

PETROTOMICS COMPANY

TIDEWATER OIL COMPANY • MANAGING PARTNER

P. O. BOX 184 • CASPER WYOMING

February 14, 1962

Mr. Donald A. Nussbaumer, Chief
Source and Special Nuclear Materials Branch
U. S. Atomic Energy Commission
Division of Licensing and Regulation
Washington 25, D. C.

Dear Mr. Nussbaumer:

Ref: DLR:DFH 40:6659

With reference to the five items which were listed in your letter of February 5, 1962 and which were discussed with you during your visit on February 12, we submit the attached information.

Mr. Beardshear, Mine Superintendent, is enclosing an outline of the Construction Program to increase the height of the tailing dam as soon as weather permits.

You will be interested to know that the wind has slowed down somewhat and is only blowing at a 50 mile per hour speed.

Very truly yours,

PETROTOMICS COMPANY

By

G. K. Coates

GKC:mah
Enclosures

8507290522 850530
PDR FOIA
BURR85-229 PDR

A/21

COMPANIES DOING EASTERN ASSAYS
AND PRICES LISTED BELOW

<u>Company</u>	<u>Address</u>	<u>No. of Assays</u>	<u>Cost/Sample</u>
② <u>Controls for Radiation, Inc.</u>	130 Alawick Brook Parkway Cambridge 48, Mass.	1 - 4 5 - 10 11 - 20	44.00 37.50 24.50
<u>Isotopes Specialists Co.</u>	Box 688 170 W. Providence Barbours, California	Monthly orders	24.00
① <u>Trace Lab, Inc.</u>	1801 Vrengle Road Methuen 30, Mass.		30.00
<u>Radiochemistry, Inc.</u>	1111 W. St. Catherine Louisville 18, Ky.	100 - 1000 1000 - 10000	4.00 - 4.00 3.00 - 3.00
<u>Tracer Lab, Inc.</u>	2030 Wright Ave. Richmond 3, Calif.		3.00 - 3.00
<u>Radiochemical and Engineering Corp.</u>	P. O. Box 10781 Pittsburgh 30, Pa.	1 - 10 11 - 100 101 - 1000	15.00 20.00 25.00
② <u>Radiochemical Specialists Co.</u>	4047 Tremont St. Palo Alto, Calif.	1 - 10 11 - 100	15.00 20.00

Enc. This is a copy of the
letter doing these assays. We
have decided on the one mentioned
in the order list. I do not know
if they will accept an estimate that
I have made.

The letter

ITEM 1

The use of three holes to sample underground waters to test for seepage from the disposal area is planned. The use of two drill holes, one at each end of the cross-section line shown on Exhibit A-1 (marked B and B') along with the third hole located mid-way between Claim No. 19 and 20 on the same map will effectively blanket the down slope area.

ITEM 2

The attached outline gives the locations of sample points.

Accepted criteria for classifying an area as dusty in ore areas (crushing plant) consists of observance of airborne dusts. In final product area, there is no substitute for actual air samples in final product areas, where MPC can be exceeded before dust is observed in the air.

ITEM 3

The need for an environmental airborne survey program will be required only if it becomes established that stack concentrations are above MPC. Should such a survey be necessary, sample locations will be located relatively close to the mill and not excluding 500 feet from the origin point of the dust. Experience has shown that such contamination is confined to areas within 1000 feet of the origin. Such a survey would be conducted on an annual or semi-annual basis. Such survey locations must be close to the mill in order to differentiate between mill dusts and dust from the adjacent mining operations.

ITEM 4

Flow diagrams of sample preparation operations are attached. It must be pointed out that very little crushing will be required since plant control samples will be pulps rather than dry ore. All equipment including splitters will be operated under hoods connected to the bucking room ventilation system. Layout of the bucking room is shown on the enclosed sketch. The second attached sketch shows a typical layout of one of the hoods used to enclose work points.

ITEM 5

The enclosed Stearns-Roger print No. 09-1-01 shows how the product filling and conveying systems are enclosed and connected to the dust collection system.

