E-04	9.09E-03	6.50E+01	1.87E-11	3.73E-12
EFFLUENT 19	5.13E-04	9.61E-03	6.90E+01	1.29E-11	3.92E-12
EFFLUENT 20	1.51E-04	9.76E-03	7.20E+01	2.11E-12	3.88E-12
EFFLUENT 22	5.43E-04	1.03E-02	8.00E+01	4.10E-12	3.89E-12
EFFLUENT 23	4.18E-04	1.07E-02	8.40E+01	1.05E-11	4.01E-12
EFFLUENT 24	2.44E-04	1.10E-02	8.70E+01	6.64E-12	4.05E-12
EFFLUENT 26	7.91E-04	1.18E-02	9.40E+01	1.36E-11	4.31E-12
EFFLUENT 28	8.56E-04	1.26E-02	1.00E+02	2.31E-11	4.66E-12
EFFLUENT 30	2.73E-04	1.29E-02	1.07E+02	1.84E-12	4.55E-12
EFFLUENT 32	2.18E-04	1.31E-02	1.15E+02	9.65E-13	4.38E-12
EFFLUENT 34	3.10E-04	1.34E-02	1.21E+02	3.69E-12	4.36E-12
EFFLUENT 36	1.84E-04	1.36E-02	1.25E+02	1.01E-12	4.23E-12
EFFLUENT 39	3.18E-04	1.39E-02	1.42E+02	8.14E-13	4.00E-12
EFFLUENT 41	1.01E-04	1.40E-02	1.49E+02	3.56E-13	3.67E-12
EFFLUENT 43	1.09E-04	1.41E-02	1.56E+02	4.33E-13	3.75E-12
EFFLUENT 45	8.41E-05	1.42E-02	1.68E+02	9.34E-14	3.52E-12
EFFLUENT 47	3.63E-05	1.42E-02	1.77E+02	3.67E-14	3.36E-12
EFFLUENT 49	8.56E-07	1.42E-02	2.13E+02	1.29E-18	2.79E-12
EFFLUENT 50	4.70E-05	1.43E-02	2.43E+02	6.55E-15	2.47E-12

TABLE B.13e. Boron (as H3BO3) Leach Fractions from Flow Through Test Grout/Sediment with Groundwater (DIFCOLIA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.13E-02	1.13E-02	3.00E+00	1.25E-10	1.25E-10
EFFLUENT 2	5.11E-03	1.64E-02	6.00E+00	1.49E-10	1.32E-10
EFFLUENT 3	3.15E-03	1.96E-02	9.00E+00	9.61E-11	1.25E-10
EFFLUENT 4	3.26E-03	2.28E-02	1.30E+01	8.51E-11	1.18E-10
EFFLUENT 5	2.27E-03	2.51E-02	1.70E+01	5.66E-11	1.09E-10
EFFLUENT 6	1.41E-03	2.65E-02	2.00E+01	4.80E-11	1.03E-10
EFFLUENT 7	2.17E-03	2.87E-02	2.30E+01	1.31E-10	1.05E-10
EFFLUENT 8	2.78E-03	3.15E-02	2.70E+01	1.42E-10	1.08E-10
EFFLUENT 9	1.37E-03	3.28E-02	3.00E+01	6.98E-11	1.05E-10
EFFLUENT 10	1.31E-03	3.42E-02	3.40E+01	4.03E-11	1.01E-10
EFFLUENT 11	8.86E-04	3.50E-02	3.70E+01	3.63E-11	9.73E-11
EFFLUENT 12	1.01E-03	3.61E-02	4.10E+01	2.93E-11	9.30E-11
EFFLUENT 13	6.79E-04	3.67E-02	4.40E+01	2.55E-11	8.99E-11
EFFLUENT 14	1.14E-03	3.79E-02	4.90E+01	2.83E-11	8.58E-11
EFFLUENT 15	4.27E-04	3.83E-02	5.20E+01	1.20E-11	8.27E-11
EFFLUENT 16	1.41E-03	3.97E-02	5.80E+01	3.57E-11	7.97E-11
EFFLUENT 17	7.23E-04	4.04E-02	6.20E+01	2.30E-11	7.73E-11
EFFLUENT 18	6.27E-04	4.11E-02	6.50E+01	3.25E-11	7.61E-11
EFFLUENT 19	1.36E-03	4.24E-02	6.90E+01	9.09E-11	7.35E-11
EFFLUENT 20	4.18E-04	4.28E-02	7.20E+01	1.61E-11	7.47E-11
EFFLUENT 22	1.16E-03	4.40E-02	8.00E+01	1.87E-11	7.10E-11
EFFLUENT 23	5.34E-04	4.45E-02	8.40E+01	1.72E-11	6.92E-11
EFFLUENT 24	3.94E-04	4.49E-02	8.70E+01	1.73E-11	6.80E-11
EFFLUENT 26	8.71E-04	4.58E-02	9.40E+01	1.64E-11	6.54E-11
EFFLUENT 28	1.00E-03	4.68E-02	1.00E+02	3.18E-11	6.42E-11
EFFLUENT 30	6.21E-04	4.74E-02	1.07E+02	9.55E-12	6.16E-11
EFFLUENT 32	6.21E-04	4.80E-02	1.15E+02	7.84E-12	5.89E-11
EFFLUENT 34	7.71E-04	4.88E-02	1.21E+02	2.29E-11	5.77E-11
EFFLUENT 36	7.56E-04	4.96E-02	1.28E+02	1.70E-11	5.63E-11
EFFLUENT 39	1.50E-03	5.11E-02	1.42E+02	1.82E-11	5.39E-11
EFFLUENT 41	6.40E-04	5.17E-02	1.49E+02	1.43E-11	5.26E-11
EFFLUENT 43	8.49E-04	5.26E-02	1.56E+02	2.63E-11	5.19E-11
EFFLUENT 45	1.17E-03	5.37E-02	1.66E+02	1.81E-11	5.04E-11
EFFLUENT 47	1.05E-03	5.48E-02	1.77E+02	2.77E-11	4.97E-11
EFFLUENT 49	3.29E-03	5.81E-02	2.13E+02	1.91E-11	4.64E-11
EFFLUENT 50	2.49E-03	6.06E-02	2.43E+02	1.83E-11	4.43E-11

TABLE B.13f. Fluoride (F) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DIFCOLIA)

SAMPLE	An/Ao	cua. An/Ao	DAYS	D inc.	D cua.
EFFLUENT 1	1.24E-03	1.24E-03	3.00E+00	1.51E-12	1.51E-12
EFFLUENT 2	9.36E-04	2.18E-03	6.00E+00	4.99E-12	2.32E-12
EFFLUENT 3	7.17E-04	2.90E-03	9.00E+00	4.97E-12	2.73E-12
EFFLUENT 4	7.96E-04	3.69E-03	1.30E+01	5.07E-12	3.07E-12
EFFLUENT 5	4.72E-04	4.16E-03	1.70E+01	2.44E-12	2.99E-12
EFFLUENT 6	4.04E-04	4.57E-03	2.00E+01	3.93E-12	3.06E-12
EFFLUENT 7	5.40E-04	5.11E-03	2.30E+01	8.15E-12	3.33E-12
EFFLUENT 8	7.42E-04	5.85E-03	2.70E+01	1.01E-11	3.72E-12
EFFLUENT 9	5.17E-04	6.37E-03	3.00E+01	9.93E-12	3.96E-12
EFFLUENT 10	5.05E-04	6.87E-03	3.40E+01	5.98E-12	4.07E-12
EFFLUENT 11	3.67E-04	7.24E-03	3.70E+01	6.24E-12	4.15E-12
EFFLUENT 12	4.75E-04	7.71E-03	4.10E+01	6.44E-12	4.26E-12
EFFLUENT 13	3.43E-04	8.06E-03	4.40E+01	6.51E-12	4.33E-12
EFFLUENT 14	5.07E-04	8.56E-03	4.90E+01	5.61E-12	4.39E-12
EFFLUENT 15	2.26E-04	8.79E-03	5.20E+01	3.36E-12	4.36E-12
EFFLUENT 16	6.06E-04	9.40E-03	5.80E+01	6.59E-12	4.46E-12
EFFLUENT 17	4.32E-04	9.83E-03	6.20E+01	8.20E-12	4.57E-12
EFFLUENT 18	3.96E-04	1.02E-02	6.50E+01	1.30E-11	4.72E-12
EFFLUENT 19	7.80E-04	1.10E-02	6.90E+01	2.99E-11	5.15E-12
EFFLUENT 20	2.32E-04	1.12E-02	7.20E+01	4.92E-12	5.14E-12
EFFLUENT 22	5.21E-04	1.18E-02	8.00E+01	3.79E-12	5.07E-12
EFFLUENT 23	3.08E-04	1.21E-02	8.40E+01	5.72E-12	5.08E-12
EFFLUENT 24	2.31E-04	1.23E-02	8.70E+01	5.96E-12	5.10E-12
EFFLUENT 26	5.65E-04	1.29E-02	9.40E+01	6.92E-12	5.16E-12
EFFLUENT 28	7.75E-04	1.36E-02	1.00E+02	1.90E-11	5.45E-12
EFFLUENT 30	4.32E-04	1.41E-02	1.07E+02	4.62E-12	5.43E-12
EFFLUENT 32	3.24E-04	1.44E-02	1.15E+02	2.13E-12	3.28E-12
EFFLUENT 34	7.27E-04	1.51E-02	1.21E+02	2.03E-11	5.54E-12
EFFLUENT 36	5.83E-04	1.57E-02	1.28E+02	1.01E-11	5.65E-12
EFFLUENT 39	1.37E-03	1.71E-02	1.42E+02	1.51E-11	6.02E-12
EFFLUENT 41	6.15E-04	1.77E-02	1.49E+02	1.32E-11	6.16E-12
EFFLUENT 43	7.65E-04	1.85E-02	1.56E+02	2.13E-11	6.40E-12
EFFLUENT 45	1.01E-03	1.95E-02	1.68E+02	1.34E-11	6.61E-12
EFFLUENT 47	1.79E-03	2.12E-02	1.77E+02	7.98E-11	7.48E-12
EFFLUENT 49	2.83E-03	2.41E-02	2.13E+02	1.41E-11	7.98E-12
EFFLUENT 50	2.15E-03	2.62E-02	2.43E+02	1.37E-11	8.30E-12

TABLE B.13g. Nitrate (NO₃) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DIFCOLIA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.19E-01	1.19E-01	3.00E+00	1.38E-08	1.38E-08
EFFLUENT 2	2.81E-02	1.47E-01	6.00E+00	4.51E-09	1.06E-08
EFFLUENT 3	1.70E-02	1.64E-01	9.00E+00	2.79E-09	8.76E-09
EFFLUENT 4	1.74E-02	1.81E-01	1.30E+01	2.43E-09	7.42E-09
EFFLUENT 5	1.03E-02	1.92E-01	1.70E+01	1.17E-09	6.34E-09
EFFLUENT 6	8.68E-03	2.00E-01	2.00E+01	1.81E-09	5.89E-09
EFFLUENT 7	4.17E-03	2.05E-01	2.30E+01	4.87E-10	4.70E-09
EFFLUENT 8	1.06E-02	2.15E-01	2.70E+01	2.06E-09	4.44E-09
EFFLUENT 9	7.91E-03	2.23E-01	3.00E+01	2.32E-09	3.99E-09
EFFLUENT 10	7.42E-03	2.31E-01	3.40E+01	1.29E-09	3.80E-09
EFFLUENT 11	5.16E-03	2.36E-01	3.70E+01	1.23E-09	3.83E-09
EFFLUENT 12	6.59E-03	2.42E-01	4.10E+01	1.24E-09	3.46E-09
EFFLUENT 13	4.59E-02	2.88E-01	4.40E+01	1.17E-07	4.87E-09
EFFLUENT 14	3.03E-02	3.19E-01	4.90E+01	2.01E-08	5.48E-09
EFFLUENT 15	3.53E-03	3.22E-01	5.20E+01	8.21E-10	5.16E-09
EFFLUENT 16	1.04E-02	3.32E-01	5.80E+01	1.94E-09	4.96E-09
EFFLUENT 17	4.30E-03	3.37E-01	6.20E+01	8.15E-10	4.95E-09
EFFLUENT 18	4.13E-03	3.41E-01	6.50E+01	1.41E-09	4.73E-09
EFFLUENT 19	1.41E-02	3.55E-01	6.90E+01	9.74E-09	5.07E-09
EFFLUENT 20	6.10E-03	3.61E-01	7.20E+01	3.42E-09	4.86E-09
EFFLUENT 22	9.29E-03	3.70E-01	8.00E+01	1.20E-09	4.65E-09
EFFLUENT 23	4.14E-03	3.75E-01	8.40E+01	1.03E-09	4.73E-09
EFFLUENT 24	3.45E-03	3.78E-01	8.70E+01	1.33E-09	4.57E-09
EFFLUENT 26	5.85E-03	3.84E-01	9.40E+01	7.40E-10	4.23E-09
EFFLUENT 28	7.68E-03	3.91E-01	1.00E+02	1.86E-09	4.22E-09
EFFLUENT 30	5.30E-03	3.97E-01	1.07E+02	6.95E-10	4.17E-09
EFFLUENT 32	4.30E-03	4.01E-01	1.15E+02	3.77E-10	3.88E-09
EFFLUENT 34	6.13E-03	4.07E-01	1.21E+02	1.44E-09	3.92E-09
EFFLUENT 36	8.94E-03	4.16E-01	1.28E+02	2.38E-09	3.92E-09
EFFLUENT 39	3.73E-02	4.53E-01	1.42E+02	1.13E-08	4.17E-09
EFFLUENT 41	2.54E-02	4.79E-01	1.49E+02	2.24E-08	4.64E-09
EFFLUENT 43	3.73E-02	5.16E-01	1.56E+02	5.08E-08	5.41E-09
EFFLUENT 45	3.55E-02	5.52E-01	1.68E+02	1.66E-08	5.78E-09
EFFLUENT 47	5.60E-02	6.08E-01	1.77E+02	7.64E-08	7.29E-09
EFFLUENT 49	4.86E-03	6.13E-01	2.13E+02	4.17E-11	6.06E-09
EFFLUENT 50	1.74E-01	7.87E-01	2.43E+02	9.04E-08	1.16E-08

TABLE B.13i. Iodine-125 (I-125) Leach Fractions from Flow Through Test,
Grout/Sediment with Groundwater (II)

SAMPLE	PORE VOLUME	CDR. uCi	TIME DAYS	An/Ao	cu An/Ao	D INC CM2/SEC	D CUM CM2/SEC
CRW II-1	1.33E+00	1.13E-01	3.00E+00	1.17E-01	1.17E-01	1.33E-08	1.33E-08
CRW II-2	2.72E+00	2.57E-02	6.00E+00	2.64E-02	1.43E-01	6.14E-09	1.00E-08
CRW II-3	4.15E+00	1.95E-02	9.00E+00	2.01E-02	1.63E-01	3.55E-09	8.69E-09
CRW II-4	5.89E+00	1.12E-02	1.30E+01	1.15E-02	1.75E-01	8.04E-10	6.90E-09
CRW II-5	6.92E+00	1.16E-02	1.70E+01	1.19E-02	1.87E-01	9.41E-10	6.02E-09
CRW II-6	8.01E+00	1.14E-02	2.00E+01	1.17E-02	1.98E-01	1.34E-09	5.81E-09
CRW II-7	9.67E+00	1.47E-02	2.30E+01	1.51E-02	2.13E-01	2.01E-09	5.05E-09
CRW II-8	1.19E+01	1.37E-02	2.70E+01	1.40E-02	2.28E-01	1.19E-09	5.14E-09
CRW II-9	1.37E+01	1.03E-02	3.00E+01	1.06E-02	2.38E-01	1.09E-09	5.08E-09
CRW II-10	1.58E+01	1.03E-02	3.40E+01	1.06E-02	2.49E-01	6.73E-10	4.91E-09
CRW II-11	1.74E+01	6.70E-03	3.70E+01	6.89E-03	2.56E-01	4.62E-10	4.90E-09
CRW II-12	1.97E+01	8.91E-03	4.10E+01	9.16E-03	2.65E-01	5.06E-10	4.82E-09
CRW II-13	2.14E+01	6.43E-03	4.40E+01	6.62E-03	2.71E-01	4.27E-10	4.50E-09
CRW II-14	2.42E+01	8.03E-03	4.90E+01	8.26E-03	2.80E-01	3.08E-10	4.35E-09
CRW II-15	2.54E+01	5.32E-03	5.20E+01	5.47E-03	2.85E-01	3.17E-10	4.43E-09
CRW II-16	2.88E+01	1.53E-02	5.80E+01	1.57E-02	3.01E-01	8.89E-10	4.30E-09
CRW II-17	3.24E+01	1.11E-02	6.20E+01	1.14E-02	3.12E-01	9.91E-10	4.29E-09
CRW II-18	3.50E+01	6.42E-03	6.50E+01	6.61E-03	3.19E-01	4.25E-10	4.44E-09
CRW II-19	3.86E+01	2.15E-02	6.90E+01	2.21E-02	3.41E-01	2.94E-09	4.79E-09
CRW II-20	3.96E+01	5.50E-03	7.20E+01	5.66E-03	3.47E-01	3.12E-10	4.89E-09
CRW II-22	4.25E+01	1.43E-02	8.00E+01	1.47E-02	3.61E-01	5.38E-10	4.71E-09
CRW II-23	4.47E+01	1.28E-02	8.40E+01	1.32E-02	3.74E-01	1.49E-09	4.76E-09
CRW II-24	4.62E+01	4.88E-03	8.70E+01	5.02E-03	3.79E-01	2.45E-10	4.91E-09
CRW II-25	4.83E+01	6.53E-03	9.10E+01	6.72E-03	3.86E-01	2.72E-10	4.99E-09
CRW II-26	5.10E+01	1.12E-02	9.40E+01	1.15E-02	3.98E-01	1.29E-09	5.11E-09
CRW II-27	5.50E+01	1.80E-02	9.70E+01	1.85E-02	4.16E-01	3.02E-09	5.57E-09
CRW II-28	5.78E+01	1.45E-02	1.00E+02	1.49E-02	4.31E-01	1.97E-09	5.71E-09
CRW II-29	6.04E+01	1.27E-02	1.04E+02	1.30E-02	4.44E-01	1.03E-09	5.80E-09
CRW II-30	6.14E+01	5.40E-03	1.07E+02	5.56E-03	4.50E-01	3.01E-10	5.95E-09
CRW II-31	6.40E+01	1.34E-02	1.11E+02	1.37E-02	4.63E-01	1.14E-09	6.05E-09
CRW II-32	6.64E+01	1.25E-02	1.15E+02	1.28E-02	4.76E-01	1.08E-09	6.46E-09
CRW II-33	6.98E+01	1.77E-02	1.18E+02	1.83E-02	4.95E-01	3.25E-09	7.00E-09
CRW II-34	7.24E+01	1.73E-02	1.21E+02	1.78E-02	5.12E-01	2.78E-09	7.16E-09
CRW II-35	7.48E+01	1.61E-02	1.25E+02	1.66E-02	5.29E-01	1.65E-09	7.62E-09
CRW II-36	7.72E+01	1.89E-02	1.28E+02	1.95E-02	5.48E-01	3.70E-09	8.15E-09
CRW II-37	8.04E+01	2.36E-02	1.32E+02	2.42E-02	5.73E-01	3.54E-09	8.73E-09
CRW II-38	8.57E+01	3.86E-02	1.39E+02	3.97E-02	6.12E-01	5.01E-09	9.99E-09
CRW II-39	8.92E+01	2.84E-02	1.42E+02	2.92E-02	6.41E-01	1.04E-08	1.11E-08
CRW II-40	9.22E+01	2.37E-02	1.46E+02	2.44E-02	6.66E-01	3.58E-09	1.24E-08
CRW II-41	9.47E+01	2.13E-02	1.49E+02	2.20E-02	6.88E-01	4.70E-09	1.26E-08
CRW II-42	9.93E+01	4.00E-02	1.53E+02	4.12E-02	7.29E-01	1.02E-08	1.52E-08
CRW II-43	1.03E+02	3.31E-02	1.56E+02	3.41E-02	7.63E-01	1.13E-08	1.69E-08
CRW II-44	1.05E+02	2.61E-02	1.59E+02	2.68E-02	7.90E-01	6.34E-09	1.90E-08
CRW II-45	1.12E+02	6.59E-02	1.68E+02	6.78E-02	8.58E-01	9.96E-09	2.49E-08
CRW II-46	1.19E+02	7.57E-02	1.74E+02	7.79E-02	9.35E-01	3.09E-08	3.84E-08
CRW II-47	1.23E+02	4.49E-02	1.77E+02	4.62E-02	9.82E-01	2.43E-08	5.54E-08
CRW II-48	1.27E+02	4.54E-02	1.81E+02	4.67E-02	1.03E+00	1.51E-08	1.72E-08
CRW II-49	1.49E+02	3.70E-01	2.13E+02	3.81E-01	1.41E+00	7.37E-08	2.74E-08
CRW II-50	1.69E+02	4.25E-01	2.43E+02	4.37E-01	1.85E+00	1.72E-07	4.12E-08

TABLE B.13i. Iodine-125 (I-125) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (I2)

SAMPLE	PORE VOLUMES	CDR uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW I2-1	1.66E+00	6.30E-02	3.00E+00	6.26E-02	6.26E-02	4.13E-09	4.13E-09
CRW I2-2	3.21E+00	1.51E-02	6.00E+00	1.50E-02	7.76E-02	2.76E-09	3.17E-09
CRW I2-3	6.66E+00	3.49E-02	9.00E+00	3.47E-02	1.12E-01	5.71E-09	4.43E-09
CRW I2-4	8.98E+00	1.50E-02	1.30E+01	1.49E-02	1.27E-01	6.77E-10	3.94E-09
CRW I2-5	1.10E+01	1.12E-02	1.70E+01	1.11E-02	1.38E-01	2.85E-10	3.56E-09
CRW I2-6	1.24E+01	1.03E-01	2.00E+01	1.03E-01	2.41E-01	2.12E-08	7.62E-09
CRW I2-7	1.45E+01	1.10E-02	2.30E+01	1.09E-02	2.52E-01	2.04E-10	7.26E-09
CRW I2-8	1.74E+01	1.28E-02	2.70E+01	1.27E-02	2.65E-01	2.30E-10	7.33E-09
CRW I2-9	1.95E+01	1.45E-02	3.00E+01	1.44E-02	2.79E-01	2.71E-10	7.11E-09
CRW I2-10	2.24E+01	1.58E-02	3.40E+01	1.56E-02	2.95E-01	2.75E-10	7.34E-09
CRW I2-11	2.48E+01	1.75E-02	3.70E+01	1.73E-02	3.12E-01	3.14E-10	7.19E-09
CRW I2-12	2.77E+01	1.75E-02	4.10E+01	1.74E-02	3.30E-01	2.61E-10	7.55E-09
CRW I2-13	3.01E+01	1.83E-02	4.40E+01	1.82E-02	3.48E-01	2.87E-10	8.00E-09

TABLE B.14a. Potassium (K) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLI2A-C)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	Q cum.
EFFLUENT 1	5.06E-02	5.06E-02	3.00E+00	2.53E-09	2.53E-09
EFFLUENT 2	2.92E-02	7.98E-02	1.00E+01	1.23E-09	1.89E-09
EFFLUENT 3	2.10E-02	1.01E-01	1.40E+01	3.88E-09	2.15E-09
EFFLUENT 4	8.20E-03	1.09E-01	1.70E+01	1.37E-09	2.07E-09
EFFLUENT 5	2.63E-02	1.35E-01	2.10E+01	9.70E-09	2.58E-09
EFFLUENT 6	1.26E-02	1.48E-01	2.40E+01	4.67E-09	2.70E-09
EFFLUENT 7	6.25E-03	1.54E-01	2.80E+01	7.53E-10	2.51E-09
EFFLUENT 8	1.04E-02	1.64E-01	3.10E+01	4.18E-09	2.58E-09
EFFLUENT 9	1.14E-02	1.76E-01	3.50E+01	3.15E-09	2.62E-09
COLUMN 2B					
EFFLUENT 10	1.83E-02	1.94E-01	4.50E+01	1.58E-09	2.48E-09
EFFLUENT 11	1.49E-02	2.09E-01	5.20E+01	2.59E-09	2.83E-09
EFFLUENT 12	1.15E-02	2.20E-01	5.60E+01	5.28E-09	2.89E-09
EFFLUENT 13	2.96E-03	2.23E-01	5.90E+01	6.65E-10	2.74E-09
EFFLUENT 14	3.49E-03	2.27E-01	6.30E+01	5.51E-10	2.82E-09
EFFLUENT 15	7.76E-04	2.28E-01	6.60E+01	5.11E-11	2.69E-09
EFFLUENT 16	1.17E-02	2.39E-01	7.00E+01	6.91E-09	2.91E-09
EFFLUENT 17	3.99E-03	2.43E-01	7.40E+01	8.51E-10	2.75E-09
EFFLUENT 18	3.71E-03	2.47E-01	7.80E+01	7.77E-10	2.72E-09
EFFLUENT 19	3.11E-03	2.50E-01	8.10E+01	1.01E-09	2.62E-09
EFFLUENT 21	7.47E-03	2.58E-01	8.80E+01	1.14E-09	2.63E-09
EFFLUENT 23	5.60E-03	2.63E-01	9.40E+01	9.38E-10	2.46E-09
EFFLUENT 25	1.23E-03	2.64E-01	1.01E+02	3.58E-11	2.29E-09
EFFLUENT 27	1.55E-03	2.66E-01	1.09E+02	4.70E-11	2.32E-09
EFFLUENT 29	1.56E-03	2.68E-01	1.15E+02	9.02E-11	2.19E-09
EFFLUENT 31	2.61E-03	2.70E-01	1.22E+02	1.96E-10	2.07E-09
EFFLUENT 34	6.24E-03	2.76E-01	1.36E+02	3.03E-10	2.00E-09
EFFLUENT 36	2.19E-03	2.79E-01	1.43E+02	1.62E-10	1.91E-09
EFFLUENT 38	1.46E-03	2.80E-01	1.50E+02	7.57E-11	1.82E-09
EFFLUENT 40	4.70E-03	2.85E-01	1.62E+02	2.83E-10	1.68E-09
EFFLUENT 42	4.54E-03	2.89E-01	1.71E+02	5.01E-10	1.73E-09
EFFLUENT 44	1.33E-03	2.91E-01	2.06E+02	3.23E-12	1.43E-09

TABLE B.14b. Sodium (Na) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT2A-C)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	8.38E-02	8.38E-02	3.00E+00	6.94E-09	6.94E-09
EFFLUENT 2	4.61E-02	1.30E-01	1.00E+01	3.08E-09	5.00E-09
EFFLUENT 3	3.15E-02	1.61E-01	1.40E+01	8.77E-09	5.52E-09
EFFLUENT 4	1.34E-02	1.75E-01	1.70E+01	3.63E-09	5.33E-09
EFFLUENT 5	4.12E-02	2.16E-01	2.10E+01	2.38E-08	7.71E-09
EFFLUENT 6	2.07E-02	2.37E-01	2.40E+01	1.27E-08	8.49E-09
EFFLUENT 7	9.01E-03	2.46E-01	2.80E+01	1.56E-09	7.58E-09
EFFLUENT 8	1.57E-02	2.61E-01	3.10E+01	9.57E-09	7.47E-09
EFFLUENT 9	1.71E-02	2.79E-01	3.50E+01	7.16E-09	7.76E-09
COLUMN 2B					
EFFLUENT 10	3.09E-02	3.09E-01	4.50E+01	4.52E-09	7.58E-09
EFFLUENT 11	2.39E-02	3.33E-01	5.20E+01	6.71E-09	7.55E-09
EFFLUENT 12	2.02E-02	3.54E-01	5.60E+01	1.63E-08	7.99E-09
EFFLUENT 13	6.02E-03	3.60E-01	5.90E+01	2.75E-09	8.10E-09
EFFLUENT 14	6.87E-03	3.66E-01	6.30E+01	2.13E-09	8.07E-09
EFFLUENT 15	1.53E-03	3.68E-01	6.60E+01	1.98E-10	7.70E-09
EFFLUENT 16	2.11E-02	3.89E-01	7.00E+01	2.23E-08	8.19E-09
EFFLUENT 17	1.16E-02	4.01E-01	7.40E+01	7.17E-09	8.22E-09
EFFLUENT 18	7.39E-03	4.08E-01	7.80E+01	3.08E-09	8.25E-09
EFFLUENT 19	6.77E-03	4.15E-01	8.10E+01	4.80E-09	7.94E-09
EFFLUENT 21	1.36E-02	4.28E-01	8.80E+01	3.81E-09	8.07E-09
EFFLUENT 23	1.26E-02	4.41E-01	9.40E+01	4.77E-09	8.08E-09
EFFLUENT 25	9.02E-03	4.50E-01	1.01E+02	1.92E-09	7.93E-09
EFFLUENT 27	9.32E-03	4.59E-01	1.09E+02	1.69E-09	7.74E-09
EFFLUENT 29	8.17E-03	4.68E-01	1.15E+02	2.46E-09	7.75E-09
EFFLUENT 31	9.73E-03	4.77E-01	1.22E+02	2.72E-09	7.65E-09
EFFLUENT 34	1.77E-02	4.95E-01	1.36E+02	2.43E-09	7.23E-09
EFFLUENT 36	6.89E-03	5.02E-01	1.43E+02	1.60E-09	7.22E-09
EFFLUENT 38	6.66E-03	5.09E-01	1.50E+02	1.57E-09	7.21E-09
EFFLUENT 40	1.33E-02	5.22E-01	1.62E+02	2.26E-09	7.03E-09
EFFLUENT 42	8.73E-03	5.31E-01	1.71E+02	1.86E-09	6.99E-09
EFFLUENT 44	2.29E-03	5.33E-01	2.06E+02	9.51E-12	5.81E-09

TABLE B.14c. Aluminum (Al) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT2A-C)

SAMPLE	An/Ao	cua. An/Ao	DAYS	D inc.	D cua.
EFFLUENT 1	1.47E-03	1.47E-03	3.00E+00	2.12E-12	2.12E-12
EFFLUENT 2	8.61E-04	2.33E-03	1.00E+01	1.07E-12	1.60E-12
EFFLUENT 3	5.96E-04	2.92E-03	1.40E+01	3.14E-12	1.81E-12
EFFLUENT 4	2.81E-04	3.20E-03	1.70E+01	1.60E-12	1.79E-12
EFFLUENT 5	8.58E-04	4.06E-03	2.10E+01	1.03E-11	2.33E-12
EFFLUENT 6	3.86E-04	4.45E-03	2.40E+01	4.42E-12	2.44E-12
EFFLUENT 7	1.88E-04	4.64E-03	2.80E+01	6.77E-13	2.27E-12
EFFLUENT 8	3.25E-04	4.96E-03	3.10E+01	4.09E-12	2.35E-12
EFFLUENT 9	2.85E-04	5.24E-03	3.50E+01	1.99E-12	2.33E-12
COLUMN 2B					
EFFLUENT 10	5.97E-04	5.84E-03	4.50E+01	1.68E-12	2.25E-12
EFFLUENT 11	4.98E-04	6.34E-03	5.20E+01	2.91E-12	2.29E-12
EFFLUENT 12	3.69E-04	6.71E-03	5.60E+01	5.45E-12	2.38E-12
EFFLUENT 13	1.74E-05	6.73E-03	5.90E+01	2.31E-14	2.27E-12
EFFLUENT 14	9.85E-05	6.83E-03	6.30E+01	4.38E-13	2.19E-12
EFFLUENT 15	2.19E-05	6.85E-03	6.60E+01	4.07E-14	2.11E-12
EFFLUENT 16	2.86E-04	7.13E-03	7.00E+01	4.11E-12	2.15E-12
EFFLUENT 17	0.00E+00	7.13E-03	7.40E+01	0.00E+00	2.04E-12
EFFLUENT 18	7.00E-06	7.14E-03	7.80E+01	2.76E-15	1.94E-12
EFFLUENT 19	4.10E-05	7.18E-03	8.10E+01	1.76E-13	1.89E-12
EFFLUENT 21	8.34E-06	7.19E-03	8.80E+01	1.42E-15	1.74E-12
EFFLUENT 23	0.00E+00	7.19E-03	9.40E+01	0.00E+00	1.63E-12
EFFLUENT 25	0.00E+00	7.19E-03	1.01E+02	0.00E+00	1.52E-12
EFFLUENT 27	0.00E+00	7.19E-03	1.09E+02	0.00E+00	1.41E-12
EFFLUENT 29	5.90E-06	7.19E-03	1.15E+02	1.28E-15	1.33E-12
EFFLUENT 31	1.31E-05	7.21E-03	1.22E+02	4.94E-15	1.26E-12
EFFLUENT 34	0.00E+00	7.21E-03	1.36E+02	0.00E+00	1.13E-12
EFFLUENT 36	0.00E+00	7.21E-03	1.43E+02	0.00E+00	1.08E-12
EFFLUENT 38	0.00E+00	7.21E-03	1.50E+02	0.00E+00	1.03E-12
EFFLUENT 40	1.57E-05	7.22E-03	1.62E+02	3.15E-15	9.55E-13
EFFLUENT 42	1.71E-06	7.23E-03	1.71E+02	7.12E-17	9.05E-13
EFFLUENT 44	0.00E+00	7.23E-03	2.06E+02	0.00E+00	7.51E-13

TABLE B.14e. Boron (as H3BO3) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT2A-C)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D-inc.	D cum.
EFFLUENT 1	2.88E-03	2.88E-03	3.00E+00	8.21E-12	8.21E-12
EFFLUENT 2	2.90E-03	5.78E-03	1.00E+01	1.22E-11	9.91E-12
EFFLUENT 3	1.94E-03	7.73E-03	1.40E+01	3.33E-11	1.26E-11
EFFLUENT 4	8.49E-04	8.58E-03	1.70E+01	1.47E-11	1.28E-11
EFFLUENT 5	2.10E-03	1.07E-02	2.10E+01	6.19E-11	1.61E-11
EFFLUENT 6	8.02E-04	1.15E-02	2.40E+01	1.90E-11	1.63E-11
EFFLUENT 7	4.64E-04	1.19E-02	2.80E+01	4.15E-12	1.51E-11
EFFLUENT 8	7.81E-04	1.27E-02	3.10E+01	2.37E-11	1.55E-11
EFFLUENT 9	6.13E-04	1.33E-02	3.50E+01	9.17E-12	1.51E-11

COLUMN 2B					
EFFLUENT 10	1.70E-03	1.50E-02	4.50E+01	1.36E-11	1.49E-11
EFFLUENT 11	1.23E-03	1.63E-02	5.20E+01	1.78E-11	1.51E-11
EFFLUENT 12	1.09E-03	1.74E-02	5.60E+01	4.78E-11	1.59E-11
EFFLUENT 13	2.32E-04	1.76E-02	5.90E+01	4.07E-12	1.55E-11
EFFLUENT 14	4.38E-04	1.80E-02	6.30E+01	8.65E-12	1.53E-11
EFFLUENT 15	9.97E-05	1.81E-02	6.60E+01	8.45E-13	1.48E-11
EFFLUENT 16	1.30E-03	1.94E-02	7.00E+01	8.47E-11	1.60E-11
EFFLUENT 17	6.78E-04	2.01E-02	7.40E+01	2.46E-11	1.62E-11
EFFLUENT 18	5.15E-04	2.06E-02	7.80E+01	1.50E-11	1.61E-11
EFFLUENT 19	5.12E-04	2.11E-02	8.10E+01	2.74E-11	1.63E-11
EFFLUENT 21	8.38E-04	2.20E-02	8.80E+01	1.43E-11	1.62E-11
EFFLUENT 23	1.11E-03	2.31E-02	9.40E+01	3.66E-11	1.68E-11
EFFLUENT 25	8.93E-04	2.40E-02	1.01E+02	1.88E-11	1.69E-11
EFFLUENT 27	8.36E-04	2.48E-02	1.09E+02	1.36E-11	1.67E-11
EFFLUENT 29	8.34E-04	2.56E-02	1.15E+02	2.57E-11	1.69E-11
EFFLUENT 31	8.60E-04	2.65E-02	1.22E+02	2.12E-11	1.71E-11
EFFLUENT 34	1.29E-03	2.78E-02	1.36E+02	1.30E-11	1.68E-11
EFFLUENT 36	6.49E-04	2.84E-02	1.43E+02	1.42E-11	1.68E-11
EFFLUENT 38	7.70E-04	2.92E-02	1.50E+02	2.10E-11	1.69E-11
EFFLUENT 40	1.50E-03	3.07E-02	1.62E+02	2.90E-11	1.72E-11
EFFLUENT 42	1.12E-03	3.18E-02	1.71E+02	3.06E-11	1.76E-11
EFFLUENT 44	4.01E-04	3.22E-02	2.06E+02	2.93E-13	1.49E-11

TABLE B.14f. Fluoride (F) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT2A-A)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.10E-03	1.10E-03	3.00E+00	1.19E-12	1.19E-12
EFFLUENT 2	7.08E-04	1.80E-03	1.00E+01	7.26E-13	9.64E-13
EFFLUENT 3	5.20E-04	2.32E-03	1.40E+01	2.39E-12	1.14E-12
EFFLUENT 4	2.65E-04	2.59E-03	1.70E+01	1.43E-12	1.17E-12
EFFLUENT 5	8.44E-04	3.43E-03	2.10E+01	1.00E-11	1.66E-12
EFFLUENT 6	5.22E-04	3.95E-03	2.40E+01	8.06E-12	1.93E-12
EFFLUENT 7	3.24E-04	4.28E-03	2.80E+01	2.02E-12	1.94E-12
EFFLUENT 8	4.90E-04	4.77E-03	3.10E+01	9.31E-12	2.17E-12
EFFLUENT 9	7.39E-04	5.51E-03	3.50E+01	1.34E-11	2.57E-12
COLUMN 2B					
EFFLUENT 10	6.15E-04	6.12E-03	4.50E+01	1.79E-12	2.47E-12
EFFLUENT 11	7.53E-04	6.88E-03	5.20E+01	6.64E-12	2.69E-12
EFFLUENT 12	8.59E-04	7.73E-03	5.60E+01	2.95E-11	3.17E-12
EFFLUENT 13	4.71E-04	8.21E-03	5.90E+01	1.68E-11	3.38E-12
EFFLUENT 14	2.58E-04	8.46E-03	6.30E+01	3.02E-12	3.37E-12
EFFLUENT 15	5.74E-05	8.52E-03	6.60E+01	2.80E-13	3.26E-12
EFFLUENT 16	8.76E-04	9.40E-03	7.00E+01	3.87E-11	3.74E-12
EFFLUENT 17	9.02E-04	1.03E-02	7.40E+01	4.34E-11	4.25E-12
EFFLUENT 18	6.35E-04	1.09E-02	7.80E+01	2.27E-11	4.54E-12
EFFLUENT 19	5.25E-04	1.15E-02	8.10E+01	2.89E-11	4.81E-12
EFFLUENT 21	1.30E-03	1.28E-02	8.80E+01	3.44E-11	5.48E-12
EFFLUENT 23	1.61E-03	1.44E-02	9.40E+01	7.75E-11	6.51E-12
EFFLUENT 25	1.23E-03	1.56E-02	1.01E+02	3.57E-11	7.14E-12
EFFLUENT 27	1.16E-03	1.68E-02	1.09E+02	2.63E-11	7.64E-12
EFFLUENT 29	8.74E-04	1.76E-02	1.15E+02	2.82E-11	8.01E-12
EFFLUENT 31	1.02E-03	1.87E-02	1.22E+02	2.99E-11	8.45E-12
EFFLUENT 34	2.58E-03	2.12E-02	1.36E+02	5.18E-11	9.82E-12
EFFLUENT 36	1.31E-03	2.25E-02	1.43E+02	5.80E-11	1.05E-11
EFFLUENT 38	1.15E-03	2.37E-02	1.50E+02	4.67E-11	1.11E-11
EFFLUENT 40	2.11E-03	2.58E-02	1.62E+02	5.70E-11	1.22E-11
EFFLUENT 42	2.19E-03	2.80E-02	1.71E+02	1.16E-10	1.36E-11
EFFLUENT 44	5.79E-03	3.38E-02	2.06E+02	6.10E-11	1.64E-11
EFFLUENT 45	6.51E-03	4.03E-02	2.36E+02	1.23E-10	2.04E-11

TABLE B.14g. Nitrate (NO₃) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT2A-A)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	4.51E-02	4.51E-02	3.00E+00	2.01E-09	2.01E-09
EFFLUENT 2	2.59E-02	7.10E-02	1.00E+01	9.73E-10	1.50E-09
EFFLUENT 3	1.69E-02	8.80E-02	1.40E+01	2.53E-09	1.64E-09
EFFLUENT 4	1.20E-02	1.00E-01	1.70E+01	2.93E-09	1.74E-09
EFFLUENT 5	1.92E-02	1.19E-01	2.10E+01	5.19E-09	2.01E-09
EFFLUENT 6	7.95E-03	1.27E-01	2.40E+01	1.87E-09	2.00E-09
EFFLUENT 7	4.20E-03	1.31E-01	2.80E+01	3.40E-10	1.83E-09
EFFLUENT 8	7.93E-03	1.39E-01	3.10E+01	2.44E-09	1.86E-09
EFFLUENT 9	7.77E-03	1.47E-01	3.50E+01	1.47E-09	1.83E-09
COLUMN 2B					
EFFLUENT 10	1.58E-02	1.63E-01	4.50E+01	1.18E-09	3.27E-09
EFFLUENT 11	1.33E-02	1.76E-01	5.20E+01	2.06E-09	3.41E-09
EFFLUENT 12	1.09E-02	1.87E-01	5.60E+01	4.78E-09	3.64E-09
EFFLUENT 13	2.78E-03	1.90E-01	5.90E+01	5.84E-10	3.45E-09
EFFLUENT 14	4.34E-03	1.94E-01	6.30E+01	8.52E-10	3.37E-09
EFFLUENT 15	9.65E-04	1.95E-01	6.60E+01	7.91E-11	3.22E-09
EFFLUENT 16	1.46E-02	2.10E-01	7.00E+01	1.08E-08	3.61E-09
EFFLUENT 17	5.85E-03	2.16E-01	7.40E+01	1.83E-09	3.68E-09
EFFLUENT 18	4.26E-03	2.20E-01	7.80E+01	1.02E-09	3.49E-09
EFFLUENT 19	4.44E-03	2.24E-01	8.10E+01	2.06E-09	3.64E-09
EFFLUENT 21	8.89E-03	2.33E-01	8.80E+01	1.61E-09	3.61E-09
EFFLUENT 23	7.75E-03	2.41E-01	9.40E+01	1.80E-09	3.63E-09
EFFLUENT 25	5.81E-03	2.47E-01	1.01E+02	7.96E-10	3.63E-09
EFFLUENT 27	6.66E-03	2.53E-01	1.09E+02	8.62E-10	3.60E-09
EFFLUENT 29	6.37E-03	2.60E-01	1.15E+02	1.49E-09	3.41E-09
EFFLUENT 31	7.00E-03	2.67E-01	1.22E+02	1.40E-09	3.44E-09
EFFLUENT 34	2.00E-02	2.87E-01	1.36E+02	3.13E-09	1.79E-09
EFFLUENT 36	6.57E-03	2.93E-01	1.43E+02	1.46E-09	1.78E-09
EFFLUENT 38	6.26E-03	3.00E-01	1.50E+02	1.39E-09	1.77E-09
EFFLUENT 40	1.65E-02	3.16E-01	1.62E+02	3.51E-09	1.83E-09
EFFLUENT 42	8.10E-03	3.24E-01	1.71E+02	1.60E-09	1.82E-09
EFFLUENT 44	2.65E-02	3.51E-01	2.06E+02	1.28E-09	1.77E-09
EFFLUENT 45	1.02E-02	3.61E-01	2.36E+02	3.00E-10	1.64E-09

TABLE B.14i. Iodine-125 (I-125) Leach Fractions from Flow Through Test, Grout with Groundwater (2A)

SAMPLE	PORE VOLUME	COR μCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW LT2A-1	1.02E+00	4.57E-02	3.00E+00	4.90E-02	4.90E-02	2.46E-09	2.46E-09
CRW LT2A-2	1.83E+00	3.34E-02	1.00E+01	3.58E-02	8.47E-02	4.82E-09	7.37E-09
CRW LT2A-3	2.65E+00	1.99E-02	1.40E+01	2.13E-02	1.06E-01	5.25E-09	1.16E-08
CRW LT2A-4	3.05E+00	8.43E-03	1.70E+01	9.03E-03	1.15E-01	1.11E-09	1.36E-08
CRW LT2A-5	4.69E+00	1.19E-02	2.10E+01	1.28E-02	1.28E-01	1.30E-09	1.68E-08
CRW LT2A-6	5.89E+00	9.53E-03	2.40E+01	1.02E-02	1.38E-01	1.41E-09	1.96E-08
CRW LT2A-7	6.66E+00	5.22E-03	2.80E+01	5.59E-03	1.44E-01	2.51E-10	2.12E-08
CRW LT2A-8	7.83E+00	1.91E-02	3.10E+01	2.05E-02	1.64E-01	5.68E-09	2.77E-08
CRW LT2A-9	9.82E+00	1.75E-02	3.50E+01	1.88E-02	1.83E-01	2.82E-09	3.44E-08

TABLE B.14i. Iodine-125 (I-125) Leach Fraction from Flow Through Test, Grout with Groundwater (2B)

SAMPLE	PORE VOLUME	CORR. uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CN2/SEC
CRW LT2B-1	7.20E-01	1.21E-02	3.00E+00	1.28E-02	1.28E-02	1.67E-10
CRW LT2B-2	1.38E+00	1.50E-02	1.00E+01	1.59E-02	2.87E-02	9.45E-10
CRW LT2B-3	2.10E+00	1.10E-02	1.40E+01	1.16E-02	4.04E-02	1.55E-09
CRW LT2B-4	2.70E+00	1.25E-02	1.70E+01	1.33E-02	5.36E-02	2.36E-09
CRW LT2B-5	4.45E+00	2.39E-02	2.10E+01	2.54E-02	7.90E-02	5.11E-09
CRW LT2B-6	5.87E+00	2.20E-02	2.40E+01	2.34E-02	1.02E-01	7.34E-09
CRW LT2B-7	6.90E+00	4.90E-03	2.80E+01	5.20E-03	1.08E-01	2.15E-10
CRW LT2B-8	7.52E+00	8.48E-03	3.10E+01	9.01E-03	1.17E-01	1.09E-09
CRW LT2B-9	8.43E+00	1.09E-02	3.50E+01	1.16E-02	1.28E-01	1.07E-09
CRW LT2B-10	1.02E+01	2.27E-02	4.50E+01	2.41E-02	1.52E-01	1.48E-09
CRW LT2B-11	1.21E+01	1.66E-02	5.20E+01	1.76E-02	1.70E-01	1.84E-09
CRW LT2B-12	1.47E+01	1.43E-02	5.60E+01	1.52E-02	1.85E-01	2.65E-09
CRW LT2B-13	1.63E+01	8.82E-03	5.90E+01	9.36E-03	1.94E-01	1.18E-09
CRW LT2B-14	1.72E+01	6.16E-03	6.30E+01	6.54E-03	2.01E-01	3.39E-10
CRW LT2B-15	1.74E+01	4.55E-04	6.60E+01	4.83E-04	2.01E-01	3.13E-12
CRW LT2B-16	2.01E+01	2.04E-02	7.00E+01	2.17E-02	2.23E-01	3.73E-09
CRW LT2B-17	2.35E+01	8.38E-03	7.40E+01	8.89E-03	2.32E-01	7.04E-10
CRW LT2B-18	2.57E+01	5.87E-03	7.80E+01	6.23E-03	2.38E-01	3.45E-10
CRW LT2B-19	2.65E+01	5.65E-03	8.10E+01	6.00E-03	2.44E-01	4.83E-10
CRW LT2B-20	2.87E+01	9.17E-03	8.50E+01	9.74E-03	2.54E-01	7.52E-10
CRW LT2B-21	3.18E+01	6.27E-03	8.80E+01	6.66E-03	2.61E-01	5.95E-10
CRW LT2B-22	3.49E+01	6.61E-03	9.10E+01	7.02E-03	2.68E-01	5.84E-10
CRW LT2B-23	3.72E+01	2.62E-03	9.40E+01	2.79E-03	2.70E-01	9.20E-11
CRW LT2B-24	4.01E+01	6.24E-03	9.80E+01	6.63E-03	2.77E-01	3.48E-10
CRW LT2B-25	4.13E+01	3.83E-03	1.01E+02	4.07E-03	2.81E-01	2.22E-10
CRW LT2B-26	4.45E+01	8.81E-03	1.05E+02	9.35E-03	2.91E-01	6.93E-10
CRW LT2B-27	4.56E+01	2.63E-03	1.09E+02	2.79E-03	2.93E-01	6.91E-11
CRW LT2B-28	4.69E+01	6.63E-03	1.12E+02	7.03E-03	3.00E-01	6.64E-10
CRW LT2B-29	4.82E+01	5.77E-03	1.15E+02	6.13E-03	3.06E-01	4.45E-10
CRW LT2B-30	5.02E+01	6.16E-03	1.19E+02	6.54E-03	3.13E-01	3.40E-10
CRW LT2B-31	5.18E+01	5.41E-03	1.22E+02	5.74E-03	3.19E-01	4.43E-10
CRW LT2B-32	5.34E+01	4.45E-03	1.26E+02	4.73E-03	3.23E-01	1.77E-10
CRW LT2B-33	5.68E+01	1.05E-02	1.33E+02	1.12E-02	3.35E-01	5.13E-10
CRW LT2B-34	5.91E+01	3.93E-03	1.36E+02	4.17E-03	3.39E-01	3.07E-10
CRW LT2B-35	6.14E+01	5.01E-03	1.40E+02	5.32E-03	3.44E-01	2.24E-10
CRW LT2B-36	6.27E+01	3.32E-03	1.43E+02	4.05E-03	3.48E-01	2.21E-10
CRW LT2B-37	6.46E+01	3.90E-03	1.47E+02	4.14E-03	3.52E-01	1.36E-10
CRW LT2B-38	6.58E+01	6.70E-03	1.50E+02	7.12E-03	3.59E-01	6.30E-10
CRW LT2B-39	6.83E+01	7.60E-03	1.53E+02	8.07E-03	3.68E-01	7.71E-10
CRW LT2B-40	7.13E+00	5.92E-03	1.62E+02	6.29E-03	3.74E-01	1.06E-10
CRW LT2B-41	7.55E+01	3.18E-03	1.68E+02	3.37E-03	3.77E-01	6.05E-11
CRW LT2B-42	7.75E+01	3.93E-03	1.71E+02	4.17E-03	3.81E-01	2.84E-10
CRW LT2B-43	7.98E+01	4.19E-03	1.75E+02	4.44E-03	3.86E-01	1.57E-10
CRW LT2B-44	9.33E+01	5.99E-03	2.06E+02	6.34E-03	3.92E-01	2.50E-11
CRW LT2B-45	1.13E+02	9.24E-03	2.36E+02	9.61E-03	4.02E-01	1.16E-10

TABLE B.15b. Sodium (Na) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DFCOLC1)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	4.63E-02	4.63E-02	3.00E+00	2.26E-09	2.26E-09
EFFLUENT 2	4.71E-02	9.33E-02	6.00E+00	1.36E-08	4.59E-09
EFFLUENT 3	5.58E-02	1.49E-01	9.00E+00	3.25E-08	7.82E-09
EFFLUENT 4	4.56E-02	1.95E-01	1.30E+01	1.79E-08	9.23E-09
EFFLUENT 5	1.17E-02	2.06E-01	1.70E+01	1.61E-09	8.65E-09
EFFLUENT 6	1.48E-02	2.21E-01	2.00E+01	5.66E-09	8.09E-09
EFFLUENT 7	1.83E-02	2.39E-01	2.30E+01	1.02E-08	8.86E-09
EFFLUENT 8	2.32E-02	2.63E-01	2.70E+01	1.06E-08	8.57E-09
EFFLUENT 9	1.74E-02	2.80E-01	3.00E+01	1.22E-08	9.08E-09
EFFLUENT 10	1.98E-02	3.00E-01	3.40E+01	9.93E-09	9.34E-09
EFFLUENT 11	1.46E-02	3.15E-01	3.70E+01	1.07E-08	9.22E-09
EFFLUENT 12	1.62E-02	3.31E-01	4.10E+01	8.08E-09	9.57E-09
EFFLUENT 13	1.21E-02	3.43E-01	4.40E+01	8.78E-09	9.53E-09
EFFLUENT 14	1.51E-02	3.58E-01	4.90E+01	5.37E-09	9.75E-09
EFFLUENT 15	1.24E-02	3.70E-01	5.20E+01	1.09E-08	9.77E-09
EFFLUENT 16	2.00E-02	3.90E-01	5.80E+01	7.70E-09	9.89E-09
EFFLUENT 17	2.03E-02	4.11E-01	6.20E+01	1.95E-08	1.04E-08
EFFLUENT 18	1.04E-02	4.21E-01	6.50E+01	9.66E-09	1.05E-08
EFFLUENT 19	1.46E-02	4.36E-01	6.90E+01	1.13E-08	1.10E-08
EFFLUENT 20	7.13E-03	4.43E-01	7.20E+01	5.04E-09	1.06E-08
EFFLUENT 21	2.50E-03	4.45E-01	7.60E+01	3.66E-10	1.05E-08
EFFLUENT 22	3.09E-03	4.48E-01	8.00E+01	5.88E-10	1.00E-08
EFFLUENT 23	6.14E-03	4.54E-01	8.40E+01	2.44E-09	9.53E-09
EFFLUENT 24	9.31E-03	4.64E-01	8.70E+01	1.04E-08	9.69E-09

