UNITED STATES DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Pacific Enewetak Atoll Crater Exploration (PEACE) Program
Enewetak Atoll, Republic of the Marshall Islands

Part 2: Paleontology and Biostratigraphy of Enewetak Atoll, Marshall Islands: Application to OAK and KOA Craters

by

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We cannot suppose that the many atolls in the Pacific and Indian oceans all have had a late origin, and yet should they remain at their present level, subjected only to the action of the sea and to the growing powers of the coral, during as many centuries as must have elapsed since any of the earlier tertiary epochs, it cannot, I think, be doubted that their lagoons and the islets on their reef, would present a totally different appearance from what they now do. This consideration leads to the suspicion that some renovating agency (namely subsidence) comes into play at intervals, and perpetuates their original structure.

(Charles R. Darwin, 1842)

In a letter dated May 5th, 1881, Darwin wrote to Alexander Agassiz, who was opposed to some of his views, that he wished "that some doubly rich millionaire would take it into his head to have borings made in some of the Pacific and Indian atolls, and bring home cores for slicing from a depth of 500 or 600 feet." Such efforts were inconclusive until the United States sponsored drilling at Eniwetak in 1951.

(M. T. Ghiselin, 1984)

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CHAPTER I: INTRODUCTION

Background

During Phase II of the 1985 Pacific Enewetak Atoll Crater Exploration (PEACE) Program, 32 cores were obtained from the subsurface Cenozoic section at Enewetak Atoll, Marshall Islands (Figure 1). Approximately 14,300 feet of hole was drilled and about 60% of this was recovered in the form of core, split-spoon, and Shelby tube samples. To achieve the program objectives of understanding the morphology, deformation, and the process of formation of the nuclear craters KOA and OAK, a means of correlation of stratigraphic horizons within and between craters was required. The Enewetak Paleontology Project was developed as an integral part of the geologic and stratigraphic study of the U.S. Geological Survey (USGS) cores taken during Phase II of the PEACE Program. The basic goal was to develop a microfossil zonation of Enewetak subsurface sediments and apply it to understanding the stratigraphy under the KOA and OAK craters. This report describes the results of the paleontologic studies at Enewetak.

Marine microfossils are the preserved remains of organisms whose shells were deposited in the back-reef and lagoon at Enewetak and which comprise varying proportions of atoll carbonate sediments. The unique sequence of fossils found in the uppermost 1500 feet of the stratigraphic sequence provides a record of marine organisms that lived in the lagoon and back reef at different times during the past 15 million years. Changes in fossil assemblages through time reflect the evolutionary, environmental, and extinction events that occurred at the atoll, and the biogeographic (migration) events that introduced new species from surrounding areas of the Pacific Ocean. By establishing the normal succession of fossils in the

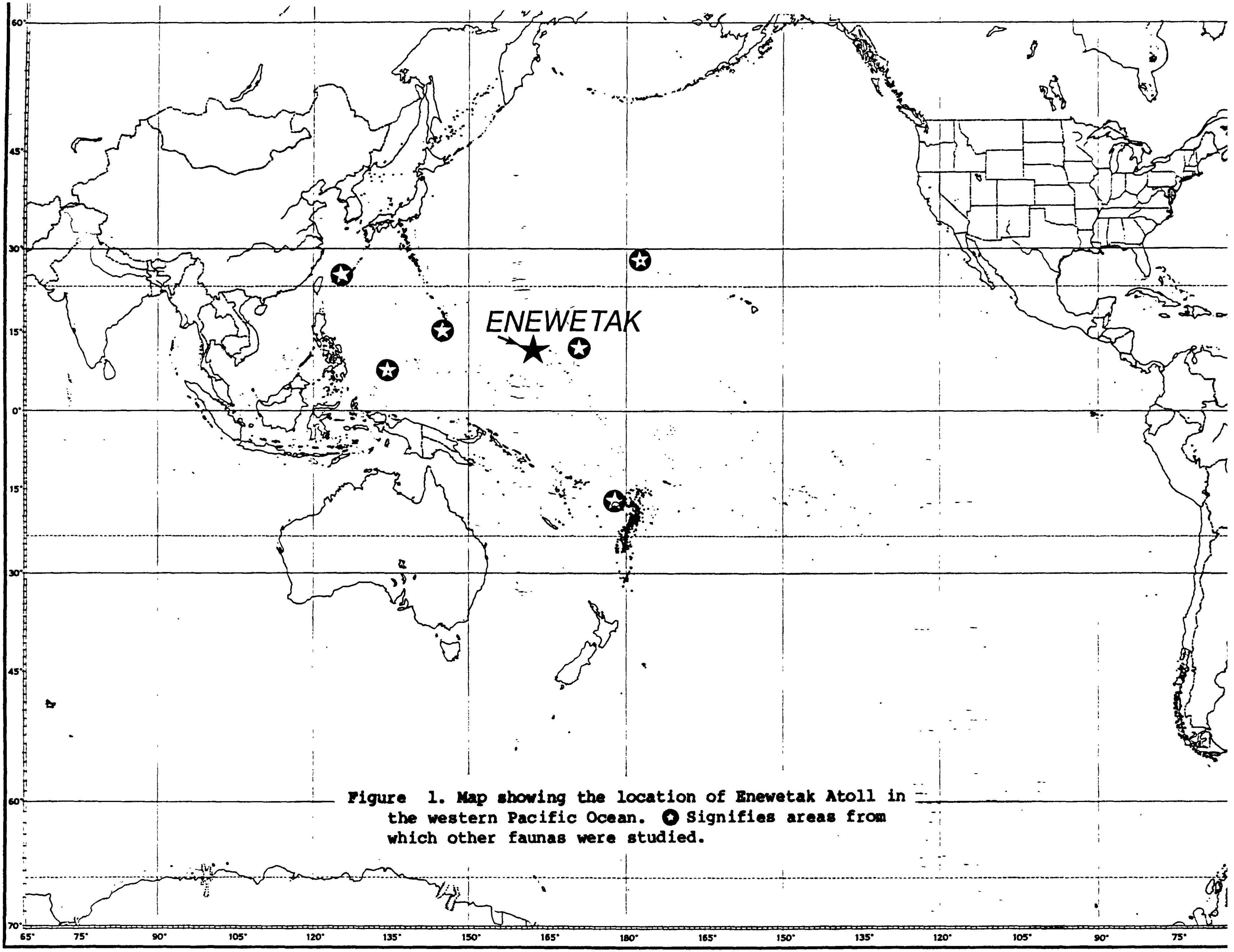

Figure 1. Map showing the location of Enewetak Atoll in the western Pacific Ocean. ✪ Signifies areas from which other faunas were studied.

Cenozoic sequence of Enewetak, evidence for disruption and mixing caused by the OAK and KOA high-yield nuclear devices could be obtained by identifying anomalous fossil occurrences in rocks within and below the craters.

The Paleontology Project concentrated on five fossil groups: three benthic or bottom-dwelling groups (the smaller benthic foraminifers, the larger benthic foraminifers, and the ostracodes), and two planktic or surface-water-dwelling groups (the planktic foraminifers and the calcareous nannofossils).

Strategy

A strategy was devised whose primary goal was the development of a biostratigraphic zonation based on undisturbed fossil sequences obtained mostly from reference sections outside crater areas. These data could then be applied in the study of cores drilled in the KOA and OAK craters that penetrated stratigraphic sections disturbed by the two nuclear devices. Figure 2 outlines this procedure showing the steps taken to develop the zonation on the left and the desired outcome in its application on the right. Because no published biostratigraphic zonation exists for the Miocene to Recent of Enewetak, a "custom-made" zonation was formulated, using the following five sources of biostratigraphic information.

1. Boreholes from the Exploration Program on Enewetak (EXPOE) drilling operations of 1973-1974 (see Couch and others, 1975 for details on EXPOE cores). Figure 3 shows the location of the islands where these cores (XEN-1, -2, -3, -5; XRI-1; XSA-1, and -2; XBK-1) were drilled. These were all shallow holes (less than 300 feet deep) drilled on the islands themselves. This material was studied before the PEACE 1985 drilling began and was useful for developing biostratigraphic zones AA through GG

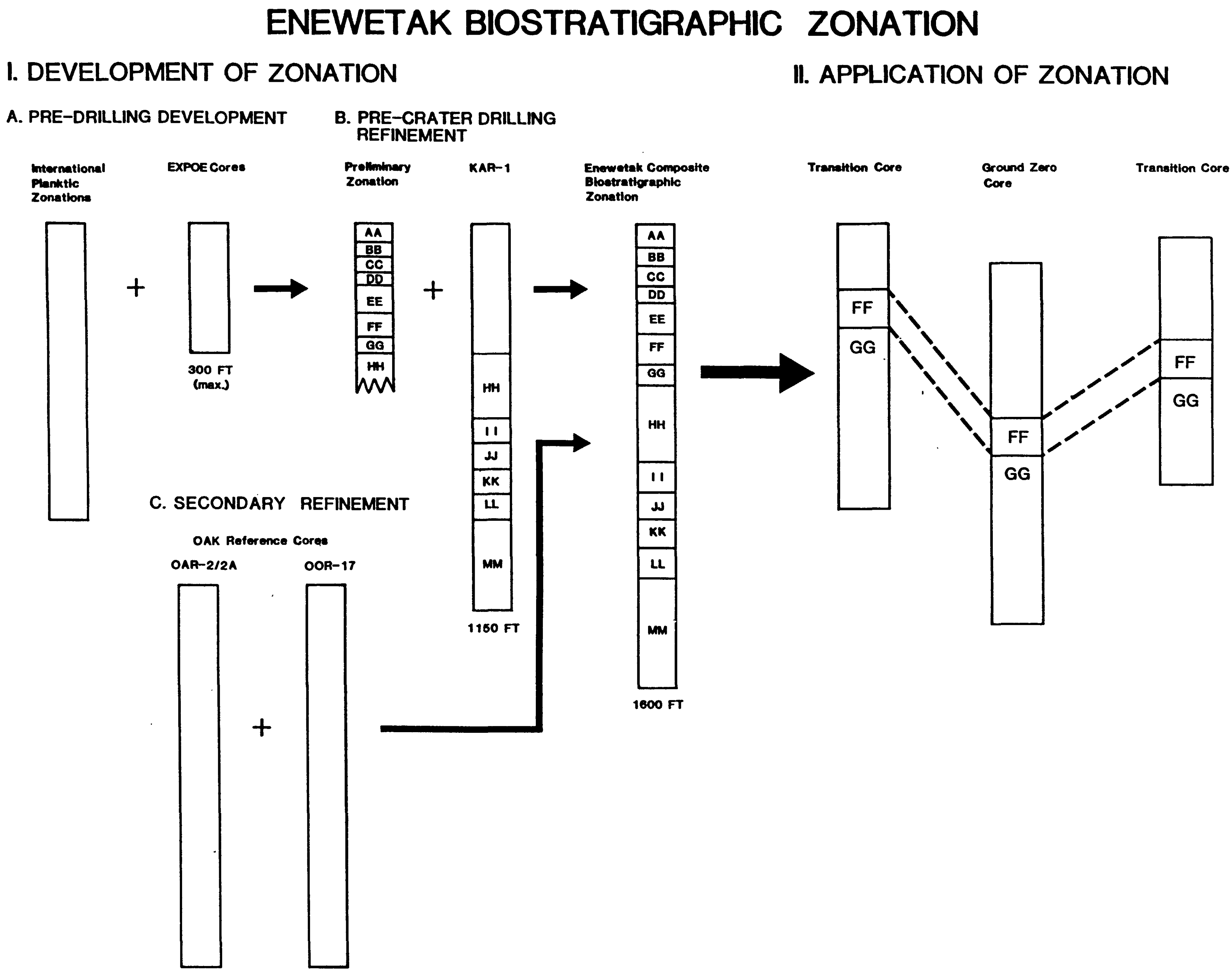

Figure 2. Outline of development and application of Enewetak biostratigraphic zonation.

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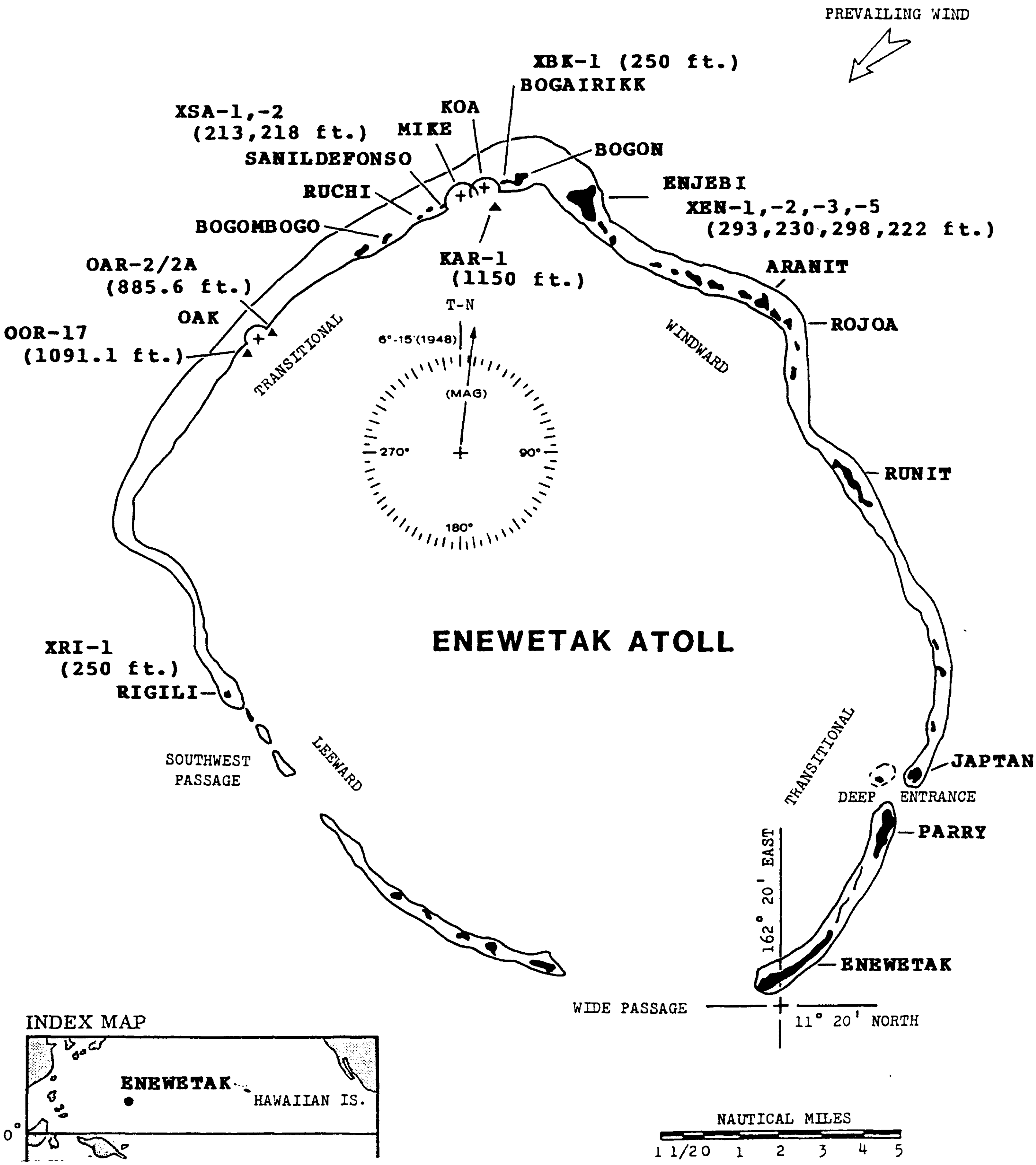


Figure 3. Map of Enewetak Atoll showing locations and depths in feet of EXPOE cores (XRI, XSA, XBK, XEN), location of OAK, KOA, and MIKE craters, and selected Program reference holes.

in the uppermost 300 feet.

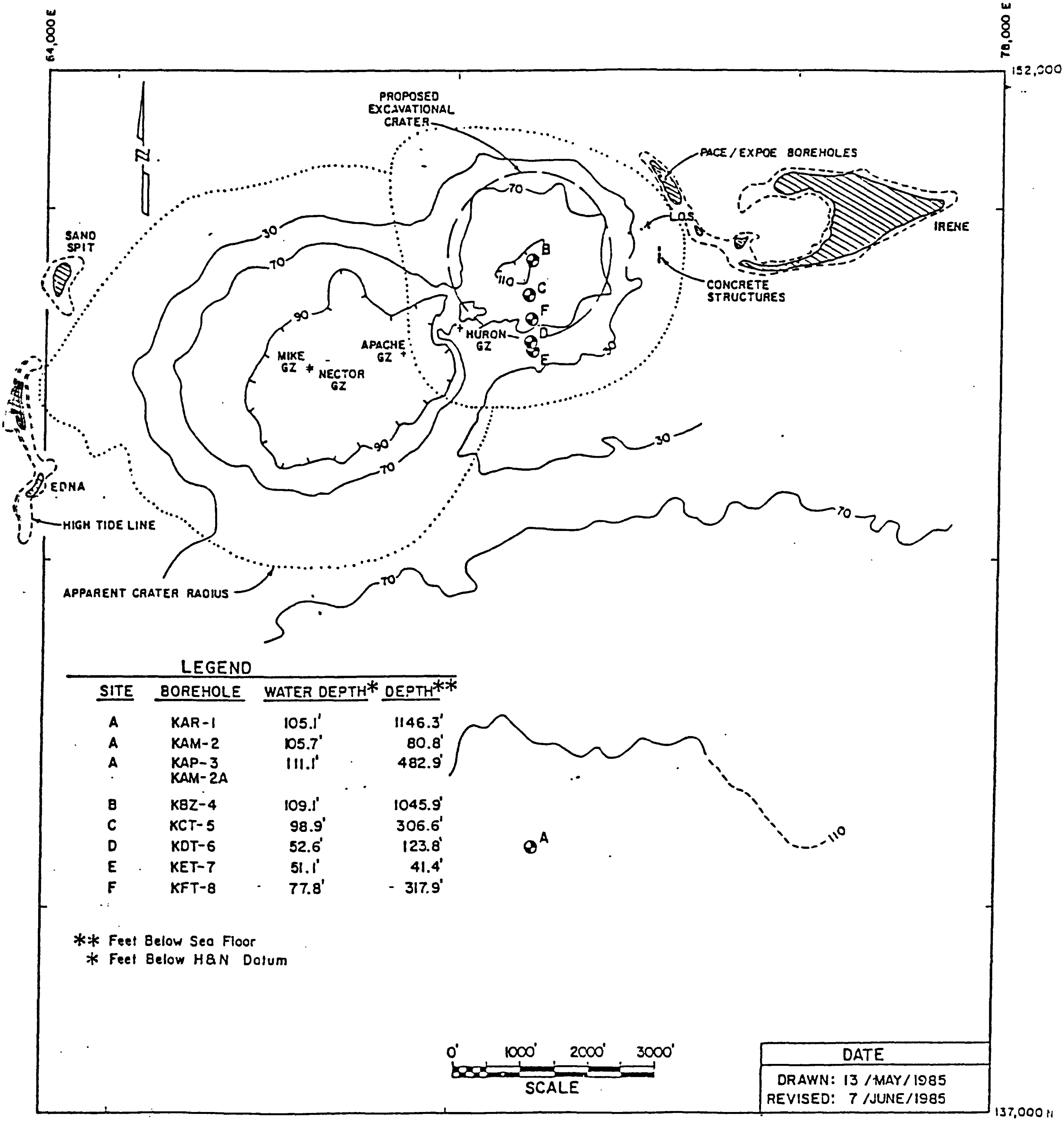
2. Reference borehole KAR-1. The location of this borehole is shown at Site A in Figure 4, 8509 feet southward of the KOA crater towards the center of the lagoon. This was the first borehole sampled during the 1985 drilling program and provided the primary data for biostratigraphic zones HH down through MM to 1150 feet below sea floor. Figure 2 schematically shows how this core was integrated with other material to develop the composite zonation. The only material recovered from below 1200 feet below sea floor during the 1985 drilling came from borehole OBZ-4.

3. Reference boreholes OAR-2/2A and OOR-17. Figure 5 shows the location of these reference boreholes with respect to the OAK crater. During drilling and post-drilling studies, these boreholes provided refinements and enhancements to the initial zonation developed from EXPOE boreholes and from KAR-1 (see Figure 2).

4. Published international planktic microfossil zonations. Data for planktic foraminifers and calcareous nannofossils are available from the published literature and were used to date the Enewetak section and correlate this sequence with a global geologic time scale (Figure 2).

5. Other biostratigraphic data were available from published reports on boreholes from Bikini, Enewetak, Midway Island and outcrops on various Pacific Islands such as Saipan. These are discussed in Chapter IV, Biostratigraphy.

The development and application of the reference biostratigraphic zonation to the stratigraphic sequences and disturbed material in the crater boreholes went through several iterations during which the biostratigraphic ranges of various species were continually checked and modified if necessary



LEGEND

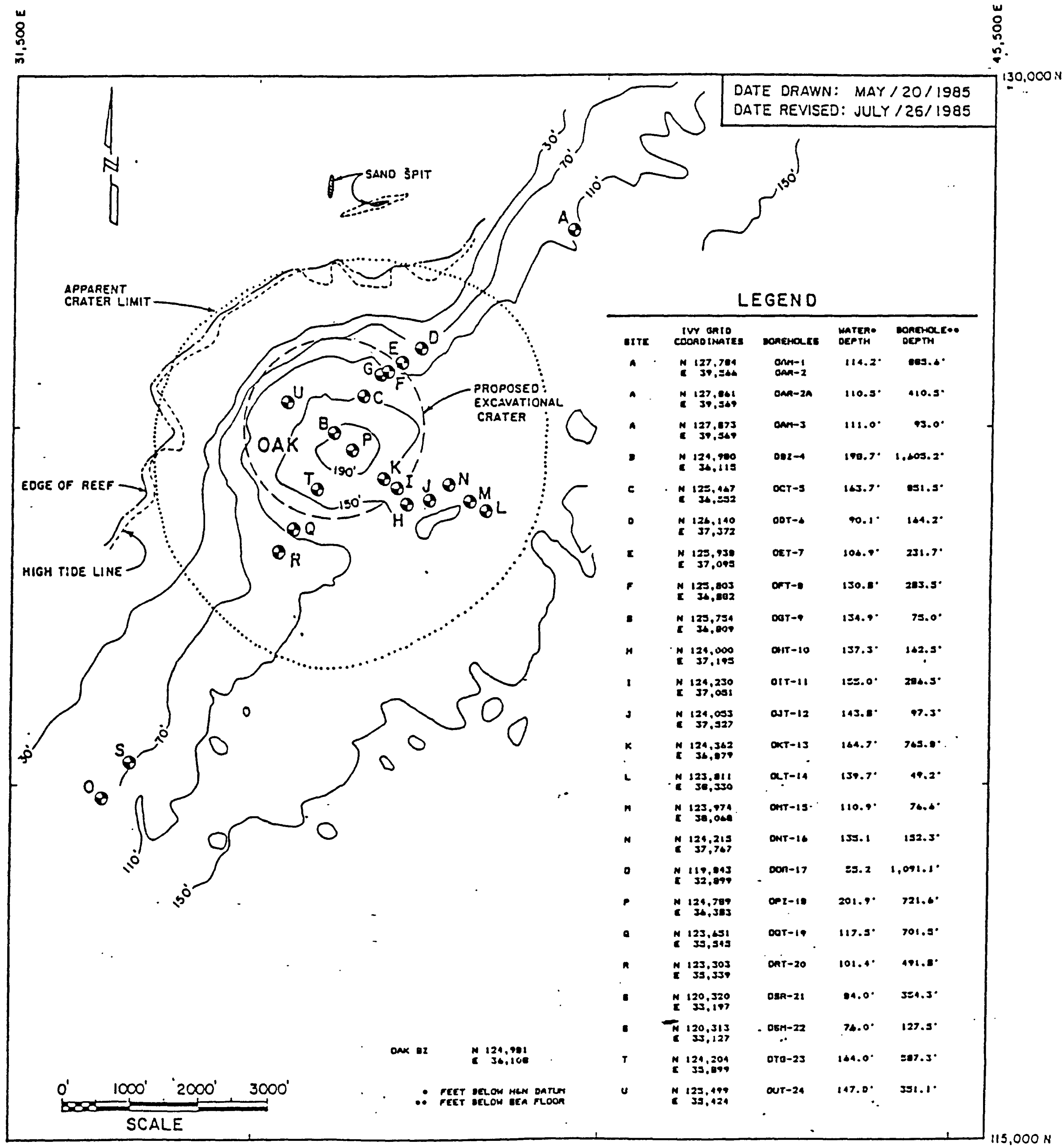
SITE	BOREHOLE	WATER DEPTH*	DEPTH**
A	KAR-1	105.1'	1146.3'
A	KAM-2	105.7'	80.8'
A	KAP-3 KAM-2A	111.1'	482.9'
B	KBZ-4	109.1'	1045.9'
C	KCT-5	98.9'	306.6'
D	KDT-6	52.6'	123.8'
E	KET-7	51.1'	41.4'
F	KFT-8	77.8'	317.9'

** Feet Below Sea Floor
* Feet Below H&N Datum

KOA BOREHOLE LOCATION MAP

(AS DRILLED DURING THE PEACE PROGRAM)

Figure 4. Location of KOA boreholes.



LEGEND

SITE	IVY GRID COORDINATES	BOREHOLES	WATER* DEPTH	BOREHOLE** DEPTH
A	N 127,784 E 39,566	OAM-1 OAR-2	114.2'	885.6'
A	N 127,861 E 39,569	OAR-2A	110.5'	410.5'
A	N 127,873 E 39,569	OAM-3	111.0'	93.0'
B	N 124,980 E 36,115	OBZ-4	198.7'	1,605.2'
C	N 125,467 E 36,552	OCT-5	163.7'	851.5'
D	N 126,140 E 37,372	ODT-6	90.1'	164.2'
E	N 125,938 E 37,095	OET-7	106.9'	231.7'
F	N 125,803 E 36,802	OFT-8	130.8'	283.5'
G	N 125,754 E 36,809	OGT-9	134.9'	75.0'
H	N 124,000 E 37,195	OHT-10	137.3'	162.5'
I	N 124,230 E 37,051	OIT-11	153.0'	286.5'
J	N 124,053 E 37,527	OJT-12	143.8'	97.3'
K	N 124,362 E 36,879	OKT-13	164.7'	763.8'
L	N 123,811 E 38,330	OLT-14	139.7'	49.2'
M	N 123,974 E 38,068	OMT-15	110.9'	76.6'
N	N 124,215 E 37,767	ONT-16	135.1	152.3'
O	N 119,843 E 32,899	OOR-17	55.2	1,091.1'
P	N 124,789 E 36,383	OPZ-18	201.9'	721.6'
Q	N 123,651 E 35,543	OQT-19	117.5'	701.5'
R	N 123,303 E 35,339	ORT-20	101.4'	491.8'
S	N 120,320 E 33,197	OSR-21	84.0'	354.3'
S	N 120,313 E 33,127	OSM-22	76.0'	127.5'
T	N 124,204 E 35,899	OTG-23	164.0'	587.3'
U	N 125,499 E 35,424	OUT-24	147.0'	331.1'

OAK BOREHOLE LOCATION MAP

(AS DRILLED DURING THE PEACE PROGRAM)

Figure 5. Location of OAK boreholes.

with new information derived from new drilling. A final application of all the results was made after all drilling had been completed.

One aspect of the project's strategy was to investigate several fossil groups from each sample. This approach allowed biostratigraphic interpretations to be based on multiple lines of evidence which in most cases consisted of occurrences of benthic foraminifer and ostracode species. Generally only one fossil group was examined on the ship. Therefore shipboard interpretations were considered tentative until verified with data from a second microfossil group and more detailed study at USGS laboratories in Reston, Va. For example, during the drilling operations of borehole OBZ-4, anomalous occurrences of ostracode species known only from below 500 feet in KAR-1 were recorded during examination of samples from the upper 100 feet of OBZ-4. Confirmation of this unexpected result was sought and soon found by examination of the benthic foraminifers from the same samples in Reston, and by examination of samples above and below the sample in question.

In some samples, only one group was used for correlation because of either poor preservation or relatively low abundances of other fossil groups. Inferences made from single fossil groups are considered less reliable than those where multiple lines of evidence are available.

In addition to using individual species for correlation, other microfossil assemblage criteria were used to identify particular horizons and correlate within the lagoon. These criteria included species diversity and abundance, which were particularly useful in the uppermost 300 feet of cores where relatively few species' extinction and first appearances occur.

Another aspect of the paleontologic studies was the requirement that the paleontologic material be carefully curated and records of sampling and processing be computerized both for the immediate program objectives and subsequent studies. Samples taken in the paleontologic program could therefore serve as a source of material that could be used for future paleontologic, geochemical, or petrographic study without additional sampling of the cores. Records of all paleontologic samples have been filed on computer discs.

This report presents all pre- and post-drilling PEACE paleontologic results. It is meant to be the complement to the lithologic descriptions of the boreholes reported elsewhere (Henry, Wardlaw and others, in press) as well as a compendium of paleontologic data obtained from the PEACE drilling program.

Participants

The paleontologic staffing, their area of expertise, and their tour(s) of duty in 1985 aboard the drill ship Knut Constructor follows:

E. Brouwers	ostracodes (April 10 - May 8; July 4 - July 24)
L. Bybell	calcareous nannofossils (no tour)
T. M. Cronin	ostracodes (February 11 - March 8; June 4 - June 20)
L. Edwards	data management (no tour)
T. Gibson	smaller benthic foraminifers (May 8 - June 5)
R. Margerum	larger benthic foraminifers (March 3 - April 10)
R. Z. Poore	benthic and planktic foraminifers (June 4 - June 20)

R. Z. Poore acted as Project Chief and liason with the geologists. T. M. Cronin was the paleontologic coordinator.

Additional staff who participated in the ship board operations were physical science technicians W. E. Martin (two tours), R. Stamm (two tours), and E. Compton-Gooding (one tour). These people assisted the paleontologist(s) and geologists on the ship and are referred to as yeoman in this report. Physical science technicians who handled sample processing, inventory, data management, scanning electron microscopy and various aspects of report preparation in Reston, VA, include E. E. Funk, N. Goodwin, L. Gosnell, J. E. Hazel, R. C. Montgomery, and E. Shaw; in Denver, CO, Debbie Adelsperger, Robert Burkholder and Linda Rouch. W. Martin coordinated mobilization and demobilization of paleontologic ship board operations.

Acknowledgments.

We are especially grateful to B. R. Wardlaw and T. W. Henry, U. S. Geological Survey, who acted as Chief Geologists shipboard. Lt. Col. Robert F. Couch, Jr., U.S. Air Force and Defense Nuclear Agency, was most helpful in coordinating the program. B. L. Ristvet and E. L. Tremba of S-cubed and S. Melzer of SAIC provided important information on past Enewetak operations and were helpful during drilling operations. Many thanks to E. Herbst, P. Haggerty, and J. Matthewman of Holmes and Narver, Inc., for logistic support of shipboard paleontologic studies and in post-drilling transportation of samples to Reston.

We thank M. A. Buzas, W. Blow, and S. Richardson of the Smithsonian Institution, U. S. Museum of Natural History, for providing access to paleontologic collections from previous Marshall Island projects. T. Hanai and I. Hayami (Tokyo University) freely gave access to the collections of

Pacific ostracodes at The Tokyo University Museum and N. Ikeya (Shizuoka University) and K. Ishizaki (Tohoku University) loaned other collections of Pacific ostracodes.

CHAPTER II: SAMPLE AND LABORATORY METHODOLOGY

Background

During the 1985 PEACE program at Enewetak a total of 2557 paleontologic samples were taken on the drill ship Knut Constructor from boreholes drilled in or near OAK and KOA craters. The laboratory methodology used in the Enewetak Paleontologic Project involved many separate processing techniques designed to extract the microfossils from the samples. Figure 6 is a flow chart outlining the six stages each sample went through from on board extraction to final repository in curated micropaleontologic collections. However, laboratory procedures were slightly different on the ship compared with those performed in USGS paleontologic laboratories in Reston, Virginia. The Knut Constructor was equipped for paleontologic analyses during mobilization at Kwajelein Atoll in February, 1985. Two stereo binocular microscopes and microscope lamps, sample drying ovens, a personal computer, sinks for washing and standard micropaleontologic equipment such as sieves, brushes, slides, glassware, etc. were assembled into an on-board paleontologic laboratory. It was situated in one 10-by-25 foot trailer next to a second trailer of the same size in which the cores and samples were laid out and described by the geologists. This arrangement allowed the maximum interchange and feedback among the ship's scientific staff. However, space and laboratory facilities on the ship were limited and only allowed the paleontologist and yeoman to use a narrow range of paleontologic preparation techniques to avoid contamination. Shipboard analyses were therefore limited to benthic foraminifers and ostracodes due to these logistic limitations as well as time and manpower limitations.

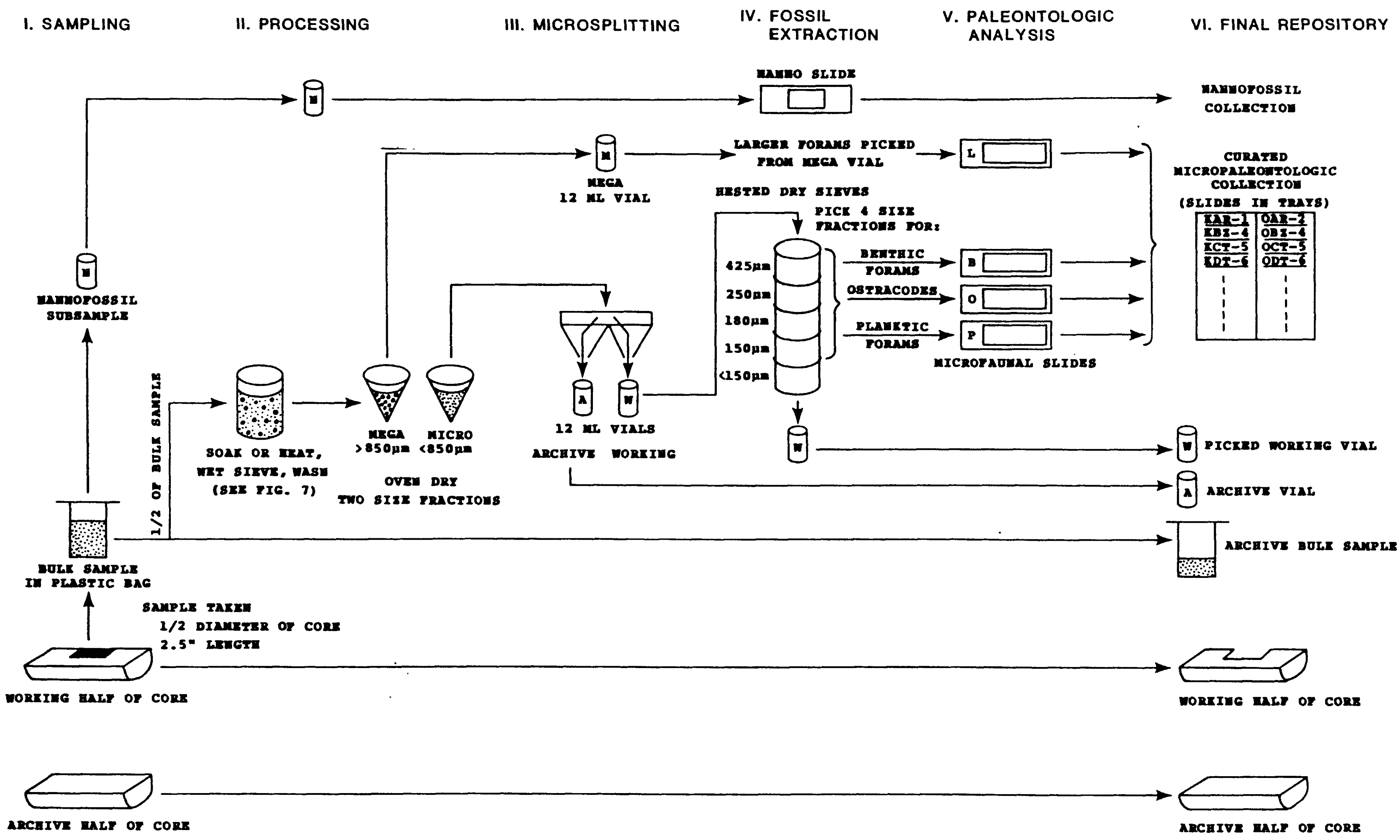


Figure 6. Summary of paleontologic procedures used in Enewetak Project.

Borehole Names

The thirty boreholes from OAK and KOA studied for paleontology are listed in Figures 4 and 5 and in Tables 1 and 2. The convention for naming the cores was as follows. The first letter designates the crater area, "K" for KOA, "O" for OAK. The second letter indicates the drilling site within or near each crater, beginning with site A and changing whenever the ship moved to a new anchoring position. The third letter indicates the type of borehole: R = reference hole, T = crater transition-zone hole, Z = ground zero hole, M = material properties hole. The number following the three letters indicates the sequential number of the borehole in that crater. For example, OBZ-4 is a ground zero borehole drilled at the B site in the OAK crater; it was the fourth borehole drilled at the OAK crater area. OAM-1, OAR-2 and 0AM-3 were drilled at the first site in OAK, Site A. OAR-2 and OAR-2A represent two attempts to drill the same reference borehole at OAK and will be referred to in this report as a single composite borehole called OAR-2/2A.

The rest of this chapter is divided into six parts corresponding to the six roman numeral sections outlined in Figure 6. In each part, any differences in processing for different fossil groups and between shipboard methodology and Reston methodology are noted.

Sampling

All paleontologic samples were taken on the ship, after the geologists had described the samples, usually within a few hours of the time the core barrel, Shelby tube, or split spoon was pulled from the hole. After the sample was split into working and archive halves, the paleontologist, in consultation with the geologists, would decide at what depths to take paleontologic samples. The locations of samples were determined on the basis

TABLE 1: KOA PALEONTOLOGIC SUMMARY

Borehole	Depth* below Sea Floor (FT)	Number of Samples Taken	Processed	Number of Samples analyzed for Benthics Foraminifers	Ostracodes	Planktics Foraminifers	Calcareous Nannofossils	Larger Foraminifers	Total Analyses
KAR-1	1146.3	205	204	92	119	46	130	115	502
KBZ-4	1045.9	152	147	83	92	42	109	57	383
KCT-5	306.6	52	52	35	42	2	30	0	109
KDT-6	123.8	21	21	21	21	3	21	0	66
KET-7	41.4	6	6	6	6	0	6	0	18
KFT-8	317.9	51	51	32	21	3	30	0	86
TOTALS	2981.9	487	481	269	301	96	326	172	1164
(% of Total samples taken)			(98.8)	(55.2)	(62.0)	(19.7)	(66.9)	(35.3)	

* depth below Sea Floor

TABLE 2: OAK PALEONTOLOGIC SUMMARY

Borehole	Depth* below Sea Floor (FT)	Number of Samples Taken	Number of Samples Processed	Number of Samples analyzed for Benthic Foraminifers	Ostracodes	Planktic Foraminifers	Calcareous Nannofossils	Larger Foraminifers	Total Analyses
OAM-1	0	2	2	0	2	0	0	0	2
OAR-2	885.6	239	106	65	54	25	32	57	233
OAM-3	93.0	45	12	0	9	0	0	0	9
OBZ-4	1605.2	400	156	68	67	21	7	95	258
OCT-5	851.5	266	92	90	72	16	8	0	186
ODT-6	164.2	58	30	14	14	2	0	0	30
OET-7	231.7	77	27	13	10	1	0	0	24
OFT-8	283.5	77	26	7	14	5	0	0	26
OGT-9	75.0	24	5	2	3	0	0	0	5
OHT-10	162.5	47	13	9	6	2	0	0	17
OIT-11	268.5	70	19	10	16	1	0	0	27
OJT-12	97.3	18	5	5	5	0	0	0	10
OKT-13	765.8	102	36	33	31	12	7	0	83
OLT-14	49.2	11	0	0	0	0	0	0	0
OMT-15	76.6	7	3	2	2	0	0	0	4
ONT-16	152.3	26	1	1	1	0	0	0	2
OOR-17	1091.1	260	98	98	98	23	98	33	347
OPZ-18	721.6	87	11	6	9	0	0	0	15
OQT-19	701.5	81	2	2	2	0	0	0	4
ORT-20	491.8	48	16	4	16	0	0	0	20
OSR-21	354.3	38	2	2	2	0	0	0	4
OSM-22	127.5	17	9	0	7	0	0	0	7
OTG-23	587.3	11	11	11	11	0	0	0	22
OUT-24	351.1	59	8	8	8	0	0	0	16
TOTALS	10188.1	2070	690	450	459	108	152	185	1351
(% of Total Samples taken)			(33.3)	(21.7)	(22.2)	(5.2)	(7.3)	(8.9)	

* depth below Sea Floor

of the following criteria: lithology, fossil preservation, the type of core (i.e., reference, transitional or ground zero), percent sample recovery, the needs of the geologists for crater interpretation, and other factors. The sampling interval therefore varied from borehole to borehole and within different boreholes. For example, when the geologists needed a detailed analysis of the material at the suspected interface between the excavational crater fill and undisturbed strata, a higher density of samples was taken in this interval. During the early pre-drilling stages of planning, it had been estimated that paleontologic sampling resolution should be about one sample per 10-20 feet of core if original program goals were to be met. These sampling resolution objectives were met in both KOA and OAK as 481 and 690 samples were processed respectively for the two craters (Tables 1 and 2). Thus a total of 1371 samples were processed and studied for the total 14,188 feet of borehole drilled. However, a total of 2557 samples were taken 487 from KOA and 2070 from OAK so that additional, more detailed analyses could be done in the future without having to resample the core and other samples that are housed in the U.S. Geological Survey core library in Denver. Details of the distribution of paleontologic samples are given in Chapter III, Data Management.

The actual sampling was done in the petrology trailer where the cores were laid out for geologic description. A standard sample consisting of 2.5 inches of one half of the working part of the core or the push tube sample (i.e., equivalent to one quarter of the total core volume, see Fig. 6) was taken by the paleontologist, yeoman or geologist with a metal instrument and placed in a plastic sample bag, which was labeled with the borehole name and the footage below the sea floor. Care was taken not to take the outermost part of the core where contamination from drilling mud was possible. A styrofoam block labeled "Paleo" was placed in the core tube to mark the location of the sample and to prevent excess shifting of the remaining core/sample with subsequent handling. Due to high variability in sediment consolidation and sample recovery, the amount of sample available for paleontologic analysis varied considerably. In general, between 100 and 250 grams of dry sample was obtained; of this amount, about one half was processed for benthic foraminifers, planktic foraminifers, larger foraminifers and ostracodes using the procedures described in the next section.

Calcareous nannofossils are sparse in lagoonal sediments but where they do occur, they are useful for age determination. Consequently many samples were scanned for nannofossils, especially in the reference boreholes. Nannofossil sampling consisted of taking about 10 grams of bulk sample from the bagged sample. This subsampling was done in Reston to eliminate concern about possible contamination. For most samples, when a sample was processed in Reston, "fine" material that passed through the 63 micrometer sieve during washing was also collected for nannofossil processing. This material was settled overnight; once the supernatant liquid was decanted, the residue was dried in an oven at $50^{\circ}C$. When completely dry, it was placed in a dry vial. For KOA and OAK samples, slides were made from the bulk material; for EXPOE boreholes the "fines" were used for nannofossil preparation described below.

Processing

Figure 7 outlines the processing procedure for all foraminifers and ostracodes. Samples were soaked in water and Na_2CO_3 and the water-softener "Calgon" for approximately one to two hours. Gentle agitation and low heat (less than 50° C) were used to disaggregate the sediment in the Reston laboratory but neither heat nor agitation were used on the ship. Sediment was

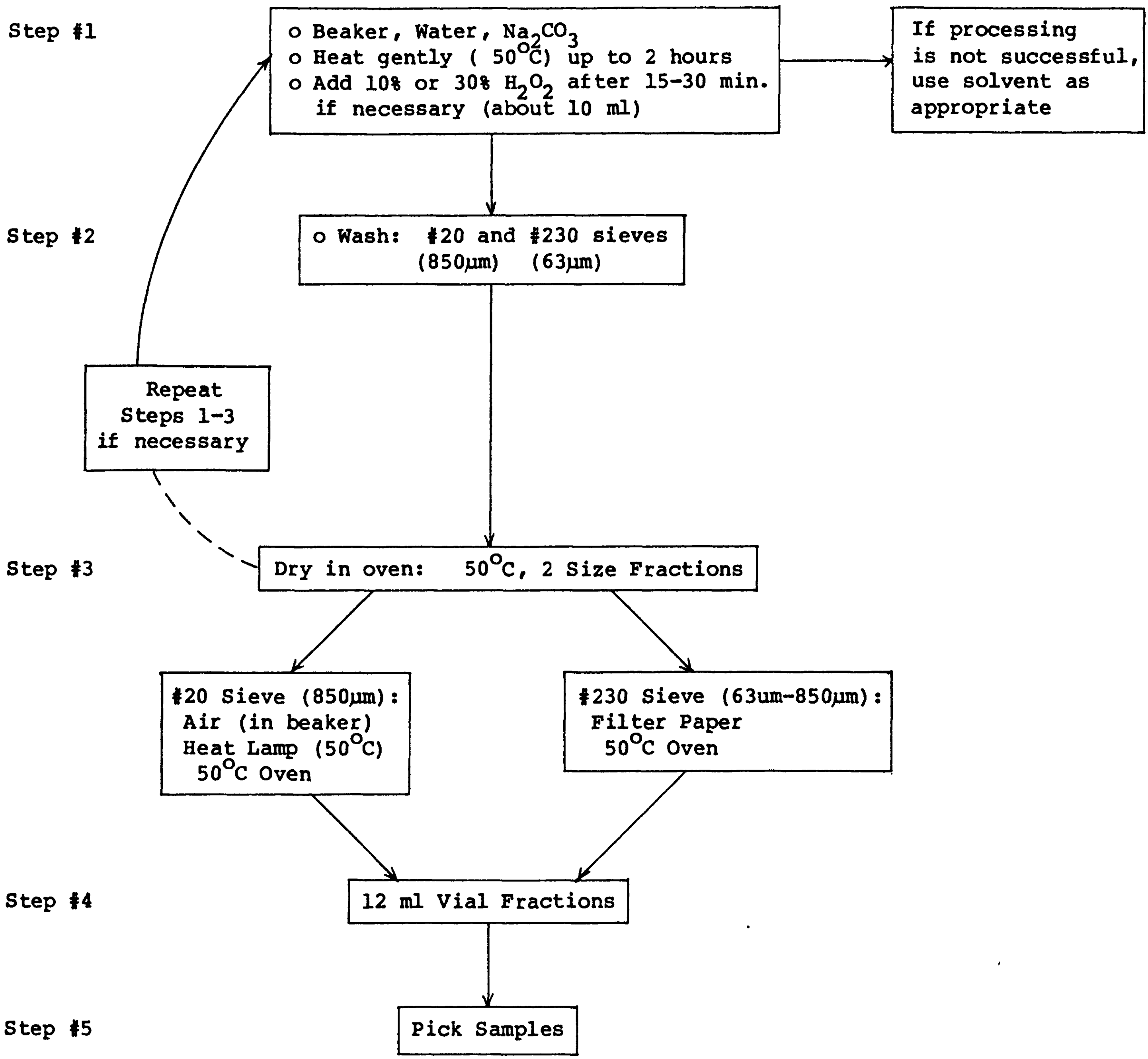


Figure 7. Outline of samples processing for foraminifers and ostracodes.

then washed through two nested sieves catching 63 and 850 micrometer sizes respectively. Only occasionally was it necessary to wash a sample more than once and seldom were any additives other than Na_2CO_3 or "Calgon" used to break down the sediment. In some heavily indurated intervals such as much of zone HH, "Quaternary O," a heavy-duty detergent, was used to break down the sediment. Sediment was dried in filter paper in an oven for several hours, after which it was split into two equal fractions (see microsplitting below).

Nannofossil slides were prepared by placing a between 5 and 15 grams of sample in a 50 ml beaker using a small spatula. Twenty ml of buffered distilled water (pH 9) was added to the sample resulting in a 2 cm column of water. The sample was then mixed with a spatula for ten seconds and then allowed to settle through the 2 cm column for 60 seconds. After 60 seconds the supernatant liquid was decanted and then allowed to settle for 10 minutes. The supernatant liquid was then decanted again and the residue containing the nannofossil particles transferred to a 1-gram glass vial. The residue was then spread onto a cover slip and mounted with an epoxy-based mounting medium onto a glass microscope slide for identification of nannofossils.

Microsplitting

The size fraction of the processed sample greater than 850 micrometers (mega fraction) was placed in a 12 ml vial to be picked for larger foraminifers in Reston. The fraction between 63 and 850 micrometers (micro) was placed in a standard microsplitter and divided into two equal, unbiased splits, one called the WORKING vial, labeled "W" and one the ARCHIVE vial, labeled "A". With few exceptions, the WORKING fraction provided enough material to obtain benthic foraminifers and ostracodes for giving a zone assignment to a sample. The ARCHIVE vial was stored for future paleontologic study. Because the crater boreholes provide a unique resource for future crater studies, and because the reference boreholes provide one of the most complete Miocene-Recent shallow-water marine records from an equatorial region, these ARCHIVE samples represent a valuable paleontologic resource that can be used conveniently, without resampling the core and reprocessing bulk sediment.

Fossil Extraction

The most tedious and time-consuming part of the sample processing procedures for foraminifers and ostracodes is extracting the microfossils from the dried sediment--a procedure known as "picking." Due to time and manpower constraints, the following standard procedure was adopted to assure consistency in comparing the micropaleontologic data from different cores and still assure that enough samples were examined to meet program needs. Dried sediment from the WORKING vial was passed through a set of small nested sieves (see mesh sizes in Figure 6). Sediment from each sieve was then sprinkled on a 2 by 3.5 inch black picking tray; all benthic foraminifers were picked using a fine brush (size 00000) and placed on a 60-square cardboard micropaleontology faunal slide. Slides were labelled with the borehole name, sample depths and fossil group. Four trays one for each sieve size (425, 250, 180, 150 micrometers) were picked for smaller benthic foraminifers. Depending on the abundance of foraminifers, this generally provided between 100 and 200 specimens.

Ostracodes were picked in the same manner; however, because they are generally not as abundant as foraminifers, between 2 and 4 trays were picked for the 425, 250, and 180 micrometer fractions and one or two trays of the 150 micrometer fraction. Sediment that was picked for both groups was discarded. Sediment picked for ostracodes only was kept in a 12 ml vial labeled "picked-O" for future work on the foraminifers if needed (see Figure 6). Some sediment in the WORKING vials remained unpicked but a large proportion of this consisted of grain sizes smaller than 150 micrometers. Generally between 10 and 15 grams of dried sediment was picked for ostracodes.

Although attempts were made to use larger foraminifers for correlation of the upper 300 feet, they are useful for biostratigraphy only in the deeper parts of the boreholes below about 800 feet. Therefore only mega fractions of samples below these depths were picked for larger foraminifers. All samples below 400 feet in boreholes KAR-1, KBZ-4, OAR-2/2A, and OBZ-4 and all those below 800 feet in OOR-17 were given preliminary checks for larger foraminifers. Those containing specimens were picked and analyzed.

Planktic foraminifers occur sporadically throughout the cores. When observed in the course of picking other microfossils, their occurrence would be noted and the entire WORKING fraction greater than 180 micrometer and part of the fraction less than 180 micrometer would be picked.

Paleontologic Analysis

Examination of samples for microfossils was done simultaneously on the ship and in Reston through the coordination of the onboard geologist and the paleontology coordinator. During mobilization, the ship was equipped with a reference collection of equatorial Pacific foraminifer and ostracode faunal slides, slides of key species from the EXPOE boreholes, a reference library of published paleontologic studies, and a scanning electron microscope photographic catalogue of Enewetak microfossils. This catalogue was assembled from material from the EXPOE boreholes specifically for application during the

1985 PEACE drilling and included several hundred photomicrographs of foraminifers and ostracodes. After completion of the KAR-1 reference borehole and its initial paleontologic study, a new suite of photomicrographs of species from below 300 feet and slides containing specimens of key species were prepared in Reston and sent to the ship for use during the rest of the shipboard work.

With two exceptions (in March and June when two paleontologists were present) only one paleontologist was onboard ship at one time and shipboard analyses were limited to a single fossil group. When paleontologic staff was rotated from the ship back to Reston, sample microfaunal ARCHIVE and WORKING vials were hand-carried back for continued work in Reston, but paleontologic faunal slides were left on the ship. This fossil material, in addition to the collections and references brought out during mobilization, provided the ship board paleontologist with the ability to give preliminary answers to the geologists within 24 to 48 hours of sampling. However, final decisions about the zone assignment of a sample were made in Reston after samples could be examined in detail for several fossil groups and scanning electron microscopy could be performed. The Enewetak Project biostratigraphy and its application to crater cores are discussed in detail in Chapters IV and V respectively.

Final Repository

Soon after the completion of drilling in July, 1985, all microfaunal slides and vials carried to Reston were inventoried and curated. Remaining unwashed samples were shipped back to Reston by mail. Figure 6 summarizes the handling of samples for all the Enewetak Paleontologic Project. The micropaleontologic faunal slides will remain in Reston until completion of the present program. For the forseeable future, they will become part of the USGS reference collection and will be the subject of more detailed paleontologic studies. Unprocessed bulk samples and WORKING and ARCHIVE sediment vials from KAR-1, OAR-2/2A, and OOR-17 will also remain in the USGS Reston paleontologic laboratories for future reference. Any specimens that are illustrated in future publications will be reposited in the U.S. Museum of Natural History, Department of Paleobiology.

All unwashed bulk samples from the crater cores and all WORKING and ARCHIVE vials from the crater cores will be housed with the archive cores in the USGS Denver core storage facility until that material is transferred to the Nevada Test Site.

CHAPTER III: DATA MANAGEMENT

The 1985 Enewetak Drilling Program generated a total of more than 2500 bulk samples of which 1171 have been processed for one or several fossil groups. It was decided early in the program that to handle the large amount of sample and paleontologic data, it would be necessary to use computer-based data storage files both on the ship and in the laboratory in Reston. The micropaleontology laboratories at each site were equipped with an ISM Unisystem-XT personal computer so that sample data could be entered into data files as soon as it had been obtained. The Ashton-Tate software package dBase III was selected as a data storage and retrieval system because of its ease of use and flexibility in handling these types of data. This chapter describes the sample data management system and summarizes the paleontologic sample distribution for the Enewetak Project.

The data management was coordinated so that a team consisting of one paleontologist and one yeoman worked a staggered four-week tour on the ship. About every two weeks, one of the two would rotate out and return to Reston carrying data diskettes which contained sample information from the cores just recovered. A duplicate copy of these files was also left on the ship for the next rotation because frequently additional work would continue on the same cores by the next shipboard paleontologist. In Reston, the data were entered into a computer and collated with sample information from the Reston laboratory operations. This biweekly transfer of information by diskette became the primary means of information exchange between the ship and the paleontologic coordinator in Reston.

Two separate data files were designed specifically for the PEACE Paleontology Project--TRACK and ZONE Files. Because their contents represent a comprehensive summary of all paleontologic samples accessible to present project members and potential future studies, they are described in the next two sections in detail.

TRACK File

One TRACK file and one ZONE file were created for each borehole that was drilled, with the exception of material property boreholes which generally required no paleontologic analysis. The TRACK file was designed to account for the status of all samples by storing all depth and processing information. Each sample had its upper and lower depths, and date taken on the ship entered as a single record in the TRACK file. Depths of lithologic discontinuities identified by the shipboard geologists were also entered as records, although no paleontologic sample was actually taken from the depth of any discontinuities. This method proved useful because biostratigraphic zonal boundaries and faunal changes often coincide with discontinuities that represent disconformities, and it was easy to use the TRACK file to visually select samples for analysis by choosing them from just above and just below identified discontinuities.

Appendix 1 lists all final TRACK files for all boreholes giving depths below sea floor and information on all five fossil groups. These lists are slightly abridged from the TRACK file on the diskettes that were used during the drilling operations. An example of the complete TRACK format is shown in Appendix 2. Some information in original TRACK files, such as the initials of the sampler, were useful for the paleontologic program coordinator only during drilling operations. Also, because microfossils have been identified in all samples that were picked, there is no longer a need for separate "picked" and "identified" columns for each fossil group. Table 3 lists the field abbreviations used in the TRACK files with asterisks beside the field abbreviations listed in Appendix 1. The data for each borehole remain on diskettes in the format shown in Appendix 2 and can be accessed using dBASE III software commands. Tables 4 and 5 summarize paleontologic sampling information for all cores (see below).

As samples were processed and picked for various microfossil groups, files were updated to reflect their current status. This procedure was followed on the ship and in Reston for each borehole studied. After the drilling program was completed, all TRACK files were updated on the computer hard disc unit in Reston and back-up copies are kept on diskettes. The status of each sample as indicated in the TRACK file was cross-checked with the sample vials that had been shipped back from the ship and also with the microfaunal slides in the curated micropaleontologic collection in Reston (see Figure 2). This process provided a triple check on the accuracy of the TRACK files and it allowed a complete inventory of the paleontologic resources that were obtained during the six months of drilling. If a TRACK file in Appendix 1 showss a sample was processed, then there are WORKING and/or ARCHIVE vials of sediment in the Reston collection corresponding to that sample. There are faunal slides in the curated collection in Reston for each sample marked as picked in TRACK files. Printouts of TRACK files will be sent with vials and bagged sediment from the non-reference crater cores to the Denver core storage facility as an inventory sheet upon completion of the project.