OUTLINE FOR INITIAL AIRBORNE RADIOACTIVITY SURVEY

1. Samples will be taken to determine the dust levels in all operating areas. (G. A. Samples)
2. Samples are to be taken in areas where the results will best represent the average for the area.
3. Samples will not be taken in locations less than three feet removed from walls or equipment. This should avoid erratic non-representative samples which could result from erratic air currents caused by proximity to equipment or building walls.
4. Samples will be collected at a five foot elevation above the floor or deck to most truly represent the zone from which workmen would be breathing.
5. Two or more samples will be taken in each general area and the results averaged to obtain a better average for the area. This should lessen the possibility of high or low sample locations producing erratic results.
6. Samples will be taken under identical conditions of time and volume.
7. Breathing zone samples will be obtained in areas where the general air samples indicate an atmosphere of near M. P. C. Concentrations.
8. Weather conditions will be noted for the sampling period. Such items as wind velocity and direction, humidity, temperature and season can effect dust conditions. It should also be noted if doors or windows are open.
9. Sampling frequency for the first six months will be on a monthly basis. After this initial survey period low level areas will be surveyed on an annual basis only. Others will continue to be surveyed monthly.

EXTERNAL RADIATION SURVEY OUTLINE

1. Each working area of the plant will be surveyed with the Geiger Counter to determine Beta-gamma radiation.
2. Each area surveyed must be a working area where employees are required to spend time.
3. Each survey result must be accompanied by notation to show such conditions as proximity to ore stockpiles or ore in bins, nearest to large volumes of pulp or concentrate.
4. Survey results are to be combined with time studies to determine each employees' rated exposure.
5. Employees showing an exposure to 25% of M. P. C. (75 mr) per week will be required to wear film badges.

LOCATION OF SAMPLE POINTS FOR INITIAL AIRBORNE DUST SURVEY

Primary Crusher Building

1. Two sample points located on the feeder floor.
2. Two locations in pit of crusher.

Secondary Crusher Building

1. Two locations on the screen floor.
2. Two locations on the impact breaker floor.
3. Two locations on the bottom floor.

Fine Ore Storage Building

1. Two locations on the feeder floor.
2. Two locations in the bucking room.

Main Mill Building

1. Two locations in grinding area.
2. Two locations on deck above the leach tanks.
3. Two locations at floor level below the precipitation and filtering deck.
4. Two locations on the precipitation-filtering deck.
5. Two locations in the yellow-cake packaging room.
6. Two locations in the dryer room on the mezzanine floor.
7. One location in each of the following rooms: Shifters office, change room, Supt. office, Metallurgist's office and met. lab.

SX Area and Lab

1. One sample will be taken inside the SX lab.
2. One sample will be taken on the deck above the SX tanks.

Thickener Area

1. Two samples will be taken on the thickener bridge. One over thickener No. 1, the other above thickener No. 6.
2. Two samples will be taken midway in the tunnel under the thickeners.

