STATE OF ALASKA
Department of Natural Resources
DIVISION OF MINES AND MINERALS

Box 5-300
College, Alaska 99701

MINES AND PETROLEUM BULLETIN

July 1968

Vol XVII
No. 7

ASSAY POLICY STATEMENT

With our assay lab facilities now consolidated at College, we desire to give the same rapid service to those who must mail their samples to us as to those who can hand-carry their samples to the lab. To accomplish this and give the fairest and best service we can within the intent of the law, we are adopting the procedures and requirements listed below. These have been presented to all branches of the Alaska Miners Association and have received no adverse comment.

1. Each samples submitted should bear a number or letter or some other identifying mark, particularly when a number of samples are submitted together. Assay results will be reported in accordance with the identifying marks.

2. A statement should be submitted with samples saying what elements or minerals each sample is to be assayed for. Please do not say merely "assay for anything of value", or "a complete analysis". Identifications will be made when requested.

3. On receipt of a sample, we will estimate its date of completion. The written estimates will be handed to the submitter in person or promptly mailed so that the distant submitter will know we have received his sample and when he can expect results.

4. Samples will be assayed in the chronological order of their receipt at the laboratory except as provided in paragraphs 5, 6, and 7. Special priorities may be given by the Director when warranted.

5. Samples should consist of pieces small enough to go into our 3-inch lab crusher. Samples requiring hand-breaking by lab personnel will normally be set aside until there are no other samples witing for assay.

6. Samples should be dry. The home baking oven is handy for this purpose. Drying samples in the lab takes up needed space and delays the work. Samples which are too wet for processing will be set aside until dry before being placed in chronological order for work.

7. The Division's assaying function is intended for supporting prospectors and stimulating discoveries. Its original intent was not to support exploration, drilling, or production operations. Also, it is not fair to the individual prospector who mails in occasional samples from out in the bush to keep his work waiting while large numbers of samples are being assayed for the above type operations. Until further notice, work on samples from any one person or property in the regular chronological order as received will be limited to 10 man-hours. After this amount of work is done, the remaining samples, together with any further samples from that person or property submitted in the meantime, will be scheduled for another like amount of work following all other samples waiting for work at that time. This work-time limit will be on a trial basis. It may be changed as conditions vary.

8. The type and quality of the analyses to be given any sample will be at the discretion of the Lab Supervisor. The choice will depend on the quality of the sample and the problem at hand. It is usually wasteful to do detailed, precise analyses on "grab" samples or samples casually taken. Approximate results are sufficient for such samples. Only samples carefully taken and precisely located which are representative of a body of mineralization, or a series of samples designed to solve a particular problem, are worthy of extensive, accurate, quantitative work.

9. Where it appears warranted, unless requested differently, samples will be (1) given a spectrographic analysis to determine if any base metals are present in significant amounts, then (2) assayed for precious metals if it appears warranted and (3) assayed for such base metals as can be seen and are shown by the spectrograph to be significant.

10. All samples will be checked for radioactivity starting as soon as we have our lab counter in operation.

11. Lab personnel should not pan samples down except as a normal concentration method chosen by them for a specific analytical process. Anyone can pan and should not expect the lab people to use up lab time doing such work for them.

12. Lab personnel are not intended for consultation on prospecting, geology, marketing, and related matters, and their work should not be interrupted for such. Needed consulting will be available from the engineers and geologists of the Division. When no engineer or geologist is available, the Lab Supervisor will provide consultation and will call on other lab personnel if advisable.

13. We have well-developed procedures for most analyses, but some elements are rarely called for or may require elaborate instrumentation for which we are not equippped. We will do the best we can, consistent with sample quality. In cases where our laboratory is limited in its capability and the sample deserves more attention from another source, it will be so indicated in the lab report.

14. Lab reports will indicate estimated precision or accuracy of values reported in quantitative analyses.

15. Unused portions of samples will be held for one month and sample pulps for six months after which they will be discarded. The submitter may claim the sample or pulps during those times.

Summary for 1969

I Klamath-Lake Mineral Resources Evaluation

Geology + Mineral Resources of Klamath-Lake Co.

Finishing the geologic map and writing of the report for the Klamath-Lake counties mineral resources evaluation dominated my work for 1969. It will be desireable to follow up work on some of the mineral commodities that are believed to have some promise. Diatomite is widespread and probably is the most likely to be utilized. The Johns-Manville Co. spent several days looking over areas that contain diatomite with favorable physical properties. Great Northern R.R. has also expressed interest in promoting diatomite.