ZONE Files

A ZONE file was created for each borehole recovered (with the exception of material property boreholes) to store micropaleontologic occurrence and abundance data. The original program objectives were to provide accurate

Table 3: Data contained in Enewetak TRACK File

Field Abbreviation	Data Stored
*Core	Core name, number
*Depth 1	Upper depth
*Depth 2	Lower depth
*UNCF	Discontinuty (x if yes)
SMPLR	Initials of shipboard sampler
NS	Nannofossil sample taken on ship
PROCESST	Processing technique
*ENEP	Processed on ship at Enewetak
*RSTP	Processed in Reston
*OPK	Ostracodes picked
OID	Ostracodes identified
*BPK	Smaller benthic forams picked
BID	Smaller benthic forams identified
*LPK	Larger forams picked
LID	Larger forams identified
*PPK	Planktic forams picked
PID	Planktic forams identified
*NBP	Nannofossils processed from bulk
NFP	Nannofossils processed from fines
NID	Nannofossils identified
BZone	Preliminary zone assignment
COMMENTS	Comments

TABLE 4: PALEONTOLOGIC RESOLUTION KOA
(ALL NUMBERS ARE IN FEET)

Borehole	1. Depth ÷ Samples	2. Depth ÷ Processed	3. Depth ÷ Benthics	4. Depth ÷ Ostracodes	5. Depth ÷ Planktics	6. Depth ÷ Nannos	7. Depth ÷ Larger Forams
KAR-1	5.6	5.6	12.5	9.6	24.9	8.8	10.0
KBZ-4	6.9	7.1	12.6	11.4	24.9	9.6	18.3
KCT-5	5.9	5.9	8.8	7.3	153.3	10.2	--
KDT-6	5.9	5.9	5.9	5.9	41.6	5.9	--
KET-7	6.9	6.9	6.9	6.9	--	6.9	--
KFT-8	6.2	6.2	9.9	15.1	106.0	10.6	--

This table gives the sampling resolution for each core. Numbers in Columns 1-7 in the table were obtained by dividing the total depth of the borehole by the following:

Column 1. Number of paleontologic samples taken

Column 2. Number of samples processed

Column 3. Number of benthic foraminifer samples studied

Column 4. Number of ostracode samples studied

Column 5. Number of planktic foraminifer samples studied

Column 6. Number of calcareous nannofossil samples studied

Column 7. Number of larger foraminifer samples studied

Numbers in Table should be read as "one sample per x feet.

TABLE 5: PALEONTOLOGIC RESOLUTION OAK
(ALL NUMBERS ARE IN FEET)

Borehole	1. Depth ÷ Samples	2. Depth ÷ Processed	3. Depth ÷ Benthics	4. Depth ÷ Ostracodes	5. Depth ÷ Planktics	6. Depth ÷ Nannos	7. Depth ÷ Larger Forams
OAR-2/2A	3.7	8.4	13.7	16.5	35.6	27.8	15.6
OAM-3	2.1	7.8	—	10.3	—	—	—
OBZ-4	4.0	10.3	23.6	24.0	76.4	229.3	16.9
OCT-5	3.2	9.3	9.5	11.8	53.2	20.5	—
ODT-6	2.8	5.5	11.7	11.7	82.1	—	—
OET-7	3.0	8.6	17.8	23.2	231.7	—	—
OFT-8	3.7	10.9	40.5	20.25	56.7	—	—
OGT-9	3.1	15.0	37.5	25.0	—	—	—
OHT-10	3.5	12.5	18.1	27.1	81.3	—	—
OIT-11	3.8	14.1	26.0	16.8	286.1	—	—
OJT-12	5.4	19.5	19.5	19.5	—	—	—
OKT-13	7.5	21.3	23.2	24.7	63.8	109.4	—
OLT-14	4.5	—	—	—	—	—	—
OMT-15	10.9	25.5	38.3	38.3	—	—	—
ONT-16	5.4	152.3	152.3	152.3	—	—	—
OOR-17	4.2	11.2	11.2	11.2	47.4	11.2	33.1
OPZ-18	8.3	65.6	120.3	80.2	—	—	—
OQT-19	8.7	350.8	350.8	350.8	—	—	—
ORT-20	10.2	30.7	123.0	163.9	—	—	—
OST-21	9.3	177.2	177.2	—	—	—	—
OSM-22	7.5	14.2	—	18.2	—	—	—
OTG-23	53.4	53.4	53.4	53.4	—	—	—
OUT-24	6.0	43.9	43.9	43.9	—	—	—

This table gives the sampling resolution for each core. Numbers in Columns 1-7 in the table were obtained by dividing the total depth of the borehole by the following:

Column 1. Number of paleontologic samples taken

Column 2. Number of samples processed

Column 3. Number of benthic foraminifer samples studied

Column 4. Number of ostracode samples studied

Column 5. Number of planktic foraminifer samples studied

Column 6. Number of calcareous nannofossil samples studied

Column 7. Number of larger foraminifer samples studied

Numbers in Table should be read as "one sample per x feet.

correlations of the shallow parts of the Enewetak geologic section, especially above 300 feet, because this was the anticipated region of major disturbance by KOA and OAK devices (see Chapter IV). Consequently, the ZONE files were designed to record the occurrences of the fossil species most useful in correlating strata above 300 feet below sea floor.

From the pre-drilling study of seven EXPOE cores (XEN-1, XEN-2, XEN-3, XEN-5, XRI-1, XBK-1, and XSA-1), 19 ostracode taxa and 12 benthic foraminifer taxa were selected as the most useful for correlation of young (shallow) strata in the Enewetak Atoll. Although three larger foraminifer species were originally selected for use in young strata their distributions were too irregular to serve as reliable biostratigraphic criteria in the upper 300 feet. Chapter IV describes the biostratigraphy in detail. Appendix 3 lists all ZONE files for shallow parts of all the boreholes studied. Table 6A is a sample of the data sheet on which biostratigraphic data was recorded and entered into the ZONE file. In the middle column in Table 6A, O1-O19 refer to the 19 ostracode taxa used; B1-B12 to the smaller benthic foraminifer species; and L1-L3 to the larger foraminifers originally thought to be useful. These taxonomic code numbers match column headings in the zone printouts in Appendix 3. Table 6B is a summary of paleontologic analyses performed on EXPOE samples before the 1985 drilling began.

A single ZONE data sheet was made for each sample so that as a fossil group was studied, the occurrence data were recorded on these sheets. If one fossil group in a sample was first studied on the ship and later a second group analyzed in Reston, the data sheet for that sample would be updated for the second group once the diskette was returned from the ship. Some samples were studied for one fossil group on the ship and in Reston and this situation is designated in Appendix 3 by "X's" for ship identifications and "Z's" for

TABLE 6A

ENEWETAK ZONE DATA SHEET
Key Species Abundance

DBASEIII File Name ________________ Record # ______

Ostracodes in Computer__________
Benthics in Computer__________

Field #	Field Description	Field Name	Data	Notes
01	CORE	KCORE		
02	DEPTH1	DEPTH1		
03	DEPTH2	KDEPTH2		
04	UNCONFORMITY	KUNCF		
	OSTRACODES			
05	Bairdoppilata algicola	O1		
06	Bythocypris spp.	O2		
07	Callistocythere parakeiji	O3		
08	Caudites shortlandensis	O4		
09	Cletocythereis sp. A	O5		
10	Hermanites spp.	O6		
11	Jugosocythereis bifurcata	O7		
12	Loxoconcha heronislandensis	O8		
13	Loxocorniculum insulaecapricornensis	O9		
14	Loxocorniculum labrynthica	O10		
15	Loxocorniculum sp. A	O11		
16	Loxoconchella spp.	O12		
17	Neocaudites cf. pacifica	O13		
18	Neonesidea spp.	O14		
19	Ornatoleberis spp.	O15		
20	Paracytheridea dromedaria	O16		
21	Pterobairdia maddocksae	O17		
22	Triebelina spp.	O18		
23	Xestoleberis spp.	O19		
	SMALLER BENTHIC FORAMS			
24	Anomalina sp. A	B1		
25	Bolivina rhomboidalis	B2		
26	Bolivinella folia	B3		
27	Calcarina calcar	B4		
28	Calcarina delicata	B5		
29	Calcarina hispida	B6		
30	Calcarina spengleri	B7		
31	Epistominella tubulifera	B8		
32	Loxostomum limbatum	B9		
33	Neouvigerina porrecta	B10		
34	Quinqueloculina parkeri	B11		
35	Quinqueloculina sp. A	B12		
	LARGER BENTHIC FORAMS			
36	Heterostegina suborbicularis	L1		
37	Marginopora vertebralis	L2		
38	Sorites marginalis	L3		
39	BIOSTRATIGRAPHIC ZONE	KBZONE		

TABLE 6B: EXPOE Paleontologic Summary*

Borehole	Ostracodes	Benthic Foraminifers	Planktic Foraminifers	larger Foraminifers	Other
XEN-1	5	5	11	5	5
XEN-2	13	10	13	13	13
XEN-3	35	35	49	29	41
XEN-5	11	14	11	11	11
XSA-1	12	19	0	9	--
XBK-1	12	11	8	--	--
XRI-1	21	19	24	11	--
modern lagoon	45	43	--	--	--
Total	154	156	116	78	70

*Table shows the number of samples analyzed for each fossil group Data were used.

Reston identifications.

Using this system, occurrence data for the various species could be updated conveniently as additional material was studied. The data sheets also allowed room for any taxonomic notes on the species observed. Finally, when paleontologic analyses of a borehole was completed, a biostratigraphic zone or range of zones would be assigned to each sample based on the occurrence data.

For borehole material below 300 feet, deep ZONE files were created on an ad hoc basis for each fossil group as the need arose using the same structure as the shallow ZONE files but using different microfossil species (see Chapter IV).

Summary of Paleontologic Sampling

The information in the TRACK file provides a convenient way to summarize the degree to which each borehole was studied for various fossil groups. Tables 1 and 2 summarize the paleontologic sample information for the KOA and OAK craters respectively. These tables give the number of samples analyzed for each fossil group as well as the total samples and analyses for each borehole. Figures 8 and 9 show the distribution of benthic foraminifer and ostracode analyses in each borehole in KOA and OAK respectively relative to the total samples taken. Figure 10 shows the distribution of nannofossil, larger foraminifer and planktic foraminifer samples. Larger foraminifers were most useful in the lower parts of the deep boreholes to serve as the basis for correlating older sediments. Figure 11 is a plot of total paleontologic analyses (the sum of five fossil groups) for each borehole. Figure 12 plots borehole depth versus number of analyses per borehole and shows that, in general, the greater the depth of the borehole, the more paleontologic

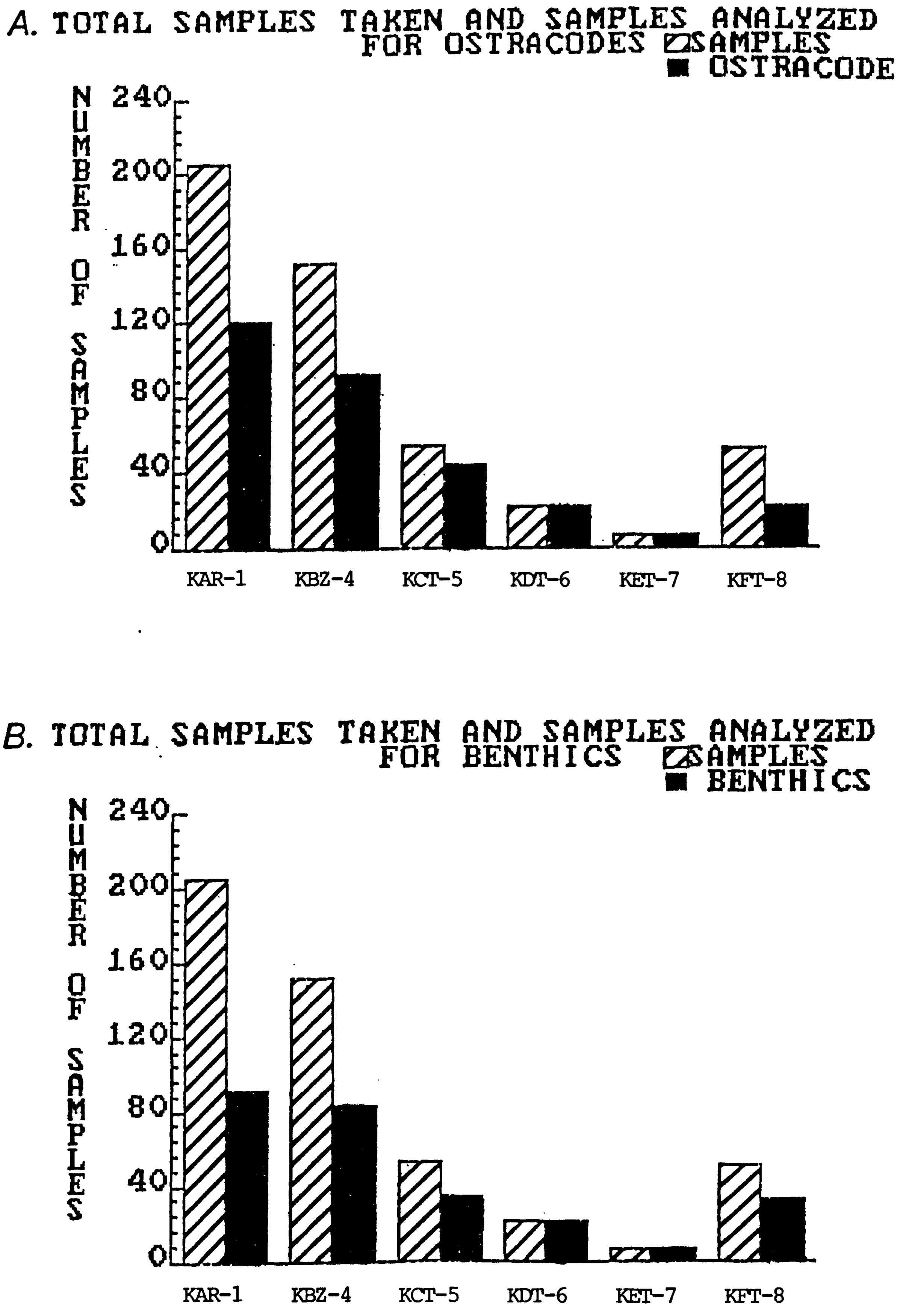


Figure 8. Totals of samples taken versus analyzed for ostracodes and benthic foraminifers for KOA boreholes.

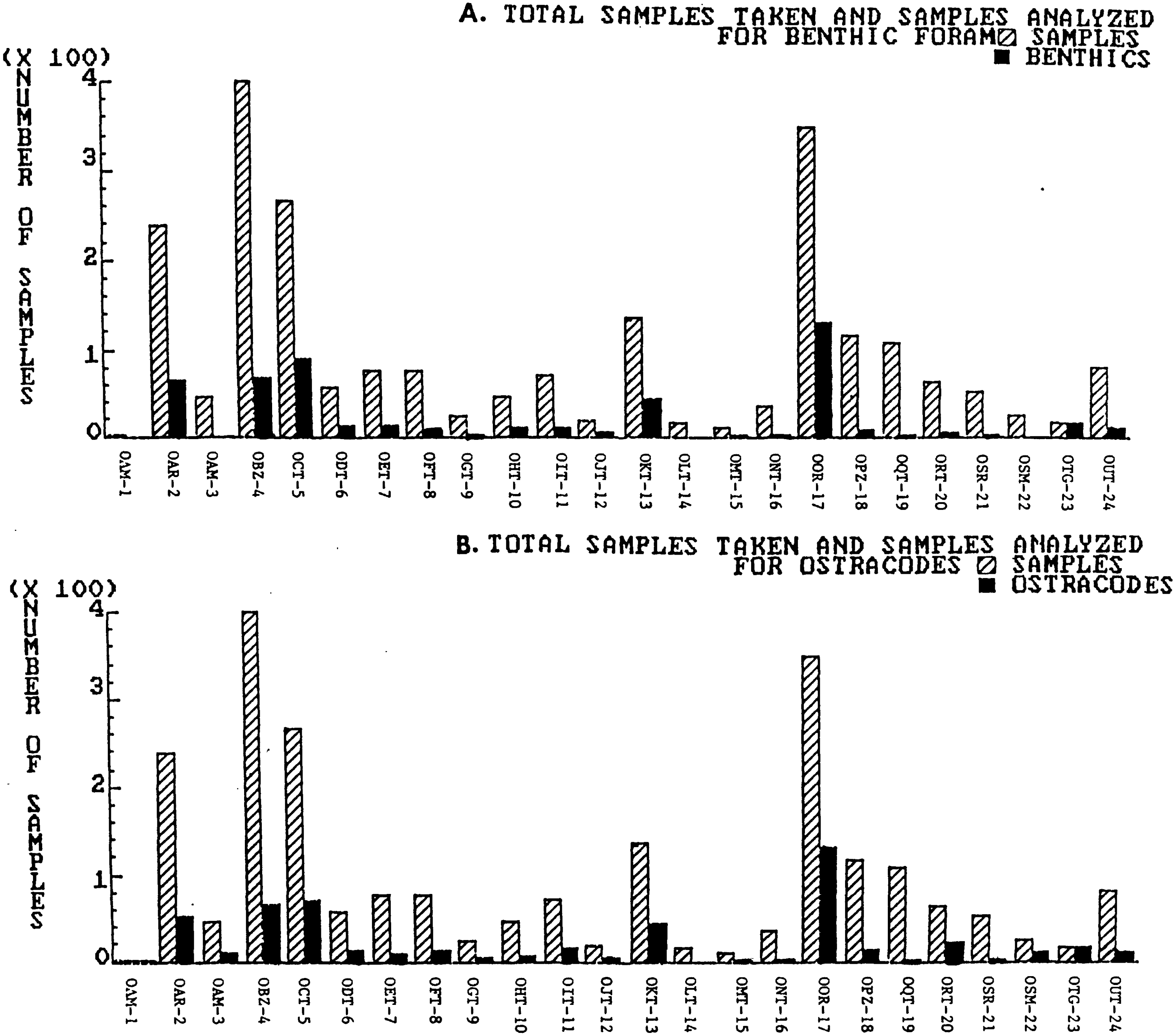
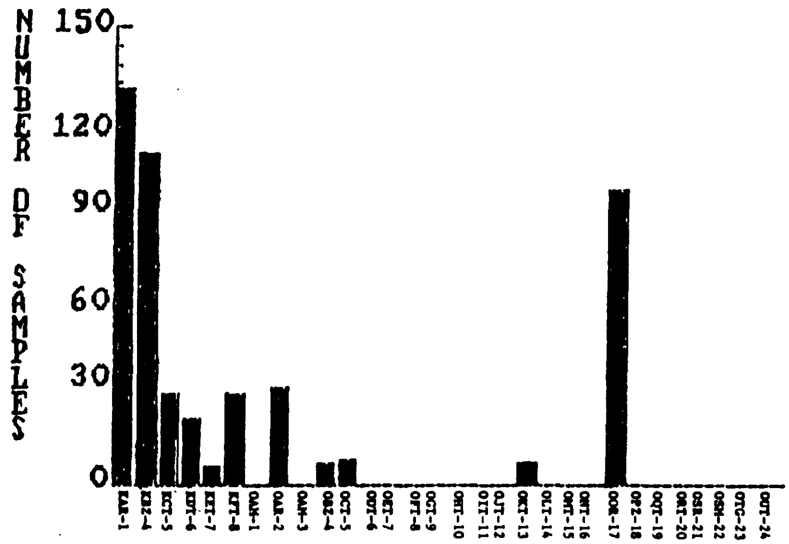
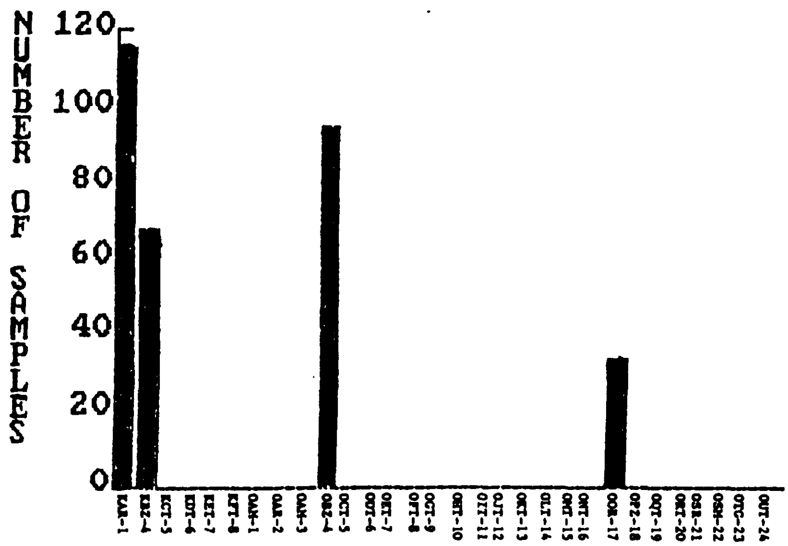


Figure 9. Total samples taken and total analyzed for ostracodes and benthic foraminifers for OAK boreholes.

A. NANNOFOSSIL SAMPLES ANALYZED FOR KOA AND OAK CORES



B. LARGER FORAMINIFER SAMPLES ANALYZED FOR KOA AND OAK



C. TOTAL PLANKTIC FORAMINIFER ANALYSES FOR ALL CORES, KOA AND OAK

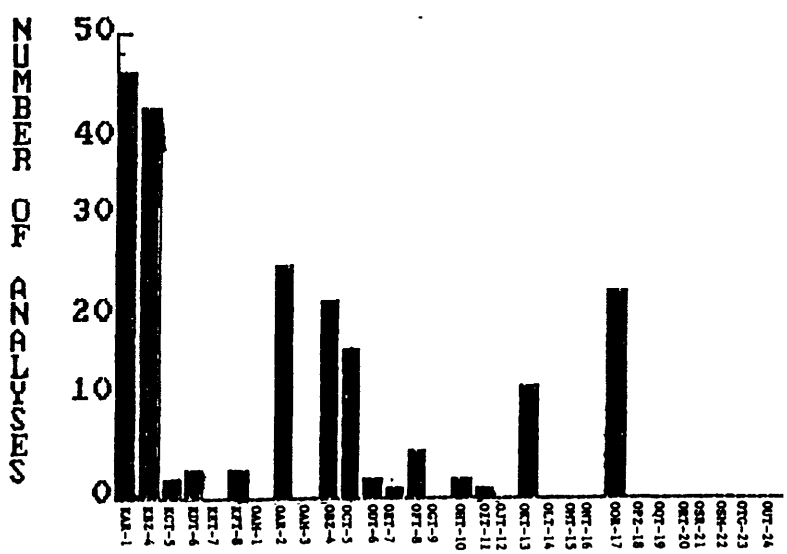


Figure 10. Number of samples analyzed for calcareous nannofossils, planktic foraminifers, and ostracodes for KOA and OAK boreholes.

21c

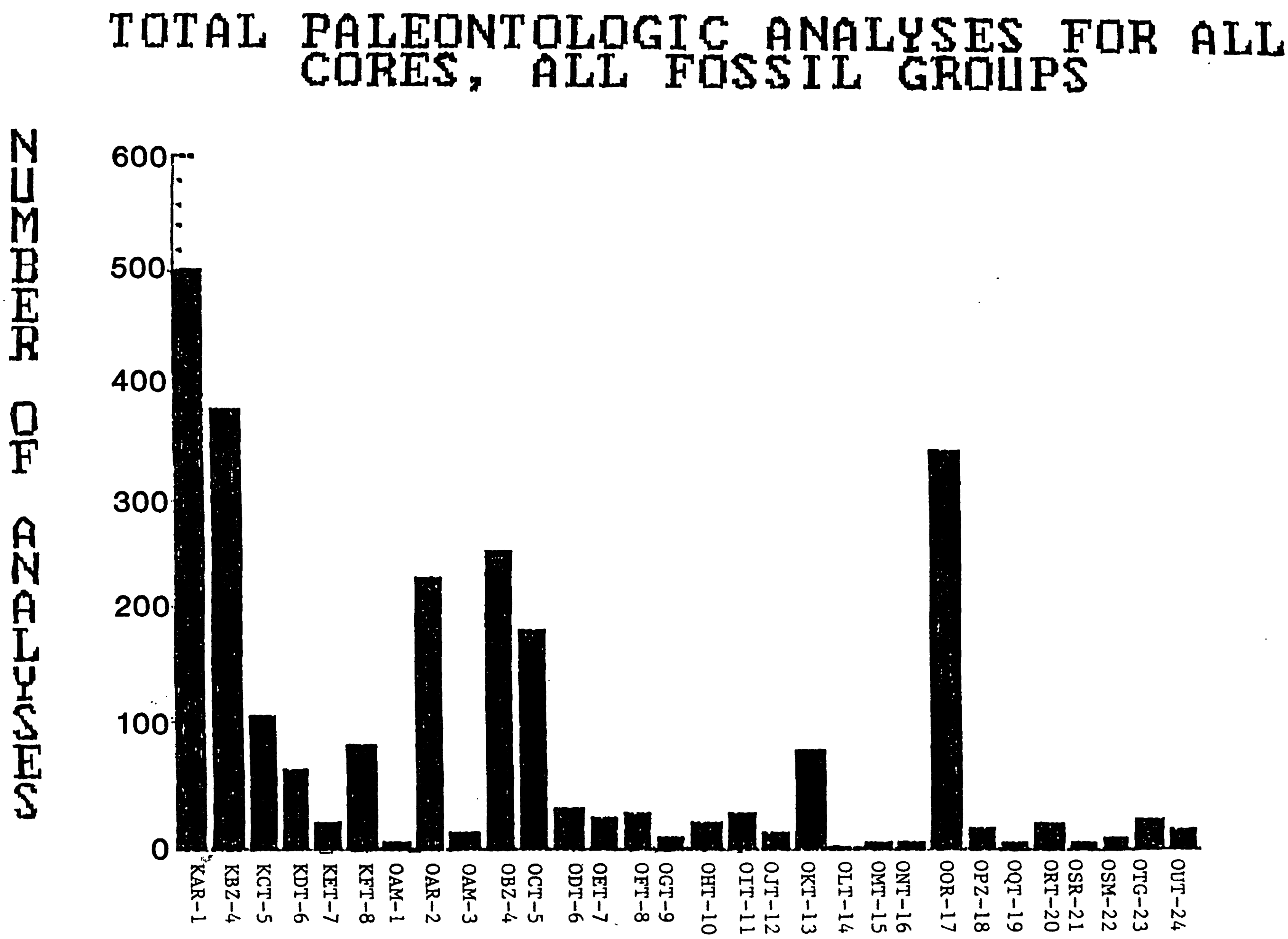


Figure 11. Total paleontologic analyses for all fossil groups for OAK and KOA.

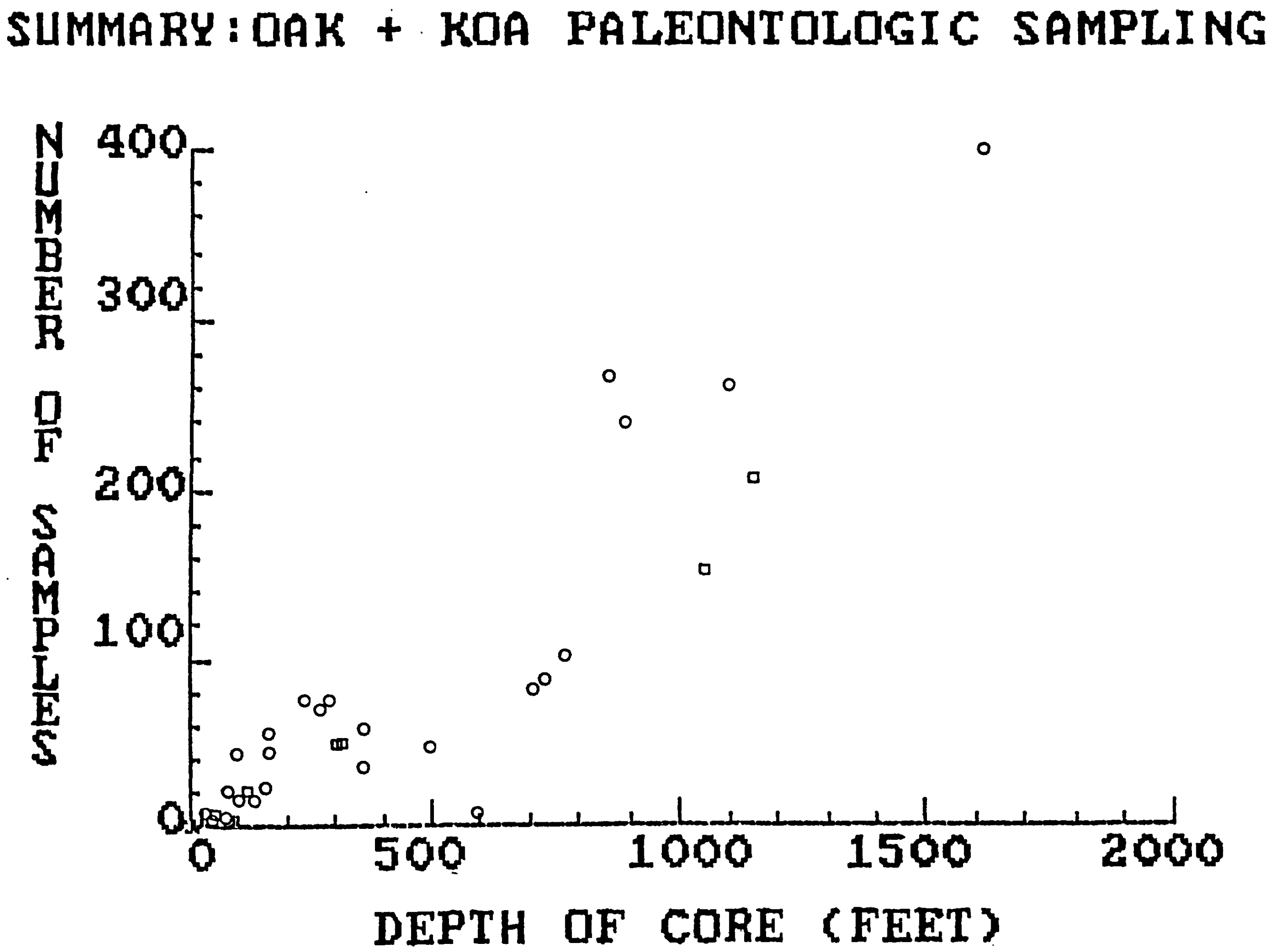


Figure 12. Plot of core depth versus number of samples taken for OAK (circles) and KOA (squares).

analyses were performed.

Tables 4 and 5 summarize the paleontologic resolution for KOA and OAK boreholes respectively. The values in these tables should be read as one sample studied per X feet of core and these tables should referred to when it is necessary to quickly check the sampling interval for any particular borehole.

The data in Tables 4 and 5 and Figures 8-12 generally show that KOA was studied more intensely than OAK. This was in part due to the fact that KOA was drilled first and more time was available. More important, results of the detailed study of KOA boreholes allowed interpretation of OAK boreholes to be done with fewer samples. Consequently, analysis of OAK boreholes was done selectively. Those boreholes shown in Figures 8-11 as having been studied in most detail reflect agreement of the geologist and the paleontologists as to where paleontologic efforts should be concentrated. In some of the last group of boreholes at OAK, planned limited sampling precluded detailed analysis. For example, in OTG23, in the first 200 feet, no sample was taken and below 200 feet only one or two feet were sampled for every 30 feet drilled. Also, there was no immediate need to study the material property core OSM-22 because it was next to OSR-21. In summary, although gaps exist in sampling, many of these were planned and they do not alter substantially the interpretations given in the next two chapters.

CHAPTER IV: BIOSTRATIGRAPHIC ZONATION

General

Microfossils are generally abundant in sediments at Enewetak and other atolls in the Marshall Islands. Further, significant changes in microfaunal assemblages in the Cenozoic section at Enewetak reflect the evolutionary and extinction events and faunal migrations to and from the atoll. To successfully use microfossils to correlate shallow stratigraphic units that were disturbed by the KOA and OAK devices, it was necessary to establish a local biostratigraphic zonation based on species abundances and ranges in EXPOE boreholes and in new reference boreholes. This chapter describes the biostratigraphic data developed in this project from undisturbed sequences for use in interpreting the stratigraphy in boreholes in the OAK and KOA crater areas.

Previous studies

Although paleontologic studies were carried out at Enewetak and other atolls in the Marshall Islands for many years, the majority of published studies focus on macrofaunal elements such as mollusks and corals. The most useful papers on Marshall Island benthic foraminifers were those of Cushman and others (1954) on Recent foraminifers from the Marshall Islands, Todd and Low (1960) on smaller foraminifera from Enewetak drill holes, and Todd and Post (1954) on foraminifers from Bikini drill holes.

Ostracodes have not been studied in detail from Enewetak or Bikini; however, Holden (1976) provided a detailed study of ostracodes from two cores from Midway, in the Hawaiian Island Chain. This material is the same age range as the PEACE Enewetak material, and many species are common to both regions. The published literature on western equatorial ostracodes has increased in recent years and proved useful in identifying many species never before recorded in this area of the Pacific. Yet despite the availability of studies from Australia, Taiwan, and Japan that provide a useful taxonomic base, the biostratigraphic zonation for Enewetak had to be developed almost from nothing because biostratigraphic ranges from other areas cannot be extrapolated over such great distances.

Larger foraminifers have been studied in detail from Bikini cores (Cole, 1954) and Enewetak cores (Cole, 1957). These references were most useful in identifying larger foraminifers and establishing correlation criteria below about 800 feet below sea floor.

Calcareous nannofossils and planktic foraminifers are generally used for biostratigraphy of deep-sea sediments, and Todd (1964) studied planktic foraminifers from boreholes off the flank of Enewetak. However no studies of these groups from the Miocene-Recent atoll sediments in the Marshall Islands have been made. Nonetheless, planktic microfossils do occur sporadically and in low abundances in the shallow-water lagoonal sediments in Enewetak cores. These microfossils occurred commonly enough to identify the following standard subdivisions of geologic time: middle Miocene, upper Miocene, Pliocene, and Quaternary. The most abundant, well-preserved nannofossil floras were found in the upper Miocene sediments, about 10 to 5.5 million years old.

Enewetak Zone Summary

Standard biostratigraphic methods were used in this study. In the upper 300 feet species last appearance datums (LADs), and first appearance datums (FADs), were relatively infrequent. Consequently, relative abundances of key species and overall species diversity were used in addition to LADs and FADs to establish the assemblage zones described below. These zones AA through GG in the upper 300 feet of section rely heavily on acme zones of key ostracodes species and numerous benthic foraminifers LADs and FADs.

Below about 300 feet in zones HH through MM, conventional taxon range zones for individual species were used more frequently than in the upper 300 feet because more LADs and FADs events were recognizable. As the project progressed and additional OAK reference boreholes were analyzed, the synchronous nature of many faunal events in the region of Enewetak lagoon became firmly established. This increased the reliability of these LADs and FADs as time markers making correlation between the KOA and OAK craters possible. However, extrapolation of the Enewetak biostratigraphic zonation to other regions in the Pacific is not warrented at this time due to probable diachroneity of faunal events at different atolls.

The following paragraphs describe the microfaunal characteristics of the thirteen biostratigraphic zones AA-MM. These faunal criteria are based on detailed study of the EXPOE boreholes and the three reference boreholes KAR-1, OAR-2/2A, and OOR-17. Most zones can be recognized primarily on the basis of benthic foraminifers and ostracodes while larger foraminifers are most useful in the deeper zones LL and MM.

For each zone, the key diagnostic species are given first, then a brief description of that zones' faunal characteristics. Finally, there is a brief characterization of the nature of the faunal boundary with the next zone.

It should be emphasized that by their very nature, some zonal boundaries are gradational because of local variability in microfaunal abundances and preservation and because of biofacies changes within the lagoon reflecting ecologic differences among species. Further, the sampling interval across a zonal boundary limits how accurately one can identify the faunal changes that occur.

Fortunately, faunal changes coincide closely with lithologic disconformities because many disconformities represent stratigraphic hiatuses in sedimentation. For example the AA/BB transition is abrupt and coincides with the first disconformity downhole. Conversely, some zones actually represent relatively thin intervals having a very abundant and distinctive fauna but having no clearly marked tops or bottoms. These zones have boundaries that are indistinct and gradational in nature. For example, zone DD is a biofacies with a distinct assemblage occurring through only about 10 feet of section and grading into zone CC above and zone DD below. Although generally difficult to identify and requiring high sampling resolution, zone DD has been found consistently in boreholes in both crater areas and its restricted stratigraphic occurrence makes it an excellent time horizon.

Description of faunal characteristics of zones

The biostratigraphic zones are recognized in part on the basis of 19 ostracode taxa from above 300 feet in the sequence and 42 deep ostracode taxa from below 300 feet. Twelve foraminifer species from above 300 feet and 49 species from below 300 feet were used. The species used in the upper 300 feet and are listed in Table 6A. Some of these taxonomic categories are at the genus level and are not individual species. The key taxa have a prefix "O" for the 19 ostracode taxa and "B" for the benthic foraminifer species.

The ranges of the 42 ostracode species used below 300 feet are shown in Figure 14. Figure 15 shows the composite ranges of 42 foraminfer species including deep and shallow taxa. The deep ostracode species have an "OD" for a prefix, the benthic foraminfers an "BD" for a prefix to distinguish them from the shallow species. In the following paragraphs, the species discussed

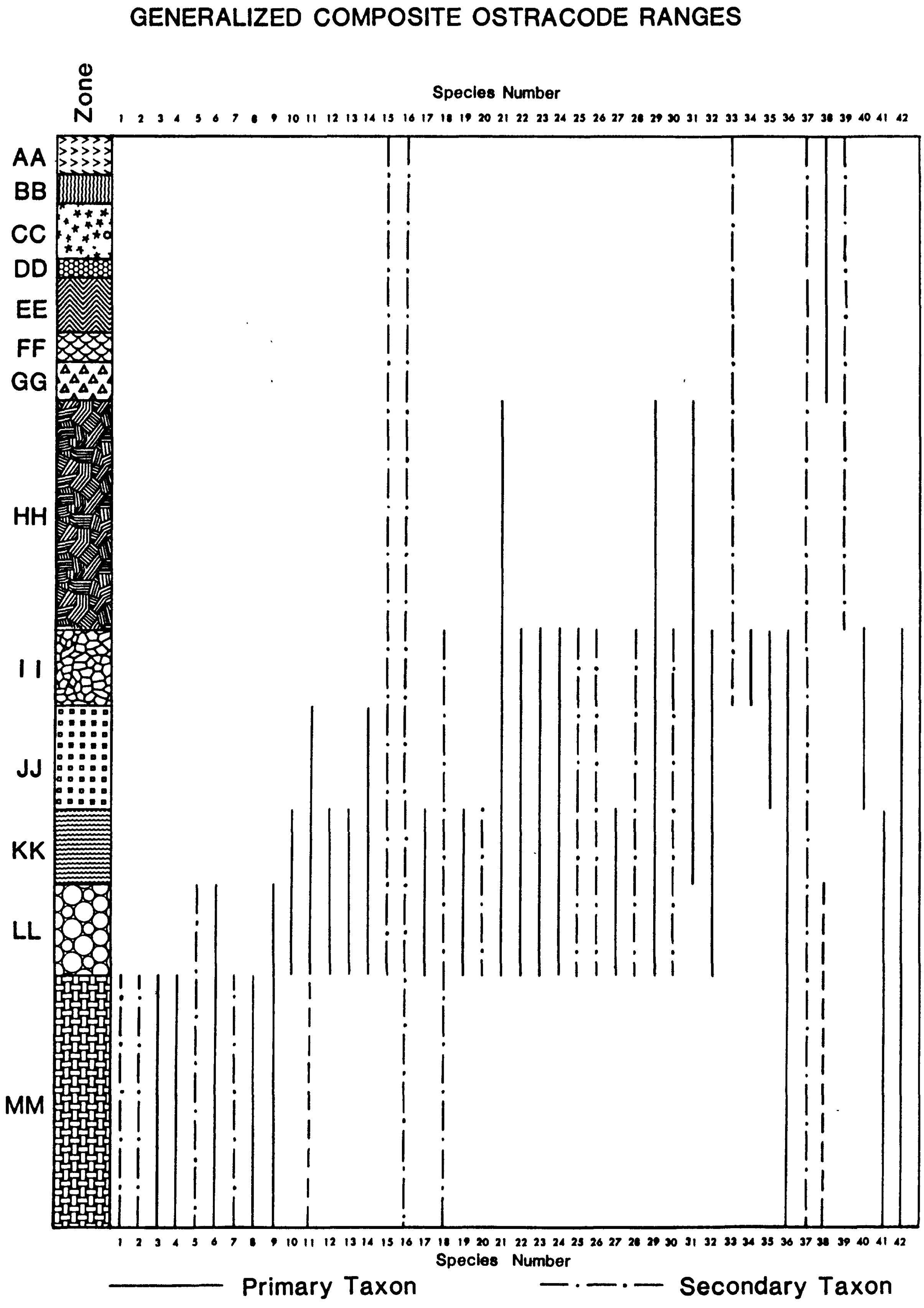


Figure 14. Biostratigraphic ranges of ostracode species (dashed line indicates sporadic occurrences).

GENERALIZED COMPOSITE BENTHIC FORAMINIFERA RANGES

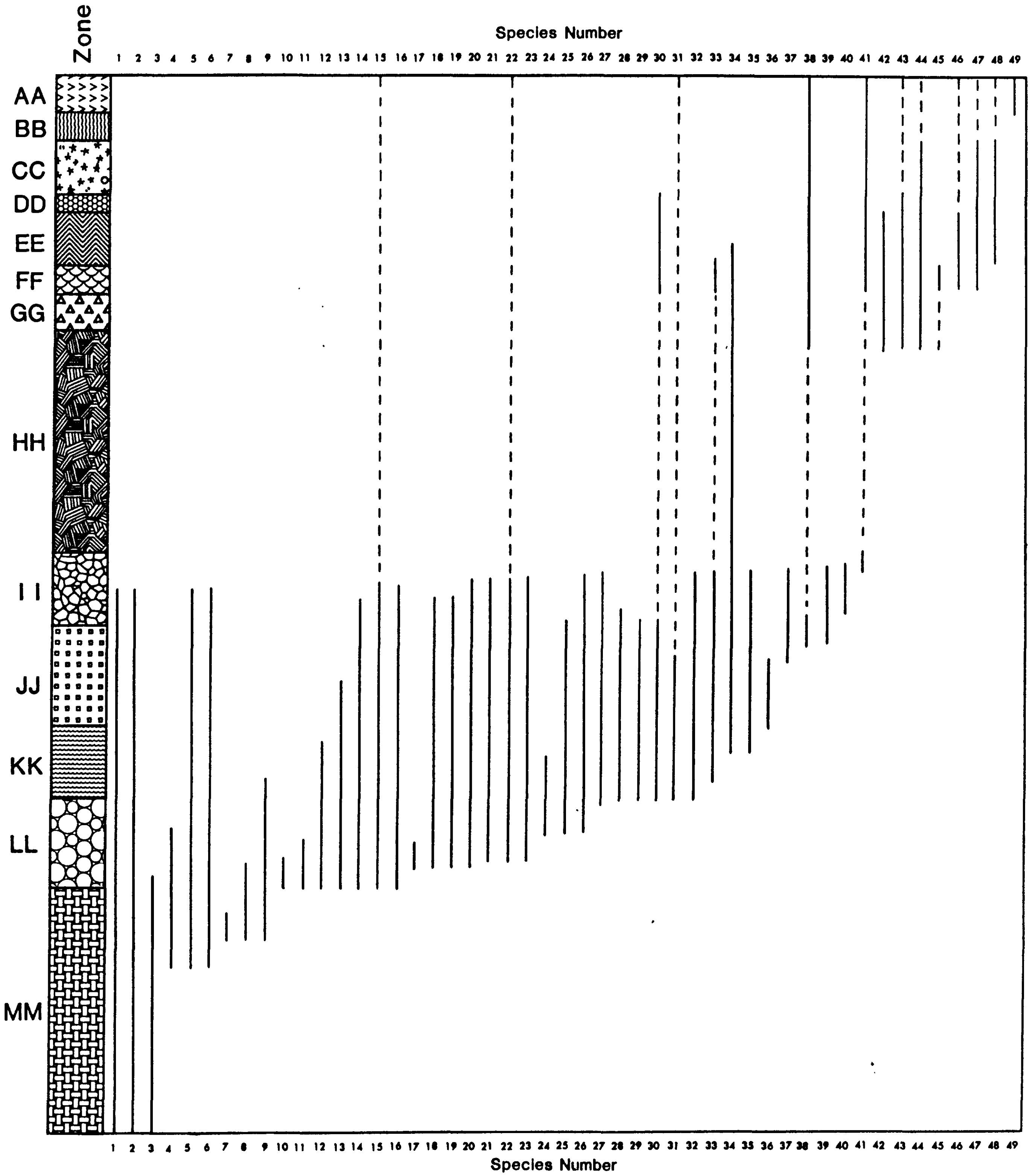


Figure 15. Biostratigraphic ranges of benthic foraminifer species (dashed line indicates sporadic occurrences).

are keyed to Tables 6, 7 and 8 using these code numbers for each species. Important planktic foraminifer and calcareous nannofossil species identified in the boreholes are listed in Table 9.

Ten benthic foraminifer and six ostracode species are used in both shallow and deep zonations. The ten foraminifer and six ostracode species are as follows:

Foraminifers		Ostracodes
B-1=BD-38	B-8=BD-22	O-6=OD-15
B-2=BD-33	B-9=BD-30	O-7=OD-16
B-3=BD-48	B-10=BD-46	O-1=OD-28
B-4=BD-45	B-11=BD-47	O-16=OD-33
B-6=BD-44	B-12=BD-43	O-5=OD-38
		O-3=OD-39

Because the shallow zones are based on assemblages and the deep zones on true species LADs and FADs, each species is given a key number for both shallow and deep zonation. In the deep zone lists in Tables 7 and 8, species also used in shallow ZONE files (Table 6) are indicated and their shallow zone number is put in parentheses after the species name and author.

In the following discussions, reference is made to sedimentary horizons, disconformities, discontinuities, and sediment packages. These are described by the geologists in the document describing the boreholes (Henry, Wardlaw and others, in press).

Zone AA. Calcarina spengleri/Hermanites/ Jugosocythereis

In XEN-3, this zone is characterized by abundant C. spengleri

TABLE 7: List of Ostracode Species used for Biostratigraphy of Enewetak

OD-1. Hermanites aff. H. transoceanica Teeter, 1975

OD-2. Capricornia sp. A

OD-3. Pokornyella sp. A. (ovate form)

OD-4. Tenedocythere setigera Holden, 1976

OD-5. Pokornyella aff. P. pseudojaponica Holden, 1976

OD-6. Jugosocythereis cf. J. pannosa (Brady, 1869)

OD-7. Hermanites aff. H. tschoppi (van den Bold, 1946)

OD-8. Australomoosella sp. B

OD-9. Radimella sp. A

OD-10. Pokornyella pseudojaponica Holden, 1976

OD-11. Procythereis northpacifica Holden, 1976 (crater morphology)

OD-12. Hermanites tschoppi (van den Bold, 1946)

OD-13. "Palauella" cf. P. spinosa Briggs, 1963

OD-14. Quadracythere trijugis Holden, 1976

*OD-15. Hermanites transoceanica Teeter, 1975 (O-6)

*OD-16. Jugosocythereis sp. A (O-7)

OD-17. Hemicythere gordoni Holden, 1976

OD-18. Paracytheridea sp. A

OD-19. Triebelina crumena (Stephenson, 1944)

OD-20. Radimella sp. B

OD-21. Cletocythereis canaliculata (Holden, 1976)

OD-22. Callistocythere crenata (Brady, 1880)

OD-23. Orionina aff. O. flabellacosta Holden, 1976

OD-24. Hermanites sp. A

Table 7 (con't)

OD-25. Morkhovenia sp. A

OD-26. Semicytherura sp. B

OD-27. Capricornia cristatella (Brady, 1868)

*OD-28. Bairdoppilata algicola (O-1)

OD-29. Miocyprideis punctata Briggs, 1963

OD-30. Cytherelloidea semipunctata Holden, 1976

OD-31. Australomoosella sp. A

OD-32. Caudites cf. C. shortlandensis Titterton, 1984

*OD-33. Paracytheridea dromedaria (O-16)

OD-34. Caudites sp. A

OD-35. Aurila sp. A

OD-36. Procythereis sp. A (few pits)

OD-37. Keijia sp. A

*OD-38. Cletocythereis sp. A (O-5)

*OD-39. Callstocythere parakeijia Titterton (O-3)

OD-40. Occultocythereis aff. O. angusta (van den Bold 1967)

OD-41. Hemicythere sp. A

OD-42. Aurila sp. B

Table 8: Key Benthic Foraminifera species at Enewetak

BD-1. Clavulina angularis d'Orbigny, 1826

BD-2. Tubulogenerina butonensis Keyzer, 1953

BD-3. Valvulina prominens Todd and Post, 1954

BD-4. Asterigerina tentoria Todd and Post, 1954

BD-5. Nonion grateloupi (d'Orbigny, 1826)

BD-6. Discorbis balcombensis Chapman, Parr and Collins, 1934

BD-7. Valvulammina marshallana Todd and Post, 1954

BD-8. Austrotrilla sp. A

BD-9. Valvulina martii Cushman and Bermudez, 1937

BD-10. Spirolina sp. A

BD-11. Buccella ? perforata Todd and Low, 1960

BD-12. Siphonina sp. A

BD-13. Spiroloculina corrugata Cushman and Todd, 1944

BD-14. Schlumbergina alveoliniformis (Brady, 1879)

BD-15. Hauerina involuta Cushman, 1946

BD-16. Lamarckina sp. A

BD-17. Cribrogoesella parvula Todd and Low, 1960

BD-18. Hauerina diversa Cushman, 1946

BD-19. Spirolina arietina (Batsch, 1791)

BD-20. Pararotalia byramensis (Cushman, 1922)

BD-21. Peneroplis honestus Todd and Post, 1954

*BD-22. Epistominella tubulifera (Heron-Allen and Earland, 1915) (B-8)

BD-23. Ammonia beccarii (Linne, 1839)

BD-24. "Slitoeponides" sp. A

BD-25. Hauerina aspergilla (Karrer, 1868)

Table 8 (con't)

BD-26. <u>Elphidium striatopunctatum</u> (Fichtel and Moll, 1803)

BD-27. <u>Clavulina</u> sp. A

BD-28. <u>Svratkina</u> sp. A

BD-29. <u>Epistomaroides</u> sp. A

*BD-30. <u>Loxostomum limbatum</u> (H.B. Brady, 1881) (B-9)

BD-31. <u>Pyrgo denticulata</u> (H.B. Brady, 1884)

BD-32. <u>Quinqueloculina distorqueata</u> Cushman, 1954

*BD-33. <u>Bolivina rhomboidalis</u> (Millett, 1899) (B-2)

BD-34. <u>Cymbaloporetta bradyi</u> (Cushman, 1924)

BD-35. <u>Valvulammina globularis</u> (d'Orbigny,

BD-36. <u>Quinqueloculina byramensis</u> Cushman, 1923

BD-37. <u>Buccella</u> sp. A

*BD-38. <u>Anomalina</u> sp. A (B-1)

BD-39. <u>Asterigerina indistincta</u> Todd and Post, 1954

BD-40. <u>Gaudryina (Siphogaudryina) rugulosa</u> Cushman, 1932

BD-41. <u>Anomalinella rostrata</u> (H.B. Brady, 1881)

BD-42. <u>Calcarina delicata</u> Todd and Post, 1954

*BD-43. <u>Quinqueloculina</u> sp. A (B-12)

*BD-44. <u>Calcarina hispida</u> H.B. Brady, 1876 (B-6)

*BD-45. <u>Calcarina calcar</u> (d'Orbigny, 1826) (B-4)

*BD-46. <u>Neouvigerina porrecta</u> (H.B. Brady, 1879) (B-10)

*BD-47. <u>Quinqueloculina parkeri</u> (H.B. Brady, 1881) (B-11)

*BD-48. <u>Bolivinella folia</u> (Parker and Jones, 1865) (B-3)

BD-49. <u>Calcarina spengleri</u> (Gmelin, 1788)

Table 9: Planktic Foraminifer and Calcareous Nannofossils used for Biostratigraphy at Enewetak Atoll

PLANKTIC FORAMINIFERS

Globigerina nepenthes Todd

Globigerinoides conglobatus (Brady)

Globigerinoides obliquus Bolli

Globoquadrina altispira (Cushman and Jarvis)

Globoquadrina dehiscens (Chapman, Parr and Collins)

Neogloboquadrina acostaensis (Blow)

Neogloboquadrina humenosa (Takayanagi and Saito)

Pulleniatina primalis Banner and Blow

Sphaeroidinellopsis spp.

CALCAREOUS NANNOFOSSILS

Cyclococcolithus macintyrei Bukry and Bramlette

Discoaster berggrenii Bukry

Discoaster brouweri Tan Sin Hok

Discoaster challengeri Bramlette and Riedel

Discoaster hamatus Martini and Bramlette

Discoaster neohamatus Bukry and Bramlette

Discoaster pentaradiatus Tan Sin Hok

Discoaster quinqueramus Gartner

Discoaster surculus Martini and Bramlette

Gephyrocapsa oceanica Kamptner

Gephyrocapsa small spp.

Reticulofenestra pseudoumbilica (Gartner) Gartner

Sphenolithus abies Deflandre

(B-7), however, this species does not occur in the upper 50 feet of XSA-1. Hermanites (O-6) and Jugosocythereis (O-7) occur in the upper 50-60 feet in relatively large numbers in XEN-1, XBK-1, and XRI-1. These two genera disappear below the first unconformity and are therefore useful to identify the boundary between the first two sedimentary units. In some boreholes (XRI-1, XBK-1, and XSA-1) both genera occur again below 90 to 100 feet but usually in low numbers. The ostracode Bairdoppilata algicola (O-1) is a secondary species for identifying the uppermost sedimentary unit. Marginopora (L-2) and Sorites (L-3) are abundant in this zone in XEN-3 and found in fewer numbers in XRI-1. No larger foraminifers are present in XSA-1 until the boundary of zone DD-EE where Heterostegina (L-1) occurs.

Lower Boundary. Generally abrupt, associated with sedimentary horizon 1, a disconformity at sediment package 1/2 boundary.

Zone BB. Loxoconcha heronislandensis/Cletocythereis sp. A

This zone characterizes sediments between horizons 1 and 2. These two ostracode species are absent above the first horizon (about 30 to 70 feet in various boreholes) but occur in abundance below this level. Cletocythereis sp. A (O-5) occurs intermittently to the bottom of most boreholes. L. heronislandensis (O-8) occurs abundantly between the first and fourth sedimentary horizon. The interval between 50 and 90 feet in XEN-3 represents its acme zone. This zone is characterized by the abundance of these two species and the lack of _Loxocorniculum insulaecapricornensis_ (O-9) which occurs only below 90 feet in XEN-3. Zone BB is also characterized by abundant _Neonesidea_ (O-14), the first appearance of the foraminifer _Anomalina_ sp. A (B-1), the absence of _C. spengleri_ (B-7), and the absence of larger forams. The top of the zone is easier to identify than is the bottom.

Lower Boundary. Gradual, sometimes difficult to recognize, weakly associated with sedimentary horizon 2.

Zone CC. _Calcarina hispida/ Loxocorniculum insulaecapricornensis_

This zone characterizes sediments between horizons 2 and 3. This zone is characterized by the abundance of _C. hispida_ (B-6), _L. insulaecapricornensis_ (O-9) and in some boreholes abundant _L. heronislandensis_ (O-8). Another important marker is the first common to abundant occurrence of _Paracytheridea dromedaria_ (O-16) toward the lower part of the zone. _Neonesidea_ (O-14) occurs in relatively low numbers in this interval in XEN-3 but is more common in other boreholes.

Lower Boundary. Abrupt, but closely spaced samples are required to identify. Occurs near horizon 3.

Zone DD. _Paracytheridea dromedaria/ Neonesidea_ sp. A

This is difficult to recognize, but it has consistent characteristics and has been found in most boreholes. It contains relatively abundant P. dromedaria (O-16), Callistocythere parakeiji (O-3) and Loxoconchella spp. (O-12), the reappearance of moderate numbers of Hermanites (O-6) and Jugosocythereis (O-7), and relatively high ostracode species diversity. In XSA-1 ostracodes are very abundant in contrast to samples just above horizon 3. This increase in diversity and the occurrences mentioned above are the best indications of this thin zone. Larger foraminifers are mostly absent in this zone.

Lower Boundary. Abrupt; mainly recognized on abundance change near sedimentary horizon 4. Top of EE similar in having common P. dromedaria.

Zone EE. Calcarina delicata

This zone characterizes sediment between horizons 4 and 5. C. delicata (B-6), is abundant in this zone, while other Calcarina are absent. Ostracodes are generally less common than in zone DD but all samples have common to abundant numbers of Xestoleberis (O-19) and Neonesidea (O-15). This zone has rare to common Marginopora (L-2) and Heterostegina (L-1), almost no Sorites (L-3). The most obvious characteristic of EE is the low abundance of microfossils, although in the OAK region thin intervals locally contain abundant microfaunas.

Lower Boundary. Fairly gradual, occurs near sedimentary horizon 5.

Zone FF. Calcarina calcar/ Loxocorniculum insulaecapricornensis, L. sp. A

This zone characterizes sediments between horizons 5 and 6. C. calcar (B-4) typifies this zone. The three species of Loxocorniculum (insulaecapriconinsis (O-9), labrynthica (O-10), and sp. A) occur in large numbers and the ostracode fauna is generally more abundant and diverse than in zone EE. The taxa Cletocythereis sp. A (O-5), Hermanites (O-6) and Jugosocythereis (O-7) are common as they were in zones AA and BB. Species that are generally rare to absent also occur in this zone (ie., Caudites (O-4), Neocaudites (O-13), Triebelina (O-18). Common Marginopora (L-1) and Sorites (L-3) in top of zone in XEN-3, Sorites (L-3) absent in XSA-1 and XRI-1. Rare to few Heterostegina (L-1) and Marginopora (L-2) in rest of zone.

Lower Boundary. Gradual but generally recognizable; occurs near sedimentary horizon 6.

Zone GG. Caudites/Pterobairdia

This zone characterizes sediment between horizons 6 and 7. Although Caudites (O-4) Pterobairdia (O-17) occur rarely above this zone, they are uncharacteristically common below about 270 to 280 feet in XEN-3. The ostracodes are generally very diverse and clearly signify an assemblage distinct from those in overlying sediments. Several ostracode species not included in the list of 19 key taxa occur in significant numbers including Paradoxostoma, Semicytherura sp. B (OD-26), Macrocypris, Bairdoppilata and Hemicytherura. Thus, this zone is characterized by an important turnover in the ostracode fauna from zone FF. Heterostegina (L-1) appears at bottom of this zone in XEN-3. In OAK boreholes, some species restricted to zones HH and lower zones in the KOA region are found sporadically in zone GG. In the OAK crater region, zone GG also has more conspicuous intervals of poor preservation and recrystallization than in KAR-1.

