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Brine Sampling and Evaluation Program 1991 Report

Waste Isolation Pilot Plant

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BRINE SAMPLING AND EVALUATION PROGRAM
1991 REPORT

DOE-WIPP 93-026

September 1993

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Ms. Martin authored the preliminary draft of the section of this report on weep encrustations, which was significantly modified by Mr. Darin Milligan. Mr. Milligan prepared the section on moisture that is available to be squeezed from clay present in the Salado Formation beneath the WIPP site. Mr. Robert Sobocinski provided support and calculation verification for several sections of the report, especially the sections on brine geochemistry, weep encrustations, and moisture present in the clay.

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List of Abbreviations/Acronyms

ASTM	American Society for Testing and Materials
BSEP	Brine Sampling and Evaluation Program
°C	degrees Celsius
CH-TRU	contact-handled transuranic
Cl	chloride
cm	centimeter(s)
DOE	U.S. Department of Energy
DRZ	disturbed rock zone
EATF	Engineered Alternatives Task Force
ft	foot/feet
g	gram(s)
g/L	gram(s) per liter
g/cm^3	gram(s) per cubic centimeter
H_2O	water
in.	inch(es)
IT	IT Corporation
ITAS	IT Corporation Analytical Services
K	potassium
kg	kilogram(s)
L	liter(s)
m	meter(s)
m^2	square meter(s)
MB 139	Marker Bed 139
mg/L	milligram(s) per liter
mL	milliliter(s)
mm	millimeter(s)
MPa	megapascal(s)
Na	sodium
P	pascal(s)
psi	pounds per square inch
RCRA	Resource Conservation and Recovery Act
SG	specific gravity
SI	saturation index
SNL/NM	Sandia National Laboratories/New Mexico
SPDV	Site and Preliminary Design Validation
s.u.	standard units
TDS	total dissolved solids
TIC	total inorganic carbon
TOC	total organic carbon
TRU	transuranic
UNC	United Nuclear Corporation
VOC	volatile organic compound
Westinghouse	Westinghouse Electric Corporation
WIPP	Waste Isolation Pilot Plant

Executive Summary

The data presented in this report are the result of Brine Sampling and Evaluation Program (BSEP) activities at the Waste Isolation Pilot Plan (WIPP) during 1991. These BSEP activities document and investigate the origins, hydraulic characteristics, extent, and composition of brine occurrences in the Permian Salado Formation and seepage of that brine into the excavations at the WIPP. When excavations began at the WIPP in 1982, small brine seepages (weeps) were observed on the walls. Brine studies began as part of the Site Validation Program and were formalized as a program in its own right in 1985.

During nine years of observations (1982–1991), evidence has mounted that the amount of brine seeping into the WIPP excavations is limited, local, and only a small fraction of that required to produce hydrogen gas by corroding the metal in the waste drums and waste inventory. The data through 1990 is discussed in detail and summarized by Deal and others (1991). The data presented in this report describes progress made during the calendar year 1991 and focuses on four major areas: (1) quantification of the amount of brine seeping across vertical surfaces in the WIPP excavations (brine weeps); (2) monitoring of brine inflow, e.g., measuring brines recovered from holes drilled downward from the underground drifts (downholes), upward from the underground drifts (upholes), and from subhorizontal holes; (3) further characterization of brine geochemistry; and (4) preliminary quantification of the amount of brine that might be released by squeezing the underconsolidated clays present in the Salado Formation.

Measurement of Rib Weeps. Quantification of the amount of brine seeping across vertical surfaces into the WIPP excavations continued. Much of the brine evaporates into the air circulated for ventilation, resulting in salt encrustations on the underground surfaces. The encrustations were carefully collected, dried, and weighed. The three areas described by Deal and others (1989, Section 2.2) were sampled again, and two new sampling areas were established. Additionally, one of the areas previously sampled (R1S) was reexcavated (trimmed) 3 feet (ft) (0.9 meters [m]), creating a new surface. An algorithm developed in this study was then used to calculate the amount of brine that would be required to form the encrustations.

Calculated seepage rates based on encrustation development ranged from 0.02 to 1.3 liters (L) per square meter of surface area per year, and the surfaces dried up about three years after they were excavated. If the six areas sampled are each assumed to be representative of conditions in a full-sized WIPP waste storage room (13 ft [4 m] tall by 300 ft [9 m] long, times two walls), these data predict that the total amount of brine seeping through the walls into a waste storage room ranges from 45 to 603 L, much less than the 220,000 L calculated (Deal and others, 1991) as necessary to corrode all the susceptible metal in the CH-TRU waste and waste storage drums.

The facts that the weeps ceased and then were reactivated again after 3 ft (0.9 m) were trimmed from the surface and that about the same amount of encrustation formed the second time strongly suggests that most of the observed brine originates in the meter or so of salt closest to the excavation.

Damp or Wet areas on Drift Floors. Seepage into the one persistent wet area on the floor of the WIPP excavations in Room G (known as GSEEP) continued to decline in 1991, reaching a low value of 0.4 L per day by December. The drift floors in the northern part of the workings (north of the Salt Shaft) were carefully inspected for evidence that brine was flowing upward out of fractures beneath the floors. No such evidence was found. Drillholes penetrating anhydrite Marker Bed 139 (MB 139) in Room G and Site and Preliminary Design Validation (SPDV) Room 4 were also observed. Those observations show that the anhydrite is fractured, but no brine is seeping out of either the anhydrite or the fractures providing strong evidence that there is no significant flow of brine into the excavations from MB 139. If there is far-field flow through MB 139, moisture (or evidence of moisture, such as salt encrustation) should be observed at these locations. No such evidence was found. (In the context of brine flow toward the WIPP excavations, near-field flow is flow that occurs within the DRZ, including the outer zone of plastic deformation and the inner zone of elastic deformation and fracturing [Deal and others, 1991, Chapter 5]. Far-field flow refers to flow far enough beyond the DRZ that the salt does not deform in response to the presence of the WIPP excavations.)

Seepage into Drillholes. Seepage into selected drillholes continued to be monitored. Eight of the ten downholes monitored in 1991 showed fairly steady seepage rates ranging from 0.004 to 0.09 L per day. Downholes are drilled vertically downward into the repository floor. Two downholes, the one in Panel 1 and the one in the underground core storage area, showed decreasing seepage trends. In all of those downholes where MB 139 could be observed, seepage was not entering into the hole from MB 139. Rather, seepage was from deeper horizons that will not be intersected by waste storage rooms or the fracturing expected to occur around waste storage rooms.

Only one monitored uphole continues to produce brine; that seepage appeared to become sporadic in 1991. Upholes are drilled vertically upward into the repository roof. Eleven subhorizontal observation holes continue to be monitored. These holes are drilled at a slight downward angle. Only those four that intersect the orange band (Map Unit 1) continue to have measurable seepage, which is on the order of 0.001 to 0.02 L per day.

Seepage into Shaft Sumps. Observations in the shaft sumps show that MB 139 and open fractures remain dry. The shaft sumps are, in effect, long-term far-field flow experiments. The fact that brine is not observed seeping from MB 139 in the shafts is evidence that significant far-field flow does not exist.

Geochemistry. The general trends of the 1991 geochemistry data are similar to those discussed by Deal and others (1991, Chapter 3, Table 3-5 and 3-3). Long-term trends of strontium values have been decreasing for samples collected from DHP402A. A high strontium signature is characteristic of brine that originated as water from the Rustler Formation and was spread for dust control. The lowering of strontium values is consistent with the hypothesis that less dilution by construction water derived from the Rustler Formation is occurring at these two locations.

Moisture Contents of Clay in the Salado Formation. Clay samples from the WIPP underground were tested in the laboratory to determine how much brine could be squeezed out of them if they were compacted under lithostatic loading. Approximately 25 to 29 percent brine by volume is available. Preliminary calculations indicate that there is enough brine available in the clay within a meter or two of the excavations to account for the observed brine weeps.

1.0 Introduction

The Waste Isolation Pilot Plant (WIPP), a U.S. Department of Energy (DOE) research facility, was established to demonstrate the safe disposal of defense-generated transuranic (TRU) waste in the United States. The WIPP facility is 42 kilometers (26 miles) east of Carlsbad, New Mexico (Figure 1-1). The surface and underground layout of the facility is presented in Figure 1-2. The repository is approximately 2,150 feet (ft) (655 meters [m]) below the surface in the Salado Formation. The Salado Formation and underlying Castile Formation make up an evaporite sequence over 3,300 ft (1,000 m) thick (Figure 1-3). An extensive program of site characterization was initiated in 1976 (Powers and others, 1978; Bechtel, 1983) and continued through 1990 (Deal and others, 1991). The hydrogeological activities of the Brine Sampling and Evaluation Program (BSEP) are part of a continuing effort to refine the understanding of the repository geology. The data in this report constitute updates of previous studies that were summarized in Deal and others (1991).

Brine studies began in 1982 as part of the Site Validation Program (Black and others, 1983) and were formalized in 1985 by Morse and Hassinger (1985). The focus of the BSEP is the origin, hydraulic characteristics, extent, and chemical composition of brine in the Salado Formation at the repository horizon and seepage of that brine into the excavations at the WIPP. Although the repository is dry, brine weeps from exposed surfaces, accumulates in drill holes and sumps, and forms encrustations on the ribs (walls). The chemistry of the brine may affect chemical reactions in the buried waste, and the volume of brine and the hydrologic system that drives the brine seepage need to be known to assess the long-term performance of the repository after closure.

Possible brine inflow systems have been discussed in previous BSEP reports. There are basically two systems that have been proposed: one in which far-field flow occurs through undisturbed rock outside of the zone of rock deformation (disturbed rock zone [DRZ]) and a local near-field system where brine is redistributed within the DRZ. Additional effects, such as gas exsolution, development of enhanced porosity and permeability within the DRZ, and preferential flow along bedding planes, may modify brine inflow. However, it is fundamentally important to distinguish between far-field sources and local, relatively limited redistribution of brine in the immediate vicinity of the WIPP excavations. In both cases, the driving mechanism is the pressure gradient caused by the excavation of the underground

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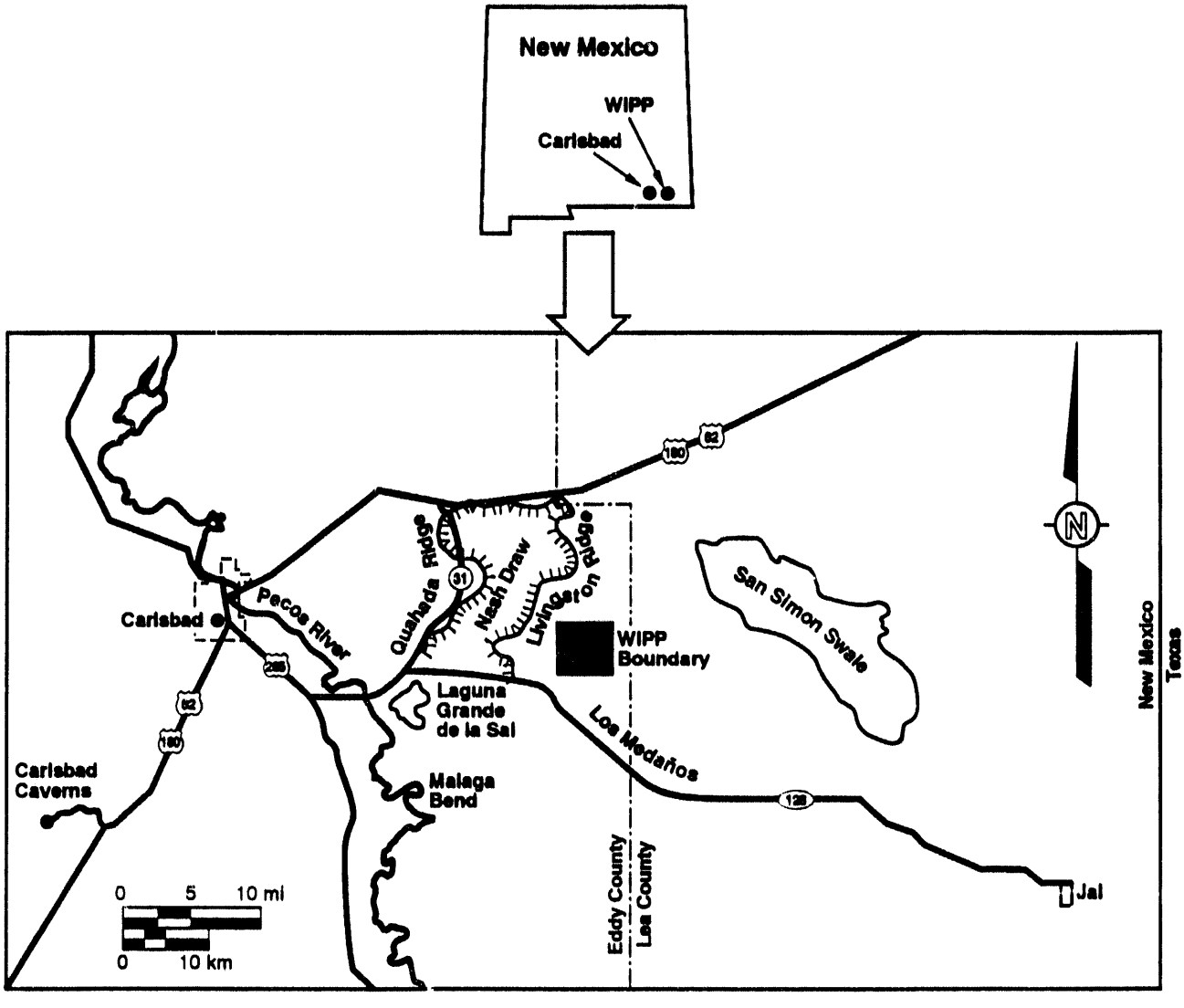

Figure 1-1
WIPP Location in Southeastern New Mexico

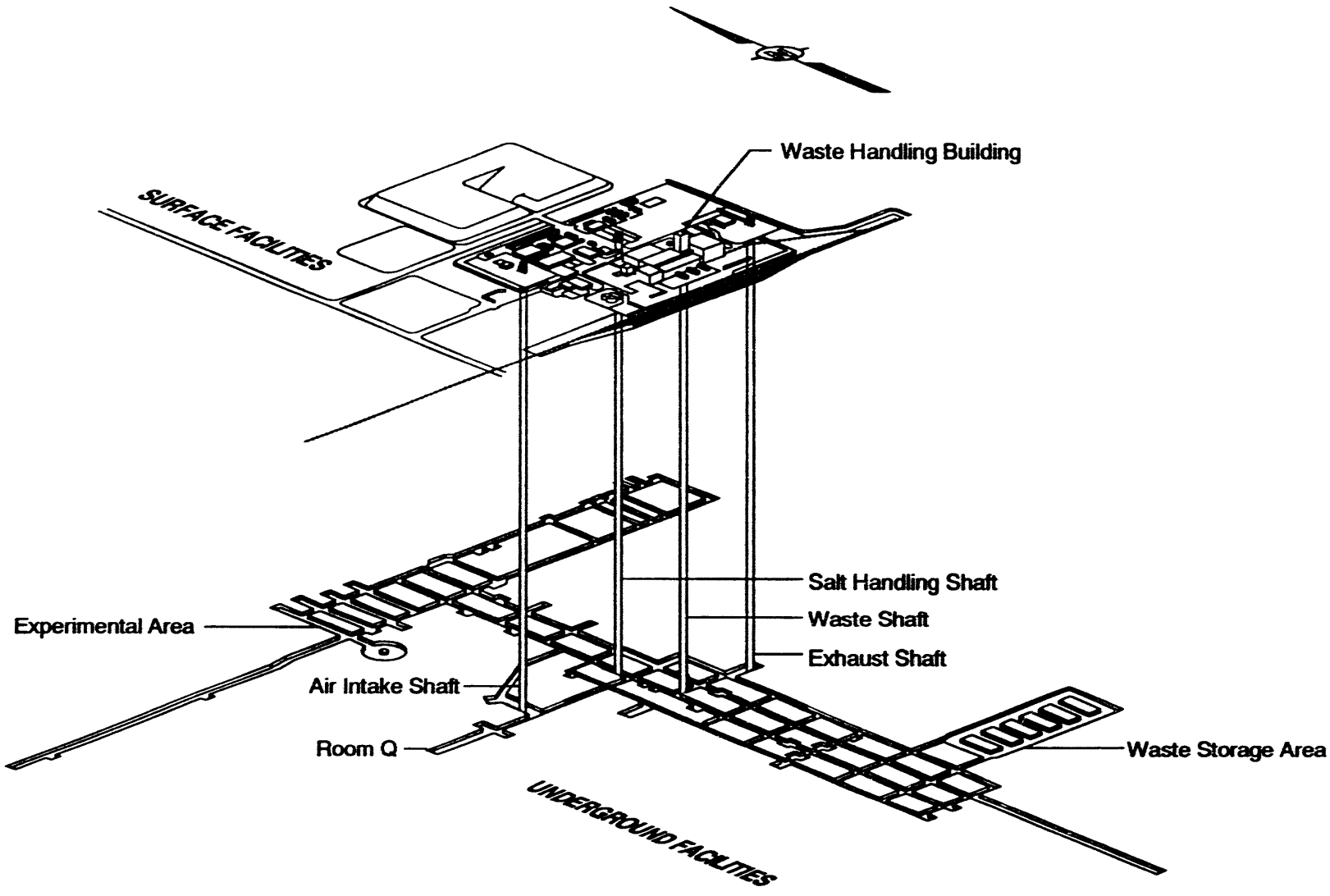

Figure 1-2
Surface and Underground Layout of the WIPP Facility as of December 31, 1991

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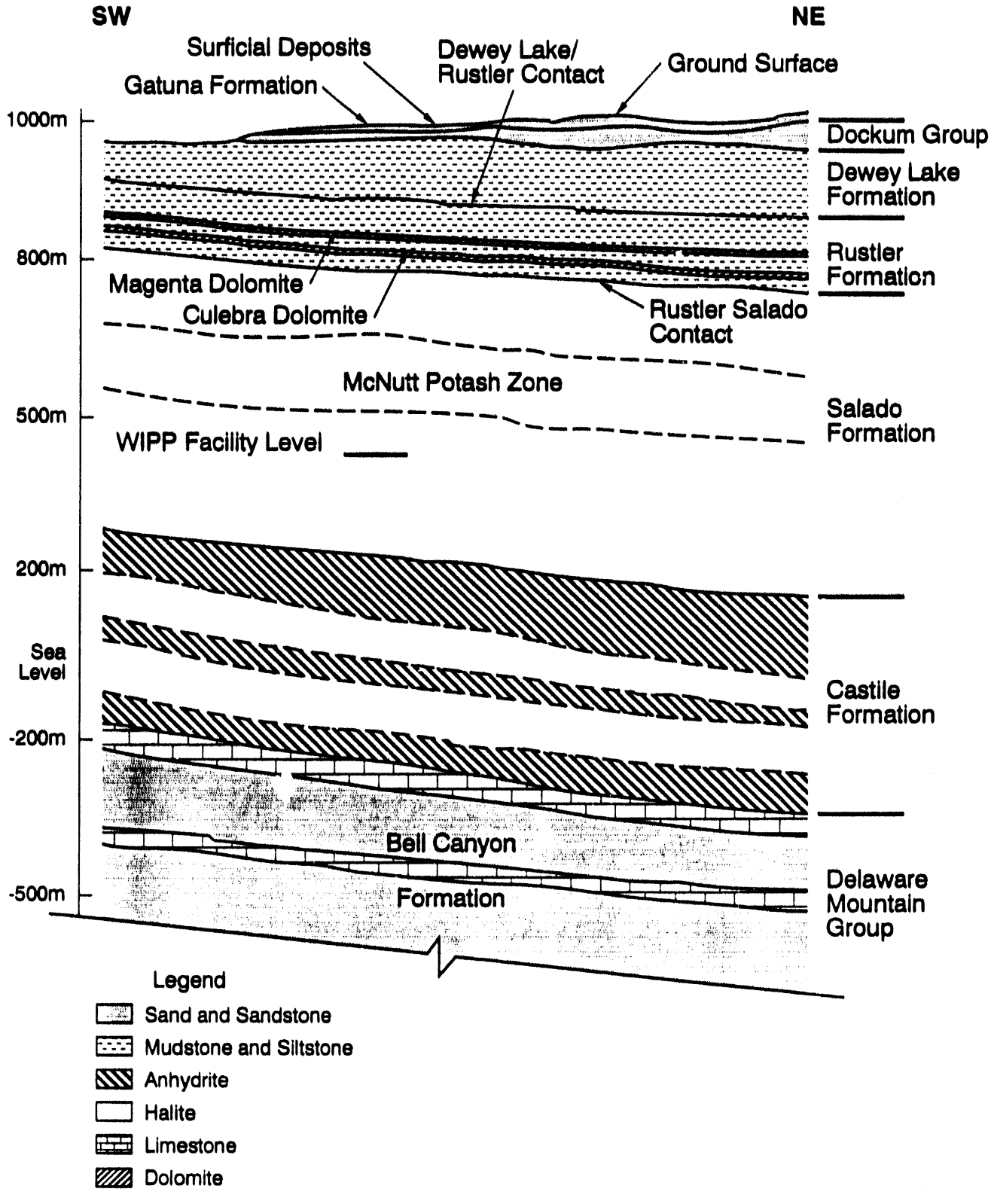


Figure 1-3

Generalized Stratigraphic Cross Section
(Modified from Deal and Case, 1987, Figure 1-2)

openings. Flow pathways are through permeable interbeds, along stratigraphic discontinuities, or through fractures.

The relative importance of these two systems needs to be determined. For example, if there is sufficient far-field flow into the repository, then enough brine may come into the excavations to completely corrode the metal in the waste and the waste drums. In that case, the potential for hydrogen generation due to the corrosion would be limited by the total metal inventory. If brine seepage is a purely local phenomenon due to redistribution of brine in the immediate vicinity of the excavations, there may be insufficient brine available to cause much corrosion after closure. In the latter case, gas generation will be limited by brine availability and may not be a problem. Evidence is mounting, including data presented in this report, that the brine volume is quite limited, is derived from clay within a few meters of the excavations, and will not result in the production of large quantities of hydrogen gas by anoxic corrosion.

The predicted consequences of human-intrusion events, the fate of the waste-generated gases, and the migration of the hazardous constituents during undisturbed performance are all sensitive to brine inflow assumptions, even if both of the proposed systems yield similar volumes of brine during the pressurization phase (initial period of time at which the repository is pressurizing). If the far-field model is valid, a human-intrusion event (drilling into the sealed repository at a future date) will lower fluid pressure in the waste storage rooms, create pressure gradients toward the rooms, and reinstate far-field flow. This will lead to a greater release of radionuclides from the repository as the inflowing brine infiltrates through the waste and flows up the drill hole. Alternatively, if the near-field model is valid, the only brine available for transport of radionuclides is the volume of brine that is trapped in the room at the time of sealing.

Predicting the fate of waste-generated gases is also dependent upon the hydrologic system assumed to be operational. If brine can flow through the far-field, then excess gas pressure can probably be dissipated through the host rock; however, if far-field flow is not a viable concept, gas generation from microbial or radiolytic decomposition of organic materials may yield very high local pressures. Analysis by the WIPP Engineered Alternatives Task Force (EATF) has shown that predicted peak pressures are highly dependent upon the assumed mechanisms by which fluids can flow through the undisturbed host rock (DOE, 1991).

Another long-term performance concern is the migration of hazardous constituents listed in the Resource Conservation and Recovery Act (RCRA) from the repository. If far-field flow

is valid, the generation of excess gas pressure within the repository may force gas, possibly contaminated with volatile organic compounds (VOC), across the RCRA unit boundary. However, if there is no far-field flow, there will be less potential for VOC migration.

Collection techniques and certain general observations should be kept in mind when evaluating the BSEP data. These are listed in Table 1-1. Care should also be exercised when interpreting the various diagrams of drill hole lengths and stratigraphic thicknesses. Although the strata at the WIPP are quite uniform in both composition and thickness, some variation occurs. As a result, there are differences, albeit small, from north to south and from east to west within the WIPP excavations.

Activities in 1991 provided additional information on the brine seepage in the repository (Chapter 2), geochemical properties of the brine (Chapter 3), and the release of brine from undercompacted clays within the Salado Formation (Chapter 4). A summary and conclusions are also provided (Chapter 5). This report supplements the summary of data through 1990 reported and discussed by Deal and others (1991).

Appendix A provides detailed information of the brine seepage into drill holes monitored for this program. The information includes the name of the drill hole; date and time of brine collection or sampling; volume (in liters) removed; days since January 1, 1985 (an arbitrary reference date); the cumulative volume (L) collected; inflow rates in liters per day, and a remarks column. Appendix B contains graphs of the data from Appendix A, presented as an 11-point moving average of the data. This averaging reduces variation introduced by collection techniques and presents a more realistic picture of the real variations in brine seepage rates than would be presented by plots of raw data. Appendix C shows the results of the chemical analyses, including ion concentrations in milligrams per liter (mg/L), pH, specific conductivity, and alkalinity. This report constitutes a permanent quality assurance record and will be retained for this purpose as stipulated in the quality assurance sections of the Geotechnical Engineering program plans and procedures.

Table 1-1
Points to be Considered When Evaluating BSEP Data

1. Many of the downholes and sumps are contaminated with water spread on the floor for construction purposes or salt-dust control (Deal and others, 1989).

2. The redistribution of stress around the WIPP excavations as the openings age can cause significant changes in inflow rates. These effects are particularly observable in upholes and downholes.

3. All downholes were originally pumped with a bailer on a two-week interval. During 1989, pressure-suction moisture-collection devices were installed in the holes. These devices have a capacity of less than 1 liter, and the sampling frequency was increased to once a week. The limited capacity of the collection device requires sampling on the following day for quantities of a half-liter or more. The two-day volume measurements are then summed (see Appendix A).

4. Brine seepages in the Salado Formation (Deal and others, 1989) are small and chemically distinct from brines in the Rustler Formation. WIPP brines are also chemically distinct from brines in the Castile Formation.

5. Brine occurrences, particularly those evidenced as halite efflorescences or salt encrustations, are ubiquitous on ribs (walls) but not the back (roof) in recently mined areas throughout the WIPP underground.

6. Brine seepage rates into test drillholes are low, usually on the order of a few hundredths of a liter per day or less.

7. Although small when measured in terms of liters per day at any given location, cumulative seepage volumes may be significant when measured in terms of the entire repository over many years.

8. Brine seepage into downholes can vary several orders of magnitude between locations, even when locations are less than 1 meter apart.

9. Upholes and downholes show a pattern of an initial, maximum flow rate that declines to a steadier (or much more slowly declining) flow rate during the observation period. Many of the upholes dry up completely.

10. Vertical drill holes yield inconsistent data, but horizontal drill holes provide consistent and comparable data sets.

11. Flow in these very low-permeability units is quite complex, has very low velocities, appears to involve small volumes of brine, and requires testing over long periods of time during which the very properties being tested change; therefore, the flow parameters are difficult to quantify.

2.0 Monitoring of Brine Inflow Parameters

2.1 Introduction

Brine seepage observations in underground locations at the WIPP began in 1982. December 31, 1991, marked nine years of observation. Information regarding the inflow of brine was derived from observations and mapping of moist areas and measurements of brine seeping into holes drilled downward from the floor, upward from the back (roof), and subhorizontally from the rib (wall) of the facility. The locations of the 1991 BSEP observation holes are shown in Figure 2-1, superimposed on a map of the facility as it existed on December 31, 1991. Descriptions and the underground locations of these boreholes are listed in Table A-1 of Appendix A. Table A-2 of Appendix A lists the quantity of brine removed, calculated inflow rates in liters per day, and cumulative volume (L) for all the boreholes monitored in 1991. The brine accumulations from these boreholes at the repository horizon and the stratigraphy of the Salado Formation have been discussed and summarized by Deal and others (1991).

2.2 Measurement of Rib Weeps: Quantitative Estimates of Salt Encrustation Weights and Inferred Brine Volumes

Small encrustations of precipitated salt tend to develop on newly excavated portions of the WIPP underground workings in the Salado Formation (Deal and others, 1989). The encrustations, sometimes called salt efflorescences, result from the evaporation of brine seeping from the adjacent salt and often take the form of "buttons" or larger masses, depending upon the amount of brine available. Areas of salt efflorescence on the ribs occur where small amounts of brine seep from the walls of the excavations. These small brine seeps are referred to as weeps. The weeps have been studied since 1982 (Alcorn, 1983) and discussed in detail by Deal and others (1991). The present investigation of the salt efflorescences is a continuation of studies described by Deal and others (1989, Section 2.2) and was pursued to estimate the volume of brine that was seeping from the adjacent rock. Deal and others (1989) developed an algorithm to an estimate the volume of brine required to form the encrustations.

2.2.1 Methods

The following five areas (Figure 2-1) with well-developed encrustations were selected: (1) Area R1S, located on the south rib of S1950 at W120; (2) Area R2S (Figure 2-2), located on the south rib at the west end of Room G (N1100 at W2830); (3) Area R3S, located on the east rib of W170 at S1750; (4) Area R4S, located on the west end (W327) of S400 in the

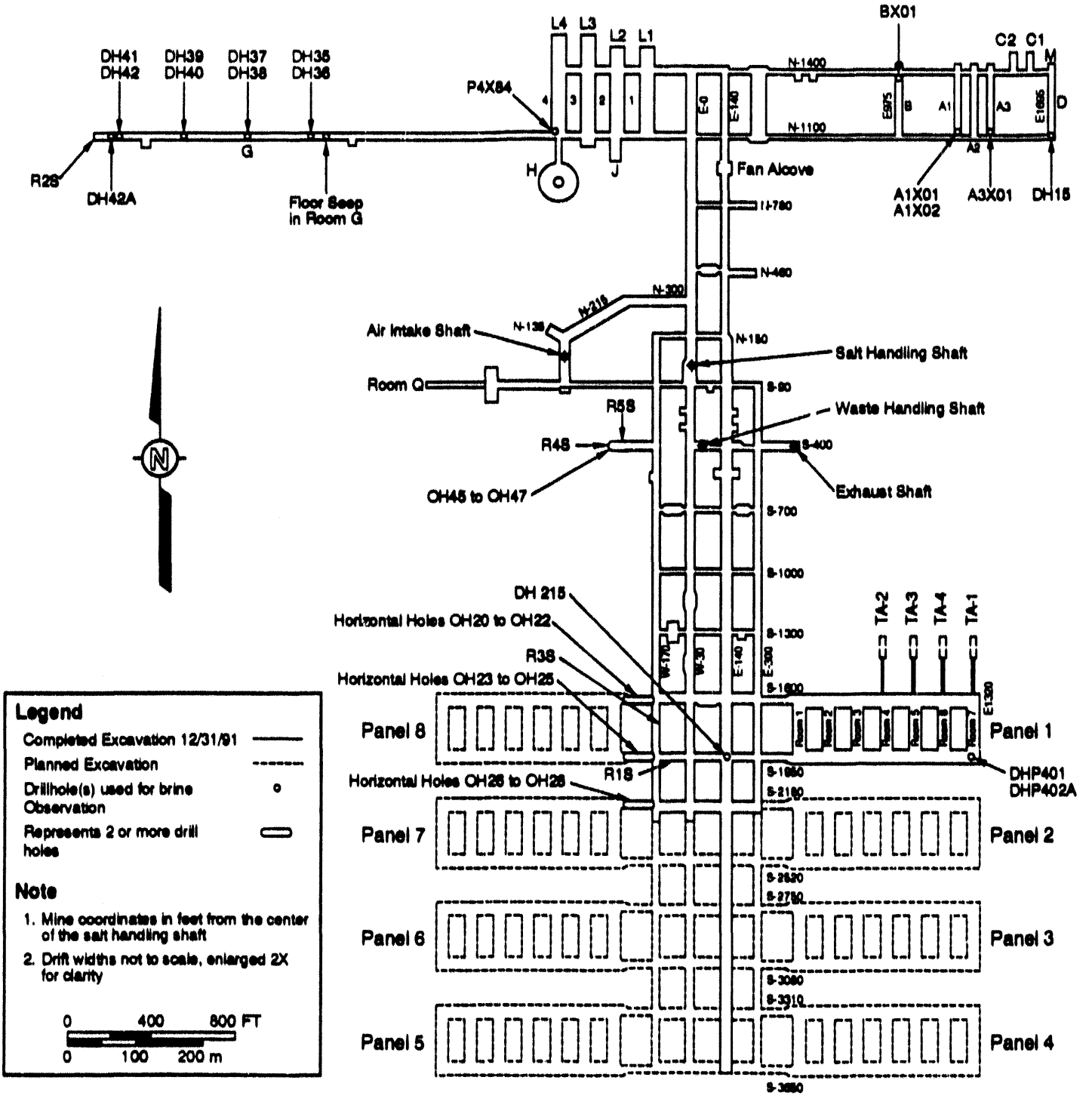


Figure 2-1

Map of WIPP Underground Workings Showing BSEP Observation Locations as of December 31, 1991

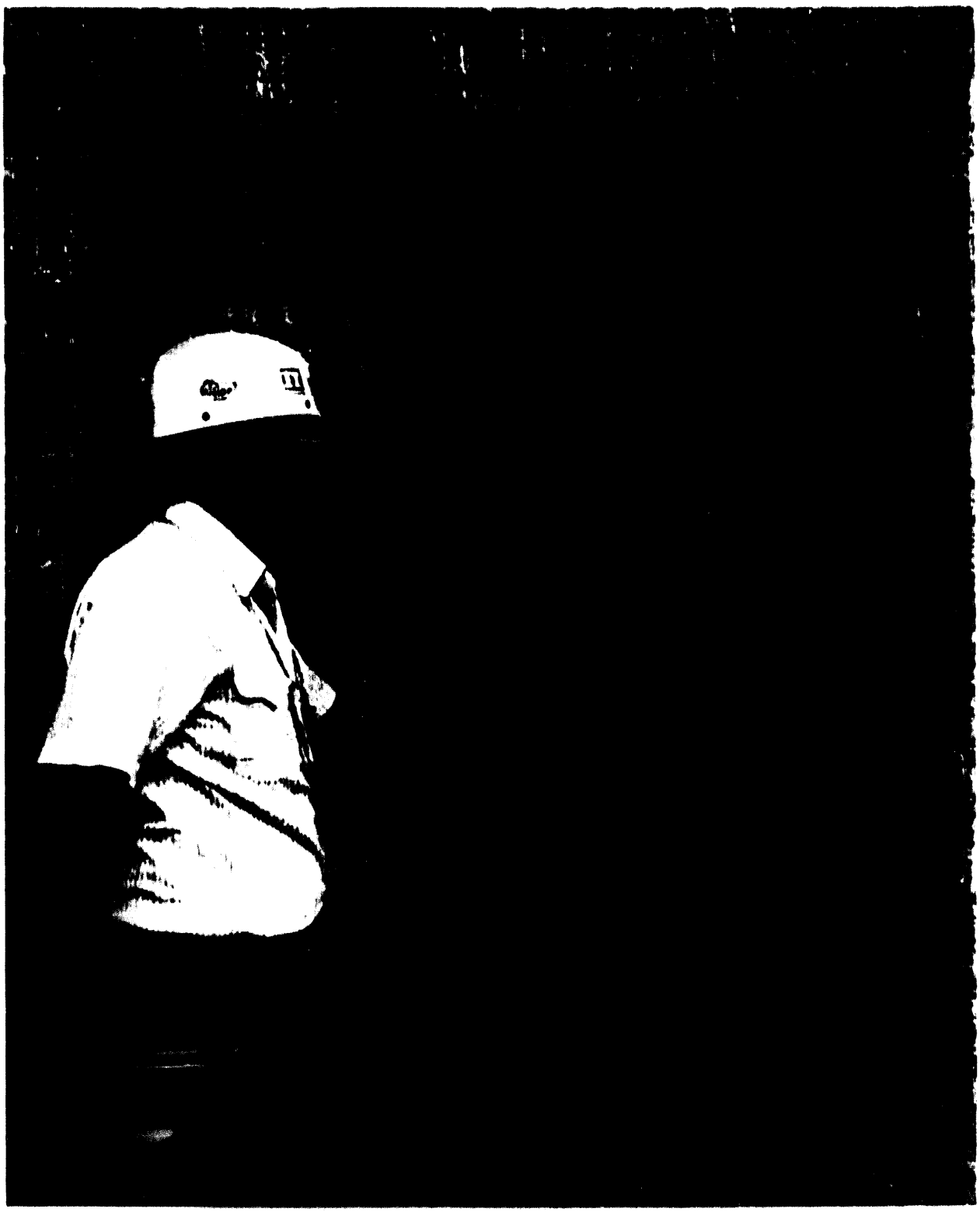


Figure 2-2

Rib Weep Grid Area R2S

(Photo taken in July 1993 No significant encrustation growth has occurred since June 1989, when encrustations where last removed from this surface.)

core library; and (5) Area R5S, located on the north rib of S400 between W276 and W325 in the core library (S120) (Figure 2-1). The first sampling round at areas R1S, R2S, and R3S has been documented by Deal and others (1989, Section 2.2). Results for these rounds are also presented here for comparison.

At each location, a randomly chosen section of rib was marked with a grid of 1-ft^2 (0.09 m^2) intervals (Figure 2-2) for a total of 80 ft^2 (7.4 m^2) for sampling areas R1S, R2S, and R3S; 176 ft^2 (16.4 m^2) for sampling area R4S; and 416 ft^2 (38.6 m^2) for sampling area R5S. At R1S, R2S, and R3S, the grid was 8 ft (2.4 m) high and 10 ft (3 m) long, centered vertically between the back and the floor of the drifts, and the positions of the orange band and other stratigraphic markers were noted on the field data sheets. In the core library, grids R4S and R5S were located with the straight top edge located approximately along the slightly undulating exposure of clay F. Both grids were 8 ft (2.4 m) high; R4S was 22 ft (6.7 m) long, and R5S was 52 ft (15.8 m) long. The encrustations within each square-foot (0.09-m^2) grid cell was carefully collected by scraping the wall and allowing the loosened material to fall into a tray held beneath the sampled area.

The material from each square-foot (0.09 m^2) grid area was placed into an individual plastic bag, labeled, and sealed to prevent moisture loss. Upon return to the surface, the material from each grid square was weighed, transferred to a drying tray, and placed in an oven. The first samples were dried at 250 degrees Celsius (°C), but a few of the samples decrepitated at this temperature, indicating that a lower drying temperature was required to avoid explosively dispersing the samples. Two groups of samples, one dried at 150°C and the other at 95°C, showed no difference in final weight, and thus, all subsequent encrustation samples were dried at 95°C. After an initial drying period, the samples were weighed at 24-hour intervals until no change in weight was detected. The dry weight of each sample was determined, and the water loss was calculated as a weight percentage compared to the original weight of the sample. The data were entered into a database file, and the amount of brine required to deposit that amount of salt crust was calculated using the algorithm devised by Deal and others (1989).

Area R1S was excavated on December 4, 1986, and 3 ft (0.9 m) were trimmed from the rib on December 22, 1989, creating a new surface, redistributing the stress in the salt, and renewing brine weeping. The new surface was 3 ft (0.9 m) south of the former location of R1S and is referred to as R1S-T (after trimming). The area was sampled twice before the rib was trimmed (April 19, 1988, and June 20, 1989) and twice afterwards (June 13, 1990, and

April 11, 1991). The amount of time available for encrustation growth was 502, 427, 173, and 302 days, respectively. Area R2S was excavated January 2, 1985, and sampled twice—April 27, 1988, and June 20, 1989. The time available for encrustation growth was 1,210 days and 419 days, respectively. Area R3S was excavated December 18, 1986, and sampled twice—May 18, 1988, and June 20, 1989. The time available for encrustation growth was 519 days and 398 days, respectively. The core library area (R4S and R5S) was excavated May 31, 1989, and sampled once on April 17, 1991—686 days later.

2.2.2 Data

Two quantities, dry weight of salt encrustation and weight percent water loss, were ascribed to the center of a grid square for the purposes of further interpretation. It is recognized that, for any given grid area, some portion of the salt encrustation resulted from brine that flowed down the vertical surface from above. Similarly, some brine that seeped to the surface within the area flowed downward to lower areas before crystallizing.

Although care was taken to completely scrape the ribs of all encrustation material, some was left behind, due to the inability to completely remove it from areas where encrustation was merely a thin film on the rock surfaces. This type of error will lead to underestimation of the encrustation weights. Conversely, small amounts of clay and salt not associated with the encrustation were sometimes incorporated into the samples. Although these amounts were small, their effect would be to provide overestimates of the encrustation weights. Given the sampling uncertainties, the estimated accuracy of the dry weights due to sampling error is ±5 percent.

2.2.3 Discussion

Brine will begin to evaporate when it migrates to the surface of the drift and is exposed to the air that is circulated through the excavations. The brine is in equilibrium with halite, so that the evaporation of water from the brine will result in the precipitation of halite and an increase in the concentrations of the undersaturated elements, such as potassium, magnesium, and bromine. As this process proceeds, halite continues to precipitate, and the unsaturated elements continue to concentrate in the remaining brine until the solubility of sylvite is reached. At this point (the halite-sylvite cotectic [Krauskopf, 1979]), the sodium (Na)/potassium (K) ratio in the remaining brine becomes fixed, and both halite and sylvite will precipitate in a fixed proportion as evaporation continues.

Krumhansl and others (1987) noted that the weep encrustations are deficient in magnesium, relative to typical brine geochemistry. In an open system, evaporation at ambient temperatures may never allow for saturation of magnesium salts. Additionally, weep encrustations are also deficient in sulfate salts relative to typical brine geochemistry. Krumhansl and others (1987) also performed x-ray diffraction studies of the weep encrustations from Rooms J and B in the experimental area. They determined that halite and sylvite were the volumetrically dominant phases, with kainite and carnallite present occasionally. Although other mineralogic phases may occur in the encrustations, they probably do not significantly affect the overall bulk composition.

Table 2-1 presents a summary of the rib encrustation data. Using these data, a calculation was performed to estimate the volume of brine required to produce the measured salt encrustation masses. The following assumptions were made:

- The salt encrustations are mostly halite, with a minor amount of sylvite and traces of carnallite and kainite.
- The average composition of the Room J salt encrustations (Krumhansl and others, 1987) is representative of the salt encrustations sampled for the present study.
- The composite brine reported in Table 3-5 of Deal and others (1989) is representative of the brine that evaporated to form the salt encrustations.
- The minerals halite and sylvite control the molar Na/K ratio in the brine, and this ratio can be estimated from the cotectic point in the system Na-K-Cl-H_2O (sodium-potassium-chloride-water).

Using these assumptions and the supporting analytical data on the salt encrustations and brine composition, Deal and others (1989) developed an algorithm to predict the volume of brine from the dry weight of the encrustations. This method estimates a value for the volume of brine produced by the salt residue, based on the molar ratio of sodium to potassium in the encrustations and in the brine (at the cotectic point) (Krauskopf, 1979). This calculation predicts that 233 grams (g) of salt encrustation (dry weight) will precipitate in the WIPP underground environment from each liter of brine that seeps to an exposed surface.

Table 2-1
Rib Encrustation Data

Sample	Sample Date	Original Weight (g)	Dry Weight (g)	Avg. Water Loss (Weight %)	Date Excavated	Time Available for Encrustations to Form (Days)
R1S-1	4/19/88	1538.34	1365.22	11.3	12/04/86	502
R1S-2	6/20/89	42.70	41.06	3.8	12/04/86	427
R1S-T1	6/13/90	1257.20	1064.59	15.3	12/22/89[a]	173
R1S-T2	4/11/91	462.28	376.49	18.6	12/22/89[a]	302
R2S-1	4/27/88	798.98	771.12	3.5	01/02/85	1,210
R2S-2	6/20/89	0.55	0.50	9.1	01/02/85	419
R3S-1	5/18/88	359.45	313.27	12.8	12/15/86	519
R3S-2	6/20/89	47.92	44.29	7.6	12/15/86	398
R4S	4/17/91	232.01	225.87	2.6	5/31/89	686
R5S	4/17/91	952.20	907.94	4.6	5/31/89	686

[a]This drift was enlarged 3 feet (0.9 meters) on December 22, 1989.

Given this value, an estimate for the volume of brine required to form the salt encrustations can be set using the expression:

$$V_b = W_s / 233$$

where

V_b	=	The volume of brine required to form the salt encrustations (L)
W_s	=	Total dry weight of salt encrustations taken from the rib (in grams)
233	=	The grams of solid precipitated from a liter of brine, under ambient mine conditions.

Based on this relationship, the brine seepage rates were calculated (Table 2-2). The total amount of brine required to form all the encrustation removed from a given sampling location (grid area) is calculated and then converted to the equivalent liter of brine per year per square meter of grid area. Calculated flow rates across 1 square meter (m^2) of rib surface range from 0.0003 to 1.30 L per year. This value is then extended to an equivalent WIPP waste storage room, assuming that the sampled location is representative of all the surfaces in one waste storage room and that the rib area for a WIPP waste storage room (assuming that only the ribs on the long sides of the room contribute to flow) is equal to 300 ft times 13 ft times 2 ribs, or 7,800 ft^2 (91.45 m times 3.96 m times 2 ribs, or 725 m^2). Projected seepage rates into an equivalent WIPP waste storage room vary from 0.2 to 941 L per year (Table 2-2). It is clear that seepage rates are highest immediately after excavation of a new surface, that they decrease rapidly with time, and that they appear to cease about three years (1,000 days) after excavation. Storage room operational requirements have resulted in rooms designed to remain open for a period up to five years (Bechtel National, Inc., 1986). As a result, most of the weep moisture will evaporate into the air circulated during operations and will not be available for corrosion of metals after closure. Previous encrustation data presented in Deal and others (1989) are included in Table 2-2.

2.2.4 Conclusions

Comparison between individual 1-ft^2 (0.09-m^2) grid squares at any of the weep sampling areas reveals that encrustation development is strongly a function of stratigraphy (see Figures 2-3 through 2-8). Encrustations are best developed at or just below the clay at the upper and lower contacts of the orange band (Map Unit 1) and at or just below clay F (at the top of Map Unit 4). Encrustations are least developed in the clear halite or polyhalitic units

Table 2-2
Estimated Brine Flux from Rib Encrustation Data

Sample Area	Sample Date	Estimated Brine Seepage Across Entire Grid Area (liters)	Average Estimated Brine Seepage Across 1 Square Meter of rib area (liters)	Average Estimated Annual Brine Seepage Across 1 Square Meter of Grid Area (liters/year)[b]	Estimated Annual Brine Seepage Across 725 Square Meter (One WIPP Waste Storage Room) (liters/year)[b]
R1S-1	4/19/88	5.86	0.79	0.57	416
R1S-2	6/20/89	0.18	0.02	0.02	15
R1S-T1	6/13/90	4.57	0.61[a]	1.30	941[a]
R1S-T2	4/11/91	1.62	0.22[a]	0.26	190[a]
R2S-1	4/27/88	3.31	0.45	0.13	97
R2S-2	6/20/89	0.002	0.0003	0.0003	0.2
R3S-1	5/18/88	1.34	0.18	0.13	92
R3S-2	6/20/89	0.19	0.03	0.02	17
R4S	4/17/91	0.97	0.06	0.03	23
R5S	4/17/91	3.90	0.10	0.05	39

[a]This drift was enlarged 3 feet (0.9 meters) on December 22, 1989.
[b]This rate is normalized to liters per year, and it is noted that large differences in the rate may be observed if one were to sample the encrustations over one-half year, rather than two years.

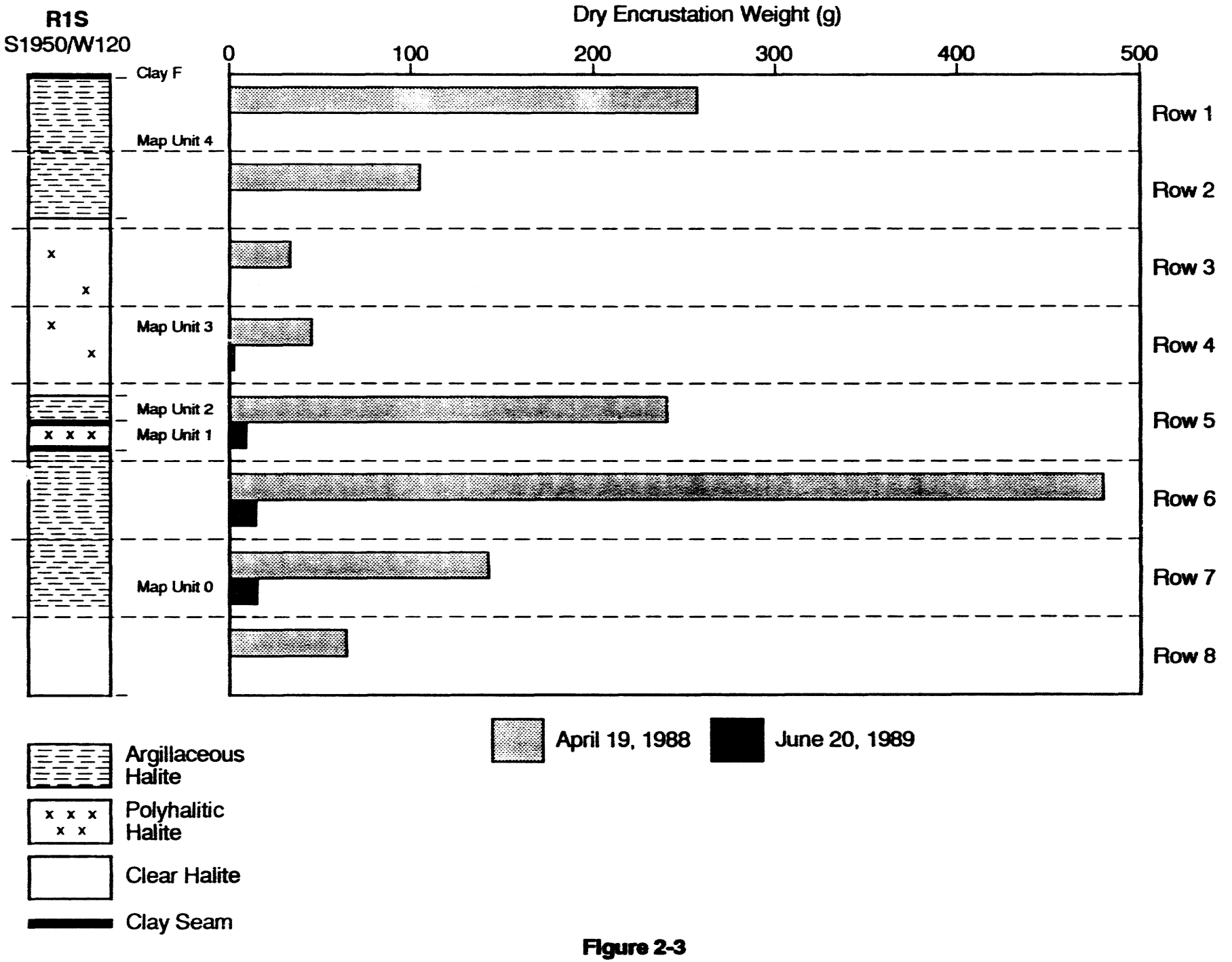


Figure 2-3
Sample Location R1S

Figure 2-4
Sample Location R1S-T

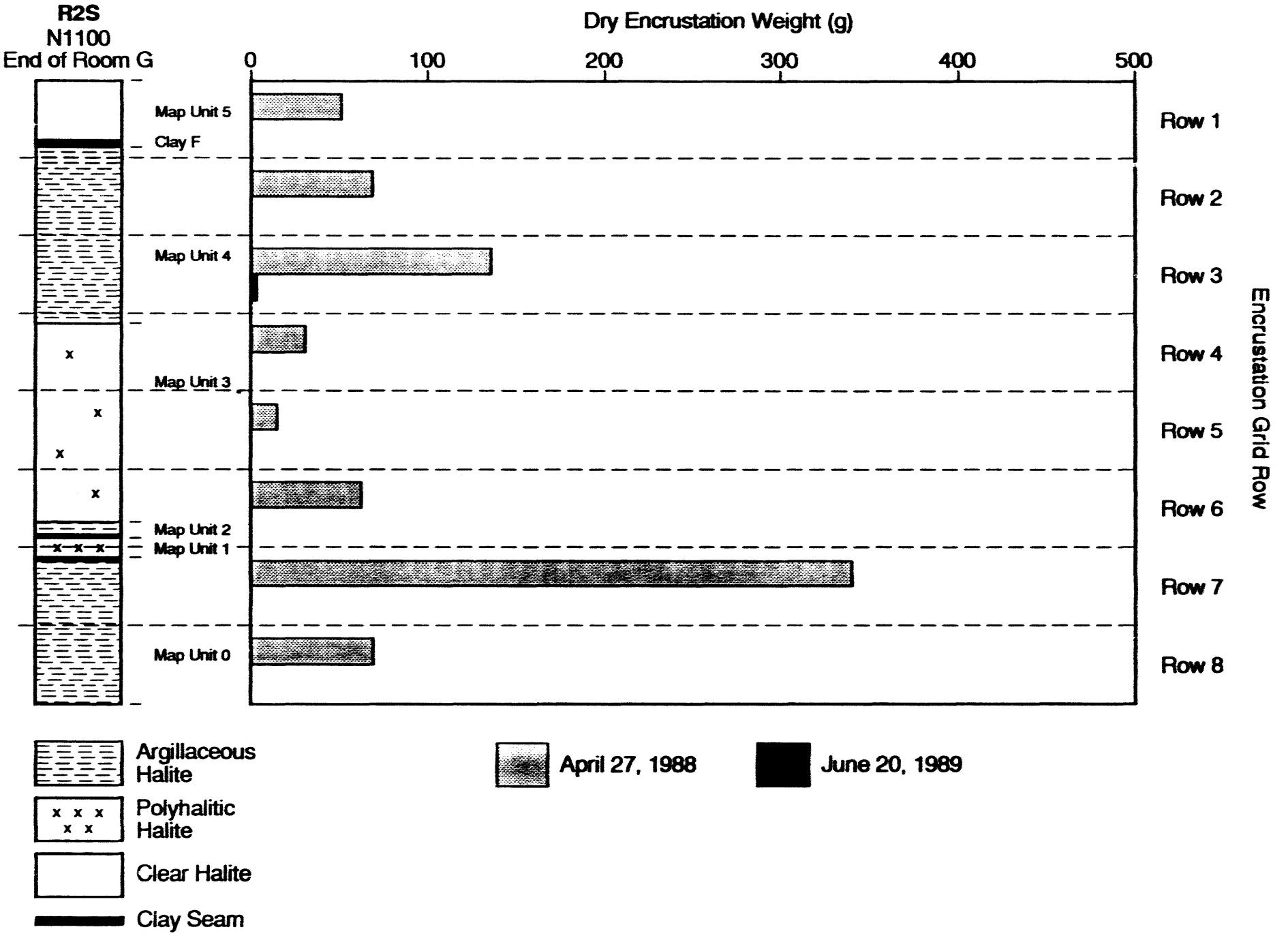


Figure 2-5
Sample Location R2S

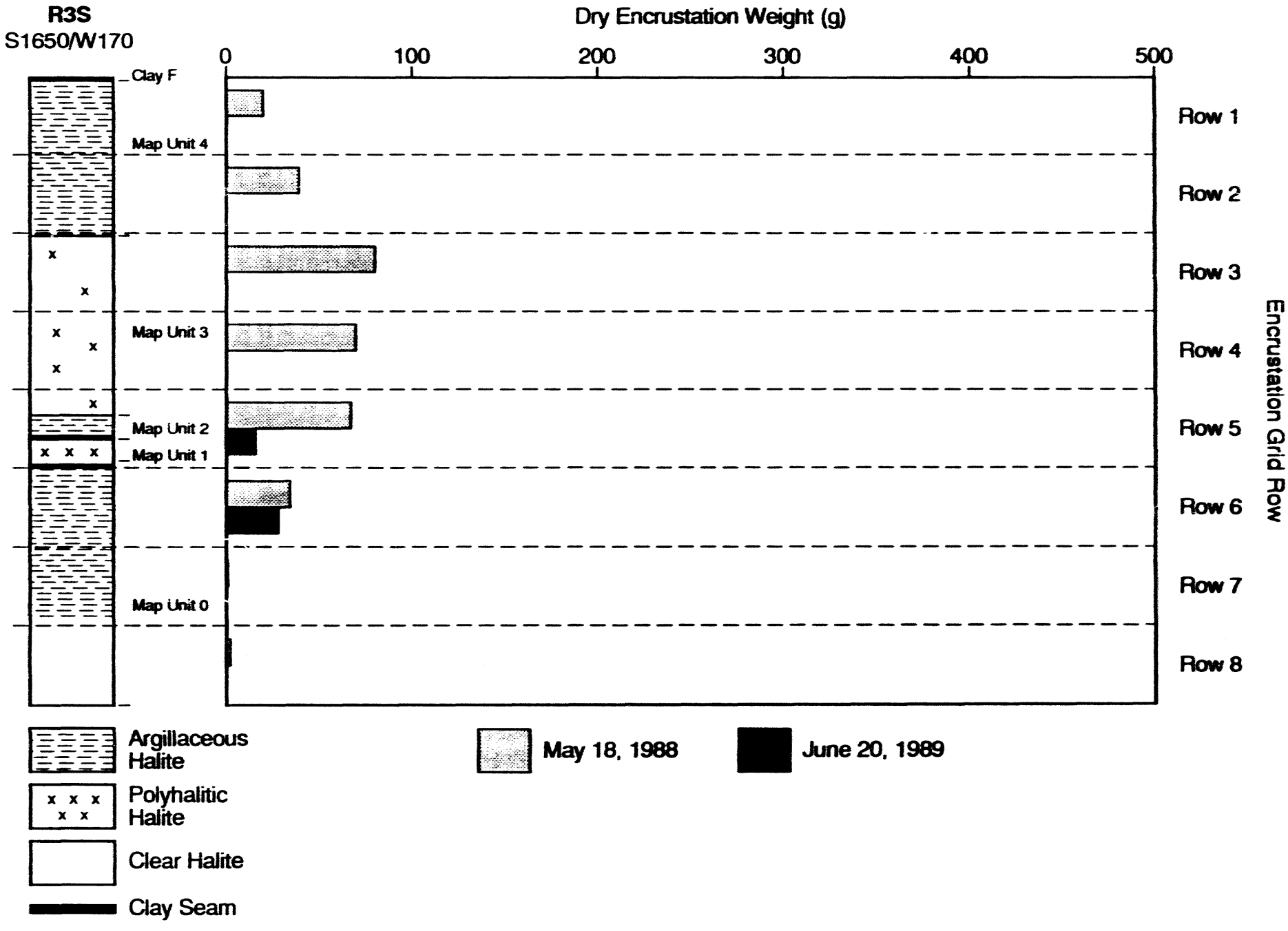


Figure 2-6
Sample Location R3S

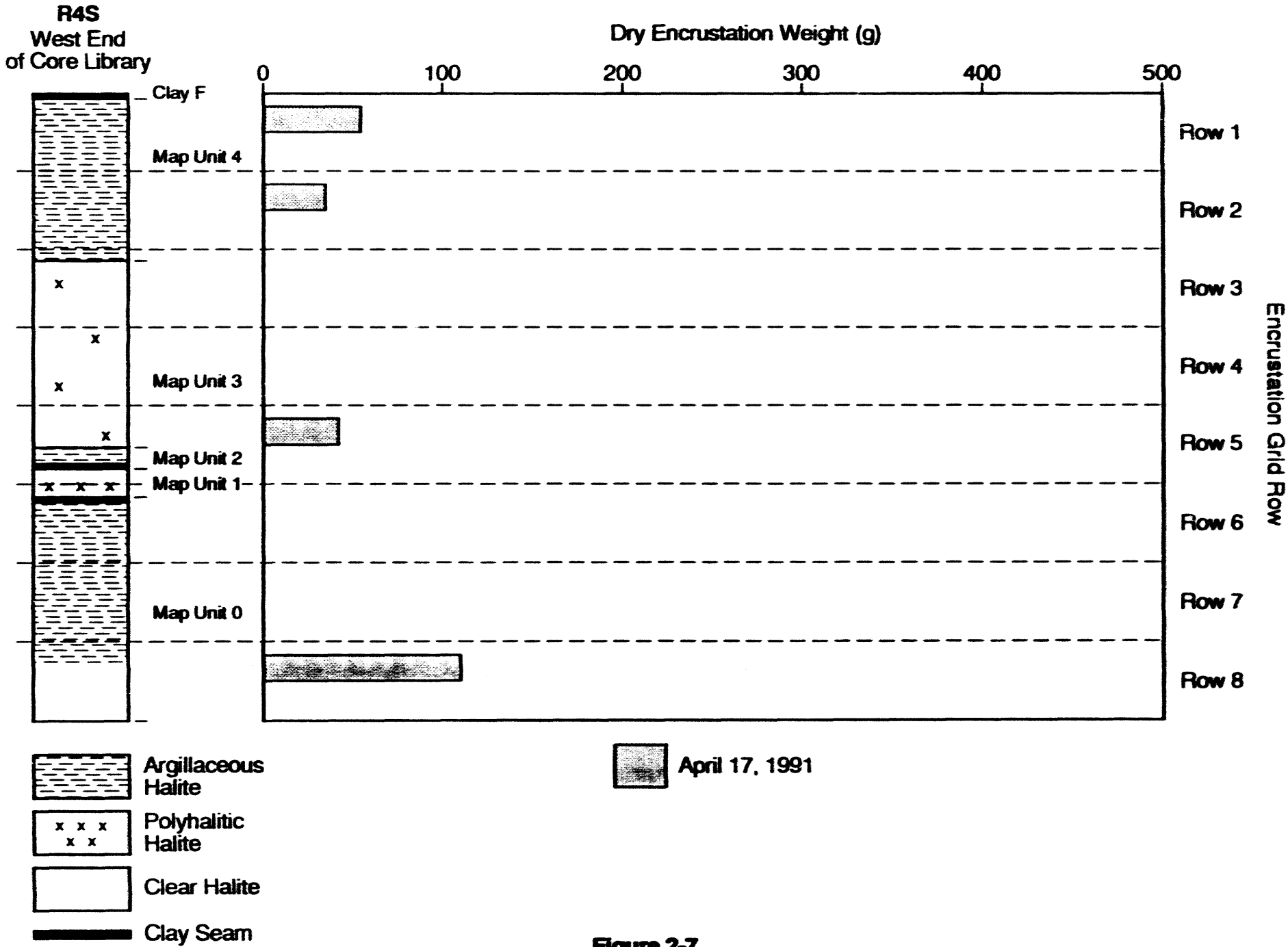


Figure 2-7
Sample Location R4S

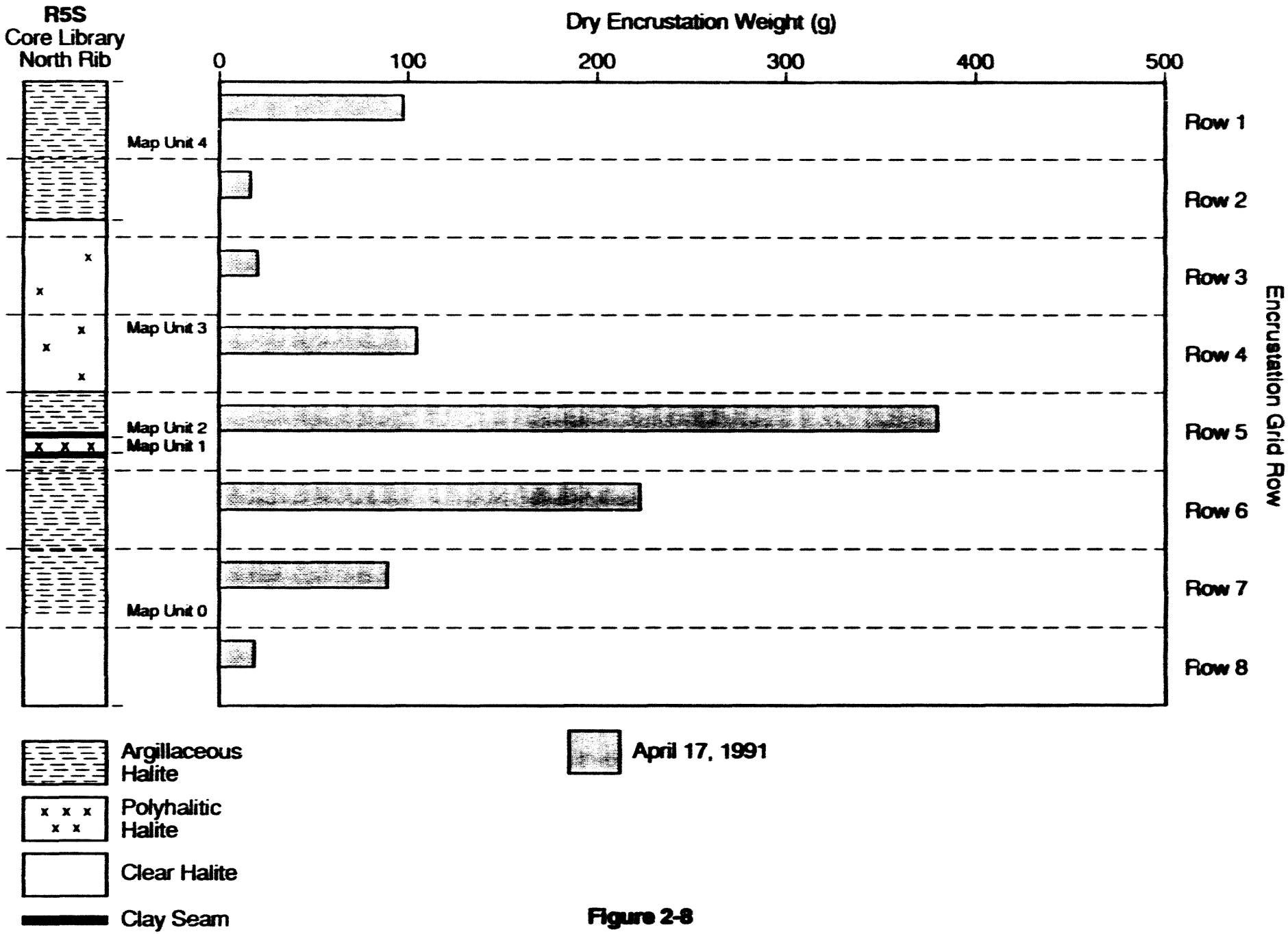


Figure 2-8
Sample Location R5S

that are essentially free of clay. Most of the encrustations collected from the clear halite or polyhalite were deposited from brine that had seeped out of the overlying, wetter clay or argillaceous halite units and flowed downward across the surface of the clear units as precipitation of salts continued.

The increased brine seepage above and below the orange band and from clay F is probably associated with the abundance of clay at these stratigraphic positions. Previous BSEP work has shown that the moisture content of various units within the Salado Formation correlates directly with clay content (Deal and others, 1989); also, Chapter 4 of this report) demonstrates that approximately 25 to 29 percent brine by volume can be squeezed from the clay below the orange band. Additionally, Beauheim and others (1991) have shown that the hydraulic conductivity of pure halite is lower than that of argillaceous halite. Observed lateral variations along a given stratigraphic horizon suggest that encrustations develop from point sources of brine flow within the rib and coalesce only if there is sufficient flow (Deal and others, 1989, Section 2.2.4).

It is apparent from the encrustation data (Table 2-1) and the estimated brine flux (Table 2-2) that the amount of brine weeping from ribs at the WIPP decreases with time after excavation (Deal and others, 1989). However, if a drift is enlarged, a visually dramatic increase in the quantity of encrustation (and hence brine inflow) may occur (Deal and others, 1989), but the rate again drops. On December 22, 1989, the south rib of the drift S1950 at W120 (R1S sampling location) was enlarged 3 ft (0.9 m). The sampling grid was reestablished at the same location but 3 ft (0.9 m) further south on the new south wall and redesignated R1S-T. Sampling was performed on June 13, 1990 (Table 2-1). An increase in the amount of brine seepage and salt encrustation development was evident. Subsequent sampling of R1S-T showed a decrease in the amount of salt mass and estimated brine volume produced from the weeps.

Deal and Roggenthen (1991) and Deal and others (1991, Section 5) have argued that the brine is being squeezed out of clay in the Salado Formation due to differential stress in the DRZ surrounding the excavations. Deal and others (1989, Figures 5-4 and 5-5) show that the differential stress is concentrated in the few meters of disturbed salt closest to the excavation. Tangential and stress may reach twice lithostatic pressure shortly after excavation (Deal and others, 1989, Figure 5-4). At sampling locations R1S and R2S, encrustation growth and brine seepage had essentially ended by the time these locations were first sampled—502 days and 1,210 days after excavation, respectively (Table 2-1). When area R1S was sampled again

427 days later (929 days after excavation), only 41 g of additional salt deposits were recovered from the entire 7.4-m grid area, indicating that most of the brine seepage had taken place in the first 502 days. Area R2S was sampled again 419 days later (1,630 days after excavation); only 0.5 g of additional encrustations were deposited. Brine seepage had essentially ceased sometime before the initial sampling event. On December 22, 1989, 1,114 days after excavation, 3 ft (0.9 m) were trimmed from the surface at R1S, stress was redistributed around the opening, and brine seepage was immediately renewed. The fact that brine seepage had essentially ceased and that it was renewed after only 3 ft (0.9 m) of the original surface were removed strongly suggests that most of the brine driven from the clays is derived from within a meter of the excavation surface.

An additional factor affecting brine flow is the dilation of the rock close to the excavation (Deal and others, 1989, Section 5; Deal and others, 1991, Section 5), which increases both porosity and permeability. This effect is most pronounced close to the excavation surface and has a minor effect on the renewed seepage, because the rock that experienced the greatest dilation was mined out and removed during the trimming activities.

Table 2-3 shows the number of days between the excavation of the rib surface and the sampling event, the days available for encrustation growth, the range of days (since the surface was excavated) during which the sampled encrustations formed, and the midpoint of that range of days (expressed as days) since the surface was excavated. In other words, if the surface was first sampled 520 days after the surface was excavated, the encrustations sampled grew between day zero and day 520. The midpoint of that range is 260 days after excavation. Sampling removes all the previously accumulated encrustations, so if the same surface was sampled a second time 918 days after excavation, the encrustations sampled grew between day 521 and day 918, a 398-day period of time. The midpoint of that range is 719 days after the surface was excavated (half of 398, or 199 days, plus 520 days).

Assuming that each grid area is representative of the two long walls (ribs) of a WIPP waste storage room, a value was calculated for the amount of brine seepage in liters per year into a storage room (Table 2-2). The range covered in each sampling event is plotted for each sampling location and shown in Figures 2-9 through 2-14. Each of those figures can be used to predict the **total** amount of brine that would seep through the ribs into a WIPP waste storage room, assuming the sampled area is representative of a full-sized storage room. If seepage had ceased (or nearly so) at the end of the initial sampling period (as evidenced by the lack of additional encrustation development during the second sampling period)—as in the

Table 2-3

Range and Midpoint of Range of Days Represented by Each Rib Sample

Sample Area	Estimated Annual Brine Seepage across 725 Square Meters (One WIPP Waste Storage Room) (liters/year)	Days Since Excavation	Days for Encrustation Growth	Period of Encrustation Growth (days)	Midpoint of Encrustation Growth Range (days)
R1S-1	416	502	502	0–502	251
R1S-2	15	929	427	502–929	715.5
R1S-T1	941[a]	173	173	0–173	86.5
R1S-T2	191[a]	475	302	173–475	324
R2S-1	97	1,210	1,210	0–1,210	605
R2S-2	0.2	1,629	419	1,210–1,629	1,419.5
R3S-1	92	519	519	0–519	259.5
R3S-2	17	917	398	519–917	718
R4S	23	686	686	0–686	343
R5S	39	686	686	0–686	343

[a]This drift was enlarged 3 feet (0.9 meters) on December 22, 1989.