TABLE B.15c. Aluminum (Al) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DFCOLC1)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	2.53E-04	2.53E-04	3.00E+00	6.77E-14	6.77E-14
EFFLUENT 2	3.81E-04	6.34E-04	6.00E+00	8.91E-13	2.12E-13
EFFLUENT 3	6.57E-04	1.29E-03	9.00E+00	4.51E-12	5.86E-13
EFFLUENT 4	7.79E-04	2.07E-03	1.30E+01	5.23E-12	1.04E-12
EFFLUENT 5	1.92E-04	2.26E-03	1.70E+01	4.37E-13	9.52E-13
EFFLUENT 6	2.83E-04	2.54E-03	2.00E+01	2.08E-12	1.02E-12
EFFLUENT 7	4.17E-04	2.96E-03	2.30E+01	5.25E-12	1.21E-12
EFFLUENT 8	6.57E-04	3.62E-03	2.70E+01	8.52E-12	1.53E-12
EFFLUENT 9	4.56E-04	4.07E-03	3.00E+01	8.34E-12	1.75E-12
EFFLUENT 10	6.94E-04	4.77E-03	3.40E+01	1.22E-11	2.12E-12
EFFLUENT 11	5.43E-04	5.31E-03	3.70E+01	1.47E-11	2.41E-12
EFFLUENT 12	6.28E-04	5.94E-03	4.10E+01	1.22E-11	2.72E-12
EFFLUENT 13	4.35E-04	6.38E-03	4.40E+01	1.13E-11	2.92E-12
EFFLUENT 14	5.10E-04	6.88E-03	4.90E+01	6.11E-12	3.06E-12
EFFLUENT 15	4.38E-04	7.32E-03	5.20E+01	1.36E-11	3.26E-12
EFFLUENT 16	6.20E-04	7.94E-03	5.80E+01	7.43E-12	3.44E-12
EFFLUENT 17	7.14E-04	8.66E-03	6.20E+01	2.42E-11	3.82E-12
EFFLUENT 18	3.60E-04	9.02E-03	6.50E+01	1.16E-11	3.96E-12
EFFLUENT 19	4.62E-04	9.48E-03	6.90E+01	1.13E-11	4.12E-12
EFFLUENT 20	2.25E-04	9.70E-03	7.20E+01	5.01E-12	4.14E-12
EFFLUENT 21	6.72E-05	9.77E-03	7.60E+01	2.64E-13	3.97E-12
EFFLUENT 22	6.04E-05	9.83E-03	8.00E+01	2.25E-13	3.82E-12
EFFLUENT 23	1.08E-04	9.94E-03	8.40E+01	7.57E-13	3.72E-12
EFFLUENT 24	1.91E-04	1.01E-02	8.70E+01	4.39E-12	3.73E-12

TABLE B.15d. Silica (Si) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DFCOLC1)

SAMPLE	An/Ao	cu. An/Ao	DAYS	D inc.	D cu.
EFFLUENT 1	3.15E-03	3.15E-03	3.00E+00	1.04E-11	1.04E-11
EFFLUENT 2	3.88E-03	7.03E-03	6.00E+00	9.28E-11	2.61E-11
EFFLUENT 3	3.81E-03	1.08E-02	9.00E+00	1.52E-10	4.13E-11
EFFLUENT 4	2.72E-03	1.36E-02	1.30E+01	6.37E-11	4.48E-11
EFFLUENT 5	7.84E-04	1.43E-02	1.70E+01	7.25E-12	3.83E-11
EFFLUENT 6	1.08E-03	1.54E-02	2.00E+01	3.02E-11	3.76E-11
EFFLUENT 7	1.17E-03	1.66E-02	2.30E+01	4.14E-11	3.79E-11
EFFLUENT 8	1.55E-03	1.81E-02	2.70E+01	4.74E-11	3.86E-11
EFFLUENT 9	9.86E-04	1.91E-02	3.00E+01	3.89E-11	3.86E-11
EFFLUENT 10	1.26E-03	2.04E-02	3.40E+01	4.02E-11	3.87E-11
EFFLUENT 11	8.79E-04	2.13E-02	3.70E+01	3.86E-11	3.87E-11
EFFLUENT 12	9.80E-04	2.22E-02	4.10E+01	2.96E-11	3.82E-11
EFFLUENT 13	6.57E-04	2.29E-02	4.40E+01	2.58E-11	3.77E-11
EFFLUENT 14	8.20E-04	2.37E-02	4.90E+01	1.58E-11	3.63E-11
EFFLUENT 15	5.99E-04	2.43E-02	5.20E+01	2.55E-11	3.60E-11
EFFLUENT 16	1.02E-03	2.53E-02	5.80E+01	2.00E-11	3.50E-11
EFFLUENT 17	4.71E-04	2.58E-02	6.20E+01	1.05E-11	3.40E-11
EFFLUENT 18	1.17E-04	2.59E-02	6.50E+01	1.23E-12	3.27E-11
EFFLUENT 19	2.79E-04	2.62E-02	6.90E+01	4.11E-12	3.15E-11
EFFLUENT 20	1.27E-04	2.63E-02	7.20E+01	1.59E-12	3.05E-11
EFFLUENT 21	5.79E-05	2.64E-02	7.60E+01	1.96E-13	2.90E-11
EFFLUENT 22	1.10E-04	2.65E-02	8.00E+01	7.49E-13	2.78E-11
EFFLUENT 23	3.42E-04	2.68E-02	8.40E+01	7.57E-12	2.71E-11
EFFLUENT 24	5.28E-04	2.74E-02	8.70E+01	3.35E-11	2.73E-11

TABLE B.15e. Boron (as H3BO3) Leach Fractions from Flow Through Test Grout/Sediment with Groundwater (DFCOLC1)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	4.39E-03	4.39E-03	3.00E+00	2.03E-11	2.03E-11
EFFLUENT 2	3.47E-03	7.86E-03	6.00E+00	7.41E-11	3.26E-11
EFFLUENT 3	2.73E-03	1.06E-02	9.00E+00	7.76E-11	3.94E-11
EFFLUENT 4	1.67E-03	1.23E-02	1.30E+01	2.41E-11	3.65E-11
EFFLUENT 5	6.30E-04	1.29E-02	1.70E+01	4.69E-12	3.09E-11
EFFLUENT 6	9.36E-04	1.38E-02	2.00E+01	2.28E-11	3.02E-11
EFFLUENT 7	9.17E-04	1.47E-02	2.30E+01	2.54E-11	2.99E-11
EFFLUENT 8	1.01E-03	1.57E-02	2.70E+01	2.02E-11	2.91E-11
EFFLUENT 9	6.76E-04	1.64E-02	3.00E+01	1.83E-11	2.85E-11
EFFLUENT 10	8.47E-04	1.73E-02	3.40E+01	1.81E-11	2.78E-11
EFFLUENT 11	6.22E-04	1.79E-02	3.70E+01	1.93E-11	2.74E-11
EFFLUENT 12	7.63E-04	1.87E-02	4.10E+01	1.79E-11	2.69E-11
EFFLUENT 13	5.90E-04	1.92E-02	4.40E+01	2.08E-11	2.66E-11
EFFLUENT 14	7.20E-04	2.00E-02	4.90E+01	1.22E-11	2.57E-11
EFFLUENT 15	5.58E-04	2.05E-02	5.20E+01	2.21E-11	2.56E-11
EFFLUENT 16	9.68E-04	2.15E-02	5.80E+01	1.81E-11	2.52E-11
EFFLUENT 17	5.02E-04	2.20E-02	6.20E+01	1.19E-11	2.47E-11
EFFLUENT 18	3.63E-04	2.24E-02	6.50E+01	1.18E-11	2.43E-11
EFFLUENT 19	7.23E-04	2.31E-02	6.90E+01	2.77E-11	2.44E-11
EFFLUENT 20	4.04E-04	2.35E-02	7.20E+01	1.62E-11	2.42E-11
EFFLUENT 21	1.87E-04	2.37E-02	7.60E+01	2.04E-12	2.33E-11
EFFLUENT 22	3.20E-04	2.40E-02	8.00E+01	6.32E-12	2.28E-11
EFFLUENT 23	6.84E-04	2.47E-02	8.40E+01	3.04E-11	2.29E-11
EFFLUENT 24	6.93E-04	2.54E-02	8.70E+01	5.78E-11	2.34E-11

TABLE B.15f. Fluoride (F) Leach Fractions from Flow Through Test Grout/Sediment with Groundwater (DFCOLC1A)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.05E-03	1.05E-03	3.00E+00	1.17E-12	1.17E-12
EFFLUENT 2	8.04E-04	1.86E-03	6.00E+00	3.98E-12	1.82E-12
EFFLUENT 3	8.07E-04	2.66E-03	9.00E+00	6.80E-12	2.49E-12
EFFLUENT 4	6.69E-04	3.33E-03	1.30E+01	3.86E-12	2.70E-12
EFFLUENT 5	2.19E-04	3.55E-03	1.70E+01	5.65E-13	2.35E-12
EFFLUENT 6	3.20E-04	3.87E-03	2.00E+01	2.66E-12	2.37E-12
EFFLUENT 7	3.47E-04	4.22E-03	2.30E+01	3.64E-12	2.45E-12
EFFLUENT 8	4.93E-04	4.71E-03	2.70E+01	4.80E-12	2.60E-12
EFFLUENT 9	3.54E-04	5.07E-03	3.00E+01	5.02E-12	2.71E-12
EFFLUENT 10	4.34E-04	5.50E-03	3.40E+01	4.77E-12	2.82E-12
EFFLUENT 11	3.50E-04	5.85E-03	3.70E+01	6.11E-12	2.93E-12
EFFLUENT 12	4.30E-04	6.28E-03	4.10E+01	5.69E-12	3.04E-12
EFFLUENT 13	3.26E-04	6.61E-03	4.40E+01	6.34E-12	3.14E-12
EFFLUENT 14	4.34E-04	7.04E-03	4.90E+01	4.44E-12	3.20E-12
EFFLUENT 15	3.45E-04	7.38E-03	5.20E+01	8.44E-12	3.32E-12
EFFLUENT 16	5.70E-04	7.95E-03	5.80E+01	6.27E-12	3.45E-12
EFFLUENT 17	4.42E-04	8.40E-03	6.20E+01	9.27E-12	3.60E-12
EFFLUENT 18	4.50E-04	8.85E-03	6.50E+01	1.81E-11	3.81E-12
EFFLUENT 19	7.07E-04	9.55E-03	6.90E+01	2.65E-11	4.19E-12
EFFLUENT 20	4.18E-04	9.97E-03	7.20E+01	1.73E-11	4.37E-12
EFFLUENT 21	1.70E-04	1.01E-02	7.60E+01	1.70E-12	4.28E-12
EFFLUENT 22	2.35E-04	1.04E-02	8.00E+01	3.40E-12	4.26E-12
EFFLUENT 23	3.94E-04	1.08E-02	8.40E+01	1.01E-11	4.37E-12
EFFLUENT 24	4.14E-04	1.12E-02	8.70E+01	2.06E-11	4.55E-12

TABLE B.15g. Nitrate (NO₃) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DFCOLC1A)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	6.53E-02	6.53E-02	3.00E+00	4.50E-09	4.50E-09
EFFLUENT 2	2.83E-02	9.36E-02	6.00E+00	4.92E-09	4.62E-09
EFFLUENT 3	2.23E-02	1.16E-01	9.00E+00	5.18E-09	4.72E-09
EFFLUENT 4	1.41E-02	1.30E-01	1.30E+01	1.71E-09	4.11E-09
EFFLUENT 5	6.32E-03	1.36E-01	1.70E+01	4.72E-10	3.46E-09
EFFLUENT 6	8.35E-03	1.45E-01	2.00E+01	1.81E-09	3.31E-09
EFFLUENT 7	1.21E-02	1.57E-01	2.30E+01	4.40E-09	3.38E-09
EFFLUENT 8	7.51E-03	1.64E-01	2.70E+01	1.11E-09	3.16E-09
EFFLUENT 9	8.16E-03	1.72E-01	3.00E+01	2.67E-09	3.13E-09
EFFLUENT 10	7.59E-03	1.80E-01	3.40E+01	1.46E-09	3.01E-09
EFFLUENT 11	5.90E-03	1.86E-01	3.70E+01	1.74E-09	2.95E-09
EFFLUENT 12	6.81E-03	1.93E-01	4.10E+01	1.43E-09	2.86E-09
EFFLUENT 13	6.83E-03	1.99E-01	4.40E+01	2.79E-09	2.86E-09
EFFLUENT 14	7.81E-03	2.07E-01	4.90E+01	1.43E-09	3.00E-09
EFFLUENT 15	5.82E-03	2.13E-01	5.20E+01	2.40E-09	2.83E-09
EFFLUENT 16	8.33E-03	2.21E-01	5.80E+01	1.34E-09	2.79E-09
EFFLUENT 17	4.18E-03	2.26E-01	6.20E+01	8.27E-10	2.86E-09
EFFLUENT 18	3.76E-03	2.29E-01	6.50E+01	1.26E-09	2.73E-09
EFFLUENT 19	6.45E-03	2.36E-01	6.90E+01	2.21E-09	2.95E-09
EFFLUENT 20	3.76E-03	2.40E-01	7.20E+01	1.40E-09	2.83E-09
EFFLUENT 21	2.34E-03	2.42E-01	7.60E+01	3.21E-10	2.68E-09
EFFLUENT 22	3.50E-03	2.45E-01	8.00E+01	7.55E-10	2.65E-09
EFFLUENT 23	5.60E-03	2.51E-01	8.40E+01	2.03E-09	2.53E-09
EFFLUENT 24	7.69E-03	2.59E-01	8.70E+01	7.10E-09	2.66E-09

TABLE B.15h. Sulfate (SO₄) Leach Fractions from Flow Through Test
Grout/Sediment with Groundwater (DFCOLC1A)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.34E-01	1.34E-01	3.00E+00	1.89E-08	1.89E-08
EFFLUENT 2	3.00E-02	1.64E-01	6.00E+00	5.52E-09	1.42E-08
EFFLUENT 3	2.57E-02	1.90E-01	9.00E+00	6.87E-09	1.26E-08
EFFLUENT 4	1.18E-02	2.01E-01	1.30E+01	1.19E-09	9.87E-09
EFFLUENT 5	5.99E-03	2.07E-01	1.70E+01	4.24E-10	8.65E-09
EFFLUENT 6	1.24E-02	2.20E-01	2.00E+01	3.97E-09	8.09E-09
EFFLUENT 7	9.11E-03	2.29E-01	2.30E+01	2.51E-09	7.72E-09
EFFLUENT 8	9.57E-03	2.38E-01	2.70E+01	1.81E-09	7.54E-09
EFFLUENT 9	1.37E-02	2.52E-01	3.00E+01	7.56E-09	7.08E-09
EFFLUENT 10	4.44E-03	2.57E-01	3.40E+01	4.98E-10	6.81E-09
EFFLUENT 11	2.62E-03	2.59E-01	3.70E+01	3.41E-10	6.26E-09
EFFLUENT 12	1.28E-03	2.60E-01	4.10E+01	5.08E-11	5.65E-09
EFFLUENT 13	3.80E-03	2.64E-01	4.40E+01	8.65E-10	5.26E-09
EFFLUENT 14	6.97E-03	2.71E-01	4.90E+01	1.14E-09	5.15E-09
EFFLUENT 15	2.58E-03	2.74E-01	5.20E+01	4.71E-10	4.85E-09
EFFLUENT 16	9.13E-03	2.83E-01	5.80E+01	1.61E-09	4.70E-09
EFFLUENT 17	0.00E+00	2.83E-01	6.20E+01	0.00E+00	4.39E-09
EFFLUENT 18	0.00E+00	2.83E-01	6.50E+01	0.00E+00	4.19E-09
EFFLUENT 19	0.00E+00	2.83E-01	6.90E+01	0.00E+00	3.95E-09
EFFLUENT 20	5.49E-03	2.88E-01	7.20E+01	2.99E-09	4.10E-09
EFFLUENT 21	1.07E-03	2.89E-01	7.60E+01	6.70E-11	3.86E-09
EFFLUENT 22	6.89E-03	2.96E-01	8.00E+01	2.93E-09	3.97E-09
EFFLUENT 23	1.86E-02	3.15E-01	8.40E+01	2.25E-08	4.36E-09
EFFLUENT 24	6.99E-03	3.22E-01	8.70E+01	5.87E-09	4.21E-09

TABLE B.15i. Cesium-137 (CS-137) Leach Fractions from Flow Through Test,
Grout/Sediment with Groundwater (C1)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW C1-1	1.78E+00	4.35E-11	3.00E+00	1.06E-11	1.06E-11	1.18E-28	1.18E-28
CRW C1-2	3.94E+00	2.57E-10	6.00E+00	6.27E-11	7.32E-11	4.80E-26	2.82E-27
CRW C1-3	6.52E+00	5.61E-11	9.00E+00	1.37E-11	8.69E-11	2.29E-27	2.64E-27
CRW C1-4	9.80E+00	5.85E-11	1.30E+01	1.42E-11	1.01E-10	1.66E-27	2.48E-27
CRW C1-5	1.08E+01	2.05E-11	1.70E+01	5.01E-12	1.06E-10	2.30E-28	2.09E-27
CRW C1-6	1.20E+01	1.43E-10	2.00E+01	3.49E-11	1.41E-10	1.69E-26	3.13E-27
CRW C1-7	1.35E+01	3.49E-11	2.30E+01	8.51E-12	1.50E-10	8.86E-28	3.06E-27
CRW C1-8	1.57E+01	2.61E-10	2.70E+01	6.36E-11	2.13E-10	3.31E-26	5.30E-27
CRW C1-9	1.73E+01	3.89E-11	3.00E+01	9.48E-12	2.23E-10	1.25E-27	5.20E-27
CRW C1-10	1.98E+01	5.07E-11	3.40E+01	1.24E-11	2.35E-10	1.25E-27	5.12E-27
CRW C1-11	2.18E+01	4.22E-11	3.70E+01	1.03E-11	2.45E-10	1.46E-27	5.12E-27
CRW C1-12	2.43E+01	5.18E-11	4.10E+01	1.26E-11	2.58E-10	1.30E-27	5.11E-27
CRW C1-13	2.62E+01	6.94E-11	4.40E+01	1.69E-11	2.75E-10	3.97E-27	5.41E-27
CRW C1-14	2.87E+01	7.74E-11	4.90E+01	1.89E-11	2.94E-10	2.15E-27	5.54E-27
CRW C1-15	3.07E+01	3.55E-11	5.20E+01	8.65E-12	3.02E-10	1.15E-27	5.54E-27
CRW C1-16	3.37E+01	1.16E-10	5.80E+01	2.82E-11	3.31E-10	3.76E-27	5.93E-27
CRW C1-17	3.80E+01	1.05E-10	6.20E+01	2.56E-11	3.56E-10	7.21E-27	6.45E-27
CRW C1-18	4.11E+01	6.20E-11	6.50E+01	1.51E-11	3.71E-10	3.17E-27	6.68E-27
CRW C1-19	4.54E+01	9.61E-11	6.90E+01	2.34E-11	3.95E-10	4.49E-27	7.11E-27
CRW C1-20	4.78E+01	4.42E-11	7.20E+01	1.08E-11	4.06E-10	1.61E-27	7.19E-27
CRW C1-21	4.86E+01	6.29E-12	7.60E+01	1.53E-12	4.07E-10	1.93E-29	6.87E-27
CRW C1-22	4.96E+01	2.61E-11	8.10E+01	6.35E-12	4.13E-10	2.71E-28	6.65E-27
CRW C1-23	5.10E+01	2.88E-11	8.40E+01	7.02E-12	4.20E-10	7.58E-28	6.63E-27
CRW C1-24	5.30E+01	1.06E-11	8.70E+01	2.58E-12	4.23E-10	8.14E-29	6.48E-27
CRW C1-25	5.56E+01	2.15E-11	9.10E+01	5.23E-12	4.28E-10	2.24E-28	6.35E-27

TABLE B.15i. Cesium-1379 (CS-137) Leach Fractions from Flow Through Test,
Grout/Sediment with Groundwater (C2)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW C2-1	1.64E+00	1.84E-10	3.00E+00	4.38E-11	4.38E-11	2.04E-27	2.04E-27
CRW C2-2	3.38E+00	3.26E-11	6.00E+00	7.77E-12	5.16E-11	7.46E-28	1.41E-27
CRW C2-3	5.03E+00	2.10E-11	9.00E+00	5.00E-12	5.66E-11	3.08E-28	1.13E-27
CRW C2-4	9.30E+00	4.98E-11	1.30E+01	1.19E-11	6.85E-11	1.16E-27	1.15E-27
CRW C2-5	1.06E+01	2.64E-11	1.70E+01	6.30E-12	7.48E-11	3.68E-28	1.05E-27
CRW C2-6	1.22E+01	3.37E-11	2.00E+01	6.03E-12	8.28E-11	9.01E-28	1.09E-27
CRW C2-7	1.41E+01	5.09E-11	2.30E+01	1.21E-11	9.49E-11	1.82E-27	1.24E-27
CRW C2-8	1.79E+01	3.82E-11	2.70E+01	9.12E-12	1.04E-10	6.86E-28	1.27E-27
CRW C2-9	2.03E+01	1.28E-11	3.00E+01	3.04E-12	1.07E-10	1.29E-28	1.21E-27
CRW C2-10	2.36E+01	1.79E-11	3.40E+01	4.27E-12	1.11E-10	1.50E-28	1.16E-27
CRW C2-11	2.62E+01	8.28E-11	3.70E+01	1.97E-11	1.31E-10	5.44E-27	1.48E-27
CRW C2-12	2.94E+01	2.79E-10	4.10E+01	6.65E-11	1.98E-10	3.65E-26	3.03E-27
CRW C2-13	3.19E+01	4.59E-11	4.40E+01	1.09E-11	2.09E-10	1.67E-27	3.14E-27

TABLE B.15j. Strontium-85 (SR-85) Leach Fractions from Flow Through Test,
Grout/Sediment with Groundwater (C2)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW C2-1	1.64E+00	4.14E-11	3.00E+00	5.21E-10	5.21E-10	5.74E-25	2.67E-25
CRW C2-2	3.38E+00	1.23E-10	6.00E+00	1.54E-09	2.07E-09	2.94E-23	2.26E-24
CRW C2-3	5.03E+00	2.26E-11	9.00E+00	2.85E-10	2.35E-09	1.00E-24	1.95E-24
CRW C2-4	9.30E+00	5.89E-11	1.30E+01	7.41E-10	3.09E-09	4.54E-24	2.34E-24
CRW C2-5	1.06E+01	6.37E-11	1.70E+01	8.02E-10	3.89E-09	5.95E-24	2.83E-24
CRW C2-6	1.22E+01	7.80E-11	2.00E+01	9.83E-10	4.68E-09	1.35E-23	3.78E-24
CRW C2-7	1.41E+01	2.84E-11	2.30E+01	3.57E-10	5.23E-09	1.58E-24	3.78E-24
CRW C2-8	1.79E+01	2.96E-11	2.70E+01	3.73E-10	5.61E-09	1.15E-24	3.70E-24
CRW C2-9	2.03E+01	3.26E-11	3.00E+01	4.11E-10	6.02E-09	2.36E-24	3.83E-24
CRW C2-10	2.36E+01	2.23E-11	3.40E+01	2.80E-10	6.30E-09	6.50E-25	3.70E-24
CRW C2-11	2.62E+01	6.54E-11	3.70E+01	1.08E-09	7.37E-09	1.62E-23	4.67E-24
CRW C2-12	2.94E+01	2.48E-10	4.10E+01	3.12E-09	1.05E-08	8.05E-23	8.53E-24
CRW C2-13	3.19E+01	7.27E-11	4.40E+01	9.16E-10	1.14E-08	1.17E-23	9.40E-24

TABLE B.16a. Potassium (K) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT1A-C)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	9.82E-03	9.82E-03	3.00E+00	9.53E-11	9.53E-11
EFFLUENT 2	6.90E-03	1.67E-02	1.00E+01	6.89E-11	8.29E-11
EFFLUENT 3	5.42E-02	7.10E-02	1.40E+01	2.60E-08	1.07E-09
EFFLUENT 4	0.00E+00	7.10E-02	1.70E+01	0.00E+00	8.78E-10
EFFLUENT 5	2.60E-02	9.69E-02	2.10E+01	9.48E-09	1.33E-09
EFFLUENT 6	1.72E-02	1.14E-01	2.40E+01	8.76E-09	1.61E-09
EFFLUENT 7	4.86E-03	1.19E-01	2.80E+01	4.54E-10	1.50E-09
EFFLUENT 8	1.64E-02	1.35E-01	3.10E+01	1.05E-08	1.75E-09
EFFLUENT 9	9.01E-03	1.44E-01	3.50E+01	1.98E-09	1.77E-09
COLUMN 1B					
EFFLUENT 10	1.57E-02	1.60E-01	4.50E+01	1.16E-09	1.69E-09
EFFLUENT 11	1.26E-02	1.73E-01	5.20E+01	1.85E-09	1.70E-09
EFFLUENT 12	1.01E-02	1.83E-01	5.60E+01	4.11E-09	1.77E-09
EFFLUENT 13	6.76E-03	1.90E-01	5.90E+01	3.46E-09	1.81E-09
EFFLUENT 14	6.18E-03	1.96E-01	6.30E+01	1.73E-09	1.80E-09
EFFLUENT 15	2.99E-03	1.99E-01	6.60E+01	7.58E-10	1.77E-09
EFFLUENT 16	2.73E-03	2.01E-01	7.00E+01	3.75E-10	1.72E-09
EFFLUENT 17	1.14E-03	2.03E-01	7.40E+01	6.98E-11	1.64E-09
EFFLUENT 18	9.99E-04	2.04E-01	7.80E+01	5.62E-11	1.58E-09
EFFLUENT 19	1.93E-03	2.06E-01	8.10E+01	3.88E-10	1.55E-09

TABLE B.16b. Sodium (Na) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT1A-C)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.92E-02	1.92E-02	3.00E+00	3.66E-10	3.66E-10
EFFLUENT 2	1.15E-02	3.08E-02	1.00E+01	1.92E-10	2.80E-10
EFFLUENT 3	8.27E-02	1.13E-01	1.40E+01	6.04E-08	2.73E-09
EFFLUENT 4	2.54E-03	1.16E-01	1.70E+01	1.32E-10	2.35E-09
EFFLUENT 5	4.00E-02	1.56E-01	2.10E+01	2.25E-08	3.44E-09
EFFLUENT 6	2.91E-02	1.85E-01	2.40E+01	2.51E-08	4.23E-09
EFFLUENT 7	8.15E-03	1.93E-01	2.80E+01	1.28E-09	3.95E-09
EFFLUENT 8	2.49E-02	2.18E-01	3.10E+01	2.40E-08	5.22E-09
EFFLUENT 9	1.32E-02	2.31E-01	3.50E+01	4.28E-09	5.07E-09
COLUMN 1B					
EFFLUENT 10	2.93E-02	2.61E-01	4.50E+01	4.06E-09	5.14E-09
EFFLUENT 11	2.22E-02	2.83E-01	5.20E+01	5.77E-09	5.24E-09
EFFLUENT 12	1.70E-02	3.00E-01	5.60E+01	1.16E-08	5.67E-09
EFFLUENT 13	1.25E-02	3.13E-01	5.90E+01	1.24E-08	5.76E-09
EFFLUENT 14	1.12E-02	3.24E-01	6.30E+01	5.68E-09	5.62E-09
EFFLUENT 15	9.22E-03	3.33E-01	6.60E+01	7.22E-09	5.95E-09
EFFLUENT 16	9.02E-03	3.42E-01	7.00E+01	4.10E-09	5.95E-09
EFFLUENT 17	7.75E-03	3.50E-01	7.40E+01	3.20E-09	6.05E-09
EFFLUENT 18	6.46E-03	3.56E-01	7.80E+01	2.35E-09	6.13E-09
EFFLUENT 19	6.51E-03	3.63E-01	8.10E+01	4.44E-09	5.90E-09

TABLE B.16c. Aluminum (Al) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT1A-C)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	4.16E-04	4.16E-04	3.00E+00	1.71E-13	1.71E-13
EFFLUENT 2	2.26E-04	6.42E-04	1.00E+01	7.39E-14	1.22E-13
EFFLUENT 3	1.79E-03	2.43E-03	1.40E+01	2.82E-11	1.25E-12
EFFLUENT 4	6.99E-04	3.13E-03	1.70E+01	9.95E-12	1.71E-12
EFFLUENT 5	9.27E-04	4.06E-03	2.10E+01	1.21E-11	2.32E-12
EFFLUENT 6	6.24E-04	4.68E-03	2.40E+01	1.15E-11	2.70E-12
EFFLUENT 7	1.80E-04	4.86E-03	2.80E+01	6.26E-13	2.50E-12
EFFLUENT 8	2.48E-04	5.11E-03	3.10E+01	2.39E-12	2.49E-12
EFFLUENT 9	3.11E-04	5.42E-03	3.50E+01	2.36E-12	2.49E-12

COLUMN 18					
EFFLUENT 10	3.76E-04	5.80E-03	4.50E+01	6.68E-13	2.21E-12
EFFLUENT 11	3.16E-04	6.11E-03	5.20E+01	1.17E-12	2.13E-12
EFFLUENT 12	1.92E-04	6.30E-03	5.60E+01	1.48E-12	2.10E-12
EFFLUENT 13	1.14E-04	6.42E-03	5.90E+01	9.85E-13	2.07E-12
EFFLUENT 14	1.46E-06	6.42E-03	6.30E+01	9.58E-17	1.94E-12
EFFLUENT 15	2.82E-06	6.42E-03	6.60E+01	6.73E-16	1.85E-12
EFFLUENT 16	0.00E+00	6.42E-03	7.00E+01	0.00E+00	1.75E-12
EFFLUENT 17	0.00E+00	6.42E-03	7.40E+01	0.00E+00	1.65E-12
EFFLUENT 18	0.00E+00	6.42E-03	7.80E+01	0.00E+00	1.57E-12
EFFLUENT 19	1.77E-05	6.44E-03	8.10E+01	3.27E-14	1.52E-12

TABLE B.16e. Boron (as H3BO3) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT1A-C)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.43E-03	1.43E-03	3.00E+00	2.02E-12	2.02E-12
EFFLUENT 2	7.23E-04	2.15E-03	1.00E+01	7.58E-13	1.38E-12
EFFLUENT 3	5.84E-03	8.00E-03	1.40E+01	3.01E-10	1.35E-11
EFFLUENT 4	4.16E-03	1.22E-02	1.70E+01	3.52E-10	2.58E-11
EFFLUENT 5	4.09E-03	1.62E-02	2.10E+01	2.35E-10	3.72E-11
EFFLUENT 6	1.38E-03	1.76E-02	2.40E+01	5.63E-11	3.84E-11
EFFLUENT 7	2.78E-03	2.04E-02	2.80E+01	1.49E-10	4.41E-11
EFFLUENT 8	1.40E-03	2.18E-02	3.10E+01	7.66E-11	4.55E-11
EFFLUENT 9	6.87E-04	2.25E-02	3.50E+01	1.15E-11	4.29E-11

COLUMN 18					
EFFLUENT 10	1.39E-03	2.39E-02	4.50E+01	9.19E-12	3.76E-11
EFFLUENT 11	1.02E-03	2.49E-02	5.20E+01	1.21E-11	3.54E-11
EFFLUENT 12	7.43E-04	2.57E-02	5.60E+01	2.21E-11	3.46E-11
EFFLUENT 13	5.83E-04	2.62E-02	5.90E+01	2.58E-11	3.46E-11
EFFLUENT 14	5.05E-04	2.67E-02	6.30E+01	1.17E-11	3.36E-11
EFFLUENT 15	5.78E-04	2.73E-02	6.60E+01	2.84E-11	3.35E-11
EFFLUENT 16	4.70E-04	2.78E-02	7.00E+01	1.11E-11	3.27E-11
EFFLUENT 17	7.16E-04	2.85E-02	7.40E+01	2.73E-11	3.25E-11
EFFLUENT 18	8.15E-04	2.93E-02	7.80E+01	3.74E-11	3.27E-11
EFFLUENT 19	6.34E-04	3.00E-02	8.10E+01	4.21E-11	3.28E-11

TABLE B.16f. Fluoride (F) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT1A-A)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.16E-03	1.16E-03	3.00E+00	1.34E-12	1.34E-12
EFFLUENT 2	8.05E-04	1.97E-03	1.00E+01	9.39E-13	1.15E-12
EFFLUENT 3	5.90E-03	7.87E-03	1.40E+01	3.07E-10	1.31E-11
EFFLUENT 4	0.00E+00	7.87E-03	1.70E+01	0.00E+00	1.08E-11
EFFLUENT 5	3.29E-03	1.12E-02	2.10E+01	1.52E-10	1.76E-11
EFFLUENT 6	2.29E-03	1.35E-02	2.40E+01	1.56E-10	2.23E-11
EFFLUENT 7	9.10E-04	1.44E-02	2.80E+01	1.59E-11	2.18E-11
EFFLUENT 8	2.14E-03	1.65E-02	3.10E+01	1.78E-10	2.60E-11
EFFLUENT 9	1.32E-03	1.78E-02	3.50E+01	4.26E-11	2.69E-11
COLUMN 1B					
EFFLUENT 10	2.63E-03	2.05E-02	4.50E+01	3.26E-11	2.76E-11
EFFLUENT 11	2.23E-03	2.27E-02	5.20E+01	5.84E-11	2.93E-11
EFFLUENT 12	2.19E-03	2.49E-02	5.60E+01	1.92E-10	3.27E-11
EFFLUENT 13	1.84E-03	2.67E-02	5.90E+01	2.55E-10	3.58E-11
EFFLUENT 14	2.01E-03	2.87E-02	6.30E+01	1.83E-10	3.88E-11
EFFLUENT 15	1.65E-03	3.04E-02	6.60E+01	2.31E-10	4.14E-11
EFFLUENT 16	1.79E-03	3.22E-02	7.00E+01	1.61E-10	4.38E-11
EFFLUENT 17	1.49E-03	3.36E-02	7.40E+01	1.19E-10	4.53E-11
EFFLUENT 18	1.00E-03	3.47E-02	7.80E+01	5.66E-11	4.56E-11
EFFLUENT 19	7.97E-04	3.54E-02	8.10E+01	6.64E-11	4.60E-11

TABLE B.16g. Nitrate (NO3) Leach Fractions from Flow Through Test Whole Grout with Groundwater (COLT1A-A)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.07E-02	1.07E-02	3.00E+00	1.13E-10	1.13E-10
EFFLUENT 2	6.42E-03	1.71E-02	1.00E+01	5.97E-11	8.66E-11
EFFLUENT 3	1.38E-02	3.09E-02	1.40E+01	1.67E-09	2.02E-10
EFFLUENT 4	1.64E-02	4.73E-02	1.70E+01	5.51E-09	3.90E-10
EFFLUENT 5	6.35E-02	1.11E-01	2.10E+01	5.66E-08	1.73E-09
EFFLUENT 6	1.03E-02	1.21E-01	2.40E+01	3.11E-09	1.81E-09
EFFLUENT 7	3.55E-03	1.25E-01	2.80E+01	2.43E-10	1.64E-09
EFFLUENT 8	1.27E-02	1.37E-01	3.10E+01	6.31E-09	1.80E-09
EFFLUENT 9	6.35E-03	1.44E-01	3.50E+01	9.84E-10	1.75E-09
COLUMN 1B					
EFFLUENT 10	1.52E-02	1.59E-01	4.50E+01	1.10E-09	1.66E-09
EFFLUENT 11	1.02E-02	1.69E-01	5.20E+01	1.23E-09	1.63E-09
EFFLUENT 12	1.23E-02	1.81E-01	5.60E+01	6.02E-09	1.74E-09
EFFLUENT 13	6.55E-03	1.88E-01	5.90E+01	3.25E-09	1.78E-09
EFFLUENT 14	4.97E-03	1.93E-01	6.30E+01	1.11E-09	1.75E-09
EFFLUENT 15	4.40E-03	1.97E-01	6.60E+01	1.65E-09	1.75E-09
EFFLUENT 16	3.60E-03	2.01E-01	7.00E+01	6.52E-10	1.71E-09
EFFLUENT 17	4.06E-03	2.05E-01	7.40E+01	3.69E-10	1.99E-09
EFFLUENT 18	3.48E-03	2.09E-01	7.80E+01	6.81E-10	1.89E-09
EFFLUENT 19	3.95E-03	2.12E-01	8.10E+01	1.63E-09	1.82E-09

TABLE B.16i. Cesium-137 (CS-137) Leach Fractions from Flow Through Test, Grout with Groundwater (1B)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW 1B-1	9.30E-01	1.09E-10	3.00E+00	2.64E-11	2.64E-11	7.51E-28	7.51E-28
CRW 1B-2	2.42E+00	2.32E-10	1.00E+01	5.62E-11	8.26E-11	1.25E-26	2.21E-27
CRW 1B-3	3.60E+00	5.80E-11	1.40E+01	1.40E-11	9.66E-11	2.39E-27	2.16E-27
CRW 1B-4	4.42E+00	1.09E-10	1.70E+01	2.63E-11	1.23E-10	9.86E-27	2.88E-27
CRW 1B-5	6.82E+00	2.87E-10	2.10E+01	6.95E-11	1.92E-10	4.06E-26	5.71E-27
CRW 1B-6	8.52E+00	1.32E-10	2.40E+01	3.18E-11	2.24E-10	1.44E-26	6.78E-27
CRW 1B-7	9.47E+00	6.38E-11	2.80E+01	1.54E-11	2.40E-10	2.01E-27	6.64E-27
CRW 1B-8	1.09E+01	6.50E-11	3.10E+01	1.57E-11	2.55E-10	3.52E-27	6.81E-27
CRW 1B-9	1.32E+01	1.62E-10	3.50E+01	3.91E-11	2.95E-10	1.29E-26	8.02E-27
CRW 1B-10	1.56E+01	1.41E-10	4.50E+01	3.42E-11	3.29E-10	3.17E-27	7.77E-27
CRW 1B-11	1.78E+01	1.02E-10	5.20E+01	2.46E-11	3.53E-10	3.81E-27	7.77E-27
CRW 1B-12	2.04E+01	1.78E-10	5.60E+01	4.30E-11	3.96E-10	2.24E-26	9.08E-27
CRW 1B-13	2.30E+01	8.72E-11	5.90E+01	2.11E-11	4.18E-10	6.35E-27	9.56E-27
CRW 1B-14	2.61E+01	2.39E-10	6.30E+01	5.79E-11	4.75E-10	2.82E-26	1.16E-26
CRW 1B-15	2.91E+01	3.71E-10	6.60E+01	8.99E-11	5.65E-10	1.15E-25	1.57E-26
CRW 1B-16	3.25E+01	2.58E-10	7.00E+01	6.24E-11	6.28E-10	3.27E-26	1.82E-26
CRW 1B-17	3.55E+01	2.17E-10	7.40E+01	5.25E-11	6.80E-10	2.60E-26	2.02E-26
CRW 1B-18	3.75E+01	2.19E-10	7.80E+01	5.31E-11	7.33E-10	2.65E-26	2.23E-26
CRW 1B-19	3.89E+01	1.55E-10	8.10E+01	3.75E-11	7.71E-10	2.01E-26	2.37E-26
CRW 1B-20	4.11E+01	1.12E-10	8.50E+01	2.70E-11	7.98E-10	6.13E-27	2.42E-26

TABLE B.16j. Strontium-85 (SR-85) Leach Fractions from Flow Through Test Grout with Groundwater (1A)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW 1A-1	3.10E-01	4.02E-11	3.00E+00	5.49E-10	5.49E-10	3.69E-25	3.69E-25
CRW 1A-2	5.10E-01	2.01E-11	1.00E+01	2.75E-10	8.24E-10	2.14E-25	2.49E-25
CRW 1A-3	1.37E+00	1.76E-10	1.40E+01	2.40E-09	3.23E-09	1.54E-23	2.73E-24
CRW 1A-4	1.98E+00	6.21E-11	1.70E+01	8.49E-10	4.07E-09	1.68E-24	3.58E-24
CRW 1A-5	3.16E+00	1.78E-10	2.40E+01	2.43E-09	6.51E-09	1.11E-23	6.47E-24
CRW 1A-6	4.12E+00	1.47E-10	3.10E+01	2.01E-09	8.51E-09	4.18E-23	8.58E-24
CRW 1A-8	6.24E+00	1.04E-10	3.50E+01	1.42E-09	9.94E-09	2.79E-23	1.04E-23
CRW 1A-9	7.13E+00	6.21E-11	4.50E+01	8.48E-10	1.08E-08	2.21E-24	9.49E-24

TABLE B.16j. Strontium-85 (SR-85) Leach Fractions from Flow Through Test, Grout with Groundwater (1B)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW 1B-1	9.30E-01	4.75E-11	3.00E+00	6.48E-10	6.48E-10	4.53E-25	4.53E-25
CRW 1B-2	2.42E+00	1.60E-10	1.00E+01	2.18E-09	2.83E-09	1.88E-23	2.59E-24
CRW 1B-3	3.60E+00	8.98E-11	1.40E+01	1.23E-09	4.05E-09	1.82E-23	3.80E-24
CRW 1B-4	4.42E+00	1.01E-10	1.70E+01	1.38E-09	5.43E-09	2.69E-23	5.61E-24
CRW 1B-5	6.82E+00	4.34E-11	2.10E+01	5.93E-10	6.02E-09	2.95E-24	5.58E-24
CRW 1B-6	8.52E+00	3.05E-11	2.40E+01	4.16E-10	6.44E-09	2.46E-24	5.58E-24
CRW 1B-7	9.47E+00	1.39E-10	2.80E+01	1.90E-09	8.33E-09	3.03E-23	8.02E-24
CRW 1B-8	1.09E+01	1.06E-10	3.10E+01	1.44E-09	9.78E-09	2.97E-23	9.98E-24
CRW 1B-9	1.32E+01	2.39E-10	3.50E+01	3.26E-09	1.30E-08	8.92E-23	1.57E-23
CRW 1B-10	1.56E+01	1.31E-10	4.50E+01	1.79E-09	1.48E-08	8.72E-24	1.58E-23
CRW 1B-11	1.78E+01	1.01E-10	5.20E+01	1.38E-09	1.62E-08	1.20E-23	1.63E-23
CRW 1B-12	2.04E+01	1.51E-10	5.60E+01	2.06E-09	1.83E-08	5.13E-23	1.93E-23
CRW 1B-13	2.30E+01	2.44E-10	5.90E+01	3.33E-09	2.16E-08	1.58E-22	2.56E-23
CRW 1B-14	2.61E+01	1.41E-10	6.30E+01	1.93E-09	2.35E-08	3.13E-23	2.84E-23
CRW 1B-15	2.91E+01	1.33E-10	6.60E+01	1.81E-09	2.53E-08	4.68E-23	3.15E-23
CRW 1B-16	3.25E+01	1.32E-10	7.00E+01	1.80E-09	2.71E-08	2.72E-23	3.40E-23
CRW 1B-17	3.55E+01	1.38E-10	7.40E+01	1.88E-09	2.90E-08	3.33E-23	3.68E-23
CRW 1B-18	3.75E+01	7.09E-11	7.80E+01	9.67E-10	3.00E-08	8.82E-24	3.73E-23
CRW 1B-19	3.89E+01	6.16E-11	8.10E+01	8.40E-10	3.08E-08	1.01E-23	3.79E-23
CRW 1B-20	4.11E+01	1.01E-10	8.50E+01	1.38E-09	3.22E-08	1.60E-23	3.95E-23

TABLE B.17a. Potassium (K) Leach Fractions from Flow Through Test Crushed Grout with Groundwater (DIFBCGTC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	5.58E-02	5.58E-02	3.00E+00	5.86E-21	5.86E-21
EFFLUENT 2	9.83E-02	1.54E-01	7.00E+00	6.54E-20	1.92E-20
EFFLUENT 3	3.96E-02	1.94E-01	1.00E+01	3.32E-20	2.12E-20
EFFLUENT 4	2.99E-02	2.24E-01	1.40E+01	1.50E-20	2.65E-20
EFFLUENT 5	7.16E-03	2.31E-01	1.70E+01	1.99E-21	2.39E-20
EFFLUENT 6	5.11E-03	2.36E-01	2.10E+01	6.98E-22	2.12E-20
EFFLUENT 7	3.42E-03	2.39E-01	2.40E+01	6.00E-22	1.86E-20
EFFLUENT 8	7.86E-04	2.40E-01	2.70E+01	3.75E-23	1.65E-20
EFFLUENT 9	4.13E-03	2.44E-01	3.10E+01	6.96E-22	1.44E-20
EFFLUENT 10	2.41E-02	2.68E-01	3.80E+01	9.15E-21	1.52E-20
EFFLUENT 11	1.53E-02	2.84E-01	4.50E+01	4.49E-21	1.35E-20
EFFLUENT 12	4.95E-03	2.89E-01	4.90E+01	1.63E-21	1.38E-20
EFFLUENT 13	4.96E-03	2.94E-01	5.20E+01	3.12E-21	1.30E-20
EFFLUENT 14	0.00E+00	2.94E-01	5.80E+01	0.00E+00	1.21E-20
EFFLUENT 15	0.00E+00	2.94E-01	6.10E+01	0.00E+00	1.11E-20
EFFLUENT 16	0.00E+00	2.94E-01	6.40E+01	0.00E+00	1.06E-20

TABLE B.17b. Sodium (Na) Leach Fractions from Flow Through Test Crushed with Groundwater (DIFBCGTC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.50E-01	1.50E-01	3.00E+00	4.21E-20	4.21E-20
EFFLUENT 2	2.87E-01	4.36E-01	7.00E+00	5.56E-19	2.54E-07
EFFLUENT 3	1.30E-01	5.66E-01	1.00E+01	3.58E-19	3.43E-07
EFFLUENT 4	1.28E-01	6.94E-01	1.40E+01	2.75E-19	4.19E-07
EFFLUENT 5	6.10E-02	7.55E-01	1.70E+01	1.44E-19	4.50E-07
EFFLUENT 6	4.89E-02	8.04E-01	2.10E+01	6.39E-20	4.56E-07
EFFLUENT 7	1.79E-02	8.22E-01	2.40E+01	1.80E-20	4.33E-07
EFFLUENT 8	1.78E-02	8.40E-01	2.70E+01	2.03E-20	4.24E-07
EFFLUENT 9	8.39E-03	8.48E-01	3.10E+01	2.88E-21	3.89E-07
EFFLUENT 10	3.06E-02	8.79E-01	3.80E+01	1.48E-20	3.70E-07
EFFLUENT 11	1.07E-02	8.90E-01	4.50E+01	2.18E-21	3.31E-07
EFFLUENT 12	2.80E-03	8.92E-01	4.90E+01	5.21E-22	3.04E-07
EFFLUENT 13	9.22E-04	8.93E-01	5.20E+01	1.08E-22	2.86E-07
EFFLUENT 14	9.42E-04	8.94E-01	5.60E+01	6.75E-23	2.66E-07
EFFLUENT 15	1.39E-03	8.96E-01	6.10E+01	1.02E-22	2.58E-07
EFFLUENT 16	5.97E-04	8.96E-01	6.40E+01	5.59E-23	2.46E-07

TABLE B.17e. Boron (as H3BO3) Leach Fractions from Flow Through Test Crushed with Groundwater (DIFBCGTA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	3.04E-02	3.04E-02	3.00E+00	1.74E-21	1.74E-21
EFFLUENT 2	7.79E-02	1.08E-01	7.00E+00	4.10E-20	9.45E-21
EFFLUENT 3	3.50E-02	1.43E-01	1.00E+01	2.59E-20	1.16E-20
EFFLUENT 4	3.06E-02	1.74E-01	1.40E+01	1.58E-20	1.22E-20
EFFLUENT 5	1.23E-02	1.86E-01	1.70E+01	5.89E-21	1.15E-20
EFFLUENT 6	9.34E-03	1.96E-01	2.10E+01	2.33E-21	1.03E-20
EFFLUENT 7	3.12E-03	1.99E-01	2.40E+01	5.47E-22	9.26E-21
EFFLUENT 8	3.21E-03	2.02E-01	2.70E+01	6.59E-22	8.52E-21
EFFLUENT 9	3.31E-03	2.05E-01	3.10E+01	4.47E-22	7.67E-21
EFFLUENT 10	7.03E-03	8.80E-09	3.80E+01	7.84E-22	6.69E-21
EFFLUENT 11	3.43E-03	8.23E-09	4.50E+01	2.25E-22	5.53E-21
EFFLUENT 12	2.37E-03	7.56E-09	4.90E+01	3.71E-22	5.46E-21
EFFLUENT 13	1.83E-03	7.12E-09	5.20E+01	4.24E-22	5.25E-21
EFFLUENT 14	1.39E-03	6.61E-09	5.60E+01	1.47E-22	4.93E-21
EFFLUENT 15	2.31E-03	6.07E-09	6.10E+01	2.81E-22	4.62E-21
EFFLUENT 16	1.27E-03	6.35E-09	6.40E+01	2.51E-22	4.46E-21

TABLE B.17f. Fluoride (F) Leach Fractions from Flow Through Test Crushed with Groundwater (DIFBCGTA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.55E-02	1.55E-02	3.00E+00	4.49E-22	4.49E-22
EFFLUENT 2	4.05E-02	5.60E-02	7.00E+00	1.11E-20	2.53E-21
EFFLUENT 3	1.89E-02	7.49E-02	1.00E+01	7.55E-21	3.16E-21
EFFLUENT 4	1.90E-02	9.39E-02	1.40E+01	6.07E-21	3.55E-21
EFFLUENT 5	9.85E-03	1.04E-01	1.70E+01	3.76E-21	3.57E-21
EFFLUENT 6	1.07E-02	1.14E-01	2.10E+01	3.06E-21	3.52E-21
EFFLUENT 7	5.35E-03	1.20E-01	2.40E+01	1.61E-21	3.37E-21
EFFLUENT 8	5.80E-03	1.26E-01	2.70E+01	2.15E-21	3.30E-21
EFFLUENT 9	3.23E-03	1.29E-01	3.10E+01	4.25E-22	3.02E-21
EFFLUENT 10	1.41E-02	1.43E-01	3.80E+01	3.15E-21	3.03E-21
EFFLUENT 11	1.02E-02	1.53E-01	4.50E+01	2.00E-21	2.94E-21
EFFLUENT 12	8.65E-03	1.62E-01	4.90E+01	4.96E-21	3.01E-21
EFFLUENT 13	6.73E-03	1.69E-01	5.20E+01	5.74E-21	3.08E-21
EFFLUENT 14	4.42E-03	1.73E-01	5.60E+01	1.49E-21	3.01E-21
EFFLUENT 15	6.75E-03	1.80E-01	6.10E+01	2.41E-21	2.99E-21
EFFLUENT 16	4.10E-03	1.84E-01	6.40E+01	2.64E-21	2.98E-21

TABLE B.17g. Nitrate (NO3) Leach Fractions from Flow Through Test Crushed with Groundwater (DIFBCGTA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	3.34E-01	3.34E-01	3.00E+00	2.10E-19	3.02E-07
EFFLUENT 2	2.88E-01	6.23E-01	7.00E+00	5.62E-19	6.15E-07
EFFLUENT 3	9.67E-02	7.19E-01	1.00E+01	1.98E-19	6.72E-07
EFFLUENT 4	7.00E-02	7.89E-01	1.40E+01	8.24E-20	6.52E-07
EFFLUENT 5	1.02E-02	8.00E-01	1.70E+01	4.06E-21	5.63E-07
EFFLUENT 6	5.47E-03	8.05E-01	2.10E+01	8.01E-22	4.70E-07
EFFLUENT 7	2.44E-03	8.07E-01	2.40E+01	3.36E-22	4.12E-07
EFFLUENT 8	3.37E-03	8.11E-01	2.70E+01	7.25E-22	3.66E-07
EFFLUENT 9	1.47E-03	8.12E-01	3.10E+01	8.68E-23	3.19E-07
EFFLUENT 10	6.44E-03	8.19E-01	3.80E+01	6.58E-22	2.73E-07
EFFLUENT 11	6.57E-03	8.25E-01	4.50E+01	8.24E-22	2.31E-07
EFFLUENT 12	5.31E-03	8.31E-01	4.90E+01	1.87E-21	2.22E-07
EFFLUENT 13	4.25E-03	8.35E-01	5.20E+01	2.29E-21	2.20E-07
EFFLUENT 14	2.32E-03	8.37E-01	5.60E+01	4.09E-22	2.04E-07
EFFLUENT 15	3.41E-03	8.41E-01	6.10E+01	6.14E-22	1.88E-07
EFFLUENT 16	1.92E-03	8.42E-01	6.40E+01	5.75E-22	1.79E-07

TABLE B.17h. Sulfate (SO₄) Leach Fractions from Flow Through Test Crushed with Groundwater (DIFBCGTA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	9.65E-01	9.65E-01	3.00E+00	1.75E-18	8.91E-05
EFFLUENT 2	8.68E-01	1.83E+00	7.00E+00	6.07E-19	5.16E-06
EFFLUENT 3	2.48E-01	2.08E+00	1.00E+01	3.48E-20	3.61E-06
EFFLUENT 4	1.87E-01	2.27E+00	1.40E+01	1.41E-20	2.58E-06
EFFLUENT 5	2.99E-02	2.30E+00	1.70E+01	2.97E-22	2.13E-06
EFFLUENT 6	8.00E-03	2.31E+00	2.10E+01	1.72E-23	1.72E-06
EFFLUENT 7	0.00E+00	2.31E+00	2.40E+01	0.00E+00	1.51E-06
EFFLUENT 8	0.00E+00	2.31E+00	2.70E+01	0.00E+00	1.34E-06
EFFLUENT 9	0.00E+00	2.31E+00	3.10E+01	0.00E+00	1.17E-06
EFFLUENT 10	0.00E+00	2.31E+00	3.80E+01	0.00E+00	9.51E-07
EFFLUENT 11	0.00E+00	2.31E+00	4.50E+01	0.00E+00	8.03E-07
EFFLUENT 12	0.00E+00	2.31E+00	4.90E+01	0.00E+00	7.38E-07
EFFLUENT 13	0.00E+00	2.31E+00	5.20E+01	0.00E+00	6.95E-07
EFFLUENT 14	0.00E+00	2.31E+00	5.60E+01	0.00E+00	6.45E-07
EFFLUENT 15	0.00E+00	2.31E+00	6.10E+01	0.00E+00	5.92E-07
EFFLUENT 16	0.00E+00	2.31E+00	6.40E+01	0.00E+00	5.65E-07