Lower Boundary. Abrupt to gradational; corresponds to sediment package 2/3 boundary. This transition has been difficult to document. This is because the deepest EXPOE boreholes stopped in zone GG, KAR-1 had poor recovery and poor preservation in zone HH; and OAR-2/2A had poor recovery in this zone. Consequently, it was not until OOR-17 was drilled in June, 1985 that a satisfactory faunal sequence has been documented for this boundary.

Zone HH. Jugosocythereis bifurcata Zone

Microfossils rare to absent and poorly preserved in heavily recrystallized sediment. The thick-shelled ostracode Jugosocythereis bifurcata (OD-16) occurs in many samples. Other species include rare Miocyprideis punctata (OD-29), and Australomoosella sp. A (OD-31) Cletocythereis canaliculata (OD-21, its uppermost occurrence), and a large "Loxoconcha" (in KBZ-4-332 ft and OSR-21). The top of the zone is recognized by the

LADs of species OD-29, OD-31, OD-21. Amphistegina occurs in many samples.

Lower Boundary. Abrupt in KAR-1, corresponds to interval below alteration zone of a disconformity represented by sedimentary horizon 8 at the sediment package 3/4 boundary. More gradual in OAK boreholes, more difficult to identify.

Zone II. Procythereis-Aurila Zone

The top of this zone marks the beginning of well-preserved abundant microfaunas below the generally poor preservation of Zone HH. Ostracodes marking the top of this zone in most cores include the LADs of species OD-21 through OD-26, OD-32, OD-34, OD-35, and others. Procythereis sp. A is the most distinctive species in this zone and has been found in most cores just below the HH-II boundary. The FADs of species OD-33 and OD-34 marks the base of this zone.

Foraminifer species indicative of this zone include Gaudryina rugulosa (BD-40) and Anomalinella rostrata (BD-41) and the top of the zone is also characterized by the LADs of Tubulogenerina butonensis (BD-2) and Peneroplis honestus (BD-21).

Lower Boundary. Gradual but consistently recognized in all boreholes.

Zone JJ. Miocyprideis Zone

The top of this zone is recognized by the LADs of P. northpacifica (OD-11) and Q. trijugis (OD-11). The most distinctive ostracode is abundant Miocyprideis (OD-29) although this species does occur sporadically above this zone. Aurila sp. A (OD-35) is rare, but restricted to zones JJ and II.

The foraminifers in this zone are characterized by the highest occurrence of Svratkina sp. A (BD-28), Epistomaroides sp. A (BD-29), and Loxostomum limbatum (BD-30). Indicative of the upper part of the zone is Anomalina sp. A (BD-38) and Buccella sp. A (BD-37); species with upper limits in the lower part of this zone include Quinqueloculina byramensis (BD-36), Pyrgo denticulata (BD-31), and Spiroloculina corrugata (BD-13).

Lower Boundary. Gradual, but consistently recognized; need many samples to pinpoint precisely, occurs near sediment package 4/5 boundary.

Zone KK. Quadracythere trijugis Zone

The top of this zone is marked by the LADs of P. pseudojaponica (OD-10) "Palauella" cf. P. spinosa (OD-13) and H. tschoppi (OD-12). Cletocythereis canaliculata (OD-21) and Orionina aff. O. flabellacosta (OD-23) are also abundant in this zone. Its base is marked by the FAD of Australomoosella sp. A (OD-31).

Foraminifer species helpful in this zone are the upper limits of

Siphonina sp. A (BD-12) and of "Slitoeponides" sp. A (BD-24) in the lower part of the zone. Species that have their lowermost appearance at the base of this zone include Svratkina sp. A (BD-28), Epistomaroides sp. A (BD-29), Loxostomum limbatum (BD-30), Pyrgo denticulata (BD-31), and Quinqueloculina distorqueata (BD-32).

Lower Boundary. Gradual, but consistent in all boreholes.

Zone LL. Pokornyella/ Hemicythere Zone

The top of this zone is marked by the LADs of Radimella sp. A (OD-9) and J. pannosa (OD-6). The base of the zone is clearly marked by the FADs of species OD-10, OD-12, OD-15, and OD-21 through OD-24. The ostracode species Pokornyella pseudojaponica (OD-5) and Hemicythere cf. H. gordoni (OD-17) are abundant in this zone. Ostracode fauna is generally abundant, diverse and well-preserved and contains many species that characterize assemblage II of Holden (1976) from the Miocene of Midway. The distinctive ostracode "Capricornica" cristatella (OD-27) is common in this zone.

Important foraminifer species for this zone include the LAD of Astigerina tentoria (BD-4) and the FADs of Siphonina sp. A (BD-12), Spiroloculina corrugata (BD-13), Schlumbergina alveoliniformis (BD-14), Hauerina involuta (BD-15), H. diversa (BD-18), Lamarckina sp. A (BD-16), among others. The zone is also marked by the disappearance of many species characteristic of zone KK such as Svratkina sp. A (BD-28) and Epistomaroides sp. A (BD-29). The upper limit of Austrotrilla sp. (B-8) marks the lower part of the zone.

Lower Boundary. Transitional, fairly abrupt occurring over 10 to 20 feet in all deep cores, roughly corresponds with sedimentary package 5/6 boundary.

Zone MM. Tenedocythere Zone

The top of this zone is marked by the LADs of several ostracode and foraminifer species. Preservation is worse than in zone LL and specimens are less abundant. Ostracode species OD-1, OD-2, OD-3, OD-4, OD-7 and OD-8 are restricted to this zone, but, for some of these species, more material is required to better understand these species and their taxonomy.

Foraminifer species indicative of this zone include Valvulina prominens (BD-3) and Valvulammina marshallana (BD-7). Numerous species discussed under Zone LL have their FADs at the base of zone LL and are absent from MM; other species have their LADs lower limits in the upper part of MM.

Within Zone MM the following larger foraminifer LADs were used for correlation of sedimentary packages 6 and 7:

	KAR-1	KBZ-4	OAR-2/2A	OBZ-4	OOR-17
Lepidocyclina orientalis	920 ft	854.5 ft	--	814 ft	930 ft
Lepidocyclina sumatratensis	980 ft	915 ft	883.7 ft	827 ft	930 ft
Miogypsina thecideaeformis	985 ft	924.5 ft	883.7 ft	818 ft	941 ft
Miogypsinoides dehaartii	1140 ft	972.3 ft	---	873 ft	959 ft

Note on Preservation of Microfossils

Ostracode bivalved carapaces and foraminifer tests are calcareous shells secreted by the living organisms. There are many states of preservation but four types should be mentioned specifically because of their relevance to interpreting the biostratigraphy and faunal mixing. In the most common preservation state, ostracodes and foraminifers are semitranslucent to opaque white in color. Specimens sometimes have secondary calcite debris infilling the external carapace, but usually preservation of the shell surface is very good to excellent. Zones AA through GG generally have this type of preservation.

In some parts of the boreholes, substantial recrystallization causes secondary calcite growth on the external parts of the shell making taxonomic identification difficult. In these situations, ostracode carapaces generally remain articulated (the two valves are still joined) making examination of the internal features impossible. This type preservation is most common in parts of zones HH and MM (especially below 1,000 feet) and to a lesser degree in parts of zone GG and II.

The third type of preservation is characterized by an unusually light brown color that occurs in specimens in sediments with significant organic content. These occur exclusively in zones JJ through LL.

Finally, a fourth kind of preservation was observed in some specimens that were characterized by extremely clear carapaces and tests, completely free of calcareous debris. These were particularly conspicuous in the suspected sand dike in OFT-8 and some samples in the upper 150 feet of OBZ-4 and OCT-5 (see Chapter V). This preservation was conspicuous because even after several rounds of laboratory processing, microfossils often still retain some debris adhering to the external surface but the specimens from OFT-8 appeared as if they had been extensively washed before laboratory processing had been performed on them.

These preservation states reflect the lithologic characteristics and diagenetic history of the host sediment in which they occur and consequently shell preservation was an important criterion for identifying mixed faunas containing specimens from different zones.

Taxonomic Notes

To successfully develop and apply any biostratigraphic zonation, accurate and consistent taxonomic identification of genera and species is necessary. The Enewetak boreholes yielded many species that either have not been described in the published literature or have an uncertain or confusing taxonomic status. This was particularly true for the ostracodes for which there have been few studies of atoll faunas.

Adequate time was not available to eliminate out taxonomic problems if program objectives were to be met. Therefore, throughout this report many species are identified in open nomenclature or with questionable taxonomic assignments. Other species names come from masters and Ph.D. theses and, although not formally published, they are convenient names for some of the more common taxa and are used informally here. Although time constraints dictated using this preliminary taxonomy, it does not diminish the validity of the biostratigraphy. Project members were internally consistent with identifications of key species and the zonation is completely applicable to the Enewetak section. For the present study, it was decided not to illustrate the key species used but that it is better to wait for formal taxonomic revision and description of the microfaunas from the boreholes and modern lagoon samples. These studies are now underway and will eventually be published in appropriate paleontologic outlets.

CHAPTER V: APPLICATION TO KOA AND OAK CRATERS

The purpose of this chapter is to describe the faunal sequence in each ground zero and transition-zone borehole and to interpret it relative to the reference zonation described in the last chapter. Throughout the drilling program, the programmatic objectives differed for many of the boreholes depending on the various crater models being developed and tested and the location of the core. This resulted in many ad hoc shipboard and post-drilling requests by the geologists for the paleontologists to confirm or refute various hypotheses about the stratigraphy at a particular drill site. Consequently, in the following borehole-by-borehole descriptions, the specific goals of the paleontologic analyses for that particular borehole will be stated first. Terminology for the crater was taken from Ristvet and others (1978) and the term "proposed excavational crater" is the same as their use of the term.

Diagrammatic cross sections were constructed to accompany the following discussion of the biostratigraphy of most crater boreholes. Figure 16 (in pocket) is a cross section of KOA crater, Figures 17, 18, and 19 (in pocket) are respectively sections of northeast, southeast, and southwest segments of OAK crater. Tables 10 and 11 summarize these results in tabular form and should be referred to for specific values of the depth range below sea floor for any biostratigraphic zone in a particular borehole. Tables 10 and 11 also show the depth intervals below sea floor in which mixed microfossil assemblages were found. Appendix 3 provides occurrence data for key index taxa in the upper 300 feet of crater boreholes.

For those KOA and OAK boreholes studied in detail, the following

Table 10: ENEWETAK BIOSTRATIGRAPHY: KOA Crater

	CORE					
ZONE	KAR-1	KBZ-4	KCT-5	KDT-6	KET-7	KFT-8
MIXED	---	0-137	0-140.1	0-43.55	---	0-28.5
TRANSITION	---	137-142	136.6-155.2	43.55-58.5	---	28.5-132.5
BASAL MIXED	---	137-142	140.1-144.75	---	---	---
AA	0-45.6	---	---	---	36.25-38.7	---
BB	45.6-70.0	---	---	---	38.7-41.15	---
CC	70.0-131.6	---	---	58.5-87.6	---	---
DD	131.6-157.7	---	---	87.6-110.6	---	132.5-138.9
EE	157.7-215.8	142-166	155.2-165	110.6-122.55	---	150-155
FF	215.8-240.6	192-235	185-232	---	---	182.75-202.0
GG	240.6-278.9	235-259	250-255	---	---	310.315
HH	278.9-525.0	259-400	255-306.6	---	---	---
II	525.0-605.0	459-522	---	---	---	---
JJ	605.0-725.0	555-600	---	---	---	---
KK	725.0-800.0	650-740	---	---	---	---
LL	800.0-900.0	770-845	---	---	---	---
MM	> 900.0	> 850	---	---	---	---

All depths are in feet below sea floor. See text for discussion.

Mixed refers to interval of borehole in which definitively anomalous mixed microfossils occurred.

Transition refers to interval between mixed and *in situ* zones.

Basal Mixed refers to lowermost part of mixed zone in which evidence for mixing comes from one fossil group.

Table 11: ENEWETAK BIOSTRATIGRAPHY: OAK Crater

Borehole / Zone	OAR-2	OBZ-4	OCT-5	ODT-6	OET-7	OFT-8	OGT-9	OHT-10	OIT-11	OJT-12	OKT-13	OLT-14	OMT-15	ONT-16	OOR-17	OPZ-18	OQT-19	ORT-20	OSR-21	OTG-23	OUT-24
Mixed	—	0-180	0-160	—	—	0-64	0-24.4	0-48	0-17	0-92.3	0-56	—	—	—	—	NS	NS	0-26	—	—	—
Transition	—	180-220	160-170	—	—	64-74	24.4-75.0	48-117	—	92.3-94.2	56-80	—	—	—	—	NS	—	26-44	—	—	—
Basal mixed	—	180-194	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AA	0-25.7	—	—	0-57	0-56	—	—	—	17-30	—	—	NS	0-29.9	NS	0-70.7	NS	NS	44-52	NS	NS	NS
BB	25.7-38	—	—	75-80	70-78	—	—	—	32-38	—	—	—	29.9-70	—	70.7-73	NS	NS	60-76.5	NS	NS	NS
CC	38-85	—	—	103.2-111	88-100	74-87	—	—	58-79	94.2-97.3	80-121	—	70-76.6	—	83-101	NS	NS	80-110	NS	NS	NS
DD	85-90.7	—	—	111-113	105-110	85-95	—	—	87-88	—	121-134	—	—	—	109-111	NS	NS	110-113	NS	NS	NS
EE	90.7-194	—	170-800	113-148	110-150	99-140	—	140-162.5	98-140	—	150-155	—	—	—	111-201	—	NS	113-130	NS	NS	180-191
FF	205-210	—	180-248	148-164.2	150-231.7	160-212	—	—	145-150	—	178-230	—	—	—	209-299	—	NS	170-175	NS	NS	219-230
GG	278-300	220-347	250-264	—	—	220-230.4	—	—	191-277	—	250-255	—	—	—	310-339	NS	NS	280-285	NS	275-310	265-290
HH	312-477	350-520	272-450	—	—	230.4-283.5	—	—	285-286.5	—	285-395	—	—	—	367-529	375-466	NS	470-490	307.7-354.3	310-500	350-360
II	487-542	560-575	530-560	—	—	—	—	—	—	—	450-521	—	—	—	535-574	NS	NS	490-491.8	—	500-575	NS
JJ	554-677	595-681	587-626	—	—	—	—	—	—	—	539-582	—	—	—	588-722	NS	NS	—	—	—	—
KK	698-725	705-745	636-718	—	—	—	—	—	—	—	635-691	—	—	—	737-760	—	691.1-701.5	—	—	—	—
LL	739-785	760-792	735-781	—	—	—	—	—	—	—	717-765.8	—	—	—	760-895	—	—	—	—	—	—
MM	810-885	800-	851.5	—	—	—	—	—	—	—	—	—	—	—	940-1091.1	—	—	—	—	—	—

subdivisions will be described separately:

Mixed zone: That interval in the upper part of the boreholes in the crater in which anomalous microfaunal assemblages occur that, according to known biostratigraphic ranges or ecologic tolerances of species, do not represent real biological assemblages. They are clearly artifacts resulting from the mixing of sediments from different faunal zones caused by the nuclear events. This zone is stipled in Figures 16-19.

Transition zone: Not to be confused with crater transition zone as used by Ristvet and others (1978), the term transition zone here is used to mean that interval where the faunas grade from mixed to undisturbed. This interval is designated with vertical lines in Figures 16-19. In some boreholes there is a basal mixing zone in the transtion from mixed to undisturbed zones. This interval is designated by circles in Figures 16-19.

In situ zone: The interval in cores below the mixing zone where normal (undisturbed) faunal assemblages occur in their expected stratigraphic order. These intervals are labeled with the letters of the appropriate biostratigraphic zone in Figures 16-19. Intervals in which the zone is not known with certainty are shown by diagonal cross-hatching.

Comparison with other boreholes: for some cores, brief comments on how the sequence compares to those in other boreholes are given.

KOA Crater

Five boreholes were studied in KOA crater, one at ground zero and four running in a transect south across the proposed excavational crater (Figure 16). The cores will be described in sequence from ground zero southward towards the crater periphery.

KBZ-4. As the first borehole drilled in either crater, KBZ-4 was studied more intensely than most other boreholes because of the uncertainty about the effects of the nuclear device on the abundance and preservation of microfossils in the immediate blast region. The results from this borehole gave the first indication that microfossils are well-preserved and abundant in modern sediments at the surface (i.e., near sediment/water interface) and in sediments below the sea floor in the crater fill and the sequence below the crater. Second, results from KBZ-4 revealed that the samples from the upper part of the borehole contained mixed faunas comprised of species from several different zones. Mixed faunas were subsequently identified in many boreholes and were a primary means of identifying disruption of the sediment by the event.

Mixed zone(0-140 feet).--Samples from the uppermost part of the mixed zone (0 to 30 feet) contain 18 of the 19 key ostracode species (Appendix 3). In comparison, correlative samples from the reference core KAR-1 and from modern lagoon sediments usually have only 7 or 8 species for a sample picked for the same number of specimens. In fact, KBZ-4 results were only the first indication of a general pattern of diversity that was recognized in both KOA and OAK craters - anomalously high microfossil species diversity is frequently an artifact of sediments disturbed by the nuclear blast. It is still unclear how this occurs but it is probably a combination of the physical disturbance of many stratigraphic horizons homogenizing their distinct faunas together and the subsequent settling of microfossils as a consequence of post-event sedimentary processes. Microfossils are also generally more abundant in these mixed sediments, perhaps due to selective sorting. Regardless of the precise sequence of processes involved, the mixed assemblages represent unnatural biologic groups that cannot be the result of natural taphonomic processes.

The upper 137 feet at KBZ-4 contains microfossil assemblages that indicate vertical mixing both from above and below. For example, in the upper 30 to 40 feet, upward mixing is indicated by the common occurrence of foraminifer species from zones DD, EE, and FF which usually occur below 100 feet or more below sea floor. Conversely, downward mixing is indicated by the occurrence of zone AA and BB species in samples from about 100 feet in the borehole.

Transition zone.-- The transition from mixed to _in situ_ sediments in KBZ-4 is subtle and was difficult to identify because the event apparently disturbed zone DD and uppermost zone EE only slightly. In samples from 137, 142 and 147 feet, the relatively common occurrence of the distinctive ostracode _Paracytheridea dromedaria_ suggests a normal sequence from DD to EE; however, the benthic foraminifer data suggest that the sample at 137 feet is mixed with species from zones AA and BB. The sample at 142 feet appears to be the first undisturbed sample encountered in this core. The mixing in the transition zone is, therefore relatively thin compared to that in upper samples and the interval between 137 and 142 feet is referred to as a basal mixing zone.

In situ zone.-- A normal zonal sequence was recognized for zones EE, FF, GG, and the deeper zones. Zone boundary LL/MM was particularly clear, occurring between about 845 and 850 feet. The sequence of faunas and zones below 300 feet generally confirmed that recognized in the reference borehole KAR-1.

Comparison with other cores.-- The most important result from KBZ-4 was the identification of the mixed to _in situ_ transition at about 137 to 142 feet which allowed a prediction of what might be found in nearby transition boreholes. The results described below for KCT-5 and KFT-8 show that the faunal sequences are remarkably similar in this transition zone and even occur at the same depths in those boreholes (Figure 16).

KCT-5. KCT-5 was drilled near the ground zero borehole, KBZ-4, as part of the planned transect from ground zero to the crater periphery. Efforts were made to determine if the effects of the blast reached the same depths as at KBZ-4.

Mixed zone.--The same pattern of high diversity ostracode assemblages in the uppermost samples and mixed foraminifer and ostracode assemblages down to and including the sample at 136.6 feet characterize KCT-5 as it did in KBZ-4. We infer mixing down to 140.1 feet.

Transition zone.-- The samples at 140.1 and 144.75 feet show a relatively high proportion of *Paracytheridea dromedaria*, and this unusual pattern is almost identical to that found between 137 and 147 feet in KBZ-4. As in KBZ-4, it is interpreted as a basal mixing zone at the bottom of the excavational crater in which there was a minimal amount of disturbance of the normal stratigraphy. There is little data for the interval between 144.75 and 155.2 feet. Below this level, the samples at 155.2 and 161.2 contain typical low diversity zone EE faunas and appear to complete the transition from mixed to *in situ* faunas. Thus, in figure 16 the transition zone is shown between 140.1 to 155.2 in which a basal mixing zone is recognized between 140.1 and 144.75 feet.

In situ zone.--A normal sequence of microfossils was found below about 155.2 feet to the base of the borehole. This was highlighted by an excellent zone GG fauna at 252.25 feet. Zone GG is drawn between 250 and 255 feet and Zone HH from 255 to the base of the hole at 306.6 feet.

Comparison with other boreholes.--In addition to the standard zonation, a distinctive species which is not a key taxon was found that helped correlate between KBZ-4 and KCT-5. The occurrence of the very rare genus Ponticocythereis at 252.25 in KCT-5 and at 251 feet in KBZ-4 probably represents a brief, infrequent time interval when this genus inhabited this part of the lagoon. The comparable depth in borehole for its occurrence supports the overall similarity of microfossils between the two boreholes.

KCT-5 also has the following similarities with the next borehole in the transect - KFT-8: a mixed, diverse assemblage in the upper 35 to 40 feet and abundant, well-preserved, in situ faunas between 250 and 260 feet. The boreholes differ in that KCT-5 seems to have a slightly deeper mixed zone than KFT8, possibly reflecting its closer proximity to ground zero.

KDT-6. KDT-6 was drilled at the outer margin of the proposed excavational crater 1182 feet from ground zero. The objective was to identify the depth of mixing and the in situ zones.

Mixed zone.--The samples in the upper 43.5 feet of KDT-6 show strong evidence for significant mixing of microfaunas from several biostratigraphic zones. For example, at 9.3, 24.5 and 29.75 feet, foraminifer assemblages indicate zones AA through FF. Because the mixing zone at the location of this borehole did not reach zones EE or FF, specimens from zones EE and FF that were found at the top of this borehole might have been transported laterally from other parts of the crater, probably from closer to ground zero where the disturbance of the original sediment was deeper. They also may have been transported during other nuclear events such as MIKE.

At 29.8 and 36.3 feet reliable zone BB/CC ostracode species occur at a level that should be zone AA, thus providing confirmation of mixed faunas. The sample at 43.55 is probably mixed.

Transition zone.--The interval from 43.55 to 58.5 feet is difficult to interpret in terms of whether it is mixed or in situ. The ostracode assemblage could be interpreted as in situ zone BB and CC faunas because the predominant species (O-5, O-8) are two excellent indicators of zones BB and CC and consistently appear down borehole during drilling when the first disconformity has been passed. The transition zone in KDT-6 is within this interval and is plotted in Figure 16 between 43.55 and 58.5 feet.

In situ zone.--Samples 67.75, 76.0 and 81.5 are close to typical cone CC assemblages and are considered in situ. Below the discontinuity at 87.6 feet, the ostracode fauna consists of diagnostic zone DD species, particularly by the presence of Paracytheridea dromedaria in four consecutive samples. The foraminifers support this interpretation. Zone EE begins below the discontinuity at 110.6 feet.

Comparison with other boreholes.--The sequence in KDT-6 between about 90 and 115 feet is similar to the basal mixed zone of KBZ-4 and KCT-5 where a minimal amount of disturbance occurred. However, the possible presence of in situ BB/CC samples above this zone, the recognition of two undisturbed disconformities and the lack of down-section transport of AA or BB species suggests this interval is in situ. Thus, KDT-6 differs from KBZ-4 and KCT-5 in the significantly shallower depth to mixing as shown in Figure 16 and listed in Table 10.

KET-7. KET-7 was a shallow borehole drilled outside the proposed excavational crater, 1326 feet from ground zero, to a depth of 41.1 feet. The samples contain microfossil assemblages indicating the boundary between zones AA and BB occurs between the samples at 36.3 feet and 41.15 feet, this latter sample containing key zone BB species O-5 and O-8. No obvious mixing was noted in this borehole.

KFT-8. KFT-8 was drilled in the north-south transect 870 feet from ground zero inside the proposed excavational crater.

Mixed zone.--In the sample from 28.5 feet, seven of the key 19 ostracode species are present along with three additional species occur not usually found in zones AA of BB, suggesting a mixed assemblage. The foraminifers in the upper 0 to 28.5 feet came from zones AA through EE. Samples below 30 feet are not as obviously mixed as those at similar depths in KBZ-4 and KCT-5 and are discussed as part of the transition zone.

Transition zone.--In KFT-8, the transition zone was difficult to identify because the microfossils in samples between 53 and 115 feet were not as obviously mixed as those in the uppermost samples. The high ostracode diversity at depths 53.8 and 99.1 feet is anomalous for zones BB and CC and suggests mixing with material from other zones, but no definitive foraminifer or ostracode species occurrence confirms this hypothesis. The precise location of the transition zone above 132 feet remains uncertain and is shown as such in the cross section in Figure 16.

In situ zone.--At 132.5 feet, benthic foraminifers suggest zones CC or DD and the interval 132.5 to 138.9 feet is interpreted as in situ zone DD based on both groups of microfossils and is shown as such in Figure 16. Below 155 feet, a normal sequence of microfaunas occurs although ostracodes are less abundant than in other boreholes.

Comparison with other boreholes.--The primary difference between KFT-8 and KCT-5 is the apparent shallower depth of the mixing from the blast effects and the greater difficulty in recognizing the transition to in situ material.

OAK CRATER

Drilling in OAK Crater recovered material from 24 boreholes of which 20 were studied for paleontology (OAR-2 and OAR-2A are considered as one borehole. Table 11 summarizes the paleontologic results giving the depth intervals for biostratigraphic zones and indicating the depths of mixed samples. Figures 17, 18, and 19 are cross sections of the three transects of OAK.

In the following borehole-by-borehole descriptions the same format as that for KOA will be used. However, major differences in the overall paleontologic record at OAK have important implications for interpretation of the craters. These differences fall into three categories: cratering history, biofacies differences, and "piping".

During drilling at OAK, various models of crater formation were postulated to account for the observed stratigraphy, paleontology, and bathymetry. Due to favorable drilling circumstances, it was possible to drill many boreholes to test specific models against the ground truth in the subsurface stratigraphy. This led not only to answers to specific questions but also to an overall better understanding of the crater by obtaining three transects from ground zero and two reference cores. As the drilling proceeded to investigate specific questions, the paleontologic analyses were focused on specific depth intervals in later boreholes. It should therefore be noted that the goals in the field for many OAK boreholes were not to construct a simple cross section as was done in KOA, but to answer a host of questions regarding cratering history.

The second major difference involves the paleontologic data base itself. OAK is situated much closer to the reef plate than is reference borehole KAR-1. Consequently, the faunal changes that were documented downhole at OAK are sometimes distinct from those occurring in the lagoon as documented by reference borehole KAR-1, mainly reflecting differences in local biofacies and preservation. The biostratigraphic data generated from the OAK reference boreholes, OAR-2/2A and OOR-17, therefore led to a refined zonation, particularly for zones GG and HH. Borehole OOR-17 was drilled in June and these refinements were based on a limited number of samples allowing revision of previous OAK results. Because of biofacies differences between OAK and KOA and the large number of OAK boreholes which limited sample density some of the final data in Table 11 and Figures 17-19 show relatively wide ranges of uncertainty about the biostratigraphic zone.

The third difference in OAK was the discovery within the mixed zone of extinct microfossil species known only from much deeper zones (especially II-LL). Further, many of these deep specimens show the characteristic brown coloring of sedimentary package 5, microfossil zones JJ-LL. It has been postulated that these anomalous occurrences represent piping of specimens from deeper zones along faults or fractures. The evidence for this phenomenon which occurs in certain OAK cores will be discussed in Chapter VI.

OBZ-4. The goals of this borehole, drilled 7 feet from ground zero, were to determine the depth of the mixed zone at ground zero and downward displacement of faunal horizons. This was the deepest borehole drilled, down to a total depth of 1605.2 feet. The upper 250 feet of OBZ-4 was also one of the most intensely studied sections of core, having 44 paleontologic samples analyzed from this interval for a resolution in the mixing and transition zones of about 1 sample every 5.5 feet. Time limitations allowed only a cursory examination of the deeper part of the core below 1200 feet.

Mixed Zone.--OBZ-4 contains mixed microfaunas to a depth of at least 180 feet and possibly to 210 to 220 feet. In the ostracode faunas, this is reflected by anomalously high species diversity and the occurrence of mixed assemblages at a single depth made up of species from zones AA through FF. Complicating the interpretation of the assemblage are the occurrences of specimens piped from deeper zones to be discussed in Chapter VI. The benthic foraminifera in the mixed zone of OBZ-4 also indicate severe mixing of the normal stratigraphy. For example, EE and FF species occur frequently in the uppermost samples at 2.8, 11.8, 21.35, 33.0, and 40.05 feet.

Transition Zone.--The transition from mixed to _in situ_ material spans the interval from about 180 feet to about 220 feet. There is evidence for ostracode material piped up from zones HH-JJ in samples at 182, 190, and 213 feet. At these same depths, apparently unmixed FF-GG faunas occur with no indication of downward mixing of AA-CC zone species. We tentatively refer to the interval 180 to 194 feet as that of basal mixing.

In situ zone.--With the additional information on species ranges derived from reference borehole OOR-17, the deeper zones could be better correlated in the vicinity of the reef plate at OAK crater. For example, the GG/HH zone boundary in OBZ-4 occurs about 350 feet based on the similarity in faunal sequences here and in OOR-17. Both boreholes show GG and HH zones faunas characterized by alternating well-preserved and poorly preserved (absent or recrystallized) assemblages. At 347 feet in OBZ-4 and 331-339 feet in OOR-17, zone GG has a diverse ostracode assemblage characterized by the distinctive <u>Australomoosella</u> sp. A. The 20 to 30 feet above this interval is characterized in both cores by being almost barren and containing only recrystallized ostracodes. The faunal shift from GG to HH is marked by the abundance of <u>Miocyprideis</u> and increasing frequency of zones of recrystallization.

A detailed analysis of OBZ-4 zones II through MM was made on the ship and revealed a faunal sequence very similar to that in KAR-1, with much less effects of the more reefward location of the borehole. The II/JJ, JJ/KK, and KK/LL and LL/MM boundaries all coincided closely with the sedimentary horizons described by the geologists.

Comparison with other cores.--OBZ-4 shows evidence for the deepest depth below sea floor for mixing of all the boreholes drilled. The occurrence of piped material also contrasts with its absence in other OAK boreholes (see Chapter VI). Finally, the depths to intermediate zone boundaries (FF/GG, GG/HH, HH/II, II/JJ) are slightly deeper than in reference and transitional cores in OAK (Table II). For example, the HH/II boundary is between 520 and 560 feet at OBZ-4, but almost always below about 490 feet in other cores.

<u>OCT-5</u>. This borehole was drilled 658 feet northeast of ground zero and the goal was to determine depth of mixing and depth-to-zonal boundaries. OCT-5 was studied at the highest sample resolution of all the OAK crater boreholes-1 sample every 9.5 feet for benthics, 1 sample every 11.8 feet for ostracodes.

Mixed Zone.--Microfossil assemblages in the upper 160 feet of OCT-5 show strong evidence for mixing upwards from zones EE-FF and downward from zones AA and BB. Zone AA ostracode species are mixed down to 141 feet; modern benthic foraminifers and species from Zone AA are common in the interval 38 to 77 feet. Piped specimens from deeper zones are also present (see Chapter VI).

Transition Zone.--The transition from mixed to *in situ* assemblages occurs in the interval of 160 to 170 feet. The deepest sample with possible down section ostracode mixing is at 166.4 feet, but this must be considered very tentative, due to the sparse assemblage.

In situ zone.--By the depth of 176.25 feet, a normal assemblage is present, probably representing zone EE. The deeper microfaunal sequence suggests a normal pattern of changes in zones GG through MM. The boundary between HH and II is more difficult to determine in OCT-5 and other reefward holes than in KAR-1 because of the alternating states of fossil preservation and biofacies effects. Although the faunal criteria for identifying zonal boundaries are less firm in these OAK boreholes, the sequence of faunas within OAK holes is are all very similar. Thus, the interval in OCT-5 between 543-552 feet corresponds with that between 535 and 560 feet in OOR-17 and the HH/II boundary is near this interval in both cores. These intervals correspond with 535-550 feet or just above in KAR-1.

The sequences from zones JJ through MM are remarkably consistent in OCT-5 and OBZ-4.

Comparison with other boreholes.--OCT-5 has a general similarity to OBZ-4 both in the mixed and *in situ* sequences. It is also similar to OKT-13 except that the maximum mixing depth in OKT-13 is shallower.

ODT-6. ODT-6 was drilled outside the proposed excavational crater 1715 feet from ground zero and it was drilled to see if a normal stratigraphic sequence occurred just below the sea floor.

In situ zone.--Microfaunal assemblages in the upper 74 feet above the first recognized sedimentary horizon do not show evidence of mixing. The foraminifers suggest zones AA and the ostracode assemblage was typical AA species diversity and several faunal composition. No key species from below zone AA were found.

The boundary between zones AA and BB is normally abrupt and probably coincides with the discontinuity in ODT-6 at 74.1 feet.

OET-7. This borehole was drilled 1375 feet from ground zero. The goal was to focus in on the outer limits of the effects of the nuclear event on the northern side of the crater.

The faunal sequence was very similar to that in ODT-6 in the following characteristics:

1. No evidence for faunal mixing.
2. Zone AA/BB boundary recognizable, even more clearly in OET-7 due to better sampling just below boundary (70.65 and 78.2 feet samples contained BB species of foraminifers and ostracodes).
3. A similar well-preserved, diverse ostracode assemblage occurred in zone FF at 160-191 feet in OET-7 at 150 and 164 feet in ODT-6.

OFT-8. This borehole was drilled just inside the proposed excavational crater 1129 feet northeast of ground zero.

Mixed and Transition Zones.--The sample at 64.0 feet contained a mixed foraminifer fauna suggesting mixing of species from EE/FF zones. This indicates lateral transport of material from the ground zero area because zones EE and FF are not affected at this site. The ostracodes from 64.0 feet are believed to be mixed.

The sampling interval was only detailed enough to determine that the transition to *in situ* assemblages probably occurs between 65 and 74 feet.

In situ zone.--The samples from 74.0 and 87.55 feet contain the abundant zone BB/CC ostracode species *L. heronislandensis* and are probably unmixed. The foraminifers at 74.0 and 128.9 feet indicate no mixing. Samples at 99.4 and 128.9 feet are typical assemblages for zone EE and are undisturbed. The sample at 163.5 feet contains a diverse, well-preserved zone FF assemblage that strongly suggests a correlation with samples at 167 feet in OET-7 and 157 feet in ODT-6. The FF/GG boundary is estimated to be between 212 and 220 feet.

OGT-9. This borehole was drilled to a depth of 75 feet 1044 feet from ground zero. The sample at 24.4 feet is definitely mixed with zone BB species. Below 24.4 feet, assemblages were too sparse to determine if mixing occurred. In general, the fauna from the uppermost part of this borehole resembles the fauna from comparable stratigraphic levels in OFT-8.

OHT-10. This core was drilled just outside the proposed excavational crater along the southeast transect 1462 feet from ground zero and the goal was to examine the debris blanket along the southeast margin of the crater.

Mixed and Transition Zones.--Only two samples were examined above 50 feet and both contained foraminifer assemblages supporting mixing. The sample at 2.6 feet contained zone EE/FF species, and the sample at 47.75 feet contained a zone CC assemblage that is believed to be too high stratigraphically to be *in situ*.

The sample at 116.05 feet also contained an anomalous assemblage. It completely lacked zone DD and upper EE ostracode species that consistently occur at this level in other cores, but it contained a foraminifer assemblage suggesting zone EE. It is therefore probably a basal mixing zone, although detailed sampling between 90 and 130 feet would be necessary to confirm this. The transition zone is depicted in Figure 18 between 48 and 117 feet.

In situ zone.--The first unequivocally undisturbed material was found in the samples at 140.1 feet, 149.75 feet and below, where zone EE foraminifers occurred and a typical sparse zone EE ostracode assemblage was found.

OIT-11. This borehole was drilled at the proposed excavational crater margin on the southeast side 1206 feet from ground zero to determine the depth and character of mixing. Because the stratigraphic succession appeared to show a very shallow depth to mixing far above the AA/BB zone boundary, a detailed re-examination of the upper 65 feet of this borehole was undertaken.

The results show a normal stratigraphic succession; samples at 17.1, 22.65, and 25.75 feet have typical zone AA assemblages; those at 32.35 and 35.0 feet contain key zone BB marker species. The faunal transition is abrupt, as is characteristic of the AA/BB boundary, and the preservation states of the microfossils is distinct on either side of the disconformity at 30.4 feet. All evidence from both groups of microfossils indicates an *in situ* sequence from 17.1 feet down through zones EE, FF, GG, and into the top of HH. However geologic evidence suggests some mixing in the upper 16 feet and this is indicated in Figure 18.

OJT-12. This borehole was drilled outside the proposed excavational crater 1696 feet from ground zero to identify the extent of the debris blanket.

At 54.0 feet, both foraminifer and ostracode assemblages had anomalously high proportions of zone EE and FF species. This observation and the lack of typical BB or CC species at 54.0, 82.65, and 92.3 feet suggests a disturbed sequence. However, the faunal assemblages are not similar to those in the mixed zones of OBZ-4 and OCT-5 where material from five or six zones is mixed into the upper 150 feet. Instead, mixing in OJT-12 is not as clear in terms of the origin of the mixed species and the evidence for some type of disturbance is based mostly on the lack of a typical AA/BB/CC sequence. The almost total absence of zone BB/CC ostracode species is an unexplained anomaly. Detailed samples would determine more accurately from which zones the microfauna originated. At present, mixing is indicated in Figure 18 to be between 0 and 92.3 feet and the transition zone from 92.3 to 94.2 feet. At 96.3 feet the assemblage indicates zone CC.

OKT-13. This borehole was drilled just inside the proposed excavational crater 989 feet southeast of ground zero. The primary goal was to determine the depth of mixing and relate that depth to other parts of the crater.

Mixed zone.--The mixed zone in OKT-13 is characterized by anomalously high ostracode diversity, especially at 55.65 feet where at least 11 species from various zones occur. However, evidence for extensive mixing such as that in OBZ-4 and OCT-5 is not apparent between 50 and 100 feet in OKT-13. For example, the sample at 80.0 feet contains an abundant and very typical BB or CC foraminifer and ostracode fauna with no signs of mixing.

Transition zone. Because the mixed zone is only clear in the sample at 55.65 feet, the transition zone is shown between 56 and 80 feet.

In situ zone.--The sequence of microfaunas below 80 feet generally conform to the pattern documented in OOR-17 zones CC through LL. At 121 feet, a probable CC or DD assemblage was found and at 133.7 feet P. dromedaria is common at 133.7 feet indicating a zone DD. The location of zone DD between about 121 and 134 feet matches the sedimentary horizon.

Comparison with other cores.--During the drilling of the core, a detailed study of the deeper zones, especially LL/MM, was performed on the ship. Comparison of the OKT-13 faunal changes to OAR-2/2A, and OBZ-4 and OCT-5 revealed striking consistencies; the resolution of zonal correlation in the OAK region is only limited by the density of the sampling interval.

OLT-14. This borehole was drilled 2511 feet from ground zero to determine the extent of the debris blanket. No paleontologic analyses were requested for this core.

OMT-15. This borehole was drilled outside the proposed excavational crater 2204 feet from ground zero to examine the debris blanket. Two samples (about 40 and 73.5 feet) were analyzed. The sample from 40 feet contained a typical

BB assemblage and that from 73.5 feet yielded a typical CC assemblage. Thus the AA/BB boundary occurs above the sample at 39 feet, probably at the unconformity at 29.9 feet, and the BB/CC boundary occurs between the two samples at 40 and 73.5 feet.

ONT-16. This borehole was drilled within the debris blanket 1827 feet from ground zero and only one paleontologic analysis was requested. The sample from 101.75 contained a nondiagnostic assemblage that ranges from zones CC to EE. It is highly recommended that a series of samples be examined rather than an isolated sample, especially in the upper 300 feet, so these results are considered tentative. Specifically, sampling in more detail would be necessary to identify the characteristic DD-EE transition and more accurately determine the sequence of faunal changes.

OOR-17. This borehole was drilled 6058 feet from ground zero as a second reference hole at OAK crater specifically as a control hole for the southwestern radial of OAK near the gravimetry reference hole OOR-21. The borehole was also drilled to investigate suspected lithofacies and biofacies variation in the OAK area and to determine the variation in thicknesses of some of the lower stratigraphic intervals.

OOR-17 gave the paleontologists the opportunity to establish a more refined biostratigraphic data base, especially for the zones GG, HH, and II because of the high percent of recovery and more favorable lithologies for microfaunal preservation. It was decided, therefore, to investigate OOR-17 in detail. Ninety-eight samples were analysed for benthic foraminifers, ostracodes and calcareous nannofossils; 23 samples for planktic foraminifers; and 33 samples for larger foraminifers, for a total of 347 analyses. The sampling resolution of one sample per 11.2 feet of borehole (Table 5) for benthic foraminifers and ostracodes approached the resolution of the KOA boreholes and permitted accurate identification of zonal boundaries thereby improving correlation of the crater boreholes.

Microfossils in the upper 70 feet contained well-preserved zone AA species. In the sample at 72.8 feet, the ostracode species Cletocythereis sp. A and Loxoconcha heronislandensis, two zone BB markers, occur and the AA/BB boundary coincides with the discontinuity at 70.7 feet. The BB/CC boundary is not as clearly marked and occurs between 73 and 83 feet.

A distinct zone DD assemblage containing abundant P. dromedaria occurs at 110.5 feet. Zone EE assemblages occur down to about the 201 to 209 feet interval and contain specimens of Orionina, Radimella, Cletocythereis rastromarginata, and Ponticocythereis. Orionina has its last appearance in the KOA area in zone II but at OAR-2/2A and OOR-17 it ranges into zone EE.

In zone FF, samples between 209 and 300 feet contain high diversity assemblages commonly including Cletocythereis sp. A, Caudites, Australomoosella, Morkhovenia, and Keijia.

Zone GG is characterized by Procythereis sp. A and Cletocythereis canaliculata, whereas the GG/HH boundary is marked by the occurrence of Miocyprideis at 367.9 feet. Both zones GG and HH contain alternating zones of recrystallized, poorly preserved microfaunas and well-preserved, diverse assemblages and generally provide the most detailed record of this interval yet available.

Zones II through MM generally contain excellent microfaunas that are very similar to those documented in the other reference boreholes KAR-1 and OAR-2/2A. The depths for the boundaries between these zones in OOR-17 are therefore tightly constrained, generally to less than a 25-foot interval. In the cases of the HH/II, II/JJ and JJ/KK boundaries, they can be pinpointed to within 15 feet or less (Table 11). The biostratigraphic resolution obtained in OOR-17 has to a large extent allowed the correlations within the OAK area that are illustrated in the cross sections in Figures 19, 18, and 19.

<u>OPZ-18</u>. OAK is an asymmetric crater. Borehole OPZ-18 was drilled at the "bathymetric" center 335 feet from ground zero. Nine samples between 174 and 466 feet were examined for microfossils to try to identify the depth of mixed faunas. The mixed zone in the upper 150 feet was not studied.

The sample at 174.95 feet showed a high diversity (more than 15 species) ostracode fauna and several types of shell preservation, making this sample a candidate for a mixed assemblage. The sample at 189.25 feet also contains an unexpectedly high number of specimens and species for this probable zone EE or upper zone FF level. Mixed states of preservation were also noted in the sample at 210.4 feet. It is presently unclear as whether this interval between 174 and 211 is completely <u>in situ</u> and undisturbed or whether it underwent subtle mixing typical of the basal mixing zone in other OAK boreholes. More work is required to solve this problem and we consider this interval unstudied for the purposes of this report.

The samples taken at 376.7, 381.4, 391.0, 418.9, and 465.9 feet were either barren or contained sparse poorly preserved ostracode specimens and/or recrystallized foraminifers. They all appear to represent zone HH and show no signs of mixing.

<u>OQT-19</u>. This borehole was drilled just outside the proposed excacational crater on the southwest side. Two samples were analyzed for microfossils.

Both the sample at 691.15 feet and that at 701.25 feet contained typical zone KK microfaunal assemblages.

ORT-20. This borehole was drilled 1444 feet from ground zero to determine if the stratigraphy was in situ or if there is a disturbed zone near the top. In addition, a concentrated effort was made to determine whether the AA/BB zonal boundary could be identified.

The results showed strong evidence of extensive mixing in the uppermost sample at 0.0-0.25 feet, where a very diverse, mixed ostracode assemblage and a mixed foraminifer assemblage were found. Foraminifers from zones AA-DD and possibly even GG were found in this sample.

At 25.55 feet a diverse ostracode assemblage occurred including several species transported from zones FF-HH. Most notable among these are *Australomoosella* sp. A. and *Keijia* sp. Samples at 45.0 and 51.5 feet contain assemblages indicating zone AA and do not show strong evidence for mixing. Species from zones BB-EE are lacking in this interval. The AA/BB boundary is probably located between samples at 51.5 and 60.15 feet, this latter sample contained strong evidence for the first clear zone BB assemblage down hole. Zone BB is shown between 60 and 76.5 feet in Figure 19. Zone CC is not clearly understoon and it is estimated to be between about 80 and 110 feet. Zone DD is recognized at 112.45 feet and a well-defined transition to upper zone EE occurs between 113 to 122 feet. At 171.0 feet an FF assemblage occurs and zone FF is shown between 170 and 175 feet in Figure 19. The sample at 285 feet is probably zone GG and this zone is shown between 280 and 285 feet in Figure 19. The sample at 480.0 feet is barren of ostracodes suggesting zone HH, whereas the assemblage from the sample at 490.8 feet indicates the top of zone II.

OSR-21. This borehole was drilled 5495 feet from ground zero. Two samples were studied at 318.2 and 337.3 feet and contained zone HH microfaunas. The 337.3 feet sample was surprisingly diverse and well- preserved for this zone. The data support the lithologic results suggesting the GG/HH boundary is at 307.7 feet so the top of zone HH is placed here in Figure 19.

OTG-23. This borehole was primarily a gravimeter survey hole located 804 feet from ground zero and is not shown in Figure 19. Eleven samples were analyzed specifically to focus on zones GG-HH-II and the samples do not show strong evidence for mixing. Samples at 276.2 and 308.3 feet contained GG assemblages however the 308.3 foot sample contained the LAD of Miocyprideis indicating that the 308.3 foot level in OTG-23 is close to the GG/HH boundary. Zone GG is estimated to be between 275 and 310 feet.

Zone HH is well-represented by typical assemblages of Bairdoppilata algicola, Miocyprideis, and Australomoosella, alternating with barren, recrystallized zones. At 495.3 feet a diverse assemblage was found, suggesting lowermost HH or uppermost II zone. Zone HH is estimated to be between 310 and 500 feet. At 524.9 feet the occurrence of Callistocythere crenata indicates this level is zone II and zone II is estimated to be between 500 and 525 feet.

OUT-24. This borehole was drilled reefward of the ground zero hole 858 feet from ground zero and is not located on the transect in Figure 19. Eight samples were examined between 141 and 351 feet. The results showed a fauna in the samples from 141.0 and 142.2 feet unlike others observed from this interval, possibly reflecting species or morphotypes inhabiting the reef area. Downward mixing of zone AA species is a possible explanation. A zone EE fauna was found at 190.1 feet and zone EE is estimated to be between 180 and 191 feet. A zone FF assemblage occurs at 219.3 feet and this zone is estimated to be between 219 and 230 feet. Zone GG faunas were found at 269.4 and 289.8 feet whereas the sample at 350.6 feet indicated zone HH.

CHAPTER VI: SPECIAL STUDIES

This chapter describes two special studies that were performed during the course of the Enewetak Paleontologic Project. One involved biofacies analyses of the modern benthic foraminifer and ostracode faunas from the Enewetak Lagoon using bottom samples collected by the U.S. Geological Survey during September of 1984. Early in the planning stages of the Enewetak Paleontology Project it was recognized that understanding modern biofacies in the lagoon was a prerequisite for developing and applying a biostratigraphic zonation to the crater boreholes. Studies of modern lagoon and back-reef microfaunas included three sources of samples: (1) those collected by the USGS during September, 1984; (2) bottom samples collected during Enewetak projects in the 1950's and 1960's, housed in the Smithsonian Institution (Table 6B); and (3) material from numerous other Pacific atolls and islands collected by project scientists, earlier studies, or obtained on loan from museums. Together these faunal collections, now under continuing study, provided an excellent modern data base on microfaunal biofacies and biogeography.

The second study involved investigation of displacement or "piping" of material from depths of over 500 feet below the surface up into the surface or near-surface levels. Piping had not been identified as an original objective when the project was being planned and investigation of this phenomenon started only after it was recognized during the drilling of OBZ-4. Therefore it should be emphasized that these studies had to be done quickly, were limited in scope, and are necessarily preliminary. Nonetheless, the results of these studies were significant contributions to the overall paleontologic program.

Modern Enewetak Lagoon Microfauna

Figure 20 is a map of Enewetak lagoon showing the location of modern samples studied for ostracodes and benthic foraminifers. The need to understand the modern fauna for interpretion of the stratigraphy was clear before drilling began, but it became even more important for deciphering various types of faunal mixing identified in OAK cores. First, it was necessary to establish which species still inhabit the lagoon today so that it could be certain that the extinction event of a species documented in the cores was a true extinction rather than a gap in its stratigraphic record. In this way, species' biostratigraphic ranges, especially LADs, had increased reliability for correlation and use as time horizons.

Second, a large amount of biofacies variation was recognized between cores drilled in the lagoon and those near the reef plate. This is to be expected because of the different habitats throughout the lagoon which are inhabited by ecologically distinct species. Unraveling biofacies is always a prerequisite to biostratigraphic correlation and examining modern samples gives useful information on the ecology of many atoll species and genera.

The preliminary findings show that there is significant variation within the lagoon in the distribution of foraminifer and ostracode species and that this variation explains the diachroneity of some species ranges in the KOA and OAK regions. In particular, the modern data show that certain taxa such as *Radimella*, *Morkhovenia*, *Keijia*, *Australomoosella*, *Procythereis*, and *Miocyprideis* prefer the region just inside the reef and have extended stratigraphic ranges there. Species of these and related genera limited to

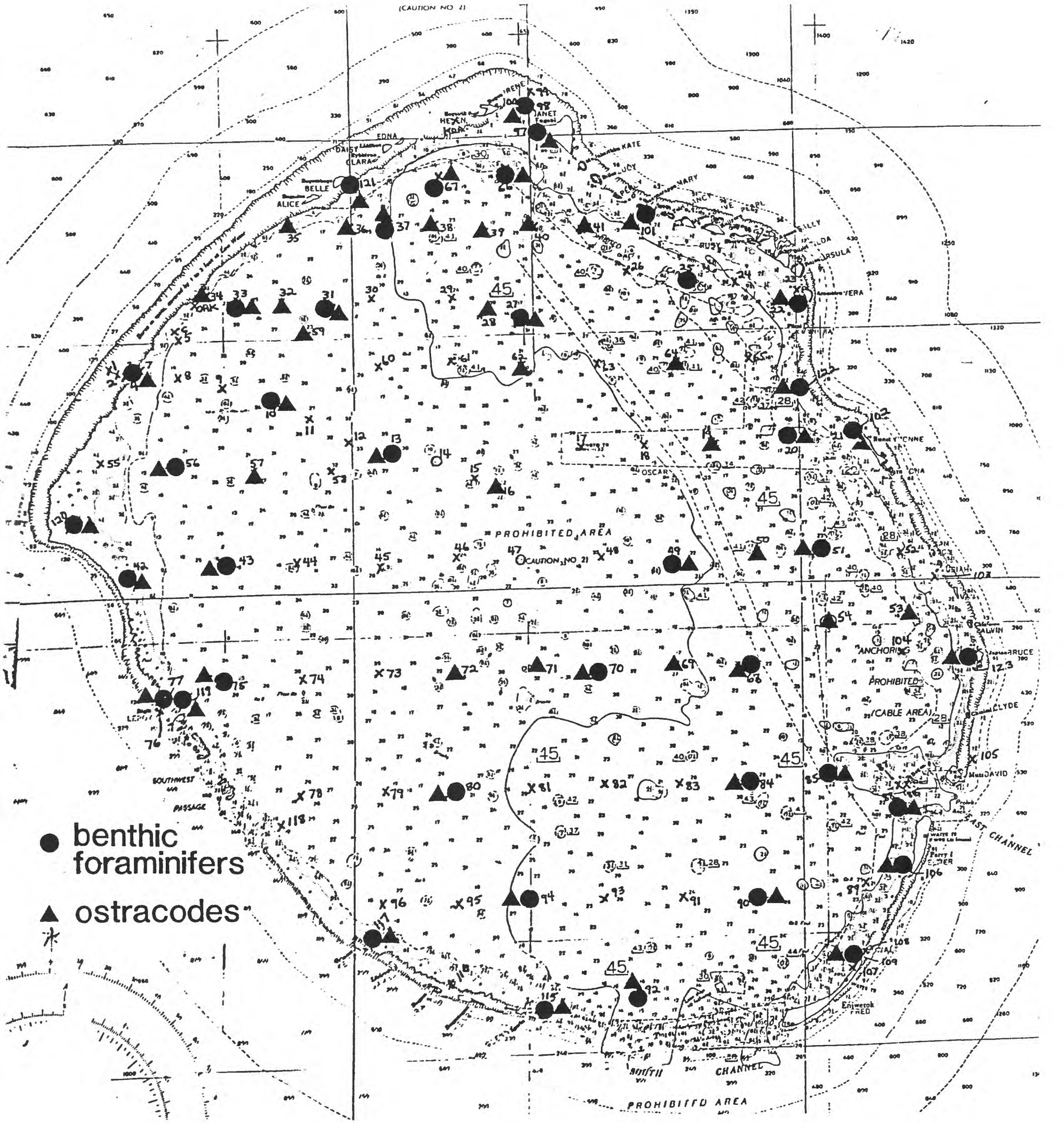


Figure 20. Location of modern bottom samples. Black triangles show samples under study for ostracodes; black circles show those under study for benthic foraminifers; small x's indicate other bottom samples not under study at present time.

zones II and deeper in the KOA area range up into zones HH, GG and even zone FF in OAK. The LADs of these taxa in the OAK region are higher than at KOA because of geologic differences in the two regions. Once this was recognized, a better match between the lithostratigraphic and biostratigraphic data in OAK was obtained.

Piping of deep specimens.

During the drilling of OBZ-4, the geologists observed moderately common, brown-colored, granule-to-small-pebble-sized, coral fragments within the mixed zone in the upper 150 feet of this borehole. They suspected that this brown material came from the organic-rich sedimentary package 5 which occurs below 500 feet in the OAK area. On-site paleontologic analysis of samples from the upper 150 feet of OBZ-4 revealed anomalous occurrences of ostracode species normally restricted to zone JJ and deeper and indicated the degree of mixing in this core was much more extensive than in KOA. Additional work on OBZ-4 and OCT-5 confirmed the anomalous presence of deep zone microfaunal species near the surface of OAK. Table 12 summarizes the occurrences of deep-zone species in the upper parts of OBZ-4 and OCT-5, the two boreholes sampled in detail. The species numbers are keyed to Table 7 in Chapter IV. The zone columns show the stratigraphic range of each species at Enewetak. Specimens that are brown in color are noted with an X in Table 12 in the column on the right. The characteristics and the nature of the displaced deep zone species are summarized below.

Distribution: Primarily in OBZ-4 and OCT-5, however the upper parts of many OAK boreholes were not studied. A presumed injected dike of brown sediment containing zone KK through LL species was recovered at 146 to 150 feet in OFT-8. Thus, we recognize that deep-zone species occur over the

TABLE 12: Piping Evidence

Core	Depth	Ostracodes Species	Ostracodes Zone	Foraminifers Species	Foraminifers Zone	Brown Color
OBZ-4	0.0-0.2			BD-20	I-L	
	2.8-3.05			BD-8	L-M	X
	11.8-12.05			BD-31	J-L	X
	21.1-21.35	OD-14	J-L	BD-2	I-M	X
		OD-31	G-L			
	33.0-33.25	OD-40	I-J(B)			
		OD-37				
	40.05-40.3	OD-31	G-L	BD-20	I-L	X
		OD-5	M(?)			
		OD-10	K-L			
		OD-14	J-L			
		OD-21	G-L			
		OD-29	H-L			
	49.7-49.95	OD-5	M	*Cibicides* sp. A	K-M	X
		OD-10	K-L			
		OD-29	H-L			
		OD-31	G-L			
		OD-36	H-M			
	58.5-58.75			*Cibicides* sp. A	K-M	X
				Alveolinella quoyi	I-L	

Table 12 (con't.)

Core	Depth	Ostracodes Species	Zone	Foraminifers Species	Zone	Brown Color
	66.35-66.6	OD-31	G-L	*Cibicides* sp. A	K-M	X
	75.15-75.4	OD-36	H-M	*Quinqueloculina* sp.	K-L	X
				Nonion sp.	K-L	
		OD-21	G-L			
	84.15-84.4	OD-29	H-L	BD-4	?L-M	X
		OD-22	H-L			
	93.1-93.35	OD-29	H-L	*Spirolina* sp.	K-L	X
	104.55-104.8	OD-31	G-L	*Alveolinella quoyi*	I-L	X
		OD-29	H-L			
	112.9-113.15			BD-7	I-M	X
	121.8-122.05			BD-10	I-L	X
				Marginopora vertebralis	I-M	
	139.4-139.65			*Alveolinella quoyi*	I-L	X
				Rotalia sp.	I-L	
	151.55-151.8			BD-10	K-L	
	154.6-154.85			BD-14	J-L	X
	160.05-160.3	OD-21	G-L			
		OD-9				
		OD-20				
	166.85-167.1	OD-21				
	169.85-170.1			BD-14	I-L	X

Table 12 (con't)

Core	Depth	Ostracodes Species	Ostracodes Zone	Foraminifers Species	Foraminifers Zone	Brown Color
	182.35					
	250.0	OD-31	G-L			
	147.75-148.0	OD-36	H-M			
		OD-29	H-L			
OCT-5	0.2-0.45	OD-29	H-L	BD-2	I-M	X
		OD-36	H-L			
	8.8-9.05			BD-19	I-L	X
		OD-29	H-L			
	17.5-17.75	OD-21	G-L			
	57.55-57.8	OD-21	G-L	BD-42	E-G	

surface throughout the OAK crater and they are most common immediately adjacent to ground zero and near the crater bowl.

Grain size: Ostracodes and benthic foraminifers are generally 0.3 to 1.2 millimeters in length or diameter. Specimens believed to be piped were generally 0.5 to 1.0 millimeters.