Table 2-4
Calculated Brine Inflow into a WIPP Storage Room from Rib Encrustation Data

Location	Sample Number	Brine Seepage Rate (Liter per Year)[a] From Table 2-2	Volume of Brine Necessary to Form the Encrustations in 725-Square-Meters-Room During the Sampling Period (liters)	Total Volume of Brine Calculated to Enter Room During All Sampling Periods (liters)
R1S	R1S-1	416	572	590
	R1S-2	15	18	
R1S-T	R1S-T1	941[b]	446[b]	604[c]
	R1S-T2	191[b]	158[b]	
R2S	R2S-1	97	321	321
	R2S-2	0.2	0.2	
R3S	R3S-1	92	131	150
	R3S-2	17	19	
R4S	R4S	23	43	43[c]
R5S	R5S	39	73	73[c]
Average				297

[a]Estimated annual brine seepage across 725 square meters (one WIPP waste storage room).
[b]This drift was enlarged 3 feet (0.9 meter) on December 22, 1989.
[c]Total volume may be slightly greater than indicated (see Figures 2.9 through 2-14).

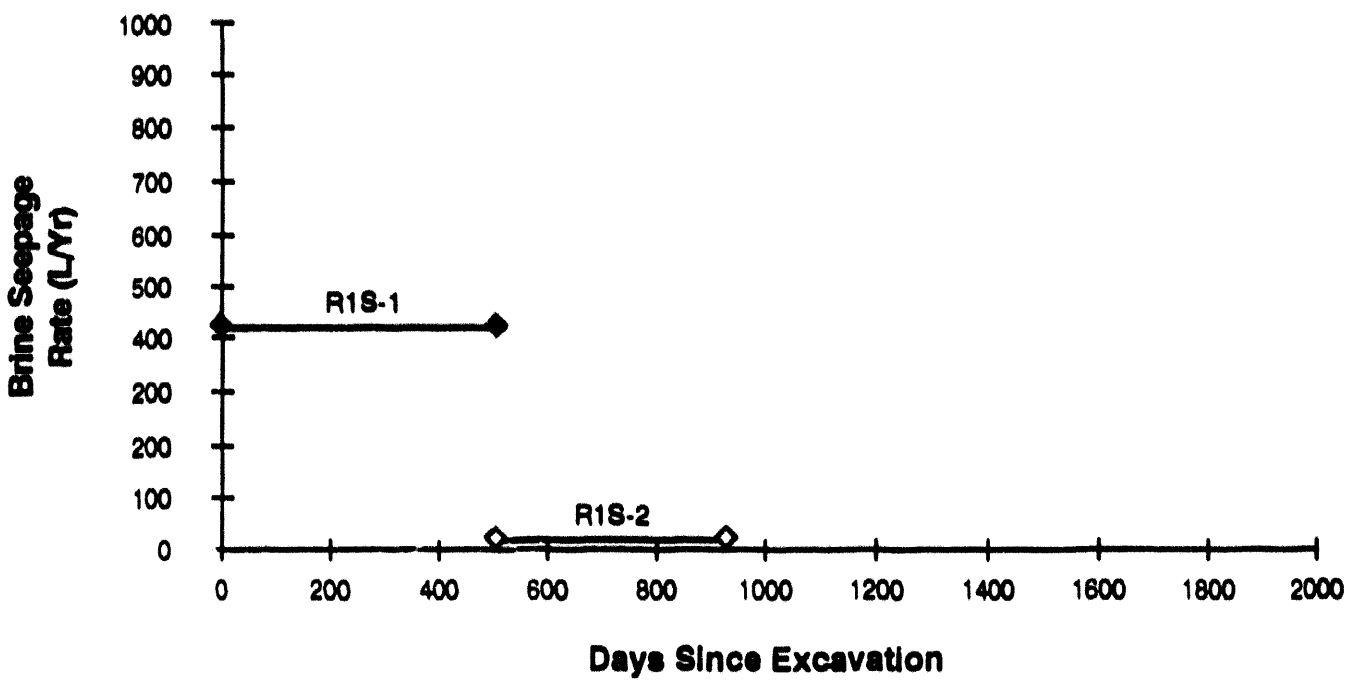


Figure 2-9
Encrustation Growth at Sample Location R1S
If this surface was representative of a full-sized WIPP waste storage room, the total amount of brine entering the room would be 590 L.

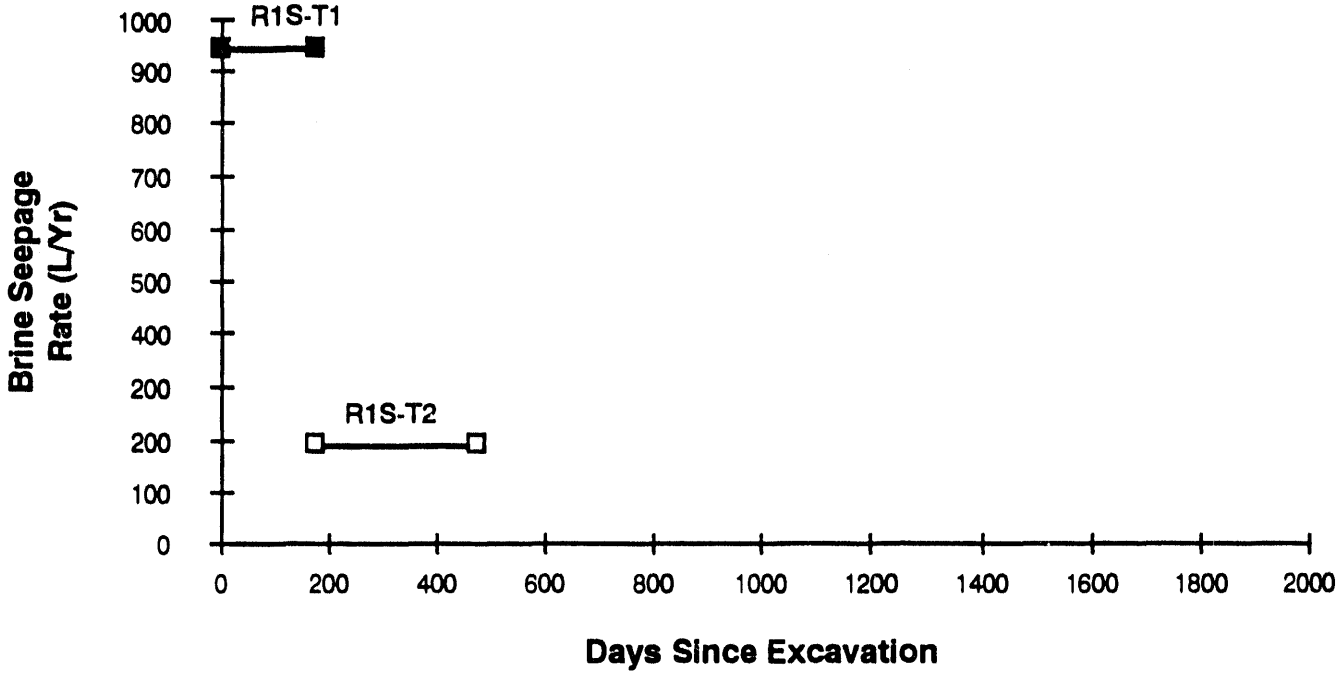


Figure 2-10

Encrustation Growth at Sample Location R1S-T
If this surface was representative of a full-sized WIPP waste storage room, the total amount of brine entering the room would be 604 L.

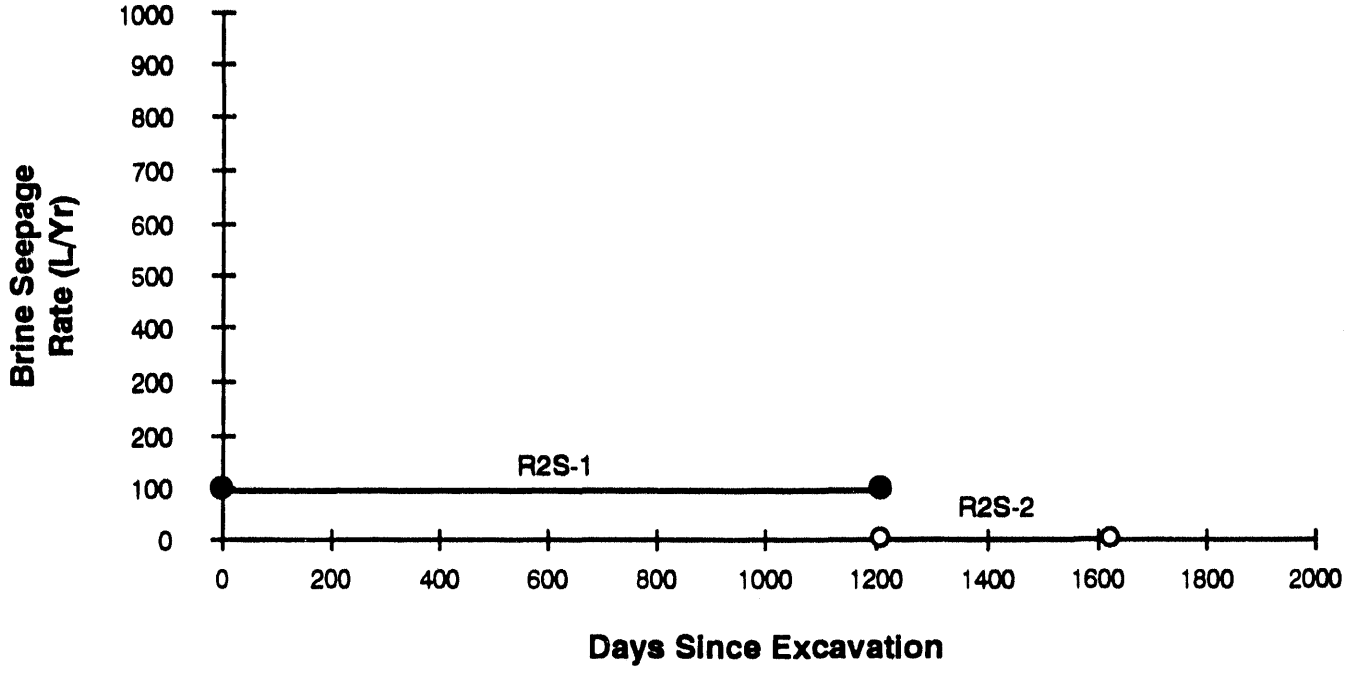


Figure 2-11
Encrustation Growth at Sample Location R2S
If this surface was representative of a full-sized WIPP waste storage room, the total amount of brine entering the room would be 321 L.

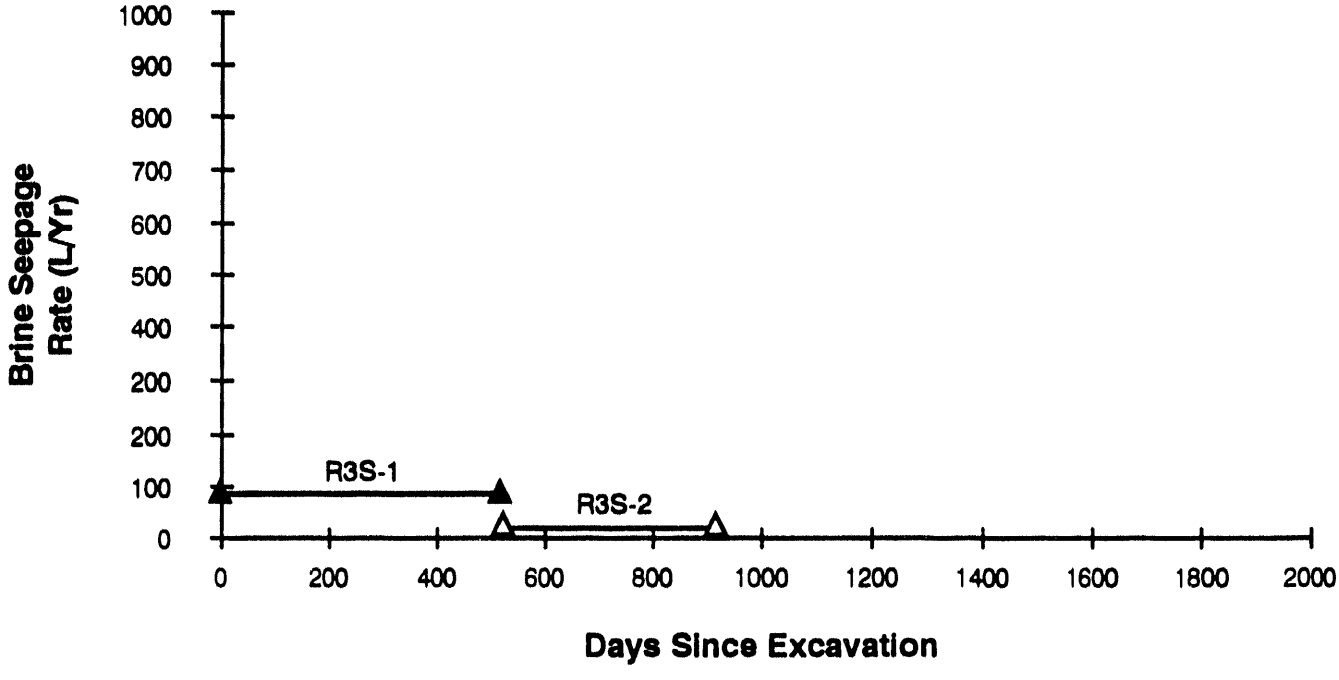


Figure 2-12

Encrustation Growth at Sample Location R3S
If this surface was representative of a full-sized WIPP waste storage room, the total amount of brine entering the room would be 150 L.

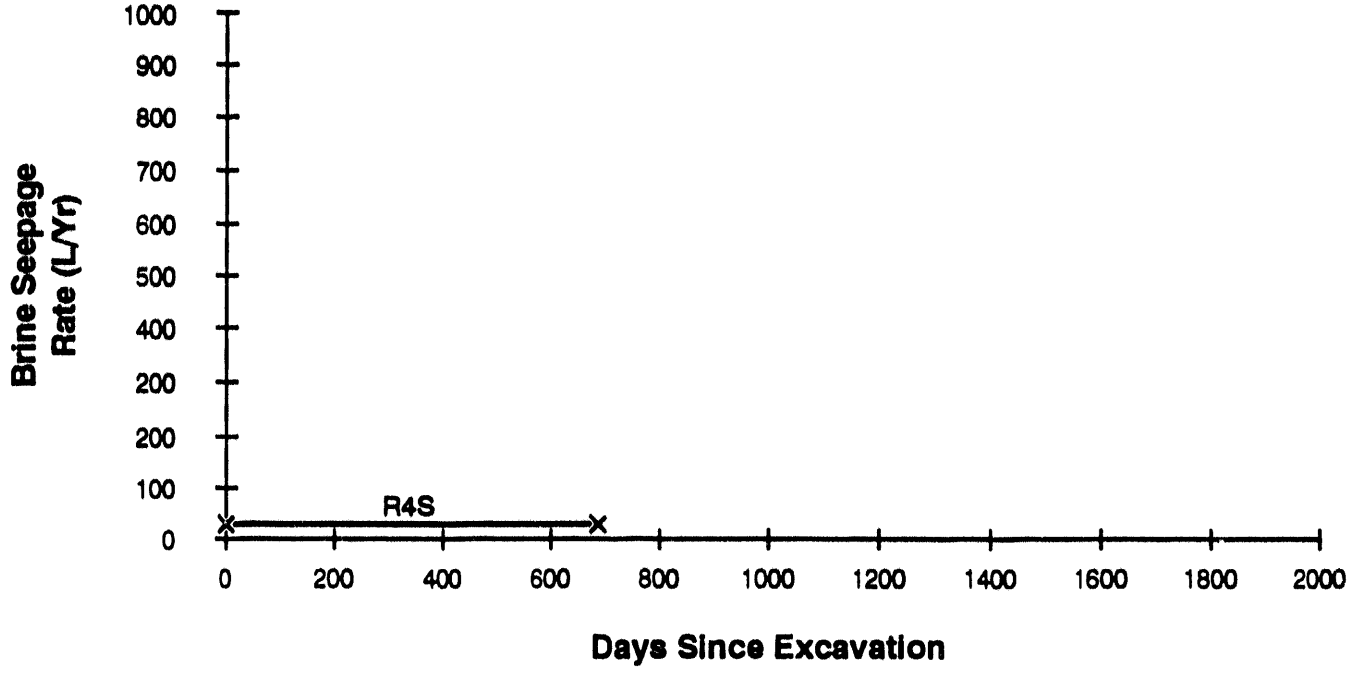


Figure 2-13
Encrustation Growth at Sample Location R4S
If this surface was representative of a full-sized WIPP waste storage room, the total amount of brine entering the room would be 43 L.

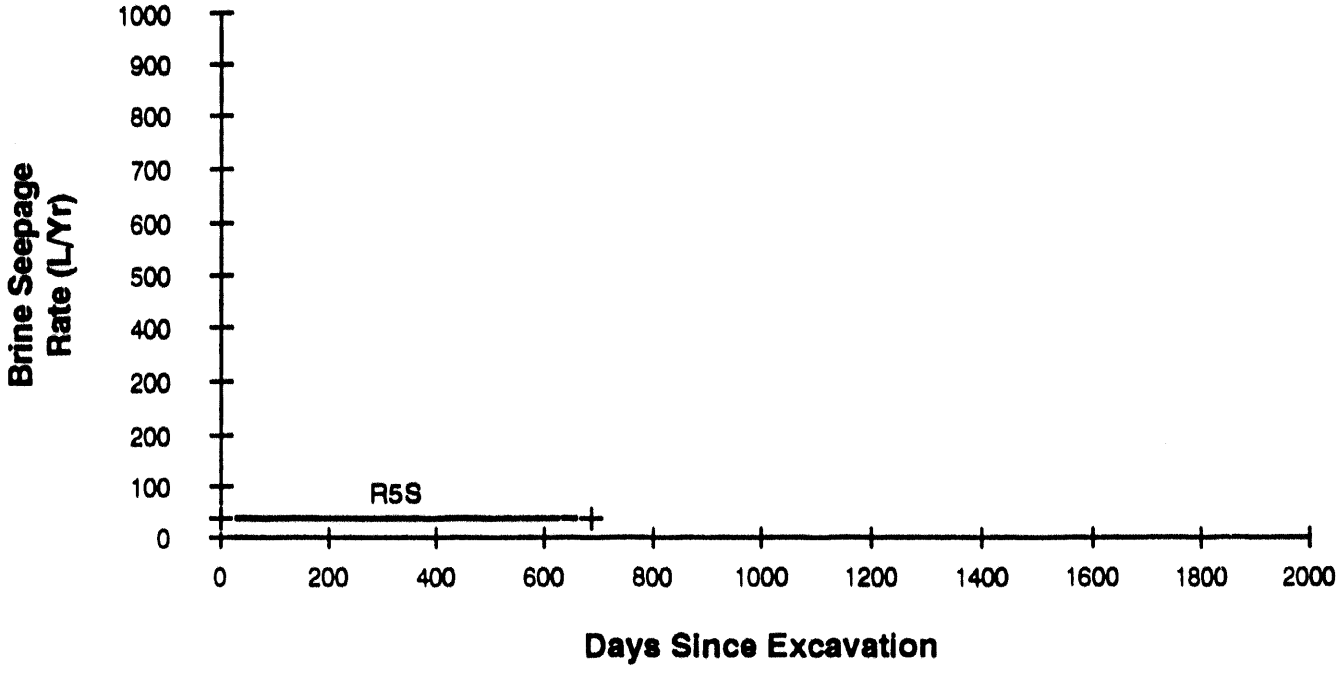


Figure 2-14

Encrustation Growth at Sample Location R5S
If this surface was representative of a full-sized WIPP waste storage room, the total amount of brine entering the room would be 73 L.

case for areas R1S, R2S, and R3S—the total amount of brine that would flow into the room is shown by the area beneath the bar representing the initial sampling period. In any case, the total amount of brine that would seep through the ribs for each case is represented by the sum of the areas beneath the horizontal sampling bars on Figure 2-8. These values for total seepage into an equivalent WIPP storage room are shown in Table 2-4 and range from a low of 43 L to a high of 604 L. For all cases except R1S-T, brine flow had essentially ceased before the second sampling event. For cases R1S-T, R4S, and R5S, an additional sampling should be made. Visual inspection of the areas show that very little additional encrustation has formed. Averaging the six areas predicts a typical value of 297 L for the total amount of brine to seep through the ribs and into a WIPP waste storage room. As discussed in Section 2.2.3, most of this brine will evaporate into the ventilation air circulated through the facility and will not be available after closure. An alternate method for estimating the volume of brine that may flow into a WIPP waste storage room is shown on Figure 2-15.

A regression analysis was performed using the data in columns two and six of Table 2-3. Results (Table 2-5) indicate that the following exponential equation is the best fit to the data:

$$y = 776.4068 * e^{-0.005644518x}$$

The software GRAPHER was used to fit the exponential equation to the data (Figure 2-15). The area under the curve (Figure 2-15) represents 376 L of brine, which is 79 L greater than the estimated 297 L calculated in Table 2-4.

The data points on Figure 2-15 represent the middle of each data range, and since it is known that seepage rates decrease with time, the actual number of days after excavation— when half of the total volume of brine would have seeped into the room—will occur earlier. The resulting point will be shifted toward the "y" ordinate from the median point shown. Therefore, the longer the sampling period, the lower the calculated seepage rate. This is especially true for the data point representing R2S-1 (Figure 2-11), which shows data from an initial sampling event 1,210 days after excavation. Brine seepage had essentially ceased sometime (perhaps a year or more) before day 1,210 (Table 2-3).

2.3 Damp or Wet Areas on Drift Floors

A brine seep on the floor of Room G (known as GSEEP), located at approximately N1100 W1140, is the only persistently moist area in the WIPP excavations. Inflow data for GSEEP are contained in Appendix A, with a smoothed, moving average graph of the data in

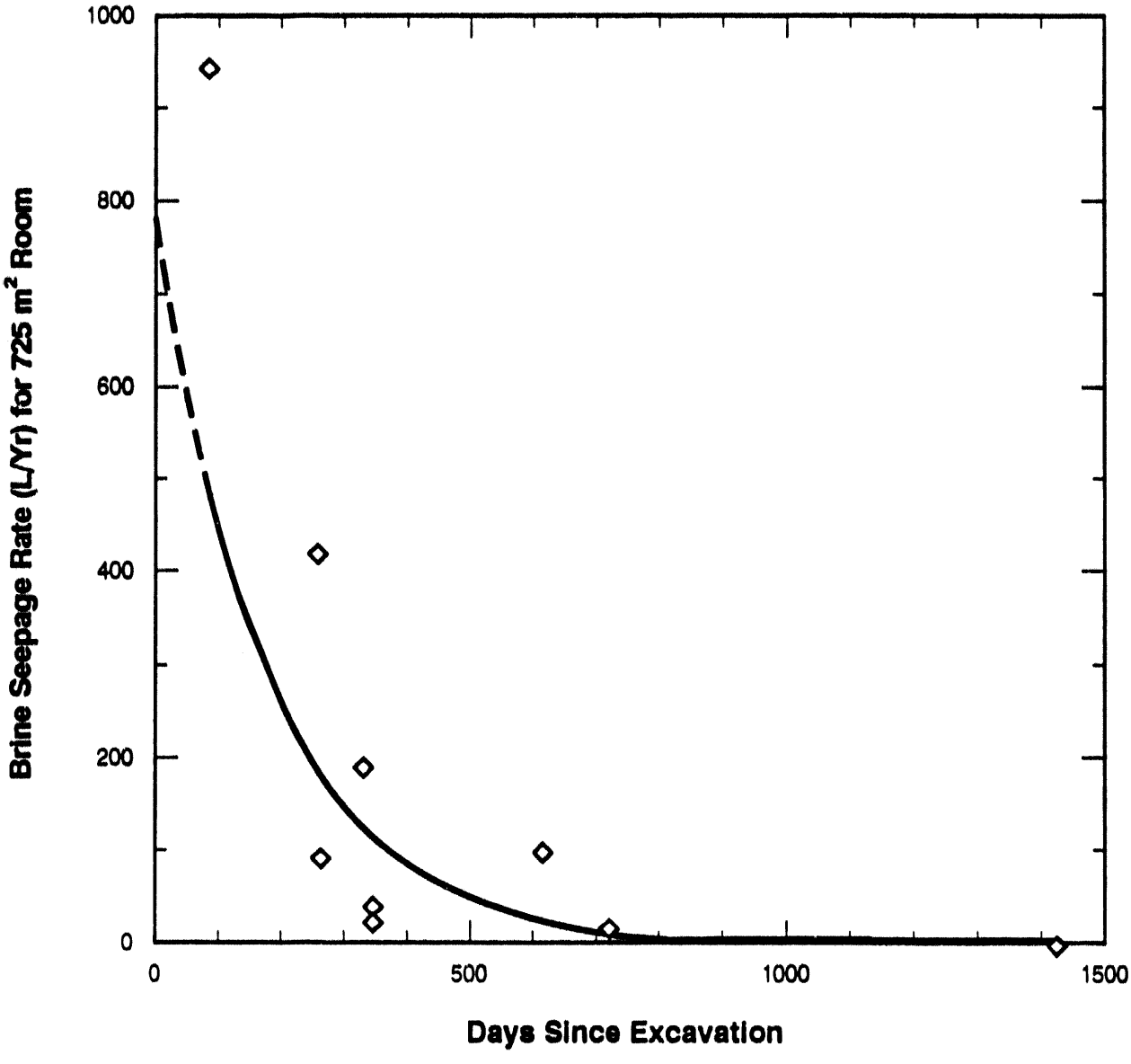


Figure 2-15
Total Amount of Brine (376 L) Entering a WIPP Waste Storage room Calculated from Rib Encrustation Data.
Note: Best-Fit Curve Using the Exponential Equation Defined in Text. Dashed Line is Extrapolated.

Table 2-5
Regression Analysis of Brine Inflow Data

	Linear	Exponential	Log	Power
R^2	.2964534	.8531249	.656425	.7429127

NOTE: A value of $R^2 = 1$ indicates a perfect fit to the data. In general, a value above 0.8 indicates a good fit.

Appendix B. A description of the location and a discussion of the brine chemistry and seepage history through December 1990 are contained in Deal and others (1991, Section 2.5), who conclude that the brine from GSEEP has a component that originates as brine spread in the G Access drift for salt-dust control. The seepage rate reached a maximum of 0.75 L per day in April 1989 but declined to 0.4 L per day by December 1991. A total of 1,129 L have been collected, and more has evaporated into the air ventilation circulated through the WIPP workings.

2.4 Downholes and Brine Beneath the Floor

2.4.1 Downholes

Downholes are drilled vertically downward into the repository floor. Deal and Case (1987, Table 3-1) discussed brine inflow in 13 downholes, with observations beginning in late 1984 and early 1985. A detailed discussion of sampling, data scattering, and inflow rates through the end of 1990 was presented in Deal and others (1991). Eight of the ten downholes monitored in 1991 showed steady inflow (A3X01, BX01, DH36, DH38, DH40, DH42, and DH42A). DHP402A, in Panel 1, and OH-46, in the underground core library (not included in the original 13 downholes monitored) showed a decrease in inflow rate. Five of the original 13 holes (A1X01, IG201, IG202, L1X00, and NG252) could no longer be observed. Table 2-6 summarizes the most important data obtained from the downholes, with additional information in Appendix A.

Contamination of downholes with non-Salado water during construction and for salt dust control has been confirmed in most holes by the chemical composition of the brine, which clearly indicates the mixing of waters with discrete and different chemical signatures (Chapter 3 of this report; Deal and others, 1989; 1991). In some cases inflow rates vary directly with known water-spreading practices. The first eight downholes in Table 2-6 are located in the northern part of the repository (Figure 2-1), where water has not been spread

Table 2-6
Brine Accumulation Summary

Downholes

Hole	Room Or Location	Date Area Excavated	Date Hole Drilled	Date First Observed	Approx. Maximum Inflow (L/Day)[a]	Approx. Inflow 12/91 (L/Day)	Inflow Trend 12/91[b]	Approx. Total Vol. Removed by 12/91 (L)
A1X01	A1	10/84	2/85	3/85	0.05	0.03	S	62
A3X01	A3	11/84	1/85	2/85	0.03	0.02	S	56
BX01	B	6/84	1/85	1/85	0.06	0.03	S	106
DH36	G	12/84	1/85	1/85	0.28	0.09	S	394
DH38	G	12/84	1/85	1/85	0.18	0.03	S	112
DH40	G	12/84	1/85	1/85	0.04	0.008	S	13
DH42	G	12/84	1/85	1/85	0.05	0.02	S	59
DH42A	G	12/84	1/85	1/85	0.2	0.06	S	212
DHP402A	S1950/E1330	10/86	12/86	12/86	4.0	0.3	D	629
OH46	S390/W320	5/89	6/89	7/89	0.04	0.01	D	14

Upholes

Hole	Room Or Location	Date Area Excavated	Date Hole Drilled	Date First Observed	Approx. Maximum Inflow (L/Day)[a]	Approx. Inflow 12/91 (L/Day)	Inflow Trend 12/91[b]	Approx. Total Vol. Removed by 12/91 (L)
A1X02	A1	10/84	3/85	3/85	0.09	0.03	D	80
DH15	N1104/E1688	3/84	3/84	5/86	0.01	0	DRY	4
DH35	G	12/84	1/85	2/85	0.02	0	DRY	4
DH37	G	12/84	1/85	2/85	0.01	0	DRY	1
DH39	G	12/84	1/85	2/85	Trace	0	DRY	0
DH41	G	12/84	1/85	2/85	Trace	0	DRY	0
DH215	S1960/E153	1/83	2/83	4/84	0.09	0	DRY	18
DHP401	S1950/E1330	10/86	1/87	3/87	0.008	0	DRY	2
OH47	S390/W320	5/89	7/89	8/89	0.030	0	DRY	4

Subhorizontal Holes

Hole	Room Or Location	Date Area Excavated	Date Hole Drilled	Date First Observed	Approx. Maximum Inflow (L/Day)[a]	Approx. Inflow 12/91 (L/Day)	Inflow Trend 12/91[b]	Approx. Total Vol. Removed by 12/91 (L)
OH20	S1600/W170	9/85	3/89	3/89	0.02	0.01	S	11
OH21	S1600/W170	9/85	12/88	2/89	0	0	DRY	0
OH22	S1600/W170	9/85	12/88	2/89	0.006	0	DRY	1
OH23	S1950/W170	12/85	2/89	2/89	0.06	0.01	D	18
OH24	S1950/W170	12/85	3/89	3/89	0.002	0	DRY	0.6
OH25	S1950/W170	12/85	3/89	3/89	0.001	0	DRY	0.1
OH26	S2150/W170	8/86	3/89	3/89	0.04	0.02	D	17
OH27	S2150/W170	8/86	4/89	4/89	0.001	0	DRY	0.2
OH28	S2150/W170	8/86	4/89	4/89	0.008	0	DRY	2
OH45	S390/W325	5/89	6/89	6/89	0.03	0.001	S	4

[a]Liters (L) per day.
[b]Trend derived from data presented in Appendices A and B—Dry; Decreasing (D); Steady (S).

during construction; therefore, the brine collected from these holes was derived totally from within the Salado Formation. Brine chemistries from these holes differ from chemical signatures associated with construction brines.

All of these eight holes have a similar seven-year seepage pattern (Appendix B), although these holes are at different stratigraphic horizons and penetrate slightly different units (Figure 2-16). The seepage rate varies more than 2 orders of magnitude between these downholes. These holes were drilled into relatively undisturbed salt shortly after the drift or room, was excavated and then monitored. The following conclusions, first reached in 1986 (Deal and Case, 1987), have been confirmed:

- After drilling a hole, a few days elapse where little or no brine seeps into the hole.
- After the initial no-flow or low-flow period, brine seepage quickly reaches a maximum and then begins to decline.
- Seepage rates decrease over a period of several months to steadier, long-term trends.

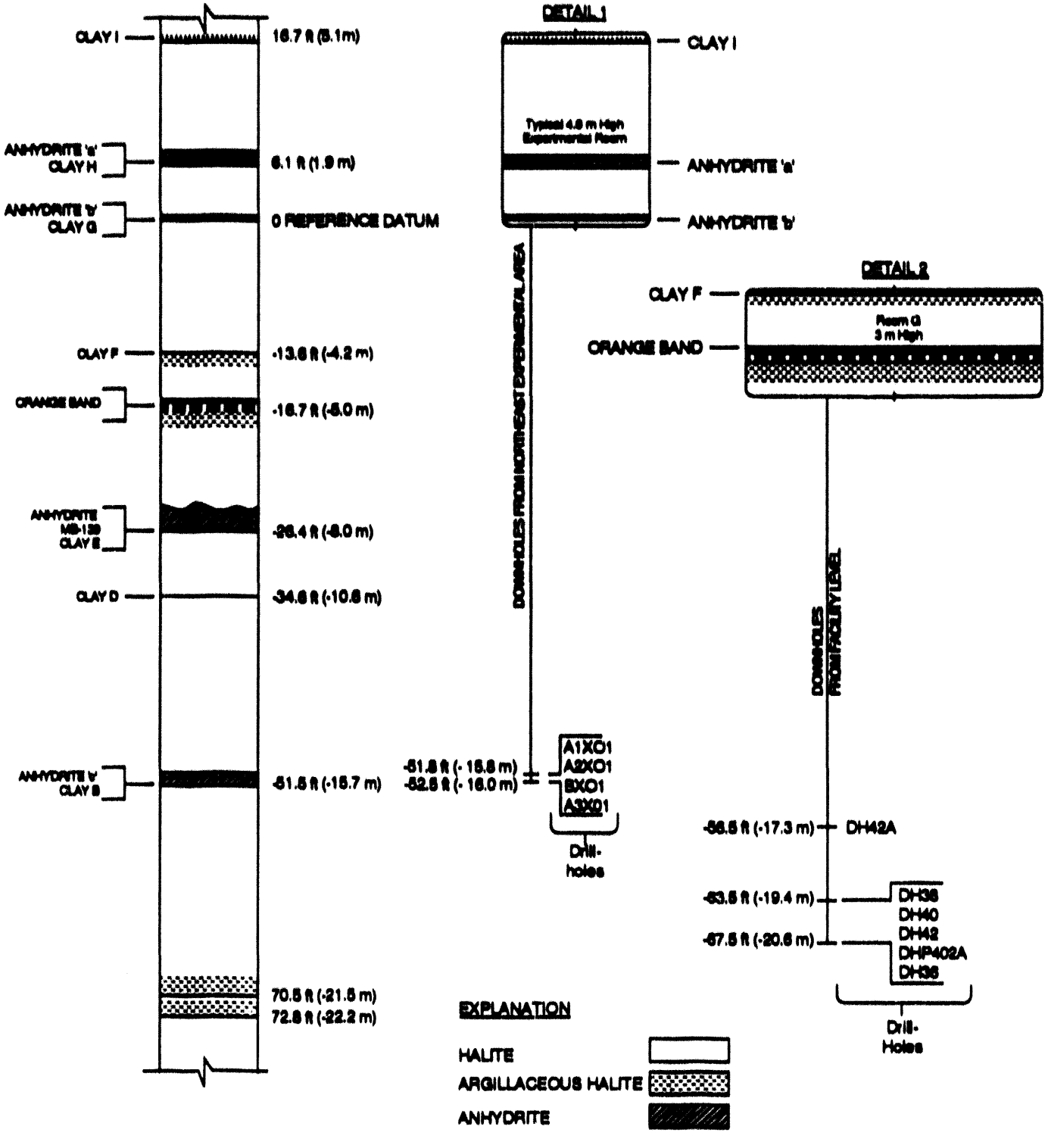
With the exception of DHP402A and OH46, all of the downholes demonstrated a steady flow (within the scatter of the data points) through 1991, though slightly decreased from past years.

2.4.2 Shaft Sumps

Deal and others (1991, Section 2.7.1) discuss observations made in the Salt Shaft and Waste Shaft sumps, where MB 139 and open fractures can be seen. The sumps were inspected again in 1991, and again the fractures and MB 139 were found to be dry and free of any thick salt encrustations. The shaft sumps are, in effect, long-term far-field brine inflow experiments. If significant amounts of brine were flowing toward the repository through MB 139, that brine should be obvious in the shaft sumps. The fact that brine is not observed seeping from MB 139 in the shafts is evidence that significant far-field flow does not exist.

2.5 Upholes and Brine Above the Back

Upholes are drilled veritcally upward into the repository roof. Moist areas or salt encrustations rarely occur on the back (roof) in areas where upholes do not exist (Deal and others, 1987, Section 2.2). Upholes characteristically produce less brine for shorter periods of time than downholes. Part of this can be attributed to greater evaporation caused by less effective sealing of upholes (Deal and Case, 1987) and loss of moisture by dispersion from



NOTE: Distances above and below anhydrite "b" (clay G) vary from place to place in the WIPP excavations due to natural changes in stratigraphic thickness. This figure has been adjusted to represent thicknesses in the northern part of the workings. Distances from clay E down are from Room G and from the orange band up are from Room A1.

Figure 2-16

Correlation of the Stratigraphy with Downholes in the Northern Part of the Facility

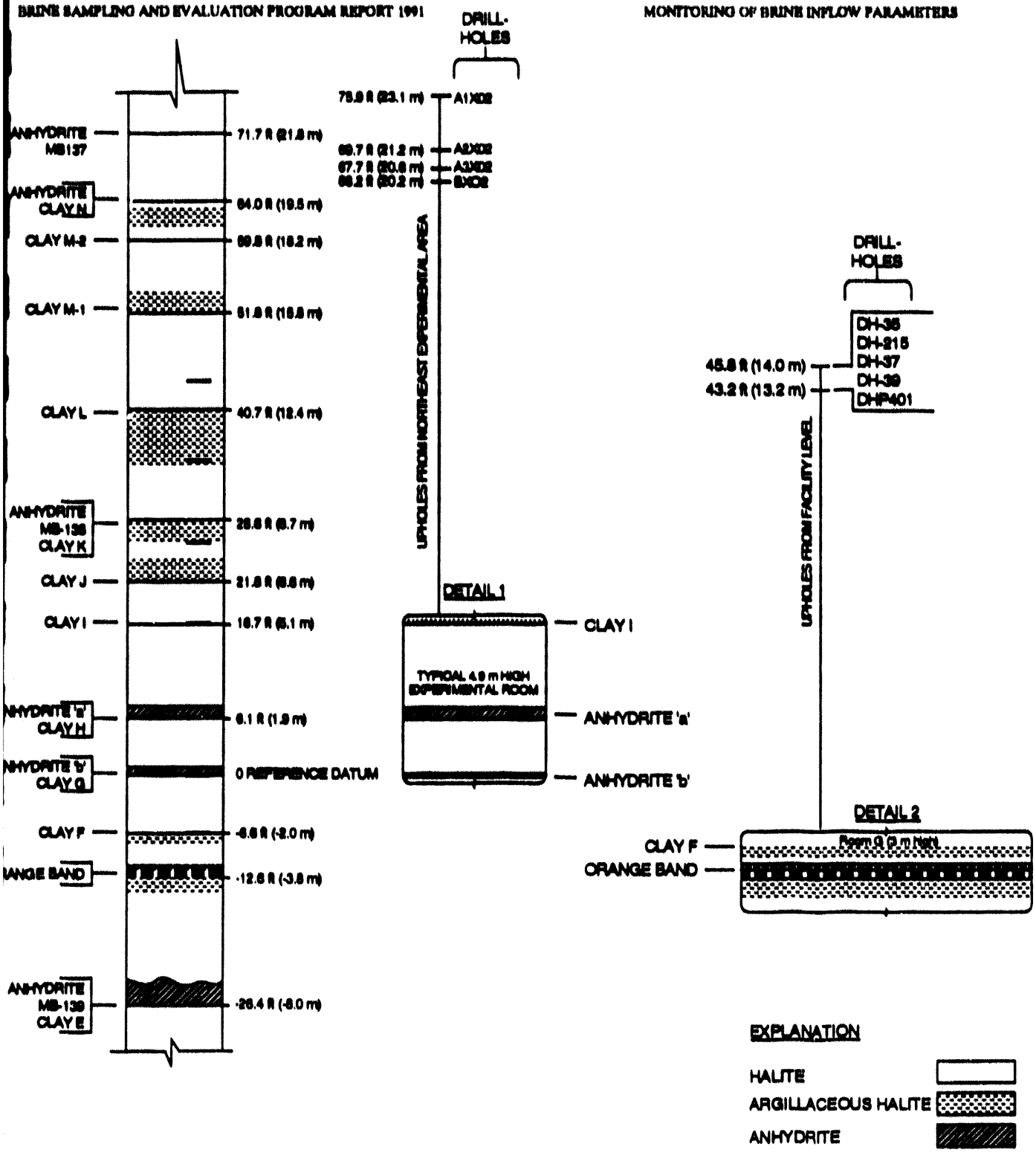
the hole collar into the salt. Loss of moisture by evaporation is evident from salt crust buildup in and around most of the upholes. Chemical data (Deal and others, 1989 and 1991; Abitz and others, 1990), which confirms compositional differences between brine samples from upholes and downholes, can be explained by the partial evaporation of a brine with typical downhole composition to produce the uphole brine. Although the stratigraphy exposed in the upholes (Figure 2-17) is slightly different from that exposed in the downholes, it is unclear whether this contributes significantly to the differences in either brine quantity or chemistry (Deal and others, 1989). Summary data for selected upholes are presented in Table 2-6. Of nine upholes listed in 1985, only A1X02 continues to produce brine. Upholes A2X02, A3X02, and BX02 are no longer monitored. As discussed in Deal and others (1991), A1X02 is longer than any of the other upholes (59 ft [18 m]) and intersects an additional anhydrite unit not penetrated by any other uphole. No associated clay was observed in the core, but clay commonly occurs below anhydrite stringers and may be discontinuous at this horizon. Additional data are presented in Appendix A. During the latter part of 1991 (November and December), inflow data for A1X02 appears sporadic. It is uncertain at this time whether the fluctuations are actual flow changes or if there is debris in the sampling apparatus. The hole is in Room A1, which is inaccessible at this time. It is not possible to verify the correct functioning of the sampling apparatus.

Drill holes in the back that intersect overlying clay layers (clays J and K and argillaceous halite between the two clays), including those for the placement of rock bolts, commonly drip brine for a period of several months, often forming halite stalactites. Seepage is particularly notable when the drifts are allowed to age for several years, allowing bed separations to form prior to drilling.

The undisturbed back in the workings at the WIPP rarely shows evidence of brine seeps or weeps. Drill holes, however, provide a route for brine to move across effectively impermeable clear halite beds, and seepage from drill holes in the back is a common occurrence at the WIPP. Typically, upholes start to show evidence of brine seepage a month or so after drilling, exhibit their most active seepage for the following year or so, and then gradually dry up. Rooms C1 and C2 show this very typical behavior (Deal and others, 1991, Section 2.8.1).

2.6 Subhorizontal Holes

These holes are drilled at a slight downward angle. During 1989, 11 subhorizontal brine sampling holes were drilled to investigate the brine seepage from the WIPP facility



: Distances above and below anhydrite "b" (clay G) vary from place to place in the WIPP excavations due to natural changes in stratigraphic thickness. This figure has been adjusted to represent thicknesses in the northern part of the workings. Distances below the zero datum (clay G) are from Room G, distances above clay G are from Room A1.

Figure 2-17

Correlation of the Stratigraphy with Upholes in the Northern Part of the Facility

stratigraphic horizon. The holes are oriented slightly downward from the opening, to accumulate brine at the end of the hole where it can be collected and measured without loss to fractures near the surface of excavations. Ten of the eleven holes were drilled westward from the W170 drift at the location of future entries to Panels 7 and 8 at S1600, S1950, and S2180 (Figure 2-1). These portions of the W170 had been excavated in September 1985 at S1950, December 1985 at S1900, and in August 1986 at S2150 and are considered to have a mature DRZ developed around them. Three of the holes (OH20, OH23, and OH26), which are 150 ft (46 m) long and 3 in. (7.6 cm) in diameter, started in the clayey halite (Map Unit 4) above the orange band (Map Unit 1) and are deflected slightly downward (Deal and others, 1991, Figures 2-18, 2-19, and 2-20), so that they end in the clear halite (Map Unit 0) below the orange band. The 150-ft (46-m) holes reached the orange band about 50 ft (15 m) into the holes. Hole OH27A was started at the initial location for OH27 but was terminated at a depth of 4 ft (1.2 m) due to drilling problems. The six remaining 50-ft (15-m) holes were drilled either above or below the orange band. One 50-ft (15-m) hole (OH45), which cuts the same stratigraphic interval as the three 150-ft (46-m) holes, was drilled in a newer excavation in May 1989 at S400.

Several of the holes have produced measurable quantities of brine (Table 2-1, Appendix A). The 150-ft (46-m) holes provide the most uniform and comparable set of measurements yet obtained in the BSEP and have all produced orders of magnitude more brine than the 50-ft (15-m) holes. The longer holes are still producing, while the shorter holes are essentially dry (have not produced enough brine to be measured by the equipment and techniques used), with the exception of OH45, a 50-ft (15-m) hole that cuts the same stratigraphic interval as the 150-ft (46-m) longer holes but was drilled in a more recently mined area at S400, over 1,000 ft (300 m) north of OH20, OH23, and OH26. Lateral variation may play a minor role in the difference in brine seepage. This is considered to be unlikely, as Deal and others (1989) found no significant lateral variation in moisture content for any of the stratigraphic units exposed in the excavations.

Two explanations have been offered for the brine seepage observations (Deal and others, 1991, Section 2.9): (1) The longer holes are tapping an area that is not dewatered, because they extend past the relatively old W170 drift DRZ. As a result, they may only tap about 100 ft (30 m) of undisturbed salt (in this case, the one 50-ft (15-m) hole would still produce brine, because it was drilled from a young excavation where a significant DRZ had not yet developed). (2) Brine flows preferentially from the clay units, so the clay at the top and bottom of the orange band may be the only significant source of brine. Therefore, only the

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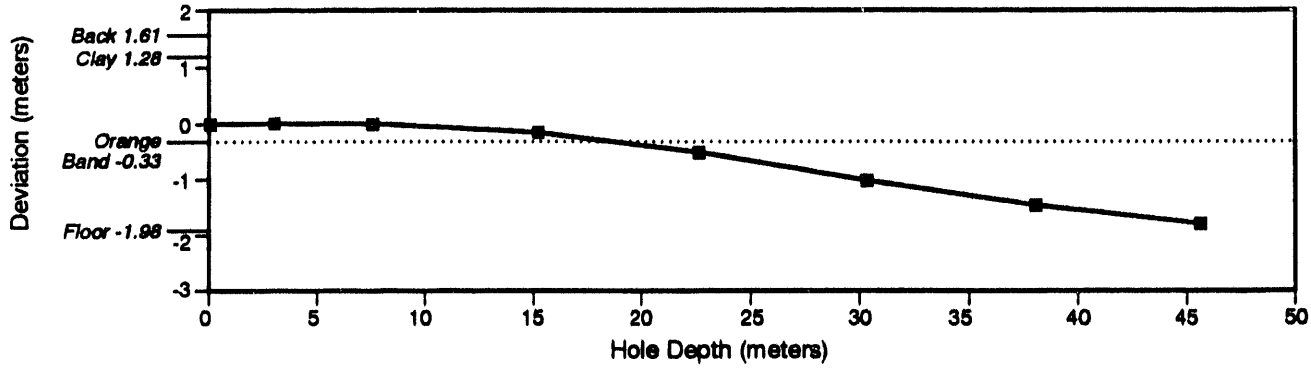


Figure 2-18
Profile of Long Drill Hole OH20

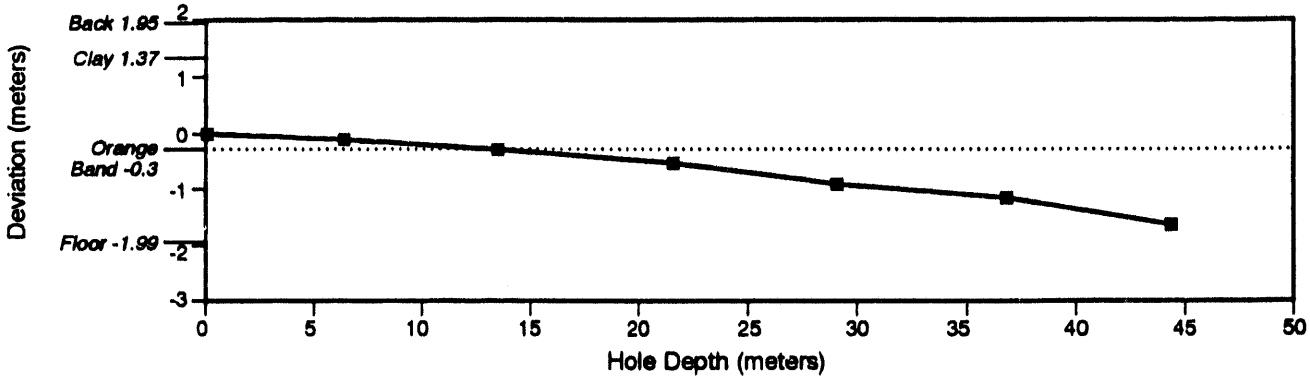


Figure 2-19
Profile of Long Drill Hole OH23

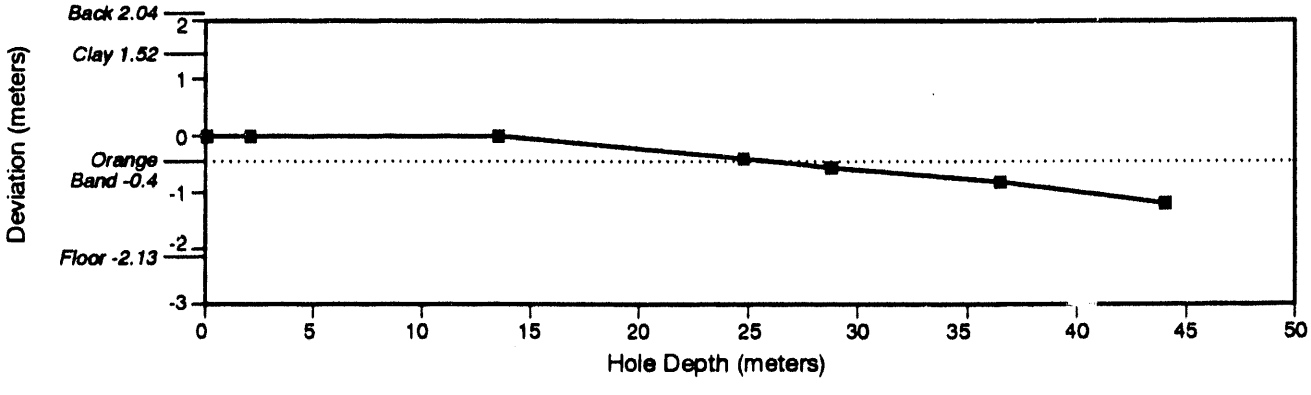


Figure 2-20
Profile of Long Drill Hole OH26

NOTE: These holes were not cored. The position of the orange band is projected, and the actual point at which the drill hole crosses the orange band is unknown.

four holes (OH20, OH23, OH26, and OH45) that cut the orange band accumulate brine. Evidence presented in this report suggests that the second explanation is the more likely one.

2.7 Discussion of Data Acquisition and Analyses

Several different sampling techniques have been used in an attempt to collect uniformly the very small amounts of brine that seep into the hole between sampling rounds, and each technique has unique problems. The change in sampling methods and difficulties in sampling techniques was discussed in detail by Deal and others (1991) and is sometimes reflected as apparent variations in seepage rates (Appendix B).

To compensate for sampling-induced apparent variations in seepage rates, the graphs of the seepage data presented in Appendix B have been smoothed using an 11-point moving average (the average of the data point and the five points on each side of the data point). At the beginning and end of each curve, the trend is distorted by the smoothing function, because the number of data points falls below five on one side of the averaging point; therefore, unsmoothed data appears for the first few points at the beginning and the end of each curve for a more accurate graphical representation of the seepage trends. There are slight differences between the curves presented in this report and in previous BSEP reports, because a different software package was used.

2.8 Effects of Dissolved Gas on Brine Inflow

Undisturbed Salado brine experiences a confining stress of approximately 14 megapascals (MPa) and contains a significant amount of dissolved gases. When the confining stress is relieved as a result of excavation, the solubilities of the gases are exceeded, causing the brine to "fizz," or exolve, excess gas. When brine samples are withdrawn from brine sampling holes, it is common to observe the exsolution of gas when the sample is swirled in a beaker. It is also common to observe effervescing moist areas on fresh surfaces (Deal and Case, 1987).

Gas monitoring holes have been installed in the WIPP underground as part of the Gas Testing Program (WIPP-DOE-177). These holes have been used to measure shut-in pressures and gas-flow rates, and samples have been taken for chemical analysis. Pressure buildup ranged from 10 to 120.6 pounds per square inch (psi). Measured flow maxima ranged from 2,940 to 12,280 cm^3/min and usually decreased to 2 to 5 cm^3/min within four days. The dominant gases present in the samples are nitrogen and methane, with minor carbon dioxide and oxygen. It is believed that most of the oxygen is contamination from mine air. The source

of the gas detected in these monitoring holes is probably gas that has exolved from brine as a result of excavation-induced depressurization.

The average composition of gas samples analyzed by the gas testing program (WIPP-DOE-177) and corrected for air contamination is approximately 9.5 percent nitrogen. The precise gas content of a liter of undisturbed WIPP brine pressurized at 14 MPa is unknown, but an upper limit has been calculated based on the solubility of nitrogen in WIPP brine at 14 MPa. When 1 L of brine containing the solubility-limited concentration of nitrogen at 14 MPa is allowed to de-gas at 1 atmosphere, it will yield 180 cm^3 of gas, resulting in a total volumetric increase of 18 percent.

This gas exsolution process provides an extra driving force to move brine within the DRZ toward the excavation. In the case of a brine with no dissolved gas, the volumetric expansion caused by depressurization from 14 MPa to room pressure, assuming a brine compressibility of 3.1×10^{-10} pascals $(Pa)^{-1}$ at 27°C (Beauheim and others, 1991) is 0.43 percent. This liquid-phase expansion is a small fraction (less than 3 percent) of the total expansion when gas exsolution is considered.

Another phenomena caused by the exsolution of gas is the creation of a partially unsaturated zone within the DRZ. This suggests that after the DRZ has developed to some extent, brine migration within the DRZ will be controlled by two-phase flow processes. Within this unsaturated zone, the permeabilities of brine and gas are functions of the degree of pore saturation.

3.0 Geochemistry of BSEP Brines

A major objective of the BSEP has been to characterize the composition of brine collected from drillholes in the Salado Formation at the facility horizon. Geochemical analysis of the brine is an extremely useful tool in understanding the modes of brine occurrence in the Salado Formation and the means by which brine enters the excavations. BSEP geochemistry data has been used to approximate the chemistry of typical Salado Formation brine that may come into contact with waste after closure of the repository and to distinguish between the presence of Salado Brine and artificial brines (Deal and others, 1989).

The geochemistry of brines recovered from the WIPP repository horizon has been the subject of numerous studies (Stein and Krumhansl, 1986; Krumhansl and Stockman, 1987; Stein and Krumhansl, 1988; Deal and others, 1989; Abitz and others, 1990; Krumhansl and others, 1991; Deal and others, 1991). Statistical analysis of WIPP brine chemistry has been performed by Deal and others (1989; 1991). The major-element composition of WIPP brines suggests an origin from evaporating seawater that had precipitated carbonate minerals, anhydrite, and halite, with further modification by diagenetic reactions with gypsum, magnesite, and polyhalite, and ion-exchange with clay minerals. A residual fluid origin is further substantiated by the high magnesium, potassium, and bromine content of the brines, which differs from a composition that would originate by groundwater infiltration and evaporite dissolution (Deal and others, 1991). The major-element compositions of brines recovered from BSEP holes are distinct from fluid inclusions in WIPP halite (Stein and Krumhansl, 1988), implying that the brine recovered from drillholes is largely intergranular fluid, rather than intragranular fluid released by migration of fluid inclusions to grain boundaries in response to stress relief.

During 1991, 83 brine samples were recovered from 17 drillholes in the Salado Formation at the repository horizon. These samples were analyzed for up to 25 chemical parameters by two independent laboratories, United Nuclear Corporation (UNC) (now Rust Geotech) and IT Corporation Analytical Services (ITAS). Brine chemistry data for the samples collected during 1991 are tabulated in Appendix C.

To identify outliers in the 1991 brine chemistry results, the data were compared to brine chemistry data collected prior to 1991 using a Dixon-type test (Kennedy and Neville, 1986). The following observations are based on the outlier evaluation:

- The total dissolved solids (TDS) concentration reported by UNC for several holes sampled on April 8, 1991, appears to be inaccurate. TDS for these samples are approximately one half of the concentrations observed during previous sampling.

- The arsenic concentrations reported by UNC for several holes sampled on July 7, 1991, are most likely too high.

- The calcium concentrations reported by ITAS for several holes sampled on April 8, 1991, are approximately 30 percent higher than previously reported calcium concentrations.

Aside from these outliers, the 1991 brine chemistry data are similar to previously collected data.

The 1991 WIPP brine chemistry data indicate that temporal concentration trends for several parameters continued at downholes DHP402A and GSEEP and subhorizontal hole OH23. The following trends were noted:

- The strontium concentration reported by UNC for DHP402A has decreased from 20.1 to 2.2 mg/L from 1988 to 1991.

- The strontium concentration reported by UNC for GSEEP has decreased from 3.0 to 1.8 mg/L from 1987 to 1991. Also, boron, magnesium, and potassium concentrations at GSEEP have decreased somewhat during the observation period.

- The extended alkalinity, total organic carbon, and iodide concentrations reported by UNC for OH23 have decreased steadily from 1989 to 1991.

Brine originating as water from the Rustler Formation typically has much higher strontium concentrations than representative Salado brine (Deal and others, 1989, Tables 3-2 and 3-3), which typically are on the order of 1 to 2 mg/L. The decrease of strontium values with time at DHP402A is consistent with the hypothesis that less contamination by construction waters (usually brine derived from the Rustler Formation water) is taking place. The high concentrations seen in DHP402A in 1988 were most likely due to the Rustler component in the water.

Statistical analysis indicates that brine samples from DHP402A and GSEEP are not representative of Salado Formation brine chemistry at the facility horizon (Deal and others, 1989) and are probably contaminated by mining operations (Deal and others, 1991). Deal and

Case (1987) and Deal and others (1989) discuss the potential for contamination of downholes by water sprayed onto the floor to control dust or to reconstitute loose salt cuttings.

Deal and others (1989; 1991) have evaluated rock/brine equilibria using the speciation-solubility code EQ3NR (Wolery, 1983). Modeling results indicate that all WIPP brines are saturated or supersaturated with respect to anhydrite, barite, fluorite, glauberite, gypsum, and halite. Several brines are also calculated to be saturated with respect to celestite, dolomite, magnesite, and polyhalite (Deal and others, 1989; Abitz and others, 1990; Deal and others, 1991). Model results agree with the observed mineralogy at the WIPP repository, supporting the contention that WIPP brines are fluids that have equilibrated with evaporite salts.

4.0 Release of Brine from Undercompacted Clay in the DRZ

4.1 Introduction

This section examines the volume of brine that may be available to migrate into the WIPP excavations by compaction of clay within the DRZ due to lithostatic loading. The release of brine into the WIPP excavation from undercompacted clays in the DRZ was suggested by Deal and Roggenthen (1991) and described in more detail by Deal and others (1991). To determine whether enough brine was present in the clays to account for observed brine seepage, clay samples were obtained from the WIPP excavation and then subjected to laboratory testing. Calculations were subsequently performed that computed the volume of brine released as a function of the thickness of the DRZ. For comparison purposes, volume calculations from compaction experiments were plotted with volume calculations that considered the specific storage of halite.

4.2 Sampling and Laboratory Testing

Four clay samples from various areas in the WIPP underground were collected from the clay seam beneath the orange band (Map Unit 1). Samples were sealed in 500-milliliter (mL) bottles and sent to IT Oak Ridge laboratory for modified consolidation experiments. The goal of these experiments was to determine the volume of brine that can be liberated from clay as a result of directed stress. A consolidation cell was developed by IT personnel, such that a constant pressure can be applied to a clay sample while brine liberated from the sample is collected.

The consolidation cell is a 1.4-in. (3.56-cm)-diameter, 2.3-in. (5.72-cm)-high stainless steel cylinder. A stainless steel piston with O-ring polypak seals was fabricated to fit inside the cylinder. The cell was set on top of a porous stone of corundum, which was set in a plastic dish. The plastic dish provided a means of catching brine squeezed out of the sample. This assembly was placed into a standard consolidation cell. Water was placed in the standard consolidation cell, and the completed assembly was placed in a plastic bag to provide a high-humidity environment to minimize evaporation of brine.

The cell assembly was placed in a Wykeham Farrance lever-arm odometer with a load ratio of 11:1. Weights totaling 126.8 kilograms (kg) were applied, giving 13.8 MPa force on the sample for four weeks. The ratio of the mass of brine released to the total sample mass was then determined gravimetrically.

4.3 Results

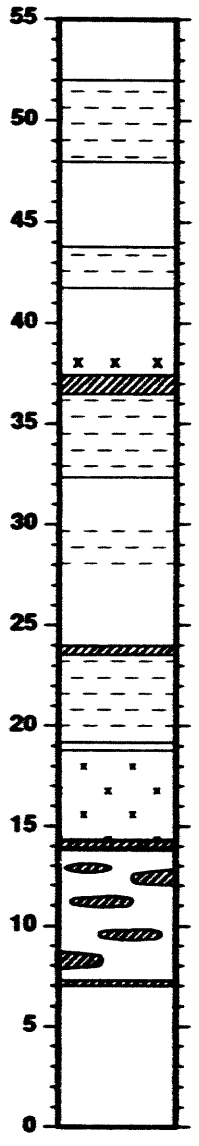
We measured the amount of brine that was driven out of the clay by compression and determined from the modified consolidation tests described above. There is no commonly used term for this brine fraction. Because a significant amount of moisture remains in the clay after squeezing (most as water of hydration or otherwise loosely bound to or within the clay), this amount of brine is some fraction of the true moisture content of the clay. Additionally, brine which is squeezed from the clays during the consolidation tests has a greater density than pure water. The *available volumetric brine content* is the percent by volume of brine that can be squeezed from a given sample. The *brine mass* value of 12.35 percent by weight for the clay was determined experimentally. The approximate clay content of each stratigraphic unit was determined. Assuming that for practical purposes all of the brine present is in the clays, the available volumetric brine contents were calculated for the various stratigraphic units (Table 4-1).

Moisture calculations based on oven-drying clay samples at 110°C, as specified by the American Society for Testing and Materials (ASTM) Procedure D2216-80, are not appropriate for this calculation because the WIPP repository is not (and will not) be heated to any significant extent. Such calculations would exaggerate the amount of brine available and will include water of hydration, which will be driven off clay minerals and hydrous salts by heating. Precipitation of hydrous salts from heating and evaporation of the brine will also introduce errors in the calculation. Calculations based on drying data thus will yield values much too large to be realistic.

4.3.1 Brine Available from Clay Consolidation

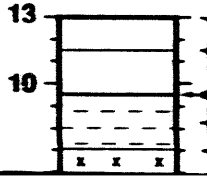
The assumption that moisture in the Salado Formation is associated with clays is made for the following reasons. The amount of moisture driven from the WIPP rock samples by heating to 95°C varies directly with the clay content (Deal and others, 1989, Section 4.1). Borehole conductivity studies (Deal and others, 1989, Section 4.2) also show a direct correlation between conductivity, clay content, and moisture, allowing moisture content to be calculated from conductivity. Observations in the WIPP excavations consistently record that patches of moisture often extend downward from the lithologic units that have the most clay (Deal and others, 1991, Section 2.2.2).

In order to calculate the volumetric brine content from the brine mass value, the density of the brine, the weight percent of clay in the rock, and the density of the rock or sediment sample must be known. The density of the brine is about 1.22 (Deal and others, 1989,



Height Above Roof (ft)	Weight % Clay (Average)	Calculated Available Volumetric Brine Content (%)
48.00 to 52.10	3.95	8.60E-03
43.90 to 48.00	0.23	5.06E-04
41.80 to 43.90	1.10	2.39E-03
37.60 to 41.80	0.002	4.35E-06
36.65 to 37.60	0.60	1.31E-03
30.00 to 36.65	1.36	2.96E-03
24.05 to 30.00	1.41	3.07E-03
18.80 to 24.05	0.33	7.07E-04
14.44 to 18.80	0.10	2.18E-04
13.90 to 14.44	0.20	4.35E-04
7.20 to 13.90	0.01	2.07E-05
7.05 to 7.20	0.03	6.53E-05
0.00 to 7.05	0.06	1.34E-04

Waste Storage Room Roof



Repository Horizon Height Above Floor (ft.)	Weight % Clay (Average)	Calculated Available Volumetric Brine Content (%)
11.50 to 13.00	0.10	2.13E-04
9.53 to 11.50	1.10	2.34E-03
9.50 to 9.53	100.00	2.13E-01
8.30 to 9.50	2.61	5.56E-03
7.10 to 8.30	0.23	4.95E-04
4.80 to 7.10	0.002	4.26E-06

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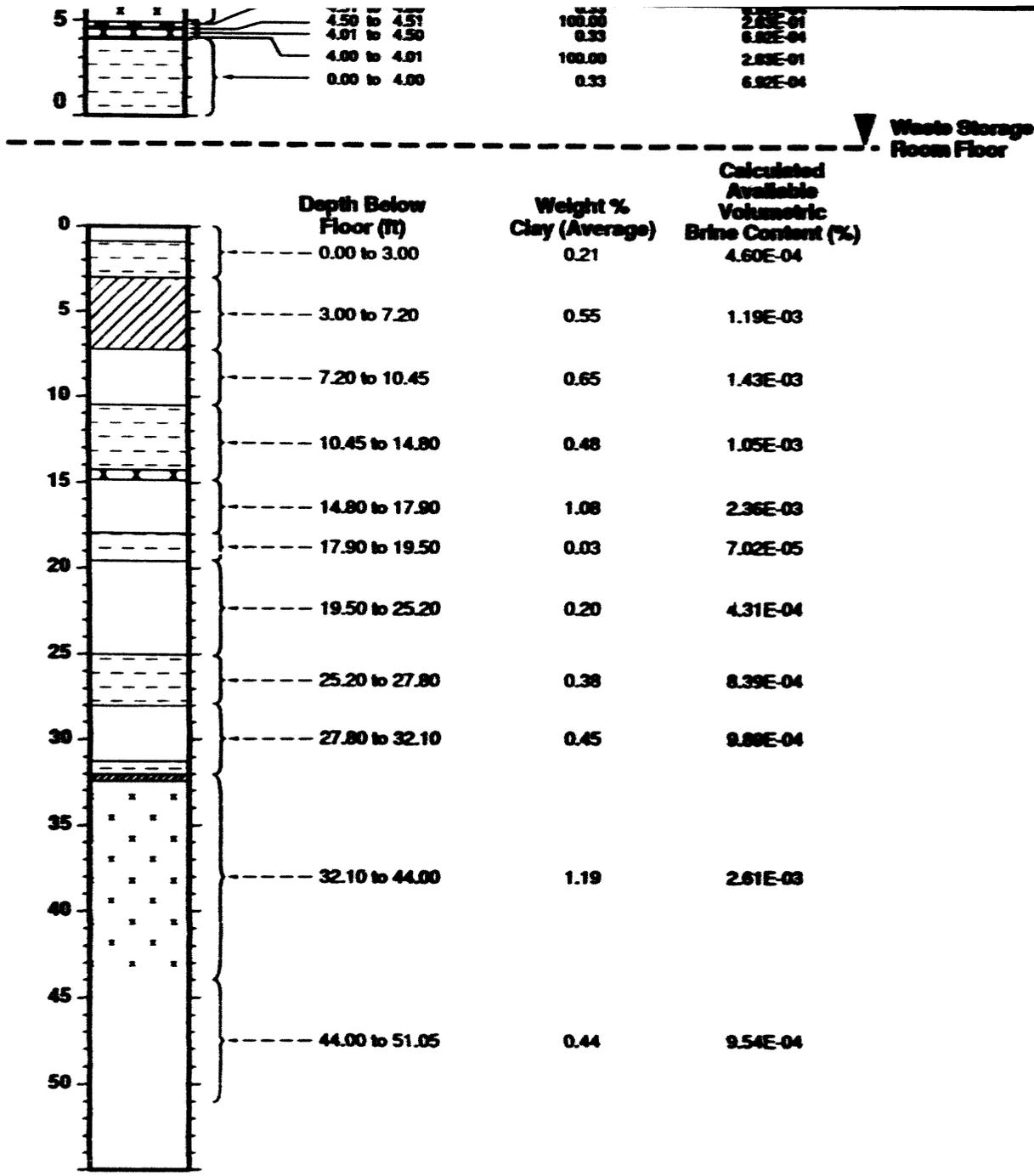

Table 4-1

List of Properties used in Volume Calculations after Stein (1985)

Table 3-5). The laboratory that performed the brine mass measurements proceeded to dry the sample to completion (removing structurally bound water in the clay) and reported a density in excess of 3; as a result, at this time we do not have a laboratory-determined density value for the in situ clay at the WIPP. The density, however, can be approximated. Milligan (1991) has studied the composition of the clay in the Salado Formation and from averaging the x-ray diffraction data has arrived at an approximate composition of 64 percent chlorite-smectite, 10 percent mixed-layer clay illite, 23 percent chlorite, and 3 percent serpentine. The range of clay densities listed in the *Manual of Mineralogy* (Klein and Hurlbut, 1985) shows chlorite from about 2.6 to 2.9 grams per cubic centimeter (g/cm^3), montmorillonite (a smectite) at about 2.5 g/cm^3, and illite at about 2.8 g/cm^3. It is reasonable to assume that the clay exposed in the WIPP excavations has a density somewhere between 2.5 and 2.9 g/cm^3, with most likely values of about 2.6 or 2.7 g/cm^3. The volumetric brine content of pure clay can be calculated using the following equation

$$\textit{Volumetric Brine Content (\%)} = \textit{Brine Mass (\%)} \times \frac{\textit{Density of Clay}}{\textit{Density of Brine}}$$

(after Hillel, 1980)

where

Brine mass = 12.35 percent
Brine density = 1.22
Range of clay density = 2.5 to 2.9.

The calculated volumetric brine contents of pure Salado clay is shown in Table 4-2, ranging between approximately 25 and 29 percent, with most likely values near 26 or 27 percent.

To calculate the available volumetric brine content of various stratigraphic units exposed around the WIPP excavations, the weight percent of the clay in the Salado Formation and the density of the Salado Formation must also be determined. Table 4-1 provides a listing of parameters used for this calculation. The percentage of clay in the Salado Formation was determined by Stein (1985) for specific mapping units that extend 50 feet (15 m) above and below the repository horizon. Clay content of the repository horizon was approximated by visually comparing repository mapping units with the units above the repository horizon, as determined by Stein (1985). Similarity of the repository mapping units and the units above the repository were determined from expert consensus of IT senior geologist Bob Holt and IT

Table 4-2
Calculated Range of Volumetric Brine Contents of Salado Formation Clay

Assumed Clay Density	Volumetric Brine Content (%)
2.5	25.3
2.6	26.3
2.7	27.3
2.8	28.3
2.9	29.3

geologist Darin Milligan. The density of the Salado Formation was determined from geophysical logging of the ERDA No. 9 drillhole by Griswold and McWhirter (1981). The calculated average values are shown on Figure 4-1. In addition, there are three distinct clay seams exposed in the repository horizon—immediately below the orange band, one just above the orange band, and clay F—that are the probable sources of most of the brine weeps (Deal and others, 1991, Section 2.2.2). Although these clay-rich layers can be traced throughout the excavations, their expression as distinct clay seams is somewhat discontinuous, and the thickness varies from place to place. Krumhansl and others (1990) studied 75 clay samples from the WIPP excavations collected from the clay below the orange band and clay F. They state that these two clay layers "range in thickness from a few cm to several cm." Their reported values are considered to be too large. Representative thicknesses were measured at 20 randomly selected sites and are shown in Table 4-3. Average thicknesses were .14 in. (3.5 millimeters [mm]) for the clay below the orange band, 3.5 mm for the clay above the orange band, and .4 in. (10.1 mm) for clay F. The values shown in Table 4-1 are used to predict the amount of brine that can be squeezed from the clay contents of each unit.