TABLE B.17i. Technetium-99 (TC-99) Leach Fractions from Flow Through Test, Crushed with Groundwater (BCGT)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
BCGT-1	3.70E-01	5.84E-01	3.00E+00	2.20E+00	2.20E+00	1.20E-05	1.20E-05
BCGT-2	1.14E+00	4.07E-02	7.00E+00	1.53E-01	2.36E+00	3.46E-19	5.16E-06
BCGT-3	1.66E+00	7.09E-03	1.10E+01	2.68E-02	2.38E+00	1.18E-20	3.28E-06
BCGT-4	2.55E+00	1.24E-02	1.50E+01	4.67E-02	2.43E+00	3.59E-20	2.41E-06
BCGT-5	3.31E+00	2.66E-03	1.80E+01	1.01E-02	2.44E+00	2.51E-21	2.01E-06
BCGT-6	4.53E+00	2.45E-03	2.20E+01	9.25E-03	2.45E+00	1.26E-21	1.64E-06
BCGT-7	5.07E+00	1.50E-03	2.50E+01	5.66E-03	2.46E+00	7.97E-22	1.44E-06
BCGT-8	5.82E+00	1.32E-03	2.90E+01	4.97E-03	2.46E+00	3.63E-22	1.25E-06
BCGT-9	6.15E+00	6.90E-04	3.20E+01	2.60E-03	2.46E+00	1.66E-22	1.13E-06
BCGT-10	7.58E+00	1.54E-03	3.50E+01	5.80E-03	2.47E+00	7.38E-22	1.03E-06
BCGT-11	9.04E+00	1.11E-03	3.90E+01	4.17E-03	2.47E+00	2.56E-22	9.26E-07
BCGT-12	1.02E+01	2.24E-03	4.60E+01	8.46E-03	2.48E+00	5.44E-22	7.85E-07
BCGT-13	1.12E+01	1.41E-03	5.30E+01	5.33E-03	2.49E+00	2.66E-22	6.82E-07
BCGT-14	1.17E+01	7.43E-04	5.70E+01	2.80E-03	2.49E+00	1.66E-22	6.34E-07
BCGT-15	1.24E+01	6.04E-04	6.00E+01	2.51E-03	2.49E+00	1.56E-22	6.02E-07
BCGT-16	1.28E+01	8.37E-04	6.40E+01	3.16E-03	2.50E+00	1.47E-22	5.64E-07

TABLE B.17i. Technetium-99 (TC-99) Leach Fractions from Flow Through Test, Crushed with Groundwater (BCGT)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
BCGT-1	3.70E-01	5.84E-01	3.00E+00	2.20E+00	2.20E+00	1.20E-05	1.20E-05
BCGT-2	1.14E+00	4.07E-02	7.00E+00	1.53E-01	2.36E+00	3.46E-19	5.16E-06
BCGT-3	1.66E+00	7.09E-03	1.10E+01	2.68E-02	2.38E+00	1.18E-20	3.28E-06
BCGT-4	2.55E+00	1.24E-02	1.50E+01	4.67E-02	2.43E+00	3.59E-20	2.41E-06
BCGT-5	3.31E+00	2.66E-03	1.80E+01	1.01E-02	2.44E+00	2.51E-21	2.01E-06
BCGT-6	4.53E+00	2.45E-03	2.20E+01	9.25E-03	2.45E+00	1.26E-21	1.64E-06
BCGT-7	5.07E+00	1.50E-03	2.50E+01	5.66E-03	2.46E+00	7.97E-22	1.44E-06
BCGT-8	5.82E+00	1.32E-03	2.90E+01	4.97E-03	2.46E+00	3.63E-22	1.25E-06
BCGT-9	6.15E+00	6.90E-04	3.20E+01	2.60E-03	2.46E+00	1.68E-22	1.13E-06
BCGT-10	7.56E+00	1.54E-03	3.50E+01	5.80E-03	2.47E+00	7.38E-22	1.03E-06
BCGT-11	9.04E+00	1.11E-03	3.90E+01	4.17E-03	2.47E+00	2.56E-22	9.26E-07
BCGT-12	1.02E+01	2.24E-03	4.60E+01	8.46E-03	2.48E+00	5.44E-22	7.85E-07
BCGT-13	1.12E+01	1.41E-03	5.30E+01	5.33E-03	2.49E+00	2.68E-22	6.82E-07
BCGT-14	1.17E+01	7.43E-04	5.70E+01	2.80E-03	2.49E+00	1.66E-22	6.34E-07
BCGT-15	1.24E+01	6.64E-04	6.00E+01	2.51E-03	2.49E+00	1.56E-22	6.02E-07
BCGT-16	1.28E+01	8.37E-04	6.40E+01	3.16E-03	2.50E+00	1.47E-22	5.64E-07

TABLE B.18a. Potassium (K) Leach Fractions from Flow Through Test Crushed with Groundwater (DIFBCGIC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	8.34E-02	8.34E-02	3.00E+00	1.31E-20	1.31E-20
EFFLUENT 2	1.30E-01	2.14E-01	7.00E+00	1.15E-19	4.73E-08
EFFLUENT 3	5.01E-02	2.64E-01	1.00E+01	5.32E-20	5.33E-08
EFFLUENT 4	3.38E-02	2.98E-01	1.40E+01	1.93E-20	5.23E-06
EFFLUENT 5	1.54E-02	3.13E-01	1.70E+01	9.14E-21	4.62E-06
EFFLUENT 6	4.48E-03	3.17E-01	2.10E+01	5.37E-22	4.03E-06
EFFLUENT 7	9.35E-03	3.26E-01	2.40E+01	3.93E-21	3.78E-06
EFFLUENT 8	3.89E-03	3.30E-01	2.70E+01	9.68E-22	3.56E-06
EFFLUENT 9	7.08E-03	3.37E-01	3.10E+01	2.05E-21	3.13E-06
EFFLUENT 10	3.81E-02	3.75E-01	3.80E+01	2.30E-20	3.11E-06
EFFLUENT 11	2.12E-02	3.96E-01	4.50E+01	8.60E-21	3.15E-06
EFFLUENT 12	5.11E-03	4.01E-01	4.90E+01	1.73E-21	2.89E-06
EFFLUENT 13	8.55E-04	4.02E-01	5.20E+01	9.26E-23	2.72E-06
EFFLUENT 14	0.00E+00	4.02E-01	5.60E+01	0.00E+00	2.53E-06
EFFLUENT 15	0.00E+00	4.02E-01	6.10E+01	0.00E+00	2.32E-06
EFFLUENT 16	0.00E+00	4.02E-01	6.40E+01	0.00E+00	2.21E-06

TABLE B.18b. Sodium (Na) Leach Fractions from Flow Through Test Crushed with Groundwater (DIFBCGIC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	2.41E-01	2.41E-01	3.00E+00	1.09E-19	1.49E-07
EFFLUENT 2	3.47E-01	5.88E-01	7.00E+00	8.15E-19	5.38E-07
EFFLUENT 3	1.42E-01	7.30E-01	1.00E+01	4.29E-19	7.02E-07
EFFLUENT 4	1.27E-01	8.57E-01	1.40E+01	2.70E-19	9.06E-07
EFFLUENT 5	6.20E-02	9.19E-01	1.70E+01	1.49E-19	1.05E-06
EFFLUENT 6	3.14E-02	9.50E-01	2.10E+01	2.63E-20	1.05E-06
EFFLUENT 7	1.95E-02	9.70E-01	2.40E+01	2.15E-20	1.11E-06
EFFLUENT 8	1.81E-02	9.88E-01	2.70E+01	2.09E-20	1.34E-06
EFFLUENT 9	8.56E-03	9.96E-01	3.10E+01	2.99E-21	1.17E-06
EFFLUENT 10	2.83E-02	1.02E+00	3.80E+01	1.27E-20	9.51E-07
EFFLUENT 11	9.78E-03	1.03E+00	4.50E+01	1.83E-21	8.03E-07
EFFLUENT 12	2.30E-03	1.04E+00	4.90E+01	3.51E-22	7.38E-07
EFFLUENT 13	1.49E-04	1.04E+00	5.20E+01	2.81E-24	6.95E-07
EFFLUENT 14	6.33E-04	1.04E+00	5.60E+01	3.06E-23	6.45E-07
EFFLUENT 15	1.00E-03	1.04E+00	6.10E+01	5.33E-23	5.92E-07
EFFLUENT 16	2.95E-04	1.04E+00	6.40E+01	1.36E-23	5.65E-07

TABLE B.18e. Boron (as H3BO3) Leach Fractions from Flow Through Crushed Grout with Groundwater (DIFBCGIA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	4.28E-02	4.28E-02	3.00E+00	3.45E-21	3.45E-21
EFFLUENT 2	9.19E-02	1.35E-01	7.00E+00	5.71E-20	1.46E-20
EFFLUENT 3	4.04E-02	1.75E-01	1.00E+01	3.45E-20	1.73E-20
EFFLUENT 4	3.14E-02	2.06E-01	1.40E+01	1.65E-20	2.39E-08
EFFLUENT 5	1.27E-02	2.19E-01	1.70E+01	6.29E-21	2.18E-08
EFFLUENT 6	5.68E-03	2.25E-01	2.10E+01	8.63E-22	1.76E-08
EFFLUENT 7	2.30E-03	2.27E-01	2.40E+01	2.98E-22	1.69E-08
EFFLUENT 8	3.29E-03	2.30E-01	2.70E+01	6.92E-22	1.50E-08
EFFLUENT 9	1.86E-03	2.32E-01	3.10E+01	1.42E-22	1.31E-08
EFFLUENT 10	6.50E-03	2.39E-01	3.60E+01	6.70E-22	1.17E-08
EFFLUENT 11	3.67E-03	2.42E-01	4.50E+01	2.57E-22	9.90E-09
EFFLUENT 12	2.44E-03	2.45E-01	4.90E+01	3.95E-22	9.09E-09
EFFLUENT 13	1.58E-03	2.46E-01	5.20E+01	3.15E-22	9.36E-09
EFFLUENT 14	1.37E-03	2.48E-01	5.60E+01	1.42E-22	8.71E-09
EFFLUENT 15	2.39E-03	2.50E-01	6.10E+01	3.02E-22	7.99E-09
EFFLUENT 16	1.34E-03	2.52E-01	6.40E+01	2.81E-22	7.62E-09

TABLE B.18g. Nitrate (NO3) Leach Fractions from Flow Through Test Crushed Grout with Groundwater (DIFBCGIA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	3.51E-01	3.51E-01	3.00E+00	2.32E-19	3.55E-07
EFFLUENT 2	3.84E-01	7.35E-01	7.00E+00	9.98E-19	1.00E-07
EFFLUENT 3	1.23E-01	8.58E-01	1.00E+01	3.21E-19	1.27E-06
EFFLUENT 4	8.11E-02	9.40E-01	1.40E+01	1.11E-19	1.45E-06
EFFLUENT 5	2.24E-02	9.62E-01	1.70E+01	1.95E-20	1.42E-06
EFFLUENT 6	9.60E-03	9.72E-01	2.10E+01	2.46E-21	1.27E-06
EFFLUENT 7	2.11E-03	9.74E-01	2.40E+01	2.50E-22	1.11E-06
EFFLUENT 8	2.78E-03	9.76E-01	2.70E+01	4.94E-22	1.15E-07
EFFLUENT 9	1.26E-03	9.78E-01	3.10E+01	6.52E-23	9.71E-08
EFFLUENT 10	5.09E-03	9.83E-01	3.80E+01	4.12E-22	7.92E-08
EFFLUENT 11	5.68E-03	9.88E-01	4.50E+01	6.17E-22	7.40E-07
EFFLUENT 12	5.47E-03	9.94E-01	4.90E+01	1.99E-21	6.90E-07
EFFLUENT 13	3.66E-03	9.98E-01	5.20E+01	1.70E-21	6.50E-07
EFFLUENT 14	2.34E-03	1.00E+00	5.60E+01	4.16E-22	5.90E-07
EFFLUENT 15	3.71E-03	1.00E+00	6.10E+01	7.25E-22	5.66E-07
EFFLUENT 16	1.98E-03	1.01E+00	6.40E+01	6.14E-22	4.70E-08

TABLE B.18h. Sulfate (SO4) Leach Fractions from Flow Through Test Crushed Grout with Groundwater (DIFBCGIA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.01E+00	1.01E+00	3.00E+00	1.93E-18	1.20E-05
EFFLUENT 2	1.10E+00	2.11E+00	7.00E+00	9.74E-19	5.16E-06
EFFLUENT 3	3.45E-01	2.46E+00	1.00E+01	6.70E-20	3.61E-06
EFFLUENT 4	2.12E-01	2.67E+00	1.40E+01	1.81E-20	2.58E-06
EFFLUENT 5	4.81E-02	2.72E+00	1.70E+01	7.67E-22	2.12E-06
EFFLUENT 6	5.61E-02	2.77E+00	2.10E+01	8.47E-22	1.72E-06
EFFLUENT 7	1.54E-02	2.79E+00	2.40E+01	5.57E-23	1.50E-06
EFFLUENT 8	0.00E+00	2.79E+00	2.70E+01	0.00E+00	1.34E-06
EFFLUENT 9	1.85E-03	2.79E+00	3.10E+01	6.21E-25	1.66E-06
EFFLUENT 10	0.00E+00	2.79E+00	3.80E+01	0.00E+00	9.51E-07
EFFLUENT 11	0.00E+00	2.79E+00	4.50E+01	0.00E+00	6.03E-07
EFFLUENT 12	0.00E+00	2.79E+00	4.90E+01	0.00E+00	7.37E-07
EFFLUENT 13	0.00E+00	2.79E+00	5.20E+01	0.00E+00	6.95E-07
EFFLUENT 14	0.00E+00	2.79E+00	5.60E+01	0.00E+00	6.45E-07
EFFLUENT 15	1.08E-02	2.80E+00	6.10E+01	1.09E-23	5.52E-07
EFFLUENT 16	2.89E-03	2.80E+00	6.40E+01	7.36E-25	5.64E-07

TABLE B.18i. Iodine-125 (I-125) Leach Fractions from Flow Through Test,
Crushed with Groundwater (BCGI)

SAMPLE	PORE VOLUME	CORR uCi	TIME DAYS	An/Ao	cum An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW BCGI-1	3.90E-01	1.37E-02	3.00E+00	7.79E-01	7.79E-01	2.91E-06	2.91E-06
CRW BCGI-2	1.11E+00	2.22E-02	7.00E+00	1.26E+00	2.04E+00	2.35E-17	5.16E-06
CRW BCGI-3	1.58E+00	7.37E-03	1.00E+01	4.19E-01	2.46E+00	4.37E-18	3.61E-06
CRW BCGI-4	2.35E+00	4.68E-03	1.40E+01	2.66E-01	2.73E+00	1.04E-18	2.58E-06
CRW BCGI-5	3.01E+00	1.93E-03	1.70E+01	1.10E-01	2.84E+00	2.99E-19	2.12E-06
CRW BCGI-6	4.07E+00	1.53E-03	2.10E+01	8.72E-02	2.93E+00	1.12E-19	1.72E-06
CRW BCGI-7	4.54E+00	2.64E-04	2.40E+01	1.50E-02	2.94E+00	5.62E-21	1.51E-06
CRW BCGI-8	5.16E+00	2.57E-04	2.70E+01	1.46E-02	2.95E+00	4.69E-21	1.34E-06
CRW BCGI-9	5.44E+00	3.26E-04	3.10E+01	1.85E-02	2.97E+00	5.04E-21	1.17E-06
CRW BCGI-10	6.57E+00	8.43E-04	3.80E+01	4.79E-02	3.02E+00	1.75E-20	9.51E-07
CRW BCGI-11	7.83E+00	2.34E-04	4.50E+01	1.33E-02	3.03E+00	1.67E-21	5.03E-07
CRW BCGI-12	9.05E+00	2.36E-04	4.90E+01	1.34E-02	3.05E+00	3.81E-21	7.37E-07
CRW BCGI-13	9.86E+00	1.41E-04	5.20E+01	8.01E-03	3.06E+00	1.60E-21	6.95E-07
CRW BCGI-14	1.03E+01	9.09E-05	5.60E+01	5.17E-03	3.06E+00	3.93E-22	6.45E-07
CRW BCGI-15	1.11E+01	2.04E-04	6.10E+01	1.16E-02	3.07E+00	1.63E-21	5.92E-07
CRW BCGI-16	1.16E+01	9.50E-05	6.40E+01	5.40E-03	3.08E+00	8.04E-22	5.64E-07

TABLE B.19a. Potassium (K) Leach Fractions from Flow Through Test Crushed
with Groundwater (DIFBCGCC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	5.75E-02	5.75E-02	3.00E+00	6.22E-21	6.22E-21
EFFLUENT 2	1.45E-01	2.02E-01	7.00E+00	1.42E-19	4.77E-08
EFFLUENT 3	5.24E-02	2.55E-01	1.00E+01	5.80E-20	4.88E-08
EFFLUENT 4	2.42E-02	2.79E-01	1.40E+01	9.86E-21	4.47E-08
EFFLUENT 5	2.06E-03	2.81E-01	1.70E+01	1.65E-22	3.68E-08
EFFLUENT 6	6.21E-03	2.87E-01	2.10E+01	1.03E-21	3.23E-08
EFFLUENT 7	3.24E-03	2.90E-01	2.40E+01	5.93E-22	2.82E-08
EFFLUENT 8	0.00E+00	2.90E-01	2.70E+01	0.00E+00	2.51E-08
EFFLUENT 9	3.89E-03	2.94E-01	3.10E+01	6.19E-22	2.18E-08
EFFLUENT 10	1.64E-02	3.11E-01	3.80E+01	4.26E-21	2.07E-08
EFFLUENT 11	9.15E-03	3.20E-01	4.50E+01	1.60E-21	1.86E-08
EFFLUENT 12	5.11E-03	3.25E-01	4.90E+01	1.73E-21	1.72E-08
EFFLUENT 13	7.67E-03	3.33E-01	5.20E+01	7.44E-21	1.74E-08
EFFLUENT 14	0.00E+00	3.33E-01	5.60E+01	0.00E+00	1.62E-08
EFFLUENT 15	0.00E+00	3.33E-01	6.10E+01	0.00E+00	1.49E-08
EFFLUENT 16	0.00E+00	3.33E-01	6.40E+01	0.00E+00	1.42E-08

TABLE B.19b. Sodium (Na) Leach Fractions from Flow Through Test Crushed with Groundwater (DIFBCGCC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.53E-01	1.53E-01	3.00E+00	4.41E-20	4.41E-20
EFFLUENT 2	4.06E-01	5.59E-01	7.00E+00	1.12E-18	4.70E-07
EFFLUENT 3	1.73E-01	7.32E-01	1.00E+01	6.34E-19	7.02E-07
EFFLUENT 4	1.25E-01	8.57E-01	1.40E+01	2.61E-19	9.05E-07
EFFLUENT 5	5.81E-02	9.15E-01	1.70E+01	1.31E-19	9.81E-07
EFFLUENT 6	4.35E-02	9.59E-01	2.10E+01	5.05E-20	1.15E-06
EFFLUENT 7	1.82E-02	9.77E-01	2.40E+01	1.87E-20	1.25E-07
EFFLUENT 8	1.73E-02	9.94E-01	2.70E+01	1.91E-20	1.33E-07
EFFLUENT 9	9.24E-03	1.00E+00	3.10E+01	3.49E-21	1.16E-07
EFFLUENT 10	3.17E-02	1.04E+00	3.80E+01	1.60E-20	9.50E-07
EFFLUENT 11	1.28E-02	1.05E+00	4.50E+01	3.14E-21	8.06E-07
EFFLUENT 12	4.12E-03	1.05E+00	4.90E+01	1.12E-21	7.40E-07
EFFLUENT 13	3.63E-03	1.06E+00	5.20E+01	1.67E-21	6.90E-07
EFFLUENT 14	1.52E-03	1.06E+00	5.60E+01	1.75E-22	6.50E-07
EFFLUENT 15	1.59E-03	1.06E+00	6.10E+01	1.34E-22	5.90E-06
EFFLUENT 16	8.79E-04	1.06E+00	6.40E+01	1.21E-22	5.60E-06

TABLE B.19e. Boric Acid (as H3BO3) Leach Fractions from Flow Through Test Crushed Grout with Groundwater (DIFBCGCA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	2.64E-02	2.64E-02	3.00E+00	1.31E-21	1.31E-21
EFFLUENT 2	1.09E-01	1.35E-01	7.00E+00	7.98E-20	1.47E-20
EFFLUENT 3	4.61E-02	1.81E-01	1.00E+01	4.50E-20	1.85E-20
EFFLUENT 4	2.95E-02	2.11E-01	1.40E+01	1.46E-20	2.39E-06
EFFLUENT 5	1.08E-02	2.21E-01	1.70E+01	4.53E-21	2.18E-08
EFFLUENT 6	7.87E-03	2.29E-01	2.10E+01	1.66E-21	1.94E-08
EFFLUENT 7	3.03E-03	2.32E-01	2.40E+01	5.19E-22	1.69E-08
EFFLUENT 8	3.05E-03	2.35E-01	2.70E+01	5.96E-22	1.51E-08
EFFLUENT 9	2.00E-03	2.37E-01	3.10E+01	1.64E-22	1.44E-08
EFFLUENT 10	1.15E-02	2.49E-01	3.80E+01	2.10E-21	1.28E-08
EFFLUENT 11	3.53E-03	2.52E-01	4.50E+01	2.38E-22	1.06E-06
EFFLUENT 12	1.72E-03	2.54E-01	4.90E+01	1.97E-22	9.95E-07
EFFLUENT 13	2.52E-03	2.57E-01	5.20E+01	8.07E-22	1.02E-06
EFFLUENT 14	1.59E-03	2.58E-01	5.60E+01	1.93E-22	9.52E-07
EFFLUENT 15	2.47E-03	2.61E-01	6.10E+01	3.22E-22	8.74E-06
EFFLUENT 16	2.54E-02	2.89E-01	6.40E+01	1.26E-19	1.25E-06

TABLE B.19f. Fluoride (F) Leach Fractions from Flow Through Test Crushed Grout with Groundwater (DIFBCGCA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.45E-02	1.45E-02	3.00E+00	3.94E-22	3.94E-22
EFFLUENT 2	4.89E-02	6.33E-02	7.00E+00	1.62E-20	3.24E-21
EFFLUENT 3	2.42E-02	8.76E-02	1.00E+01	1.24E-20	4.33E-21
EFFLUENT 4	1.69E-02	1.04E-01	1.40E+01	4.81E-21	4.40E-21
EFFLUENT 5	9.26E-03	1.14E-01	1.70E+01	3.33E-21	4.30E-21
EFFLUENT 6	9.91E-03	1.24E-01	2.10E+01	2.63E-21	4.11E-21
EFFLUENT 7	5.44E-03	1.29E-01	2.40E+01	1.67E-21	3.92E-21
EFFLUENT 8	5.76E-03	1.35E-01	2.70E+01	2.12E-21	3.80E-21
EFFLUENT 9	3.67E-03	1.39E-01	3.10E+01	5.51E-22	3.49E-21
EFFLUENT 10	1.17E-02	1.50E-01	3.80E+01	2.18E-21	3.35E-21
EFFLUENT 11	9.39E-03	1.60E-01	4.50E+01	1.68E-21	3.20E-21
EFFLUENT 12	5.61E-03	1.65E-01	4.90E+01	2.08E-21	3.15E-21
EFFLUENT 13	8.54E-03	1.74E-01	5.20E+01	9.24E-21	3.28E-21
EFFLUENT 14	5.87E-03	1.80E-01	5.60E+01	2.62E-21	3.25E-21
EFFLUENT 15	7.48E-03	1.87E-01	6.10E+01	2.95E-21	3.24E-21
EFFLUENT 16	4.69E-03	1.92E-01	6.40E+01	3.45E-21	3.25E-21

TABLE B.19g. Nitrate (NO3) Leach Fractions from Flow Through Test Crushed Grout with Groundwater (DIFBCGCA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	2.84E-01	2.84E-01	3.00E+00	1.52E-19	2.10E-07
EFFLUENT 2	4.64E-01	7.48E-01	7.00E+00	1.45E-18	1.10E-06
EFFLUENT 3	1.42E-01	8.89E-01	1.00E+01	4.25E-19	1.50E-06
EFFLUENT 4	7.31E-02	9.63E-01	1.40E+01	8.96E-20	1.72E-06
EFFLUENT 5	4.42E-03	9.67E-01	1.70E+01	7.58E-22	1.60E-06
EFFLUENT 6	6.65E-03	9.74E-01	2.10E+01	1.18E-21	1.27E-06
EFFLUENT 7	2.78E-03	9.76E-01	2.40E+01	4.35E-22	1.25E-06
EFFLUENT 8	3.75E-03	9.80E-01	2.70E+01	8.98E-22	1.12E-06
EFFLUENT 9	1.52E-03	9.82E-01	3.10E+01	9.39E-23	9.70E-07
EFFLUENT 10	5.85E-03	9.88E-01	3.80E+01	5.43E-22	9.50E-07
EFFLUENT 11	5.60E-03	9.93E-01	4.50E+01	5.99E-22	8.00E-07
EFFLUENT 12	2.74E-03	9.96E-01	4.90E+01	4.97E-22	7.40E-07
EFFLUENT 13	5.47E-03	1.00E+00	5.20E+01	3.79E-21	6.90E-07
EFFLUENT 14	2.80E-03	1.00E+00	5.60E+01	5.97E-22	6.50E-07
EFFLUENT 15	3.92E-03	1.01E+00	6.10E+01	6.10E-22	5.90E-07
EFFLUENT 16	2.32E-03	1.01E+00	6.40E+01	6.41E-22	5.60E-07

**TABLE B.19i. Cesium-137 (CS-137) Leach Fractions from Flow Through Test
Crushed with Groundwater (BCGC)**

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW BCGC-1	3.70E-01	1.09E-10	3.00E+00	1.82E-10	1.82E-10	8.93E-39	8.93E-39
CRW BCGC-2	1.44E+00	9.31E-10	7.00E+00	1.56E-09	1.74E-09	5.09E-36	3.49E-37
CRW BCGC-3	2.25E+00	1.89E-10	1.00E+01	3.16E-10	2.06E-09	3.53E-37	3.41E-37
CRW BCGC-4	3.49E+00	1.86E-10	1.40E+01	3.12E-10	2.37E-09	2.03E-37	3.23E-37
CRW BCGC-5	4.64E+00	2.65E-10	1.70E+01	4.44E-10	2.81E-09	6.99E-37	3.75E-37
CRW BCGC-6	6.38E+00	3.99E-10	2.10E+01	6.69E-10	3.48E-09	9.35E-37	4.65E-37
CRW BCGC-7	7.11E+00	1.67E-10	2.40E+01	2.79E-10	3.76E-09	2.76E-37	4.75E-37
CRW BCGC-8	8.08E+00	2.25E-10	2.70E+01	3.77E-10	4.14E-09	4.43E-37	5.11E-37
CRW BCGC-9	8.48E+00	9.09E-11	3.10E+01	1.52E-10	4.29E-09	4.85E-38	4.78E-37
CRW BCGC-10	1.00E+01	1.68E-10	3.80E+01	2.81E-10	4.57E-09	6.54E-38	4.43E-37
CRW BCGC-11	1.15E+01	3.36E-10	4.50E+01	5.63E-10	5.13E-09	4.24E-37	4.71E-37
CRW BCGC-12	1.22E+01	1.09E-10	4.90E+01	1.83E-10	5.32E-09	1.01E-37	4.64E-37
CRW BCGC-13	1.36E+01	3.28E-10	5.20E+01	5.50E-10	5.87E-09	1.07E-36	5.33E-37
CRW BCGC-14	1.43E+01	1.68E-10	5.60E+01	2.81E-10	6.15E-09	1.66E-37	5.43E-37
CRW BCGC-15	1.54E+01	2.35E-10	6.10E+01	3.94E-10	6.54E-09	2.66E-37	5.65E-37
CRW BCGC-16	1.60E+01	1.58E-10	6.40E+01	2.64E-10	6.81E-09	2.74E-37	5.83E-37

**TABLE B.19j. Strontium-85 (SR-85) Leach Fractions from Flow Through Test,
Crushed with Groundwater (BCGC)**

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW BCGC-1	3.20E-01	2.76E-11	3.00E+00	1.72E-08	1.72E-08	5.60E-34	5.60E-34
CRW BCGC-2	1.22E+00	2.42E-10	7.00E+00	1.51E-07	1.68E-07	3.36E-31	2.29E-32
CRW BCGC-3	1.92E+00	5.98E-11	1.00E+01	3.74E-08	2.06E-07	3.48E-32	2.39E-32
CRW BCGC-4	2.96E+00	1.76E-10	1.40E+01	1.10E-07	3.16E-07	1.79E-31	4.03E-32
CRW BCGC-5	3.94E+00	1.85E-10	1.70E+01	1.03E-07	4.19E-07	2.66E-31	5.85E-32
CRW BCGC-6	5.42E+00	1.88E-10	2.10E+01	1.17E-07	5.37E-07	2.02E-31	7.75E-32
CRW BCGC-7	6.04E+00	5.82E-11	2.40E+01	3.64E-08	5.73E-07	3.29E-32	7.73E-32
CRW BCGC-8	6.87E+00	7.19E-11	2.70E+01	4.50E-08	6.18E-07	4.44E-32	7.99E-32
CRW BCGC-9	7.21E+00	3.14E-11	3.10E+01	1.96E-08	6.38E-07	5.67E-33	7.41E-32
CRW BCGC-10	8.51E+00	1.23E-10	3.80E+01	7.66E-08	7.14E-07	4.46E-32	7.59E-32
CRW BCGC-11	9.75E+00	1.50E-10	4.50E+01	9.35E-08	8.08E-07	8.23E-32	8.19E-32
CRW BCGC-12	1.04E+01	5.78E-11	4.90E+01	3.61E-08	8.44E-07	2.76E-32	8.21E-32
CRW BCGC-13	1.16E+01	1.67E-10	5.20E+01	1.04E-07	9.48E-07	2.69E-31	9.77E-32
CRW BCGC-14	1.22E+01	7.49E-11	5.60E+01	4.68E-08	9.95E-07	3.22E-32	9.99E-32
CRW BCGC-15	1.31E+01	7.79E-11	6.10E+01	4.87E-08	1.04E-06	2.66E-32	1.01E-31
CRW BCGC-16	1.36E+01	4.61E-11	6.40E+01	2.86E-08	1.07E-06	2.29E-32	1.02E-31

configuration

TABLE B.20b. Sodium (Na) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGTC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.84E-01	1.84E-01	3.00E+00	2.36E-20	2.36E-20
EFFLUENT 2	8.98E-02	2.74E-01	7.00E+00	2.01E-20	4.92E-08
EFFLUENT 3	2.81E-02	3.02E-01	1.10E+01	3.65E-21	3.95E-08
EFFLUENT 4	5.68E-02	3.59E-01	1.50E+01	2.17E-20	4.40E-08
EFFLUENT 5	1.67E-02	3.76E-01	1.80E+01	4.23E-21	3.91E-08
EFFLUENT 6	3.11E-02	4.07E-01	2.20E+01	1.00E-20	4.07E-08
EFFLUENT 7	1.69E-02	4.24E-01	2.50E+01	6.20E-21	3.81E-08
EFFLUENT 8	2.99E-02	4.54E-01	2.90E+01	1.25E-20	3.85E-08
EFFLUENT 9	1.16E-02	4.65E-01	3.20E+01	3.79E-21	3.87E-08
EFFLUENT 10	1.59E-02	4.81E-01	3.50E+01	7.82E-21	3.74E-08
EFFLUENT 11	9.64E-03	4.91E-01	3.90E+01	1.79E-21	3.52E-08
EFFLUENT 12	1.80E-02	5.09E-01	4.60E+01	2.33E-21	3.20E-08
EFFLUENT 13	1.91E-02	5.28E-01	5.30E+01	3.06E-21	3.16E-08
EFFLUENT 14	1.34E-02	5.41E-01	5.70E+01	5.13E-21	3.09E-08
EFFLUENT 15	9.11E-03	5.50E-01	6.00E+01	4.49E-21	3.07E-08
EFFLUENT 16	8.99E-03	5.59E-01	6.40E+01	2.60E-21	3.02E-08
EFFLUENT 17	1.14E-02	5.71E-01	6.90E+01	2.88E-21	2.93E-08
EFFLUENT 18	5.49E-03	5.76E-01	7.20E+01	1.76E-21	2.94E-08

TABLE B.20c. Aluminum (Al) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGTC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.15E-03	1.15E-03	3.00E+00	9.17E-25	9.17E-25
EFFLUENT 2	2.80E-03	3.95E-03	7.00E+00	1.96E-23	4.64E-24
EFFLUENT 3	6.75E-04	4.63E-03	1.10E+01	2.11E-24	4.05E-24
EFFLUENT 4	1.57E-03	6.19E-03	1.50E+01	1.65E-23	5.32E-24
EFFLUENT 5	3.31E-04	6.53E-03	1.80E+01	1.67E-24	4.92E-24
EFFLUENT 6	6.51E-04	7.18E-03	2.20E+01	4.40E-24	4.87E-24
EFFLUENT 7	3.95E-04	7.57E-03	2.50E+01	3.39E-24	4.77E-24
EFFLUENT 8	7.80E-04	8.35E-03	2.90E+01	8.52E-24	5.00E-24
EFFLUENT 9	2.92E-04	8.64E-03	3.20E+01	2.41E-24	4.86E-24
EFFLUENT 10	4.09E-04	9.05E-03	3.50E+01	5.16E-24	4.87E-24
EFFLUENT 11	2.33E-04	9.29E-03	3.90E+01	1.05E-24	4.60E-24
EFFLUENT 12	3.93E-04	9.68E-03	4.60E+01	1.11E-24	4.24E-24
EFFLUENT 13	3.22E-04	1.00E-02	5.30E+01	6.71E-25	3.92E-24
EFFLUENT 14	2.40E-04	1.02E-02	5.70E+01	1.65E-24	3.83E-24
EFFLUENT 15	1.52E-04	1.04E-02	6.00E+01	1.26E-24	3.74E-24
EFFLUENT 16	1.36E-04	1.05E-02	6.40E+01	5.99E-25	3.60E-24
EFFLUENT 17	1.34E-04	1.07E-02	6.90E+01	3.96E-25	3.43E-24
EFFLUENT 18	5.62E-05	1.07E-02	7.20E+01	2.05E-25	3.32E-24

TABLE B.20d. Silica (Si) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGTC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	8.59E-03	8.59E-03	3.00E+00	5.11E-23	5.11E-23
EFFLUENT 2	7.27E-03	1.59E-02	7.00E+00	1.32E-22	7.48E-23
EFFLUENT 3	2.90E-03	1.88E-02	1.10E+01	3.87E-23	6.65E-23
EFFLUENT 4	6.56E-03	2.53E-02	1.50E+01	2.89E-22	8.89E-23
EFFLUENT 5	1.96E-03	2.73E-02	1.80E+01	5.86E-23	8.60E-23
EFFLUENT 6	3.25E-03	3.05E-02	2.20E+01	1.09E-22	8.81E-23
EFFLUENT 7	1.70E-03	3.22E-02	2.50E+01	6.30E-23	8.64E-23
EFFLUENT 8	2.37E-03	3.46E-02	2.90E+01	7.87E-23	9.58E-23
EFFLUENT 9	9.52E-04	3.56E-02	3.20E+01	2.55E-23	8.21E-23
EFFLUENT 10	1.06E-03	3.66E-02	3.50E+01	3.50E-23	7.97E-23
EFFLUENT 11	9.18E-04	3.75E-02	3.90E+01	1.62E-23	7.51E-23
EFFLUENT 12	1.63E-03	3.92E-02	4.60E+01	1.91E-23	6.93E-23
EFFLUENT 13	1.27E-03	4.04E-02	5.30E+01	1.35E-23	6.42E-23
EFFLUENT 14	6.15E-04	4.10E-02	5.70E+01	1.08E-23	6.15E-23
EFFLUENT 15	3.24E-04	4.14E-02	6.00E+01	5.68E-24	5.93E-23
EFFLUENT 16	2.96E-04	4.17E-02	6.40E+01	2.82E-24	5.64E-23
EFFLUENT 17	2.79E-04	4.19E-02	6.90E+01	1.72E-24	5.30E-23
EFFLUENT 18	1.04E-04	4.21E-02	7.20E+01	7.01E-25	5.11E-23

TABLE B.20e. Boron (as H3BO3) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGTA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	4.74E-02	4.74E-02	3.00E+00	1.56E-21	1.56E-21
EFFLUENT 2	9.80E-03	5.72E-02	7.00E+00	2.39E-22	9.71E-22
EFFLUENT 3	2.35E-03	5.95E-02	1.10E+01	2.56E-23	6.70E-22
EFFLUENT 4	5.68E-03	6.52E-02	1.50E+01	2.16E-22	5.89E-22
EFFLUENT 5	1.49E-03	6.67E-02	1.80E+01	3.36E-23	5.14E-22
EFFLUENT 6	2.25E-03	6.89E-02	2.20E+01	5.25E-23	4.49E-22
EFFLUENT 7	1.25E-03	7.02E-02	2.50E+01	3.37E-23	4.10E-22
EFFLUENT 8	2.10E-03	7.23E-02	2.90E+01	6.16E-23	3.75E-22
EFFLUENT 9	8.68E-04	7.31E-02	3.20E+01	2.12E-23	3.46E-22
EFFLUENT 10	1.14E-03	7.43E-02	3.50E+01	4.00E-23	3.28E-22
EFFLUENT 11	7.70E-04	7.51E-02	3.90E+01	1.14E-23	3.00E-22
EFFLUENT 12	1.63E-03	7.67E-02	4.60E+01	1.92E-23	2.66E-22
EFFLUENT 13	2.02E-03	7.87E-02	5.30E+01	3.44E-23	2.43E-22
EFFLUENT 14	1.34E-03	8.01E-02	5.70E+01	5.13E-23	2.34E-22
EFFLUENT 15	7.65E-04	8.08E-02	6.00E+01	3.33E-23	2.27E-22
EFFLUENT 16	9.34E-04	8.18E-02	6.40E+01	2.81E-23	2.17E-22
EFFLUENT 17	1.23E-03	8.30E-02	6.90E+01	3.35E-23	2.08E-22
EFFLUENT 18	6.87E-04	8.37E-02	7.20E+01	3.07E-23	2.02E-22

TABLE B.20f. Fluoride (F) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGTA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	8.83E-03	8.83E-03	3.00E+00	5.40E-23	5.40E-23
EFFLUENT 2	6.06E-03	1.49E-02	7.00E+00	9.15E-23	6.59E-23
EFFLUENT 3	1.70E-03	1.66E-02	1.10E+01	1.34E-23	5.20E-23
EFFLUENT 4	2.61E-03	1.92E-02	1.50E+01	4.59E-23	5.11E-23
EFFLUENT 5	7.44E-04	1.99E-02	1.80E+01	8.43E-24	4.60E-23
EFFLUENT 6	1.20E-03	2.12E-02	2.20E+01	1.50E-23	4.23E-23
EFFLUENT 7	6.97E-04	2.18E-02	2.50E+01	1.05E-23	3.97E-23
EFFLUENT 8	1.36E-03	2.32E-02	2.90E+01	2.61E-23	3.86E-23
EFFLUENT 9	5.65E-04	2.38E-02	3.20E+01	9.65E-24	3.68E-23
EFFLUENT 10	8.29E-04	2.46E-02	3.50E+01	2.13E-23	3.60E-23
EFFLUENT 11	5.46E-04	2.52E-02	3.90E+01	5.73E-24	3.38E-23
EFFLUENT 12	1.16E-03	2.63E-02	4.60E+01	9.69E-24	3.13E-23
EFFLUENT 13	1.39E-03	2.77E-02	5.30E+01	1.62E-23	3.02E-23
EFFLUENT 14	1.21E-03	2.89E-02	5.70E+01	4.18E-23	3.05E-23
EFFLUENT 15	8.88E-04	2.98E-02	6.00E+01	4.27E-23	3.08E-23
EFFLUENT 16	9.59E-04	3.08E-02	6.40E+01	2.96E-23	3.08E-23
EFFLUENT 17	1.39E-03	3.22E-02	6.90E+01	4.29E-23	3.12E-23
EFFLUENT 18	9.17E-04	3.31E-02	7.20E+01	5.48E-23	3.16E-23

TABLE B.20g. Nitrate (NO3) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGTA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	3.18E-01	3.18E-01	3.00E+00	7.01E-26	1.68E-07
EFFLUENT 2	2.52E-02	3.43E-01	7.00E+00	1.59E-21	8.32E-08
EFFLUENT 3	3.17E-03	3.46E-01	1.10E+01	4.66E-23	5.63E-08
EFFLUENT 4	1.48E-03	3.48E-01	1.50E+01	1.47E-23	4.13E-08
EFFLUENT 5	5.51E-04	3.48E-01	1.80E+01	4.62E-24	3.44E-08
EFFLUENT 6	8.08E-04	3.49E-01	2.20E+01	6.78E-24	2.82E-08
EFFLUENT 7	5.07E-04	3.50E-01	2.50E+01	5.58E-24	2.48E-08
EFFLUENT 8	1.07E-03	3.51E-01	2.90E+01	1.59E-23	2.14E-08
EFFLUENT 9	4.41E-04	3.51E-01	3.20E+01	5.48E-24	1.94E-08
EFFLUENT 10	6.98E-04	3.52E-01	3.50E+01	1.51E-23	1.77E-08
EFFLUENT 11	4.04E-04	3.52E-01	3.90E+01	3.14E-24	1.59E-08
EFFLUENT 12	8.30E-04	3.53E-01	4.60E+01	4.97E-24	1.35E-08
EFFLUENT 13	1.03E-03	3.54E-01	5.30E+01	8.88E-24	1.17E-08
EFFLUENT 14	8.38E-04	3.55E-01	5.70E+01	2.01E-23	1.16E-08
EFFLUENT 15	6.47E-04	3.56E-01	6.00E+01	2.26E-23	1.10E-08
EFFLUENT 16	6.98E-04	3.56E-01	6.40E+01	1.57E-23	1.03E-08
EFFLUENT 17	1.01E-03	3.57E-01	6.90E+01	2.27E-23	9.57E-09
EFFLUENT 18	5.88E-04	3.58E-01	7.20E+01	2.25E-23	9.17E-09

TABLE B.20i. Technetium-99 (TC-99) Leach Fractions from Flow Through Test, Crushed/Sediment with Groundwater (CGT)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CGT-1	2.66E+00	5.84E-01	3.00E+00	4.32E-01	4.32E-01	3.34E-07	3.34E-07
CGT-2	4.80E+00	4.07E-02	7.00E+00	3.01E-02	4.62E-01	4.90E-21	1.77E-07
CGT-3	5.76E+00	7.09E-03	1.10E+01	5.25E-03	4.68E-01	1.67E-22	1.13E-07
CGT-4	8.29E+00	1.24E-02	1.50E+01	9.16E-03	4.77E-01	5.08E-22	8.72E-08
CGT-5	9.18E+00	2.66E-03	1.80E+01	1.97E-03	4.79E-01	3.56E-23	7.27E-08
CGT-6	1.11E+01	2.45E-03	2.20E+01	1.82E-03	4.81E-01	1.78E-23	5.95E-08
CGT-7	1.24E+01	1.50E-03	2.50E+01	1.11E-03	4.82E-01	1.13E-23	5.23E-08
CGT-8	1.49E+01	1.32E-03	2.90E+01	9.76E-04	4.83E-01	5.15E-24	4.51E-08
CGT-9	1.60E+01	6.90E-04	3.20E+01	5.10E-04	4.83E-01	2.38E-24	4.09E-08
CGT-10	1.77E+01	1.54E-03	3.50E+01	1.14E-03	4.84E-01	1.05E-23	3.74E-08
CGT-11	1.87E+01	1.11E-03	3.90E+01	8.19E-04	4.85E-01	3.63E-24	3.52E-08
CGT-12	2.07E+01	2.24E-03	4.60E+01	1.66E-03	4.87E-01	7.70E-24	2.99E-08
CGT-13	2.31E+01	1.41E-03	5.30E+01	1.05E-03	4.88E-01	3.79E-24	2.59E-08
CGT-14	2.52E+01	7.43E-04	5.70E+01	5.50E-04	4.88E-01	2.35E-24	2.41E-08
CGT-15	2.67E+01	6.64E-04	6.00E+01	4.92E-04	4.89E-01	2.21E-24	2.29E-08
CGT-16	2.84E+01	8.37E-04	6.40E+01	6.20E-04	4.90E-01	2.08E-24	2.15E-08
CGT-17	3.09E+01	1.42E-03	6.90E+01	1.05E-03	4.91E-01	4.93E-24	1.99E-08
CGT-18	3.30E+01	6.96E-04	7.20E+01	5.15E-04	4.91E-01	2.69E-24	1.91E-08

TABLE B.21a. Potassium (K) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGCC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	4.73E-03	4.73E-03	3.00E+00	1.55E-23	1.55E-23
EFFLUENT 2	0.00E+00	4.73E-03	7.00E+00	0.00E+00	6.64E-24
EFFLUENT 3	0.00E+00	4.73E-03	9.00E+00	0.00E+00	5.16E-24
EFFLUENT 4	0.00E+00	4.73E-03	1.30E+01	0.00E+00	3.57E-24
EFFLUENT 5	0.00E+00	4.73E-03	1.60E+01	0.00E+00	2.90E-24
EFFLUENT 6	0.00E+00	4.73E-03	2.00E+01	0.00E+00	2.32E-24
EFFLUENT 7	0.00E+00	4.73E-03	2.40E+01	0.00E+00	1.94E-24
EFFLUENT 8	0.00E+00	4.73E-03	2.80E+01	0.00E+00	1.66E-24
EFFLUENT 9	0.00E+00	4.73E-03	3.10E+01	0.00E+00	1.50E-24
EFFLUENT 11	0.00E+00	4.73E-03	3.80E+01	0.00E+00	1.22E-24
EFFLUENT 13	1.00E-01	1.05E-01	4.40E+01	9.55E-20	5.23E-22
EFFLUENT 15	5.43E-02	1.60E-01	5.10E+01	2.38E-20	1.04E-21
EFFLUENT 17	4.05E-02	2.00E-01	6.00E+01	9.34E-21	1.39E-21
EFFLUENT 19	2.42E-02	2.24E-01	6.60E+01	8.51E-21	3.36E-09
EFFLUENT 21	1.71E-02	2.41E-01	7.30E+01	3.46E-21	3.66E-09
EFFLUENT 24	1.80E-02	2.59E-01	8.70E+01	1.10E-21	3.67E-09
EFFLUENT 26	9.60E-03	2.69E-01	9.40E+01	1.42E-21	3.66E-09
EFFLUENT 28	6.48E-03	2.75E-01	1.01E+02	6.96E-22	3.41E-09
EFFLUENT 30	6.48E-03	2.82E-01	1.13E+02	2.59E-22	3.50E-09
EFFLUENT 32	1.09E-03	2.83E-01	1.22E+02	1.43E-23	3.05E-09
EFFLUENT 34	6.83E-03	2.90E-01	1.58E+02	4.17E-23	2.56E-09
EFFLUENT 35	0.00E+00	2.90E-01	1.88E+02	0.00E+00	2.16E-09

TABLE B.21b. Sodium (Na) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGCC)

SAMPLE	An/Ao	cu. An/Ao	DAYS	D inc.	D cu.
EFFLUENT 1	2.50E-01	2.50E-01	3.00E+00	4.35E-20	9.74E-08
EFFLUENT 2	1.68E-01	4.19E-01	7.00E+00	7.05E-20	1.36E-07
EFFLUENT 3	5.97E-02	4.78E-01	9.00E+00	5.90E-20	1.45E-07
EFFLUENT 4	3.42E-02	5.12E-01	1.30E+01	6.65E-21	1.13E-07
EFFLUENT 5	2.37E-02	5.36E-01	1.60E+01	7.48E-21	1.10E-07
EFFLUENT 6	2.46E-02	5.61E-01	2.00E+01	5.62E-21	9.67E-08
EFFLUENT 7	1.87E-02	5.79E-01	2.40E+01	3.98E-21	8.82E-08
EFFLUENT 8	1.10E-02	5.90E-01	2.80E+01	1.63E-21	7.92E-08
EFFLUENT 9	3.69E-03	5.94E-01	3.10E+01	3.72E-22	7.16E-08
EFFLUENT 11	1.72E-02	6.11E-01	3.80E+01	1.73E-21	6.18E-08
EFFLUENT 13	5.49E-03	6.17E-01	4.40E+01	2.85E-22	5.75E-08
EFFLUENT 15	0.00E+00	6.17E-01	5.10E+01	0.00E+00	4.96E-08
EFFLUENT 17	0.00E+00	6.17E-01	6.00E+01	0.00E+00	4.22E-08
EFFLUENT 19	0.00E+00	6.17E-01	6.60E+01	0.00E+00	3.84E-08
EFFLUENT 21	0.00E+00	6.17E-01	7.30E+01	0.00E+00	3.47E-08
EFFLUENT 24	0.00E+00	6.17E-01	8.70E+01	0.00E+00	2.91E-08
EFFLUENT 26	0.00E+00	6.17E-01	9.40E+01	0.00E+00	2.69E-08
EFFLUENT 28	0.00E+00	6.17E-01	1.01E+02	0.00E+00	2.51E-08
EFFLUENT 30	0.00E+00	6.17E-01	1.13E+02	0.00E+00	2.24E-08
EFFLUENT 32	0.00E+00	6.17E-01	1.22E+02	0.00E+00	2.08E-08
EFFLUENT 34	9.91E-05	6.17E-01	1.58E+02	8.79E-27	1.60E-08
EFFLUENT 35	2.61E-04	6.17E-01	1.88E+02	1.09E-25	1.35E-08

TABLE B.21c. Aluminum (Al) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGCC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	4.27E-03	4.27E-03	3.00E+00	1.26E-23	1.26E-23
EFFLUENT 2	5.58E-03	9.85E-03	7.00E+00	7.75E-23	2.88E-23
EFFLUENT 3	2.57E-03	1.24E-02	9.00E+00	1.10E-22	3.56E-23
EFFLUENT 4	1.65E-03	1.41E-02	1.30E+01	1.54E-23	3.16E-23
EFFLUENT 5	1.19E-03	1.53E-02	1.60E+01	1.90E-23	3.03E-23
EFFLUENT 6	1.18E-03	1.64E-02	2.00E+01	1.30E-23	2.81E-23
EFFLUENT 7	8.79E-04	1.73E-02	2.40E+01	8.81E-24	2.60E-23
EFFLUENT 8	4.77E-04	1.78E-02	2.80E+01	3.07E-24	2.35E-23
EFFLUENT 9	1.36E-04	1.79E-02	3.10E+01	5.05E-25	2.16E-23
EFFLUENT 11	5.11E-04	1.84E-02	3.80E+01	1.52E-24	1.86E-23
EFFLUENT 13	4.50E-04	1.89E-02	4.40E+01	1.91E-24	1.69E-23
EFFLUENT 15	1.51E-04	1.90E-02	5.10E+01	1.85E-25	1.48E-23
EFFLUENT 17	2.36E-04	1.93E-02	6.00E+01	3.17E-25	1.29E-23
EFFLUENT 19	4.18E-04	1.97E-02	6.60E+01	2.54E-24	1.22E-23
EFFLUENT 21	3.83E-04	2.01E-02	7.30E+01	1.73E-24	1.15E-23
EFFLUENT 24	6.48E-04	2.07E-02	8.70E+01	1.42E-24	1.03E-23
EFFLUENT 26	7.67E-04	2.15E-02	9.40E+01	9.03E-24	1.02E-23
EFFLUENT 28	1.06E-03	2.26E-02	1.01E+02	1.87E-23	1.05E-23
EFFLUENT 30	1.01E-03	2.36E-02	1.13E+02	6.30E-24	1.02E-23
EFFLUENT 32	1.78E-03	2.53E-02	1.22E+02	3.81E-23	1.09E-23
EFFLUENT 34	4.21E-03	2.96E-02	1.58E+02	1.58E-23	1.15E-23
EFFLUENT 35	3.08E-03	3.26E-02	1.88E+02	1.52E-23	1.18E-23

TABLE B.21e. Boron (as H3BO3) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGCA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	7.37E-02	7.37E-02	3.00E+00	3.76E-21	3.76E-21
EFFLUENT 2	3.57E-02	1.09E-01	7.00E+00	3.17E-21	3.55E-21
EFFLUENT 3	5.97E-03	1.15E-01	9.00E+00	5.90E-22	3.07E-21
EFFLUENT 4	1.72E-03	1.17E-01	1.30E+01	1.67E-23	2.19E-21
EFFLUENT 5	1.52E-03	1.19E-01	1.60E+01	3.09E-23	1.83E-21
EFFLUENT 6	1.95E-03	1.21E-01	2.00E+01	3.56E-23	1.51E-21
EFFLUENT 7	1.85E-03	1.22E-01	2.40E+01	3.90E-23	1.30E-21
EFFLUENT 8	1.22E-03	1.24E-01	2.80E+01	2.00E-23	1.13E-21
EFFLUENT 9	4.63E-04	1.24E-01	3.10E+01	5.83E-24	1.03E-21
EFFLUENT 11	3.10E-03	1.27E-01	3.80E+01	5.60E-23	8.85E-22
EFFLUENT 13	3.28E-03	1.30E-01	4.40E+01	1.02E-22	8.04E-22
EFFLUENT 15	1.47E-03	1.32E-01	5.10E+01	1.75E-23	7.09E-22
EFFLUENT 17	1.72E-03	1.34E-01	6.00E+01	1.68E-23	6.19E-22
EFFLUENT 19	2.41E-03	1.36E-01	6.60E+01	8.44E-23	5.83E-22
EFFLUENT 21	1.33E-03	1.37E-01	7.30E+01	2.08E-23	5.37E-22
EFFLUENT 24	1.64E-03	1.39E-01	8.70E+01	9.15E-24	4.62E-22
EFFLUENT 26	1.36E-03	1.40E-01	9.40E+01	2.86E-23	4.36E-22
EFFLUENT 28	1.42E-03	1.42E-01	1.01E+02	3.32E-23	4.14E-22
EFFLUENT 30	1.52E-03	1.43E-01	1.13E+02	1.43E-23	3.78E-22
EFFLUENT 32	2.15E-03	1.45E-01	1.22E+02	5.59E-23	3.61E-22
EFFLUENT 34	4.72E-03	1.50E-01	1.58E+02	2.00E-23	2.97E-22
EFFLUENT 35	3.33E-03	1.53E-01	1.88E+02	1.77E-23	2.61E-22