Preservation: Specimens were unusually clean of the usual sedimentary debris that typically adheres to shells of atoll microfaunas. Two samples from a presumed dike at depths 146 to 150 feet in OFT-8 contained specimens that were exceptionally clean as though they had been washed extensively. The foraminifers from the dike represent zones KK through LL. Assemblages taken from in situ material above and below the dike represent zones EE and FF respectively.

Color: At Enewetak specimens of microfossils from zones AA through GG are generally white to translucent while those from JJ through KK are usually stained light brown. Leopold (1969) discussed the pollen from Enewetak cores and observed color changes in the same stratigraphic intervals as the present zones JJ through KK. A detailed description of the brown organic interval is contained in Henry, Wardlaw and others (in press). Some specimens in the upper 150 feet of OBZ-4 and OCT-5 are obviously brown in color, adding to the taxonomic evidence that they originated in zones KK through LL. Foraminifers are brown stained in the dike in OFT-8 at 146 to 150 feet.

Origin: It should be noted in Table 12 that some species have ranges from zones GG and HH, while others are limited to Zone II and deeper. At present we cannot determine the precise origin of most of the anomalous specimens. To do this would require a sophisticated analysis of the mixed faunas, including processing of many more samples, obtaining increased numbers of specimens and performing statistical testing. More detailed comparison with the stratigraphic distributions in reference boreholes OOR-17 and OAR-2/2A would also be warranted.

From the various lines of evidence given above, we conclude that the deep zone specimens in the upper part of OAK cores represent sand-sized material that has been piped up from below about 500 feet due to the effects of the event. Alternative explanations such as sample contamination were rejected by the following procedures.

First, shipboard laboratory contamination had to be eliminated as a possibility. Additional samples from the upper 100 feet were carefully processed shipboard and the occurrences of deep zone species were replicated. Additional samples were analysed in Reston under better conditions and the results show that the anomalous specimens did not come from the laboratory procedures.

Second, the possibility was considered that species were identified incorrectly. This was eliminated as several taxonomic specialists examined the same material and compared it with the literature. The identifications were confirmed in all cases. The specimens are morphologically indistinguishable from those specimens from zones JJ through LL in the reference core material.

Third, the possibility that the biostratigraphic ranges were incorrect and that these occurrences actually represent true extensions of species stratigraphic ranges was entertained. This was refuted by two lines of evidence. A second group of fossils was examined, the benthic foraminifers, which provided strong evidence in many samples for the occurrences of species restricted to Zones II through LL. The possibility that many species in both groups could have incorrect ranges is virtually impossible because the ranges are so well documented by the 1985 reference boreholes and, in the case of the foraminifers, from previous Enewetak drilling.

In addition to re-examining the stratigraphic ranges at Enewetak, material from other Tertiary sections and modern faunas in the Pacific was examined both from collections and the published literature to determine the ranges in other regions and thus whether any of the deeper zone species were extant. The results show that most of these species have been extinct in other regions since the Pliocene and therefore could not have migrated into Enewetak during the Pleistocene (ie., the last 1.8 million years equivalent to the age of the upper 150 feet of sediment at Enewetak).

In summary, there are no geological or biological processes to account for the anomalous specimens occurring in the upper parts of OBZ-4 and OCT-5 or in the brown dike at OFT-8. The present study leads to the conclusion that these specimens were transported upsection from below about 500 feet.

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Appendix 1: TRACK files

The following are printouts of the Enewetak TRACK files listing all paleontologic samples taken giving the following information for each: borehole name/number, depths of sample (if no depth 2 is given it is 0.25 feet below depth 1, the standard sampling interval), whether it was a stratigraphic disconformity or not (dscf), processing location (enep= on ship at Enewetak, rstp= at Reston), which of five fossil groups were studied (opk= ostracodes, bpk= benthic foraminifers, ppk= planktic foraminifers, lpk= larger foraminifers, nbp= nannofossils). X means a sample was analyzed, Q means a preliminary analysis was performed. N means sample was taken for nannofossil processing only. B means a sample was barren of that fossil group.

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEF	RSTF	OPK	BPK	PPK	LPK	NBP
KAR-1	0.00	8.00	.	X	.	X	.	.	.	.
KAR-1	7.00	7.80	.	X	.	X	X	.	.	.
KAR-1	9.25	9.75	.	X	.	X	X	.	.	.
KAR-1	10.75	11.65	.	X	.	.	.	.	.	.
KAR-1	13.55	14.40	.	X	.	X	X	X	.	.
KAR-1	18.75	19.85	.	X	.	X	X	X	.	X
KAR-1	25.75	27.75	.	X	.	X	.	.	.	.
KAR-1	30.25	32.25	.	X	.	X	X	X	.	.
KAR-1	36.00	36.25	.	X	.	X	X	.	.	.
KAR-1	41.75	42.25	.	X	.	X	X	.	.	.
KAR-1	45.55	0.00	X	~	~	~	~	~	~	~
KAR-1	46.25	46.50	.	X	.	X	X	X	.	.
KAR-1	47.65	47.90	.	X	.	X	X	.	.	.
KAR-1	50.25	51.95	.	X	.	X	X	.	.	.
KAR-1	54.85	55.85	.	X	.	X	X	.	.	.
KAR-1	56.95	0.00	.	X	.	X	X	X	.	.
KAR-1	60.40	0.00	.	X	.	X	X	.	.	X
KAR-1	66.25	67.25	.	X	.	X	X	.	.	.
KAR-1	69.80	0.00	.	X	.	X	X	.	.	X
KAR-1	70.00	0.00	X	~	~	~	~	~	~	
KAR-1	76.25	76.95	.	*	N	.	.	.	.	X
KAR-1	79.75	80.45	.	X	.	X	X	X	.	.
KAR-1	91.75	0.00	X	~	~	~	~	~	~	
KAR-1	95.40	0.00	.	X	.	X	X	.	.	X
KAR-1	99.75	0.00	.	X	.	Q	X	X	.	X
KAR-1	104.00	0.00	.	X	.	Q	.	.	.	X
KAR-1	105.90	0.00	.	X	.	X	X	.	.	X
KAR-1	105.90	0.00	X	~	~	~	~	~	~	~
KAR-1	115.90	0.00	.	X	.	Q	X	.	.	.
KAR-1	116.50	0.00	.	*	*	*	*	*	*	X
KAR-1	117.60	0.00	.	X	.	X	.	.	.	.
KAR-1	125.20	0.00	.	X	.	.	X	.	.	X
KAR-1	131.00	0.00	.	X	.	X	X	X	.	.
KAR-1	131.60	0.00	X	~	~	~	~	~	~	~
KAR-1	132.00	0.00	.	.	X	.	.	.	.	X
KAR-1	142.30	0.00	.	X	.	Q	X	.	.	.
KAR-1	143.30	0.00	.	X	.	Q	X	.	.	X
KAR-1	144.00	0.00	.	*	*	*	*	*	*	X
KAR-1	150.80	0.00	.	X	.	X	X	.	.	.
KAR-1	151.80	0.00	.	*	*	*	*	*	*	X
KAR-1	157.65	0.00	X	~	~	~	~	~	~	
KAR-1	171.90	0.00	.	X	X	X	X	.	.	X
KAR-1	177.00	0.00	X	~	~	~	~	~	~	
KAR-1	177.40	177.85	.	X	.	X	.	.	.	X
KAR-1	178.50	0.00	.	.	X	X	X	X	.	X
KAR-1	182.50	0.00	.	X	.	X	X	.	.	X
KAR-1	189.40	0.00	.	*	N	*	*	*	*	X
KAR-1	192.60	0.00	.	X	.	X	X	X	.	X
KAR-1	196.90	0.00	.	.	X	X	X	X	.	X
KAR-1	203.00	0.00	.	X	.	X	X	X	.	X

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KAR-1	208.00	0.00	.	X	.	X	X	X	.	X
KAR-1	212.40	0.00	.	X	.	X	X	.	.	X
KAR-1	215.80	0.00	X	~	~	~	~	~	~	.
KAR-1	222.40	0.00	.	X	.	X	X	X	.	.
KAR-1	223.00	0.00	.	X	.	X	X	.	.	X
KAR-1	223.50	0.00	X	~	~	~	~	~	~	X
KAR-1	230.30	230.90	.	X	.	X	X	X	.	X
KAR-1	231.80	0.00	X	~	~	~	~	~	~	.
KAR-1	238.00	0.00	.	X	.	X	X	.	.	X
KAR-1	239.65	0.00	.	X	.	X	X	X	.	X
KAR-1	240.60	0.00	X	~	~	~	~	~	~	
KAR-1	245.40	0.00	.	X	.	X	X	.	.	X
KAR-1	255.00	0.00	.	X	.	.	X	X	.	.
KAR-1	262.00	0.00	.	X	.	.	X	.	.	.
KAR-1	262.80	0.00	.	X	.	.	.	.	.	X
KAR-1	264.00	265.00	.	X	.	.	X	X	.	.
KAR-1	273.85	0.00	.	X	.	.	X	.	.	.
KAR-1	278.90	0.00	X	~	~	~	~	~	~	
KAR-1	282.20	0.00	.	X	.	X	X	.	.	X
KAR-1	283.30	0.00	.	X	.	X	X	X	.	X
KAR-1	298.20	299.50	.	X	.	X	X	.	.	.
KAR-1	311.20	311.50	.	X	.	X	.	.	.	.
KAR-1	319.80	0.00	X	~	~	~	~	~	~	
KAR-1	321.00	0.00	.	X	.	X	X	B	.	.
KAR-1	339.10	0.00	.	.	X	.	.	.	.	X
KAR-1	345.50	0.00	.	.	X	.	.	.	.	.
KAR-1	348.50	0.00	.	X	X	.	.	.	.	X
KAR-1	366.40	0.00	.	.	X	.	.	.	.	X
KAR-1	383.30	0.00	.	*	N	*	*	*	*	.
KAR-1	385.70	0.00	X	~	~	~	~	~	~	
KAR-1	397.40	0.00	.	.	X	.	.	.	.	X
KAR-1	423.90	0.00	.	.	X	.	.	.	.	X
KAR-1	442.40	0.00	.	.	X	.	.	.	.	X
KAR-1	448.00	448.80	.	.	X	.	.	.	.	X
KAR-1	460.50	0.00	.	.	X	.	.	.	.	X
KAR-1	481.80	482.00	.	.	X	.	.	.	.	X
KAR-1	482.00	0.00	X	~	~	~	~	~	~	
KAR-1	483.10	483.40	.	.	X	.	.	.	B	X
KAR-1	495.80	0.00	.	.	X	.	.	.	B	X
KAR-1	537.40	538.00	.	X	.	X	.	.	X	.
KAR-1	539.20	540.30	X	X	.	X	.	.	X	.
KAR-1	541.60	542.60	.	X	.	X	.	.	X	.
KAR-1	548.50	550.10	.	X	.	X	.	.	X	.
KAR-1	551.80	552.80	.	.	X	X	X	X	X	X
KAR-1	554.80	555.80	.	X	.	X	.	.	X	.
KAR-1	555.70	0.00	X	~	~	~	~	~	~	
KAR-1	557.40	0.00	.	X	X	X	X	X	B	X
KAR-1	561.60	0.00	X	~	~	~	~	~	~	
KAR-1	561.40	561.90	.	.	X	X	X	X	B	X
KAR-1	568.90	569.15	.	X	X	X	X	.	B	X

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KAR-1	575.10	575.30	.	.	X	X	X	X	B	X
KAR-1	584.30	584.55	.	X	.	X	.	.	X	.
KAR-1	590.60	590.80	.	X	.	X	.	.	X	.
KAR-1	591.00	591.25	.	.	X	X	X	X	X	X
KAR-1	591.90	0.00	.	.	X	.	.	.	X	X
KAR-1	604.35	604.60	.	.	X	X	X	X	B	X
KAR-1	606.30	606.80	.	.	X	X	X	X	B	X
KAR-1	613.25	614.35	.	.	X	X	X	X	B	X
KAR-1	616.20	617.35	.	.	X	X	X	.	B	X
KAR-1	626.40	626.90	.	.	X	X	X	.	B	X
KAR-1	634.90	635.50	.	.	X	X	X	.	B	X
KAR-1	635.50	635.75	.	.	X	X	X	.	B	X
KAR-1	644.50	645.60	.	X	.	X	X	.	B	.
KAR-1	654.70	655.50	.	.	X	X	X	.	B	X
KAR-1	656.75	657.00	.	.	X	.	.	.	B	X
KAR-1	665.60	665.85	.	.	X	X	X	.	B	X
KAR-1	670.00	670.25	.	.	X	.	.	.	X	X
KAR-1	679.70	679.95	.	.	X	X	X	.	B	X
KAR-1	689.40	0.00	X	~	~	~	~	~	~	
KAR-1	690.00	690.25	.	.	X	X	X	.	B	X
KAR-1	692.50	692.75	.	X	.	X	X	.	B	.
KAR-1	697.00	697.25	.	.	X	X	X	.	B	X
KAR-1	700.00	700.25	.	*	N	*	*	*	*	.
KAR-1	702.35	702.60	.	.	X	.	.	.	X	X
KAR-1	705.25	705.50	.	.	X	X	X	B	B	X
KAR-1	713.35	713.60	.	.	X	.	.	.	B	X
KAR-1	718.25	718.50	.	X	.	X	.	.	B	.
KAR-1	722.50	722.75	.	.	X	X	X	X	X	X
KAR-1	727.00	727.50	.	.	X	X	X	.	X	X
KAR-1	732.20	732.80	.	.	X	.	.	.	B	X
KAR-1	735.45	735.70	.	.	X	X	X	.	X	X
KAR-1	738.25	738.50	.	.	X	X	X	X	.	X
KAR-1	741.00	741.25	.	.	X	.	.	.	.	X
KAR-1	743.75	744.00	.	X	.	X	.	.	X	.
KAR-1	747.20	747.45	.	.	X	.	.	.	.	X
KAR-1	753.60	753.85	.	.	X	X	X	.	X	X
KAR-1	757.75	758.00	.	X	.	X	.	.	.	.
KAR-1	760.50	760.75	.	.	X	.	.	.	.	X
KAR-1	763.45	763.70	.	.	X	.	.	.	B	X
KAR-1	766.45	766.70	.	X	.	X	.	.	.	.
KAR-1	769.00	769.25	.	.	X	X	X	.	.	X
KAR-1	771.55	771.80	.	.	X	.	.	.	.	X
KAR-1	775.80	776.05	.	X	.	X	.	.	.	.
KAR-1	780.65	780.90	.	.	X	X	X	.	.	X
KAR-1	783.15	783.40	.	.	X	.	.	.	.	X
KAR-1	787.60	787.85	.	.	X	.	.	.	.	X
KAR-1	790.60	790.85	.	X	.	X	.	.	.	.
KAR-1	794.50	794.75	.	.	X	X	X	.	X	X
KAR-1	798.00	798.20	.	.	X	.	.	.	.	X
KAR-1	800.00	800.20	.	.	X	X	X	.	.	X

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LFK	NBP
KAR-1	803.50	803.75	.	X	.	X	.	.	X	.
KAR-1	808.40	808.65	.	.	X	.	.	.	.	X
KAR-1	813.50	813.75	.	.	X	X	X	B	.	X
KAR-1	816.75	817.00	.	.	X	.	.	.	X	X
KAR-1	822.00	822.25	.	X	.	X	.	.	X	X
KAR-1	825.00	825.25	.	.	X	.	.	.	B	X
KAR-1	829.00	829.25	.	.	X	X	X	.	X	X
KAR-1	834.20	834.45	.	.	X	.	.	.	B	X
KAR-1	837.00	837.25	.	X	.	X	.	.	B	.
KAR-1	839.75	840.00	.	.	X	X	X	.	B	X
KAR-1	843.75	844.00	.	X	.	X	.	.	B	.
KAR-1	846.90	847.15	.	.	X	X	.	.	B	X
KAR-1	848.75	849.00	.	X	.	X	.	.	B	.
KAR-1	851.75	852.00	.	.	X	X	X	.	B	X
KAR-1	854.50	854.75	.	X	.	X	.	.	B	.
KAR-1	858.55	858.80	.	.	X	X	.	.	B	X
KAR-1	861.60	861.85	.	X	.	X	.	.	B	.
KAR-1	865.80	866.05	.	.	X	X	X	X	B	X
KAR-1	869.50	869.75	.	X	.	X	.	.	.	X
KAR-1	873.00	873.25	.	.	X	X	X	.	X	X
KAR-1	876.00	876.25	.	X	.	.	.	.	X	.
KAR-1	880.50	880.75	.	.	X	X	X	.	B	X
KAR-1	881.20	0.00	X	~	~	~	~	~	~	
KAR-1	883.50	883.75	.	X	.	X	.	.	B	.
KAR-1	887.25	887.50	.	.	X	X	X	X	B	X
KAR-1	890.00	890.20	.	X	.	.	.	.	B	X
KAR-1	893.00	893.25	.	.	X	X	X	X	B	X
KAR-1	902.75	903.00	.	X	.	X	.	.	B	.
KAR-1	903.90	0.00	X	~	~	~	~	~	~	
KAR-1	904.50	904.75	.	X	.	.	.	.	B	X
KAR-1	907.00	907.25	.	.	X	.	.	B	B	X
KAR-1	909.75	910.00	.	X	.	.	.	.	B	.
KAR-1	912.50	912.75	.	.	X	X	X	B	B	X
KAR-1	916.00	916.25	.	X	.	.	.	.	B	.
KAR-1	919.75	920.00	.	.	X	.	.	B	X	X
KAR-1	923.50	923.75	.	X	.	X	.	.	X	X
KAR-1	924.90	0.00	X	~	~	.	.	B	.	.
KAR-1	927.25	927.50	.	.	X	.	.	.	X	X
KAR-1	930.00	930.60	.	X	.	.	.	.	B	.
KAR-1	933.00	933.40	.	.	X	X	X	B	B	X
KAR-1	935.70	0.00	X	~	~	~	~	~	~	
KAR-1	936.20	936.80	.	.	X	.	.	B	B	X
KAR-1	937.50	937.75	.	X	.	.	.	.	B	.
KAR-1	942.80	0.00	X	~	~	~	~	~	~	~
KAR-1	944.10	944.35	.	.	X	.	.	B	B	X
KAR-1	949.30	949.55	.	X	.	X	.	.	B	X
KAR-1	952.40	0.00	X	~	~	~	~	~	~	
KAR-1	952.75	953.00	.	.	X	.	.	B	X	X
KAR-1	957.00	957.25	.	X	.	.	.	.	B	X
KAR-1	962.00	962.25	.	X	.	.	.	.	B	.

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KAR-1	969.80	970.00	.	X	.	.	.	.	B	.
KAR-1	974.75	975.00	.	.	X	X	X	X	B	X
KAR-1	980.00	980.25	.	X	.	.	.	.	X	X
KAR-1	985.50	985.75	.	X	.	.	.	.	X	.
KAR-1	991.15	991.40	.	X	.	.	.	.	X	X
KAR-1	994.20	994.45	.	.	X	.	X	B	B	X
KAR-1	995.30	0.00	X	~	~	~	~	~	~	
KAR-1	997.70	997.90	.	X	.	.	.	.	B	.
KAR-1	1004.20	1004.45	.	X	.	.	.	.	X	X
KAR-1	1011.80	1012.00	.	X	.	.	.	.	X	.
KAR-1	1020.75	1021.10	.	X	.	.	.	.	B	X
KAR-1	1022.60	0.00	X	~	~	~	~	~	~	
KAR-1	1024.25	1024.50	.	X	.	.	.	.	B	.
KAR-1	1024.40	0.00	X	~	~	~	~	~	~	
KAR-1	1029.25	1029.50	.	X	.	.	.	.	B	.
KAR-1	1035.80	1036.00	.	X	.	.	.	.	B	.
KAR-1	1040.00	0.00	X	~	~	~	~	~	~	
KAR-1	1044.00	1044.20	.	X	.	.	.	.	B	.
KAR-1	1049.00	1049.25	.	.	X	.	X	B	B	X
KAR-1	1057.25	1057.50	.	X	.	.	.	.	B	.
KAR-1	1062.25	1062.50	.	X	.	.	.	.	B	.
KAR-1	1064.10	0.00	X	~	~	~	~	~	~	
KAR-1	1073.00	1073.25	.	X	.	.	.	.	B	X
KAR-1	1081.50	0.00	X	~	~	~	~	~	~	
KAR-1	1082.60	1082.80	.	X	.	.	.	.	B	.
KAR-1	1083.75	1084.00	.	X	.	.	.	.	B	X
KAR-1	1089.75	1090.00	.	X	.	.	.	.	B	.
KAR-1	1096.00	1096.25	.	X	.	.	.	.	B	.
KAR-1	1102.00	1102.25	.	X	.	.	.	.	B	.
KAR-1	1104.80	1105.00	.	X	.	.	.	.	B	X
KAR-1	1111.10	1111.35	.	X	.	.	.	.	B	.
KAR-1	1111.80	0.00	X	~	~	~	~	~	~	
KAR-1	1116.50	1116.75	.	X	.	.	.	.	B	X
KAR-1	1127.00	1127.25	.	X	.	X	.	.	B	.
KAR-1	1136.00	1136.25	.	X	.	.	.	.	X	X
KAR-1	1140.00	1140.25	.	X	.	.	.	.	X	.
KAR-1	1145.50	1145.70	.	X	.	.	.	.	B	X

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KBZ-4	6.00	6.25	.	X	.	X	X	.	.	.
KBZ-4	10.90	11.20	.	X	.	.	.	.	.	.
KBZ-4	15.45	15.70	.	X	.	X	X	.	.	X
KBZ-4	20.55	20.80	.	X	.	.	.	.	.	.
KBZ-4	21.20	21.45	.	X	.	.	.	.	.	.
KBZ-4	25.80	26.05	.	X	.	X	X	.	.	X
KBZ-4	28.80	29.05	.	X	.	.	.	.	.	.
KBZ-4	31.40	31.65	.	X	.	.	.	.	.	.
KBZ-4	34.50	34.75	.	X	.	X	.	.	.	X
KBZ-4	36.50	36.75	.	X	.	.	X	.	.	.
KBZ-4	39.20	39.45	.	X	.	X	X	.	.	.
KBZ-4	43.60	43.85	.	X	.	.	X	.	.	.
KBZ-4	48.60	48.85	.	X	.	X	X	.	.	X
KBZ-4	53.80	54.05	.	X	.	.	X	.	.	.
KBZ-4	63.25	63.50	.	X	.	.	X	.	.	X
KBZ-4	73.30	73.55	.	X	.	X	X	.	.	.
KBZ-4	78.50	78.75	.	X	.	X	X	.	.	X
KBZ-4	83.15	83.40	.	X	.	.	X	.	.	.
KBZ-4	93.00	93.15	.	X	.	X	X	.	.	.
KBZ-4	103.20	103.45	.	X	.	X	X	.	.	.
KBZ-4	109.10	109.35	.	X	.	.	.	.	.	X
KBZ-4	118.05	118.30	.	X	.	X	X	X	.	X
KBZ-4	123.75	124.00	.	X	.	X	X	.	.	X
KBZ-4	128.85	129.10	.	X	.	X	X	X	.	X
KBZ-4	133.05	133.30	.	X	.	X	X	X	.	X
KBZ-4	137.50	137.75	.	X	.	X	X	X	.	X
KBZ-4	142.60	142.85	.	X	.	X	X	X	.	X
KBZ-4	147.25	147.50	.	X	.	X	X	X	.	X
KBZ-4	151.80	152.05	.	X	.	X	X	X	.	X
KBZ-4	156.95	157.20	.	X	.	X	X	.	.	X
KBZ-4	161.85	162.10	.	X	.	.	X	.	.	X
KBZ-4	166.90	167.15	.	X	.	X	X	.	.	X
KBZ-4	172.30	172.55	.	X	.	.	X	.	.	X
KBZ-4	177.10	177.35	.	X	.	X	X	.	.	X
KBZ-4	182.10	182.35	.	X	.	X	X	X	.	X
KBZ-4	187.40	187.65	.	X	.	X	X	X	.	X
KBZ-4	192.00	192.25	.	X	.	X	X	X	.	X
KBZ-4	194.65	194.90	.	X	.	X	X	X	.	X
KBZ-4	201.70	201.95	.	X	.	X	X	X	.	X
KBZ-4	206.20	206.45	.	X	.	X	X	X	.	X
KBZ-4	211.50	211.75	.	X	.	X	X	X	.	X
KBZ-4	216.00	216.25	.	X	.	X	.	X	.	X
KBZ-4	220.50	220.75	.	X	.	X	X	X	.	X
KBZ-4	225.80	226.05	.	X	.	X	X	X	.	X
KBZ-4	230.80	231.05	.	X	.	.	X	X	.	X
KBZ-4	234.90	0.00	X	~	~	~	~	~	~	
KBZ-4	235.15	235.40	.	X	.	.	X	.	.	X
KBZ-4	240.60	240.85	.	X	.	X	.	X	.	X
KBZ-4	246.10	246.35	.	X	.	X	X	X	.	X
KBZ-4	247.10	0.00	X	~	~	~	~	~	~	

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KBZ-4	251.65	251.90	.	X	.	X	X	X	.	X
KBZ-4	257.10	257.35	.	X	.	.	X	X	.	X
KBZ-4	259.50	0.00	X	~	~	~	~	~	~	
KBZ-4	268.10	268.35	.	X	.	X	X	X	.	X
KBZ-4	273.50	273.75	.	X	.	X	X	X	.	X
KBZ-4	292.30	0.00	X	~	~	~	~	~	~	
KBZ-4	295.90	296.15	.	X	.	X	X	X	.	X
KBZ-4	300.55	300.80	.	X	.	X	.	X	.	X
KBZ-4	305.10	305.35	.	X	.	X	X	.	.	X
KBZ-4	309.95	310.20	.	X	.	.	X	.	.	X
KBZ-4	315.40	0.00	X	~	~	~	~	~	~	
KBZ-4	315.60	0.00	.	*	*	*	*	*	*	X
KBZ-4	319.00	319.25	.	X	.	X	X	.	.	X
KBZ-4	325.30	325.55	.	X	.	X	X	.	.	X
KBZ-4	332.50	332.75	.	X	.	X	.	X	.	X
KBZ-4	335.75	336.00	.	X	.	X	X	.	.	X
KBZ-4	339.30	339.55	.	X	.	X	X	.	.	X
KBZ-4	352.50	352.75	.	X	.	X	X	.	.	X
KBZ-4	370.60	370.85	.	X	.	.	X	.	.	X
KBZ-4	371.60	0.00	X	~	~	~	~	~	~	
KBZ-4	386.30	386.55	.	.	X	X	X	.	.	X
KBZ-4	400.20	400.45	.		X	X	X	.	B	X
KBZ-4	429.80	430.05	.	X	.	.	.	.	.	.
KBZ-4	459.75	460.00	.		X	X	X	.	B	X
KBZ-4	489.60	489.85	.		X	X	.	.	B	X
KBZ-4	521.10	521.35	.	X	.	X	X	X	X	X
KBZ-4	555.20	555.45	.	X	.	X	X	X	X	X
KBZ-4	559.40	559.65	.	X	.	X	.	.	.	.
KBZ-4	561.40	561.65	.	X	.	X	X	X	X	X
KBZ-4	565.25	565.50	.	X	.	X	.	.	X	X
KBZ-4	569.15	569.40	.	X	.	.	.	.	X	X
KBZ-4	575.30	575.55	.	X	.	X	X	X	B	X
KBZ-4	591.70	591.95	.	X	.	X	X	X	X	X
KBZ-4	601.35	601.60	.	.	X	.	.	.	B	.
KBZ-4	610.70	610.95	.	.	X	X	X	.	B	X
KBZ-4	621.50	621.75	.	X	.	X	.	.	.	X
KBZ-4	632.80	633.05	.	.	X	X	X	B	X	X
KBZ-4	644.25	644.50	.	.	X	X	.	.	B	X
KBZ-4	654.30	654.55	.	X	.	X	X	.	.	X
KBZ-4	665.35	665.60	.	.	X	X	X	X	X	X
KBZ-4	674.35	674.60	.	.	X	X	X	X	X	X
KBZ-4	685.50	685.75	.	.	X	.	.	.	B	.
KBZ-4	696.00	696.25	.	.	X	X	X	B	B	X
KBZ-4	708.20	708.35	.	X	.	X	.	.	.	X
KBZ-4	718.95	719.20	.	.	X	X	.	.	X	X
KBZ-4	728.15	728.30	.	.	X	X	X	X	X	X
KBZ-4	738.00	738.25	.	.	X	X	X	B	B	X
KBZ-4	742.00	0.00	X	~	~	~	~	~	~	
KBZ-4	743.80	0.00	.	.	.	.	.	.	.	.
KBZ-4	745.90	746.15	.	.	X	.	.	B	B	X

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KBZ-4	750.60	750.85	.	X	.	X	.	.	.	X
KBZ-4	755.60	755.85	.	.	X	.	X	B	X	X
KBZ-4	760.10	760.35	.	.	X	.	.	.	X	.
KBZ-4	765.00	765.25	.	.	X	X	.	.	X	X
KBZ-4	772.55	772.80	.	X	.	X	.	.	.	X
KBZ-4	777.15	777.30	.	.	X	.	X	X	X	X
KBZ-4	780.25	780.50	.	.	X	.	.	.	X	.
KBZ-4	785.70	785.90	.	.	X	X	.	.	B	X
KBZ-4	789.80	790.05	.	X	.	X	.	.	.	.
KBZ-4	794.20	794.45	.	.	X	.	.	.	B	.
KBZ-4	794.50	0.00	X	~	~	~	~	~	~	
KBZ-4	795.30	795.55	.	.	X	X	.	.	B	X
KBZ-4	800.50	800.75	.	.	X	.	X	.	B	X
KBZ-4	806.85	807.10	.	X	.	X	.	.	.	.
KBZ-4	811.70	811.95	.	.	X	.	X	.	X	X
KBZ-4	815.10	815.35	.	.	X	.	.	.	B	.
KBZ-4	820.15	820.40	.	.	.	.	.	.	.	X
KBZ-4	825.00	825.25	.	X	.	X	.	.	.	X
KBZ-4	829.00	829.25	.	.	X	.	X	.	X	X
KBZ-4	831.50	0.00	X	~	~	~	~	~	~	
KBZ-4	834.50	834.75	.	.	X	.	.	.	B	.
KBZ-4	839.40	839.65	.	.	X	X	X	.	B	X
KBZ-4	845.00	845.25	.	X	.	X	.	.	.	X
KBZ-4	850.05	850.30	.	.	X	X	.	.	B	X
KBZ-4	854.50	854.75	.	.	X	.	.	.	X	.
KBZ-4	860.00	860.25	.	.	X	X	.	.	X	X
KBZ-4	864.10	864.35	.	.	X	X	X	X	X	X
KBZ-4	864.40	0.00	X	~	~	~	~	~	~	
KBZ-4	865.45	865.70	.	X	.	.	.	.	.	.
KBZ-4	869.00	869.25	.	X	.	X	.	.	.	X
KBZ-4	869.90	0.00	X	~	~	~	~	~	~	
KBZ-4	875.50	875.75	.	X	.	X	.	.	.	X
KBZ-4	877.20	0.00	X	~	~	~	~	~	~	
KBZ-4	880.00	880.25	.	X	.	.	X	.	.	X
KBZ-4	885.00	885.25	.	X	.	.	.	.	.	.
KBZ-4	889.20	0.00	X	~	~	~	~	~	~	
KBZ-4	888.70	889.00	.	X	.	X	.	.	.	X
KBZ-4	895.10	895.35	.	X	.	.	.	.	.	.
KBZ-4	898.85	899.10	.	X	.	.	X	.	.	X
KBZ-4	904.60	904.85	.	.	X	.	.	.	B	.
KBZ-4	909.25	909.50	.	.	X	.	.	.	B	.
KBZ-4	909.50	0.00	X	~	~	~	~	~	~	
KBZ-4	915.40	915.65	.	.	X	.	.	.	X	.
KBZ-4	915.80	0.00	X	~	~	~	~	~	~	
KBZ-4	920.00	920.25	.	X	.	.	X	.	.	X
KBZ-4	924.55	924.80	.	.	X	.	.	.	X	.
KBZ-4	930.00	930.25	.	.	X	.	.	.	X	X
KBZ-4	932.80	0.00	X	~	~	~	~	~	~	
KBZ-4	934.85	935.10	.	.	X	.	.	.	X	.
KBZ-4	944.50	944.75	.	X	.	X	X	.	.	X

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KBZ-4	949.30	949.55	.	.	X	.	.	.	X	.
KBZ-4	955.60	955.85	.	.	X	.	.	.	B	X
KBZ-4	961.40	961.65	.	.	X	.	.	.	B	.
KBZ-4	966.85	967.10	.	X	.	X	X	.	.	X
KBZ-4	972.30	972.55	.	.	X	.	.	.	X	.
KBZ-4	976.10	976.35	.	.	X	.	.	.	X	X
KBZ-4	980.15	980.40	.	.	X	.	.	.	X	.
KBZ-4	980.50	0.00	X	~	~	~	~	~	~	
KBZ-4	983.75	984.40	.	X	.	X	X	.	.	X
KBZ-4	985.25	0.00	X	~	~	~	~	~	~	
KBZ-4	988.10	988.35	.	.	.	.	.	.	.	.
KBZ-4	993.40	993.65	.	X	.	X	.	.	.	X
KBZ-4	996.20	996.45	.	.	X	.	.	.	X	.
KBZ-4	997.90	0.00	X	~	~	~	~	~	~	
KBZ-4	1005.75	1006.00	.	X	.	X	X	.	.	X
KBZ-4	1009.00	1009.25	.	X	.	X	.	.	.	X
KBZ-4	1009.10	0.00	.	*	*	*	*	*	*	.
KBZ-4	1027.30	1027.55	.	.	X	X	.	.	B	X
KBZ-4	1031.60	1031.85	.	.	X	.	.	.	B	.
KBZ-4	1041.00	1041.25	.	.	X	.	.	.	X	X
KBZ-4	1044.75	1045.00	.	.	X	X	X	.	X	X

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KCT-5	0.00	0.25	.	X	.	X	.	.	.	.
KCT-5	6.00	6.25	.	.	X	.	.	.	.	.
KCT-5	10.05	10.30	.	X	.	X	.	.	.	.
KCT-5	15.00	15.25	.	.	X	.	.	.	.	.
KCT-5	23.50	23.90	.	X	.	X	X	.	.	X
KCT-5	32.70	32.95	.	X	.	X	.	.	.	.
KCT-5	38.90	39.15	.	X	.	.	.	.	.	.
KCT-5	42.75	43.00	.	.	X	X	X	.	.	X
KCT-5	49.65	49.90	.	X	.	X	.	.	.	.
KCT-5	52.30	52.55	.	.	X	.	.	.	.	.
KCT-5	61.00	61.25	.	X	.	X	.	.	.	.
KCT-5	65.80	66.05	.	.	X	X	X	.	.	X
KCT-5	70.25	70.50	.	X	.	X	X	.	.	.
KCT-5	78.00	78.25	.	.	X	.	.	.	.	.
KCT-5	84.20	84.45	.	X	.	X	.	.	.	.
KCT-5	89.75	90.00	.	.	X	.	.	.	.	.
KCT-5	96.20	96.45	.	.	X	X	X	.	.	X
KCT-5	101.75	102.00	.	.	X	.	.	.	.	.
KCT-5	108.10	108.35	.	X	.	X				.
KCT-5	114.55	114.80	.	.	X	X	X	.	.	X
KCT-5	120.80	121.05	.	.	X	X	X	.	.	X
KCT-5	124.15	124.40	.	.	X	.	.	.	.	.
KCT-5	130.75	131.00	.	X	.					.
KCT-5	136.60	136.85	.	.	X	X	X	.	.	X
KCT-5	140.10	140.35	.	X	.	X	X			X
KCT-5	144.75	145.00	.	.	X	X	X	.	.	X
KCT-5	149.50	149.75	.	X	.	X	X	.	.	.
KCT-5	155.20	155.45	.	.	X	X	X	.	.	X
KCT-5	161.00	0.00	X	~	~	~	~	~	~	
KCT-5	161.20	161.45	.	.	X	X	X	.	.	X
KCT-5	164.90	165.15	.	.	X	X	X	.	.	X
KCT-5	170.50	170.75	.	X	.	X	X	.	.	.
KCT-5	175.60	175.85	.	.	X	X	X	.	.	X
KCT-5	181.10	181.35	.	.	X	X	X	.	.	X
KCT-5	186.60	186.85	.	.	X	X	X	.	.	X
KCT-5	190.10	190.35	.	X	.	X	X	.	.	.
KCT-5	195.75	196.00	.	.	X	X	X	.	.	X
KCT-5	201.50	0.00	X	~	~	~	~	~	~	
KCT-5	201.75	202.00	.	X	.	X	X	.	.	X
KCT-5	204.70	0.00	X	~	~	~	~	~	~	
KCT-5	206.25	206.50	.	.	X	X	X	.	.	X
KCT-5	211.30	211.55	.	.	X	X	X	.	.	X
KCT-5	214.40	214.65	.	X	.	X	X	.	.	.
KCT-5	217.80	0.00	X	~	~	~	~	~	~	
KCT-5	220.60	220.85	.	.	X	X	X	.	.	X
KCT-5	227.25	227.50	.	.	X	X	X	.	.	X
KCT-5	231.00	231.25	.	.	X	X	X	.	.	X
KCT-5	236.65	236.90	.	X	.	X	X	.	.	X
KCT-5	241.00	241.25	.	.	X	.	.	X	.	.
KCT-5	246.35	246.60	.	.	X	X	X	.	.	X

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KCT-5	252.25	252.50	.	.	X	X	X	.	.	X
KCT-5	257.55	257.80	.	X	.	X	X	.	.	X
KCT-5	266.50	0.00	X	~	~	~	~	~	~	
KCT-5	267.55	267.80	.	.	X	X	X	.	.	X
KCT-5	279.80	280.05	.	.	X	X	X	.	.	X
KCT-5	283.80	0.00	X	~	~	~	~	~	~	
KCT-5	286.75	287.00	.	.	X	X	X	.	.	X
KCT-5	292.45	292.70	.	X	.	X	X	X	.	X
KCT-5	295.70	0.00	X	~	~	~	~	~	~	
	0.00	0.00								

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KDT-6	3.50	3.75	.	.	X	X	X	.	.	X
KDT-6	9.30	9.55	.	.	X	X	X	X	.	X
KDT-6	15.25	15.50	.	.	X	X	X	.	.	X
KDT-6	21.10	21.35	.	.	X	X	X	.	.	X
KDT-6	24.50	24.75	.	.	X	X	X	.	.	X
KDT-6	29.75	30.00	.	X	.	X	X	.	.	X
KDT-6	36.30	36.55	.	X	.	X	X	.	.	X
KDT-6	43.55	43.80	.	X	.	X	X	.	.	X
KDT-6	53.90	0.00	X	~	~	~	~	~	~	
KDT-6	54.55	54.80	.	X	.	X	X	.	.	X
KDT-6	58.25	58.50	.	X	.	X	X	.	.	X
KDT-6	67.75	68.00	.	.	X	X	X	.	.	X
KDT-6	76.00	76.25	.	.	X	X	X	X	.	X
KDT-6	81.50	81.75	.	.	X	X	X	X	.	X
KDT-6	85.35	85.60	.	X	.	X	X	.	.	X
KDT-6	87.60	0.00	X	~	~	~	~	~	~	
KDT-6	90.10	90.35	.	X	.	X	X	.	.	X
KDT-6	95.50	95.75	.	.	X	X	X	.	.	X
KDT-6	100.05	100.30	.	.	X	X	X	.	.	X
KDT-6	105.00	105.25	.	.	X	X	X	.	.	X
KDT-6	110.30	110.55	.	.	X	X	X	.	.	X
KDT-6	110.60	0.00	X	~	~	~	~	~	~	
KDT-6	115.65	115.90	.	.	X	X	X	.	.	X
KDT-6	122.30	122.55	.	.	X	X	X	.	.	X

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KET-7	6.80	0.00	.	.	X	X	X	.	.	X
KET-7	12.55	12.80	.	.	X	X	X	.	.	X
KET-7	18.00	18.25	.	X	.	X	X	.	.	X
KET-7	28.30	28.55	.	X	.	X	X	.	.	X
KET-7	36.25	36.50	.	X	.	X	X	.	.	X
KET-7	41.15	41.40	.	X	.	X	X	.	.	X

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KFT-8	4.40	4.65	.	.	X	.	X	.	.	.
KFT-8	9.50	9.75	.	.	X	.	X	.	.	X
KFT-8	15.75	16.00	.	.	X	.	.	.	.	.
KFT-8	20.00	20.25	.	.	X	.	.	.	.	.
KFT-8	28.50	28.75	.	.	X	X	X	.	.	X
KFT-8	34.50	34.75	.	X	.	.	.	.	.	.
KFT-8	38.40	38.65	.	X	.	.	X	.	.	X
KFT-8	53.75	54.00	.	.	X	X	X	.	.	X
KFT-8	60.20	60.45	.	.	X	.	.	.	.	.
KFT-8	63.75	64.00	.	.	X	.	.	.	.	.
KFT-8	70.00	70.25	.	X	.	.	X	.	.	X
KFT-8	76.00	76.25	.	.	X	X	X	.	.	X
KFT-8	79.95	80.20	.	.	X	.	.	.	.	.
KFT-8	84.10	84.35	.	X	.	.	.	.	.	.
KFT-8	89.70	89.95	.	.	X	X	X	.	.	X
KFT-8	95.65	95.90	.	.	X	.	.	.	.	.
KFT-8	99.05	99.30	.	X	.	X	X	X	.	X
KFT-8	106.25	106.50	.	.	X	.	.	.	.	.
KFT-8	110.00	110.25	.	.	X	.	.	.	.	.
KFT-8	115.25	115.50	.	X	.	X	X	X	.	X
KFT-8	119.30	0.00	X	~	~	~	~	~	~	
KFT-8	122.50	122.75	.	.	X	.	X	.	.	X
KFT-8	128.25	128.50	.	.	X	.	.	.	.	.
KFT-8	132.50	132.75	.	.	X	X	X	.	.	X
KFT-8	138.90	0.00	X	~	~	~	~	~	~	
KFT-8	139.15	139.40	.	.	X	.	X	.	.	X
KFT-8	145.75	146.00	.	.	X	.	.	.	.	.
KFT-8	152.50	152.75	.	.	X	X	X	.	.	X
KFT-8	155.30	0.00	X	~	~	~	~	~	~	
KFT-8	158.60	158.85	.	.	X	.	X	.	.	X
KFT-8	164.10	164.35	.	.	X	.	.	.	.	.
KFT-8	169.95	170.20	.	.	X	.	X	.	.	X
KFT-8	175.35	175.60	.	.	X	X	X	.	.	X
KFT-8	179.60	0.00	X	~	~	~	~	~	~	
KFT-8	182.75	183.00	.	X	.	X	X	.	.	X
KFT-8	187.75	188.00	.	X	.	.	X	.	.	X
KFT-8	190.50	0.00	X	~	~	~	~	~	~	
KFT-8	193.60	193.85	.	.	X	X	X	.	.	X
KFT-8	198.75	199.00	.	.	X	.	X	.	.	X
KFT-8	202.00	202.25	.	X	.	X	X	.	.	X
KFT-8	208.40	0.00	X	~	~	~	~	~	~	
KFT-8	211.70	211.95	.	.	X	X	X	.	.	X
KFT-8	215.65	215.90	.	.	X	.	.	.	.	.
KFT-8	219.25	219.50	.	.	X	.	.	.	.	.
KFT-8	224.82	225.05	.	.	X	X	.	.	.	X
KFT-8	231.30	231.55	.	.	X	.	.	.	.	.
KFT-8	241.20	241.45	.	.	X	X	X	.	.	X
KFT-8	247.05	247.30	.	.	X	.	.	.	.	.
KFT-8	251.50	251.75	.	.	X	X	X	.	.	X
KFT-8	257.80	258.05	.	.	X	.	.	.	.	.

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BORE HOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
KFT-8	263.20	263.45	.	.	X	X	X	.	.	X
KFT-8	273.40	273.65	.	.	X	.	.	.	.	.
KFT-8	279.75	280.00	.	.	X	.	X	.	.	X
KFT-8	289.00	289.25	.	.	X	X	X	.	.	X
KFT-8	294.20	0.00	X	~	~	~	~	~	~	
KFT-8	295.05	295.30	.	.	X	.	X	.	.	X
KFT-8	299.90	0.00	X	~	~	~	~	~	~	
KFT-8	303.75	304.00	.	.	X	.	.	.	.	.
KFT-8	310.85	311.10	.	.	X	X	X	X	.	X
KFT-8	317.60	0.00	X	~	~	~	~	~	~	