Calculations that use the consolidation data assume a constant uniaxial stress that liberates brine from the sample. Clay samples under an experimental pressure of 13.8 MPa experience pressures similar to the overburden pressure at the WIPP excavation. Figure 4-1 shows the volume of brine available for a 13- by 33- by 300-ft (4- by 10- by 91-meter) waste storage room as a function of the thickness of the DRZ. This plot assumes that all the brine available in the clay flows radially into the storage room. The volume of brine is an over-estimate of the actual amount of brine that will enter a waste storage room. Volume estimates are especially suspect for that part of the DRZ farthest from the excavation. Previous modeling (Deal and others, 1991, Chapter 5) has shown that less than 5 percent of the total amount of

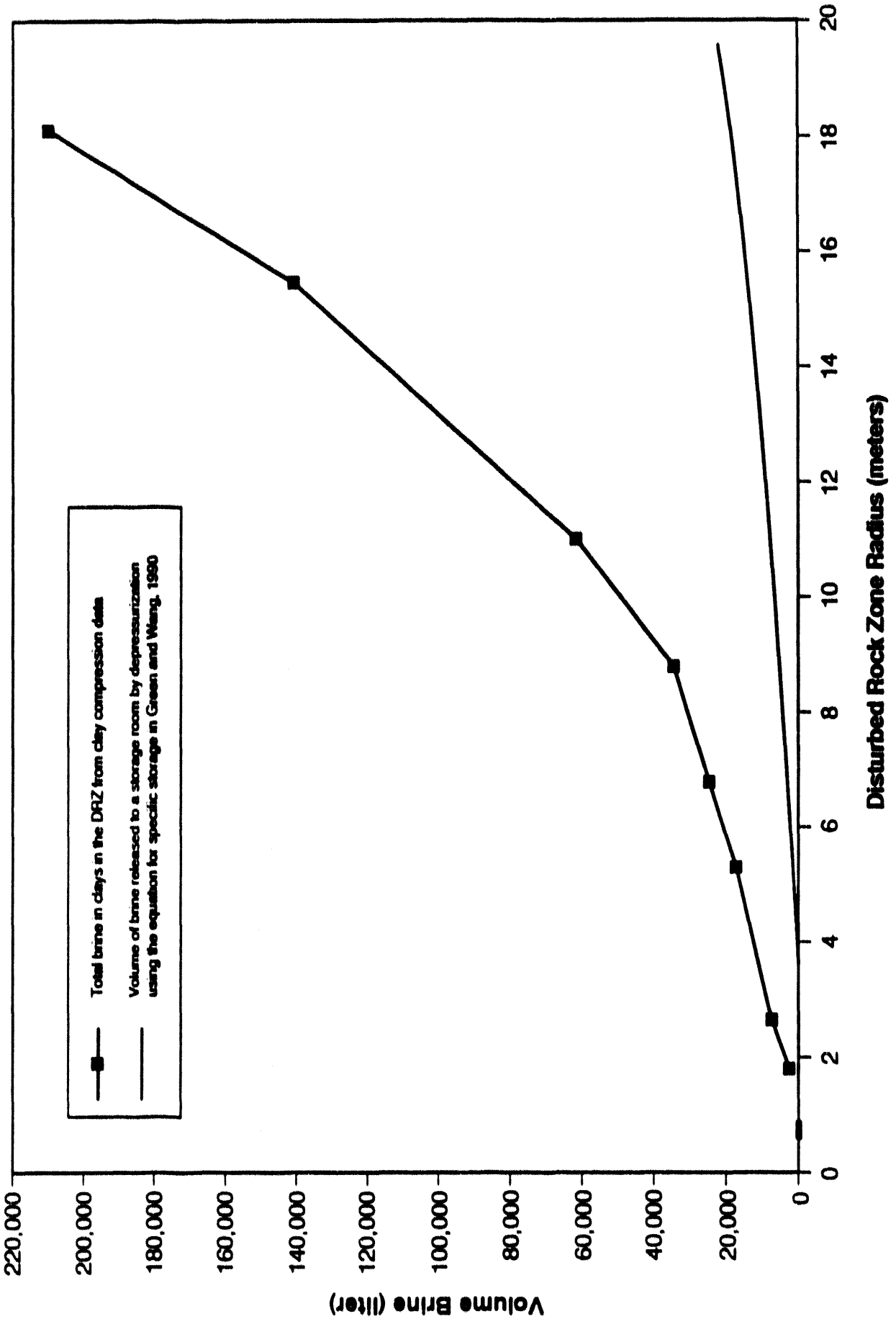

Figure 4-1
Volume of Brine Available for a Room-sized Excavation Calculated from Specific Storage Data and Clay Compression Data Assuming Radial Flow

Table 4-3
Thickness of Clay Seams in the WIPP Excavations

Location	Clay Below the Orange Band (millimeters)	Clay Above the Orange Band (millimeters)	Clay F (millimeters)
E Rib E0-N640	4	4	13
W Rib E0-N1000	0	0	2
W Rib S End SPDV Room 2	0	3	3
W Rib Center SPDV Room 4	0	3.5	3
E Rib Center Room L3	4	1.5	2
E Rib Shop E300-N1336	6	5	1.3
W Rib E300-N225	1.5	0	2
N Rib S1950-E858	5	7	8
N Rib S1950-E1250	20	12	10
W Rib S1775-E1300	0	10	10
N Rib S1600-E502	3	8	50
S Rib Shop S1300-W10	1	2	4
S Rib S1950-E120	1	1.5	45
W Rib S1600-W170	2	1.5	3
E Rib E0-N35	2.5	2	3.5
N Rib S400-W250	8	0	7
N Rib S90-E855	3	0	12
NW Rib N275-W450	4	5	12
N Rib N1100-W1880	1.5	2	4
N Rib N1100-W2776	3	2	8
Average Thickness	3.5	3.5	10.1

brine estimated will actually be released to the excavation by depressurization: therefore, this curve is unrealistically high.

4.3.2 Specific Storage Calculations

The release of brine into the WIPP excavation may be controlled by several processes (Deal and Roggenthen, 1991). One of these processes is the release of brine due to the depressurization of the DRZ (Deal and others, 1991). Assuming that expansion of brine is the dominant driving force for flow into the excavation, the amount of brine released from a homogeneous DRZ may be calculated by using the equation for specific storage. Specific storage is defined as the volume of water that a unit volume of aquifer releases from storage under a unit decline in hydraulic head (Freeze and Cherry, 1979). Because a value for the change in hydraulic head is known across the DRZ, the volume of brine released due to depressurization was calculated given a volume of DRZ and the calculated specific storages.

The expression for specific storage most commonly used in groundwater hydrology is given by Domenico (1972):

$$S_s = \rho_f \, g \, (\alpha + \phi\beta)$$

where

ρ_f = Fluid density = 1,200 kg/m^3
g = Acceleration of gravity = 9.8 ms^{-2}
α = Vertical formation compressibility = 4.82 x 10^{-11} Pa^{-1}
ϕ = Formation porosity = 1.56 percent
β = Fluid compressibility = 4.99 x 10^{-10} Pa^{-1}.

which gives

S_s = Specific storage = 6.59E-07m^{-1}.

The above expression was used to determine the volume of brine released into a 13- by 33- by 300-ft (4- by 10- by 91-meter) waste storage room from a DRZ of a given thickness (Deal and others, 1991, Figure 4-19). They conclude that approximately 180,000 L of brine would be released to a WIPP waste storage room from a 27-m thick DRZ. The specific storage value of halite, with a porosity of 1.56 percent, used in this calculation was 6.6 x 10^{-7} m^{-1}. This is almost seven times larger than the specific storage value of 9.5 x 10^{-8} m^{-1}, as estimated by Beauheim and others (1991), for halite with a 1 percent porosity. A porosity of 1 percent is considered too low, because the average volumetric

moisture content for halite from the repository units of the Salado Formation is approximately 1.56 percent (Deal and Roggenthen, 1991). Given a volumetric moisture content of 1.56 percent, the porosity must be at least as high to account for the moisture in the formation.

The above equation assumes that the compressibility of the solid framework is a negligible component of the bulk formation compressibility compared to the compressibility of the pores. This assumption is true for most "normal" water-bearing rocks that are low-compressibility solids, such as a quartz sandstone; however, this assumption is probably not valid for halite at a depth of 655 m (2,150 ft). A more rigorous expression for specific storage is presented by Green and Wang (1990):

$$S_s = \rho_f g \left[\left(\frac{1}{K} - \frac{1}{K_s} \right) \left(1 - \frac{4G(1-K/K_s)/3}{K+4G/3} \right) + \phi \left(\frac{1}{K_f} - \frac{1}{K_s} \right) \right]$$

where:

ρ_f	=	Fluid density = 1,220 kg/m^3
g	=	Acceleration of gravity = 9.8 ms^{-2}
K	=	Drained bulk modulus of rock = 20.7 GPa
K_s	=	Unjacketed bulk modulus of rock (grain or solids modulus) = 23.4 GPa
G	=	Drained shear modulus of rock = 12.4 GPa
ϕ	=	Porosity = 1.56 percent
K_f	=	Bulk modulus of fluid = 3.23 GPa.

which gives

S_s = Specific storage = 1.13 x 10^{-7} m^{-1}.

A specific storage estimate of about 1.13 x 10^{-7} for halite with a 1.56 percent porosity has been calculated, using the above equation and values from Beauheim and others (1991). This value of specific storage is slightly larger than the 9.5 x 10^{-8} m^{-1} estimated by Beauheim and others (1991) and was used to calculate the volume of brine released from storage for a 13- by 33- by 300-ft (4- by 10- by 91-meter) waste storage room. This result is plotted in Figure 4-1 as the solid line. Projecting that line suggests that depressurizing a 27-m-thick DRZ will yield on the order of 40,000 L, not the 180,000 L suggested by Deal and others (1991).

4.4 Discussions

In Section 4.3.1, it was pointed out that only a small percentage of the brine present in the DRZ would be released by squeezing or depressurization. It would be useful to obtain an estimate for the size of that percentage. Based on the calculations of Deal and others (1991, Figure 4-19), depressurizing a DRZ about 27 m thick could release 180,000 L of brine. Deal and others (1991, Figure 5-3 A) also calculated that the cross section of such a DRZ around a WIPP storage room would have an area of approximately 3,258 square meters. If the room is 300 ft (91 m) long, the volume of rock involved is about 296,000 cubic meters. The Salado Formation at the repository level is 1.56 percent brine by volume (Deal and Roggenthen, 1991), so the volume of the DRZ around a room contains about 4.6 x 10^6 L of brine. If 180,000 liters are released by depressurization, about 4 percent of the brine is available to enter the room. Recalculation using more appropriate value for specific storage (discussed above) suggests a release of only 40,000 L by depressurizing, which is less than 1 percent of the brine available. These calculations also do not take into account the brine that will be lost by evaporation prior to closing the storage room. For the above reasons, the lower curve in Figure 4-1 presents a more realistic estimate (but still an over-estimate) of how much brine might be released from the DRZ into a WIPP waste storage room.

Figure 4-2 shows that there is enough moisture present in the clay within the repository horizon to explain the brine seepages calculated in Table 2-4 from the weep studies. The following assumptions are made:

- Horizontal seepage only occurs from the repository horizon. This is the assumption argued by Deal and others (1991, Figure 5-3B).
- One hundred percent of the brine available in the clay present within 1 m of the excavation is squeezed into the openings.
- Fifty percent of the brine present in clay that is 1 to 2 m from the excavation is squeezed into the openings.
- Five percent of the brine present in clay in the rest of the DRZ is squeezed into the openings. (This is more than the "less than 1 percent" calculated above and is therefore also an over-estimate of the brine available.)

Alternatively, it is known that, with time, fracturing around the WIPP storage rooms will extend upward to anhydrite "a" and downward to clay E at the base of MB 139 (Deal and others, 1991, Chapter 5). It may be more realistic to predict brine seepage from the clay

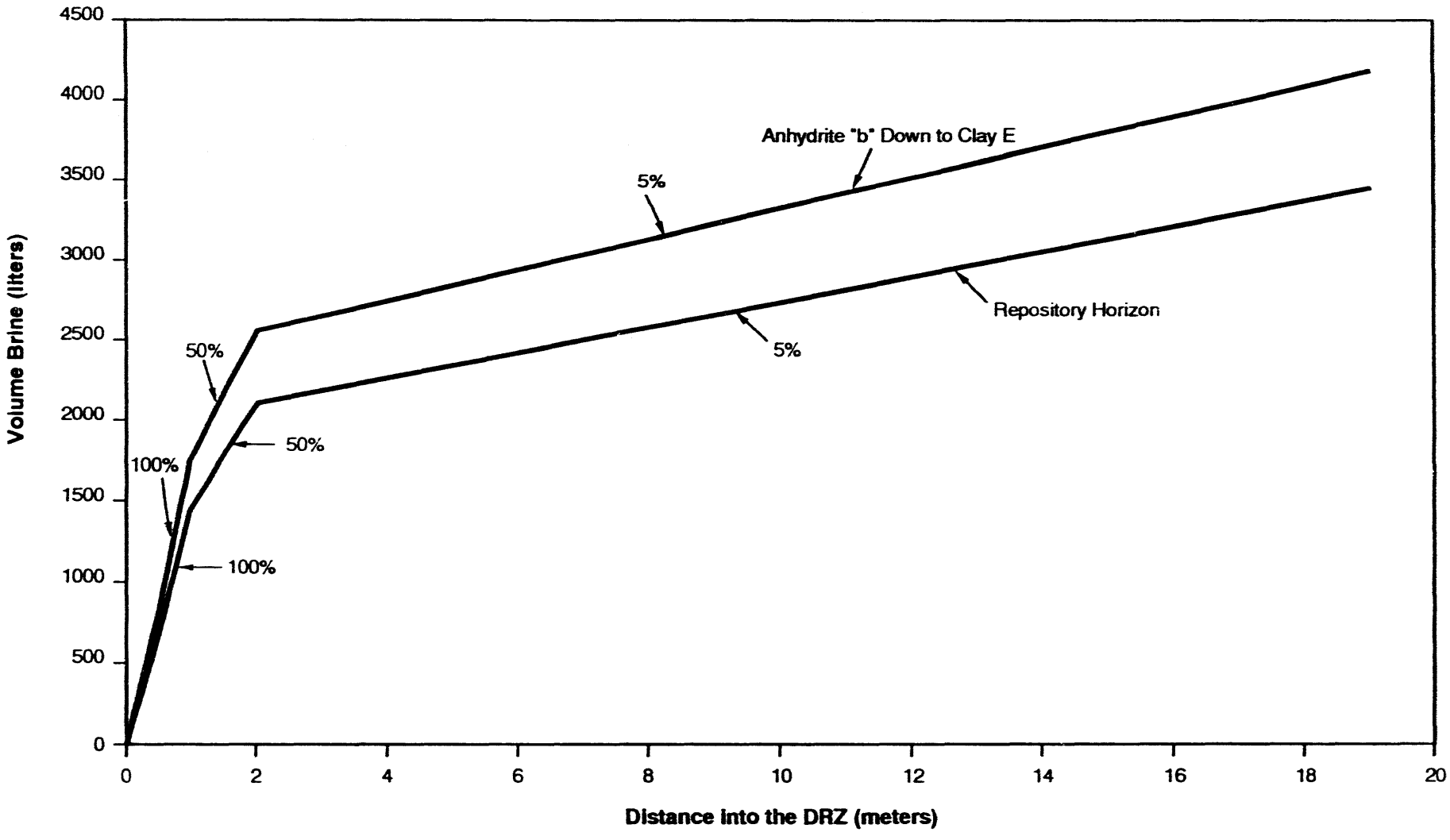

Figure 4-2
Volume of Brine Available to be Squeezed into a WIPP Storage Room from Clay Contained in the WIPP Repository Horizon
(percents refer to that percent of the Brine that can be squeezed out of the clay under the Experimental Conditions that is Assumed to be Liberated under In Situ Conditions. See Text for Discussion.)

contained in that stratigraphy as well. The upper curve in Figure 4-2 shows the results making the same assumptions for 100, 50, and 5 percent yield. In this conceptual model, the DRZ is assumed to extend only horizontally away from the room. This is reasonable, as stress will be relieved in the roof, and the compressive stress required to squeeze brine out of the clays is not likely to be present in units immediately above and below the rooms. This exercise suggests that there is more than enough brine present in the near-field clays to account for all observed brine seepages. Figure 4-2 probably exaggerates the amount that will actually enter a room; however, this volume is still on the order of 2 percent of the 220,000 L necessary to corrode all susceptible metals in CH-TRU waste emplaced in steel drums.

The uniaxial compression experiments do not realistically simulate the stress conditions that exist within the DRZ but are useful as a first approximation to determine whether enough brine is contained in the surrounding rocks to account for the observed brine seepage. Results of analysis for radial-tangential stress development after excavation of a WIPP waste storage room using the VISCOT code indicate that the tangential stress on the wall of the room increases to approximately twice the value of the in situ stress, while the radial stress is reduced to zero (Deal and others, 1989, Figures 5-4 and 5-5). The in situ stress in the Salado Formation is about 15 MPa. In response to high deviatoric stress, the salt creeps into the openings, and the radial and tangential stresses relax with time (Deal and others, 1989). Within 1 or 2 m of the excavated surface, the rock will probably experience much higher stress during the first few days, whereas the pressures experienced in the DRZ some distance from the excavations will stay close to lithostatic, and brine release from consolidation will be limited because the brine is not able to drain into the repository excavations. Thus, uniaxial compression of the clay material in the laboratory is a gross exaggeration of the differential stress state within the DRZ.

In addition, the orientation of the clay-mineral particles relative to the principal stress direction will affect the amount of brine that can be liberated under compaction. Consolidation tests were conducted on disturbed clay particles that were probably randomly oriented at the start of the experiment. The horizontal strain component was confined. The in situ clay is probably oriented parallel to bedding. In the DRZ, clay experiences a high confining-boundary stress, which is effectively simulated by the vertical stress applied by the compaction cell. However, fluid was allowed to be released from the sample vertically, unlike in the DRZ, where flow is probably constrained in the vertical direction perpendicular to clay mineral grains and by confining clear halite units. Thus, the uniaxial compression of

the clay material used in this analysis can only be an approximation to the actual physical processes that liberate brine from the clay in the DRZ.

5.0 Summary and Conclusions

During nine years of observations (1982 to 1991), evidence has mounted that the amount of brine seeping into the WIPP excavations is local, limited, and finite and only a small percentage of that required to produce little hydrogen gas by anoxic corrosion of the metal in the CH-TRU waste drums and waste inventory. The data through 1990 are discussed in detail by Deal and others (1991). It was concluded that it will take on the order of 220,000 L of brine to corrode all the susceptible metal (iron and aluminum) and that there is probably less than 10 percent of that volume (less than 20,000 L) available, unless it can be proven that far-field flow does occur at the WIPP. Far-field flow is theoretically unlikely or impossible (Deal and Roggenthen, 1991), and all evidence at the WIPP confirms that significant seepage of brine ceases about three years after the excavation of an opening, although small seeps can continue for a longer period of time.

Data gathered in 1991 support those conclusions and present evidence that the small amounts of brine seeping into the excavations are derived from the clay present in the walls within 1 or 2 m of the excavations. Less than 1 percent of the brine needed to corrode all the susceptible metal is expected to seep into any one WIPP waste storage room, and much of that is expected to evaporate into the air circulated through the repository prior to room closure and, hence, will be unavailable for corrosion. There is no evidence confirming that enough far-field flow exists to supply the needed volume of brine for complete anoxic corrosion of the available iron and aluminum.

5.1 Brine Observations

The most telling observations are those of brine seeping through the walls of the excavations. Most of that brine evaporates into the air circulated for ventilation, depositing salt encrustations on the wall. Careful, long-term observations, including repeated collection and measurement of the encrustations, confirm and semiquantify the observation that the brine weeps cease about three years (1,000 days) after an excavation is made (Section 2.2). Study of six sample surfaces throughout the WIPP excavations estimate total seepage into a full-sized waste storage room from rib weeps to be between 43 and 604 L, with an average of less than 300 L (Table 2-4 and Figure 2-14). This is less than 1 percent of the 220,000 L of brine needed to corrode all the susceptible metal in the CH-TRU waste and waste storage drums (Deal and others, 1991, Section 4.6). Therefore, it is highly unlikely that gas generated by corrosion will be a problem at the WIPP after closure.

Weep observations show that vertical surfaces in the WIPP underground dry out in about 1,000 days, supporting the general observations that have been made in the past (Deal and Case, 1987; Deal and others, 1991, Section 2.2). Mining an additional 3 ft (0.9 m) from the dry surface creates a fresh surface on which weeping resumes. This observation also supports the hypothesis that most of the brine that seeps from the vertical surfaces is being squeezed out of the clay (Deal and Roggenthen, 1991; Deal and others, 1991, Chapter 5), primarily from the first 3 ft (0.9 m) of the DRZ.

The clay units appear to be the only significant source of brine. It has been hypothesized that vertical fracturing develops within the ribs after about 1,000 days and that brine continues to seep toward the rooms but is diverted downward through the fractures to accumulate, unseen, in fractures beneath the floor of the drifts (Deal and Roggenthen, 1991; Deal and others, 1991). *This hypothesis is testable.* If brine is being diverted through vertical fractures, brine or evidence of brine (i.e., salt encrustations) should be observable in the fractures.

There are a number of places in the WIPP underground where the vertical fracturing in the walls can be observed, and considerable effort has been made to examine all of these locations to see if brine or salt crusts can be observed. These locations include the 11 subhorizontal drillholes (Section 2.6 of this report), the entrance to Room Q, several horizontal drillholes in the northwest wall of SPDV Room 4, Drillhole WWC1 in the south rib of N1420 across from Room C1, and several locations in Panel 1. Rib fractures have been well-exposed on the east rib of several rooms in Panel 1. A typical exposure was shown in Deal and others (1991, Figure 2-9) and can clearly be seen to be dry and free of salt encrustations. Two large-diameter (3-ft [0.9-m]) horizontal drillholes in the northeast end of Room 1 cut several near-vertical fractures, and they also are dry and free of salt encrustations (Figure 5-1). *There is no observed evidence of past or present moisture at any of these locations.*

A series of horizontal holes have been drilled in the north end of Room D as part of the Sandia National Laboratories/New Mexico (SNL/NM) sealing tests. Brine was injected under high pressure behind the seals, and in some cases, brine leaked out of adjacent fractures. This brine was, however, artificial brine that was deliberately injected at these locations, and no naturally occurring brine seeped out of the Salado Formation.

It has been hypothesized that large quantities of brine will flow into the excavations from the far field (beyond the DRZ), mostly through MB 139 (SNL/NM, 1992). (In the context of

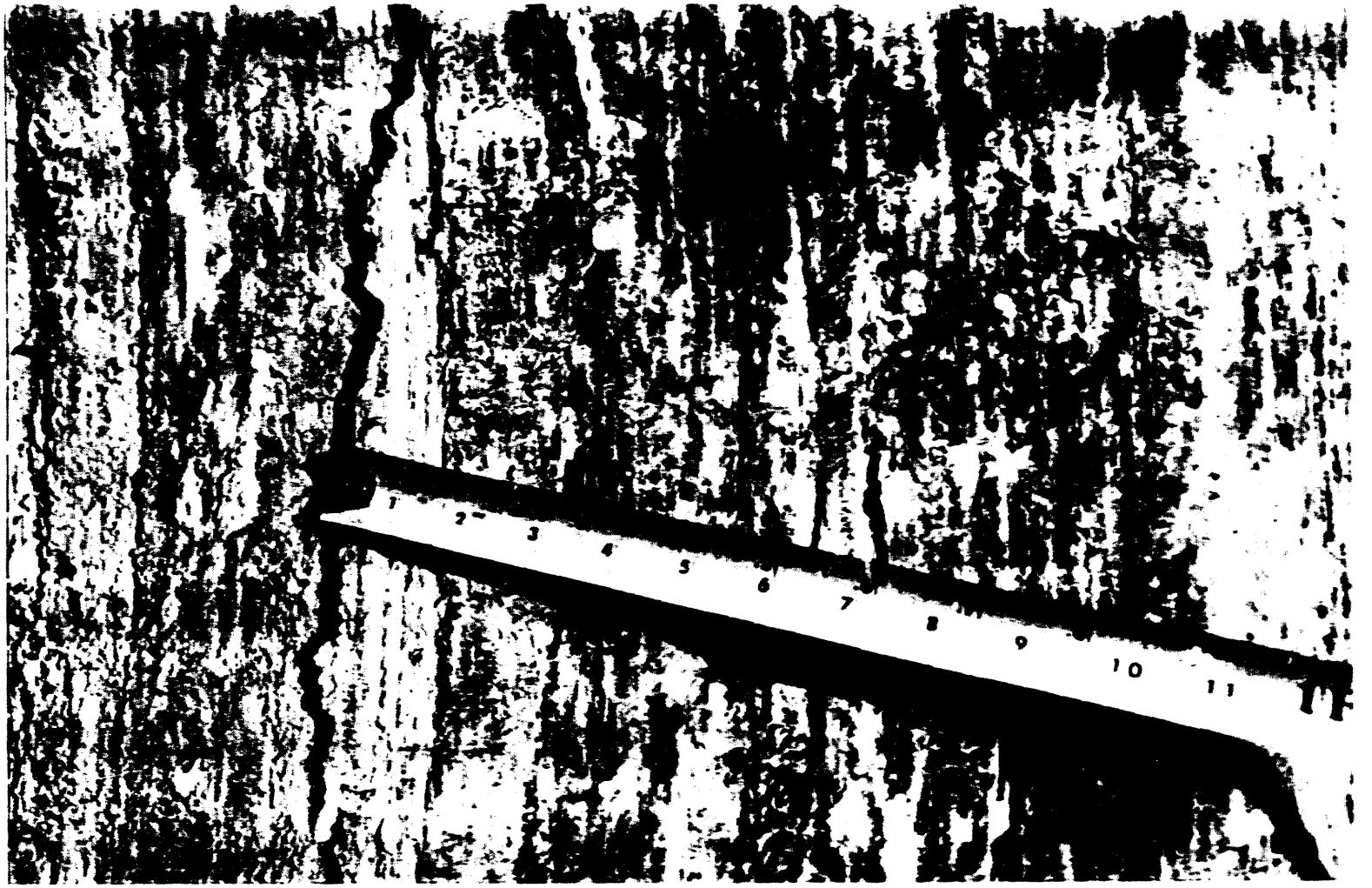

Figure 5-1

Looking upward toward the top of a 3-ft (0.9 m)-diameter horizontal drillhole in the north end of the East Rib, Room 1, Panel 1. The fracture is about 42 cm from the subparallel to the excavation surface. The fracture is dry, and no salt crusts or salt stavacities occur along it.

brine flow toward the WIPP excavations, near-field flow is flow that occurs within the DRZ, including the outer zone of plastic deformation and the inner zone of elastic deformation and fracturing [Deal and others, 1991, Chapter 5]. Far-field flow refers to flow far enough beyond the DRZ that the salt does not deform in response to the presence of the WIPP excavations.) Presumably, this brine would also accumulate in the fractures beneath the floor and eventually rise to the surface of the drifts and inundate the storage rooms. *This hypothesis is testable.* If far-field flow is transporting brine to the WIPP excavations, that brine should be observable.

The best place to look for evidence of far-field flow is in older excavations that are as far removed from other parts of the underground workings as possible. SPDV Room 4 and Room G are ideal locations, as they were excavated in 1983 and 1985, and there is nothing except undisturbed Salado Formation to the north and west and, for most of Room G, to the south.

A series of five downholes (DH36, DH38, DH40, DH42, and DH42A) were drilled through MB 139 beneath the floor of Room G. If far-field flow through MB 139 exists, there should be observable flow into these drillholes from MB 139. Visual inspection of these holes show that MB 139 is distinguishable, some fracturing and a small amount of salt crust build-up can be seen in MB 139, but no brine is seeping out of the anhydrite into the drillhole. No large salt encrustations occur. These observations confirm the identical report of an earlier inspection of DH36 by Deal and others (1991, Section 2.5). These boreholes do produce small amounts of brine (0.004 to 0.09 L/day) from some deeper horizon, probably clay B, that would not be connected to the fracturing around a waste storage room.

There are at least 36 downholes in SPDV Room 4 (including 9 that have routinely been monitored for the Excavation Effects Study). All that are still accessible are dry and contain little encrustation buildup. The condition of MB 139 is especially easy to see in drillhole P4X84, in the southwest corner of Room 4. P4X84 is 36 in. (91 cm) in diameter, 15.7 ft (4.8 m) deep, and often shown to visitors (Figure 5-2). Both the top and bottom of MB 139 are clearly visible, as are large, open fractures. The fractures, MB 139, and the bottom of the drillhole are dry. If far-field flow through MB 139 was occurring, brine should be seeping out of it in the downholes in SPDV Room 4 and Room G. *No brine is observed, and no thick salt encrustations have formed.*

Figure 5-2

Downhole P4x84, a 3-ft (0.9 m) diameter hole in the floor of SPDV Room 4. The wooden wedge to the right of center marks a fracture at the top of MB139. The two smaller wooden pegs to the lower left mark the bottom of MB139. No brine has been observed in this hole and no thick salt encrustations have formed.

It has previously been noted (Deal and others, 1991) that all of the north end of the workings (except Rooms A1, A2, A3, B, D, and G) has been heavily watered in the past to control salt dust, and all fractures and drillholes in the floor were filled to floor level with brine on numerous occasions. Therefore, if additional brine were seeping into the fractures beneath the floor, either from rib seeps that were diverted downward through fractures or from MB 139, brine should be manifest by either forming pools on the floor or evaporating and leaving salt crusts on the floor. *Neither was found.*

The only other possible mechanism to remove inflowing brine would be through an interconnected fracture system beneath the floors that allowed brine to flow downhill under gravity head to the sumps in the Salt Shaft and Waste Handling Shaft. Deal and others (1991) report making repeated observations in those sumps and observed fractures that cut MB 139 beneath the floor of the drifts. Both the fractures and MB 139 are dry. Pump tests have been performed in the fractured zone beneath the floor of the E0 drift (Crawley and others, 1992), which confirm that interconnected fracture systems have formed only at intersections.

It is unlikely that significant quantities of brine are flowing into the WIPP excavations from either MB 139 or from the downward diversion of rib weeps through fractures behind the walls. If either were occurring, brine should be seeping out of MB 139 and fractures in holes in the floor in SPDV Room 4 and Room G, and one of the following should occur: brine pools should form on the floor of the E0 drift, salt crust should form in the fractures, or brine should seep out of MB 139 or fractures in the shaft sumps. Extensive efforts have been made over the past nine years to find this evidence, but the observations to date are negative. The fact that brine is not observed seeping from MB 139 in the shafts is evidence that significant far-field flow does not exist.

A confirming observation was made by Deal and others (1991, Section 2.5) in the South Exploratory Drift (E140). The south 500 m of this drift slopes downward to the south to a dead end; therefore, if significant amounts of brine were seeping into this drift, the minimal evaporation and the sloping nature of the floor should result in the accumulation of brine at the south end of the drift. Inspections detected no moisture on either the ribs or the floor and only minimal salt encrustations. If significant amounts of brine flowed downslope to the south end and evaporated, salt crusts should be evident. *No such salt crusts were found.*

5.2 Moisture Available in Clays

WIPP performance assessment modeling (SNL/NM, 1992) assumes a far-field flow model for the brine seeps. The BSEP work initially made similar assumptions (Deal and others, 1989, Chapter 5), in large part because these assumptions were necessary to perform any conventional hydrologic modeling. Even then, however, the assumptions that Darcy's Law applied and that hydrostatic conditions existed were questioned. Testing of fluid pressures in the units surrounding the WIPP excavations has shown unequivocally that hydrostatic conditions do not exist and that pressures close to lithostatic occur within 10 m of the excavations (Beauheim, 1993). As the studies continued, some of the hydrologists working with the Salado Formation became more aware of the physical implications of the plastic nature of the salt. Additionally, the thin, brittle anhydrite layers are encased in thick, effectively impermeable salt beds, sealing them within. Theoretically, it does not seem possible for far-field flow to occur in the undisturbed Salado Formation (Deal and Roggenthen, 1991). Deal and others (1991) argued that the brine seeps were the result of redistribution of brine in the DRZ in response to the stress redistribution caused by excavating the underground openings. Deal and Roggenthen (1991) also suggested that enough brine might be available in the clays to account for the observed brine occurrences (Chapter 4 of this report). Laboratory testing shows that the clays contain between approximately 25 and 29 percent brine by volume that can be liberated by squeezing clay samples under 13.8 MPa of pressure for one month.

After estimating the amount of clay present in seams and disseminated in the salt units exposed in the walls of the repository (Section 4.3.1 and Figure 4-2 of this report), it was found that there was enough brine available in the clay to explain the brine weeps and resulting salt encrustations that are found in the WIPP (Section 2.2 of this report). In terms of brine inflow into a full-sized WIPP waste storage room, this translates into a likely brine volume on the order of 400 L.

The calculations were extended to include strata above and below the repository horizon to estimate the volume of brine contained in the clays within the DRZ. Figure 4-1 shows that for a DRZ with a thickness of 66 feet (20 m), there is about 220,000 L of brine that could be squeezed out at 13.8 MPa. This is the same order of magnitude as the amount of brine needed to corrode all the susceptible metal to be emplaced in a storage room, but it is an unrealistically large number for the volume of brine that is likely to be liberated.

There are two reasons that 220,000 L is much too high: First, it assumes that a deviatoric stress (not confining stress) (Deal and others, 1991, Chapter 5) of 13.8 MPa is applied to the entire DRZ. This will not happen. Modeling of the DRZ around an 11.8-ft (3.6-m)-diameter shaft, or Room Q (Deal and others, 1989, Chapter 5), shows that large deviatoric stresses only occur within a few meters of the opening, even three years after excavation. Even if radial flow toward the opening is assumed, a refinement of that modeling using a more appropriate calculation of specific storage in halite indicates that less than 1 percent of the available brine would seep into the excavation (Section 4.4 of this report). The second reason is that radial flow will not occur. The clear halite units are effectively impermeable and restrict brine movement to flow paths subparallel to bedding (see discussion in Deal and others, 1991, Chapter 5). An alternative hypothesis to radial flow is that the brine is being squeezed out of the clay, which is present in and between the layers of salt, as a result of tangential stress (vertical loading) and is moving into the excavations due to the differential radial stress toward the excavation.

As a result, assuming that the source of brine are the clays and the driving mechanism is the differential stress caused by excavating the WIPP openings, 4,000 L (Figure 4-2) or less appears to be an extremely large estimate for the amount of brine that will seep into a WIPP waste storage room. To test the feasibility of this latter hypothesis, an initial attempt was made to see if there was sufficient brine that could be squeezed out of the clays to explain observed brine seepage.

5.3 Possible Mechanisms Acting to Drive Brine Seepage

Far-field flow does not appear to be active, but two other processes may be acting to drive brine toward the repository. First, the thin clay interbeds provide flow paths for brine driven toward the excavations by differential tangential stress. In this case, brine flow may be modeled by considering the pressure differential along the interbeds caused by relief of confining pressure at the excavation wall with a far-field boundary at lithostatic pressure (12.5 MPa or more). Second, the thin clay may be squeezed between massive halite beds, in which case, the brine seepage can be modeled as a consolidation problem driven by a vertical loading close to twice lithostatic near the excavation walls. It is highly probable that both processes are active.

5.4 Recommended Future Work

To further refine our understanding of the brine seepages at the WIPP and the implications for gas generation, the following activities are recommended:

- Stein (1985) made laboratory determinations of the percentage of clay present in the units above and below the repository horizon. No equivalent data exist for the repository horizon. Similar determinations should be made of the units exposed in the excavations, and the calculations performed in Chapter 4 should be repeated with better data to arrive at more accurate numbers for the amount of clay involved.

- The value for the volume of brine that can be squeezed out of the WIPP clays was determined only at one pressure and under uniaxial stress. The experiments should be repeated under different confining stresses, under different vertical loading, ranging from a few MPa to 30 MPa, and over a longer period of time.

- The data from the tests outlined above should be combined with rock mechanics modeling, which predicts the tangential and radial stresses that will develop with time in the walls of a WIPP waste storage room. The objective is to construct a more accurate prediction of how much of the brine in the clay will be driven into the storage rooms.

- To help bound the problem, the two processes described in Section 5.3 should be modeled to obtain an approximate order-of-magnitude of their relative importance. In other words, flow should be modeled both as a consolidation problem and as flow through clay interbeds under a simple pressure differential, assuming lithostatic pressure in the far-field and atmospheric pressure in the excavation.

- The additional drillhole tests proposed in Deal and others (1991, Appendix E) should be executed to resolve uncertainties in the subhorizontal brine seepage data and to assist in resolving the question of whether or not any component of far-field flow exists.

6.0 References

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APPENDIX A
BRINE ACCUMULATION

PART I—LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED

PART II—BRINE ACCUMULATION DATA TABLES

APPENDIX A
BRINE ACCUMULATION

PART I—LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED

TABLE A-1

LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED THROUGH DECEMBER, 1991 AS PART OF THE BRINE SAMPLING AND EVALUATION PROGRAM AT WIPP

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
A1X01	A1	S	N1147.02	E1254.40	400.28	10	15.2	D	90	B, D, E	Monitored as part of the BSEP from 3/85 to 2/91.
A1X02	A1	S	N1146.88	E1254.24	405.78	10	18	U	90	B, D, E	Monitored as part of the BSEP since it was drilled in 3/85.
A2X01	A2	S	N1393.72	E1338.88	399.65	10	15.3	D	90	B, D, E	Monitored as part of the BSEP from 2/85 to 10/90.
A2X02	A2	S	N1393.65	E1338.89	405.03	10	16.1	U	90	B, D, E	Monitored as part of the BSEP from 2/85 to 9/89.
A3X01	A3	S	N1137.94	E1406.84	399.22	10	15.4	D	90	B, D, E	Monitored as part of the BSEP since it was drilled in 1/85. Drillers did not report any moisture while drilling. Hole started producing brine a few weeks later.
A3X02	A3	S	N1138.00	E1406.89	404.75	10	15.5	U	90	B, D, E	Monitored from 1/85 to 9/89. Drillers did not encounter moisture while drilling. Hole started producing brine a few weeks later.
BTPA1	S1620/W170	A	S1638	W162	384	7.6	1.6	D	90	B	Open from 0 to 1.6 m. Drilled for the BSEP study 7/86 and monitored until 12/02/88.
BTPA2	S1620/W170	A	S1638	W166	384	7.6	2.8	D	90	B	Cased from 0 to 1.6 m. Open from 1.6 to 2.8 m. Drilled for the BSEP study 7/86 and monitored until 12/02/88.
BTPA3	S1620/W170	A	S1638	W170	384	7.6	4.1	D	90	B	Cased from 0 to 3.1 m. Open from 3.1 to 4.1 m. Drilled for the BSEP study 7/86 and monitored until 12/02/88.
BTPA4	S1620/W170	A	S1638	W166	388	7.6	1.4	U	90	B	Open from 0 to 1.4 m. Drilled for the BSEP study 7/86 and monitored until 9/27/88. Dry.
BTPA5	S1620/W170	A	S1638	W170	388	7.6	1.6	U	90	B	Open from 0 to 1.6 m. Drilled for the BSEP study 7/86 and monitored until 9/27/88. Dry.
BTPB1	S1620/W170	A	S1636	W162	384	7.6	1.6	D	90	B	Open from 0 to 1.6 m. Drilled for the BSEP study 7/86 and monitored until 9/27/88.

* The repository is referenced in feet; therefore the North-South and East-West coordinates are presented in feet.
** For references, see footnote at end of table.

TABLE A-1

LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED THROUGH DECEMBER, 1990 AS PART OF THE BRINE SAMPLING AND EVALUATION PROGRAM AT WIPP (Continued)

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
BTPB2	S1620/W170	A	S1636	W166	384	7.6	2.9	D	90	B	Cased 0 to 1.8 m. Open from 1.8 to 2.9 m. Drilled for the BSEP study 7/86 and monitored until 9/27/88.
BTPB3	S1620/W170	A	S1636	W170	384	7.6	4.1	D	90	B	Cased 0 to 3.1 m. Open from 3.0 to 4.1 m. Drilled for the BSEP study 7/86 and monitored until 9/27/88.
BTPB4	S1620/W170	A	S1636	W166	388	7.6	3.0	U	90	B	Cased 0 to 2.1 m. Open from 2.1 to 3.0 m. Drilled for the BSEP study 7/86 and monitored until 9/27/88.
BTPB5	S1620/W170	A	S1636	W170	388	7.6	3.1	U	90	B	Cased 0 to 1.9 m. Open from 1.9 to 3.1 m. Drilled for the BSEP study 7/86 and monitored until 9/27/88.
BTPC1	S1620/W170	A	S1634	W162	384	7.6	1.5	D	90	B	Open from 0 to 1.5 m. Drilled for the BSEP study 7/86 and monitored until 9/27/88.
BTPC2	S1620/W170	A	S1634	W166	384	7.6	3.0	D	90	B	Cased from 0 to 1.7 m. Open from 1.8 to 3.0 m. Drilled for the BSEP study 8/86 and monitored until 9/27/88.
BTPC3	S1620/W170	A	S1634	W170	384	7.6	4.4	D	90	B	Cased from 0 to 3.0 m. Open from 3.0 to 4.4 m. Drilled for the BSEP study 8/86 and monitored until 9/27/88.
BTPC4	S1620/W170	A	S1634	W166	388	7.6	5.4	U	90	B	Cased from 0 to 4.2 m. Open from 4.2 to 5.4 m. Drilled for the BSEP study 7/86 and monitored until 9/27/88.
BTPC5	S1620/W170	A	S1634	W170	388	7.6	5.5	U	90	B	Cased from 0 to 4.3 m. Open from 4.3 to 5.5 m. Drilled for the BSEP study 7/86 and monitored until 9/27/88. Dry.
BTR1	S1950/E100	A	S1942	E98	387	8.3	0.3	H	5	B	Hole slightly declined below horizontal. Collar above upper clay seam, about 0.3 m below back. Drilled 6/86 and monitored until 9/27/88. Dry.

* The repository is referenced in feet; therefore the North-South and East-West coordinates are presented in feet.
** For references, see footnote at end of table.

TABLE A-1

LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED THROUGH DECEMBER, 1990 AS PART OF THE BRINE SAMPLING AND EVALUATION PROGRAM AT WIPP (Continued)

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
BTR2	S1950/E100	A	S1942	E100	387	8.3	1.0	H	5	B	Hole slightly declined below horizontal. Collar above upper clay seam, about 0.3 m below back. Drilled 6/86 and monitored until 12/02/98.
BTR3	S1950/E100	A	S1942	E101	387	8.3	1.0	H	5	B	Hole slightly declined below horizontal. Collar above upper clay seam, about 0.3 m below back. Drilled 6/86 and monitored until 12/02/88.
BTR4	S1950/E100	A	S1942	E98	386	8.3	0.3	H	5	B	Hole slightly declined below horizontal. Collar in halite about 1.1 m below back. Drilled 6/86 and monitored until 12/02/88.
BTR5	S1950/E100	A	S1942	E100	386	8.3	0.9	H	5	B	Hole slightly declined below horizontal. Collar in halite about 1.1 m below back. Drilled 6/86 and monitored until 12/02/88.
BTR6	S1950/E100	A	S1942	E101	386	8.3	0.9	H	5	B	Hole slightly declined below horizontal. Collar in halite about 1.1 m below back. Drilled 6/86 and monitored until 12/02/88.
BTR7	S1950/E100	A	S1942	E98	386	8.3	0.3	H	5	B	Hole slightly declined below horizontal. Collar just above orange band. Drilled 6/86 and monitored until 12/02/88. Dry.
BTR8	S1950/E100	A	S1942	E100	386	8.3	0.9	H	5	B	Hole slightly declined below horizontal. Collar just above orange band. Drilled 6/86 and monitored until 12/02/88.
BTR9	S1950/E100	A	S1942	E101	386	8.3	0.9	H	5	B	Hole slightly declined below horizontal. Collar just above orange band. Drilled 6/86 and monitored until 12/02/88.
BTR10	S1950/E100	A	S1942	E98	385	8.3	0.4	H	5	B	Hole slightly declined below horizontal. Collar about 0.8 m above floor. Drilled 6/86 and monitored until 12/02/88. Dry.

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TABLE A-1

LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED THROUGH DECEMBER, 1990 AS PART OF THE BRINE SAMPLING AND EVALUATION PROGRAM AT WIPP (Continued)

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
BTR11	S1950/E100	A	S1942	E100	385	8.3	0.9	H	5	B	Hole slightly declined below horizontal. Collar about 0.8 m above floor. Drilled 6/86 and monitored until 12/02/88.
BTR12	S1950/E100	A	S1942	E101	385	8.3	0.9	H	5	B	Hole slightly declined below horizontal. Collar about 0.8 m above floor. Drilled 6/86 and monitored until 12/02/88.
BX01	B	S	N1384.68	E982.33	401.56	10	15.3	D	90	B, E	Monitored as part of the BSEP since it was drilled in 1/85. Core moist from 10.6 to 11.1 m in coarsely crystalline clear halite. MB139 at 7.1 to 7.9 m.
BX02	B	S	N1384.44	E982.87	407.05	10	15.0	U	90	B, E	Monitored as part of the BSEP from 1/85 to 12/89.
DH15	N1140/E1689	A	N1140	E1688.5	402	7.6	15.5	U	90	B	Moisture noticed at collar in 4/86. Collecting device installed 5/86 and monitored as part of the BSEP since then. At present no brine is collected because of insufficient inflow.
DH35	G	A	N1102	W1882	395	8.9	15.8	U	90	A3, B	Monitored as part of the BSEP since 2/85. At present no brine is collected because of insufficient inflow.
DH36	G	A	N1102	W1882	392	8.9	15.7	D	90	A3, B	Monitored as part of the BSEP since 1/85.
DH37	G	A	N1101	W2182	396	8.9	15.7	U	90	A3, B	Monitored as part of the BSEP since 1/85. At the present no brine is collected because of insufficient inflow.
DH38	G	A	N1101	W2182	392	8.9	14.5	D	90	A3, B	Monitored as part of the BSEP since 1/85.
DH39	G	A	N1101	W2482	395	8.9	14.5	U	90	A3, B	Monitored as part of the BTP since 2/85. At the present no brine is collected because of insufficient inflow.

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TABLE A-1

LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED THROUGH DECEMBER, 1990 AS PART OF THE BRINE SAMPLING AND EVALUATION PROGRAM AT WIPP
(Continued)

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
DH40	G	A	N1101	W2482	392	8.9	15.5	D	90	A3, B	Monitored as part of the BSEP since 1/85
DH41	G	A	N1101	W2782	395	8.9	15.2	U	90	A3, B	Monitored as part of the BSEP since 2/85. At the present no brine is collected because of insufficient inflow
DH42	G	A	N1101	W2782	392	8.9	15.6	D	90	A3, B	Monitored as part of the BSEP since 2/85
DH42A	G	A	N1101	W2789	392	8.9	12.6	D	90	A3, B	Monitored as part of the BSEP since 2/85
DH215	S1960/E153	A	S1960	E153	388	7.6	15.8	U	90	A1, B	Gas releases had been observed in this hole. Monitored as part of the BSEP since 1/85. At the present no brine is collected due to insufficient inflow.
DH216	S1960/E153	A	S1960	E153	385	7.6	16.5	D	90	A1, B	Gas releases had been observed in this hole. Monitored as part of the BSEP from 1/85 to 6/85 when collar was destroyed and hole plugged by mining.
DH317	S1600/W30	A	S1600	W33	388	7.6	15.3	U	90	A2, B	Stalactite growth monitored as part of the BSEP from 5/85 to 2/86.
DH317A	S1600/W30	A	S1600	W28	388	7.6	1.5	U	90	A2, B	Stalactite growth monitored as part of the BSEP from 5/85 to 2/86.
DH317B	S1600/W30	A	S1597	W27	388	8.9	15.5	U	90	A2, B	Gas pocket at 14.0 m. Brine seeped from hole after drill rods were broken at end of run at depth of 5 m. Probable source was anhydrite "a". Stalactite growth monitored as part of the BSEP from 5/85 to 2/86.
DHP401	S1950/E1330	A	S1950	E1330	387	10	15.1	U	90	B	Drilled 1/87, observed as part of the BSEP since 3/87. At the present no brine is collected due to insufficient inflow.

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TABLE A-1

LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED THROUGH DECEMBER, 1990 AS PART OF THE BRINE SAMPLING AND EVALUATION PROGRAM AT WIPP (Continued)

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
DHP402A	S1950/E1330	A	S1950	E1330	383	10	15.2	D	90	B	Drilled 12/86, observed as part of the BSEP since 12/86. Hole offset at 13.7 m. There may be a rock bolt or piece of steel in hole.
EES12B	N1430/E0140	A	N1430	E140	398	4.7	3	D	90	K	Drilled 6/86 as part of the Excavation Effects Study. Observed as part of the BSEP from date of drilling until 12/86. Rapid brine and gas inflow through open fractures.
EES21B	S0700/E0066	A	S700	E66	381	4.7	2.7	D	90	K	Drilled 7/86 as part of the Excavation Effects Study. Observed as part of the BSEP since drilling until 12/86. Rapid brine and gas inflow through fractures.
GSEEP	G	A	N1095	W1837	391					B	Damp area on the floor of Room G, near south rib, approximately 13.7 m east of DH35. Seep noticed 8/85. Damp area larger in 11/85. Monitored as part of the BSEP since 11/85. 40 cm diameter collecting sump drilled 9/87.
IG201	2	S	N1275.54	W379.51	394.71	7.3	16.4	D	90	A3, B, H, J	Monitored as part of the BSEP from 11/84 to 9/87 when shear closure pinched hole shut so that sampler would not go to bottom.
IG202	1	S	N1264.79	W246.11	395.17	7.3	14.7	D	90	A3, B, H, J	Monitored as part of the BSEP from 11/84 to 7/87 when shear closure pinched hole shut so that sampler would not go to bottom. Last BSEP brine data collected in 3/87.
JV8	J	S	N1067	W374	393	91	2.5	D	90	D, F, G	Drilled 8/08/85; drillers reported water at 2.4 m. Not monitored after initial observation.
JV9	J	S	N1067	W378	393.3	91	2.5	D	90	D, G	Brine in bottom of pilot hole on 8/20/85. Not monitored after initial observation.
L1S25	L1	A	N1524	W218	400	10	3.6	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.

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TABLE A-1

LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED THROUGH DECEMBER, 1990 AS PART OF THE BRINE SAMPLING AND EVALUATION PROGRAM AT WIPP (Continued)

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
L1S26	L1	A	N1524	W220	400	10	3.6	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1S27	L1	A	N1524	W222	400	10	3.6	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1S28	L1	A	N1524	W224	400	10	3.7	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1S29	L1	A	N1524	W226	400	10	3.7	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1S30	L1	A	N1524	W228	400	10	3.7	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1S31	L1	A	N1524	W235	400	10	3.6	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1S32	L1	A	N1524	W237	400	10	3.6	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1S33	L1	A	N1524	W239	400	10	3.6	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1S34	L1	A	N1524	W241	400	10	3.7	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1S35	L1	A	N1524	W243	400	10	3.8	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1S36	L1	A	N1524	W245	400	10	3.7	D	90	B, H	Monitored as part of the BSEP from 8/85 to 6/89.
L1X00	L1	A	N1538.5	W225	400	10	3.8	D	90	B, H	Drillers found water in hole at 3 m. 5/13/84. Monitored as part of the BSEP from 10/84 to 4/89.
L2C03	L2	A	N1510	W365	400	41	3.7	D	90	B, H	Drilled 4/85 overcoring and destroying L2C25. Brine and gas enters hole quickly through open fractures. Monitored intermittently as part of the BSEP from 12/85 through 12/86.
L2C25	L1	A	N1510	W365	400	12.7	3.5	D	90	B, H	L2C25 is a 12.7 cm overcore of a previously grouted SNL/NM test hole. The overcore was drilled 3/85 and air and brine was blown through fractures into hole L2C29, 1.2 m to the north. In 4/85, a 40 cm overcore was made destroying this hole. The larger hole is designated L2C03.

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TABLE A-1

LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED THROUGH DECEMBER, 1990 AS PART OF THE BRINE SAMPLING AND EVALUATION PROGRAM AT WIPP
(Continued)

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
MIIT2	J	S	N1088.03	W377.02	393.44	8.3	0.9	D	90	B, D, G	Brine since drilled; monitored from 10/84 to 4/85.
MIIT4	J	S	N1086.05	W377.13	393.44	8.3	1.0	D	90	B, D, G	Brine since drilled; monitored from 10/84 to 4/85.
MIIT6	J	S	N1084.16	W377.15	393.36	8.3	1.0	D	90	B, D, G	Brine since drilled; monitored from 10/84 to 4/85.
MIIT8	J	S	N1082.08	W377.24	393.34	8.3	1.0	D	90	B, D, G	Brine since drilled; monitored from 10/84 to 4/85.
MIIT10	J	S	N1079.98	W377.23	393.31	8.3	1.0	D	90	B, D, G	Brine since drilled; monitored from 10/84 to 4/85.
MIIT12	J	S	N1078.11	W377.21	393.25	8.3	1.0	D	90	B, D, G	Brine since drilled; monitored from 10/84 to 4/85.
MIIT14	J	S	N1076.18	W377.30	393.14	7.6	1.0	D	90	B, D, G	Brine since drilled; monitored from 10/84 to 4/85.
MIIT16	J	S	N1074.17	W377.18	392.95	7.6	1.0	D	90	B, D, G	Brine since drilled; monitored from 10/84 to 4/85.
MIIT17	J	S	N1072.03	W379.10	393.29	7.6	1.0	D	90	B, D, G	Brine since drilled; monitored from 10/84 to 4/85. SNL/NM filled hole with Brine A 4/30/85 and plugged with rubber cork.
MIIT18	J	S	N1071.91	W377.18	393.27	7.6	1.0	D	90	B, D, G	Brine since drilled; monitored from 10/84 through 4/85. SNL/NM experiment filled hole with Brine A 4/20/85 and plugged hole with rubber cork.
MIIT20	J	S	N1069.84	W377.22	393.30	7.6	1.8	D	90	B, D, G	Brine noted 10/84; monitored from 10/84 through 4/85.
MIIT22	J	S	N1067.93	W377.23	393.30	7.6	1.8	D	90	B, D, G	Brine noted 10/84; monitored from 10/84 through 4/85.
MIIT24	J	S	N1065.79	W377.21	393.42	7.6	1.8	D	90	B, D, G	Brine noted 10/84; monitored 10/84 through 4/85, Sandia experiment added Brine A to hole 4/30/85 and plugged with rubber cork.

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LIST OF UNDERGROUND LOCATIONS WHERE BRINE OCCURRENCES WERE OBSERVED AND MONITORED THROUGH DECEMBER, 1990 AS PART OF THE BRINE SAMPLING AND EVALUATION PROGRAM AT WIPP (Continued)

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
MIITP	J	A	N1067	W378	393	3.8	2.7	D	90	B, F	Brine since drilled; pilot hole for 0.9-m-diameter hole that was never completed. Monitored from 4/02/85 through 4/23/85.
NG252	2	S	N1275.86	W381.05	394.68	3.8	2.3	D	90	A3, B, H, J	Monitored as part of the BSEP from 11/84 to 4/89. This hole constantly produced gas. First time noticed was before 10/84. Room closed 6/89.
OH20	S1600/W170	S	S1610.36	W177.16	386.22	8.9	47.2	H	0-3	L	Collared about 0.3 m above the orange band, bottoms in Map Unit 0 below the orange band. Monitored as part of the BSEP since it was drilled 3/89.
OH21	S1600/W170	S	S1605.36	W177.16	385.50	8.9	16.2	H	0-3	L	Collared about 0.3 m below the orange band. Monitored for the BSEP since it was drilled 12/88.
OH22	S1600/W170	S	S1615.36	W177.16	386.65	8.9	15.1	H	0-3	L	Collared about 0.6 m above the orange band. Monitored for the BSEP since it was drilled 12/88.
OH23	S1950/W170	S	S1950.41	W178.86	384.94	8.9	46.0	H	0-3	L	Collared about 0.3 m above the orange band, bottoms in Map Unit 0 below the orange band. Monitored for the BSEP since it was drilled 2/89.
OH24	S1950/W170	S	S1945.41	W178.86	384.11	8.9	15.2	H	0-3	L	Collared about 0.3 m below the orange band. Monitored for the BSEP from 3/89 to 8/90.
OH25	S1950/W170	S	S1955.41	W178.86	385.27	8.9	15.2	H	0-3	L	Collared about 0.6 m above the orange band. Monitored for the BSEP from 3/89 to 8/90.
OH26	S2180/W170	S	S2183.01	W177.14	384.70	8.9	45.7	H	0-3	L	Collared about 0.3 m above the orange band, bottoms in Map Unit 0 below the orange band. Monitored for the BSEP since it was drilled 3/89.
OH27	S2180/W170	S	S2178.01	W177.14	385	8.9	15.1	H	0-3	L	Collared about 0.6 m above the orange band. Monitored for the BSEP since it was drilled 4/89.

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(Continued)

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
OH27A	S2180/W170	S	S2177.01	W177.14	385	8.9	1.2	H	0-3	L	Short offset hole to OH27. Collared about 0.6 m above the orange band. Monitored for the BSEP since it was drilled 4/89.
OH28	S2180/W170	S	S2188.01	W177.14	383.78	8.9	15.1	H	0-3	L	Collared about 0.3 m below the orange band. Monitored for the BSEP since it was drilled 4/89.
OH35	AIS/S90	S	S100.73	W628.97	383.45	8.9	3.1	D	90	M	Drilled for hydrologic testing of fractures beneath the floor. Not a part of routine BSEP sampling.
OH36	AIS/S90	S	S96.71	W623.11	383.39	8.9	3.1	D	90	M	Drilled for hydrologic testing of fractures beneath the floor. Not a part of routine BSEP sampling.
OH37	AIS/S90	S	S97.66	W609.39	383.35	8.9	3.1	D	90	M	Drilled for hydrologic testing of fractures beneath the floor. Not a part of routine BSEP sampling.
OH38	AIS/S90	S	S97.35	W595.62	383.36	8.9	3.1	D	90	M	Drilled for Marker Bed 139 hydrologic testing. Not a part of routine BSEP sampling.
OH39	AIS/S90	A	S97	W540	383	8.9	3	D	90	M	Drilled for hydrologic testing of fractures beneath the floor. Not a part of routine BSEP sampling.
OH40	AIS/S90	S	S96.91	W485.10	383.02	8.9	3	D	90	M	Drilled for hydrologic testing of fractures beneath the floor. Not a part of routine BSEP sampling.
OH41	AIS/S90	S	S110.52	W622.79	383.44	8.9	3.5	D	90	M	Drilled for hydrologic testing of fractures beneath the floor. Not a part of routine BSEP sampling.
OH42	AIS/S90	S	S43.44	W622.54	383.62	8.9	3.2	D	90	M	Drilled for hydrologic testing of fractures beneath the floor. Not a part of routine BSEP sampling.
OH43	AIS/S90	S	S124.01	W622.52	383.45	8.9	3.7	D	90	M	Drilled for hydrologic testing of fractures beneath the floor. Not a part of routine BSEP sampling.

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(Continued)

Hole Number	Room or Location	Survey Accuracy S=Surveyed A=Approximate	North-South Coordinates*	East-West Coordinates*	Elevation m	Dia. cm	Length m	Direction U=Up D=Down H=Horiz.	Angle in Degrees	References**	Remarks
OH44	AIS/S90	S	S134.53	W622.31	383.46	8.9	3.4	D	90	M	Drilled for hydrologic testing of fractures beneath the floor. Not a part of routine BSEP sampling.
OH45	Core Library	S	S391.51	W326.35	384.15	8.9	14.9	H	0-3	L	Monitored for the BSEP since it was drilled 6/89.
OH46	Core Library	S	S391.51	W319.01	381.65	8.9	15.3	D	90	L	Monitored for the BSEP since it was drilled 6/89.
OH47	Core Library	S	S391.51	W319.01	385.90	8.9	15.2	U	90	L	Monitored for the BSEP since it was drilled 7/89.
P4X84	SPDV Room 4	A	N1138	W0644	394	91.4	4.8	D	90	B	Large diameter downhole in south end of Room 4 often shown to visitors. MB 139 and fractures beneath the floor are well exposed, both of which are dry. This is good evidence that no far-field flow exists.
PR2	S1600/E140	A	S1600	E140	388	5	6.1	U	90	B, C	Stalactite growth monitored as part of the BSEP from 5/85 to 2/86.
PR3	S1282/E140	A	S2182	E140	385	5	6.1	U	90	B, C	Stalactite growth monitored as part of the BSEP from 5/85 to 2/86.
PR4	S2748/E140	A	S2748	E140	381	5	6.1	U	90	B, C	Stalactite growth monitored as part of the BSEP from 5/85 to 2/86.
WWC1	Room C1	A	N1420			91	4.9	H	0	B	Large horizontal hole on south rib of N1420 drift, across from Room C1. Photographically monitored for salt buildup.

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(Continued)

FOOTNOTE

A1	TSC-D'Appolonia, 1983 (WIPP-DOE-163)
A2	Bechtel, 1984 (WIPP-DOE-202)
A3	Bechtel, 1985 (WIPP-DOE-213)
B	Brine Sampling and Evaluation Program File
C	Records of Special Drill Holes, September 12, 1983: BSEP Files
D	As-Built Survey Calculation Sheets: BSEP Files
E	Field Notes, J. Gallerani, Bechtel: BSEP Files
F	Field Notes, D. Deal, IT Corporation: BSEP Files
G	Room J Brine Survey: BSEP Files
H	Room L1 and L2 Field Notes: BSEP Files
J	Geotechnical Instrumentation List, November 2, 1983: BSEP files
K	Excavation Effects Drilling Program, Data Transmittal August 12, 1986: Excavation Effects Files: WIPP Geotechnical Engineering Files
L	Drilling Record Log: BSEP Files
N	Survey Data Sheet: WIPP Geotechnical Engineering Files

APPENDIX A
BRINE ACCUMULATION

PART II—BRINE ACCUMULATION DATA TABLES

BRINE ACCUMULATION DATA TABLE
Data through December 31, 1991

LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
A1X01	10/10/84	00:00	NA	0.000	0.000	0.000	0.00	Room A1 completed.
A1X01	02/26/85	00:00	NA	0.000	0.000	0.000	0.00	Downhole drilled 2/21/85 to 2/26/85.
A1X01	03/12/85	12:20	00.08	70.514	1.000	0.000	0.08	First time collected.
A1X01	03/20/85	13:30	00.38	78.562	8.048	0.047	0.46	Brine plus some muck.
A1X01	03/26/85	11:25	00.23	84.476	5.914	0.039	0.69	Muck in hole, valved leaked, some brine drained back down hole.
A1X01	04/02/85	12:15	00.39	91.510	7.034	0.055	1.08	
A1X01	04/10/85	12:20	00.33	99.514	8.004	0.041	1.41	
A1X01	04/17/85	11:30	00.28	106.479	6.965	0.040	1.69	
A1X01	04/23/85	10:50	00.23	112.451	5.972	0.039	1.92	
A1X01	04/30/85	13:26	00.26	119.560	7.109	0.037	2.18	
A1X01	05/07/85	09:10	00.25	126.382	6.822	0.037	2.43	
A1X01	05/14/85	10:06	00.24	133.421	7.039	0.034	2.67	
A1X01	05/21/85	11:40	00.26	140.486	7.065	0.037	2.93	
A1X01	05/29/85	10:00	00.27	148.417	7.931	0.034	3.20	
A1X01	06/04/85	10:20	00.20	154.431	6.014	0.033	3.40	
A1X01	06/11/85	09:40	00.23	161.403	6.972	0.033	3.63	
A1X01	06/18/85	09:34	00.23	168.399	6.996	0.033	3.86	
A1X01	06/25/85	09:40	00.22	175.403	7.004	0.031	4.08	
A1X01	07/02/85	11:00	00.23	182.458	7.055	0.033	4.31	
A1X01	07/09/85	10:00	00.23	189.417	6.959	0.033	4.54	
A1X01	07/16/85	10:55	00.23	196.455	7.038	0.033	4.77	
A1X01	07/24/85	10:00	00.25	204.417	7.962	0.031	5.02	New spot on probe.
A1X01	07/30/85	09:32	00.19	210.397	5.980	0.032	5.21	
A1X01	08/06/85	09:37	00.21	217.401	7.004	0.030	5.42	
A1X01	08/14/85	09:48	00.23	225.408	8.007	0.029	5.65	
A1X01	08/20/85	10:18	00.19	231.429	6.021	0.032	5.84	
A1X01	08/28/85	09:13	00.23	239.384	7.955	0.029	6.07	
A1X01	09/04/85	09:46	00.19	246.407	7.023	0.027	6.26	
A1X01	09/10/85	09:30	00.18	252.396	5.989	0.030	6.44	
A1X01	09/17/85	09:10	00.19	259.382	6.986	0.027	6.63	
A1X01	09/24/85	09:11	00.21	266.383	7.001	0.030	6.84	
A1X01	10/01/85	09:23	00.21	273.391	7.008	0.030	7.05	
A1X01	10/08/85	12:24	00.20	280.517	7.126	0.028	7.25	Room A1 heaters turned on 10/02/85.
A1X01	10/15/85	09:43	00.19	287.405	6.888	0.028	7.44	
A1X01	10/23/85	09:55	00.20	295.413	8.008	0.025	7.64	
A1X01	10/29/85	11:05	00.17	301.462	6.049	0.028	7.81	
A1X01	11/05/85	08:50	00.19	308.368	6.906	0.028	8.00	
A1X01	11/13/85	09:15	00.22	316.385	8.017	0.027	8.22	
A1X01	11/21/85	10:40	00.21	324.444	8.059	0.026	8.43	
A1X01	11/26/85	10:10	00.14	329.424	4.980	0.028	8.57	
A1X01	12/04/85	14:13	00.20	337.592	8.168	0.024	8.77	Sample for chem. anal. #13.
A1X01	12/10/85	10:40	00.15	343.444	5.852	0.026	8.92	
A1X01	12/17/85	13:59	00.19	350.583	7.139	0.027	9.11	
A1X01	01/03/86	09:40	00.41	367.403	16.820	0.024	9.52	
A1X01	01/08/86	10:20	00.09	372.431	5.028	0.018	9.61	
A1X01	01/16/86	09:50	00.25	380.410	7.979	0.031	9.86	
A1X01	01/23/86	10:10	00.18	387.424	7.014	0.026	10.04	
A1X01	01/31/86	11:05	00.21	395.462	8.038	0.026	10.25	
A1X01	02/12/86	10:10	00.30	407.424	11.962	0.025	10.55	
A1X01	02/19/86	10:55	00.18	414.455	7.031	0.026	10.73	
A1X01	02/28/86	14:05	00.23	423.587	9.132	0.025	10.96	
A1X01	03/06/86	10:00	00.15	429.417	5.830	0.026	11.11	

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
A1X01	03/13/86	09:30	00.18	436.396	6.979	0.026	11.29	
A1X01	03/26/86	09:20	00.33	449.389	12.993	0.025	11.62	
A1X01	04/02/86	09:00	00.18	456.375	6.986	0.026	11.80	
A1X01	04/08/86	09:09	00.15	462.381	6.006	0.025	11.95	
A1X01	04/16/86	11:30	00.20	470.479	8.098	0.025	12.15	
A1X01	04/24/86	09:35	00.20	478.399	7.920	0.025	12.35	
A1X01	04/30/86	10:13	00.15	484.426	6.027	0.025	12.50	
A1X01	05/06/86	09:40	00.12	490.403	5.977	0.020	12.62	
A1X01	05/13/86	09:25	00.19	497.392	6.989	0.027	12.81	
A1X01	05/20/86	10:16	00.18	504.428	7.036	0.026	12.99	
A1X01	05/27/86	15:05	00.18	511.628	7.200	0.025	13.17	
A1X01	06/03/86	09:28	00.17	518.394	6.766	0.025	13.34	
A1X01	06/10/86	10:50	00.15	525.451	7.057	0.021	13.49	
A1X01	06/17/86	09:59	00.19	532.416	6.965	0.027	13.68	Sample for brine chemistry, #19.
A1X01	06/24/86	10:10	00.18	539.424	7.008	0.026	13.86	
A1X01	07/01/86	12:46	00.19	546.532	7.108	0.027	14.05	
A1X01	07/08/86	10:05	00.16	553.420	6.888	0.023	14.21	
A1X01	07/16/86	09:57	00.20	561.415	7.995	0.025	14.41	
A1X01	07/22/86	09:26	00.16	567.393	5.978	0.027	14.57	
A1X01	07/29/86	10:05	00.17	574.420	7.027	0.024	14.74	
A1X01	08/05/86	10:21	00.19	581.431	7.011	0.027	14.93	
A1X01	08/12/86	09:58	00.18	588.415	6.984	0.026	15.11	
A1X01	08/19/86	10:40	00.18	595.444	7.029	0.026	15.29	
A1X01	08/26/86	10:07	00.18	602.422	6.978	0.026	15.47	Static level not measured.
A1X01	09/04/86	10:02	00.20	611.418	8.996	0.022	15.67	Sample # 17.
A1X01	09/09/86	10:30	00.15	616.438	5.020	0.030	15.82	
A1X01	09/16/86	09:36	00.18	623.400	6.962	0.026	16.00	
A1X01	09/23/86	09:41	00.18	630.403	7.003	0.026	16.18	
A1X01	10/01/86	11:40	00.19	638.486	8.083	0.024	16.37	
A1X01	10/08/86	10:34	00.17	645.440	6.954	0.024	16.54	
A1X01	10/14/86	10:57	00.15	651.456	6.016	0.025	16.69	
A1X01	11/05/86	10:30	0.55	673.438	21.982	0.025	17.24	
A1X01	11/20/86	11:45	00.38	688.490	15.052	0.025	17.62	
A1X01	12/31/86	12:05	00.96	729.503	41.013	0.023	18.58	
A1X01	02/03/87	12:15	00.80	763.510	34.007	0.024	19.38	T=31.5c, T 28.4, pH 6.11.
A1X01	03/06/87	11:55	0.79	794.497	30.987	0.025	20.17	
A1X01	03/30/87	11:58	0.59	818.499	24.002	0.025	20.76	
A1X01	05/07/87	10:50	0.98	856.451	37.952	0.026	21.74	
A1X01	06/17/87	11:40	1.04	897.486	41.035	0.025	22.78	Sample removed for chemistry. #123A, #123B.
A1X01	07/28/87	11:45	1.17	938.490	41.004	0.029	23.95	
A1X01	09/01/87	11:55	0.79	973.497	35.007	0.023	24.74	Collected for chemistry, sample #161 A&B. Hose came loose and some brine may have drained back down hole. Trace of diesel/oil in brine.
A1X01	10/20/87	11:08	1.39	1022.460	48.963	0.028	26.13	
A1X01	11/19/87	10:30	0.77	1052.440	29.980	0.026	26.90	Collected for chemistry, sample #223.
A1X01	01/04/88	11:10	1.20	1098.470	46.030	0.026	28.10	
A1X01	02/08/88	13:25	0.68	1133.560	35.090	0.019	28.78	Collected for chemistry, sample #303 & #304. Lost some brine back down into hole.
A1X01	03/30/88	12:10	2.25	1184.510	50.950	0.044	31.03	Collected for chemistry, sample #389, #390 & #391. Volume high due to lack of complete evacuation on 2/08/88.
A1X01	05/12/88	10:10	1.09	1227.420	42.910	0.025	32.12	Sampled for Sandia PA.