The geothermal potential of both Klamath Falls and Lakeview remains an interesting but unknown quantity. Hot water wells are still being drilled successfully, ~~even though~~ For individuals the initial cost of a well is high and probably marginal economically speaking. A new Junior High School and Rest Home in Klamath Falls have recently drilled successful wells and a new greenhouse industry in Lakeview is building a new facility that will be heated from existing or new hot water wells. ~~XXXXXXXXX~~

Metallic mineralization in the Paisley Hills is another area that may merit a follow up surface study; the presence of plugs Oligocene Age and irregular masses of medium grained granite type rocks with some alteration and mineralization including epidote, tourmaline, base metal sulfides with minor silver is interesting enough to spend a little time on. Two other localities in Lake county, Lee Thomas Meadow and Upper MCCoin Creek have considerable zones of brecciated, iron-stained, silicified rhyolite (?) that should be carefully sampled.

The cooperative nature of this project with private companies, has been an interesting and informative experience. I have a better slant on how industry looks at a report and what they want in it. Perhaps if we were to start over to do it again we would put the emphasis on different phases of the project than we did. I am satisfied that with the excellent help from all of the staff that the report will be a valuable piece of information for South Central Oregon.

II Other Activities

There were plenty of other activities to keep me busy a nd I'll briefly tell you about some of them.

1. The one article that I collaborated on with Ed Groh for the Ore.-Bin concerned the age of the lava flows around and within Newberry volcano. This turned out to be an interesting study and later drew many favorable comments with some dissent. This led to a short trip with Andy, Ed, and Irving Friedman of the USGS, to resample all of the obsidian flows inside Newberry for confirmation of their ages. We don't have the results yet but I'm confident that There won't be any great discrepancies.

II Other Activities (continued)

2. In the same area south of Bend I spent several days working with the USFS describing the geology of a scenic trail at the new Visitor Center at Lava Butte. The trail will begin near the center in the flats south of the cone and winds north up on the flow and down into the gutter at the base of the cone and return.

3. Shallow Temperature Project - In the late summer with Dick, and later with Dick, Vern, and Ed Groh did some shallow temperature measuring and some temperature gradient measuring at Klamath Falls and near Burns. The techniques are not too difficult and our results show that this method may have considerable promise in delineating geothermal zones. We want to repeat some of the tests early this spring to see if we can come up with the same results.

   I have had several talks with Mr. Andy Parker of Desert Farms of Lakeview, who is raising tomatoes in a small greenhouse near (across the road from) Hunters Hot Spring. The exceptionally high quality of the tomatoes and a ready local market has encouraged them to expand their operation and they are presently building a larger facility. I have agreed to be of any help I can in case they decide to drill another well.

4. Environmental - Disposal - At the request of Bob Goulding of OSU and the Chemical Waste Inc. made a tour of their private land at Alkali Lake where they are conducting tests with residues from the manufacture of pesticides and herbicides. They have plots where the materials are spread at the surface and they monitor them to see how quickly they will degrade and become non-toxic. They want all the help they can get in interpreting the geology, especially the subsurface. They are also interested in the total management of their property there and we can probably be of the most help to them in evaluating the potential of the soda ash and other salts that are present in a brine pool on their property.

5. Lunar Transient Phenomena - One interesting trip I took was to the Douglas Advanced Research Laboratory in Huntington Beach, California wher our good friend Jack Green was Chairman of a Symposium on Lunar Transient Phenomena. The papers were concerned with describing visible and short-lived changes on the moon's surface. The meeting included a trip to the Jet Propulsion Lab. for a tour of their facilities and a trip to the Mt. Wilson Observatory.

6. Geysers Geothermal Area - Another trip that Dick will perhaps elaborate on was one that evolved from the spring GSA meeting in Eugene. We met Jim Koenig of the Calfiornia Div. of Mines and arranged for him to see the Klamath Falls area and in return he invited us to visit the Geysers Geothermal area. Jim gave us (Dick Bowen, Ed Groh, And Win Sahinen) a day long tour that included the geology, the steam wells, and power plants. He also showed us an area similar to Lakeview and Klamath Falls at Calistoga. A very impressive show.

McKenzie

Show me Tour – Dr. Bernard Joyce of Australia –
Cooperated with – Bend on Moon Rocks for Martin-Marietta Drill Project
Looked over – Volker Lorenz – drilling project at Hole-in-the-Ground,

Projects for 1970

I Follow up of Klamath-Lake Report specifically

1. Work with G.N. RR. on Diatomite
2. Surface look at Paisley Hills + Lee Thomas Meadow, possibly McCorn Creek area.
3. Lakeview Geothermal Potential. - Greenhouse
4. Klamath Falls Geothermal

II Alkali Lake Disposal Area — mainly to be concerned with the quantity and economics of the salts in the Potholes areas.
A. Possibly do some work on the dunes on NE side to determine how fast the dunes move?