Tailings Pump House

1. One sample will be taken inside the pump house.

Office

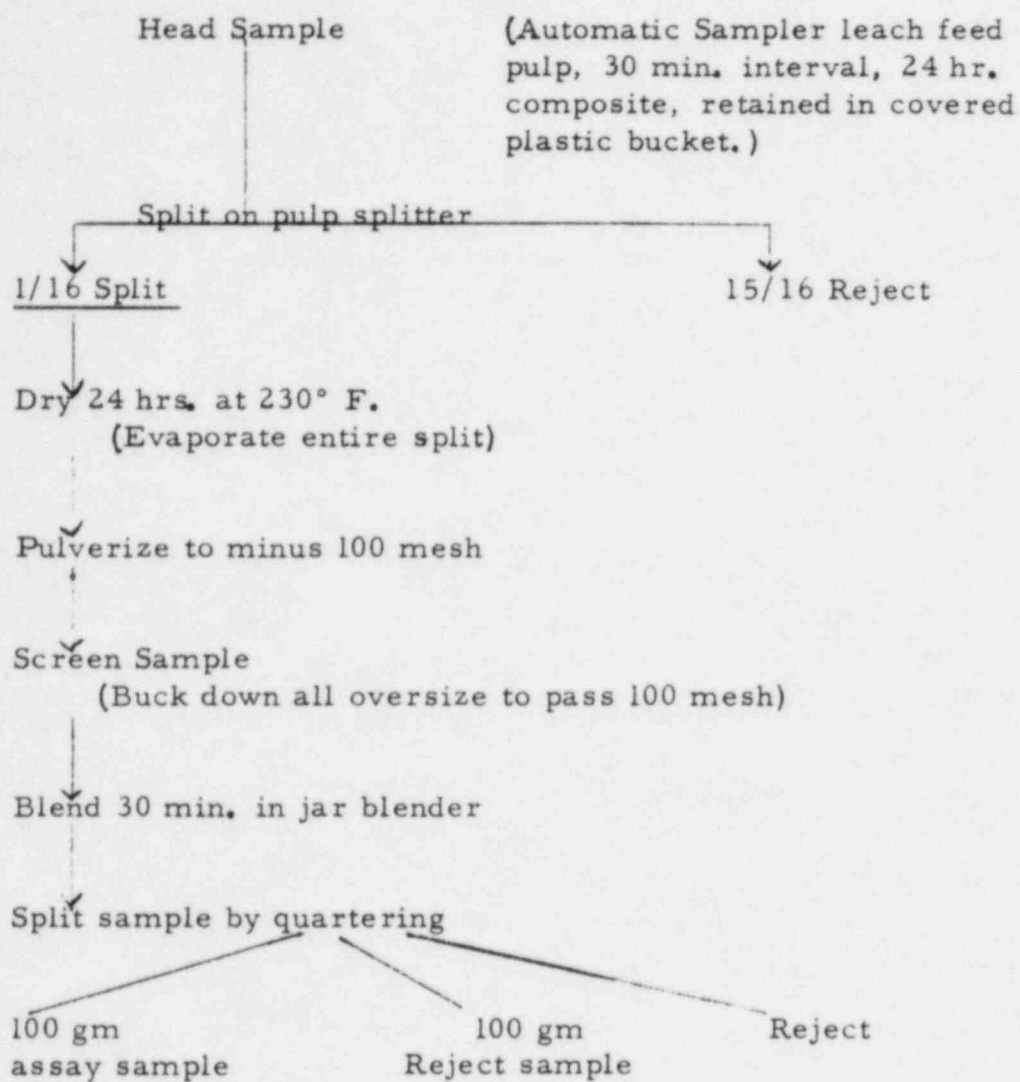
1. Two samples will be collected. One in each end of the hallway.