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
A1X01	07/12/88	09:30	1.56	1288.400	60.980	0.026	33.68	Collected for chemistry, sample #460 - #462.
A1X01	09/27/88	08:25	1.82	1365.350	76.950	0.024	35.50	Collected for chemistry, sample #520 - #523.
A1X01	12/13/88	09:30	2.35	1442.400	77.050	0.030	37.85	Collected for chemistry, sample #602 - #605.
A1X01	03/14/89	09:30	2.54	1533.396	91.000	0.028	40.39	Check valve and hook in hole. Collected for chemistry, sample #666 - 670.
A1X01	04/06/89	11:55	NA	1556.497	0.000	0.000	40.39	Room locked.
A1X01	04/20/89	10:00	NA	1570.417	0.000	0.000	40.39	Room locked.
A1X01	05/17/89	11:55	1.94	1597.497	64.101	0.030	42.33	Collected for chemistry, sample #752 - 755 A & B.
A1X01	07/11/89	10:10	1.30	1652.424	54.927	0.024	43.63	
A1X01	09/12/89	11:40	2.25	1715.486	63.062	0.036	45.88	Sample saved for chemistry.
A1X01	10/10/89	09:40	NA	1743.403	0.000	0.000	45.88	Installed collecting device. Collection point for brine located outside room.
A1X01	10/20/89	10:42	0.74	1753.446	37.960	0.019	46.62	Sample saved for chemistry, sample #851. Some brine may have been left in hole.
A1X01	11/10/89	09:56	0.72	1774.414	20.968	0.034	47.34	Sample saved for chemistry, sample #861-1,2.
A1X01	11/29/89	12:10	0.65	1793.507	19.093	0.034	47.99	Sample saved for chemistry, sample #872.
A1X01	12/12/89	09:10	0.50	1806.382	12.875	0.039	48.49	Sample saved for chemistry, sample #883.
A1X01	01/04/90	10:11	0.63	1829.424	23.042	0.027	49.12	
A1X01	01/17/90	11:29	0.30	1842.478	13.054	0.023	49.42	
A1X01	01/31/90	09:56	0.15	1856.414	13.936	0.011	49.57	
A1X01	02/13/90	09:40	0.26	1869.403	12.989	0.020	49.83	
A1X01	02/27/90	12:11	0.64	1883.508	14.105	0.045	50.47	
A1X01	03/05/90	11:03	0.79	1889.460	5.952	0.133	51.26	
A1X01	03/21/90	11:26	0.52	1905.476	16.016	0.032	51.78	
A1X01	04/06/90	10:35	0.48	1921.441	15.965	0.030	52.26	
A1X01	04/17/90	11:49	0.37	1932.492	11.051	0.033	52.63	
A1X01	04/24/90	10:38	0.23	1939.443	6.951	0.033	52.86	
A1X01	05/02/90	11:47	0.25	1947.491	8.048	0.031	53.11	
A1X01	05/09/90	11:26	0.23	1954.476	6.985	0.033	53.34	
A1X01	05/16/90		NA	1961.000	6.524	0.000	53.34	No vacuum in sampler.
A1X01	05/17/90	08:36	0.18	1962.358	7.882	0.023	53.52	
A1X01	05/23/90	12:32	0.22	1968.522	6.164	0.036	53.74	
A1X01	05/31/90	10:41	0.24	1976.445	7.923	0.030	53.98	
A1X01	06/06/90	11:09	0.20	1982.465	6.020	0.033	54.18	
A1X01	06/14/90	09:45	0.23	1990.406	7.941	0.029	54.41	
A1X01	06/28/90	09:59	0.38	2004.416	14.010	0.027	54.79	
A1X01	07/14/90	10:00	NA	2020.000	0.000	0.000	0.00	Heaters turned off.
A1X01	07/17/90	09:52	0.39	2023.411	18.995	0.021	55.18	
A1X01	07/25/90	08:25	0.42	2031.351	7.940	0.053	55.60	
A1X01	08/07/90	11:10	0.42	2044.465	13.114	0.032	56.02	
A1X01	08/16/90	11:25	0.33	2053.476	9.011	0.037	56.35	
A1X01	08/22/90	11:44	0.24	2059.489	6.013	0.040	56.59	
A1X01	08/29/90	12:50	0.20	2066.535	7.046	0.028	56.79	
A1X01	09/05/90	11:45	0.25	2073.490	6.955	0.036	57.04	
A1X01	09/13/90	09:56	0.21	2081.414	7.924	0.027	57.25	
A1X01	09/25/90	12:05	0.34	2093.503	12.089	0.000	57.59	Partial evacuation.
A1X01	09/26/90	10:57	0.10	2094.456	0.953	0.034	57.69	Combined with 0.34 liters from 09/25/90. Used 0.44 liters for calculation.

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
A1X01	10/03/90	10:03	0.25	2101.419	6.963	0.036	57.94	
A1X01	10/10/90	11:46	0.20	2108.490	7.071	0.028	58.14	
A1X01	10/18/90	10:57	0.23	2116.456	7.966	0.029	58.37	
A1X01	10/24/90	12:20	0.21	2122.514	6.058	0.035	58.58	
A1X01	10/31/90	11:37	0.20	2129.484	6.970	0.029	58.78	
A1X01	11/07/90	10:54	0.22	2136.454	6.970	0.032	59.00	
A1X01	11/14/90	11:52	0.22	2143.494	7.040	0.031	59.22	
A1X01	11/28/90	10:54	0.39	2157.454	13.960	0.028	59.61	
A1X01	12/05/90	08:59	0.28	2164.374	6.920	0.040	59.89	
A1X01	12/13/90	09:40	0.27	2172.403	8.029	0.034	60.16	
A1X01	12/20/90	09:01	0.22	2179.376	6.973	0.032	60.38	
A1X01	01/09/91	09:10	0.47	2199.382	0.000	0.000	60.85	Some brine may have been left in hole.
A1X01	01/16/91	09:20	0.30	2206.389	27.013	0.029	61.15	Combined with 0.47 liters from 01/09/91.
A1X01	01/23/91	10:29	0.25	2213.437	7.048	0.035	61.40	
A1X01	01/30/91	10:30	0.21	2220.438	7.001	0.030	61.61	
A1X01	02/13/91	11:40	0.33	2234.486	14.048	0.023	61.94	
A1X01	02/20/91	10:50	Trace	2241.451	6.965	0.000	61.94	Sampler failed, access restricted. Last time sampled for BSEP.
A1X02	10/10/84	00:00	NA	0.000	0.000	0.000	0.00	Room A1 completed.
A1X02	03/07/85	09:30	NA	65.396	1.000	0.000	0.00	Uphole drilled 2/27/85 to 3/07/85. Hit brine at 12 ft. on 2/27/85.
A1X02	03/12/85	12:00	NA	70.500	6.104	0.000	0.00	Trace brine, deepened hole to clay seam. Moisture on back 1 ft radius.
A1X02	03/20/85	13:00	NA	78.542	14.146	0.000	0.00	Trace brine, drip missing funnel.
A1X02	03/26/85	11:25	NA	84.476	20.080	0.000	0.00	Repositioned funnel, collected one cup of salt crystals with trace of brine.
A1X02	04/02/85	12:15	00.21	91.510	27.114	0.008	0.21	Some drips missing funnel.
A1X02	04/10/85	12:20	00.22	99.514	8.004	0.027	0.43	Collecting container had leak.
A1X02	04/17/85	11:30	00.12	106.479	6.965	0.017	0.55	Some drips missing funnel.
A1X02	04/23/85	10:50	00.12	112.451	5.972	0.020	0.67	Some drips missing funnel.
A1X02	04/30/85	13:16	00.12	119.553	7.102	0.017	0.79	Some drips missing funnel.
A1X02	05/07/85	09:05	00.16	126.378	6.825	0.023	0.95	
A1X02	05/14/85	10:04	00.19	133.419	7.041	0.027	1.14	
A1X02	05/21/85	11:35	00.13	140.483	7.064	0.018	1.27	Some drips missing funnel.
A1X02	05/29/85	10:00	00.21	148.417	7.934	0.026	1.48	
A1X02	06/04/85	10:25	00.17	154.434	6.017	0.028	1.65	
A1X02	06/11/85	09:40	00.05	161.403	6.969	0.007	1.70	
A1X02	06/18/85	09:30	00.08	168.396	6.993	0.011	1.78	Some drips missing funnel, big stalactite formed.
A1X02	06/25/85	09:45	00.16	175.406	7.010	0.023	1.94	
A1X02	07/02/85	11:00	00.10	182.458	7.052	0.014	2.04	
A1X02	07/09/85	09:58	00.15	189.415	6.957	0.022	2.19	
A1X02	07/16/85	10:53	00.24	196.453	7.038	0.034	2.43	
A1X02	07/24/85	09:49	00.24	204.409	7.956	0.030	2.67	
A1X02	07/30/85	09:30	00.15	210.396	5.987	0.025	2.82	
A1X02	08/06/85	09:35	00.14	217.399	7.003	0.020	2.96	
A1X02	08/14/85	09:26	00.05	225.393	7.994	0.006	3.01	
A1X02	08/20/85	10:13	00.09	231.426	6.033	0.015	3.10	
A1X02	08/28/85	09:08	00.06	239.381	7.955	0.008	3.16	
A1X02	09/04/85	09:44	00.07	246.406	7.025	0.010	3.23	
A1X02	09/10/85	09:24	00.12	252.392	5.986	0.020	3.35	

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
A1X02	09/17/85	09:08	00.13	259.381	6.989	0.019	3.48	Some drips missing funnel.
A1X02	09/24/85	09:07	00.17	266.380	6.999	0.024	3.65	
A1X02	10/01/85	09:21	00.14	273.390	7.010	0.020	3.79	
A1X02	10/08/85	12:19	00.16	280.513	7.123	0.022	3.95	Room A1 heaters turned on 10/02/85.
A1X02	10/15/85	09:41	00.12	287.403	6.890	0.017	4.07	
A1X02	10/23/85	09:43	00.19	295.405	8.002	0.024	4.26	
A1X02	10/29/85	11:02	00.12	301.460	6.055	0.020	4.38	
A1X02	11/05/85	08:46	00.12	308.365	6.905	0.017	4.50	
A1X02	11/13/85	09:16	00.13	316.386	8.021	0.016	4.63	Some drips missing funnel.
A1X02	11/21/85	10:45	00.13	324.448	8.062	0.016	4.76	Some drips missing funnel.
A1X02	12/04/85	14:07	00.14	337.588	13.140	0.011	4.90	Sample for chem. anal. #12.
A1X02	12/10/85	10:31	00.08	343.438	5.850	0.014	4.98	
A1X02	12/17/85	13:56	00.03	350.581	7.143	0.004	5.01	
A1X02	01/03/86	09:40	00.01	367.403	16.822	0.001	5.02	Some drips missing funnel.
A1X02	01/23/86	10:10	00.06	387.424	20.021	0.003	5.08	New, larger funnel since 01/17.
A1X02	01/31/86	11:05	00.23	395.462	8.038	0.029	5.31	
A1X02	02/12/86	10:10	00.22	407.424	11.962	0.018	5.53	
A1X02	02/19/86	10:50	00.07	414.451	7.027	0.010	5.60	
A1X02	02/28/86	14:00	00.02	423.583	9.132	0.002	5.62	
A1X02	03/13/86	09:30	00.05	436.396	12.813	0.004	5.67	
A1X02	03/26/86	09:20	00.05	449.389	12.993	0.004	5.72	
A1X02	04/02/86	09:00	00.08	456.375	6.986	0.011	5.80	
A1X02	04/16/86	11:30	00.10	470.479	14.104	0.007	5.90	Sample for chemical analysis #2.
A1X02	04/24/86	09:35	00.05	478.399	7.920	0.006	5.95	Sample for chemistry.
A1X02	04/30/86	10:10	00.07	484.424	6.025	0.012	6.02	Sample for chemistry.
A1X02	05/06/86	09:40	00.16	490.403	5.979	0.027	6.18	
A1X02	05/13/86	09:25	00.02	497.392	6.989	0.003	6.20	Sample for chemistry, S #2.
A1X02	05/20/86	10:16	00.04	504.428	7.036	0.006	6.24	
A1X02	05/27/86	15:05	00.15	511.628	7.200	0.021	6.39	
A1X02	06/03/86	09:28	00.13	518.394	6.766	0.019	6.52	
A1X02	06/10/86	10:50	00.10	525.451	7.057	0.014	6.62	
A1X02	06/17/86	09:59	00.12	532.416	6.965	0.017	6.74	
A1X02	06/24/86	10:10	00.25	539.424	7.008	0.036	6.99	
A1X02	07/01/86	12:44	00.23	546.531	7.107	0.032	7.22	
A1X02	07/08/86	10:05	00.11	553.420	6.889	0.016	7.33	
A1X02	07/16/86	09:54	00.25	561.413	7.993	0.031	7.58	
A1X02	07/22/86	09:26	00.16	567.393	5.980	0.027	7.74	
A1X02	07/29/86	10:05	00.26	574.420	7.027	0.037	8.00	
A1X02	08/05/86	10:19	00.22	581.430	7.010	0.031	8.22	
A1X02	08/12/86	09:58	00.28	588.415	6.985	0.040	8.50	
A1X02	08/19/86	10:38	00.26	595.443	7.028	0.037	8.76	
A1X02	08/26/86	10:07	00.24	602.422	6.979	0.034	9.00	Sample #6.
A1X02	09/04/86	10:01	00.35	611.417	8.995	0.039	9.35	
A1X02	09/09/86	10:25	00.17	616.434	5.017	0.034	9.52	
A1X02	09/16/86	09:35	00.27	623.399	6.965	0.039	9.79	
A1X02	09/23/86	09:39	00.26	630.402	7.003	0.037	10.05	
A1X02	10/01/86	11:39	00.24	638.485	8.083	0.030	10.29	
A1X02	10/08/86	10:32	00.17	645.439	6.954	0.024	10.46	
A1X02	10/14/86	10:53	00.13	651.453	6.014	0.022	10.59	
A1X02	11/05/86	10:30	0.30	673.438	21.985	0.014	10.89	
A1X02	11/20/86	11:43	00.11	688.488	15.050	0.007	11.00	
A1X02	12/31/86	12:10	00.14	729.507	41.019	0.003	11.14	Low readings from 11/20/86 to 6/20/87 may be due to blockage in collecting system.

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
A1X02	02/03/87	12:16	NA	763.000	33.493	0.000	11.14	
A1X02	03/06/87	11:55	0.05	794.497	64.990	0.001	11.19	
A1X02	03/30/87	11:55	0.01	818.497	24.000	0.000	11.20	Tubing plugged, unable to open.
A1X02	05/07/87	10:45	0.01	856.448	1.000	0.000	11.21	Tubing plugged, unable to open.
A1X02	06/30/87	12:00	1.58	910.500	92.003	0.017	12.79	Removed metal funnel, which was plugged. Most of the brine collected was in the funnel. Installed a large plastic funnel.
A1X02	07/28/87	11:45	0.85	938.490	27.990	0.030	13.64	Sample collected for chemistry sample #148.
A1X02	09/01/87	11:55	0.94	973.497	35.007	0.027	14.58	Collected for chemistry, sample #159 A&B.
A1X02	10/20/87	10:59	1.84	1022.460	48.963	0.038	16.42	
A1X02	11/19/87	10:30	1.09	1052.440	29.980	0.036	17.51	Collected for chemistry, sample 226.
A1X02	01/04/88	11:05	3.73	1098.460	46.020	0.081	21.24	
A1X02	02/08/88	13:17	1.65	1133.550	35.090	0.047	22.89	Collected for chemistry, sample #299, #300, #301 & #302.
A1X02	03/30/88	12:20	4.86	1184.510	50.960	0.095	27.75	Collected for chemistry, sample #343 - #352.
A1X02	06/14/88	09:00	5.15	1260.380	75.870	0.068	32.90	Collected for chemistry, sample #402 - #406. Removed to provide room for further collection.
A1X02	07/12/88	09:30	1.11	1288.400	28.020	0.040	34.01	Collected for chemistry, sample #458 & #459.
A1X02	09/15/88	11:00	0.18	1353.460	0.000	0.000	34.19	Not fully evacuated. Do not use for calculation.
A1X02	09/27/88	08:30	3.00	1365.350	76.950	0.041	37.19	Collected for chemistry, sample #514 - #519. Used 3.18 liters for calculation (0.18 on 9/15 + 3.00 on 9/27).
A1X02	12/13/88	09:30	2.50	1442.400	77.050	0.032	39.69	Collected for chemistry, sample #597 - #601.
A1X02	04/06/89	11:55	NA	1556.497	0.000	0.000	39.69	Room locked.
A1X02	04/20/89	10:00	NA	1570.417	0.000	0.000	39.69	Room locked.
A1X02	05/17/89	12:05	4.47	1597.503	155.107	0.029	44.16	Sample saved for chemistry, sample #750 - 751 A & B.
A1X02	07/11/89	10:05	2.32	1652.420	54.917	0.042	46.48	
A1X02	09/12/89	11:35	2.77	1715.483	63.063	0.044	49.25	Sample saved for chemistry.
A1X02	10/10/89	09:25	1.57	1743.392	27.909	0.056	50.82	Sample saved for chemistry, sample #847.
A1X02	10/10/89	10:00	NA	1743.417	0.000	0.000	50.82	Repositioned collecting tube from funnel. Collection point for brine located outside room.
A1X02	10/20/89	10:44	NA	1753.447	0.000	0.000	50.82	No sample.
A1X02	11/10/89	10:08	1.90	1774.422	31.030	0.061	52.72	Sample saved for chemistry, sample #862-1,2,3,4.
A1X02	11/29/89	12:10	0.53	1793.507	19.085	0.028	53.25	Sample saved for chemistry, sample #873.
A1X02	12/12/89	09:20	0.05	1806.389	12.882	0.004	53.30	Sample saved for chemistry, sample #884.
A1X02	01/04/90	10:50	0.22	1829.451	23.062	0.010	53.52	Hose broken, some brine leaked to floor. Fixed hose, funnel full of brine.
A1X02	01/17/90	11:35	1.20	1842.483	13.032	0.092	54.72	
A1X02	01/31/90	10:27	0.53	1856.435	13.952	0.038	55.25	
A1X02	02/13/90	09:53	0.29	1869.412	12.977	0.022	55.54	
A1X02	02/27/90	12:17	0.45	1883.512	14.100	0.032	55.99	
A1X02	03/05/90	11:11	0.58	1889.466	5.954	0.097	56.57	
A1X02	03/21/90	11:26	0.18	1905.476	16.010	0.011	56.75	
A1X02	04/06/90	10:40	0.34	1921.444	15.968	0.021	57.09	
A1X02	04/17/90	11:53	0.17	1932.495	11.051	0.015	57.26	

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
A1X02	04/24/90	10:40	0.01	1939.444	6.949	0.001	57.27	
A1X02	05/02/90	11:49	0.23	1947.492	8.048	0.029	57.50	
A1X02	05/09/90	11:13	0.19	1954.467	6.975	0.027	57.69	
A1X02	05/16/90	10:49	0.23	1961.451	6.984	0.033	57.92	
A1X02	05/23/90	12:32	0.20	1968.522	7.071	0.028	58.12	
A1X02	05/31/90	10:29	0.25	1976.437	7.915	0.032	58.37	
A1X02	06/06/90	11:20	0.13	1982.472	6.035	0.022	58.50	
A1X02	06/14/90	09:51	0.11	1990.410	7.938	0.014	58.61	
A1X02	06/28/90	10:08	0.24	2004.422	14.012	0.017	58.85	
A1X02	07/14/90	10:00	NA	2020.000	0.000	0.000	0.00	Heaters turned off.
A1X02	07/17/90	09:51	0.23	2023.410	18.988	0.012	59.08	
A1X02	07/25/90	08:30	0.15	2031.354	7.944	0.019	59.23	
A1X02	08/07/90	10:53	0.32	2044.453	13.099	0.024	59.55	
A1X02	08/16/90	11:30	0.11	2053.479	9.026	0.012	59.66	
A1X02	08/22/90	11:52	0.25	2059.494	6.015	0.042	59.91	
A1X02	08/29/90	12:52	0.32	2066.536	7.042	0.045	60.23	
A1X02	09/05/90	11:50	0.27	2073.493	6.957	0.039	60.50	
A1X02	09/13/90	09:58	0.33	2081.415	7.922	0.042	60.83	
A1X02	09/25/90	12:15	0.46	2093.510	12.095	0.038	61.29	
A1X02	10/03/90	10:03	0.28	2101.419	7.909	0.035	61.57	
A1X02	10/10/90	11:43	0.25	2108.488	7.069	0.035	61.82	
A1X02	10/18/90	11:04	0.31	2116.461	7.973	0.039	62.13	
A1X02	10/24/90	12:22	0.20	2122.515	6.054	0.033	62.33	
A1X02	10/31/90	11:50	0.22	2129.493	6.978	0.032	62.55	
A1X02	11/07/90	10:56	0.23	2136.456	6.963	0.033	62.78	
A1X02	11/14/90	11:54	0.20	2143.496	7.040	0.028	62.98	
A1X02	11/28/90	10:56	0.47	2157.456	13.960	0.034	63.45	
A1X02	12/05/90	09:02	0.21	2164.376	6.920	0.030	63.66	
A1X02	12/13/90	09:45	0.27	2172.406	8.030	0.034	63.93	
A1X02	12/20/90	09:04	0.24	2179.378	6.972	0.034	64.17	
A1X02	12/20/90	09:04	0.24	2179.378	6.972	0.034	67.13	
A1X02	01/09/91	09:10	0.71	2199.382	20.004	0.035	67.84	
A1X02	01/16/91	09:25	0.28	2206.392	7.010	0.040	68.12	
A1X02	01/23/91	10:20	0.26	2213.431	7.039	0.037	68.38	
A1X02	01/30/91	10:34	0.27	2220.440	7.009	0.039	68.65	
A1X02	02/13/91	11:40	0.50	2234.486	14.046	0.036	69.15	
A1X02	02/20/91	10:55	0.26	2241.455	6.969	0.037	69.41	
A1X02	02/27/91	10:35	0.24	2248.441	6.986	0.034	69.65	
A1X02	03/07/91	10:30	0.26	2256.438	7.997	0.033	69.91	
A1X02	03/20/91	11:31	0.35	2269.480	13.042	0.027	70.26	
A1X02	03/28/91	11:13	0.15	2277.467	7.987	0.019	70.41	
A1X02	04/10/91	09:30	0.30	2290.396	12.929	0.023	70.71	
A1X02	05/14/91	09:57	1.58	2324.415	0.000	0.000	72.29	Partial evacuation.
A1X02	05/15/91	10:36	0.12	2325.442	35.046	0.049	72.41	Combined with 1.58 liters from 05/14/91.
A1X02	05/30/91	12:15	0.62	2340.510	15.068	0.041	73.03	
A1X02	06/05/91	14:18	0.20	2346.596	6.086	0.033	73.23	
A1X02	06/12/91	10:51	0.25	2353.452	6.856	0.036	73.48	
A1X02	06/19/91	15:10	0.25	2360.632	7.180	0.035	73.73	
A1X02	06/26/91	09:50	0.24	2367.410	6.778	0.035	73.97	
A1X02	07/11/91	11:01	0.65	2382.459	15.049	0.043	74.62	
A1X02	07/17/91	10:15	0.26	2388.427	5.968	0.044	74.88	
A1X02	07/30/91	09:55	0.49	2401.413	12.986	0.038	75.37	
A1X02	08/08/91	08:35	0.32	2410.358	8.945	0.036	75.69	

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A1X02	08/14/91	09:32	0.15	2416.397	6.039	0.025	75.84	
A1X02	08/21/91	09:40	0.39	2423.403	7.006	0.056	76.23	
A1X02	08/28/91	09:06	0.29	2430.379	6.976	0.042	76.52	
A1X02	09/04/91	10:15	0.16	2437.427	7.048	0.023	76.68	
A1X02	09/11/91	11:15	0.43	2444.469	7.042	0.061	77.11	
A1X02	10/02/91	10:30	1.15	2465.438	20.969	0.055	78.26	
A1X02	10/16/91	10:35	0.73	2479.441	14.003	0.052	78.99	
A1X02	10/31/91	10:28	0.68	2494.436	14.995	0.045	79.67	
A1X02	11/06/91	11:40	0.12	2500.486	6.050	0.020	79.79	
A1X02	11/13/91	10:10	0.11	2507.424	6.938	0.016	79.90	
A1X02	11/20/91	09:45	0.04	2514.406	6.982	0.006	79.94	
A1X02	11/27/91	08:55	0.02	2521.372	6.966	0.003	79.96	
A1X02	12/04/91	10:25	0.05	2528.434	7.062	0.007	80.01	
A1X02	12/11/91	10:20	0.05	2535.431	6.997	0.007	80.06	
A1X02	12/18/91	10:20	0.02	2542.431	7.000	0.003	80.08	
A3X01	11/06/84	00:00	NA	0.000	0.000	0.000	0.00	Room A3 completed.
A3X01	01/14/85	00:00	NA	0.000	0.000	0.000	0.00	Downhole drilled 12/20/85 to 1/14/85.
A3X01	02/05/85	11:10	NA	35.465	1.000	0.000	0.00	Moist muck at the bottom.
A3X01	02/19/85	13:40	00.30	49.569	15.104	0.020	0.30	Some oil. First time collected.
A3X01	02/26/85	13:20	00.23	56.556	6.987	0.033	0.53	Brine and oil.
A3X01	03/07/85	09:45	00.26	65.406	8.850	0.029	0.79	
A3X01	03/12/85	11:45	00.17	70.490	5.084	0.033	0.96	
A3X01	03/20/85	13:14	00.19	78.551	8.061	0.024	1.15	Valved leaked, some brine drained back down hole.
A3X01	03/26/85	11:12	00.22	84.467	5.916	0.037	1.37	
A3X01	04/02/85	12:00	00.21	91.500	7.033	0.030	1.58	
A3X01	04/10/85	12:00	00.23	99.500	8.000	0.029	1.81	
A3X01	04/17/85	11:20	00.20	106.472	6.972	0.029	2.01	
A3X01	04/23/85	10:41	00.16	112.445	5.973	0.027	2.17	
A3X01	04/30/85	13:35	00.20	119.566	7.121	0.028	2.37	
A3X01	05/07/85	08:55	00.20	126.372	6.806	0.029	2.57	
A3X01	05/14/85	09:56	00.17	133.414	7.042	0.024	2.74	
A3X01	05/21/85	12:00	00.20	140.500	7.086	0.028	2.94	
A3X01	05/29/85	09:25	00.21	148.392	7.892	0.027	3.15	
A3X01	06/04/85	09:55	00.16	154.413	6.021	0.027	3.31	
A3X01	06/11/85	09:25	00.18	161.392	6.979	0.026	3.49	
A3X01	06/18/85	09:27	00.18	168.394	7.002	0.026	3.67	
A3X01	06/25/85	09:30	00.19	175.396	7.002	0.027	3.86	
A3X01	07/02/85	11:00	00.19	182.458	7.062	0.027	4.05	
A3X01	07/09/85	09:50	00.17	189.410	6.952	0.024	4.22	
A3X01	07/16/85	10:50	00.18	196.451	7.041	0.026	4.40	Brine effervesces.
A3X01	07/24/85	09:47	00.21	204.408	7.957	0.026	4.61	
A3X01	07/30/85	09:30	00.15	210.396	5.988	0.025	4.76	
A3X01	08/06/85	09:30	00.17	217.396	7.000	0.024	4.93	
A3X01	08/14/85	09:21	00.20	225.390	7.994	0.025	5.13	
A3X01	08/20/85	10:08	00.16	231.422	6.032	0.027	5.29	
A3X01	08/28/85	09:05	00.21	239.378	7.956	0.026	5.50	
A3X01	09/04/85	09:29	00.17	246.395	7.017	0.024	5.67	
A3X01	09/10/85	09:20	00.15	252.389	5.994	0.025	5.82	
A3X01	09/17/85	09:06	00.16	259.379	6.990	0.023	5.98	
A3X01	09/24/85	09:03	00.17	266.377	6.998	0.024	6.15	

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A3X01	10/01/85	09:18	00.18	273.387	7.010	0.026	6.33	
A3X01	10/08/85	12:35	00.18	280.524	7.137	0.025	6.51	Room A3 heaters turned on 10/02/85.
A3X01	10/15/85	09:35	00.16	287.399	6.875	0.023	6.67	
A3X01	10/23/85	09:40	00.19	295.403	8.004	0.024	6.86	
A3X01	10/29/85	11:11	00.14	301.466	6.063	0.023	7.00	
A3X01	11/05/85	08:42	00.16	308.362	6.896	0.023	7.16	
A3X01	11/13/85	09:30	00.19	316.396	8.034	0.024	7.35	
A3X01	11/21/85	10:30	00.19	324.438	8.042	0.024	7.54	
A3X01	11/26/85	09:55	00.10	329.413	4.975	0.020	7.64	
A3X01	12/04/85	14:03	00.18	337.585	8.172	0.022	7.82	Sample for chem. anal. #10.
A3X01	12/10/85	10:46	00.14	343.449	5.864	0.024	7.96	
A3X01	12/17/85	13:55	00.14	350.580	7.131	0.020	8.10	
A3X01	01/03/86	10:00	00.39	367.417	16.837	0.023	8.49	
A3X01	01/08/86	10:10	00.11	372.424	5.007	0.022	8.60	
A3X01	01/16/86	09:35	00.18	380.399	7.975	0.023	8.78	
A3X01	01/23/86	10:00	00.15	387.417	7.018	0.021	8.93	
A3X01	01/31/86	10:55	00.18	395.455	8.038	0.022	9.11	
A3X01	02/12/86	10:00	00.27	407.417	11.962	0.023	9.38	
A3X01	02/19/86	10:40	00.15	414.444	7.027	0.021	9.53	
A3X01	02/28/86	14:20	00.22	423.597	9.153	0.024	9.75	
A3X01	03/06/86	09:50	00.14	429.410	5.813	0.024	9.89	
A3X01	03/13/86	09:20	00.15	436.389	6.979	0.021	10.04	
A3X01	03/26/86	09:15	00.30	449.385	12.996	0.023	10.34	
A3X01	04/02/86	08:50	00.16	456.368	6.983	0.023	10.50	
A3X01	04/08/86	09:05	00.14	462.378	6.010	0.023	10.64	
A3X01	04/16/86	11:25	00.18	470.476	8.098	0.022	10.82	
A3X01	04/24/86	09:30	00.18	478.396	7.920	0.023	11.00	
A3X01	04/30/86	10:00	00.14	484.417	6.021	0.023	11.14	
A3X01	05/06/86	09:35	00.14	490.399	5.982	0.023	11.28	
A3X01	05/13/86	09:20	00.15	497.389	6.990	0.021	11.43	
A3X01	05/20/86	10:10	00.15	504.424	7.035	0.021	11.58	
A3X01	05/27/86	15:00	00.16	511.625	7.201	0.022	11.74	
A3X01	06/03/86	09:20	00.15	518.389	6.764	0.022	11.89	
A3X01	06/10/86	10:42	00.16	525.446	7.057	0.023	12.05	
A3X01	06/17/86	09:51	00.12	532.410	6.964	0.017	12.17	Sample for brine chemistry, #18.
A3X01	06/24/86	10:05	00.16	539.420	7.010	0.023	12.33	
A3X01	07/01/86	12:35	00.16	546.524	7.104	0.023	12.49	
A3X01	07/08/86	09:57	00.15	553.415	6.891	0.022	12.64	
A3X01	07/16/86	09:47	00.19	561.408	7.993	0.024	12.83	
A3X01	07/22/86	09:23	00.14	567.391	5.983	0.023	12.97	
A3X01	07/29/86	10:00	00.14	574.417	7.026	0.020	13.11	
A3X01	08/05/86	10:15	00.18	581.427	7.010	0.026	13.29	
A3X01	08/12/86	09:50	00.16	588.410	6.983	0.023	13.45	
A3X01	08/19/86	10:35	00.16	595.441	7.031	0.023	13.61	
A3X01	08/26/86	10:00	00.15	602.417	6.976	0.022	13.76	Static level not measured.
A3X01	09/04/86	09:52	00.20	611.411	8.994	0.022	13.96	Sample # 16.
A3X01	09/09/86	10:35	00.12	616.441	5.030	0.024	14.08	
A3X01	09/16/86	09:29	00.14	623.395	6.954	0.020	14.22	
A3X01	09/23/86	09:36	00.18	630.400	7.005	0.026	14.40	
A3X01	10/01/86	11:30	00.19	638.479	8.079	0.024	14.59	
A3X01	10/08/86	10:24	00.14	645.433	6.954	0.020	14.73	
A3X01	10/14/86	10:47	00.12	651.449	6.016	0.020	14.85	
A3X01	11/05/86	10:20	0.52	673.431	21.982	0.024	15.37	

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
A3X01	11/20/86	11:33	00.33	688.481	15.050	0.022	15.70	
A3X01	12/31/86	11:45	00.88	729.490	41.009	0.021	16.58	
A3X01	02/03/87	12:00	00.73	763.500	34.010	0.021	17.31	T=31.8c, T 28.6, pH 6.14.
A3X01	03/06/87	11:45	0.68	794.490	30.990	0.022	17.99	
A3X01	03/30/87	12:00	0.55	818.500	24.010	0.023	18.54	
A3X01	05/07/87	10:39	0.80	856.444	37.944	0.021	19.34	
A3X01	06/17/87	11:25	0.89	897.476	41.032	0.022	20.23	Sample removed for chemistry. #126A, #126B.
A3X01	07/28/87	12:02	0.92	938.501	41.025	0.022	21.15	
A3X01	09/01/87	11:45	0.77	973.490	34.989	0.022	21.92	Collected for chemistry, sample #172 A&B.
A3X01	10/20/87	10:55	1.10	1022.450	48.960	0.022	23.02	
A3X01	11/19/87	10:20	0.66	1052.430	29.980	0.022	23.68	Collected for chemistry, sample #220.
A3X01	01/04/88	11:00	1.01	1098.460	46.030	0.022	24.69	
A3X01	02/08/88	13:30	0.67	1133.560	35.100	0.019	25.36	Collected for chemistry, sample #297 & #298.
A3X01	03/30/88	12:10	1.02	1184.510	50.950	0.020	26.38	Collected for chemistry, sample #387 & #388.
A3X01	05/12/88	10:20	0.88	1227.430	42.920	0.021	27.26	Sampled for Sandia PA.
A3X01	07/12/88	09:40	1.28	1288.400	60.970	0.021	28.54	Collected for chemistry, sample #456 & #457.
A3X01	09/27/88	08:20		1365.350	0.000	0.000	28.54	Cannot be sampled. Room has bad back.
A3X01	12/13/88	09:25	3.35	1442.390	153.990	0.022	31.85	Collected for chemistry, sample #591 - #596.
A3X01	03/14/89	09:15	1.90	1533.385	90.993	0.021	33.79	Sample saved for chemistry, sample #656 - 659.
A3X01	04/06/89	12:04	NA	1556.503	0.000	0.000	33.79	Room locked.
A3X01	04/20/89	10:00	NA	1570.417	0.000	0.000	33.79	Room locked.
A3X01	05/17/89	11:45	1.42	1597.490	64.105	0.022	35.21	Sample saved for chemistry, sample #758 A & B.
A3X01	07/11/89	09:55	0.93	1652.413	54.923	0.017	36.14	
A3X01	09/12/89	11:26	1.51	1715.476	63.063	0.024	37.65	Sample saved for chemistry.
A3X01	10/10/89	09:43	NA	1743.405	0.000	0.000	37.65	Installed collecting device. Collection point for brine located outside room.
A3X01	10/20/89	10:39	0.36	1753.444	37.968	0.009	38.01	Sample saved for chemistry, sample #850.
A3X01	11/10/89	09:40	0.50	1774.403	20.959	0.024	38.51	Sample saved for chemistry, sample #860-1.
A3X01	11/29/89	11:56	0.63	1793.497	19.094	0.033	39.14	Sample saved for chemistry, sample #871.
A3X01	12/12/89	09:00	0.43	1806.375	12.878	0.033	39.57	Sample saved for chemistry, sample #882.
A3X01	01/04/90	10:00	0.50	1829.417	23.042	0.022	40.07	
A3X01	01/17/90	11:24	0.25	1842.475	13.058	0.019	40.32	
A3X01	01/31/90	09:40	0.24	1856.403	13.928	0.017	40.56	
A3X01	02/13/90	09:21	0.31	1869.390	12.987	0.024	40.87	
A3X01	02/27/90	11:43	0.32	1883.488	14.098	0.023	41.19	
A3X01	03/05/90	10:45	0.30	1889.450	5.960	0.050	41.49	
A3X01	03/21/90	11:15	0.15	1905.470	16.021	0.009	41.64	Brine probably left in hole.
A3X01	04/06/90	10:29	0.35	1921.440	15.968	0.022	41.99	
A3X01	04/17/90	11:13	0.13	1932.470	11.030	0.012	42.12	
A3X01	04/24/90	10:26	0.02	1939.430	6.968	0.000	42.14	
A3X01	04/25/90	09:35	0.15	1940.400	0.964	0.021	42.29	Reinstalled sampler. Combined with 0.02 liters from 04/24/90. Used 0.17 liters for calculation.
A3X01	05/02/90	11:20	0	1947.470	7.073	0.000	42.29	Could not sample.
A3X01	05/16/90	10:26	NA	1961.430	0.000	0.000	42.29	Sampler malfunction.
A3X01	05/23/90	12:35	0.08	1968.524	21.052	0.004	42.37	
A3X01	05/31/90	10:51	0.14	1976.452	7.928	0.018	42.51	

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A3X01	06/01/90	10:25	NA	1977.434	0.000	0.000	42.51	Replaced sampler.
A3X01	06/06/90	11:06	0.49	1982.462	6.010	0.082	43.00	
A3X01	06/14/90	08:38	0.17	1990.360	7.898	0.022	43.17	
A3X01	07/17/90	10:18	0.60	2023.429	33.069	0.000	43.77	
A3X01	07/18/90	10:11	0.09	2024.424	0.995	0.020	43.86	Combined with 0.60 liters from 07/17/90. Used 0.69 liters for calculation.
A3X01	07/25/90	08:20	0.70	2031.347	6.923	0.000	44.56	
A3X01	08/07/90	11:21	0.24	2044.473	13.126	0.047	44.80	Combined with 0.7 liters from 07/25/90. Used 0.94 liters for calculation.
A3X01	08/16/90	11:11	0.27	2053.466	8.993	0.030	45.07	
A3X01	08/22/90	11:42	0.15	2059.488	6.022	0.025	45.22	
A3X01	08/23/90	10:00	NA	2060.000	0.000	0.000	0.00	Heaters turned off.
A3X01	08/29/90	12:44	0.16	2066.531	7.043	0.023	45.38	
A3X01	09/05/90	11:35	0.15	2073.483	6.952	0.022	45.53	
A3X01	09/13/90	09:56	0.18	2081.414	7.931	0.023	45.71	
A3X01	09/25/90	12:34	0.25	2093.524	12.110	0.021	45.96	
A3X01	09/26/90	11:09	0.02	2094.465	0.941	0.021	45.98	
A3X01	10/03/90	09:50	0.16	2101.410	6.945	0.023	46.14	
A3X01	10/10/90	11:40	0.15	2108.486	7.076	0.021	46.29	
A3X01	10/18/90	10:53	0.16	2116.453	7.967	0.020	46.45	
A3X01	10/24/90	12:08	0.14	2122.506	6.053	0.023	46.59	
A3X01	10/31/90	11:35	0.16	2129.483	6.977	0.023	46.75	
A3X01	11/07/90	10:52	0.15	2136.453	6.970	0.022	46.90	
A3X01	11/14/90	11:50	0.15	2143.493	7.040	0.021	47.05	
A3X01	11/28/90	10:51	0.30	2157.452	13.959	0.021	47.35	
A3X01	12/05/90	08:55	0.15	2164.372	6.920	0.022	47.50	
A3X01	12/13/90	09:35	0.17	2172.399	8.027	0.021	47.67	
A3X01	12/20/90	08:56	0.18	2179.372	6.973	0.026	47.85	
A3X01	01/09/91	09:07	0.39	2199.380	20.008	0.019	48.24	
A3X01	01/16/91	09:15	0.16	2206.385	7.005	0.023	48.40	
A3X01	01/23/91	10:05	0.15	2213.420	7.035	0.021	48.55	
A3X01	01/30/91	10:16	0.16	2220.428	7.008	0.023	48.71	
A3X01	02/13/91	11:22	0.36	2234.474	14.046	0.026	49.07	
A3X01	02/20/91	10:45	0.16	2241.448	6.974	0.023	49.23	
A3X01	02/27/91	10:20	0.14	2248.431	6.983	0.020	49.37	
A3X01	03/07/91	10:15	0.26	2256.427	7.996	0.033	49.63	
A3X01	03/20/91	11:21	0.28	2269.473	13.046	0.021	49.91	
A3X01	03/28/91	11:07	0.18	2277.463	7.990	0.023	50.09	
A3X01	04/10/91	09:19	0.26	2290.388	12.925	0.020	50.35	
A3X01	05/14/91	09:50	0.34	2324.410	0.000	0.000	50.69	Partial evacuation.
A3X01	05/15/91	10:20	0.30	2325.431	35.043	0.018	50.99	Combined with 0.34 liters from 05/14/91.
A3X01	05/30/91	11:45	0.31	2340.490	15.059	0.021	51.30	
A3X01	06/05/91	14:22	0.16	2346.599	6.109	0.026	51.46	
A3X01	06/12/91	10:50	0.15	2353.451	6.852	0.022	51.61	
A3X01	06/19/91	15:12	0.15	2360.633	7.182	0.021	51.76	
A3X01	06/26/91	09:45	0.14	2367.406	6.773	0.021	51.90	
A3X01	07/11/91	11:16	0.30	2382.469	15.063	0.020	52.20	
A3X01	07/17/91	10:10	0.15	2388.424	5.955	0.025	52.35	
A3X01	07/30/91	09:50	0.40	2401.410	12.986	0.031	52.75	
A3X01	08/08/91	08:30	0.24	2410.354	8.944	0.027	52.99	
A3X01	08/14/91	09:25	0.13	2416.392	6.038	0.022	53.12	
A3X01	08/21/91	09:22	0.15	2423.390	6.998	0.021	53.27	
A3X01	08/28/91	08:53	0.13	2430.370	6.980	0.019	53.40	

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A3X01	09/04/91	10:14	0.22	2437.426	7.056	0.031	53.62	
A3X01	09/11/91	11:10	0.17	2444.465	7.039	0.024	53.79	
A3X01	10/02/91	10:25	0.13	2465.434	20.969	0.006	53.92	
A3X01	10/16/91	10:25	0.48	2479.434	14.000	0.034	54.40	
A3X01	10/31/91	10:40	0.01	2494.444	0.000	0.000	54.41	Some brine may have been left in hole. Lost vacuum prior to sampling.
A3X01	11/06/91	11:35	0.06	2500.483	0.000	0.000	54.47	Some brine may have been left in hole. Line clogged.
A3X01	11/20/91	9:30	0.53	2514.375	34.941	0.017	55.00	Combined with 0.01 liters from 10/31/91 and 0.06 liters from 11/06/91.
A3X01	11/27/91	09:04	0.21	2521.378	7.003	0.030	55.21	
A3X01	12/04/91	10:20	0.17	2528.431	7.053	0.024	55.38	
A3X01	12/11/91	10:15	0.13	2535.427	6.996	0.019	55.51	
A3X01	12/18/91	10:15	0.17	2542.427	7.000	0.024	55.68	
A3X01	12/23/91	09:10	0.14	2547.382	4.955	0.028	55.82	
BX01	06/02/84	00:00	NA	0.000	0.000	0.000	0.00	Room B completed.
BX01	01/27/85	00:00	NA	0.000	1.000	0.000	0.00	Downhole drilled 1/24/85 to 1/27/85. Wet core and brine encountered 1/26/85 at 35 to 36.5 feet.
BX01	02/05/85	11:00	00.39	35.458	11.041	0.035	0.39	First time collected.
BX01	02/11/85	12:00	00.72	41.500	6.042	0.119	1.11	
BX01	02/19/85	13:00	00.70	49.542	8.042	0.087	1.81	
BX01	02/26/85	12:45	00.61	56.531	6.989	0.087	2.42	
BX01	03/07/85	09:15	00.70	65.385	8.854	0.079	3.12	
BX01	03/12/85	11:45	00.41	70.490	5.105	0.080	3.53	
BX01	03/20/85	12:50	00.61	78.535	8.045	0.076	4.14	
BX01	03/26/85	10:45	00.45	84.448	5.913	0.076	4.59	
BX01	04/02/85	11:44	00.51	91.489	7.041	0.072	5.10	
BX01	04/10/85	11:38	00.55	99.485	7.996	0.069	5.65	
BX01	04/17/85	11:00	00.45	106.458	6.973	0.065	6.10	
BX01	04/23/85	10:05	00.38	112.420	5.962	0.064	6.48	Room B heaters turned on 4/23/85.
BX01	05/01/85	11:40	00.46	120.486	8.066	0.057	6.94	
BX01	06/04/85	09:30	02.00	154.396	33.910	0.059	8.94	First check in several weeks.
BX01	07/16/85	10:15	02.34	196.427	42.031	0.056	11.28	Brine effervesces.
BX01	08/26/85	13:56	02.38	237.581	41.154	0.058	13.66	Room temp. 98 degrees F. at collar, 103 F. in center of room.
BX01	10/08/85	12:00	02.27	280.500	42.919	0.053	15.93	
BX01	11/21/85	10:05	02.42	324.420	43.920	0.055	18.35	
BX01	12/04/85	13:35	00.69	337.566	13.146	0.052	19.04	Sample for chem. anal. #8.
BX01	01/31/86	10:25	02.95	395.434	57.868	0.051	21.99	
BX01	02/12/86	09:30	00.80	407.396	11.962	0.067	22.79	
BX01	04/16/86	11:00	03.45	470.458	63.062	0.055	26.24	
BX01	04/30/86	09:45	00.73	484.406	13.948	0.052	26.97	
BX01	05/06/86	09:18	00.30	490.387	5.981	0.050	27.27	
BX01	06/10/86	10:20	01.85	525.431	35.044	0.053	29.12	Sample for brine chemistry, #12.
BX01	08/19/86	10:50	03.21	595.451	70.020	0.046	32.33	
BX01	09/09/86	11:00	01.30	616.458	21.007	0.062	33.63	
BX01	10/01/86	11:08	01.16	638.464	22.006	0.053	34.79	
BX01	11/05/86	10:00	NA	673.417	34.953	0.000	34.79	Not collected.
BX01	11/20/86	10:39	02.40	688.444	49.980	0.048	37.19	
BX01	12/30/86	14:10	01.75	728.590	40.146	0.044	38.94	

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BX01	02/03/87	11:00	01.67	763.458	34.868	0.048	40.61	T=34.4c, T28.2, pH 6.06.
BX01	03/06/87	11:50	NA	794.493	31.035	0.000	40.61	Room closed, bad back, not sampled.
BX01	10/20/87			1022.000	0.000	0.000	40.61	Room closed, could not sample. No calculation.
BX01	11/16/87	11:10	12.86	1049.470	286.012	0.045	53.47	Collected for chemistry, sample #198A, #201A, #204A, #207A, #210A #198B, #201B, #204B, #207B, & #210B.
BX01	01/04/88			1098.000	0.000	0.000	53.47	Could not sample. Room closed.
BX01	02/08/88	12:35	3.71	1133.520	84.050	0.044	57.18	Collected for chemistry, sample #287, #288, #289, #290, #291, #292 #293 & #294.
BX01	03/29/88	12:00	2.30	1183.500	49.980	0.046	59.48	Collected for chemistry, sample #379 - #383.
BX01	05/12/88	10:44	1.67	1227.450	43.950	0.038	61.15	Sampled for Sandia PA.
BX01	07/12/88	09:50	2.23	1288.410	60.960	0.037	63.38	Collected for chemistry, sample #449 - #452.
BX01	09/27/88	08:00	2.61	1365.330	76.920	0.034	65.99	Collected for chemistry, sample #504 - #509.
BX01	12/13/88	09:00	0	1442.380	0.000	0.000	65.99	Could not sample. Room locked.
BX01	01/30/89	NA	NA	1490.000	0.000	0.000	65.99	Heaters in Room B turned off at 14:20 on 1/30/89.
BX01	03/14/89	08:40	6.17	1533.361	168.028	0.037	72.16	Sample saved for chemistry, sample #646 - 651.
BX01	04/06/89	11:53	NA	1556.495	0.000	0.000	72.16	Room locked.
BX01	04/20/89	10:00	NA	1570.417	0.000	0.000	72.16	Room locked.
BX01	05/17/89	11:00	2.90	1597.458	64.097	0.045	75.06	Sample saved for chemistry, sample #759 - 761 A & B.
BX01	07/11/89	09:30	1.77	1652.396	54.938	0.032	76.83	
BX01	09/12/89	10:50	1.90	1715.451	63.055	0.030	78.73	Increased buildup of salt crust on cap. No indication of leakage into hole, walls dry.
BX01	10/11/89	10:30	NA	1744.438	0.000	0.000	78.73	Installed collecting device. Collection point for brine located outside heated room.
BX01	10/20/89	10:30	0.61	1753.438	37.987	0.016	79.34	Sample saved for chemistry, sample #848.
BX01	11/10/89	08:50	0.65	1774.368	20.930	0.031	79.99	Sample saved for chemistry, sample #858-1,2.
BX01	11/29/89	10:50	0.66	1793.451	19.083	0.035	80.65	Sample saved for chemistry, sample #869.
BX01	12/12/89	08:49	0.63	1806.367	12.916	0.049	81.28	Sample saved for chemistry, sample #880.
BX01	01/04/90	09:03	0.14	1829.377	23.010	0.006	81.42	
BX01	01/17/90	10:10	0.17	1842.424	13.047	0.013	81.59	
BX01	01/31/90	08:57	0.20	1856.373	13.949	0.014	81.79	
BX01	02/13/90	10:23	0.41	1869.433	13.060	0.031	82.20	
BX01	02/27/90	11:12	0.61	1883.467	14.034	0.043	82.81	
BX01	03/05/90	10:24	0.35	1889.433	5.966	0.059	83.16	
BX01	03/21/90	10:59	0.58	1905.458	16.025	0.036	83.74	
BX01	04/04/90	10:26	0.60	1919.435	13.977	0.043	84.34	
BX01	04/17/90	10:47	0.71	1932.449	13.014	0.000	85.05	
BX01	04/24/90	09:45	0.63	1939.406	6.957	0.000	85.68	
BX01	04/25/90	09:00	0.76	1940.375	0.969	0.100	86.44	Combined with 0.71 liters from 04/17/90 and 0.63 liters from 04/24/90. Used 2.1 liters for calculation.
BX01	05/02/90	10:59	0.67	1947.458	7.083	0.095	87.11	
BX01	05/09/90	10:39	0.19	1954.444	6.986	0.027	87.30	
BX01	05/16/90	09:56	0.20	1961.414	6.970	0.029	87.50	

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BX01	05/23/90	12:55	0.03	1968.538	7.124	0.004	87.53	
BX01	05/31/90	11:11	0.13	1976.466	7.928	0.016	87.66	
BX01	06/01/90	10:15	NA	1977.427	0.000	0.000	87.66	Replaced sampler.
BX01	06/06/90	10:53	0.41	1982.453	5.987	0.068	88.07	
BX01	06/14/90	09:14	0.28	1990.385	7.932	0.035	88.35	
BX01	06/20/90	08:42	0.05	1996.362	5.977	0.008	88.40	
BX01	06/28/90	09:35	0.40	2004.399	8.037	0.050	88.80	
BX01	07/17/90	10:20	0.12	2023.431	19.032	0.000	88.92	Partial evacuation.
BX01	07/18/90	09:54	0.47	2024.412	0.981	0.029	89.39	Combined with 0.12 liters from 07/17/90. Used 0.59 liters for calculation.
BX01	07/25/90	08:10	0.38	2031.340	6.928	0.055	89.77	
BX01	08/07/90	11:40	0.40	2044.486	13.146	0.030	90.17	
BX01	08/16/90	10:52	0.31	2053.453	8.967	0.035	90.48	
BX01	08/22/90	11:40	0.21	2059.486	6.033	0.035	90.69	
BX01	08/29/90	12:27	0.09	2066.519	7.033	0.013	90.78	
BX01	09/05/90	11:10	0.12	2073.465	6.946	0.017	90.90	
BX01	09/13/90	09:27	0.30	2081.394	7.929	0.038	91.20	
BX01	09/25/90	12:51	0.48	2093.535	12.141	0.000	91.68	Brine probably left in hole.
BX01	09/26/90	11:18	0.02	2094.471	0.936	0.038	91.70	Combined with 0.48 liters from 09/25/90. Used 0.50 liters for calculation.
BX01	10/03/90	09:25	0.21	2101.392	6.921	0.030	91.91	
BX01	10/10/90	11:10	0.23	2108.465	7.073	0.033	92.14	
BX01	10/18/90	10:46	0.23	2116.449	7.984	0.029	92.37	
BX01	10/24/90	12:02	0.20	2122.501	6.052	0.033	92.57	
BX01	10/31/90	11:26	0.22	2129.476	6.975	0.032	92.79	
BX01	11/07/90	10:49	0.15	2136.451	6.975	0.022	92.94	
BX01	11/14/90	12:01	0.26	2143.501	7.050	0.037	93.20	
BX01	11/28/90	10:41	0.49	2157.445	13.944	0.035	93.69	
BX01	12/05/90	08:53	0.21	2164.370	6.925	0.030	93.90	
BX01	12/13/90	09:30	0.10	2172.396	8.026	0.012	94.00	
BX01	12/20/90	08:47	0.38	2179.366	6.970	0.055	94.38	
BX01	01/09/91	09:00	0.30	2199.375	20.009	0.015	94.68	
BX01	01/16/91	09:00	0.45	2206.375	7.000	0.064	95.13	
BX01	01/23/91	10:00	0.29	2213.417	7.042	0.041	95.42	
BX01	01/30/91	09:45	0.20	2220.406	6.989	0.029	95.62	
BX01	02/13/91	11:05	0.43	2234.462	14.056	0.031	96.05	
BX01	02/20/91	10:32	0.21	2241.439	6.977	0.030	96.26	
BX01	02/27/91	10:12	0.12	2248.425	6.986	0.017	96.38	
BX01	03/07/91	10:00	0.27	2256.417	7.992	0.034	96.65	
BX01	03/20/91	11:09	0.38	2269.465	13.048	0.029	97.03	
BX01	03/28/91	10:57	0.19	2277.456	7.991	0.024	97.22	
BX01	04/10/91	09:07	0.43	2290.380	12.924	0.033	97.65	
BX01	05/14/91	09:30	0.45	2324.396	0.000	0.000	98.10	Partial evacuation.
BX01	05/15/91	09:52	0.61	2325.411	35.031	0.030	98.71	Combined with 0.45 liters from 05/14/91.
BX01	05/30/91	11:30	0.67	2340.479	15.068	0.044	99.38	
BX01	06/05/91	14:00	0.20	2346.583	6.104	0.033	99.58	
BX01	06/12/91	10:30	0.20	2353.438	6.855	0.029	99.78	
BX01	06/19/91	14:48	0.21	2360.617	7.179	0.029	99.99	
BX01	06/26/91	09:33	0.20	2367.398	6.781	0.029	100.19	
BX01	07/11/91	10:28	0.46	2382.436	15.038	0.031	100.65	
BX01	07/17/91	09:55	0.18	2388.413	5.977	0.030	100.83	
BX01	07/30/91	09:45	0.43	2401.406	0.000	0.000	101.26	Partial evacuation.
BX01	07/31/91	09:43	0.06	2402.405	13.992	0.035	101.32	Combined with 0.43 liters from 07/30/91.

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BX01	08/08/91	08:21	0.26	2410.348	7.943	0.033	101.58	
BX01	08/14/91	09:15	0.18	2416.385	6.037	0.030	101.76	
BX01	08/21/91	09:16	0.20	2423.386	7.001	0.029	101.96	
BX01	08/28/91	09:10	0.22	2430.382	6.996	0.031	102.18	
BX01	09/04/91	10:18	0.39	2437.429	7.047	0.055	102.57	
BX01	09/11/91	11:06	0.22	2444.463	7.034	0.031	102.79	
BX01	10/02/91	10:15	0.48	2465.427	20.964	0.023	103.27	
BX01	10/16/91	10:00	0.52	2479.417	13.990	0.037	103.79	
BX01	10/31/91	11:00	0.44	2494.458	15.041	0.029	104.23	
BX01	11/06/91	11:13	0.22	2500.467	6.009	0.037	104.45	
BX01	11/13/91	10:00	0.22	2507.417	6.950	0.032	104.67	
BX01	11/20/91	9:38	0.20	2514.381	6.964	0.029	104.87	
BX01	11/27/91	08:45	0.21	2521.365	6.984	0.030	105.08	
BX01	12/04/91	10:05	0.23	2528.420	7.055	0.033	105.31	
BX01	12/11/91	10:10	0.20	2535.424	7.004	0.029	105.51	
BX01	12/23/91	09:00	0.15	2547.375	11.951	0.013	105.66	
DH15	03/13/84	00:00	NA	0.000	0.000	0.000	0.00	Drift excavated at N1104/E1688.5.
DH15	03/21/84	00:00	NA	0.000	0.000	0.000	0.00	Uphole drilled 3/20/84 to 3/21/84.
DH15	05/20/86	00:00	NA	0.000	0.000	0.000	0.00	Collecting funnel and container installed.
DH15	05/27/86	15:00	NA	511.625	1.000	0.000	0.00	Trace of brine. First time collected.
DH15	06/03/86	09:15	00.02	518.385	7.760	0.003	0.02	
DH15	06/10/86	10:40	00.04	525.444	7.059	0.006	0.06	Sample for brine chemistry, #14.
DH15	06/17/86	09:45	00.03	532.406	6.962	0.004	0.09	Sample #14.
DH15	06/24/86	10:00	00.05	539.417	7.011	0.007	0.14	Lots of clay has fallen down hole and accumulated in collecting container.
DH15	07/01/86	12:30	00.05	546.521	7.104	0.007	0.19	
DH15	07/08/86	09:50	00.05	553.410	6.889	0.007	0.24	
DH15	07/16/86	09:40	00.06	561.403	7.993	0.008	0.30	
DH15	07/22/86	09:15	00.05	567.385	5.982	0.008	0.35	Clay in collecting container.
DH15	07/29/86	09:55	00.05	574.413	7.028	0.007	0.40	
DH15	08/05/86	10:20	00.05	581.431	7.018	0.007	0.45	
DH15	08/12/86	09:45	00.05	588.406	6.975	0.007	0.50	
DH15	08/19/86	10:20	00.05	595.431	7.025	0.007	0.55	Sample # 1 for brine chemistry.
DH15	08/26/86	10:00	00.05	602.417	6.986	0.007	0.60	Sample # 1.
DH15	09/04/86	09:50	00.06	611.410	8.993	0.007	0.66	Sample # 1.
DH15	09/09/86	11:00	00.03	616.458	5.048	0.006	0.69	Sample # 1.
DH15	09/16/86	09:25	00.05	623.392	6.934	0.007	0.74	
DH15	09/23/86	09:30	00.06	630.396	7.004	0.009	0.80	
DH15	10/01/86	11:29	00.06	638.478	8.082	0.007	0.86	
DH15	11/05/86	10:15	0.22	673.427	34.949	0.006	1.08	
DH15	11/20/86	11:28	00.07	688.478	15.051	0.005	1.15	
DH15	12/31/86	11:37	00.18	729.484	41.006	0.004	1.33	
DH15	03/30/87	12:02	0.41	818.501	89.017	0.005	1.74	
DH15	05/07/87	10:22	0.17	856.432	37.931	0.004	1.91	
DH15	06/17/87	11:20	0.21	897.472	41.040	0.005	2.12	Sample removed for chemistry, #111A.
DH15	07/28/87	12:07	0.14	938.505	41.033	0.003	2.26	Sample collected for chemistry sample #111.
DH15	09/01/87	11:35	0.13	973.483	34.978	0.004	2.39	Collected for chemistry, sample #157.
DH15	09/16/87	10:00		988.417	0.000	0.000	2.39	0.05 l in jar not removed. No calculation.
DH15	10/20/87	10:45	0.29	1022.450	48.967	0.006	2.68	Collected for chemistry, sample #192.
DH15	11/19/87	10:15	0.15	1052.430	29.980	0.005	2.83	Collected for chemistry, sample #217.
DH15	01/04/88	11:00	0.23	1098.460	46.030	0.005	3.06	

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DH15	02/08/88	12:40	0.09	1133.530	35.070	0.003	3.15	Collected for chemistry, sample #313.
DH15	03/30/88	12:10	0.15	1184.510	50.980	0.003	3.30	Collected for chemistry, sample #342.
DH15	07/12/88	09:50	0.21	1288.410	103.900	0.002	3.51	
DH15	09/27/88	08:20	0.00	1365.350	76.940	0.000	3.51	Dry.
DH15	12/13/88	09:20	0	1442.390	77.040	0.000	3.51	Dry.
DH15	03/14/89	09:12	0	1533.383	90.994	0.000	3.51	Hole dry, funnel loose.
DH15	04/06/89	11:55	0	1556.497	23.114	0.000	3.51	Hole dry.
DH15	04/20/89	10:05	0.04	1570.420	13.923	0.003	3.55	
DH15	05/17/89	11:40	0	1597.486	27.066	0.000	3.55	Hole dry.
DH15	06/29/89	10:55	0	1640.455	42.969	0.000	3.55	Hole dry.
DH15	07/25/89	11:30	0	1666.479	26.024	0.000	3.55	Hole dry.
DH15	08/16/89	10:10	0	1688.424	21.945	0.000	3.55	Hole dry.
DH15	09/12/89	12:00	0	1715.500	27.076	0.000	3.55	Hole dry.
DH15	10/20/89	10:39	0	1753.444	37.944	0.000	3.55	Hole dry.
DH15	11/10/89	09:30	0	1774.396	20.952	0.000	3.55	Hole dry.
DH15	11/29/89	11:40	0	1793.486	19.090	0.000	3.55	Hole dry.
DH15	12/12/89	08:56	0	1806.372	12.886	0.000	3.55	Hole dry.
DH15	01/04/90	09:30	0.0	1829.396	23.024	0.000	3.55	Dry.
DH15	01/17/90	11:28	0.0	1842.478	13.082	0.000	3.55	Dry.
DH15	01/31/90	09:35	0.0	1856.399	13.921	0.000	3.55	Dry.
DH15	02/13/90	09:58	0.0	1869.415	13.016	0.000	3.55	Dry.
DH15	02/27/90	11:41	0.0	1883.487	14.072	0.000	3.55	Dry.
DH15	03/05/90	10:32	0.0	1889.439	5.952	0.000	3.55	Dry.
DH15	03/21/90	11:03	0.0	1905.460	16.021	0.000	3.55	Dry.
DH15	04/04/90	11:00	0.0	1919.458	13.998	0.000	3.55	Dry.
DH15	04/06/90	10:22	0.0	1921.432	1.974	0.000	3.55	Dry.
DH15	04/17/90	11:04	0.0	1932.461	11.029	0.000	3.55	Dry.
DH15	04/24/90	10:25	0.0	1939.434	6.973	0.000	3.55	Dry.
DH15	05/02/90	11:20	0.0	1947.472	8.038	0.000	3.55	Dry.
DH15	05/09/90	10:36	0.0	1954.442	6.970	0.000	3.55	Dry.
DH15	05/16/90	10:04	0.0	1961.419	6.977	0.000	3.55	Dry.
DH15	05/23/90	12:40	0.0	1968.528	7.109	0.000	3.55	Dry.
DH15	05/31/90	10:54	0.0	1976.454	7.926	0.000	3.55	Dry.
DH15	06/06/90	11:00	0.0	1982.458	6.004	0.000	3.55	Dry.
DH15	06/14/90	09:36	0.0	1990.400	7.942	0.000	3.55	Dry.
DH15	06/20/90	08:40	0.0	1996.361	5.961	0.000	3.55	Dry.
DH15	06/28/90	09:56	0.0	2004.414	8.053	0.000	3.55	Dry.
DH15	07/25/90	08:15	0.0	2031.344	26.930	0.000	3.55	Dry.
DH15	08/16/90	10:58	0.0	2053.457	22.113	0.000	3.55	Dry.
DH15	08/22/90	11:45	0.0	2059.490	6.033	0.000	3.55	Dry.
DH15	08/29/90	12:30	0.0	2066.521	7.031	0.000	3.55	Dry.
DH15	09/05/90	11:40	0.0	2073.486	6.965	0.000	3.55	Dry.
DH15	09/13/90	09:44	0.0	2081.406	7.920	0.000	3.55	Dry.
DH15	09/25/90	12:20	0.0	2093.514	12.108	0.000	3.55	Dry.
DH15	09/26/90	11:20	0.0	2094.472	0.958	0.000	3.55	Dry.
DH15	10/03/90	09:40	0.0	2101.403	6.931	0.000	3.55	Dry.
DH15	10/10/90	11:30	0.0	2108.479	7.076	0.000	3.55	Dry.
DH15	10/18/90	10:15	0.0	2116.427	7.948	0.000	3.55	Dry.
DH15	10/24/90	12:06	0.0	2122.504	6.077	0.000	3.55	Dry.
DH15	10/31/90	11:32	0.0	2129.481	6.977	0.000	3.55	Dry.
DH15	11/14/90	11:48	0.0	2143.492	14.011	0.000	3.55	Dry.
DH15	11/28/90	10:50	0.0	2157.451	13.959	0.000	3.55	Dry.
DH15	12/05/90	08:54	0.0	2164.371	6.920	0.000	3.55	Dry.

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DH15	12/13/90	09:32	0.0	2172.397	8.026	0.000	3.55	Dry.
DH15	01/30/91	10:03	0.00	2220.419	48.022	0.000	3.55	Dry. Funnel missing, installed collector.
DH15	02/13/91	11:20	0.00	2234.472	14.053	0.000	3.55	Dry.
DH15	02/27/91	10:15	0.00	2248.427	13.955	0.000	3.55	Dry.
DH15	03/07/91	10:10	0.00	2256.424	7.997	0.000	3.55	Dry.
DH15	03/20/91	11:20	0.00	2269.472	13.048	0.000	3.55	Dry.
DH15	03/28/91	10:52	0.00	2277.453	7.981	0.000	3.55	Dry.
DH15	04/10/91	09:10	0.00	2290.382	12.929	0.000	3.55	Dry.
DH15	05/14/91	09:45	0.00	2324.406	34.024	0.000	3.55	Dry.
DH15	05/15/91	09:55	0.00	2325.413	1.007	0.000	3.55	Dry.
DH15	05/30/91	11:35	0.00	2340.483	15.070	0.000	3.55	Dry.
DH15	06/05/91	14:05	0.00	2346.587	6.104	0.000	3.55	Dry.
DH15	06/12/91	10:25	0.00	2353.434	6.847	0.000	3.55	Dry.
DH15	06/19/91	14:53	0.00	2360.620	7.186	0.000	3.55	Dry.
DH15	06/26/91	09:40	0.00	2367.403	6.783	0.000	3.55	Dry.
DH15	07/11/91	10:35	0.00	2382.441	15.038	0.000	3.55	Dry.
DH15	07/17/91	09:58	0.00	2388.415	5.974	0.000	3.55	Dry.
DH15	07/30/91	09:50	0.00	2401.410	12.995	0.000	3.55	Dry.
DH15	08/08/91	08:31	0.00	2410.355	8.945	0.000	3.55	Dry.
DH15	08/14/91	09:20	0.00	2416.389	6.034	0.000	3.55	Dry.
DH15	08/21/91	09:20	0.00	2423.389	7.000	0.000	3.55	Dry.
DH15	08/28/91	08:50	0.00	2430.368	6.979	0.000	3.55	Dry.
DH15	09/04/91	10:14	0.00	2437.426	7.058	0.000	3.55	Dry.
DH15	10/02/91	10:25	0.00	2465.434	28.008	0.000	3.55	Dry.
DH15	10/16/91	10:20	0.00	2479.431	13.997	0.000	3.55	Dry.
DH15	10/31/91	10:40	0.00	2494.444	15.013	0.000	3.55	Dry.
DH15	11/06/91	11:30	0.00	2500.479	6.035	0.000	3.55	Dry.
DH15	11/13/91	10:08	0.00	2507.422	6.943	0.000	3.55	Dry.
DH15	11/20/91	9:30	0.00	2514.375	6.953	0.000	3.55	Dry.
DH15	11/27/91	08:50	0.00	2521.368	6.993	0.000	3.55	Dry.
DH15	12/04/91	10:15	0.00	2528.427	7.059	0.000	3.55	Dry.
DH15	12/11/91	10:15	0.00	2535.427	7.000	0.000	3.55	Dry.
DH215	01/02/83	00:00	NA	0.000	0.000	0.000	0.00	Approximate date E140 drift was excavated at $1950.
DH215	01/06/83	00:00	NA	0.000	0.000	0.000	0.00	Uphole drilled 1/05/83 to 1/06/83.
DH215	04/20/84	00:00	NA	0.000	0.000	0.000	0.00	Experimental brine collection device installed.
DH215	01/15/85	11:00	00.05	14.458	1.000	0.000	0.05	First data entry in BSEP Phase I collecting program.
DH215	01/22/85	12:00	00.08	21.500	7.042	0.011	0.13	
DH215	01/29/85	12:00	00.08	28.500	7.000	0.011	0.21	
DH215	02/05/85	12:00	00.04	35.500	7.000	0.006	0.25	
DH215	02/11/85	13:00	00.06	41.542	6.042	0.010	0.31	
DH215	02/14/85	11:00	00.03	44.458	2.916	0.010	0.34	Replaced collecting device.
DH215	02/19/85	10:35	00.07	49.441	4.983	0.014	0.41	
DH215	02/26/85	12:10	00.09	56.507	7.066	0.013	0.50	
DH215	03/07/85	10:30	00.12	65.438	8.931	0.013	0.62	
DH215	03/12/85	12:30	00.10	70.521	5.083	0.020	0.72	
DH215	03/20/85	14:00	00.11	78.583	8.062	0.014	0.83	
DH215	03/26/85	11:30	00.05	84.479	5.896	0.008	0.88	
DH215	04/02/85	13:00	00.05	91.542	7.063	0.007	0.93	

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DH215	04/10/85	13:00	00.09	99.542	8.000	0.011	1.02	
DH215	04/17/85	14:00	00.03	106.583	7.041	0.004	1.05	Drip missing funnel.
DH215	04/23/85	14:30	00.10	112.604	6.021	0.017	1.15	
DH215	04/30/85	09:09	00.08	119.381	6.777	0.012	1.23	
DH215	05/07/85	10:50	00.09	126.451	7.070	0.013	1.32	Salt crystals in container.
DH215	05/14/85	13:06	00.11	133.546	7.095	0.016	1.43	
DH215	05/21/85	12:15	00.08	140.510	6.964	0.011	1.51	
DH215	05/29/85	11:00	00.09	148.458	7.948	0.011	1.60	
DH215	06/04/85	13:15	00.09	154.552	6.094	0.015	1.69	Salt crystals in container.
DH215	06/11/85	13:10	00.13	161.549	6.997	0.019	1.82	
DH215	06/18/85	11:22	00.13	168.474	6.925	0.019	1.95	
DH215	06/25/85	12:55	00.12	175.538	7.064	0.017	2.07	
DH215	07/02/85	11:00	00.10	182.458	6.920	0.014	2.17	
DH215	07/09/85	12:39	00.09	189.527	7.069	0.013	2.26	
DH215	07/16/85	12:37	00.11	196.526	6.999	0.016	2.37	Salt crystals in container.
DH215	07/24/85	12:39	00.14	204.527	8.001	0.017	2.51	
DH215	07/30/85	11:09	00.10	210.465	5.938	0.017	2.61	
DH215	08/06/85	11:20	00.11	217.472	7.007	0.016	2.72	
DH215	08/14/85	13:17	00.17	225.553	8.081	0.021	2.89	
DH215	08/20/85	12:57	00.10	231.540	5.987	0.017	2.99	
DH215	08/26/85	14:36	00.12	237.608	6.068	0.020	3.11	
DH215	09/04/85	11:35	00.14	246.483	8.875	0.016	3.25	
DH215	09/10/85	12:05	00.09	252.503	6.020	0.015	3.34	
DH215	09/17/85	10:00	00.12	259.417	6.914	0.017	3.46	
DH215	09/24/85	11:11	00.13	266.466	7.049	0.018	3.59	
DH215	10/01/85	10:55	00.12	273.455	6.989	0.017	3.71	Salt crystals in container.
DH215	10/08/85	12:00	00.10	280.500	7.045	0.014	3.81	
DH215	10/15/85	11:31	00.20	287.480	6.980	0.029	4.01	
DH215	10/23/85	11:54	00.33	295.496	8.016	0.041	4.34	
DH215	10/29/85	11:54	00.12	301.496	6.000	0.020	4.46	
DH215	11/13/85	11:18	00.18	316.471	14.975	0.012	4.64	Floor lowered in E140 north of this location.
DH215	11/19/85	00:00	NA	0.000	0.000	0.000	4.64	Floor of E140 drift excavated, collar of downhole DH216 destroyed.
DH215	11/20/85	00:00	NA	0.000	0.000	0.000	4.64	Crossdrift excavation at S1950 initiated toward east.
DH215	12/04/85	15:00	00.35	337.625	21.154	0.017	4.99	Sample for chem. anal. #14.
DH215	12/10/85	13:05	00.11	343.545	5.920	0.019	5.10	
DH215	12/17/85	14:20	00.40	350.597	7.052	0.057	5.50	
DH215	01/03/86	11:00	01.00	367.458	16.861	0.059	6.50	Brine overflowing container, unknown amount not collected.
DH215	01/08/86	11:25	00.36	372.476	5.018	0.072	6.86	
DH215	01/16/86	11:00	00.70	380.458	7.982	0.088	7.56	
DH215	01/23/86	12:00	00.63	387.500	7.042	0.089	8.19	
DH215	01/29/86	00:00	NA	0.000	0.000	0.000	8.19	Crossdrift excavation at S1950 initiated toward west.
DH215	01/31/86	13:50	00.45	395.576	8.076	0.056	8.64	
DH215	02/12/86	12:25	00.27	407.517	11.941	0.023	8.91	Stalactites removed from container.
DH215	02/19/86	13:15	00.26	414.552	7.035	0.037	9.17	
DH215	02/28/86	00:00	NA	0.000	0.000	0.000	9.17	Floor lowered in E140 south of this location.
DH215	03/06/86	12:20	00.96	429.514	14.962	0.064	10.13	
DH215	03/13/86	11:30	00.40	436.479	6.965	0.057	10.53	

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH215	03/26/86	11:15	00.72	449.469	12.990	0.055	11.25	
DH215	04/02/86	10:30	00.30	456.438	6.969	0.043	11.55	
DH215	04/08/86	11:00	00.15	462.458	6.020	0.025	11.70	
DH215	04/16/86	13:00	00.40	470.542	8.084	0.049	12.10	
DH215	04/24/86	11:00	00.26	478.458	7.916	0.033	12.36	
DH215	04/30/86	11:35	00.16	484.483	6.025	0.027	12.52	
DH215	05/06/86	11:05	00.21	490.462	5.979	0.035	12.73	
DH215	05/13/86	10:10	00.29	497.424	6.962	0.042	13.02	
DH215	05/20/86	11:45	00.20	504.490	7.066	0.028	13.22	
DH215	05/27/86	16:00	00.20	511.667	7.177	0.028	13.42	
DH215	06/03/86	11:05	00.27	518.462	6.795	0.040	13.69	
DH215	06/10/86	12:10	00.33	525.507	7.045	0.047	14.02	Sample for brine chemistry, #16.
DH215	06/17/86	11:47	00.23	532.491	6.984	0.033	14.25	
DH215	06/24/86	11:50	00.10	539.493	7.002	0.014	14.35	
DH215	07/01/86	14:32	00.15	546.606	7.113	0.021	14.50	
DH215	07/08/86	11:30	00.14	553.479	6.873	0.020	14.64	About 1 lb. of salt encrustation removed from funnel on 1/07/86.
DH215	07/16/86	11:45	00.10	561.490	8.011	0.012	14.74	
DH215	07/22/86	10:31	00.06	567.438	5.948	0.010	14.80	
DH215	07/29/86	11:27	00.13	574.477	7.039	0.018	14.93	
DH215	08/05/86	11:59	00.14	581.499	7.022	0.020	15.07	
DH215	08/12/86	11:40	00.13	588.486	6.987	0.019	15.20	
DH215	08/19/86	12:00	00.04	595.500	7.014	0.006	15.24	
DH215	08/26/86	11:55	00.02	602.497	6.997	0.003	15.26	Sample # 8.
DH215	09/04/86	11:55	NA	611.497	9.000	0.000	15.26	Trace of brine.
DH215	09/23/86	11:35	00.00	630.483	18.986	0.000	15.26	Dry.
DH215	10/01/86	08:23	00.02	638.349	7.866	0.003	15.28	
DH215	10/08/86	13:41	NA	645.570	7.221	0.000	15.28	Trace, none collected.
DH215	10/14/86	13:47	00.00	651.574	13.225	0.000	15.28	Dry.
DH215	11/05/86	12:50	0.16	673.535	35.186	0.005	15.44	
DH215	11/20/86	NA:	NA	688.000	14.465	0.000	15.44	
DH215	12/30/86	09:51	00.14	728.410	54.875	0.003	15.58	About 1/2 of this volume was a mixture of salt crystals and sun-flower seeds.
DH215	02/04/87	10:06	00.50	764.421	36.011	0.014	16.08	2 bottles. T 28.5, pH 5.33.
DH215	03/06/87	09:42	0.29	794.404	29.983	0.010	16.37	
DH215	03/30/87	09:45	0.33	818.406	24.002	0.014	16.70	
DH215	05/07/87	13:10	0.09	856.549	38.143	0.002	16.79	
DH215	06/17/87	09:15	0.18	897.385	40.836	0.004	16.97	
DH215	07/28/87	10:11	0.28	938.424	41.039	0.007	17.25	
DH215	09/01/87	09:05	0.20	973.378	34.954	0.006	17.45	
DH215	10/20/87	08:46	0.00	1022.370	48.992	0.000	17.45	Dry. 1/2" salt crust in container.
DH215	11/19/87	08:31	0.00	1052.350	29.980	0.000	17.45	Dry.
DH215	12/11/87	11:00		1074.460	0.000	0.000	17.45	Container is dry. Funnel was removed and the back was trimmed.
DH215	01/04/88	10:05		1098.420	0.000	0.000	17.45	Collar mined out. Dry, no evidence of moisture coming from the hole.
DH215	02/09/88	09:25		1134.390	0.000	0.000	17.45	Sampler removed.
DH215	03/29/88	09:15		1183.390	0.000	0.000	17.45	Collecting device removed by mine operations.
DH215	07/12/88	13:50		1288.580	0.000	0.000	17.45	No funnel.
DH215	09/27/88	13:00	0.00	1365.540	0.000	0.000	17.45	None collected.
DH215	10/13/88	11:00		1381.460	0.000	0.000	17.45	Installed funnel and collection bottle.
DH215	12/13/88	10:45	0	1442.450	390.100	0.000	17.45	Dry.