III Geothermal Energy. - Should strive this year to evaluate all known surface heat shows & and do as much basic, temp. measuring? etc. as possible.

IV Continue to work on origin of Josephinite — minor project work on when time permits.

Academic —

V Camas Valley Quad — (hold in abeyance for E.M. Baldwin return)

VI With Dr. Staples for a trip to Newberry + Thundereggs Project.

VII Rearrange and Improve Display Facilities at the Grant Pass Office — Catalog and prepare specimens for Display.

VIII Meteorite Search in K Falls Area. McKenzie

IX Jefferson County request for Geology?

Don Schafroth Project (palagonite tuffs)

Proposed trip to Battelle N.W.

Mn Nodules at Hay Creek Central Oregon — given to Howard

Bibles:- Crash to 1970

Geochem:- SW Oregon
25¢ each - maps + list.

ORE.-BIN — Bi-Monthly —

Get to know the legislators + sell our department.

Reclassification —

Geochem. — E ½ of Bend AMS Sheet —

Atomic Absorption Spectro-photometer. — Thermal Power Co.

Alcona Mining Co. 4o
Polaris Prospect (Glass Bottle)
Horse Heaven 1 (Ray Whitting)
Jowser 2 (

Deep Disposal?

Dooley Mt. Rhyolite - Eocene

4
7
4.20

Schlicker —

7 Request for Gravel information —

Completion of Water + Sewer Study for Marion Co.

Sand + Gravel for Rogue + Bear Creek Valley

Urban Study of Josephine County **

Wag - J. R. Moore Co.

Ora Rostad —
Del Mary.

Age Dating.

V. C. Newton
August 18, 1969

DIATOMITE CORING - HAND TOOLS

Solid Tube Sampler

2" OD - 1½" ID, 2 ft. barrel #1593, 10 lbs.		$ 38.50
Head (w/ball valve)	$16.95	
Tube 18"	12.90	
Shoe	8.65	

Pocket Shoe

2" OD, #1714, 1 lb.	13.90

Cross-over Sub

Drill-rod thread to 3/4" pipe thread	(est.)	7.00

Closed Spiral Sampler

Catalog #1587-B, 6 lb.	19.25

One-inch Retractable Plug Sampler

Complete kit #1511, to 50 ft. depths	595.00

Some ideas of tools which would probably obtain the samples you want. The retractable plug sampler sounds like the type device you mentioned. The sampler can be driven to the desired depth and a sample taken.

Acker Drill Co., Inc.
P.O. Box 830
Scranton, Pennsylvania 18501
Bulletin No. 12

MERRILL DISPOSAL SITE, KLAMATH COUNTY

DESCRIPTIONS OF AUGER SAMPLES

HOLE NO. 1 DATE September 3, 1969

LOCATION NE¼NE¼ Sec 15, T41S, R 10E (South end of Dump)

ELEVATION 4100' Topo WATER LEVEL 7' on 8-3-69; 6½' on 9-25-69

DRILLER C. Hickman DESCRIPTIONS BY V.C. Newton & Don Baggs *

Sample Depth	Description of Material
0 - 3'	Clayey Silt, grayish tan, friable, a few scattered diatoms.
3 - 6'	Clayey Diatomite, gray, dries to a white color. The sample is 40% clay and silt.
6 - 9'	As Above.
9 - 12'	Diatomite, dark gray but dries white, approximately 10% clay.
12 - 30'	No Recovery.
30 - 36'	Diatomite, as above.

* Don Baggs, Grad student at Portland State University

MERRILL DISPOSAL SITE, KLAMATH COUNTY

DESCRIPTIONS OF AUGER SAMPLES

HOLE NO. 2 DATE September 3, 1969

LOCATION NW¼NW¼ Sec 14, T 41S, R 10E (150' SE of Hole #1)

ELEVATION 4100' Topo WATER LEVEL 7½' on 8-3-69; 6½' on 9-25-69

DRILLER C. Hickman DESCRIPTIONS BY V.C. Newton & Don Baggs*

Sample Depth	Description of Material
0 - 3'	Clayey Silt, tan friable, some diatoms, mostly fragments.
3 - 6'	Clayey Silt, as above.
6 - 9'	Silty Diatomite, gray, dries to a white color, approximately 30% silt.
9 - 12'	As Above, approximately 25% silt.
12 - 15'	Silt, light gray, very fine sandy, with very small fragments of quartz and dark rock.
15 - 18'	No Recovery.
18 - 36'	Diatomite, dark greenish gray, clayey, plastic, dries to a white color.