Cafeteria

1. One sample will be taken in the general eating area.

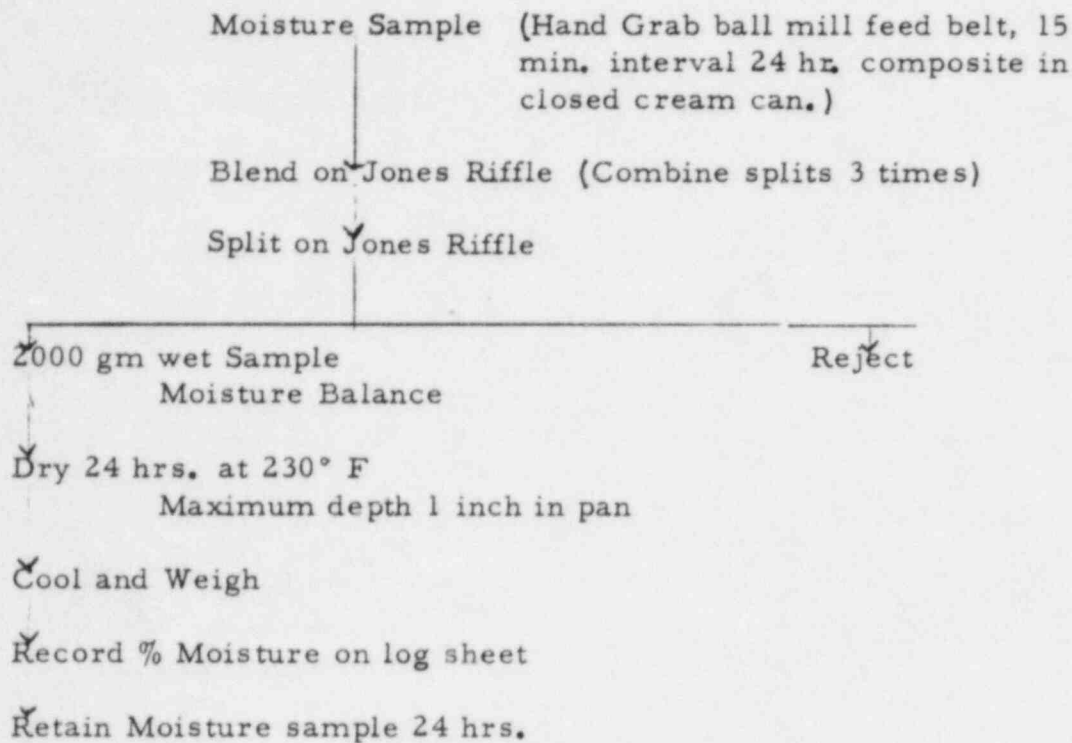
February 12, 1962

PETROTOMICS HEAD SAMPLE FLOW SHEET



February 12, 1962

PETROTOMICS MOISTURE SAMPLE FLOW SHEET



February 12, 1962

PETROTOMICS SAMPLING AND SAMPLE
PREPARATION EQUIPMENT

Automatic Sampler Denver Equipment

Drying Oven - Dispatch oven
Smaller size than Pitkin uses.

Pulverizer - Morse Brothers
Hooded A.S. & R. design used at all
Pitkin Sampling Plants.

Jaw Crusher - 4 x 5 Morse Brothers
Hooded - A.S. & R. design used at
all Pitkin Sampling Plants.

Work Hoods - Splitting, Screening and handling
of all dry samples.

Jar Blender - Type designed and used at
National Lead Pilot Plant in Grand
Junction. Does not need to be hooded.

Ro Tap - Dry screening of samples
Does not need to be hooded.

Jones Riffles - Splitting down of wet & dry samples

February 12, 1962

CLEANING PULVERIZER

First by carefully brushing as much of the sample as possible into the sample pan.

Second, fine loose dust will then be cleaned out with vacuum cleaner.

Third, sample inbedded in grinding plates and crevices which the vacuum cannot reach will then be cleaned with a minimum usage of compressed air.

Fourth, the exhaust fan to be turned on with hood damper wide open when the pulverizer is being cleaned.

Mr. R. E. Killilay

March 30, 1962

9/9/76

MINERALS PRODUCTION	
7-14-76	
PLI	PLS
U	JWN
CRK	PW
FIN	(25)
FILE	

TO: MR. R. D. CYPERT, JR.

FROM: R. D. ODELL

SUBJECT: RADIOACTIVITY TEST HOLES, DRILLED OUTSIDE
OF MILLSITE TAILINGS DAM, MARCH 15 & 16, 1962

Three holes as located by the mill department for testing radioactivity leakage from the millsite tailings disposal area were drilled to the water bearing sand and cased for monthly water sampling. Each of the holes was blown clear of water several times to insure a clean hole and good water producing characteristics. The holes were probed through the casing for gamma and resistivity information and to determine water levels after one week (see accompanying logs).

The table below covers individual hole data.

Hole Number	RTH #1	RTH #2	RTH #3
Millsite claim & sec.	MC#13 4-27-78	MC#20 5-27-78	MC#65 9-27-78
Elevation, collar	7045'	7024'	7055'
Drilled depth	110'	80'	110'
Date drilled	3-16-62	3-16-62	3-15-62
Casing used	112	82'	112'
Height of casing above ground	2'	2'	2'
Elevation of water as meas. 3-23-62	6961'	6959'	6961'
Water level in hole below collar 3-23-62	84'	65'	94'
Thickness of water bearing sand pene- trated by well	16'	30'	25'
Radioactivity as meas. thru casing 3-23-62	Negligible	Negligible	Negligible