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH215	04/06/89	11:00	0	1556.458	114.010	0.000	17.45	Hole dry.
DH215	04/20/89	13:10	0.11	1570.549	14.091	0.008	17.56	
DH215	05/17/89	09:00	0	1597.375	26.826	0.000	17.56	Hole dry.
DH215	06/29/89	08:50	0	1640.368	42.993	0.000	17.56	Hole dry.
DH215	07/25/89	11:00	0.25	1666.458	26.090	0.010	17.81	
DH215	08/16/89	09:10	0	1688.382	21.924	0.000	17.81	Hole dry.
DH215	09/12/89	12:00	0	1715.500	27.118	0.000	17.81	Hole dry.
DH215	12/12/89	12:25	0	1806.517	91.017	0.000	17.81	Hole dry.
DH215	02/07/90	11:00	0.0	1863.458	56.941	0.000	17.81	Dry.
DH215	02/21/90	09:00	0.0	1877.375	13.917	0.000	17.81	Dry.
DH215	03/05/90	12:04	0.0	1889.503	12.128	0.000	17.81	Dry.
DH215	03/21/90	09:00	0.0	1905.375	15.872	0.000	17.81	Dry.
DH215	04/11/90	10:21	0.0	1926.431	21.056	0.000	17.81	Dry.
DH215	05/02/90	09:35	0.0	1947.399	20.968	0.000	17.81	Dry.
DH215	05/08/90	10:07	0.0	1953.422	6.023	0.000	17.81	Dry.
DH215	05/17/90	09:11	0.0	1962.383	8.961	0.000	17.81	Dry. Prepared collector.
DH215	05/23/90	13:35	0.0	1968.566	6.183	0.000	17.81	Dry.
DH215	05/31/90	10:00	0.01	1976.417	7.851	0.001	17.82	Did not save.
DH215	06/06/90	08:45	0.0	1982.365	5.948	0.000	17.82	Dry.
DH215	06/14/90	10:57	0.07	1990.456	8.091	0.009	17.89	
DH215	06/20/90	10:20	NA	1996.431	0.000	0.000	17.89	Trace. Did not remove.
DH215	06/28/90	11:00	NA	2004.458	0.000	0.000	17.89	Trace. Did not remove.
DH215	07/17/90	09:33	NA	2023.398	0.000	0.000	17.89	Trace. Did not remove.
DH215	07/25/90	11:00	0.0	2031.458	41.002	0.000	17.89	Dry.
DH215	08/07/90	09:10	0.04	2044.382	12.924	0.003	17.93	
DH215	08/22/90	11:15	0.03	2059.469	15.087	0.002	17.96	
DH215	08/29/90	11:30	NA	2066.479	0.000	0.000	17.96	Trace. Did not sample.
DH215	09/05/90	10:30	NA	2073.438	0.000	0.000	17.96	Trace. Did not collect.
DH215	09/12/90	08:37	0.02	2080.359	20.890	0.001	17.98	
DH215	11/08/90	10:01	0.05	2137.417	57.058	0.001	18.03	
DH215	11/14/90	10:15	0.0	2143.427	6.010	0.000	18.03	Dry.
DH215	03/20/91	13:37	0.00	2269.567	126.140	0.000	18.03	Dry.
DH215	04/10/91	12:20	0.00	2290.514	20.947	0.000	18.03	Dry.
DH215	05/01/91	10:40	0.00	2311.444	20.930	0.000	18.03	Dry.
DH215	05/08/91	09:10	0.00	2318.382	6.938	0.000	18.03	Dry.
DH215	05/15/91	10:55	0.00	2325.455	7.073	0.000	18.03	Dry.
DH215	06/19/91	16:05	0.00	2360.670	35.215	0.000	18.03	Dry.
DH215	06/26/91	10:15	0.00	2367.427	6.757	0.000	18.03	Dry.
DH215	07/17/91	11:09	0.00	2388.465	21.038	0.000	18.03	Dry.
DH215	08/14/91	11:00	0.05	2416.458	27.993	0.002	18.08	Dry.
DH215	09/18/91	10:08	0.00	2451.422	34.964	0.000	18.08	Dry.
DH215	09/25/91	12:40	0.00	2458.528	7.106	0.000	18.08	Dry.
DH215	10/23/91	10:10	0.00	2486.424	27.896	0.000	18.08	Dry.
DH215	10/31/91	11:28	0.00	2494.478	8.054	0.000	18.08	Dry.
DH215	11/13/91	09:10	0.00	2507.382	12.904	0.000	18.08	Dry.
DH215	12/04/91	09:00	0.00	2528.375	20.993	0.000	18.08	Dry.
DH35	11/21/84	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of Room G was excavated.
DH35	01/27/85	00:00	NA	0.000	0.000	0.000	0.00	Uphole drilled 1/26/85 to 1/27/85.
DH35	02/05/85	11:15	NA	35.469	1.000	0.000	0.00	Started to drip.
DH35	03/05/85	10:00	00.19	63.417	28.948	0.007	0.19	Salt crystals in container. First time

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
								collected.
DH35	03/12/85	10:00	00.17	70.417	7.000	0.024	0.36	Salt crystals in container.
DH35	03/20/85	10:26	00.19	78.435	8.018	0.024	0.55	
DH35	03/26/85	09:45	00.13	84.406	5.971	0.022	0.68	
DH35	04/02/85	10:15	00.15	91.427	7.021	0.021	0.83	Salt crystals in container.
DH35	04/10/85	10:14	00.19	99.426	7.999	0.024	1.02	
DH35	04/23/85	11:46	00.12	112.490	13.064	0.009	1.14	
DH35	04/30/85	11:09	00.16	119.465	6.975	0.023	1.30	Clay in container.
DH35	05/07/85	09:53	00.14	126.412	6.947	0.020	1.44	
DH35	05/14/85	10:48	00.16	133.450	7.038	0.023	1.60	
DH35	05/21/85	10:42	00.15	140.446	6.996	0.021	1.75	
DH35	05/29/85	10:00	00.15	148.417	7.971	0.019	1.90	
DH35	06/11/85	10:10	00.02	161.424	13.007	0.002	1.92	
DH35	07/09/85	11:10	00.06	189.465	28.041	0.002	1.98	
DH35	07/16/85	11:48	00.13	196.492	7.027	0.019	2.11	
DH35	07/24/85	10:37	00.12	204.442	7.950	0.015	2.23	
DH35	07/30/85	10:17	00.08	210.428	5.986	0.013	2.31	Clay in container.
DH35	08/06/85	10:37	00.08	217.442	7.014	0.011	2.39	Clay chunks in container.
DH35	08/14/85	10:53	00.11	225.453	8.011	0.014	2.50	
DH35	08/20/85	11:05	00.09	231.462	6.009	0.015	2.59	
DH35	08/28/85	10:00	00.14	239.417	7.955	0.018	2.73	
DH35	09/04/85	10:30	00.11	246.438	7.021	0.016	2.84	
DH35	09/10/85	10:38	00.11	252.443	6.005	0.018	2.95	
DH35	09/17/85	09:40	00.12	259.403	6.960	0.017	3.07	
DH35	09/24/85	09:48	00.07	266.408	7.005	0.010	3.14	
DH35	10/08/85	10:44	00.08	280.447	14.039	0.006	3.22	
DH35	10/15/85	10:17	00.06	287.428	6.981	0.009	3.28	
DH35	10/29/85	09:42	00.06	301.404	13.976	0.004	3.34	
DH35	11/05/85	09:24	00.08	308.392	6.988	0.011	3.42	
DH35	11/13/85	10:06	00.11	316.421	8.029	0.014	3.53	
DH35	11/21/85	11:32	00.07	324.481	8.060	0.009	3.60	
DH35	11/26/85	11:25	00.05	329.476	4.995	0.010	3.65	Changed collecting container.
DH35	01/23/86	10:40	00.06	387.444	57.968	0.001	3.71	Clay in collecting container. Entry has been restricted since 12/10/85 due to mining activities.
DH35	01/31/86	12:16	00.06	395.511	8.067	0.007	3.77	
DH35	02/12/86	10:55	00.09	407.455	11.944	0.008	3.86	
DH35	02/19/86	11:45	00.07	414.490	7.035	0.010	3.93	
DH35	02/28/86	13:20	00.06	423.556	9.066	0.007	3.99	
DH35	03/06/86	10:45	00.03	429.448	5.892	0.005	4.02	
DH35	03/13/86	10:10	00.07	436.424	6.976	0.010	4.09	
DH35	03/26/86	10:20	NA	449.431	13.007	0.000	4.09	Funnel broken, 5 inch stalactite formed from collar.
DH35	04/02/86	09:40	NA	456.403	19.979	0.000	4.09	Installed new funnel.
DH35	05/27/86	15:45	NA	511.656	75.232	0.000	4.09	Trace of brine.
DH35	06/03/86	10:08	00.01	518.422	81.99[illegible]	0.000	4.10	
DH35	06/10/86	11:35	00.02	525.483	7.06[illegible]	0.003	4.12	Sample for brine chemistry, #15.
DH35	06/17/86	10:58	00.01	532.457	6.974	0.001	4.13	Sample #15.
DH35	06/24/86	10:57	00.02	539.456	6.999	0.003	4.15	
DH35	07/01/86	14:03	00.02	546.585	7.129	0.003	4.17	
DH35	07/08/86	10:37	00.02	553.442	6.857	0.003	4.19	
DH35	07/16/86	10:36	00.03	561.442	8.000	0.004	4.22	
DH35	07/22/86	10:05	NA	567.420	5.978	0.000	4.22	Trace of brine. Cleaned soft clay out of

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
								funnel.
DH35	07/29/86	10:35	00.01	574.441	12.999	0.001	4.23	
DH35	08/05/86	11:13	00.03	581.467	7.026	0.004	4.26	
DH35	08/12/86	10:35	00.03	588.441	6.974	0.004	4.29	
DH35	08/19/86	11:35	00.01	595.483	7.042	0.001	4.30	Sample # 2 for brine chemistry.
DH35	08/26/86	10:38	NA	602.443	6.960	0.000	4.30	Trace collected. Sample # 2.
DH35	09/04/86	10:40	00.01	611.444	15.961	0.001	4.31	Sample # 2.
DH35	09/09/86	10:10	NA	616.424	4.980	0.000	4.31	Trace collected. Sample # 2.
DH35	09/16/86	10:13	NA	623.426	11.982	0.000	4.31	Trace collected.
DH35	09/23/86	10:11	NA	630.424	18.980	0.000	4.31	Trace.
DH35	10/01/86	12:16	00.00	638.511	27.067	0.000	4.31	Trace, none collected.
DH35	10/08/86	11:08	NA	645.464	6.953	0.000	4.31	Small amount not collected.
DH35	11/05/86	11:28	NA	673.478	28.014	0.000	4.31	Damp, not collected.
DH35	11/20/86	NA:	NA	688.000	42.536	0.000	4.31	Not sampled, looked dry.
DH35	12/30/86	12:15	NA	728.510	83.046	0.000	4.31	
DH35	02/03/87	NA:	NA	763.000	117.536	0.000	4.31	
DH35	03/06/87	11:25	NA	794.476	149.012	0.000	4.31	Dry.
DH35	03/30/87	11:20	0.00	818.472	23.996	0.000	4.31	Dry.
DH35	05/07/87	11:35	0.00	856.483	62.007	0.000	4.31	Dry.
DH35	06/18/87	12:10	0.00	898.507	104.031	0.000	4.31	Dry.
DH35	07/28/87	11:15	0.00	938.469	143.993	0.000	4.31	Dry.
DH35	09/01/87	10:50	0.00	973.451	34.982	0.000	4.31	Dry.
DH35	10/20/87	11:56	0.00	1022.500	49.049	0.000	4.31	Dry.
DH35	11/19/87	11:30	0.00	1052.480	29.980	0.000	4.31	Dry.
DH35	01/04/88	12:00	0.00	1098.500	46.020	0.000	4.31	Dry.
DH35	02/08/88	11:55	0.00	1133.500	35.000	0.000	4.31	Dry.
DH35	03/29/88	11:40	0.00	1183.490	49.990	0.000	4.31	Dry.
DH35	07/12/88	08:50	0.00	1288.370	104.880	0.000	4.31	Dry.
DH35	09/27/88	10:50	0.00	1365.450	77.080	0.000	4.31	Dry.
DH35	03/15/89	10:50	0	1534.451	169.000	0.000	4.31	Hole dry.
DH35	04/06/89	09:40	0	1556.403	21.952	0.000	4.31	Hole dry.
DH35	04/20/89	09:40	0	1570.403	14.000	0.000	4.31	Hole dry.
DH35	06/06/89	10:15	0	1617.427	47.024	0.000	4.31	Sample saved for chemistry.
DH35	06/29/89	10:35	0	1640.441	23.014	0.000	4.31	Hole dry.
DH35	07/25/89	09:55	0	1666.413	25.972	0.000	4.31	Hole dry.
DH35	08/16/89	09:55	0	1688.413	22.000	0.000	4.31	Hole dry.
DH35	08/28/89	10:20	0	1700.431	12.018	0.000	4.31	Collecting device removed.
DH35	12/13/89	11:20	0	1807.472	107.041	0.000	4.31	Hole dry.
DH35	01/24/90	10:00	0.0	1849.417	41.945	0.000	4.31	Dry.
DH35	02/07/90	10:30	0.0	1863.438	14.021	0.000	4.31	Dry.
DH35	02/21/90	09:48	0.0	1877.408	13.970	0.000	4.31	Dry.
DH35	03/05/90	09:35	0.0	1889.399	11.991	0.000	4.31	Dry.
DH35	03/19/90	10:36	0.0	1903.442	14.043	0.000	4.31	Dry.
DH35	03/21/90	10:30	0.0	1905.438	1.996	0.000	4.31	Dry.
DH35	04/04/90	09:56	0.0	1919.414	13.976	0.000	4.31	Dry.
DH35	04/10/90	08:34	0.0	1925.357	5.943	0.000	4.31	Dry.
DH35	04/17/90	10:17	0.0	1932.428	7.071	0.000	4.31	Dry.
DH35	04/24/90	09:35	0.0	1939.399	6.971	0.000	4.31	Dry.
DH35	05/02/90	10:30	0.0	1947.438	8.039	0.000	4.31	Dry.
DH35	05/09/90	08:42	0.0	1954.362	6.924	0.000	4.31	Dry.
DH35	05/16/90	08:45	0.0	1961.365	7.003	0.000	4.31	Dry.
DH35	05/23/90	12:03	0.0	1968.502	7.137	0.000	4.31	Dry.
DH35	05/31/90	08:40	0.0	1976.361	7.859	0.000	4.31	Dry.

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH35	06/06/90	08:43	0.0	1982.363	6.002	0.000	4.31	Dry.
DH35	06/14/90	08:32	0.0	1990.356	7.993	0.000	4.31	Dry.
DH35	06/20/90	09:53	0.0	1996.412	6.056	0.000	4.31	Dry.
DH35	06/28/90	08:38	0.0	2004.360	7.948	0.000	4.31	Dry.
DH35	07/17/90	10:50	0.0	2023.451	19.091	0.000	4.31	Dry.
DH35	07/25/90	09:32	0.0	2031.397	7.946	0.000	4.31	Dry.
DH35	08/01/90	10:38	0.0	2038.443	7.046	0.000	4.31	Dry.
DH35	12/13/90	08:50	0.0	2172.368	133.925	0.000	4.31	Dry.
DH35	02/13/91	10:45	0.00	2234.448	62.080	0.000	4.31	Dry.
DH35	03/28/91	10:40	0.00	2277.444	42.996	0.000	4.31	Dry.
DH35	04/10/91	08:25	0.00	2290.351	12.907	0.000	4.31	Dry.
DH35	04/17/91	10:41	0.00	2297.445	7.094	0.000	4.31	Dry.
DH35	05/01/91	09:26	0.00	2311.393	13.948	0.000	4.31	Dry.
DH35	05/08/91	08:39	0.00	2318.360	6.967	0.000	4.31	Dry.
DH35	05/15/91	09:25	0.00	2325.392	7.032	0.000	4.31	Dry.
DH35	05/29/91	09:29	0.00	2339.395	14.003	0.000	4.31	Dry.
DH35	06/05/91	13:55	0.00	2346.580	7.185	0.000	4.31	Dry.
DH35	06/12/91	10:20	0.00	2353.431	6.851	0.000	4.31	Dry.
DH35	06/19/91	14:15	0.00	2360.594	7.163	0.000	4.31	Dry.
DH35	06/26/91	08:55	0.00	2367.372	6.778	0.000	4.31	Dry.
DH35	07/11/91	10:26	0.00	2382.435	15.063	0.000	4.31	Dry.
DH35	07/17/91	09:35	0.00	2388.399	5.964	0.000	4.31	Dry.
DH35	07/30/91	10:35	0.00	2401.441	13.042	0.000	4.31	Dry.
DH35	08/14/91	10:00	0.00	2416.417	14.976	0.000	4.31	Dry.
DH35	08/21/91	11:00	0.00	2423.458	7.041	0.000	4.31	Dry.
DH35	08/28/91	09:55	0.00	2430.413	6.955	0.000	4.31	Dry.
DH35	09/04/91	11:22	0.00	2437.474	7.061	0.000	4.31	Dry.
DH35	09/11/91	11:55	0.00	2444.497	7.023	0.000	4.31	Dry.
DH35	09/18/91	09:27	0.00	2451.394	6.897	0.000	4.31	Dry.
DH35	09/25/91	11:25	0.00	2458.476	7.082	0.000	4.31	Dry.
DH35	10/02/91	11:13	0.00	2465.467	6.991	0.000	4.31	Dry.
DH35	10/16/91	09:45	0.00	2479.406	13.939	0.000	4.31	Dry.
DH35	10/23/91	09:55	0.00	2486.413	7.007	0.000	4.31	Dry.
DH35	10/31/91	09:52	0.00	2494.411	7.998	0.000	4.31	Dry.
DH35	11/06/91	10:15	0.00	2500.427	6.016	0.000	4.31	Dry.
DH35	11/13/91	09:20	0.00	2507.389	6.962	0.000	4.31	Dry.
DH35	11/20/91	11:05	0.00	2514.462	7.073	0.000	4.31	Dry.
DH35	11/27/91	09:40	0.00	2521.403	6.941	0.000	4.31	Dry.
DH35	12/04/91	09:52	0.00	2528.411	7.008	0.000	4.31	Dry.
DH35	12/11/91	09:55	0.00	2535.413	7.002	0.000	4.31	Dry.
DH36	11/21/84	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of Room G excavated.
DH36	01/26/85	00:00	NA	0.000	0.000	0.000	0.00	Downhole drilled 1/26/85.
DH36	01/28/85	09:00	NA	27.375	1.000	0.000	0.00	Moist muck at the bottom.
DH36	02/05/85	11:15	02.50	35.469	9.094	0.275	2.50	About 1 ft. muck, brine and hydraulic fluid. First time bailed.
DH36	02/11/85	11:00	01.51	41.458	5.989	0.252	4.01	Brine, muck, hydraulic fluid.
DH36	02/19/85	12:10	01.78	49.507	8.049	0.221	5.79	Some muck.
DH36	02/26/85	10:45	01.48	56.448	6.941	0.213	7.27	Brine and muck.
DH36	03/05/85	10:00	01.76	63.417	6.969	0.253	9.03	
DH36	03/12/85	10:00	01.55	70.417	7.000	0.221	10.58	

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DH36	03/20/85	10:26	01.59	78.435	8.018	0.198	12.17	
DH36	03/26/85	09:45	01.35	84.406	5.971	0.226	13.52	
DH36	04/02/85	10:15	01.58	91.427	7.021	0.225	15.10	
DH36	04/10/85	10:25	01.71	99.434	8.007	0.214	16.81	
DH36	04/17/85	13:30	01.49	106.562	7.128	0.209	18.30	
DH36	04/23/85	11:46	01.45	112.490	5.928	0.245	19.75	
DH36	04/30/85	11:21	01.49	119.473	6.983	0.213	21.24	
DH36	05/07/85	09:58	01.55	126.415	6.942	0.223	22.79	
DH36	05/14/85	10:54	01.77	133.454	7.039	0.251	24.56	
DH36	05/21/85	10:45	01.61	140.448	6.994	0.230	26.17	
DH36	05/29/85	10:00	01.50	148.417	7.969	0.188	27.67	
DH36	06/04/85	11:33	01.40	154.481	6.064	0.231	29.07	
DH36	06/11/85	11:15	01.55	161.469	6.988	0.222	30.62	
DH36	06/18/85	10:17	01.58	168.428	6.959	0.227	32.20	
DH36	06/25/85	10:40	01.43	175.444	7.016	0.204	33.63	
DH36	07/02/85	11:00	01.59	182.458	7.014	0.227	35.22	
DH36	07/09/85	11:15	01.54	189.469	7.011	0.220	36.76	
DH36	07/16/85	11:50	01.58	196.493	7.024	0.225	38.34	Brine effervesces.
DH36	07/24/85	10:46	01.78	204.449	7.956	0.224	40.12	
DH36	07/30/85	10:20	01.39	210.431	5.982	0.232	41.51	
DH36	08/06/85	10:43	01.70	217.447	7.016	0.242	43.21	
DH36	08/14/85	11:02	01.58	225.460	8.013	0.197	44.79	Valve leaked, some brine drained back down hole.
DH36	08/20/85	11:11	01.42	231.466	6.006	0.236	46.21	
DH36	08/28/85	10:00	01.94	239.417	7.951	0.244	48.15	
DH36	09/04/85	10:32	01.69	246.439	7.022	0.241	49.84	
DH36	09/10/85	10:35	01.41	252.441	6.002	0.235	51.25	
DH36	09/17/85	09:42	01.53	259.404	6.963	0.220	52.78	
DH36	09/24/85	09:50	01.53	266.410	7.006	0.218	54.31	
DH36	10/01/85	09:55	01.58	273.413	7.003	0.226	55.89	
DH36	10/08/85	10:52	01.63	280.453	7.040	0.232	57.52	
DH36	10/15/85	10:30	01.58	287.438	6.985	0.226	59.10	
DH36	10/23/85	10:23	01.82	295.433	7.995	0.228	60.92	
DH36	10/29/85	09:51	01.36	301.410	5.977	0.228	62.28	
DH36	11/05/85	09:27	01.63	308.394	6.984	0.233	63.91	
DH36	11/13/85	10:14	01.79	316.426	8.032	0.223	65.70	
DH36	11/21/85	11:36	01.91	324.483	8.057	0.237	67.61	
DH36	11/26/85	11:30	01.01	329.479	4.996	0.202	68.62	
DH36	12/03/85	13:35	01.50	336.566	7.087	0.212	70.12	.50 liters for chem anal. #4.
DH36	12/10/85	12:15	01.52	343.510	6.944	0.219	71.64	
DH36	01/23/86	11:00	09.30	387.458	43.948	0.212	80.94	Entry restricted since 12/10/85 due to mining activities.
DH36	01/31/86	12:20	01.38	395.514	8.056	0.171	82.32	
DH36	02/12/86	11:00	03.02	407.458	11.944	0.253	85.34	
DH36	02/19/86	11:45	01.55	414.490	7.032	0.220	86.89	
DH36	02/28/86	13:20	01.85	423.556	9.066	0.204	88.74	
DH36	03/06/86	10:45	01.30	429.448	5.892	0.221	90.04	Volume was estimated.
DH36	03/13/86	10:10	01.50	436.424	6.976	0.215	91.54	
DH36	03/26/86	10:20	02.56	449.431	13.007	0.197	94.10	
DH36	04/02/86	09:40	01.75	456.403	6.972	0.251	95.85	
DH36	04/08/86	09:45	00.97	462.406	6.003	0.162	96.82	
DH36	04/16/86	12:25	01.65	470.517	8.111	0.203	98.47	
DH36	04/24/86	10:20	02.00	478.431	7.914	0.253	100.47	

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TION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
	04/30/86	10:55	01.21	484.455	6.024	0.201	101.68	
	05/06/86	10:14	01.20	490.426	5.971	0.201	102.88	
	05/13/86	11:13	01.42	497.467	7.041	0.202	104.30	
	05/20/86	11:10	01.50	504.465	6.998	0.214	105.80	
	05/27/86	15:45	01.40	511.656	7.191	0.195	107.20	
	06/03/86	10:10	01.38	518.424	6.768	0.204	108.58	
	06/10/86	11:35	01.24	525.483	7.059	0.176	109.82	Valve leaked, some brine drained back down hole.
	06/17/86	11:00	01.65	532.458	6.975	0.237	111.47	Sample for brine chemistry, #24.
	06/24/86	11:00	01.45	539.458	7.000	0.207	112.92	
	07/01/86	14:05	01.55	546.587	7.129	0.217	114.47	
	07/08/86	10:45	01.40	553.448	6.861	0.204	115.87	
	07/16/86	10:45	01.76	561.448	8.000	0.220	117.63	
	07/22/86	10:07	01.29	567.422	5.974	0.216	118.92	
	07/29/86	10:40	01.45	574.444	7.022	0.206	120.37	
	08/05/86	11:20	01.46	581.472	7.028	0.208	121.83	
	08/12/86	10:37	01.50	588.442	6.970	0.215	123.33	
	08/19/86	11:35	01.38	595.483	7.041	0.196	124.71	
	08/26/86	10:38	01.49	602.443	6.960	0.214	126.20	Static level not measured.
	09/04/86	10:41	01.70	611.445	9.002	0.189	127.90	
	09/09/86	10:15	01.20	616.427	4.982	0.241	129.10	Sample # 26.
	09/16/86	10:20	01.37	623.431	7.004	0.196	130.47	
	09/23/86	10:18	01.40	630.429	6.998	0.200	131.87	
	10/01/86	12:18	01.76	638.513	8.084	0.218	133.63	
	10/08/86	11:10	01.44	645.465	6.952	0.207	135.07	Brine effervoces as it is poured into beaker.
	10/14/86	11:57	01.21	651.498	6.033	0.201	136.28	Static level not measured.
	11/05/86	11:38	4.28	673.485	21.987	0.195	140.56	
	11/20/86	12:35	03.12	688.524	15.039	0.207	143.68	
	12/30/86	12:25	01.72	728.517	0.000	0.000	143.68	Partial evacuation. No calculation. Do not plot or use zero value.
	12/31/86	12:38	6.54	729.526	41.002	0.201	151.94	Calculated using 8.26 liters in 41.002 days (1.72 l. 12/30/86 plus 6.54 l. 12/31/86).
	02/03/87	13:35	06.84	763.566	34.040	0.201	158.78	T=29.8c, T28.6, pH 6.17.
	03/06/87	11:20	5.84	794.472	30.906	0.189	164.62	
	03/30/87	11:27	4.95	818.477	24.005	0.206	169.57	
	05/07/87	11:33	6.62	856.481	38.004	0.174	176.19	
	06/17/87	10:45	7.25	897.448	0.000	0.000	183.44	Sample for chem. #108A, #108B, #114A, #114B, #121A, #121B, #127A, #127B, #134A, #134B. Some brine left in hole, no calculation.
	06/18/87	12:10	0.49	898.507	42.026	0.184	183.93	Original l/day calculation too high due to residual brine left in hole. Recalculated using 7.74 l (7.25 l 6/17/87 plus 0.49 l 6/18/87).
	07/28/87	11:27	7.76	938.477	39.970	0.194	191.69	
	09/01/87	10:50	6.99	973.451	34.974	0.200	198.68	Collected for chemistry, sample #153 A&B, #160 A&B, #163 A&B, #158 A&B, #155 A&B, #167 A&B.
	10/20/87	11:56	8.58	1022.500	49.049	0.175	207.26	
	11/19/87	11:30	4.19	1052.480	29.980	0.140	211.45	Collected for chemistry, sample #199, #205, #208, & #211.
	01/04/88	11:50	6.74	1098.490	46.010	0.146	218.19	

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DH36	02/08/88	11:50	4.90	1133.490	35.000	0.140	223.09	Collected for chemistry, sample #261, #262, #263, #264, #265, #266, #267, #268, #269 & #270.
DH36	03/29/88	11:35	7.25	1183.480	49.990	0.145	230.34	Collected for chemistry, sample #367 - #378.
DH36	05/05/88	09:45	5.01	1220.410	36.930	0.136	235.35	Sampled for Sandia PA.
DH36	05/12/88	09:50	1.30	1227.410	7.000	0.186	236.65	Sampled for Sandia PA.
DH36	07/12/88	08:50	7.90	1288.370	60.960	0.130	244.55	Collected for chemistry, sample #422 - #436.
DH36	07/28/88	10:25	1.50	1304.430	16.060	0.093	246.05	Sampled for Sandia PA.
DH36	08/11/88	10:30	3.66	1318.440	14.010	0.261	249.71	Sampled for Sandia PA.
DH36	08/25/88	09:24	2.05	1332.390	13.950	0.147	251.76	Sampled for Sandia PA.
DH36	09/08/88	14:50		1346.620	0.000	0.000	251.76	Did not sample.
DH36	09/14/88	08:40	2.36	1352.360	19.970	0.118	254.12	Slight orange color.
DH36	09/27/88	10:45	1.30	1365.450	13.090	0.099	255.42	Collected for chemistry, sample #537 - #539.
DH36	12/13/88	10:00	10.63	1442.420	76.970	0.138	266.05	Collected for chemistry, sample #570 - #581.
DH36	03/14/89	10:10	11.16	1533.424	91.007	0.123	277.21	Sample saved for chemistry, sample #684 - 695.
DH36	04/06/89	09:31	2.73	1556.397	22.973	0.119	279.94	2.5 liters saved for Sandia brine study.
DH36	04/20/89	09:40	1.79	1570.403	14.006	0.128	281.73	Sample saved for Sandia brine study.
DH36	05/17/89	10:20	6.45	1597.431	27.028	0.239	288.18	Sample saved for Sandia brine study.
DH36	06/06/89	10:10	2.62	1617.424	19.993	0.131	290.80	Sample saved for chemistry.
DH36	06/29/89	10:35	2.42	1640.441	23.017	0.105	293.22	Sample saved for Sandia brine study.
DH36	07/06/89	09:10	1.08	1647.382	6.941	0.156	294.30	
DH36	07/25/89	09:55	2.35	1666.413	19.031	0.123	296.65	Sample saved for Sandia brine study.
DH36	08/16/89	09:27	2.75	1688.394	21.981	0.125	299.40	Sample saved for Sandia brine study.
DH36	09/12/89	09:30	3.81	1715.396	27.002	0.141	303.21	Sample saved for chemistry.
DH36	12/13/89	11:10	11.07	1807.465	92.069	0.120	314.28	Sample saved for chemistry, sample #900.
DH36	01/10/90	10:18	2.48	1835.429	27.964	0.089	316.76	
DH36	01/24/90	09:37	2.0	1849.401	13.972	0.143	318.76	
DH36	02/07/90	10:17	1.53	1863.428	14.027	0.109	320.29	
DH36	02/21/90	09:50	1.75	1877.410	13.982	0.125	322.04	
DH36	03/05/90	09:25	1.10	1889.392	11.982	0.092	323.14	
DH36	03/14/90	12:30	NA	1898.521	0.000	0.000	323.14	Installed sampler.
DH36	03/19/90	10:36	0.80	1903.442	14.050	0.000	323.94	Brine probably left in hole.
DH36	03/21/90	10:16	0.57	1905.428	1.986	0.085	324.51	Combined with 0.80 liters from 03/19/90. Used 1.37 liters for calculation.
DH36	04/04/90	09:09	1.08	1919.381	13.953	0.077	325.59	
DH36	04/10/90	08:34	0.97	1925.357	5.976	0.162	326.56	
DH36	04/17/90	10:17	0.85	1932.428	7.071	0.120	327.41	
DH36	04/24/90	09:14	0.86	1939.385	6.957	0.000	328.27	
DH36	04/25/90	08:45	0.57	1940.365	0.980	0.180	328.84	Combined with 0.86 liters from 04/27/90. Used 1.43 liters for calculation.
DH36	05/02/90	10:24	1.37	1947.433	7.068	0.194	330.21	
DH36	05/09/90	08:35	0.68	1954.358	6.925	0.098	330.89	
DH36	05/16/90	08:45	0.78	1961.365	7.007	0.111	331.67	
DH36	05/17/90	07:50	0.17	1962.326	0.961	0.177	331.84	
DH36	05/23/90	12:02	0.68	1968.501	6.175	0.110	332.52	
DH36	05/31/90	08:38	0.85	1976.360	7.859	0.108	333.37	
DH36	06/01/90	11:00	0.15	1977.458	1.098	0.137	333.52	Repaired sampler, evacuated hole.
DH36	06/06/90	08:47	0.45	1982.366	4.908	0.092	333.97	

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH36	06/14/90	08:38	0.82	1990.360	7.994	0.103	334.79	
DH36	06/20/90	09:53	0.59	1996.412	6.052	0.097	335.38	
DH36	06/28/90	08:38	0.88	2004.360	7.948	0.111	336.26	
DH36	07/17/90	10:52	0.41	2023.453	19.093	0.000	336.67	
DH36	07/18/90	10:20	0.62	2024.431	0.978	0.051	337.29	Combined with 0.41 liters from 07/17/90. Used 1.03 liters for calculation.
DH36	07/25/90	09:45	0.61	2031.406	6.975	0.087	337.90	
DH36	08/01/90	10:38	0.61	2038.443	7.037	0.087	338.51	
DH36	12/12/90	09:47	11.54	2171.408	132.965	0.087	350.05	First evacuation since 08/07/90.
DH36	12/19/90	11:22	3.61	2178.474	140.030	0.108	353.66	Combined with 11.54 liters from 12/12/90. Brine stored in fractures may have drained into hole. Used 140.03 days, 15.15 liters.
DH36	01/09/91	09:50	2.34	2199.410	20.936	0.112	356.00	
DH36	01/16/91	08:35	0.73	2206.358	6.948	0.105	356.73	
DH36	01/23/91	08:35	0.54	2213.358	7.000	0.077	357.27	
DH36	02/13/91	10:30	1.90	2234.438	21.080	0.090	359.17	
DH36	02/20/91	10:30	0.58	2241.438	7.000	0.083	359.75	
DH36	02/27/91	09:58	0.32	2248.415	6.977	0.046	360.07	
DH36	03/07/91	09:45	0.02	2256.406	0.000	0.000	360.09	Partial evacuation.
DH36	03/20/91	10:07	2.72	2269.422	0.000	0.000	362.81	Partial evacuation. First evacuation with bailer, second with pump. Sampler malfunctioning.
DH36	03/21/91	08:30	0.38	2270.354	21.939	0.141	363.19	Combined with 0.02 liters from 03/07/91 and 2.72 liters from 03/20/91. Repaired sampler.
DH36	03/28/91	10:40	0.90	2277.444	7.090	0.127	364.09	
DH36	04/10/91	8:25	0.87	2290.337	0.000	0.000	364.96	Partial evacuation.
DH36	04/11/91	08:55	0.64	2291.372	13.928	0.108	365.60	Combined with 0.87 liters from 04/10/91.
DH36	04/17/91	10:34	0.63	2297.440	6.068	0.104	366.23	
DH36	04/24/91	09:15	0.52	2304.385	6.945	0.075	366.75	
DH36	05/01/91	09:26	0.65	2311.393	7.008	0.093	367.40	
DH36	05/08/91	08:37	0.42	2318.359	6.966	0.060	367.82	
DH36	05/15/91	09:14	0.62	2325.385	0.000	0.000	368.44	Partial evacuation.
DH36	05/29/91	09:30	2.75	2339.396	21.037	0.160	371.19	Combined with 0.62 liters from 05/15/91.
DH36	06/05/91	13:50	0.52	2346.576	7.180	0.072	371.71	
DH36	06/12/91	10:20	0.60	2353.431	6.855	0.088	372.31	
DH36	06/19/91	14:10	0.53	2360.590	7.159	0.074	372.84	
DH36	06/26/91	08:55	0.58	2367.372	6.782	0.086	373.42	
DH36	07/11/91	10:26	0.70	2382.435	15.063	0.046	374.12	
DH36	07/17/91	09:35	0.59	2388.399	0.000	0.000	374.71	Partial evacuation.
DH36	07/18/91	09:59	0.52	2389.416	6.981	0.159	375.23	Combined with 0.59 liters from 07/17/91.
DH36	07/30/91	10:35	0.60	2401.441	0.000	0.000	375.83	Partial evacuation.
DH36	07/31/91	09:35	0.72	2402.399	0.000	0.000	376.55	Partial evacuation.
DH36	08/01/91	10:30	0.83	2403.438	0.000	0.000	377.38	Partial evacuation.
DH36	08/02/91	10:00	0.54	2404.417	15.001	0.179	377.92	Combined with 0.60 liters from 07/30/91, 0.72 liters from 07/31/91, and 0.83 liters from 08/01/91.
DH36	08/08/91	09:23	0.51	2410.391	0.000	0.000	378.43	Some brine may have been left in hole.
DH36	08/14/91	10:04	1.63	2416.419	12.000	0.178	380.06	Combined with 0.51 liters from 08/08/91. Used bailer.
DH36	08/21/91	11:00	0.55	2423.458	0.000	0.000	380.61	Partial evacuation.
DH36	08/22/91	10:00	0.53	2424.417	7.998	0.135	381.14	Combined with 0.55 liters from 08/21/91
DH36	08/28/91	09:50	0.98	2430.410	5.993	0.164	382.12	

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH36	09/25/91	11:25	3.12	2458.476	28.066	0.111	385.24	
DH36	10/23/91	09:50	3.25	2486.410	27.934	0.116	388.49	
DH36	11/20/91	11:10	3.00	2514.465	28.055	0.107	391.49	
DH36	12/18/91	09:25	2.55	2542.392	27.927	0.091	394.04	
DH37	12/05/84	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of Room Q excavated.
DH37	01/26/85	00:00	NA	0.000	0.000	0.000	0.00	Uphole drilled 1/25/85 to 1/26/85.
DH37	02/05/85	11:15	NA	35.469	1.000	0.000	0.00	Started to drip.
DH37	03/05/85	10:10	00.06	63.424	28.955	0.002	0.06	Stalactite in collecting container.
DH37	03/12/85	10:00	00.06	70.417	6.993	0.009	0.12	Salt crystals in collecting container.
DH37	03/26/85	09:50	NA	84.410	13.993	0.000	0.12	Trace, none collected.
DH37	04/17/85	13:30	00.06	106.562	36.145	0.002	0.18	
DH37	04/23/85	11:41	00.04	112.487	5.925	0.007	0.22	
DH37	04/30/85	10:50	00.03	119.451	6.964	0.004	0.25	
DH37	05/07/85	09:45	00.06	126.406	6.955	0.009	0.31	
DH37	05/14/85	10:37	00.07	133.442	7.036	0.010	0.38	
DH37	05/21/85	10:31	00.06	140.438	6.996	0.009	0.44	
DH37	05/29/85	10:00	00.06	148.417	7.979	0.008	0.50	
DH37	06/04/85	11:22	00.05	154.474	6.057	0.008	0.55	
DH37	06/11/85	10:32	00.05	161.439	6.965	0.007	0.60	
DH37	06/18/85	10:05	00.08	168.420	6.981	0.011	0.68	Stalactites in collecting container.
DH37	06/25/85	10:44	00.05	175.447	7.027	0.007	0.73	
DH37	07/02/85	11:00	00.04	182.458	7.011	0.006	0.77	
DH37	07/09/85	11:00	00.03	189.458	7.000	0.004	0.80	
DH37	07/16/85	11:40	00.06	196.486	7.028	0.009	0.86	
DH37	07/24/85	10:33	00.06	204.440	7.954	0.008	0.92	
DH37	07/30/85	10:11	00.02	210.424	5.984	0.003	0.94	
DH37	08/06/85	10:32	00.01	217.439	7.015	0.001	0.95	
DH37	08/14/85	10:49	00.02	225.451	8.012	0.002	0.97	
DH37	08/20/85	10:56	00.03	231.456	6.005	0.005	1.00	
DH37	08/28/85	09:55	00.04	239.413	7.957	0.005	1.04	
DH37	09/04/85	10:21	00.02	246.431	7.018	0.003	1.06	
DH37	09/10/85	10:14	00.03	252.426	5.995	0.005	1.09	
DH37	09/17/85	09:35	00.02	259.399	6.973	0.003	1.11	
DH37	09/24/85	09:45	00.02	266.406	7.007	0.003	1.13	
DH37	10/01/85	09:50	00.01	273.410	7.004	0.001	1.14	
DH37	10/15/85	10:10	00.01	287.424	14.014	0.001	1.15	
DH37	10/23/85	10:17	00.02	295.428	8.004	0.002	1.17	
DH37	10/29/85	09:35	00.02	301.399	5.971	0.003	1.19	
DH37	07/01/86	14:00	00.02	546.583	245.184	0.000	1.21	
DH37	11/05/86	11:22	NA	673.474	126.891	0.000	1.21	Dry.
DH37	11/20/86	12:25	NA	688.517	141.934	0.000	1.21	Dry, not collected.
DH37	12/30/86	12:00	NA	728.500	181.917	0.000	1.21	
DH37	02/03/87	NA:	NA	763.000	216.417	0.000	1.21	
DH37	03/06/87	11:05	NA	794.462	247.879	0.000	1.21	Dry.
DH37	03/30/87	11:10	0.00	818.465	24.003	0.000	1.21	Dry.
DH37	05/07/87	11:27	0.00	856.477	62.015	0.000	1.21	Dry.
DH37	06/18/87	12:05	0.00	898.503	104.041	0.000	1.21	Dry.
DH37	07/28/87	10:53	0.00	938.453	143.991	0.000	1.21	Dry.
DH37	09/01/87	10:45	0.00	973.448	34.995	0.000	1.21	Dry.
DH37	10/20/87	11:35	0.00	1022.480	49.032	0.000	1.21	Dry.

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DH37	11/19/87	11:05	0.00	1052.460	29.980	0.000	1.21	Dry.
DH37	01/04/88	11:35	0.00	1098.480	46.020	0.000	1.21	Dry.
DH37	02/08/88	11:40	0.00	1133.490	35.010	0.000	1.21	Dry.
DH37	03/29/88	11:35	0.00	1183.480	49.990	0.000	1.21	Dry.
DH37	07/12/88	08:50	0.00	1288.370	104.890	0.000	1.21	Dry.
DH37	09/27/88	10:45	0.00	1365.450	77.080	0.000	1.21	Dry.
DH37	12/13/88	09:55	0	1442.410	76.960	0.000	1.21	Dry.
DH37	03/14/89	10:00	0	1533.417	91.004	0.000	1.21	Hole dry.
DH37	04/06/89	09:45	0	1556.406	22.989	0.000	1.21	Hole dry.
DH37	04/20/89	09:35	0	1570.399	13.993	0.000	1.21	Hole dry.
DH37	05/17/89	10:20	0	1597.431	27.032	0.000	1.21	Hole dry.
DH37	06/06/89	10:10	0	1617.424	19.993	0.000	1.21	Hole dry.
DH37	06/29/89	10:30	0	1640.438	23.014	0.000	1.21	Hole dry.
DH37	07/25/89	09:55	0	1666.413	25.975	0.000	1.21	Hole dry.
DH37	08/16/89	09:55	0	1688.413	22.000	0.000	1.21	Hole dry.
DH37	08/28/89	10:20	0	1700.431	12.018	0.000	1.21	Collecting device removed.
DH37	12/13/89	11:00	0	1807.458	107.027	0.000	1.21	Hole dry.
DH37	01/10/90	10:09	0.0	1835.423	27.965	0.000	1.21	Dry.
DH37	01/24/90	10:00	0.0	1849.417	13.994	0.000	1.21	Dry.
DH37	02/07/90	10:30	0.0	1863.438	14.021	0.000	1.21	Dry.
DH37	02/21/90	09:47	0.0	1877.408	13.970	0.000	1.21	Dry.
DH37	03/05/90	09:25	0.0	1889.392	11.984	0.000	1.21	Dry.
DH37	03/19/90	11:30	0.0	1903.479	14.087	0.000	1.21	Dry.
DH37	03/21/90	10:30	0.0	1905.438	1.959	0.000	1.21	Dry.
DH37	04/04/90	09:37	0.0	1919.401	13.963	0.000	1.21	Dry.
DH37	04/10/90	08:36	0.0	1925.358	5.957	0.000	1.21	Dry.
DH37	04/17/90	10:17	0.0	1932.428	7.070	0.000	1.21	Dry.
DH37	04/24/90	09:30	0.0	1939.396	6.968	0.000	1.21	Dry.
DH37	05/02/90	10:30	0.0	1947.438	8.042	0.000	1.21	Dry.
DH37	05/09/90	08:43	0.0	1954.363	6.925	0.000	1.21	Dry.
DH37	05/16/90	08:45	0.0	1961.365	7.002	0.000	1.21	Dry.
DH37	05/23/90	12:03	0.0	1968.502	7.137	0.000	1.21	Dry.
DH37	05/31/90	08:40	0.0	1976.361	7.859	0.000	1.21	Dry.
DH37	06/06/90	09:40	0.0	1982.403	6.042	0.000	1.21	Dry.
DH37	06/14/90	08:35	0.0	1990.358	7.955	0.000	1.21	Dry.
DH37	06/20/90	09:35	0.0	1996.399	6.041	0.000	1.21	Dry.
DH37	06/28/90	08:38	0.0	2004.360	7.961	0.000	1.21	Dry.
DH37	07/17/90	10:59	0.0	2023.458	19.098	0.000	1.21	Dry.
DH37	07/25/90	09:33	0.0	2031.398	7.940	0.000	1.21	Dry.
DH37	08/01/90	10:38	0.0	2038.443	7.045	0.000	1.21	Dry.
DH37	03/28/91	10:40	0.00	2277.444	239.001	0.000	1.21	Dry.
DH37	04/10/91	8:25	0.00	2290.337	12.893	0.000	1.21	Dry.
DH37	04/17/91	10:36	0.00	2297.442	7.105	0.000	1.21	Dry.
DH37	05/01/91	09:22	0.00	2311.390	13.948	0.000	1.21	Dry.
DH37	05/08/91	08:30	0.00	2318.354	6.964	0.000	1.21	Dry.
DH37	05/15/91	09:10	0.00	2325.382	7.028	0.000	1.21	Dry.
DH37	05/29/91	09:45	0.00	2339.406	14.024	0.000	1.21	Dry.
DH37	06/05/91	13:45	0.00	2346.573	7.167	0.000	1.21	Dry.
DH37	06/12/91	10:18	0.00	2353.429	6.856	0.000	1.21	Dry.
DH37	06/19/91	13:56	0.00	2360.581	7.152	0.000	1.21	Dry.
DH37	06/26/91	09:01	0.00	2367.376	6.795	0.000	1.21	Dry.
DH37	07/11/91	10:35	0.00	2382.441	15.065	0.000	1.21	Dry.
DH37	07/17/91	09:30	0.00	2388.396	5.955	0.000	1.21	Dry.

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH37	07/30/91	10:20	0.00	2401.431	13.035	0.000	1.21	Dry.
DH37	08/14/91	10:38	0.00	2416.443	15.012	0.000	1.21	Dry.
DH37	08/21/91	10:55	0.00	2423.455	7.012	0.000	1.21	Dry.
DH37	08/28/91	10:20	0.00	2430.431	6.976	0.000	1.21	Dry.
DH37	09/04/91	11:20	0.00	2437.472	7.041	0.000	1.21	Dry.
DH37	09/11/91	11:50	0.00	2444.493	7.021	0.000	1.21	Dry.
DH37	09/18/91	09:25	0.00	2451.392	6.899	0.000	1.21	Dry.
DH37	09/25/91	12:00	0.00	2458.500	7.108	0.000	1.21	Dry.
DH37	10/02/91	11:11	0.00	2465.466	6.966	0.000	1.21	Dry.
DH37	10/16/91	09:30	0.00	2479.396	13.930	0.000	1.21	Dry.
DH37	10/23/91	09:50	0.00	2486.410	7.014	0.000	1.21	Dry.
DH37	10/31/91	09:50	0.00	2494.410	8.000	0.000	1.21	Dry.
DH37	11/06/91	10:10	0.00	2500.424	6.014	0.000	1.21	Dry.
DH37	11/13/91	09:25	0.00	2507.392	6.968	0.000	1.21	Dry.
DH37	11/20/91	11:10	0.00	2514.465	7.073	0.000	1.21	Dry.
DH37	11/27/91	09:45	0.00	2521.406	6.941	0.000	1.21	Dry.
DH37	12/04/91	09:52	0.00	2528.411	7.005	0.000	1.21	Dry.
DH37	12/11/91	09:55	0.00	2535.413	7.002	0.000	1.21	Dry.
DH38	12/05/84	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of Room G excavated.
DH38	01/26/85	00:00	NA	0.000	0.000	0.000	0.00	Downhole drilled 1/25/85 to 1/26/85.
DH38	01/28/85	09:00	NA	27.375	1.000	0.000	0.00	Dry.
DH38	02/05/85	11:15	NA	35.469	9.094	0.000	0.00	Wet at bottom.
DH38	02/19/85	12:10	00.80	49.507	23.132	0.035	0.80	Brine and fine muck.
DH38	02/26/85	10:45	01.26	56.448	6.941	0.182	2.06	Brine and fine muck.
DH38	03/05/85	10:00	00.45	63.417	6.969	0.065	2.51	
DH38	03/12/85	10:00	00.39	70.417	7.000	0.056	2.90	
DH38	03/20/85	10:37	00.45	78.442	8.025	0.056	3.35	
DH38	03/26/85	09:50	00.36	84.410	5.968	0.060	3.71	
DH38	04/02/85	10:25	00.41	91.434	7.024	0.058	4.12	Some muck.
DH38	04/10/85	10:31	00.44	99.438	8.004	0.055	4.56	
DH38	04/17/85	13:30	00.41	106.562	7.124	0.058	4.97	
DH38	04/23/85	11:41	00.34	112.487	5.925	0.057	5.31	
DH38	04/30/85	11:05	00.39	119.462	6.975	0.056	5.70	
DH38	05/07/85	09:50	00.42	126.410	6.948	0.060	6.12	
DH38	05/14/85	10:45	00.41	133.448	7.038	0.058	6.53	
DH38	05/21/85	10:35	00.41	140.441	6.993	0.059	6.94	
DH38	05/29/85	11:35	00.47	148.483	8.042	0.058	7.41	
DH38	06/04/85	11:25	00.35	154.476	5.993	0.058	7.76	
DH38	06/11/85	10:35	00.40	161.441	6.965	0.057	8.16	
DH38	06/18/85	10:09	00.39	168.423	6.982	0.056	8.55	
DH38	06/25/85	10:50	00.42	175.451	7.028	0.060	8.97	
DH38	07/02/85	11:00	00.44	182.458	7.007	0.063	9.41	
DH38	07/09/85	11:05	00.43	189.462	7.004	0.061	9.84	
DH38	07/16/85	11:45	00.43	196.490	7.028	0.061	10.27	Brine effervences.
DH38	07/24/85	10:35	00.49	204.441	7.951	0.062	10.76	
DH38	07/30/85	10:14	00.38	210.426	5.985	0.063	11.14	
DH38	08/06/85	10:34	00.42	217.440	7.014	0.060	11.56	
DH38	08/14/85	10:51	00.49	225.452	8.012	0.061	12.05	
DH38	08/20/85	11:02	00.37	231.460	6.008	0.062	12.42	
DH38	08/28/85	10:00	00.51	239.417	7.957	0.064	12.93	

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH38	09/04/85	10:23	00.44	246.433	7.016	0.063	13.37	
DH38	09/10/85	10:19	00.39	252.430	5.997	0.065	13.76	
DH38	09/17/85	09:37	00.44	259.401	6.971	0.063	14.20	
DH38	09/24/85	09:45	00.44	266.406	7.005	0.063	14.64	
DH38	10/01/85	09:53	00.44	273.412	7.006	0.063	15.08	
DH38	10/08/85	10:38	00.46	280.443	7.031	0.065	15.54	
DH38	10/15/85	10:15	00.44	287.427	6.984	0.063	15.98	
DH38	10/23/85	10:20	00.49	295.431	8.004	0.061	16.47	
DH38	10/29/85	09:40	00.39	301.403	5.972	0.065	16.86	
DH38	11/05/85	09:14	00.43	308.385	6.982	0.062	17.29	
DH38	11/13/85	10:00	00.52	316.417	8.032	0.065	17.81	
DH38	11/21/85	11:29	00.47	324.478	8.061	0.058	18.28	
DH38	11/26/85	11:20	00.33	329.472	4.994	0.066	18.61	
DH38	12/03/85	13:30	00.42	336.562	7.090	0.059	19.03	.37 liters for chem anal. #3.
DH38	12/10/85	12:30	00.41	343.521	6.959	0.059	19.44	
DH38	01/23/86	11:20	02.70	387.472	43.951	0.061	22.14	Entry restricted since 12/10/85 due to mining activities.
DH38	01/31/86	12:10	00.53	395.507	8.035	0.066	22.67	
DH38	02/12/86	10:50	00.75	407.451	11.944	0.063	23.42	
DH38	02/19/86	11:40	00.43	414.486	7.035	0.061	23.85	
DH38	02/28/86	13:15	00.37	423.552	9.066	0.041	24.22	Lost substantial volume due to break in suction line. Brine flowed back down into hole.
DH38	03/06/86	10:35	00.45	429.441	5.889	0.076	24.67	
DH38	03/13/86	10:05	00.43	436.420	6.979	0.062	25.10	
DH38	03/26/86	10:10	00.59	449.424	13.004	0.045	25.69	
DH38	04/02/86	09:35	00.58	456.399	6.975	0.083	26.27	
DH38	04/08/86	09:40	00.35	462.403	6.004	0.058	26.62	
DH38	04/16/86	12:10	00.50	470.507	8.104	0.062	27.12	
DH38	04/24/86	10:12	00.47	478.425	7.918	0.059	27.59	
DH38	04/30/86	10:50	00.35	484.451	6.026	0.058	27.94	
DH38	05/06/86	10:14	00.31	490.426	5.975	0.052	28.25	
DH38	05/13/86	11:05	00.41	497.462	7.036	0.058	28.66	
DH38	05/20/86	11:05	00.40	504.462	7.000	0.057	29.06	
DH38	05/27/86	15:40	00.38	511.653	7.191	0.053	29.44	
DH38	06/03/86	10:05	00.44	518.420	6.767	0.065	29.88	
DH38	06/10/86	11:22	00.43	525.474	7.054	0.061	30.31	
DH38	06/17/86	10:50	00.37	532.451	6.977	0.053	30.68	Sample for brine chemistry, #23.
DH38	06/24/86	10:52	00.50	539.453	7.002	0.071	31.18	
DH38	07/01/86	14:01	00.40	546.584	7.131	0.056	31.58	
DH38	07/08/86	10:30	00.38	553.438	6.854	0.055	31.96	
DH38	07/16/86	10:34	00.43	561.440	8.002	0.054	32.39	
DH38	07/22/86	09:58	00.35	567.415	5.975	0.059	32.74	
DH38	07/29/86	10:40	00.38	574.444	7.029	0.054	33.12	
DH38	08/05/86	11:10	00.39	581.465	7.021	0.056	33.51	
DH38	08/12/86	10:30	00.40	588.438	6.973	0.057	33.91	
DH38	08/19/86	11:30	00.41	595.479	7.041	0.058	34.32	
DH38	08/26/86	10:32	00.36	602.439	6.960	0.052	34.68	Static level not measured.
DH38	09/04/86	10:35	00.49	611.441	9.002	0.054	35.17	
DH38	09/09/86	10:00	00.30	616.417	4.976	0.060	35.47	Sample # 25.
DH38	09/16/86	10:11	00.38	623.424	7.007	0.054	35.85	
DH38	09/23/86	10:10	00.37	630.424	7.000	0.053	36.22	
DH38	10/01/86	12:07	00.43	638.505	8.081	0.053	36.65	

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH38	10/08/86	11:30	00.36	645.479	6.974	0.052	37.01	
DH38	10/14/86	11:45	00.35	651.490	6.011	0.058	37.36	
DH38	11/05/86	11:26	1.10	673.476	21.986	0.050	38.46	
DH38	11/20/86	12:27	00.82	688.519	15.043	0.055	39.28	
DH38	12/30/86	12:15	01.87	728.510	39.991	0.047	41.15	Brown color, pH. 5.89.
DH38	02/03/87	13:15	01.72	763.552	35.042	0.049	42.87	T=29.7c, T 28.5, pH 6.21.
DH38	03/06/87	11:05	1.58	794.462	30.910	0.051	44.45	
DH38	03/30/87	11:13	1.17	818.467	24.005	0.049	45.62	
DH38	05/07/87	11:20	1.89	856.472	38.005	0.050	47.51	
DH38	06/17/87	10:45	1.91	897.448	0.000	0.000	49.42	Samples removed for chemistry, #106A, #109A, #109B. Some brine left in hole, no calculation.
DH38	06/18/87	12:05	0.16	898.503	42.031	0.049	49.58	Calculated using 2.07 liters (1.91 l. 6/17/87 plus 0.16 l. 6/18/87).
DH38	07/28/87	10:53	1.88	938.453	39.950	0.047	51.46	Sample collected for chemistry #106.
DH38	09/01/87	10:45	1.70	973.448	34.995	0.049	53.16	Collected for chemistry, sample #152 A&B.
DH38	10/20/87	11:40	2.29	1022.490	49.042	0.047	55.45	
DH38	11/19/87	11:05	1.42	1052.460	29.970	0.047	56.87	Collected for chemistry, sample 230.
DH38	01/04/88	11:35	2.05	1098.480	46.020	0.045	58.92	
DH38	02/08/88	11:40	1.48	1133.490	35.010	0.042	60.40	Collected for chemistry, sample #258, #259 & #260.
DH38	03/29/88	11:30	2.10	1183.480	49.990	0.042	62.50	Collected for chemistry, sample #363 - #366.
DH38	05/05/88	09:55	1.70	1220.410	36.930	0.046	64.20	Sampled for Sandia PA.
DH38	05/12/88	11:20	0.31	1227.470	7.060	0.044	64.51	Sampled for Sandia PA.
DH38	07/12/88	08:45	2.44	1288.360	60.890	0.040	66.95	Collected for chemistry, sample #417 - #421.
DH38	07/28/88	10:20	0.88	1304.430	16.070	0.055	67.83	Sampled for Sandia PA.
DH38	09/27/88	10:30	1.92	1365.440	61.010	0.031	69.75	Collected for chemistry, sample #533 - #536.
DH38	12/13/88	09:55	3.45	1442.410	76.970	0.045	73.20	Collected for chemistry, sample #582 - #587.
DH38	03/14/89	09:55	3.25	1533.413	91.000	0.036	76.45	Sample saved for chemistry, sample #696 - 701.
DH38	04/06/89	09:45	1.03	1556.406	22.993	0.045	77.48	No sample taken.
DH38	04/20/89	09:35	0.75	1570.399	13.993	0.054	78.23	
DH38	05/17/89	10:05	1.11	1597.420	27.021	0.041	79.34	
DH38	06/06/89	10:00	0.70	1617.417	19.997	0.035	80.04	Sample saved for chemistry.
DH38	06/29/89	10:30	0.64	1640.438	23.021	0.028	80.68	
DH38	07/25/89	10:27	0.92	1666.435	25.997	0.035	81.60	
DH38	08/16/89	09:57	0.81	1688.415	21.980	0.037	82.41	Sample not saved.
DH38	09/12/89	09:20	1.16	1715.389	26.974	0.043	83.57	Sample saved for chemistry.
DH38	12/13/89	10:55	3.20	1807.455	92.066	0.035	86.77	Sample saved for chemistry, sample #899.
DH38	01/10/90	10:03	1.00	1835.419	27.964	0.036	87.77	
DH38	01/24/90	10:10	0.21	1849.424	14.005	0.015	87.98	
DH38	02/07/90	10:30	0.48	1863.438	14.014	0.034	88.46	
DH38	03/05/90	09:18	0.53	1889.388	25.950	0.020	88.99	
DH38	03/13/90	14:00	NA	1897.583	0.000	0.000	88.99	Installed sampler.
DH38	03/19/90	11:30	0.61	1903.479	14.091	0.000	89.60	Hole not completely evacuated.
DH38	03/21/90	10:30	0.57	1905.438	1.959	0.073	90.17	Combined with 0.61 from 03/19/90. Used 1.18 liters for calculation.
DH38	04/04/90	09:37	0.62	1919.401	13.963	0.044	90.79	
DH38	04/10/90	08:56	0.34	1925.372	5.971	0.057	91.13	

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DH38	04/17/90	10:39	0.23	1932.444	7.072	0.033	91.36	
DH38	04/24/90	09:30	0.27	1939.396	6.952	0.039	91.63	
DH38	05/02/90	10:47	0.32	1947.449	8.053	0.040	91.95	
DH38	05/09/90	09:08	0.23	1954.381	6.932	0.033	92.18	
DH38	05/16/90	09:35	0.25	1961.399	7.018	0.036	92.43	
DH38	05/23/90	12:03	0.25	1968.502	7.103	0.035	92.68	
DH38	05/31/90	09:04	0.28	1976.378	7.876	0.036	92.96	
DH38	06/06/90	09:40	0.22	1982.403	6.025	0.037	93.18	
DH38	06/14/90	08:53	0.27	1990.370	7.967	0.034	93.45	
DH38	06/20/90	09:49	0.22	1996.409	6.039	0.036	93.67	
DH38	06/28/90	09:15	0.29	2004.385	7.976	0.036	93.96	
DH38	07/17/90	11:30	0.50	2023.479	19.094	0.000	94.46	
DH38	07/18/90	10:40	0.20	2024.444	0.965	0.035	94.66	Combined with 0.50 liters from 07/17/90. Used 0.07 liters for calculation.
DH38	07/25/90	09:42	0.30	2031.404	6.960	0.043	94.96	
DH38	08/01/90	10:30	0.14	2038.438	7.034	0.020	95.10	
DH38	03/07/91	09:30	5.55	2256.396	0.000	0.000	100.65	Some brine may have been left in hole. Access denied due to unsound back. Sampler still functioning after 5 months. Rock bolting in "G
DH38	03/20/91	09:51	1.67	2269.410	230.972	0.031	102.32	Combined with 5.55 liters from 03/07/91. First evacuation with bailer, second with pump. Brine probably draining from fractures/storag
DH38	03/28/91	10:32	0.52	2277.439	8.029	0.065	102.84	
DH38	04/10/91	8:34	0.40	2290.336	0.000	0.000	103.24	Partial evacuation.
DH38	04/11/91	08:50	0.03	2291.368	13.929	0.031	103.27	Combined with 0.40 liters from 04/10/91.
DH38	04/17/91	10:36	0.10	2297.442	6.074	0.016	103.37	
DH38	04/24/91	09:15	0.34	2304.385	6.943	0.049	103.71	
DH38	05/01/91	09:22	0.23	2311.390	7.005	0.033	103.94	
DH38	05/08/91	08:30	0.23	2318.354	6.964	0.033	104.17	
DH38	05/15/91	09:10	0.23	2325.382	7.028	0.033	104.40	
DH38	05/29/91	09:45	0.46	2339.406	14.024	0.033	104.86	
DH38	06/05/91	13:45	0.18	2346.573	7.167	0.025	105.04	
DH38	06/12/91	10:15	0.27	2353.427	6.854	0.039	105.31	
DH38	06/19/91	13:54	0.25	2360.579	7.152	0.035	105.56	
DH38	06/26/91	09:01	0.00	2367.376	0.000	0.000	105.56	No Vacuum, clamp failed.
DH38	07/11/91	10:35	0.58	2382.441	21.862	0.027	106.14	
DH38	07/17/91	09:30	0.31	2388.396	5.955	0.052	106.45	
DH38	07/30/91	10:20	0.45	2401.431	13.035	0.035	106.90	
DH38	08/08/91	09:18	0.32	2410.388	8.957	0.036	107.22	
DH38	08/14/91	10:35	0.22	2416.441	6.053	0.036	107.44	
DH38	08/21/91	10:55	0.23	2423.455	7.014	0.033	107.67	
DH38	08/28/91	10:20	0.17	2430.431	6.976	0.024	107.84	
DH38	09/04/91	11:18	0.25	2437.471	7.040	0.036	108.09	
DH38	09/11/91	11:50	0.23	2444.493	7.022	0.033	108.32	
DH38	09/18/91	09:20	0.26	2451.389	6.896	0.038	108.58	
DH38	09/25/91	12:00	0.25	2458.500	7.111	0.035	108.83	
DH38	10/02/91	11:09	0.23	2465.465	6.965	0.033	109.06	
DH38	10/16/91	09:30	0.46	2479.396	13.931	0.033	109.52	
DH38	10/23/91	09:45	0.16	2486.406	0.000	0.000	109.68	Some brine may have been left in hole. Hose broke, lost vacuum.
DH38	10/31/91	09:43	0.45	2494.405	15.009	0.041	110.13	Combined with 0.16 liters from 10/23/91.