* Don Baggs Grad student at Portland State University.

DIATOMITE EXPLORATION IN THE KLAMATH LAKE AREA

DESCRIPTIONS OF AUGER SAMPLES

HOLE NO. 1 DATE September 4, 1969

LOCATION NE¼ Sec 4, T 41S, R 2E Township Rd, Lower Klamath Lake

ELEVATION 4100' WATER LEVEL Not Recorded

DRILLER C Hickman DESCRIPTIONS BY V.C. Newton & Don Baggs*

Sample Depth	Description of Material
0 - 3'	Clayey Silt, grayish tan, friable.
3 - 9'	Peat, dark brown.
9 - 12'	Diatomaceous Silt, medium gray, soft, approximately 40% diatomite.
12 - 33'	Clayey Silt, medium gray, soft-firm, some diatoms.
33 - 36'	Clayey Diatomite, dark greenish gray, dries to a white color, clayey, plastic. Approximately 40% diatomite.

* Don Baggs Grad student at Portland State College.

DIATOMITE EXPLORATION IN THE KLAMATH LAKE AREA

DESCRIPTIONS OF AUGER SAMPLES

HOLE NO. 2 DATE September 4, 1969

LOCATION NW¼SW¼ Sec 3, T 41S, R 1E; Lake Miller

ELEVATION _____ WATER LEVEL _____

DRILLER C. Hickman DESCRIPTIONS BY V.C. Newton & Don Baggs*

Sample Depth	Description of Material
0 - 6'	Clayey Silt, grayish brown, friable.
6 - 9'	Diatomaceous Clay, dark greenish gray, dries to a white color, plastic, approximately 30% diatomite.
9 - 15'	No Recovery.
15 - 18'	Diatomaceous Clay, as above but 40% diatomite.
18 - 21'	No Recovery.
21 - 24'	Diatomaceous Clay, as above but 50% diatomite.
24 - 33'	No Recovery.
33 - 36'	Clayey Diatomite, as above but 55% diatomite.

* Don Baggs Grad student at Portland State University.

DIATOMITE EXPLORATION IN THE KLAMATH LAKE AREA

DESCRIPTIONS OF AUGER SAMPLES

HOLE NO. 3 DATE September 5, 1969

LOCATION ¼ Cor Sec 34, T33S, R 7½E (2½ Mi South of Fort Klamath)

ELEVATION _____ WATER LEVEL _____

DRILLER C. Hickman DESCRIPTIONS BY V.C. Newton & Don Baggs*

Sample Depth	Description of Material
0 - 3'	Black Sand, fine, some magnetite, scattered cobbles of pumice.
3 - 12'	Clay Silt, dark gray, some black crystal fragments, some diatoms.
12 - 32'	Pumice Gravel, dark gray, pebbles, silty.
32 - 33'	Diatomaceous Clay, dark greenish gray, dries to a white color, plastic, 50% diatomite.
33 - 36'	Volcanic Ash, gray, clay matrix.

* Don Baggs Grad student at Portland State University.

DIATOMITE EXPLORATION IN THE KLAMATH LAKE AREA

DESCRIPTIONS OF AUGER SAMPLES

HOLE NO. 4 DATE September 5, 1969

LOCATION NE¼ Sec 12, T 31S, R 7E; Klamath Marsh

ELEVATION _____ WATER LEVEL _____

DRILLER C. Hickman DESCRIPTIONS BY V. Newton & Don Baggs*

Sample Depth	Description of Material
0 - 3'	Volcanic Ash, fine, silty, medium brown to tan, with 6 inches of soil capping.
3 - 21'	Volcanic Ash, buff to medium brown color.
21 - 36'	No Recovery.

* Don Baggs Grad student at Portland State University.

Owner	Location	Formations		Static water level
O'Conner	NE¼SE¼ sec. 27, T. 40 S., R. 9 E.	0'- 4' 4'-200'	Alluvium Yonna	104'
O'Conner	NE¼NE¼ sec. 12, T. 41 S., R. 9 E.	0'-718' 718'-888'	Yonna Lower lavas	140'
Osborn	SE¼SW¼ sec. 27, T. 40 S., R. 9 E.	0'- 4' 4'-366' 366'-418'	Alluvium Yonna Lower lavas?	32'

The Klamath Hills are well known as a thermal area. All the water wells have encountered warm water, two or three produce water at near boiling temperature (Liskey and Osborn wells, see map). Thermal areas could not be used for underground disposal operations as the underground fluids in such areas are likely to be moving from one area to another. Heat would also cause other problems as far as precipitation and chemical reactions are concerned. We see no particular problems arising from underground thermal waters as far as surface disposal is concerned.