TABLE B.21f. Fluoride (F) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGCA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	9.19E-03	9.19E-03	3.00E+00	5.86E-23	5.86E-23
EFFLUENT 2	7.37E-03	1.66E-02	7.00E+00	1.35E-22	8.15E-23
EFFLUENT 3	2.22E-03	1.88E-02	9.00E+00	8.15E-23	8.15E-23
EFFLUENT 4	1.02E-03	1.98E-02	1.30E+01	5.95E-24	6.27E-23
EFFLUENT 5	8.64E-04	2.07E-02	1.60E+01	9.97E-24	5.55E-23
EFFLUENT 6	1.01E-03	2.17E-02	2.00E+01	9.49E-24	4.89E-23
EFFLUENT 7	9.03E-04	2.26E-02	2.40E+01	9.31E-24	4.42E-23
EFFLUENT 8	5.67E-04	2.31E-02	2.80E+01	4.33E-24	3.98E-23
EFFLUENT 9	2.16E-04	2.34E-02	3.10E+01	1.27E-24	3.66E-23
EFFLUENT 11	2.92E-03	2.63E-02	3.80E+01	4.97E-23	3.78E-23
EFFLUENT 13	3.47E-03	2.98E-02	4.40E+01	1.14E-22	4.18E-23
EFFLUENT 15	1.13E-03	3.09E-02	5.10E+01	1.03E-23	3.99E-23
EFFLUENT 17	1.41E-03	3.23E-02	6.00E+01	1.13E-23	3.61E-23
EFFLUENT 19	1.35E-03	3.36E-02	6.60E+01	2.67E-23	3.57E-23
EFFLUENT 21	1.46E-03	3.51E-02	7.30E+01	2.51E-23	3.51E-23
EFFLUENT 24	2.28E-03	3.74E-02	8.70E+01	1.76E-23	3.34E-23
EFFLUENT 26	2.16E-03	3.95E-02	9.40E+01	7.14E-23	3.46E-23
EFFLUENT 28	2.52E-03	4.21E-02	1.01E+02	1.05E-22	3.64E-23
EFFLUENT 30	3.19E-03	4.52E-02	1.13E+02	6.28E-23	3.77E-23
EFFLUENT 32	4.51E-03	4.98E-02	1.22E+02	2.45E-22	4.22E-23
EFFLUENT 34	1.38E-02	6.36E-02	1.58E+02	1.70E-22	5.32E-23
EFFLUENT 35	1.17E-02	7.52E-02	1.88E+02	2.17E-22	6.26E-23

TABLE B.21g. Nitrate (NO3) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (DIFCGCA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	2.91E-01	2.91E-01	3.00E+00	5.89E-20	1.36E-07
EFFLUENT 2	8.29E-02	3.74E-01	7.00E+00	1.71E-20	1.01E-07
EFFLUENT 3	4.30E-03	3.79E-01	9.00E+00	3.06E-22	8.31E-08
EFFLUENT 4	0.00E+00	3.79E-01	1.30E+01	0.00E+00	5.75E-08
EFFLUENT 5	0.00E+00	3.79E-01	1.60E+01	0.00E+00	4.67E-08
EFFLUENT 6	0.00E+00	3.79E-01	2.00E+01	0.00E+00	3.74E-08
EFFLUENT 7	0.00E+00	3.79E-01	2.40E+01	0.00E+00	3.12E-08
EFFLUENT 8	0.00E+00	3.79E-01	2.80E+01	0.00E+00	2.67E-08
EFFLUENT 9	0.00E+00	3.79E-01	3.10E+01	0.00E+00	2.41E-08
EFFLUENT 11	0.00E+00	3.79E-01	3.80E+01	0.00E+00	1.97E-08
EFFLUENT 13	0.00E+00	3.79E-01	4.40E+01	0.00E+00	1.70E-08
EFFLUENT 15	1.21E-03	3.80E-01	5.10E+01	1.16E-23	1.47E-08
EFFLUENT 17	1.32E-03	3.81E-01	6.00E+01	9.84E-24	1.25E-08
EFFLUENT 19	1.26E-03	3.82E-01	6.60E+01	2.32E-23	1.13E-08
EFFLUENT 21	1.18E-03	3.84E-01	7.30E+01	1.65E-23	1.02E-08
EFFLUENT 24	1.48E-03	3.85E-01	8.70E+01	7.46E-24	9.10E-09
EFFLUENT 26	1.29E-03	3.86E-01	9.40E+01	2.54E-23	8.42E-09
EFFLUENT 28	1.46E-03	3.88E-01	1.01E+02	3.54E-23	7.84E-09
EFFLUENT 30	1.73E-03	3.90E-01	1.13E+02	1.86E-23	7.01E-09
EFFLUENT 32	2.33E-03	3.92E-01	1.22E+02	6.56E-23	6.49E-09
EFFLUENT 34	7.31E-03	3.99E-01	1.58E+02	4.79E-23	5.33E-09
EFFLUENT 35	4.82E-03	4.04E-01	1.88E+02	3.70E-23	4.48E-09

TABLE B.21i. Cesium-137 (Cs-137) Leach Fractions from Flow Through Test
Crushed/Sediment with Groundwater (CGC)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW CGC-1	2.00E+00	7.75E-11	3.00E+00	2.54E-11	2.54E-11	4.49E-40	4.49E-40
CRW CGC-2	5.92E+00	1.22E-10	7.00E+00	4.00E-11	6.54E-11	8.63E-39	1.27E-39
CRW CGC-3	9.32E+00	6.58E-11	9.00E+00	2.16E-11	8.70E-11	7.76E-39	1.75E-39
CRW CGC-4	1.29E+01	6.52E-11	1.30E+01	2.14E-11	1.08E-10	2.14E-39	1.88E-39
CRW CGC-5	1.66E+01	6.56E-11	1.60E+01	2.16E-11	1.30E-10	4.25E-39	2.19E-39
CRW CGC-6	2.17E+01	9.35E-11	2.00E+01	3.07E-11	1.61E-10	5.09E-39	2.68E-39
CRW CGC-7	2.67E+01	9.50E-11	2.40E+01	3.12E-11	1.92E-10	5.90E-39	3.19E-39
CRW CGC-8	3.01E+01	8.84E-11	2.80E+01	2.90E-11	2.21E-10	5.11E-39	3.62E-39
CRW CGC-9	3.15E+01	3.36E-11	3.10E+01	1.10E-11	2.32E-10	1.12E-39	3.61E-39
CRW CGC-10	3.46E+01	7.98E-11	3.50E+01	2.62E-11	2.58E-10	3.72E-39	3.96E-39
CRW CGC-11	3.89E+01	7.14E-11	3.80E+01	2.35E-11	2.82E-10	5.03E-39	4.34E-39
CRW CGC-12	4.54E+01	1.06E-10	4.10E+01	3.49E-11	3.17E-10	9.86E-39	5.08E-39
CRW CGC-13	4.99E+01	1.44E-10	4.40E+01	4.71E-11	3.64E-10	1.79E-38	6.25E-39
CRW CGC-14	5.40E+01	1.07E-10	4.80E+01	3.51E-11	3.99E-10	6.66E-39	6.89E-39
CRW CGC-15	5.61E+01	3.36E-11	5.10E+01	1.10E-11	4.10E-10	1.11E-39	6.85E-39
CRW CGC-16	6.00E+01	6.41E-11	5.60E+01	2.10E-11	4.31E-10	1.76E-39	6.89E-39
CRW CGC-17	6.28E+01	4.73E-11	6.00E+01	1.55E-11	4.46E-10	1.61E-39	6.90E-39
CRW CGC-18	6.70E+01	5.84E-11	6.30E+01	1.92E-11	4.66E-10	3.37E-39	7.15E-39
CRW CGC-19	7.02E+01	1.04E-10	6.60E+01	3.43E-11	5.00E-10	9.51E-39	7.87E-39
CRW CGC-20	7.35E+01	5.80E-11	7.00E+01	1.91E-11	5.19E-10	1.96E-39	8.00E-39
CRW CGC-21	7.63E+01	5.06E-11	7.30E+01	1.66E-11	5.36E-10	2.53E-39	8.17E-39
CRW CGC-22	8.01E+01	9.36E-11	7.70E+01	3.07E-11	5.66E-10	5.11E-39	8.66E-39
CRW CGC-23	8.44E+01	8.06E-11	8.40E+01	2.65E-11	5.93E-10	1.96E-39	8.70E-39
CRW CGC-24	8.77E+01	7.10E-11	8.70E+01	2.33E-11	6.16E-10	6.53E-39	9.07E-39
CRW CGC-25	9.13E+01	7.75E-11	9.10E+01	2.55E-11	6.42E-10	3.51E-39	9.40E-39
CRW CGC-26	9.43E+01	7.73E-11	9.40E+01	2.54E-11	6.67E-10	5.90E-39	9.84E-39
CRW CGC-27	9.86E+01	1.99E-10	9.80E+01	6.53E-11	7.32E-10	2.30E-38	1.14E-38
CRW CGC-28	1.02E+02	8.68E-11	1.01E+02	2.85E-11	7.61E-10	7.43E-39	1.19E-38
CRW CGC-29	1.05E+02	8.89E-11	1.04E+02	2.92E-11	7.90E-10	6.88E-39	1.25E-38
CRW CGC-30	1.11E+02	9.91E-11	1.13E+02	3.25E-11	8.22E-10	1.94E-39	1.24E-38
CRW CGC-31	1.19E+02	5.32E-10	1.19E+02	1.75E-10	9.97E-10	1.47E-37	1.74E-38
CRW CGC-32	1.23E+02	2.11E-10	1.22E+02	6.91E-11	1.07E-09	5.30E-38	1.94E-38
CRW CGC-33	1.28E+02	3.04E-10	1.26E+02	9.99E-11	1.17E-09	5.39E-38	2.24E-38
CRW CGC-34	1.60E+02	2.02E-09	1.58E+02	6.65E-10	1.83E-09	1.80E-37	4.41E-38
CRW CGC-35	1.65E+02	1.53E-09	1.88E+02	5.04E-10	2.33E-09	2.10E-37	6.03E-38

TABLE B.21j. Strontium-85 (Sr-85) Leach Fractions from Flow Through Test,
Crushed/Sediment with Groundwater (CGC)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW CGC-1	2.00E+00	3.96E-11	3.00E+00	1.25E-09	1.25E-09	1.08E-36	1.08E-36
CRW CGC-2	5.92E+00	7.77E-11	7.00E+00	2.45E-09	3.71E-09	3.26E-35	4.08E-36
CRW CGC-3	9.32E+00	8.59E-11	9.00E+00	2.71E-09	6.42E-09	1.22E-34	9.52E-36
CRW CGC-4	1.29E+01	8.81E-11	1.30E+01	2.78E-09	9.20E-09	3.62E-35	1.35E-35
CRW CGC-5	1.66E+01	8.05E-11	1.60E+01	2.54E-09	1.17E-08	5.93E-35	1.79E-35
CRW CGC-6	2.17E+01	1.10E-10	2.00E+01	3.49E-09	1.52E-08	6.58E-35	2.41E-35
CRW CGC-7	2.67E+01	1.18E-10	2.40E+01	3.72E-09	1.90E-08	8.39E-35	3.11E-35
CRW CGC-8	3.01E+01	1.01E-10	2.80E+01	3.19E-09	2.21E-08	6.15E-35	3.64E-35
CRW CGC-9	3.15E+01	3.20E-11	3.10E+01	1.01E-09	2.32E-08	9.37E-36	3.60E-35
CRW CGC-10	3.46E+01	7.62E-11	3.50E+01	2.41E-09	2.56E-08	3.13E-35	3.88E-35
CRW CGC-11	3.89E+01	9.82E-11	3.80E+01	3.10E-09	2.87E-08	8.80E-35	4.50E-35
CRW CGC-12	4.54E+01	1.40E-10	4.10E+01	4.42E-09	3.31E-08	1.58E-34	5.55E-35
CRW CGC-13	4.99E+01	1.06E-10	4.40E+01	3.35E-09	3.64E-08	9.09E-35	6.27E-35
CRW CGC-14	5.40E+01	9.16E-11	4.80E+01	2.89E-09	3.93E-08	4.53E-35	6.70E-35
CRW CGC-15	5.61E+01	4.46E-11	5.10E+01	1.41E-09	4.07E-08	1.81E-35	6.77E-35
CRW CGC-16	6.00E+01	9.17E-11	5.60E+01	2.90E-09	4.36E-08	3.34E-35	7.07E-35
CRW CGC-17	6.28E+01	6.76E-11	6.00E+01	2.14E-09	4.58E-08	3.05E-35	7.26E-35
CRW CGC-18	6.70E+01	1.02E-10	6.30E+01	3.23E-09	4.90E-08	9.53E-35	7.93E-35
CRW CGC-19	7.02E+01	8.58E-11	6.60E+01	2.71E-09	5.17E-08	5.94E-35	8.43E-35
CRW CGC-20	7.35E+01	6.96E-11	7.00E+01	2.20E-09	5.39E-08	2.61E-35	8.63E-35
CRW CGC-21	7.63E+01	6.07E-11	7.30E+01	1.92E-09	5.58E-08	3.36E-35	8.88E-35
CRW CGC-22	8.01E+01	9.09E-11	7.70E+01	2.87E-09	5.87E-08	4.46E-35	9.31E-35
CRW CGC-23	8.44E+01	1.00E-10	8.40E+01	3.17E-09	6.19E-08	2.80E-35	9.48E-35
CRW CGC-24	8.77E+01	7.58E-11	8.70E+01	2.39E-09	6.43E-08	6.88E-35	9.87E-35
CRW CGC-25	9.13E+01	8.55E-11	9.10E+01	2.70E-09	6.70E-08	3.95E-35	1.02E-34
CRW CGC-26	9.43E+01	7.81E-11	9.40E+01	2.47E-09	6.94E-08	5.57E-35	1.07E-34
CRW CGC-27	9.86E+01	1.27E-10	9.80E+01	4.03E-09	7.35E-08	8.76E-35	1.15E-34
CRW CGC-28	1.02E+02	8.02E-11	1.01E+02	2.53E-09	7.60E-08	5.87E-35	1.19E-34
CRW CGC-29	1.05E+02	8.96E-11	1.04E+02	2.83E-09	7.88E-08	6.48E-35	1.24E-34
CRW CGC-30	1.11E+02	1.32E-10	1.13E+02	4.17E-09	8.30E-08	3.18E-35	1.27E-34
CRW CGC-31	1.19E+02	2.00E-10	1.19E+02	6.32E-09	8.93E-08	1.93E-34	1.39E-34
CRW CGC-32	1.23E+02	7.91E-11	1.22E+02	2.50E-09	9.18E-08	6.93E-35	1.44E-34
CRW CGC-33	1.28E+02	1.14E-10	1.26E+02	3.61E-09	9.54E-08	7.05E-35	1.50E-34
CRW CGC-34	1.60E+02	7.61E-10	1.58E+02	2.40E-08	1.19E-07	2.35E-34	1.88E-34
CRW CGC-35	1.85E+02	5.76E-10	1.88E+02	1.82E-08	1.38E-07	2.75E-34	2.10E-34

TABLE B.22b. Sodium (Na) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (SCGIC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	4.90E-02	4.90E-02	3.00E+00	1.66E-21	1.66E-21
EFFLUENT 2	1.94E-01	2.43E-01	7.00E+00	9.40E-20	1.76E-20
EFFLUENT 3	8.54E-02	3.29E-01	9.00E+00	1.21E-19	2.50E-20
EFFLUENT 4	3.90E-02	3.68E-01	1.30E+01	8.61E-21	2.16E-20
EFFLUENT 5	4.45E-02	4.12E-01	1.60E+01	2.64E-20	2.21E-20
EFFLUENT 6	4.32E-02	4.55E-01	2.00E+01	1.74E-20	2.16E-20
EFFLUENT 7	3.33E-02	4.89E-01	2.40E+01	1.27E-20	2.07E-20
EFFLUENT 8	1.75E-02	5.06E-01	2.80E+01	4.14E-21	1.90E-20
EFFLUENT 9	1.35E-02	5.20E-01	3.10E+01	4.95E-21	1.81E-20

TABLE B.22c. Aluminum (Al) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (SCGIC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	0.00E+00	0.00E+00	3.00E+00	0.00E+00	0.00E+00
EFFLUENT 2	3.37E-03	3.37E-03	7.00E+00	2.83E-23	3.37E-24
EFFLUENT 3	2.36E-03	5.73E-03	9.00E+00	9.22E-23	7.58E-24
EFFLUENT 4	1.72E-03	7.45E-03	1.30E+01	1.68E-23	8.87E-24
EFFLUENT 5	2.23E-03	9.68E-03	1.60E+01	6.66E-23	1.22E-23
EFFLUENT 6	2.51E-03	1.22E-02	2.00E+01	5.90E-23	1.55E-23
EFFLUENT 7	2.00E-03	1.42E-02	2.40E+01	4.58E-23	1.75E-23
EFFLUENT 8	1.01E-03	1.52E-02	2.80E+01	1.37E-23	1.72E-23
EFFLUENT 9	7.67E-04	1.60E-02	3.10E+01	1.60E-23	1.71E-23

TABLE B.22d. Silica (Si) Leach Fractions from Flow Through Test Crushed Grout/Sediment with Groundwater (SCGIC)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	1.43E-03	1.43E-03	3.00E+00	1.42E-24	1.42E-24
EFFLUENT 2	8.19E-03	9.63E-03	7.00E+00	1.67E-22	2.75E-23
EFFLUENT 3	4.22E-03	1.38E-02	9.00E+00	2.93E-22	4.43E-23
EFFLUENT 4	1.99E-03	1.58E-02	1.30E+01	2.25E-23	4.01E-23
EFFLUENT 5	2.20E-03	1.80E-02	1.60E+01	6.47E-23	4.23E-23
EFFLUENT 6	1.96E-03	2.00E-02	2.00E+01	3.59E-23	4.16E-23
EFFLUENT 7	1.27E-03	2.13E-02	2.40E+01	1.84E-23	3.92E-23
EFFLUENT 8	6.97E-04	2.20E-02	2.80E+01	6.56E-24	3.58E-23
EFFLUENT 9	4.98E-04	2.25E-02	3.10E+01	6.75E-24	3.39E-23

TABLE B.22e. Boron (as HCB03) Leach Fractions from Flow Through Crushed Grout/Sediment with Groundwater (SCGIA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	3.05E-02	3.05E-02	3.00E+00	6.46E-22	6.46E-22
EFFLUENT 2	3.88E-02	6.93E-02	7.00E+00	3.74E-21	1.43E-21
EFFLUENT 3	1.24E-02	8.17E-02	9.00E+00	2.56E-21	1.54E-21
EFFLUENT 4	6.08E-03	8.78E-02	1.30E+01	2.10E-22	1.23E-21
EFFLUENT 5	6.04E-03	9.38E-02	1.60E+01	4.87E-22	1.14E-21
EFFLUENT 6	6.41E-03	1.00E-01	2.00E+01	3.83E-22	1.04E-21
EFFLUENT 7	3.46E-03	1.04E-01	2.40E+01	1.36E-22	9.32E-22
EFFLUENT 8	7.38E-03	1.11E-01	2.80E+01	7.35E-22	9.16E-22
EFFLUENT 9	5.37E-03	1.16E-01	3.10E+01	7.86E-22	9.10E-22

TABLE B.22f. Fluoride (F) Leach Fractions from Flow Through Crushed Grout/Sediment with Groundwater (SCGIA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	2.63E-03	2.63E-03	3.00E+00	4.80E-24	4.80E-24
EFFLUENT 2	5.89E-03	8.52E-03	7.00E+00	8.63E-23	2.16E-23
EFFLUENT 3	2.80E-03	1.13E-02	9.00E+00	1.30E-22	2.96E-23
EFFLUENT 4	1.49E-03	1.28E-02	1.30E+01	1.25E-23	2.62E-23
EFFLUENT 5	1.62E-03	1.44E-02	1.60E+01	3.53E-23	2.71E-23
EFFLUENT 6	1.56E-03	1.60E-02	2.00E+01	2.27E-23	2.66E-23
EFFLUENT 7	1.21E-03	1.72E-02	2.40E+01	1.67E-23	2.56E-23
EFFLUENT 8	7.08E-04	1.79E-02	2.80E+01	6.76E-24	2.38E-23
EFFLUENT 9	5.05E-04	1.84E-02	3.10E+01	6.95E-24	2.27E-23

TABLE B.22g. Nitrate (NO3) Leach Fractions from Flow Through Crushed Grout/Sediment with Groundwater (SCGIA)

SAMPLE	An/Ao	cum. An/Ao	DAYS	D inc.	D cum.
EFFLUENT 1	2.87E-01	2.87E-01	3.00E+00	5.73E-20	5.74E-06
EFFLUENT 2	2.11E-01	4.98E-01	7.00E+00	1.11E-19	1.27E-07
EFFLUENT 3	1.99E-02	5.18E-01	9.00E+00	6.59E-21	1.06E-07
EFFLUENT 4	1.29E-03	5.19E-01	1.30E+01	9.38E-24	7.49E-08
EFFLUENT 5	0.00E+00	5.19E-01	1.60E+01	0.00E+00	6.05E-08
EFFLUENT 6	0.00E+00	5.19E-01	2.00E+01	0.00E+00	4.37E-08
EFFLUENT 7	0.00E+00	5.19E-01	2.40E+01	0.00E+00	4.06E-08
EFFLUENT 8	0.00E+00	5.19E-01	2.80E+01	0.00E+00	3.48E-08
EFFLUENT 9	0.00E+00	5.19E-01	3.10E+01	0.00E+00	3.14E-08

TABLE B.22h. Sulfate (SO₄) Leach Fractions from Flow Through Crushed Grout/Sediment with Groundwater (SCGIA)

SAMPLE	An/Ao	CUM. An/Ao	DAYS	D inc.	D CUM.
EFFLUENT 1	7.17E-01	7.17E-01	3.00E+00	3.56E-19	3.70E-11
EFFLUENT 2	5.33E-01	1.25E+00	7.00E+00	7.08E-19	3.06E-12
EFFLUENT 3	9.84E-02	1.35E+00	9.00E+00	1.61E-19	1.84E-12
EFFLUENT 4	2.10E-02	1.37E+00	1.30E+01	2.51E-21	1.34E-12
EFFLUENT 5	1.08E-03	1.37E+00	1.60E+01	1.57E-23	1.01E-12
EFFLUENT 6	0.00E+00	1.37E+00	2.00E+01	0.00E+00	8.16E-13
EFFLUENT 7	0.00E+00	1.37E+00	2.40E+01	0.00E+00	6.67E-13
EFFLUENT 8	0.00E+00	1.37E+00	2.80E+01	0.00E+00	5.64E-13
EFFLUENT 9	0.00E+00	1.37E+00	3.10E+01	0.00E+00	4.97E-13

TABLE B.22i. Technetium-99 (Tc-99) Leach Fractions from Flow Through Test, Crushed/Sediment with Groundwater (SCGT)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
SCGT-1	3.46E+00	5.89E-01	3.00E+00	4.36E-01	4.36E-01	1.81E-06	1.81E-06
SCGT-2	6.44E+00	8.54E-02	7.00E+00	6.32E-02	4.99E-01	8.37E-21	5.78E-06
SCGT-3	7.95E+00	1.25E-02	1.10E+01	9.28E-03	5.09E-01	2.02E-22	9.53E-06
SCGT-4	1.15E+01	9.09E-03	1.50E+01	6.73E-03	5.15E-01	1.06E-22	1.36E-05
SCGT-5	1.29E+01	2.08E-03	1.80E+01	1.54E-03	5.17E-01	8.40E-24	1.63E-05
SCGT-6	1.58E+01	2.78E-03	2.20E+01	2.06E-03	5.19E-01	8.84E-24	2.00E-05
SCGT-7	1.78E+01	1.14E-03	2.50E+01	8.47E-04	5.20E-01	2.54E-24	2.27E-05
SCGT-8	2.20E+01	1.37E-03	2.90E+01	1.01E-03	5.21E-01	2.15E-24	2.63E-05
SCGT-9	2.38E+01	5.07E-04	3.20E+01	3.76E-04	5.21E-01	4.99E-25	2.90E-05
SCGT-10	2.66E+01	7.16E-04	3.50E+01	5.30E-04	5.22E-01	8.77E-25	3.18E-05
SCGT-11	2.83E+01	5.82E-04	3.90E+01	4.31E-04	5.22E-01	3.88E-25	3.54E-05
SCGT-12	3.26E+01	1.92E-03	4.60E+01	1.42E-03	5.24E-01	2.19E-24	4.17E-05
SCGT-13	3.78E+01	8.91E-04	5.30E+01	6.59E-04	5.24E-01	5.83E-25	4.51E-05
SCGT-14	4.05E+01	4.15E-04	5.70E+01	3.07E-04	5.25E-01	2.84E-25	5.43E-05
SCGT-15	4.26E+01	3.37E-04	6.00E+01	2.50E-04	5.25E-01	2.21E-25	5.72E-05
SCGT-16	4.50E+01	5.17E-04	6.40E+01	3.83E-04	5.25E-01	3.07E-25	6.10E-05
SCGT-17	4.81E+01	6.84E-04	6.90E+01	5.06E-04	5.26E-01	4.40E-25	6.57E-05
SCGT-18	4.99E+01	4.05E-04	7.20E+01	3.00E-04	5.26E-01	3.53E-25	6.86E-05

TABLE B.22j. Iodine-125 (I-125) Leach Fractions from Flow Through Test
Crushed/Sediment with Groundwater (SCGI)

SAMPLE	DCI	TIME DAYS	AN/AO	CUM AN/AO	DINC CM2/SEC	DCUM CM2/SEC
CRW SCGI-1	1.55E-01	3.00E+00	4.29E-01	4.29E-01	1.90E-07	1.90E-07
CRW SCGI-2	9.30E-02	7.00E+00	2.65E-01	6.95E-01	1.47E-19	2.93E-07
CRW SCGI-3	8.90E-03	9.00E+00	2.60E-02	7.21E-01	4.35E-21	2.46E-07
CRW SCGI-4	4.12E-03	1.30E+01	1.26E-02	7.33E-01	2.86E-22	1.79E-07
CRW SCGI-5	9.77E-04	1.60E+01	3.09E-03	7.36E-01	3.38E-23	1.52E-07
CRW SCGI-6	6.96E-04	2.00E+01	2.31E-03	7.39E-01	1.11E-23	1.22E-07
CRW SCGI-7	3.16E-04	2.40E+01	1.10E-03	7.40E-01	2.86E-24	1.01E-07
CRW SCGI-8	3.50E-04	2.80E+01	1.27E-03	7.41E-01	3.80E-24	8.69E-08
CRW SCGI-9	1.81E-04	3.10E+01	6.58E-04	7.42E-01	1.53E-24	7.84E-08
CRW SCGI-10	2.74E-04	3.50E+01	1.08E-03	7.43E-01	2.44E-24	6.95E-08

TABLE B.22k. Strontium-85 (Sr-85) Leach Fractions from Flow Through Test,
Crushed/Sediment with Groundwater (SCGC)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW SCGC-1	9.80E-01	3.91E-11	3.00E+00	1.24E-09	1.24E-09	4.09E-37	4.09E-37
CRW SCGC-2	2.47E+00	4.10E-11	7.00E+00	1.29E-09	2.53E-09	3.51E-36	7.36E-37
CRW SCGC-3	4.45E+00	1.24E-10	9.00E+00	3.91E-09	6.44E-09	9.83E-35	3.70E-36
CRW SCGC-4	7.75E+00	9.27E-11	1.30E+01	2.93E-09	9.37E-09	1.55E-35	5.43E-36
CRW SCGC-5	9.93E+00	5.89E-11	1.60E+01	1.86E-09	1.12E-08	1.22E-35	6.34E-36
CRW SCGC-6	1.19E+01	5.78E-11	2.00E+01	1.83E-09	1.31E-08	6.97E-36	6.85E-36
CRW SCGC-7	1.33E+01	5.48E-11	2.40E+01	1.73E-09	1.48E-08	7.02E-36	7.33E-36
CRW SCGC-8	1.38E+01	7.46E-12	2.80E+01	2.36E-10	1.50E-08	1.30E-37	6.48E-36
CRW SCGC-9	1.56E+01	5.97E-11	3.10E+01	1.89E-09	1.69E-08	1.26E-35	7.42E-36
CRW SCGC-10	1.90E+01	9.67E-11	3.50E+01	3.05E-09	2.00E-08	1.95E-35	9.16E-36
CRW SCGC-11	2.19E+01	9.42E-11	3.80E+01	2.98E-09	2.29E-08	3.14E-35	1.11E-35
CRW SCGC-12	2.80E+01	1.78E-10	4.10E+01	5.63E-09	2.86E-08	9.91E-35	1.60E-35
CRW SCGC-13	3.20E+01	1.43E-10	4.40E+01	4.51E-09	3.31E-08	6.37E-35	2.00E-35
CRW SCGC-14	3.57E+01	9.82E-11	4.80E+01	3.10E-09	3.62E-08	2.01E-35	2.19E-35
CRW SCGC-15	3.75E+01	6.40E-11	5.10E+01	2.02E-09	3.82E-08	1.45E-35	2.30E-35
CRW SCGC-16	4.09E+01	8.79E-11	5.60E+01	2.78E-09	4.10E-08	1.19E-35	2.41E-35
CRW SCGC-17	4.35E+01	8.92E-11	6.00E+01	2.82E-09	4.38E-08	2.05E-35	2.57E-35
CRW SCGC-18	4.71E+01	9.39E-11	6.30E+01	2.97E-09	4.68E-08	3.11E-35	2.79E-35
CRW SCGC-19	5.00E+01	8.01E-11	6.60E+01	2.53E-09	4.93E-08	2.00E-35	2.96E-35
CRW SCGC-20	5.29E+01	7.29E-11	7.00E+01	2.30E-09	5.16E-08	1.11E-35	3.06E-35
CRW SCGC-21	5.54E+01	7.31E-11	7.30E+01	2.31E-09	5.39E-08	1.89E-35	3.20E-35
CRW SCGC-22	5.91E+01	1.12E-10	7.70E+01	3.53E-09	5.74E-08	2.61E-35	3.45E-35
CRW SCGC-23	6.32E+01	1.08E-10	8.40E+01	3.40E-09	6.08E-08	1.25E-35	3.55E-35
CRW SCGC-24	6.63E+01	8.94E-11	8.70E+01	2.83E-09	6.37E-08	3.71E-35	3.75E-35
CRW SCGC-25	6.95E+01	8.02E-11	9.10E+01	2.53E-09	6.62E-08	1.34E-35	3.88E-35
CRW SCGC-26	7.23E+01	7.37E-11	9.40E+01	2.33E-09	6.85E-08	1.92E-35	4.02E-35
CRW SCGC-27	7.63E+01	9.71E-11	9.80E+01	3.07E-09	7.16E-08	1.97E-35	4.21E-35
CRW SCGC-28	7.92E+01	7.26E-11	1.01E+02	2.29E-09	7.39E-08	1.86E-35	4.35E-35
CRW SCGC-29	8.23E+01	8.88E-11	1.04E+02	2.81E-09	7.67E-08	2.46E-35	4.55E-35
CRW SCGC-30	8.83E+01	1.80E-10	1.13E+02	5.70E-09	8.24E-08	2.31E-35	4.83E-35
CRW SCGC-31	9.64E+01	2.00E-10	1.19E+02	6.33E-09	8.87E-08	7.49E-35	5.32E-35
CRW SCGC-32	9.93E+01	7.12E-11	1.22E+02	2.25E-09	9.10E-08	2.17E-35	5.46E-35
CRW SCGC-33	1.03E+02	1.39E-10	1.26E+02	4.38E-09	9.54E-08	4.01E-35	5.81E-35
CRW SCGC-34	1.31E+02	6.87E-10	1.58E+02	2.17E-08	1.17E-07	7.40E-35	6.98E-35
CRW SCGC-35	1.51E+02	5.07E-10	1.88E+02	1.60E-08	1.33E-07	8.25E-35	7.58E-35

TABLE B.221. Cesium-137 (Cs-137) Leach Fractions from Flow Through Test,
Grout/Sediment with Groundwater (SCGC)

SAMPLE	PORE VOLUME	uCi	TIME DAYS	An/Ao	CUM An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW SC6C-1	9.80E-01	2.27E-11	3.00E+00	7.45E-12	7.45E-12	1.49E-41	1.49E-41
CRW SC6C-2	2.47E+00	1.65E-10	7.00E+00	5.43E-11	6.17E-11	6.16E-39	4.38E-40
CRW SC6C-3	4.45E+00	4.06E-11	9.00E+00	1.33E-11	7.50E-11	1.14E-39	5.03E-40
CRW SC6C-4	7.75E+00	5.52E-11	1.30E+01	1.81E-11	9.31E-11	5.94E-40	5.37E-40
CRW SC6C-5	9.93E+00	4.30E-11	1.60E+01	1.41E-11	1.07E-10	7.07E-40	5.79E-40
CRW SC6C-6	1.19E+01	2.20E-10	2.00E+01	7.24E-11	1.80E-10	1.10E-38	1.30E-39
CRW SC6C-7	1.33E+01	3.63E-11	2.40E+01	1.19E-11	1.92E-10	3.33E-40	1.23E-39
CRW SC6C-8	1.38E+01	2.20E-11	2.80E+01	7.24E-12	1.99E-10	1.23E-40	1.14E-39
CRW SC6C-9	1.56E+01	4.19E-11	3.10E+01	1.38E-11	2.13E-10	6.72E-40	1.17E-39
CRW SC6C-10	1.90E+01	6.46E-11	3.50E+01	2.12E-11	2.34E-10	9.42E-40	1.26E-39
CRW SC6C-11	2.19E+01	5.62E-11	3.80E+01	1.85E-11	2.52E-10	1.21E-39	1.35E-39
CRW SC6C-12	2.80E+01	1.18E-10	4.10E+01	3.88E-11	2.91E-10	4.71E-39	1.66E-39
CRW SC6C-13	3.20E+01	1.40E-10	4.40E+01	4.60E-11	3.37E-10	6.60E-39	2.08E-39
CRW SC6C-14	3.57E+01	1.09E-10	4.80E+01	3.59E-11	3.73E-10	2.70E-39	2.33E-39
CRW SC6C-15	3.75E+01	2.95E-11	5.10E+01	9.69E-12	3.83E-10	3.32E-40	2.31E-39
CRW SC6C-16	4.09E+01	1.25E-10	5.60E+01	4.12E-11	4.24E-10	2.62E-39	2.58E-39
CRW SC6C-17	4.35E+01	5.86E-11	6.00E+01	1.93E-11	4.43E-10	9.56E-40	2.63E-39
CRW SC6C-18	4.71E+01	6.70E-11	6.30E+01	2.20E-11	4.65E-10	1.72E-39	2.76E-39
CRW SC6C-19	5.00E+01	6.11E-11	6.60E+01	2.01E-11	4.85E-10	1.26E-39	2.87E-39
CRW SC6C-20	5.29E+01	5.05E-11	7.00E+01	1.66E-11	5.02E-10	5.76E-40	2.89E-39
CRW SC6C-21	5.54E+01	1.75E-11	7.30E+01	5.74E-12	5.07E-10	1.17E-40	2.84E-39
CRW SC6C-22	5.91E+01	9.99E-11	7.70E+01	3.28E-11	5.40E-10	2.25E-39	3.05E-39
CRW SC6C-23	6.32E+01	7.38E-11	8.40E+01	2.42E-11	5.65E-10	6.36E-40	3.05E-39
CRW SC6C-24	6.63E+01	1.58E-11	8.70E+01	5.18E-12	5.70E-10	1.25E-40	3.00E-39
CRW SC6C-25	6.95E+01	1.65E-11	9.10E+01	5.40E-12	5.75E-10	6.11E-41	2.92E-39
CRW SC6C-26	7.23E+01	1.41E-11	9.40E+01	4.63E-12	5.80E-10	7.60E-41	2.88E-39
CRW SC6C-27	7.63E+01	2.05E-11	9.80E+01	6.73E-12	5.86E-10	9.47E-41	2.82E-39
CRW SC6C-28	7.92E+01	5.91E-11	1.01E+02	1.94E-11	6.06E-10	1.33E-39	2.92E-39
CRW SC6C-29	8.23E+01	1.41E-10	1.04E+02	4.63E-11	6.52E-10	6.71E-39	3.29E-39
CRW SC6C-30	8.83E+01	1.78E-10	1.13E+02	5.85E-11	7.11E-10	2.43E-39	3.60E-39
CRW SC6C-31	9.64E+01	1.62E-10	1.19E+02	5.33E-11	7.64E-10	5.31E-39	3.95E-39
CRW SC6C-32	9.93E+01	5.77E-11	1.22E+02	1.89E-11	7.83E-10	1.54E-39	4.04E-39
CRW SC6C-33	1.03E+02	8.29E-11	1.26E+02	2.72E-11	8.10E-10	1.55E-39	4.19E-39
CRW SC6C-34	1.31E+02	5.50E-10	1.58E+02	1.81E-10	9.91E-10	5.12E-39	5.00E-39
CRW SC6C-35	1.51E+02	4.06E-10	1.88E+02	1.33E-10	1.12E-09	5.71E-39	5.41E-39

TABLE B.23i. Iodine-125 (I-125) Leach Fraction from Flow Through Test,
Crushed/Sediment with Groundwater (CGI)

SAMPLE	PORE VOLUME	CORR Uci	TIME DAYS	An/Ao	cum An/Ao	DINC CM2/SEC	DCUM CM2/SEC
CRW CGI-1	1.11E+00	8.99E-02	3.00E+00	2.37E-01	2.37E-01	8.91E-08	8.91E-08
CRW CGI-2	5.02E+00	9.30E-02	7.00E+00	2.45E-01	4.81E-01	3.24E-19	1.87E-07
CRW CGI-3	8.44E+00	1.41E-02	9.00E+00	3.71E-02	5.18E-01	2.29E-20	1.77E-07
CRW CGI-4	1.25E+01	5.15E-03	1.30E+01	1.36E-02	5.32E-01	8.60E-22	1.29E-07
CRW CGI-5	1.63E+01	8.20E-04	1.60E+01	2.16E-03	5.34E-01	4.26E-23	1.05E-07
CRW CGI-6	2.14E+01	7.74E-04	2.00E+01	2.04E-03	5.36E-01	2.24E-23	8.79E-08
CRW CGI-7	2.66E+01	5.04E-04	2.40E+01	1.33E-03	5.37E-01	1.06E-23	7.33E-08
CRW CGI-8	3.02E+01	4.47E-04	2.80E+01	1.18E-03	5.39E-01	8.40E-24	6.28E-08
CRW CGI-9	3.18E+01	2.01E-04	3.10E+01	5.29E-04	5.39E-01	2.56E-24	5.67E-08
CRW CGI-10	3.56E+01	4.38E-04	3.50E+01	1.15E-03	5.40E-01	7.17E-24	5.03E-08

Appendix C

Mass Balance of Leach Solutions

Appendix C

List of Tables

- Table C.1 - Mass Balance for ANS 16.1 Leach Test of Whole Grout with Groundwater (MB2-4.WK1)
- Table C.2 - Mass Balance for ANS 16.1 Leach Test of Whole Grout with Groundwater (MB3-4)
- Table C.3 - Mass Balance for ANS 16.1 Leach Test of Whole Grout with Groundwater (MB4-8)
- Table C.4 - Mass Balance for ANS 16.1 Leach Test of Whole Grout with Groundwater (MB5-5)
- Table C.5 - Mass Balance for Static Leach Test of Whole Grout in Groundwater (MB2-17)
- Table C.6 - Mass Balance for Static Leach Test of Whole Grout in Groundwater (MB3-18)
- Table C.7 - Mass Balance for Static Leach Test of Whole Grout in Groundwater (MB4-13)
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- Table C.9 - Mass Balance for Flow-Through Leach Test on Whole Grout/Sediment with Groundwater (MBCOLT1)
- Table C.10 - Mass Balance for Flow-Through Leach Test on Whole Grout/Sediment with Groundwater (MBCOLT1)
- Table C.11 - Mass Balance for Flow-Through Leach Test on Whole Grout/Sediment with Groundwater (MBCOLC1)
- Table C.12 - Mass Balance for Flow-Through Leach Test on Whole Grout with Groundwater (MBCOLLT3)
- Table C.13 - Mass Balance for Flow-Through Leach Test on Whole Grout with Groundwater (MBCOLLT2)
- Table C.14 - Mass Balance for Flow-Through Leach Test on Whole Grout with Groundwater (MBCOLLT1)
- Table C.15 - Mass Balance for Flow-Through Leach Test on Crushed Grout with Groundwater (MBBCGT)
- Table C.16 - Mass Balance for Flow-Through Leach Test on Crushed Grout with Groundwater (MBBCGI)

Table C.17 - Mass Balance for Flow-Through Leach Test on Crushed Grout with Groundwater (MBBCGC)

Table C.18 - Mass Balance for Flow-Through Leach Test on Crushed Grout/Sediment with Groundwater (MBCGT)

Table C.19 - Mass Balance for Flow-Through Leach Test on Crushed Grout/Sediment with Groundwater (MBCGC)

Table C.20 - Mass Balance for Flow-Through Leach Test on Crushed Grout/Sediment with Groundwater (MBSCGI)

TABLE C.1. Mass Balance for ANS 16.1 Leach Test Whole Grout with Groundwater (MB2-4.WK1)

Ca				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm Ca	ppm Ca	mg Ca	mg Ca
2-4-1	49.60	56.00	-3.84	-3.84
2-4-2	23.50	56.00	-19.50	-23.34
2-4-3	9.90	56.00	-27.66	-51.00
2-4-4	9.30	56.00	-28.02	-79.02
2-4-5	1.10	56.00	-32.94	-111.96
2-4-6	13.20	56.00	-25.68	-137.64
2-4-7	1.60	56.00	-32.64	-170.28
2-4-8	2.40	56.00	-32.16	-202.44
2-4-9	3.00	56.00	-31.80	-234.24
2-4-10	1.40	56.00	-32.76	-267.00
2-4-11	2.70	56.00	-31.98	-298.98
2-4-12	1.60	56.00	-32.64	-331.62
2-4-13	1.10	56.00	-32.94	-364.56
2-4-14	1.00	56.00	-33.00	-397.56
2-4-15	1.00	56.00	-33.00	-430.56
2-4-16	1.00	56.00	-33.00	-463.56
2-4-17	0.80	56.00	-33.12	-496.68
2-4-18	0.90	56.00	-33.06	-529.74

Na				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm Na	ppm Na	mg Na	mg Na
2-4-1	46.00	25.00	12.60	12.60
2-4-2	109.00	25.00	50.40	63.00
2-4-3	91.00	25.00	39.60	102.60
2-4-4	149.00	25.00	74.40	177.00
2-4-5	125.00	25.00	60.00	237.00
2-4-6	80.00	25.00	33.00	270.00
2-4-7	383.00	25.00	214.80	484.80
2-4-8	183.00	25.00	94.80	579.60
2-4-9	143.00	25.00	70.80	650.40
2-4-10	210.00	25.00	111.00	761.40
2-4-11	118.00	25.00	55.80	817.20
2-4-12	138.00	25.00	67.80	885.00
2-4-13	200.00	25.00	105.00	990.00
2-4-14	168.00	25.00	85.80	1075.80
2-4-15	168.50	25.00	86.10	1161.90
2-4-16	169.00	25.00	86.40	1248.30
2-4-17	241.00	25.00	129.60	1377.90
2-4-18	205.00	25.00	108.00	1485.90

K				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm K	ppm K	mg K	mg K
2-4-1	6.30	7.80	-0.90	-0.90
2-4-2	8.50	7.80	0.42	-0.48
2-4-3	7.90	7.80	0.06	-0.42
2-4-4	9.90	7.80	1.26	0.84
2-4-5	9.20	7.80	0.84	1.68
2-4-6	9.20	7.80	0.84	2.52
2-4-7	20.00	7.80	7.32	9.84
2-4-8	13.00	7.80	3.12	12.96
2-4-9	11.00	7.80	1.92	14.88
2-4-10	14.00	7.80	3.72	18.60
2-4-11	11.00	7.80	1.92	20.52
2-4-12	11.00	7.80	1.92	22.44
2-4-13	13.00	7.80	3.12	25.56
2-4-14	11.80	7.80	2.40	27.96
2-4-15	11.90	7.80	2.46	30.42
2-4-16	12.00	7.80	2.52	32.94
2-4-17	13.80	7.80	3.60	36.54
2-4-18	12.60	7.80	2.88	39.42

Al				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm Al	ppm Al	mg Al	mg Al
2-4-1	0.11	0.10	0.01	0.01
2-4-2	0.05	0.10	-0.03	-0.02
2-4-3	0.03	0.10	-0.04	-0.07
2-4-4	0.04	0.10	-0.04	-0.10
2-4-6	0.03	0.10	-0.04	-0.14
2-4-7	0.05	0.10	-0.03	-0.17
2-4-8	1.08	0.10	0.59	0.41
2-4-9	0.03	0.10	-0.04	0.37
2-4-10	0.03	0.10	-0.04	0.33
2-4-11	0.03	0.10	-0.04	0.29
2-4-12	0.03	0.10	-0.04	0.25
2-4-13	0.03	0.10	-0.04	0.20
2-4-14	0.03	0.10	-0.04	0.16
2-4-15	0.03	0.10	-0.04	0.12
2-4-16	0.03	0.10	-0.04	0.08
2-4-17	0.03	0.10	-0.04	0.04
2-4-18	0.03	0.10	-0.04	-0.01

TABLE C.1. contd

Si				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm Si	ppm Si	mg Si	mg Si
2-4-1	13.50	15.00	-0.90	-0.90
2-4-2	11.70	15.00	-1.98	-2.88
2-4-3	11.40	15.00	-2.16	-5.04
2-4-4	10.60	15.00	-2.64	-7.68
2-4-5	8.60	15.00	-3.84	-11.52
2-4-6	12.40	15.00	-1.56	-13.08
2-4-7	10.30	15.00	-2.82	-15.90
2-4-8	8.90	15.00	-3.66	-19.56
2-4-9	8.60	15.00	-3.84	-23.40
2-4-10	7.60	15.00	-4.44	-27.84
2-4-11	8.60	15.00	-3.84	-31.68
2-4-12	6.20	15.00	-5.28	-36.96
2-4-13	5.10	15.00	-5.94	-42.90
2-4-14	4.30	15.00	-6.42	-49.32
2-4-15	4.55	15.00	-6.27	-55.59
2-4-16	4.80	15.00	-6.12	-61.71
2-4-17	5.20	15.00	-5.88	-67.59
2-4-18	3.40	15.00	-6.96	-74.55

Mg				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm Mg	ppm Mg	mg Mg	mg Mg
2-4-1	13.10	14.40	-0.78	-0.78
2-4-2	5.94	14.40	-5.08	-5.86
2-4-3	6.63	14.40	-4.66	-10.52
2-4-4	1.00	14.40	-8.04	-18.56
2-4-5	0.32	14.40	-8.45	-27.01
2-4-6	9.70	14.40	-2.82	-29.83
2-4-7	0.06	14.40	-8.60	-38.43
2-4-8	0.75	14.40	-8.19	-46.62
2-4-9	2.80	14.40	-6.96	-53.58
2-4-10	0.46	14.40	-8.36	-61.94
2-4-11	5.53	14.40	-5.32	-67.27
2-4-12	2.57	14.40	-7.10	-74.36
2-4-13	0.13	14.40	-8.56	-82.93
2-4-14	0.31	14.40	-8.45	-91.38
2-4-15	0.30	14.40	-8.46	-99.84
2-4-16	0.28	14.40	-8.47	-108.32
2-4-17	0.06	14.40	-8.60	-116.92
2-4-18	0.15	14.40	-8.55	-125.47

F				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm F	ppm F	mg F	mg F
2-4-1	0.80	0.50	0.18	0.18
2-4-2	1.20	0.50	0.42	0.60
2-4-3	1.20	0.50	0.42	1.02
2-4-4	3.60	0.50	1.86	2.86
2-4-5	3.50	0.50	1.80	4.68
2-4-6	1.70	0.50	0.72	5.40
2-4-7	4.20	0.50	2.22	7.62
2-4-8	1.80	0.50	0.78	8.40
2-4-9	1.30	0.50	0.48	8.88
2-4-10	1.60	0.50	0.66	9.54
2-4-11	0.60	0.50	0.06	9.60
2-4-12	0.70	0.50	0.12	9.72
2-4-13	0.70	0.50	0.12	9.84
2-4-14	2.30	0.50	1.08	10.92
2-4-15	1.50	0.50	0.60	11.52
2-4-16	0.70	0.50	0.12	11.64
2-4-17	1.00	0.50	0.30	11.94
2-4-18	0.70	0.50	0.12	12.06

NO3				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm NO3	ppm NO3	mg NO3	mg NO3
2-4-1	1.40	0.10	0.78	0.78
2-4-2	2.00	0.10	1.14	1.92
2-4-3	1.20	0.10	0.66	2.58
2-4-4	2.00	0.10	1.14	3.72
2-4-5	1.40	0.10	0.78	4.50
2-4-6	0.90	0.10	0.48	4.98
2-4-7	6.10	0.10	3.60	8.58
2-4-8	2.30	0.10	1.32	9.90
2-4-9	1.30	0.10	0.72	10.62
2-4-10	6.90	0.10	4.08	14.70
2-4-11	0.60	0.10	0.42	15.12
2-4-12	0.80	0.10	0.42	15.54
2-4-13	2.00	0.10	1.14	16.68
2-4-14	0.80	0.10	0.42	17.10
2-4-15	1.20	0.10	0.66	17.76
2-4-16	1.60	0.10	0.90	18.66
2-4-17	5.00	0.10	2.94	21.60
2-4-18	2.40	0.10	1.38	22.98

TABLE C.1. contd

H3B03

SAMPLE	NOEFFLUENT	HGW CONC.	ELUTED	SUM ELUTE
-----	ppm B	ppm B	ug B	ug B
2-4-1	0.58	0.34	0.14	0.14
2-4-2	1.04	0.34	0.42	0.56
2-4-3	0.73	0.34	0.23	0.80
2-4-4	0.63	0.34	0.17	0.97
2-4-5	0.51	0.34	0.10	1.07
2-4-6	0.99	0.34	0.39	1.46
2-4-7	0.43	0.34	0.05	1.52
2-4-8	0.43	0.34	0.05	1.57
2-4-9	0.41	0.34	0.04	1.61
2-4-10	0.55	0.34	0.13	1.74
2-4-11	0.38	0.34	0.02	1.76
2-4-12	0.39	0.34	0.03	1.79
2-4-13	0.46	0.34	0.07	1.87
2-4-14	0.41	0.34	0.04	1.91
2-4-15	0.43	0.34	0.05	1.96
2-4-16	0.46	0.34	0.07	2.03
2-4-17	0.58	0.34	0.14	2.18
2-4-18	0.40	0.34	0.04	2.21

S04

SAMPLE	NOEFFLUENT	HGW CONC.	ELUTED	SUM ELUTE
-----	ppm S04	ppm S04	ug S04	ug S04
2-4-1	81.00	86.00	-3.00	-3.00
2-4-2	93.00	86.00	4.20	1.20
2-4-3	84.00	86.00	-1.20	0.00
2-4-4	89.00	86.00	1.30	1.30
2-4-5	84.00	86.00	-1.20	0.60
2-4-6	75.00	86.00	-6.60	-6.00
2-4-7	107.00	86.00	12.60	6.60
2-4-8	82.00	86.00	-2.40	4.20
2-4-9	82.00	86.00	-2.40	1.80
2-4-10	72.00	86.00	-8.40	-6.60
2-4-11	86.00	86.00	0.00	-6.60
2-4-12	81.00	86.00	-3.00	-9.60
2-4-13	83.00	86.00	-1.80	-11.40
2-4-14	60.00	86.00	-15.60	-27.00
2-4-15	60.00	86.00	-15.60	-42.60
2-4-16	71.00	86.00	-9.00	-51.60
2-4-17	75.00	86.00	-6.60	-58.20
2-4-18	70.00	86.00	-9.60	-67.80

IC

SAMPLE	NOEFFLUENT	HGW CONC.	ELUTED	SUM ELUTE
-----	ppm IC	ppm IC	ug IC	ug IC
2-4-1	23.98	34.10	-6.07	-6.07
2-4-2	25.02	34.10	-5.45	-11.52
2-4-3	17.33	34.10	-10.06	-21.56
2-4-4	20.51	34.10	-8.15	-29.74
2-4-5	20.27	34.10	-8.30	-38.03
2-4-6	21.97	34.10	-7.28	-45.31
2-4-7	20.38	34.10	-8.35	-53.66
2-4-8	19.85	34.10	-8.55	-62.21
2-4-9	17.10	34.10	-10.20	-72.41
2-4-10	19.71	34.10	-8.63	-81.05
2-4-11	19.14	34.10	-8.98	-90.02
2-4-12	49.11	34.10	9.01	-81.02
2-4-13	20.16	34.10	-8.36	-89.38
2-4-14	19.20	34.10	-8.94	-98.32
2-4-15	35.10	34.10	0.60	-97.72
2-4-16	21.20	34.10	-7.74	-105.46
2-4-17	33.60	34.10	-0.30	-105.76
2-4-18	33.90	34.10	-0.12	-105.88
2-4-19	34.60	34.10	0.30	-105.58
2-4-20	22.90	34.10	-2.12	-111.70