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DH38	11/06/91	10:07	0.22	2500.422	6.017	0.037	110.35	
DH38	11/13/91	09:25	0.24	2507.392	6.970	0.034	110.59	
DH38	11/20/91	11:15	0.24	2514.469	7.077	0.034	110.83	
DH38	11/27/91	09:55	0.24	2521.413	6.944	0.035	111.07	
DH38	12/04/91	09:52	0.24	2528.411	6.998	0.034	111.31	
DH38	12/11/91	09:35	0.22	2535.399	6.988	0.031	111.53	
DH38	12/18/91	09:20	0.00	2542.389	0.000	0.000	111.53	Some brine may have been left in hole. Vacuum gone.
DH38	12/23/91	08:45	0.37	2547.365	11.966	0.031	111.90	
DH39	12/13/84	00:00	NA	0.000	0.000	0.000	0.00	Approximate date that part of Room G was excavated.
DH39	01/24/85	00:00	NA	0.000	0.000	0.000	0.00	Uphole drilled.
DH39	02/05/85	11:15	NA	35.469	1.000	0.000	0.00	Moist, no stalactites.
DH39	02/26/85	10:25	NA	56.434	21.965	0.000	0.00	Wet, none collected, back wet in 1.5 ft circle.
DH39	03/12/85	10:00	NA	70.417	35.948	0.000	0.00	Trace, salt crystals in container.
DH39	03/26/85	09:55	NA	84.413	49.944	0.000	0.00	Trace, none collected.
DH39	05/07/85	09:37	00.01	126.401	91.932	0.000	0.01	
DH39	05/29/85	11:30	00.03	148.479	22.078	0.001	0.04	Stalactites in sample.
DH39	11/05/86	11:10	NA	673.465	524.986	0.000	0.04	Dry.
DH39	11/20/86	NA:	NA	688.000	539.521	0.000	0.04	Dry, not collected.
DH39	12/30/86	11:45	NA	728.490	580.011	0.000	0.04	
DH39	02/03/87	NA:	NA	763.000	614.521	0.000	0.04	
DH39	03/06/87	11:00	NA	794.458	645.979	0.000	0.04	Dry.
DH39	03/30/87	11:05	0.00	818.462	24.004	0.000	0.04	Dry.
DH39	05/07/87	11:20	0.00	856.472	62.014	0.000	0.04	Dry.
DH39	06/18/87	12:00	0.00	898.500	104.042	0.000	0.04	Dry.
DH39	07/28/87	11:03	0.00	938.460	144.002	0.000	0.04	Dry.
DH39	09/01/87	10:21	0.00	973.431	34.971	0.000	0.04	Dry.
DH39	10/20/87	11:33	0.00	1022.480	49.049	0.000	0.04	Dry.
DH39	11/19/87	11:00	0.00	1052.460	29.980	0.000	0.04	Dry.
DH39	01/04/88	11:35	0.00	1098.480	46.020	0.000	0.04	Dry.
DH39	02/08/88	11:35	0.00	1133.480	35.000	0.000	0.04	Dry.
DH39	03/29/88	11:30	0.00	1183.480	50.000	0.000	0.04	Dry.
DH39	07/12/88	08:45	0.00	1288.360	104.880	0.000	0.04	Dry.
DH39	09/27/88	10:30	0.00	1365.440	77.080	0.000	0.04	Dry.
DH39	12/13/88	09:50	0	1442.410	76.970	0.000	0.04	Dry.
DH39	03/14/89	09:50	0	1533.410	91.000	0.000	0.04	No sample collected, hole dry.
DH39	04/06/89	09:50	0	1556.410	23.000	0.000	0.04	Hole dry.
DH39	04/20/89	09:20	0	1570.389	13.979	0.000	0.04	Hole dry.
DH39	05/17/89	10:05	0	1597.420	27.031	0.000	0.04	Hole dry.
DH39	06/06/89	10:00	0	1617.417	19.997	0.000	0.04	Hole dry.
DH39	06/29/89	10:25	0	1640.434	23.017	0.000	0.04	Hole dry.
DH39	07/25/89	09:55	0	1666.413	25.979	0.000	0.04	Hole dry.
DH39	08/16/89	09:55	0	1688.413	22.000	0.000	0.04	Hole dry.
DH39	08/28/89	10:15	0	1700.427	12.014	0.000	0.04	Collecting device removed.
DH39	12/13/89	10:25	0	1807.434	107.007	0.000	0.04	Hole dry.
DH39	01/10/90	10:00	0.0	1835.417	27.983	0.000	0.00	Dry.
DH39	01/24/90	10:00	0.0	1849.417	14.000	0.000	0.00	Dry.
DH39	02/07/90	10:30	0.0	1863.438	14.021	0.000	0.00	Dry.
DH39	02/21/90	09:46	0.0	1877.407	13.969	0.000	0.00	Dry.

BRINE ACCUMULATION DATA TABLE
Data through December 31, 1991

LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH39	03/05/90	09:18	0.0	1889.388	11.981	0.000	0.00	Dry.
DH39	03/19/90	11:25	0.0	1903.476	14.088	0.000	0.00	Dry.
DH39	03/21/90	10:25	0.0	1905.434	1.958	0.000	0.00	Dry.
DH39	04/04/90	09:31	0.0	1919.397	13.963	0.000	0.00	Dry.
DH39	04/10/90	08:36	0.0	1925.358	5.961	0.000	0.00	Dry.
DH39	04/17/90	10:39	0.0	1932.444	7.086	0.000	0.00	Dry.
DH39	04/24/90	09:30	0.0	1939.396	6.952	0.000	0.00	Dry.
DH39	05/02/90	10:30	0.0	1947.438	8.042	0.000	0.00	Dry.
DH39	05/09/90	08:44	0.0	1954.364	6.926	0.000	0.00	Dry.
DH39	05/16/90	09:25	0.0	1961.392	7.028	0.000	0.00	Dry.
DH39	05/23/90	12:06	0.0	1968.504	7.112	0.000	0.00	Dry.
DH39	05/31/90	09:02	0.0	1976.376	7.872	0.000	0.00	Dry.
DH39	06/06/90	09:39	0.0	1982.402	6.026	0.000	0.00	Dry.
DH39	06/14/90	08:51	0.0	1990.369	7.967	0.000	0.00	Dry.
DH39	06/20/90	09:33	0.0	1996.398	6.029	0.000	0.00	Dry.
DH39	06/28/90	08:38	0.0	2004.360	7.962	0.000	0.00	Dry.
DH39	07/17/90	11:00	0.0	2023.458	19.098	0.000	0.00	Dry.
DH39	07/25/90	09:34	0.0	2031.399	7.941	0.000	0.00	Dry.
DH39	08/01/90	10:30	0.0	2038.438	7.039	0.000	0.00	Dry.
DH39	03/20/91	09:24	0.00	2269.392	230.954	0.000	0.00	Dry.
DH39	03/28/91	10:17	0.00	2277.428	8.036	0.000	0.00	Dry.
DH39	04/10/91	8:34	0.00	2290.336	12.908	0.000	0.00	Dry.
DH39	04/17/91	10:22	0.00	2297.432	7.096	0.000	0.00	Dry.
DH39	04/24/91	09:12	0.00	2304.383	6.951	0.000	0.00	Dry.
DH39	05/01/91	09:22	0.00	2311.390	7.007	0.000	0.00	Dry.
DH39	05/08/91	08:29	0.00	2318.353	6.963	0.000	0.00	Dry.
DH39	05/15/91	09:02	0.00	2325.376	7.023	0.000	0.00	Dry.
DH39	05/29/91	09:40	0.00	2339.403	14.027	0.000	0.00	Dry.
DH39	06/05/91	13:47	0.00	2346.574	7.171	0.000	0.00	Dry.
DH39	06/12/91	10:12	0.00	2353.425	6.851	0.000	0.00	Dry.
DH39	06/19/91	13:55	0.00	2360.580	7.155	0.000	0.00	Dry.
DH39	06/26/91	09:05	0.00	2367.378	6.798	0.000	0.00	Dry.
DH39	07/11/91	10:40	0.00	2382.444	15.066	0.000	0.00	Dry.
DH39	07/17/91	09:27	0.00	2388.394	5.950	0.000	0.00	Dry.
DH39	08/14/91	10:38	0.00	2416.443	28.049	0.000	0.00	Dry.
DH39	08/21/91	10:50	0.00	2423.451	7.008	0.000	0.00	Dry.
DH39	08/28/91	10:15	0.00	2430.427	6.976	0.000	0.00	Dry.
DH39	09/04/91	11:15	0.00	2437.469	7.042	0.000	0.00	Dry.
DH39	09/11/91	11:45	0.00	2444.490	7.021	0.000	0.00	Dry.
DH39	09/18/91	09:20	0.00	2451.389	6.899	0.000	0.00	Dry.
DH39	09/25/91	11:55	0.00	2458.497	7.108	0.000	0.00	Dry.
DH39	10/02/91	11:09	0.00	2465.465	6.968	0.000	0.00	Dry.
DH39	10/16/91	09:25	0.00	2479.392	13.927	0.000	0.00	Dry.
DH39	10/23/91	09:45	0.00	2486.406	7.014	0.000	0.00	Dry.
DH39	10/31/91	09:43	0.00	2494.405	7.999	0.000	0.00	Dry.
DH39	11/06/91	10:05	0.00	2500.420	6.015	0.000	0.00	Dry.
DH39	11/13/91	09:30	0.00	2507.396	6.976	0.000	0.00	Dry.
DH39	11/20/91	11:15	0.00	2514.469	7.073	0.000	0.00	Dry.
DH39	11/27/91	09:55	0.00	2521.413	6.944	0.000	0.00	Dry.
DH39	12/04/91	09:50	0.00	2528.410	6.997	0.000	0.00	Dry.
DH40	12/13/84	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of Room G

BRINE ACCUMULATION DATA TABLE
Data through December 31, 1991

LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
								excavated.
DH40	01/25/85	00:00	NA	0.000	0.000	0.000	0.00	Downhole drilled 1/24/85 to 1/25/85.
DH40	01/28/85	09:00	NA	27.375	1.000	0.000	0.00	Dry.
DH40	02/05/85	11:15	NA	35.469	9.094	0.000	0.00	Moist at bottom.
DH40	03/12/85	10:10	NA	70.424	44.049	0.000	0.00	Moist muck.
DH40	03/26/85	09:55	NA	84.413	58.038	0.000	0.00	Moist muck.
DH40	04/17/85	13:30	00.98	106.562	80.187	0.012	0.98	Brine, muck, and oil.
DH40	04/23/85	11:33	00.26	112.481	5.919	0.044	1.24	Brine and muck.
DH40	04/30/85	10:49	00.11	119.451	6.970	0.016	1.35	Feel something spongy in bottom of hole.
DH40	05/07/85	09:42	00.10	126.404	6.953	0.014	1.45	
DH40	05/14/85	10:40	00.09	133.444	7.040	0.013	1.54	
DH40	05/21/85	10:26	00.07	140.435	6.991	0.010	1.61	
DH40	05/29/85	11:30	00.08	148.479	8.044	0.010	1.69	
DH40	06/04/85	11:15	00.10	154.469	5.990	0.017	1.79	Contained a lot of salt muck.
DH40	06/11/85	10:30	00.05	161.438	6.969	0.007	1.84	
DH40	06/18/85	10:01	00.09	168.417	6.979	0.013	1.93	
DH40	06/25/85	11:00	00.08	175.458	7.041	0.011	2.01	
DH40	07/02/85	11:00	00.09	182.458	7.000	0.013	2.10	
DH40	07/09/85	10:45	00.12	189.448	6.990	0.017	2.22	
DH40	07/16/85	11:38	00.09	196.485	7.037	0.013	2.31	
DH40	07/24/85	10:31	00.07	204.438	7.953	0.009	2.38	
DH40	07/30/85	10:08	00.07	210.422	5.984	0.012	2.45	
DH40	08/06/85	10:20	00.06	217.431	7.009	0.009	2.51	
DH40	08/14/85	10:43	00.07	225.447	8.016	0.009	2.58	
DH40	08/20/85	10:50	00.05	231.451	6.004	0.008	2.63	
DH40	08/28/85	09:53	00.08	239.412	7.961	0.010	2.71	
DH40	09/04/85	10:18	00.03	246.429	7.017	0.004	2.74	
DH40	09/10/85	10:11	00.04	252.424	5.995	0.007	2.78	
DH40	09/17/85	09:31	00.03	259.397	6.973	0.004	2.81	
DH40	09/24/85	09:40	00.06	266.403	7.006	0.009	2.87	
DH40	10/01/85	09:47	00.06	273.408	7.005	0.009	2.93	
DH40	10/08/85	10:32	00.04	280.439	7.031	0.006	2.97	
DH40	10/15/85	10:05	00.09	287.420	6.981	0.013	3.06	
DH40	10/23/85	10:13	00.04	295.426	8.006	0.005	3.10	
DH40	10/29/85	09:32	00.07	301.397	5.971	0.012	3.17	
DH40	11/05/85	09:10	00.04	308.382	6.985	0.006	3.21	
DH40	11/13/85	09:55	00.07	316.413	8.031	0.009	3.28	
DH40	11/21/85	11:24	00.02	324.475	8.062	0.002	3.30	
DH40	12/03/85	13:20	00.08	336.556	12.081	0.007	3.38	
DH40	12/10/85	12:40	00.04	343.528	6.972	0.006	3.42	
DH40	01/23/86	11:25	00.24	387.476	43.948	0.005	3.66	Entry restricted since 12/10/85 due to mining activities.
DH40	01/31/86	12:10	00.02	395.507	8.031	0.002	3.68	
DH40	02/19/86	11:20	00.14	414.472	18.965	0.007	3.82	
DH40	02/28/86	13:10	00.05	423.549	9.077	0.006	3.87	
DH40	03/13/86	10:00	00.02	436.417	12.868	0.002	3.89	
DH40	04/24/86	10:05	00.13	478.420	42.003	0.003	4.02	
DH40	05/20/86	11:05	00.10	504.462	26.042	0.004	4.12	
DH40	06/03/86	09:58	00.20	518.415	13.953	0.014	4.32	
DH40	09/16/86	10:05	00.34	623.420	105.005	0.003	4.66	Did not collect for several months.
DH40	11/05/86	11:18	0.27	673.471	50.051	0.005	4.93	
DH40	11/20/86	NA:	NA	688.000	14.529	0.000	4.93	Not sampled.
DH40	12/30/86	12:00	00.25	728.500	55.029	0.005	5.18	Very dirty, pH 6.00.

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH40	02/03/87	13:00	00.13	763.542	35.042	0.004	5.31	Only 1 bottle.
DH40	03/06/87	10:55	0.09	794.455	30.913	0.003	5.40	
DH40	03/30/87	11:05	0.10	818.462	24.007	0.004	5.50	
DH40	06/18/87	12:00	0.19	898.500	80.038	0.002	5.69	
DH40	09/01/87	10:25	0.16	973.434	74.934	0.002	5.85	
DH40	10/20/87	11:33		1022.480	0.000	0.000	5.85	Not sampled. No calculation.
DH40	11/19/87	11:00		1052.460	0.000	0.000	5.85	Did not collect. No calculation.
DH40	01/04/88	11:35		1098.480	0.000	0.000	5.85	Did not sample.
DH40	02/08/88	11:30	0.55	1133.480	160.046	0.003	6.40	Collected for chemistry, sample #257.
DH40	03/29/88	11:25	0.14	1183.480	50.000	0.003	6.54	Collected for chemistry, sample #326.
DH40	05/12/88	11:40	0.20	1227.490	44.010	0.005	6.74	Sampled for Sandia PA.
DH40	07/12/88	08:40	0.15	1288.360	60.870	0.002	6.89	
DH40	09/27/88	10:25	0.21	1365.430	77.070	0.003	7.10	Collected for chemistry, sample #532.
DH40	12/13/88	09:45	0.12	1442.410	76.980	0.002	7.22	
DH40	03/15/89	10:35	Trace	1534.441	0.000	0.000	7.22	No sample. Trace of brine found.
DH40	04/06/89	09:50	0.27	1556.410	114.004	0.002	7.49	
DH40	04/20/89	09:20	0.09	1570.389	13.979	0.006	7.58	
DH40	05/17/89	10:00	0.30	1597.417	27.028	0.011	7.88	
DH40	06/06/89	09:55	0.12	1617.413	19.996	0.006	8.00	Sample not saved.
DH40	06/29/89	10:25	Trace	1640.434	0.000	0.000	8.00	Trace of brine found.
DH40	07/25/89	10:18	0.07	1666.429	49.016	0.001	8.07	
DH40	08/16/89	09:49	0.06	1688.409	21.980	0.003	8.13	Sample not saved.
DH40	09/12/89	09:10	Trace	1715.382	0.000	0.000	8.13	Trace of fluid in hole. Sample not saved.
DH40	12/13/89	10:25	0.20	1807.434	119.025	0.002	8.33	Sample not saved.
DH40	01/10/90	09:50	0.08	1835.410	27.976	0.003	8.41	
DH40	03/05/90	09:10	0.50	1889.382	53.972	0.009	8.91	
DH40	03/13/90	13:30	NA	1897.562	0.000	0.000	8.91	Installed sampler.
DH40	03/19/90	11:25	0.09	1903.476	14.094	0.000	9.00	Brine probably left in hole.
DH40	03/21/90	10:25	0.02	1905.434	1.958	0.007	9.02	Combined with 0.09 liters from 03/19/90. Used 0.11 liters for calculation.
DH40	04/04/90	09:31	0.03	1919.397	13.963	0.002	9.05	
DH40	05/02/90	10:41	0.09	1947.445	28.048	0.003	9.14	
DH40	05/16/90	09:26	0.07	1961.393	13.948	0.005	9.21	
DH40	06/14/90	11:19	0.13	1990.472	29.079	0.004	9.34	
DH40	06/20/90	09:40	0.02	1996.403	5.931	0.003	9.36	
DH40	06/28/90	09:00	0.03	2004.375	7.972	0.004	9.39	
DH40	07/17/90	11:17	0.10	2023.470	19.095	0.005	9.49	
DH40	03/20/91	09:24	0.72	2269.392	0.000	0.000	10.21	Some brine may have been left in hole. First sampling in a long time. First evacuation with bailer, second with pump.
DH40	03/28/91	10:17	0.54	2277.428	253.958	0.005	10.75	Combined with 0.72 liters from 03/20/91.
DH40	04/10/91	8:40	0.10	2290.333	12.905	0.008	10.85	
DH40	04/17/91	10:22	0.04	2297.432	7.099	0.006	10.89	
DH40	05/01/91	09:20	0.10	2311.389	13.957	0.007	10.99	
DH40	05/29/91	09:50	0.16	2339.410	28.021	0.006	11.15	
DH40	06/26/91	09:05	0.17	2367.378	27.968	0.006	11.32	
DH40	07/11/91	10:40	0.11	2382.444	15.066	0.007	11.43	
DH40	08/08/91	09:15	0.18	2410.385	27.941	0.006	11.61	
DH40	08/21/91	10:50	0.10	2423.451	13.066	0.008	11.71	
DH40	09/18/91	09:15	0.14	2451.385	27.934	0.005	11.85	
DH40	09/25/91	11:55	0.13	2458.497	7.112	0.018	11.98	
DH40	10/16/91	09:25	0.15	2479.392	20.895	0.007	12.13	
DH40	10/23/91	09:40	0.07	2486.403	7.011	0.010	12.20	

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH40	11/13/91	09:30	0.14	2507.396	20.993	0.007	12.34	
DH40	11/27/91	10:00	0.10	2521.417	14.021	0.007	12.44	
DH40	12/11/91	09:40	0.11	2535.403	13.986	0.008	12.55	
DH41	12/30/84	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of Room G excavated.
DH41	01/24/85	00:00	NA	0.000	0.000	0.000	0.00	Uphole drilled 1/23/85 to 1/24/85.
DH41	02/05/85	11:15	NA	35.469	1.000	0.000	0.00	Moist, no stalactites.
DH41	03/26/85	10:05	NA	84.420	49.951	0.000	0.00	Trace, none collected.
DH41	05/07/85	09:21	00.01	126.390	91.921	0.000	0.01	
DH41	05/29/85	10:00	00.01	148.417	22.027	0.000	0.02	Trace.
DH41	07/24/85	10:13	00.01	204.426	56.009	0.000	0.03	
DH41	08/20/85	12:00	00.01	231.500	27.074	0.000	0.04	Trace.
DH41	08/28/85	09:35	00.02	239.399	7.899	0.003	0.06	
DH41	09/17/85	09:20	00.01	259.389	19.990	0.001	0.07	
DH41	02/19/86	11:20	00.05	414.472	155.083	0.000	0.12	Lots of salt crystals and lumps of clay in container.
DH41	11/05/86	11:00	NA	673.458	258.986	0.000	0.12	Dry. Funnel has been removed, salt crust on collar.
DH41	11/20/86	12:07	NA	688.505	274.033	0.000	0.12	Dry.
DH41	12/30/86	12:50	NA	728.535	314.063	0.000	0.12	
DH41	02/03/87	NA:	NA	763.000	348.528	0.000	0.12	
DH41	03/05/87	10:55	NA	793.455	378.983	0.000	0.12	Crusty.
DH41	03/30/87	11:00	0.00	818.458	25.003	0.000	0.12	Dry.
DH41	05/07/87	11:09	0.00	856.465	63.010	0.000	0.12	Dry.
DH41	06/18/87	11:56	0.00	898.497	105.042	0.000	0.12	Dry.
DH41	07/28/87	11:03	0.00	938.460	145.005	0.000	0.12	Dry.
DH41	09/01/87	10:15	0.00	973.427	34.967	0.000	0.12	Dry.
DH41	10/20/87	11:28	0.00	1022.480	49.053	0.000	0.12	Dry.
DH41	11/19/87	10:55	0.00	1052.450	29.970	0.000	0.12	Dry.
DH41	01/04/88	11:35	0.00	1098.480	46.030	0.000	0.12	Dry.
DH41	02/08/88	11:20	0.00	1133.470	34.990	0.000	0.12	Dry.
DH41	03/29/88	11:20	0.00	1183.470	50.000	0.000	0.12	Dry.
DH41	07/12/88	08:40	0.00	1288.360	104.890	0.000	0.12	Dry.
DH41	09/27/88	10:20	0.00	1365.430	77.070	0.000	0.12	Dry.
DH41	12/13/88	09:45	0	1442.410	76.980	0.000	0.12	Dry.
DH41	04/06/89	09:55	0	1556.413	114.007	0.000	0.12	Hole dry.
DH41	04/20/89	09:10	0	1570.382	13.969	0.000	0.12	Hole dry.
DH41	05/17/89	10:00	0	1597.417	27.035	0.000	0.12	Hole dry.
DH41	06/06/89	09:55	0	1617.413	19.996	0.000	0.12	Hole dry.
DH41	06/29/89	10:15	0	1640.427	23.014	0.000	0.12	Hole dry.
DH41	07/25/89	09:55	0	1666.413	25.986	0.000	0.12	Hole dry.
DH41	08/16/89	09:55	0	1688.413	22.000	0.000	0.12	Hole dry.
DH41	08/28/89	10:15	0	1700.427	12.014	0.000	0.12	Collecting device removed.
DH41	12/13/89	10:03	0	1807.419	106.992	0.000	0.12	Hole dry.
DH41	01/10/90	09:45	0.0	1835.406	27.987	0.000	0.12	Dry.
DH41	01/24/90	10:00	0.0	1849.417	14.011	0.000	0.12	Dry.
DH41	02/07/90	10:30	0.0	1863.438	14.021	0.000	0.12	Dry.
DH41	02/21/90	09:45	0.0	1877.406	13.968	0.000	0.12	Dry.
DH41	03/05/90	09:08	0.0	1889.381	11.975	0.000	0.12	Dry.
DH41	03/19/90	11:12	0.0	1903.467	14.086	0.000	0.12	Dry.
DH41	03/21/90	10:23	0.0	1905.433	1.966	0.000	0.12	Dry.

BRINE ACCUMULATION DATA TABLE
Data through December 31, 1991

LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH41	04/04/90	09:14	0.0	1919.385	13.952	0.000	0.12	Dry.
DH41	04/10/90	08:36	0.0	1925.358	5.973	0.000	0.12	Dry.
DH41	04/17/90	10:29	0.0	1932.437	7.079	0.000	0.12	Dry.
DH41	04/24/90	09:26	0.0	1939.393	6.956	0.000	0.12	Dry.
DH41	05/02/90	10:30	0.0	1947.438	8.045	0.000	0.12	Dry.
DH41	05/09/90	09:45	0.0	1954.406	6.968	0.000	0.12	Dry.
DH41	05/16/90	09:11	0.0	1961.383	6.977	0.000	0.12	Dry.
DH41	05/23/90	12:06	0.0	1968.504	7.121	0.000	0.12	Dry.
DH41	05/31/90	09:01	0.0	1976.376	7.872	0.000	0.12	Dry.
DH41	06/06/90	09:30	0.0	1982.396	6.020	0.000	0.12	Dry.
DH41	06/14/90	08:48	0.0	1990.367	7.971	0.000	0.12	Dry.
DH41	06/20/90	09:35	0.0	1996.399	6.032	0.000	0.12	Dry.
DH41	06/28/90	08:38	0.0	2004.360	7.961	0.000	0.12	Dry.
DH41	07/17/90	11:02	0.0	2023.460	19.100	0.000	0.12	Dry.
DH41	07/25/90	09:43	0.0	2031.405	7.945	0.000	0.12	Dry.
DH41	08/01/90	10:25	0.0	2038.434	7.029	0.000	0.12	Dry.
DH41	03/28/91	10:17	0.00	2277.428	238.994	0.000	0.12	Dry.
DH41	04/10/91	8:46	0.00	2290.338	12.910	0.000	0.12	Dry.
DH41	04/17/91	10:19	0.00	2297.430	7.092	0.000	0.12	Dry.
DH41	04/24/91	09:10	0.00	2304.382	6.952	0.000	0.12	Dry.
DH41	05/01/91	09:12	0.00	2311.383	7.001	0.000	0.12	Dry.
DH41	05/08/91	08:24	0.00	2318.350	6.967	0.000	0.12	Dry.
DH41	05/15/91	09:02	0.00	2325.376	7.026	0.000	0.12	Dry.
DH41	05/29/91	09:55	0.00	2339.413	14.037	0.000	0.12	Dry.
DH41	06/05/91	13:45	0.00	2346.573	7.160	0.000	0.12	Dry.
DH41	06/12/91	10:10	0.00	2353.424	6.851	0.000	0.12	Dry.
DH41	06/19/91	13:35	0.00	2360.566	7.142	0.000	0.12	Dry.
DH41	06/26/91	09:10	0.00	2367.382	6.816	0.000	0.12	Dry.
DH41	07/11/91	10:49	0.00	2382.451	15.069	0.000	0.12	Dry.
DH41	07/17/91	09:22	0.00	2388.390	5.939	0.000	0.12	Dry.
DH41	08/14/91	10:35	0.00	2416.441	28.051	0.000	0.12	Dry.
DH41	08/21/91	10:40	0.00	2423.444	7.003	0.000	0.12	Dry.
DH41	08/28/91	10:10	0.00	2430.424	6.980	0.000	0.12	Dry.
DH41	09/04/91	11:10	0.00	2437.465	7.041	0.000	0.12	Dry.
DH41	09/11/91	11:40	0.00	2444.486	7.021	0.000	0.12	Dry.
DH41	09/18/91	09:15	0.00	2451.385	6.899	0.000	0.12	Dry.
DH41	09/25/91	11:52	0.00	2458.494	7.109	0.000	0.12	Dry.
DH41	10/02/91	11:00	0.00	2465.458	6.964	0.000	0.12	Dry.
DH41	10/16/91	09:15	0.00	2479.385	13.927	0.000	0.12	Dry.
DH41	10/23/91	09:31	0.00	2486.397	7.012	0.000	0.12	Dry.
DH41	10/31/91	09:42	0.00	2494.404	8.007	0.000	0.12	Dry.
DH41	11/06/91	10:03	0.00	2500.419	6.015	0.000	0.12	Dry.
DH41	11/13/91	09:35	0.00	2507.399	6.980	0.000	0.12	Dry.
DH41	11/20/91	11:20	0.00	2514.472	7.073	0.000	0.12	Dry.
DH41	11/27/91	10:05	0.00	2521.420	6.948	0.000	0.12	Dry.
DH41	12/04/91	09:50	0.00	2528.410	6.990	0.000	0.12	Dry.
DH41	12/11/91	09:35	0.00	2535.399	6.989	0.000	0.12	Dry.
DH42	12/30/84	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of Room G excavated.
DH42	01/23/85	00:00	NA	0.000	0.000	0.000	0.00	Downhole drilled.
DH42	01/28/85	09:00	NA	27.375	1.000	0.000	0.00	Moist muck at the bottom.

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH42	02/05/85	11:15	00.27	35.469	9.094	0.030	0.27	First time collected.
DH42	02/11/85	11:00	00.30	41.458	5.989	0.050	0.57	
DH42	02/19/85	13:10	00.33	49.549	8.091	0.041	0.90	
DH42	02/26/85	10:45	00.26	56.448	6.899	0.038	1.16	
DH42	03/05/85	10:00	00.28	63.417	6.969	0.040	1.44	
DH42	03/12/85	10:20	00.25	70.431	7.014	0.036	1.69	
DH42	03/20/85	10:54	00.25	78.454	8.023	0.031	1.94	Valve leaked, some brine drained back down hole.
DH42	03/26/85	10:06	00.28	84.421	5.967	0.047	2.22	
DH42	04/02/85	10:45	00.26	91.448	7.027	0.037	2.48	
DH42	04/10/85	10:45	00.29	99.448	8.000	0.036	2.77	
DH42	04/17/85	13:30	00.24	106.562	7.114	0.034	3.01	
DH42	04/23/85	13:23	00.04	112.558	5.996	0.007	3.05	Significant volume of brine drained back down hole.
DH42	04/30/85	10:31	00.38	119.438	6.880	0.055	3.43	
DH42	05/07/85	09:25	00.33	126.392	6.954	0.047	3.76	
DH42	05/14/85	10:30	00.25	133.438	7.046	0.035	4.01	
DH42	05/21/85	10:17	00.26	140.428	6.990	0.037	4.27	
DH42	05/29/85	10:10	00.30	148.424	7.996	0.038	4.57	
DH42	06/04/85	10:45	00.22	154.448	6.024	0.037	4.79	
DH42	06/11/85	10:10	00.25	161.424	6.976	0.036	5.04	
DH42	06/18/85	09:53	00.25	168.412	6.988	0.036	5.29	
DH42	06/25/85	11:15	00.25	175.469	7.057	0.035	5.54	
DH42	07/02/85	11:00	00.24	182.458	6.989	0.034	5.78	
DH42	07/09/85	10:30	00.25	189.438	6.980	0.036	6.03	
DH42	07/16/85	11:08	00.25	196.464	7.026	0.036	6.28	Brine effervesces.
DH42	07/24/85	10:19	00.28	204.430	7.966	0.035	6.56	
DH42	07/30/85	09:57	00.22	210.415	5.985	0.037	6.78	
DH42	08/06/85	10:13	00.26	217.426	7.011	0.037	7.04	
DH42	08/14/85	10:59	00.27	225.458	8.032	0.034	7.31	
DH42	08/20/85	10:45	00.21	231.448	5.990	0.035	7.52	
DH42	08/28/85	09:45	00.29	239.406	7.958	0.036	7.81	
DH42	09/04/85	10:12	00.25	246.425	7.019	0.036	8.06	
DH42	09/10/85	09:56	00.21	252.414	5.989	0.035	8.27	
DH42	09/17/85	09:26	00.28	259.393	6.979	0.040	8.55	
DH42	09/24/85	09:37	00.24	266.401	7.008	0.034	8.79	
DH42	10/01/85	09:44	00.24	273.406	7.005	0.034	9.03	
DH42	10/08/85	10:25	00.23	280.434	7.028	0.033	9.26	
DH42	10/15/85	10:00	00.23	287.417	6.983	0.033	9.49	
DH42	10/23/85	10:07	00.26	295.422	8.005	0.032	9.75	
DH42	10/29/85	09:16	00.24	301.386	5.964	0.040	9.99	
DH42	11/05/85	09:05	00.22	308.378	6.992	0.031	10.21	
DH42	11/13/85	09:46	00.26	316.407	8.029	0.032	10.47	
DH42	11/21/85	10:53	00.26	324.453	8.046	0.032	10.73	
DH42	11/26/85	10:59	00.16	329.458	5.005	0.032	10.89	
DH42	12/03/85	13:10	00.20	336.549	7.091	0.028	11.09	Sample for chem. anal. #2.
DH42	12/10/85	12:50	00.22	343.535	6.986	0.031	11.31	
DH42	01/23/86	11:30	01.32	387.479	43.944	0.030	12.63	Entry restricted since 12/10/85 due to mining activities.
DH42	01/31/86	12:05	00.30	395.503	8.024	0.037	12.93	
DH42	02/12/86	10:35	00.38	407.441	11.938	0.032	13.31	
DH42	02/19/86	11:10	00.22	414.465	7.024	0.031	13.53	
DH42	02/28/86	13:00	00.31	423.542	9.077	0.034	13.84	

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DH42	03/06/86	10:30	00.17	429.438	5.896	0.029	14.01	
DH42	03/13/86	09:53	00.21	436.412	6.974	0.030	14.22	
DH42	03/26/86	10:00	00.39	449.417	13.005	0.030	14.61	
DH42	04/02/86	09:25	00.20	456.392	6.975	0.029	14.81	
DH42	04/08/86	09:30	00.20	462.396	6.004	0.033	15.01	
DH42	04/16/86	11:55	00.24	470.497	8.101	0.030	15.25	
DH42	04/24/86	09:55	00.21	478.413	7.916	0.027	15.46	
DH42	04/30/86	10:41	00.17	484.445	6.032	0.028	15.63	
DH42	05/06/86	10:10	00.19	490.424	5.979	0.032	15.82	
DH42	05/13/86	10:00	00.20	497.417	6.993	0.029	16.02	
DH42	05/20/86	11:00	00.20	504.458	7.041	0.028	16.22	
DH42	05/27/86	15:35	00.20	511.649	7.191	0.028	16.42	
DH42	06/03/86	09:50	00.20	518.410	6.761	0.030	16.62	
DH42	06/10/86	11:13	00.17	525.467	7.057	0.024	16.79	
DH42	06/17/86	10:40	00.20	532.444	6.977	0.029	16.99	Sample for brine chemistry, #22.
DH42	06/24/86	10:40	00.18	539.444	7.000	0.026	17.17	
DH42	07/01/86	13:45	00.20	546.573	7.129	0.028	17.37	
DH42	07/08/86	10:22	00.20	553.432	6.859	0.029	17.57	
DH42	07/16/86	10:15	00.30	561.427	7.995	0.038	17.87	
DH42	07/22/86	09:50	00.16	567.410	5.983	0.027	18.03	
DH42	07/29/86	10:25	00.20	574.434	7.024	0.028	18.23	
DH42	08/05/86	11:00	00.22	581.458	7.024	0.031	18.45	
DH42	08/12/86	10:20	00.20	588.431	6.973	0.029	18.65	
DH42	08/19/86	11:20	00.18	595.472	7.041	0.026	18.83	
DH42	08/26/86	10:25	00.20	602.434	6.962	0.029	19.03	Static level not measured.
DH42	09/04/86	10:20	00.25	611.431	8.997	0.028	19.28	
DH42	09/09/86	09:46	00.14	616.407	4.976	0.028	19.42	Sample # 24.
DH42	09/16/86	09:52	00.20	623.411	7.004	0.029	19.62	
DH42	09/23/86	09:58	00.15	630.415	7.004	0.021	19.77	
DH42	10/01/86	12:03	00.36	638.502	8.087	0.045	20.13	
DH42	10/08/86	10:55	00.15	645.455	6.953	0.022	20.28	
DH42	10/14/86	11:19	00.15	651.472	6.017	0.025	20.43	
DH42	11/05/86	11:07	0.52	673.463	21.991	0.024	20.95	
DH42	11/20/86	12:10	00.33	688.507	15.044	0.022	21.28	
DH42	12/30/86	11:45	00.78	728.490	39.983	0.020	22.06	0.50 liters for sample, pH 5.91.
DH42	02/03/87	12:50	00.85	763.535	35.045	0.024	22.91	T=29.8c, T 28.8, pH 6.23.
DH42	03/06/87	10:45	0.68	794.448	30.913	0.022	23.59	
DH42	03/30/87	11:00	0.53	818.458	24.010	0.022	24.12	
DH42	05/07/87	11:15	0.90	856.469	38.011	0.024	25.02	Brine effervesces.
DH42	06/17/87	10:35	0.91	897.441	0.000	0.000	25.93	Samples removed for chemistry, #112A, #112B, wood fragments in hole. Some brine left in hole, no calculation.
DH42	06/18/87	11:56	0.10	898.497	42.028	0.024	26.03	Calculated using 1.01 liters (0.91 l. 6/17/87 plus 0.10 l. 6/18/87).
DH42	07/28/87	11:10	0.94	938.465	39.968	0.024	26.97	
DH42	09/01/87	10:15	0.79	973.427	34.962	0.023	27.76	Collected for chemistry, sample #151 A&B.
DH42	10/20/87	11:31	1.29	1022.480	49.053	0.026	29.05	
DH42	11/19/87	10:55	0.75	1052.450	29.970	0.025	29.80	Collected for chemistry, sample #229.
DH42	01/04/88	11:30	1.13	1098.480	46.030	0.025	30.93	
DH42	02/08/88	11:20	0.75	1133.470	34.990	0.021	31.68	Collected for chemistry, sample #255 & #256.
DH42	03/29/88	11:20	1.10	1183.470	50.000	0.022	32.78	Collected for chemistry, sample #323 - #325.

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DH42	05/05/88	09:30	0.75.	1220.400	36.930	0.020	33.53	Sampled for Sandia PA.
DH42	05/12/88	09:45	0.13	1227.410	7.010	0.019	33.66	Sampled for Sandia PA.
DH42	07/12/88	08:35	1.15	1288.360	60.950	0.019	34.81	Collected for chemistry, sample #415 & #416.
DH42	07/28/88	10:10	0.34	1304.420	16.060	0.021	35.15	Sampled for Sandia PA.
DH42	09/27/88	10:20	0.66	1365.430	61.010	0.011	35.81	Collected for chemistry, sample #530 & #531.
DH42	12/13/88	09:38	1.71	1442.400	76.970	0.022	37.52	Collected for chemistry. sample #628 - #631.
DH42	03/15/89	10:30	1.50	1534.438	92.037	0.016	39.02	Sample saved for chemistry, sample #722 - 724.
DH42	04/06/89	10:10	0.54	1556.424	21.986	0.025	39.56	
DH42	04/20/89	09:10	0.50	1570.382	13.958	0.036	40.06	
DH42	05/17/89	09:45	0.66	1597.406	27.024	0.024	40.72	
DH42	06/06/89	09:50	0.41	1617.410	20.004	0.020	41.13	Sample saved for chemistry.
DH42	06/29/89	10:20	0.35	1640.431	23.021	0.015	41.48	
DH42	07/25/89	10:10	0.55	1666.424	25.993	0.021	42.03	Sample saved for Sandia brine study.
DH42	08/16/89	09:40	0.36	1688.403	21.979	0.016	42.39	Sample not saved.
DH42	09/12/89	09:00	0.35	1715.375	26.972	0.013	42.74	Sample saved for chemistry.
DH42	12/13/89	10:03	1.50	1807.419	92.044	0.016	44.24	Sample saved for chemistry, sample #898.
DH42	01/10/90	09:45	0.70	1835.406	27.987	0.025	44.94	
DH42	01/24/90	09:57	0.27	1849.415	14.009	0.019	45.21	
DH42	02/07/90	10:23	0.34	1863.433	14.018	0.024	45.55	
DH42	02/21/90	10:19	0.32	1877.430	13.997	0.023	45.87	
DH42	03/05/90	09:00	0.36	1889.375	11.945	0.030	46.23	
DH42	03/13/90	12:00	NA	1897.500	0.000	0.000	46.23	Installed sampler.
DH42	03/19/90	11:12	0.06	1903.467	14.092	0.000	46.29	Brine probably left in hole.
DH42	03/21/90	10:23	0.08	1905.433	1.966	0.008	46.37	Combined with 0.06 liters from 03/19/90. Used 0.14 liters for calculation.
DH42	04/04/90	09:24	0.24	1919.392	13.959	0.017	46.61	
DH42	04/10/90	08:43	0.14	1925.363	5.971	0.023	46.75	
DH42	04/17/90	10:29	0.14	1932.437	7.074	0.020	46.89	
DH42	04/24/90	09:26	0.13	1939.393	6.956	0.019	47.02	
DH42	05/02/90	10:39	0.15	1947.444	8.051	0.019	47.17	
DH42	05/09/90	09:01	0.13	1954.376	6.932	0.019	47.30	
DH42	05/16/90	09:11	0.13	1961.383	7.007	0.019	47.43	
DH42	05/23/90	12:08	0.14	1968.506	7.123	0.020	47.57	
DH42	05/31/90	08:59	0.13	1976.374	7.868	0.017	47.70	
DH42	06/06/90	09:37	0.13	1982.401	6.027	0.022	47.83	
DH42	06/14/90	08:46	0.16	1990.365	7.964	0.020	47.99	
DH42	06/20/90	09:35	0.12	1996.399	6.034	0.020	48.11	
DH42	06/28/90	08:55	0.15	2004.372	7.973	0.019	48.26	
DH42	07/17/90	11:08	0.31	2023.464	19.092	0.016	48.57	
DH42	07/25/90	09:40	0.20	2031.403	7.939	0.025	48.77	
DH42	08/01/90	10:20	0.15	2038.431	7.028	0.021	48.92	
DH42	03/28/91	10:06	3.02	2277.421	0.000	0.000	51.94	Some brine may have been left in hole. First sampling in a long time. Sampler still functioning.
DH42	04/10/91	8:46	0.90	2290.338	0.000	0.000	52.84	Partial evacuation.
DH42	04/11/91	08:42	0.50	2291.363	252.930	0.017	53.34	Combined with 3.02 liters from 03/28/91 and 0.90 liters from 04/10/91.
DH42	04/17/91	10:17	0.11	2297.428	6.065	0.018	53.45	
DH42	04/24/91	09:05	0.12	2304.378	6.950	0.017	53.57	

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DH42	05/01/91	09:11	0.12	2311.383	7.005	0.017	53.69	
DH42	05/08/91	08:24	0.12	2318.350	6.967	0.017	53.81	
DH42	05/15/91	09:02	0.12	2325.376	7.026	0.017	53.93	
DH42	05/29/91	09:55	0.27	2339.413	14.037	0.019	54.20	
DH42	06/05/91	13:40	0.14	2346.569	7.156	0.020	54.34	
DH42	06/12/91	10:07	0.12	2353.422	6.853	0.018	54.46	
DH42	06/19/91	13:35	0.13	2360.566	7.144	0.018	54.59	
DH42	06/26/91	09:10	0.12	2367.382	6.816	0.018	54.71	
DH42	07/11/91	10:49	0.27	2382.451	15.069	0.018	54.98	
DH42	07/17/91	09:22	0.11	2388.390	5.939	0.019	55.09	
DH42	07/30/91	10:15	0.30	2401.427	13.037	0.023	55.39	
DH42	08/08/91	09:10	0.24	2410.382	8.955	0.027	55.63	
DH42	08/14/91	10:33	0.16	2416.440	6.058	0.026	55.79	
DH42	08/21/91	10:45	0.17	2423.448	7.008	0.024	55.96	
DH42	08/28/91	10:10	0.24	2430.424	6.976	0.034	56.20	
DH42	09/04/91	11:10	0.18	2437.465	7.041	0.026	56.38	
DH42	09/11/91	11:40	0.16	2444.486	7.021	0.023	56.54	
DH42	09/18/91	09:10	0.18	2451.382	6.896	0.026	56.72	
DH42	09/25/91	11:52	0.15	2458.494	7.112	0.021	56.87	
DH42	10/02/91	11:00	0.15	2465.458	6.964	0.022	57.02	
DH42	10/16/91	09:15	0.26	2479.385	13.927	0.019	57.28	
DH42	10/23/91	09:31	0.16	2486.397	7.012	0.023	57.44	
DH42	11/06/91	10:03	0.28	2500.419	14.022	0.020	57.72	
DH42	11/13/91	09:35	0.15	2507.399	6.980	0.021	57.87	
DH42	11/20/91	11:20	0.14	2514.472	7.073	0.020	58.01	
DH42	11/27/91	10:05	0.13	2521.420	6.948	0.019	58.14	
DH42	12/04/91	09:52	0.12	2528.411	6.991	0.017	58.26	
DH42	12/11/91	09:35	0.10	2535.399	6.988	0.014	58.36	
DH42	12/18/91	09:15	0.13	2542.385	6.986	0.019	58.49	
DH42	12/23/91	08:40	0.10	2547.361	4.976	0.020	58.59	
DH42A	12/30/84	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of Room G excavated.
DH42A	01/25/85	00:00	NA	0.000	0.000	0.000	0.00	Downhole drilled (re-drill of DH42) to recover core from 20 to 40 ft.
DH42A	01/28/85	09:00	NA	27.375	1.000	0.000	0.00	Brine in hole.
DH42A	02/05/85	11:15	00.85	35.469	9.094	0.093	0.85	First time collected.
DH42A	02/11/85	11:00	00.99	41.458	5.989	0.165	1.84	
DH42A	02/19/85	12:10	01.45	49.507	8.049	0.180	3.29	
DH42A	02/26/85	10:45	01.18	56.448	6.941	0.170	4.47	
DH42A	03/05/85	10:00	01.24	63.417	6.969	0.178	5.71	
DH42A	03/12/85	10:20	01.29	70.431	7.014	0.184	7.00	
DH42A	03/20/85	11:00	01.45	78.458	8.027	0.181	8.45	
DH42A	03/26/85	10:10	01.07	84.424	5.966	0.179	9.52	
DH42A	04/02/85	10:45	01.15	91.448	7.024	0.164	10.67	
DH42A	04/10/85	10:45	01.45	99.448	8.000	0.181	12.12	
DH42A	04/17/85	13:30	01.32	106.562	7.114	0.186	13.44	
DH42A	04/23/85	13:23	01.07	112.558	5.996	0.178	14.51	
DH42A	04/30/85	10:23	01.35	119.433	6.875	0.196	15.86	
DH42A	05/07/85	09:23	01.39	126.391	6.958	0.200	17.25	
DH42A	05/14/85	10:25	01.34	133.434	7.043	0.190	18.59	
DH42A	05/21/85	10:14	01.29	140.426	6.992	0.184	19.88	

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH42A	05/29/85	10:30	01.28	148.438	8.012	0.160	21.16	
DH42A	06/04/85	10:50	01.03	154.451	6.013	0.171	22.19	
DH42A	06/11/85	10:15	01.19	161.427	6.976	0.171	23.38	
DH42A	06/18/85	09:51	01.18	168.410	6.983	0.169	24.56	
DH42A	06/25/85	11:05	01.16	175.462	7.052	0.164	25.72	
DH42A	07/02/85	11:00	01.12	182.458	6.996	0.160	26.84	
DH42A	07/09/85	10:25	01.12	189.434	6.976	0.161	27.96	Gas effervescing from sample.
DH42A	07/16/85	11:10	01.11	196.465	7.031	0.158	29.07	Brine effervesces.
DH42A	07/24/85	10:25	01.23	204.434	7.969	0.154	30.30	
DH42A	07/30/85	09:54	00.94	210.412	5.978	0.157	31.24	
DH42A	08/06/85	10:10	01.05	217.424	7.012	0.150	32.29	
DH42A	08/14/85	10:33	01.11	225.440	8.016	0.138	33.40	
DH42A	08/20/85	10:14	00.92	231.426	5.986	0.154	34.32	
DH42A	08/28/85	09:40	01.17	239.403	7.977	0.147	35.49	
DH42A	09/04/85	10:10	00.99	246.424	7.021	0.141	36.48	
DH42A	09/10/85	09:55	00.83	252.413	5.989	0.139	37.31	
DH42A	09/17/85	09:25	00.92	259.392	6.979	0.132	38.23	
DH42A	09/24/85	09:25	00.94	266.392	7.000	0.134	39.17	
DH42A	10/01/85	09:40	00.93	273.403	7.011	0.133	40.10	
DH42A	10/08/85	10:24	00.96	280.433	7.030	0.137	41.06	
DH42A	10/15/85	10:15	00.81	287.427	6.994	0.116	41.87	
DH42A	10/23/85	10:10	01.02	295.424	7.997	0.128	42.89	
DH42A	10/29/85	09:20	00.75	301.389	5.965	0.126	43.64	
DH42A	11/05/85	09:00	00.86	308.375	6.986	0.123	44.50	
DH42A	11/13/85	09:44	01.03	316.406	8.031	0.128	45.53	
DH42A	11/21/85	10:50	00.94	324.451	8.045	0.117	46.47	
DH42A	11/26/85	10:55	00.61	329.455	5.004	0.122	47.08	
DH42A	12/03/85	13:05	00.78	336.545	7.090	0.110	47.86	Sample for chem. anal. #1.
DH42A	12/10/85	12:50	00.86	343.535	6.990	0.123	48.72	
DH42A	01/23/86	11:40	05.13	387.486	43.951	0.117	53.85	Entry restricted since 12/10/85 due to mining activities.
DH42A	01/31/86	12:00	00.92	395.500	8.014	0.115	54.77	
DH42A	02/12/86	10:40	01.36	407.444	11.944	0.114	56.13	
DH42A	02/19/86	11:15	00.80	414.469	7.025	0.114	56.93	
DH42A	02/28/86	12:55	00.90	423.538	9.069	0.099	57.83	
DH42A	03/06/86	10:25	00.70	429.434	5.896	0.119	58.53	
DH42A	03/13/86	09:48	00.73	436.408	6.974	0.105	59.26	
DH42A	03/26/86	09:40	01.39	449.403	12.995	0.107	60.65	
DH42A	04/02/86	09:20	00.80	456.389	6.986	0.115	61.45	
DH42A	04/08/86	09:28	00.63	462.394	6.005	0.105	62.08	
DH42A	04/16/86	11:50	00.89	470.493	8.099	0.110	62.97	
DH42A	04/24/86	09:50	00.67	478.410	7.917	0.085	63.64	
DH42A	04/30/86	10:36	00.76	484.442	6.032	0.126	64.40	
DH42A	05/06/86	10:00	00.55	490.417	5.975	0.092	64.95	
DH42A	05/13/86	10:00	00.73	497.417	7.000	0.104	65.68	
DH42A	05/20/86	11:00	00.70	504.458	7.041	0.099	66.38	
DH42A	05/27/86	15:35	00.65	511.649	7.191	0.090	67.03	
DH42A	06/03/86	09:50	00.66	518.410	6.761	0.098	67.69	
DH42A	06/10/86	11:15	00.54	525.469	7.059	0.076	68.23	
DH42A	06/17/86	10:31	00.65	532.438	6.969	0.093	68.88	Sample for brine chemistry, #21.
DH42A	06/24/86	10:45	00.63	539.448	7.010	0.090	69.51	
DH42A	07/01/86	13:50	00.71	546.576	7.128	0.100	70.22	
DH42A	07/08/86	10:25	00.63	553.434	6.858	0.092	70.85	

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DH42A	07/16/86	10:00	00.66	561.417	7.983	0.083	71.51	
DH42A	07/22/86	09:48	00.61	567.408	5.991	0.102	72.12	
DH42A	07/29/86	10:25	00.71	574.434	7.026	0.101	72.83	
DH42A	08/05/86	10:55	00.66	581.455	7.021	0.094	73.49	
DH42A	08/12/86	10:23	00.63	588.433	6.978	0.090	74.12	
DH42A	08/19/86	11:22	00.68	595.474	7.041	0.097	74.80	
DH42A	08/26/86	10:28	00.68	602.436	6.962	0.098	75.48	Static level not measured.
DH42A	09/04/86	10:25	00.71	611.434	8.998	0.079	76.19	Valve broke off and left in hole after collecting most of brine. Some brine left in hole.
DH42A	09/09/86	09:40	00.07	616.403	4.969	0.014	76.26	Bottom obstructed by object in hole. Sample # 23.
DH42A	09/16/86	09:59	00.95	623.416	7.013	0.135	77.21	
DH42A	09/23/86	10:02	00.60	630.418	7.002	0.086	77.81	
DH42A	10/01/86	11:57	00.43	638.498	8.080	0.053	78.24	
DH42A	10/08/86	10:55	00.81	645.455	6.957	0.116	79.05	
DH42A	10/14/86	11:24	00.56	651.475	6.020	0.093	79.61	
DH42A	11/05/86	11:04	1.94	673.461	21.986	0.088	81.55	
DH42A	11/20/86	12:08	01.40	688.506	15.045	0.093	82.95	
DH42A	12/31/86	11:30	02.91	729.479	40.973	0.071	85.86	0.99 liters for sample, pH 5.86.
DH42A	02/03/87	12:35	03.15	763.524	34.045	0.093	89.01	T=29.8c, T 28.9, pH 6.20.
DH42A	03/06/87	10:45	2.61	794.448	30.924	0.084	91.62	
DH42A	03/30/87	10:56	2.52	818.456	24.008	0.101	94.14	
DH42A	05/07/87	11:10	3.17	856.465	38.009	0.083	97.31	
DH42A	06/17/87	10:30	2.94	897.438	0.000	0.000	100.25	Samples removed for chemistry. #113A, #113B, #115A, #115B, #118A, #118B. Approx. 0.01 liter spilled. Some brine left in hole, no calc.
DH42A	06/18/87	11:54	0.11	898.496	42.031	0.073	100.36	Calculated using 3.05 liters (2.94 l. 6/17/87 plus 0.11 l. 6/18/87).
DH42A	07/28/87	11:03	3.07	938.460	39.964	0.077	103.43	
DH42A	09/01/87	10:08	2.69	973.422	34.962	0.077	106.12	Collected for chemistry, sample #154 A&B and Sample #150 A&B. Both samples effervesce.
DH42A	10/20/87	11:28	3.73	1022.480	49.058	0.076	109.85	
DH42A	11/19/87	10:55	2.17	1052.450	29.970	0.072	112.02	Collected for chemistry, sample #228 & #233.
DH42A	01/04/88	11:25	3.28	1098.480	46.030	0.071	115.30	
DH42A	02/08/88	11:10	2.47	1133.470	34.990	0.071	117.77	Collected for chemistry, sample #250, #251, #252, #253, & #254.
DH42A	03/29/88	11:15	3.57	1183.470	50.000	0.071	121.34	Collected for chemistry, sample #316 - #322.
DH42A	05/05/88	09:00	2.38	1220.380	36.910	0.064	123.72	Sampled for Sandia PA.
DH42A	05/12/88	09:40	0.50	1227.400	7.020	0.071	124.22	Sampled for Sandia PA.
DH42A	07/12/88	08:30	4.06	1288.350	60.950	0.067	128.28	Collected for chemistry, sample #407 - #414.
DH42A	07/28/88	10:15	1.25	1304.430	16.080	0.078	129.53	Sampled for Sandia PA.
DH42A	09/14/88	08:45	3.00	1352.360	47.930	0.063	132.53	
DH42A	09/27/88	10:10	1.07	1365.420	13.060	0.082	133.60	Collected for chemistry, sample #528 & #529.
DH42A	12/13/88	09:35	7.95	1442.400	76.980	0.103	141.55	Collected for chemistry, sample #618 - #627.
DH42A	03/15/89	10:00	5.82	1534.417	92.018	0.063	147.37	Sample saved for chemistry, sample #714 -

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
DH42A	04/06/89	10:15	1.44	1556.427	22.010	0.065	148.81	
DH42A	04/20/89	09:00	0.75	1570.375	13.948	0.054	149.56	
DH42A	05/17/89	09:45	1.91	1597.406	27.031	0.071	151.47	
DH42A	06/06/89	09:45	1.30	1617.406	20.000	0.065	152.77	Sample saved for chemistry.
DH42A	06/29/89	10:15	1.35	1640.427	23.021	0.059	154.12	
DH42A	07/25/89	10:05	1.51	1666.420	25.993	0.058	155.63	Sample saved for Sandia brine study.
DH42A	08/16/89	09:31	1.48	1688.397	21.977	0.067	157.11	Sample saved for Sandia brine study.
DH42A	09/12/89	08:50	1.63	1715.368	26.971	0.060	158.74	Sample saved for chemistry.
DH42A	12/13/89	09:20	5.28	1807.389	92.021	0.057	164.02	Sample saved for chemistry, sample #897.
DH42A	01/10/90	09:36	1.95	1835.400	28.011	0.070	165.97	
DH42A	01/24/90	09:52	0.75	1849.411	14.011	0.054	166.72	
DH42A	02/07/90	10:20	0.95	1863.431	14.020	0.068	167.67	
DH42A	02/21/90	09:56	0.81	1877.414	13.983	0.058	168.48	
DH42A	03/05/90	08:47	0.68	1889.366	11.952	0.057	169.16	
DH42A	03/13/90	11:36	NA	1897.483	0.000	0.000	169.16	Installed sampler.
DH42A	03/19/90	11:07	0.51	1903.463	14.097	0.000	169.67	Partial evacuation.
DH42A	03/21/90	10:21	0.28	1905.431	1.968	0.049	169.95	Combined with 0.51 liters from 03/19/90. Used 0.79 liters for calculation.
DH42A	04/04/90	09:14	0.60	1919.385	13.954	0.043	170.55	
DH42A	04/10/90	08:40	0.58	1925.361	5.976	0.097	171.13	
DH42A	04/17/90	10:19	0.38	1932.430	7.069	0.054	171.51	
DH42A	04/24/90	09:18	0.42	1939.388	6.958	0.060	171.93	
DH42A	05/02/90	10:32	0.51	1947.439	8.051	0.063	172.44	
DH42A	05/09/90	08:48	0.39	1954.367	6.928	0.056	172.83	
DH42A	05/16/90	09:07	0.43	1961.380	7.013	0.061	173.26	
DH42A	05/23/90	12:08	0.40	1968.506	7.126	0.056	173.66	
DH42A	05/31/90	08:47	0.46	1976.366	7.860	0.059	174.12	
DH42A	06/06/90	09:30	0.34	1982.396	6.030	0.056	174.46	
DH42A	06/14/90	08:38	0.39	1990.360	7.964	0.049	174.85	
DH42A	06/20/90	09:33	0.45	1996.398	6.038	0.075	175.30	
DH42A	06/28/90	08:50	0.45	2004.368	7.970	0.056	175.75	
DH42A	07/17/90	11:04	0.56	2023.461	19.093	0.000	176.31	Partial evacuation.
DH42A	07/18/90	10:30	0.48	2024.438	0.977	0.052	176.79	Combined with 0.56 liters from 07/17/90. Used 1.04 liters for calculation.
DH42A	07/25/90	09:37	0.43	2031.401	6.963	0.062	177.22	
DH42A	08/01/90	10:18	0.50	2038.429	7.028	0.071	177.72	
DH42A	03/28/91	09:40	18.89	2277.403	0.000	0.000	196.61	Some brine may have been left in hole. First sampling in a long time.
DH42A	04/10/91	8:46	0.89	2290.338	0.000	0.000	197.50	Partial evacuation.
DH42A	04/11/91	08:30	0.14	2291.354	252.920	0.079	197.64	Combined with 18.89 liters from 03/28/91 and 0.89 liters from 04/10/91.
DH42A	04/17/91	10:15	0.35	2297.427	6.073	0.058	197.99	
DH42A	04/24/91	09:05	0.40	2304.378	6.951	0.058	198.39	
DH42A	05/01/91	09:10	0.40	2311.382	7.004	0.057	198.79	
DH42A	05/08/91	08:19	0.34	2318.347	6.965	0.049	199.13	
DH42A	05/15/91	08:58	0.40	2325.374	7.027	0.057	199.53	
DH42A	05/29/91	09:56	0.65	2339.414	14.040	0.046	200.18	
DH42A	06/05/91	13:35	0.47	2346.566	7.152	0.066	200.65	
DH42A	06/12/91	10:00	0.53	2353.417	6.851	0.077	201.18	
DH42A	06/19/91	13:30	0.41	2360.563	7.146	0.057	201.59	
DH42A	06/26/91	09:16	0.39	2367.386	6.823	0.057	201.98	
DH42A	07/11/91	10:45	0.55	2382.448	15.062	0.037	202.53	

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DH42A	07/17/91	09:20	0.58	2388.389	0.000	0.000	203.11	Partial evacuation.
DH42A	07/18/91	09:50	0.11	2389.410	0.000	0.000	203.22	Partial evacuation.
DH42A	07/30/91	10:10	0.42	2401.424	18.976	0.059	203.64	Combined with 0.58 liters from 07/17 and 0.11 liters from 07/18/91.
DH42A	08/08/91	09:05	0.47	2410.378	8.954	0.052	204.11	
DH42A	08/14/91	10:30	0.45	2416.438	6.060	0.074	204.56	
DH42A	08/21/91	10:40	0.38	2423.444	7.006	0.054	204.94	
DH42A	08/28/91	09:58	0.39	2430.415	6.971	0.056	205.33	
DH42A	09/04/91	11:00	0.53	2437.458	7.043	0.075	205.86	
DH42A	09/11/91	11:35	0.39	2444.483	7.025	0.056	206.25	
DH42A	09/18/91	09:00	0.40	2451.375	6.892	0.058	206.65	
DH42A	09/25/91	11:50	0.31	2458.493	7.118	0.044	206.96	
DH42A	10/02/91	11:07	0.41	2465.463	6.970	0.059	207.37	
DH42A	10/16/91	09:10	0.43	2479.382	13.919	0.031	207.80	
DH42A	10/23/91	09:30	0.43	2486.396	7.014	0.061	208.23	
DH42A	10/31/91	09:40	0.50	2494.403	8.007	0.062	208.73	
DH42A	11/06/91	10:00	0.36	2500.417	6.014	0.060	209.09	
DH42A	11/13/91	09:39	0.28	2507.402	6.985	0.040	209.37	
DH42A	11/20/91	11:24	0.44	2514.475	7.073	0.062	209.81	
DH42A	11/27/91	10:05	0.33	2521.420	6.945	0.048	210.14	
DH42A	12/04/91	09:52	0.40	2528.411	6.991	0.057	210.54	
DH42A	12/11/91	09:30	0.38	2535.396	6.985	0.054	210.92	
DH42A	12/18/91	09:10	0.41	2542.382	6.986	0.059	211.33	
DH42A	12/23/91	08:35	0.37	2547.358	4.976	0.074	211.70	
DHP401	10/29/86	00:00	NA	0.000	0.000	0.000	0.00	Drift excavated at S1950/E1320.
DHP401	01/06/87	00:00	NA	0.000	0.000	0.000	0.00	Uphole drilling initiated 12/08/86, stopped on 12/09/86 at 27.9 ft. Drilling resumed 1/02/87 and completed 1/06/87.
DHP401	03/06/87	09:15	0.12	794.385	1.000	0.000	0.12	First time collected.
DHP401	03/30/87	09:15	0.06	818.385	24.000	0.003	0.18	
DHP401	04/22/87	11:10	0.17	841.465	23.080	0.007	0.35	Stalactite growth beside funnel.
DHP401	06/11/87	10:00	0.38	891.417	49.952	0.008	0.73	Sample removed for chemistry #105A.
DHP401	07/28/87	10:15	0.27	938.427	47.010	0.006	1.00	Sample collected for chemistry sample #105. Clay accumulation in container.
DHP401	09/01/87	08:55	0.32	973.372	34.945	0.009	1.32	Collected for chemistry, sample #105
DHP401	09/16/87	09:15		988.385	0.000	0.000	1.32	0.01 l in jar, not removed. No calculation.
DHP401	11/16/87	08:50	0.59	1049.370	75.998	0.008	1.91	Collected for chemistry, sample #196. Combined with sample #238 and split to form samples #396, #397, & #398 on 03/30/88.
DHP401	02/09/88	09:00	0.43	1134.380	85.010	0.005	2.34	Collected for chemistry, sample #238. Combined with #196 and split to form samples #396, #397 & #398 on 3/30/88.
DHP401	03/07/88	10:00	0.02	1161.420	27.040	0.001	2.36	Removed collecting device.
DHP401	03/29/88	09:00		1183.380	0.000	0.000	2.36	No collecting device.
DHP401	07/12/88	13:50		1288.580	0.000	0.000	2.36	No funnel.
DHP401	09/27/88	13:00	0.00	1365.540	0.000	0.000	2.36	None collected.
DHP401	10/13/88	10:00		1381.420	0.000	0.000	2.36	Installed funnel and collection bottle.
DHP401	12/13/88	10:50	0	1442.450	281.030	0.000	2.36	Dry.
DHP401	04/20/89	13:05	0	1570.545	128.094	0.000	2.36	Hole dry.
DHP401	05/17/89	09:00	0	1597.375	26.830	0.000	2.36	Hole dry.
DHP401	06/29/89	09:10	0	1640.382	43.007	0.000	2.36	Hole dry.

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DHP401	08/16/89	09:00	0	1688.375	47.993	0.000	2.36	Hole dry.
DHP401	11/15/89	10:25	0	1779.434	91.059	0.000	2.36	Hole dry.
DHP401	12/12/89	12:25	0	1806.517	27.083	0.000	2.36	Hole dry.
DHP401	03/05/90	12:10	0.0	1889.507	82.990	0.000	2.36	Dry.
DHP401	03/21/90	09:10	0.0	1905.382	15.875	0.000	2.36	Dry.
DHP401	04/11/90	10:23	0.0	1926.433	21.051	0.000	2.36	Dry.
DHP401	05/02/90	09:35	0.0	1947.399	20.966	0.000	2.36	Dry.
DHP401	05/08/90	10:10	0.0	1953.424	6.025	0.000	2.36	Dry.
DHP401	05/17/90	09:14	0.0	1962.385	8.961	0.000	2.36	Dry.
DHP401	05/23/90	13:40	0.0	1968.569	6.184	0.000	2.36	Dry.
DHP401	06/06/90	08:53	0.0	1982.370	13.801	0.000	2.36	Dry.
DHP401	06/14/90	11:00	0.0	1990.458	8.088	0.000	2.36	Dry.
DHP401	06/20/90	10:31	0.0	1996.438	5.980	0.000	2.36	Dry.
DHP401	07/17/90	09:37	0.0	2023.401	26.963	0.000	2.36	Dry.
DHP401	07/25/90	11:26	0.0	2031.476	8.075	0.000	2.36	Dry.
DHP401	08/07/90	09:20	0.0	2044.389	12.913	0.000	2.36	Dry.
DHP401	08/16/90	08:54	0.0	2053.371	8.982	0.000	2.36	Dry.
DHP401	08/22/90	11:20	0.0	2059.472	6.101	0.000	2.36	Dry.
DHP401	08/29/90	11:32	0.0	2066.481	7.009	0.000	2.36	Dry.
DHP401	09/05/90	10:28	0.0	2073.436	6.955	0.000	2.36	Dry.
DHP401	09/12/90	08:40	0.0	2080.361	6.925	0.000	2.36	Dry.
DHP401	10/20/90	10:20	0	0.000	0.000	0.000	0.00	Dry.
DHP401	12/20/90	10:05	0.	0.000	0.000	0.000	0.00	Dry.
DHP401	03/20/91	13:37	0.00	2269.567	90.147	0.000	2.36	Dry.
DHP401	04/10/91	12:20	0.00	2290.514	20.947	0.000	2.36	Dry.
DHP401	05/01/91	10:40	0.00	2311.444	20.930	0.000	2.36	Dry.
DHP401	05/08/91	09:20	0.00	2318.389	6.945	0.000	2.36	Dry.
DHP401	05/15/91	11:09	0.00	2325.465	7.076	0.000	2.36	Dry.
DHP401	06/19/91	16:07	0.00	2360.672	35.207	0.000	2.36	Dry.
DHP401	06/26/91	10:25	0.00	2367.434	6.762	0.000	2.36	Dry.
DHP401	07/17/91	11:12	0.00	2388.467	21.033	0.000	2.36	Dry.
DHP401	08/14/91	11:10	0.00	2416.465	27.998	0.000	2.36	Dry.
DHP401	09/18/91	10:20	0.00	2451.431	34.966	0.000	2.36	Dry.
DHP401	09/25/91	12:48	0.00	2458.533	7.102	0.000	2.36	Dry.
DHP401	10/23/91	10:55	0.00	2486.455	27.922	0.000	2.36	Dry.
DHP401	10/31/91	11:28	0.00	2494.478	8.023	0.000	2.36	Dry.
DHP401	11/13/91	09:15	0.00	2507.385	12.907	0.000	2.36	Dry.
DHP401	12/04/91	09:10	0.00	2528.382	20.997	0.000	2.36	Dry.
DHP402A	10/29/86	00:00	NA	0.000	0.000	0.000	0.00	Drift excavated at S1950/E1320.
DHP402A	12/05/86	00:00	NA	0.000	0.000	0.000	0.00	Downhole completed.
DHP402A	03/06/87	09:40	0.14	794.403	1.000	0.000	0.14	First time sampled.
DHP402A	03/30/87	09:15	0.00	818.385	23.982	0.000	0.14	
DHP402A	04/22/87	11:24	0.03	841.475	47.072	0.001	0.17	Bailer stuck in hole. Hole appears offset or blocked at the 45 foot level. There may be a rock bolt or piece of rod in the hole.
DHP402A	07/08/87	00:00	NA	918.000	0.000	0.000	0.17	Horizontal pilot hole for Room 7 of the first Waste Storage Panel started just north of this location, drilled with brine.
DHP402A	07/16/87	09:20	0.00	926.389	0.000	0.000	0.17	Hole entirely filled with brine from drilling the pilot /gas release hole for the last room of the first panel.

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DHP402A	07/28/87	10:20	17.50	938.431	0.000	0.000	17.67	Removed 17.5 liters of brine from hole, mostly drilling fluid. No calculation.
DHP402A	07/29/87	09:10	15.00	939.382	0.000	0.000	32.67	Drilling brine removed from hole. Partial evacuation, brine left in hole, no calculation.
DHP402A	08/16/87	00:00	NA	0.000	0.000	0.000	32.67	Brine from the AIS sump spread in Panel 1 to assist in the reconstitution of loose muck on the floor.
DHP402A	08/20/87	00:00	NA	0.000	0.000	0.000	32.67	Brine from the AIS sump spread in Panel 1 to assist in the reconstitution of loose muck on the floor.
DHP402A	10/01/87	00:00	NA	1003.000	0.000	0.000	32.67	Approximate date the salt muck stockpile was placed at the east end of S1950, covering the collar of this hole.
DHP402A	07/12/88	13:50		1288.580	0.000	0.000	32.67	Muck piled over hole, could not collect.
DHP402A	08/19/88	10:00	57.25	1326.420	387.989	0.186	89.92	Collected for chemistry, sample #492 - #497. Used 72.25 liters for calculation (15.0 on 7/29 + 57.25 on 8/19).
DHP402A	08/30/88	11:00	42.75	1337.460	11.040	3.872	132.67	Depth of water 28.8 feet below floor. Bottom of hole at 44.3 feet. 5.7 feet of salt on bottom of hole.
DHP402A	09/15/88	10:00	0.24	1353.420	0.000	0.000	132.91	Not fully evacuated. Don't use for calculation. Sampled for bacteriology.
DHP402A	09/22/88	09:00	63.75	1360.380	22.920	2.781	196.66	Hole evacuated to 44.2' level. Chemistry samples #498 - #503.
DHP402A	09/27/88	13:00		1365.540	0.000	0.000	196.66	None collected.
DHP402A	10/18/88	13:45	45	1386.570	26.190	1.718	241.66	Some moisture could have entered hole due to water spread for dust control
DHP402A	11/15/88	10:30	40.65	1414.440	27.870	1.459	282.31	Evacuated to 43.75 foot level. Lip or obstruction near bottom of hole prevents additional evacuation.
DHP402A	12/13/88	10:50	6.0	1442.450	0.000	0.000	288.31	Collected for chemistry, sample #606 - #617. Not fully evacuated, some brine left in hole. Don't use for calculation.
DHP402A	12/29/88	12:00	43.60	1458.500	44.060	1.126	331.91	Used 49.6 liters for calculation (6.0 on 12/13 + 43.6 on 12/29).
DHP402A	01/04/89	13:30	13.5	1464.562	6.062	2.227	345.41	Complete evacuation to 43.3 ft. level. Strong odor of diesel from hole and bailer.
DHP402A	01/20/89	10:30	19	1480.438	15.876	1.197	364.41	Volume removed includes 2.5 gallons of brine introduced to hole by Intera.
DHP402A	02/28/89	11:50	12.1	1519.493	39.055	0.310	376.51	Hole open to 44.2 feet.
DHP402A	04/06/89	13:30	1.19	1556.562	37.069	0.032	377.70	Sample removed from above packer.
DHP402A	04/20/89	13:05	NA	1570.545	0.000	0.000	377.70	Level measured at 33.1 feet.
DHP402A	04/26/89	10:30	NA	1576.438	0.000	0.000	377.70	Level of brine at 27.2 feet.
DHP402A	04/27/89	10:00	49.00	1577.417	20.855	2.350	426.70	Hole bottom measured at 44.3 feet.
DHP402A	05/17/89	09:00	33	1597.375	19.958	1.653	459.70	Fluid level at 44.6 feet.
DHP402A	06/20/89	10:00	NA	1631.417	0.000	0.000	459.70	Fluid measured at 39.8 feet. Hole not evacuated.
DHP402A	06/29/89	09:00	NA	1640.375	0.000	0.000	459.70	Measured hole fluid level at 37.6 feet.
DHP402A	07/24/89	09:50	24	1665.410	68.035	0.353	483.70	Sample saved for Intera brine study. Hole pumped to fluid level of 41.1 feet.
DHP402A	08/16/89	09:00	NA	1688.375	0.000	0.000	483.70	Sample not obtained. Fluid level at 36.5 feet.