The sediments drilled in our two drill holes in the valley apparently overlie the lavas which make up the Klamath Hills. These lavas are younger than the Yonna Formation and the lavas which are found underneath the Yonna Formation. Thickness of sediments in the disposal area should be determined if possible and also, as mentioned earlier, tests for porosity and permeability should be made.

We will keep you informed on what is being done. We plan to return to the site the last week of July and try again to drill to the basalt underlying the sediments. If successful, we will drill two or three holes, preferably one near the fault on the east side of the valley. If testing shows that seepage out of the sag valley can occur and threaten water supplies, we will be glad to assist in locating another site.

Would you give us details again on how to handle billing on the diamond core head. We will have some data for you on Alkali Lake exploration shortly. Bill Bartholomew would like to arrange a tour of the project in the next few weeks with you and if possible have someone from our department along too.

Sincerely,

Vern

Vernon C. Newton, Jr.
Geologist - Petroleum Engineer

VCN:lk
Encl.
cc Earl Kessler
Bill Bartholomew
Norman Peterson

SOIL SAMPLING EQUIPMENT

On the following pages are illustrated and described soil sampling tools in general use. For shallow holes the work can be done by hand. If deep sampling is necessary or an extensive program is planned, power operation will prove more economical. Besides the equipment listed, Acker Engineers are always ready to study and discuss your specific problem. New tools will be designed, or existing devices modified, to help in overcoming unusual difficulties.

In addition to the items in this catalog, we manufacture a complete line of core drills, diamond bits and accessory equipment for coal and mineral prospecting, foundation grout holes and deep rock exploration. Complete specifications and descriptive literature will be mailed promptly on request.

All threads and fittings are in accordance with standards adopted by the Core Drill Manufacturer's Association and approved by the United States Bureau of Standards. Other specified threads can be supplied.

SOLID TUBE SAMPLER

One of the first sampling tools developed was the solid tube sampler. Designed to stand-up under hard driving, it recovers a good representative sample, with a minimum of distortion. Equipped with a bronze ball check head and interchangeable shoes to meet a wide variety of soil conditions.

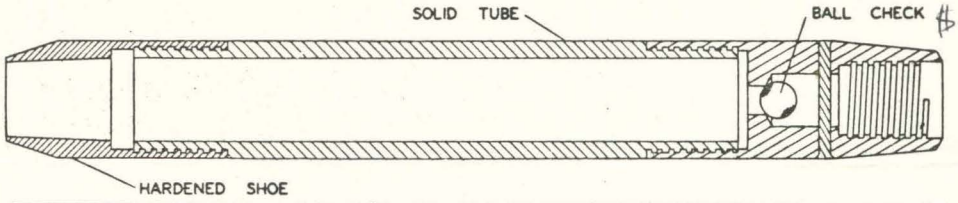

FIG. 1

OUTSIDE DIAM. INCHES	INSIDE DIAM. INCHES	OVERALL LENGTH INCHES	USED IN PIPE SIZE	PART NO. COMPLETE	WGT.	PART NO. EXTRA SHOE	WGT.
2	1½	24	2½	1593	10.0	1605-B	1.2
2½	2	24	3	1594	15.0	1606	1.5
3	2½	24	3½	1594-A	18.0	1606-A	1.7
3½	3	24	4	1595-A	20.0	1607-B	2.5
4½	4	24	5	1595-B	34.0	1607-C	3.5

SPLIT TUBE SAMPLER

Our most popular soil sampler is a tube split lengthwise and held together by a ball check head and a hardened shoe. To operate, the sampler is forced into undisturbed earth by either jacking, hydraulic pressure or light driving. The bronze ball check prevents washing out of the sample while being hoisted from the hole. Withdrawing, the sampler opens like a book.

Meets A.S.T.M. Requirements.

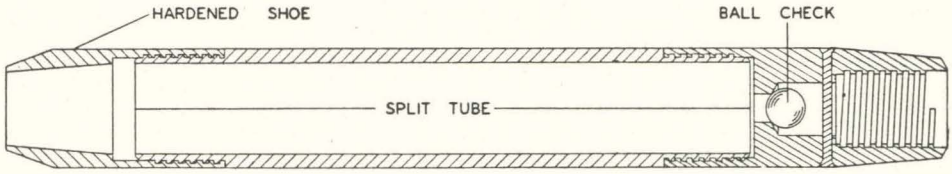

FIG. 2

OUTSIDE DIAM. INCHES	INSIDE DIAM. INCHES	OVERALL LENGTH INCHES	USED IN PIPE SIZE	PART NO. COMPLETE	WGT.	PART NO. EXTRA SHOE	WGT.
2	1½	24	2½	1599-B	10.0	1605-B	1.2
2½	2	24	3	1600	15.0	1606	1.5
3	2½	24	3½	1600-C	18.0	1606-A	1.7
3½	3	24	4	1601	20.0	1607-B	2.5
4½	4	24	5	1604-A	24.0	1607-C	3.5