TC

SAMPLE	NOEFFLUENT	HGW CONC.	ELUTED	SUM ELUTE
-----	ppm TC	ppm TC	ug TC	ug TC
2-4-1	22.70	33.10	-6.24	-6.24
2-4-2	23.47	33.10	-5.78	-12.02
2-4-3	16.36	33.10	-10.04	-22.06
2-4-4	19.11	33.10	-8.39	-30.46
2-4-5	18.78	33.10	-8.59	-39.05
2-4-6	20.68	33.10	-7.45	-46.50
2-4-7	18.70	33.10	-8.64	-55.14
2-4-8	18.60	33.10	-8.70	-63.84
2-4-9	15.70	33.10	-10.44	-74.28
2-4-10	18.34	33.10	-8.86	-83.14
2-4-11	17.77	33.10	-9.20	-92.33
2-4-12	46.35	33.10	7.95	-84.38
2-4-13	18.61	33.10	-8.57	-92.96
2-4-14	18.40	33.10	-8.82	-101.78
2-4-15	35.10	33.10	1.20	-100.58
2-4-16	21.20	33.10	-7.14	-107.72
2-4-17	33.60	33.10	0.30	-107.42
2-4-18	33.90	33.10	0.48	-106.94

TABLE C.2. Mass Balance for ANS 16.1 Leach Test Whole Grout
with Groundwater (MB3-4)

Ca					Na				
SAMPLE NO. -----	EFFLUENT ppm Ca	HGW CONC. ppm Ca	ELUTED mg Ca	SUM ELUTED mg Ca	SAMPLE NO. -----	EFFLUENT ppm Na	HGW CONC. ppm Na	ELUTED mg Na	SUM ELUTED mg Na
3-4-1	51.90	56.00	-2.46	-2.46	3-4-1	36.00	25.00	6.60	6.60
3-4-2	13.90	56.00	-25.26	-27.72	3-4-2	152.00	25.00	76.20	82.80
3-4-3	7.80	56.00	-28.92	-56.64	3-4-3	108.00	25.00	49.80	132.60
3-4-4	7.50	56.00	-29.10	-85.74	3-4-4	173.00	25.00	88.80	221.40
3-4-5	12.80	56.00	-25.92	-111.66	3-4-5	144.00	25.00	71.40	292.80
3-4-6	13.50	56.00	-25.50	-137.16	3-4-6	86.00	25.00	36.60	329.40
3-4-7	14.20	56.00	-25.08	-162.24	3-4-7	418.00	25.00	235.80	565.20
3-4-8	2.00	56.00	-32.40	-194.64	3-4-8	206.00	25.00	108.60	673.80
3-4-9	2.60	56.00	-32.04	-226.68	3-4-9	161.00	25.00	81.60	755.40
3-4-10	1.20	56.00	-32.88	-259.56	3-4-10	229.00	25.00	122.40	877.80
3-4-11	1.90	56.00	-32.46	-292.02	3-4-11	126.00	25.00	60.60	938.40
3-4-12	1.30	56.00	-32.82	-324.84	3-4-12	140.00	25.00	69.00	1007.40
3-4-13	1.00	56.00	-33.00	-357.84	3-4-13	200.00	25.00	105.00	1112.40
3-4-14	1.20	56.00	-32.88	-390.72	3-4-14	169.00	25.00	86.40	1198.80
3-4-15	0.65	56.00	-33.21	-423.93	3-4-15	165.00	25.00	84.00	1282.80
3-4-16	0.09	56.00	-33.55	-457.48	3-4-16	161.00	25.00	81.60	1364.40
3-4-17	0.80	56.00	-33.12	-490.60	3-4-17	217.00	25.00	115.20	1479.60

K					Al				
SAMPLE NO. -----	EFFLUENT ppm K	HGW CONC. ppm K	ELUTED mg K	SUM ELUTED mg K	SAMPLE NO. -----	EFFLUENT ppm Al	HGW CONC. ppm Al	ELUTED mg Al	SUM ELUTED mg Al
3-4-1	7.40	7.80	-0.24	-0.24	3-4-1	0.13	0.10	0.02	0.02
3-4-2	11.00	7.80	1.92	1.68	3-4-2	0.08	0.10	-0.01	0.01
3-4-3	10.00	7.80	1.32	3.00	3-4-3	0.05	0.10	-0.03	-0.02
3-4-4	13.00	7.80	3.12	6.12	3-4-4	0.63	0.10	0.32	0.29
3-4-5	12.00	7.80	2.52	8.64	3-4-5	0.10	0.10	0.00	0.29
3-4-6	10.00	7.80	1.32	9.96	3-4-6	0.09	0.10	-0.01	0.29
3-4-7	22.00	7.80	8.52	18.48	3-4-7	1.71	0.10	0.97	1.25
3-4-8	14.00	7.80	3.72	22.20	3-4-8	0.04	0.10	-0.04	1.22
3-4-9	12.00	7.80	2.52	24.72	3-4-9	0.04	0.10	-0.04	1.18
3-4-10	15.00	7.80	4.32	29.04	3-4-10	0.05	0.10	-0.03	1.15
3-4-11	12.00	7.80	2.52	31.56	3-4-11	0.04	0.10	-0.04	1.12
3-4-12	10.00	7.80	1.32	32.88	3-4-12	0.03	0.10	-0.04	1.07
3-4-13	14.00	7.80	3.72	36.60	3-4-13	0.03	0.10	-0.04	1.03
3-4-14	12.00	7.80	2.52	39.12	3-4-14	0.03	0.10	-0.04	0.99
3-4-15	12.00	7.80	2.52	41.64	3-4-15	0.03	0.10	-0.04	0.95
3-4-16	12.00	7.80	2.52	44.16	3-4-16	0.03	0.10	-0.04	0.91
3-4-17	12.20	7.80	2.64	46.80	3-4-17	0.03	0.10	-0.04	0.86

TABLE C.2. contd

Si					Mg				
SAMPLE NO. -----	EFFLUENT ppm Si	HGW CONC. ppm Si	ELUTED mg Si	SUM ELUTED mg Si	SAMPLE NO. -----	EFFLUENT ppm Mg	HGW CONC. ppm Mg	ELUTED mg Mg	SUM ELUTED mg Mg
3-4-1	13.80	15.00	-0.72	-0.72	3-4-1	13.20	14.40	-0.72	-0.72
3-4-2	11.30	15.00	-2.22	-2.94	3-4-2	2.48	14.40	-7.15	-7.87
3-4-3	11.00	15.00	-2.40	-5.34	3-4-3	4.70	14.40	-5.82	-13.69
3-4-4	10.00	15.00	-3.00	-8.34	3-4-4	0.29	14.40	-8.47	-22.16
3-4-5	10.50	15.00	-2.70	-11.04	3-4-5	1.69	14.40	-7.63	-29.78
3-4-6	11.90	15.00	-1.86	-12.90	3-4-6	8.50	14.40	-3.54	-33.32
3-4-7	10.30	15.00	-2.82	-15.72	3-4-7	0.06	14.40	-8.60	-41.93
3-4-8	9.30	15.00	-3.42	-19.14	3-4-8	0.20	14.40	-8.52	-50.45
3-4-9	8.30	15.00	-4.02	-23.16	3-4-9	1.60	14.40	-7.68	-58.13
3-4-10	7.30	15.00	-4.62	-27.78	3-4-10	0.16	14.40	-8.54	-66.67
3-4-11	7.60	15.00	-4.44	-32.22	3-4-11	4.07	14.40	-6.20	-72.87
3-4-12	11.50	15.00	-2.10	-34.32	3-4-12	1.91	14.40	-7.49	-80.36
3-4-13	4.30	15.00	-6.42	-40.74	3-4-13	0.14	14.40	-8.56	-88.92
3-4-14	4.60	15.00	-6.24	-46.98	3-4-14	0.34	14.40	-8.44	-97.36
3-4-15	4.75	15.00	-6.15	-53.13	3-4-15	0.34	14.40	-8.44	-105.79
3-4-16	4.90	15.00	-6.06	-59.19	3-4-16	0.34	14.40	-8.44	-114.23
3-4-17	4.70	15.00	-6.18	-65.37	3-4-17	0.06	14.40	-8.60	-122.83

F					NO3				
SAMPLE NO. -----	EFFLUENT ppm F	HGW CONC. ppm F	ELUTED mg F	SUM ELUTED mg F	SAMPLE NO. -----	EFFLUENT ppm NO3	HGW CONC. ppm NO3	ELUTED mg NO3	SUM ELUTED mg NO3
3-4-1	0.60	0.50	0.06	0.06	3-4-1	0.60	0.10	0.30	0.30
3-4-2	1.70	0.50	0.72	0.78	3-4-2	2.90	0.10	1.68	1.98
3-4-3	1.50	0.50	0.60	1.38	3-4-3	1.70	0.10	0.96	2.94
3-4-4	3.80	0.50	1.98	3.36	3-4-4	2.20	0.10	1.26	4.20
3-4-5	3.70	0.50	1.92	5.28	3-4-5	1.70	0.10	0.96	5.16
3-4-6	2.00	0.50	0.90	6.18	3-4-6	0.90	0.10	0.48	5.64
3-4-7	4.70	0.50	2.52	8.70	3-4-7	7.50	0.10	4.44	10.08
3-4-8	2.90	0.50	1.44	10.14	3-4-8	2.60	0.10	1.50	11.58
3-4-9	1.50	0.50	0.60	10.74	3-4-9	1.70	0.10	0.96	12.54
3-4-10	1.80	0.50	0.78	11.52	3-4-10	1.90	0.10	1.08	13.62
3-4-11	0.90	0.50	0.24	11.76	3-4-11	0.80	0.10	0.42	14.04
3-4-12	0.80	0.50	0.18	11.94	3-4-12	1.10	0.10	0.60	14.64
3-4-13	0.70	0.50	0.12	12.06	3-4-13	2.30	0.10	1.32	15.96
3-4-14	2.60	0.50	1.26	13.32	3-4-14	0.80	0.10	0.42	16.38
3-4-15	1.65	0.50	0.69	14.01	3-4-15	1.20	0.10	0.66	17.04
3-4-16	0.70	0.50	0.12	14.13	3-4-16	1.60	0.10	0.90	17.94
3-4-17	0.90	0.50	0.24	14.37	3-4-17	5.00	0.10	2.74	20.88

TABLE C.2. contd

H3B03					S04				
SAMPLE NO. -----	EFFLUENT ppm B	HGW CONC. ppm B	ELUTED mg B	SUM ELUTED mg B	SAMPLE NO. -----	EFFLUENT ppm S04	HGW CONC. ppm S04	ELUTED mg S04	SUM ELUTED mg S04
3-4-1	0.53	0.34	0.11	0.11	3-4-1	79.00	86.00	-4.20	-4.20
3-4-2	1.43	0.34	0.65	0.77	3-4-2	102.00	86.00	9.60	5.40
3-4-3	1.01	0.34	0.40	1.17	3-4-3	91.00	86.00	3.00	8.40
3-4-4	1.24	0.34	0.54	1.71	3-4-4	95.00	86.00	5.40	13.80
3-4-5	0.86	0.34	0.31	2.02	3-4-5	86.00	86.00	0.00	13.80
3-4-6	0.55	0.34	0.13	2.15	3-4-6	82.00	86.00	-2.40	11.40
3-4-7	1.18	0.34	0.50	2.65	3-4-7	107.00	86.00	12.60	24.00
3-4-8	0.56	0.34	0.13	2.78	3-4-8	84.00	86.00	-1.20	22.80
3-4-9	0.46	0.34	0.07	2.86	3-4-9	82.00	86.00	-2.40	20.40
3-4-10	0.57	0.34	0.14	2.99	3-4-10	75.00	86.00	-6.60	13.80
3-4-11	0.43	0.34	0.05	3.05	3-4-11	87.00	86.00	0.60	14.40
3-4-12	0.37	0.34	0.02	3.07	3-4-12	78.00	86.00	-4.80	9.60
3-4-13	0.46	0.34	0.07	3.14	3-4-13	82.00	86.00	-2.40	7.20
3-4-14	0.37	0.34	0.02	3.16	3-4-14	60.00	86.00	-15.60	-8.40
3-4-15	0.41	0.34	0.04	3.20	3-4-15	64.00	86.00	-13.20	-21.60
3-4-16	0.45	0.34	0.07	3.26	3-4-16	68.00	86.00	-10.80	-32.40
3-4-17	5.49	0.34	3.09	6.35	3-4-17	71.00	86.00	-9.00	-41.40

TABLE C.3. Mass Balance for ANS 16.1 Leach Test Whole Grout with Groundwater (MB4-8)

Ca				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm Ca	ppm Ca	mg Ca	mg Ca
4-8-1	50.60	56.00	-3.24	-3.24
4-8-2	19.20	56.00	-22.08	-25.32
4-8-3	9.10	56.00	-28.14	-53.46
4-8-4	9.90	56.00	-27.66	-81.12
4-8-5	12.40	56.00	-26.16	-107.28
4-8-6	14.50	56.00	-24.90	-132.18
4-8-7	1.70	56.00	-32.58	-164.76
4-8-8	2.70	56.00	-31.98	-196.74
4-8-9	2.50	56.00	-32.10	-228.84
4-8-10	1.40	56.00	-32.76	-261.60
4-8-11	2.30	56.00	-32.22	-293.82
4-8-12	1.10	56.00	-32.94	-326.76
4-8-13	1.10	56.00	-32.94	-359.70
4-8-14	0.90	56.00	-33.06	-392.76
4-8-15	0.90	56.00	-33.06	-425.82
4-8-16	0.90	56.00	-33.06	-458.88
4-8-17	0.90	56.00	-33.06	-491.94

Na				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm Na	ppm Na	mg Na	mg Na
4-8-1	34.00	25.00	5.40	5.40
4-8-2	141.00	25.00	69.60	75.00
4-8-3	92.00	25.00	40.20	115.20
4-8-4	144.00	25.00	71.40	166.60
4-8-5	112.00	25.00	52.20	238.80
4-8-6	71.00	25.00	27.60	266.40
4-8-7	360.00	25.00	201.00	467.40
4-8-8	169.00	25.00	86.40	553.80
4-8-9	132.00	25.00	64.20	618.00
4-8-10	195.00	25.00	102.00	720.00
4-8-11	112.00	25.00	52.20	772.20
4-8-12	124.00	25.00	59.40	831.60
4-8-13	190.00	25.00	99.00	930.60
4-8-14	151.00	25.00	75.60	1006.20
4-8-15	151.50	25.00	75.90	1082.10
4-8-16	152.00	25.00	76.20	1158.30
4-8-17	218.00	25.00	115.80	1274.10

K				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm K	ppm K	mg K	mg K
4-8-1	7.40	7.80	-0.24	-0.24
4-8-2	11.00	7.80	1.92	1.68
4-8-3	9.50	7.80	1.02	2.70
4-8-4	12.00	7.80	2.52	5.22
4-8-5	11.00	7.80	1.92	7.14
4-8-6	9.00	7.80	0.72	7.86
4-8-7	20.00	7.80	7.32	15.18
4-8-8	13.00	7.80	3.12	18.30
4-8-9	11.00	7.80	1.92	20.22
4-8-10	14.00	7.80	3.72	23.94
4-8-11	9.70	7.80	1.14	25.08
4-8-12	9.60	7.80	1.08	26.16
4-8-13	14.00	7.80	3.72	29.88
4-8-14	11.50	7.80	2.22	32.10
4-8-15	11.75	7.80	2.37	34.47
4-8-16	12.00	7.80	2.52	36.99
4-8-17	13.00	7.80	3.12	40.11

Al				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm Al	ppm Al	mg Al	mg Al
4-8-1	0.12	0.10	0.01	0.01
4-8-2	0.05	0.10	-0.03	-0.02
4-8-3	0.12	0.10	0.01	-0.01
4-8-4	0.29	0.10	0.11	0.11
4-8-5	0.09	0.10	-0.01	0.10
4-8-6	0.08	0.10	-0.01	0.09
4-8-7	0.67	0.10	0.34	0.43
4-8-8	0.03	0.10	-0.04	0.39
4-8-9	0.03	0.10	-0.04	0.35
4-8-10	0.03	0.10	-0.04	0.31
4-8-11	0.03	0.10	-0.04	0.26
4-8-12	0.03	0.10	-0.04	0.22
4-8-13	0.03	0.10	-0.04	0.18
4-8-14	0.03	0.10	-0.04	0.14
4-8-15	0.03	0.10	-0.04	0.10
4-8-16	0.03	0.10	-0.04	0.05
4-8-17	0.03	0.10	-0.04	0.01

TABLE C.3. contd

Si				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm Si	ppm Si	mg Si	mg Si
4-8-1	13.50	15.00	-0.90	-0.90
4-8-2	11.20	15.00	-2.28	-3.18
4-8-3	11.80	15.00	-1.92	-5.10
4-8-4	10.20	15.00	-2.68	-7.98
4-8-5	10.40	15.00	-2.76	-10.74
4-8-6	12.50	15.00	-1.50	-12.24
4-8-7	9.90	15.00	-3.06	-15.30
4-8-8	9.70	15.00	-3.18	-18.48
4-8-9	8.80	15.00	-3.72	-22.20
4-8-10	7.30	15.00	-4.62	-26.82
4-8-11	9.60	15.00	-3.24	-30.06
4-8-12	6.40	15.00	-5.16	-35.22
4-8-13	5.20	15.00	-5.88	-41.10
4-8-14	4.40	15.00	-6.36	-47.46
4-8-15	4.70	15.00	-6.18	-53.64
4-8-16	5.00	15.00	-6.00	-59.64
4-8-17	5.00	15.00	-6.00	-65.64

Mg				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm Mg	ppm Mg	mg Mg	mg Mg
4-8-1	13.10	12.90	0.12	0.12
4-8-2	5.94	2.70	-4.18	-4.06
4-8-3	6.63	6.50	-3.76	-7.82
4-8-4	1.00	1.20	-7.14	-14.96
4-8-5	0.32	4.20	-7.55	-22.51
4-8-6	9.70	10.20	-1.92	-24.43
4-8-7	0.06	0.06	-7.70	-32.13
4-8-8	0.75	2.40	-7.29	-39.42
4-8-9	2.80	4.22	-6.06	-45.46
4-8-10	0.46	1.10	-7.46	-52.94
4-8-11	5.53	7.80	-4.42	-57.37
4-8-12	2.57	3.67	-6.20	-63.56
4-8-13	0.13	0.24	-7.66	-71.23
4-8-14	0.31	0.82	-7.55	-78.78
4-8-15	0.51	0.82	-7.43	-86.21
4-8-16	0.71	14.40	-7.31	-93.53
4-8-17	0.06	14.40	-7.70	-101.23

F				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm F	ppm F	mg F	mg F
4-8-1	0.70	0.50	0.12	0.12
4-8-2	1.70	0.50	0.72	0.84
4-8-3	1.40	0.50	0.54	1.38
4-8-4	3.40	0.50	1.74	3.12
4-8-5	3.00	0.50	1.50	4.62
4-8-6	1.40	0.50	0.54	5.16
4-8-7	3.30	0.50	1.68	6.84
4-8-8	1.30	0.50	0.48	7.32
4-8-9	0.90	0.50	0.24	7.56
4-8-10	1.30	0.50	0.48	8.04
4-8-11	0.60	0.50	0.06	8.10
4-8-12	0.60	0.50	0.06	8.16
4-8-13	0.60	0.50	0.06	8.22
4-8-14	2.20	0.50	1.02	9.24
4-8-15	1.40	0.50	0.54	9.78
4-8-16	0.60	0.50	0.06	9.84
4-8-17	0.70	0.50	0.12	9.96

NO3				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTED
-----	ppm NO3	ppm NO3	mg NO3	mg NO3
4-8-1	0.40	0.10	0.18	0.18
4-8-2	1.50	0.10	0.64	1.02
4-8-3	0.70	0.10	0.36	1.38
4-8-4	0.90	0.10	0.48	1.86
4-8-5	1.30	0.10	0.72	2.58
4-8-6	0.30	0.10	0.12	2.70
4-8-7	2.90	0.10	1.68	4.38
4-8-8	0.80	0.10	0.42	4.80
4-8-9	0.50	0.10	0.24	5.04
4-8-10	1.80	0.10	1.02	6.06
4-8-11	0.60	0.10	0.30	6.36
4-8-12	1.70	0.10	0.96	7.32
4-8-13	1.80	0.10	1.02	8.34
4-8-14	0.66	0.10	0.30	8.64
4-8-15	0.80	0.10	0.42	9.06
4-8-16	1.00	0.10	0.54	9.60
4-8-17	4.00	0.10	2.34	11.94

TABLE C.3. contd

H3B03					S04				
SAMPLE NO	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTE	SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	SUM ELUTE
-----	ppm B	ppm B	mg B	mg B	-----	ppm S04	ppm S04	mg S04	mg S04
4-8-1	0.50	0.34	0.10	0.10	4-8-1	80.00	86.00	-3.60	-3.60
4-8-2	1.46	0.34	0.67	0.77	4-8-2	106.00	86.00	12.00	8.40
4-8-3	0.97	0.34	0.38	1.15	4-8-3	111.00	86.00	15.00	23.40
4-8-4	1.13	0.34	0.47	1.62	4-8-4	90.00	86.00	2.40	25.80
4-8-5	0.63	0.34	0.17	1.79	4-8-5	85.00	86.00	-0.60	25.20
4-8-6	0.44	0.34	0.06	1.85	4-8-6	104.00	86.00	10.80	36.00
4-8-7	0.79	0.34	0.27	2.12	4-8-7	97.00	86.00	6.60	42.60
4-8-8	0.45	0.34	0.07	2.19	4-8-8	109.00	86.00	13.80	56.40
4-8-9	0.41	0.34	0.04	2.23	4-8-9	83.00	86.00	-1.80	54.60
4-8-10	0.47	0.34	0.08	2.31	4-8-10	73.00	86.00	-7.80	46.80
4-8-11	0.37	0.34	0.02	2.33	4-8-11	81.00	86.00	-3.00	43.80
4-8-12	0.37	0.34	0.02	2.35	4-8-12	85.00	86.00	-0.60	43.20
4-8-13	0.46	0.34	0.07	2.42	4-8-13	84.00	86.00	-1.20	42.00
4-8-14	0.39	0.34	0.03	2.45	4-8-14	58.00	86.00	-16.80	25.20
4-8-15	0.42	0.34	0.05	2.50	4-8-15	63.50	86.00	-13.50	11.70
4-8-16	0.45	0.34	0.07	2.56	4-8-16	69.00	86.00	-10.20	1.50
4-8-17	0.51	0.34	0.10	2.66	4-8-17	76.00	86.00	-6.00	-4.50

TABLE C.4. Mass Balance for ANS 16.1 Leach Test Whole Grout
with Groundwater (MB5-5)

Ca					Na				
SAMPLE NO. -----	EFFLUENT ppm Ca	HGW CONC. ppm Ca	ELUTED mg Ca	SUM ELUTED mg Ca	SAMPLE NO. -----	EFFLUENT ppm Na	HGW CONC. ppm Na	ELUTED mg Na	SUM ELUTED mg Na
5-5-1	50.60	56.00	-3.24	-3.24	5-5-1	38.00	25.00	7.80	7.80
5-5-2	1.60	56.00	-32.64	-35.88	5-5-2	132.00	25.00	64.20	72.00
5-5-3	7.80	56.00	-28.92	-64.80	5-5-3	94.00	25.00	41.40	113.40
5-5-4	8.00	56.00	-28.80	-93.60	5-5-4	161.00	25.00	81.60	195.00
5-5-5	12.60	56.00	-26.04	-119.64	5-5-5	142.00	25.00	70.20	265.20
5-5-6	13.10	56.00	-25.74	-145.38	5-5-6	90.00	25.00	39.00	304.20
5-5-7	1.50	56.00	-32.70	-178.08	5-5-7	430.00	25.00	243.00	547.20
5-5-8	2.30	56.00	-32.22	-210.30	5-5-8	200.00	25.00	105.00	652.20
5-5-9	2.70	56.00	-31.98	-242.28	5-5-9	159.00	25.00	80.40	732.60
5-5-10	1.40	56.00	-32.76	-275.04	5-5-10	223.00	25.00	118.80	851.40
5-5-11	2.60	56.00	-32.04	-307.08	5-5-11	128.00	25.00	61.80	913.20
5-5-12	1.80	56.00	-32.52	-339.60	5-5-12	143.00	25.00	70.80	984.00
5-5-13	1.10	56.00	-32.94	-372.54	5-5-13	210.00	25.00	111.00	1095.00
5-5-14	1.20	56.00	-32.88	-405.42	5-5-14	170.00	25.00	87.00	1182.00
5-5-15	1.05	56.00	-32.97	-438.39	5-5-15	172.50	25.00	88.50	1270.50
5-5-16	0.90	56.00	-33.06	-471.45	5-5-16	175.00	25.00	90.00	1360.50
5-5-17	0.80	56.00	-33.12	-504.57	5-5-17	250.00	25.00	135.00	1495.50

K					Al				
SAMPLE NO. -----	EFFLUENT ppm K	HGW CONC. ppm K	ELUTED mg K	SUM ELUTED mg K	SAMPLE NO. -----	EFFLUENT ppm Al	HGW CONC. ppm Al	ELUTED mg Al	SUM ELUTED mg Al
5-5-1	6.90	7.80	-0.54	-0.54	5-5-1	0.09	0.10	-0.01	-0.01
5-5-2	9.80	7.80	1.20	0.66	5-5-2	0.03	0.10	-0.04	-0.05
5-5-3	9.10	7.80	0.78	1.44	5-5-3	0.03	0.10	-0.04	-0.09
5-5-4	12.00	7.80	2.52	3.96	5-5-4	0.19	0.10	0.05	-0.04
5-5-5	11.00	7.80	1.92	5.88	5-5-5	0.10	0.10	0.00	-0.04
5-5-6	10.00	7.80	1.32	7.20	5-5-6	0.08	0.10	-0.01	-0.05
5-5-7	22.00	7.80	8.52	15.72	5-5-7	2.11	0.10	1.21	1.16
5-5-8	14.00	7.80	3.72	19.44	5-5-8	0.09	0.10	-0.01	1.15
5-5-9	12.00	7.80	2.52	21.96	5-5-9	0.04	0.10	-0.04	1.12
5-5-10	15.00	7.80	4.32	26.28	5-5-10	0.06	0.10	-0.02	1.09
5-5-11	10.00	7.80	1.32	27.60	5-5-11	0.09	0.10	-0.01	1.09
5-5-12	9.90	7.80	1.26	28.86	5-5-12	0.03	0.10	-0.04	1.04
5-5-13	14.00	7.80	3.72	32.58	5-5-13	0.04	0.10	-0.04	1.01
5-5-14	11.80	7.80	2.40	34.98	5-5-14	0.03	0.10	-0.04	0.97
5-5-15	11.90	7.80	2.46	37.44	5-5-15	0.03	0.10	-0.04	0.92
5-5-16	12.00	7.80	2.52	39.96	5-5-16	0.03	0.10	-0.04	0.88
5-5-17	13.50	7.80	3.42	43.38	5-5-17	0.03	0.10	-0.04	0.84

TABLE C.4. contd

Si					Mg				
SAMPLE NO. -----	EFFLUENT ppm Si	HGW CONC. ppm Si	ELUTED mg Si	SUM ELUTED mg Si	SAMPLE NO. -----	EFFLUENT ppm Mg	HGW CONC. ppm Mg	ELUTED mg Mg	SUM ELUTED mg Mg
5-5-1	13.50	15.00	-0.90	-0.90	5-5-1	13.00	14.40	-0.84	-0.84
5-5-2	10.20	15.00	-2.88	-3.78	5-5-2	2.00	14.40	-7.44	-8.28
5-5-3	10.80	15.00	-2.52	-6.30	5-5-3	5.09	14.40	-5.59	-13.87
5-5-4	10.10	15.00	-2.94	-9.24	5-5-4	0.25	14.40	-8.49	-22.36
5-5-5	10.70	15.00	-2.58	-11.82	5-5-5	2.59	14.40	-7.09	-29.44
5-5-6	12.30	15.00	-1.62	-13.44	5-5-6	8.70	14.40	-3.42	-32.86
5-5-7	11.10	15.00	-2.34	-15.78	5-5-7	0.06	14.40	-8.60	-41.47
5-5-8	8.70	15.00	-3.78	-19.56	5-5-8	0.30	14.40	-8.46	-49.93
5-5-9	8.00	15.00	-4.20	-23.76	5-5-9	1.50	14.40	-7.74	-57.67
5-5-10	7.40	15.00	-4.56	-28.32	5-5-10	0.32	14.40	-8.45	-66.11
5-5-11	8.00	15.00	-4.20	-32.52	5-5-11	3.88	14.40	-6.31	-72.43
5-5-12	6.90	15.00	-4.86	-37.38	5-5-12	1.86	14.40	-7.52	-79.95
5-5-13	4.90	15.00	-6.06	-43.44	5-5-13	0.14	14.40	-8.56	-88.51
5-5-14	4.80	15.00	-6.12	-49.56	5-5-14	0.20	14.40	-8.52	-97.03
5-5-15	4.85	15.00	-6.09	-55.65	5-5-15	0.18	14.40	-8.54	-105.56
5-5-16	4.90	15.00	-6.06	-61.71	5-5-16	0.15	14.40	-8.55	-114.11
5-5-17	5.40	15.00	-5.76	-67.47	5-5-17	0.06	14.40	-8.60	-122.72

F					NO3				
SAMPLE NO. -----	EFFLUENT ppm F	HGW CONC. ppm F	ELUTED mg F	SUM ELUTED mg F	SAMPLE NO. -----	EFFLUENT ppm NO3	HGW CONC. ppm NO3	ELUTED mg NO3	SUM ELUTED mg NO3
5-5-1	0.70	0.50	0.12	0.12	5-5-1	0.30	0.10	0.12	0.12
5-5-2	1.50	0.50	0.60	0.72	5-5-2	1.10	0.10	0.60	0.72
5-5-3	1.40	0.50	0.54	1.26	5-5-3	0.70	0.10	0.36	1.08
5-5-4	3.70	0.50	1.92	3.18	5-5-4	1.10	0.10	0.60	1.68
5-5-5	3.90	0.50	2.04	5.22	5-5-5	0.80	0.10	0.42	2.10
5-5-6	2.20	0.50	1.02	6.24	5-5-6	0.50	0.10	0.24	2.34
5-5-7	5.50	0.50	3.00	9.24	5-5-7	3.00	0.10	1.74	4.08
5-5-8	2.20	0.50	1.02	10.26	5-5-8	1.30	0.10	0.72	4.80
5-5-9	1.50	0.50	0.60	10.86	5-5-9	1.20	0.10	0.66	5.46
5-5-10	2.00	0.50	0.90	11.76	5-5-10	2.70	0.10	1.56	7.02
5-5-11	0.90	0.50	0.24	12.00	5-5-11	0.80	0.10	0.42	7.44
5-5-12	0.30	0.50	-0.12	11.88	5-5-12	1.10	0.10	0.60	8.04
5-5-13	1.00	0.50	0.30	12.18	5-5-13	8.50	0.10	5.04	13.08
5-5-14	3.10	0.50	1.56	13.74	5-5-14	0.90	0.10	0.48	13.56
5-5-15	1.95	0.50	0.87	14.61	5-5-15	18.00	0.10	10.74	24.30
5-5-16	0.80	0.50	0.18	14.79	5-5-16	35.10	0.10	21.00	45.30
5-5-17	1.10	0.50	0.36	15.15	5-5-17	21.20	0.10	12.66	57.96

TABLE C.4. contd

H3B03					S04				
SAMPLE NO. -----	EFFLUENT ppm B	HGW CONC. ppm B	ELUTED mg B	SUM ELUTED mg B	SAMPLE NO. -----	EFFLUENT ppm S04	HGW CONC. ppm S04	ELUTED mg S04	SUM ELUTED mg S04
5-5-1	0.61	0.34	0.16	0.16	5-5-1	80.00	86.00	-3.60	-3.60
5-5-2	1.30	0.34	0.58	0.74	5-5-2	102.00	86.00	9.60	6.00
5-5-3	0.80	0.34	0.28	1.01	5-5-3	90.00	86.00	2.40	8.40
5-5-4	1.09	0.34	0.45	1.46	5-5-4	94.00	86.00	4.80	13.20
5-5-5	0.78	0.34	0.26	1.73	5-5-5	90.00	86.00	2.40	15.60
5-5-6	0.59	0.34	0.15	1.88	5-5-6	83.00	86.00	-1.80	13.80
5-5-7	1.29	0.34	0.57	2.45	5-5-7	106.00	86.00	12.00	25.80
5-5-8	0.53	0.34	0.11	2.56	5-5-8	85.00	86.00	-0.60	25.20
5-5-9	0.47	0.34	0.08	2.64	5-5-9	85.00	86.00	-0.60	24.60
5-5-10	0.60	0.34	0.16	2.80	5-5-10	89.00	86.00	1.80	26.40
5-5-11	0.41	0.34	0.04	2.84	5-5-11	84.00	86.00	-1.20	25.20
5-5-12	0.42	0.34	0.05	2.89	5-5-12	83.00	86.00	-1.80	23.40
5-5-13	0.51	0.34	0.10	2.99	5-5-13	84.00	86.00	-1.20	22.20
5-5-14	0.41	0.34	0.04	3.03	5-5-14	57.00	86.00	-17.40	4.80
5-5-15	0.43	0.34	0.05	3.08	5-5-15	61.50	86.00	-14.70	-9.90
5-5-16	0.45	0.34	0.07	3.15	5-5-16	66.00	86.00	-12.00	-21.90
5-5-17	0.58	0.34	0.14	3.29	5-5-17	79.00	86.00	-4.20	-26.10

TABLE C.5. Mass Balance for Static Leach Test Whole Grout in Groundwater (MB2-17)

Ca					Na				
SAMPLE NO. -----	EFFLUENT ppm Ca	HGW CONC. ppm Ca	ELUTED mg Ca	TOTAL CHANGE mg Ca	SAMPLE NO. -----	EFFLUENT ppm Na	HGW CONC. ppm Na	ELUTED mg Na	TOTAL CHANGE mg Na
MB-2-17-1	3.30	56.00	-31.62	-31.62	MB-2-17-1	740.00	25.00	429.00	429.00
MB-2-17-2	3.10	56.00	-2.76	-34.38	MB-2-17-2	840.00	25.00	95.75	524.75
MB-2-17-3	4.20	56.00	-1.99	-36.36	MB-2-17-3	930.00	25.00	94.75	619.50
MB-2-17-4	4.60	56.00	-2.35	-38.71	MB-2-17-4	980.00	25.00	75.25	694.75
MB-2-17-5	2.00	56.00	-4.13	-42.84	MB-2-17-5	1017.00	25.00	69.35	764.70
MB-2-17-6	0.30	56.00	-5.15	-47.99	MB-2-17-6	1055.00	25.00	92.75	857.45
MB-2-17-7	4.40	56.00	-0.33	-48.32	MB-2-17-7	982.00	25.00	7.70	865.15
MB-2-17-8	4.00	56.00	-2.82	-51.14	MB-2-17-8	950.00	25.00	28.65	893.80
MB-2-17-9	4.10	56.00	-2.54	-53.68	MB-2-17-9	939.00	25.00	39.65	933.45
MB-2-17-10	4.10	56.00	-2.60	-56.27	MB-2-17-10	970.00	25.00	64.30	997.75
MB-2-17-11	4.00	56.00	-2.66	-58.93	MB-2-17-11	940.00	25.00	29.25	1027.00
MB-2-17-12	4.00	56.00	-2.60	-61.53	MB-2-17-12	960.00	25.00	57.75	1084.75
MB-2-17-13	4.20	56.00	-2.48	-64.01	MB-2-17-13	1008.00	25.00	75.55	1160.30
MB-2-17-14	4.70	56.00	-2.29	-66.30	MB-2-17-14	1100.00	25.00	104.35	1264.65
MB-2-17-15	3.60	56.00	-3.23	-69.52	MB-2-17-15	1200.00	25.00	113.75	1378.40
MB-2-18-16	1.60	56.00	-3.82	-73.34	MB-2-18-16	1163.00	25.00	36.55	1414.95

K					Al				
SAMPLE NO. -----	EFFLUENT ppm K	HGW CONC. ppm K	ELUTED mg K	TOTAL CHANGE mg K	SAMPLE NO. -----	EFFLUENT ppm Al	HGW CONC. ppm Al	ELUTED mg Al	TOTAL CHANGE mg Al
MB-2-17-1	34.00	7.80	15.72	15.72	MB-2-17-1	10.80	0.10	6.42	6.42
MB-2-17-2	38.00	7.80	3.71	19.43	MB-2-17-2	11.40	0.10	0.69	7.31
MB-2-17-3	42.00	7.80	3.91	23.34	MB-2-17-3	12.20	0.10	1.04	8.36
MB-2-17-4	43.00	7.80	2.31	25.65	MB-2-17-4	12.60	0.10	0.64	9.20
MB-2-17-5	44.00	7.80	2.36	28.01	MB-2-17-5	12.80	0.10	0.74	9.55
MB-2-17-6	45.00	7.80	2.36	30.97	MB-2-17-6	13.00	0.10	0.36	10.51
MB-2-17-7	44.00	7.80	1.26	32.23	MB-2-17-7	12.10	0.10	0.10	10.92
MB-2-17-8	42.00	7.80	0.61	32.84	MB-2-17-8	11.50	0.10	0.24	11.16
MB-2-17-9	42.00	7.80	1.71	34.55	MB-2-17-9	11.30	0.10	0.45	11.61
MB-2-17-10	42.00	7.80	1.71	36.26	MB-2-17-10	11.50	0.10	0.68	12.29
MB-2-17-11	41.00	7.80	1.11	37.37	MB-2-17-11	11.20	0.10	0.39	12.68
MB-2-17-12	41.00	7.80	1.66	39.03	MB-2-17-12	12.10	0.10	1.06	13.77
MB-2-17-13	43.00	7.80	2.36	41.89	MB-2-17-13	13.50	0.10	1.44	15.21
MB-2-17-14	47.00	7.80	4.16	46.05	MB-2-17-14	16.40	0.10	2.41	17.62
MB-2-17-15	47.00	7.80	1.76	48.01	MB-2-17-15	19.40	0.10	2.61	20.24
MB-2-18-16	43.00	7.80	2.56	50.57	MB-2-18-16	21.00	0.10	1.92	22.16

TABLE C.5. contd

Si					Mg				
SAMPLE NO. -----	EFFLUENT ppm Si	HGW CONC. ppm Si	ELUTED mg Si	TOTAL CHANGE mg Si	SAMPLE NO. -----	EFFLUENT ppm Mg	HGW CONC. ppm Mg	ELUTED mg Mg	TOTAL CHANGE mg Mg
MB-2-17-1	10.80	15.00	-2.52	-2.52	MB-2-17-1	0.06	14.40	-8.60	-8.60
MB-2-17-2	11.00	15.00	-0.09	-2.61	MB-2-17-2	0.06	14.40	-0.72	-9.32
MB-2-17-3	11.30	15.00	-0.02	-2.63	MB-2-17-3	0.06	14.40	-0.72	-10.04
MB-2-17-4	11.60	15.00	-0.01	-2.64	MB-2-17-4	0.09	14.40	-0.70	-10.74
MB-2-17-5	12.20	15.00	0.19	-2.45	MB-2-17-5	0.08	14.40	-0.72	-11.46
MB-2-17-6	12.80	15.00	0.55	-1.90	MB-2-17-6	0.06	14.40	-0.73	-12.20
MB-2-17-7	12.40	15.00	-0.35	-2.25	MB-2-17-7	0.07	14.40	-0.71	-12.91
MB-2-17-8	12.30	15.00	-0.19	-2.44	MB-2-17-8	0.06	14.40	-0.72	-13.63
MB-2-17-9	12.50	15.00	-0.02	-2.45	MB-2-17-9	0.05	14.40	-0.72	-14.35
MB-2-17-10	14.60	15.00	1.13	-1.32	MB-2-17-10	0.06	14.40	-0.71	-15.06
MB-2-17-11	13.70	15.00	-0.56	-1.88	MB-2-17-11	0.06	14.40	-0.72	-15.78
MB-2-17-12	13.50	15.00	-0.19	-2.06	MB-2-17-12	0.06	14.40	-0.72	-16.50
MB-2-17-13	14.30	15.00	0.40	-1.66	MB-2-17-13	0.06	14.40	-0.72	-17.21
MB-2-17-14	14.80	15.00	0.26	-1.39	MB-2-17-14	0.12	14.40	-0.68	-17.90
MB-2-17-15	16.90	15.00	1.25	-0.14	MB-2-17-15	0.06	14.40	-0.75	-18.65
MB-2-18-16	17.40	15.00	0.39	0.25	MB-2-18-16	0.06	14.40	-0.72	-19.36

F					NO3				
SAMPLE NO. -----	EFFLUENT ppm F	HGW CONC. ppm F	ELUTED mg F	TOTAL CHANGE mg F	SAMPLE NO. -----	EFFLUENT ppm NO3	HGW CONC. ppm NO3	ELUTED mg NO3	TOTAL CHANGE mg NO3
MB-2-17-1	9.10	0.50	5.16	5.16	MB-2-17-1	5.80	0.10	3.42	3.42
MB-2-17-2	9.40	0.50	0.61	5.77	MB-2-17-2	6.60	0.10	0.76	4.19
MB-2-17-3	10.00	0.50	0.80	6.57	MB-2-17-3	6.90	0.10	0.51	4.69
MB-2-17-4	10.00	0.50	0.47	7.05	MB-2-17-4	14.00	0.10	4.60	9.29
MB-2-17-5	10.50	0.50	0.77	7.82	MB-2-17-5	10.45	0.10	-1.44	7.85
MB-2-17-6	11.00	0.50	1.07	8.90	MB-2-17-6	16.00	0.10	1.89	9.75
MB-2-17-7	9.90	0.50	-0.14	8.76	MB-2-17-7	15.00	0.10	0.19	9.94
MB-2-17-8	10.00	0.50	0.53	9.29	MB-2-17-8	14.00	0.10	0.14	10.09
MB-2-17-9	9.90	0.50	0.41	9.71	MB-2-17-9	16.00	0.10	1.89	11.98
MB-2-17-10	9.50	0.50	0.23	9.94	MB-2-17-10	14.00	0.10	-0.41	11.58
MB-2-17-11	9.40	0.50	0.39	10.33	MB-2-17-11	16.00	0.10	1.89	13.47
MB-2-17-12	11.00	0.50	1.40	11.73	MB-2-17-12	7.60	0.10	-4.25	9.23
MB-2-17-13	12.00	0.50	1.12	12.86	MB-2-17-13	4.20	0.10	-1.67	7.56
MB-2-17-14	13.00	0.50	1.17	14.03	MB-2-17-14	17.00	0.10	7.86	15.45
MB-2-17-15	15.00	0.50	1.82	15.86	MB-2-17-15	22.00	0.10	3.84	19.29
MB-2-18-16	12.00	0.50	-1.08	14.78	MB-2-18-16	22.00	0.10	1.09	20.39

TABLE C.5. contd

H3B03					S04				
SAMPLE NO. -----	EFFLUENT ppm B	HGW CONC. ppm B	ELUTED ag B	TOTAL CHANGE ag B	SAMPLE NO. -----	EFFLUENT ppm S04	HGW CONC. ppm S04	ELUTED ag S04	TOTAL CHANGE ag S04
MB-2-17-1	3.72	0.34	2.03	2.03	MB-2-17-1	161.00	86.00	45.00	45.00
MB-2-17-2	3.99	0.34	0.33	2.36	MB-2-17-2	158.00	86.00	1.95	46.95
MB-2-17-3	4.12	0.34	0.26	2.62	MB-2-17-3	168.00	86.00	9.60	56.55
MB-2-17-4	4.44	0.34	0.38	3.00	MB-2-17-4	170.00	86.00	5.30	61.85
MB-2-17-5	4.07	0.34	-0.02	2.98	MB-2-17-5	159.00	86.00	-2.40	59.45
MB-2-17-6	4.97	0.34	0.52	3.51	MB-2-17-6	148.00	86.00	-9.00	50.45
MB-2-17-7	4.07	0.34	-0.31	3.20	MB-2-17-7	165.00	86.00	13.30	63.75
MB-2-17-8	4.23	0.34	0.28	3.48	MB-2-17-8	159.00	86.00	0.35	64.10
MB-2-17-9	4.18	0.34	0.16	3.64	MB-2-17-9	160.00	86.00	4.25	68.35
MB-2-17-10	4.33	0.34	0.28	3.93	MB-2-17-10	159.00	86.00	3.10	71.45
MB-2-17-11	4.33	0.34	0.20	4.13	MB-2-17-11	150.00	86.00	-1.75	69.70
MB-2-17-12	4.34	0.34	0.21	4.33	MB-2-17-12	150.00	86.00	3.20	72.90
MB-2-17-13	4.85	0.34	0.51	4.84	MB-2-17-13	175.00	86.00	18.20	91.10
MB-2-17-14	5.60	0.34	0.68	5.51	MB-2-17-14	168.00	86.00	0.25	91.35
MB-2-17-15	6.35	0.34	0.71	6.23	MB-2-17-15	213.00	86.00	31.10	122.45
MB-2-18-16	7.09	0.34	0.74	6.97	MB-2-18-16	200.00	86.00	-1.45	121.00

IC					TC				
SAMPLE NO. -----	EFFLUENT ppm IC	HGW CONC. ppm IC	ELUTED ag IC	TOTAL CHANGE ag IC	SAMPLE NO. -----	EFFLUENT ppm TC	HGW CONC. ppm TC	ELUTED ag TC	TOTAL CHANGE ag TC
MB-2-17-1	20.50	34.10	-8.16	-8.16	MB-2-17-1	3.10	33.10	-18.00	-18.00
MB-2-17-2	20.00	34.10	-0.98	-9.14	MB-2-17-2	2.80	33.10	-1.68	-19.68
MB-2-17-3	18.70	34.10	-1.49	-10.63	MB-2-17-3	2.90	33.10	-1.46	-21.14
MB-2-17-4	18.10	34.10	-1.13	-11.76	MB-2-17-4	3.00	33.10	-1.45	-22.59
MB-2-17-5	18.70	34.10	-0.44	-12.20	MB-2-17-5	2.50	33.10	-1.81	-24.39
MB-2-17-6	19.30	34.10	-0.08	-12.28	MB-2-17-6	2.00	33.10	-2.11	-26.50
MB-2-17-7	18.30	34.10	-1.34	-13.62	MB-2-17-7	2.40	33.10	-1.32	-27.81
MB-2-17-8	22.10	34.10	1.49	-12.13	MB-2-17-8	2.30	33.10	-1.60	-29.41
MB-2-17-9	17.10	34.10	-3.60	-15.73	MB-2-17-9	2.40	33.10	-1.48	-30.89
MB-2-17-10	41.50	34.10	13.79	-1.94	MB-2-17-10	5.10	33.10	0.08	-30.80
MB-2-17-11	30.30	34.10	-6.35	-8.29	MB-2-17-11	4.40	33.10	-1.82	-32.62
MB-2-17-12	14.90	34.10	-9.43	-17.72	MB-2-17-12	2.20	33.10	-2.76	-35.38
MB-2-17-13	31.50	34.10	9.00	-8.72	MB-2-17-13	2.90	33.10	-1.13	-36.50
MB-2-17-14	23.60	34.10	-4.87	-13.59	MB-2-17-14	3.70	33.10	-1.03	-37.53
MB-2-17-15	33.40	34.10	5.35	-8.23	MB-2-17-15	4.50	33.10	-0.99	-38.52
MB-2-18-16	28.30	34.10	-3.10	-11.33	MB-2-18-16	3.20	33.10	-2.21	-40.73

**TABLE C.6. Mass Balance for Static Leach Test Whole Grout
with Groundwater (MB3-18)**

Ca				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	TOTAL CHANGE
-----	ppm Ca	ppm Ca	mg Ca	mg Ca
MB-3-18-1	3.30	56.00	-31.62	-31.62
MB-3-18-2	3.60	56.00	-2.46	-34.07
MB-3-18-3	1.40	56.00	-3.94	-38.01
MB-3-18-4	4.10	56.00	-1.11	-39.12
MB-3-18-5	2.40	56.00	-3.62	-42.74
MB-3-18-6	0.70	56.00	-4.64	-43.76
MB-3-18-7	4.50	56.00	-0.49	-44.24
MB-3-18-8	3.50	56.00	-2.94	-47.18
MB-3-18-9	4.00	56.00	-2.55	-49.72
MB-3-18-10	4.20	56.00	-2.48	-52.21
MB-3-18-11	4.10	56.00	-2.65	-54.86
MB-3-18-12	4.00	56.00	-2.66	-57.51
MB-3-18-13	4.20	56.00	-2.48	-59.99
MB-3-18-14	5.47	56.00	-1.83	-61.82
MB-3-18-15	3.50	56.00	-3.71	-65.53

K				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	TOTAL CHANGE
-----	ppm K	ppm K	mg K	mg K
MB-3-18-1	35.00	7.80	16.32	16.32
MB-3-18-2	37.00	7.80	2.56	18.88
MB-3-18-3	43.00	7.80	5.06	23.94
MB-3-18-4	45.00	7.80	2.96	26.90
MB-3-18-5	46.00	7.80	2.46	29.36
MB-3-18-6	47.00	7.80	3.06	29.96
MB-3-18-7	45.00	7.80	0.76	30.72
MB-3-18-8	43.00	7.80	0.66	31.33
MB-3-18-9	44.00	7.80	2.36	33.74
MB-3-18-10	43.00	7.80	1.21	34.95
MB-3-18-11	41.00	7.80	0.56	35.51
MB-3-18-12	43.00	7.80	2.86	38.37
MB-3-18-13	42.00	7.80	1.16	39.53
MB-3-18-14	46.00	7.80	4.11	43.64
MB-3-18-15	45.00	7.80	1.31	44.95

Mg				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	TOTAL CHANGE
-----	ppm Mg	ppm Mg	mg Mg	mg Mg
MB-3-18-1	0.06	14.40	-8.60	-8.60
MB-3-18-2	0.06	14.40	-0.72	-9.32
MB-3-18-3	0.06	14.40	-0.72	-10.04
MB-3-18-4	0.06	14.40	-0.72	-10.76
MB-3-18-5	0.06	14.40	-0.72	-11.47
MB-3-18-6	0.06	14.40	-0.72	-11.47
MB-3-18-7	0.06	14.40	-0.72	-12.19
MB-3-18-8	0.06	14.40	-0.72	-12.91
MB-3-18-9	0.06	14.40	-0.72	-13.62
MB-3-18-10	0.06	14.40	-0.72	-14.34
MB-3-18-11	0.06	14.40	-0.72	-15.06
MB-3-18-12	0.06	14.40	-0.72	-15.77
MB-3-18-13	0.06	14.40	-0.72	-16.49
MB-3-18-14	0.06	14.40	-0.72	-17.21
MB-3-18-15	0.06	14.40	-0.72	-17.93

Na				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	TOTAL CHANGE
-----	ppm Na	ppm Na	mg Na	mg Na
MB-3-18-1	776.00	25.00	450.60	450.60
MB-3-18-2	776.00	25.00	37.55	488.15
MB-3-18-3	932.00	25.00	131.15	619.30
MB-3-18-4	969.00	25.00	67.55	686.85
MB-3-18-5	1009.00	25.00	71.20	758.05
MB-3-18-6	1049.00	25.00	96.20	782.05
MB-3-18-7	1000.00	25.00	21.80	803.85
MB-3-18-8	962.00	25.00	25.95	829.80
MB-3-18-9	955.00	25.00	42.65	872.45
MB-3-18-10	980.00	25.00	61.50	933.95
MB-3-18-11	950.00	25.00	29.75	963.70
MB-3-18-12	970.00	25.00	58.25	1021.95
MB-3-18-13	1015.00	25.00	74.25	1096.20
MB-3-18-14	1090.00	25.00	94.50	1190.70
MB-3-18-15	1140.00	25.00	83.25	1273.95

TABLE C.6. contd

SO ₄				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	TOTAL CHANGE
-----	ppm SO ₄	ppm SO ₄	mg SO ₄	mg SO ₄
MB-3-18-1	184.00	86.00	58.80	58.80
MB-3-18-2	156.00	86.00	-11.90	46.90
MB-3-18-3	179.00	86.00	17.30	64.20
MB-3-18-4	182.00	86.00	6.45	70.65
MB-3-18-5	173.00	86.00	-0.60	70.05
MB-3-18-6	164.00	86.00	-6.00	64.65
MB-3-18-7	183.00	86.00	15.30	79.95
MB-3-18-8	172.00	86.00	-1.75	78.20
MB-3-18-9	173.00	86.00	4.90	83.10
MB-3-18-10	178.00	86.00	7.35	90.45
MB-3-18-11	173.00	86.00	1.60	92.05
MB-3-18-12	150.00	86.00	-9.45	82.60
MB-3-18-13	113.60	86.00	-18.64	63.96
MB-3-18-14	191.00	86.00	47.82	111.78
MB-3-18-15	237.00	86.00	32.85	144.63

Si				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	TOTAL CHANGE
-----	ppm Si	ppm Si	mg Si	mg Si
MB-3-18-1	9.80	15.00	-3.12	-3.12
MB-3-18-2	9.10	15.00	-0.68	-3.80
MB-3-18-3	9.70	15.00	0.06	-3.74
MB-3-18-4	10.00	15.00	-0.09	-3.82
MB-3-18-5	10.60	15.00	0.11	-3.71
MB-3-18-6	11.20	15.00	0.47	-3.35
MB-3-18-7	11.20	15.00	-0.19	-3.54
MB-3-18-8	11.30	15.00	-0.13	-3.67
MB-3-18-9	10.10	15.00	-0.91	-4.58
MB-3-18-10	12.70	15.00	1.31	-3.26
MB-3-18-11	12.70	15.00	-0.12	-3.36
MB-3-18-12	12.80	15.00	-0.06	-3.43
MB-3-18-13	13.60	15.00	0.37	-3.06
MB-3-18-14	13.50	15.00	-0.13	-3.19
MB-3-18-15	16.50	15.00	1.72	-1.47

NO ₃				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	TOTAL CHANGE
-----	ppm NO ₃	ppm NO ₃	mg NO ₃	mg NO ₃
MB-3-18-1	6.20	0.10	3.66	3.66
MB-3-18-2	6.10	0.10	0.24	3.90
MB-3-18-3	7.40	0.10	1.08	4.98
MB-3-18-4	7.70	0.10	0.54	5.53
MB-3-18-5	12.17	0.10	3.06	8.59
MB-3-18-6	16.00	0.10	5.36	10.89
MB-3-18-7	18.00	0.10	1.99	12.68
MB-3-18-8	17.00	0.10	0.29	13.18
MB-3-18-9	10.50	0.10	-3.06	10.12
MB-3-18-10	18.00	0.10	5.02	15.14
MB-3-18-11	17.00	0.10	0.29	15.44
MB-3-18-12	18.00	0.10	1.44	16.88
MB-3-18-13	15.50	0.10	1.79	18.68
MB-3-18-14	15.00	0.10	0.67	19.35
MB-3-18-15	24.00	0.10	3.94	23.29