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OAM-1	277.50	0.00	.	X	.	X	.	.	.	.
OAM-1	286.70	0.00	.	X	.	X	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OAR-2A	0.25	0.50	.	X	.	X	.	.	.	.
OAR-2A	2.30	2.55	.	X	.	X	.	.	.	.
OAR-2A	6.00	6.25	.	X	.	X	.	.	.	.
OAR-2A	9.30	9.55	.	X	.	X	.	.	.	.
OAR-2A	11.85	12.10	.	X	.	X	.	.	.	.
OAR-2A	14.50	14.75	.	X	.	X	.	.	.	.
OAR-2A	17.10	17.35	.	X	.	X	.	.	.	.
OAR-2A	20.80	21.05	.	X	.	X	X	.	.	.
OAR-2A	22.75	23.00	.	X	.	X	.	.	.	.
OAR-2A	23.75	24.00	.	X	.	X	X	.	.	.
OAR-2A	25.70	0.00	X	~	~	~	~			
OAR-2A	26.05	26.30	.	X	.	X	X	.	.	.
OAR-2A	31.90	32.15	.	X	.	X	X	.	.	.
OAR-2A	34.75	35.00	.	X	.	X	.	.	.	.
OAR-2A	36.80	37.05	.	.	.	.	.	.	.	.
OAR-2A	39.80	40.05	.	.	.	.	.	.	.	.
OAR-2A	40.20	40.45	.	X	.	X	X	.	.	.
OAR-2A	41.60	0.00	X	~	~	~	~			
OAR-2A	43.55	43.80	.	X	.	X	.	.	.	.
OAR-2A	62.10	0.00	X	~	~	~	~			
OAR-2A	62.85	63.10	.	X	.	X	.	.	.	.
OAR-2A	65.00	65.30	.	.	.	.	.	.	.	.
OAR-2A	72.60	72.85	.	.	.	.	.	.	.	.
OAR-2A	74.80	75.05	.	X	.	X	X	.	.	.
OAR-2A	81.30	81.55	.	.	.	.	.	.	.	.
OAR-2A	90.40	90.65	.	X	.	X	X	X	.	.
OAR-2A	90.70	0.00	X	~	~	~	~			
OAR-2A	95.80	96.05	.	X	.	X	X	.	.	.
OAR-2A	106.05	106.30	.	X	.	.	.	.	.	.
OAR-2A	115.10	115.35	.	X	.	X	X	.	.	.
OAR-2A	126.60	0.00	X	~	~	~	~			
OAR-2A	127.80	128.05	.	X	.	X	X	.	.	.
OAR-2A	131.70	131.95	.	.	.	.	.	.	.	.
OAR-2A	134.00	134.25	.	X	.	.	.	.	.	.
OAR-2A	140.85	141.10	.	X	.	.	.	.	.	X
OAR-2A	148.90	149.15	.	.	.	.	.	.	.	.
OAR-2A	156.10	156.35	.	.	.	.	.	.	.	.
OAR-2A	157.45	157.70	.	X	.	.	.	.	.	X
OAR-2A	162.30	0.00	X	~	~	~	~			
OAR-2A	171.20	171.45	.	X	.	X	X	.	.	X
OAR-2A	175.90	0.00	X	~	~	~	~			
OAR-2A	178.40	178.65	.	.	.	.	.	.	.	.
OAR-2A	181.05	181.30	.	.	.	.	.	.	.	.
OAR-2A	184.10	184.35	.	.	.	.	.	.	.	.
OAR-2A	185.70	185.95	.	.	.	.	.	.	.	.
OAR-2A	188.25	188.50	.	X	.	X	X	X	.	X
OAR-2A	194.30	0.00	X	~	~	~	~			
OAR-2A	195.30	195.55	.	X	.	X	X	X	.	X
OAR-2A	196.30	196.55	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OAR-2A	199.50	0.00	X	~	~	~	~	~	~	~
OAR-2A	202.80	203.05	.	.	.	.	.	.	.	.
OAR-2A	204.90	205.15	.	X	.	.	.	.	.	X
OAR-2A	206.20	206.45	.	.	.	.	.	.	.	.
OAR-2A	209.60	209.85	.	.	.	.	.	.	.	.
OAR-2A	210.85	211.10	.	.	.	.	.	.	.	.
OAR-2A	212.45	212.70	.	X	.	X	X	.	.	X
OAR-2A	213.65	213.90	.	.	.	.	.	.	.	.
OAR-2A	214.50	214.75	.	.	.	.	.	.	.	.
OAR-2A	216.50	216.75	.	.	.	.	.	.	.	.
OAR-2A	218.00	218.25	.	.	.	.	.	.	.	.
OAR-2A	223.40	0.00	X	~	~	~	~	~	~	~
OAR-2A	223.90	224.15	.	X	.	.	X	.	.	.
OAR-2A	225.65	0.00	.	.	.	.	.	.	.	.
OAR-2A	226.50	226.75	.	.	.	.	.	.	.	.
OAR-2A	227.80	228.05	.	.	.	.	.	.	.	.
OAR-2A	230.00	230.25	.	.	.	.	.	.	.	.
OAR-2A	232.50	232.75	.	.	.	.	.	.	.	.
OAR-2A	234.60	234.85	.	X	.	.	X	X	.	X
OAR-2A	237.10	237.35	.	.	.	.	.	.	.	.
OAR-2A	238.65	238.90	.	.	.	.	.	.	.	.
OAR-2A	240.10	240.35	.	.	.	.	.	.	.	.
OAR-2A	241.65	241.90	.	.	.	.	.	.	.	.
OAR-2A	242.90	243.15	.	.	.	.	X	.	.	.
OAR-2A	244.55	244.80	.	X	.	.	.	X	.	X
OAR-2A	245.10	0.00	X	~	~	~	~	~	~	~
OAR-2A	245.40	245.65	.	.	.	.	.	.	.	.
OAR-2A	246.80	247.05	.	X	.	.	X	.	.	X
OAR-2A	249.00	249.25	.	.	.	.	.	.	.	.
OAR-2A	251.30	251.55	.	.	.	.	.	.	.	.
OAR-2A	263.50	263.75	.	.	.	.	.	.	.	.
OAR-2A	265.70	265.95	.	.	.	.	.	.	.	.
OAR-2A	266.70	266.95	.	.	.	.	.	.	.	.
OAR-2A	268.45	268.70	.	X	.	.	X	.	.	.
OAR-2A	270.65	270.90	.	.	.	.	.	.	.	.
OAR-2A	273.05	273.30	.	.	.	.	.	.	.	.
OAR-2A	274.25	274.50	.	.	.	.	.	.	.	.
OAR-2A	279.55	279.80	.	.	.	.	.	.	.	.
OAR-2A	280.30	280.55	.	.	.	.	.	.	.	.
OAR-2A	282.55	282.80	.	X	.	X	X	.	.	.
OAR-2A	284.10	284.35		.	.	.	.	.	.	.
OAR-2A	285.65	285.90	.	.	.	.	.	.	.	.
OAR-2A	287.30	287.55	.	.	.	.	.	.	.	.
OAR-2A	288.10	0.00	X	~	~	~	~	~	~	~
OAR-2A	289.70	289.80	.	X		X	X	X	.	.
OAR-2A	290.20	290.45	.	.	.	.	.	.	.	.
OAR-2A	295.90	296.15	.	.	.	.	.	.	.	.
OAR-2A	297.75	298.00	.	.	.	.	.	.	.	.
OAR-2A	298.40	298.65	.	X	.	.	X	X	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OAR-2A	300.10	0.00	X	~	~	~	~	~	~	~
OAR-2A	305.55	305.80	.	X	.	.	X	X	.	.
OAR-2A	309.70	309.95	.	.	.	.	.	.	.	.
OAR-2A	315.05	315.30	.	.	.	.	.	.	.	.
OAR-2A	319.40	0.00	X	~	~	~	~	~	~	~
OAR-2A	320.15	320.40	.	.	.	.	.	.	.	.
OAR-2A	326.25	326.50	.	.	.	.	.	.	.	.
OAR-2A	328.65	328.90	.	X	.	.	X	.	.	.
OAR-2A	332.75	333.00	.	.	.	.	.	.	.	.
OAR-2A	336.00	336.25	.	.	.	.	.	.	.	.
OAR-2A	337.05	337.30	.	X	.	X	X	.	.	.
OAR-2A	339.50	339.75	.	X	.	.	.	.	.	.
OAR-2A	347.20	347.45	.	.	.	.	.	.	.	.
OAR-2A	351.40	351.65	.	X	.	.	X	.	.	.
OAR-2A	371.60	371.85	.	X	.	.	X	X	.	.
OAR-2A	377.30	377.55	.	.	.	.	.	.	.	.
OAR-2A	379.50	379.75	.	X	.	X	X	.	.	.
OAR-2A	391.60	391.85	.	.	.	.	.	.	.	.
OAR-2A	393.30	393.55	.	.	.	.	.	.	.	.
OAR-2A	395.10	395.35	.	X	.	.	X	.	.	.
OAR-2A	398.00	398.25	.	.	.	.	.	.	.	.
OAR-2A	399.75	400.00	.	X	.	.	X	.	.	.
OAR-2A	401.35	401.60	.	.	.	.	.	.	.	.
OAR-2A	404.20	404.45	.	.	.	.	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OAR-2	401.90	402.15	.	.	.	.	.	.	.	.
OAR-2	403.60	403.85	.	X	.	X	X	.	B	.
OAR-2	405.95	406.20	.	X	.	X	.	.	B	.
OAR-2	409.10	409.35	.	.	.	.	.	.	.	.
OAR-2	414.25	414.50	.	.	.	.	.	.	.	.
OAR-2	416.30	416.55	.	.	.	.	.	.	.	.
OAR-2	419.95	420.20	.	X	.	.	.	.	B	.
OAR-2	425.25	425.50	.	?	.	.	.	.	.	.
OAR-2	429.00	429.25	.	.	.	.	.	.	.	.
OAR-2	430.90	431.15	.	.	.	.	.	.	.	.
OAR-2	432.25	432.50	.	X	.	.	X	.	B	X
OAR-2	442.50	0.00	X	~	~	~	~	~	~	~
OAR-2	443.55	443.80	.	.	.	.	.	.	.	.
OAR-2	445.95	446.20	.	.	.	.	.	.	.	.
OAR-2	453.50	453.75	.	X	.	X	.	.	B	.
OAR-2	457.20	457.45	.	.	.	.	.	.	.	.
OAR-2	460.45	460.70	.	.	.	.	.	.	.	.
OAR-2	464.40	464.65	.	X	.	X	.	.	X	.
OAR-2	466.15	466.40	.	.	.	.	.	.	.	.
OAR-2	470.75	471.00	.	.	.	.	.	.	.	.
OAR-2	473.75	474.00	.	X	.	X	.	.	X	X
OAR-2	477.30	477.55	.	.	.	.	.	.	.	.
OAR-2	480.00	480.25	.	.	.	.	.	.	.	.
OAR-2	483.00	483.25	.	X	.	X	X	.	B	.
OAR-2	486.00	486.25	.	.	.	.	.	.	.	.
OAR-2	488.10	488.35	.	.	.	.	.	.	.	.
OAR-2	490.10	490.35	.	X	.	X	X	.	X	.
OAR-2	494.00	494.25	.	.	.	.	.	.	.	.
OAR-2	495.50	495.75	.	.	.	.	.	.	.	.
OAR-2	498.00	498.25	.	X	.	X	X	X	X	.
OAR-2	505.50	505.75	.	.	.	.	.	.	.	.
OAR-2	512.25	512.50	.	.	.	.	.	.	.	.
OAR-2	525.00	525.25	.	.	.	.	.	.	.	.
OAR-2	531.75	532.00	.	X	.	X	X	.	X	.
OAR-2	535.30	535.55	.	.	.	.	.	.	.	.
OAR-2	540.10	540.35	.	.	.	.	.	.	.	.
OAR-2	542.75	543.00	.	X	.	X	X	.	X	.
OAR-2	550.50	550.75	.	X	.	.	.	.	B	.
OAR-2	552.55	552.80	.	X	.	.	.	.	B	.
OAR-2	554.70	554.95	.	X	.	X	X	X	B	.
OAR-2	557.10	557.35	.	.	.	.	.	.	.	.
OAR-2	562.10	562.35	.	.	.	.	.	.	.	.
OAR-2	565.00	565.25	.	.	.	.	.	.	.	.
OAR-2	569.00	569.25	.	X	.	.	X	X	B	X
OAR-2	572.40	572.65	.	X	.	.	.	.	X	.
OAR-2	575.20	575.45	.	.	.	.	.	.	.	.
OAR-2	578.50	578.75	.	X	.	X	X	X	X	X
OAR-2	581.40	581.65	.	.	.	.	.	.	.	.
OAR-2	584.10	584.35	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OAR-2	586.90	587.15	.	X	.	.	X	.	B	X
OAR-2	590.00	590.25	.	.	.	.	.	.	.	.
OAR-2	592.60	592.85	.	.	.	.	.	.	.	.
OAR-2	595.80	596.05	.	X	.	.	.	.	.	X
OAR-2	598.10	598.35	.	X	.	.	.	.	B	.
OAR-2	601.30	601.55	.	.	.	.	.	.	.	.
OAR-2	603.00	603.25	.	.	.	.	.	.	.	.
OAR-2	606.00	606.25	.	X	.	.	X	.	B	X
OAR-2	607.30	0.00	X	~	~	~	~	~	~	~
OAR-2	608.90	609.15	.	.	.	.	.	.	.	.
OAR-2	612.30	612.55	.	X	.	.	X	.	B	X
OAR-2	617.50	617.75	.	.	.	.	.	.	.	.
OAR-2	620.00	620.25	.	.	.	.	.	.	.	.
OAR-2	623.00	623.25	.	X	.	.	X	X	B	X
OAR-2	625.90	626.15	.	.	.	.	.	.	.	.
OAR-2	629.20	629.45	.	.	.	.	.	.	.	.
OAR-2	632.70	632.95	.	.	.	.	.	.	.	.
OAR-2	636.65	636.90	.	.	.	.	.	.	.	.
OAR-2	639.45	639.70	.	X	.	X	X	X	B	.
OAR-2	640.20	640.45	.	X	.	.	.	.	B	.
OAR-2	643.15	643.30	.	.	.	.	.	.	.	.
OAR-2	646.25	646.50	.	.	.	.	.	.	.	.
OAR-2	649.15	649.40	.	.	.	.	.	.	.	.
OAR-2	651.70	651.95	.	.	.	.	.	.	.	.
OAR-2	659.10	659.35	.	X	.	.	X	X	B	X
OAR-2	662.90	663.15	.	X	.	.	X	X	X	X
OAR-2	666.30	666.55	.	.	.	.	.	.	.	.
OAR-2	670.40	670.65	.	.	.	.	.	.	.	.
OAR-2	674.50	674.75	.	X	.	.	.	.	X	.
OAR-2	677.95	678.20	.	X	.	X	X	.	X	.
OAR-2	679.55	679.80	.	X	.	X	.	.	.	.
OAR-2	683.30	683.55	.	.	.	.	.	.	.	.
OAR-2	686.75	687.00	.	.	.	.	.	.	.	.
OAR-2	690.10	690.35	.	X	.	.	X	.	B	X
OAR-2	693.10	693.35	.	.	.	.	.	.	.	.
OAR-2	695.90	696.15	.	.	.	.	.	.	.	.
OAR-2	698.45	698.70	.	X	.	X	.	.	B	.
OAR-2	701.35	701.60	.	.	.	.	.	.	.	.
OAR-2	704.00	704.25	.	.	.	.	.	.	.	.
OAR-2	707.55	707.80	.	X	.	X	X	.	X	.
OAR-2	710.25	710.50	.	.	.	.	.	.	.	.
OAR-2	712.90	713.15	.	.	.	.	.	.	.	.
OAR-2	716.00	716.25	.	X	.	.	X	.	X	X
OAR-2	719.25	719.50	.	.	.	.	.	.	.	.
OAR-2	721.95	722.20	.	.	.	.	.	.	.	.
OAR-2	725.80	726.05	.	X	.	X	X	X	X	X
OAR-2	730.05	730.30	.	.	.	.	.	.	.	.
OAR-2	733.55	733.80	.	.	.	.	.	.	.	.
OAR-2	739.60	739.85	.	X	.	X	X	.	X	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OAR-2	743.30	743.55	.	.	.	.	.	.	.	.
OAR-2	746.15	746.30	.	.	.	.	.	.	.	.
OAR-2	749.30	749.55	.	X	.	.	X	X	X	X
OAR-2	752.70	752.95	.	.	.	.	.	.	.	.
OAR-2	756.85	757.10	.	X	.	.	.	.	B	.
OAR-2	760.00	760.25	.	X	.	X	X	X	B	X
OAR-2	766.50	766.75	.	.	.	.	.	.	.	.
OAR-2	770.45	770.70	.	X	.	.	.	.	X	.
OAR-2	773.25	773.50	.	X	.	.	X	X	X	X
OAR-2	776.10	776.35	.	X	.	.	.	.	X	.
OAR-2	779.90	780.15	.	.	.	.	.	.	.	.
OAR-2	784.70	784.95	.	X	.	X	X	X	X	.
OAR-2	788.10	788.35	.	.	.	.	.	.	.	.
OAR-2	791.00	791.25	.	X	.	.	X	X	B	X
OAR-2	793.40	793.65	.	X	.	.	.	.	B	.
OAR-2	796.10	796.35	.	X	.	.	.	.	B	.
OAR-2	799.65	799.90	.	X	.	.	X	.	X	X
OAR-2	803.45	803.70	.	X	.	.	.	.	B	.
OAR-2	804.10	0.00	.	.	.	.	.	.	.	.
OAR-2	806.75	807.00	.	.	.	.	.	.	.	.
OAR-2	809.95	810.20	.	.	.	.	.	.	.	.
OAR-2	811.85	812.10	.	X	.	X	X	X	B	.
OAR-2	813.00	0.00	X	~	~	~	~	~	~	~
OAR-2	815.10	815.35	.	X	.	.	X	.	B	X
OAR-2	818.00	818.25	.	.	.	.	.	.	.	.
OAR-2	820.75	821.00	.	.	.	.	.	.	.	.
OAR-2	823.05	823.30	.	X	.	.	.	.	B	.
OAR-2	827.50	827.60	.	X	.	.	X	X	B	X
OAR-2	830.40	0.00	X	~	~	~	~	~	~	~
OAR-2	836.30	836.60	.	.	.	.	.	.	.	X
OAR-2	854.50	0.00	X	~	~	~	~	~	~	~
OAR-2	873.50	0.00	.	.	.	.	.	.	.	.
OAR-2	874.00	874.25	,	.	.	.	.	.	.	.
OAR-2	874.70	0.00	.	.	.	.	.	.	.	.
OAR-2	876.80	0.00	.	.	.	.	.	.	.	.
OAR-2	877.20	877.45	,	.	.	.	.	.	.	.
OAR-2	883.05	883.30	.	X	.	.	.	.	B	.
OAR-2	883.70	884.70	.	X	.	X	X	.	X	.
OAR-2	884.00	884.25	.	X	.	X	X	.	X	.
OAR-2	884.45	885.70	,	X	.	.	.	.	X	.
OAR-2	884.70	884.95	.	X		.	.	.	X	.
OAR-2	885.35	885.60	.	X	.	X	X	.	X	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OAM-3	11.60	12.70	.	.	.	.	.	.	.	.
OAM-3	14.50	15.90	.	.	.	.	.	.	.	.
OAM-3	17.50	18.30	.	.	.	.	.	.	.	.
OAM-3	26.10	26.80	.	.	.	.	.	.	.	.
OAM-3	29.10	30.10	.	.	.	.	.	.	.	.
OAM-3	30.10	0.00	.	.	.	.	.	.	.	.
OAM-3	32.00	32.90	.	.	.	.	.	.	.	.
OAM-3	32.90	0.00	.	.	.	.	.	.	.	.
OAM-3	35.00	35.10	.	X	.	X	.	.	.	.
OAM-3	35.00	36.70	.	.	.	.	.	.	.	.
OAM-3	38.40	40.10	.	.	.	.	.	.	.	.
OAM-3	40.10	0.00	.	.	.	.	.	.	.	.
OAM-3	41.50	42.70	.	.	.	.	.	.	.	.
OAM-3	42.70	0.00	.	.	.	.	.	.	.	.
OAM-3	46.50	0.00	.	X	.	X	.	.	.	.
OAM-3	49.40	0.00	.	.	.	.	.	.	.	.
OAM-3	50.30	51.30	.	.	.	.	.	.	.	.
OAM-3	51.30	0.00	.	.	.	.	.	.	.	.
OAM-3	52.10	53.10		X		X				
OAM-3	53.10	0.00	.	X	.	X	.	.	.	.
OAM-3	54.10	55.30	.	.	.	.	.	.	.	.
OAM-3	55.30	0.00	.	.	.	.	.	.	.	.
OAM-3	56.80	0.00	.	X	.	X	.	.	.	.
OAM-3	58.00	58.90	.	.	.	.	.	.	.	.
OAM-3	58.90	0.00	.	.	.	.	.	.	.	.
OAM-3	60.30	0.00	.	.	.	.	.	.	.	.
OAM-3	62.20	0.00	.	.	.	.	.	.	.	.
OAM-3	62.60	63.90	.	.	.	.	.	.	.	.
OAM-3	63.60	63.90	.	X		X	.	.	.	.
OAM-3	65.40	0.00	.	.	.	.	.	.	.	.
OAM-3	67.40	68.50	.	.	.	.	.	.	.	.
OAM-3	68.50	0.00	.	.	.	.	.	.	.	.
OAM-3	70.40	0.00	.	X	.	X	.	.	.	.
OAM-3	72.40	0.00	.	.	.	.	.	.	.	.
OAM-3	73.30	0.00	.	.	.	.	.	.	.	.
OAM-3	73.30	74.10	.	.	.	.	.	.	.	.
OAM-3	75.30	0.00	.	X	.	X	.	.	.	.
OAM-3	78.00	0.00	.	.	.	.	.	.	.	.
OAM-3	79.10	0.00	.	.	.	.	.	.	.	.
OAM-3	81.20	82.40	.	.	.	.	.	.	.	.
OAM-3	82.40	0.00	.	X	.	.	.	.	.	.
OAM-3	83.20	83.90	.	.	.	.	.	.	.	.
OAM-3	83.90	0.00	.	X	.	.	.	.	.	.
OAM-3	88.70	0.00	.	.	.	.	.	.	.	.
OAM-3	90.80	0.00	.	X	.	X	.	.	.	.
OAM-3	92.90	0.00	.	X	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OBZ-4	0.00	2.00	.	X	.	X	X	.	.	.
OBZ-4	2.80	3.05	.	X	.	X	X	X	.	.
OBZ-4	5.80	6.05	.	.	.	.	.	.	.	.
OBZ-4	8.80	9.05	.	.	.	.	.	.	.	.
OBZ-4	11.80	12.05	.	X	.	X	X	X	.	.
OBZ-4	15.40	15.65	.	.	.	.	.	.	.	.
OBZ-4	18.40	18.65	.	.	.	.	.	.	.	.
OBZ-4	21.10	21.35	.	X	.	X	X	X	.	.
OBZ-4	24.00	24.25	.	.	.	.	.	.	.	.
OBZ-4	27.00	27.25	.	.	.	.	.	.	.	.
OBZ-4	33.00	33.25	.	X	.	X	X	.	.	.
OBZ-4	34.25	34.50	.	.	.	.	.	.	.	.
OBZ-4	37.05	37.30	.	.	.	.	.	.	.	.
OBZ-4	40.05	40.30	.	X	.	X	X	X	.	.
OBZ-4	43.10	43.35	.	.	.	.	.	.	.	.
OBZ-4	45.20	45.45	.	.	.	.	.	.	.	.
OBZ-4	49.70	49.95	.	X	.	X	X	.	.	.
OBZ-4	52.20	52.45	.	.	.	.	.	.	.	.
OBZ-4	54.70	54.95	.	.	.	.	.	.	.	.
OBZ-4	58.50	58.75	.	X	.	X	X	.	.	.
OBZ-4	61.35	61.60	.	.	.	.	.	.	.	.
OBZ-4	63.50	63.75	.	.	.	.	.	.	.	.
OBZ-4	66.35	66.60	.	X	.	X	X	.	.	.
OBZ-4	69.80	70.05	.	.	.	.	.	.	.	.
OBZ-4	73.10	73.35	.	.	.	.	.	.	.	.
OBZ-4	75.50	0.00	.	*	*	*	*	*	*	*
OBZ-4	75.15	75.40	.	X	.	X	X	.	.	.
OBZ-4	78.55	78.80	.	.	.	.	.	.	.	.
OBZ-4	81.20	81.45	.	.	.	.	.	.	.	.
OBZ-4	84.15	84.40	.	X	.	X	X	.	.	.
OBZ-4	87.40	87.65	.	.	.	.	.	.	.	.
OBZ-4	90.20	90.45	.	.	.	.	.	.	.	.
OBZ-4	93.10	93.35	.	X	.	X	X	.	.	.
OBZ-4	96.10	96.35	.	.	.	.	.	.	.	.
OBZ-4	98.95	99.20	.	.	.	.	.	.	.	.
OBZ-4	104.55	104.80	.	X	.	X	X	.	.	.
OBZ-4	107.60	107.85	.	.	.	.	.	.	.	.
OBZ-4	109.80	110.05	.	.	.	.	.	.	.	.
OBZ-4	112.90	113.15	.	X	.	X	X	.	.	.
OBZ-4	116.20	116.45	.	.	.	.	.	.	.	.
OBZ-4	119.10	119.35	.	.	.	.	.	.	.	.
OBZ-4	121.80	122.05	.	X	.	X	X	.	.	.
OBZ-4	124.90	125.15	.	.	.	.	.	.	.	.
OBZ-4	127.65	127.90	.	.	.	.	.	.	.	.
OBZ-4	130.00	130.25	.	X	.	X	X	.	.	.
OBZ-4	133.60	133.85	.	.	.	.	.	.	.	.
OBZ-4	136.10	136.35	.	.	.	.	.	.	.	.
OBZ-4	139.40	139.65	.	X	.	.	X	.	.	.
OBZ-4	144.50	144.75	.	.	X	X	X	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OBZ-4	147.75	148.00	.	.	X	X	X	X	.	.
OBZ-4	151.55	151.80	.	X	.	X	X	X	.	.
OBZ-4	154.60	154.85	.	.	X	.	X	X	.	.
OBZ-4	157.35	157.60	.	.	X	.	X	X	.	.
OBZ-4	160.05	160.30	.	X	.	X	X	.	.	.
OBZ-4	163.55	163.80	.	.	X	.	X	X	.	.
OBZ-4	166.85	167.10	.	X	.	X	X	X	.	.
OBZ-4	169.85	170.10	.	X	.	X	X	.	.	.
OBZ-4	172.70	172.95	.	.	X	.	X	X	.	.
OBZ-4	174.80	175.05	.	.	X	.	X	.	.	.
OBZ-4	178.60	178.85	.	X	.	X	X	X	.	.
OBZ-4	181.75	182.00	.	.	X	.	X	X	.	.
OBZ-4	182.35	182.60	.	X	.	X	.	.	.	.
OBZ-4	186.80	187.05	.	.	X	.	X	X	.	.
OBZ-4	190.30	190.55	.	X	.	X	.	.	.	.
OBZ-4	193.60	193.85	.	.	X	.	X	X	.	.
OBZ-4	196.50	196.75	.	.	X	.	X	.	.	.
OBZ-4	199.50	199.75	.	X	.	X	.	.	.	.
OBZ-4	202.50	202.80	.	.	X	.	X	.	.	.
OBZ-4	202.60	202.85	.	.	X	.	X	.	.	.
OBZ-4	205.10	205.35	.	X	.	X	.	.	.	.
OBZ-4	207.80	208.05	.	.	.	.	.	.	.	.
OBZ-4	211.30	211.55	.	.	.	.	.	.	.	.
OBZ-4	213.90	214.15	.	X	.	X	X	.	.	.
OBZ-4	217.05	217.30	.	.	.	.	.	.	.	.
OBZ-4	222.65	222.90	.	.	.	.	.	.	.	.
OBZ-4	225.65	225.90	.	X	.	X	.	.	.	.
OBZ-4	228.20	0.00	X	~	~	~	~	~	~	~
OBZ-4	228.20	228.30	.	*	*	*	*	*	*	*
OBZ-4	228.75	229.00	.	X	.	X	.	.	.	.
OBZ-4	234.45	234.70	.	.	.	.	.	.	.	.
OBZ-4	237.90	238.15	.	.	.	.	.	.	.	.
OBZ-4	241.25	241.50	.	X	.	X	.	.	.	.
OBZ-4	244.35	244.60	.	.	.	.	.	.	.	.
OBZ-4	247.20	247.45	.	.	.	.	.	.	.	.
OBZ-4	250.05	250.30	.	X	.	X	.	.	.	.
OBZ-4	253.05	253.30	.	.	.	.	.	.	.	.
OBZ-4	256.20	256.45	.	.	.	.	.	.	.	.
OBZ-4	259.50	259.75	.	.	.	.	.	.	.	.
OBZ-4	262.35	262.60	.	X	.	.	.	.	.	.
OBZ-4	266.20	266.45	.	.	.	.	.	.	.	.
OBZ-4	271.45	271.70	.	.	.	.	.	.	.	.
OBZ-4	274.00	274.25	.	X	.	.	.	.	.	.
OBZ-4	276.70	0.00	.	*	*	*	*	*	*	*
OBZ-4	277.10	277.35	.	.	.	.	.	.	.	.
OBZ-4	279.60	279.85	.	.	.	.	.	.	.	.
OBZ-4	283.00	283.25	.	X	.	.	X	.	.	.
OBZ-4	286.00	286.25	.	.	.	.	.	.	.	.
OBZ-4	288.45	288.70	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OBZ-4	291.45	291.70	.	X	.	X	X	.	.	.
OBZ-4	294.30	0.00	X	~	~	~	~	~	~	~
OBZ-4	294.40	294.65	.	.	.	.	.	.	.	.
OBZ-4	297.75	298.00	.	.	.	.	X	X	.	.
OBZ-4	300.50	300.75	.	X	.	X	X	X	.	.
OBZ-4	306.15	306.40	.	.	.	.	.	.	.	.
OBZ-4	309.05	309.30	.	.	.	.	.	.	.	.
OBZ-4	314.75	315.00	.	X	.	X	.	.	.	.
OBZ-4	320.55	320.80	X	.	.	.	.	.	.	.
OBZ-4	323.70	323.95	.	.	.	.	.	.	.	.
OBZ-4	327.15	327.40	.	X	.	X	X	X	.	.
OBZ-4	327.40	0.00	.	.	.	.	.	.	.	.
OBZ-4	330.25	330.50	.	.	.	.	.	.	.	.
OBZ-4	333.50	333.75	.	.	.	.	.	.	.	.
OBZ-4	336.25	336.50	.	X	.	X	X	.	.	.
OBZ-4	339.90	340.15	.	.	.	.	.	.	.	.
OBZ-4	343.35	343.60	.	.	.	.	.	.	.	.
OBZ-4	347.00	0.00	.	?	?	.	.	.	.	.
OBZ-4	347.15	347.40	.	X	.	X	.	.	.	.
OBZ-4	347.20	0.00	X	~	~	~	~	~	~	~
OBZ-4	350.30	350.55	.	.	.	.	.	.	.	.
OBZ-4	353.05	353.30	.	.	.	.	.	.	.	.
OBZ-4	356.45	356.70	.	X	.	X	X	X	.	.
OBZ-4	359.55	359.80	.	.	.	.	.	.	.	.
OBZ-4	362.55	362.80	.	.	.	.	.	.	.	.
OBZ-4	365.80	366.05	.	X	.	.	X	.	.	.
OBZ-4	369.30	369.55	.	.	.	.	.	.	.	.
OBZ-4	372.20	372.45	.	.	.	.	.	.	.	.
OBZ-4	375.10	375.35	.	X	.	X	.	.	.	.
OBZ-4	377.50	377.75	.	X	.	.	.	.	.	.
OBZ-4	380.25	380.50	.	.	.	.	.	.	.	.
OBZ-4	380.60	380.80	.	X	.	X	.	.	.	.
OBZ-4	383.25	383.50	.	.	.	.	.	.	.	.
OBZ-4	388.95	389.20	.	.	.	.	.	.	.	.
OBZ-4	391.75	392.00	.	X	.	.	.	.	.	.
OBZ-4	394.60	394.85	.	.	.	.	.	.	.	.
OBZ-4	397.65	397.90	.	.	.	.	.	.	.	.
OBZ-4	400.55	400.80	.	X	.	X	.	.	X	.
OBZ-4	402.95	403.20	.	.	.	.	.	.	X	.
OBZ-4	408.45	408.70	.	.	.	.	.	.	X	.
OBZ-4	460.60	460.85	.	X	.	.	.	.	X	.
OBZ-4	466.00	466.25	.	.	.	.	.	.	X	.
OBZ-4	476.90	0.00	X	~	~	~	~	~	~	~
OBZ-4	481.35	481.60	.	X	.	.	X	.	X	.
OBZ-4	493.70	494.70	.	*	*	*	*	*	*	*
OBZ-4	502.50	0.00	X	~	~	~	~	~	~	
OBZ-4	502.70	502.80	.	*	*	*	*	*	*	*
OBZ-4	520.00	520.25	.	X	.	.	.	.	B	.
OBZ-4	521.70	521.95	.	.	.	.	.	.	X	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OBZ-4	560.95	561.10	.	.	X	.	.	.	B	.
OBZ-4	562.05	562.30	.	X	.	X	.	.	X	.
OBZ-4	567.00	567.25	.	.	.	.	.	.	X	.
OBZ-4	570.00	570.25	.	X	.	.	X	.	B	.
OBZ-4	572.35	572.60	.	.	.	.	.	.	X	.
OBZ-4	577.15	577.40	.	X	.	X	.	.	B	.
OBZ-4	578.65	578.90	.	.	.	.	.	.	X	.
OBZ-4	584.30	584.55	.	.	.	.	.	.	X	.
OBZ-4	586.35	586.60	.	.	.	.	.	.	X	.
OBZ-4	593.90	594.15	.	X	.	X	X	.	X	.
OBZ-4	595.50	595.75	.	.	.	.	.	.	X	.
OBZ-4	599.15	599.40	.	.	.	.	.	.	X	.
OBZ-4	601.55	601.80	.	X	.	X	.	.	X	.
OBZ-4	603.20	603.45	.	.	.	.	.	.	X	.
OBZ-4	609.40	609.65	.	.	.	.	.	.	X	.
OBZ-4	610.65	610.90	.	X	.	X	.	.	B	.
OBZ-4	619.70	619.90	.	.	.	.	.	.	X	.
OBZ-4	630.40	630.65	.	.	.	.	.	.	X	.
OBZ-4	636.50	636.75	.	X	.	.	.	.	B	.
OBZ-4	647.00	647.25	.	.	.	.	.	.	X	.
OBZ-4	655.20	655.45	.	X	.	X	X	.	X	.
OBZ-4	657.85	658.10	.	X	.	.	.	.	X	.
OBZ-4	663.65	663.90	.	.	.	.	.	.	X	.
OBZ-4	671.70	671.95	.	X	.	X	X	.	B	.
OBZ-4	681.35	681.60	.	X	.	X	X	.	X	.
OBZ-4	691.75	692.00	.	.	.	.	.	.	X	.
OBZ-4	695.85	696.10	.	.	.	.	.	.	X	.
OBZ-4	698.75	699.00	.	X	.	.	.	.	X	.
OBZ-4	701.50	0.00	X	~	~	~	~	~	~	~
OBZ-4	701.55	701.80	X	.	.	.	.	.	X	.
OBZ-4	705.00	705.25	.	X	.	X	.	.	B	.
OBZ-4	708.00	708.25	.	.	.	.	.	.	X	.
OBZ-4	712.70	712.95	.	.	.	.	.	.	X	.
OBZ-4	723.10	723.35	.	X	.	X	X	.	B	.
OBZ-4	730.20	730.45	.	.	.	.	.	.	X	.
OBZ-4	733.00	733.25	.	.	.	.	.	.	X	.
OBZ-4	736.15	736.40	.	X	.	.	.	.	X	.
OBZ-4	738.05	738.30	.	.	.	.	.	.	X	.
OBZ-4	742.00	742.25	.	.	.	.	.	.	X	.
OBZ-4	744.80	745.05	.	X	.	X	.	.	B	.
OBZ-4	748.30	748.55	.	.	.	.	.	.	X	.
OBZ-4	750.90	751.15	.	.	.	.	.	.	X	.
OBZ-4	754.40	754.65	.	X	.	.	.	.	X	.
OBZ-4	757.60	757.85	.	.	.	.	.	.	X	.
OBZ-4	759.05	759.30	.	.	.	.	.	.	X	.
OBZ-4	761.50	761.75	.	X	.	X	.	.	X	.
OBZ-4	763.70	763.95	.	.	.	.	.	.	X	.
OBZ-4	766.60	766.85	.	.	.	.	.	.	X	.
OBZ-4	768.60	768.85	.	X	.	X	.	.	B	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OBZ-4	770.25	770.50	.	.	.	.	.	.	X	.
OBZ-4	773.10	773.35	.	.	.	.	.	.	X	.
OBZ-4	775.20	775.00	.	X	.	X	X	.	X	.
OBZ-4	777.65	777.90	.	.	.	.	.	.	X	.
OBZ-4	780.40	780.65	.	.	.	.	.	.	X	.
OBZ-4	782.60	782.85	.	X	.	X	.	.	B	.
OBZ-4	785.35	785.60	.	.	.	.	.	.	X	.
OBZ-4	788.20	788.45	.	.	.	.	.	.	X	.
OBZ-4	792.00	792.25	.	X	.	X	X	.	X	.
OBZ-4	795.50	795.45	.	.	.	.	.	.	X	.
OBZ-4	798.20	798.45	.	.	.	.	.	.	X	.
OBZ-4	800.60	800.85	.	X	.	X	.	.	X	.
OBZ-4	802.60	802.85	.	.	.	.	.	.	X	.
OBZ-4	805.30	805.55	.	.	.	.	.	.	X	.
OBZ-4	808.05	808.30	.	X	.	X	.	X	X	.
OBZ-4	809.80	810.05	.	.	.	.	.	.	X	.
OBZ-4	812.00	812.25	.	.	.	.	.	.	X	.
OBZ-4	814.60	814.85	.	X	.	X	X	X	X	.
OBZ-4	815.10	0.00	X	~	~	~	~	~	~	~
OBZ-4	818.50	818.75	.	X	.	.	.	.	X	.
OBZ-4	821.75	822.00	.	.	.	.	.	.	X	.
OBZ-4	824.30	824.55	.	.	.	.	.	.	X	.
OBZ-4	827.35	827.60	.	X	.	X	.	.	X	.
OBZ-4	829.25	829.50	.	.	.	.	.	.	X	.
OBZ-4	832.15	832.40	.	.	.	.	.	.	X	.
OBZ-4	833.75	834.00	.	X	.	X	.	.	X	.
OBZ-4	836.55	836.80	.	.	.	.	.	.	X	.
OBZ-4	839.60	839.85	.	.	.	.	.	.	X	.
OBZ-4	843.10	843.35	.	X	.	X	.	.	X	.
OBZ-4	845.65	845.90	.	.	.	.	.	.	X	.
OBZ-4	849.90	850.15	.	.	.	.	.	.	X	.
OBZ-4	852.55	852.80	.	X	.	.	.	.	X	.
OBZ-4	855.30	0.00	X	~	~	~	~	~	~	~
OBZ-4	855.55	855.80	.	X	.	.	.	.	X	.
OBZ-4	857.55	857.80	.	.	.	.	.	.	X	.
OBZ-4	860.10	860.35	.	X	.	.	.	.	X	.
OBZ-4	861.20	861.40	.	.	.	.	.	.	X	.
OBZ-4	862.90	863.15	.	.	.	.	.	.	X	.
OBZ-4	865.75	866.00	.	X	.	.	X	.	X	.
OBZ-4	866.40	0.00	X	~	~	~	~	~	X	~
OBZ-4	868.00	868.25	.	.	.	.	.	.	X	.
OBZ-4	870.40	0.00	X	~	~	~	~	~	~	~
OBZ-4	870.70	870.95	.	.	.	.	.	.	X	.
OBZ-4	872.90	873.15	.	X	.	.	X	.	.	.
OBZ-4	875.00	876.00	.	.	.	.	.	.	X	.
OBZ-4	878.05	878.30	.	.	.	.	.	.	X	.
OBZ-4	881.25	881.50	.	X	.	.	.	.	X	.
OBZ-4	883.85	884.10	.	.	.	.	.	.	X	.
OBZ-4	889.30	889.55	.	.	.	.	.	.	X	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OBZ-4	891.60	891.85	.	X	.	.	X	.	X	.
OBZ-4	895.40	895.65	.	.	.	.	.	.	X	.
OBZ-4	897.05	897.30	.	.	.	.	.	.	X	.
OBZ-4	900.50	900.75	.	X	.	.	X	.	X	.
OBZ-4	903.40	903.65	.	.	.	.	.	.	X	.
OBZ-4	906.10	906.35	.	.	.	.	.	.	X	.
OBZ-4	909.25	909.50	.	X	.	.	X	.	B	.
OBZ-4	912.00	912.25	.	.	.	.	.	.	X	.
OBZ-4	914.40	914.65	.	.	.	.	.	.	X	.
OBZ-4	916.10	0.00	X	~	~	~	~	~	~	~
OBZ-4	916.15	916.40	.	X	.	.	X	.	X	.
OBZ-4	916.80	917.30	.	.	.	.	.	.	X	.
OBZ-4	920.80	921.30	.	.	.	.	.	.	X	.
OBZ-4	923.50	923.75	.	X	.	.	X	.	B	X
OBZ-4	926.60	926.85	.	.	.	.	.	.	X	.
OBZ-4	929.20	929.45	.	.	.	.	.	.	X	.
OBZ-4	931.20	0.00	X	~	~	~	~	~	~	~
OBZ-4	932.50	932.75	.	X	.	.	X	.	X	.
OBZ-4	935.40	935.65	.	.	.	.	.	.	X	.
OBZ-4	940.90	941.15	.	.	.	.	.	.	X	.
OBZ-4	943.20	943.55	.	X	.	.	.	.	X	.
OBZ-4	946.70	946.95	.	.	.	.	.	.	X	.
OBZ-4	949.20	949.45	.	.	.	.	.	.	X	.
OBZ-4	951.50	0.00	.	*	*	*	*	*	*	*
OBZ-4	954.90	955.15	.	X	.	.	.	.	X	.
OBZ-4	957.00	957.25	.	.	.	.	.	.	X	.
OBZ-4	960.40	960.60	.	.	.	.	.	.	X	.
OBZ-4	963.30	963.55	.	X	.	.	.	.	X	.
OBZ-4	968.70	0.00	X	~	~	~	~	~	~	~
OBZ-4	971.90	972.15	.	.	.	.	.	.	X	.
OBZ-4	994.70	994.95	.	.	.	.	.	.	X	.
OBZ-4	996.20	996.45	.	X	.	.	.	.	X	.
OBZ-4	998.80	999.05	.	.	.	.	.	.	X	.
OBZ-4	1001.00	1001.25	.	.	.	.	.	.	X	.
OBZ-4	1002.60	1002.85	.	X	.	.	.	.	B	.
OBZ-4	1007.30	1007.55	.	.	.	.	.	.	X	.
OBZ-4	1010.75	1011.00	.	.	.	.	.	.	X	.
OBZ-4	1013.25	1013.50	.	X	.	.	.	.	X	.
OBZ-4	1016.60	1016.85	.	.	.	.	.	.	X	.
OBZ-4	1019.70	0.00	X	~	~	~	~	~	~	~
OBZ-4	1019.75	1019.90	.	.	.	.	.	.	X	.
OBZ-4	1022.90	1023.15	.	X	.	.	.	.	B	.
OBZ-4	1025.25	1025.50	.	.	.	.	.	.	X	.
OBZ-4	1035.75	1036.00	.	.	.	.	.	.	X	.
OBZ-4	1036.20	1036.45	.	X	.	.	.	.	B	.
OBZ-4	1036.80	0.00	X	~	~	~	~	~	~	~
OBZ-4	1039.00	1039.25	.	.	.	.	.	.	X	.
OBZ-4	1040.80	0.00	X	~	~	~	~	~	~	~
OBZ-4	1043.95	1044.20	.	.	.	.	.	.	X	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OBZ-4	1045.30	1045.55	.	X	.	.	.	.	X	.
OBZ-4	1049.20	1049.45	.	.	.	.	.	.	X	.
OBZ-4	1052.70	1052.95	.	.	.	.	.	.	X	.
OBZ-4	1056.35	1056.60	.	X	.	X	X	.	X	X
OBZ-4	1059.45	1059.70	.	.	.	.	.	.	X	.
OBZ-4	1062.60	1062.85	.	.	.	.	.	.	X	.
OBZ-4	1066.20	1066.45	.	X	.	.	.	.	X	.
OBZ-4	1069.20	1069.45	.	.	.	.	.	.	X	.
OBZ-4	1070.70	1070.95	.	.	.	.	.	.	X	.
OBZ-4	1078.40	1078.65	.	X	.	.	.	.	X	.
OBZ-4	1078.20	0.00	X	~	~	~	~	~	~	~
OBZ-4	1080.30	1080.60	.	.	.	.	.	.	X	.
OBZ-4	1085.70	1085.90	.	X	.	.	.	.	X	.
OBZ-4	1101.80	0.00	X	~	~	~	~	~	~	~
OBZ-4	1102.75	1103.00	.	X	.	.	.	.	B	.
OBZ-4	1112.20	0.00	X	~	~	~	~	~	~	~
OBZ-4	1125.55	1125.80	.	X	.	.	.	.	X	.
OBZ-4	1129.40	1129.65	.	X	.	.	.	.	X	.
OBZ-4	1139.40	1139.65	.	X	.	.	.	.	X	.
OBZ-4	1143.25	1143.50	.	.	.	.	.	.	X	.
OBZ-4	1145.40	1145.65	.	X	.	.	X	.	X	.
OBZ-4	1150.10	1150.35	.	.	.	.	.	.	X	.
OBZ-4	1159.60	1159.85	.	X	.	.	.	.	X	.
OBZ-4	1161.85	1162.10	.	.	.	.	.	.	X	.
OBZ-4	1165.40	1165.65	.	.	.	.	.	.	X	.
OBZ-4	1172.45	1172.70	.	.	.	.	.	.	X	.
OBZ-4	1174.00	0.00	X	~	~	~	~	~	~	~
OBZ-4	1182.40	1182.65	.	.	.	.	.	.	X	.
OBZ-4	1188.20	1188.45	.	.	.	.	.	.	X	.
OBZ-4	1189.40	1189.65	.	X	.	.	.	.	X	.
OBZ-4	1192.25	1192.50	.	.	.	.	.	.	X	.
OBZ-4	1194.35	1194.60	.	X	.	.	.	.	X	.
OBZ-4	1199.20	1199.45	.	.	.	.	.	.	X	.
OBZ-4	1200.90	1200.15	.	X	.	.	.	.	B	.
OBZ-4	1208.30	1208.55	.	.	.	.	.	.	X	.
OBZ-4	1210.50	1210.75	.	X	.	.	.	.	X	.
OBZ-4	1213.70	1213.95	.	.	.	.	.	.	X	.
OBZ-4	1217.75	1218.00	.	X	.	.	X	.	X	.
OBZ-4	1218.20	0.00	X	~	~	~	~	~	~	~
OBZ-4	1220.50	1220.75	.	.	.	.	.	.	X	.
OBZ-4	1225.55	1225.80	.	X	.	.	.	.	X	.
OBZ-4	1228.90	1229.15	.	.	.	.	.	.	X	.
OBZ-4	1231.85	1232.10	.	.	.	.	.	.	X	.
OBZ-4	1235.75	1236.00	.	X	.	.	.	.	X	.
OBZ-4	1238.00	1238.25	.	.	.	.	.	.	X	.
OBZ-4	1245.30	1245.55	.	.	.	.	.	.	X	.
OBZ-4	1248.30	1248.55	.	X	.	.	.	.	X	.
OBZ-4	1248.60	0.00	X	~	~	~	~	~	~	~
OBZ-4	1254.75	1254.00	.	.	.	.	.	.	X	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OBZ-4	1255.10	1255.35	.	X	.	.	X	.	X	.
OBZ-4	1261.00	1261.25	.	.	.	.	.	.	X	.
OBZ-4	1263.00	1263.25	.	.	.	.	.	.	X	.
OBZ-4	1265.55	1265.80	.	.	.	.	.	.	X	.
OBZ-4	1268.50	1268.75	.	X	.	.	.	.	B	.
OBZ-4	1277.35	1277.60	.	.	.	.	.	.	X	.
OBZ-4	1284.00	1284.25	.	.	.	.	.	.	X	.
OBZ-4	1288.25	1288.50	.	X	.	.	.	.	X	X
OBZ-4	1288.70	0.00	X	~	~	~	~	~	~	~
OBZ-4	1291.10	1291.35	.	.	.	.	.	.	X	.
OBZ-4	1294.40	1294.65	.	.	.	.	.	.	X	.
OBZ-4	1299.40	1299.65	.	X	.	.	X	.	X	.
OBZ-4	1303.65	1303.90	.	.	.	.	.	.	X	.
OBZ-4	1310.30	1310.55	.	X	.	.	.	.	B	.
OBZ-4	1313.25	1313.50	.	.	.	.	.	.	X	.
OBZ-4	1315.60	1315.85	.	.	.	.	.	.	X	.
OBZ-4	1316.80	1317.05	.	.	.	.	.	.	X	.
OBZ-4	1319.70	1319.95	.	X	.	.	.	.	B	.
OBZ-4	1325.40	1325.65	.	.	.	.	.	.	X	.
OBZ-4	1327.65	1327.90	.	.	.	.	.	.	X	.
OBZ-4	1337.20	1337.45	.	X	.	.	.	.	X	.
OBZ-4	1341.45	1341.70	.	.	.	.	.	.	X	.
OBZ-4	1349.45	1349.70	.	.	.	.	.	.	X	.
OBZ-4	1352.40	1353.60	.	.	.	.	.	.	X	.
OBZ-4	1353.20	1353.45	.	X	.	.	.	.	X	.
OBZ-4	1355.30	1355.55	.	.	.	.	.	.	X	.
OBZ-4	1360.60	1360.85	.	.	.	.	.	.	X	.
OBZ-4	1366.70	1366.95	.	.	.	.	.	.	X	.
OBZ-4	1370.00	1370.25	.	.	.	.	.	.	X	.
OBZ-4	1373.10	1373.35	.	X	.	.	.	.	B	.
OBZ-4	1376.50	1376.75	.	.	.	.	.	.	X	.
OBZ-4	1379.20	1379.45	.	.	.	.	.	.	X	.
OBZ-4	1382.35	1382.60	.	X	.	.	.	.	X	.
OBZ-4	1385.55	1385.80	.	.	.	.	.	.	X	.
OBZ-4	1385.70	1385.95	.	.	.	.	.	.	X	.
OBZ-4	1390.50	0.00	X	~	~	~	~	~	~	~
OBZ-4	1392.90	0.00	X	~	~	~	~	~	~	~
OBZ-4	1395.40	1395.65	.	X	.	.	.	.	X	.
OBZ-4	1398.20	1398.45	.	.	.	.	.	.	X	.
OBZ-4	1401.75	1402.00	.	X	.	.	.	.	X	.
OBZ-4	1412.60	1412.85	.	.	.	.	.	.	X	.
OBZ-4	1414.20	0.00	X	~	~	~	~	~	~	~
OBZ-4	1416.60	1416.85	.	.	.	.	.	.	X	.
OBZ-4	1421.20	1421.45	.	X	.	X	X	.	X	X
OBZ-4	1423.30	1423.55	.	.	.	.	.	.	X	.
OBZ-4	1425.20	1425.45	.	.	.	.	.	.	X	.
OBZ-4	1427.50	1427.75	.	X	.	.	.	.	X	.
OBZ-4	1429.80	1430.05	.	.	.	.	.	.	X	.
OBZ-4	1432.00	1432.25	.	.	.	.	.	.	X	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OBZ-4	1434.60	1434.85	.	X	.	.	.	.	X	X
OBZ-4	1436.70	0.00	X	~	~	~	~	~	~	~
OBZ-4	1439.85	1440.10	.	.	.	.	.	.	X	.
OBZ-4	1442.10	1442.35	.	.	.	.	.	.	X	.
OBZ-4	1446.35	1446.60	.	X	.	.	.	.	X	.
OBZ-4	1449.00	1449.25	.	.	.	.	.	.	X	.
OBZ-4	1451.75	1452.00	.	.	.	.	.	.	X	.
OBZ-4	1452.10	0.00	X	~	~	~	~	~	~	~
OBZ-4	1455.90	1456.15	.	X	.	X	.	.	X	.
OBZ-4	1459.40	1459.65	.	.	.	.	.	.	X	.
OBZ-4	1462.40	1462.65	.	.	.	.	.	.	X	.
OBZ-4	1464.90	1465.15	.	X	.	.	.	.	X	.
OBZ-4	1465.80	0.00	X	~	~	~	~	~	~	~
OBZ-4	1471.05	1471.30	.	.	.	.	.	.	X	.
OBZ-4	1480.25	1480.50	.	.	.	.	.	.	X	.
OBZ-4	1482.00	1482.25	.	X	.	.	.	.	X	.
OBZ-4	1487.60	1487.85	.	.	.	.	.	.	X	.
OBZ-4	1490.30	1490.55	.	.	.	.	.	.	X	.
OBZ-4	1492.70	1492.95	.	X	.	.	.	.	X	.
OBZ-4	1494.50	1494.75	.	.	.	.	.	.	X	.
OBZ-4	1496.10	0.00	X	~	~	~	~	~	~	~
OBZ-4	1497.00	1497.25	.	.	.	.	.	.	X	.
OBZ-4	1500.80	1501.05	.	X	.	.	.	.	B	X
OBZ-4	1504.25	1504.50	.	.	.	.	.	.	X	.
OBZ-4	1507.20	1507.45	.	.	.	.	.	.	X	.
OBZ-4	1511.00	1511.15	.	.	.	.	.	.	X	.
OBZ-4	1513.05	1513.30	.	X	.	.	.	.	X	.
OBZ-4	1515.45	1515.70	.	.	.	.	.	.	X	.
OBZ-4	1516.20	0.00	X	~	~	~	~	~	~	~
OBZ-4	1516.40	1516.65	.	.	.	.	.	.	X	.
OBZ-4	1519.70	0.00	X	~	~	~	~	~	~	~
OBZ-4	1529.30	1529.55	.	.	.	.	.	.	X	.
OBZ-4	1529.90	0.00	X	~	~	~	~	~	~	~
OBZ-4	1540.10	1540.35	.	.	.	.	.	.	X	.
OBZ-4	1542.90	1543.15	.	X	.	.	.	.	X	X
OBZ-4	1545.25	1545.50	.	.	.	.	.	.	X	.
OBZ-4	1547.55	1547.80	.	.	.	.	.	.	X	.
OBZ-4	1554.80	1555.05	.	.	.	.	.	.	X	.
OBZ-4	1555.40	0.00	X	~	~	~	~	~	~	~
OBZ-4	1565.90	0.00	X	~	~	~	~	~	~	~
OBZ-4	1567.70	1567.95	.	.	.	.	.	.	X	.
OBZ-4	1575.90	1576.15	.	.	.	.	.	.	X	.
OBZ-4	1577.60	1577.85	.	.	.	.	.	.	X	.
OBZ-4	1586.20	1586.45	.	X	.	.	.	.	B	.
OBZ-4	1596.00	1596.25	.	.	.	.	.	.	X	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OCT-5	0.20	0.45	.	X	.	X	X	.	.	.
OCT-5	3.15	3.40	.	.	.	.	.	.	.	.
OCT-5	6.50	6.75	.	.	.	.	.	.	.	.
OCT-5	8.80	9.05	.	X	.	X	X	.	.	.
OCT-5	11.90	12.15	.	.	.	.	.	.	.	.
OCT-5	14.30	14.55	.	.	.	.	.	.	.	.
OCT-5	17.50	17.75	.	X	.	X	X	.	.	.
OCT-5	19.90	20.15	.	.	.	.	.	.	.	.
OCT-5	22.95	23.20	.	.	.	.	.	.	.	.
OCT-5	27.90	28.15	.	X	.	.	X	.	.	.
OCT-5	35.35	35.60	.	.	.	.	.	.	.	.
OCT-5	37.50	37.75	.	.	.	.	.	.	.	.
OCT-5	39.50	39.75	.	X	.	X	X	.	.	.
OCT-5	42.60	42.85	.	.	.	.	.	.	.	.
OCT-5	45.05	45.30	.	.	.	.	.	.	.	.
OCT-5	48.05	48.30	.	X	.	X	X	.	.	.
OCT-5	51.25	51.50	.	.	.	.	.	.	.	.
OCT-5	54.30	54.55	.	.	.	.	.	.	.	.
OCT-5	57.55	57.80	.	X	.	X	X	.	.	.
OCT-5	60.45	60.70	.	.	.	.	.	.	.	.
OCT-5	63.85	64.10	.	.	.	.	.	.	.	.
OCT-5	66.80	67.05	.	X	.	X	X	.	.	.
OCT-5	70.35	70.60	.	.	.	.	.	.	.	.
OCT-5	74.05	74.30	.	.	.	.	.	.	.	.
OCT-5	76.65	76.90	.	X	.	X	X	.	.	.
OCT-5	79.30	79.55	.	.	.	.	.	.	.	.
OCT-5	83.05	83.30	.	.	.	.	.	.	.	.
OCT-5	86.15	86.40	.	X	.	X	X	.	.	.
OCT-5	89.35	89.60	.	.	.	.	.	.	.	.
OCT-5	92.50	92.75	.	.	.	.	.	.	.	.
OCT-5	95.35	95.60	.	X	.	X	X	.	.	.
OCT-5	98.40	98.65	.	.	.	.	.	.	.	.
OCT-5	101.35	101.60	.	.	.	.	.	.	.	.
OCT-5	104.25	104.50	.	X	.	.	X	.	.	.
OCT-5	107.20	107.45	.	.	.	.	.	.	.	.
OCT-5	110.25	110.50	.	.	.	.	.	.	.	.
OCT-5	113.15	113.40	.	X	.	X	X	.	.	.
OCT-5	115.75	116.00	.	X	.	.	X	.	.	.
OCT-5	118.75	119.00	.	.	.	.	.	.	.	.
OCT-5	121.60	121.85	.	.	.	.	.	.	.	.
OCT-5	124.00	124.25	.	X	.	X	X	.	.	.
OCT-5	127.15	127.40	.	.	.	.	.	.	.	.
OCT-5	130.05	130.30	.	.	.	.	.	.	.	.
OCT-5	132.80	133.05	.	X	.	X	X	.	.	.
OCT-5	135.10	135.35	.	.	.	.	.	.	.	.
OCT-5	138.10	138.35	.	.	.	.	.	.	.	.
OCT-5	140.90	141.15	.	X	.	X	X	.	.	.
OCT-5	143.50	143.75	.	.	.	.	.	.	.	.
OCT-5	146.20	146.45	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OCT-5	149.65	149.90	.	X	.	X	X	.	.	.
OCT-5	152.20	152.45	.	.	.	.	.	.	.	.
OCT-5	155.15	155.40	.	.	.	.	.	.	.	.
OCT-5	157.60	157.85	.	X	.	X	X	.	.	.
OCT-5	160.40	160.65	.	.	.	.	.	.	.	.
OCT-5	163.25	163.50	.	.	.	.	.	.	.	.
OCT-5	166.40	166.65	.	X	.	X	X	.	.	.
OCT-5	170.10	170.35	.	.	.	.	.	.	.	.
OCT-5	173.75	174.00	.	.	.	.	.	.	.	.
OCT-5	176.25	176.50	.	X	.	X	X	.	.	.
OCT-5	179.40	179.65	.	.	.	.	.	.	.	.
OCT-5	182.75	183.00	.	.	.	.	.	.	.	.
OCT-5	186.00	186.25	.	X	.	X	X	.	.	.
OCT-5	189.20	189.45	.	.	.	.	.	.	.	.
OCT-5	192.30	192.55	.	.	.	.	.	.	.	.
OCT-5	196.20	196.45	.	X	.	.	.	.	.	.
OCT-5	199.35	199.60	.	.	.	.	.	.	.	.
OCT-5	202.60	202.85	.	.	.	.	.	.	.	.
OCT-5	204.70	0.00	X							
OCT-5	205.15	205.40	.	X	.	X	X	.	.	.
OCT-5	208.45	208.70	.	.	.	.	.	.	.	.
OCT-5	211.20	211.45	.	.	.	.	.	.	.	.
OCT-5	214.35	214.60	.	X	.	X	X	.	.	.
OCT-5	217.70	217.95	.	.	.	.	.	.	.	.
OCT-5	220.40	220.65	.	.	.	.	.	.	.	.
OCT-5	221.10	221.35	.	.	.	.	.	.	.	.
OCT-5	223.80	224.05	.	X	.	X	X	.	.	.
OCT-5	226.20	226.45	.	.	.	.	.	.	.	.
OCT-5	229.15	229.40	.	.	.	.	.	.	.	.
OCT-5	232.60	232.85	.	X	.	X	X	.	.	.
OCT-5	236.55	236.80	.	.	.	.	.	.	.	.
OCT-5	241.30	241.55	.	.	.	.	.	.	.	.
OCT-5	247.25	247.50	.	X	.	X	X	X	.	.
OCT-5	250.90	251.15	.	.	.	.	.	.	.	.
OCT-5	254.20	0.00	X							
OCT-5	260.50	260.70	.	.	.	.	.	.	.	.
OCT-5	263.40	263.65	.	X	.	X	X	X	.	.
OCT-5	266.40	266.65	.	.	.	.	.	.	.	.
OCT-5	269.15	269.40	.	.	.	.	.	.	.	.
OCT-5	272.45	272.70	.	X	.	X	X	.	.	.
OCT-5	275.00	275.25	.	.	X	X	X	.	.	.
OCT-5	278.30	278.55	.	.	.	.	.	.	.	.
OCT-5	283.45	283.70	.	.	.	.	.	.	.	.
OCT-5	286.00	286.25	.	X	.	.	X	.	.	.
OCT-5	292.00	292.25	.	.	.	.	.	.	.	.
OCT-5	294.40	0.00	X							
OCT-5	296.05	296.30	.	X	.	X	X	.	.	.
OCT-5	300.00	300.25	.	.	.	.	.	.	.	.
OCT-5	302.95	303.20	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OCT-5	306.45	306.70	.	X	.	X	X	.	.	.
OCT-5	309.20	309.45	.	.	.	.	.	.	.	.
OCT-5	312.55	312.80	.	.	.	.	.	.	.	.
OCT-5	315.55	315.80	.	X	.	.	X	.	.	.
OCT-5	318.40	318.65	.	.	.	.	.	.	.	.
OCT-5	321.75	322.00	.	X	.	X	X	.	.	.
OCT-5	324.80	325.05	.	.	.	.	.	.	.	.
OCT-5	330.30	330.55	.	.	.	.	.	.	.	.
OCT-5	334.35	334.60	.	.	.	.	.	.	.	.
OCT-5	337.35	337.60	.	X	.	X	X	.	.	.
OCT-5	340.40	340.65	.	.	.	.	.	.	.	.
OCT-5	343.70	343.95	.	.	.	.	.	.	.	.
OCT-5	347.65	347.90	.	X	.	X	X	.	.	.
OCT-5	351.00	351.25	.	.	.	.	.	.	.	.
OCT-5	356.15	356.40	.	X	.	X	X	.	.	.
OCT-5	359.00	359.25	.	.	.	.	.	.	.	.
OCT-5	362.50	362.75	.	.	.	.	.	.	.	.
OCT-5	364.70	0.00	X							
OCT-5	368.10	368.35	.	.	.	.	.	.	.	.
OCT-5	371.10	371.35	.	X	.	X	X	.	.	.
OCT-5	373.50	0.00	X							
OCT-5	374.15	374.40	.	.	.	.	.	.	.	.
OCT-5	376.70	376.95	.	X	.	.	X	.	.	.
OCT-5	379.50	379.75	.	.	.	.	.	.	.	.
OCT-5	382.85	383.10	.	.	.	.	.	.	.	.
OCT-5	385.35	385.60	.	X	.	X	X	.	.	.
OCT-5	386.00	386.25	.	.	.	.	.	.	.	.
OCT-5	392.05	392.30	.	.	.	.	.	.	.	.
OCT-5	395.35	395.60	.	X	.	.	X	.	.	.
OCT-5	401.85	402.10	.	.	.	.	.	.	.	.
OCT-5	405.50	405.75	.	.	.	.	.	.	.	.
OCT-5	408.70	408.95	.	X	.	X	X	.	.	.
OCT-5	411.60	0.00	X							
OCT-5	412.25	412.50	.	.	.	.	.	.	.	.
OCT-5	414.80	415.05	.	.	.	.	.	.	.	.
OCT-5	418.30	418.55	.	X	.	.	X	.	.	.
OCT-5	421.05	421.30	.	.	.	.	.	.	.	.
OCT-5	424.15	424.40	.	X	.	X	X	.	.	.
OCT-5	427.20	427.45	.	.	.	.	.	.	.	.
OCT-5	430.30	430.55	.	.	.	.	.	.	.	.
OCT-5	433.10	433.35	.	.	.	.	.	.	.	.
OCT-5	435.90	436.15	.	X	.	.	X	.	.	.
OCT-5	443.80	444.05	.	.	.	.	.	.	.	.
OCT-5	446.90	447.15	.	X	.	X	X	.	.	.
OCT-5	449.50	449.75	.	.	.	.	.	.	.	.
OCT-5	452.45	452.70	.	.	.	.	.	.	.	.
OCT-5	455.25	455.50	.	X	.	.	X	.	.	.
OCT-5	458.00	458.25	.	.	.	.	.	.	.	.
OCT-5	460.95	461.20	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OCT-5	463.95	464.20	.	X	.	X	X	.	.	.
OCT-5	466.80	467.05	.	.	.	.	.	.	.	.
OCT-5	469.45	469.70	.	.	.	.	.	.	.	.
OCT-5	472.50	472.75	.	X	.	.	X	.	.	.
OCT-5	475.10	475.35	.	.	.	.	.	.	.	.
OCT-5	481.10	481.35	.	.	.	.	.	.	.	.
OCT-5	483.95	484.20	.	X	.	.	X	.	.	.
OCT-5	487.15	487.40	.	.	.	.	.	.	.	.
OCT-5	490.20	490.45	.	X	.	X	X	.	.	.
OCT-5	493.50	493.75	.	.	.	.	.	.	.	.
OCT-5	497.00	497.25	.	.	.	.	.	.	.	.
OCT-5	500.45	500.70	.	X	.	X	X	.	.	.
OCT-5	503.05	503.30	.	.	.	.	.	.	.	.
OCT-5	506.10	506.35	.	.	.	.	.	.	.	.
OCT-5	509.60	509.85	.	X	.	X	X	.	.	.
OCT-5	512.40	512.65	.	.	.	.	.	.	.	.
OCT-5	515.85	516.10	.	.	.	.	.	.	.	.
OCT-5	518.85	519.10	.	X	.	.	X	.	.	.
OCT-5	522.50	522.75	.	.	.	.	.	.	.	.
OCT-5	525.55	525.80	.	X	.	.	X	.	.	.
OCT-5	529.00	529.25	.	.	.	.	.	.	.	.
OCT-5	531.60	531.85	.	.	.	.	.	.	.	.
OCT-5	534.60	534.85	.	X	.	X	X	.	.	.
OCT-5	537.75	538.00	.	.	.	.	.	.	.	.
OCT-5	540.40	540.65	.	.	.	.	.	.	.	.
OCT-5	543.30	543.55	.	X	.	X	X	X	.	.
OCT-5	546.25	546.50	.	.	.	.	.	.	.	.
OCT-5	549.30	549.55	.	.	.	.	.	.	.	.
OCT-5	552.10	552.35	.	X	.	X	X	X	.	.
OCT-5	554.75	555.00	.	.	.	.	.	.	.	.
OCT-5	557.50	557.75	.	.	.	.	.	.	.	.
OCT-5	560.10	560.35	.	X	.	X	X	.	.	.
OCT-5	563.90	564.15	.	.	.	.	.	.	.	.
OCT-5	573.15	573.40	.	.	.	.	.	.	.	.
OCT-5	575.85	576.10	.	X	.	X	X	X	.	.
OCT-5	579.05	579.30	.	.	.	.	.	.	.	.
OCT-5	582.05	582.30	.	.	.	.	.	.	.	.
OCT-5	587.55	587.80	.	X	.	X	X	X	.	.
OCT-5	590.65	590.90	.	.	.	.	.	.	.	.
OCT-5	593.60	593.85	.	.	.	.	.	.	.	.
OCT-5	596.85	597.10	.	.	.	.	.	.	.	.
OCT-5	599.30	599.55	.	X	.	X	X	.	.	X
OCT-5	602.00	602.25	.	.	.	.	.	.	.	.
OCT-5	605.00	605.25	.	.	.	.	.	.	.	.
OCT-5	608.20	608.45	.	X	.	X	X	X	.	.
OCT-5	610.90	611.15	.	.	.	.	.	.	.	.
OCT-5	613.75	614.00	.	.	.	.	.	.	.	.
OCT-5	616.70	616.95	.	X	.	X	X	X	.	X
OCT-5	619.60	0.00	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OCT-5	619.80	620.05	.	.	.	.	.	.	.	.
OCT-5	622.30	622.55	.	.	.	.	.	.	.	.
OCT-5	625.25	625.50	.	X	.	X	X	.	.	.
OCT-5	628.05	628.30	.	.	.	.	.	.	.	.
OCT-5	630.55	630.80	.	.	.	.	.	.	.	.
OCT-5	636.30	636.55	.	X	.	X	X	X	.	X
OCT-5	642.90	643.15	.	.	.	.	.	.	.	.
OCT-5	646.10	646.35	.	.	.	.	.	.	.	.
OCT-5	648.95	649.20	.	X	.	X	X	X	.	.
OCT-5	649.50	649.60	.	.	.	.	.	.	.	.
OCT-5	652.00	0.00	.	.	.	.	.	.	.	.
OCT-5	652.30	652.55	.	.	.	.	.	.	.	.
OCT-5	655.10	655.35	.	.	.	.	.	.	.	.
OCT-5	657.85	658.10	.	X	.	X	X	X	.	.
OCT-5	661.00	661.25	.	.	.	.	.	.	.	.
OCT-5	663.90	664.15	.	.	.	.	.	.	.	.
OCT-5	666.85	667.10	.	X	.	.	X	.	.	.
OCT-5	670.75	671.00	.	.	.	.	.	.	.	.
OCT-5	674.05	674.30	.	.	.	.	.	.	.	.
OCT-5	676.55	676.80	.	X	.	X	X	.	.	X
OCT-5	679.40	679.60	.	.	.	.	.	.	.	.
OCT-5	682.65	682.90	.	.	.	.	.	.	.	.
OCT-5	686.00	686.25	.	X	.	X	X	X	.	.
OCT-5	689.20	689.45	.	.	.	.	.	.	.	.
OCT-5	692.50	692.75	.	.	.	.	.	.	.	.
OCT-5	695.00	695.25	.	X	.	X	X	.	.	.
OCT-5	698.15	698.40	.	.	.	.	.	.	.	.
OCT-5	698.65	698.90	.	.	.	.	.	.	.	.
OCT-5	700.90	701.15	.	X	.	.	X	.	.	.
OCT-5	704.00	704.25	.	.	.	.	.	.	.	.
OCT-5	707.25	707.50	.	.	.	.	.	.	.	.
OCT-5	709.60	709.85	.	X	.	.	X	.	.	.
OCT-5	712.80	713.05	.	.	.	.	.	.	.	.
OCT-5	715.75	716.00	.	.	.	.	.	.	.	.
OCT-5	718.05	718.30	.	X	.	X	X	.	.	X
OCT-5	720.55	720.80	.	.	.	.	.	.	.	.
OCT-5	723.55	723.80	.	.	.	.	.	.	.	.
OCT-5	726.65	726.90	.	X	.	X	X	.	.	.
OCT-5	729.50	729.75	.	.	.	.	.	.	.	.
OCT-5	732.30	732.55	.	.	.	.	.	.	.	.
OCT-5	735.40	735.60	.	X	.	X	X	.	.	.
OCT-5	738.75	739.00	.	.	.	.	.	.	.	.
OCT-5	741.80	742.05	.	.	.	.	.	.	.	.
OCT-5	744.80	745.05	.	X	.	X	X	.	.	.
OCT-5	748.10	748.35	.	.	.	.	.	.	.	.
OCT-5	750.95	751.20	.	.	.	.	.	.	.	.
OCT-5	754.35	754.60	.	X	.	.	X	.	.	.
OCT-5	757.15	757.40	.	.	.	.	.	.	.	.
OCT-5	759.95	760.20	.	.	.	.	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEF	RSTF	OPK	BPK	PPK	LPK	NBP
OCT-5	763.25	763.50	.	X	.	X	X	.	.	X
OCT-5	766.20	766.45	.	.	.	.	.	.	.	.
OCT-5	769.40	769.65	.	.	.	.	.	.	.	.
OCT-5	772.00	772.25	.	X	.	X	X	.	.	.
OCT-5	775.00	775.25	.	.	.	.	.	.	.	.
OCT-5	777.80	778.05	.	.	.	.	.	.	.	.
OCT-5	781.00	781.25	.	X	.	X	X	X	.	.
OCT-5	786.10	786.35	.	.	.	.	.	.	.	.
OCT-5	788.80	789.05	.	.	.	.	.	.	.	.
OCT-5	794.60	794.85	.	X	.	X	X	.	.	.
OCT-5	797.50	797.75	.	.	.	.	.	.	.	.
OCT-5	800.45	800.70	.	.	.	.	.	.	.	.
OCT-5	803.25	803.50	.	X	.	X	X	X	.	.
OCT-5	806.30	806.55	.	.	.	.	.	.	.	.
OCT-5	809.40	809.65	.	.	.	.	.	.	.	.
OCT-5	812.55	812.80	.	X	.	X	X	X	.	.
OCT-5	815.70	815.95	.	.	.	.	.	.	.	.
OCT-5	818.65	818.90	.	.	.	.	.	.	.	.
OCT-5	821.85	822.10	.	X	.	X	X	X	.	X
OCT-5	824.70	0.00	X							
OCT-5	824.90	825.15	.	.	.	.	.	.	.	.
OCT-5	827.15	827.40	.	X	.	X	X	.	.	.
OCT-5	831.20	831.45	.	.	.	.	.	.	.	.
OCT-5	834.60	834.85	.	X	.	X	X	.	.	.
OCT-5	837.70	837.95	.	.	.	.	.	.	.	.
OCT-5	841.00	841.25	.	X	.	X	X	.	.	.
OCT-5	844.10	844.35	.	.	.	.	.	.	.	.
OCT-5	847.00	847.25		.	.	.	.	.	.	.
OCT-5	850.20	850.45	.	X	.	.	X	.	.	X