HEAVY DUTY LYNAC SAMPLER

(PATENTED)

This is a refinement, and variation of the Split Tube Sampler. Assisted by one of the largest test boring contractors in the East, the Acker Drill Co. developed a split tube sampler better adapted to severe service under hard driving than the standard type. Coarse threads in the sampler head speeds assembly and disassembly. As with all other tube style samplers, the shoe is case hardened and heat treated to stand exceptional abuse. Length of sample is 18".

Meets A.S.T.M. Requirements.

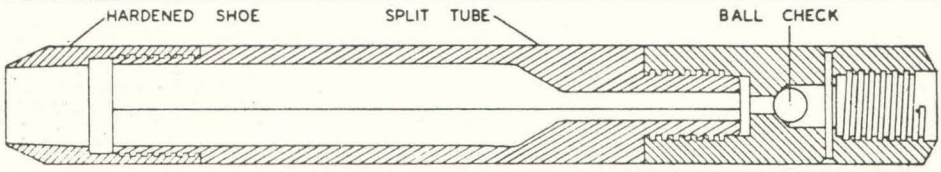

FIG. 3

OUTSIDE DIAM. INCHES	INSIDE DIAM. INCHES	OVERALL LENGTH INCHES	USED IN PIPE SIZE	PART NO. COMPLETE	WGT.	PART NO. EXTRA SHOE	WGT.
2	1½	28	2½	1954	13.0	1605-B	1.2
2½	2	28	3	1954-A	16.0	1606	1.5
3	2½	28	3½	1954-B	19.0	1606-A	1.7
3½	3	28	4	1954-C	22.0	1607-B	2.5
4½	4	28	5	1954-D	28.0	1607-C	3.5

Available with or without liners.

NOTE: Various other diameters and lengths can be supplied on request.

INTERCHANGEABLE SHOES FOR DRIVE AND SPLIT TUBE SAMPLERS

For all of the standard reconnaisance type samplers, various shoes are available. Since these samplers are repeatedly driven into the earth, shoes wear and must be periodically replaced.

OPEN SHOE

This open shoe is made from heat treated case hardened steel for sampling coarse materials up to the diameter of the throat opening. The inside diameter of the shoe may be the same as, or slightly smaller, than the inside of the tube.

USED WITH SAMPLER O.D.	PART NO.	WGT.
2	1605-B	1.0
2½	1606	1.2
3	1606-A	1.4
3½	1607-B	1.5
4½	1607-C	2.0

FIG. 14

SAW TOOTH SHOE

Teeth are faced with tungsten carbide alloy for operation in tightly compacted soil such as hard pan, where it is necessary to tear the material loose.

USED WITH SAMPLER O.D.	PART NO.	WGT.
2	1715	1.0
2½	1715-A	1.2
3	1715-E	1.4
3½	1715-B	1.7
4½	1715-C	2.5

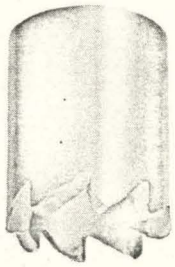

FIG. 16

POCKET SHOE

A pocket type shoe with a side opening and a bottom cutting edge that crosses the center and helps retain loose material within the tube.

USED WITH SAMPLER O.D.	PART NO.	WGT.
2	1714	1.0
2½	1714-A	1.6
3	1714-E	2.0
3½	1714-B	2.3
4½	1714-C	3.0

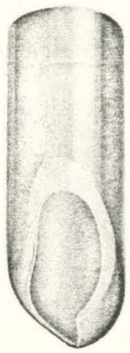

FIG. 15

BASKET SHOE

Heat treated, flexible fingers open to admit loose dry sand, then close, forming a tight lock, that retains the sample when the tube is removed.

USED WITH SAMPLER O.D.	PART NO.	WGT.
2	1716	1.1
2½	1716-A	1.3
3	1716-E	1.6
3½	1716-B	2.0
4½	1716-C	2.1

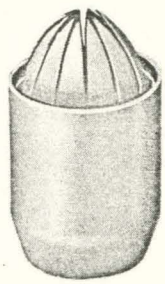

FIG. 17

SPECIAL COUPLING FOR SOLID AND SPLIT TUBE SAMPLER

For connecting 2 or more samplers to develop longer samples from standard length samplers where soils permit.