Al				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	TOTAL CHANGE
-----	ppm Al	ppm Al	mg Al	mg Al
MB-3-18-1	14.00	0.10	8.34	8.34
MB-3-18-2	11.90	0.10	-0.57	7.77
MB-3-18-3	15.10	0.10	2.51	10.28
MB-3-18-4	15.40	0.10	0.93	11.21
MB-3-18-5	15.75	0.10	0.97	12.19
MB-3-18-6	16.10	0.10	1.18	12.40
MB-3-18-7	15.60	0.10	0.50	12.90
MB-3-18-8	14.50	0.10	0.11	13.01
MB-3-18-9	14.60	0.10	0.72	13.79
MB-3-18-10	14.90	0.10	0.90	14.70
MB-3-18-11	14.30	0.10	0.38	15.08
MB-3-18-12	15.70	0.10	1.67	16.75
MB-3-18-13	17.00	0.10	1.45	18.20
MB-3-18-14	18.90	0.10	1.20	20.00
MB-3-18-15	22.00	0.10	2.90	22.97

TABLE C.6. contd

F					H3B03				
SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	TOTAL CHANGE	SAMPLE NO.	EFFLUENT	HGW CONC.	ELUTED	TOTAL CHANGE
-----	ppm F	ppm F	ag F	ag F	-----	ppm B	ppm B	ag B	ag B
MB-3-18-1	8.40	0.50	4.74	4.74	MB-3-18-1	5.04	0.34	2.82	2.82
MB-3-18-2	7.70	0.50	-0.03	4.72	MB-3-18-2	4.29	0.34	-0.22	2.60
MB-3-18-3	9.40	0.50	1.38	6.10	MB-3-18-3	5.15	0.34	0.71	3.32
MB-3-18-4	10.00	0.50	0.80	6.90	MB-3-18-4	5.20	0.34	0.27	3.59
MB-3-18-5	10.50	0.50	0.77	7.67	MB-3-18-5	5.66	0.34	0.52	4.11
MB-3-18-6	11.00	0.50	1.07	7.97	MB-3-18-6	6.12	0.34	0.79	4.38
MB-3-18-7	10.20	0.50	0.04	8.02	MB-3-18-7	5.41	0.34	-0.14	4.25
MB-3-18-8	9.90	0.50	0.30	8.32	MB-3-18-8	5.26	0.34	0.16	4.41
MB-3-18-9	9.50	0.50	0.47	8.79	MB-3-18-9	5.18	0.34	0.20	4.61
MB-3-18-10	11.00	0.50	1.13	9.92	MB-3-18-10	5.37	0.34	0.36	4.96
MB-3-18-11	9.70	0.50	-0.26	9.67	MB-3-18-11	5.14	0.34	0.11	5.08
MB-3-18-12	11.00	0.50	1.24	10.91	MB-3-18-12	5.49	0.34	0.45	5.53
MB-3-18-13	23.50	0.50	8.02	18.93	MB-3-18-13	6.29	0.34	0.74	6.27
MB-3-18-14	13.00	0.50	-5.15	13.78	MB-3-18-14	6.63	0.34	0.50	6.77
MB-3-18-15	16.00	0.50	2.42	16.21	MB-3-18-15	7.20	0.34	0.66	7.42

TABLE C.7. Mass Balance for Static Leach Test Whole Grout with Groundwater (MB4-13)

Ca					Na				
SAMPLE NO. -----	EFFLUENT ppm Ca	HSW CONC. ppm Ca	ELUTED mg Ca	TOTAL CHANGE mg Ca	SAMPLE NO. -----	EFFLUENT ppm Na	HSW CONC. ppm Na	ELUTED mg Na	TOTAL CHANGE mg Na
MB-4-13-1	4.00	56.00	-31.20	-31.20	MB-4-13-1	748.00	25.00	433.80	433.80
MB-4-13-2	0.50	56.00	-4.70	-35.90	MB-4-13-2	762.00	25.00	44.55	478.35
MB-4-13-3	1.50	56.00	-2.18	-38.07	MB-4-13-3	883.00	25.00	109.45	587.80
MB-4-13-4	4.40	56.00	-0.99	-39.06	MB-4-13-4	964.00	25.00	91.50	679.50
MB-4-13-5	3.75	56.00	-2.97	-42.03	MB-4-13-5	982.00	25.00	57.75	737.05
MB-4-13-6	3.10	56.00	-3.36	-42.42	MB-4-13-6	1020.00	25.00	80.55	759.85
MB-4-13-7	4.90	56.00	-1.57	-43.98	MB-4-13-7	989.00	25.00	31.15	791.00
MB-4-13-8	4.60	56.00	-2.74	-46.72	MB-4-13-8	940.00	25.00	18.80	809.80
MB-4-13-9	4.60	56.00	-2.57	-49.29	MB-4-13-9	938.00	25.00	44.55	854.35
MB-4-13-10	4.60	56.00	-2.57	-51.86	MB-4-13-10	960.00	25.00	58.85	913.20
MB-4-13-11	4.10	56.00	-2.87	-54.73	MB-4-13-11	920.00	25.00	22.75	935.95
MB-4-13-12	4.60	56.00	-2.30	-57.02	MB-4-13-12	945.00	25.00	59.75	995.70
MB-4-13-13	5.18	56.00	-2.22	-59.25	MB-4-13-13	980.00	25.00	67.00	1062.70
MB-4-13-14	4.84	56.00	-2.75	-61.99	MB-4-13-14	995.00	25.00	56.75	1119.45
MB-4-13-15	5.70	56.00	-2.04	-64.03	MB-4-13-15	1170.00	25.00	153.50	1272.95

K					Al				
SAMPLE NO. -----	EFFLUENT ppm K	HSW CONC. ppm K	ELUTED mg K	TOTAL CHANGE mg K	SAMPLE NO. -----	EFFLUENT ppm Al	HSW CONC. ppm Al	ELUTED mg Al	TOTAL CHANGE mg Al
MB-4-13-1	33.00	7.80	15.12	15.12	MB-4-13-1	12.30	0.10	7.32	7.32
MB-4-13-2	35.00	7.80	2.46	17.58	MB-4-13-2	10.70	56.00	-0.35	6.97
MB-4-13-3	39.00	7.80	3.76	21.34	MB-4-13-3	12.20	56.00	1.43	8.40
MB-4-13-4	43.00	7.80	3.96	25.30	MB-4-13-4	4.90	56.00	-3.78	4.62
MB-4-13-5	43.50	7.80	2.06	27.36	MB-4-13-5	6.45	56.00	1.17	5.79
MB-4-13-6	44.00	7.80	2.36	27.66	MB-4-13-6	8.00	56.00	2.10	6.72
MB-4-13-7	42.00	7.80	0.61	28.27	MB-4-13-7	12.30	56.00	2.97	9.70
MB-4-13-8	43.00	7.80	2.31	30.58	MB-4-13-8	11.80	56.00	0.31	10.01
MB-4-13-9	43.00	7.80	1.76	32.34	MB-4-13-9	11.70	56.00	0.52	10.53
MB-4-13-10	43.00	7.80	1.76	34.10	MB-4-13-10	11.70	56.00	0.58	11.11
MB-4-13-11	42.00	7.80	1.16	35.26	MB-4-13-11	11.20	56.00	0.25	11.39
MB-4-13-12	42.00	7.80	1.71	36.97	MB-4-13-12	12.80	56.00	1.52	12.91
MB-4-13-13	40.00	7.80	0.51	37.48	MB-4-13-13	13.00	56.00	0.75	13.66
MB-4-13-14	44.00	7.80	4.01	41.49	MB-4-13-14	14.50	56.00	1.54	15.21
MB-4-13-15	47.00	7.80	3.61	45.10	MB-4-13-15	17.00	56.00	2.22	17.43

TABLE C.7. contd

Si					Mg				
SAMPLE NO. -----	EFFLUENT ppm Si	HGW CONC. ppm Si	ELUTED mg Si	TOTAL CHANGE mg Si	SAMPLE NO. -----	EFFLUENT ppm Mg	HGW CONC. ppm Mg	ELUTED mg Mg	TOTAL CHANGE mg Mg
MB-4-13-1	10.00	15.00	-3.00	-3.00	MB-4-13-1	0.06	14.40	-8.60	-8.60
MB-4-13-2	9.70	15.00	-0.43	-3.43	MB-4-13-2	0.06	14.40	-0.72	-9.32
MB-4-13-3	10.20	15.00	0.03	-3.40	MB-4-13-3	0.06	14.40	-0.72	-10.04
MB-4-13-4	6.10	15.00	-2.70	-6.10	MB-4-13-4	0.06	14.40	-0.72	-10.76
MB-4-13-5	5.50	15.00	-0.81	-6.90	MB-4-13-5	0.06	14.40	-0.72	-11.47
MB-4-13-6	5.00	15.00	-1.11	-7.20	MB-4-13-6	0.06	14.40	-0.72	-11.47
MB-4-13-7	11.80	15.00	3.58	-3.62	MB-4-13-7	0.06	14.40	-0.72	-12.19
MB-4-13-8	12.00	15.00	-0.04	-3.66	MB-4-13-8	0.06	14.40	-0.72	-12.91
MB-4-13-9	12.40	15.00	0.09	-3.57	MB-4-13-9	0.06	14.40	-0.72	-13.62
MB-4-13-10	13.30	15.00	0.41	-3.16	MB-4-13-10	0.07	14.40	-0.71	-14.33
MB-4-13-11	13.40	15.00	-0.03	-3.19	MB-4-13-11	0.06	14.40	-0.72	-15.06
MB-4-13-12	13.60	15.00	0.04	-3.15	MB-4-13-12	0.06	14.40	-0.72	-15.77
MB-4-13-13	13.40	15.00	-0.19	-3.34	MB-4-13-13	0.06	14.40	-0.72	-16.49
MB-4-13-14	14.80	15.00	0.76	-2.58	MB-4-13-14	0.06	14.40	-0.72	-17.21
MB-4-13-15	15.70	15.00	0.53	-2.05	MB-4-13-15	0.06	14.40	-0.72	-17.92

F					NO3				
SAMPLE NO. -----	EFFLUENT ppm F	HGW CONC. ppm F	ELUTED mg F	TOTAL CHANGE mg F	SAMPLE NO. -----	EFFLUENT ppm NO3	HGW CONC. ppm NO3	ELUTED mg NO3	TOTAL CHANGE mg NO3
MB-4-13-1	9.80	0.50	5.58	5.58	MB-4-13-1	5.60	0.10	3.30	3.30
MB-4-13-2	8.80	0.50	-0.14	5.44	MB-4-13-2	5.30	0.10	0.09	3.39
MB-4-13-3	10.00	0.50	1.13	6.58	MB-4-13-3	6.00	0.10	0.66	4.07
MB-4-13-4	9.80	0.50	0.35	6.93	MB-4-13-4	6.20	0.10	0.41	4.49
MB-4-13-5	10.40	0.50	0.82	7.76	MB-4-13-5	9.60	0.10	2.34	6.83
MB-4-13-6	11.00	0.50	1.18	8.12	MB-4-13-6	13.00	0.10	4.38	8.87
MB-4-13-7	8.70	0.50	-0.86	7.26	MB-4-13-7	13.00	0.10	0.64	9.52
MB-4-13-8	9.90	0.50	1.13	8.39	MB-4-13-8	14.00	0.10	1.24	10.76
MB-4-13-9	9.50	0.50	0.23	8.62	MB-4-13-9	13.00	0.10	0.09	10.88
MB-4-13-10	10.40	0.50	0.99	9.61	MB-4-13-10	71.00	0.10	35.45	46.31
MB-4-13-11	9.50	0.50	-0.05	9.57	MB-4-13-11	9.20	0.10	-33.54	12.77
MB-4-13-12	11.00	0.50	1.35	10.92	MB-4-13-12	15.00	0.10	0.93	16.70
MB-4-13-13	12.00	0.50	1.12	12.04	MB-4-13-13	6.50	0.10	-4.36	12.35
MB-4-13-14	12.00	0.50	0.57	12.62	MB-4-13-14	15.00	0.10	5.42	17.77
MB-4-13-15	14.00	0.50	1.77	14.39	MB-4-13-15	20.00	0.10	3.74	21.51

TABLE C.7. contd

H3B03					S04				
SAMPLE NO. -----	EFFLUENT ppa B	HGW CONC. ppa B	ELUTED mg B	TOTAL CHANGE mg B	SAMPLE NO. -----	EFFLUENT ppa S04	HGW CONC. ppa S04	ELUTED mg S04	TOTAL CHANGE mg S04
MB-4-13-1	4.05	0.34	2.23	2.23	MB-4-13-1	170.00	86.00	50.40	50.40
MB-4-13-2	3.75	0.34	0.01	2.23	MB-4-13-2	149.00	86.00	-8.40	42.00
MB-4-13-3	4.06	0.34	0.36	2.59	MB-4-13-3	156.00	86.00	7.35	49.35
MB-4-13-4	4.30	0.34	0.33	2.92	MB-4-13-4	161.00	86.00	6.50	55.85
MB-4-13-5	4.35	0.34	0.23	3.15	MB-4-13-5	149.00	86.00	-3.45	52.40
MB-4-13-6	4.41	0.34	0.26	3.18	MB-4-13-6	137.00	86.00	-10.65	45.20
MB-4-13-7	4.08	0.34	0.01	3.19	MB-4-13-7	144.00	86.00	6.75	51.95
MB-4-13-8	3.93	0.34	0.10	3.28	MB-4-13-8	150.00	86.00	6.50	58.45
MB-4-13-9	3.95	0.34	0.19	3.48	MB-4-13-9	147.00	86.00	1.40	59.65
MB-4-13-10	4.10	0.34	0.27	3.75	MB-4-13-10	172.00	86.00	18.05	77.90
MB-4-13-11	3.87	0.34	0.05	3.80	MB-4-13-11	143.00	86.00	-13.10	64.80
MB-4-13-12	4.17	0.34	0.36	4.15	MB-4-13-12	140.00	86.00	1.05	65.85
MB-4-13-13	4.49	0.34	0.38	4.54	MB-4-13-13	150.00	86.00	8.70	74.55
MB-4-13-14	4.40	0.34	0.15	4.69	MB-4-13-14	153.00	86.00	5.00	79.55
MB-4-13-15	5.43	0.34	0.82	5.51	MB-4-13-15	193.00	86.00	27.35	106.90

TABLE C.8. Mass Balance for Static Leach Test Whole Grout in Groundwater (MB5-17)

Ca					Na				
SAMPLE NO.	EFFLUENT ppm Ca	HGW CONC. ppm Ca	ELUTED mg Ca	TOTAL CHANGE mg Ca	SAMPLE NO.	EFFLUENT ppm Na	HGW CONC. ppm Na	ELUTED mg Na	TOTAL CHANGE mg Na
MB-5-17-1	3.40	56.00	-31.56	-31.56	MB-5-17-1	523.00	25.00	298.80	298.80
MB-5-17-2	2.60	56.00	-3.11	-34.67	MB-5-17-2	828.00	25.00	207.90	506.70
MB-5-17-3	1.60	56.00	-3.27	-37.94	MB-5-17-3	981.00	25.00	131.95	636.65
MB-5-17-4	2.40	56.00	-2.24	-40.18	MB-5-17-4	1000.00	25.00	59.20	697.85
MB-5-17-5	1.80	56.00	-3.04	-43.22	MB-5-17-5	1021.00	25.00	61.35	759.20
MB-5-17-6	1.20	56.00	-3.40	-43.58	MB-5-17-6	1042.00	25.00	73.95	771.80
MB-5-17-7	3.20	56.00	-1.54	-45.12	MB-5-17-7	1060.00	25.00	61.65	833.45
MB-5-17-8	2.80	56.00	-2.88	-50.30	MB-5-17-8	1000.00	25.00	15.75	849.20
MB-5-17-9	3.40	56.00	-2.30	-52.87	MB-5-17-9	1040.00	25.00	72.75	921.95
MB-5-17-10	3.50	56.00	-2.57	-55.86	MB-5-17-10	1020.00	25.00	36.75	960.70
MB-5-17-11	2.90	56.00	-2.99	-58.45	MB-5-17-11	960.00	25.00	13.75	974.45
MB-5-17-12	3.00	56.00	-2.60	-61.04	MB-5-17-12	1072.50	25.00	114.25	1088.70
MB-5-17-13	3.10	56.00	-3.43	-64.47	MB-5-17-13	1185.00	25.00	119.87	1208.57
MB-5-17-14	1.80	56.00	-2.23	-66.70	MB-5-17-14	1125.00	25.00	22.00	1230.57
MB-5-17-15	2.60	56.00			MB-5-17-15	1230.00	25.00	118.00	1348.57

K					Al				
SAMPLE NO.	EFFLUENT ppm K	HGW CONC. ppm K	ELUTED mg K	TOTAL CHANGE mg K	SAMPLE NO.	EFFLUENT ppm Al	HGW CONC. ppm Al	ELUTED mg Al	TOTAL CHANGE mg Al
MB-5-17-1	27.00	7.80	11.52	11.52	MB-5-17-1	5.30	0.10	3.12	3.12
MB-5-17-2	34.00	7.80	5.16	16.68	MB-5-17-2	11.80	0.10	4.16	7.28
MB-5-17-3	39.00	7.80	4.31	20.99	MB-5-17-3	14.70	0.10	2.32	9.60
MB-5-17-4	41.00	7.80	2.76	23.75	MB-5-17-4	14.80	0.10	0.79	10.39
MB-5-17-5	42.50	7.80	2.56	26.31	MB-5-17-5	15.25	0.10	1.00	11.40
MB-5-17-6	44.00	7.80	3.46	27.21	MB-5-17-6	15.70	0.10	1.27	11.67
MB-5-17-7	43.00	7.80	1.21	28.42	MB-5-17-7	16.10	0.10	1.02	12.69
MB-5-17-8	44.00	7.80	2.36	30.78	MB-5-17-8	15.20	0.10	0.26	12.95
MB-5-17-9	45.00	7.80	2.41	33.19	MB-5-17-9	15.90	0.10	1.17	14.12
MB-5-17-10	43.00	7.80	0.66	33.85	MB-5-17-10	14.60	0.10	0.49	14.61
MB-5-17-11	42.00	7.80	1.16	35.01	MB-5-17-11	16.15	0.10	0.28	14.90
MB-5-17-12	42.00	7.80	1.71	36.72	MB-5-17-12	17.70	0.10	1.65	16.55
MB-5-17-13	42.00	7.80	1.71	38.43	MB-5-17-13	17.50	0.10	1.70	16.29
MB-5-17-14	46.00	7.80	4.11	42.54	MB-5-17-14	22.80	0.10	2.02	20.81
MB-5-17-15	47.00	7.80	2.51	45.05				2.77	23.08

TABLE C.8. contd

Si					Mg				
SAMPLE NO. -----	EFFLUENT ppm Si	HGW CONC. ppm Si	ELUTED mg Si	TOTAL CHANGE mg Si	SAMPLE NO. -----	EFFLUENT ppm Mg	HGW CONC. ppm Mg	ELUTED mg Mg	TOTAL CHANGE mg Mg
MB-5-17-1	8.80	15.00	-3.72	-3.72	MB-5-17-1	0.06	14.40	-8.60	-8.60
MB-5-17-2	9.70	15.00	0.23	-3.49	MB-5-17-2	0.06	14.40	-0.72	-9.32
MB-5-17-3	10.30	15.00	0.10	-3.40	MB-5-17-3	0.06	14.40	-0.72	-10.04
MB-5-17-4	10.70	15.00	0.00	-3.39	MB-5-17-4	0.06	14.40	-0.72	-10.76
MB-5-17-5	11.35	15.00	0.17	-3.22	MB-5-17-5	0.06	14.40	-0.72	-11.47
MB-5-17-6	12.00	15.00	0.56	-2.83	MB-5-17-6	0.06	14.40	-0.72	-11.47
MB-5-17-7	12.50	15.00	0.15	-2.68	MB-5-17-7	0.06	14.40	-0.72	-12.19
MB-5-17-8	12.80	15.00	0.05	-2.62	MB-5-17-8	0.06	14.40	-0.72	-12.91
MB-5-17-9	13.80	15.00	0.49	-2.13	MB-5-17-9	0.06	14.40	-0.72	-13.62
MB-5-17-10	14.30	15.00	0.24	-1.89	MB-5-17-10	0.06	14.40	-0.72	-14.34
MB-5-17-11	14.30	15.00	-0.04	-1.93	MB-5-17-11	0.06	14.40	-0.72	-15.06
MB-5-17-12	15.40	15.00	0.62	-1.30	MB-5-17-12	0.06	14.40	-0.72	-15.77
MB-5-17-13	16.50	15.00	0.68	-0.62	MB-5-17-13	0.06	14.40	-0.72	-16.49
MB-5-17-14	21.20	15.00	2.89	2.27	MB-5-17-14	0.06	14.40	-0.72	-17.21
MB-5-17-15	20.00	15.00	-0.41	1.86	MB-5-17-15	0.06	14.40	-0.72	-17.93

F					NO3				
SAMPLE NO. -----	EFFLUENT ppm F	HGW CONC. ppm F	ELUTED mg F	TOTAL CHANGE mg F	SAMPLE NO. -----	EFFLUENT ppm NO3	HGW CONC. ppm NO3	ELUTED mg NO3	TOTAL CHANGE mg NO3
MB-5-17-1	9.40	0.50	5.34	5.34	MB-5-17-1	5.70	0.10	3.36	3.36
MB-5-17-2	8.10	0.50	-0.34	5.00	MB-5-17-2	5.70	0.10	0.28	3.64
MB-5-17-3	10.00	0.50	1.52	6.52	MB-5-17-3	6.90	0.10	1.00	4.64
MB-5-17-4	10.00	0.50	0.47	7.00	MB-5-17-4	7.20	0.10	0.52	5.16
MB-5-17-5	10.50	0.50	0.77	7.77	MB-5-17-5	11.10	0.10	2.67	7.85
MB-5-17-6	11.00	0.50	1.07	8.07	MB-5-17-6	15.00	0.10	5.03	10.19
MB-5-17-7	10.80	0.50	0.40	8.48	MB-5-17-7	16.00	0.10	1.34	11.54
MB-5-17-8	11.00	0.50	0.63	9.11	MB-5-17-8	16.00	0.10	0.79	12.33
MB-5-17-9	11.00	0.50	0.52	9.64	MB-5-17-9	15.00	0.10	0.19	12.53
MB-5-17-10	11.20	0.50	0.64	10.28	MB-5-17-10	16.00	0.10	1.34	13.37
MB-5-17-11	11.50	0.50	0.71	11.00	MB-5-17-11	16.00	0.10	0.79	14.07
MB-5-17-12	11.50	0.50	0.55	11.55	MB-5-17-12	17.00	0.10	1.37	15.06
MB-5-17-13	11.50	0.50	0.55	12.10	MB-5-17-13	18.00	0.10	1.44	17.51
MB-5-17-14	20.00	0.50	5.65	17.75	MB-5-17-14	15.00	0.10	0.39	18.40
MB-5-17-15	17.00	0.50	-0.83	16.92	MB-5-17-15	23.00	0.10	3.67	22.30

TABLE C.8. contd

H3803					S04				
SAMPLE NO. -----	EFFLUENT ppm B	HGW CONC. ppm B	ELUTED mg B	TOTAL CHANGE mg B	SAMPLE NO. -----	EFFLUENT ppm S04	HGW CONC. ppm S04	ELUTED mg S04	TOTAL CHANGE mg S04
MB-5-17-1	2.37	0.34	1.22	1.22	MB-5-17-1	170.00	86.00	50.40	50.40
MB-5-17-2	4.23	0.34	1.22	2.44	MB-5-17-2	149.00	86.00	-8.40	42.00
MB-5-17-3	4.74	0.34	0.50	2.94	MB-5-17-3	156.00	86.00	7.35	49.35
MB-5-17-4	4.83	0.34	0.27	3.21	MB-5-17-4	161.00	86.00	6.50	55.85
MB-5-17-5	5.00	0.34	0.33	3.54	MB-5-17-5	157.00	86.00	1.35	57.20
MB-5-17-6	5.36	0.34	0.54	3.75	MB-5-17-6	153.00	86.00	-1.05	54.80
MB-5-17-7	5.24	0.34	0.18	3.93	MB-5-17-7	174.00	86.00	15.95	70.75
MB-5-17-8	5.01	0.34	0.11	4.04	MB-5-17-8	168.00	86.00	0.80	71.55
MB-5-17-9	5.20	0.34	0.35	4.39	MB-5-17-9	168.00	86.00	4.10	75.65
MB-5-17-10	5.03	0.34	0.14	4.53	MB-5-17-10	167.00	86.00	3.50	79.15
MB-5-17-11	4.74	0.34	0.06	4.59	MB-5-17-11	166.00	86.00	3.45	82.60
MB-5-17-12	4.74	0.34	0.22	4.81	MB-5-17-12	163.00	86.00	2.20	84.80
MB-5-17-13	4.74	0.34	0.22	5.03	MB-5-17-13	160.00	86.00	2.05	86.85
MB-5-17-14	6.29	0.34	1.15	6.18	MB-5-17-14	176.00	86.00	13.30	100.15
MB-5-17-15	6.92	0.34	0.68	6.85	MB-5-17-15	229.00	86.00	36.30	136.45

**TABLE C.9. Mass Balance for Flow Through Leach Test on Whole
Grout/Sediment with Groundwater (MBCOLT1)**

SAMPLE NO.	EFFLUENT PORE VOL. ppm Ca	ELUTED ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca	SAMPLE NO.	EFFLUENT PORE VOL. ppm Na	ELUTED ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	19.1	1.44	-3.33	-3.33	1	794	1.44	69.31	69.31
2	3.6	2.91	-4.82	-8.15	2	930	2.91	83.27	152.58
3	3.3	4.49	-5.21	-13.36	3	810	4.49	77.63	230.21
4	2.9	6.66	-7.21	-20.57	4	760	6.66	99.83	330.03
5	2.2	8.47	-6.09	-26.67	5	600	8.47	65.14	395.18
6	2.0	9.65	-3.99	-30.65	6	540	9.65	38.04	433.21
7	2.2	11.47	-6.13	-36.79	7	570	11.47	62.08	495.29
8	2.1	14.06	-8.75	-45.53	8	550	14.06	85.11	580.40
9	1.8	16.00	-6.58	-52.11	9	550	16.00	63.75	644.15
10	1.6	18.56	-8.72	-60.83	10	414	18.56	62.33	706.48
11	1.6	20.64	-7.08	-67.91	11	363	20.64	44.00	750.48
12	1.4	23.36	-9.29	-77.21	12	348	23.36	54.99	805.47
13	1.4	25.27	-6.52	-83.73	13	346	25.27	38.37	843.85
16	0.8	27.25	-6.85	-90.57	16	347	27.25	39.90	883.75
17	0.8	31.44	-14.48	-105.06	17	241	31.44	56.65	940.40
18	0.8	33.26	-6.29	-111.35	18	203	33.26	20.28	960.67
19	0.7	37.15	-13.46	-124.81	19	195	37.15	41.39	1002.06
20	0.7	39.13	-6.85	-131.66	20	171	39.13	18.09	1020.16
21	0.8	41.76	-9.08	-140.74	21	168	41.76	23.54	1043.70
22	0.8	46.26	-15.54	-156.28	22	163	46.26	38.87	1082.57
23	0.8	49.11	-9.84	-166.12	23	151	49.11	22.48	1105.04
24	0.9	51.02	-6.59	-172.71	24	148	51.02	14.70	1119.75
26	0.97	56.32	-18.25	-190.97	26	135.00	56.32	36.49	1156.24
28	1.10	64.06	-26.60	-217.56	28	119.00	64.06	45.54	1201.77
30	1.67	67.83	-12.82	-230.38	30	100.00	67.83	17.70	1219.47
32	1.57	72.30	-15.23	-245.61	32	103.00	72.30	21.82	1241.29
34	4.74	74.58	-7.32	-252.93	34	104.00	74.58	11.27	1252.57
36	1.90	79.24	-15.78	-268.71	36	101.00	79.24	22.17	1274.73
39	1.88	90.19	-37.09	-305.80	39	85.40	90.19	41.40	1316.13
41	2.42	95.45	-17.64	-323.44	41	74.00	95.45	16.13	1332.26
43	3.22	101.70	-20.65	-344.08	43	67.00	101.70	16.43	1348.69
45	4.90	107.75	-19.35	-363.43	45	64.60	107.75	15.07	1363.76
47	5.07	111.33	-11.41	-374.85	47	77.20	111.33	11.70	1375.46
49	6.65	133.14	-67.37	-442.21	49	62.30	133.14	50.92	1426.38
50	14.10	151.85	-49.07	-491.28	50	52.70	151.85	32.44	1458.82

TABLE C.9. contd

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K
1	4.2	1.44	-0.32	-0.32
2	0.3	2.91	-0.69	-1.01
3	0.3	4.49	-0.74	-1.76
4	0.3	6.66	-1.02	-2.77
5	2.3	8.47	-0.62	-3.40
6	0.3	9.65	-0.55	-3.95
7	0.3	11.47	-0.85	-4.81
8	0.3	14.06	-1.22	-6.02
9	2.0	16.00	-0.70	-6.73
10	2.2	18.56	-0.90	-7.62
11	1.9	20.64	-0.77	-8.39
12	2.4	23.36	-0.92	-9.31
13	1.8	25.27	-0.72	-10.03
16	2.8	27.25	-0.62	-10.65
17	2.0	31.44	-1.52	-12.17
18	3.4	33.26	-0.50	-12.67
19	3.2	37.15	-1.12	-13.79
20	2.1	39.13	-0.71	-14.50
21	2.1	41.76	-0.94	-15.43
22	1.7	46.26	-1.72	-17.15
23	2.2	49.11	-1.00	-18.15
24	1.7	51.02	-0.73	-18.88
26	4.00	56.32	-1.26	-20.14
28	6.20	64.06	-0.78	-20.92
30	9.00	67.83	0.28	-20.63
32	14.40	72.30	1.85	-18.79
34	19.00	74.58	1.60	-17.19
36	19.10	79.24	3.30	-13.89
39	20.00	90.19	8.36	-5.53
41	22.00	95.45	4.67	-0.86
43	23.00	101.70	5.95	5.09
45	24.00	107.75	6.13	11.22
47	21.00	111.33	2.96	14.18
49	17.00	133.14	12.56	26.74
50	16.00	151.85	9.60	36.34

SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	1.52	1.44	0.13	0.13
2	3.70	2.91	0.33	0.46
3	4.50	4.49	0.44	0.89
4	6.40	6.66	0.66	1.75
5	6.30	8.47	0.70	2.45
6	5.56	9.65	0.40	2.86
7	6.60	11.47	0.74	3.60
8	7.77	14.06	1.24	4.84
9	7.90	16.00	0.95	5.79
10	7.17	18.56	1.13	6.92
11	6.91	20.64	0.89	7.81
12	6.68	23.36	1.12	8.93
13	6.46	25.27	0.76	9.69
16	10.00	27.25	1.23	10.91
17	7.34	31.44	1.90	12.81
18	6.01	33.26	0.67	13.49
19	5.65	37.15	1.35	14.84
20	5.02	39.13	0.61	15.45
21	4.32	41.76	0.69	16.14
22	4.15	46.26	1.14	17.28
23	3.51	49.11	0.61	17.89
24	3.12	51.02	0.36	18.25
26	2.80	56.32	0.90	19.15
28	2.30	64.06	1.07	20.21
30	1.31	67.83	0.29	20.50
32	1.23	72.30	0.32	20.81
34	1.14	74.58	0.15	20.96
36	1.13	79.24	0.30	21.26
39	1.23	90.19	0.77	22.04
41	0.87	95.45	0.25	22.29
43	0.61	101.70	0.20	22.49
45	0.47	107.75	0.14	22.63
47	0.36	111.33	0.06	22.69
49	0.30	133.14	0.27	22.96
50	0.17	151.85	0.06	23.04

TABLE C.9. contd

WHAT ELEMEN	EFFLUENT PORE VOL.	ELUTED	SUM ELUTED	SAMPLE NO.	EFFLUENT PORE VOL.	ELUTED	SUM ELUTED
ppm Si	ELUTED	mg Si	mg Si	ppm Mg	ELUTED	mg Mg	mg Mg
1	116.0	1.44	9.10	1	0.06	1.44	-1.26
2	167.0	2.91	13.99	2	0.06	2.91	-1.28
3	152.0	4.49	13.55	3	0.06	4.49	-1.38
4	121.0	6.66	14.40	4	0.06	6.66	-1.89
5	93.0	8.47	8.84	5	0.06	8.47	-1.58
6	97.4	9.65	6.09	6	0.06	9.65	-1.03
7	96.3	11.47	9.26	7	0.06	11.47	-1.59
8	90.9	14.06	12.30	8	0.06	14.06	-2.26
9	81.6	16.00	8.09	9	0.06	16.00	-1.69
10	67.6	18.56	8.43	10	0.06	18.56	-2.23
11	58.4	20.64	5.65	11	0.06	20.64	-1.81
12	55.0	23.36	6.81	12	0.06	23.36	-2.37
13	52.9	25.27	4.53	13	0.06	25.27	-1.67
16	41.0	27.25	3.22	16	0.06	27.25	-1.73
17	24.9	31.44	2.60	17	0.06	31.44	-3.66
18	21.1	33.26	0.69	18	0.06	33.26	-1.55
19	22.0	37.15	1.70	19	0.06	37.15	-3.39
20	19.8	39.13	0.59	20	0.06	39.13	-1.73
21	20.2	41.76	0.86	21	0.06	41.76	-2.29
22	18.7	46.26	1.04	22	0.06	46.26	-3.93
23	15.8	49.11	0.14	23	0.06	49.11	-2.49
24	16.9	51.02	0.23	24	0.06	51.02	-1.67
26	15.80	56.32	0.27	26	0.06	56.32	-4.62
28	11.10	64.06	-1.89	28	0.06	64.06	-6.75
30	8.34	67.83	-1.57	30	0.06	67.83	-3.29
32	10.90	72.30	-1.15	32	0.06	72.30	-3.90
34	11.90	74.58	-0.44	34	0.06	74.58	-1.99
36	13.00	79.24	-0.58	36	0.06	79.24	-4.07
39	9.11	90.19	-4.04	39	0.06	90.19	-9.55
41	6.50	95.45	-2.80	41	0.06	95.45	-4.59
43	6.29	101.70	-3.41	43	0.06	101.70	-5.45
45	6.78	107.75	-3.11	45	0.06	107.75	-5.25
47	8.43	111.33	-1.47	47	0.06	111.33	-3.12
49	6.60	133.14	-11.47	49	0.06	133.14	-19.03
50	7.08	151.85	-9.27	50	0.52	151.85	-15.79

TABLE C.9. contd

SAMPLE NO.	EFFLUENT PORE VOL. ppm F	ELUTED ELUTED	ELUTED mg F	SUM ELUTED mg F
1	13.0	1.44	1.13	1.13
2	8.5	2.91	0.74	1.86
3	8.5	4.49	0.79	2.65
4	13.0	6.66	1.70	4.35
5	5.7	8.47	0.59	4.94
6	6.0	9.65	0.41	5.35
7	5.0	11.47	0.51	5.86
8	5.0	14.06	0.73	6.59
9	4.0	16.00	0.42	7.01
10	4.0	18.56	0.56	7.57
11	3.5	20.64	0.39	7.97
12	3.4	23.36	0.49	8.46
13	5.6	25.27	0.61	9.07
16	4.9	27.25	0.55	9.61
17	3.6	31.44	0.81	10.43
18	4.1	33.26	0.41	10.84
19	4.4	37.15	0.95	11.79
20	4.0	39.13	0.43	12.22
21	4.0	41.76	0.58	12.80
22	3.6	46.26	0.87	13.67
23	3.8	49.11	0.59	14.26
24	4.3	51.02	0.45	14.71
26	3.10	56.32	0.86	15.58
28	3.00	64.06	1.21	16.79
30	3.60	67.83	0.73	17.52
32	3.30	72.30	0.78	18.30
34	3.60	74.58	0.44	18.74
36	3.70	79.24	0.93	19.68
39	3.70	90.19	2.19	21.87
41	4.00	95.45	1.15	23.02
43	3.60	101.70	1.21	24.23
45	4.30	107.75	1.44	25.67
47	4.20	111.33	0.83	26.50
49	3.60	133.14	4.23	30.73
50	3.02	151.85	2.95	33.69

SAMPLE NO.	EFFLUENT PORE VOL. ppm NO3	ELUTED ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	70.0	1.44	6.30	6.30
2	13.0	2.91	1.19	7.49
3	12.0	4.49	1.18	8.66
4	7.7	6.66	1.03	9.70
5	11.0	8.47	1.23	10.93
6	8.0	9.65	0.58	11.51
7	10.0	11.47	1.13	12.64
8	5.0	14.06	0.79	13.44
9	5.0	16.00	0.59	14.03
10	4.3	18.56	0.67	14.70
11	3.6	20.64	0.46	15.16
12	3.5	23.36	0.58	15.74
13	5.0	25.27	0.59	16.32
16	3.9	27.25	0.47	16.80
17	1.7	31.44	0.42	17.22
18	2.1	33.26	0.23	17.44
19	2.3	37.15	0.54	17.98
20	2.2	39.13	0.26	18.24
21	2.0	41.76	0.31	18.55
22	1.8	46.26	0.48	19.03
23	2.1	49.11	0.36	19.39
24	2.8	51.02	0.32	19.71
26	2.40	56.32	0.76	20.47
28	2.00	64.06	0.92	21.39
30	4.80	67.83	1.11	22.50
32	4.50	72.30	1.23	23.73
34	7.00	74.58	0.98	24.72
36	7.00	79.24	2.01	26.73
39	6.20	90.19	4.18	30.91
41	7.80	95.45	2.54	33.45
43	6.90	101.70	2.66	36.11
45	6.80	107.75	2.54	38.64
47	19.00	111.33	4.23	42.88
49	0.50	133.14	0.55	43.42
50	4.92	151.85	5.64	49.07

TABLE C.9. contd

SAMPLE NO.	EFFLUENT PORE VOL. ppm H3BO3	ELUTED ELUTED	ELUTED mg H3BO3	SUM ELUTED mg H3BO3
1	18.87	1.44	1.67	1.67
2	6.29	2.91	0.55	2.22
3	5.37	4.49	0.50	2.71
4	3.49	6.66	0.43	3.14
5	2.40	8.47	0.23	3.38
6	2.68	9.65	0.17	3.55
7	2.24	11.47	0.22	3.77
8	1.83	14.06	0.24	4.01
9	1.71	16.00	0.17	4.17
10	1.39	18.56	0.17	4.34
11	1.21	20.64	0.11	4.45
12	1.16	23.36	0.14	4.59
13	1.10	25.27	0.09	4.69
16	1.88	27.25	0.19	4.88
17	1.07	31.44	0.19	5.07
18	1.11	33.26	0.09	5.16
19	1.21	37.15	0.21	5.37
20	1.10	39.13	0.09	5.46
21	1.25	41.76	0.15	5.61
22	1.04	46.26	0.20	5.81
23	1.01	49.11	0.12	5.93
24	1.19	51.02	0.10	6.03
26	0.97	56.32	0.21	6.24
28	0.85	64.06	0.25	6.48
30	0.93	67.83	0.14	6.62
32	1.00	72.30	0.18	6.81
34	1.09	74.58	0.11	6.92
36	1.13	79.24	0.23	7.15
39	0.82	90.19	0.33	7.48
41	0.79	95.45	0.15	7.62
43	0.74	101.70	0.16	7.78
45	0.93	107.75	0.22	8.00
47	1.13	111.33	0.18	8.18
49	0.83	133.14	0.67	8.85
50	0.80	151.85	0.54	9.39

SAMPLE NO.	EFFLUENT PORE VOL. ppm SO4	ELUTED ELUTED	ELUTED mg SO4	SUM ELUTED mg SO4
1	540	1.44	40.92	40.92
2	130	2.91	4.05	44.97
3	140	4.49	5.34	50.31
4	110	6.66	3.26	53.57
5	100	8.47	1.59	55.15
6	117	9.65	2.29	57.44
7	108	11.47	2.51	59.95
8	100	14.06	2.27	62.22
9	110	16.00	2.91	65.13
10	96	18.56	1.60	66.73
11	88	20.64	0.26	67.00
12	88	23.36	0.34	67.34
13	100	25.27	1.67	69.01
16	86	27.25	0.25	69.26
17	86	31.44	0.00	69.26
18	85	33.26	-0.11	69.14
19	98	37.15	2.92	72.06
20	91	39.13	0.62	72.68
21	107	41.76	3.46	76.14
22	91	46.26	1.41	77.55
23	91	49.11	0.89	78.44
24	100	51.02	1.67	80.12
26	91.50	56.32	1.82	81.94
28	83.00	64.06	-1.45	80.49
30	67.00	67.83	0.24	80.72
32	79.00	72.30	-1.96	78.76
34	97.00	74.58	1.57	80.33
36	81.00	79.24	-1.46	78.88
39	82.00	90.19	-2.74	76.13
41	81.00	95.45	-1.65	74.48
43	78.00	101.70	-3.13	71.36
45	82.00	107.75	-1.51	69.84
47	84.00	111.33	-0.45	69.40
49	80.00	133.14	-3.19	66.20
50	76.30	151.85	-3.43	62.77

TABLE C.10. Mass Balance for Flow Through Leach Test on Whole Grout/Sediment with Groundwater (MBCOLT1)

SAMPLE NO.	EFFLUENT PORE VOL. ppm Ca	ELUTED ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca	SAMPLE NO.	EFFLUENT PORE VOL. ppm Na	ELUTED ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	19.1	1.33	-3.32	-3.32	1	1130	1.33	99.55	99.55
2	3.8	2.72	-4.92	-8.24	2	1080	2.72	99.34	198.89
3	3.6	4.15	-5.08	-13.32	3	890	4.15	63.79	282.68
4	3.0	5.89	-6.25	-19.56	4	820	5.89	93.70	376.39
5	2.5	6.92	-3.73	-23.30	5	530	6.92	35.23	411.62
6	2.4	8.01	-3.96	-27.25	6	710	8.01	50.58	462.20
7	1.9	9.67	-6.09	-33.34	7	640	9.67	69.16	531.36
8	1.9	11.94	-8.32	-41.66	8	590	11.94	86.68	618.24
9	1.7	13.74	-6.62	-48.29	9	590	13.74	68.89	687.13
10	1.6	15.78	-7.52	-55.81	10	428	15.78	55.69	742.82
11	1.6	17.41	-6.01	-61.82	11	387	17.41	39.97	782.79
12	1.2	19.68	-8.42	-70.24	12	364	19.68	52.13	834.92
13	1.1	21.39	-6.36	-76.59	13	330	21.39	35.33	870.25
14	1.0	24.16	-10.31	-86.91	14	308	24.16	53.10	923.35
15	1.1	25.35	-4.42	-91.33	15	280	25.35	20.56	943.90
16	1.0	28.83	-12.97	-104.31	16	313	28.83	67.89	1011.80
17	1.0	32.37	-13.20	-117.50	17	239	32.37	51.32	1063.11
18	1.0	34.97	-9.69	-127.19	18	204	34.97	31.53	1094.64
19	0.9	38.56	-13.39	-140.59	19	202	38.56	43.04	1137.68
20	1.0	39.63	-3.99	-144.57	20	171	39.63	10.58	1148.27
22	0.8	42.29	-9.94	-154.52	22	250	42.29	40.54	1188.81
23	0.9	44.70	-8.99	-163.51	23	216	44.70	31.18	1219.99
24	0.9	46.18	-5.52	-169.03	24	202	46.18	17.75	1237.73
26	0.85	50.99	-17.97	-187.00	26	177.00	50.99	49.53	1287.26
28	1.10	57.84	-25.47	-212.48	28	147.00	57.84	56.61	1343.67
30	1.37	61.38	-13.10	-225.58	30	129.00	61.38	24.94	1368.61
32	1.11	66.40	-18.67	-244.24	32	123.00	66.40	33.33	1402.14
34	1.19	72.36	-22.13	-266.37	34	104.00	72.36	31.89	1434.03
36	1.81	77.15	-17.58	-283.96	36	101.00	77.15	24.66	1458.69
39	2.69	89.25	-43.70	-327.65	39	84.20	89.25	48.52	1507.21
41	3.58	94.68	-19.28	-346.93	41	69.60	94.68	16.41	1523.62
43	5.10	102.67	-27.55	-374.48	43	64.10	102.67	21.16	1544.78
45	6.48	111.94	-31.10	-405.58	45	64.30	111.94	24.68	1569.46
47	13.00	123.04	-32.33	-437.91	47	51.80	123.04	20.15	1589.61
49	12.50	149.07	-76.70	-514.61	49	56.50	149.07	55.54	1645.15
50	14.60	169.17	-56.37	-570.98	50	52.90	169.17	37.99	1683.14

TABLE C.10. contd

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K	SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	6.3	1.33	-0.14	-0.14	1	1.52	1.33	0.13	0.13
2	1.9	2.72	-0.56	-0.69	2	7.50	2.72	0.70	0.82
3	1.9	4.15	-0.57	-1.26	3	4.80	4.15	0.46	1.28
4	0.3	5.89	-0.92	-2.18	4	7.50	5.89	0.87	2.15
5	1.6	6.92	-0.43	-2.61	5	9.30	6.92	0.64	2.79
6	2.8	8.01	-0.37	-2.98	6	8.90	8.01	0.65	3.44
7	1.4	9.67	-0.72	-3.70	7	9.94	9.67	1.11	4.55
8	1.9	11.94	-0.91	-4.61	8	10.00	11.94	1.52	6.07
9	1.8	13.74	-0.73	-5.34	9	10.30	13.74	1.24	7.32
10	1.3	15.78	-0.90	-6.24	10	10.60	15.78	1.45	8.77
11	1.3	17.41	-0.72	-6.96	11	10.30	17.41	1.13	9.89
12	1.8	19.68	-0.92	-7.88	12	9.29	19.68	1.41	11.31
13	1.4	21.39	-0.74	-8.62	13	8.41	21.39	0.96	12.27
14	1.3	24.16	-1.22	-9.84	14	8.07	24.16	1.50	13.76
15	0.7	25.35	-0.57	-10.41	15	7.65	25.35	0.61	14.37
16	3.0	28.83	-1.13	-11.55	16	7.77	28.83	1.81	16.18
17	2.6	32.37	-1.25	-12.79	17	6.66	32.37	1.57	17.75
18	2.1	34.97	-1.00	-13.80	18	5.67	34.97	0.98	18.74
19	1.9	38.56	-1.43	-15.23	19	4.45	38.56	1.06	19.79
20	1.8	39.63	-0.43	-15.67	20	4.69	39.63	0.33	20.13
22	1.2	42.29	-1.19	-16.86	22	5.75	42.29	1.02	21.14
23	1.3	44.70	-1.06	-17.92	23	5.84	44.70	0.94	22.08
24	0.9	46.18	-0.69	-18.61	24	5.13	46.18	0.50	22.59
26	2.60	50.99	-1.69	-20.30	26	5.10	50.99	1.63	24.21
28	2.60	57.84	-2.41	-22.72	28	3.90	57.84	1.76	25.98
30	2.50	61.38	-1.27	-23.99	30	2.44	61.38	0.56	26.54
32	3.00	66.40	-1.63	-25.62	32	1.97	66.40	0.64	27.18
34	4.90	72.36	-1.17	-26.79	34	1.68	72.36	0.64	27.81
36	8.70	77.15	0.29	-26.50	36	1.27	77.15	0.38	28.19
39	21.00	89.25	10.82	-15.68	39	0.90	89.25	0.65	28.85
41	27.00	94.68	7.06	-8.62	41	0.67	94.68	0.21	29.05
43	29.00	102.67	11.47	2.86	43	0.52	102.67	0.22	29.28
45	26.00	111.94	11.43	14.29	45	0.38	111.94	0.17	29.45
47	22.00	123.04	10.68	24.96	47	0.21	123.04	0.08	29.53
49	13.00	149.07	9.17	34.13	49	0.10	149.07	0.00	29.53
50	12.00	169.17	5.72	39.85	50	0.17	169.17	0.10	29.63

TABLE C.10. contd

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si	SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	103.0	1.33	7.93	7.93	1	0.06	1.33	-1.26	-1.26
2	150.0	2.72	12.71	20.64	2	0.06	2.72	-1.31	-2.57
3	159.0	4.15	13.95	34.59	3	0.06	4.15	-1.35	-3.92
4	115.0	5.89	11.79	46.38	4	0.06	5.89	-1.64	-5.56
5	103.0	6.92	6.14	52.52	5	0.06	6.92	-0.97	-6.53
6	108.0	8.01	6.87	59.38	6	0.06	8.01	-1.03	-7.56
7	89.4	9.67	8.37	67.75	7	0.06	9.67	-1.57	-9.13
8	85.9	11.94	10.90	78.65	8	0.06	11.94	-2.14	-11.27
9	76.8	13.74	7.54	86.19	9	0.06	13.74	-1.70	-12.97
10	65.5	15.78	6.98	93.16	10	0.06	15.78	-1.93	-14.90
11	56.9	17.41	4.63	97.79	11	0.06	17.41	-1.54	-16.44
12	51.1	19.68	5.55	103.34	12	0.06	19.68	-2.14	-18.58
13	45.4	21.39	3.52	106.86	13	0.06	21.39	-1.61	-20.20
14	41.3	24.16	4.93	111.80	14	0.06	24.16	-2.62	-22.81
15	35.3	25.35	1.64	113.43	15	0.06	25.35	-1.12	-23.94
16	41.9	28.83	6.34	119.78	16	0.06	28.83	-3.29	-27.22
17	28.0	32.37	3.12	122.89	17	0.06	32.37	-3.34	-30.57
18	24.4	34.97	1.66	124.55	18	0.06	34.97	-2.46	-33.02
19	29.7	38.56	3.57	128.12	19	0.06	38.56	-3.39	-36.41
20	33.0	39.63	1.30	129.43	20	0.06	39.63	-1.01	-37.42
22	39.0	42.29	4.32	133.75	22	0.06	42.29	-2.51	-39.93
23	30.3	44.70	2.50	136.25	23	0.06	44.70	-2.28	-42.21
24	28.0	46.18	1.30	137.55	24	0.06	46.18	-1.40	-43.61
26	21.50	50.99	2.12	139.67	26	0.06	50.99	-4.54	-48.15
28	14.30	57.84	-0.32	139.35	28	0.06	57.84	-6.47	-54.62
30	11.90	61.38	-0.74	138.60	30	0.06	61.38	-3.34	-57.96
32	13.40	66.40	-0.54	138.06	32	0.06	66.40	-4.74	-62.70
34	11.10	72.36	-1.57	136.49	34	0.06	72.36	-5.63	-68.33
36	9.95	77.15	-1.64	134.85	36	0.06	77.15	-4.52	-72.85
39	8.65	89.25	-5.20	129.64	39	0.06	89.25	-11.43	-84.28
41	7.19	94.68	-2.87	126.77	41	0.06	94.68	-5.13	-89.41
43	7.31	102.67	-4.16	122.61	43	0.15	102.67	-7.50	-96.90
45	8.05	111.94	-4.36	118.24	45	0.37	111.94	-8.56	-105.46
47	8.53	123.04	-4.86	113.38	47	1.66	123.04	-9.28	-114.74
49	8.50	149.07	-11.46	101.92	49	2.16	149.07	-20.86	-135.62
50	7.08	169.17	-10.78	91.13	50	3.45	169.17	-14.36	-149.98

TABLE C.10. contd

SAMPLE NO.	EFFLUENT PORE VOL. ppm F	ELUTED ELUTED	ELUTED mg F	SUM ELUTED mg F	SAMPLE NO.	EFFLUENT PORE VOL. ppm NO3	ELUTED ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	22.0	1.33	1.94	1.94	1	96.0	1.33	8.64	8.64
2	16.0	2.72	1.46	3.40	2	22.0	2.72	2.06	10.70
3	12.0	4.15	1.11	4.51	3	13.0	4.15	1.25	11.95
4	11.0	5.89	1.24	5.75	4	11.0	5.89	1.28	13.24
5	11.0	6.92	0.73	6.48	5	11.0	6.92	0.76	14.00
6	9.0	8.01	0.63	7.11	6	8.8	8.01	0.64	14.64
7	8.0	9.67	0.84	7.95	7	3.0	9.67	0.33	14.97
8	8.0	11.94	1.15	9.10	8	5.3	11.94	0.80	15.77
9	7.0	13.74	0.79	9.90	9	5.0	13.74	0.60	16.36
10	6.2	15.78	0.79	10.69	10	4.2	15.78	0.57	16.93
11	5.7	17.41	0.57	11.26	11	3.7	17.41	0.40	17.33
12	5.3	19.68	0.74	12.00	12	3.4	19.68	0.51	17.83
13	5.1	21.39	0.53	12.53	13	29.0	21.39	3.35	21.18
14	4.7	24.16	0.79	13.32	14	12.0	24.16	2.23	23.41
15	4.9	25.35	0.35	13.67	15	3.5	25.35	0.27	23.69
16	4.5	28.83	0.94	14.62	16	3.5	28.83	0.80	24.49
17	3.3	32.37	0.67	15.29	17	1.6	32.37	0.36	24.85
18	4.0	34.97	0.62	15.90	18	2.0	34.97	0.33	25.18
19	5.5	38.56	1.22	17.12	19	4.5	38.56	1.07	26.25
20	5.8	39.63	0.38	17.50	20	6.8	39.63	0.49	26.74
22	4.6	42.29	0.74	18.24	22	3.7	42.29	0.65	27.39
23	3.7	44.70	0.52	18.77	23	2.3	44.70	0.36	27.75
24	4.1	46.18	0.36	19.13	24	2.8	46.18	0.27	28.02
26	3.20	50.99	0.88	20.01	26	1.60	50.99	0.49	28.51
28	3.10	57.84	1.21	21.21	28	1.50	57.84	0.65	29.16
30	3.30	61.38	0.67	21.88	30	1.90	61.38	0.43	29.59
32	3.10	66.40	0.88	22.77	32	1.60	66.40	0.51	30.10
34	2.60	72.36	0.85	23.62	34	1.40	72.36	0.52	30.62
36	3.30	77.15	0.91	24.52	36	2.30	77.15	0.71	31.34
39	3.10	89.25	2.13	26.66	39	3.60	89.25	2.87	34.21
41	3.10	94.68	0.96	27.61	41	5.30	94.68	1.91	36.12
43	2.70	102.67	1.19	28.80	43	5.30	102.67	2.81	38.93
45	3.00	111.94	1.57	30.37	45	4.40	111.94	2.70	41.63
47	4.20	123.04	2.78	33.15	47	5.70	123.04	4.21	45.84
49	3.00	149.07	4.41	37.56	49	0.50	149.07	0.71	46.55
50	2.95	169.17	3.34	40.90	50	7.58	169.17	12.91	59.46