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DHP402A	08/23/89	11:45	NA	1695.490	0.000	0.000	483.70	Observed fluid level at 35.4 feet. Not sampled.
DHP402A	09/12/89	12:30	6.30	1715.521	50.111	0.126	490.00	Partial collection for chemistry.
DHP402A	10/02/89	11:00	25.5	1735.458	19.937	1.279	515.50	Sample saved for Intera brine study.
DHP402A	11/15/89	10:30	16	1779.438	43.980	0.364	531.50	Sample saved for Intera brine study.
DHP402A	12/13/89	12:12	15.62	1807.508	28.070	0.556	547.12	Sample saved for chemistry and for Intera brine study, sample #901.
DHP402A	03/22/90	08:53	4.0	1906.370	0.000	0.000	547.12	Hole not completely evacuated.
DHP402A	03/26/90	09:25	7.0	1910.392	0.000	0.000	547.12	Hole not completely evacuated.
DHP402A	05/31/90	10:03	0.0	1976.419	168.911	0.000	547.12	Hole not sampled, water level at 36.0 feet.
DHP402A	06/20/90	10:31	15.0	1996.440	20.019	0.749	562.12	2 liters foer BSEP, 0.25 liters for Sandia (did not include in calculation). Partial evacuation.
DHP402A	10/05/90	09:30	2.250	2103.396	106.958	0.000	564.37	Partial evacuation.
DHP402A	11/14/90	10:20	0.0	2143.430	35.989	0.000	564.37	Hole not sampled, water level at 34.2 feet.
DHP402A	12/20/90	10:05	40.7	2179.420	35.989	0.299	605.07	Combined with 2.0 liters from 10/05/90. Used 42.7 liters for calculation.
DHP402A	02/20/91	13:00	2.0	2241.542	0.000	0.000	607.07	Partial evacuation.
DHP402A	03/11/91	10:45	12.72	2260.448	0.000	0.000	619.79	Partial evacuation. Removed for Sandia study.
DHP402A	03/27/91	10:27	5.20	2276.435	97.015	0.205	624.99	Combined with 2.0 liters from 02/20/91 and 12.72 liters from 03/11/91. Sample given to INTERA.
DHP402A	07/11/91	10:00	2.00	2382.417	0.000	0.000	626.99	Partial evacuation.
DHP402A	09/18/91	10:15	0.06	2451.427	0.000	0.000	627.05	Collected over two week period.
DHP402A	09/25/91	12:43	2.0	2458.530	182.095	0.022	629.05	Combined with 2.0 liters from 07/11/91 and 0.06 liters from 09/18/91.
GSEEP	11/21/84			0.000	0.000	0.000	0.00	Approximate date this part of Room G excavated.
GSEEP	08/28/85			0.000	0.000	0.000	0.00	Noticed damp area on floor at this location.
GSEEP	11/12/85	1		0.000	0.000	0.000	0.00	Damp area on floor near S. rib approx. E1140 (45 ft. E. of DH35) and at E1149. Crusted moist area is about 4 ft. by 4 ft., has increased
GSEEP	11/12/85	2		0.000	0.000	0.000	0.00	noticeably in size over last two months. Damp area covers 16 ft. E-W, 13 ft. N-S across width of Room G.
GSEEP	11/12/85	3		0.000	0.000	0.000	0.00	Many weeps on lower 3 ft. of S. rib. Brine is seeping out of air pipe support hole.
GSEEP	11/26/85	12:00	03.00	329.500	1.000	0.000	3.00	First time collection. Dug out salt.
GSEEP	12/03/85	12:00	01.50	336.500	7.000	0.214	4.50	Partial removal. Collected .05 liters for chem. anal. #5.
GSEEP	12/04/85	12:00	01.13	337.500	1.000	1.130	5.63	
GSEEP	12/10/85	12:00	01.80	343.500	6.000	0.300	7.43	
GSEEP	01/23/86	12:00	00.50	387.500	44.000	0.011	7.93	Lots of salt in pool.
GSEEP	01/31/86	12:00	00.94	395.500	8.000	0.117	8.87	
GSEEP	02/12/86	12:00	02.23	407.500	12.000	0.186	11.10	Pumped twice.
GSEEP	02/19/86	12:00	02.14	414.500	7.000	0.306	13.24	
GSEEP	02/28/86	12:00	01.95	423.500	9.000	0.217	15.19	Partial removal. No pump, scooped with beaker.

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GSEEP	03/04/86	11:20	02.62	427.472	3.972	0.660	17.81	
GSEEP	03/06/86	10:50	02.07	429.451	1.979	1.046	19.88	
GSEEP	03/13/86	11:46	03.23	436.490	7.039	0.459	23.11	Collected three times.
GSEEP	03/26/86	10:20	03.00	449.431	12.941	0.232	26.11	
GSEEP	04/02/86	10:00	02.68	456.417	6.986	0.384	28.79	
GSEEP	04/08/86	10:00	02.50	462.417	6.000	0.417	31.29	
GSEEP	04/16/86	12:00	02.24	470.500	8.083	0.277	33.53	
GSEEP	04/24/86	10:30	02.35	478.438	7.938	0.296	35.88	
GSEEP	04/30/86	11:00	02.40	484.458	6.020	0.399	38.28	
GSEEP	05/06/86	10:30	02.49	490.438	5.980	0.416	40.77	
GSEEP	05/13/86	11:20	02.66	497.472	7.034	0.378	43.43	
GSEEP	05/20/86	11:20	02.44	504.472	7.000	0.349	45.87	
GSEEP	05/27/86	15:30	03.11	511.646	7.174	0.434	48.98	
GSEEP	06/03/86	10:40	03.31	518.444	6.798	0.487	52.29	
GSEEP	06/10/86	11:38	03.21	525.485	7.041	0.456	55.50	
GSEEP	06/17/86	11:15	03.11	532.469	6.984	0.445	58.61	Sample for brine chemistry, #20.
GSEEP	06/24/86	11:00	04.60	539.458	6.989	0.658	63.21	Very humid air in workings.
GSEEP	07/01/86	14:00	05.43	546.583	7.125	0.762	68.64	Very humid last week, rain on surface.
GSEEP	07/08/86	10:50	04.14	553.451	6.868	0.603	72.78	
GSEEP	07/16/86	10:50	03.32	561.451	8.000	0.415	76.10	
GSEEP	07/22/86	10:15	02.29	567.427	5.976	0.383	78.39	
GSEEP	07/29/86	10:45	02.68	574.448	7.021	0.382	81.07	
GSEEP	08/05/86	11:20	02.60	581.472	7.024	0.370	83.67	
GSEEP	08/12/86	10:45	03.67	588.448	6.976	0.526	87.34	
GSEEP	08/19/86	11:40	03.90	595.486	7.038	0.554	91.24	
GSEEP	08/26/86	11:00	03.73	602.458	6.972	0.535	94.97	
GSEEP	09/04/86	10:55	05.15	611.455	8.997	0.572	100.12	Last week has been humid and rainy.
GSEEP	09/09/86	10:00	03.70	616.417	4.962	0.746	103.82	
GSEEP	09/16/86	10:25	03.82	623.434	7.017	0.544	107.64	
GSEEP	09/23/86	10:20	04.29	630.431	6.997	0.613	111.93	
GSEEP	10/01/86	12:24	03.70	638.517	8.086	0.458	115.63	
GSEEP	10/08/86	10:45	03.80	645.448	6.931	0.548	119.43	
GSEEP	10/08/86	14:57	01.87	645.623	0.175	10.690	121.30	Second collection for this day. Use (3.80 + 1.87)/(6.931 + 0.175) = 0.798 l/day.
GSEEP	10/10/86	09:16	01.24	647.386	1.763	0.703	122.54	
GSEEP	10/14/86	11:10	02.19	651.465	4.079	0.537	124.73	
GSEEP	11/05/86	10:45	4.44	673.448	21.983	0.202	129.17	First time 3.74 liters, second time 0.70 liters.
GSEEP	11/20/86	12:02	03.84	688.501	15.053	0.255	133.01	
GSEEP	12/30/86	12:50	04.44	728.535	40.034	0.111	137.45	
GSEEP	02/03/87	13:45	03.45	763.573	35.038	0.098	140.90	T=30.3c, pH 6.06, T 28.1.
GSEEP	03/06/87	11:30	3.0	794.479	30.906	0.097	143.90	
GSEEP	03/30/87	11:34	2.51	818.482	24.003	0.105	146.41	
GSEEP	05/07/87	11:48	3.31	856.492	38.010	0.087	149.72	
GSEEP	06/30/87	10:00	12.24	910.417	53.925	0.227	161.96	
GSEEP	07/16/87	10:30	11.66	926.438	16.021	0.728	173.62	
GSEEP	07/23/87	09:20	3.87	933.389	6.951	0.557	177.49	
GSEEP	07/28/87	11:35	2.36	938.483	5.094	0.463	179.85	
GSEEP	08/07/87	09:15	5.33	948.385	9.902	0.538	185.18	
GSEEP	08/12/87	10:12	2.80	953.425	5.040	0.556	187.98	
GSEEP	08/24/87	08:46	6.53	965.365	11.940	0.547	194.51	
GSEEP	09/01/87	11:00	5.26	973.458	8.093	0.650	199.77	Collected for chemistry, sample #164 A&B, #166 A&B, #169 A&B, #165 A&B, #168 A&B.

BRINE ACCUMULATION DATA TABLE
Data through December 31, 1991

LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
GSEEP	09/11/87	09:00	5.03	983.375	9.917	0.507	204.80	
GSEEP	09/16/87	09:33	2.42	988.398	5.023	0.482	207.22	
GSEEP	09/25/87	08:55	4.12	997.372	8.974	0.459	211.34	Sump drilled to facilitate accumulation of brine.
GSEEP	10/01/87	12:15	2.81	1003.510	6.138	0.458	214.15	
GSEEP	10/08/87	10:25	2.97	1010.430	6.920	0.429	217.12	
GSEEP	10/16/87	10:41	3.37	1018.450	8.020	0.420	220.49	
GSEEP	10/20/87	11:59	2.06	1022.500	4.050	0.509	222.55	
GSEEP	11/12/87	10:41	10.21	1045.450	22.950	0.445	232.76	
GSEEP	11/19/87	11:35	2.90	1052.480	7.030	0.413	235.66	Collected for chemistry, sample #202, #219 & #231.
GSEEP	12/07/87	12:50	7.02	1070.530	18.050	0.389	242.68	Collected for chemistry, sample #239.
GSEEP	01/04/88	12:10	16.11	1098.510	27.980	0.576	258.79	
GSEEP	01/20/88	11:25	8.68	1114.480	15.970	0.544	267.47	
GSEEP	02/08/88	12:15	9.58	1133.510	19.030	0.503	277.05	Collected for chemistry, sample #271, #272, #273, #274, #275, #276, #277, #278, #279, #280, #281, #282, #283, #284, #285, & #286.
GSEEP	02/25/88	10:40	11.87	1150.440	16.930	0.701	288.92	
GSEEP	03/09/88	10:18	7.35	1163.430	12.990	0.566	296.27	
GSEEP	03/17/88	11:20	4.45	1171.470	8.040	0.553	300.72	
GSEEP	03/29/88	11:45	5.42	1183.490	12.020	0.451	306.14	Collected for chemistry, sample #327 - #337.
GSEEP	04/15/88	11:01	7.43	1200.460	16.970	0.438	313.57	
GSEEP	05/05/88	10:10	9.34	1220.420	19.960	0.468	322.91	Sampled for Sandia PA.
GSEEP	05/12/88	09:30	3.55	1227.400	6.980	0.509	326.46	Sampled for Sandia PA.
GSEEP	06/09/88	08:45	12.00	1255.360	27.960	0.429	338.46	Removed for Sandia PA.
GSEEP	06/16/88	09:43	4.13	1262.400	7.040	0.587	342.59	Sampled for Sandia PA.
GSEEP	06/30/88	08:30	6.00	1276.350	13.950	0.430	348.59	Sampled for Sandia PA.
GSEEP	07/12/88	09:00	6.40	1288.380	12.030	0.532	354.99	Collected for chemistry, sample #437 - #448.
GSEEP	07/28/88	10:30	11.35	1304.440	16.060	0.707	366.34	Sampled for Sandia PA.
GSEEP	08/11/88	10:00	12.02	1318.420	13.980	0.860	378.36	Sampled for Sandia PA.
GSEEP	08/25/88	09:07	6.72	1332.380	13.960	0.481	385.08	Hole covered with tight fitting brattice cloth. Sampled for Sandia PA.
GSEEP	09/08/88	14:48	7.31	1346.620	14.240	0.513	392.39	Sampled for Sandia PA.
GSEEP	09/14/88	08:30	3.00	1352.350	5.730	0.524	395.39	
GSEEP	09/27/88	10:50	6.45	1365.450	13.100	0.492	401.84	Collected for chemistry, sample #545 - #556.
GSEEP	10/18/88	10:22	10.20	1386.430	20.980	0.486	412.04	
GSEEP	11/10/88	09:08	12.62	1409.380	22.950	0.550	424.66	Smell of urine in sample and coming from hole.
GSEEP	12/13/88	10:20	17.81	1442.430	33.050	0.539	442.47	Collected for chemistry, sample #564 - #569. Sample effervesces and brine feels warmer than usual.
GSEEP	01/10/89	13:30	17.38	1470.562	28.131	0.618	459.85	Sample saved for Sandia brine study.
GSEEP	02/09/89	10:22	19.5	1500.432	29.870	0.653	479.35	Sample saved for Sandia brine study.
GSEEP	03/01/89	10:00	3.90	1520.417	0.000	0.000	483.25	Partial collection for J. Francke.
GSEEP	03/14/89	12:45	19.57	1533.531	33.099	0.709	502.82	Sample saved for chemistry, sample #672 - 683. Add 3.9 l collected 3/01/90 to 19.57 l. Use 23.47 l for calculation.
GSEEP	04/06/89	08:56	16.35	1556.372	22.841	0.716	519.17	16 liters of sample saved for Sandia brine study.
GSEEP	04/20/89	08:45	10.43	1570.365	13.993	0.745	529.60	Sample saved for Sandia brine study.

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
GSEEP	05/17/89	09:40	19.72	1597.403	27.038	0.729	549.32	Sample saved for Sandia brine study.
GSEEP	06/06/89	09:40	14.52	1617.403	20.000	0.726	563.84	Sample saved for chemistry. Extra saved for Sandia brine study.
GSEEP	06/29/89	10:01	15.95	1640.417	23.014	0.693	579.79	Sample saved for Sandia brine study.
GSEEP	07/06/89	09:00	4.67	1647.375	6.958	0.671	584.46	Sample saved for Sandia brine study.
GSEEP	07/25/89	09:30	12.60	1666.396	19.021	0.662	597.06	Sample saved for Sandia brine study.
GSEEP	08/16/89	09:15	14.73	1688.385	21.989	0.670	611.79	Sample saved for Sandia brine study.
GSEEP	09/12/89	08:30	18.68	1715.354	26.969	0.693	630.47	Sample saved for chemistry.
GSEEP	10/11/89	09:47	17.70	1744.408	29.054	0.609	648.17	Sample saved for Sandia brine study.
GSEEP	11/15/89	09:30	21.44	1779.396	34.988	0.613	669.61	Sample saved for Sandia brine study.
GSEEP	12/13/89	09:13	16.30	1807.384	27.988	0.582	685.91	Sample saved for Sandia brine study, sample #896.
GSEEP	01/10/90	09:21	16.40	1835.390	28.006	0.586	702.31	
GSEEP	01/24/90	09:19	9.0	1849.388	13.998	0.643	711.31	
GSEEP	02/07/90	10:07	9.0	1863.422	14.034	0.641	720.31	
GSEEP	02/21/90	09:40	8.32	1877.403	13.981	0.595	728.63	
GSEEP	03/21/90	09:49	16.55	1905.409	28.006	0.591	745.18	
GSEEP	04/24/90	11:16	20.33	1939.469	34.060	0.597	765.51	
GSEEP	05/23/90	11:51	16.66	1968.494	29.025	0.574	782.17	
GSEEP	06/06/90	12:30	10.50	1982.521	14.000	0.750	792.67	
GSEEP	06/20/90	08:56	15.72	1996.372	27.878	0.564	808.39	
GSEEP	07/25/90	08:50	15.0	2031.368	34.996	0.429	823.39	
GSEEP	12/11/90	10:30	2.0	2170.438	139.070	0.000	825.39	Partial removal. First time sampled since 07/25/90.
GSEEP	12/13/90	08:56	49.89	2172.372	1.930	0.368	875.28	Combined with 2.0 liters from 12/11/90. Used 51.89 liters for calculation.
GSEEP	12/20/90	08:23	0.0	2179.349	147.981	0.000	875.28	Could not sample.
GSEEP	01/23/91	09:30	26.14	2213.396	182.028	0.429	901.42	Combined with 2.0 liters from 12/11/90 and 49.89 liters from 12/13/90.
GSEEP	02/27/91	09:52	17.6	2248.411	35.015	0.503	919.02	
GSEEP	03/11/91	08:20	6.9	2260.347	11.936	0.578	925.92	Removed out of cycle for Sandia biology study.
GSEEP	03/20/91	10:10	2.02	2269.424	0.000	0.000	927.94	Partial evacuation. First evacuation with bailer, second with pump.
GSEEP	03/21/91	08:45	3.17	2270.365	10.018	0.518	931.11	Combined with 2.02 liters from 03/20/91.
GSEEP	04/24/91	09:02	15.85	2304.376	34.011	0.466	946.96	
GSEEP	05/29/91	09:06	15.72	2339.379	35.003	0.449	962.68	
GSEEP	06/26/91	08:50	12.0	2367.368	27.989	0.429	974.68	
GSEEP	07/11/91	10:20	2.25	2382.431	0.000	0.000	976.93	Partial evacuation.
GSEEP	07/31/91	09:30	11.72	2402.396	35.028	0.399	988.65	Combined with 2.25 liters from 07/11/91.
GSEEP	08/28/91	09:15	11.40	2430.385	27.989	0.407	1000.05	
GSEEP	09/25/91	11:20	2.0	2458.472	0.000	0.000	1002.05	Some brine may have been left in hole.
GSEEP	10/23/91	09:55	15.0	2486.413	56.028	0.303	1017.05	Combined with 2 liters from 10/23/91.
GSEEP	11/27/91	09:40	10.0	2521.403	34.990	0.286	1027.05	
GSEEP	12/10/91	10:30	1.7	2534.438	0.000	0.000	1028.75	Partial removal for Sandia 1.
OH20	09/03/85	00:00	NA	0.000	0.000	0.000	0.00	Approximated date this part of drift excavated.
OH20	03/29/89	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled 3/28/89 to 3/29/89. Hole drilled with brine . Fluorescien added to drilling fluid.
OH20	03/30/89	11:00	NA	1549.458	0.000	0.000	0.00	New hole, Installed collecting device. Hole

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
								dry.
OH20	04/18/89	09:45	0	1568.406	18.948	0.000	0.00	Device left with 50 centibars suction.
OH20	04/26/89	09:50	0	1576.410	8.004	0.000	0.00	Device left with 50 centibars suction.
OH20	06/05/89	09:00	0.31	1616.375	39.965	0.008	0.31	First time sample recovered from this hole. Sample colored with Fluorescien dye. Replaced collecting device. Sample saved for chemistry.
OH20	06/20/89	08:30	0.03	1631.354	14.979	0.002	0.34	
OH20	07/06/89	11:00	0.02	1647.458	16.104	0.001	0.36	Collecting device retained vacuum. Sample collected for chemistry.
OH20	08/09/89	10:00	0.29	1681.417	33.959	0.009	0.65	Sample collected for chemistry. Pumped collecting device, repaired hose end.
OH20	08/23/89	11:22	0.16	1695.474	14.057	0.011	0.81	Sample collected for chemistry. Still yellowish green in color.
OH20	09/14/89	11:05	0.21	1717.462	21.988	0.010	1.02	Sample saved for chemistry.
OH20	10/02/89	11:20	0.27	1735.472	18.010	0.015	1.29	Sample saved for chemistry.
OH20	10/20/89	11:25	0.26	1753.476	18.004	0.014	1.55	Sample saved for chemistry, sample #855.
OH20	11/10/89	10:18	0.29	1774.429	20.953	0.014	1.84	Sample saved for chemistry, sample #868.
OH20	11/29/89	13:00	0.37	1793.542	19.113	0.019	2.21	Sample saved for chemistry, sample #876.
OH20	12/12/89	10:06	0.20	1806.421	12.879	0.016	2.41	Sample saved for chemistry, sample #888.
OH20	01/04/90	11:52	0.27	1829.494	23.073	0.012	2.68	
OH20	01/17/90	09:59	0.21	1842.416	12.922	0.016	2.89	
OH20	01/31/90	10:38	0.21	1856.443	14.027	0.015	3.10	
OH20	02/13/90	10:40	0.18	1869.444	13.001	0.014	3.28	
OH20	02/27/90	12:28	0.24	1883.519	14.075	0.017	3.52	
OH20	03/05/90	11:12	0.20	1889.467	5.948	0.034	3.72	
OH20	03/21/90	09:30	0.08	1905.396	15.929	0.005	3.80	
OH20	04/04/90	12:04	0.18	1919.503	14.107	0.013	3.98	
OH20	04/10/90	10:06	0.11	1925.421	5.918	0.019	4.09	
OH20	05/02/90	10:03	0.10	1947.419	21.998	0.005	4.19	
OH20	05/09/90	09:24	0.09	1954.392	6.973	0.013	4.28	
OH20	05/16/90	11:55	0.07	1961.497	7.105	0.010	4.35	
OH20	05/23/90	13:09	0.18	1968.548	7.051	0.026	4.53	
OH20	05/31/90	09:43	0.09	1976.405	7.857	0.011	4.62	
OH20	06/06/90	11:45	0.08	1982.490	6.085	0.013	4.70	
OH20	06/14/90	10:27	0.09	1990.435	7.945	0.011	4.79	
OH20	06/28/90	10:42	0.18	2004.446	14.011	0.013	4.97	
OH20	07/17/90	09:14	0.24	2023.385	18.939	0.000	5.21	
OH20	07/18/90	11:10	0.01	2024.465	1.080	0.012	5.22	Combined with 0.24 liters from 07/17/90. Used 0.25 liters for calculation.
OH20	07/25/90	10:20	0.09	2031.431	6.966	0.013	5.31	
OH20	08/01/90	11:20	0.09	2038.472	7.041	0.013	5.40	
OH20	08/07/90	10:13	0.08	2044.426	5.954	0.013	5.48	
OH20	08/16/90	10:13	0.11	2053.426	9.000	0.012	5.59	
OH20	08/22/90	10:56	0.08	2059.456	6.030	0.013	5.67	
OH20	08/29/90	10:33	0.09	2066.440	6.984	0.013	5.76	
OH20	09/05/90	10:44	0.09	2073.447	7.007	0.013	5.85	
OH20	09/12/90	09:10	0.08	2080.382	6.935	0.012	5.93	
OH20	09/25/90	11:52	0.14	2093.494	13.112	0.000	6.07	Partial evacuation.
OH20	09/26/90	10:10	0.09	2094.424	0.930	0.016	6.16	Combined with 0.14 liters from 09/25/90. Used 0.23 liters for calculation.
OH20	10/03/90	09:10	0.06	2101.382	6.958	0.009	6.22	
OH20	10/10/90	10:31	0.08	2108.438	7.056	0.011	6.30	

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
OH20	10/18/90	09:37	0.09	2116.401	7.963	0.011	6.39	
OH20	10/24/90	11:45	0.07	2122.490	6.089	0.011	6.46	
OH20	10/31/90	11:00	0.09	2129.458	6.968	0.013	6.55	
OH20	11/07/90	11:37	0.08	2136.484	7.026	0.011	6.63	
OH20	11/14/90	10:50	0.09	2143.451	6.967	0.013	6.72	
OH20	11/28/90	11:37	0.16	2157.484	14.033	0.011	6.88	
OH20	12/05/90	09:40	0.09	2164.403	6.919	0.013	6.97	
OH20	12/13/90	10:00	0.10	2172.417	8.014	0.012	7.07	
OH20	12/20/90	10:47	0.09	2179.449	7.032	0.013	7.16	
OH20	01/09/91	10:40	0.20	2199.444	19.995	0.010	7.36	
OH20	01/16/91	13:04	0.10	2206.544	7.100	0.014	7.46	
OH20	01/23/91	10:44	0.08	2213.447	6.903	0.012	7.54	
OH20	01/30/91	09:20	0.10	2220.389	6.942	0.014	7.64	
OH20	02/13/91	12:05	0.15	2234.503	14.114	0.011	7.79	
OH20	02/20/91	11:00	0.08	2241.458	6.955	0.012	7.87	
OH20	02/27/91	11:10	0.09	2248.465	7.007	0.013	7.96	
OH20	03/07/91	10:45	0.08	2256.448	7.983	0.010	8.04	
OH20	03/20/91	12:51	0.15	2269.535	13.087	0.011	8.19	
OH20	03/28/91	12:34	0.10	2277.524	7.989	0.013	8.29	
OH20	04/10/91	09:44	0.14	2290.406	12.882	0.011	8.43	
OH20	04/17/91	11:10	0.09	2297.465	7.059	0.013	8.52	
OH20	04/24/91	10:05	0.09	2304.420	6.955	0.013	8.61	
OH20	05/01/91	10:10	0.09	2311.424	7.004	0.013	8.70	
OH20	05/08/91	09:10	0.09	2318.382	6.958	0.013	8.79	
OH20	05/15/91	10:45	0.08	2325.448	7.066	0.011	8.87	
OH20	05/29/91	10:33	0.15	2339.440	13.992	0.011	9.02	
OH20	06/05/91	13:13	0.09	2346.551	7.111	0.013	9.11	
OH20	06/12/91	09:15	0.08	2353.385	6.834	0.012	9.19	
OH20	06/19/91	15:45	0.09	2360.656	7.271	0.012	9.28	
OH20	06/26/91	08:20	0.08	2367.347	6.691	0.012	9.36	
OH20	07/11/91	11:54	0.16	2382.496	15.149	0.011	9.52	
OH20	07/17/91	10:36	0.06	2388.442	5.946	0.010	9.58	
OH20	07/30/91	10:50	0.14	2401.451	13.009	0.011	9.72	
OH20	08/08/91	09:45	0.10	2410.406	8.955	0.011	9.82	
OH20	08/14/91	11:00	0.07	2416.458	6.052	0.012	9.89	
OH20	08/21/91	11:25	0.15	2423.476	7.018	0.021	10.04	
OH20	08/28/91	10:55	0.07	2430.455	6.979	0.010	10.11	
OH20	09/04/91	11:30	0.08	2437.479	7.024	0.011	10.19	
OH20	09/11/91	12:15	0.09	2444.510	7.031	0.013	10.28	
OH20	09/18/91	09:35	0.08	2451.399	6.889	0.012	10.36	
OH20	09/25/91	10:37	0.02	2458.442	7.043	0.003	10.38	
OH20	10/02/91	11:48	0.10	2465.492	7.050	0.014	10.48	
OH20	10/16/91	10:50	0.11	2479.451	13.959	0.008	10.59	
OH20	10/23/91	12:41	0.09	2486.528	7.077	0.013	10.68	
OH20	10/31/91	11:55	0.08	2494.497	7.969	0.010	10.76	
OH20	11/06/91	11:50	0.11	2500.493	5.996	0.018	10.87	
OH20	11/13/91	11:14	0.14	2507.468	6.975	0.020	11.01	
OH20	11/20/91	11:55	0.15	2514.497	7.029	0.021	11.16	
OH20	11/27/91	10:15	0.04	2521.427	6.930	0.006	11.20	
OH20	12/04/91	12:05	0.09	2528.503	7.076	0.013	11.29	
OH20	12/11/91	11:15	0.10	2535.469	6.966	0.014	11.39	
OH20	12/18/91	10:20	0.04	2542.431	6.962	0.006	11.43	

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OH21	09/03/85	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of drift excavated.
OH21	12/12/88	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled 12/12/88 to 12/19/88. Hole drilled with brine. Fluorescien added to drilling fluid.
OH21	02/06/89	10:00	NA	1497.417	0.000	0.000	0.00	New hole, Installed collecting device @ 53' in hole. Hole dry.
OH21	02/14/89	09:25	0	1505.392	7.975	0.000	0.00	Hole plugged with foam. Hole holding vacuum at approx. 50 centibars.
OH21	02/21/89	10:30	0	1512.438	7.046	0.000	0.00	Holding vacuum.
OH21	02/28/89	10:50	0	1519.451	7.013	0.000	0.00	Holding vacuum.
OH21	03/01/89	11:45	NA	1520.490	0.000	0.000	0.00	Device left with approximately 70 centibars suction.
OH21	03/08/89	09:45	0	1527.406	7.955	0.000	0.00	Device left with approximately 50 centibars suction.
OH21	03/15/89	11:35	0	1534.483	7.077	0.000	0.00	Hole dry.
OH21	03/30/89	10:20	0	1549.431	14.948	0.000	0.00	Hole dry.
OH21	04/18/89	09:50	0	1568.410	18.979	0.000	0.00	Device left with approximately 50 centibars suction.
OH21	04/26/89	09:55	0	1576.413	8.003	0.000	0.00	Device left with approximately 50 centibars suction.
OH21	06/05/89	09:10	0	1616.382	39.969	0.000	0.00	Hole dry, no vacuum in collecting device. Removed and replaced collecting device.
OH21	06/20/89	08:40	0	1631.361	14.979	0.000	0.00	Hole dry.
OH21	07/06/89	11:10	0	1647.465	16.104	0.000	0.00	Hole dry. Collecting device retained vacuum.
OH21	08/09/89	10:05	0	1681.420	33.955	0.000	0.00	Hole dry. Pumped collecting device, repaired hose ends.
OH21	08/23/89	11:20	0	1695.472	14.052	0.000	0.00	Hole dry.
OH21	10/02/89	11:25	0	1735.476	40.004	0.000	0.00	Hole dry.
OH21	10/20/89	11:25	0	1753.476	18.000	0.000	0.00	Hole dry.
OH21	11/10/89	10:20	0	1774.431	20.955	0.000	0.00	Hole dry.
OH21	11/29/89	12:52	0	1793.536	19.105	0.000	0.00	Hole dry.
OH21	12/12/89	10:10	0	1806.424	12.888	0.000	0.00	Dry. Reseat collection device (leaking).
OH21	03/28/91	12:45	0.00	2277.531	471.107	0.000	0.00	Air blowing through tube.
OH21	04/24/91	10:07	0.00	2304.422	26.891	0.000	0.00	Air blowing through tube.
OH21	07/17/91	10:36	0.00	2388.442	84.020	0.000	0.00	Air blowing through tube.
OH21	09/25/91	10:35	0.00	2458.441	69.999	0.000	0.00	Dry. Air blowing through tube. Sampler under vacuum.
OH21	10/31/91	11:48	0.00	2494.492	36.051	0.000	0.00	Dry.
OH22	09/03/85	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of drift excavated.
OH22	12/19/88	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled 12/12/88 to 12/19/88. Hole drilled with brine. Fluorescien added to drilling fluid.
OH22	02/06/89	11:00	NA	1497.458	0.000	0.000	0.00	New hole, Installed collecting device @ 52.4' in hole. Hole dry.
OH22	02/14/89	09:20	0	1505.389	7.931	0.000	0.00	Hole plugged with foam. Hole holding vacuum at approx. 50 centibars.
OH22	02/21/89	10:40	0	1512.444	7.055	0.000	0.00	Holding vacuum.

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OH22	02/28/89	10:50	0	1519.451	7.007	0.000	0.00	Not holding vacuum.
OH22	03/01/89	11:00	NA	1520.458	0.000	0.000	0.00	Device left with approximately 70 centibars suction.
OH22	03/08/89	09:45	0	1527.406	7.955	0.000	0.00	Device left with approximately 50 centibars suction.
OH22	03/15/89	11:35	0	1534.483	7.077	0.000	0.00	Hole dry.
OH22	03/30/89	10:22	0	1549.432	14.949	0.000	0.00	Hole dry.
OH22	04/18/89	09:55	0	1568.413	18.981	0.000	0.00	Device left with approximately 50 centibars suction.
OH22	04/26/89	10:00	0	1576.417	8.004	0.000	0.00	Device left with approximately 50 centibars suction.
OH22	06/05/89	09:20	0	1616.389	39.972	0.000	0.00	Hole dry, no vacuum on collecting device. Removed and replaced collecting device.
OH22	06/20/89	08:45	Trace	1631.365	0.000	0.000	0.00	Trace of brine found in hole.
OH22	07/06/89	11:20	0	1647.472	31.083	0.000	0.00	Hole dry. Collecting device retained vacuum.
OH22	08/09/89	10:10	0	1681.424	33.952	0.000	0.00	Hole dry. Pumped collecting device, repaired hose ends.
OH22	08/23/89	11:20	0	1695.472	14.048	0.000	0.00	Hole dry.
OH22	10/02/89	11:23	0	1735.474	40.002	0.0[illegible]	0.00	Hole dry.
OH22	10/20/89	11:25	0	1753.476	18.002	0.000	0.00	Hole dry.
OH22	11/10/89	10:22	0	1774.432	20.956	0.000	0.00	Hole dry.
OH22	11/29/89	12:55	0	1793.538	19.106	0.000	0.00	Hole dry.
OH22	12/12/89	10:12	0	1806.425	12.887	0.000	0.00	Dry. Reseat collection device (leaking).
OH22	03/28/91	12:45	0.00	2277.531	471.106	0.000	0.00	Air blowing through tube.
OH22	04/24/91	10:09	0.00	2304.423	26.892	0.000	0.00	Air blowing through tube.
OH22	07/17/91	10:38	0.00	2388.443	84.020	0.000	0.00	Air blowing through tube.
OH22	09/25/91	10:34	0.02	2458.440	0.000	0.000	0.02	Some brine may have been left in hole.
OH22	10/23/91	12:40	0.57	2486.528	98.090	0.006	0.59	Removed and replaced collection device. Combined with .02 liters from 09/25/91.
OH22	10/31/91	11:48	Trace	2494.492	7.964	0.000	0.59	
OH22	11/13/91	11:10	0.00	2507.465	12.973	0.000	0.59	Dry. Air only.
OH22	12/04/91	11:55	Trace	2528.497	21.032	0.000	0.59	
OH23	12/08/85	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of drift excavated.
OH23	02/06/89	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled 2/6/89. Hole drilled with brine. Fluorescien added to drilling fluid.
OH23	02/07/89	14:00	NA	1498.583	0.000	0.000	0.00	New hole, installed collecting device @ 153' in hole. Hole dry.
OH23	02/14/89	09:08	0	1505.381	6.798	0.000	0.00	Hole plugged with foam. Hole holding vacuum at approx. 50 centibars.
OH23	02/21/89	10:00	0.00	1512.417	7.036	0.000	0.00	Holding vacuum.
OH23	02/28/89	10:00	0.43	1519.417	7.000	0.061	0.43	Sample clear, warm and effervescent.
OH23	03/08/89	09:30	0.30	1527.396	7.979	0.038	0.73	Device left with approximately 50 centibars suction.
OH23	03/15/89	11:45	0.21	1534.490	7.094	0.030	0.94	Sample saved for chemistry, sample #671.
OH23	03/30/89	10:15	0.52	1549.427	14.937	0.035	1.46	Sample saved for chemistry.
OH23	04/04/89	09:30	0.10	1554.396	4.969	0.020	1.56	Sample saved for chemistry. Device left with approximately 50 centibars suction. Outer 75 feet (approx.) of hole dry.

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OH23	04/18/89	09:55	0.10	1568.413	14.017	0.007	1.66	No sample. Device left with approximately 50 centibars suction.
OH23	04/26/89	09:35	0.15	1576.399	7.986	0.019	1.81	Device left with approximately 50 centibars suction. Combined sample saved for chemistry.
OH23	06/05/89	09:30	0.35	1616.396	39.997	0.009	2.16	Sample saved for chemistry.
OH23	06/20/89	08:50	0.62	1631.368	14.972	0.041	2.78	
OH23	07/06/89	11:30	0.37	1647.479	16.111	0.023	3.15	Collecting device retained vacuum. Sample saved for chemistry.
OH23	08/09/89	10:15	0.76	1681.427	33.948	0.022	3.91	Sample saved for chemistry. Pumped collecting device.
OH23	08/23/89	11:13	0.35	1695.467	14.040	0.025	4.26	Sample saved for chemistry.
OH23	09/14/89	11:14	0.51	1717.468	22.001	0.023	4.77	Sample saved for chemistry.
OH23	10/02/89	11:30	0.36	1735.479	18.011	0.020	5.13	Sample saved for chemistry.
OH23	10/20/89	11:35	0.46	1753.483	18.004	0.026	5.59	Sample saved for chemistry, sample #856.
OH23	11/10/89	10:24	NA	1774.433	0.000	0.000	5.59	Collecting device exploded in hole due to overpressuring during sampling.
OH23	11/15/89	09:00	NA	1779.375	0.000	0.000	5.59	Reinstalled collecting device.
OH23	11/29/89	12:51	0.26	1793.535	40.052	0.006	5.85	Sample saved for chemistry, sample #875.
OH23	12/12/89	09:52	0.13	1806.411	12.876	0.010	5.98	Sample saved for chemistry, sample #887. Reseat collecting device (leaking).
OH23	01/04/90	11:57	0.11	1829.498	23.087	0.005	6.09	
OH23	01/17/90	09:20	0.23	1842.389	12.891	0.018	6.32	
OH23	03/26/90	09:15	0.60	1910.385	67.996	0.000	6.92	Brine probably left in hole.
OH23	04/04/90	11:53	0.58	1919.495	9.110	0.000	7.50	Brine probably left in hole.
OH23	04/10/90	09:39	0.33	1925.402	5.907	0.018	7.83	Combined with 0.60 liters from 03/26/90 and 0.58 liters from 04/04/90. Used 1.51 liters for calculation.
OH23	04/24/90	08:46	0.29	1939.365	13.963	0.021	8.12	
OH23	05/02/90	09:52	0.17	1947.411	8.046	0.021	8.29	
OH23	05/09/90	09:32	0.15	1954.397	6.986	0.021	8.44	
OH23	05/16/90	11:45	0.17	1961.490	7.093	0.024	8.61	
OH23	05/23/90	13:07	0.13	1968.547	7.057	0.018	8.74	
OH23	05/31/90	09:35	0.16	1976.399	7.852	0.020	8.90	
OH23	06/06/90	11:40	0.12	1982.486	6.087	0.020	9.02	
OH23	06/14/90	10:35	0.17	1990.441	7.955	0.021	9.19	
OH23	06/28/90	10:36	0.38	2004.442	14.001	0.027	9.57	
OH23	07/17/90	09:04	0.33	2023.378	18.936	0.000	9.90	
OH23	07/18/90	11:05	0.10	2024.462	1.084	0.021	10.00	Combined with 0.33 liters from 07/17/90. Used 0.43 liters for calculation.
OH23	07/25/90	10:15	0.10	2031.427	6.965	0.014	10.10	
OH23	08/01/90	11:15	0.14	2038.469	7.042	0.020	10.24	
OH23	08/07/90	09:58	0.14	2044.415	5.946	0.024	10.38	
OH23	08/16/90	09:42	0.15	2053.404	8.989	0.017	10.53	
OH23	08/22/90	10:51	0.10	2059.452	6.048	0.017	10.63	
OH23	08/29/90	10:30	0.15	2066.438	6.986	0.021	10.78	
OH23	09/05/90	10:40	0.17	2073.444	7.006	0.024	10.95	
OH23	09/12/90	09:00	0.10	2080.375	6.931	0.014	11.05	
OH23	09/25/90	11:42	0.21	2093.488	13.113	0.000	11.26	
OH23	09/26/90	09:53	0.06	2094.412	0.924	0.019	11.32	Combined with 0.21 liters from 09/25/90. Used 0.27 liters for calculation.
OH23	10/03/90	09:05	0.11	2101.378	6.966	0.016	11.43	
OH23	10/10/90	10:22	0.13	2108.432	7.054	0.018	11.56	

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OH23	10/18/90	09:30	0.15	2116.396	7.964	0.019	11.71	
OH23	10/24/90	11:30	0.10	2122.479	6.083	0.016	11.81	
OH23	10/31/90	10:53	0.11	2129.453	6.974	0.016	11.92	
OH23	11/07/90	11:40	0.10	2136.486	7.033	0.014	12.02	
OH23	11/14/90	10:45	0.13	2143.448	6.962	0.019	12.15	
OH23	11/28/90	11:32	0.22	2157.481	14.033	0.016	12.37	
OH23	12/05/90	09:35	0.10	2164.399	6.918	0.014	12.47	
OH23	12/13/90	10:15	0.14	2172.427	8.028	0.017	12.61	
OH23	12/20/90	10:30	0.10	2179.438	7.011	0.014	12.71	
OH23	01/09/91	10:48	0.24	2199.450	0.000	0.000	12.95	Some brine may have been left in hole.
OH23	01/16/91	13:15	0.43	2206.552	27.114	0.025	13.38	Combined with 0.24 liters from 01/09/91. Collection device replaced on 01/10/91.
OH23	01/23/91	10:50	0.08	2213.451	6.899	0.012	13.46	
OH23	01/30/91	09:01	0.12	2220.376	6.925	0.017	13.58	
OH23	02/13/91	12:15	0.20	2234.510	14.134	0.014	13.78	
OH23	02/20/91	11:20	0.12	2241.472	6.962	0.017	13.90	
OH23	02/27/91	11:15	0.11	2248.469	6.997	0.016	14.01	
OH23	03/07/91	10:50	0.11	2256.451	7.982	0.014	14.12	
OH23	03/20/91	12:50	0.21	2269.535	13.084	0.016	14.33	
OH23	03/28/91	12:15	0.12	2277.510	7.975	0.015	14.45	
OH23	04/10/91	09:55	0.20	2290.413	12.903	0.016	14.65	
OH23	04/17/91	10:59	0.11	2297.458	7.045	0.016	14.76	
OH23	04/24/91	10:10	0.07	2304.424	6.966	0.010	14.83	
OH23	05/01/91	10:05	0.12	2311.420	6.996	0.017	14.95	
OH23	05/08/91	09:15	0.06	2318.385	6.965	0.009	15.01	
OH23	05/15/91	11:00	0.13	2325.458	7.073	0.018	15.14	
OH23	05/29/91	10:28	0.04	2339.436	13.978	0.003	15.18	
OH23	06/05/91	13:10	0.04	2346.549	7.113	0.006	15.22	
OH23	06/12/91	09:00	0.02	2353.375	6.826	0.003	15.24	
OH23	06/19/91	15:35	0.43	2360.649	7.274	0.059	15.67	
OH23	06/26/91	08:15	0.10	2367.344	6.695	0.015	15.77	
OH23	07/11/91	12:05	0.23	2382.503	15.159	0.015	16.00	
OH23	07/17/91	10:40	0.09	2388.444	5.941	0.015	16.09	
OH23	07/30/91	10:45	0.18	2401.448	13.004	0.014	16.27	
OH23	08/08/91	09:42	0.14	2410.404	8.956	0.016	16.41	
OH23	08/14/91	11:30	0.13	2416.479	6.075	0.021	16.54	
OH23	08/21/91	11:20	0.12	2423.472	6.993	0.017	16.66	
OH23	08/28/91	10:50	0.07	2430.451	6.979	0.010	16.73	
OH23	09/04/91	11:35	0.14	2437.483	7.032	0.020	16.87	
OH23	09/11/91	12:10	0.04	2444.507	7.024	0.006	16.91	
OH23	09/18/91	09:30	0.16	2451.396	6.889	0.023	17.07	
OH23	09/25/91	10:30	0.09	2458.438	7.042	0.013	17.16	
OH23	10/02/91	11:44	0.10	2465.489	7.051	0.014	17.26	
OH23	10/16/91	10:57	0.16	2479.456	13.967	0.011	17.42	
OH23	10/23/91	12:35	0.11	2486.524	7.068	0.016	17.53	
OH23	10/31/91	11:40	0.08	2494.486	7.962	0.010	17.61	
OH23	11/06/91	12:03	0.09	2500.502	6.016	0.015	17.70	
OH23	11/13/91	11:00	0.05	2507.458	6.956	0.007	17.75	
OH23	11/20/91	11:50	0.16	2514.493	7.035	0.023	17.91	
OH23	11/27/91	10:30	0.10	2521.438	6.945	0.014	18.01	
OH23	12/04/91	11:50	0.10	2528.493	7.055	0.014	18.11	
OH23	12/11/91	11:30	0.09	2535.479	6.986	0.013	18.20	
OH23	12/18/91	11:00	0.07	2542.458	6.979	0.010	18.27	

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OH24	12/08/85	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of drift excavated.
OH24	03/06/89	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled 3/2/89 to 3/6/89.
OH24	03/08/89	09:50	NA	1527.410	0.000	0.000	0.00	New hole. Installed collecting device. Hole dry.
OH24	03/15/89	11:45	0	1534.490	7.080	0.000	0.00	Hole dry.
OH24	03/30/89	10:25	0	1549.434	14.944	0.000	0.00	Hole dry.
OH24	04/18/89	10:00	0	1568.417	18.983	0.000	0.00	Device left with approximately 50 centibars suction.
OH24	04/26/89	09:40	0	1576.403	7.986	0.000	0.00	Device left with approximately 50 centibars suction.
OH24	06/05/89	09:40	0.05	1616.403	40.000	0.001	0.05	First time sample recovered. No vacuum in collecting device. Collecting device removed and replaced.
OH24	06/20/89	09:00	0.03	1631.375	14.972	0.002	0.08	
OH24	07/06/89	11:40	0.01	1647.486	16.111	0.001	0.09	Collecting device retained vacuum. Sample saved for chemistry.
OH24	08/09/89	10:20	0	1681.431	33.945	0.000	0.09	Hole dry. Pumped collecting device.
OH24	08/23/89	11:18	0	1695.471	14.040	0.000	0.09	Hole dry.
OH24	10/02/89	11:35	0	1735.483	40.012	0.000	0.09	Hole dry.
OH24	10/20/89	11:35	0	1753.483	18.000	0.000	0.09	Hole dry.
OH24	11/10/89	10:26	0	1774.435	20.952	0.000	0.09	Hole dry.
OH24	11/29/89	12:58	0	1793.540	19.105	0.000	0.09	Hole dry.
OH24	12/12/89	09:54	0	1806.412	12.872	0.000	0.09	Hole dry. Reseat collecting device (leaking).
OH24	04/10/90	09:46	0.09	1925.407	118.995	0.001	0.18	
OH24	04/24/90	08:46	0.03	1939.365	13.958	0.002	0.21	
OH24	05/02/90	09:55	NA	1947.413	0.000	0.000	0.21	Trace.
OH24	08/10/90	09:40	NA	2047.403	0.000	0.000	0.21	Cleaned, checked, and reinstalled vacuum up to 50 centibars. Checked in one hour. Sampler holding vacuum.
OH24	04/24/91	10:12	0.00	2304.425	0.000	0.000	0.21	Air blowing through tube.
OH24	07/17/91	10:45	0.00	2388.448	0.000	0.000	0.21	Air blowing through tube.
OH24	09/25/91	10:18	0.00	2458.429	0.000	0.000	0.21	Air blowing through tube.
OH24	10/23/91	12:30	0.53	2486.521	547.156	0.001	0.74	Replaced broken collection device. Used 547.156 days.
OH24	10/31/91	11:42	Trace	2494.488	7.967	0.000	0.74	Hole wet at 25 feet.
OH24	11/13/91	11:05	0.02	2507.462	12.974	0.002	0.76	
OH24	12/04/91	11:45	Trace	2528.490	21.028	0.000	0.76	
OH25	12/08/85	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of drift excavated.
OH25	03/27/89	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled on 3/27/89.
OH25	03/30/89	10:27	0	1549.435	1549.430	0.000	0.00	Hole dry.
OH25	04/18/89	10:05	0	1568.420	18.985	0.000	0.00	Device left with approximately 50 centibars suction.
OH25	04/26/89	09:45	0	1576.406	7.986	0.000	0.00	Device left with approximately 50 centibars suction.
OH25	06/05/89	09:50	0	1616.410	40.004	0.000	0.00	Hole dry, no vacuum on collecting device. Collecting device removed and replaced.

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OH25	06/20/89	09:10	0	1631.382	14.972	0.000	0.00	Hole dry.
OH25	07/06/89	11:40	0.01	1647.486	16.104	0.001	0.01	Collecting device retained vacuum. Sample saved for chemistry.
OH25	08/09/89	10:25	0	1681.434	33.948	0.000	0.01	Hole dry.
OH25	08/23/89	11:18	0	1695.471	14.037	0.000	0.01	Hole dry.
OH25	10/02/89	11:35	0	1735.483	40.012	0.000	0.01	Hole dry.
OH25	10/20/89	11:35	0	1753.483	18.000	0.000	0.01	Hole dry.
OH25	11/10/89	10:30	0	1774.438	20.955	0.000	0.01	Hole dry.
OH25	11/29/89	13:02	0	1793.543	19.105	0.000	0.01	Hole dry.
OH25	12/12/89	09:58	0	1806.415	12.872	0.000	0.01	Hole dry. Reseat collecting device (leaking).
OH25	08/10/90	09:50	NA	2047.410	0.000	0.000	0.01	Dry. Cleaned, checked, and reinstalled vacuum up to 50 centibars. Checked in one hour. Sampler holding vacuum.
OH25	04/24/91	10:14	0.00	2304.426	498.011	0.000	0.01	Air blowing through tube.
OH25	07/17/91	10:47	0.00	2388.449	84.023	0.000	0.01	Air blowing through tube.
OH25	09/25/91	10:15	0.06	2458.427	69.978	0.001	0.07	
OH25	10/31/91	11:42	0.00	2494.488	36.061	0.000	0.07	Dry. Hole wet at 30 feet.
OH26	08/05/86	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of drift excavated.
OH26	03/27/89	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled on 3/27/89. Hole drilled with brine. Fluorescien added to drilling fluid.
OH26	03/30/89	10:00	NA	1549.417	0.000	0.000	0.00	New hole, installed collecting device. Hole dry.
OH26	04/18/89	10:10	0	1568.424	19.007	0.000	0.00	Device left with approximately 50 centibars suction.
OH26	04/26/89	09:15	0	1576.385	7.961	0.000	0.00	Device left with approximately 50 centibars suction.
OH26	06/05/89	10:00	0.20	1616.417	40.032	0.005	0.20	First time sample recovered. Collecting device removed and replaced. Sample saved for chemistry.
OH26	06/20/89	09:15	0.05	1631.385	14.968	0.003	0.25	
OH26	07/06/89	11:50	0.49	1647.493	16.108	0.030	0.74	Collecting device retained vacuum. Sample saved for chemistry.
OH26	08/09/89	10:30	0.67	1681.438	33.945	0.020	1.41	Sample saved for chemistry.
OH26	08/23/89	10:30	0.55	1695.438	14.000	0.039	1.96	Sample saved for chemistry.
OH26	09/14/89	11:21	0.51	1717.473	22.035	0.023	2.47	Sample saved for chemistry.
OH26	10/02/89	11:40	0.56	1735.486	18.013	0.031	3.03	Sample saved for chemistry.
OH26	10/20/89	11:45	0.45	1753.490	18.004	0.025	3.48	Sample saved for chemistry, sample #857.
OH26	11/10/89	11:04	0.48	1774.461	20.971	0.023	3.96	Sample saved for chemistry, sample #866.
OH26	11/29/89	12:40	0.32	1793.528	19.067	0.017	4.28	Sample saved for chemistry, sample #874.
OH26	12/12/89	09:38	0.32	1806.401	12.873	0.025	4.60	Sample saved for chemistry, sample #885.
OH26	01/04/90	12:05	0.23	1829.503	23.102	0.010	4.83	
OH26	01/17/90	08:58	0.36	1842.374	12.871	0.028	5.19	
OH26	01/31/90	10:54	0.26	1856.454	14.080	0.018	5.45	
OH26	02/13/90	11:30	0.26	1869.479	13.025	0.020	5.71	
OH26	02/27/90	12:46	0.21	1883.532	14.053	0.015	5.92	Brine probably left in hole.
OH26	03/05/90	11:27	0.26	1889.477	5.945	0.044	6.18	
OH26	03/21/90	09:26	0.18	1905.393	15.916	0.011	6.36	
OH26	04/04/90	11:49	0.28	1919.492	14.099	0.020	6.64	Brine probably left in hole.

BRINE ACCUMULATION DATA TABLE
Data through December 31, 1991

LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
OH26	04/10/90	09:17	0.22	1925.387	5.895	0.037	6.86	
OH26	04/24/90	08:33	0.19	1939.356	13.969	0.014	7.05	
OH26	05/02/90	09:45	0.24	1947.406	8.050	0.030	7.29	
OH26	05/09/90	09:46	0.21	1954.407	7.001	0.030	7.50	
OH26	05/16/90	11:30	0.15	1961.479	7.072	0.021	7.65	
OH26	05/23/90	13:03	0.12	1968.544	7.065	0.017	7.77	
OH26	05/31/90	09:29	0.14	1976.395	7.851	0.018	7.91	
OH26	06/06/90	11:35	0.14	1982.483	6.088	0.023	8.05	
OH26	06/14/90	10:42	0.14	1990.446	7.963	0.018	8.19	
OH26	06/28/90	10:27	0.16	2004.435	13.989	0.011	8.35	
OH26	07/17/90	08:56	0.18	2023.372	18.937	0.000	8.53	
OH25	07/18/90	11:00	0.28	2024.458	1.086	0.023	8.81	Combined with 0.18 liters 07/17/90. Used 0.46 liters for calculation.
OH26	07/25/90	10:07	0.05	2031.422	6.964	0.007	8.86	Brine probably left in hole.
OH26	08/01/90	11:05	0.25	2038.462	7.040	0.036	9.11	
OH26	08/07/90	09:40	0.11	2044.403	5.941	0.019	9.22	
OH26	08/16/90	09:18	0.12	2053.387	8.984	0.013	9.34	
OH26	08/22/90	10:44	0.10	2059.447	6.060	0.017	9.44	
OH26	08/29/90	10:23	0.11	2066.433	6.986	0.016	9.55	
OH26	09/05/90	10:34	0.11	2073.440	7.007	0.016	9.66	
OH26	09/12/90	08:45	0.10	2080.365	6.925	0.014	9.76	
OH26	09/25/90	11:26	0.19	2093.476	13.111	0.000	9.95	
OH26	09/26/90	09:48	0.10	2094.408	0.932	0.020	10.05	Combined with 0.19 liters from 09/25/90. Used 0.29 liters for calculation.
OH26	10/03/90	08:55	0.10	2101.372	6.964	0.014	10.15	
OH26	10/10/90	10:14	0.11	2108.426	7.054	0.016	10.26	
OH26	10/18/90	09:25	0.13	2116.392	7.966	0.016	10.39	
OH26	10/24/90	11:16	0.11	2122.469	6.077	0.018	10.50	
OH26	10/31/90	10:43	0.12	2129.447	6.978	0.017	10.62	
OH26	11/07/90	11:43	0.13	2136.488	7.041	0.018	10.75	
OH26	11/14/90	10:40	0.10	2143.444	6.956	0.014	10.85	
OH26	11/28/90	11:20	0.21	2157.472	14.028	0.015	11.06	
OH26	12/05/90	09:30	0.14	2164.396	6.924	0.020	11.20	
OH26	12/13/90	10:20	0.13	2172.431	8.035	0.016	11.33	
OH26	12/20/90	10:20	0.11	2179.431	7.000	0.016	11.44	
OH26	01/09/91	10:50	0.29	2199.451	20.020	0.014	11.73	
OH26	01/16/91	13:25	0.13	2206.559	7.108	0.018	11.86	
OH26	01/23/91	10:55	0.17	2213.455	6.896	0.025	12.03	
OH26	01/30/91	08:36	0.11	2220.358	6.903	0.016	12.14	
OH26	02/13/91	12:20	0.18	2234.514	14.156	0.013	12.32	
OH26	02/20/91	11:25	0.12	2241.476	6.962	0.017	12.44	
OH26	02/27/91	11:20	0.11	2248.472	6.996	0.016	12.55	
OH26	03/07/91	10:55	0.11	2256.455	7.983	0.014	12.66	
OH26	03/20/91	12:43	0.19	2269.530	13.075	0.015	12.85	
OH26	03/28/91	11:53	0.11	2277.495	7.965	0.014	12.96	
OH26	04/10/91	10:02	0.20	2290.418	12.923	0.015	13.16	
OH26	04/17/91	10:54	0.12	2297.454	7.036	0.017	13.28	
OH26	04/24/91	10:25	0.12	2304.434	6.980	0.017	13.40	
OH26	05/01/91	10:00	0.10	2311.417	6.983	0.014	13.50	
OH26	05/08/91	09:20	0.10	2318.389	6.972	0.014	13.60	
OH26	05/15/91	11:10	0.08	2325.465	7.076	0.011	13.68	
OH26	05/29/91	10:18	0.19	2339.429	13.964	0.014	13.87	
OH26	06/05/91	13:07	0.14	2346.547	7.118	0.020	14.01	

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
OH26	06/12/91	08:57	0.17	2353.373	6.826	0.025	14.18	
OH26	06/19/91	15:22	0.16	2360.640	7.267	0.022	14.34	
OH26	06/26/91	08:12	0.10	2367.342	6.702	0.015	14.44	
OH26	07/11/91	12:08	0.19	2382.506	15.164	0.013	14.63	
OH26	07/17/91	11:00	0.10	2388.458	5.952	0.017	14.73	
OH26	07/30/91	10:40	0.06	2401.444	0.000	0.000	14.79	Partial evacuation.
OH26	07/31/91	09:45	0.14	2402.406	13.948	0.014	14.93	Combined with 0.06 liters from 07/30/91.
OH26	08/08/91	09:39	0.15	2410.402	7.996	0.019	15.08	
OH26	08/14/91	11:35	0.11	2416.483	6.081	0.018	15.19	
OH26	08/21/91	11:17	0.13	2423.470	6.987	0.019	15.32	
OH26	08/28/91	10:46	0.09	2430.449	6.979	0.013	15.41	
OH26	09/04/91	11:40	0.09	2437.486	7.037	0.013	15.50	
OH26	09/11/91	12:05	0.05	2444.503	7.017	0.007	15.55	
OH26	09/18/91	09:25	0.13	2451.392	6.889	0.019	15.68	
OH26	09/25/91	09:56	0.11	2458.414	7.022	0.016	15.79	
OH26	10/02/91	11:40	0.10	2465.486	7.072	0.014	15.89	
OH26	10/16/91	11:00	0.10	2479.458	13.972	0.007	15.99	
OH26	10/23/91	10:25	0.15	2486.434	6.976	0.022	16.14	
OH26	10/31/91	11:39	0.13	2494.485	8.051	0.016	16.27	
OH26	11/06/91	12:08	0.06	2500.506	6.021	0.010	16.33	
OH26	11/13/91	10:50	0.07	2507.451	6.945	0.010	16.40	
OH26	11/20/91	11:43	0.13	2514.488	7.037	0.018	16.53	
OH26	11/27/91	10:36	0.09	2521.442	6.954	0.013	16.62	
OH26	12/04/91	11:30	0.08	2528.479	7.037	0.011	16.70	
OH26	12/11/91	11:45	0.09	2535.490	7.011	0.013	16.79	
OH26	12/18/91	11:05	0.12	2542.462	6.972	0.017	16.91	
OH27	08/05/86	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of drift excavated.
OH27	04/17/89	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled 4/13/89 to 4/17/89.
OH27	04/18/89	10:15	0	1568.427	1568.430	0.000	0.00	Device left with approximately 50 centibars suction.
OH27	04/26/89	09:25	0	1576.392	7.965	0.000	0.00	Device left with approximately 50 centibars suction.
OH27	06/05/89	10:10	0	1616.424	40.032	0.000	0.00	Hole dry. Collecting device removed and replaced.
OH27	06/20/89	09:20	0	1631.389	14.965	0.000	0.00	Hole dry.
OH27	07/06/89	11:55	0.02	1647.497	16.108	0.001	0.02	Collecting device retained vacuum. Sample saved for chemistry.
OH27	08/09/89	10:35	Trace	1681.441	0.000	0.000	0.02	Trace of brine found.
OH27	08/23/89	10:57	Trace	1695.456	0.000	0.000	0.02	Trace of fluid in hole. No sample.
OH27	10/02/89	11:45	0	1735.490	87.993	0.000	0.02	Hole dry.
OH27	10/20/89	11:45	0	1753.490	18.000	0.000	0.02	Hole dry.
OH27	11/10/89	11:14	0	1774.468	20.978	0.000	0.02	Hole dry.
OH27	11/29/89	12:45	0	1793.531	19.063	0.000	0.02	Hole dry.
OH27	12/12/89	09:40	0	1806.403	12.872	0.000	0.02	Hole dry.
OH27	04/24/90	08:52	0.17	1939.369	132.966	0.001	0.19	
OH27	08/10/90	09:30	NA	2047.396	0.000	0.000	0.19	Cleaned, checked, and reinstalled vacuum up to 50 centibars. Checked in one hour. Sampler holding vacuum.
OH27	04/24/91	10:27	0.00	2304.435	365.066	0.000	0.19	Air blowing through tube.
OH27	07/17/91	11:03	0.00	2388.460	84.025	0.000	0.19	Air blowing through tube.

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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
OH27	09/25/91	09:56	0.00	2458.414	69.954	0.000	0.19	Air blowing through tube.
OH27	10/31/91	11:40	0.00	2494.486	36.072	0.000	0.19	Dry. No vacuum. Hole wet at 15 feet.
OH27A	08/05/86	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of drift excavated.
OH27A	04/04/89	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled on 4/4/89.
OH27A	04/18/89	10:20	0	1568.431	1568.430	0.000	0.00	Device left with approximately 50 centibars suction.
OH27A	04/26/89	09:20	0.21	1576.389	7.958	0.026	0.21	Device left with approximately 50 centibars suction. Sample not saved.
OH27A	05/17/89	09:10	0.08	1597.382	20.993	0.004	0.29	Sample not saved.
OH27A	06/05/89	10:20	0	1616.431	19.049	0.000	0.29	Hole dry. Collecting device removed and replaced.
OH27A	06/20/89	09:25	0	1631.392	14.961	0.000	0.29	Hole dry.
OH27A	07/06/89	11:55	0	1647.497	16.105	0.000	0.29	Hole dry. Collecting device retained vacuum.
OH27A	08/09/89	10:40	0	1681.444	33.947	0.000	0.29	Hole dry.
OH27A	08/23/89	10:50	0	1695.451	14.007	0.000	0.29	Hole dry.
OH27A	10/02/89	11:45	0	1735.490	40.039	0.000	0.29	Hole dry.
OH27A	10/20/89	11:45	0	1753.490	18.000	0.000	0.29	Hole dry.
OH27A	11/10/89	11:14	0	1774.468	20.978	0.000	0.29	Hole dry.
OH27A	11/29/89	12:48	0	1793.533	19.065	0.000	0.29	Hole dry.
OH27A	12/12/89	09:40	0	1806.403	12.870	0.000	0.29	Hole dry.
OH28	08/05/86	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of drift excavated.
OH28	04/12/89	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled 4/11/89 to 4/12/89.
OH28	04/18/89	10:25	0	1568.434	1568.430	0.000	0.00	Device left with approximately 50 centibars suction.
OH28	04/26/89	09:30	0	1576.396	7.962	0.000	0.00	Device left with approximately 50 centibars suction.
OH28	06/05/89	10:30	0.08	1616.438	40.042	0.002	0.08	First time sample recovered. Collecting device removed and replaced. Sample saved for chemistry.
OH28	06/20/89	09:30	0.03	1631.396	14.958	0.002	0.11	
OH28	07/06/89	12:00	0	1647.500	16.104	0.000	0.11	Hole dry. Collecting device retained vacuum.
OH28	08/09/89	10:45	0	1681.448	33.948	0.000	0.11	Hole dry.
OH28	08/23/89	10:46	0	1695.449	14.001	0.000	0.11	Hole dry.
OH28	10/02/89	11:50	0.05	1735.493	40.044	0.001	0.16	Sample saved for chemistry.
OH28	10/20/89	11:45	0	1753.490	17.997	0.000	0.16	Hole dry.
OH28	11/10/89	11:10	0.07	1774.465	20.975	0.003	0.23	Sample saved for chemistry, sample #867.
OH28	11/29/89	12:48	0	1793.533	19.068	0.000	0.23	Hole dry.
OH28	12/12/89	09:48	0.10	1806.408	12.875	0.008	0.33	Sample saved for chemistry, sample #886.
OH28	04/10/90	09:36	0.14	1925.400	118.992	0.001	0.47	
OH28	04/24/90	08:36	0.18	1939.358	13.958	0.013	0.65	
OH28	05/02/90	09:35	0.01	1947.399	8.041	0.001	0.66	
OH28	05/09/90	09:40	NA	1954.403	0.000	0.000	0.66	Trace.
OH28	05/16/90	11:38	0.02	1961.485	14.086	0.001	0.68	
OH28	05/31/90	09:33	0.01	1976.398	14.913	0.001	0.69	
OH28	08/07/90	09:42	0.10	2044.404	68.006	0.001	0.79	

BRINE ACCUMULATION DATA TABLE
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LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
OH28	08/10/90	09:10	NA	2047.382	0.000	0.000	0.79	Cleaned, checked, and reinstalled vacuum up to 50 centibars. Checked in one hour. Sampler holding vacuum.
OH28	09/12/90	08:40	0.04	2080.361	35.957	0.001	0.83	
OH28	09/26/90	09:50	0.05	2094.410	14.049	0.004	0.88	
OH28	11/28/90	11:28	0.08	2157.478	63.068	0.001	0.96	
OH28	12/20/90	10:27	0.07	2179.435	21.957	0.003	1.03	
OH28	01/30/91	08:51	0.07	2220.369	40.934	0.002	1.10	
OH28	03/20/91	11:55	0.18	2269.497	49.128	0.004	1.28	
OH28	03/28/91	11:45	0.01	2277.490	7.993	0.001	1.29	
OH28	04/24/91	10:29	0.00	2304.437	26.947	0.000	1.29	Air blowing through tube.
OH28	07/11/91	12:08	0.00	2382.506	78.069	0.000	1.29	Dry.
OH28	07/17/91	11:07	0.00	2388.463	5.957	0.000	1.29	Air blowing through tube.
OH28	09/25/91	09:56	0.00	2458.414	69.951	0.000	1.29	Air blowing through tube.
OH28	10/23/91	10:27	0.27	2486.435	28.021	0.010	1.56	First time successfull collection since 03/20/91. Used 216.94 days and .28 liters to calculate flow rate.
OH28	10/31/91	11:36	0.00	2494.483	8.048	0.000	1.56	Dry. No Vacuum. Hole wet at 25 feet.
OH28	11/13/91	10:55	0.02	2507.455	12.972	0.002	1.58	
OH28	12/04/91	11:35	Trace	2528.483	21.028	0.000	1.58	
OH45	05/08/89	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of underground core storage room excavated.
OH45	06/15/89	00:00	NA	0.000	0.000	0.000	0.00	Horizontal hole drilled 6/9/89 to 6/15/89.
OH45	06/23/89	11:00	NA	1634.458	0.000	0.000	0.00	New hole. Installed collecting device.
OH45	08/09/89	14:00	0	1681.583	47.125	0.000	0.00	No vacuum, reinstalled collecting device. Hole dry.
OH45	08/23/89	11:30	0.45	1695.479	13.896	0.032	0.45	First time hole sampled. Sample saved for chemistry.
OH45	09/12/89	12:35	0.15	1715.524	20.045	0.007	0.60	Sample saved for chemistry.
OH45	10/02/89	12:15	0.13	1735.510	19.986	0.007	0.73	Sample saved for chemistry.
OH45	10/20/89	11:10	0.11	1753.465	17.955	0.006	0.84	Sample saved for chemistry, sample #852.
OH45	11/10/89	10:20	0.13	1774.431	20.966	0.006	0.97	Sample saved for chemistry, sample #863.
OH45	11/29/89	13:11	0.11	1793.549	19.118	0.006	1.08	Sample saved for chemistry, sample #878.
OH45	12/12/89	10:19	0.08	1806.430	12.881	0.006	1.16	Sample saved for chemistry, sample #889. Sample bubbling.
OH45	01/04/90	11:41	0.14	1829.487	23.057	0.006	1.30	
OH45	01/17/90	11:54	0.08	1842.496	13.009	0.006	1.38	
OH45	01/31/90	11:08	0.01	1856.464	13.968	0.001	1.39	
OH45	02/13/90	10:54	0.01	1869.454	12.990	0.001	1.40	
OH45	02/27/90	12:56	0.11	1883.539	14.085	0.008	1.51	Removed and replaced sampler.
OH45	03/05/90	11:45	0.08	1889.490	5.951	0.013	1.59	
OH45	03/21/90	11:34	NA	1905.482	0.000	0.000	0.43	Trace.
OH45	04/10/90	10:28	NA	1925.436	0.000	0.000	0.43	Trace.
OH45	05/02/90	09:12	0.06	1947.383	57.893	0.001	1.65	
OH45	05/09/90	10:03	NA	1954.419	0.000	0.000	0.49	Trace.
OH45	05/17/90	09:20	0.05	1962.389	15.006	0.003	1.70	
OH45	05/23/90	13:10	0.01	1968.549	6.160	0.002	1.71	
OH45	06/14/90	10:15	0.01	1990.427	21.878	0.000	1.72	Brine probably left in hole.
OH45	07/17/90	11:58	0.46	2023.499	33.072	0.014	2.18	
OH45	08/07/90	08:50	NA	2044.368	0.000	0.000	1.02	Trace. Could not sample. Brine probably left in hole.