SIZE	PART NO.	WGT.
2"	2136	.8
2½"	2136-1	1.2
3"	2136-2	1.4
3½"	2136-3	1.6
4½"	2136-4	1.8

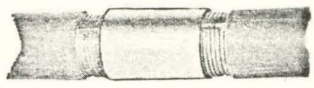

FIG. 18

TRAP VALVE

For insertion in an open shoe where it will hold thin mud and other watery substances.

USED WITH SAMPLER O.D.	WGT.	PART NO.
2	.2	1717
2½	.2	1717-A
3	.5	1717-E
3½	.6	1717-B
4½	1.0	1717-C

FIG. 20

SPRING TYPE SAMPLE RETAINER

FURNISHED IN ONE SIZE ONLY
To Fit 2" Sampler

PART NO.	WGT.
1958	.02

CAPS

For Thin Wall Tubes, Stationary Piston Sampler Tubes and One Inch Retractable Sampler. Furnished in Copper or Aluminum.

FIG. 19

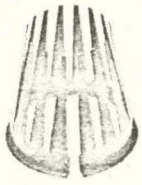

FIG. 21

SAMPLER SIZE	PART NO.	WGT.
1"	1739-F	.01
2"	1739-A	.01
2½"	1739-B	.01
3"	1739-C	.02
3½"	1739-D	.02
4½"	1739-E	.03

$595.00

ONE INCH RETRACTABLE PLUG SAMPLER KIT

A reconnaissance tool for land operation and testing to 50 to 75 ft. depths in silts, clays and harbor muds. The sampler is driven with the plug in the bit until a specimen is required. At this point the plug is retracted, the sampler driven forward and the soil is caught in a series of brass liners. In recovery, the entire sample is withdrawn (see Fig. 26 for pulling jack), liner tubes removed and capped with copper caps to preserve sample. This is a very useful tool for preliminary explorations and saves time and expense. For detailed information, ask for descriptive bulletin No. 100.