TABLE C.10. contd

SAMPLE NO.	EFFLUENT PORE VOL. ppm H3B03	ELUTED ELUTED	ELUTED mg H3B03	SUM ELUTED mg H3B03
1	29.97	1.33	2.67	2.67
2	13.16	2.72	1.21	3.88
3	8.00	4.15	0.74	4.62
4	6.86	5.89	0.77	5.39
5	8.00	6.92	0.53	5.92
6	4.84	8.01	0.33	6.25
7	4.90	9.67	0.51	6.77
8	4.60	11.94	0.66	7.42
9	2.99	13.74	0.32	7.74
10	2.58	15.78	0.31	8.05
11	2.24	17.41	0.21	8.26
12	1.89	19.68	0.24	8.50
13	1.72	21.39	0.16	8.66
14	1.77	24.16	0.27	8.93
15	1.60	25.35	0.10	9.03
16	1.75	28.83	0.33	9.36
17	1.05	32.37	0.17	9.53
18	1.18	34.97	0.15	9.68
19	1.66	38.56	0.32	10.00
20	1.79	39.63	0.11	10.11
22	1.72	42.29	0.25	10.36
23	1.18	44.70	0.14	10.49
24	1.27	46.18	0.09	10.59
26	0.97	50.99	0.21	10.79
28	0.85	57.84	0.24	11.03
30	0.96	61.38	0.15	11.18
32	0.96	66.40	0.21	11.39
34	0.79	72.36	0.18	11.57
36	0.89	77.15	0.18	11.75
39	0.77	89.25	0.35	12.10
41	0.75	94.68	0.15	12.25
43	0.71	102.67	0.20	12.45
45	0.78	111.94	0.28	12.73
47	0.67	123.04	0.25	12.98
49	0.78	149.07	0.78	13.75
50	0.77	169.17	0.59	14.34

SAMPLE NO.	EFFLUENT PORE VOL. ppm S04	ELUTED ELUTED	ELUTED mg S04	SUM ELUTED mg S04
1	880	1.33	71.53	71.53
2	230	2.72	13.56	85.09
3	175	4.15	6.62	93.71
4	160	5.89	8.72	102.44
5	150	6.92	4.47	106.90
6	144	8.01	4.28	111.19
7	137	9.67	5.73	116.92
8	116	11.94	4.61	121.53
9	110	13.74	2.93	124.46
10	102	15.78	2.21	126.67
11	97	17.41	1.21	127.88
12	93	19.68	1.08	128.96
13	97	21.39	1.27	130.24
14	96	24.16	1.88	132.11
15	96	25.35	0.81	132.92
16	98	28.83	2.83	135.75
17	88	32.37	0.48	136.23
18	82	34.97	-0.70	135.52
19	98	38.56	2.92	138.44
20	110	39.63	1.74	140.18
22	106	42.29	3.60	143.78
23	91	44.70	0.82	144.60
24	97	46.18	1.10	145.70
26	86.00	50.99	0.00	145.70
28	88.00	57.84	0.93	146.63
30	86.00	61.38	0.00	146.63
32	79.00	66.40	-2.38	144.25
34	72.00	72.36	-5.65	138.60
36	81.00	77.15	-1.62	136.98
39	79.00	89.25	-5.74	131.24
41	77.00	94.68	-3.31	127.93
43	76.00	102.67	-5.41	122.52
45	80.00	111.94	-3.77	118.75
47	72.00	123.04	-10.53	108.22
49	80.00	149.07	-10.58	97.64
50	76.80	169.17	-9.60	87.64

TABLE C.11. Mass Balance for Flow Through Leach Test on Whole Grout/Sediment with Groundwater (MBCOLC1)

SAMPLE NO.	EFFLUENT ppm Ca	PORE VOL. ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca	SAMPLE NO.	EFFLUENT ppm Na	PORE VOL. ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	10.2	1.78	-5.26	-5.26	1	1120	1.78	125.85	125.85
2	3.0	3.94	-7.39	-12.66	2	940	3.94	127.62	253.47
3	3.1	6.52	-8.81	-21.47	3	940	6.52	152.43	405.90
4	2.4	9.80	-11.35	-32.82	4	610	9.80	123.90	529.80
5	2.0	10.78	-3.42	-36.24	5	530	10.78	31.96	561.75
6	1.9	11.99	-4.23	-40.47	6	540	11.99	40.24	601.99
7	1.7	13.53	-5.40	-45.87	7	524	13.53	49.62	651.61
8	1.8	15.73	-7.70	-53.57	8	470	15.73	63.21	714.82
9	1.6	17.31	-5.55	-59.11	9	490	17.31	47.44	762.26
10	1.4	19.79	-8.75	-67.86	10	362	19.79	53.97	816.23
11	1.3	21.84	-7.24	-75.10	11	327	21.84	39.98	856.20
12	1.2	24.34	-8.84	-83.95	12	297	24.34	43.91	900.11
13	1.1	26.20	-6.60	-90.55	13	300	26.20	33.03	933.14
14	1.0	28.68	-8.82	-99.36	14	282	28.68	41.15	974.29
15	1.3	30.69	-7.10	-106.46	15	284	30.69	33.61	1007.91
16	1.2	33.67	-10.55	-117.01	16	308	33.67	54.45	1062.36
17	1.0	38.00	-15.38	-132.39	17	222	38.00	55.08	1117.44
18	0.9	41.07	-10.93	-143.32	18	168	41.07	28.35	1145.79
19	0.8	45.41	-15.46	-158.77	19	167	45.41	39.79	1185.58
20	0.9	47.79	-8.46	-167.23	20	151	47.79	19.36	1204.94
21	1.1	48.63	-2.98	-170.21	21	151	48.63	6.83	1211.78
22	1.0	49.54	-3.23	-173.44	22	165	49.54	8.23	1220.00
23	1.1	51.04	-5.31	-178.76	23	199	51.04	16.85	1236.86
24	1.5	53.00	-6.90	-185.65	24	226	53.00	25.44	1262.29

TABLE C.11. contd

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K
1	2.4	1.78	-0.62	-0.62
2	0.3	3.94	-1.05	-1.67
3	0.3	6.52	-1.25	-2.92
4	0.3	9.80	-1.59	-4.50
5	0.3	10.78	-0.47	-4.98
6	2.0	11.99	-0.45	-5.43
7	2.6	13.53	-0.52	-5.95
8	1.8	15.73	-0.85	-6.80
9	1.3	17.31	-0.66	-7.46
10	1.8	19.79	-0.96	-8.43
11	1.9	21.84	-0.78	-9.21
12	1.7	24.34	-0.98	-10.19
13	1.0	26.20	-0.82	-11.01
14	0.9	28.68	-1.11	-12.12
15	0.3	30.69	-1.01	-13.13
16	2.5	33.67	-1.02	-14.15
17	2.2	38.00	-1.57	-15.72
18	1.3	41.07	-1.29	-17.01
19	2.4	45.41	-1.51	-18.52
20	1.7	47.79	-0.94	-19.46
21	1.6	48.63	-0.34	-19.79
22	0.9	49.54	-0.41	-20.20
23	2.2	51.04	-0.54	-20.74
24	3.7	53.00	-0.52	-21.26

SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	4.72	1.78	0.53	0.53
2	5.80	3.94	0.79	1.33
3	8.40	6.52	1.38	2.71
4	7.80	9.80	1.63	4.34
5	6.50	10.78	0.40	4.74
6	7.70	11.99	0.59	5.34
7	8.84	13.53	0.87	6.21
8	9.80	15.73	1.38	7.59
9	9.48	17.31	0.96	8.54
10	9.19	19.79	1.46	10.00
11	8.73	21.84	1.14	11.14
12	8.23	24.34	1.31	12.45
13	7.70	26.20	0.91	13.37
14	6.78	28.68	1.07	14.43
15	7.16	30.69	0.92	15.35
16	6.87	33.67	1.30	16.65
17	5.45	38.00	1.50	18.15
18	3.91	41.07	0.76	18.91
19	3.56	45.41	0.97	19.87
20	3.16	47.79	0.47	20.34
21	2.71	48.63	0.14	20.49
22	2.21	49.54	0.12	20.61
23	2.46	51.04	0.23	20.84
24	3.28	53.00	0.40	21.24

TABLE C.11. contd

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si	SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	158.0	1.78	16.44	16.44	1	0.06	1.78	-1.60	-1.60
2	160.0	3.94	20.22	36.66	2	0.06	3.94	-1.94	-3.55
3	135.0	6.52	19.99	56.65	3	0.06	6.52	-2.32	-5.87
4	82.0	9.80	14.19	70.84	4	0.06	9.80	-2.95	-8.82
5	80.0	10.78	4.11	74.95	5	0.06	10.78	-0.88	-9.70
6	87.2	11.99	5.64	80.59	6	0.06	11.99	-1.09	-10.79
7	76.2	13.53	6.09	86.68	7	0.06	13.53	-1.39	-12.18
8	72.0	15.73	8.10	94.78	8	0.06	15.73	-1.98	-14.16
9	65.5	17.31	5.15	99.93	9	0.06	17.31	-1.42	-15.58
10	56.2	19.79	6.60	106.53	10	0.06	19.79	-2.23	-17.81
11	49.8	21.84	4.61	111.13	11	0.06	21.84	-1.65	-19.66
12	46.6	24.34	5.10	116.23	12	0.06	24.34	-2.25	-21.91
13	43.6	26.20	3.43	119.67	13	0.06	26.20	-1.67	-23.58
14	41.8	28.68	4.29	123.96	14	0.06	28.68	-2.23	-25.82
15	39.1	30.69	3.13	127.09	15	0.06	30.69	-1.81	-27.62
16	42.7	33.67	5.33	132.42	16	0.06	33.67	-2.68	-30.31
17	23.8	38.00	2.46	134.88	17	0.06	38.00	-3.90	-34.20
18	18.1	41.07	0.61	135.49	18	0.06	41.07	-2.76	-36.97
19	20.2	45.41	1.46	136.95	19	0.06	45.41	-3.91	-40.87
20	19.3	47.79	0.66	137.61	20	0.06	47.79	-2.14	-43.02
21	20.6	48.63	0.30	137.91	21	0.06	48.63	-0.76	-43.77
22	24.6	49.54	0.56	138.48	22	0.06	49.54	-0.82	-44.59
23	33.6	51.04	1.80	140.28	23	0.06	51.04	-1.35	-45.94
24	36.9	53.00	2.77	143.05	24	0.06	53.00	-1.76	-47.71

TABLE C.11. contd

SAMPLE NO.	EFFLUENT ppm F	PORE VOL. ELUTED	ELUTED mg F	SUM ELUTED mg F	SAMPLE NO.	EFFLUENT ppm NO3	PORE VOL. ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	15.0	1.78	1.67	1.67	1	42.0	1.78	4.82	4.82
2	9.6	3.94	1.27	2.94	2	15.0	3.94	2.08	6.89
3	8.2	6.52	1.28	4.22	3	10.0	6.52	1.65	8.54
4	5.5	9.80	1.06	5.28	4	5.0	9.80	1.04	9.58
5	6.0	10.78	0.35	5.63	5	7.5	10.78	0.47	10.05
6	7.0	11.99	0.51	6.13	6	8.0	11.99	0.62	10.67
7	6.0	13.53	0.55	6.68	7	9.0	13.53	0.88	11.55
8	6.0	15.73	0.78	7.46	8	4.0	15.73	0.55	12.11
9	6.0	17.31	0.56	8.02	9	6.0	17.31	0.60	12.71
10	4.8	19.79	0.69	8.71	10	3.6	19.79	0.56	13.27
11	4.7	21.84	0.56	9.27	11	3.4	21.84	0.44	13.70
12	4.7	24.34	0.68	9.95	12	3.2	24.34	0.50	14.21
13	4.8	26.20	0.52	10.46	13	4.3	26.20	0.50	14.71
14	4.8	28.68	0.69	11.15	14	3.7	28.68	0.58	15.29
15	4.7	30.69	0.55	11.70	15	3.4	30.69	0.43	15.71
16	5.2	33.67	0.90	12.60	16	3.3	33.67	0.62	16.33
17	3.0	38.00	0.70	13.30	17	1.2	38.00	0.31	16.64
18	4.1	41.07	0.71	14.01	18	1.5	41.07	0.26	16.92
19	4.5	45.41	1.12	15.13	19	1.8	45.41	0.48	17.39
20	4.8	47.79	0.66	15.79	20	1.9	47.79	0.28	17.67
21	5.5	48.63	0.27	16.07	21	3.3	48.63	0.17	17.84
22	6.7	49.54	0.36	16.43	22	4.4	49.54	0.25	18.09
23	7.0	51.04	0.63	17.06	23	4.4	51.04	0.42	18.51
24	5.7	53.00	0.66	17.72	24	4.6	53.00	0.57	19.08

TABLE C.11. contd

SAMPLE NO.	EFFLUENT PORE VOL. ppm H3BO3	ELUTED ELUTED	ELUTED mg H3BO3	SUM ELUTED mg H3BO3
1	9.49	1.78	1.05	1.05
2	6.29	3.94	0.83	1.88
3	4.28	6.52	0.66	2.54
4	2.23	9.80	0.40	2.94
5	2.74	10.78	0.15	3.09
6	3.22	11.99	0.23	3.32
7	2.54	13.53	0.22	3.53
8	2.05	15.73	0.24	3.78
9	1.93	17.31	0.16	3.94
10	1.61	19.79	0.20	4.14
11	1.47	21.84	0.15	4.29
12	1.61	24.34	0.21	4.50
13	1.52	26.20	0.14	4.64
14	1.42	28.68	0.17	4.81
15	1.37	30.69	0.13	4.95
16	1.55	33.67	0.23	5.18
17	0.77	38.00	0.12	5.30
18	0.78	41.07	0.09	5.39
19	0.96	45.41	0.17	5.56
20	0.97	47.79	0.10	5.66
21	1.17	48.63	0.05	5.70
22	1.62	49.54	0.08	5.78
23	2.05	51.04	0.17	5.94
24	1.66	53.00	0.17	6.11

SAMPLE NO.	EFFLUENT PORE VOL. ppm SO4	ELUTED ELUTED	ELUTED mg SO4	SUM ELUTED mg SO4
1	380	1.78	33.79	33.79
2	140	3.94	7.53	41.32
3	125	6.52	6.50	47.82
4	100	9.80	2.97	50.78
5	110	10.78	1.52	52.30
6	126	11.99	3.13	55.43
7	109	13.53	2.29	57.72
8	103	15.73	2.41	60.13
9	120	17.31	3.47	63.60
10	93	19.79	1.12	64.72
11	91	21.84	0.66	65.38
12	88	24.34	0.32	65.70
13	94	26.20	0.96	66.67
14	97	28.68	1.76	68.43
15	91	30.69	0.65	69.08
16	98	33.67	2.31	71.38
17	63	38.00	-6.43	64.95
18	78	41.07	-1.59	63.37
19	81	45.41	-1.40	61.97
20	95	47.79	1.38	63.35
21	91	48.63	0.27	63.62
22	115	49.54	1.70	65.33
23	135	51.04	4.75	70.07
24	100	53.00	1.77	71.84

TABLE C.11. contd

SAMPLE NO.	EFFLUENT PORE VOL. ppm IC	ELUTED ELUTED	ELUTED mg IC	SUM ELUTED mg IC	SAMPLE NO.	EFFLUENT PORE VOL. ppm TOC	ELUTED ELUTED	ELUTED mg TOC	SUM ELUTED mg TOC
1	43.4	1.78	1.07	1.07	1	15.8	1.78	1.70	1.70
2	45.3	3.94	1.56	2.63	2	9.4	3.94	1.18	2.88
3	40.7	6.52	1.10	3.73	3	6.8	6.52	0.96	3.34
4	27.1	9.80	-1.49	2.24	4	3.7	9.80	0.57	4.41
5	54.1	10.78	1.26	3.50	5	6.5	10.78	0.35	4.76
6	23.0	11.99	-0.87	2.64	6	4.3	11.99	0.26	5.01
7	23.1	13.53	-1.09	1.54	7	3.0	13.53	0.20	5.21
8	31.4	15.73	-0.38	1.16	8	2.5	15.73	0.21	5.42
9	28.3	17.31	-0.60	0.57	9	3.0	17.31	0.20	5.62
10	33.6	19.79	-0.07	0.49	10	2.4	19.79	0.23	5.85
11	26.4	21.84	-1.02	-0.53	11	2.3	21.84	0.17	6.02
12	25.6	24.34	-1.37	-1.90	12	2.5	24.34	0.24	6.26
13	31.7	26.20	-0.29	-2.19	13	3.0	26.20	0.24	6.50
14	27.0	28.68	-1.14	-3.32	14	2.4	28.68	0.22	6.71
15	27.7	30.69	-0.83	-4.15	15	2.5	30.69	0.19	6.90
16	35.1	33.67	0.19	-3.96	16	2.4	33.67	0.27	7.17
17	26.1	38.00	-2.23	-6.19	17	1.3	38.00	0.09	7.26
18	45.4	41.07	2.24	-3.95	18	1.2	41.07	0.05	7.31
19	21.5	45.41	-3.53	-7.46	19	1.3	45.41	0.08	7.39
20	21.7	47.79	-1.91	-9.39	20	1.4	47.79	0.06	7.45
21	33.9	48.63	-0.01	-9.41	21	2.5	48.63	0.08	7.53
22	28.2	49.54	-0.35	-9.75	22	3.4	49.54	0.14	7.67
23	44.5	51.04	1.01	-8.75	23	3.3	51.04	0.23	7.90
24	62.2	53.00	3.56	-5.19	24	2.9	53.00	0.24	8.14

TABLE C.12. Mass Balance for Flow Through Leach Test on Whole Grout with Groundwater (MBCOLLT3)

SAMPLE NO.	EFFLUENT ppm Ca	PORE VOL. ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca
1	1.6	1.06	-5.42	-5.42
2	1.3	1.70	-3.29	-8.72
3	3.05	3.18	-7.37	-16.08
4	3.92	6.60	-16.75	-32.83
5	4.8	9.94	-16.07	-48.90
6	1.3	12.36	-12.45	-61.35
7	1.4	13.93	-8.06	-69.41
9	1.4	18.95	-25.78	-95.19
11	2.0	24.89	-30.16	-125.36
13	1.1	30.42	-28.54	-153.90
15	1.8	35.89	-27.86	-181.77
17	1.1	38.91	-15.59	-197.36
19	0.9	42.29	-17.51	-214.87
22	1.7	47.29	-25.54	-240.41
24	0.8	48.65	-7.06	-247.46
26	1.7	54.58	-30.26	-277.72
28	4.7	64.77	-49.17	-326.89
30	6.6	73.33	-39.73	-366.62
32	17.4	89.62	-59.12	-425.73
33	26.40	104.20	-40.58	-466.31

SAMPLE NO.	EFFLUENT ppm Na	PORE VOL. ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	827	1.06	79.93	79.93
2	1380	1.70	81.53	161.46
3	1420	3.18	194.11	355.58
4	1440	6.60	454.99	810.57
5	1460	9.94	450.63	1261.20
6	469	12.36	101.02	1362.22
7	275	13.93	36.90	1399.12
9	241	18.95	101.95	1501.07
11	324	24.89	166.99	1668.05
13	132	30.42	55.63	1723.69
15	121	35.89	49.37	1773.06
17	155	38.91	36.91	1809.97
19	132	42.29	34.00	1843.97
22	175	47.29	70.52	1914.49
24	165	48.65	17.90	1932.39
26	123	54.58	54.64	1987.03
28	79	64.77	51.35	2038.38
30	61	73.33	29.13	2067.52
32	46	89.62	32.16	2099.68
33	40.10	104.20	20.70	2120.38

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K
1	38.0	1.06	3.01	3.01
2	61.0	1.70	3.20	6.21
3	62.50	3.18	7.61	13.82
4	63.25	6.60	17.83	31.65
5	64.0	9.94	17.65	49.30
6	24.0	12.36	3.69	52.99
7	15.4	13.93	1.27	54.26
9	15.2	18.95	3.49	57.75
11	18.2	24.89	5.81	63.56
13	9.9	30.42	1.09	64.65
15	9.9	35.89	1.08	65.73
17	10.0	38.91	0.62	66.35
19	9.8	42.29	0.64	66.99
22	14.0	47.29	2.91	69.90
24	13.0	48.65	0.66	70.57
26	12.0	54.58	2.34	72.91
28	10.0	64.77	2.11	75.02
30	8.4	73.33	0.48	75.50
32	8.4	89.62	0.92	76.42
33	7.00	104.20	-1.10	75.32

SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	12.70	1.06	1.26	1.26
2	22.00	1.70	1.32	2.57
3	12.17	3.18	1.68	4.25
4	7.25	6.60	2.30	6.55
5	2.34	9.94	0.70	7.26
6	6.09	12.36	1.36	8.62
7	3.38	13.93	0.48	9.10
9	2.88	18.95	1.31	10.41
11	4.23	24.89	2.31	12.72
13	0.32	30.42	0.11	12.83
15	0.06	35.89	-0.02	12.81
17	1.01	38.91	0.26	13.07
19	0.86	42.29	0.24	13.31
22	1.35	47.29	0.59	13.90
24	1.22	48.65	0.14	14.04
26	0.52	54.58	0.23	14.28
28	0.03	64.77	-0.07	14.21
30	0.03	73.33	-0.06	14.15
32	0.03	89.62	-0.11	14.05
33	0.03	104.20	-0.10	13.95

TABLE C.12. contd

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si
1	13.2	1.06	-0.18	-0.18
2	16.7	1.70	0.10	-0.08
3	16.35	3.18	0.19	0.11
4	16.17	6.60	0.38	0.49
5	16.0	9.94	0.31	0.80
6	10.4	12.36	-1.05	-0.25
7	12.2	13.93	-0.41	-0.66
9	11.3	18.95	-1.75	-2.41
11	12.9	24.89	-1.17	-3.58
13	9.7	30.42	-2.76	-6.34
15	9.6	35.89	-2.77	-9.11
17	12.4	38.91	-0.74	-9.85
19	10.0	42.29	-1.59	-11.44
22	12.6	47.29	-1.13	-12.57
24	11.4	48.65	-0.46	-13.03
26	9.3	54.58	-3.17	-16.19
28	8.5	64.77	-6.24	-22.43
30	9.3	73.33	-4.59	-27.02
32	13.4	89.62	-2.45	-29.47
33	14.90	104.20	-0.14	-29.61

SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	0.06	1.06	-1.39	-1.39
2	0.06	1.70	-0.84	-2.23
3	0.06	3.18	-1.94	-4.17
4	0.06	6.60	-4.48	-8.65
5	0.06	9.94	-4.38	-13.03
6	0.06	12.36	-3.17	-16.20
7	0.06	13.93	-2.06	-18.26
9	0.06	18.95	-6.56	-24.84
11	0.06	24.89	-7.79	-32.62
13	0.06	30.42	-7.25	-39.87
15	0.06	35.89	-7.17	-47.04
17	0.06	38.91	-3.96	-51.00
19	0.06	42.29	-4.43	-55.43
22	0.06	47.29	-6.55	-61.98
24	0.06	48.65	-1.78	-63.76
26	0.06	54.58	-7.77	-71.53
28	0.06	64.77	-13.36	-84.89
30	3.45	73.33	-8.49	-93.38
32	10.70	89.62	-5.05	-98.44
33	13.40	104.20	-0.82	-99.26

SAMPLE NO.	EFFLUENT ppm F	PORE VOL. ELUTED	ELUTED mg F	SUM ELUTED mg F
1	12.7	1.06	1.22	1.22
2	21.0	1.70	1.23	2.45
3	19.00	3.18	2.44	4.88
4	16.50	6.60	5.14	10.03
5	15.0	9.94	4.55	14.58
6	6.0	12.36	1.25	15.83
7	6.2	13.93	0.84	16.68
9	5.6	18.95	2.41	19.08
11	7.0	24.89	3.63	22.71
13	5.0	30.42	2.34	25.05
15	5.2	35.89	2.42	27.47
17	6.0	38.91	1.56	29.03
19	5.3	42.29	1.53	30.56
22	6.3	47.29	2.73	33.28
24	6.3	48.65	0.74	34.02
26	5.1	54.58	2.56	36.59
28	5.3	64.77	4.60	41.19
30	5.6	73.33	4.10	45.29
32	4.0	89.62	5.36	50.65
33	2.57	104.20	2.84	53.49

SAMPLE NO.	EFFLUENT ppm NO3	PORE VOL. ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	13.0	1.06	1.29	1.29
2	22.0	1.70	1.32	2.60
3	23.00	3.18	3.19	5.79
4	23.50	6.60	7.52	13.31
5	24.0	9.94	7.51	20.82
6	5.9	12.36	1.32	22.14
7	3.9	13.93	0.56	22.70
9	3.0	18.95	1.37	24.07
11	4.7	24.89	2.57	26.64
13	1.6	30.42	0.76	27.42
15	1.5	35.89	0.72	28.14
17	2.7	38.91	0.74	28.88
19	2.0	42.29	0.60	29.48
22	3.5	47.29	1.60	31.08
24	3.2	48.65	0.40	31.47
26	2.3	54.58	1.23	32.70
28	1.4	64.77	1.25	33.95
30	1.2	73.33	0.89	34.83
32	1.4	89.62	1.99	36.82
33	0.50	104.20	0.55	37.37

TABLE C.12. contd

SAMPLE NO. EFFLUENT PORE VOL. ELUTED SUM ELUTED
ppm H3BO3 ELUTED mg H3BO3 mg H3BO3

1	8.24	1.06	0.79	0.79
2	7.03	1.70	0.40	1.19
3	8.09	3.18	1.08	2.27
4	8.62	6.60	2.66	4.93
5	9.15	9.94	2.77	7.70
6	2.53	12.36	0.50	8.20
7	1.72	13.93	0.20	8.40
9	1.30	18.95	0.45	8.85
11	1.80	24.89	0.82	9.67
13	0.76	30.42	0.22	9.89
15	0.79	35.89	0.23	10.12
17	1.19	38.91	0.24	10.36
19	0.82	42.29	0.15	10.51
22	1.11	47.29	0.36	10.87
24	0.97	48.65	0.08	10.95
26	0.73	54.58	0.22	11.17
28	0.67	64.77	0.32	11.49
30	0.82	73.33	0.39	11.87
32	0.67	89.62	0.51	12.38
33	0.63	104.20	0.40	12.78

SAMPLE NO. EFFLUENT PORE VOL. ELUTED SUM ELUTED
ppm SO4 ELUTED mg SO4 mg SO4

1	102	1.06	1.59	1.59
2	215	1.70	7.76	9.36
3	212	3.18	17.53	26.89
4	211	6.60	40.19	67.08
5	210	9.94	38.94	106.02
6	109	12.36	5.23	111.26
7	99	13.93	1.92	113.17
9	88	18.95	0.94	114.12
11	99	24.89	7.26	121.38
13	77	30.42	-4.68	116.70
15	82	35.89	-2.06	114.64
17	83	38.91	-0.85	113.79
19	81	42.29	-1.59	112.20
22	89	47.29	1.41	113.61
24	87	48.65	0.13	113.74
26	81	54.58	-2.79	110.95
28	76	64.77	-9.58	101.37
30	74	73.33	-9.66	91.71
32	78	89.62	-12.25	79.46
33	74.60	104.20	-15.63	63.83

SAMPLE NO. EFFLUENT PORE VOL. ELUTED SUM ELUTED
ppm IC ELUTED mg IC mg IC

1	43.4	1.06	0.93	0.93
2	45.3	1.70	0.67	1.60
3	40.7	3.18	0.92	2.52
4	27.1	6.60	-2.26	0.26
5	54.1	9.94	6.28	6.53
6	23.0	12.36	-2.52	4.01
7	23.1	13.93	-1.63	2.39
9	31.4	18.95	-1.27	1.12
11	28.3	24.89	-3.26	-2.14
13	33.6	30.42	-0.24	-2.38
15	26.4	35.89	-3.97	-6.35
17	25.6	38.91	-2.40	-8.76
19	31.7	42.29	-0.77	-9.52
22	27.0	47.29	-3.34	-12.86
24	27.7	48.65	-0.81	-13.67
26	35.1	54.58	0.56	-13.12
28	26.1	64.77	-7.65	-20.77
30	45.4	73.33	9.08	-11.69
32	21.5	89.62	-19.27	-30.96
33	21.7	104.20	-17.07	-48.03

SAMPLE NO. EFFLUENT PORE VOL. ELUTED SUM ELUTED
ppm TOC ELUTED mg TOC mg TOC

1	15.8	1.06	1.47	1.47
2	9.4	1.70	0.51	1.98
3	6.8	3.18	0.80	2.79
4	3.7	6.60	0.86	3.65
5	6.5	9.94	1.73	5.38
6	4.3	12.36	0.74	6.12
7	3.0	13.93	0.30	6.42
9	2.5	18.95	0.69	7.11
11	3.0	24.89	1.10	8.21
13	2.4	30.42	0.73	8.94
15	2.3	35.89	0.67	9.61
17	2.5	38.91	0.42	10.03
19	3.0	42.29	0.64	10.67
22	2.4	47.29	0.63	11.30
24	2.5	48.65	0.19	11.49
26	2.4	54.58	0.78	12.27
28	1.3	64.77	0.31	12.58
30	1.2	73.33	0.19	12.77
32	1.3	89.62	0.46	13.23
33	1.4	104.20	0.51	13.73

TABLE C.13. Mass Balance for Flow Through Leach Test on Whole Grout with Groundwater (MBCOLLT2)

SAMPLE NO.	EFFLUENT PORE VOL. ppm Ca	ELUTED ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca	SAMPLE NO.	EFFLUENT PORE VOL. ppm Na	ELUTED ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	3.2	1.02	-5.34	-5.34	1	1800	1.02	179.60	179.60
2	3.0	1.88	-4.52	-9.86	2	1200	1.88	106.24	279.84
3	3.0	2.65	-4.05	-13.92	3	910	2.65	67.60	347.44
4	3.0	3.05	-2.10	-16.02	4	760	3.05	29.16	376.61
5	1.6	4.69	-8.85	-24.87	5	570	4.69	88.66	465.27
6	2.3	5.89	-6.39	-31.26	6	400	5.89	44.64	509.91
7	1.6	6.66	-4.15	-35.41	7	278	6.66	19.33	529.24
8	1.7	7.83	-6.30	-41.72	8	317	7.83	33.89	563.13
9	1.3	9.82	-10.81	-52.52	9	212	9.82	36.92	600.04
10	1.7	10.24	-2.26	-54.79	10	509	10.24	20.17	620.21
11	0.8	12.09	-10.14	-64.92	11	391	12.09	67.17	687.38
12	1.2	14.72	-14.29	-79.22	12	243	14.72	56.88	744.25
13	1.2	16.25	-8.32	-87.54	13	137	16.25	17.00	761.25
14	0.7	17.18	-5.10	-92.64	14	235	17.18	19.37	780.63
15	1.10	17.38	-1.09	-93.73	15	241	17.38	4.29	784.91
16	1.5	20.06	-14.50	-108.23	16	248	20.06	59.29	844.20
17	1.4	23.52	-18.73	-126.96	17	120	23.52	32.61	876.80
18	1.2	25.71	-11.91	-138.87	18	121	25.71	20.86	897.66
19	1.0	26.54	-4.53	-143.40	19	160	26.54	11.12	908.78
21	1.9	31.79	-28.19	-171.59	21	110	31.79	44.27	953.04
23	2.4	37.23	-28.95	-200.54	23	91	37.23	35.62	988.66
25	2.3	41.30	-21.67	-222.21	25	88	41.30	25.60	1014.26
27	2.1	45.59	-22.94	-245.15	27	87	45.59	26.43	1040.69
29	1.5	48.17	-13.94	-259.08	29	115	48.17	23.03	1063.72
31	1.36	51.77	-19.51	-278.60	31	102	51.77	27.50	1091.22
34	3.35	59.13	-38.44	-317.04	34	93	59.13	49.87	1141.08
36	4.17	62.75	-18.61	-335.65	36	79	62.75	19.46	1160.55
38	3.17	65.77	-15.83	-351.48	38	88	65.77	18.61	1179.36
40	3.74	71.31	-28.72	-380.20	40	93	71.31	37.43	1216.79
42	6.82	77.55	-30.44	-410.64	42	65	77.55	24.64	1241.42
44	6.55	93.28	-77.16	-487.80	44	66	93.28	64.60	1306.02
45	10.50	112.87	-88.42	-576.22	45	56	112.87	60.44	1366.46

TABLE C.13. contd

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K	SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	70.0	1.02	6.29	6.29	1	17.00	1.02	1.71	1.71
2	51.0	1.88	3.69	9.98	2	13.00	1.88	1.10	2.81
3	42.0	2.65	2.61	12.59	3	12.00	2.65	0.91	3.72
4	34.0	3.05	1.04	13.63	4	8.85	3.05	0.35	4.07
5	28.0	4.69	3.29	16.92	5	5.49	4.69	0.88	4.94
6	21.0	5.89	1.57	18.49	6	4.16	5.89	0.48	5.43
7	18.0	6.66	0.78	19.27	7	4.75	6.66	0.36	5.78
8	19.0	7.83	1.30	20.57	8	2.50	7.83	0.28	6.06
9	15.0	9.82	1.42	21.99	9	7.29	9.82	1.42	7.48
10	24.4	10.24	0.69	22.68	10	5.97	10.24	0.24	7.72
11	21.0	12.09	2.42	25.10	11	3.17	12.09	0.56	8.29
12	15.0	14.72	1.88	26.98	12	0.35	14.72	0.06	8.35
13	11.0	16.25	0.49	27.47	13	2.42	16.25	0.35	8.71
14	14.0	17.18	0.57	28.04	14	2.42	17.18	0.21	8.92
15	14.50	17.38	0.13	28.17	15	2.43	17.38	0.05	8.97
16	15.0	20.06	1.91	30.09	16	0.06	20.06	-0.01	8.95
17	9.7	23.52	0.65	30.74	17	0.17	23.52	0.02	8.98
18	10.6	25.71	0.61	31.35	18	0.73	25.71	0.14	9.11
19	11.4	26.54	0.30	31.64	19	0.14	26.54	0.00	9.12
21	10.5	31.79	1.41	33.05	21	0.03	31.79	-0.04	9.08
23	9.5	37.23	0.92	33.97	23	0.03	37.23	-0.04	9.04
25	8.3	41.30	0.20	34.17	25	0.03	41.30	-0.03	9.02
27	8.4	45.59	0.26	34.42	27	0.15	45.59	0.02	9.04
29	8.8	48.17	0.26	34.68	29	0.18	48.17	0.02	9.06
31	9.00	51.77	0.43	35.11	31	0.07	51.77	-0.01	9.05
34	9.20	59.13	1.02	36.13	34	0.03	59.13	-0.05	8.99
36	8.80	62.75	0.36	36.49	36	0.07	62.75	-0.01	8.98
38	8.60	65.77	0.24	36.73	38	0.16	65.77	0.02	9.00
40	9.20	71.31	0.77	37.50	40	0.11	71.31	0.00	9.00
42	9.00	77.55	0.74	38.24	42	0.06	77.55	-0.03	8.98
44	9.20	93.28	2.18	40.43	44	0.03	93.28	-0.11	8.87
45	8.10	112.87	0.58	41.01	45	0.03	112.87	-0.14	8.73

TABLE C.13. contd

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si	SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	14.5	1.02	-0.05	-0.05	1	0.06	1.02	-1.41	-1.41
2	12.0	1.88	-0.26	-0.31	2	0.06	1.88	-1.19	-2.60
3	10.8	2.65	-0.32	-0.63	3	0.08	2.65	-1.06	-3.66
4	10.0	3.05	-0.20	-0.83	4	0.06	3.05	-0.55	-4.22
5	10.5	4.69	-0.73	-1.56	5	0.06	4.69	-2.27	-6.48
6	9.7	5.89	-0.63	-2.19	6	0.06	5.89	-1.66	-8.14
7	10.3	6.66	-0.36	-2.55	7	0.06	6.66	-1.06	-9.21
8	10.4	7.83	-0.53	-3.08	8	0.06	7.83	-1.62	-10.83
9	10.2	9.82	-0.95	-4.03	9	0.06	9.82	-2.75	-13.58
10	11.4	10.24	-0.15	-4.18	10	0.06	10.24	-0.58	-14.16
11	11.0	12.09	-0.73	-4.91	11	0.06	12.09	-2.56	-16.72
12	11.0	14.72	-1.04	-5.96	12	0.06	14.72	-3.64	-20.35
13	9.5	16.25	-0.83	-6.79	13	0.06	16.25	-2.12	-22.47
14	12.8	17.18	-0.20	-6.99	14	0.06	17.18	-1.29	-23.76
15	12.30	17.38	-0.05	-7.04	15	0.06	17.38	-0.28	-24.03
16	11.9	20.06	-0.82	-7.87	16	0.06	20.06	-3.71	-27.74
17	9.9	23.52	-1.76	-9.63	17	0.28	23.52	-4.71	-32.45
18	10.6	25.71	-0.96	-10.59	18	0.17	25.71	-3.00	-35.45
19	13.5	26.54	-0.12	-10.71	19	0.06	26.54	-1.15	-36.60
21	9.8	31.79	-2.69	-13.40	21	0.41	31.79	-7.08	-43.68
23	8.9	37.23	-3.31	-16.71	23	0.70	37.23	-7.18	-50.86
25	9.5	41.30	-2.23	-18.94	25	0.54	41.30	-5.43	-56.29
27	9.1	45.59	-2.51	-21.45	27	0.39	45.59	-5.79	-62.08
29	12.1	48.17	-0.74	-22.19	29	0.06	48.17	-3.57	-65.65
31	10.50	51.77	-1.61	-23.80	31	0.22	51.77	-4.92	-70.57
34	9.53	59.13	-3.99	-27.79	34	0.65	59.13	-9.75	-80.32
36	8.62	62.75	-2.29	-30.08	36	1.22	62.75	-4.59	-84.91
38	10.50	65.77	-1.35	-31.43	38	0.88	65.77	-3.93	-88.84
40	10.40	71.31	-2.53	-33.96	40	1.24	71.31	-7.01	-95.85
42	7.51	77.55	-4.64	-38.60	42	1.63	77.55	-7.66	-103.51
44	8.19	93.28	-10.63	-49.22	44	2.01	93.28	-18.71	-122.22
45	8.34	112.67	-12.94	-62.16	45	3.31	112.67	-20.77	-142.99

TABLE C.13. contd

SAMPLE NO.	EFFLUENT ppm F	PORE VOL. ELUTED	ELUTED mg F	SUM ELUTED mg F
1	14.0	1.02	1.37	1.37
2	11.0	1.88	0.90	2.26
3	9.0	2.65	0.65	2.91
4	9.0	3.05	0.34	3.25
5	7.0	4.69	1.06	4.31
6	6.0	5.89	0.65	4.96
7	5.8	6.66	0.40	5.37
8	5.8	7.83	0.62	5.98
9	5.2	9.82	0.93	6.91
10	6.1	10.24	0.23	7.14
11	7.2	12.09	1.23	8.37
12	5.9	14.72	1.41	9.78
13	5.6	16.25	0.77	10.55
14	5.1	17.18	0.42	10.98
15	5.50	17.38	0.10	11.08
16	5.9	20.06	1.44	12.51
17	4.8	23.52	1.48	13.99
18	5.3	25.71	1.04	15.03
19	6.6	26.54	0.50	15.53
21	5.2	31.79	2.45	17.98
23	5.4	37.23	2.64	20.63
25	5.5	41.30	2.02	22.64
27	5.0	45.59	1.92	24.56
29	6.1	48.17	1.43	25.99
31	5.20	51.77	1.68	27.67
34	6.30	59.13	4.23	31.91
36	6.50	62.75	2.15	34.06
38	6.80	65.77	1.89	35.95
40	6.80	71.31	3.46	39.41
42	6.30	77.55	3.59	43.00
44	6.60	93.28	9.52	52.52
45	6.00	112.87	10.69	63.21

SAMPLE NO.	EFFLUENT ppm NO3	PORE VOL. ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	26.0	1.02	2.62	2.62
2	18.0	1.88	1.53	4.15
3	13.0	2.65	0.99	5.13
4	18.0	3.05	0.71	5.84
5	7.0	4.69	1.12	6.97
6	4.0	5.89	0.46	7.43
7	3.3	6.66	0.24	7.67
8	4.1	7.83	0.46	8.14
9	2.4	9.82	0.45	8.59
10	6.8	10.24	0.28	8.87
11	5.6	12.09	1.01	9.88
12	3.3	14.72	0.83	10.72
13	1.5	16.25	0.21	10.93
14	3.7	17.18	0.33	11.26
15	4.00	17.38	0.08	11.34
16	4.3	20.06	1.12	12.45
17	1.4	23.52	0.45	12.90
18	1.6	25.71	0.33	13.23
19	2.5	26.54	0.20	13.42
21	1.6	31.79	0.78	14.21
23	1.2	37.23	0.59	14.80
25	1.2	41.30	0.44	15.24
27	1.3	45.59	0.51	15.75
29	2.0	48.17	0.49	16.24
31	1.60	51.77	0.54	16.78
34	2.20	59.13	1.53	18.31
36	1.50	62.75	0.50	18.81
38	1.70	65.77	0.48	19.29
40	2.40	71.31	1.26	20.56
42	1.10	77.55	0.62	21.17
44	1.40	93.28	2.03	23.20
45	0.50	112.87	0.78	23.98

TABLE C.13. contd

SAMPLE NO.	EFFLUENT PORE VOL. ppm H3BO3	ELUTED ELUTED	ELUTED mg H3BO3	SUM ELUTED mg H3BO3
1	5.72	1.02	0.54	0.54
2	6.86	1.88	0.56	1.10
3	5.15	2.65	0.37	1.47
4	4.46	3.05	0.16	1.63
5	2.79	4.69	0.40	2.03
6	1.62	5.89	0.15	2.18
7	1.49	6.66	0.09	2.27
8	1.62	7.83	0.15	2.42
9	0.93	9.82	0.12	2.54
10	2.68	10.24	0.10	2.63
11	2.00	12.09	0.30	2.94
12	1.38	14.72	0.27	3.21
13	0.72	16.25	0.06	3.27
14	1.52	17.18	0.11	3.38
15	1.53	17.38	0.02	3.40
16	1.55	20.06	0.32	3.72
17	0.83	23.52	0.17	3.89
18	0.93	25.71	0.13	4.02
19	1.24	26.54	0.07	4.09
21	0.80	31.79	0.24	4.33
23	0.85	37.23	0.28	4.61
25	0.89	41.30	0.22	4.83
27	0.83	45.59	0.21	5.04
29	1.15	48.17	0.21	5.24
31	0.94	51.77	0.21	5.46
34	0.78	59.13	0.32	5.78
36	0.79	62.75	0.16	5.94
38	0.98	65.77	0.19	6.13
40	1.02	71.31	0.37	6.51
42	0.79	77.55	0.28	6.78
44	0.98	93.28	1.00	7.78
45	0.97	112.87	1.22	9.01

SAMPLE NO.	EFFLUENT PORE VOL. ppm SO4	ELUTED ELUTED	ELUTED mg SO4	SUM ELUTED mg SO4
1	240	1.02	15.58	15.58
2	180	1.88	8.02	23.60
3	144	2.65	4.43	28.03
4	120	3.05	1.35	29.38
5	110	4.69	3.90	33.29
6	100	5.89	1.67	34.95
7	120	6.66	2.60	37.55
8	90	7.83	-0.46	38.01
9	80	9.82	-1.18	36.83
10	114	10.24	1.17	38.00
11	119	12.09	6.06	44.05
12	92	14.72	1.57	45.62
13	80	16.25	-0.91	44.71
14	98	17.18	1.11	45.81
15	105	17.38	0.38	46.19
16	112	20.06	6.91	53.10
17	76	23.52	-3.43	49.67
18	80	25.71	-1.30	48.37
19	84	26.54	-0.16	48.20
21	84	31.79	-1.04	47.16
23	82	37.23	-2.16	45.00
25	78	41.30	-3.23	41.77
27	74	45.59	-5.11	36.67
29	75	48.17	-2.82	33.85
31	73	51.77	-4.64	29.21
34	71	59.13	-10.95	18.26
36	78	62.75	-2.87	15.38
38	79	65.77	-2.10	13.29
40	80	71.31	-3.30	9.99
42	74	77.55	-7.43	2.56
44	82	93.28	-6.24	-3.68
45	79	112.87	-13.99	-17.67

TABLE C.13. contd

SAMPLE NO.	EFFLUENT ppm IC	PORE VOL. ELUTED	ELUTED mg IC	SUM ELUTED mg IC
1	41.1	1.0	0.71	0.71
2	49.9	1.9	1.35	2.06
3	28.7	2.7	-0.41	1.65
4	19.3	3.1	-0.59	1.06
5	30.1	4.7	-0.64	0.42
6	20.9	5.9	-1.57	-1.16
7	24.3	6.7	-0.75	-1.90
8	24.3	7.8	-1.14	-3.04
9	34.9	9.8	0.16	-2.89
10	49.2	10.2	0.63	-2.26
11	63.5	12.1	5.40	3.14
12	16.3	14.7	-4.65	-1.51
13	17.0	16.3	-2.59	-4.10
14	42.6	17.2	0.78	-3.32
15	17.3	17.4	-0.33	-3.65
16	16.2	20.1	-4.77	-8.42
17	15.6	23.5	-6.36	-14.78
18	15.3	25.7	-4.08	-18.87
19	15.2	26.5	-1.56	-20.42
21	15.1	31.8	-9.90	-30.32
23	15.0	37.2	-10.33	-40.65
25	18.8	41.3	-6.16	-46.81
27	12.0	45.6	-9.40	-56.21
29	38.5	48.2	1.12	-55.09
31	21.90	51.8	-4.36	-59.45
34	24.74	59.1	-6.83	-66.28
36	17.47	62.8	-5.97	-72.26
38	20.90	65.8	-3.95	-76.21
40	21.26	71.3	-7.06	-83.27
42	14.32	77.6	-12.24	-95.51
44	11.37	93.3	-35.47	-130.98
45	12.84	112.9	-41.32	-172.29

SAMPLE NO.	EFFLUENT ppm TOC	PORE VOL. ELUTED	ELUTED mg TOC	SUM ELUTED mg TOC
1	13.6	1.02	1.28	1.28
2	9.5	1.88	0.73	2.00
3	8.4	2.65	0.57	2.57
4	6.9	3.05	0.23	2.81
5	4.3	4.69	0.54	3.34
6	3.5	5.89	0.30	3.64
7	3.7	6.66	0.20	3.84
8	3.5	7.83	0.29	4.13
9	2.9	9.82	0.37	4.51
10	3.7	10.24	0.11	4.62
11	4.5	12.09	0.64	5.26
12	19.1	14.72	4.72	9.98
13	19.9	16.25	2.86	12.85
14	46.7	17.16	4.22	17.06
15	20.9	17.38	0.39	17.46
16	18.0	20.06	4.52	21.98
17	16.0	23.52	5.15	27.12
18	14.0	25.71	2.82	29.95
19	12.0	26.54	0.91	30.85
21	10.0	31.79	4.69	35.54
23	2.3	37.23	0.70	36.24
25	2.6	41.30	0.63	36.87
27	2.2	45.59	0.52	37.39
29	2.0	48.17	0.25	37.64
31	3.52	51.77	0.90	38.54
34	5.68	59.13	3.42	41.96
36	4.52	62.75	1.26	43.22
38	3.55	65.77	0.76	43.99
40	3.08	71.31	1.14	45.13
42	0.82	77.55	-0.11	45.02
44	1.06	93.28	0.09	45.11
45	1.00	112.87	0.00	45.11

TABLE C.14. Mass Balance for Flow Through Leach Test on Whole Grout with Groundwater (MBCOLLT1)

SAMPLE NO	EFFLUENT ppm Ca	PORE VOL. ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca
1	3.3	0.31	-1.70	-1.70
2	4.5	0.51	-1.07	-2.77
3	4.3	1.37	-4.62	-7.39
4	1.2	1.98	-3.47	-10.86
5	1.2	3.16	-6.72	-17.58
6	1.8	4.12	-5.40	-22.98
7	0.9	4.83	-4.07	-27.05
8	1.7	5.67	-4.74	-31.79
9	0.6	6.37	-4.03	-35.82
10	1.2	8.13	-10.02	-45.84
11	0.9	9.76	-9.34	-55.17
12	1.2	11.70	-11.04	-66.22
13	0.7	13.61	-10.97	-77.19
14	1.3	15.91	-13.06	-90.25
15	1.4	18.13	-12.60	-102.85
16	3.9	20.62	-13.49	-116.34
17	2.6	33.09	-69.22	-185.56
18	1.4	34.96	-10.60	-196.16
19	1.2	36.21	-7.12	-203.28

SAMPLE NO.	EFFLUENT ppm Na	PORE VOL. ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	1280	0.31	40.42	40.42
2	1210	0.51	24.62	65.04
3	2000	1.37	176.46	241.50
4	1100	1.98	68.13	309.62
5	720	3.16	85.20	394.82
6	643	4.12	61.64	456.46
7	262	4.83	17.48	473.94
8	630	5.67	52.80	526.74
9	410	6.37	28.00	554.74
10	366	8.13	62.35	617.09
11	305	9.76	47.42	664.50
12	204	11.70	36.08	700.58
13	162	13.61	27.18	727.76
14	125	15.91	23.89	751.66
15	110	18.13	19.60	771.26
16	99	20.62	19.14	790.41
17	95	33.09	90.82	881.22
18	114	34.96	17.29	898.51
19	159	36.21	17.40	915.91

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K
1	45.0	0.31	1.20	1.20
2	49.0	0.51	0.66	2.05
3	83.0	1.37	6.72	8.77
4	49.0	1.98	2.61	11.38
5	34.0	3.16	3.21	14.60
6	29.0	4.12	2.11	16.71
7	16.0	4.83	0.60	17.31
8	31.0	5.67	2.02	19.34
9	23.0	6.37	1.11	20.44
10	18.4	8.13	1.94	22.38
11	17.0	9.76	1.56	23.94
12	14.0	11.70	1.25	25.19
13	12.0	13.61	0.83	26.02
14	11.0	15.91	0.76	26.79
15	9.4	18.13	0.37	27.16
16	9.1	20.62	0.34	27.49
17	8.4	33.09	0.78	28.27
18	8.6	34.96	0.16	28.43
19	10.1	36.21	0.30	28.73

SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	21.00	0.31	0.67	0.67
2	18.00	0.51	0.37	1.05
3	33.00	1.37	2.94	3.98
4	18.10	1.98	1.14	5.13
5	12.50	3.16	1.52	6.65
6	10.30	4.12	1.02	7.66
7	4.14	4.83	0.30	7.96
8	4.75	5.67	0.41	8.37
9	7.06	6.37	0.51	8.87
10	3.47	8.13	0.62	9.49
11	3.17	9.76	0.52	10.01
12	1.66	11.70	0.31	10.32
13	1.04	13.61	0.19	10.51
14	0.11	15.91	0.00	10.51
15	0.12	18.13	0.00	10.52
16	0.03	20.62	-0.02	10.50
17	0.03	33.09	-0.09	10.41
18	0.03	34.96	-0.01	10.39
19	0.36	36.21	0.04	10.43

TABLE C.14. contd

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si
1	8.5	0.31	-0.21	-0.21
2	13.0	0.51	-0.04	-0.25
3	15.1	1.37	0.01	-0.24
4	11.6	1.98	-0.22	-0.46
5	11.3	3.16	-0.45	-0.91
6	11.1	4.12	-0.39	-1.30
7	10.8	4.83	-0.31	-1.61
8	10.4	5.67	-0.40	-2.01
9	11.2	6.37	-0.28	-2.29
10	13.6	8.13	-0.26	-2.54
11	13.2	9.76	-0.30	-2.85
12	11.4	11.70	-0.73	-3.57
13	10.0	13.61	-0.99	-4.57
14	9.6	15.91	-1.30	-5.86
15	9.3	18.13	-1.32	-7.19
16	9.0	20.62	-1.56	-8.74
17	9.9	33.09	-6.65	-15.39
18	11.9	34.96	-0.60	-15.99
19	14.9	36.21	-0.01	-16.01

SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	0.06	0.31	-0.45	-0.45
2	0.06	0.51	-0.29	-0.74
3	0.06	1.37	-1.25	-1.98
4	0.06	1.98	-0.88	-2.87
5	0.06	3.16	-1.71	-4.58
6	0.09	4.12	-1.39	-5.96
7	0.06	4.83	-1.03	-6.99
8	0.06	5.67	-1.22	-8.21
9	0.06	6.37	-1.01	-9.22
10	0.06	8.13	-2.55	-11.77
11	0.06	9.76	-2.36	-14.13
12	0.06	11.70	-2.81	-16.94
13	0.06	13.61	-2.77	-19.71
14	0.06	15.91	-3.33	-23.04
15	0.19	18.13	-3.19	-26.22
16	2.50	20.62	-2.97	-29.20
17	1.06	33.09	-16.76	-45.96
18	0.14	34.96	-2.69	-48.66
19	0.06	36.21	-1.61	-50.47