BRINE ACCUMULATION DATA TABLE
Data through December 31, 1991

LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
OH45	08/29/90	12:01	0.27	2066.501	43.002	0.006	2.45	
OH45	09/13/90	10:40	0.02	2081.444	14.943	0.001	2.47	
OH45	10/18/90	10:14	0.05	2116.426	34.982	0.001	2.52	
OH45	02/13/91	12:40	Trace	2234.528	118.102	0.000	2.52	Did not save.
OH45	03/21/91	10:30	0.80	2270.438	35.910	0.004	3.32	Repaired and reinstalled sampler. Used 189 days and .85 liters.
OH45	03/28/91	11:21	0.00	2277.473	7.035	0.000	3.32	Air blowing through tube.
OH45	04/10/91	12:15	0.00	2290.510	13.037	0.000	3.32	Dry.
OH45	05/01/91	10:30	0.11	2311.438	20.928	0.005	3.43	
OH45	05/08/91	09:35	0.00	2318.399	6.961	0.000	3.43	Air blowing through tube.
OH45	07/18/91	10:20	0.14	2389.431	71.032	0.002	3.57	
OH45	08/14/91	11:15	0.05	2416.469	27.038	0.002	3.62	
OH45	09/25/91	12:10	0.19	2458.507	42.038	0.005	3.81	
OH45	10/23/91	10:09	0.11	2486.423	27.916	0.004	3.92	
OH45	10/31/91	11:36	0.06	2494.483	8.060	0.007	3.98	
OH45	11/13/91	10:36	0.05	2507.442	12.959	0.004	4.03	
OH45	12/04/91	11:40	0.08	2528.486	21.044	0.004	4.11	
OH45	12/18/91	11:07	0.02	2542.463	13.977	0.001	4.13	
OH46	05/08/89	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of underground core storage room excavated.
OH46	06/20/89	00:00	NA	0.000	0.000	0.000	0.00	Downhole drilled 6/16/89 to 6/20/89.
OH46	07/06/89	11:30	NA	1647.479	0.000	0.000	0.00	First day of observation for hole, blown dry.
OH46	07/25/89	10:48	0.28	1666.450	18.971	0.015	0.28	First time hole sampled. Sample yellow-with wood chips and other debris. Hydrocarbon odor (diesel lubricant?).
OH46	08/16/89	10:05	0.68	1688.420	21.970	0.031	0.96	Sample saved for chemistry.
OH46	09/12/89	12:35	0.47	1715.524	27.104	0.017	1.43	Sample saved for chemistry.
OH46	10/02/89	12:30	0.05	1735.521	19.997	0.003	1.48	Sample saved for chemistry.
OH46	10/20/89	11:10	0.57	1753.465	17.944	0.032	2.05	Sample saved for chemistry, sample #853.
OH46	11/10/89	10:30	0.68	1774.438	20.973	0.032	2.73	Sample saved for chemistry, sample #865.
OH46	11/29/89	13:15	0.53	1793.552	19.114	0.028	3.26	Sample saved for chemistry, sample #879.
OH46	12/12/89	10:20	0.46	1806.431	12.879	0.036	3.72	Sample saved for chemistry, sample #890.
OH46	01/04/90	11:44	0.45	1829.489	23.058	0.020	4.17	
OH46	01/17/90	11:58	0.25	1842.499	13.010	0.019	4.42	
OH46	01/31/90	11:12	0.25	1856.467	13.968	0.018	4.67	
OH46	02/13/90	11:16	0.22	1869.469	13.002	0.017	4.89	
OH46	02/27/90	13:10	0.27	1883.549	14.080	0.019	5.16	Brine probably left in hole.
OH46	03/05/90	11:54	0.27	1889.496	5.947	0.045	5.43	
OH46	03/21/90	11:34	0.13	1905.482	15.986	0.008	5.56	Brine probably left in hole.
OH46	04/11/90	10:33	0.32	1926.440	20.958	0.015	5.88	
OH46	05/02/90	09:10	0.25	1947.382	20.942	0.012	6.13	Brine probably left in hole.
OH46	05/08/90	10:05	0.15	1953.420	6.038	0.025	6.28	
OH46	05/17/90	09:30	0.14	1962.396	8.976	0.016	6.42	
OH46	05/23/90	13:30	0.10	1968.562	6.166	0.016	6.52	
OH46	06/14/90	10:01	0.32	1990.417	21.855	0.015	6.84	
OH46	06/28/90	11:06	0.20	2004.462	14.045	0.014	7.04	
OH46	07/17/90	11:50	0.30	2023.493	19.031	0.016	7.34	
OH46	07/25/90	10:50	0.15	2031.451	7.958	0.019	7.49	
OH46	08/07/90	08:50	0.19	2044.368	12.917	0.015	7.68	
OH46	08/16/90	10:30	0.17	2053.438	9.070	0.019	7.85	

BRINE ACCUMULATION DATA TABLE
Data through December 31, 1991

LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
OH46	08/22/90	11:05	0.11	2059.462	6.024	0.018	7.96	
OH46	08/29/90	11:45	0.11	2066.490	7.028	0.016	8.07	
OH46	09/05/90	11:04	0.12	2073.461	6.971	0.017	8.19	
OH46	09/13/90	10:42	0.12	2081.446	7.985	0.015	8.31	
OH46	09/28/90	10:10	0.22	2096.424	14.978	0.015	8.53	
OH46	10/18/90	09:52	0.26	2116.411	19.987	0.013	8.79	
OH46	02/13/91	12:50	0.74	2234.535	118.124	0.006	9.53	
OH46	02/27/91	11:05	0.55	2248.462	13.927	0.039	10.08	
OH46	03/20/91	13:37	0.58	2269.567	21.105	0.027	10.66	
OH46	03/28/91	11:21	0.19	2277.473	7.906	0.024	10.85	
OH46	04/10/91	12:15	0.15	2290.510	13.037	0.012	11.00	
OH46	04/17/91	11:21	0.28	2297.473	6.963	0.040	11.28	
OH46	05/01/91	10:30	0.18	2311.438	13.965	0.013	11.46	
OH46	05/08/91	08:59	0.09	2318.374	6.936	0.013	11.55	
OH46	05/15/91	10:48	0.09	2325.450	7.076	0.013	11.64	
OH46	06/12/91	09:45	0.29	2353.406	27.956	0.010	11.93	
OH46	06/19/91	15:57	0.10	2360.665	7.259	0.014	12.03	
OH46	06/26/91	10:00	0.10	2367.417	6.752	0.015	12.13	
OH46	07/11/91	10:20	0.20	2382.431	15.014	0.013	12.33	
OH46	07/17/91	11:04	0.08	2388.461	6.030	0.013	12.41	
OH46	07/30/91	11:00	0.16	2401.458	12.997	0.012	12.57	
OH46	08/08/91	09:50	0.13	2410.410	8.952	0.015	12.70	
OH46	08/14/91	10:45	0.08	2416.448	6.038	0.013	12.78	
OH46	08/28/91	11:11	0.17	2430.466	14.018	0.012	12.95	
OH46	09/18/91	09:40	0.26	2451.403	20.937	0.012	13.21	
OH46	09/25/91	12:35	0.15	2458.524	7.121	0.021	13.36	
OH46	10/16/91	10:45	0.22	2479.448	20.924	0.011	13.58	
OH46	10/23/91	10:10	0.12	2486.424	6.976	0.017	13.70	
OH46	10/31/91	11:30	0.10	2494.479	8.055	0.012	13.80	
OH46	11/06/91	12:10	0.09	2500.507	6.028	0.015	13.89	
OH46	11/13/91	10:36	0.08	2507.442	6.935	0.012	13.97	
OH46	11/27/91	10:11	0.14	2521.424	13.982	0.010	14.11	
OH46	12/04/91	11:45	0.11	2528.490	7.066	0.016	14.22	
OH46	12/18/91	10:25	0.15	2542.434	13.944	0.011	14.37	
OH47	05/08/89	00:00	NA	0.000	0.000	0.000	0.00	Approximate date this part of underground core storage room excavated.
OH47	07/06/89	00:00	NA	0.000	0.000	0.000	0.00	Uphole drilled 6/28/89 to 7/6/89.
OH47	08/09/89	14:30	NA	1681.604	0.000	0.000	0.00	Installed funnel and collection bottle. Start collection date from 08/09/89.
OH47	08/16/89	10:05	?	1688.420	6.816	0.000	0.00	First time hole sampled. Sample saved for chemistry.
OH47	08/30/89	10:30	0.35	1702.438	14.018	0.025	0.35	Sample saved for chemistry (combined).
OH47	09/14/89	10:55	0.48	1717.455	15.017	0.032	0.83	Sample saved for chemistry.
OH47	10/20/89	11:10	0.60	1753.465	36.010	0.017	1.43	Sample saved for chemistry, sample #854.
OH47	11/10/89	10:25	0.28	1774.434	20.969	0.013	1.71	Sample saved for chemistry, sample #864
OH47	11/29/89	13:06	0.18	1793.546	19.112	0.009	1.89	Sample saved for chemistry, sample #877.
OH47	12/12/89	10:25	0.12	1806.434	12.888	0.009	2.01	Sample saved for chemistry, sample #891.
OH47	01/04/90	11:40	0.24	1829.486	23.052	0.010	2.25	
OH47	01/17/90	11:59	0.13	1842.499	13.013	0.010	2.38	
OH47	01/31/90	11:15	0.11	1856.469	13.970	0.008	2.49	
OH47	02/13/90	11:20	0.09	1869.472	13.003	0.007	2.58	

BRINE ACCUMULATION DATA TABLE
Data through December 31, 1991

LOCATION	DATE	TIME	LITERS REMOVED	DAYS SINCE 1/1/85	DAYS USED FOR CALCULATION	LITERS PER DAY	CUMULATIVE LITERS COLLECTED	REMARKS
OH47	02/27/90	13:30	0.12	1883.562	14.090	0.009	2.70	
OH47	03/05/90	11:57	0.09	1889.498	5.936	0.015	2.79	
OH47	03/21/90	11:41	0.11	1905.487	15.989	0.007	2.90	
OH47	04/11/90	10:30	0.05	1926.438	20.951	0.002	2.95	
OH47	05/02/90	08:55	0.08	1947.372	20.934	0.004	3.03	
OH47	05/08/90	10:07	0.09	1953.422	6.050	0.015	3.12	
OH47	05/17/90	09:25	0.02	1962.392	8.970	0.002	3.14	
OH47	05/23/90	13:30	0.01	1968.562	6.170	0.002	3.15	
OH47	06/14/90	10:08	0.13	1990.422	21.860	0.006	3.28	
OH47	07/17/90	11:42	0.08	2023.487	33.065	0.002	3.36	
OH47	08/07/90	08:56	0.05	2044.372	20.885	0.002	3.41	
OH47	08/22/90	11:07	0.04	2059.463	15.091	0.003	3.45	
OH47	08/29/90	11:47	0.02	2066.491	7.028	0.003	3.47	Red-brown mud in collection bottle, cleaned out.
OH47	09/05/90	10:45	NA	2073.448	0.000	0.000	3.47	Trace.
OH47	09/13/90	10:45	0.15	2081.448	14.957	0.010	3.62	
OH47	10/18/90	09:54	0.13	2116.412	34.964	0.004	3.75	
OH47	02/13/91	12:55	0.10	2234.538	118.125	0.001	3.85	
OH47	02/20/91	13:25	Trace	2241.559	7.021	0.000	3.85	Did not save.
OH47	03/20/91	13:37	0.00	2269.567	28.008	0.000	3.85	Dry.
OH47	03/28/91	11:21	0.00	2277.473	7.906	0.000	3.85	Dry.
OH47	04/10/91	12:15	0.00	2290.510	13.037	0.000	3.85	Dry.
OH47	05/01/91	10:30	0.00	2311.438	20.928	0.000	3.85	Dry.
OH47	05/08/91	08:59	0.00	2318.374	6.936	0.000	3.85	Dry.
OH47	06/19/91	10:00	0.00	2360.417	42.043	0.000	3.85	Dry.
OH47	06/19/91	16:00	0.00	2360.667	0.250	0.000	3.85	Dry.
OH47	07/17/91	11:04	0.00	2388.461	27.794	0.000	3.85	Dry.
OH47	08/14/91	10:45	0.00	2416.448	27.987	0.000	3.85	Dry.
OH47	09/25/91	12:35	0.00	2458.524	42.076	0.000	3.85	Dry.
OH47	10/23/91	10:10	0.00	2486.424	27.900	0.000	3.85	Dry.
OH47	10/31/91	11:28	0.00	2494.478	8.054	0.000	3.85	Dry.
OH47	11/13/91	10:36	0.00	2507.442	12.964	0.000	3.85	Dry.
OH47	12/04/91	11:45	0.00	2528.490	21.048	0.000	3.85	Dry.

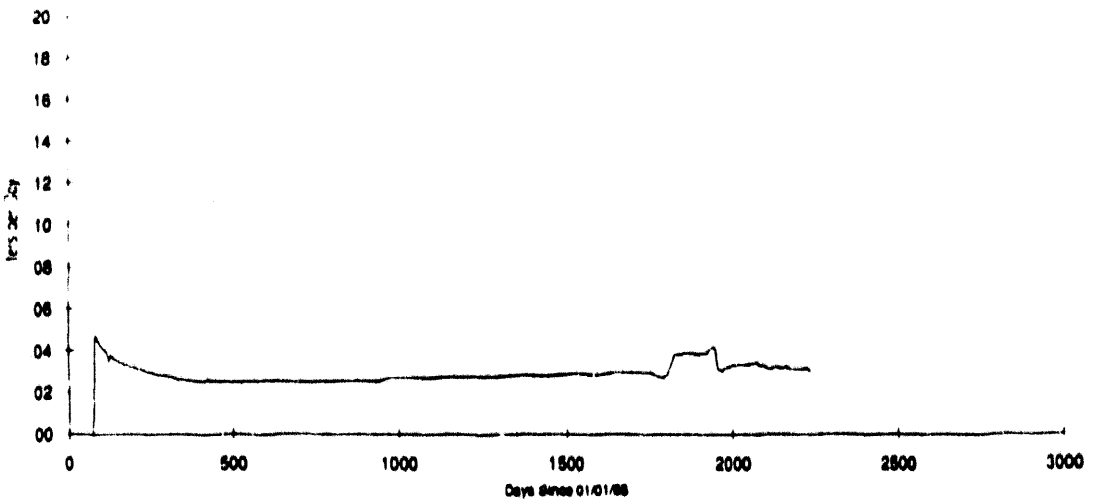
APPENDIX B
GRAPHS OF BRINE ACCUMULATION DATA

APPENDIX B
GRAPHS OF BRINE ACCUMULATION DATA

This appendix contains graphs of data presented in Appendix A for selected locations. As described in Deal and Case (1987), much of the variability in the quantity of brine collected resulted from limitations of the collection techniques, rather than variations in the actual inflow of brine from bedrock at the collecting locations. As a result, plotting of the inflow data from the data tables (Appendix A) results in an irregular plot that implies variations in inflow which, in fact, do not exist. The graphed data included in this report were processed and plotted with Microsoft® Excel® using an 11-point moving average to smooth the line, unless otherwise stated. The smoothed data reflect trends in the body of the curve that are representative of the brine seepage rates, while still showing variations that are probably the result of collection techniques.

At the beginning and end of each curve, moving average smoothing projects the calculated trend. As a result, initial and ending values tend to be distorted by the moving average smoothing program. To correct the distortion caused by the moving average smoothing, the smoothed data are replaced by the actual data for the first and last few data points prior to plotting. Additional discussion of the collection and data handling is provided in Deal and Case (1987).

A1X01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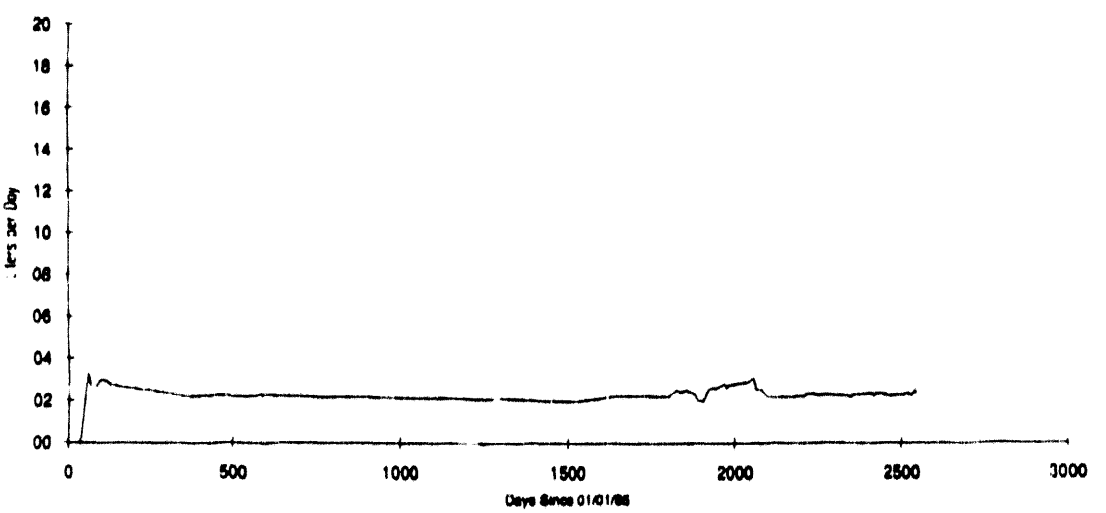
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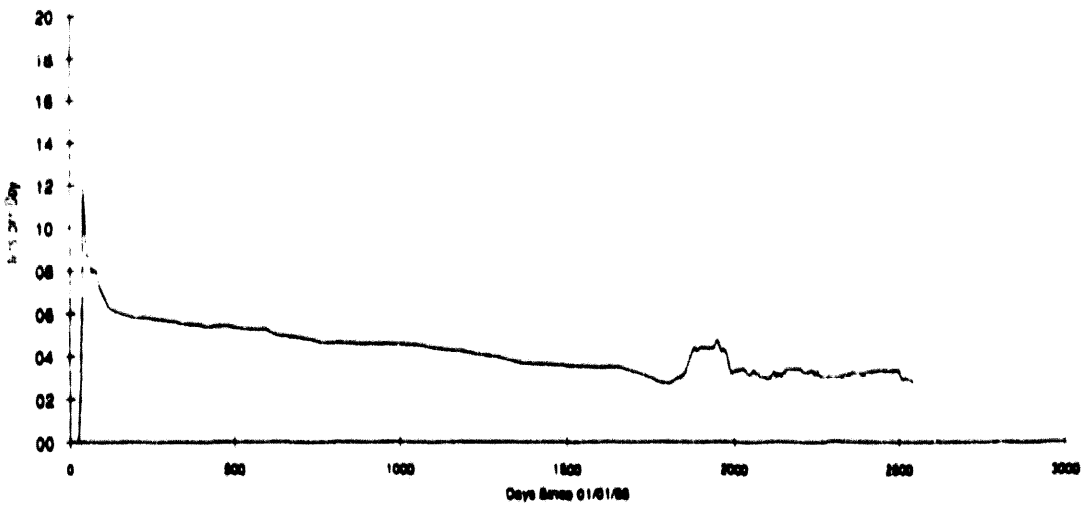
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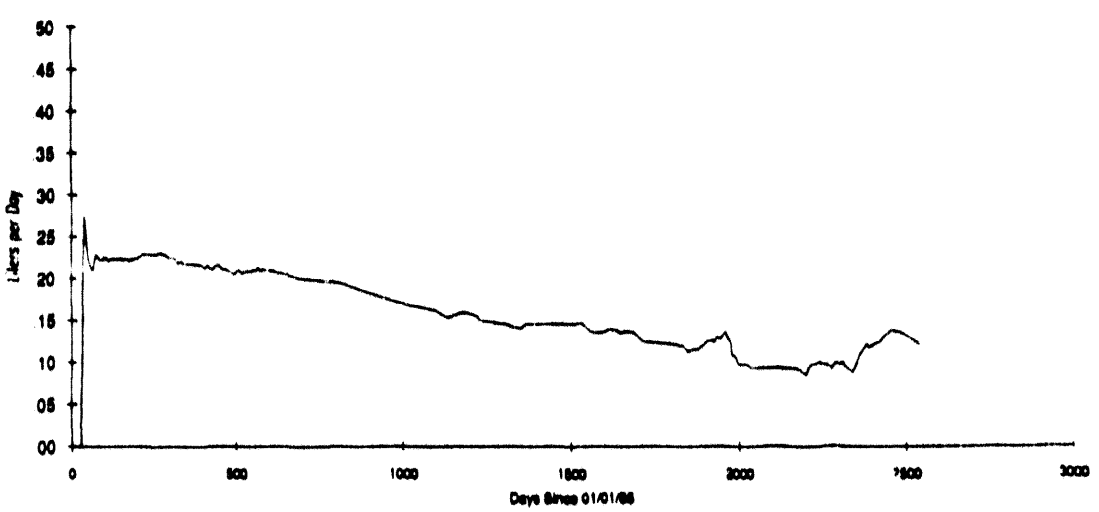
DH36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45
40
35
30
25
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Liters per Day
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500
1000
1500
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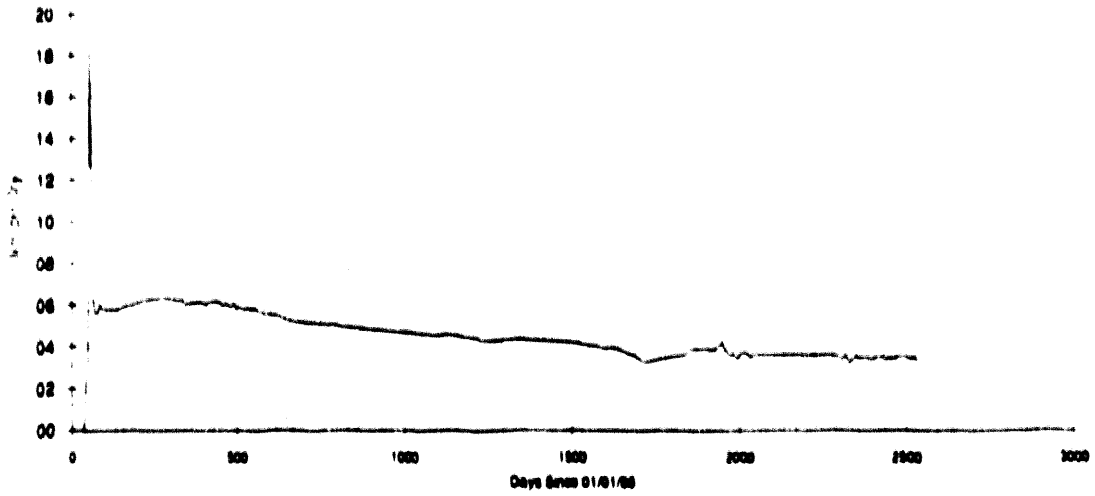
2500
3000
Days Since 01/01/86

DH38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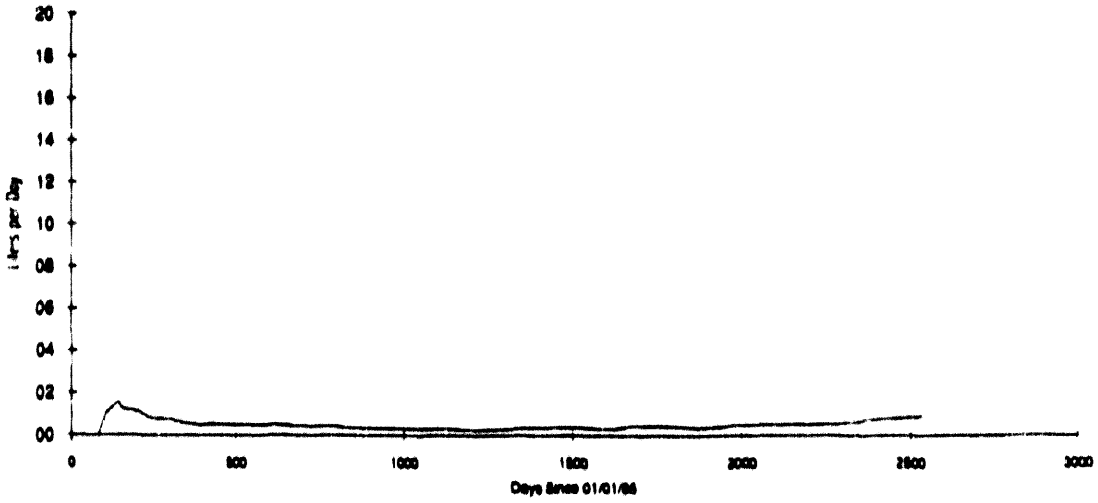
Days Since 01/01/88

DH40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18
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08
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02
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Liters per Day
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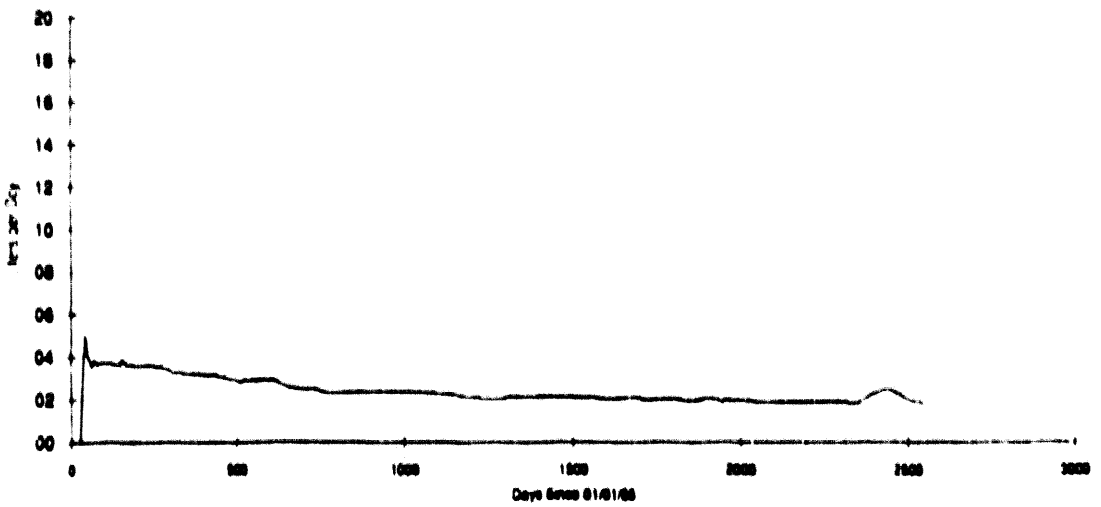
500
1000
1500
2000
2500
3000
Days Since 01/01/88

DH42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DH42A

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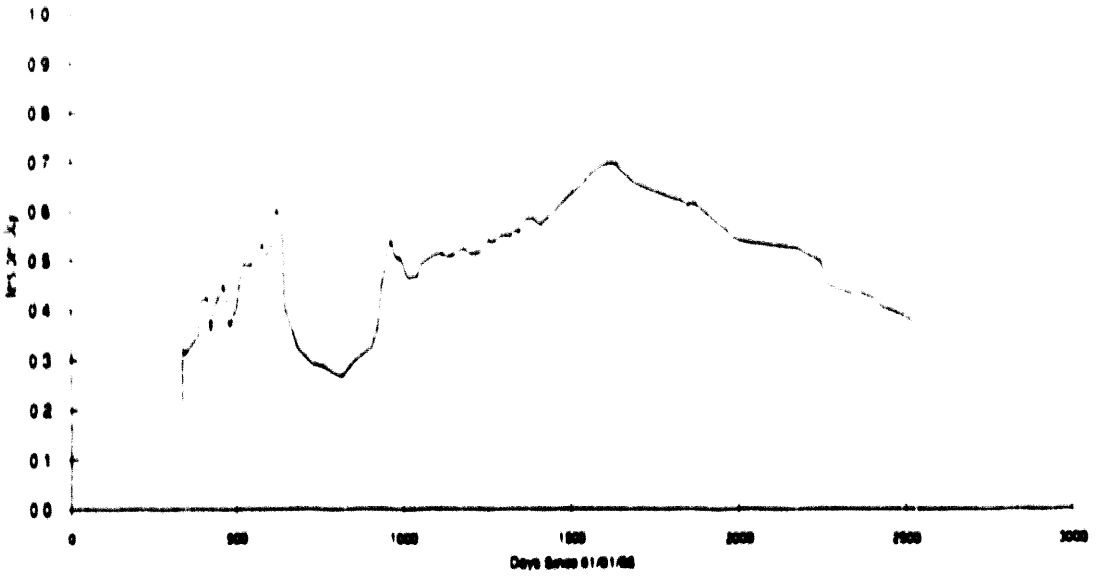

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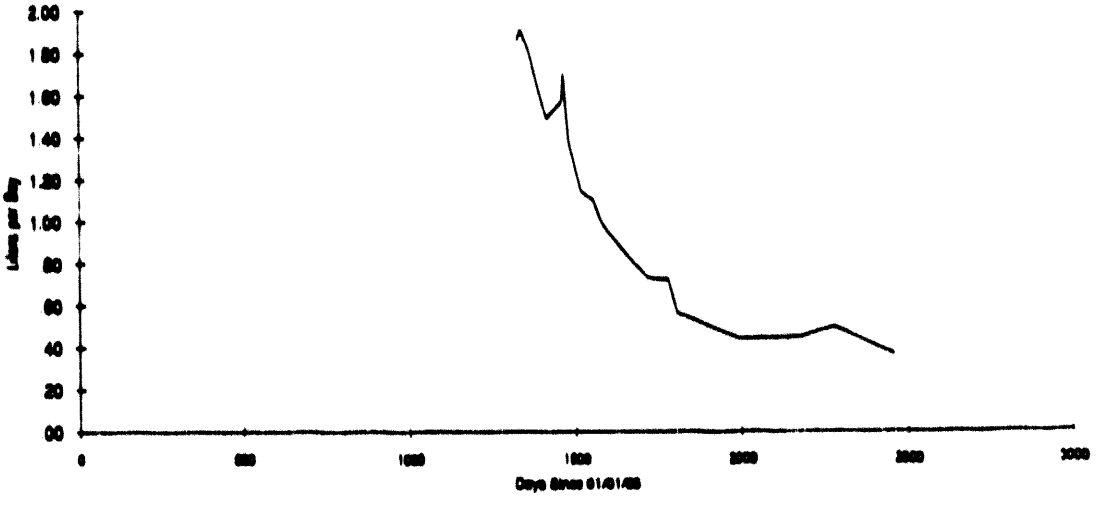

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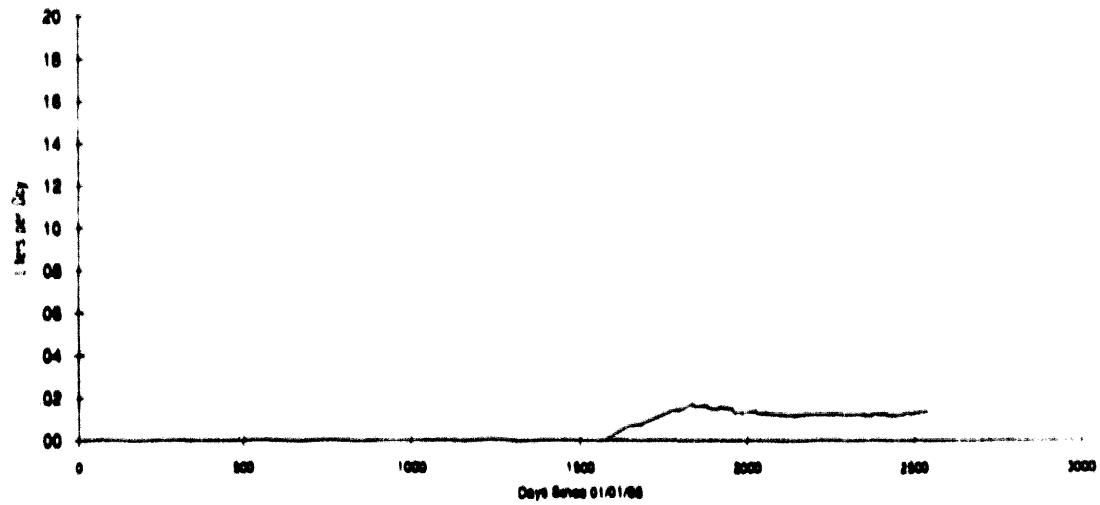
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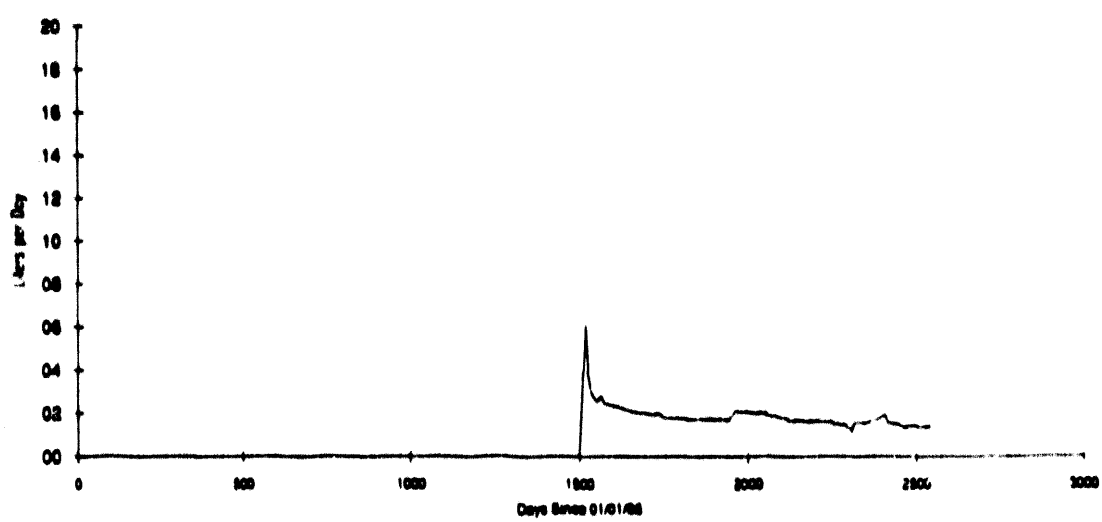
OH23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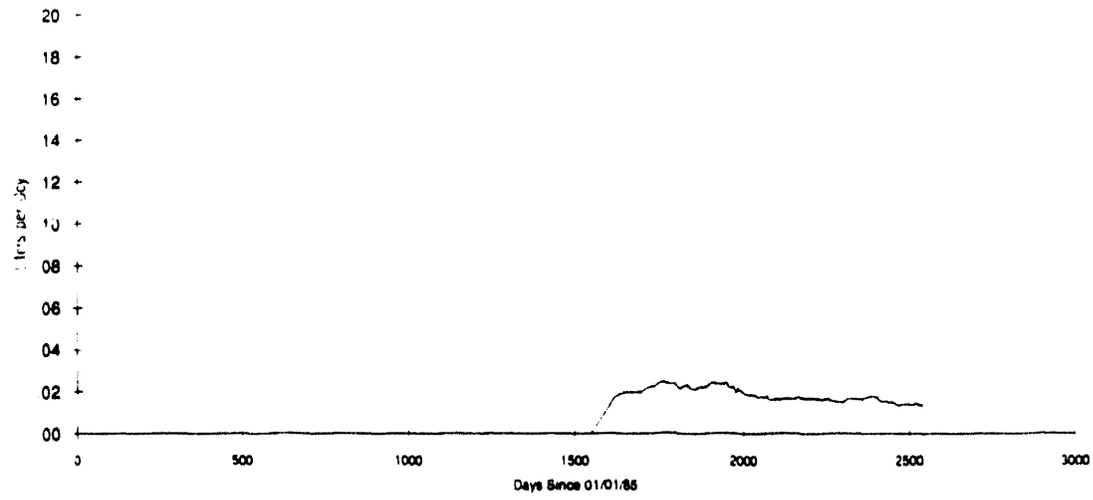
2500
3000

OH26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14
12
10
08
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04
02
00
0
500
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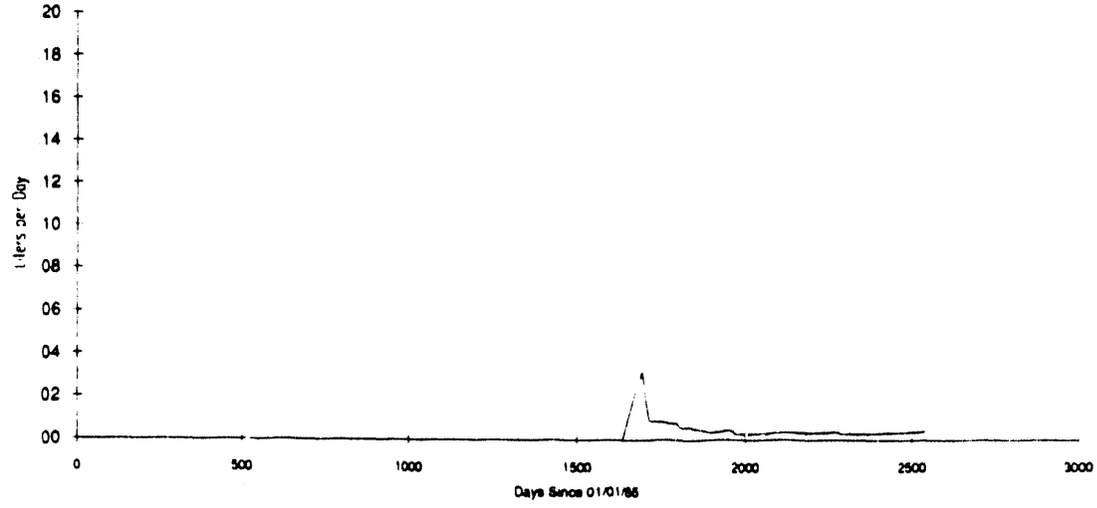
1500
2000
2500
3000
Days Since 01/01/85

OH45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Liters per Day
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2000
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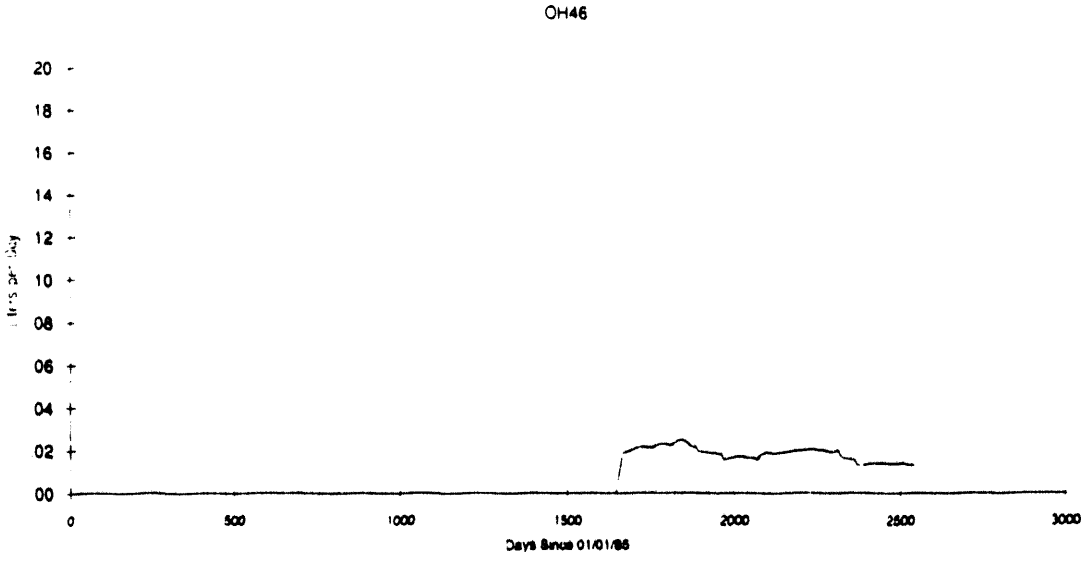
Days Since 01/01/85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20
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500
1000
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2000
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Days Since 01/01/86

APPENDIX C
1991 ANALYTICAL RESULTS

TABLE C-1
ANALYTICAL RESULTS

SAMPLE NUMBER	HOLE NUMBER & DIRECTION		LAB	DATE	pH[a] (s.u.)	SG[b] (g/cm^3)	TDS[c] (mg/L)	EXT ALK[d] (mg/L)	TIC[e] (mg/L)	TOC[e] (mg/L)	Br (mg/L)	Cl (mg/L)	F (mg/L)	I (mg/L)	NO3 (mg/L)	NH4 (mg/L)	P (mg/L)	SO4 (mg/L)
3430	A1X01	DN	IT	04/08/91	6.1	1.23	357000	980	5	NA	1600	180000	9	15	< 0.09	140	NA	16000
3429	A1X01	DN	UNC	04/08/91	6.2	1.21	196000	988	3.0	5	1510	196000	6.4	15.0	0.5	161	< 0.1	17500
3432	A1X02	UP	IT	04/08/91	5.8	1.23	347000	790	< 5	NA	2300	182000	8	12	< 0.09	130	NA	19000
3696	A1X02	UP	IT	07/07/91	5.3	1.26	360000	1100	< 5	NA	2500	190000	10	16	< 0.09	130	NA	28000
3431	A1X02	UP	UNC	04/08/91	5.9	1.21	199000	771	< 2.5	5	1920	199000	6.2	14.2	0.8	171	< 0.1	20800
3695	A1X02	UP	UNC	07/07/91	5.3	1.24	434000	1070	< 2.5	20	2830	211000	8.2	11.7	0.5	134	< 0.1	26600
4011	A1X02	UP	UNC	10/16/91	5.3	1.24	436000	1220	< 2.5	20	2810	207000	10.3	14.3	1.2	151	0.1	30900
3426	A3X01	DN	IT	04/08/91	6.0	1.23	341000	1000	5	NA	1600	191000	6	13	0.09	140	NA	16000
3694	A3X01	DN	IT	07/07/91	6.1	1.23	340000	1020	< 5	NA	1200	190000	8.3	14	< 0.09	170	NA	17000
3425	A3X01	DN	UNC	04/08/91	6.2	1.20	199000	982	< 2.5	25	1520	199000	7.1	16.0	0.4	149	< 0.1	17400
3693	A3X01	DN	UNC	07/07/91	6.1	1.23	391000	1010	3.6	25	1560	198000	7.6	9.5	0.5	120	< 0.1	17400
4012	A3X01	DN	UNC	10/16/91	6.2	1.22	376000	980	4.1	30	1550	196000	7.4	13.5	0.9	141	< 0.1	16900
3428	BX01	DN	IT	04/08/91	6.1	1.23	354000	880	5	NA	1600	181000	8	13	< 0.09	140	NA	15000
3692	BX01	DN	IT	07/07/91	6.1	1.22	350000	890	< 5	NA	1200	180000	8.2	15	< 0.09	110	NA	16000
3427	BX01	DN	UNC	04/08/91	6.1	1.21	196000	891	3.6	15	1450	196000	6.0	15.4	0.5	147	< 0.1	17000
3691	BX01	DN	UNC	07/07/91	6.1	1.23	388000	878	4.6	20	1500	202000	6.4	10.3	0.7	130	< 0.1	17200
4010	BX01	DN	UNC	10/16/91	6.1	1.22	377000	870	4.1	20	1610	199000	7.0	13.7	0.7	175	< 0.1	17900
3416	DH36	DN	IT	04/08/91	6.1	1.23	336000	840	5	NA	1700	191000	2	16	0.13	150	NA	15000
3683	DH36	DN	IT	07/07/91	6.2	1.23	350000	850	< 5	NA	1300	180000	5.8	18	< 0.09	140	NA	16000
3415	DH36	DN	UNC	04/08/91	6.2	1.21	381000	842	5.1	41	1450	194000	4.6	17.4	0.5	174	< 0.1	16600
3682	DH36	DN	UNC	07/07/91	6.1	1.23	384000	848	3.0	20	1480	200000	4.9	10.3	0.5	116	< 0.1	16500
4007	DH36	DN	UNC	10/16/91	6.2	1.21	368000	820	4.6	10	1490	199000	4.8	16.0	0.8	257	< 0.1	16200
3414	DH36a	DN	IT	04/08/91	6.1	1.22	337000	830	5	NA	1600	206000	5	15	0.18	150	NA	15000
3413	DH36a	DN	UNC	04/08/91	6.2	1.22	378000	833	< 2.5	25	1430	194000	4.3	16.5	0.8	163	< 0.1	16300
3681	DH36a	DN	UNC	07/07/91	6.1	1.23	387000	852	3.0	25	1480	199000	4.8	10.5	0.8	121	< 0.1	16400
3418	DH38	DN	IT	04/08/91	6.2	1.23	310000	940	5	NA	1600	214000	5	18	< 0.09	150	NA	15000
3689	DH38	DN	IT	07/07/91	6.3	1.22	350000	NA	5	NA	1200	180000	5.2	18	< 0.09	140	NA	16000

[a] s.u. = standard units
[b] Specific Gravity
[c] Total Disolved Solids
[d] Extended Alkalinity measured to an endpoint pH of 2.5 and reported as equivalent bicarbonate (HCO_3).
[e] TIC and TOC are reported as equivalent bicarbonate.
NA Not available.

TABLE C-1
ANALYTICAL RESULTS

SAMPLE NUMBER	HOLE NUMBER & DIRECTION		LAB	DATE	Al (mg/L)	As (mg/L)	B (mg/L)	Ba (mg/L)	Ca (mg/L)	Cs (mg/L)	Fe (mg/L)	K (mg/L)	Mg (mg/L)	Mn (mg/L)	Na (mg/L)	Rb (mg/L)	Si (mg/L)	Sr (mg/L)	CHARGE BALANCE (percent)
3430	A1X01	DN	IT	04/08/91	NA	NA	1600	NA	410	NA	5	16800	25600	3	77200	NA	0.5	1.8	4.11
3429	A1X01	DN	UNC	04/08/91	0.068	0.002	1310	0.102	229	0.299	< 0.50	15100	22700	1.87	77000	18	1.11	1.63	-2.72
3432	A1X02	UP	IT	04/08/91	NA	NA	1200	NA	350	NA	4	13800	26600	6.5	61300	NA	0.5	6.9	-3.21
3696	A1X02	UP	IT	07/07/91	NA	NA	2100	NA	250	NA	5	19500	48000	5.0	51400	NA	0.6	4.9	5.55
3431	A1X02	UP	UNC	04/08/91	< 0.05	0.01	1230	0.052	234	0.307	< 0.50	13800	31300	4.47	67000	20.8	1.15	5.79	-1.92
3695	A1X02	UP	UNC	07/07/91	0.101	0.01	1980	0.026	211	0.439	< 0.50	16200	43000	5.00	46000	24.4	1.41	4.25	-4.76
4011	A1X02	UP	UNC	10/16/91	0.06	0.008	2110	0.051	180	0.691	< 0.50	23900	48000	5.14	43000	33.6	1.84	2.00	-0.76
3426	A3X01	DN	IT	04/08/91	NA	NA	1300	NA	360	NA	< 3	14700	20500	1.7	72100	NA	0.7	2.2	-4.93
3694	A3X01	DN	IT	07/07/91	NA	NA	1600	NA	310	NA	< 3	17900	24200	1.3	88400	NA	0.6	2.4	4.68
3425	A3X01	DN	UNC	04/08/91	< 0.05	< 0.001	1280	0.07	245	0.312	< 0.50	15000	22900	1.38	77000	18.4	1.75	2.24	-3.28
3693	A3X01	DN	[illegible]	07/07/91	< 0.05	0.005	1490	0.057	241	0.359	< 0.05	14600	22500	1.42	75000	15.9	1.57	1.96	-4.22
4012	A3X01	DN	[illegible]	10/16/91	< 0.05	< 0.001	1540	0.088	255	0.384	< 0.50	17100	23800	1.39	76000	16.1	1.94	1.73	-1.74
3428	BX01	DN	IT	04/08/91	NA	NA	1300	NA	440	NA	3	15900	20100	1.9	80700	NA	0.5	2.5	1.27
3692	BX01	DN	IT	07/07/91	NA	NA	1500	NA	280	NA	< 3	16700	22600	1.2	82000	NA	0.4	2.3	3.77
3427	BX01	DN	UNC	04/08/91	< 0.05	0.001	1250	0.046	251	0.265	< 0.50	15000	21900	1.26	80000	17.6	1.17	1.96	-2.05
3691	BX01	DN	UNC	07/07/91	< 0.05	0.006	1450	0.03	252	0.329	< 0.05	15100	21500	1.28	78000	15.4	1.15	1.87	-4.54
4010	BX01	DN	UNC	10/16/91	< 0.05	0.002	1520	0.046	273	0.358	< 0.50	17200	24600	1.92	76000	16.6	1.51	2.33	-2.01
3416	DH36	DN	IT	04/08/91	NA	NA	1400	NA	400	NA	< 3	17400	17500	1.2	76700	NA	0.9	1.6	-4.50
3683	DH36	DN	IT	07/07/91	NA	NA	1400	NA	350	NA	< 3	17500	17400	1.0	81200	NA	1.0	1.4	-0.11
3415	DH36	DN	UNC	04/08/91	< 0.05	0.004	1370	0.056	299	0.201	< 0.50	17100	18800	1.05	85000	16	1.98	1.33	-1.33
3682	DH36	DN	UNC	07/07/91	< 0.05	0.009	1540	0.057	296	0.265	< 0.50	16700	18300	0.98	85000	14.3	2.39	1.25	-3.20
4007	DH36	DN	UNC	10/16/91	< 0.05	0.007	1590	0.046	304	0.28	< 0.50	19400	18100	0.93	81000	14.6	2.58	1.18	-3.99
3414	DH36a	DN	IT	04/08/91	NA	NA	1400	NA	310	NA	< 3	17300	17000	0.9	82000	NA	1.0	1.6	-6.33
3413	DH36a	DN	UNC	04/08/91	0.106	0.01	1370	0.032	298	0.194	< 0.50	16900	18500	0.96	86000	15.8	2.14	1.39	-1.16
3681	DH36a	DN	UNC	07/07/91	< 0.05	0.01	1520	0.035	290	0.259	< 0.50	16900	17900	0.95	84000	14.2	2.25	1.38	-3.58
3418	DH38	DN	IT	04/08/91	NA	NA	1300	NA	320	NA	< 3	17000	16500	0.9	79700	NA	0.8	1.0	-9.51
3689	DH38	DN	IT	07/07/91	NA	NA	1500	NA	330	NA	< 3	18600	18300	0.8	88600	NA	0.8	1.0	3.78

NA Not available.

TABLE C-1
ANALYTICAL RESULTS

SAMPLE NUMBER	HOLE NUMBER & DIRECTION		LAB	DATE	pH[a] (s.u.)	SG[b] (g/cm^3)	TDS[c] (mg/L)	EXT ALK[d] (mg/L)	TIC[e] (mg/L)	TOC[e] (mg/L)	Br (mg/L)	Cl (mg/L)	F (mg/L)	I (mg/L)	NO3 (mg/L)	NH4 (mg/L)	P (mg/L)	SO4 (mg/L)
3417	DH38	DN	UNC	04/08/91	6.2	1.21	375000	915	4.6	41	1420	195000	4.6	17.6	0.5	171	< 0.1	16200
3688	DH38	DN	UNC	07/07/91	6.3	1.23	381000	1040	6.6	15	1460	202000	5.2	11.7	0.5	144	< 0.1	16000
4008	DH38	DN	UNC	10/16/91	6.3	1.22	369000	1010	6.1	10	1450	197000	4.9	15.9	1.0	161	< 0.1	15600
3420	DH40	DN	IT	04/08/91	6.3	1.23	338000	1340	15	NA	1900	198000	5	19	0.35	170	NA	16000
3419	DH40	DN	UNC	04/08/91	6.4	1.22	384000	1318	14.2	91	1530	197000	5.1	18.2	0.9	179	< 0.1	16600
3690	DH40	DN	UNC	07/07/91	6.4	1.22	377000	1210	7.1	76	1510	195000	5.2	11.4	1.2	133	0.2	16500
4019	DH40	DN	UNC	10/16/91	6.5	1.21	370000	1180	7.6	56	1530	196000	5.1	15.7	1.0	168	0.2	16000
3422	DH42	DN	IT	04/08/91	6.2	1.23	333000	950	5	NA	1600	179000	5	16	0.09	180	NA	15000
3687	DH42	DN	IT	07/07/91	6.3	1.23	350000	930	< 5	NA	1300	180000	5.8	17	< 0.22	120	NA	16000
3421	DH42	DN	UNC	04/08/91	6.3	1.22	378000	930	4.1	30	1430	198000	4.3	16.4	0.8	171	< 0.1	16100
3686	DH42	DN	UNC	07/07/91	6.2	1.23	382000	1030	4.1	46	1460	200000	4.4	12.0	0.8	151	0.2	16000
4009	DH42	DN	UNC	10/16/91	6.3	1.21	366000	900	4.1	25	1440	194000	4.8	15.8	0.6	165	0.1	15400
3424	DH42A	DN	IT	04/08/91	6.1	1.23	340000	870	5	NA	1500	200000	5	17	< 0.09	170	NA	16000
3685	DH42A	DN	IT	07/07/91	6.2	1.23	330000	930	< 5	NA	1200	180000	5.2	18	< 0.09	140	NA	16000
3423	DH42A	DN	UNC	04/08/91	6.2	1.21	373000	872	6.1	20	1400	195000	4.1	17.7	0.5	176	< 0.1	15800
3684	DH42A	DN	UNC	07/07/91	6.2	1.23	383000	933	5.1	20	1450	198000	4.3	11.6	1.0	115	< 0.1	15900
4006	DH42A	DN	UNC	10/16/91	6.2	1.22	369000	950	4.6	20	1440	198000	4.8	15.9	0.9	166	< 0.1	15500
3412	DHP402A	DN	IT	04/08/91	6.0	1.23	328000	770	5	NA	1600	200000	[illegible]	12	< 0.09	130	NA	17000
3677	DHP402A	DN	IT	07/07/91	6.1	1.23	350000	770	< 5	NA	1200	170000	[illegible]	19	< 0.09	120	NA	18000
3411	DHP402A	DN	UNC	04/08/91	6.1	1.22	380000	787	3.0	15	1530	193000	7.[illegible]	12.7	0.4	159	< 0.1	18800
3676	DHP402A	DN	UNC	07/07/91	6.0	1.23	395000	780	4.1	25	1570	201000	6.6	7.9	1.8	105	< 0.1	17800
4014	DHP402A	DN	UNC	10/16/91	6.1	1.2[illegible]	378000	790	4.6	< 5	1590	199000	7.1	12.1	0.6	124	< 0.1	17400
3410	DHP402Aa	DN	IT	04/08/91	6.0	1.22	340000	700	5	NA	1800	198000	6	12	< 0.09	130	NA	16000
3409	DHP402Aa	DN	UNC	04/08/91	6.1	1.22	388000	720	< 2.5	30	1530	195000	6.4	12.3	0.8	159	< 0.1	18000
3680	DHP402Aa	DN	UNC	07/07/91	6.0	1.23	390000	726	3.0	20	1550	198000	6.4	8.3	0.3	114	< 0.1	17800
4002	FLRPDL		UNC	10/16/91	7.4	1.21	357000	415	133	198	592	189000	3.2	0.2	18.2	18.8	1.1	23800
4001	FLRPDL		UNC	10/16/91	7.4	1.22	357000	464	158	224	614	188000	3.6	0.2	23.2	21.3	0.2	21400

[a] s.u. = standard units
[b] Specific Gravity
[c] Total Disolved Solids
[d] Extended Alkalinity measured to an endpoint pH of 2.5 and reported as equivalent bicarbonate (HCO_3).
[e] TIC and TOC are reported as equivalent bicarbonate.
NA Not available.

TABLE C-1
ANALYTICAL RESULTS

SAMPLE NUMBER	HOLE NUMBER & DIRECTION		LAB	DATE	Al (mg/L)	As (mg/L)	B (mg/L)	Ba (mg/L)	Ca (mg/L)	Cs (mg/L)	Fe (mg/L)	K (mg/L)	Mg (mg/L)	Mn (mg/L)	Na (mg/L)	Rb (mg/L)	Si (mg/L)	Sr (mg/L)	CHARGE BALANCE (percent)
3417	DH38	DN	UNC	04/08/91	< 0.05	0.003	1290	0.051	288	0.192	< 0.50	16800	18000	0.94	86000	15.7	1.75	0.80	-1.78
3688	DH38	DN	UNC	07/07/91	< 0.05	0.002	1500	0.032	293	0.246	< 0.05	17100	17200	0.86	84000	14.1	1.72	0.81	-4.71
4008	DH38	DN	UNC	10/16/91	< 0.05	< 0.001	1560	0.042	304	0.265	< 0.50	19200	17800	0.87	82000	14.3	2.36	0.74	-3.31
3420	DH40	DN	IT	04/08/91	NA	NA	1400	NA	350	NA	< 3	17300	16700	1.2	78000	NA	1.0	0.8	-6.59
3419	DH40	DN	UNC	04/08/91	< 0.05	< 0.001	1350	0.032	299	0.194	0.63	17600	18400	1.13	83000	16.2	2.34	0.61	-3.07
3690	DH40	DN	UNC	07/07/91	0.058	0.002	1490	0.125	276	0.236	< 0.50	16300	19000	1.17	84000	14	2.44	0.48	-2.04
4019	DH40	DN	UNC	10/16/91	< 0.05	< 0.001	1580	0.176	308	0.267	< 0.50	18900	18500	1.63	82000	14.8	3.48	0.67	-2.72
3422	DH42	DN	IT	04/08/91	NA	NA	1400	NA	330	NA	< 3	17400	16200	1.1	82000	NA	0.6	1.2	-0.34
3687	DH42	DN	IT	07/07/91	NA	NA	1500	NA	330	NA	< 3	19100	18000	1.0	87500	NA	0.9	0.9	3.11
3421	DH42	DN	UNC	04/08/91	< 0.05	0.007	1290	0.071	292	0.178	< 0.50	17200	17500	1.01	87000	15.7	1.58	0.87	-2.37
3686	DH42	DN	UNC	07/07/91	< 0.05	0.008	1480	0.03	298	0.238	< 0.05	17000	17300	1.06	84000	13.8	2.09	0.82	-4.19
4009	DH42	DN	UNC	10/16/91	< 0.05	0.003	16[illegible]	0.1	316	0.253	< 0.50	19300	18000	0.98	86000	14.1	2.13	0.83	-0.82
3424	DH42A	DN	IT	04/08/91	NA	NA	1300	NA	310	NA	< 3	17100	16000	0.9	84000	NA	0.9	1.1	-5.12
3685	DH42A	DN	IT	07/07/91	NA	NA	1500	NA	330	NA	< 3	18700	17400	0.8	86300	NA	0.8	0.7	2.15
3423	DH42A	DN	UNC	04/08/91	< 0.05	0.004	1300	0.042	295	0.176	< 0.50	17000	17800	0.93	89000	15.7	1.97	0.83	-0.65
3684	DH42A	DN	UNC	07/07/91	< 0.05	0.004	1520	0.052	297	0.241	< 0.50	17200	17400	0.92	87000	14	1.97	0.80	-2.40
4006	DH42A	DN	UNC	10/16/91	< 0.05	< 0.001	1550	0.04	301	0.246	< 0.50	19500	17200	0.88	84000	13.9	2.70	0.76	-3.12
3412	DHP402A	DN	IT	04/08/91	NA	NA	1300	NA	400	NA	4	15300	24900	2.2	80500	NA	0.2	3.4	-0.56
3677	DHP402A	DN	IT	07/07/91	NA	NA	1300	NA	370	NA	9	15100	29600	2.1	82100	NA	< 0.2	3.4	10.45
3411	DHP402A	DN	UNC	04/08/91	< 0.05	0.001	1120	0.032	276	0.299	0.64	13900	24800	1.70	76000	17.2	0.55	2.81	-1.32
3676	DHP402A	DN	UNC	07/07/91	< 0.05	0.006	1310	0.065	267	0.349	4.82	14000	24200	1.75	77000	15.6	0.59	2.56	-3.07
4014	DHP402A	DN	UNC	10/16/91	< 0.05	< 0.001	1110	0.044	274	0.383	0.65	15300	24400	1.66	76000	15.7	1.41	2.21	-2.48
3410	DHP402Aa	DN	IT	04/08/91	NA	NA	1300	NA	470	NA	5	15300	24800	3.8	83100	NA	< 0.2	5.8	0.97
3409	DHP402Aa	DN	UNC	04/08/91	< 0.05	< 0.001	1160	0.08	304	0.299	2.83	13900	24500	2.69	77000	17.1	< 0.5	4.23	-1.47
3680	DHP402Aa	DN	UNC	07/07/91	< 0.05	0.006	1280	0.087	304	0.058	5.83	13500	24000	2.67	96000	15.4	< 0.5	4.20	4.19
4002	FLRPDL		UNC	10/16/91	< 0.05	< 0.001	124	0.065	322	0.076	< 0.50	8410	11800	1.00	96000	11.4	1.20	14.3	-4.13
4001	FLRPDL		UNC	10/16/91	0.068	< 0.001	126	0.031	328	0.08	< 0.50	8220	12300	1.05	99000	11.6	1.23	14.4	-1.94

NA Not available.

TABLE C-1
ANALYTICAL RESULTS

SAMPLE NUMBER	HOLE NUMBER & DIRECTION		LAB	DATE	pH[a] (s.u.)	SG[b] (g/cm^3)	TDS[c] (mg/L)	EXT ALK[d] (mg/L)	TIC[e] (mg/L)	TOC[e] (mg/L)	Br (mg/L)	Cl (mg/L)	F (mg/L)	I (mg/L)	NO3 (mg/L)	NH4 (mg/L)	P (mg/L)	SO4 (mg/L)
4000	FLRPDL		UNC	10/16/91	7.4	1.22	361000	450	151	188	622	190000	3.6	0.4	23.4	17.6	0.2	21700
3408	GSEEP	DN	IT	04/08/91	6.3	1.23	339000	900	10	NA	1700	198000	4	17	< 0.09	170	NA	29000
3679	GSEEP	DN	IT	07/07/91	6.3	1.24	360000	920	< 5	NA	1400	170000	6.1	22	< 0.09	160	NA	31000
3407	GSEEP	DN	UNC	04/08/91	6.4	1.22	383000	894	3.6	25	1340	189000	3.2	16.9	0.5	182	< 0.1	28000
3678	GSEEP	DN	UNC	07/07/91	6.3	1.23	377000	885	3.0	10	1390	190000	3.9	12.0	0.7	141	< 0.1	27700
4013	GSEEP	DN	UNC	10/16/91	6.4	1.22	372000	900	4.1	< 5	1400	189000	4.4	19.0	0.6	171	0.2	27100
3442	OH20	HZ	IT	04/08/91	5.9	1.23	330000	670	< 5	NA	1500	182000	5	14	0.40	130	NA	16000
3704	OH20	HZ	IT	07/07/91	6.0	1.23	370000	NA	< 5	NA	1600	180000	5.3	13	0.13	140	NA	18000
3433	OH20	HZ	UNC	04/08/91	6.0	1.21	198000	662	3.6	41	1450	198000	3.9	15.5	1.1	133	< 0.1	17400
3703	OH20	HZ	UNC	07/07/91	6.0	1.22	384000	1480	3.6	36	1480	199000	4.8	10.7	1.0	123	< 0.1	17000
4017	OH20	HZ	UNC	10/16/91	6.1	1.22	375000	670	4.1	41	1520	197000	4.8	14.2	1.1	135	0.1	16900
3435	OH23	HZ	IT	04/08/91	6.0	1.22	340000	660	5	NA	1700	174000	6	13	0.27	140	NA	16000
3702	OH23	HZ	IT	07/07/91	6.0	1.23	370000	NA	< 5	NA	1200	170000	6.7	13	< 0.09	180	NA	16000
3434	OH23	HZ	UNC	04/08/91	6.1	1.21	192000	671	3.0	41	1470	192000	4.0	14.5	1.0	144	< 0.1	16500
3701	OH23	HZ	UNC	07/07/91	6.0	1.22	383000	644	4.1	30	1510	196000	4.2	9.3	0.6	123	< 0.1	16100
4016	OH23	HZ	UNC	10/16/91	6.1	1.21	367000	620	3.6	25	1510	195000	4.8	13.1	0.9	136	< 0.1	15900
3437	OH26	HZ	IT	04/08/91	6.0	1.22	347000	720	5	NA	2000	182000	4	16	0.22	130	NA	16000
3700	OH26	HZ	IT	07/07/91	6.1	1.22	340000	740	< 5	NA	1400	180000	6.2	15	< 0.09	120	NA	16000
3436	OH26	HZ	UNC	04/08/91	6.1	1.22	375000	723	3.6	61	1470	192000	4.6	15.9	0.7	160	< 0.1	16200
3699	OH26	HZ	UNC	07/07/91	6.0	1.23	385000	726	3.6	46	1520	196000	4.6	10.5	0.7	114	< 0.1	15900
4015	OH26	HZ	UNC	10/16/91	6.1	1.21	366000	680	4.1	51	1520	194000	4.9	14.5	1.1	130	0.1	15900
3441	OH28	DN	UNC	04/08/91	6.1	1.21	370000	699	3.0	46	1450	192000	5.8	12.9	1.0	146	0.6	16500
3438	OH45	HZ	UNC	04/08/91	6.2	1.22	387000	833	3.0	56	1500	196000	4.6	15.1	0.8	157	< 0.1	16500
4020	OH45	HZ	UNC	10/16/91	6.3	1.21	370000	870	9.7	81	1580	197000	5.5	14.7	1.2	141	0.1	16500
3440	OH46	DN	IT	04/08/91	6.1	1.23	342000	900	5	NA	1700	186000	5	15	0.13	140	NA	15000
3698	OH46	DN	IT	07/07/91	6.2	1.23	340000	NA	< 5	NA	1600	180000	6.1	15	< 0.09	130	NA	16000
3439	OH46	DN	UNC	04/08/91	6.2	1.22	381000	903	4.6	36	1540	193000	5.0	14.5	0.6	151	< 0.1	16300

[a] s.u. = standard units
[b] Specific Gravity
[c] Total Disolved Solids
[d] Extended Alkalinity measured to an endpoint pH of 2.5 and reported as equivalent bicarbonate (HCO_3).
[e] TIC and TOC are reported as equivalent bicarbonate.
NA Not available.

TABLE C-1
ANALYTICAL RESULTS

SAMPLE NUMBER	HOLE NUMBER & DIRECTION		LAB	DATE	Al (mg/L)	As (mg/L)	B (mg/L)	Ba (mg/L)	Ca (mg/L)	Cs (mg/L)	Fe (mg/L)	K (mg/L)	Mg (mg/L)	Mn (mg/L)	Na (mg/L)	Rb (mg/L)	Si (mg/L)	Sr (mg/L)	CHARGE BALANCE (percent)
4000	FLRPDL		UNC	10/16/91	0.213	0.001	258	0.189	310	0.096	< 0.50	9230	13200	1.05	99000	12.2	1.65	12.8	-1.59
3408	GSEEP	DN	IT	04/08/91	NA	NA	1500	NA	320	NA	< 3	14000	14500	0.7	101000	NA	0.5	2.5	-2.17
3679	GSEEP	DN	IT	07/07/91	NA	NA	1400	NA	260	NA	< 3	13300	13600	0.6	92600	NA	0.5	2.5	0.24
3407	GSEEP	DN	UNC	04/08/91	< 0.05	0.009	1380	0.015	240	0.126	< 0.5	12900	14400	0.60	95000	13.3	1.10	1.98	-2.47
3678	GSEEP	DN	UNC	07/07/91	< 0.05	0.01	1580	0.019	239	0.192	< 0.50	13100	14100	0.60	93000	12.3	1.21	2.01	-3.61
4013	GSEEP	DN	UNC	10/16/91	< 0.05	0.005	1460	0.029	252	0.204	< 0.50	14100	14700	0.59	95000	12.3	1.61	1.83	-1.83
3442	OH20	HZ	IT	04/08/91	NA	NA	1400	NA	380	NA	< 3	16600	21600	2.0	92700	NA	0.6	2.0	6.43
3704	OH20	HZ	IT	07/07/91	NA	NA	1500	NA	390	NA	< 3	17700	23500	2.0	91800	NA	0.6	2.0	7.80
3433	OH20	HZ	UNC	04/08/91	< 0.05	0.003	1170	0.041	334	0.223	< 0.50	15000	21100	1.95	83000	17.6	1.36	1.69	-1.96
3703	OH20	HZ	UNC	07/07/91	0.054	0.006	1360	0.174	323	0.26	< 0.50	14900	19900	1.86	78000	14.7	1.33	1.61	-5.10
4017	OH20	HZ	UNC	10/16/91	< 0.05	0.001	1390	0.102	337	0.287	< 0.50	15600	21700	1.94	80000	15.3	1.91	1.45	-2.22
3435	OH23	HZ	IT	04/08/91	NA	NA	1300	NA	450	NA	3	15700	19800	2.5	76800	NA	0.9	1.2	1.12
3702	OH23	HZ	IT	07/07/91	NA	NA	1500	NA	320	NA	< 3	16400	22700	1.8	83300	NA	0.7	1.3	7.07
3434	OH23	HZ	UNC	04/08/91	0.051	0.002	1210	0.138	279	0.229	< 0.50	15000	21800	1.70	79000	17.9	2.28	0.97	-1.42
3701	OH23	HZ	UNC	07/07/91	0.079	0.005	1370	0.094	276	0.263	< 0.50	14300	21000	1.67	78000	15	1.75	0.93	-3.45
4016	OH23	HZ	UNC	10/16/91	0.062	0.001	1380	0.045	283	0.286	< 0.50	15100	21300	1.63	78000	15.2	2.06	0.85	-2.76
3437	OH26	HZ	IT	04/08/91	NA	NA	1400	NA	440	NA	< 3	16100	22100	2.3	80200	NA	0.5	1.2	2.10
3700	OH26	HZ	IT	07/07/91	NA	NA	1500	NA	320	NA	< 3	16600	22900	1.7	83700	NA	0.4	1.1	4.60
3436	OH26	HZ	UNC	04/08/91	0.121	< 0.001	1160	0.122	278	0.224	< 0.50	14700	21200	1.54	78000	17.6	1.16	1.15	-2.27
3699	OH26	HZ	UNC	07/07/91	0.144	0.004	1350	0.105	276	0.268	< 0.50	14400	20500	1.58	76000	14.9	0.98	0.88	-4.58
4015	OH26	HZ	UNC	10/16/91	< 0.05	< 0.001	1390	0.095	280	0.275	< 0.50	15100	21900	1.60	78000	14.7	1.53	0.76	-2.09
3441	OH28	DN	UNC	04/08/91	0.055	0.002	1170	0.14	265	0.215	< 0.50	14300	21200	2.26	78000	17	1.82	0.82	-2.42
3438	OH45	HZ	UNC	04/08/91	< 0.05	0.002	1230	0.051	283	0.214	< 0.50	16300	21100	1.64	83000	17.6	1.33	2.78	-1.09
4020	OH45	HZ	UNC	10/16/91	< 0.05	< 0.001	1390	0.102	301	0.276	< 0.50	16300	20800	1.60	77000	15.1	1.87	2.28	-3.87
3440	OH46	DN	IT	04/08/91	NA	NA	1500	NA	480	NA	4	17700	24100	2.2	116000	NA	0.4	1.9	14.58
3698	OH46	DN	IT	07/07/91	NA	NA	1600	NA	340	NA	< 3	18400	25300	1.8	93700	NA	0.4	1.6	10.05
3439	OH46	DN	UNC	04/08/91	< 0.05	< 0.001	1290	0.06	279	0.228	< 0.50	16300	21000	1.43	82000	17.8	0.99	1.64	-0.80

NA Not available.

TABLE C-1
ANALYTICAL RESULTS

SAMPLE NUMBER	HOLE NUMBER & DIRECTION		LAB	DATE	pH[a] (s.u.)	SG[b] (g/cm^3)	TDS[c] (mg/L)	EXT ALK[d] (mg/L)	TIC[e] (mg/L)	TOC[e] (mg/L)	Br (mg/L)	Cl (mg/L)	F (mg/L)	I (mg/L)	NO3 (mg/L)	NH4 (mg/L)	P (mg/L)	SO4 (mg/L)
3697	OH46	DH	UMC	07/07/91	6.1	1.23	389000	976	4.1	25	1600	194000	5.5	10.5	0.7	100	< 0.1	16600
4018	OH46	DH	UMC	10/16/91	6.2	1.21	365000	930	5.6	20	1590	194000	5.5	14.5	1.6	140	< 0.1	15800

[a] s.u. = standard units
[b] Specific Gravity
[c] Total Disolved Solids
[d] Extended Alkalinity measured to an endpoint pH of 2.5 and reported as equivalent bicarbonate (HCO_3).
[e] TIC and TOC are reported as equivalent bicarbonate.
NA Not available.

TABLE C-1
ANALYTICAL RESULTS

SAMPLE NUMBER	HOLE NUMBER & DIRECTION	LAB	DATE	Al (mg/L)	As (mg/L)	B (mg/L)	Ba (mg/L)	Ca (mg/L)	Cs (mg/L)	Fe (mg/L)	K (mg/L)	Mg (mg/L)	Mn (mg/L)	Na (mg/L)	Rb (mg/L)	Si (mg/L)	Sr (mg/L)	CHARGE BALANCE (percent)
3697	OH46 DH	UNC	07/07/91	0.093	0.006	1430	0.128	263	0.269	< 0.50	15700	20300	1.45	75000	15	1.09	1.05	-4.53
4018	OH46 DH	UNC	10/16/91	< 0.05	< 0.001	1440	0.038	285	0.291	< 0.50	16900	20800	1.25	78000	15.1	1.74	1.43	-2.51

NA Not available.

END

DATE FILMED

12/16/93