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
ODT-6	0.30	0.55	.	X	.	.	.	.	.	.
ODT-6	4.50	4.75	.	.	.	.	.	.	.	.
ODT-6	6.30	6.55	.	X	.	.	.	.	.	.
ODT-6	8.70	8.95	.	.	.	.	.	.	.	.
ODT-6	10.80	11.05	.	X	.	.	.	.	.	.
ODT-6	13.00	13.25	.	.	.	.	.	.	.	.
ODT-6	15.60	15.85	.	X	.	.	.	.	.	.
ODT-6	17.90	18.15	.	.	.	.	.	.	.	.
ODT-6	19.75	20.00	.	X	.	.	.	.	.	.
ODT-6	23.85	24.10	.	.	.	.	.	.	.	.
ODT-6	26.60	26.85	.	X	.	.	.	.	.	.
ODT-6	28.65	28.90	.	.	.	.	.	.	.	.
ODT-6	30.70	30.95	.	X	.	X	X	.	.	.
ODT-6	33.45	33.70	.	.	.	.	.	.	.	.
ODT-6	37.50	37.75	.	X	.	.	.	.	.	.
ODT-6	39.35	39.60	.	.	.	.	.	.	.	.
ODT-6	41.85	42.10	.	X	.	.	.	.	.	.
ODT-6	44.65	44.90	.	.	.	.	.	.	.	.
ODT-6	47.50	47.75	.	X	.	.	.	.	.	.
ODT-6	50.00	50.25	.	.	.	.	.	.	.	.
ODT-6	51.80	52.05	.	X	.	X	X	.	.	.
ODT-6	53.20	0.00	X							
ODT-6	53.75	54.00	.	.	.	.	.	.	.	.
ODT-6	55.60	55.85	.	X	.	X	X	.	.	.
ODT-6	58.00	58.25	.	.	.	.	.	.	.	.
ODT-6	60.50	60.75	.	X	.	X	X	.	.	.
ODT-6	62.70	62.95	.	.	.	.	.	.	.	.
ODT-6	65.85	66.10	.	X	.	X	X	.	.	.
ODT-6	71.25	71.50	.	.	.	.	.	.	.	.
ODT-6	74.10	0.00	X							
ODT-6	74.50	74.75	.	X	.	X	X	.	.	.
ODT-6	77.25	77.50	.	.	.	.	.	.	.	.
ODT-6	79.95	80.20	.	X	.	.	.	.	.	.
ODT-6	82.10	81.35	.	.	.	.	.	.	.	.
ODT-6	85.40	85.65	.	X	.	.	.	.	.	.
ODT-6	88.45	88.70	.	.	.	.	.	.	.	.
ODT-6	91.00	91.25	.	X	.	.	.	.	.	.
ODT-6	93.80	94.05	.	.	.	.	.	.	.	.
ODT-6	97.40	97.65	.	X	.	.	.	.	.	.
ODT-6	100.30	100.55	.	.	.	.	.	.	.	.
ODT-6	102.85	103.10	.	X	.	X	X	.	.	.
ODT-6	105.60	105.85	.	.	.	.	.	.	.	.
ODT-6	111.60	111.85	.	X	.	X	X	.	.	.
ODT-6	113.90	0.00	X							
ODT-6	144.40	144.65	.	.	.	.	.	.	.	.
ODT-6	117.50	117.75	.	X	.	X	X	.	.	.
ODT-6	120.10	120.35	.	.	.	.	.	.	.	.
ODT-6	123.50	123.75	.	X	.	X	X	.	.	.
ODT-6	126.70	126.95	.	.	.	.	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
ODT-6	129.30	129.55	.	X	.	.	.	.	.	.
ODT-6	132.90	133.15	.	.	.	.	.	.	.	.
ODT-6	135.75	136.00	.	X	.	.	.	.	.	.
ODT-6	138.70	138.95	.	.	.	.	.	.	.	.
ODT-6	142.40	142.65	.	X	.	X	X	.	.	.
ODT-6	144.20	0.00	X							
ODT-6	144.70	144.95	.	.	.	.	.	.	.	.
ODT-6	148.15	148.40	.	X	.	X	X	.	.	.
ODT-6	151.10	151.35	.	X	.	.	.	.	.	.
ODT-6	154.00	154.25	.	.	.	.	.	.	.	.
ODT-6	157.30	157.55	.	X	.	X	X	X	.	.
ODT-6	160.45	160.70	.	.	.	.	.	.	.	.
ODT-6	163.50	163.75	.	X	.	X	X	X	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OET-7	0.20	0.45	.	X	.	.	.	.	.	.
OET-7	2.70	2.95	.	.	.	.	.	.	.	.
OET-7	5.10	5.35	.	.	.	.	.	.	.	.
OET-7	7.75	8.00	.	X	.	.	.	.	.	.
OET-7	10.10	10.35	.	.	.	.	.	.	.	.
OET-7	12.30	12.55	.	.	.	.	.	.	.	.
OET-7	17.45	17.70	.	X	.	.	.	.	.	.
OET-7	19.30	19.55	.	.	.	.	.	.	.	.
OET-7	21.55	21.80	.	.	.	.	.	.	.	.
OET-7	22.65	22.90	.	X	.	.	.	.	.	.
OET-7	25.90	26.15	.	.	.	.	.	.	.	.
OET-7	29.90	30.15	.	.	.	.	.	.	.	.
OET-7	32.75	33.00	.	X	.	.	.	.	.	.
OET-7	36.20	36.45	.	.	.	.	.	.	.	.
OET-7	38.45	38.70	.	.	.	.	.	.	.	.
OET-7	40.60	40.85	.	X	.	.	.	.	.	.
OET-7	42.85	43.10	.	.	.	.	.	.	.	.
OET-7	45.25	45.50	.	.	.	.	.	.	.	.
OET-7	47.55	47.80	.	X	.	.	.	.	.	.
OET-7	49.70	0.00	X							
OET-7	50.80	51.05	.	.	.	.	.	.	.	.
OET-7	53.30	53.55	.	.	.	.	.	.	.	.
OET-7	55.75	56.00	.	X	.	X	X	.	.	.
OET-7	58.65	58.90	.	.	.	.	.	.	.	.
OET-7	61.70	61.95	.	.	.	.	.	.	.	.
OET-7	64.25	64.50	.	X	.	X	X	.	.	.
OET-7	66.15	66.40	.	.	.	.	.	.	.	.
OET-7	66.50	0.00	X							
OET-7	68.05	68.30	.	.	.	.	.	.	.	.
OET-7	70.65	70.90	.	X	.	.	X	.	.	.
OET-7	72.50	72.75	.	.	.	.	.	.	.	.
OET-7	75.20	75.45	.	.	.	.	.	.	.	.
OET-7	78.20	78.45	.	X	.	X	X	.	.	.
OET-7	78.80	0.00	X							
OET-7	82.00	82.25	.	X	.	.	.	.	.	.
OET-7	84.60	84.85	.	.	.	.	.	.	.	.
OET-7	86.40	86.65	.	.	.	.	.	.	.	.
OET-7	88.35	88.60	.	X	.	X	X	.	.	.
OET-7	90.40	90.65	.	.	.	.	.	.	.	.
OET-7	93.25	93.50	.	.	.	.	.	.	.	.
OET-7	95.30	0.00	X							
OET-7	95.55	95.80	.	X	.	X	X	.	.	.
OET-7	98.15	98.40	.	.	.	.	.	.	.	.
OET-7	99.25	99.50	.	.	.	.	.	.	.	.
OET-7	102.45	102.70	.	X	.	.	.	.	.	.
OET-7	105.20	105.45	.	.	.	.	.	.	.	.
OET-7	108.60	108.85	.	.	.	.	.	.	.	.
OET-7	111.30	111.55	.	X	.	X	X	.	.	.
OET-7	113.70	0.00	X							

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OET-7	144.25	144.50	.	.	.	.	.	.	.	.
OET-7	117.45	117.70	.	X	.	.	X	.	.	.
OET-7	120.20	120.45	.	.	.	.	.	.	.	.
OET-7	122.60	0.00	X							
OET-7	123.40	123.65	.	X	.	X	X	.	.	.
OET-7	126.35	126.60	.	.	.	.	.	.	.	.
OET-7	129.15	129.40	.	.	.	.	.	.	.	.
OET-7	132.00	132.25	.	.	.	.	.	.	.	.
OET-7	134.85	135.10	.	.	.	.	.	.	.	.
OET-7	136.80	0.00	X							
OET-7	137.30	137.55	.	.	.	.	.	.	.	.
OET-7	140.10	140.35	.	X	.	.	X	.	.	.
OET-7	143.50	142.75	.	.	.	.	.	.	.	.
OET-7	146.20	146.45	.	.	.	.	.	.	.	.
OET-7	149.55	149.80	.	X	.	.	.	.	.	.
OET-7	152.15	152.40	.	.	.	.	.	.	.	.
OET-7	155.00	155.25	.	.	.	.	.	.	.	.
OET-7	158.10	158.35	.	X	.	.	.	.	.	.
OET-7	164.10	164.35	.	.	.	.	.	.	.	.
OET-7	167.15	167.40	.	X	.	X	X	.	.	.
OET-7	173.25	173.50	.	.	.	.	.	.	.	.
OET-7	176.70	176.95	.	.	.	.	.	.	.	.
OET-7	179.05	179.30	.	X	.	.	.	.	.	.
OET-7	184.85	185.10	.	.	.	.	.	.	.	.
OET-7	187.80	0.00	X							
OET-7	188.15	188.40	.	.	.	.	.	.	.	.
OET-7	191.30	191.55	.	X	.	X	X	X	.	.
OET-7	194.35	194.60	.	.	.	.	.	.	.	.
OET-7	197.90	198.15	.	.	.	.	.	.	.	.
OET-7	202.25	202.50	.	X	.	.	.	.	.	.
OET-7	205.35	205.60	.	.	.	.	.	.	.	.
OET-7	207.70	0.00	X							
OET-7	208.25	208.50	.	X	.	.	.	.	.	.
OET-7	213.60	0.00	X							
OET-7	216.95	217.20	.	.	.	.	.	.	.	.
OET-7	219.65	219.90	.	X	.	X	X	.	.	.
OET-7	222.70	0.00	X							
OET-7	225.15	225.40	.	.	.	.	.	.	.	.
OET-7	231.25	231.50	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OFT-8	0.00	0.00	.	X	.	.	.	.	.	.
OFT-8	0.65	0.90	.	.	.	.	.	.	.	.
OFT-8	4.55	4.80	.	.	.	.	.	.	.	.
OFT-8	8.75	9.00	.	X	.	.	.	.	.	.
OFT-8	11.40	11.65	.	.	.	.	.	.	.	.
OFT-8	14.80	15.05	.	.	.	.	.	.	.	.
OFT-8	18.60	18.85	.	X	.	.	.	.	.	.
OFT-8	21.55	21.80	.	.	.	.	.	.	.	.
OFT-8	24.65	24.90	.	.	.	.	.	.	.	.
OFT-8	27.90	28.15	.	X	.	.	.	.	.	.
OFT-8	30.20	30.45	.	.	.	.	.	.	.	.
OFT-8	33.50	33.75	.	.	.	.	.	.	.	.
OFT-8	35.10	35.35	.	X	.	.	.	.	.	.
OFT-8	37.90	38.15	.	.	.	.	.	.	.	.
OFT-8	40.05	40.30	.	.	.	.	.	.	.	.
OFT-8	43.10	43.35	.	X	.	.	.	.	.	.
OFT-8	45.45	45.70	.	.	.	.	.	.	.	.
OFT-8	46.70	46.95	.	.	.	.	.	.	.	.
OFT-8	48.85	49.10	.	X	.	.	.	.	.	.
OFT-8	52.30	52.55	.	.	.	.	.	.	.	.
OFT-8	56.45	56.70	.	.	.	.	.	.	.	.
OFT-8	58.80	59.05	.	.	.	.	.	.	.	.
OFT-8	64.00	64.25	.	X	.	X	X	.	.	.
OFT-8	67.70	67.95	.	.	.	.	.	.	.	.
OFT-8	71.00	71.25	.	.	.	.	.	.	.	.
OFT-8	74.00	74.25	.	X	.	X	X	.	.	.
OFT-8	77.10	77.35	.	.	.	.	.	.	.	.
OFT-8	80.75	81.00	.	.	.	.	.	.	.	.
OFT-8	83.20	0.00	X							
OFT-8	83.60	83.85	.	.	.	.	.	.	.	.
OFT-8	87.30	87.55	.	X	.	X	.	.	.	.
OFT-8	89.95	90.20	.	.	.	.	.	.	.	.
OFT-8	92.50	0.00	X							
OFT-8	96.10	96.35	.	.	.	.	.	.	.	.
OFT-8	99.40	99.65	.	X	.	X	.	.	.	.
OFT-8	103.20	103.45	.	X	.	.	.	.	.	.
OFT-8	106.65	106.90	.	.	.	.	.	.	.	.
OFT-8	109.40	109.65	.	.	.	.	.	.	.	.
OFT-8	114.90	115.15	.	.	.	.	.	.	.	.
OFT-8	118.00	118.25	.	X	.	.	.	.	.	.
OFT-8	120.50	120.75	.	X	.	.	.	.	.	.
OFT-8	121.10	0.00	X							
OFT-8	123.60	123.85	.	.	.	.	.	.	.	.
OFT-8	128.90	129.15	.	X	.	X	X	.	.	.
OFT-8	132.75	133.00	.	.	.	.	.	.	.	.
OFT-8	135.50	135.75	.	.	.	.	.	.	.	.
OFT-8	138.60	138.85	.	X	.	X	X	.	.	.
OFT-8	141.00	141.25	.	.	.	.	.	.	.	.
OFT-8	141.20	0.00	X							

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OFT-8	143.65	143.90	.	.	.	.	.	.	.	.
OFT-8	146.35	146.60	.	X	.	X	X	.	.	.
OFT-8	149.15	149.40	.	X	.	X	.	X	.	.
OFT-8	152.45	152.70	.	.	.	.	.	.	.	.
OFT-8	155.20	155.45	.	.	.	.	.	.	.	.
OFT-8	157.85	158.10	.	X	.	X	.	.	.	.
OFT-8	160.80	161.05	.	.	.	.	.	.	.	.
OFT-8	163.50	163.75	.	X	.	X	X	X	.	.
OFT-8	165.90	166.15	.	.	.	.	.	.	.	.
OFT-8	168.75	169.00	.	.	.	.	.	.	.	.
OFT-8	174.40	174.65	.	.	.	.	.	.	.	.
OFT-8	177.65	177.90	.	X	.	.	.	.	.	.
OFT-8	181.60	181.85	.	.	.	.	.	.	.	.
OFT-8	186.25	186.50	.	.	.	.	.	.	.	.
OFT-8	189.30	189.55	.	.	.	.	.	.	.	.
OFT-8	192.50	192.75	.	X	.	X	.	X	.	.
OFT-8	199.30	199.55	.	.	.	.	.	.	.	.
OFT-8	201.70	201.95	.	.	.	.	.	.	.	.
OFT-8	202.00	0.00	X							
OFT-8	204.85	205.10	.	.	.	.	.	.	.	.
OFT-8	210.80	211.05	.	X	.	X	.	X	.	.
OFT-8	213.80	0.00	X							
OFT-8	214.70	214.95	.	.	.	.	.	.	.	.
OFT-8	223.90	224.15	.	.	.	.	.	.	.	.
OFT-8	227.15	227.40	.	X	.	X	.	X	.	.
OFT-8	230.40	0.00	X							
OFT-8	231.00	231.25	.	.	.	.	.	.	.	.
OFT-8	240.45	240.70	.	.	.	.	.	.	.	.
OFT-8	246.95	247.20	.	.	.	.	.	.	.	.
OFT-8	252.95	253.20	.	.	.	.	.	.	.	.
OFT-8	258.70	258.95	.	X	.	.	.	.	.	.
OFT-8	267.75	268.00	.	.	.	.	.	.	.	.
OFT-8	273.05	273.30	.	.	.	.	.	.	.	.
OFT-8	276.40	276.65	.	X	.	X	X	.	.	.
OFT-8	282.80	289.05	.	.	.	.	.	.	.	.

P.E.A.C.E. PROJECT CORE PROCESSING AND ANALYSIS REPORT

FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OGT-9	0.20	0.45	.	X	.	.	.	.	.	.
OGT-9	3.55	3.80	.	X	.	.	.	.	.	.
OGT-9	5.80	6.05	.	.	.	.	.	.	.	.
OGT-9	7.40	7.65	.	.	.	.	.	.	.	.
OGT-9	9.55	9.80	.	.	.	.	.	.	.	.
OGT-9	13.00	13.25	.	.	.	.	.	.	.	.
OGT-9	18.60	18.85	.	.	.	.	.	.	.	.
OGT-9	21.80	22.05	.	.	.	.	.	.	.	.
OGT-9	24.40	24.65	.	.	X	X	X	.	.	.
OGT-9	27.05	27.30	.	.	.	.	.	.	.	.
OGT-9	30.40	30.65	.	.	.	.	.	.	.	.
OGT-9	33.10	33.35	.	.	.	.	.	.	.	.
OGT-9	36.75	37.00	.	.	.	.	.	.	.	.
OGT-9	41.95	42.20	.	.	.	.	.	.	.	.
OGT-9	46.05	46.30	.	.	.	.	.	.	.	.
OGT-9	49.20	49.45	.	.	.	.	.	.	.	.
OGT-9	52.60	52.85	.	.	.	.	.	.	.	.
OGT-9	55.80	56.05	.	.	X	X	X	.	.	.
OGT-9	58.70	58.95	.	.	.	.	.	.	.	.
OGT-9	62.20	62.45	.	.	.	.	.	.	.	.
OGT-9	65.00	65.25	.	.	.	.	.	.	.	.
OGT-9	68.50	68.75	.	.	.	.	.	.	.	.
OGT-9	71.60	71.85	.	.	.	.	.	.	.	.
OGT-9	74.65	74.90	.	.	X	X	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OHT-10	0.20	0.45	.	.	.	.	.	.	.	.
OHT-10	2.60	2.85	.	X	.	.	X	X	.	.
OHT-10	5.55	5.80	.	.	.	.	.	.	.	.
OHT-10	7.45	7.70	.	.	.	.	.	.	.	.
OHT-10	9.85	10.10	.	.	.	.	.	.	.	.
OHT-10	14.85	15.10	.	.	.	.	.	.	.	.
OHT-10	16.60	16.85	.	.	.	.	.	.	.	.
OHT-10	20.15	20.40	.	.	.	.	.	.	.	.
OHT-10	24.20	24.45	.	X	.	.	.	.	.	.
OHT-10	28.25	28.50	.	.	.	.	.	.	.	.
OHT-10	31.40	31.65	.	.	.	.	.	.	.	.
OHT-10	33.20	33.45	.	.	.	.	.	.	.	.
OHT-10	36.10	36.35	.	.	.	.	.	.	.	.
OHT-10	39.80	40.05	.	.	.	.	.	.	.	.
OHT-10	42.40	42.65	.	.	.	.	.	.	.	.
OHT-10	45.90	46.15	.	.	.	.	.	.	.	.
OHT-10	47.75	48.00	.	X	.	X	X	.	.	.
OHT-10	53.50	53.75	.	.	.	.	.	.	.	.
OHT-10	56.50	56.75	.	.	.	.	.	.	.	.
OHT-10	60.65	60.90	.	.	.	.	.	.	.	.
OHT-10	64.70	64.95	.	.	.	.	.	.	.	.
OHT-10	67.40	67.65	.	.	.	.	.	.	.	.
OHT-10	71.00	71.25	.	.	.	.	.	.	.	.
OHT-10	75.85	76.10	.	.	.	.	.	.	.	.
OHT-10	78.20	78.45	.	X	.	.	.	.	.	.
OHT-10	81.20	81.45	.	.	.	.	.	.	.	.
OHT-10	83.50	83.75	.	.	.	.	.	.	.	.
OHT-10	86.70	86.95	.	.	.	.	.	.	.	.
OHT-10	89.55	89.80	.	.	.	.	.	.	.	.
OHT-10	95.00	95.25	.	X	.	X	X	.	.	.
OHT-10	98.10	98.35	.	.	.	.	.	.	.	.
OHT-10	102.25	102.50	.	.	.	.	.	.	.	.
OHT-10	107.40	107.65	.	.	.	.	.	.	.	.
OHT-10	113.95	114.20	.	.	.	.	.	.	.	.
OHT-10	116.05	116.30	.	X	.	X	X	.	.	.
OHT-10	120.10	120.35	.	.	.	.	.	.	.	.
OHT-10	122.70	122.95	.	.	.	.	.	.	.	.
OHT-10	124.85	125.10	.	.	.	.	.	.	.	.
OHT-10	130.35	130.60	.	.	.	.	.	.	.	.
OHT-10	134.80	135.05	.	.	.	.	.	.	.	.
OHT-10	140.10	140.35	.	X	.	X	X	X	.	.
OHT-10	144.30	144.55	.	X	.	.	.	.	.	.
OHT-10	149.75	149.90	.	X	.	X	X	.	.	.
OHT-10	155.45	155.70	.	X	.	.	X	.	.	.
OHT-10	158.50	158.75	.	X	.	X	X	.	.	.
OHT-10	161.40	161.65	.	X	.	.	.	.	.	.
OHT-10	162.25	162.50	.	X	.	.	X	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OIT-11	0.00	0.25	.	.	.	.	.	.	.	.
OIT-11	3.95	4.20	.	.	.	.	.	.	.	.
OIT-11	9.55	9.80	.	.	.	.	.	.	.	.
OIT-11	13.65	13.90	.	.	.	.	.	.	.	.
OIT-11	16.70	0.00	X	.	.	.	.	.	.	.
OIT-11	17.10	17.35	.	.	X	X	X	.	.	.
OIT-11	22.65	22.90	.	.	X	X	X	.	.	.
OIT-11	25.75	26.00	.	.	X	X	X	.	.	.
OIT-11	29.75	30.00	.	.	X	X	X	.	.	.
OIT-11	30.50	0.00	X	.	.	.	.	.	.	.
OIT-11	32.35	32.60	.	.	X	X	X	.	.	.
OIT-11	35.00	35.25	.	.	X	X	X	.	.	.
OIT-11	37.25	37.50	.	.	X	X	X	.	.	.
OIT-11	38.90	39.15	.	.	.	.	.	.	.	.
OIT-11	40.80	41.05	.	.	.	.	.	.	.	.
OIT-11	43.65	43.90	.	.	.	.	.	.	.	.
OIT-11	45.65	45.90	.	.	.	.	.	.	.	.
OIT-11	49.60	49.85	.	.	.	.	.	.	.	.
OIT-11	49.90	0.00	X	.	.	.	.	.	.	.
OIT-11	53.65	53.90	.	.	.	.	.	.	.	.
OIT-11	56.40	56.65	.	.	.	.	.	.	.	.
OIT-11	58.50	58.75	.	.	X	X	X	.	.	.
OIT-11	62.20	62.45	.	.	.	.	.	.	.	.
OIT-11	62.80	0.00	X	~	~	~	~	~	~	~
OIT-11	65.35	65.60	.	.	X	X	X	.	.	.
OIT-11	65.80	66.05	.	.	.	.	.	.	.	.
OIT-11	69.10	69.35	.	.	.	.	.	.	.	.
OIT-11	73.05	73.30	.	.	.	.	.	.	.	.
OIT-11	75.40	75.65	.	.	.	.	.	.	.	.
OIT-11	79.25	79.50	.	.	X	X	X	.	.	.
OIT-11	82.60	82.85	.	.	.	.	.	.	.	.
OIT-11	85.15	85.40	.	.	.	.	.	.	.	.
OIT-11	89.20	89.45	.	.	.	.	.	.	.	.
OIT-11	92.00	92.25	.	X	.	.	X	.	.	.
OIT-11	98.60	98.85	.	X	.	X	X	.	.	.
OIT-11	101.45	101.70	.	.	.	.	.	.	.	.
OIT-11	104.80	105.05	.	.	.	.	.	.	.	.
OIT-11	108.00	108.25	.	.	.	.	.	.	.	.
OIT-11	111.15	111.40	.	.	.	.	.	.	.	.
OIT-11	113.95	114.20	.	.	.	.	.	.	.	.
OIT-11	117.35	117.60	.	.	X	X	X	.	.	.
OIT-11	123.20	123.45	.	.	.	.	.	.	.	.
OIT-11	126.30	126.55	.	.	.	.	.	.	.	.
OIT-11	130.55	130.80	.	.	.	.	.	.	.	.
OIT-11	132.90	133.15	.	.	.	.	.	.	.	.
OIT-11	135.95	136.20	.	.	.	.	.	.	.	.
OIT-11	1415.00	1417.50	.	.	.	.	.	.	.	.
OIT-11	150.35	150.60	.	.	X	.	.	.	.	.
OIT-11	153.20	153.45	.	.	.	.	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OIT-11	156.35	156.60	.	.	.	.	.	.	.	.
OIT-11	161.65	161.90	.	.	.	.	.	.	.	.
OIT-11	170.45	170.70	.	.	.	.	.	.	.	.
OIT-11	176.90	177.15	.	.	.	.	.	.	.	.
OIT-11	181.95	182.20	.	.	.	.	.	.	.	.
OIT-11	185.20	185.45	.	.	.	.	.	.	.	.
OIT-11	188.00	188.25	.	.	.	.	.	.	.	.
OIT-11	191.20	191.45	.	X	.	X	X	.	.	.
OIT-11	193.75	194.00	.	X	.	.	.	.	.	.
OIT-11	198.75	199.00	.	X	.	X	X	.	.	.
OIT-11	204.70	204.95	.	.	.	.	.	.	.	.
OIT-11	208.10	208.35	.	.	.	.	.	.	.	.
OIT-11	213.15	213.40	.	.	.	.	.	.	.	.
OIT-11	219.70	219.95	.	.	.	.	.	.	.	.
OIT-11	226.10	226.35	.	.	.	.	.	.	.	.
OIT-11	230.00	230.25	.	.	.	.	.	.	.	.
OIT-11	235.45	235.70	.	.	.	.	.	.	.	.
OIT-11	239.30	239.55	.	.	.	.	.	.	.	.
OIT-11	245.10	245.35	.	.	.	.	.	.	.	.
OIT-11	254.20	254.50	.	.	.	.	.	.	.	.
OIT-11	255.60	255.90	.	.	.	.	.	.	.	.
OIT-11	264.00	264.30	.	.	.	.	.	.	.	.
OIT-11	267.10	267.40	.	.	.	.	.	.	.	.
OIT-11	276.50	276.80	.	X	.	X	X	.	.	.
OIT-11	285.70	286.00	.	X	.	X	X	X	.	.
	0.00	0.00								

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OJT-12	0.00	0.30	.	.	.	.	.	.	.	.
OJT-12	6.30	6.60	.	.	.	.	.	.	.	.
OJT-12	12.50	12.80	.	.	.	.	.	.	.	.
OJT-12	18.65	18.90	.	.	.	.	.	.	.	.
OJT-12	24.20	24.50	.	.	.	.	.	.	.	.
OJT-12	29.40	29.65	.	.	.	.	.	.	.	.
OJT-12	33.40	33.65	.	.	X	X	X	.	.	.
OJT-12	36.00	36.25	.	.	.	.	.	.	.	.
OJT-12	41.00	41.25	.	.	.	.	.	.	.	.
OJT-12	48.75	48.90	.	.	.	.	.	.	.	.
OJT-12	50.30	50.55	.	.	.	.	.	.	.	.
OJT-12	54.00	54.25	.	.	X	X	X	.	.	.
OJT-12	60.50	60.75	.	.	.	.	.	.	.	.
OJT-12	66.70	66.95	.	.	.	.	.	.	.	.
OJT-12	82.65	82.90	.	.	X	X	X	.	.	.
OJT-12	87.80	88.00	.	.	.	.	.	.	.	.
OJT-12	92.00	92.25	.	X	.	X	X	.	.	.
OJT-12	94.20	0.00	X	.	.	.	.	.	.	.
OJT-12	96.30	96.55	.	X	.	X	X	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OKT-13	0.00	3.70	.	.	.	.	.	.	.	.
OKT-13	3.90	4.15	.							
OKT-13	10.40	10.65	.							
OKT-13	18.50	18.75	.	.	.	.	.	.	.	.
OKT-13	25.40	25.65	.	.	.	.	.	.	.	.
OKT-13	28.75	29.00	.	.	X	X	X	.	.	.
OKT-13	36.00	36.25	.	.	X	Q	X	.	.	.
OKT-13	42.50	42.75	.	.	.	.	.	.	.	.
OKT-13	47.75	48.00	.	.	.	.	.	.	.	.
OKT-13	55.65	55.90	.	.	X	Q	X	.	.	.
OKT-13	59.50	59.75	.	.	.	.	.	.	.	.
OKT-13	68.20	68.45	.	.	.	.	.	.	.	.
OKT-13	73.50	73.75	.	.	.	.	.	.	.	.
OKT-13	80.00	80.25	.	.	X	X	X	.	.	.
OKT-13	85.20	85.45	.	.	.	.	.	.	.	.
OKT-13	91.00	91.25	.	.	.	.	.	.	.	.
OKT-13	102.20	102.45	.	.	.	.	.	.	.	.
OKT-13	102.90	0.00	X	~	~	~	~	~	~	~
OKT-13	105.85	106.10	.	.	X	Q	X	.	.	.
OKT-13	112.50	112.75	.	.	X	X	X	.	.	.
OKT-13	121.00	121.25	.	.	X	Q	X	.	.	.
OKT-13	125.00	125.25	.	.	.	.	.	.	.	.
OKT-13	133.70	133.95	.	.	X	X	X	.	.	.
OKT-13	142.40	142.65	.	.	.	.	.	.	.	.
OKT-13	152.30	152.55	.	.	X	X	X	.	.	.
OKT-13	158.00	158.25	.	.	.	.	.	.	.	.
OKT-13	161.80	0.00	X	?	?	?	?	?	?	?
OKT-13	162.00	162.25	.	.	.	.	.	.	.	.
OKT-13	170.70	170.95	.	.	.	.	.	.	.	.
OKT-13	178.00	178.35	.	.	X	X	X	.	.	.
OKT-13	184.00	184.25	.	.	.	.	.	.	.	.
OKT-13	189.75	190.00	.	.	.	.	.	.	.	.
OKT-13	200.60	200.85	.	.	.	.	.	.	.	.
OKT-13	206.80	207.05	.	.	.	.	.	.	.	.
OKT-13	212.40	212.65	.	.	.	.	.	.	.	.
OKT-13	215.50	215.75	.	.	.	.	.	.	.	.
OKT-13	221.60	221.85	.	.	.	.	.	.	.	.
OKT-13	227.55	227.80	.	.	X	X	X	X	.	.
OKT-13	235.30	235.55	.	.	.	.	.	.	.	.
OKT-13	241.70	241.95	.	.	.	.	.	.	.	.
OKT-13	247.20	0.00	X	?	?	?	?	?	?	?
OKT-13	250.20	250.45	.	.	X	.	.	.	.	.
OKT-13	259.70	259.95	.	.	.	.	.	.	.	.
OKT-13	265.80	266.05	.	.	.	.	.	.	.	.
OKT-13	266.60	0.00	X	~	~	~	~	~	~	~
OKT-13	272.75	273.00	.	.	.	.	.	.	.	.
OKT-13	284.10	284.25	.	.	.	.	.	.	.	.
OKT-13	290.70	290.95	.	.	X	.	.	.	.	.
OKT-13	380.60	380.85	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PFK	LPK	NBP
OKT-13	390.00	390.25	.	.	X	X	X	.	.	.
OKT-13	399.00	399.25	.	.	.	.	.	.	.	.
OKT-13	416.60	416.85	.	.	.	.	.	.	.	.
OKT-13	421.50	421.75	.	.	.	.	.	.	.	.
OKT-13	423.20	423.45	.	.	.	.	.	.	.	.
OKT-13	435.00	435.25	.	.	.	.	.	.	.	.
OKT-13	440.90	450.15	.	.	.	.	.	.	.	.
OKT-13	446.90	447.15	.	.	.	.	.	.	.	.
OKT-13	450.25	450.50	.	X	.	Q	X	X	.	.
OKT-13	458.80	459.05	.	X	.	Q	X	X	.	.
OKT-13	465.40	465.65	.	.	.	.	.	.	.	.
OKT-13	469.00	469.25	.	X	.	Q	X	.	.	.
OKT-13	471.40	471.65	.	.	.	.	.	.	.	.
OKT-13	477.20	477.45	.	X	.	Q	X	X	.	.
OKT-13	483.50	483.75	.	.	.	.	.	.	.	.
OKT-13	487.20	487.45	.	X	.	.	X	.	.	.
OKT-13	495.75	496.00	.	X	.	Q	X	X	.	X
OKT-13	501.95	502.20	.	.	.	.	.	.	.	.
OKT-13	508.20	508.45	.	.	.	.	.	.	.	.
OKT-13	515.90	516.15	.	.	.	.	.	.	.	.
OKT-13	521.60	521.85	.	X	.	Q	X	X	.	.
OKT-13	527.60	527.85	.	.	.	.	.	.	.	.
OKT-13	536.45	536.70	.	.	.	.	.	.	.	.
OKT-13	539.85	540.10	.	X	.	Q	X	X	.	X
OKT-13	551.40	551.65	.	.	.	.	.	.	.	.
OKT-13	562.30	562.55	.	X	.	Q	X	X	.	.
OKT-13	570.00	570.25	.	.	.	.	.	.	.	.
OKT-13	576.50	576.75	.	.	.	.	.	.	.	.
OKT-13	582.40	582.65	.	X	.	Q	X	.	.	.
OKT-13	588.90	589.15	.	.	.	.	.	.	.	.
OKT-13	595.00	595.25	.	.	.	.	.	.	.	.
OKT-13	600.80	601.05	.	X	.	Q	X	.	.	X
OKT-13	606.50	606.75	.	.	.	.	.	.	.	.
OKT-13	612.10	612.35	.	.	.	.	.	.	.	.
OKT-13	616.30	616.55	.	.	X	.	.	.	.	.
OKT-13	626.00	626.25	.	.	.	.	.	.	.	.
OKT-13	631.20	631.45	.	.	.	.	.	.	.	.
OKT-13	636.10	636.35	.	X	.	Q	X	.	.	X
OKT-13	641.00	641.25	.	.	.	.	.	.	.	.
OKT-13	646.25	646.50	.	.	.	.	.	.	.	.
OKT-13	651.35	651.60	.	X	.	Q	X	X	.	.
OKT-13	660.80	661.05	.	.	.	.	.	.	.	.
OKT-13	666.35	666.60	.	.	X	.	.	.	.	.
OKT-13	676.35	676.60	.	.	.	.	.	.	.	.
OKT-13	685.90	686.15	.	.	.	.	.	.	.	.
OKT-13	691.55	691.80	.	X	.	.	X	X	.	X
OKT-13	696.30	696.55	.	.	.	.	.	.	.	.
OKT-13	701.35	701.60	.	.	X	.	.	.	.	.
OKT-13	707.00	707.25	.	.	.	.	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OKT-13	717.45	717.70	.	X	.	Q	X	X	.	.
OKT-13	722.25	722.50	.	.	.	.	.	.	.	.
OKT-13	731.60	731.85	.	.	.	.	.	.	.	.
OKT-13	737.55	737.80	.	X	.	Q	X	.	.	X
OKT-13	746.40	746.65	.	.	.	.	.	.	.	.
OKT-13	751.95	752.20	.	X	.	Q	X	X	.	.
OKT-13	760.10	760.35	.	.	X	Q	X	.	.	.
OKT-13	765.55	768.80	.	X	.	Q	X	.	.	X
	0.00	0.00								

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OMT-15	10.95	11.20	.	.	.	.	.	.	.	.
OMT-15	19.20	19.45	.	.	.	.	.	.	.	.
OMT-15	29.60	29.85	.	X	.	.	.	.	.	.
OMT-15	29.90	0.00	X	.	.	.	.	.	.	.
OMT-15	39.75	40.00	.	X	.	X	X	.	.	.
OMT-15	53.40	53.65	.	.	.	.	.	.	.	.
OMT-15	55.30	0.00	X	.	.	.	.	.	.	.
OMT-15	57.00	57.20	.	.	.	.	.	.	.	.
OMT-15	72.60	0.00	X	.	.	.	.	.	.	.
OMT-15	73.40	73.65	.	X	.	X	X	.	.	.
OMT-15	75.50	0.00	X	.	.	.	.	.	.	.
	0.00	0.00								

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
ONT-16	10.45	10.70	.	.	.	.	.	.	.	.
ONT-16	14.40	14.65	.	.	.	.	.	.	.	.
ONT-16	19.45	19.70	.	.	.	.	.	.	.	.
ONT-16	24.10	24.35	.	.	.	.	.	.	.	.
ONT-16	30.45	30.70	.	.	.	.	.	.	.	.
ONT-16	35.85	36.10	.	.	.	.	.	.	.	.
ONT-16	39.90	40.15	.	.	.	.	.	.	.	.
ONT-16	45.40	45.65	.	.	.	.	.	.	.	.
ONT-16	50.15	50.40	.	.	.	.	.	.	.	.
ONT-16	55.15	55.40	.	.	.	.	.	.	.	.
ONT-16	60.50	60.75	.	.	.	.	.	.	.	.
ONT-16	66.60	66.85	.	.	.	.	.	.	.	.
ONT-16	72.50	72.75	.	.	.	.	.	.	.	.
ONT-16	78.30	78.55	.	.	.	.	.	.	.	.
ONT-16	86.40	86.65	.	.	.	.	.	.	.	.
ONT-16	91.40	91.65	.	.	.	.	.	.	.	.
ONT-16	94.75	95.00	.	.	.	.	.	.	.	.
ONT-16	101.45	101.70	.	X	.	X	X	.	.	.
ONT-16	106.50	106.75	.	.	.	.	.	.	.	.
ONT-16	112.90	113.15	.	.	.	.	.	.	.	.
ONT-16	116.75	117.00	.	.	.	.	.	.	.	.
ONT-16	125.20	125.45	.	.	.	.	.	.	.	.
ONT-16	131.40	131.65	.	.	.	.	.	.	.	.
ONT-16	137.80	138.05	.	.	.	.	.	.	.	.
ONT-16	143.65	143.90	.	.	.	.	.	.	.	.
ONT-16	149.95	150.20	.	.	.	.	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OOR-17	0.00	0.25	.	X	.	X	X	.	.	X
OOR-17	2.65	2.90	.	.	.	.	.	.	.	.
OOR-17	10.15	10.40	.	.	.	.	.	.	.	.
OOR-17	14.15	14.40	.	X	.	X	X	.	.	X
OOR-17	18.25	18.50	.	.	.	.	.	.	.	.
OOR-17	21.95	22.20	.	.	.	.	.	.	.	.
OOR-17	25.75	26.00	.	X	.	X	X	.	.	X
OOR-17	30.50	30.75	.	.	.	.	.	.	.	.
OOR-17	34.30	34.55	.	.	.	.	.	.	.	.
OOR-17	38.40	38.65	.	X	.	X	X	.	.	X
OOR-17	42.00	42.25	.	.	.	.	.	.	.	.
OOR-17	45.80	46.05	.	.	.	.	.	.	.	.
OOR-17	49.70	49.95	.	X	.	X	X	.	.	X
OOR-17	54.00	54.25	.	.	.	.	.	.	.	.
OOR-17	56.85	57.10	.	.	.	.	.	.	.	.
OOR-17	60.20	60.45	.	X	.	X	X	.	.	X
OOR-17	62.95	63.20	.	.	.	.	.	.	.	.
OOR-17	66.55	66.80	.	X	.	X	X	X	.	X
OOR-17	70.70	0.00	X	.	.	.	.	.	.	.
OOR-17	72.80	73.05	.	X	.	X	X	.	.	X
OOR-17	77.10	77.35	.	.	.	.	.	.	.	.
OOR-17	80.35	80.60	.	.	.	.	.	.	.	.
OOR-17	83.70	83.95	.	X	.	X	X	.	.	X
OOR-17	86.45	86.70	.	.	.	.	.	.	.	.
OOR-17	89.80	90.05	.	X	.	X	X	.	.	X
OOR-17	94.00	94.25	.	.	.	.	.	.	.	.
OOR-17	98.20	98.45	.	.	.	.	.	.	.	.
OOR-17	100.45	100.70	.	X	.	X	X	X	.	X
OOR-17	101.40	0.00	X	.	.	.	.	.	.	.
OOR-17	101.40	101.65	.	X	.	X	X	.	.	X
OOR-17	103.35	103.60	.	.	.	.	.	.	.	.
OOR-17	107.35	107.60	.	.	.	.	.	.	.	.
OOR-17	110.50	110.75	.	X	.	X	X	X	.	X
OOR-17	111.00	0.00	X	.	.	.	.	.	.	.
OOR-17	114.65	114.90	.	.	.	.	.	.	.	.
OOR-17	119.10	119.35	.	X	.	X	X	.	.	X
OOR-17	122.55	122.80	.	.	.	.	.	.	.	.
OOR-17	125.25	125.50	.	X	.	X	X	.	.	X
OOR-17	127.00	0.00	X	.	.	.	.	.	.	.
OOR-17	129.40	129.65	.	.	.	.	.	.	.	.
OOR-17	131.95	132.20	.	X	.	X	X	.	.	X
OOR-17	134.00	0.00	X	.	.	.	.	.	.	.
OOR-17	137.15	137.40	.	X	.	X	X	.	.	X
OOR-17	142.00	142.25	.	.	.	.	.	.	.	.
OOR-17	146.10	146.30	.	X	.	X	X	.	.	X
OOR-17	151.00	151.25	.	.	.	.	.	.	.	.
OOR-17	154.25	154.60	.	X	.	X	X	.	.	X
OOR-17	157.60	157.85	.	.	.	.	.	.	.	.
OOR-17	165.60	165.85	.	X	.	X	X	.	.	X

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OOR-17	169.00	169.25	.	.	.	.	.	.	.	.
OOR-17	173.05	173.30	.	X	.	X	X	.	.	X
OOR-17	178.10	178.35	.	.	.	.	.	.	.	.
OOR-17	181.15	181.40	.	.	.	.	.	.	.	.
OOR-17	184.25	184.50	.	X	.	X	X	.	.	X
OOR-17	187.85	188.10	.	.	.	.	.	.	.	.
OOR-17	190.30	0.00	X	.	.	.	.	.	.	.
OOR-17	193.60	193.85	.	X	.	X	X	.	.	X
OOR-17	197.60	197.85	.	.	.	.	.	.	.	.
OOR-17	200.80	201.05	.	.	X	X	X	.	.	X
OOR-17	206.20	206.45	.	X	.	X	X	.	.	X
OOR-17	209.30	209.55	.	.	X	X	X	.	.	X
OOR-17	213.15	213.30	.	.	.	.	.	.	.	.
OOR-17	215.50	215.75	.	X	.	X	X	.	.	X
OOR-17	221.60	221.85	.	.	.	.	.	.	.	.
OOR-17	224.70	224.95	.	.	.	.	.	.	.	.
OOR-17	226.05	226.30	.	X	.	X	X	.	.	X
OOR-17	230.40	230.65	.	.	.	.	.	.	.	.
OOR-17	233.35	233.60	.	X	.	X	X	X	.	X
OOR-17	233.70	0.00	X	.	.	.	.	.	.	.
OOR-17	239.00	239.25	.	X	.	X	X	.	.	X
OOR-17	244.50	244.75	.	.	.	.	.	.	.	.
OOR-17	250.30	250.55	.	X	.	X	X	X	.	X
OOR-17	253.30	0.00	X	.	.	.	.	.	.	.
OOR-17	253.50	253.75	.	.	.	.	.	.	.	.
OOR-17	261.50	261.75	.	X	.	X	X	.	.	X
OOR-17	267.40	267.65	.	.	.	.	.	.	.	.
OOR-17	270.10	270.35	.	X	.	X	X	X	.	X
OOR-17	273.00	273.25	.	.	.	.	.	.	.	.
OOR-17	278.90	273.25	.	.	.	.	.	.	.	.
OOR-17	282.30	282.55	.	.	.	.	.	.	.	.
OOR-17	285.65	285.90	.	X	.	X	X	.	.	X
OOR-17	288.60	288.85	.	.	.	.	.	.	.	.
OOR-17	289.70	0.00	X	.	.	.	.	.	.	.
OOR-17	292.10	292.35	.	.	X	X	X	X	.	X
OOR-17	294.70	294.95	.	.	.	.	.	.	.	.
OOR-17	297.90	298.15	.	.	.	.	.	.	.	.
OOR-17	299.15	299.40	.	.	X	X	X	X	.	X
OOR-17	304.40	304.65	.	.	.	.	.	.	.	.
OOR-17	307.50	307.75	.	.	.	.	.	.	.	.
OOR-17	307.90	0.00	X	.	.	.	.	.	.	.
OOR-17	310.70	310.95	.	.	X	X	X	.	.	X
OOR-17	320.20	320.45	.	.	X	X	X	.	.	X
OOR-17	326.70	326.95	.	.	.	.	.	.	.	.
OOR-17	331.20	331.45	.	.	X	X	X	X	.	X
OOR-17	336.10	336.35	.	.	.	.	.	.	.	.
OOR-17	339.00	339.25	.	.	X	X	X	.	.	X
OOR-17	344.80	345.50	.	.	.	.	.	.	.	.
OOR-17	367.90	368.15	.	.	X	X	X	.	.	X

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OOR-17	371.45	371.70	.	.	.	.	.	.	.	.
OOR-17	373.70	373.95	.	.	.	.	.	.	.	.
OOR-17	382.10	382.35	.	.	X	X	X	.	.	X
OOR-17	385.00	385.25	.	.	.	.	.	.	.	.
OOR-17	391.00	0.00	X	.	.	.	.	.	.	.
OOR-17	413.80	413.90	.	X	.	X	X	.	.	X
OOR-17	438.50	0.00	X	.	.	.	.	.	.	.
OOR-17	441.30	441.55	.	.	.	.	.	.	.	.
OOR-17	449.80	450.05	.	.	X	X	X	X	.	X
OOR-17	460.70	4609.50	.	.	.	.	.	.	.	.
OOR-17	464.25	464.50	.	.	X	X	X	.	.	X
OOR-17	474.40	474.65	.	.	.	.	.	.	.	.
OOR-17	477.30	477.55	.	.	X	X	X	.	.	X
OOR-17	480.00	480.25	.	.	.	.	.	.	.	.
OOR-17	484.00	484.25	.	.	.	.	.	.	.	.
OOR-17	488.75	489.00	.	.	X	X	X	.	.	X
OOR-17	494.90	495.15	.	.	X	X	X	.	.	X
OOR-17	500.00	0.00	X	.	.	.	.	.	.	.
OOR-17	502.70	502.95	.	.	X	X	X	.	.	X
OOR-17	508.30	508.55	.	.	.	.	.	.	.	.
OOR-17	511.20	511.45	.	.	X	X	X	X	.	X
OOR-17	522.80	523.05	.	.	.	.	.	.	.	.
OOR-17	528.10	528.25	.	.	X	X	X	.	.	X
OOR-17	531.20	531.45	.	.	.	.	.	.	.	.
OOR-17	535.05	535.30	.	.	X	X	X	X	.	X
OOR-17	538.20	538.45	.	.	.	.	.	.	.	.
OOR-17	541.25	541.50	.	.	.	.	.	.	.	.
OOR-17	544.35	544.60	.	.	X	X	X	.	.	X
OOR-17	547.90	548.15	.	.	.	.	.	.	.	.
OOR-17	550.85	551.10	.	.	.	.	.	.	.	.
OOR-17	553.95	554.20	.	.	.	.	.	.	.	.
OOR-17	557.25	557.50	.	.	.	.	.	.	.	.
OOR-17	560.55	560.80	.	.	X	X	X	.	.	X
OOR-17	563.85	564.10	.	.	.	.	.	.	.	.
OOR-17	566.30	566.55	.	.	.	.	.	.	.	.
OOR-17	570.60	570.85	.	.	.	.	.	.	.	.
OOR-17	573.55	573.80	.	.	.	.	.	.	.	.
OOR-17	573.95	574.20	.	.	X	X	X	X	.	X
OOR-17	579.30	579.55	.	.	.	.	.	.	.	.
OOR-17	582.40	582.65	.	.	.	.	.	.	.	.
OOR-17	585.50	585.75	.	.	.	.	.	.	.	.
OOR-17	588.85	589.10	.	.	X	X	X	X	.	X
OOR-17	593.80	594.05	.	.	.	.	.	.	.	.
OOR-17	596.60	596.85	.	.	.	.	.	.	.	.
OOR-17	599.50	599.75	.	.	.	.	.	.	.	.
OOR-17	602.10	602.35	.	.	X	X	X	X	.	X
OOR-17	605.65	605.90	.	.	.	.	.	.	.	.
OOR-17	608.75	609.00	.	.	.	.	.	.	.	.
OOR-17	611.10	611.35	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OOR-17	614.35	614.60	.	.	X	X	X	X	.	X
OOR-17	619.30	619.55	.	.	.	.	.	.	.	.
OOR-17	622.20	622.45	.	.	.	.	.	.	.	.
OOR-17	625.40	625.65	.	.	.	.	.	.	.	.
OOR-17	628.60	628.85	.	.	X	X	X	X	.	X
OOR-17	632.15	632.40	.	.	.	.	.	.	.	.
OOR-17	635.85	636.10	.	.	.	.	.	.	.	.
OOR-17	639.05	639.30	.	.	.	.	.	.	.	.
OOR-17	642.15	642.40	.	.	X	X	X	X	.	X
OOR-17	645.55	645.80	.	.	.	.	.	.	.	.
OOR-17	648.85	649.10	.	.	.	.	.	.	.	.
OOR-17	653.40	653.65	.	.	.	.	.	.	.	.
OOR-17	656.50	656.70	.	.	X	X	X	.	.	X
OOR-17	659.55	659.80	.	.	.	.	.	.	.	.
OOR-17	662.30	662.55	.	.	.	.	.	.	.	.
OOR-17	665.05	665.30	.	.	.	.	.	.	.	.
OOR-17	667.60	667.85	.	.	X	X	X	X	.	X
OOR-17	670.50	670.75	.	.	.	.	.	.	.	.
OOR-17	674.05	674.30	.	.	.	.	.	.	.	.
OOR-17	678.90	679.15	.	.	.	.	.	.	.	.
OOR-17	681.80	682.05	.	.	X	X	X	.	.	X
OOR-17	685.25	685.50	.	.	.	.	.	.	.	.
OOR-17	687.95	688.20	.	.	.	.	.	.	.	.
OOR-17	692.90	693.15	.	.	.	.	.	.	.	.
OOR-17	695.80	696.05	.	.	X	X	X	.	.	X
OOR-17	706.40	706.65	.	.	.	.	.	.	.	.
OOR-17	711.40	711.65	.	.	.	.	.	.	.	.
OOR-17	716.70	716.95	.	.	.	.	.	.	.	.
OOR-17	721.90	722.15	.	.	X	X	X	X	B	X
OOR-17	729.30	729.55	.	.	.	.	.	.	.	.
OOR-17	734.40	734.65	.	.	.	.	.	.	.	.
OOR-17	737.15	737.40	.	.	X	X	X	.	B	X
OOR-17	739.60	739.85	.	.	.	.	.	.	.	.
OOR-17	740.25	740.50	.	.	.	.	.	.	.	.
OOR-17	742.65	742.90	.	.	.	.	.	.	.	.
OOR-17	747.00	747.25	.	.	.	.	.	.	.	.
OOR-17	748.15	748.40	.	.	X	X	X	.	B	X
OOR-17	753.00	753.25	.	.	.	.	.	.	.	.
OOR-17	755.10	755.35	.	.	.	.	.	.	.	.
OOR-17	758.70	758.95	.	.	.	.	.	.	.	.
OOR-17	762.90	763.15	.	.	X	X	X	.	B	X
OOR-17	766.30	766.55	.	.	.	.	.	.	.	.
OOR-17	769.50	769.75	.	.	.	.	.	.	.	.
OOR-17	771.30	771.55	.	.	.	.	.	.	.	.
OOR-17	774.05	774.30	.	.	.	.	.	.	.	.
OOR-17	776.55	776.80	.	.	X	X	X	.	.	X
OOR-17	781.55	781.80	.	.	.	.	.	.	.	.
OOR-17	785.15	785.40	.	.	.	.	.	.	.	.
OOR-17	788.60	788.85	.	.	X	X	X	.	B	X