R. D. Odell

RDO:mah
cc: GKCoates
B. Moulden

A1 24

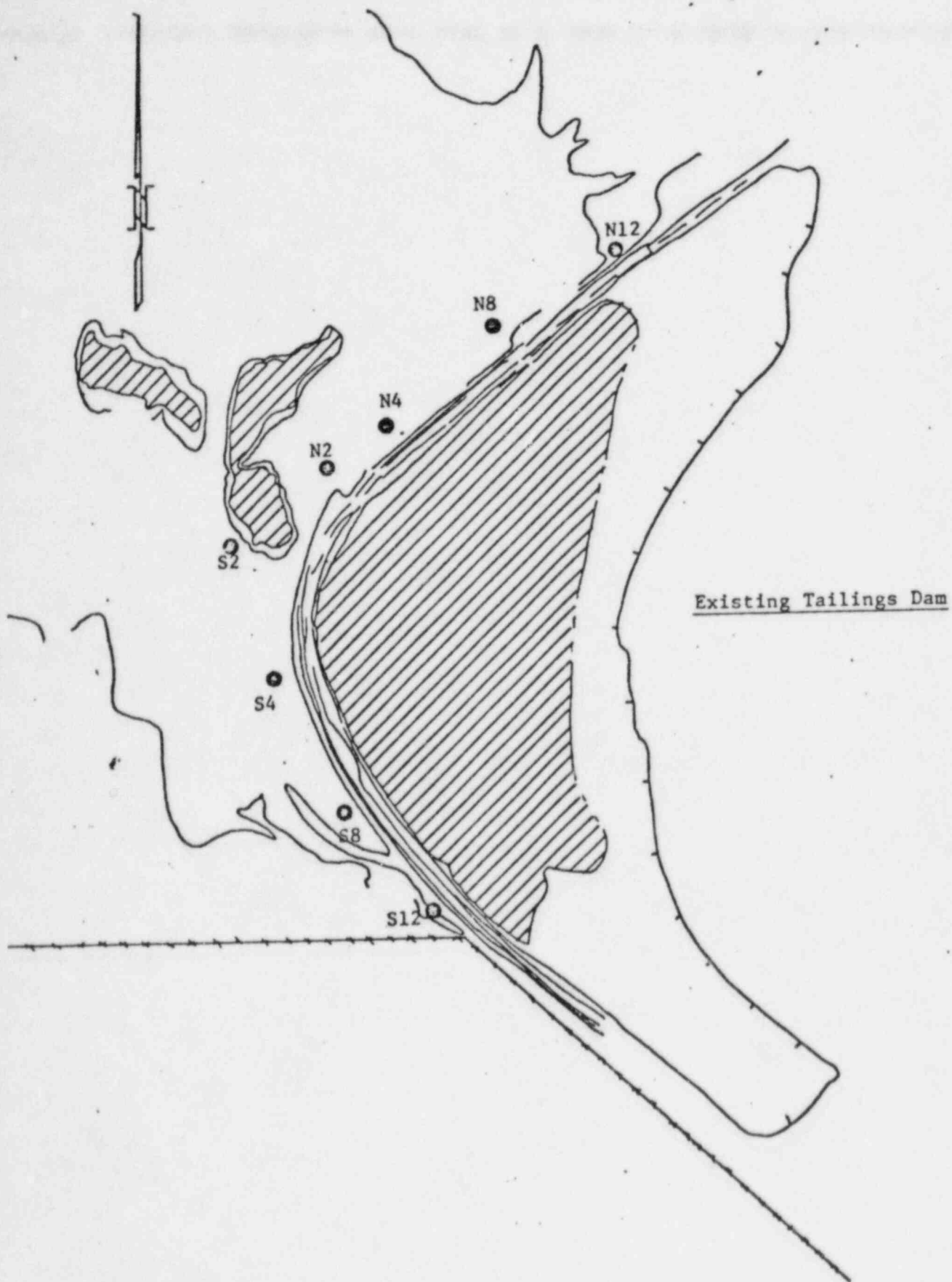
B. SOILS ANALYSES BY CHEN AND ASSOCIATES, INC.,
CONSULTING SOIL ENGINEERS

FIGURE

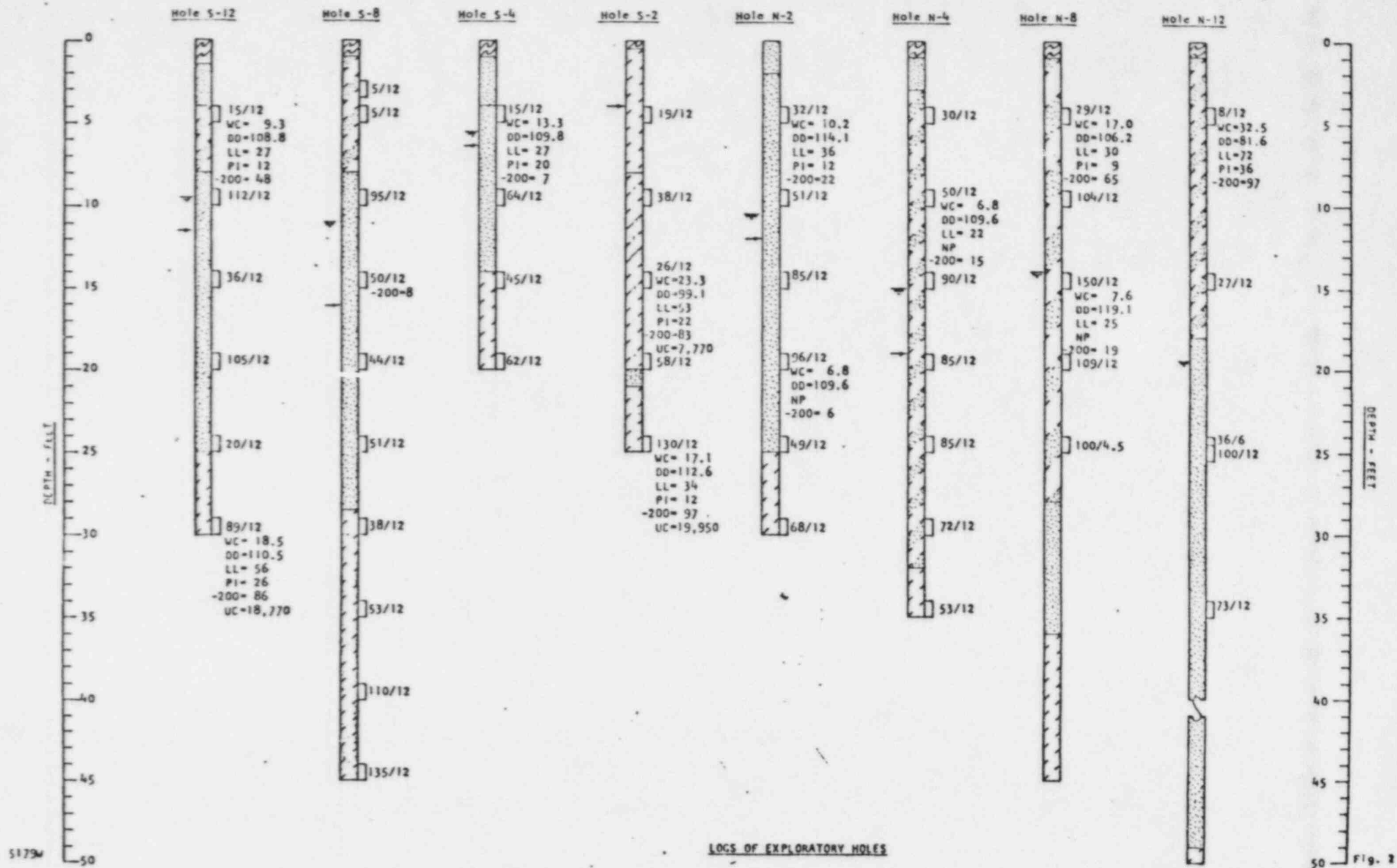
1. Initial Exploratory Holes and Data
2. Cover Letter 9-23-76 with Lab Test Data

1 - 10

1 - 18
Table II-A



LOCATION OF EXPLORATORY HOLES
SCALE: 1" = 400'



Legend:



Topsoil, sandy clay and clayey sand, brown, moist.



Clay (CL), sandy to very sandy, medium stiff to stiff, occasional minor sand layer, brown, moist.



Sand, clayey to Clay, sandy (SC-CL), interlayered, loose, soft to medium stiff, medium dense, brown, moist.



Sand (SP), clean, loose, coarse grained, brown, slightly moist to moist.