SAMPLE NO.	EFFLUENT ppm F	PORE VOL. ELUTED	ELUTED mg F	SUM ELUTED mg F
1	11.0	0.31	0.34	0.34
2	11.0	0.51	0.22	0.56
3	18.0	1.37	1.56	2.12
4	11.0	1.98	0.67	2.79
5	9.0	3.16	1.04	3.83
6	8.0	4.12	0.75	4.58
7	5.8	4.83	0.39	4.97
8	8.6	5.67	0.71	5.67
9	6.3	6.37	0.42	6.09
10	4.8	8.13	0.79	6.88
11	5.6	9.76	0.86	7.74
12	6.6	11.70	1.23	8.97
13	5.7	13.61	1.03	10.01
14	5.8	15.91	1.27	11.27
15	5.6	18.13	1.18	12.45
16	5.1	20.62	1.19	13.64
17	6.0	33.09	7.13	20.76
18	5.9	34.96	1.05	21.81
19	7.4	36.21	0.90	22.71

SAMPLE NO.	EFFLUENT ppm NO3	PORE VOL. ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	19.0	0.31	0.61	0.61
2	18.0	0.51	0.37	0.98
3	9.0	1.37	0.80	1.78
4	15.0	1.98	0.94	2.72
5	30.0	3.16	3.67	6.39
6	6.0	4.12	0.59	6.97
7	2.9	4.83	0.21	7.18
8	8.5	5.67	0.73	7.91
9	5.1	6.37	0.36	8.28
10	4.9	8.13	0.88	9.15
11	3.6	9.76	0.59	9.75
12	3.6	11.70	0.71	10.45
13	2.0	13.61	0.38	10.83
14	1.3	15.91	0.29	11.12
15	1.2	18.13	0.25	11.37
16	0.9	20.62	0.21	11.59
17	1.1	33.09	1.30	12.88
18	1.4	34.96	0.25	13.13
19	2.3	36.21	0.29	13.42

TABLE C.14. contd

SAMPLE NO.	EFFLUENT ppm H3BO3	PORE VOL. ELUTED	ELUTED mg H3BO3	SUM ELUTED mg H3BO3
1	8.57	0.31	0.27	0.27
2	6.90	0.51	0.14	0.40
3	12.64	1.37	1.10	1.50
4	12.60	1.98	0.78	2.28
5	6.60	3.16	0.77	3.04
6	2.92	4.12	0.26	3.30
7	7.47	4.83	0.53	3.83
8	3.35	5.67	0.26	4.09
9	2.10	6.37	0.13	4.22
10	1.77	8.13	0.26	4.48
11	1.47	9.76	0.19	4.67
12	1.03	11.70	0.14	4.81
13	0.89	13.61	0.11	4.92
14	0.74	15.91	0.10	5.02
15	0.81	18.13	0.11	5.12
16	0.68	20.62	0.09	5.21
17	0.91	33.09	0.74	5.95
18	1.33	34.96	0.19	6.14
19	1.49	36.21	0.15	6.29

SAMPLE NO.	EFFLUENT ppm SO4	PORE VOL. ELUTED	ELUTED mg SO4	SUM ELUTED mg SO4
1	150	0.31	2.06	2.06
2	180	0.51	1.95	4.01
3	270	1.37	16.44	20.45
4	160	1.98	4.69	25.14
5	130	3.16	5.39	30.54
6	120	4.12	3.39	33.93
7	80	4.83	-0.44	33.49
8	120	5.67	2.97	36.45
9	100	6.37	1.02	37.47
10	96	8.13	1.83	39.30
11	88	9.76	0.34	39.64
12	96	11.70	2.02	41.65
13	83	13.61	-0.60	41.06
14	79	15.91	-1.67	39.39
15	85	18.13	-0.23	39.16
16	83	20.62	-0.78	38.38
17	76	33.09	-12.96	25.42
18	76	34.96	-1.94	23.48
19	84	36.21	-0.26	23.22

SAMPLE NO.	EFFLUENT ppm IC	PORE VOL. ELUTED	ELUTED mg IC	SUM ELUTED mg IC
1	43.4	0.31	0.30	0.30
2	45.3	0.51	0.23	0.53
3	40.7	1.37	0.59	1.12
4	27.1	1.98	-0.45	0.68
5	54.1	3.16	2.45	3.13
6	23.0	4.12	-1.11	2.02
7	23.1	4.83	-0.81	1.21
8	31.4	5.67	-0.23	0.98
9	28.3	6.37	-0.42	0.55
10	33.6	8.13	-0.08	0.47
11	26.4	9.76	-1.31	-0.84
12	25.6	11.70	-1.71	-2.55
13	31.7	13.61	-0.48	-3.03
14	27.0	15.91	-1.70	-4.72
15	27.7	18.13	-1.47	-6.19
16	35.1	20.62	0.26	-5.93
17	26.1	33.09	-10.35	-16.28
18	45.4	34.96	2.19	-14.09
19	21.5	36.21	-1.63	-15.72

SAMPLE NO.	EFFLUENT ppm TOC	PORE VOL. ELUTED	ELUTED mg TOC	SUM ELUTED mg TOC
1	15.8	0.31	0.48	0.48
2	9.4	0.51	0.18	0.65
3	6.8	1.37	0.52	1.17
4	3.7	1.98	0.17	1.34
5	6.5	3.16	0.68	2.01
6	4.3	4.12	0.33	2.34
7	3.0	4.83	0.15	2.49
8	2.5	5.67	0.13	2.62
9	3.0	6.37	0.14	2.76
10	2.4	8.13	0.26	3.02
11	2.3	9.76	0.22	3.24
12	2.5	11.70	0.30	3.53
13	3.0	13.61	0.40	3.93
14	2.4	15.91	0.32	4.25
15	2.5	18.13	0.34	4.59
16	2.4	20.62	0.36	4.95
17	1.3	33.09	0.41	5.37
18	1.2	34.96	0.05	5.42
19	1.3	36.21	0.04	5.45

TABLE C.15. Mass Balance for Flow Through Leach Test on Crushed Grout with Groundwater (MBBCGT)

SAMPLE NO.	EFFLUENT ppm Ca	PORE VOL. ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca
1	1.44	0.37	-4.32	-4.32
2	1.62	1.14	-8.95	-13.27
3	1.76	1.66	-6.03	-19.30
4	1.28	2.55	-10.41	-29.71
5	1.71	3.31	-8.82	-38.53
6	5.84	4.53	-13.08	-51.61
7	5.83	5.07	-5.79	-57.41
8	8.51	5.82	-7.61	-65.02
9	6.71	6.15	-3.48	-68.50
10	9.52	7.58	-14.21	-82.71
11	20.30	9.04	-11.14	-93.85
12	24.40	10.21	-7.90	-101.75
13	29.70	11.16	-5.34	-107.10
14	28.8	11.67	-2.97	-110.06
15	28.0	12.43	-4.55	-114.61
16	29.2	12.85	-2.41	-117.02

SAMPLE NO.	EFFLUENT ppm Na	PORE VOL. ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	681.00	0.37	51.89	51.89
2	639.00	1.14	101.06	152.97
3	433.00	1.66	45.36	198.32
4	262.00	2.55	45.09	243.42
5	158.00	3.31	21.61	265.03
6	91.90	4.53	17.45	282.48
7	80.00	5.07	6.35	288.83
8	65.00	5.82	6.41	295.24
9	68.00	6.15	3.03	298.28
10	61.00	7.58	11.01	309.28
11	38.00	9.04	4.06	313.34
12	29.90	10.21	1.23	314.56
13	27.60	11.16	0.53	315.09
14	29	11.67	0.41	315.51
15	29	12.43	0.60	316.11
16	28	12.85	0.30	316.40

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K
1	22.00	0.37	1.12	1.12
2	20.00	1.14	2.01	3.13
3	15.00	1.66	0.80	3.93
4	11.00	2.55	0.61	4.54
5	8.70	3.31	0.15	4.69
6	8.20	4.53	0.10	4.79
7	8.40	5.07	0.07	4.86
8	7.90	5.82	0.02	4.88
9	9.00	6.15	0.08	4.96
10	9.40	7.58	0.49	5.45
11	8.80	9.04	0.31	5.76
12	8.20	10.21	0.10	5.86
13	8.30	11.16	0.10	5.96
14	7.7	11.67	-0.01	5.95
15	7.0	12.43	-0.13	5.82
16	7.0	12.85	-0.07	5.75

SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	11.00	0.37	0.86	0.86
2	17.30	1.14	2.83	3.69
3	12.60	1.66	1.39	5.08
4	5.76	2.55	1.08	6.16
5	1.35	3.31	0.20	6.36
6	0.17	4.53	0.02	6.38
7	0.13	5.07	0.00	6.39
8	0.07	5.82	-0.00	6.38
9	0.12	6.15	0.00	6.38
10	0.11	7.58	0.00	6.38
11	0.03	9.04	-0.02	6.36
12	0.03	10.21	-0.02	6.35
13	0.04	11.16	-0.01	6.33
14	0.03	11.67	-0.01	6.33
15	<0.03	12.43	-0.02	6.31
16	<0.03	12.85	-0.01	6.30

TABLE C.15. contd

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si
1	16.50	0.37	0.12	0.12
2	25.60	1.14	1.74	1.86
3	24.30	1.66	1.03	2.90
4	17.40	2.55	0.46	3.35
5	12.10	3.31	-0.47	2.88
6	10.30	4.53	-1.23	1.66
7	9.92	5.07	-0.59	1.07
8	9.57	5.82	-0.87	0.20
9	9.62	6.15	-0.38	-0.18
10	8.93	7.58	-1.86	-2.04
11	9.10	9.04	-1.84	-3.88
12	8.97	10.21	-1.51	-5.39
13	10.30	11.16	-0.95	-6.34
14	9.8	11.67	-0.57	-6.91
15	8.9	12.43	-0.99	-7.90
16	8.9	12.85	-0.55	-8.44

SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	0.06	0.37	-1.10	-1.10
2	0.06	1.14	-2.29	-3.40
3	0.06	1.66	-1.55	-4.95
4	0.06	2.55	-2.65	-7.60
5	0.42	3.31	-2.21	-9.81
6	5.07	4.53	-2.33	-12.14
7	5.86	5.07	-0.94	-13.07
8	6.87	5.82	-1.14	-14.22
9	5.55	6.15	-0.60	-14.81
10	5.92	7.58	-2.47	-17.28
11	9.37	9.04	-1.45	-18.73
12	9.85	10.21	-1.04	-19.77
13	11.30	11.16	-0.55	-20.32
14	10.80	11.67	-0.35	-20.66
15	9.95	12.43	-0.66	-21.32
16	9.97	12.85	-0.36	-21.68

SAMPLE NO.	EFFLUENT ppm F	PORE VOL. ELUTED	ELUTED mg F	SUM ELUTED mg F
1	40.00	0.37	3.12	3.12
2	51.00	1.14	8.31	11.44
3	35.00	1.66	3.84	15.27
4	21.00	2.55	3.90	19.17
5	13.00	3.31	2.03	21.20
6	9.00	4.53	2.22	23.42
7	10.00	5.07	1.10	24.52
8	8.00	5.82	1.20	25.72
9	10.00	6.15	0.67	26.39
10	10.00	7.58	2.90	29.30
11	7.30	9.04	2.12	31.42
12	7.60	10.21	1.78	33.19
13	7.40	11.16	1.40	34.60
14	8.8	11.67	0.90	35.50
15	9.1	12.43	1.40	36.90
16	9.8	12.85	0.84	37.73

SAMPLE NO.	EFFLUENT ppm NO3	PORE VOL. ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	40.00	0.37	3.16	3.16
2	17.00	1.14	2.78	5.94
3	8.50	1.66	0.93	6.87
4	3.80	2.55	0.70	7.58
5	0.90	3.31	0.13	7.71
6	0.05	4.53	-0.01	7.69
7	0.05	5.07	-0.01	7.69
8	0.05	5.82	-0.01	7.68
9	0.05	6.15	-0.00	7.68
10	0.05	7.58	-0.02	7.66
11	0.05	9.04	-0.02	7.64
12	0.05	10.21	-0.01	7.63
13	0.05	11.16	-0.01	7.62
14	0.05	11.67	-0.01	7.62
15	0.05	12.43	-0.01	7.61
16	0.05	12.85	-0.00	7.60

TABLE C.15. contd

SAMPLE NO.	EFFLUENT PORE VOL.	ELUTED	SUM ELUTED
ppm H3BO3	ELUTED	mg H3BO3	mg H3BO3
1	12.18	0.37	0.94
2	15.10	1.14	2.43
3	10.09	1.66	1.08
4	5.41	2.55	0.96
5	2.78	3.31	0.40
6	1.54	4.53	0.31
7	1.26	5.07	0.11
8	1.05	5.82	0.11
9	1.89	6.15	0.11
10	1.14	7.58	0.24
11	0.77	9.04	0.13
12	0.72	10.21	0.10
13	0.71	11.16	0.08
14	0.82	11.67	0.05
15	0.87	12.43	0.09
16	0.86	12.85	0.05

SAMPLE NO.	EFFLUENT PORE VOL.	ELUTED	SUM ELUTED
ppm SO4	ELUTED	mg SO4	mg SO4
1	470.00	0.37	30.38
2	250.00	1.14	27.00
3	150.00	1.66	7.11
4	110.00	2.55	4.57
5	84.00	3.31	-0.32
6	79.00	4.53	-1.83
7	77.00	5.07	-1.04
8	77.00	5.82	-1.44
9	75.00	6.15	-0.78
10	75.00	7.58	-3.36
11	71.00	9.04	-4.68
12	69.00	10.21	-4.25
13	68.00	11.16	-3.66
14	77	11.67	-0.94
15	73	12.43	-2.10
16	78	12.85	-0.72

TABLE C.16. Mass Balance for Flow Through Leach Test on Crushed Grout with Groundwater (MBBCGI)

SAMPLE NO.	EFFLUENT ppm Ca	PORE VOL. ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca
1	1.97	0.39	-4.50	-4.50
2	1.58	1.11	-8.38	-12.88
3	1.97	1.58	-5.43	-18.31
4	1.35	2.35	-9.00	-27.31
5	1.37	3.01	-7.71	-35.02
6	4.02	4.07	-11.78	-46.80
7	4.65	4.54	-5.16	-51.95
8	6.27	5.16	-6.59	-58.55
9	5.49	5.44	-3.02	-61.57
10	9.23	6.57	-11.30	-72.87
11	17.40	7.83	-10.40	-83.27
12	22.90	9.05	-8.63	-91.90
13	30.10	9.86	-4.49	-96.39
14	28.1	10.29	-2.56	-98.95
15	27.8	11.11	-4.94	-103.89
16	28.8	11.55	-2.56	-106.45

SAMPLE NO.	EFFLUENT ppm Na	PORE VOL. ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	1030.00	0.39	83.79	83.79
2	816.00	1.11	121.76	205.55
3	525.00	1.58	50.24	255.79
4	297.00	2.35	44.78	300.57
5	179.00	3.01	21.73	322.30
6	74.20	4.07	11.15	333.45
7	94.40	4.54	6.97	340.42
8	74.00	5.16	6.49	346.92
9	76.00	5.44	3.05	349.97
10	67.00	6.57	10.15	360.12
11	38.70	7.83	3.69	363.81
12	29.10	9.05	1.07	364.88
13	26.30	9.86	0.23	365.10
14	28	10.29	0.27	365.37
15	28	11.11	0.46	365.82
16	27	11.55	0.20	366.02

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K
1	28.00	0.39	1.68	1.68
2	25.00	1.11	2.65	4.33
3	18.00	1.58	1.02	5.36
4	12.00	2.35	0.69	6.05
5	10.00	3.01	0.31	6.36
6	8.20	4.07	0.09	6.45
7	9.50	4.54	0.17	6.62
8	8.40	5.16	0.08	6.70
9	10.20	5.44	0.14	6.84
10	11.00	6.57	0.77	7.62
11	9.40	7.83	0.43	8.05
12	8.20	9.05	0.10	8.15
13	7.90	9.86	0.02	8.17
14	7.2	10.29	-0.06	8.11
15	7.2	11.11	-0.11	8.01
16	7.3	11.55	-0.05	7.96

SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	17.90	0.39	1.48	1.48
2	22.40	1.11	3.43	4.92
3	16.50	1.58	1.65	6.56
4	7.71	2.35	1.25	7.82
5	2.14	3.01	0.29	8.11
6	0.27	4.07	0.04	8.14
7	0.20	4.54	0.01	8.15
8	0.10	5.16	0.00	8.15
9	0.23	5.44	0.01	8.16
10	0.16	6.57	0.02	8.18
11	0.04	7.83	-0.02	8.17
12	0.03	9.05	-0.03	8.14
13	0.03	9.86	-0.02	8.12
14	0.03	10.29	-0.01	8.11
15	0.03	11.11	-0.02	8.10
16	0.03	11.55	-0.01	8.09

TABLE C.16. contd

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si
1	20.00	0.39	0.42	0.42
2	29.00	1.11	2.16	2.57
3	27.20	1.58	1.23	3.80
4	19.00	2.35	0.66	4.46
5	13.30	3.01	-0.24	4.22
6	11.80	4.07	-0.73	3.49
7	9.91	4.54	-0.51	2.98
8	8.92	5.16	-0.81	2.17
9	8.86	5.44	-0.37	1.81
10	7.66	6.57	-1.77	0.03
11	7.47	7.83	-2.03	-2.00
12	8.19	9.05	-1.78	-3.77
13	10.20	9.86	-0.83	-4.60
14	9.0	10.29	-0.55	-5.15
15	8.4	11.11	-1.16	-6.31
16	8.6	11.55	-0.61	-6.92

SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	0.06	0.39	-1.16	-1.16
2	0.06	1.11	-2.15	-3.31
3	0.06	1.58	-1.40	-4.71
4	0.06	2.35	-2.29	-7.00
5	0.17	3.01	-1.95	-8.96
6	6.40	4.07	-1.27	-10.22
7	3.42	4.54	-1.06	-11.29
8	4.89	5.16	-1.21	-12.50
9	2.39	5.44	-0.69	-13.19
10	3.21	6.57	-2.61	-15.80
11	7.36	7.83	-1.79	-17.59
12	9.14	9.05	-1.27	-18.85
13	11.20	9.86	-0.48	-19.34
14	9.87	10.29	-0.38	-19.72
15	9.29	11.11	-0.83	-20.54
16	9.46	11.55	-0.43	-20.97

SAMPLE NO.	EFFLUENT ppm F	PORE VOL. ELUTED	ELUTED mg F	SUM ELUTED mg F
1	57.00	0.39	4.71	4.71
2	61.00	1.11	9.31	14.02
3	43.00	1.58	4.27	18.29
4	24.00	2.35	3.87	22.16
5	14.00	3.01	1.90	24.07
6	11.00	4.07	2.38	26.45
7	12.00	4.54	1.16	27.60
8	9.30	5.16	1.17	28.77
9	12.00	5.44	0.69	29.46
10	11.00	6.57	2.54	31.99
11	7.80	7.83	1.97	33.96
12	7.10	9.05	1.72	35.68
13	6.50	9.86	1.04	36.72
14	8.5	10.29	0.74	37.46
15	9.1	11.11	1.51	38.96
16	8.9	11.55	0.79	39.75

SAMPLE NO.	EFFLUENT ppm NO3	PORE VOL. ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	40.00	0.39	3.33	3.33
2	24.00	1.11	3.68	7.01
3	12.00	1.58	1.20	8.20
4	5.00	2.35	0.81	9.01
5	1.80	3.01	0.24	9.25
6	0.70	4.07	0.14	9.38
7	<0.5	4.54	-0.01	9.37
8	<0.5	5.16	-0.01	9.36
9	<0.5	5.44	-0.01	9.35
10	<0.5	6.57	-0.02	9.33
11	<0.5	7.83	-0.03	9.30
12	<0.5	9.05	-0.03	9.28
13	<0.5	9.86	-0.02	9.26
14	<0.5	10.29	-0.01	9.25
15	<0.5	11.11	-0.02	9.23
16	<0.5	11.55	-0.01	9.22

TABLE C.16. contd

SAMPLE NO.	EFFLUENT PORE VOL.	ELUTED	SUM ELUTED
ppm H3BO3	ELUTED	mg H3BO3	mg H3BO3
1	16.18	0.39	1.32
2	18.87	1.11	4.17
3	12.90	1.58	5.44
4	6.34	2.35	6.42
5	3.20	3.01	6.83
6	1.20	4.07	7.02
7	1.14	4.54	7.10
8	1.20	5.16	7.22
9	1.39	5.44	7.28
10	1.26	6.57	7.50
11	0.85	7.83	7.64
12	0.74	9.05	7.74
13	0.68	9.86	7.80
14	0.81	10.29	7.84
15	0.85	11.11	7.93
16	0.83	11.55	7.98

SAMPLE NO.	EFFLUENT PORE VOL.	ELUTED	SUM ELUTED
ppm SO4	ELUTED	mg SO4	mg SO4
1	470.00	0.39	32.02
2	310.00	1.11	34.48
3	190.00	1.58	10.45
4	120.00	2.35	5.60
5	89.00	3.01	0.42
6	86.00	4.07	0.00
7	83.00	4.54	-0.30
8	74.00	5.16	-1.59
9	79.00	5.44	-0.42
10	77.00	6.57	-2.17
11	78.00	7.83	-2.16
12	75.00	9.05	-2.37
13	75.00	9.86	-1.90
14	77	10.29	-0.79
15	80	11.11	-1.12
16	79	11.55	-0.66

TABLE C.17. Mass Balance for Flow Through Leach Test on Crushed Grout with Groundwater (MBBCGC)

SAMPLE NO.	EFFLUENT ppm Ca	PORE VOL. ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca
1	1.40	0.32	-3.74	-3.74
2	2.23	1.22	-10.35	-14.08
3	1.85	1.92	-8.10	-22.18
4	1.63	2.96	-12.09	-34.27
5	3.70	3.94	-10.96	-45.23
6	8.63	5.42	-14.99	-60.22
7	7.16	6.04	-6.47	-66.69
8	10.60	6.87	-8.06	-74.75
9	6.77	7.21	-3.58	-78.33
10	8.45	8.51	-13.22	-91.54
11	17.50	9.75	-10.21	-101.75
12	19.70	10.36	-4.73	-106.48
13	26.90	11.58	-7.59	-114.07
14	27.6	12.20	-3.76	-117.84
15	27.8	13.07	-5.25	-123.08
16	29.2	13.59	-2.98	-126.06

SAMPLE NO.	EFFLUENT ppm Na	PORE VOL. ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	815	0.32	54.05	54.05
2	760	1.22	141.42	195.47
3	436	1.92	61.51	256.98
4	221	2.96	43.58	300.55
5	123	3.94	20.53	321.09
6	74	5.42	15.57	336.65
7	74	6.04	6.55	343.20
8	60	6.87	6.21	349.41
9	71	7.21	3.34	352.76
10	66	8.51	11.40	364.15
11	43	9.75	4.75	368.90
12	37	10.36	1.58	370.47
13	31	11.58	1.54	372.01
14	30	12.20	0.66	372.68
15	29	13.07	0.78	373.46
16	29	13.59	0.42	373.88

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K
1	25.00	0.32	1.18	1.18
2	23.00	1.22	2.92	4.10
3	15.00	1.92	1.08	5.18
4	10.00	2.96	0.49	5.67
5	8.00	3.94	0.04	5.71
6	8.20	5.42	0.13	5.84
7	8.30	6.04	0.07	5.90
8	7.40	6.87	-0.07	5.83
9	8.90	7.21	0.08	5.91
10	9.00	8.51	0.33	6.25
11	8.50	9.75	0.19	6.43
12	8.60	10.36	0.10	6.54
13	8.40	11.58	0.16	6.69
14	7.30	12.20	-0.07	6.63
15	7.80	13.07	0.00	6.63
16	7.30	13.59	-0.06	6.57

SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	11.60	0.32	0.79	0.79
2	19.30	1.22	3.69	4.48
3	12.00	1.92	1.78	6.26
4	3.50	2.96	0.76	7.02
5	0.27	3.94	0.04	7.05
6	0.04	5.42	-0.02	7.03
7	0.06	6.04	-0.01	7.03
8	0.3	6.87	-0.02	7.01
9	0.12	7.21	0.00	7.01
10	0.12	8.51	0.01	7.02
11	0.04	9.75	-0.02	7.00
12	0.05	10.36	-0.01	6.99
13	0.04	11.58	-0.02	6.98
14	0.03	12.20	-0.01	6.97
15	0.03	13.07	-0.01	6.96
16	0.03	13.59	-0.01	6.95

TABLE C.17. contd

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si
1	19.20	0.32	0.29	0.29
2	26.10	1.22	2.14	2.42
3	23.10	1.92	1.21	3.64
4	14.90	2.96	-0.02	3.61
5	11.10	3.94	-0.82	2.80
6	11.80	5.42	-1.01	1.78
7	11.40	6.04	-0.48	1.31
8	11.20	6.87	-0.67	0.63
9	10.80	7.21	-0.31	0.33
10	9.57	8.51	-1.51	-1.18
11	9.25	9.75	-1.52	-2.71
12	8.09	10.36	-0.90	-3.61
13	9.61	11.58	-1.41	-5.01
14	9.1	12.20	-0.78	-5.79
15	8.6	13.07	-1.18	-6.97
16	8.9	13.59	-0.68	-7.66

SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	0.06	0.32	-0.95	-0.95
2	0.06	1.22	-2.68	-3.64
3	0.06	1.92	-2.09	-5.72
4	0.20	2.96	-3.07	-8.79
5	2.60	3.94	-2.39	-11.18
6	8.40	5.42	-1.77	-12.95
7	8.46	6.04	-0.73	-13.69
8	9.29	6.87	-0.64	-14.52
9	5.65	7.21	-0.61	-15.13
10	6.35	8.51	-2.13	-17.26
11	9.08	9.75	-1.30	-18.56
12	7.64	10.36	-0.83	-19.39
13	10.50	11.58	-0.91	-20.30
14	10.60	12.20	-0.45	-20.75
15	10.00	13.07	-0.74	-21.50
16	10.20	13.59	-0.42	-21.92

SAMPLE NO.	EFFLUENT ppm F	PORE VOL. ELUTED	ELUTED mg F	SUM ELUTED mg F
1	44.00	0.32	2.98	2.98
2	52.00	1.22	9.91	12.89
3	34.00	1.92	5.01	17.90
4	16.00	2.96	3.45	21.34
5	9.60	3.94	1.91	23.25
6	7.00	5.42	2.06	25.31
7	9.00	6.04	1.13	26.43
8	7.20	6.87	1.19	27.62
9	11.00	7.21	0.76	28.39
10	9.20	8.51	2.42	30.80
11	7.80	9.75	1.54	32.74
12	9.40	10.36	1.16	33.90
13	7.30	11.58	1.77	35.67
14	9.6	12.20	1.21	36.88
15	8.8	13.07	1.54	38.42
16	9.3	13.59	0.98	39.40

SAMPLE NO.	EFFLUENT ppm NO3	PORE VOL. ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	40.00	0.32	2.73	2.73
2	23.00	1.22	4.41	7.14
3	9.40	1.92	1.39	8.53
4	3.40	2.96	0.73	9.26
5	0.50	3.94	0.08	9.35
6	0.50	5.42	0.13	9.47
7	0.50	6.04	0.05	9.52
8	0.50	6.87	0.07	9.60
9	0.50	7.21	0.03	9.62
10	0.50	8.51	0.11	9.74
11	0.50	9.75	0.11	9.94
12	0.50	10.36	0.05	9.89
13	0.50	11.58	0.10	10.00
14	0.50	12.20	0.05	10.05
15	0.50	13.07	0.07	10.13
16	0.50	13.59	0.04	10.17

TABLE C.17. contd

SAMPLE NO.	EFFLUENT PORE VOL.	ELUTED	ELUTED	SUM ELUTED
	ppm H3B03		mg H3B03	mg H3B03
1	12.42	0.32	0.83	0.83
2	17.73	1.22	3.35	4.17
3	10.06	1.92	1.45	5.63
4	4.50	2.96	0.92	6.55
5	2.02	3.94	0.35	6.90
6	1.20	5.42	0.27	7.18
7	1.14	6.04	0.11	7.28
8	0.96	6.87	0.11	7.39
9	1.29	7.21	0.07	7.46
10	1.71	8.51	0.38	7.84
11	0.84	9.75	0.13	7.97
12	0.84	10.36	0.07	8.04
13	0.73	11.58	0.10	8.14
14	0.80	12.20	0.06	8.20
15	0.84	13.07	0.09	8.30
16	0.84	13.59	0.06	8.35

SAMPLE NO.	EFFLUENT PORE VOL.	ELUTED	ELUTED	SUM ELUTED
	ppm S04		mg S04	mg S04
1	380.00	0.32	20.11	20.11
2	290.00	1.22	39.25	59.37
3	150.00	1.92	9.58	68.94
4	99.00	2.96	2.89	71.83
5	80.00	3.94	-1.26	70.58
6	79.00	5.42	-2.21	68.36
7	77.00	6.04	-1.19	67.17
8	75.00	6.87	-1.95	65.22
9	75.00	7.21	-0.60	64.42
10	69.00	8.51	-4.72	59.69
11	76.00	9.75	-2.65	57.04
12	75.00	10.36	-1.43	55.61
13	76.00	11.58	-2.61	53.00
14	81	12.20	-0.65	52.35
15	68	13.07	-3.35	49.00
16	71	13.59	-1.67	47.33

TABLE C.18. Mass Balance for Flow Through Leach Test on Crushed Grout/Sediment with Groundwater (MBCGT)

SAMPLE NO.	EFFLUENT ppm Ca	PORE VOL. ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca
1	30.30	2.66	-7.70	-7.70
2	4.01	4.80	-12.33	-20.23
3	4.16	5.76	-5.61	-25.84
4	3.14	8.29	-15.06	-40.90
5	4.02	9.18	-5.21	-46.11
6	3.07	11.13	-11.63	-57.74
7	4.37	12.36	-7.15	-64.89
8	2.97	14.93	-15.35	-80.24
9	4.19	15.99	-6.19	-86.43
10	2.87	17.68	-10.11	-96.54
11	4.04	18.66	-5.74	-102.28
12	3.13	20.67	-11.97	-114.25
13	1.70	23.15	-15.17	-129.42
14	1.7	25.18	-12.42	-141.83
15	1.9	26.74	-9.51	-151.35
16	2.0	28.42	-10.23	-161.57
17	2.5	30.88	-14.83	-176.40
18	5.1	33.00	-12.16	-188.56

SAMPLE NO.	EFFLUENT ppm Na	PORE VOL. ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	1260.00	2.66	370.03	370.03
2	774.00	4.80	180.55	550.58
3	549.00	5.76	56.66	607.24
4	452.00	8.29	121.69	728.93
5	361.00	9.18	33.68	762.61
6	310.00	11.13	62.60	825.21
7	272.00	12.36	34.22	859.43
8	233.00	14.93	60.21	919.65
9	220.00	15.99	23.28	942.93
10	194.00	17.68	32.17	975.10
11	202.00	18.66	19.54	994.64
12	186.00	20.67	36.45	1031.09
13	163.00	23.15	38.55	1069.64
14	144	25.18	27.21	1096.85
15	130	26.74	18.45	1115.30
16	121	28.42	18.17	1133.47
17	109	30.88	23.28	1156.74
18	95	33.00	16.69	1173.43

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K
1	7.70	2.66	-0.03	-0.03
2	2.70	4.80	-1.23	-1.26
3	1.50	5.76	-0.68	-1.94
4	1.00	8.29	-1.94	-3.88
5	0.60	9.18	-0.72	-4.60
6	0.80	11.13	-1.54	-6.14
7	0.70	12.36	-0.98	-7.12
8	0.80	14.93	-2.03	-9.15
9	0.70	15.99	-0.85	-10.00
10	0.50	17.68	-1.39	-11.39
11	0.80	18.66	-0.77	-12.16
12	0.60	20.67	-1.63	-13.79
13	1.20	23.15	-1.84	-15.63
14	0.9	25.18	-1.58	-17.21
15	0.8	26.74	-1.23	-18.44
16	0.3	28.42	-1.48	-19.92
17	2.1	30.88	-1.58	-21.49
18	3.6	33.00	-1.00	-22.50

SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	6.23	2.66	1.84	1.84
2	18.30	4.80	4.39	6.22
3	9.97	5.76	1.07	7.29
4	9.34	8.29	2.63	9.92
5	5.42	9.18	0.53	10.46
6	4.88	11.13	1.05	11.51
7	4.73	12.36	0.64	12.15
8	4.46	14.93	1.26	13.41
9	4.07	15.99	0.47	13.89
10	3.63	17.68	0.67	14.56
11	3.58	18.66	0.38	14.94
12	2.99	20.67	0.65	15.60
13	2.08	23.15	0.35	16.15
14	1.93	25.18	0.42	16.57
15	1.64	26.74	0.27	16.84
16	1.41	28.42	0.25	17.09
17	1.05	30.88	0.26	17.35
18	0.84	33.00	0.15	17.53

TABLE C.18. contd

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si
1	126.00	2.66	33.26	33.26
2	132.00	4.80	28.20	61.46
3	119.00	5.76	11.25	72.71
4	110.00	8.29	27.07	99.78
5	91.30	9.18	7.65	107.43
6	72.50	11.13	12.63	120.06
7	63.20	12.36	6.68	126.74
8	47.10	14.93	9.29	136.03
9	46.20	15.99	3.73	139.75
10	37.20	17.68	4.23	143.98
11	47.80	18.66	3.62	147.60
12	43.40	20.67	6.43	154.03
13	33.10	23.15	5.06	159.09
14	26.0	25.18	2.52	161.60
15	22.7	26.74	1.35	162.96
16	21.6	28.42	1.25	164.20
17	19.5	30.88	1.25	165.45
18	18.1	33.00	0.74	166.19

SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	0.32	2.66	-4.10	-4.10
2	0.17	4.80	-3.33	-7.43
3	0.16	5.76	-1.50	-8.93
4	0.06	8.29	-3.97	-12.90
5	0.06	9.18	-1.40	-14.30
6	0.06	11.13	-3.06	-17.36
7	0.06	12.36	-1.93	-19.29
8	0.07	14.93	-4.03	-23.32
9	0.15	15.99	-1.65	-24.98
10	0.06	17.68	-2.65	-27.63
11	0.15	18.66	-1.53	-29.16
12	0.09	20.67	-3.15	-32.31
13	0.09	23.15	-3.85	-36.19
14	0.06	25.18	-3.19	-39.38
15	0.06	26.74	-2.45	-41.83
16	0.06	28.42	-2.64	-44.47
17	0.06	30.88	-3.86	-48.33
18	0.06	33.00	-3.33	-51.66

SAMPLE NO.	EFFLUENT ppm F	PORE VOL. ELUTED	ELUTED mg F	SUM ELUTED mg F
1	35.00	2.66	10.34	10.34
2	30.00	4.80	7.11	17.45
3	19.00	5.76	2.00	19.45
4	12.00	8.29	3.28	22.73
5	9.30	9.18	0.88	23.61
6	7.00	11.13	1.43	25.04
7	6.50	12.36	0.83	25.87
8	6.10	14.93	1.62	27.49
9	6.30	15.99	0.69	28.18
10	5.70	17.68	0.99	29.17
11	6.40	18.66	0.65	29.82
12	6.60	20.67	1.38	31.20
13	6.40	23.15	1.65	32.85
14	6.8	25.18	1.44	34.29
15	6.5	26.74	1.05	35.35
16	6.5	28.42	1.14	36.48
17	6.5	30.88	1.66	38.14
18	7.3	33.00	1.62	39.77

SAMPLE NO.	EFFLUENT ppm NO3	PORE VOL. ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	58.00	2.66	17.35	17.35
2	6.00	4.80	1.42	18.77
3	1.90	5.76	0.19	18.96
4	0.60	8.29	0.14	19.11
5	0.60	9.18	0.05	19.16
6	0.50	11.13	0.09	19.25
7	0.50	12.36	0.06	19.30
8	0.50	14.93	0.12	19.42
9	0.50	15.99	0.05	19.46
10	0.50	17.68	0.08	19.54
11	0.50	18.66	0.04	19.58
12	0.50	20.67	0.09	19.68
13	0.50	23.15	0.11	19.79
14	0.50	25.18	0.09	19.88
15	0.50	26.74	0.07	19.95
16	0.50	28.42	0.06	20.02
17	0.50	30.88	0.11	20.14
18	0.50	33.00	0.10	20.23

TABLE C.18. contd

SAMPLE NO.	EFFLUENT PORE VOL. ELUTED	ELUTED mg H3BO3	SUM ELUTED mg H3BO3
1	2.66	161.69	161.69
2	4.80	31.25	192.95
3	5.76	9.26	202.21
4	8.29	19.57	221.78
5	9.18	7.28	229.06
6	11.13	16.18	245.24
7	12.36	10.21	255.45
8	14.93	21.90	277.35
9	15.99	9.27	286.62
10	17.68	13.83	300.45
11	18.66	8.68	309.14
12	20.67	17.36	326.49
13	23.15	21.41	347.91
14	25.18	17.53	365.44
15	26.74	13.29	378.73
16	28.42	14.05	392.78
17	30.88	20.58	413.36
18	33.00	19.50	432.86

SAMPLE NO.	EFFLUENT PORE VOL. ppm SO4 ELUTED	ELUTED mg SO4	SUM ELUTED mg SO4
1	380	2.66	88.09
2	140	4.80	13.02
3	125	5.76	4.22
4	100	8.29	3.99
5	110	9.18	2.41
6	126	11.13	8.79
7	109	12.36	3.19
8	103	14.93	4.92
9	120	15.99	4.06
10	93	17.68	1.33
11	91	18.66	0.55
12	88	20.67	0.45
13	94	23.15	2.23
14	97	25.18	2.52
15	91	26.74	0.88
16	78	28.42	2.27
17	63	30.88	-6.37
18	78	33.00	-1.91

TABLE C.19. Mass Balance for Flow Through Leach Test on Crushed Grout/Sediment with Groundwater (MBCGC)

SAMPLE NO.	EFFLUENT PORE VOL. ppm Ca	ELUTED ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca
1	7.0	2.00	-5.19	-5.19
2	2.3	5.92	-11.16	-16.35
3	1.5	9.32	-9.82	-26.17
4	1.5	12.91	-10.37	-36.54
5	1.5	16.64	-10.77	-47.30
6	1.6	21.70	-14.59	-61.90
7	1.3	26.68	-14.43	-76.32
8	1.2	30.15	-10.08	-86.40
9	1.2	31.47	-3.84	-90.24
11	2.2	38.91	-21.21	-111.45
13	18.0	49.85	-22.03	-133.49
15	28.7	56.08	-9.01	-142.50
17	39.6	62.83	-5.87	-148.37
19	50.9	70.23	-2.00	-150.37
21	36.5	76.30	-6.27	-156.64
24	49.0	87.70	-4.23	-160.87
26	49.1	94.30	-2.41	-163.28
28	39.4	101.80	-6.60	-169.88
30	52.5	110.72	-1.65	-171.54
32	40.30	122.69	-9.96	-181.50
34	39.50	160.26	-32.85	-214.35
35	42.70	185.00	-17.44	-231.79

SAMPLE NO.	EFFLUENT PORE VOL. ppm Na	ELUTED ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	4770	2.00	502.97	502.97
2	1650	5.92	337.61	840.58
3	692	9.32	120.19	960.77
4	388	12.91	69.07	1029.84
5	266	16.64	47.64	1077.48
6	210	21.70	49.61	1127.10
7	168	26.68	37.74	1164.84
8	146	30.15	22.25	1187.09
9	132	31.47	7.49	1194.58
11	96	38.91	28.00	1222.58
13	45	49.85	11.60	1234.17
15	26	56.08	0.36	1234.54
17	26	62.83	0.18	1234.72
19	25	70.23	0.16	1234.87
21	25	76.30	0.13	1235.00
24	25	87.70	0.06	1235.06
26	26	94.30	0.24	1235.31
28	25	101.80	0.04	1235.35
30	26	110.72	0.28	1235.63
32	25.70	122.69	0.44	1236.07
34	26.10	160.26	2.17	1238.26
35	26.40	185.00	1.84	1240.10

TABLE C.19. contd

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K
1	13.0	2.00	0.55	0.55
2	4.2	5.92	-0.75	-0.20
3	4.0	9.32	-0.68	-0.88
4	2.0	12.91	-1.10	-1.99
5	1.9	16.64	-1.17	-3.15
6	1.9	21.70	-1.58	-4.73
7	0.3	26.68	-1.98	-6.71
8	0.3	30.15	-1.38	-8.09
9	0.3	31.47	-0.52	-8.62
11	3.9	38.91	-1.54	-10.16
13	28.0	49.85	11.71	1.56
15	27.0	56.08	6.34	7.90
17	21.0	62.83	4.72	12.62
19	16.0	70.23	3.22	15.84
21	14.0	76.30	1.99	17.83
24	13.0	87.70	3.14	20.97
26	11.0	94.30	1.12	22.09
28	9.7	101.80	0.76	22.85
30	9.4	110.72	0.76	23.60
32	8.00	122.69	0.13	23.73
34	8.20	160.26	0.80	24.53
35	6.20	185.00	-2.10	22.43

SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	62.60	2.00	6.63	6.63
2	41.80	5.92	8.66	15.29
3	22.40	9.32	4.02	19.31
4	13.70	12.91	2.59	21.89
5	9.62	16.64	1.88	23.76
6	7.12	21.70	1.88	25.66
7	5.45	26.68	1.41	27.07
8	4.31	30.15	0.77	27.85
9	3.31	31.47	0.22	28.07
11	1.90	38.91	0.71	28.78
13	1.30	49.85	0.70	29.48
15	1.01	56.08	0.30	29.76
17	1.32	62.83	0.44	30.21
19	2.18	70.23	0.82	31.03
21	2.14	76.30	0.66	31.68
24	2.78	87.70	1.62	33.30
26	3.69	94.30	1.26	34.56
28	4.43	101.80	1.72	36.28
30	3.61	110.72	1.66	37.94
32	4.63	122.69	2.87	40.81
34	3.57	160.26	6.91	47.72
35	3.94	185.00	5.04	52.76

TABLE C.19. contd

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si	SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	139.0	2.00	13.14	13.14	1	0.06	2.00	-1.48	-1.48
2	89.2	5.92	15.42	28.56	2	0.06	5.92	-2.90	-4.37
3	77.0	9.32	11.17	39.73	3	0.06	9.32	-2.51	-6.89
4	51.6	12.91	6.96	46.70	4	0.06	12.91	-2.65	-9.54
5	37.6	16.64	4.47	51.16	5	0.06	16.64	-2.76	-12.29
6	28.7	21.70	3.67	54.84	6	0.06	21.70	-3.74	-16.03
7	23.2	26.68	2.16	57.00	7	0.06	26.68	-3.68	-19.71
8	21.7	30.15	1.23	58.23	8	0.06	30.15	-2.56	-22.26
9	22.1	31.47	0.50	58.73	9	0.06	31.47	-0.98	-23.25
11	15.3	38.91	0.12	58.85	11	0.06	38.91	-5.50	-28.75
13	12.7	49.85	-1.33	57.52	13	0.06	49.85	-8.08	-36.83
15	11.0	56.08	-1.32	56.20	15	0.06	56.08	-4.60	-41.43
17	11.6	62.83	-1.22	54.98	17	0.06	62.83	-4.79	-46.42
19	10.7	70.23	-1.69	53.29	19	0.06	70.23	-5.47	-51.89
21	9.7	76.30	-1.71	51.59	21	0.06	76.30	-4.48	-56.37
24	8.8	87.70	-3.77	47.82	24	0.06	87.70	-8.42	-64.79
26	7.6	94.30	-2.59	45.23	26	0.06	94.30	-4.68	-69.67
28	6.2	101.80	-3.51	41.71	28	0.06	101.80	-5.54	-75.21
30	4.8	110.72	-4.83	36.88	30	0.06	110.72	-6.59	-81.80
32	2.91	122.69	-7.67	29.21	32	0.06	122.69	-8.84	-90.65
34	3.54	160.26	-22.82	6.39	34	0.06	160.26	-27.76	-118.40
35	3.27	185.00	-15.38	-8.99	35	0.06	185.00	-18.28	-136.68

TABLE C.19. contd

SAMPLE NO.	EFFLUENT PORE VOL. ppm F	ELUTED ELUTED	ELUTED mg F	SUM ELUTED mg F
1	102.0	2.00	10.76	10.76
2	42.0	5.92	8.62	19.38
3	15.0	9.32	2.61	21.99
4	6.9	12.91	1.22	23.21
5	5.7	16.64	1.03	24.24
6	5.0	21.70	1.21	25.45
7	4.6	26.68	1.08	26.53
8	4.2	30.15	0.68	27.21
9	4.2	31.47	0.26	27.47
11	7.5	38.91	2.76	30.23
13	7.6	49.85	4.12	34.34
15	4.6	56.08	1.35	35.70
17	5.2	62.83	1.68	37.38
19	5.2	70.23	1.84	39.22
21	5.9	76.30	1.74	40.96
24	7.2	87.70	4.05	45.01
26	7.8	94.30	2.55	47.56
28	8.0	101.80	2.98	50.54
30	8.5	110.72	3.78	54.33
32	8.90	122.69	5.33	59.65
34	8.70	160.26	16.33	75.98
35	11.00	185.00	13.77	89.75

SAMPLE NO.	EFFLUENT PORE VOL. ppm NO3	ELUTED ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	150.0	2.00	15.89	15.89
2	22.0	5.92	4.55	20.44
3	1.6	9.32	0.27	20.71
4	0.3	12.91	0.04	20.75
5	0.2	16.64	0.01	20.76
6	0.1	21.70	0.00	20.76
7	0.2	26.68	0.03	20.79
8	0.2	30.15	0.02	20.81
9	0.2	31.47	0.01	20.81
11	0.2	38.91	0.04	20.85
13	0.2	49.85	0.06	20.91
15	0.5	56.08	0.13	21.04
17	0.5	62.83	0.14	21.19
19	0.5	70.23	0.16	21.34
21	0.5	76.30	0.13	21.47
24	0.5	87.70	0.24	21.71
26	0.5	94.30	0.14	21.85
28	0.5	101.80	0.16	22.01
30	0.5	110.72	0.19	22.20
32	0.5	122.69	0.25	22.45
34	0.5	160.26	0.60	23.25
35	0.5	185.00	0.52	23.78

TABLE C.19. contd

SAMPLE NO.	EFFLUENT PORE VOL. ppm H3B03	ELUTED ELUTED	ELUTED mg H3B03	SUM ELUTED mg H3B03
1	123.50	2.00	13.05	13.05
2	30.80	5.92	6.33	19.38
3	6.30	9.32	1.07	20.46
4	2.03	12.91	0.32	20.78
5	1.79	16.64	0.29	21.07
6	1.72	21.70	0.37	21.44
7	1.67	26.68	0.35	21.79
8	1.60	30.15	0.23	22.02
9	1.60	31.47	0.09	22.11
11	1.54	38.91	0.47	22.58
13	1.43	49.85	0.63	23.21
15	1.22	56.08	0.29	23.50
17	1.28	62.83	0.34	23.84
19	1.67	70.23	0.52	24.36
21	1.16	76.30	0.26	24.62
24	1.15	87.70	0.49	25.11
26	1.12	94.30	0.27	25.39
28	1.06	101.80	0.29	25.67
30	1.00	110.72	0.31	25.98
32	1.03	122.69	0.44	26.42
34	0.85	160.26	1.02	27.44
35	0.88	185.00	0.71	28.15

SAMPLE NO.	EFFLUENT PORE VOL. ppm S04	ELUTED ELUTED	ELUTED mg S04	SUM ELUTED mg S04
1	1550	2.00	155.18	155.18
2	246	5.92	33.24	188.43
3	65	9.32	-3.78	184.64
4	63	12.91	-4.38	180.27
5	67	16.64	-3.76	176.51
6	67	21.70	-5.10	171.41
7	72	26.68	-3.70	167.72
8	72	30.15	-2.57	165.14
9	72	31.47	-0.98	164.16
11	82	38.91	-1.58	162.59
13	80	49.85	-3.48	159.11
15	71	56.08	-4.95	154.16
17	73	62.83	-4.65	149.50
19	69	70.23	-6.67	142.84
21	69	76.30	-5.47	137.37
24	73	87.70	-7.85	129.51
26	73	94.30	-4.55	124.97
28	72	101.80	-5.57	119.40
30	73	110.72	-6.15	113.26
32	71.00	122.69	-9.52	103.74
34	73.00	160.26	-25.89	77.85
35	74.60	185.00	-14.95	62.91

TABLE C.20. Mass Balance for Flow Through Leach Test on Crushed Grout/Sediment with Groundwater (MBSCGI)

SAMPLE NO.	EFFLUENT ppm Ca	PORE VOL. ELUTED	ELUTED mg Ca	SUM ELUTED mg Ca
1	45.2	1.84	-1.06	-1.06
2	2.7	5.72	-11.01	-12.07
3	1.9	9.06	-9.62	-21.68
4	1.6	11.69	-7.61	-29.29
5	1.4	15.49	-11.03	-40.32
6	1.2	20.61	-14.91	-55.23
7	1.2	24.40	-11.05	-66.28
8	1.3	27.94	-10.30	-76.58
9	1.1	31.02	-9.00	-85.57

SAMPLE NO.	EFFLUENT ppm Na	PORE VOL. ELUTED	ELUTED mg Na	SUM ELUTED mg Na
1	1030	1.84	98.36	98.36
2	1920	5.72	391.08	489.44
3	990	9.06	171.44	660.88
4	585	11.69	78.34	739.22
5	468	15.49	69.54	828.76
6	345	20.61	87.15	915.91
7	272	24.40	49.79	965.70
8	213	27.94	35.40	1001.10
9	191	31.02	27.19	1028.29

SAMPLE NO.	EFFLUENT ppm K	PORE VOL. ELUTED	ELUTED mg K	SUM ELUTED mg K
1	8.3	1.84	0.05	0.05
2	4.3	5.72	-0.72	-0.67
3	3.0	9.06	-0.85	-1.53
4	3.0	11.69	-0.67	-2.20
5	2.2	15.49	-1.13	-3.33
6	2.1	20.61	-1.55	-4.88
7	0.3	24.40	-1.51	-6.39
8	0.3	27.94	-1.41	-7.81
9	0.3	31.02	-1.23	-9.03

SAMPLE NO.	EFFLUENT ppm Al	PORE VOL. ELUTED	ELUTED mg Al	SUM ELUTED mg Al
1	0.17	1.84	0.01	0.01
2	25.60	5.72	5.26	5.27
3	20.80	9.06	3.68	8.95
4	19.30	11.69	2.69	11.63
5	17.40	15.49	3.50	15.13
6	14.60	20.61	3.95	19.08
7	11.70	24.40	2.34	21.42
8	8.59	27.94	1.60	23.02
9	7.54	31.02	1.22	24.23

SAMPLE NO.	EFFLUENT ppm Si	PORE VOL. ELUTED	ELUTED mg Si	SUM ELUTED mg Si
1	72.0	1.84	5.58	5.58
2	169.0	5.72	31.78	37.36
3	107.0	9.06	16.34	53.70
4	70.5	11.69	7.76	61.47
5	57.6	15.49	8.61	70.08
6	43.4	20.61	7.73	77.81
7	33.6	24.40	3.75	81.56
8	29.9	27.94	2.81	84.37
9	27.3	31.02	2.02	86.38

SAMPLE NO.	EFFLUENT ppm Mg	PORE VOL. ELUTED	ELUTED mg Mg	SUM ELUTED mg Mg
1	0.06	1.84	-1.36	-1.36
2	0.06	5.72	-2.68	-4.24
3	0.06	9.06	-2.48	-6.72
4	0.06	11.69	-1.95	-8.67
5	0.06	15.49	-2.82	-11.49
6	0.06	20.61	-3.80	-15.28
7	0.06	24.40	-2.81	-18.09
8	0.06	27.94	-2.62	-20.72
9	0.06	31.02	-2.28	-23.00

TABLE C.20. contd

SAMPLE NO.	EFFLUENT PORE VOL. ppm F	ELUTED ELUTED	ELUTED mg F	SUM ELUTED mg F
1	32.0	1.84	3.08	3.08
2	34.0	5.72	6.91	10.00
3	19.0	9.06	3.29	13.28
4	13.0	11.69	1.75	15.03
5	10.0	15.49	1.92	16.95
6	7.3	20.61	1.85	18.80
7	5.8	24.40	1.07	19.87
8	5.0	27.94	0.85	20.72
9	4.2	31.02	0.61	21.33

SAMPLE NO.	EFFLUENT PORE VOL. ppm NO3	ELUTED ELUTED	ELUTED mg NO3	SUM ELUTED mg NO3
1	160.0	1.84	15.65	15.65
2	56.0	5.72	11.54	27.19
3	6.4	9.06	1.12	28.31
4	0.8	11.69	0.10	28.40
5	0.2	15.49	0.02	28.42
6	0.1	20.61	-0.01	28.41
7	0.2	24.40	0.02	28.43
8	0.2	27.94	0.02	28.45
9	0.2	31.02	0.02	28.47

SAMPLE NO.	EFFLUENT PORE VOL. ppm H3BO3	ELUTED ELUTED	ELUTED mg H3BO3	SUM ELUTED mg H3BO3
1	55.59	1.84	5.41	5.41
2	33.74	5.72	6.89	12.30
3	12.80	9.06	2.21	14.51
4	8.12	11.69	1.09	15.60
5	5.72	15.49	1.09	16.69
6	4.60	20.61	1.16	17.85
7	2.68	24.40	0.47	18.32
8	7.38	27.94	1.33	19.65
9	6.23	31.02	0.96	20.61

SAMPLE NO.	EFFLUENT PORE VOL. ppm SO4	ELUTED ELUTED	ELUTED mg SO4	SUM ELUTED mg SO4
1	1440	1.84	132.52	132.52
2	560	5.72	97.82	230.34
3	181	9.06	16.88	247.22
4	106	11.69	2.50	250.01
5	79	15.49	-1.41	248.60
6	68	20.61	-4.90	243.70
7	68	24.40	-3.63	240.07
8	68	27.94	-3.39	236.68
9	66	31.02	-3.28	233.40

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