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OOR-17	791.00	791.25	.	.	.	.	.	.	.	.
OOR-17	794.65	794.90	.	.	.	.	.	.	.	.
OOR-17	796.65	796.90	.	.	.	.	.	.	.	.
OOR-17	800.35	800.60	.	.	X	X	X	.	X	X
OOR-17	803.30	803.55	.	.	.	.	.	.	.	.
OOR-17	806.35	806.60	.	.	.	.	.	.	.	.
OOR-17	810.40	810.65	.	.	.	.	.	.	.	.
OOR-17	813.40	813.65	.	.	X	X	X	.	X	X
OOR-17	818.50	818.75	.	.	.	.	.	.	.	.
OOR-17	821.55	821.80	.	.	.	.	.	.	.	.
OOR-17	824.95	825.20	.	.	X	X	X	.	X	X
OOR-17	828.15	828.40	.	.	.	.	.	.	.	.
OOR-17	831.70	831.95	.	.	.	.	.	.	.	.
OOR-17	834.70	834.95	.	.	.	.	.	.	.	.
OOR-17	839.00	839.25	.	.	X	X	X	.	B	X
OOR-17	842.35	842.60	.	.	.	.	.	.	.	.
OOR-17	845.00	845.25	.	.	.	.	.	.	.	.
OOR-17	851.50	851.75	.	.	X	X	X	.	B	X
OOR-17	855.00	855.25	.	.	.	.	.	.	.	.
OOR-17	860.10	860.35	.	.	.	.	.	.	.	.
OOR-17	862.15	862.40	.	.	.	.	.	.	.	.
OOR-17	866.20	866.45	.	.	X	X	X	.	X	X
OOR-17	869.55	869.80	.	.	.	.	.	.	.	.
OOR-17	872.65	872.90	.	.	.	.	.	.	.	.
OOR-17	876.50	875.75	.	.	.	.	.	.	.	.
OOR-17	881.45	881.70	.	.	X	X	X	.	B	X
OOR-17	885.80	886.05	.	.	.	.	.	.	.	.
OOR-17	891.05	891.30	.	.	.	.	.	.	.	.
OOR-17	894.30	894.55	.	.	X	X	X	.	X	X
OOR-17	897.65	897.90	.	.	.	.	.	.	.	.
OOR-17	901.35	901.60	.	.	.	.	.	.	.	.
OOR-17	903.35	903.60	.	X	.	X	X	.	B	X
OOR-17	906.00	0.00	X	.	.	.	.	.	.	.
OOR-17	908.50	908.75	.	.	.	.	.	.	.	.
OOR-17	912.15	912.40	.	X	.	X	X	.	X	X
OOR-17	915.40	915.65	.	.	.	.	.	.	.	.
OOR-17	920.50	920.75	.	.	.	.	.	.	.	.
OOR-17	924.45	924.70	.	X	.	X	X	.	X	X
OOR-17	927.35	927.60	.	.	.	.	.	.	.	.
OOR-17	929.85	930.10	.	X	.	X	X	X	X	X
OOR-17	934.40	934.60	.	.	.	.	.	.	.	.
OOR-17	938.15	938.40	.	.	.	.	.	.	.	.
OOR-17	941.15	941.40	.	X	.	X	X	.	X	X
OOR-17	943.95	944.20	.	.	.	.	.	.	.	.
OOR-17	946.85	947.10	.	.	.	.	.	.	.	.
OOR-17	947.80	948.05	.	X	.	X	X	.	B	X
OOR-17	948.20	0.00	X	.	.	.	.	.	.	.
OOR-17	958.65	958.90	.	X	.	X	X	.	X	X
OOR-17	961.00	961.25	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OOR-17	966.05	966.30	.	.	.	.	.	.	.	.
OOR-17	968.95	969.20	.	X	.	X	X	.	B	X
OOR-17	969.30	0.00	X	.	.	.	.	.	.	.
OOR-17	973.85	974.10	.	.	.	.	.	.	.	.
OOR-17	977.15	977.40	.	X	.	X	X	.	B	X
OOR-17	980.40	980.65	.	.	.	.	.	.	.	.
OOR-17	983.60	983.85	.	.	.	.	.	.	.	.
OOR-17	988.80	989.05	.	X	.	X	X	.	X	X
OOR-17	991.85	992.10	.	.	.	.	.	.	.	.
OOR-17	998.40	998.65	.	.	.	.	.	.	.	.
OOR-17	1003.90	1004.15	.	.	X	X	X	.	X	X
OOR-17	1007.65	1007.90	.	.	.	.	.	.	.	.
OOR-17	1009.90	1010.15	.	.	.	.	.	.	.	.
OOR-17	1013.75	1014.00	.	.	X	X	X	.	B	X
OOR-17	1017.15	1017.40	.	.	.	.	.	.	.	.
OOR-17	1020.40	1020.65	.	.	.	.	.	.	.	.
OOR-17	1024.80	1025.05	.	.	X	X	X	.	X	X
OOR-17	1027.55	1027.80	.	.	.	.	.	.	.	.
OOR-17	1030.05	1030.30	.	.	X	X	X	.	.	X
OOR-17	1033.05	1033.30	.	.	.	.	.	.	.	.
OOR-17	1036.30	1036.55	.	.	X	X	X	.	B	X
OOR-17	1040.75	1041.00	.	.	.	.	.	.	.	.
OOR-17	1043.95	1044.20	.	.	.	.	.	.	.	.
OOR-17	1047.25	1047.50	.	.	X	X	X	.	B	X
OOR-17	1049.40	0.00	X	.	.	.	.	.	.	.
OOR-17	1049.60	1049.90	.	.	X	X	X	.	X	X
OOR-17	1049.90	0.00	X	.	.	.	.	.	.	.
OOR-17	1051.70	0.00	X	.	.	.	.	.	.	.
OOR-17	1053.20	1053.45	.	.	X	X	X	.	X	X
OOR-17	1056.05	1056.30	.	.	.	.	.	.	.	.
OOR-17	1061.30	1061.55	.	.	X	X	X	.	B	X
OOR-17	1064.00	1064.25	.	.	.	.	.	.	.	.
OOR-17	1067.05	1067.30	.	.	.	.	.	.	.	.
OOR-17	1067.70	1067.95	.	.	X	X	X	.	X	X
OOR-17	1083.00	0.00	X	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OPZ-18	0.00	0.25	.	.	.	.	.	.	.	.
OPZ-18	7.00	7.25	.	.	.	.	.	.	.	.
OPZ-18	12.10	12.35	.	.	.	.	.	.	.	.
OPZ-18	19.70	19.95	.	.	.	.	.	.	.	.
OPZ-18	27.30	27.55	.	.	.	.	.	.	.	.
OPZ-18	35.00	35.25	.	.	.	.	.	.	.	.
OPZ-18	44.60	44.85	.	.	.	.	.	.	.	.
OPZ-18	49.40	49.65	.	.	.	.	.	.	.	.
OPZ-18	54.30	54.55	.	.	.	.	.	.	.	.
OPZ-18	57.85	58.10	.	.	.	.	.	.	.	.
OPZ-18	64.55	64.80	.	.	.	.	.	.	.	.
OPZ-18	64.90	65.15	.	.	.	.	.	.	.	.
OPZ-18	71.20	71.45	.	.	.	.	.	.	.	.
OPZ-18	74.30	74.55	.	.	.	.	.	.	.	.
OPZ-18	77.50	77.75	.	.	.	.	.	.	.	.
OPZ-18	82.80	83.05	.	.	.	.	.	.	.	.
OPZ-18	89.45	89.70	.	.	.	.	.	.	.	.
OPZ-18	96.35	96.50	.	.	.	.	.	.	.	.
OPZ-18	102.00	102.25	.	.	.	.	.	.	.	.
OPZ-18	108.75	109.00	.	.	.	.	.	.	.	.
OPZ-18	115.05	115.30	.	.	.	.	.	.	.	.
OPZ-18	122.20	122.45	.	.	.	.	.	.	.	.
OPZ-18	131.00	131.25	.	.	.	.	.	.	.	.
OPZ-18	139.70	139.95	.	.	.	.	.	.	.	.
OPZ-18	146.65	146.90	.	.	.	.	.	.	.	.
OPZ-18	154.20	154.45	.	.	.	.	.	.	.	.
OPZ-18	162.90	163.15	.	.	.	.	.	.	.	.
OPZ-18	169.35	169.60	.	.	.	.	.	.	.	.
OPZ-18	174.95	175.10	.	X	.	X	X	.	.	.
OPZ-18	182.30	182.55	.	.	.	.	.	.	.	.
OPZ-18	189.25	189.50	.	X	.	X	.	.	.	.
OPZ-18	198.00	190.25	.	.	.	.	.	.	.	.
OPZ-18	207.30	207.55	.	X	.	X	.	.	.	.
OPZ-18	210.40	210.65	.	X	.	X	.	.	.	.
OPZ-18	214.25	214.50	.	.	.	.	.	.	.	.
OPZ-18	223.30	223.55	.	.	.	.	.	.	.	.
OPZ-18	229.95	230.20	.	X	.	.	.	.	.	.
OPZ-18	232.10	232.35	.	X	.	.	.	.	.	.
OPZ-18	239.15	239.40	.	.	.	.	.	.	.	.
OPZ-18	248.65	248.90	.	.	.	.	.	.	.	.
OPZ-18	257.15	257.40	.	.	.	.	.	.	.	.
OPZ-18	265.30	265.55	.	.	.	.	.	.	.	.
OPZ-18	273.70	273.95	.	.	.	.	.	.	.	.
OPZ-18	279.80	280.10	.	.	.	.	.	.	.	.
OPZ-18	289.90	290.15	.	.	.	.	.	.	.	.
OPZ-18	295.10	0.00	X	~	~	~	~	~	~	~
OPZ-18	299.80	300.05	.	.	.	.	.	.	.	.
OPZ-18	305.16	0.00	X	~	~	~	~	~	~	~
OPZ-18	306.05	306.30	.	.	.	.	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OPZ-18	315.40	315.65	.	.	.	.	.	.	.	.
OPZ-18	321.35	321.60	.	.	.	.	.	.	.	.
OPZ-18	330.90	331.15	.	.	.	.	.	.	.	.
OPZ-18	341.20	341.45	.	.	.	.	.	.	.	.
OPZ-18	347.05	347.30	.	.	.	.	.	.	.	.
OPZ-18	356.70	356.95	.	.	.	.	.	.	.	.
OPZ-18	367.00	0.00	X	~	~	~	~	~	~	~
OPZ-18	367.75	368.00	.	.	.	.	.	.	.	.
OPZ-18	376.70	376.95	.	.	X	Q	X	.	.	.
OPZ-18	381.40	381.65	.	.	X	Q	X	.	.	.
OPZ-18	391.10	0.00	X	~	~	~	~	~	~	~
OPZ-18	391.10	391.35	.	.	X	Q	X	.	.	.
OPZ-18	418.90	419.15	.	.	X	Q	X	.	.	.
OPZ-18	428.80	429.05	.	.	.	.	.	.	.	.
OPZ-18	439.30	439.55	.	.	.	.	.	.	.	.
OPZ-18	444.60	444.85	.	.	.	.	.	.	.	.
OPZ-18	450.25	450.50	.	.	.	.	.	.	.	.
OPZ-18	465.90	466.15	.	.	X	Q	X	.	.	.
OPZ-18	476.30	476.55	.	.	.	.	.	.	.	.
OPZ-18	486.90	487.15	.	.	.	.	.	.	.	.
OPZ-18	512.00	512.25	.	.	.	.	.	.	.	.
OPZ-18	531.45	531.70	.	.	.	.	.	.	.	.
OPZ-18	550.65	550.90	.	.	.	.	.	.	.	.
OPZ-18	570.10	570.35	.	.	.	.	.	.	.	.
OPZ-18	580.70	580.85	.	.	.	.	.	.	.	.
OPZ-18	592.75	593.00	.	.	.	.	.	.	.	.
OPZ-18	597.30	597.55	.	.	.	.	.	.	.	.
OPZ-18	606.90	607.15	.	.	.	.	.	.	.	.
OPZ-18	611.60	611.85	.	.	.	.	.	.	.	.
OPZ-18	621.20	621.45	.	.	.	.	.	.	.	.
OPZ-18	630.90	631.25	.	.	.	.	.	.	.	.
OPZ-18	640.60	640.85	.	.	.	.	.	.	.	.
OPZ-18	650.30	650.55	.	.	.	.	.	.	.	.
OPZ-18	659.90	660.15	.	.	.	.	.	.	.	.
OPZ-18	664.95	665.20	.	.	.	.	.	.	.	.
OPZ-18	674.20	674.65	.	.	.	.	.	.	.	.
OPZ-18	683.90	684.15	.	.	.	.	.	.	.	.
OPZ-18	694.10	694.35	.	.	.	.	.	.	.	.
OPZ-18	699.50	699.75	.	.	.	.	.	.	.	.
OPZ-18	705.15	705.40	.	.	.	.	.	.	.	.
OPZ-18	715.80	716.05	.	.	.	.	.	.	.	.
OPZ-18	721.35	721.60	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OQT-19	0.35	0.60	.	.	.	.	.	.	.	.
OQT-19	6.15	6.40	.	.	.	.	.	.	.	.
OQT-19	16.25	15.50	.	.	.	.	.	.	.	.
OQT-19	25.70	25.95	.	.	.	.	.	.	.	.
OQT-19	31.00	31.25	.	.	.	.	.	.	.	.
OQT-19	40.90	41.15	.	.	.	.	.	.	.	.
OQT-19	46.35	46.60	.	.	.	.	.	.	.	.
OQT-19	50.50	0.00	X	~	~	~	~	~	~	~
OQT-19	51.65	51.80	.	.	.	.	.	.	.	.
OQT-19	59.60	59.85	.	.	.	.	.	.	.	.
OQT-19	63.40	63.65	.	.	.	.	.	.	.	.
OQT-19	72.00	72.25	.	.	.	.	.	.	.	.
OQT-19	75.40	0.00	X	~	~	~	~	~	~	~
OQT-19	76.05	76.30	.	.	.	.	.	.	.	.
OQT-19	79.55	79.80	.	.	.	.	.	.	.	.
OQT-19	85.85	86.10	.	.	.	.	.	.	.	.
OQT-19	88.50	0.00	X	~	~	~	~	~	~	~
OQT-19	91.25	91.50	.	.	.	.	.	.	.	.
OQT-19	98.40	98.65	.	.	.	.	.	.	.	.
OQT-19	108.70	108.95	.	.	.	.	.	.	.	.
OQT-19	115.30	115.55	.	.	.	.	.	.	.	.
OQT-19	116.40	0.00	~	~	~	~	~	~	~	~
OQT-19	118.75	119.00	.	.	.	.	.	.	.	.
OQT-19	124.85	125.10	.	.	.	.	.	.	.	.
OQT-19	134.65	143.90	.	.	.	.	.	.	.	.
OQT-19	143.25	143.50	.	.	.	.	.	.	.	.
OQT-19	152.65	152.90	.	.	.	.	.	.	.	.
OQT-19	157.20	0.00	X	~	~	~	~	~	~	~
OQT-19	157.75	158.00	.	.	.	.	.	.	.	.
OQT-19	167.25	167.50	.	.	.	.	.	.	.	.
OQT-19	178.30	178.55	.	.	.	.	.	.	.	.
OQT-19	179.40	0.00	X	~	~	~	~	~	~	~
OQT-19	187.80	188.05	.	.	.	.	.	.	.	.
OQT-19	196.30	196.55	.	.	.	.	.	.	.	.
OQT-19	205.10	205.35	.	.	.	.	.	.	.	.
OQT-19	216.40	216.65	.	.	.	.	.	.	.	.
OQT-19	227.02	227.25	.	.	.	.	.	.	.	.
OQT-19	321.90	232.15	.	.	.	.	.	.	.	.
OQT-19	242.00	242.25	.	.	.	.	.	.	.	.
OQT-19	247.80	0.00	X	~	~	~	~	~	~	~
OQT-19	252.10	252.35	.	.	.	.	.	.	.	.
OQT-19	262.10	262.35	.	.	.	.	.	.	.	.
OQT-19	271.20	271.45	.	.	.	.	.	.	.	.
OQT-19	281.00	281.25	.	.	.	.	.	.	.	.
OQT-19	290.80	291.05	.	.	.	.	.	.	.	.
OQT-19	295.80	0.00	X	~	~	~	~	~	~	~
OQT-19	295.80	296.05	.	.	.	.	.	.	.	.
OQT-19	306.05	306.30	.	.	.	.	.	.	.	.
OQT-19	315.75	316.00	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OQT-19	325.35	235.60	.	.	.	.	.	.	.	.
OQT-19	329.70	0.00	X	~	~	~	~	~	~	~
OQT-19	335.45	335.70	.	.	.	.	.	.	.	.
OQT-19	344.80	0.00	X	~	~	~	~	~	~	~
OQT-19	349.90	350.15	.	.	.	.	.	.	.	.
OQT-19	360.90	361.15	.	.	.	.	.	.	.	.
OQT-19	371.25	371.50	.	.	.	.	.	.	.	.
OQT-19	381.80	382.05	.	.	.	.	.	.	.	.
OQT-19	397.20	392.75	.	.	.	.	.	.	.	.
OQT-19	397.20	397.45	.	.	.	.	.	.	.	.
OQT-19	407.05	407.30	.	.	.	.	.	.	.	.
OQT-19	417.05	417.30	.	.	.	.	.	.	.	.
OQT-19	426.00	426.35	.	.	.	.	.	.	.	.
OQT-19	436.20	436.45	.	.	.	.	.	.	.	.
OQT-19	450.20	450.45	.	.	.	.	.	.	.	.
OQT-19	455.85	456.10	.	.	.	.	.	.	.	.
OQT-19	461.15	461.40	.	.	.	.	.	.	.	.
OQT-19	470.95	471.20	.	.	.	.	.	.	.	.
OQT-19	480.60	480.85	.	.	.	.	.	.	.	.
OQT-19	490.70	490.95	.	.	.	.	.	.	.	.
OQT-19	500.80	501.05	.	.	.	.	.	.	.	.
OQT-19	511.20	511.45	.	.	.	.	.	.	.	.
OQT-19	521.30	521.55	.	.	.	.	.	.	.	.
OQT-19	532.50	532.75	.	.	.	.	.	.	.	.
OQT-19	541.60	541.85	.	.	.	.	.	.	.	.
OQT-19	551.80	552.05	.	.	.	.	.	.	.	.
OQT-19	561.90	562.15	.	.	.	.	.	.	.	.
OQT-19	581.90	582.15	.	.	.	.	.	.	.	.
OQT-19	591.80	592.05	.	.	.	.	.	.	.	.
OQT-19	601.60	601.85	.	.	.	.	.	.	.	.
OQT-19	611.60	611.85	.	.	.	.	.	.	.	.
OQT-19	621.40	621.65	.	.	.	.	.	.	.	.
OQT-19	631.20	641.35	.	.	.	.	.	.	.	.
OQT-19	641.10	641.35	.	.	.	.	.	.	.	.
OQT-19	650.60	650.85	.	.	.	.	.	.	.	.
OQT-19	655.50	655.75	.	.	.	.	.	.	.	.
OQT-19	660.30	660.55	.	.	.	.	.	.	.	.
OQT-19	665.50	665.75	.	.	.	.	.	.	.	.
OQT-19	670.30	670.55	.	.	.	.	.	.	.	.
OQT-19	680.20	680.45	.	.	.	.	.	.	.	.
OQT-19	691.15	691.40	.	.	X	Q	X	.	.	.
OQT-19	701.25	701.50	.	.	X	Q	X	.	.	.
	0.00	0.00								

P.E.A.C.E. PROJECT CORE PROCESSING AND ANALYSIS REPORT

FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
ORT-20	0.00	0.25	.	X	.	X	.	.	.	.
ORT-20	5.65	5.90	.	.	.	.	.	.	.	.
ORT-20	14.90	15.10	.	.	.	.	.	.	.	.
ORT-20	25.55	25.80	.	X	.	X	.	.	.	.
ORT-20	35.55	35.80	.	.	.	.	.	.	.	.
ORT-20	45.00	45.25	.	X	.	X	.	.	.	.
ORT-20	51.50	51.75	.	X	.	X	.	.	.	.
ORT-20	55.30	0.00	X	~	~	~	~	~	~	~
ORT-20	60.15	60.40	.	X	.	X	.	.	.	.
ORT-20	69.45	69.70	.	.	.	.	.	.	.	.
ORT-20	76.10	76.35	.	X	.	X	.	.	.	.
ORT-20	76.50	0.00	X	~	~	~	~	~	~	~
ORT-20	78.40	78.65	.	.	.	.	.	.	.	.
ORT-20	88.50	88.75	.	.	.	.	.	.	.	.
ORT-20	89.70	0.00	X	~	~	~	~	~	~	~
ORT-20	94.05	94.30	.	.	.	.	.	.	.	.
ORT-20	104.00	104.25	.	.	.	.	.	.	.	.
ORT-20	112.45	112.70	.	X	.	X	.	.	.	.
ORT-20	114.80	0.00	X	~	~	~	~	~	~	~
ORT-20	120.80	0.00	X	~	~	~	~	~	~	~
ORT-20	121.75	122.00	.	X	.	X	X	.	.	.
ORT-20	130.90	131.15	.	.	.	.	.	.	.	.
ORT-20	140.90	141.15	.	.	.	.	.	.	.	.
ORT-20	151.10	151.35	.	.	.	.	.	.	.	.
ORT-20	161.00	161.25	.	.	.	.	.	.	.	.
ORT-20	161.30	0.00	X	~	~	~	~	~	~	~
ORT-20	171.00	171.25	.	X	.	X	.	.	.	.
ORT-20	181.10	181.35	.	.	.	.	.	.	.	.
ORT-20	191.10	191.35	.	.	.	.	.	.	.	.
ORT-20	211.20	211.45	.	.	.	.	.	.	.	.
ORT-20	221.55	221.80	.	.	.	.	.	.	.	.
ORT-20	231.45	231.70	.	.	.	.	.	.	.	.
ORT20	235.00	0.00	X	~	~	~	~	~	~	~
ORT-20	239.60	239.85	.	X	.	X	.	.	.	.
ORT-20	245.30	0.00	X	~	~	~	~	~	~	~
ORT-20	249.70	249.95	.	.	.	.	.	.	.	.
ORT-20	255.55	255.80	.	.	.	.	.	.	.	.
ORT-20	265.00	265.25	.	.	.	.	.	.	.	.
ORT-20	275.00	275.25	.	.	.	.	.	.	.	.
ORT-20	285.40	285.65	.	.	X	Q	X	.	.	.
ORT-20	295.50	295.75	.	.	.	.	.	.	.	.
ORT-20	305.60	305.80	.	X	.	X	.	.	.	.
ORT-20	310.30	0.00	X	~	~	~	~	~	~	~
ORT-20	310.70	310.95	.	.	.	.	.	.	.	.
ORT-20	321.25	321.50	.	X	.	X	.	.	.	.
ORT-20	326.25	326.50	.	.	.	.	.	.	.	.
ORT-20	330.60	0.00	X	~	~	~	~	~	~	~
ORT-20	340.50	340.75	.	.	.	.	.	.	.	.
ORT-20	350.80	351.05	.	X	.	X	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
ORT-20	370.40	370.65	.	.	.	.	.	.	.	.
ORT-20	420.10	420.35	.	.	.	.	.	.	.	.
ORT-20	430.30	430.55	.	.	.	.	.	.	.	.
ORT-20	430.30	430.55	.	.	.	.	.	.	.	.
ORT-20	450.60	450.85	.	.	.	.	.	.	.	.
ORT-20	460.70	460.95	.	.	.	.	.	.	.	.
ORT-20	470.60	470.85	.	.	.	.	.	.	.	.
ORT-20	480.70	480.95	.	.	X	Q	X	.	.	.
ORT-20	490.80	491.05	.	.	X	Q	X	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OSR-21	0.00	0.25	.	.	.	.	.	.	.	.
OSR-21	6.75	7.00	.	.	.	.	.	.	.	.
OSR-21	16.15	16.40	.	.	.	.	.	.	.	.
OSR-21	25.80	26.05	.	.	.	.	.	.	.	.
OSR-21	35.90	36.15	.	.	.	.	.	.	.	.
OSR-21	46.90	0.00	X	~	~	~	~	~	~	~
OSR-21	46.90	47.15	.	.	.	.	.	.	.	.
OSR-21	53.55	53.80	.	.	.	.	.	.	.	.
OSR-21	61.90	62.15	.	.	.	.	.	.	.	.
OSR-21	71.50	71.75	.	.	.	.	.	.	.	.
OSR-21	79.10	79.35	.	.	.	.	.	.	.	.
OSR-21	86.80	0.00	X	~	~	~	~	~	~	~
OSR-21	86.80	0.00	X	~	~	~	~	~	~	~
OSR-21	96.40	96.55	.	.	.	.	.	.	.	.
OSR-21	105.95	106.20	.	.	.	.	.	.	.	.
OSR-21	114.30	0.00	X	~	~	~	~	~	~	~
OSR-21	114.30	144.55	.	.	.	.	.	.	.	.
OSR-21	124.00	124.25	.	.	.	.	.	.	.	.
OSR-21	134.20	134.45	.	.	.	.	.	.	.	.
OSR-21	144.00	144.75	.	.	.	.	.	.	.	.
OSR-21	154.70	154.95	.	.	.	.	.	.	.	.
OSR-21	164.90	0.00	X	~	~	~	~	~	~	~
OSR-21	164.90	165.15	.	.	.	.	.	.	.	.
OSR-21	175.20	175.45	.	.	.	.	.	.	.	.
OSR-21	185.40	185.65	.	.	.	.	.	.	.	.
OSR-21	195.80	196.05	.	.	.	.	.	.	.	.
OSR-21	206.10	0.00	X	~	~	~	~	~	~	~
OSR-21	206.10	206.35	.	.	.	.	.	.	.	.
OSR-21	216.30	216.55	.	.	.	.	.	.	.	.
OSR-21	225.70	0.00	X	~	~	~	~	~	~	~
OSR-21	225.70	225.95	.	.	.	.	.	.	.	.
OSR-21	228.80	229.05	.	.	.	.	.	.	.	.
OSR-21	232.95	243.10	.	.	.	.	.	.	.	.
OSR-21	242.85	243.10	.	.	.	.	.	.	.	.
OSR-21	247.40	247.65	.	.	.	.	.	.	.	.
OSR-21	252.65	252.90	.	.	.	.	.	.	.	.
OSR-21	259.40	259.65	.	.	.	.	.	.	.	.
OSR-21	260.20	0.00	X	~	~	~	~	~	~	~
OSR-21	263.35	263.60	.	.	.	.	.	.	.	.
OSR-21	277.90	278.15	.	.	.	.	.	.	.	.
OSR-21	288.00	288.25	.	.	.	.	.	.	.	.
OSR-21	297.80	298.95	.	.	.	.	.	.	.	.
OSR-21	307.70	0.00	X	~	~	~	~	~	~	~
OSR-21	318.20	318.45	.	.	X	Q	X	.	.	.
OSR-21	327.40	0.00	X	~	~	~	~	~	~	~
OSR-21	327.65	327.90	.	.	.	.	.	.	.	.
OSR-21	337.30	337.65	.	.	X	Q	X	.	.	.
OSR-21	347.50	357.75	.	.	.	.	.	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OSM-22	1.35	1.60	.	.	.	.	.	.	.	.
OSM-22	5.90	6.15	.	.	.	.	.	.	.	.
OSM-22	11.05	11.30	.	X	.	X	.	.	.	.
OSM-22	54.10	0.00	X	~	~	~	~	~	~	~
OSM-22	60.50	60.70	.	X	.	X	.	.	.	.
OSM-22	69.60	69.70	.	X	.	X	.	.	.	.
OSM-22	74.30	74.50	.	X	.	X	.	.	.	.
OSM-22	74.50	79.20	X	~	~	~	~	~	~	~
OSM-22	79.20	79.45	.	X	.	X	.	.	.	.
OSM-22	84.40	84.60	.	X	.	X	.	.	.	.
OSM-22	87.70	0.00	X	~	~	~	~	~	~	~
OSM-22	88.60	88.70	.	X	.	X	.	.	.	.
OSM-22	93.70	93.80	.	.	.	.	.	.	.	.
OSM-22	98.40	98.60	.	.	.	.	.	.	.	.
OSM-22	102.20	102.45	.	.	.	.	.	.	.	.
OSM-22	107.95	108.20	.	.	.	.	.	.	.	.
OSM-22	111.30	113.50	.	X	.	.	.	.	.	.
OSM-22	118.30	118.50	.	.	.	.	.	.	.	.
OSM-22	122.60	122.80	.	.	.	.	.	.	.	.
OSM-22	127.40	127.65	.	X	.	.	.	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OTG-23	276.20	276.45	.	X	.	X	X	.	.	.
OTG-23	308.30	308.55	.	X	.	X	X	.	.	.
OTG-23	339.30	339.55	.	X	.	X	X	.	.	.
OTG-23	371.10	371.35	.	X	.	X	X	.	.	.
OTG-23	402.40	402.65	.	X	.	X	X	.	.	.
OTG-23	433.70	433.95	.	X	.	X	X	.	.	.
OTG-23	464.50	464.70	.	X	.	X	X	.	.	.
OTG-23	495.30	495.50	.	X	.	X	X	.	.	.
OTG-23	524.90	525.15	.	X	.	X	X	.	.	.
OTG-23	555.60	555.85	.	X	.	X	X	.	.	.
OTG-23	586.70	586.95	.	X	.	X	X	.	.	.

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FOR KOA AND OAK CRATERS

BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OUT-24	0.00	0.25	.	.	.	.	.	.	.	.
OUT-24	4.20	4.45	.	.	.	.	.	.	.	.
OUT-24	7.10	7.35	.	.	.	.	.	.	.	.
OUT-24	10.40	10.65	.	.	.	.	.	.	.	.
OUT-24	13.50	13.75	.	.	.	.	.	.	.	.
OUT-24	16.70	16.95	.	.	.	.	.	.	.	.
OUT-24	19.80	20.05	.	.	.	.	.	.	.	.
OUT-24	22.80	23.05	.	.	.	.	.	.	.	.
OUT-24	29.40	29.65	.	.	.	.	.	.	.	.
OUT-24	32.55	32.80	.	.	.	.	.	.	.	.
OUT-24	35.05	35.30	.	.	.	.	.	.	.	.
OUT-24	37.85	38.10	.	.	.	.	.	.	.	.
OUT-24	40.85	41.10	.	.	.	.	.	.	.	.
OUT-24	46.00	46.25	.	.	.	.	.	.	.	.
OUT-24	48.75	49.00	.	.	.	.	.	.	.	.
OUT-24	53.40	53.65	.	.	.	.	.	.	.	.
OUT-24	59.15	59.40	.	.	.	.	.	.	.	.
OUT-24	64.00	64.25	.	.	.	.	.	.	.	.
OUT-24	67.70	67.95	.	.	.	.	.	.	.	.
OUT-24	72.50	72.75	.	.	.	.	.	.	.	.
OUT-24	77.80	78.05	.	.	.	.	.	.	.	.
OUT-24	82.70	82.95	.	.	.	.	.	.	.	.
OUT-24	87.68	87.85	.	.	.	.	.	.	.	.
OUT-24	92.50	92.75	.	.	.	.	.	.	.	.
OUT-24	97.70	97.95	.	.	.	.	.	.	.	.
OUT-24	105.90	106.15	.	.	.	.	.	.	.	.
OUT-24	111.60	111.85	.	.	.	.	.	.	.	.
OUT-24	116.70	116.95	.	.	.	.	.	.	.	.
OUT-24	121.90	122.15	.	.	.	.	.	.	.	.
OUT-24	126.70	126.95	.	.	.	.	.	.	.	.
OUT-24	131.60	131.85	.	.	.	.	.	.	.	.
OUT-24	141.00	141.25	.	.	X	Q	X	.	.	.
OUT-24	142.20	142.45	.	.	X	Q	X	.	.	.
OUT-24	150.80	151.05	.	.	.	.	.	.	.	.
OUT-24	160.70	160.95	.	.	.	.	.	.	.	.
OUT-24	170.50	170.75	.	.	.	.	.	.	.	.
OUT-24	180.30	180.55	.	.	.	.	.	.	.	.
OUT-24	190.10	190.35	.	.	X	Q	X	.	.	.
OUT-24	199.90	200.15	.	.	.	.	.	.	.	.
OUT-24	209.40	0.00	X	~	~	~	~	~	~	~
OUT-24	209.40	209.65	.	.	.	.	.	.	.	.
OUT-24	219.30	219.55	.	.	X	Q	X	.	.	.
OUT-24	229.10	0.00	X	~	X	~	~	~	~	~
OUT-24	229.10	229.35	.	.	.	Q	X	.	.	.
OUT-24	239.00	0.00	X	~	~	~	~	~	~	~
OUT-24	239.00	239.25	.	.	.	.	.	.	.	.
OUT-24	249.20	249.45	.	.	.	.	.	.	.	.
OUT-24	259.40	259.65	.	.	.	.	.	.	.	.
OUT-24	269.40	269.65	.	.	X	Q	X	.	.	.

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BOREHOLE	SAMPLING DEPTH 1	SAMPLING DEPTH 2	DSCF	ENEP	RSTP	OPK	BPK	PPK	LPK	NBP
OUT-24	279.60	280.10	.	.	.	.	.	.	.	.
OUT-24	289.80	0.00	X	~	~	~	~	~	~	~
OUT-24	289.80	290.05	.	.	X	Q	X	.	.	.
OUT-24	300.00	300.25	.	.	.	.	.	.	.	.
OUT-24	310.10	310.35	.	.	.	.	.	.	.	.
OUT-24	310.70	310.95	.	.	.	.	.	.	.	.
OUT-24	320.30	320.55	.	.	.	.	.	.	.	.
OUT-24	330.20	330.45	.	.	.	.	.	.	.	.
OUT-24	340.30	340.55	.	.	.	.	.	.	.	.
OUT-24	342.50	342.75	.	.	.	.	.	.	.	.
OUT-24	344.60	344.85	.	.	.	.	.	.	.	.
OUT-24	346.70	346.95	.	.	.	.	.	.	.	.
OUT-24	348.80	349.05	.	.	.	.	.	.	.	.
OUT-24	350.60	350.85	.	.	X	Q	X	.	.	.

Appendix 2: TRACK file format used during drilling operations and on data disk.

This printout shows the fields of the complete TRACK file that were used to coordinate shipboard and Reston paleontologic studies.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	SMPLR	NS	PROCESST	ENEP	RSTP	OPK	OID	BPK	BID	LPK	LID	PPK	PID	NBP	NFP	NID	BZONE	COMMENTS
1	KFT-8	4.40	4.65	.	ra	X	10%H202	.	X	.	.	X	X	.	.	.	.	.	.	.	..	
2	KFT-8	9.50	9.75	.	ra	X	10%H202	.	X	.	.	X	X	.	.	.	.	X	.	.	..	
3	KFT-8	15.75	16.00	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
4	KFT-8	20.00	20.25	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
5	KFT-8	28.50	20.75	.	ra	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	
6	KFT-8	34.50	34.75	.	ra	X	h2o2	X	.	.	.	.	.	.	.	.	.	.	.	.	..	
7	KFT-8	38.40	38.65	.	ra	X	h2o2	X	.	.	.	X	X	.	.	.	.	X	.	.	..	
8	KFT-8	53.75	54.00	.	ra	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	
9	KFT-8	60.20	60.45	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
10	KFT-8	63.75	64.00	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
11	KFT-8	70.00	70.25	.	ra	X	h2o2	X	.	.	.	X	X	.	.	.	.	X	.	.	..	
12	KFT-8	76.00	76.25	.	ra	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	
13	KFT-8	79.95	80.20	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
14	KFT-8	84.10	84.35	.	ra	X	h2o2	X	.	.	.	.	.	.	.	.	.	.	.	.	..	
15	KFT-8	89.70	89.95	.	ra	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	
16	KFT-8	95.65	95.90	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
17	KFT-8	99.05	99.30	.	ra	X	h2o2	X	.	X	X	X	X	.	.	X	X	X	.	.	..	
18	KFT-8	106.25	106.50	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
19	KFT-8	110.00	110.25	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
20	KFT-8	115.25	115.50	.	ra	X	h2o2	X	.	X	X	X	X	.	.	X	X	X	.	.	..	
21	KFT-8	119.30	0.00	X	~~~~~~~		~~~~~~~~~~	~	~	~	~	~	~	~	~	~	~			~	~~	~~~~~~~~~~~~~~~
22	KFT-8	122.50	122.75	.	ra	X	10%H202	.	X	.	.	X	X	.	.	.	.	X	.	.	..	.
23	KFT-8	128.25	120.50	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
24	KFT-8	132.50	132.75	.	ra	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	
25	KFT-8	138.90	0.00	X	~~~~~~~		~~~~~~~~~~	~	~	~	~	~	~	~	~	~	~			~	~~	~~~~~~~~~~~~~
26	KFT-8	139.15	139.40	.	ra	X	10%H202	.	X	.	.	X	X	.	.	.	.	X	.	.	..	.
27	KFT-8	145.75	146.00	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
28	KFT-8	152.50	152.75	.	ra	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	
29	KFT-8	155.30	0.00	X	~~~~~~~		~~~~~~~~~~	~	~	~	~	~	~	~	~	~	~			~	~~	~~~~~~~~~~~~~~
30	KFT-8	158.60	158.85	.	ra	X	10%H202	.	X	.	.	X	X	.	.	.	.	X	.	.	..	.
31	KFT-8	164.10	164.35	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	.
32	KFT-8	169.95	170.20	.	ra	X	10%H202	.	X	.	.	X	X	.	.	.	.	X	.	.	..	
33	KFT-8	175.35	175.60	.	ra	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	
34	KFT-8	179.60	0.00	X	~~~~~~~		~~~~~~~~~~	~	~	~	~	~	~	~	~	~	~			~	~~	~~~~~~~~~~~~~
35	KFT-8	182.75	183.00	.	ra	X	h2o2	X	.	X	X	X	X	.	.	.	.	X	.	.	..	.
36	KFT-8	187.75	188.00	.	ra	X	h2o2	X	.	.	.	X	X	.	.	.	.	X	.	.	..	.
37	KFT-8	190.50	0.00	X	~~~~~~~		~~~~~~~~~~	~	~	~	~	~	~	~	~	~	~			~	~~	~~~~~~~~~~~~
38	KFT-8	193.60	193.85	.	ra	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	
39	KFT-8	198.75	199.00	.	ra	X	10%H202	.	X	.	.	X	X	.	.	.	.	X	.	.	..	
40	KFT-8	202.00	202.25	.	ra	X	h2o2	X	.	X	X	X	X	.	.	.	.	X	.	.	..	
41	KFT-8	208.40	0.00	X	~~~~~~~		~~~~~~~~~~	~	~	~	~	~	~	~	~	~	~			~	~~	~~~~~~~~
42	KFT-8	211.70	211.95	.	ra	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	
43	KFT-8	215.65	215.90	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
44	KFT-8	219.25	219.50	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
45	KFT-8	224.82	225.05	.	ra	X	10%H202	.	X	X	X	.	.	.	.	.	.	X	.	.	..	
46	KFT-8	231.30	231.55	.	ra	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	
47	KFT-8	241.20	241.45	.	....	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	....
48	KFT-8	247.05	247.30	.	....	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	...
49	KFT-8	251.50	251.75	.	....	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	...
50	KFT-8	257.00	258.05	.	....	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	....
51	KFT-8	263.20	263.45	.	....	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	....
52	KFT-8	273.40	273.65	.	....	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	....
53	KFT-8	279.75	280.00	.	....	X	10%H202	.	X	.	.	X	X	.	.	.	.	X	.	.	..	....
54	KFT-8	289.00	289.25	.	....	X	10%H202	.	X	X	X	X	X	.	.	.	.	X	.	.	..	....
55	KFT-8	294.20	0.00	X	~~~~~~~		~~~~~~~~~~	~	~	~	~	~	~	~	~	~	~			~	~~	~~~~
56	KFT-8	295.05	295.30	.	....	X	10%H202	.	X	.	.	X	X	.	.	.	.	X	.	.	..	......
57	KFT-8	299.90	0.00	X	~~~~~~~		~~~~~~~~~~	~	~	~	~	~	~	~	~	~	~			~	~~	~~~~~~~~~~.
58	KFT-8	303.75	304.00	.	....	X	10%H202	.	X	.	.	.	.	.	.	.	.	.	.	.	..	..
59	KFT-8	310.85	311.10	.	....	X	10%H202	.	X	X	X	X	X	.	.	X	X	X	.	.	..	...
60	KFT-8	317.60	0.00	X	~~~~~~~		~~~~~~~~~~	~	~	~	~	~	~	~	~	~	~			~	~~	~~~~~

Appendix 3: ZONE files.

The following printouts give occurrence data for 19 ostracode taxa and 12 benthic foraminifer taxa for OAK and KOA boreholes. In samples for which counts were taken, the following code was used X= 1-3 specimens, XX= 4-10 specimens, XXX= 11-20 specimens, XXXX= more than 20 specimens. For some boreholes in KOA X means data was input on ship, Z means data were generated independently in Reston and input after the drilling of the borehole was completed. Question marks indicate uncertainty.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	U1	U2	U3	U4	U5	U6	U7	U8	U9	U10	U11	U12	U13	U14	U15	U16	U17	U18	U19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	KAR-1	0.0	8.8	.	.	.	.	.	.	XX	X	.	.	.	X	.	.	XXXX	X	X	.	X	XXXX	.	.	.	.	.	.	.	.	.	.	.	.
2	KAR-1	7.0	7.8	.	X	.	X	.	.	XX	.	.	.	.	X	X	.	XXXX	XX	.	.	.	XXXX	XX	.	.	.	.	XXXX	XXX	X	.	.	.	.
3	KAR-1	9.2	9.7	.	.	.	XX	.	.	XXXX	.	.	.	.	X	X	X	XXXX	X	.	.	.	XXXX	.	X	X	.	.	XXXX	XXXX	.	.	.	.	X
4	KAR-1	13.5	14.4	.	.	.	XX	.	.	XXX	.	.	.	.	XX	X	X	XXXX	X	.	.	.	XXXX	.	.	.	.	.	XXXX	XXX	.	.	X	X	.
5	KAR-1	10.7	19.8	.	X	.	XX	.	.	XX	.	.	.	.	XXXX	.	.	XXXX	X	.	.	.	XXXX	.	.	X	.	.	XXXX	XXX	.	.	X	.	.
6	KAR-1	25.7	27.7	.	XXX	.	XX	.	.	.	XXX	.	.	.	X	.	.	XXXX	.	X	.	.	XXXX	.	.	.	.	.	.	.	.	.	.	.	.
7	KAR-1	30.2	32.2	.	XXX	.	XX	.	.	.	XXXX	.	.	.	XXX	.	X	XXXX	X	X	.	.	XXXX	.	.	X	.	.	XXX	.	X	.	.	X	.
8	KAR-1	36.0	36.2	.	XX	.	.	.	.	.	XX	.	.	.	X	.	.	XX	.	.	.	.	X	XX	.	X	.	.	XX	X	X	.	.	X	.
9	KAR-1	41.7	42.2	.	XX	.	X	.	.	.	X	.	.	.	X	.	.	X	.	X	.	.	X	.	.	.	.	.	X	X	.	.	.	.	.
10	KAR-1	45.0	0.0	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
11	KAR-1	46.2	46.5	.	X	X	X	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.
12	KAR-1	47.6	47.9	.	XXXX	XX	XXXX	.	.	XXXX	XXXX	XXXX	.	.	.	.	X	XXXX	.	.	.	X	XXXX	.	.	.	.	.	.	.	.	.	.	.	.
13	KAR-1	50.2	51.9	.	XXX	.	XXXX	.	X	XX	XXX	XXX	.	.	.	.	X	XX	.	X	.	X	XX	.	.	.	.	.	.	.	X	.	.	.	.
14	KAR-1	54.8	55.8	.	.	.	XX	.	X	X	X	XXXX	X	.	XX	.	.	.	.	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.
15	KAR-1	56.9	0.0	.	X	.	XX	.	.	X	XX	XXX	.	.	XX	.	X	X	.	.	.	X	XXX	.	.	.	.	.	XX	.	.	.	X	.	.
16	KAR-1	60.4	0.0	.	.	.	.	.	X	.	.	.	XXX	X	X	.	.	.	.	X	.	.	.	X	.	.	.	.	XX	.	.	.	.	.	.
17	KAR-1	66.2	66.7	.	X	.	X	X	XX	XX	XXX	X	XX	.	XX	.	X	.	.	XX	X	.	X	X	.	.	.	.	.	.	.	X	.	.	.
18	KAR-1	69.8	0.0	.	XX	.	.	.	XXX	XX	.	XXX	XXXX	.	XXXX	XX	.	.	X	XXXX	.	.	XXX	X	.	.	.	.	XXXX	.	X	X	.	.	.
19	KAR-1	70.0	0.0	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
20	KAR-1	79.7	80.4	.	.	.	.	.	X	.	.	XX	.	.	.	.	.	.	.	X	.	.	X	X	.	X	.	.	XXXX	.	.	.	.	.	.
21	KAR-1	91.7	0.0	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
22	KAR-1	95.4	0.0	.	XX	.	XX	.	.	X	.	.	.	X	.	.	.	X	.	.	.	.	XXX	.	.	.	.	.	.	.	.	.	.	.	X
23	KAR-1	99.7	0.0	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
24	KAR-1	104.0	0.0	.	.	.	X	.	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	KAR-1	105.9	0.0	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	KAR-1	105.9	0.0	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
27	KAR-1	115.9	0.0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.
28	KAR-1	117.5	0.0	.	.	X	X	.	.	X	X	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	KAR-1	125.2	0.0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	.	.	X	.	.	X
30	KAR-1	131.0	0.0	.	X	X	X	.	.	XXX	XXXX	XX	XX	X	XXXX	.	.	XXX	.	XXX	.	.	XXX	.	.	.	.	.	XXXX	.	.	.	.	.	.
31	KAR-1	131.6	0.0	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
32	KAR-1	132.0	0.0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XXX	.	.	.	.	.	.
33	KAR-1	142.3	0.0	.	.	.	.	.	.	X	XX	.	.	.	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
34	KAR-1	143.3	0.0	.	.	.	X	X	.	X	XXX	.	.	.	XX	.	.	XX	.	.	.	.	XX	.	.	.	.	.	.	.	.	X	.	.	.
35	KAR-1	150.8	0.0	.	.	.	X	.	.	X	XX	.	.	.	XXX	.	.	XX	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
36	KAR-1	156.6	0.0	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
37	KAR-1	171.9	0.0	.	.	.	.	.	.	X	X	.	.	.	XX	.	.	X	.	.	.	.	.	.	.	.	.	.	XXXX	.	.	.	.	.	.
38	KAR-1	177.0	0.0	X	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?	~?~?
39	KAR-1	177.4	0.0	.	.	.	.	.	XX	XXXX	.	.	X	X	XXX	.	X	X	XX	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.
40	KAR-1	178.5	0.0	.	X	.	.	.	.	X	.	.	.	X	XXX	.	.	X	.	.	.	.	XX	X	.	.	.	XXX	X	.	X	X	.	.	.
41	KAR-1	182.5	0.0	.	.	.	X	X	X	.	X	.	X	.	X	.	.	X	.	.	.	.	X	X	.	.	.	XXXX	.	.	.	X	.	.	.
42	KAR-1	192.6	0.0	.	.	.	.	X	XX	.	.	.	X	X	XXXX	.	.	XXX	.	.	.	.	XXXX	.	.	.	.	.	.	.	.	X	.	.	.
43	KAR-1	196.9	0.0	.	X	.	X	.	X	.	X	.	XX	.	XXX	.	.	XX	X	.	.	.	XXX	X	.	X	.	.	.	.	.	X	.	.	X
44	KAR-1	203.0	0.0	.	.	.	.	.	X	.	.	.	.	X	XX	.	.	X	.	.	.	X	XX	.	.	.	.	.	.	.	.	.	.	.	.
45	KAR-1	208.0	0.0	.	.	.	.	X	X	.	XX	.	X	X	XXX	X	.	X	XX	.	.	.	XXX	X	.	.	.	.	.	.	X	X	X	.	.
46	KAR-1	212.4	0.0	.	.	.	.	.	X	X	X	.	X	X	XX	.	X	X	.	.	.	.	XX	X	.	.	.	.	.	.	.	.	.	.	.
47	KAR-1	215.8	0.0	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
48	KAR-1	222.4	0.0	.	.	XXX	X	.	XX	X	XXXX	.	.	X	XXXX	.	.	XXX	XX	.	.	X	XXXX	X	X	.	.	.	.	.	.	X	.	X	X
49	KAR-1	223.0	0.0	.	.	X	.	.	.	X	X	.	XXX	X	XXXX	.	X	X	.	.	.	.	XX	.	.	.	.	.	.	.	.	X	.	.	X
50	KAR-1	223.5	0.0	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
51	KAR-1	230.3	230.9	.	X	XX	XX	.	X	XXX	XXX	.	.	.	XXXX	X	.	XXX	XXX	X	.	.	XXX	.	.	.	.	.	.	.	.	.	.	.	.
52	KAR-1	231.8	0.0	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
53	KAR-1	238.0	0.0	.	XX	XX	X	.	.	.	XX	.	.	.	XX	.	.	XXX	.	.	.	.	XX	.	X	.	.	.	.	.	X	X	.	.	.
54	KAR-1	239.6	0.0	.	.	.	.	.	.	XX	XX	.	.	.	.	.	.	X	X	.	.	.	XXXX	.	.	.	.	.	.	.	.	.	X	.	.
55	KAR-1	240.6	0.0	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
56	KAR-1	245.4	0.0	.	.	.	.	.	X	X	XX	.	.	.	X	.	.	X	.	.	.	.	X	.	.	.	.	X	XX	.	.	.	.	.	.
57	KAR-1	255.0	0.0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XXXX	.	.	.	.	.	.
58	KAR-1	262.0	0.0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XXX	.	.	.	.	.	.
59	KAR-1	264.0	265.0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	.	.	.	.	.	.
60	KAR-1	273.0	0.0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
61	KAR-1	282.2	0.0	.	B	A	R	R	E	N	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.
62	KAR-1	283.3	0.0	.		X	.	.	.	.	XX	.	.	.	X	.	.	X	.	.	.	.	X	.	.	.	XX	XXXX	XXX	.	.	X	.	.	X
63	KAR-1	298.2	299.5	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	XX	.	.	.	.	.	X
64	KAR-1	311.2	311.5	.	.	X	.	.	.	.	.	.	.	X	.	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
65	KAR-1	321.0	0.0	.	.	.	.	.	.	X	X	.	.	.	.	.	.	XX	X	.	.	.	.	X	.	.	.	.	XX	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	KBZ-4	6.00	6.25	.	X	X	X	X	.	XXX	XXX	XX	X	XX	XXXX	X	.	XXX	X	X	X	X	XXXX	.	.	.	XX	.	XXX	XX	.	.	.	.	X
2	KBZ-4	15.45	15.70	.	XX	X	.	X	.	XX	XXX	XX	X	.	XXXX	X	.	XX	X	XX	X	.	XX	.	.	.	.	XXX	XX	XXX	X	.	.	.	.
3	KBZ-4	25.80	26.05	.	X	X	X	X	.	XXXX	XXX	XXX	XXX	XX	XXXX	XX	X	XXX	XXX	X	X	.	XXXX	XXX	.	.	.	X	XX	XX	.	.	.	.	.
4	KBZ-4	34.50	34.75	.	X	.	.	.	.	X	XX	.	.	.	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	KBZ-4	36.50	36.75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XXX	.	.	.	.	.
6	KBZ-4	39.20	39.45	.	X	.	.	.	.	.	.	XX	X	X	XX	.	.	X	.	X	.	.	.	.	.	.	.	.	.	XXX	.	.	.	.	.
7	KBZ-4	43.60	43.85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	XX	XXXX	.	.	.	.	.
8	KBZ-4	48.60	48.85	.	XX	.	X	X	.	X	X	XX	X	X	XXX	.	.	X	X	X	.	.	XX	.	.	.	.	.	.	XXXX	.	.	.	.	.
9	KBZ-4	53.80	54.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	.	.	.	.	.
10	KBZ-4	63.25	63.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	.	.	.	.	.
11	KBZ-4	73.30	73.55	.	X	X	.	.	.	XX	XX	.	.	X	X	X	.	XX	.	X	.	.	XX	.	.	.	.	.	.	XX	.	.	.	.	.
12	KBZ-4	78.50	78.75	.	X	.	.	.	.	X	X	.	X	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	XX	.	.	.	.	.
13	KBZ-4	83.15	83.40	.	X	.	.	.	.	X	X	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.	XXX	XX	XX	.	.	.	.	X
14	KBZ-4	93.00	93.15	.	X	.	X	.	.	X	X	X	X	.	.	.	.	X	.	X	.	.	X	X	.	.	.	XXXX	XXX	XX	X	XX	.	.	XX
15	KBZ-4	103.20	103.45	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	X	X	.	.	.	XXX	XX	XX	X	.	.	.	X
16	KBZ-4	118.05	118.30	.	Z	.	Z	.	.	.	Z	ZZ	.	.	ZZ	.	.	Z	.	Z	.	.	Z	Z	.	Z	Z	ZZZ	ZZZ	Z	.	Z	.	.	Z
17	KBZ-4	123.75	124.00	.	.	.	.	.	.	Z	.	.	.	.	ZZ	.	.	ZZ	.	.	.	.	Z	.	.	.	.	ZZZ	ZZ	ZZZ	.	.	.	.	Z
18	KBZ-4	128.85	129.10	.	.	X	.	.	.	.	XX	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XXXZ	XZ	XXZ	.	.	Z	.	.
19	KBZ-4	133.05	133.30	.	.	.	.	.	Z	Z	Z	.	Z	.	ZZ	.	Z	Z	.	Z	.	.	Z	.	.	Z	Z	ZZ	ZZZ	Z	.	Z	.	.	.
20	KBZ-4	137.50	137.75	.	X	.	X	X	.	X	XX	.	XX	X	XXX	.	X	X	X	XX	.	.	X	.	.	Z	.	XXXZ	ZZZ	XXZ	Z	Z	.	.	.
21	KBZ-4	142.61	142.85	.	X	X	X	X	.	X	XX	XX	X	.	X	.	.	X	.	XXX	.	.	XX	.	.	.	.	ZZZZ	ZZ	.	.	Z	.	.	.
22	KBZ-4	147.25	147.50	.	XZ	X	.	Z	Z	Z	Z	X	XZ	.	Z	.	Z	Z	Z	Z	.	.	XZ	.	Z	.	.	XXXZ	ZZ	.	.	.	.	.	.
23	KBZ-4	151.80	152.05	.	X	.	.	.	Z	ZZ	.	X	Z	.	.	.	.	XZ	.	Z	.	.	XZ	.	.	.	.	XXZZ	XZ	XX	.	Z	.	Z	Z
24	KBZ-4	156.95	157.20	.	.	.	.	.	.	X	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	ZZZZ	ZZ	.	.	ZZ	.	.	.
25	KBZ-4	161.85	162.10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	ZZ	Z	.	.	Z	.	.	Z
26	KBZ-4	166.90	167.15	.	.	.	.	.	.	X	.	X	.	X	X	.	.	X	.	.	.	.	X	.	.	.	ZZ	ZZ	ZZZ	.	.	.	.	.	.
27	KBZ-4	172.30	172.55	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Z	.	Z	.	ZZZZ	ZZZ	.	.	Z	.	.	.
28	KBZ-4	177.10	177.35	.	X	X	X	.	.	X	X	X	.	X	XX	.	.	X	.	X	.	.	X	Z	.	.	.	ZZZZ	ZZ	.	.	.	.	.	.
29	KBZ-4	182.10	182.35	.	X	.	XXZ	Z	X	XXXX	XZ	XXZ	Z	XXZ	X	Z	.	XXZ	.	XZ	.	.	XXZ	Z	.	X	.	Z	ZZZZ	.	.	Z	Z	Z	.
30	KBZ-4	187.40	187.65	.	X	.	.	X	.	X	X	X	X	XX	.	.	.	X	.	.	.	.	XX	.	.	Z	.	Z	ZZZ	.	.	Z	.	.	.
31	KBZ-4	192.00	192.25	.	Z	Z	Z	.	Z	ZZZ	ZZZ	Z	.	ZZ	.	.	.	ZZ	.	ZZ	.	Z	ZZ	Z	.	.	.	Z	ZZZ	.	.	Z	.	.	.
32	KBZ-4	194.65	194.90	.	Z	.	Z	.	.	ZZ	ZZ	ZZ	.	Z	.	.	.	.	Z	Z	.	.	ZZ	Z	.	Z	Z	Z	ZZZ	.	.	Z	.	.	.
33	KBZ-4	201.70	201.95	.	B	A	R	R	E	N	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Z	.	.	ZZ	ZZZZ	.	Z	ZZ	Z	.	.
34	KBZ-4	206.20	206.45	.	.	.	ZZ	.	.	ZZZ	ZZ	Z	Z	ZZZ	.	.	Z	Z	.	Z	.	.	ZZZ	.	.	.	.	ZZ	ZZZZ	.	.	.	.	.	.
35	KBZ-4	211.50	211.75	.	X	X	X	.	.	XXXX	.	XX	X	XX	X	.	.	X	.	X	.	.	XXX	.	.	.	.	.	ZZ	.	Z	Z	.	.	.
36	KBZ-4	220.52	220.75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	X	XXXX	.	.	X	.	.	X
37	KBZ-4	225.00	226.05	.	.	.	.	.	.	.	Z	.	.	.	Z	.	.	.	.	.	Z	.	.	Z	Z	.	.	ZZ	ZZZZ	.	.	Z	.	.	.
38	KBZ-4	230.80	231.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
39	KBZ-4	234.90	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
40	KBZ-4	235.15	235.40	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Z	.	.	.	ZZ	ZZ	.	.	Z	.	.	.
41	KBZ-4	240.62	240.85	.	.	.	Z	Z	.	ZZZZ	ZZZ	ZZZ	Z	ZZZ	Z	.	.	ZZ	.	ZZ	.	.	ZZZ	.	.	.	.	.	.	.	.	.	.	.	.
42	KBZ-4	246.12	46.35	.	Z	.	.	Z	.	Z	.	Z	.	.	ZZ	.	.	Z	.	ZZ	.	.	Z	.	Z	Z	.	ZZZZ	ZZZZ	.	.	Z	.	.	.
43	KBZ-4	247.10	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
44	KBZ-4	251.65	251.90	.	.	.	Z	Z	Z	XXZ	XZZ	XXXX	XZ	Z	XZ	.	.	X	.	XZ	.	.	XZ	.	.	Z	.	XXXZ	ZZZ	.	.	Z	Z	Z	Z
45	KBZ-4	257.10	257.35	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Z	.	.	ZZ	ZZ	.	.	.	.	.	.
46	KBZ-4	259.50	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
47	KBZ-4	268.10	268.35	.	.	.	.	.	Z	Z	.	.	.	.	.	.	.	Z	.	.	.	.	Z	.	.	Z	.	Z	ZZ	.	.	.	.	.	.
48	KBZ-4	273.50	273.75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	XXX	X	.	.	.	.	.	X
49	KBZ-4	292.30	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
50	KBZ-4	295.90	296.15	.	Z	.	.	.	.	Z	.	.	.	.	.	.	.	.	.	.	.	.	Z	.	.	.	.	.	.	.	.	.	.	.	.
51	KBZ-4	300.55	300.80	.	.	.	.	.	Z	.	Z	.	.	.	ZZ	.	.	Z	.	.	.	.	Z	.	.	.	.	.	.	.	.	.	.	.	.
52	KBZ-4	305.10	305.35	.	.	.	.	.	.	.	Z	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Z	.	.	.	.	.	.	.
53	KBZ-4	309.95	310.20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
54	KBZ-4	315.40	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
55	KBZ-4	319.00	319.25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	ZZ	Z	.	.	.	.	.	.
56	KBZ-4	325.30	325.55	.	.	.	.	X	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	Z	.	.	.	Z	.	.	.
57	KBZ-4	332.50	332.75	.	.	.	.	.	.	ZZ	ZZ	.	.	.	ZZ	.	.	ZZ	.	.	.	.	Z	.	.	.	.	.	.	.	.	.	.	.	.
58	KBZ-4	335.75	0.00	.	.	.	.	.	.	.	Z	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
59	KBZ-4	339.30	339.55	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
60	KBZ-4	352.50	352.75	.	.	.	.	.	Z	ZZ	ZZ	.	Z	Z	ZZZZ	.	.	.	.	ZZ	.	Z	Z	.	.	.	.	.	.	.	.	.	.	.	.
61	KBZ-4	370.60	370.85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
62	KBZ-4	386.30	386.55	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	Z	.	.	.	.	Z	.	.	.	.	.	.
63	KBZ-4	400.20	400.25	.	B	A	R	R	E	N	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	BSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	KCT-5	0.00	0.25	.	XX	XX	XX	.	X	XXX	XX	XX	.	XX	XXX	.	.	XXXX	XX	X	X	XXX	XXXX	.	.	.	.	.	.	.	.	.	.	.	.
2	KCT-5	10.05	10.30	.	.	.	.	.	.	.	X	.	.	.	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
3	KCT-5	23.50	23.90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	ZZZZ	Z	Z	.	.	.	.	.
4	KCT-5	32.70	32.95	.	XX	X	.	X	.	XX	X	.	.	X	XX	X	X	XXXX	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	KCT-5	42.75	43.00	.	B	A	R	R	E	N	.	.	.	.	.	.	.	.	.	.	.	.	.	Z	.	.	.	ZZZZ	.	.	Z	.	Z	.	.
6	KCT-5	49.65	49.90	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	KCT-5	61.00	61.25	.	X	XX	.	.	.	X	.	X	X	.	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
8	KCT-5	65.80	66.05	.	.	.	.	.	.	.	.	.	.	.	ZZ	.	.	.	.	.	.	.	.	Z	.	.	.	Z	ZZZZ	.	Z	.	Z	.	.
9	KCT-5	70.25	70.50	.	.	X	.	.	.	X	.	X	X	X	X	.	.	X	X	X	.	X	X	ZZ	.	.	.	.	ZZZZ	.	.	.	.	.	.
10	KCT-5	84.20	84.45	.	.	.	.	.	.	X	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	KCT-5	96.20	96.45	.	Z	Z	.	Z	.	.	Z	.	.	.	Z	.	.	Z	.	Z	.	.	Z	Z	.	.	.	.	ZZZZ	.	.	.	.	.	.
12	KCT-5	108.10	108.35	.	X	.	.	.	.	X	.	XX	X	.	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
13	KCT-5	114.55	114.80	.	.	.	.	.	Z	.	.	.	.	.	.	.	.	Z	.	.	.	.	.	Z	.	.	.	.	ZZZZ	.	Z	.	Z	.	.
14	KCT-5	120.80	121.05	.	.	.	.	.	Z	Z	.	ZZ	.	.	-Z	.	.	.	Z	Z	.	.	Z	ZZ	.	Z	.	.	ZZZZ	.	.	.	.	.	.
15	KCT-5	136.60	136.85	.	.	—.	.	.	Z	Z	.	Z	Z	Z	Z	.	Z	.	Z	Z	.	.	Z	Z	.	.	.	.	ZZZZ	.	Z	.	.	.	.
16	KCT-5	140.10	140.35	.	.	Z	.	Z	ZZZ	.	Z	ZZZ	Z	ZZ	Z	.	.	ZZ	.	ZZZ	Z	.	ZZ	ZZ	.	.	.	.	ZZZZ	.	Z	.	.	.	.
17	KCT-5	144.75	145.00	.	.	.	.	.	.	.	.	.	.	.	ZZ	.	.	Z	.	Z	Z	.	Z	ZZ	.	.	.	.	ZZZZ	.	.	.	.	.	.
18	KCT-5	149.50	149.75	.	X	.	.	.	.	X	.	X	.	.	X	.	.	X	.	X	.	.	X	.	.	.	.	.	ZZZ	.	.	.	.	.	.
19	KCT-5	155.20	155.45	.	.	.	.	.	.	.	.	Z	.	.	.	.	.	.	.	Z	Z	.	.	Z	.	.	.	.	ZZZ	.	.	.	.	.	.
20	KCT-5	161.00	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
21	KCT-5	161.20	161.45	.	.	.	.	.	.	.	.	.	.	.	Z	.	.	Z	.	Z	.	.	Z	Z	.	.	.	.	ZZ	.	Z	.	.	.	.
22	KCT-5	164.90	165.15	.		.	.	,	.	Z	.	.	.	.	ZZZ	.	Z	.	.	.	.	.	Z	Z	Z	Z	.	ZZZ	ZZZZ	.	.	Z	Z	Z	Z
23	KCT-5	170.50	170.75	.	XX	X	.	.	.	XX	XXX	XX	.	X	XXXX	.	.	XX	X	.	.	.	XXX	ZZ	.	.	.	ZZ	ZZZZ	.	.	.	.	.	.
24	KCT-5	175.60	175.85	.	X	.	X	.	.	.	.	.	X	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25	KCT-5	181.10	181.35	.	Z	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	ZZZ	Z?	.	.	.	.	.	.
26	KCT-5	186.60	186.85	.	Z	.	.	.	.	.	Z	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Z	ZZZZ	ZZZ	.	.	.	.	.	.
27	KCT-5	190.10	190.35	.	XX	.	.	.	.	.	X	.	.	X	.	.	.	X	.	.	.	.	X	.	.	.	.	ZZZZ	ZZ	.	.	.	.	.	.
28	KCT-5	195.75	196.00	.	X	X	X	X	.	X	XXX	.	.	X	XX	.	.	.	X	XX	.	.	XX	Z	.	.	.	Z	ZZZZ	.	Z	ZZ	.	.	.
29	KCT-5	201.50	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
30	KCT-5	201.75	202.00	.	.	Z	Z	Z	Z	ZZ	Z	Z	.	.	ZZ	.	.	ZZ	.	Z	Z	.	ZZ	.	.	.	Z	ZZ	ZZZ	Z	.	.	.	.	Z
31	KCT-5	204.70	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
32	KCT-5	206.25	206.50	.	X	.	.	.	.	X	X	X	X	.	.	.	.	.	.	.	.	.	X	.	Z	Z	.	Z	ZZ	Z?	.	Z	.	.	Z
33	KCT-5	211.30	211.55	.	.	.	.	.	.	X	.	.	.	.	X	.	.	.	.	X	.	.	X	.	Z	Z	Z	ZZ	ZZZ	.	.	.	.	.	.
34	KCT-5	214.40	214.65	.	X	X	XX	.	.	.	XX	X	.	XX	X	.	.	X	.	XX	.	X	XX	.	.	.	.	.	ZZ	.	.	Z	.	.	.
35	KCT-5	217.00	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
36	KCT-5	220.60	220.85	.	.	.	.	.	Xcan	.	.	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.	.	ZZ	.	.	.	.	.	Z
37	KCT-5	227.25	227.50	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	X	.	.	Z	.	Z	ZZZZ	.	.	.	.	.	.
38	KCT-5	231.00	231.25	.	.	.	Z	.	.	Z	Z	.	.	.	Z	.	.	.	.	.	.	.	.	.	.	Z	ZZ	.	ZZZZ	.	.	.	Z?	.	.
39	KCT-5	236.65	236.90	.	.	.	X	.	can	X	X	.	X	X	X	.	.	.	X	.	.	.	X	Z	.	Z	.	.	.	.	.	Z	Z	.	ZZ
40	KCT-5	246.35	246.60	.	.	.	X	.	X	X	.	.	.	X	X	.	.	X	.	.	.	.	X	.	Z	ZZ	Z	.	ZZZZ	.	.	Z	.	.	.
41	KCT-5	252.25	252.50	.	.	.	.	.	.	ZZ	Z	.	.	Z	Z	.	.	.	.	.	.	.	.	.	.	Z	.	.	ZZZZ	.	.	.	.	.	Z
42	KCT-5	257.55	257.80	.	.	.	.	.	.	ZZ	Z	.	.	Z	ZZZ	.	.	Z	.	.	.	.	Z	.	.	ZZ	.	Z	ZZZZ	Z?	.	.	.	.	ZZ
43	KCT-5	266.50	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
44	KCT-5	267.55	267.80	.	.	.	.	.	.	X	.	.	X	X	X	.	.	.	.	.	.	.	.	.	.	Z	.	.	ZZ	.	.	.	.	.	.
45	KCT-5	279.80	280.05	.	B	A	R	R	E	N	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	ZZ	.	.	.	.	.	.	.
46	KCT-5	283.00	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
47	KCT-5	286.75	287.00	.	.	.	.	.	.	.	X	.	XX	XX	XX	.	.	X	.	X	.	X	X	.	.	.	.	ZZZ	ZZZ	.	.	.	Z	.	Z
48	KCT-5	292.45	292.70	.	.	.	.	X	X	.	X	.	XX	.	X	.	.	.	.	.	.	.	.	.	.	.	.	ZZZZ	.	.	Z	.	.	.	.
49	KCT-5	295.70	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	KDT-6	3.50	3.75	.	X	.	.	.	.	XX	XX	.	.	.	XX	.	X	XX	X	XX	.	.	XX	.	.	.	.	.	.	X	.	.	.	.	.
2	KDT-6	9.30	9.55	.	.	.	.	.	.	X	XX	.	.	.	XX	.	.	X	.	.	.	.	.	.	.	.	X	X	X	XXX	X	.	X	.	X
3	KDT-6	15.25	15.50	.	X	.	X	.	.	X	X	X	X	.	X	.	.	XX	X	X	.	.	X	.	.	.	.	.	X	XXXX	.	.	.	X	.
4	KDT-6	21.10	21.35	.	.	.	.	.	.	XX	X	X	.	.	X	.	.	X	X	.	.	.	X	.	.	.	.	.	.	XXXX	.	.	.	.	X
5	KDT-6	24.50	24.75	.	.	.	X	.	.	XX	XX	X?	.	X	XX	.	.	X	X	.	.	.	.	.	.	X	.	X	XX	XXXX	.	X	X	X	.
6	KDT-6	29.75	0.00	.	.	.	.	.	X	X	X	.	.	.	X	.	.	XX	.	.	.	.	.	.	.	.	.	X	XX	XXX	X	.	.	X	.
7	KDT-6	36.30	36.55	.	.	.	.	.	X	.	.	X	.	.	XX	.	.	.	.	.	.	.	X	.	.	.	.	.	XX	XXX	X	.	.	.	.
8	KDT-6	43.55	43.80	.	X	.	.	.	.	XXX	XXX	XX	.	X	XXXX	.	.	XXX	.	.	.	.	X	.	.	.	.	.	.	XXX	XX	.	.	.	.
9	KDT-6	53.90	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
10	KDT-6	54.55	54.80	.	.	.	.	.	XX	.	.	XXX	.	.	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
11	KDT-6	58.25	58.50	.	.	.	X	.	.	X	.	XX	.	.	.	.	.	X	X	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.
12	KDT-6	67.75	68.00	.	.	.	.	.	X	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
13	KDT-6	76.00	76.25	.	X	.	.	.	X	.	.	XX	.	.	.	.	.	XX	.	.	.	.	XX	X	.	.	.	.	.	.	X	.	.	.	.
14	KDT-6	81.50	81.75	.	X	.	.	.	.	.	.	X	.	.	X	.	.	.	.	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.
15	KDT-6	85.35	85.60	.	.	.	.	.	.	X	.	XX	.	.	X	.	.	X	.	.	X	.	.	XX	.	.	.	.	.	.	.	.	.	.	.
16	KDT-6	87.60	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
17	KDT-6	95.50	95.75	.	.	.	.	.	X	XX	.	X	.	.	.	.	.	X	.	X	.	.	X	.	.	.	.	.	XXX	.	.	.	.	.	.
18	KDT-6	100.05	100.30	.	.	.	.	.	.	.	.	XX	.	.	X	.	.	X	.	X	.	.	XX	.	.	X	.	.	XXX	.	X	.	.	.	.
19	KDT-6	105.00	105.25	.		X	.	.	XX	.	.	XXX	X	.	.	.	.	XX	.	XX	.	.	X	.	.	X	.	.	XXXX	.	.	.	.	.	.
20	KDT-6	110.30	110.55	.	X	.	.	.	X	.	.	X	XX	.	.	.	.	XX	X	X	.	.	XX	X	.	X	.	.	XXXX	.	.	X	.	.	.
21	KDT-6	110.60	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
22	KDT-6	115.65	115.90	.	X	.	.	.	X	.	.	X	.	.	.	.	.	X	.	X	.	.	X	X	.	X	.	.	XXXX	.	.	.	.	.	.
23	KDT-6	122.30	122.55	.	.	.	.	.	XX	.	.	XXX	XX	.	XXX	.	.	X	.	.	.	.	XX	XX	.	.	.	.	XX	.	X	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	01	02	03	04	05	06	07	08	09	010	011	012	013	014	015	016	017	018	019	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	KET-7	6.00	7.05	.	X	.	.	.	.	.	.	.	.	.	X	.	.	X	X	X	.	.	X	.	.	.	.	.	.	XXXX	X	.	.	X	.
2	KET-7	12.55	12.80	.	XX	.	.	.	.	XX	.	.	.	X	XX	.	.	XX	.	X	.	X	X	.	.	.	.	.	XX	XXXX	X	.	.	.	XX
3	KET-7	18.00	18.25	.	XX	XX	X	.	.	XXXX	XX	.	X	.	XXXX	X	.	XXX	XXX	X	.	.	XXX	X	.	.	.	.	XX	XXXX	X	.	.	.	X
4	KET-7	20.30	20.55	.	XX	.	.	.	.	XX	XX	.	.	.	XX	XXX	.	XX	.	.	.	.	X	.	.	.	.	.	.	XXX	.	.	.	X	.
5	KET-7	36.25	36.50	.	.	.	.	.	.	XX	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XXX	.	.	.	.	.
6	KET-7	41.15	41.40	.	X	X	.	.	X	.	.	XX	.	.	XXX	.	.	X	X	.	X	.	X	XX	.	.	.	.	.	X	.	.	.	.	.