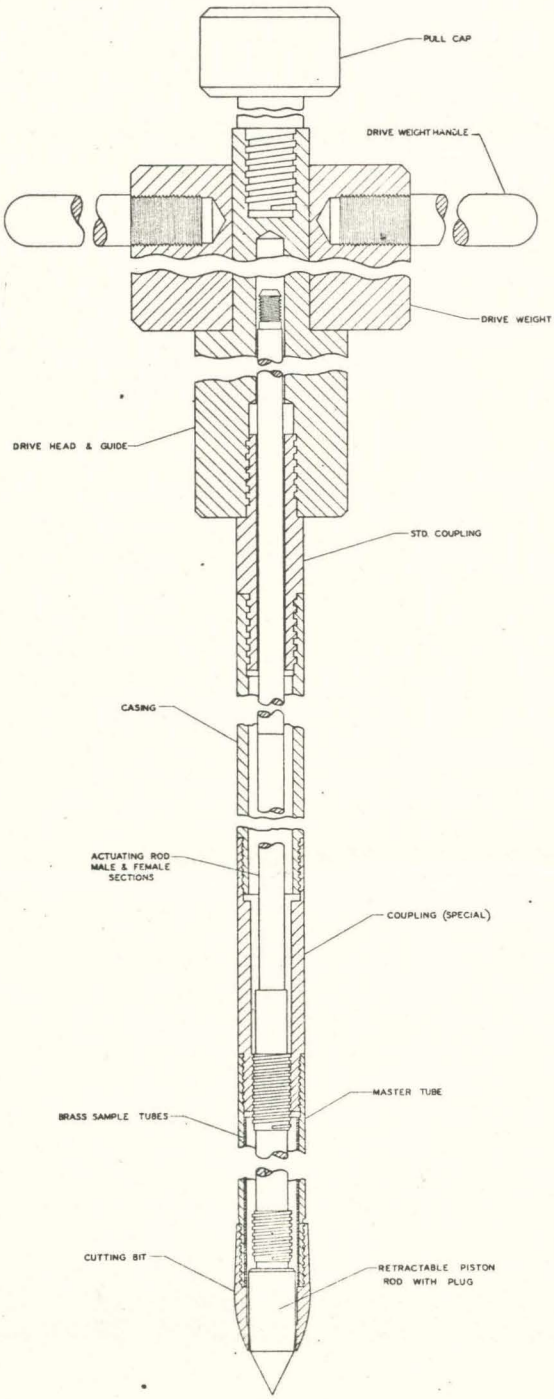

FIG. 36

ACKER 1" RETRACTABLE PLUG SAMPLER KIT

QTY. FOR SAMPLING TO 50 FT. DEPTHS	ITEM	PART NO.	WGT. EA.
3 (includes 2 spares)	Cutting Bit	1511-1	.08
2 (includes 1 spare)	Master Tube	1511-2	6.04
2 (includes 1 spare)	Coupling (Special)	1511-3	1.02
2 (includes 1 spare)	Master Rod	1511-4	4.08
1	Adapter—Spec. Coupling to Drive Head	1511-5	.14
2 (includes 1 spare)	Casing (Special)	1511-6	10.08
17	Casing	1511-7	7.08
19 (includes 2 spares)	Casing Coupling	1511-8	1.0
2 (includes 1 spare)	Actuating Rod (Special)	1511-9	1.02
17	Actuating Rod	1511-10	2.04
50	Sample Tube (Brass)	1511-11	.04
100	Copper Caps	1511-12	.01
2 (includes 1 spare)	Push-Out	1511-13	.03
1	Drive Head with Hex. Guide	1511-14	24.0
1	Pull Cap	1511-15	3.12
1	Hand Drive Weight	1743-C	32.0
1	Shock Ring	1511-1G	1.0

COMPLETE KIT

PART NO.	WGT. LBS.
1511	310.0

HAND OPERATED SAMPLING TOOLS

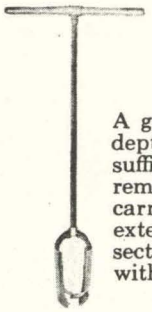

FIG. 22

IWAN AUGER

A good sampling tool for shallow depths. Where the material is sufficiently stable and the hole will remain open, sampling can be carried to greater depths. Handle extensions are furnished in 3 ft. sections. Available with or without handles.

OUTSIDE DIAM.	LGTH.	PART NO.	WGT.
3	4 Ft.	1540-A	9.0
4	4 Ft.	1540	7.0
6	4 Ft.	1541	9.0
8	4 Ft.	1542	11.0

¾" PIPE EXTENSIONS

PART NO.	LGTH.	WGT.
1540-B	3 Ft.	7.0
1540-C	5 Ft.	9.1

SPIRAL AUGERS

CLOSED SPIRAL

The sharp pointed nose loosens dry clay and gravelly soil which would normally block the opening of a regular tube sampler.

O.D.	USED IN PIPE SIZE	PART NO.	WGT.
2	2½	1587-B	6.0
2½	3	1588	8.5
3½	4	1589	2.0

FIG. 23

SHIP AUGER

For use in sticky materials. To operate, the auger is twisted down a short distance, then pulled upward, cutting the adhesive soil loose.

O.D.	USED IN PIPE SIZE	PART NO.	WGT.
2	2½	1895-A	4.3
2½	3	1895-B	6.5

FIG. 24

JAMAICA OPEN SPIRAL

For use in loosely consolidated mixtures. Double action of the spiral retains samples inside as well as in the open spiral flights.

O.D.	USED IN PIPE SIZE	PART NO.	WGT.
2	2½	1896-A	5.0
2½	3	1896-B	6.0
3½	4	1896-C	15.0

FIG. 25

ROD PULLER

A lever jack with automatic grips that will pull a string of drill tools that has become tight in a hole when sampling in caving or plastic soil. The jack can be quickly applied and easily removed. This Puller is particularly effective as an accessory for use with 1" Retractable Plug Sampler and with Soil Sampling Kit.

ROD SIZE	PART NO.	WGT.
E	1781	72.0
A	1781-A	72.0
B	1781-B	72.0

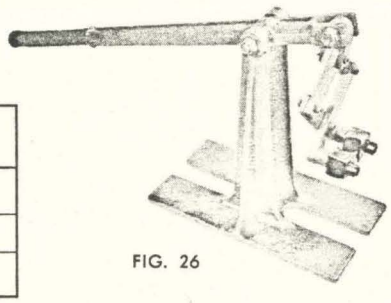

FIG. 26

LAD SAMPLE RETAINER

Ideal for taking samples in flowing sands or other difficult materials. Mounts inside of sample shoe in place of trap valve.

FOR SAMPLER	PART NO.	WGT. LBS.
2"	6884	.3
2½"	6885	.3

FIG. 27

GLASS SAMPLE JARS

A handy container for recording and preserving samples for future analysis. The sample should be carefully placed in the jar and all data recorded on the label.

FIG. 28

SIZES	PART NO.	PER CTN.	WGT. PER CTN.
½ pint	1719	24	10.0
1 pint	1719-A	12	10.0
1 quart	1719-B	12	13.0