record#	BOREHOLE	DEPTH1	DEPTH2	BGCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	D7	B8	B9	B10	B11	B12
1	KFT-8	4.40	4.65	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	X	X	XX	.	.	.	X	.
2	KFT-8	9.50	9.75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	XX	XX	.	.	.	.	.
3	KFT-8	28.50	28.75	.	.	.	.	X	.	X	X	.	.	.	XX	.	.	.	.	XX	.	X	X	.	.	.	.	XXXX	XX	.	.	.	.	.	.
4	KFT-8	38.40	38.65	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	X	XXXX	.	.	.	.	.	.
5	KFT-8	53.75	54.00	.	.	.	X	.	X	.	.	XXX	.	.	X	.	.	X	X	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.
6	KFT-8	70.00	70.25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.
7	KFT-8	76.00	76.25	.	.	.	.	.	.	X	X	.	.	.	XX	.	.	X	X	.	.	.	.	.	.	X	.	.	.	XXX	XX	.	.	.	.
8	KFT-8	89.70	89.95	.	.	X	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	X	X	.	.	.	.	.	.	X	.	.	.	.
9	KFT-8	99.05	99.30	.	XX	X	.	.	X	X	.	XXX	.	.	X	.	.	XX	X	.	.	X	X	.	.	.	.	.	.	.	XX	.	.	.	.
10	KFT-8	115.25	115.50	.	X	.	.	.	.	.	.	XXX	.	.	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.
11	KFT-8	119.30	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
12	KFT-8	122.50	122.75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	X	.	.	XXXX	.	.	X	.	.	.
13	KFT-8	132.50	132.75	.	.	.	.	.	XX	.	.	X?	X	.	X	X	.	X	.	XX	.	.	X	.	.	X	.	.	XXXX	XXX	.	.	.	.	.
14	KFT-8	138.90	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
15	KFT-8	139.15	139.40	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XXXX	.	.	.	.	.	.
16	KFT-8	152.50	152.75	.	.	.	.	.	XX	.	.	XX	X	.	XX	.	.	X	X	.	.	.	XXX	.	.	.	.	.	XX	.	X	.	.	.	.
17	KFT-8	155.30	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
18	KFT-8	158.60	158.85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	XXX	.	X	.	.	.	.
19	KFT-8	169.95	170.20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	.	.	.	.	.	.
20	KFT-8	175.35	175.60	.	X	.	.	.	.	X	.	X	.	.	X	.	.	X	.	XX	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.
21	KFT-8	179.60	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
22	KFT-8	182.75	183.00	.	X	X	.	.	X	X	.	X	.	.	.	.	.	X	X	X	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.
23	KFT-8	187.75	188.00	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	KFT-8	193.60	193.85	.	X	.	.	X	X	XX	X	.	.	X	XXX	.	X	X	.	.	.	X	XXX	X	.	.	.	.	.	.	X	.	.	.	.
25	KFT-8	198.75	199.00	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	X	.	X	.	.
26	KFT-8	202.00	202.25	.	.	.	.	.	X	X	X	.	.	.	.	.	.	X	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
27	KFT-8	208.40	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
28	KFT-8	211.70	211.95	.	X?	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	KFT-8	224.82	225.05	.	X	X	.	.	.	X	XX	.	X	.	XXX	.	.	XX	X	.	.	.	XXX	.	.	.	.	.	.	.	.	.	.	.	.
30	KFT-8	241.20	241.45	.	.	.	XX	.	.	X	X	X	.	X	XXX	.	.	XXX	X	X	.	X	XXX	.	.	.	.	.	X	.	X	X	.	.	.
31	KFT-8	251.50	251.75	.	.	.	XX	.	0	XXXX	XXXX	X	X	XXX	X	.	X	XX	.	XX	.	.	XX	.	.	.	.	.	XXX	.	.	.	.	.	X
32	KFT-8	263.20	263.45	.	.	.	XX	.	.	XX	XX	X	.	XX	XXX	.	.	.	.	XX	.	.	XX	.	X	XX	XXXX	.	.	.	.	.	.	.	.
33	KFT-8	279.75	280.00	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	XXXX	.	X	.	.	.	.
34	KFT-8	289.00	289.25	.	.	X	.	.	.	X	X	.	.	X	XX	.	.	XX	X	.	.	X	XX	.	.	X	.	.	XXX	.	.	.	.	.	.
35	KFT-8	294.20	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
36	KFT-8	295.05	295.30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	XX	.	X	.	.	.	.
37	KFT-8	299.90	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
38	KFT-8	310.05	311.10	.	.	.	.	XX	X	.	.	.	X	X	XX	.	.	.	.	.	.	X	X	.	.	X	.	XXXX	.	.	.	X	.	.	.
39	KFT-8	317.60	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DAR-2A	0.25	0.50		.	.	.	.	.	I	II	.	I	I	II	.	.	I	I	I	.	.	II	.	.	.	.	.	.	.	.	.	.	.	.
2	DAR-2A	2.30	2.55	.	.	.	.	.	.	I	I	.	.	I	.	.	.	.	.	.	.	.	I	.	.	.	.	.	.	.	.	.	.	.	.
3	DAR-2A	6.00	6.25	.		.	I	.	.	II	III	.	.	II	II	I	.	III	II	.	.	.	III	.	.	.	.	.	.	.	.	.	.	.	.
4	DAR-2A	9.30	9.55	.	.	.	I	.	.	I	I	.	.	I	I	I	.	I	I	I	.	.	I	.	.	.	.	.	.	.	.	.	.	.	.
5	DAR-2A	11.85	12.10	.	.	I	.	.	.	I	I	.	.	I	I	.	.	I	I	I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	DAR-2A	14.50	14.75	.	.	.	I	.	.	I	I	.	.	I	I	I	I	I	I	I	.	.	I	.	.	.	.	.	.	.	.	.	.	.	.
7	DAR-2A	17.10	17.35	.	I	I	.	.	.	I	I	.	.	.	I	I	I	I	I	I	.	I	I	.	.	.	.	.	.	.	.	.	.	.	.
8	DAR-2A	20.80	21.05	.	I	.	I	.	.	I	I	I	.	I	I	.	.	I	I	.	.	.	I	.	.	.	.	.	.	I	I	.	.	.	.
9	DAR-2A	22.75	23.00	.	I	.	I	.	.	.	I	.	.	I	I	I	.	I	.	.	.	.	I	.	.	.	.	.	.	.	.	.	.	.	.
10	DAR-2A	23.75	24.00	.	I	.	I	.	.	I	.	.	.	.	.	.	.	I	.	.	.	.	I	.	.	.	.	.	.	.	I	.	.	.	.
11	DAR-2A	25.70	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
12	DAR-2A	26.05	26.30	.	I	.	.	.	.	.	.	I	.	I	I	.	.	.	.	.	.	.	I	II	.	.	.	.	.	.	II	.	.	.	.
13	DAR-2A	31.90	32.15	.	I	.	I	.	I	.	.	III	.	I	I	.	I	I	.	.	.	.	I	I	.	.	.	.	.	.	I	.	.	.	.
14	DAR-2A	34.75	35.00	.	I	.	.	.	I	I	I	I	.	.	.	.	.	.	.	.	.	.	III	.	.	.	.	.	.	.	.	.	.	.	.
15	DAR-2A	40.20	40.45	.	.	.	I	.	.	.	.	.	II	.	.	.	.	.	.	.	.	.	III	.	.	.	.	.	.	I	.	.	.	.	.
16	DAR-2A	40.50	0.00	I	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~
17	DAR-2A	43.55	43.80	.	.	.	.	.	.	I	.	II	I	.	.	.	.	I	.	.	.	.	I	.	.	.	.	.	.	.	.	.	.	.	.
18	DAR-2A	62.10	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
19	DAR-2A	62.85	63.10	.	II	.	II	.	.	I	.	.	.	.	II	.	I	I	.	.	.	.	II	.	.	.	.	.	.	.	.	.	.	.	.
20	DAR-2A	74.80	75.05	.	I	.	.	.	I	II	III	.	II	I	I	.	.	II	I	.	.	.	I	II	.	.	.	I	IIII	.	.	.	.	.	.
21	DAR-2A	90.40	90.65	.	I	I	I	I	I	II	I	.	II	.	IIII	.	I	II		II	.	.	II	I	.	.	.	IIII	IIII	.	.	III	.	.	.
22	DAR-2A	90.70	0.00	I	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~
23	DAR-2A	95.80	96.05	.	I	I	I	I	I	II	II	II	I	II	III	I	.	II	.	I	.	.	III	.	I	.	.	.	I	.	.	.	.	.	.
24	DAR-2A	115.10	115.35	.	I	I	I	.	.	II	I	.	I	I	I	.	.	II	.	.	.	.	II	.	.	.	.	.	III	.	.	.	.	.	I
25	DAR-2A	126.60	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
26	DAR-2A	127.60	127.85	.	.	.	.	.	I	I	.	.	.	I	III	I	.	.	I	.	.	.	II	I	.	.	.	.	.	.	.	.	.	.	.
27	DAR-2A	162.30	0.00	I	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~
28	DAR-2A	171.20	171.45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	I	.	.	.	.	.	.	.	.	.	.	.	.	I	.	.	.	.
29	DAR-2A	175.90	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
30	DAR-2A	188.25	188.50	.	.	I	.	.	I	.	.	.	.	.	I	.	.	I	.	.	.	.	.	II	.	.	.	.	.	.	.	.	.	.	.
31	DAR-2A	194.30	0.00	I	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~
32	DAR-2A	195.30	195.55	.	I	.	.	.	.	.	.	.	.	.	I	.	.	.	.	.	.	I	.	I	.	.	.	.	.	.	.	.	.	.	I
33	DAR-2A	199.50	0.00	I	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~
34	DAR-2A	212.45	212.70	.	.	.	.	.	.	I	I	.	I	.	.	.	.	.	.	.	.	.	I	II	.	.	I	I	IIII	.	.	.	.	.	III
35	DAR-2A	223.40	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
36	DAR-2A	223.90	224.15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	I	.	.
37	DAR-2A	234.60	234.85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
38	DAR-2A	282.55	282.80	.	.	I	.	I	.	.	I	.	.	I	I	.	.	I	.	.	.	.	I	.	.	.	.	.	.	.	.	.	.	.	.
39	DAR-2A	289.70	289.80	.	.	I	.	I	.	III	III	III	II	I	II	I	I	III	.	.	I	.	III	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DAM-3	35.00	35.25	.	X	.	.	.	.	.	.	X	.	.	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
2	DAM-3	46.50	46.75	.	.	.	.	.	.	.	.	X	.	.	.	.	.	X	.	X	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.
3	DAM-3	52.10	53.10	.	.	X	.	.	.	.	.	X	.	X	.	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
4	DAM-3	63.60	63.90	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
5	DAM-3	70.40	70.70	.	X	X	.	.	X	.	X	.	.	X	X	.	.	X	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
6	DAM-3	75.30	75.60	.	X	.	.	.	.	.	.	.	X	.	X	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	OBZ-4	0.00	2.00	.	X	X	X	.	.	X	X	X	.	.	X	X	.	X	X	.	.	.	X	.	.	.	.	X	.	X	.	.	.	.	X
2	OBZ-4	2.00	3.05	.	X	X	.	.	.	X	X	.	X	X	X	.	.	.	.	.	.	.	X	X	X	.	.	XX	.	X	.	.	.	.	XX
3	OBZ-4	11.00	12.05	.	.	.	.	X	X	X	.	.	X	X	X	.	.	X	X	.	.	.	X	XX	.	.	.	X	X	X	.	.	.	X	X
4	OBZ-4	21.10	21.30	.	.	X	X	.	XX	XX	XX	X	X	XX	X	X	.	X	.	.	.	.	XXX	X	.	.	.	XX	XX	X	.	.	.	.	.
5	OBZ-4	33.00	33.25	.	X	X	X	.	.	X	.	.	.	X	X	X	.	X	X	X	.	X	X	X	.	.	.	.	XX	X	.	.	.	.	X
6	OBZ-4	40.05	40.30	.	XX	X	X	.	XX	XXX	XX	XX	XX	X	XXXX	.	.	XXX	X	XX	.	X	XXXX	X	.	.	.	XXXX	XXXX	XX	.	XX	.	.	X
7	OBZ-4	49.70	49.95	.	XX	X	.	.	XX	XXX	XXX	XX	X	XXX	XXXX	.	.	XX	X	X	.	.	XXX	.	.	.	.	XXX	XXX	XX	.	.	.	X	.
8	OBZ-4	58.50	58.75	.	X	X	.	.	X	.	X	.	X	X	.	.	.	X	.	.	.	.	X	.	.	.	.	XX	XX	XX	.	.	.	.	.
9	OBZ-4	66.36	66.60	.	.	.	.	.	.	.	.	.	.	X	X	.	.	X	.	.	.	.	X	.	.	.	.	X	X	XX	.	.	.	.	.
10	OBZ-4	75.15	75.40	.	X	.	.	.	.	X	X	.	.	.	X	.	.	X	.	X	.	.	.	.	X	.	.	XXX	X	XX	.	X	.	.	.
11	OBZ-4	84.15	84.40	.	.	X	.	.	.	X	X	X	.	X	X	.	.	X	.	X	.	.	X	X	.	.	.	XX	XX	XX	.	.	.	.	.
12	OBZ-4	93.10	93.35	.	.	.	X	.	X	.	X	.	.	X	X	.	.	.	X	.	.	.	X	.	.	.	.	XX	XX	X	.	X	.	.	X
13	OBZ-4	104.55	104.80	.	X	.	.	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.	XX	X	X	.	.	.	.	.
14	OBZ-4	112.90	113.15	.	.	.	.	.	.	X	X	X	.	.	X	.	.	X	.	.	.	.	X	.	.	.	.	X	X	.	.	.	.	.	.
15	OBZ-4	121.80	122.05	.	X	X	X	.	X	.	.	X	.	.	.	.	.	.	.	X	.	.	X	X	.	.	.	X	X	X	.	.	.	.	X
16	OBZ-4	130.00	130.25	.	X	.	X	X	.	X	.	.	X	.	X	.	.	X	X	X	.	.	.	.	.	.	.	XX	X	.	.	.	.	.	.
17	OBZ-4	139.40	139.65	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	X	X	X	.	.	.	.	.
18	OBZ-4	144.50	144.75	.	X	.	.	X	.	X	X	X	X	X	X	.	.	X	.	X	.	.	XX	.	.	X	X	XX	XX	.	.	.	.	.	.
19	OBZ-4	147.75	148.00	.	.	.	.	.	.	X	X	X	X	.	X	.	.	XX	X	X	.	.	X	.	X	.	.	XX	XX	.	X	.	.	.	X
20	OBZ-4	151.55	151.80	.	.	.	.	.	X	X	X	X	.	.	X	.	.	X	X	.	.	.	X	.	.	.	.	XXX	XXX	.	.	.	.	.	.
21	OBZ-4	154.60	154.85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	XX	XX	.	.	X	.	.	X
22	OBZ-4	157.35	157.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	XX	.	.	.	.	.	X
23	OBZ-4	160.05	160.30	.	.	.	.	.	.	.	X	.	.	.	.	.	.	X	.	.	.	.	X	X	.	.	.	XX	XX	.	.	.	.	.	.
24	OBZ-4	163.55	163.80	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	XX	.	.	.	.	.	.
25	OBZ-4	166.85	167.10	.	.	.	.	.	.	.	.	X	.	.	X	.	.	X	X	.	.	.	X	X	.	X	.	XX	XXX	.	.	X	.	.	.
26	OBZ-4	169.85	170.10	.	.	.	.	.	.	.	X	.	.	X	X	.	.	X	.	X	.	.	X	X	.	.	.	XXX	XXXX	.	.	.	.	.	.
27	OBZ-4	172.70	172.95	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	X	.	XX	XX	.	.	.	.	.	.
28	OBZ-4	174.80	175.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	XXXX	.	X	X	.	.	.
29	OBZ-4	178.60	178.85	.	X	.	X	.	X	.	X	.	.	X	.	.	.	X	.	.	.	.	X	.	.	.	.	X	XX	.	.	.	.	.	.
30	OBZ-4	101.75	182.00	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	XXXX	XX	.	.	.	.	.	.	XX
31	OBZ-4	182.35	182.60								X	X	.	X	X	.	.	X	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
32	OBZ-4	186.80	187.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	XX	.	.	X	.	.	.
33	OBZ-4	190.30	190.55	.	X	.	.	.	.	X	.	.	X	.	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
34	OBZ-4	193.60	193.85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	XX	XX	.	.	.	.	.	X
35	OBZ-4	194.80	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
36	OBZ-4	196.50	196.75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	XXX	.	XX	.	X	.	.	.	XX
37	OBZ-4	202.60	202.85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	XXX	X	XXXX	.	.	.	.	.	X
38	OBZ-4	213.90	214.15	.	.	X	X	.	.	.	X	X	X	.	X	.	.	X	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
39	OBZ-4	228.20	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
40	OBZ-4	250.05	250.30	.	X	.	.	.	X	.	X	.	X	.	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
41	OBZ-4	283.00	283.25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	XX	.	.	.	.	.	.
42	OBZ-4	291.45	291.70	.	X	.	.	.	?	.	X	.	.	?	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	XXXX	.	.	.	.	.	X
43	OBZ-4	294.30	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
44	OBZ-4	300.50	300.75	.	.	.	.	.	.	X	.	.	.	.	X	.	.	X	.	.	.	.	.	X	.	.	.	XX	XXX	.	.	.	.	.	X
45	OBZ-4	314.75	315.00	.	.	.	.	.	.	.	X	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
46	OBZ-4	327.15	327.40	.	.	.	X	.	.	.	.	X	.	.	X	.	.	.	X	X	.	.	X	.	.	.	.	X	XX	.	X	.	.	.	.
47	OBZ-4	327.40	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
48	OBZ-4	336.25	336.50	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
49	OBZ-4	347.15	347.40	.	X	.	X	.	X	X	.	X	X	.	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
50	OBZ-4	347.20	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
51	OBZ-4	356.45	356.70	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	OCT-5	0.20	0.45	.	.	.	XX	XX	X	XXX	XXX	XXX	XX	X	XXXX	X	.	XXX	XX	XXX	X	X	XXXX	X	.	.	.	XXX	XXX	X	.	.	.	.	.
2	OCT-5	8.80	9.05	.	.	.	.	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	X	XX	.	.	.	.	.	.
3	OCT-5	17.50	17.75	.	.	.	X	.	.	X	.	.	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.
4	OCT-5	27.90	28.15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
5	OCT-5	39.50	39.75	.	.	X	.	.	X	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	X	X	X	.	.	.	.	.
6	OCT-5	48.05	48.30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	X	.	.	.	XXXX	X	X	.	.	.	.	.
7	OCT-5	57.55	57.80	.	X	.	.	.	.	X	XX	.	XX	.	XX	.	.	X	.	XX	.	.	XXX	.	.	.	.	XX	X	XXX	.	.	.	.	X
8	OCT-5	66.80	67.05	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	XX	XX	.	.	.	.	.
9	OCT-5	76.25	76.90	.	X	X	.	.	.	.	X	.	X	.	X	.	.	X	.	.	.	.	X	.	.	.	.	X	X	XXXX	.	.	.	X	.
10	OCT-5	86.15	86.40	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	X	.	.	.	.
11	OCT-5	95.35	95.60	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	OCT-5	104.25	104.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	OCT-5	113.15	113.40	.	.	X	.	.	.	.		X	.	.	X	.	.	XX	.	.	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.
14	OCT-5	115.75	116.00	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XXXX	.	.	.	.	.
15	OCT-5	124.00	124.25	.	.	.	.	.	.	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	XXXX	.	.	.	.	.
16	OCT-5	132.80	133.05	.	X	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	XXXX	.	.	.	X	.
17	OCT-5	140.90	141.15	.	X	.	.	.	.	.	XX	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	XXX	.	.	.	.	.
18	OCT-5	149.65	149.90	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.
19	OCT-5	157.60	157.85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
20	OCT-5	166.40	166.65	.	.	.	.	.	.	.	.	.	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21	OCT-5	176.25	176.50	.	.	X	.	.	.	.	.	X	.	.	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	OCT-5	186.00	186.25	.	B	A	R	R	E	N	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	OCT-5	204.70	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
24	OCT-5	205.15	205.40	.	.	X	.	.	X	X	.	XX	.	X	XX	.	.	XX	.	XX	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.
25	OCT-5	214.30	214.55	.	.	X	.	.	.	.	.	.	.	.	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	OCT-5	223.80	224.05	.	X	.	X	.		X	X	.	X	.	X	.	.	X	X	X	.	.	X	X	.	.	.	X	.	.	.	.	.	.	.
27	OCT-5	232.60	232.85	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	X	XX	.	.	.	X	XX	.	.	.	.	.	.
28	OCT-5	247.25	247.50	.	X	.	.	.	X	X	X	.	X	Xcf	X	.	.	X	.	X	.	.	.	.	.	.	.	XXX	X	.	.	.	.	.	.
29	OCT-5	254.20	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
30	OCT-5	263.40	263.65	.	.	.	X	X	X	X	.	.	.	X	X	.	.	X	.	X	.	.	X	X	.	.	.	XX	XXXX	.	.	.	.	.	.
31	OCT-5	272.45	272.70	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
32	OCT-5	286.00	286.25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
33	OCT-5	294.40	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
34	OCT-5	296.05	296.30	.	.	.	.	.	.	.	X	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
35	OCT-5	306.45	306.70	.	.	.	.	.	.	X	X	X	.	.	.	.	X	X	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DDT-6	30.70	30.95	.	X	.	X	.	.	XX	.	.	.	.	XX	.	.	X	X	X	.	.	.	.	.	.	.	.	.	XXXX	X	.	.	X	X
2	DDT-6	51.00	52.05	.	X	.	.	.	.	XX	.	.	.	.	XX	.	.	XX	X	.	.	X	XX	.	.	.	.	.	.	XXXX	.	.	.	X	.
3	DDT-6	53.20	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
4	DDT-6	55.60	55.85	.	.	.	.	.	.	XX	.	.	.	.	X	.	.	XX	X	.	.	.	XX	.	.	.	.	.	.	XXXX	X	.	.	X	.
5	DDT-6	60.50	60.75	.	XX	.	X	.	.	XXXX	XX	.	.	.	XXXX	.	.	XX	XX	XX	.	.	XXX	.	X	X	.	.	XX	XXXX	.	.	X	.	X
6	DDT-6	65.05	66.10	.	X	.	.	.	.	XX	X	.	.	.	XXX	.	.	XX	.	X	.	.	X	X	.	X	.	.	X	XXX	X	.	.	X	.
7	DDT-6	74.10	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
8	DDT-6	74.50	74.75	.	X	X	X	.	.	X	X	.	.	.	X	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
9	DDT-6	102.05	103.10	.	.	.	.	.	.	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X
10	DDT-6	111.60	111.85	.	X	X	.	.	.	X	.	XX	.	.	XX	.	.	XX	.	X	.	.	X	XXX	.	.	.	.	.	.	.	.	.	.	.
11	DDT-6	113.90	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
12	DDT-6	117.60	117.75	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	X	.	.	.	.	.	.	X	.	.	.	.
13	DDT-6	123.50	123.75	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.
14	DDT-6	142.40	142.65	.	.	.	.	.	X	XX	X	.	XX	.	XX	.	.	.	.	.	.	.	X	X	.	.	.	.	X	.	.	.	.	.	.
15	DDT-6	144.20	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
16	DDT-6	148.15	148.40	.	.	.	.	X	X	.	.	.	.	.	XX	.	.	XX	.	XX	.	.	X	.	.	.	.	XXXX	XX	.	.	.	.	.	.
17	DDT-6	157.30	157.55	.	XX	.	.	Xaff	XXX	XXXX	XXX	.	X	XXX	XXX	X	.	XXX	.	XXX	.	.	XXXX	.	.	.	.	XXXX	XX	.	.	X	.	.	XXX
18	DDT-6	163.50	163.75	.	XX	.	XX	Xaff	.	XXX	X	.	X	XX	XXXX	.	.	XXX	.	XX	.	.	XXXX	.	X	X	.	XXXX	XX	.	.	.	.	.	XX

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DET-7	49.70	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
2	DET-7	55.75	56.00	.	II	.	.	.	.	II	I	.	.	.	I	I	.	III	I	.	.	.	IIII	I	.	.	.	.	III	III	I	.	.	I	.
3	DET-7	64.25	64.50	:	.	.	.	.	.	II	.	.	.	.	.	.	.	II	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	DET-7	66.50	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
5	DET-7	70.65	70.90	.	.	.	.	.	.	.	I	I	.	.	.	.	.	II	.	.	.	.	I	I	.	.	.	.	.	.	I	.	.	.	.
6	DET-7	78.20	78.45	.	I	.	.	.	I	I	.	I	.	.	I	.	.	I	.	.	.	.	.	I	.	.	.	.	.	.	I	.	.	.	.
7	DET-7	70.00	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
8	DET-7	88.35	88.60	.	I	.	.	.	.	.	.	.	.	I	.	.	.	.	.	.	.	.	II	.	.	.	.	.	.	I	.	.	.	.	.
9	DET-7	95.30	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
10	DET-7	95.55	95.80	.	I	.	.	.	.	.	.	I	I	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	DET-7	111.30	111.55	.	I	.	I	.	.	I	I	.	.	.	.	.	.	I	.	.	.	.	I	.	.	.	.	III	.	.	.	.	.	.	.
12	DET-7	113.70	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
13	DET-7	117.45	117.70	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	I	.	.	.
14	DET-7	122.60	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
15	DET-7	123.40	123.65	.	I	.	.	.	.	I	I	.	.	I	I	.	.	I	.	.	.	.	I	.	.	.	.	I	.	.	.	.	.	.	.
16	DET-7	136.00	0.00	I	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~
17	DET-7	140.10	140.35	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	IIII	II	.	.	.	.	.	.
18	DET-7	167.15	167.40	.	.	.	II	.	.	III	I	.	I	III	II	.	.	III	I	.	.	I	III	.	.	I	.	II	I	.	.	I	.	.	I
19	DET-7	187.00	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
20	DET-7	191.30	191.55	.	I	.	I	.	.	I	II	.	.	I	III	.	.	.	I	.	.	.	I	II	.	.	.	.	IIII	.	I	II	.	.	I
21	DET-7	207.70	0.00	I	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~
22	DET-7	213.60	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
23	DET-7	219.65	219.90	.	.	.	.	.	.	.	I	.	.	.	II	I	.	.	.	.	.	.	.	II	.	.	.	III	.	.	.	.	.	.	.
24	DET-7	222.70	0.00	I	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
25																																			

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DFT-0	64.00	64.25	.	.	.	X	.	.	X	X	XX	XX	.	X	.	.	X	.	.	.	X	X	.	.	X	.	X	.	XXX	X	.	.	.	.
2	DFT-0	74.00	74.25	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	XX	.	.	.	.	.	.	X	.	.	.	.
3	DFT-0	87.30	87.55	.	X	.	.	.	.	X	.	XXX	.	.	.	.	.	XX	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
4	DFT-0	92.50	0.00	X	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~
5	DFT-0	99.40	99.65	.	.	X	X	.	.	X	.	X	.	X	.	.	.	X	.	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.
6	DFT-0	121.10	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
7	DFT-0	128.90	129.15	.	X	X	.	.	.	XX	X	XX	X	.	XX	.	.	.	.	XXX	.	.	.	X	.	.	.	.	.	.	X	.	.	.	.
8	DFT-0	138.60	138.85	.	.	X	.	.	X	X	X	.	.	.	.	.	.	X	.	.	.	.	X	.	.	.	.	XX	.	.	.	.	.	.	.
9	DFT-0	141.20	0.00	X	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~	~~~~	?~~~	~~~~
10	DFT-0	146.35	146.60	.	Xcf	.	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	DFT-0	149.15	149.40	.	.	.	.	.	.	X	X	X	.	.	X	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	DFT-0	163.50	163.75	.	X	.	.	XX	XX	XXX	XX	XX	XX	.	XXXX	X	.	XXX	.	XX	.	.	XX	.	.	.	.	XXXX	X	.	.	X	.	.	X
13	DFT-0	192.50	192.75	.	X	.	X	.	X	XXX	XXXX	XX	X	XX	.	.	.	XX	X	X	.	.	XXX	.	.	.	.	.	.	.	.	.	.	.	.
14	DFT-0	202.00	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
15	DFT-0	210.00	211.85	.	.	—.	.	.	X	.	X	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	DFT-0	213.00	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
17	DFT-0	227.15	227.40	.	.	.	.	.	XX	.	X	.	.	.	.	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
18	DFT-0	230.40	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
19	DFT-0	276.40	276.65	.	.	.	.	.	.	.	X	.	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DGT-9	24.40	24.65	.	X	.	.	.	.	X	.	X	.	.	.	.	.	.	X	.	.	.	X	.	.	.	.	.	.	XXXX	.	.	.	X	.
2	DGT-9	55.00	56.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
3	DGT-9	74.65	74.90	.	B	A	R	R	E	N	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	BSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DHT-10	2.60	2.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	X	.	XXX	.	.	.	.	.
2	DHT-10	47.75	48.00	.	X	.	X	.	.	.	XX	.	.	.	XX	.	.	.	.	X	.	.	X	XX	.	.	.	.	X	.	X	.	X	.	.
3	DHT-10	95.00	95.25	.	.	.	X	.	.	.	.	.	.	.	.	.	.	XX	.	.	.	.	.	X	.	.	.	.	X	.	.	.	.	.	.
4	DHT-10	116.05	116.30	.	.	.	.	.	X	X	X	.	.	.	.	.	.	.	.	.	.	.	X	.	.	X	.	X	XXXX	.	.	.	.	X	.
5	DHT-10	148.10	148.30	.	.	.	.	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	XX	.	.	.	XXX	.	.	.	.	.	X	.
6	DHT-10	149.75	149.90	.	X	.	Xcf	.	.	.	:	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XXXX	.	.	.	X	.	.	.
7	DHT-10	155.45	155.70	.	.	.	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	X	.	.	.	.
8	DHT-10	158.58	158.75	.	.	.	.	.	X	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9	DHT-10	162.20	162.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10																																			

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DIT-11	16.70	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
2	DIT-11	17.10	17.35	.	.	.	.	.	.	XX	X	.	.	.	X	X	.	X	.	.	.	.	X	.	.	.	.	.	XX	X	X	.	.	XX	.
3	DIT-11	22.65	22.90	.	.	.	.	.	.	.	XX	.	.	.	X	.	.	XX	.	.	.	.	XX	.	.	.	.	.	XX	X	X	.	.	X	.
4	DIT-11	25.75	26.00	.	.	.	.	.	.	.	XX	.	.	.	X	.	.	X	.	.	.	.	XX	.	.	.	.	.	X	.	.	.	.	.	.
5	DIT-11	29.75	30.00	.	X	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.
6	DIT-11	30.50	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
7	DIT-11	32.35	32.60	.	X	.	X	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	DIT-11	35.00	35.25	.	.	.	X	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
9	DIT-11	37.25	37.50	.	X	.	X	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
10	DIT-11	49.90	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
11	DIT-11	50.50	50.75	.	.	.	.	.	X	X	.	X	.	.	XXX	.	.	X	.	X	.	.	X	XX	.	.	.	.	.	.	.	.	.	.	.
12	DIT-11	62.00	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
13	DIT-11	65.00	66.05	.	.	.	.	.	.	.	.	.	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	DIT-11	79.25	79.50	.	X	.	.	.	.	X	XXX	.	X	X	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
15	DIT-11	92.00	92.25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	X	.	X	.	.	.	.
16	DIT-11	98.60	98.85	.	X	X	X	.	.	XX	X	.	.	XX	X	X	.	XX	.	X	.	.	XXX	X	.	.	.	X	X	.	.	X	X	.	XX
17	DIT-11	117.35	117.60	.	.	.	X	.	.	X	X	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.
18	DIT-11	150.35	150.60	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XX	.	.	.	.	.	.	.
19	DIT-11	191.20	191.45	.	.	.	X	.	.	X	.	Xaff	.	.	X	.	.	.	.	Xcf	.	.	X	X	X	.	.	.	.	.	.	.	.	.	XX
20	DIT-11	198.75	199.00	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.	X	.	.	.	.	.	.	X
21	DIT-11	276.50	276.00	.	.	.	.	.	.	X	X	.	Xaff	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X
22	DIT-11	285.70	286.00	.	.	.	.	.	.	.	X	.	.	.	X	.	.	.	X	.	.	.	.	XX	.	.	.	.	.	.	.	X	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DJT-12	33.40	33.65	.	.	.	.	.	.	XX	.	.	X	X	XX	.	.	XX	X	.	.	.	.	.	.	XX	.	.	XXX	XXXX	.	.	X	.	.
2	DJT-12	54.00	54.25	.	X	.	.	.	X	XX	XX	.	X	XX	XXX	.	.	XX	X	.	.	.	XXXX	.	.	.	.	XX	XXXX	.	.	X	.	.	.
3	DJT-12	82.65	82.90	.	X	.	XX	.	.	XX	XXXX	.	.	.	XXX	.	.	XXX	X	XX	.	X	XXXX	.	.	.	.	.	X	.	.	X	.	.	.
4	DJT-12	92.00	92.25	.	X	.	X	.	.	XX	X	.	.	.	.	.	X	X	.	X	.	.	X	.	X	.	.	.	.	.	X	.	.	.	.
5	DJT-12	96.30	96.55	.	X	.	X	.	.	.	.	.	.	X	.	.	.	.	.	.	.	X	.	XX	.	.	.	.	.	.	.	X	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DKT-13	28.75	29.00		.	X	.	.	.	XXX	.	.	.	.	XXX	X	.	XXX	.	.	.	.	XXX	.	.	X	.	.	XXX	XXXX	.	.	X	X	.
2	DKT-13	36.00	36.25	.	.	.	X	.	.	XX	X	.	.	.	XXX	.	.	XXX	XX	X	.	.	XXX	.	.	.	.	.	.	.	.	.	.	.	.
3	DKT-13	55.65	55.90	.	.	.	.	X	X	X	.	.	.	.	XXX	.	X	X	.	XX	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.
4	DKT-13	80.00	80.25	.	X	.	X	.	X	XX	XX	.	X	.	XXX	.	.	.	.	.	.	.	XXX	.	.	.	.	.	.	.	X	.	X	.	XX
5	DKT-13	105.85	106.10	.	X	.	X	.	.	XX	.	.	.	.	X	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	DKT-13	112.50	112.75	.	B	A	R	R	E	N	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	DKT-13	121.00	121.25	.	X	.	.	X	X	XX	:	.	XX	.	XXX	.	X	XX	.	XX	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.
8	DKT-13	133.70	133.95	.	.	.	XXX	X	.	XX	XX	.	.	XX	XX	.	.	XX	X	XX	.	.	XXX	.	X	X	.	.	XXX	.	.	X	.	.	.
9	DKT-13	152.30	152.55	.	.	.	XX	.	.	XXX	XX	X	.	XX	.	.	.	X	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
10	DKT-13	170.00	170.35	.	.	.	.	.	.	.	.	XX	X	.	XX	.	.	XX	.	.	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.
11	DKT-13	227.55	227.80	.	.	.	.	.	X	.	X	X	X	.	.	.	.	.	.	.	.	.	XX	.	.	.	.	.	.	.	X	.	.	.	.
12	DKT-13	250.20	250.45	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.	X	.	.	.
13	DKT-13	290.70	290.95	.	Xaff	X	.	.	.	.	X	.	.	XX	XX	.	.	XX	.	.	.	X	XXX	.	.	.	.	.	.	.	.	.	.	X	X
14	DKT-13	390.00	390.25	.	.	.	.	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.

Numcard#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DMT-15	39.75	40.00	.	XX	.	X	.	XX	.	.	X	.	.	.	.	.	.	.	.	.	.	XXX	X	.	X	.	.	.	.	.	.	.	.	.
2	DMT-15	73.40	73.65	:	.	.	XXX	.	X	X	.	X	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	X	.	X	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DOR-17	0.00	0.25	.	.	X	.	.	.	XXX	XX	.	.	.	XXXX	XX	.	XXXX	X	X	.	X	XXXX	.	.	X	.	.	XXX	XXXX	.	.	.	.	.
2	DOR-17	14.15	14.40	.	.	.	.	.	.	XXX	X	.	.	.	XXX	.	.	XXXX	X	X	.	X	XXXX	.	X	XX	.	.	XXX	XXXX	.	.	.	.	.
3	DOR-17	25.75	26.00	.	.	.	.	.	.	XXX	XX	.	.	.	XXXX	.	.	XXXX	XX	.	X	.	XXXX	.	.	XX	.	.	XXXX	XXXX	.	.	.	.	.
4	DOR-17	30.40	30.65	.	.	.	X	.	.	XXX	.	.	.	.	XX	X	.	XXXX	.	.	.	.	XXXX	X	.	XX	.	.	XXX	XXXX	.	.	X	.	.
5	DOR-17	49.70	49.95	.	.	.	.	.	.	X	XX	.	.	.	XXXX	X	.	XX	X	.	.	X	XXXX	.	.	X	.	.	XX	XXX	X	.	X	.	.
6	DOR-17	60.20	60.45	.	X	.	X	.	.	XX	XX	.	.	.	XX	.	.	XXX	.	.	.	XX	XXXX	X	.	.	.	.	.	.	X	.	.	.	.
7	DOR-17	66.55	66.80	.	XXX	.	X	.	.	XX	XXX	.	.	.	.	.	.	XXXX	.	.	.	.	XX	.	.	.	.	.	.	X	X	.	.	.	.
8	DOR-17	70.70	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
9	DOR-17	72.80	73.05	.	XX	.	X	.	XXX	.	.	XX	.	.	XX	.	.	XX	.	X	.	.	XXXX	.	.	XX	.	.	.	XXXX	.	.	.	.	.
10	DOR-17	83.70	83.95	.	XX	.	X	.	XXXX	XX	.	X	X	.	.	.	.	X	X	.	.	.	XXXX	XX	.	XX	.	.	.	XX	XX	.	.	.	.
11	DOR-17	89.80	90.05	.	X	.	X	.	XXX	.	.	XX	X	.	.	.	.	X	.	.	.	.	XXXX	XX	.	XX	.	.	.	XXX	X	.	.	.	.
12	DOR-17	100.45	100.70	.	.	.	XX	.	.	X	.	XX	.	.	X	.	.	.	.	.	.	.	X	X	.	.	.	.	.	.	X	.	.	.	.
13	DOR-17	101.40	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
14	DOR-17	101.40	101.60	.	X	.	X	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	DOR-17	110.50	110.75	.	X	— .	.	.	X	X	X	XXXX	.	.	.	.	.	X	.	XXXX	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.
16	DOR-17	111.00	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
17	DOR-17	119.10	119.35	.	B	A	R	R	E	N	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	DOR-17	125.25	125.50	.	X	.	XXX.	X?	X	XX	XX	?	XX	.	XX	.	XX	.	.	X	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.
19	DOR-17	127.00	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
20	DOR-17	131.95	132.20	.	X	.	XX	.	.	X	.	.	.	X	.	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	X	XX	.	.	XX
21	DOR-17	134.00	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
22	DOR-17	137.15	137.40	.	X	XXX	X	.	X	XXX	X	.	XXX	XXX	X?	.	.	.	.	XX	.	.	XXXX	X	.	XX	.	XXXX	XXXX	.	.	X	.	.	XXX
23	DOR-17	146.10	146.30	.	.	.	.	X	.	.	.	.	XX	XXX	X	X	.	X	.	X	.	.	XXXX	.	.	.	.	.	.	.	.	.	X	.	XX
24	DOR-17	154.25	154.60	.	.	.	.	X	.	X	XXX	.	XX	XX	XX	.	X	XX	X	.	.	.	XXXX	.	.	.	.	XXX	XXX	.	.	X	.	.	XXXX
25	DOR-17	165.60	165.85	.	X	.	X	X	.	XXX	XXX	.	.	XX	XXX	.	X	XXXX	.	XX	.	.	XXXX	.	.	.	.	XX	XX	.	X	X	.	X	XX
26	DOR-17	173.05	173.30	.	X	.	XXX	X	.	XXXX	X	.	.	XXX	X	XX	X	XXX	X	XX	.	.	XXXX	.	.	.	.	.	.	.	X	XX	.	.	XX
27	DOR-17	184.25	184.50	.	.	.	XX	X	.	.	XX	X	.	X	.	.	.	X	.	.	.	.	XX	.	.	.	.	.	.	.	.	XX	.	.	.
28	DOR-17	190.30	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
29	DOR-17	193.60	193.85	.	.	.	.	.	.	X	.	.	.	X	.	.	X	.	.	.	.	.	X	X	.	.	.	.	.	.	.	X	.	.	.
30	DOR-17	200.80	201.05	.	.	.	.	.	.	XXX	XXX	.	.	XX	XXX	.	.	XX	X	.	.	.	.	.	.	.	.	.	XXXX	.	.	.	.	.	.
31	DOR-17	209.30	209.55	.	.	.	.	.	XX	XX	XX	.	.	X	XX	.	.	XX	.	.	.	.	X	.	.	X	.	.	XXXX	.	.	.	.	X	X
32	DOR-17	215.50	215.75	.	.	.	.	.	X	XX	X	.	XX	.	XXX	.	X	X	.	.	.	.	XXX	X	.	.	.	XXXX	X	.	.	.	.	.	X
33	DOR-17	226.05	226.30	.	.	.	X	.	X	.	.	.	X	.	XXX	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X
34	DOR-17	233.35	233.60	.	.	.	X	XX	XX	X	.	.	XX	X	XXXX	XX	X	XX	X	X	.	.	XX	XX	.	.	.	XX	.	.	.	.	.	X	.
35	DOR-17	233.70	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
36	DOR-17	239.00	239.25	.	.	.	.	X	.	.	.	.	.	.	.	.	.	X	.	.	.	.	X	.	X	.	.	XX	.	.	.	.	.	.	.
37	DOR-17	250.30	250.55	.	.	.	X	.	XX	X	.	.	.	.	X	.	.	.	.	.	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.
38	DOR-17	253.30	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
39	DOR-17	261.50	261.75	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	XX	.	.	.	.	.	.	.	.	.	.	.
40	DOR-17	270.10	270.35	.	XX	X	.	XX	XXX	XXX	.	.	.	.	XXXX	XX	.	X	X	XX	.	.	XXXX	.	.	X	.	.	.	.	.	.	.	.	XX
41	DOR-17	285.65	285.90	.	.	.	.	X	.	XX	XX	?	X	.	XXX	XX	.	.	XX	X	.	.	XXXX	.	.	X	.	.	.	.	.	X	.	.	XXX
42	DOR-17	289.70	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
43	DOR-17	292.10	292.35	.	X	.	X	.	.	X	X	X	X	.	XX	X	X	X	.	.	.	X	XXX	.	.	.	.	.	.	.	.	X	.	.	.
44	DOR-17	299.15	299.40	.	.	.	X	.	.	XX	X	X?	X	.	XXXX	.	.	.	.	.	.	X	XXXX	.	.	.	.	.	.	.	.	X	.	.	.
45	DOR-17	307.90	0.00	X	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~	~~~~
46	DOR-17	310.70	310.95	.	.	.	.	.	.	X	X	.	.	.	X	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
47	DOR-17	320.20	320.45	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
48	DOR-17	331.20	331.45	.	.	.	.	.	can	.	XX	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
49	DOR-17	339.00	339.25	.	.	.	.	.	can	.	X	.	X	X	X	.	X	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
50	DOR-17	367.90	368.15	.	.	.	..	.	.	X	.	.	X?	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DPZ-10	174.95	175.10	.	X	.	X	XX	.	XX	.	XX	X	X	XXX	X	.	X	.	X	.	.	XXX	.	.	.	.	.	.	.	.	.	.	.	.
2	DPZ-10	189.25	189.50	.	X	.	X	.	.	XXX	XXX	.	.	XXX	XXX	.	.	X	XX	XX	.	.	XXX	.	.	.	.	.	.	.	.	.	.	.	.
3	DPZ-10	207.30	207.55	.	X	.	XX	.	.	XX	XXX	.	.	XXXX	.	.	.	.	X	XX	.	.	XXX	.	.	.	.	.	.	.	.	.	.	.	.
4	DPZ-10	218.40	218.65	.	.	.	.	.	.	X	X	X	X	.	X	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
5	DPZ-10	376.70	376.95	.	B	A	R	R	E	N	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	DPZ-10	381.40	381.65	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
7	DPZ-10	391.10	391.35	.	.	.	.	.	.	X	.	.	.	.	XXcf	.	.	.	.	XX	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
8	DPZ-10	418.90	419.15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9	DPZ-10	465.90	466.15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	OQT-19	691.15	691.40	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	OQT-19	701.25	701.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13	O14	O15	O16	O17	O18	O19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	DRT-20	285.40	285.60	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	DRT-20	400.70	400.95	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.
3	DRT-20	490.00	491.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19
1	OSA-21	318.20	318.45	.	Xcf		X	.	.	.	X	.	X	.	X	.	X	.	X	.	.	.	X
2	OSA-21	337.30	337.55	.	.	.	.	.	.	XX	XXX	.	X	.	XX	.	X	XX	.	.	.	.	XX

Record#	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	.		.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.

Record#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	OTG-23	276.20	276.45	.	.	.	.	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
2	OTG-23	308.30	308.55	.	.	.	.	.	.	.	X	X	X	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
3	OTG-23	339.30	339.55	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	OTG-23	371.10	371.35	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	OTG-23	402.40	402.65	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	OTG-23	433.70	433.95	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	OTG-23	464.50	464.75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	OTG-23	495.30	495.55	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9	OTG-23	524.90	525.15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	OTG-23	555.60	555.85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	OTG-23	586.70	586.95	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

cord#	BOREHOLE	DEPTH1	DEPTH2	DSCF	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
1	OUT-24	141.00	141.25	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	XXXX	.	.	.	.	.
2	OUT-24	142.20	142.45	.	X	.	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	XXXX	.	.	.	.	.
3	OUT-24	190.10	190.35	.	.	.	X	.	.	.	.	.	.	X?	X?	.	.	X	.	X	.	.	XX	.	.	.	.	.	.	.	.	.	.	.	.
4	OUT-24	219.30	219.55	.	.	.	.	X	.	X	X	.	cf	X	X	.	.	X	.	.	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.
5	OUT-24	229.10	229.35	.	.	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	XXXX	.	.	X	.	.	.
6	OUT-24	269.40	269.65	.	.	.	.	.	.	.	.	X	.	X	.	.	.	.	.	.	.	.	.	XX	.	.	.	X	.	.	X	.	X	.	.
7	OUT-24	289.80	290.05	.	.	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.
8	OUT-24	350.60	350.85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	XX	.	.	.	X	.	.	.