Weathered Claystone, firm, occasional minor sand layer, brown, moist.



Weathered Sandstone, firm, weakly cemented, brown, moist to wet.



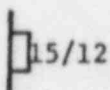
Weathered Claystone-Sandstone, firm, interlayered, brown, moist to wet.



Claystone Bedrock, hard, moderate to high plasticity, blue-grey, moist.



Sandstone Bedrock, dense, non-cemented to weakly cemented, brown, moist to wet.



Undisturbed drive sample. The symbol 15/12 indicates that 15 blows of a 140 lb. hammer falling 30 inches were required to drive the sampler 12 inches.



Indicates free water level measured at the time the test holes were drilled.

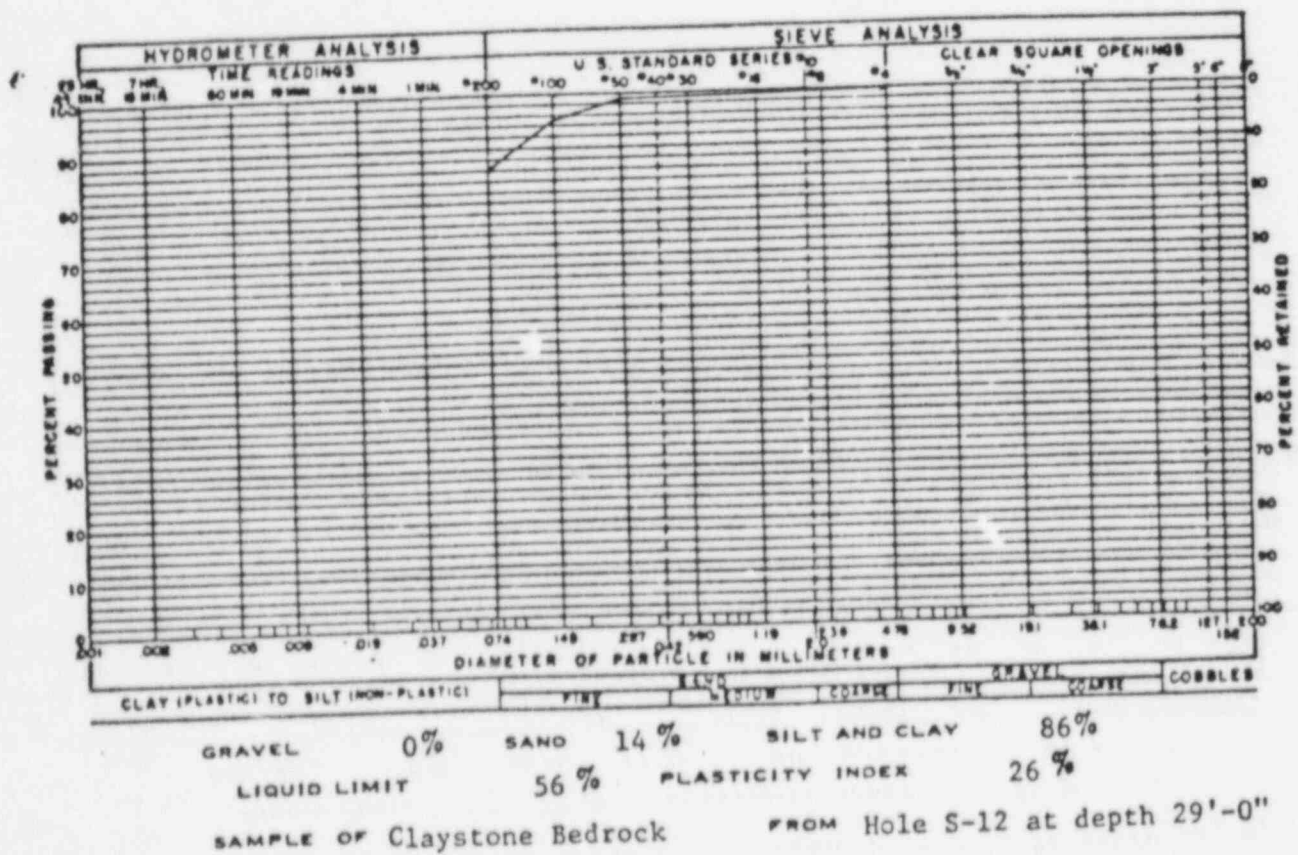
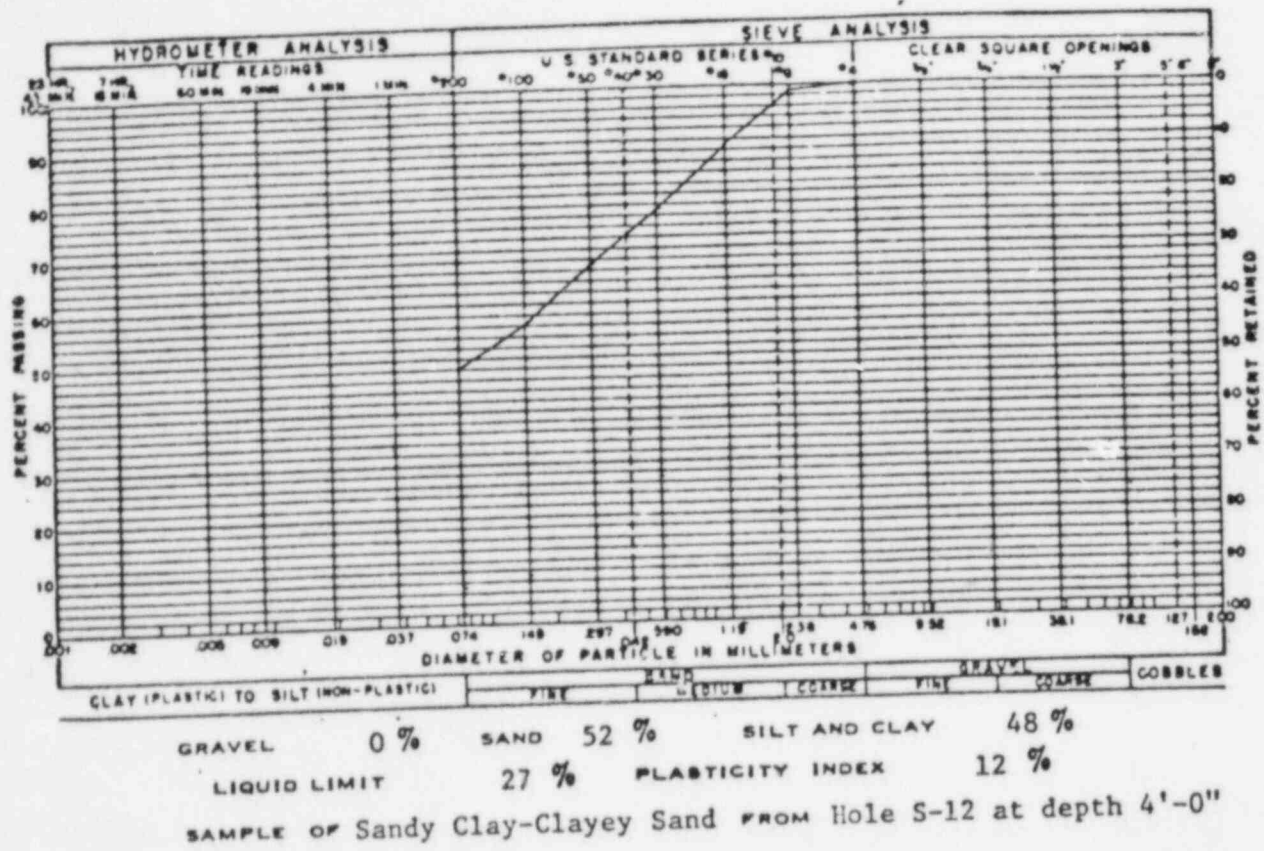


Indicates depth at which test hole caved after drilling.

Notes:

- (1) Test Holes were drilled on August 16, 17, and 18, 1976, with a 4 inch diameter continuous flight power auger.
- (2) WC = Water Content (%)
DD = Dry Density (pcf)
LL = Liquid Limit (%)
PI = Plasticity Index (%)
NP = Non-Plastic
-200 = Passing No. 200 Sieve (%)
UC = Unconfined Compressive Strength (psf)

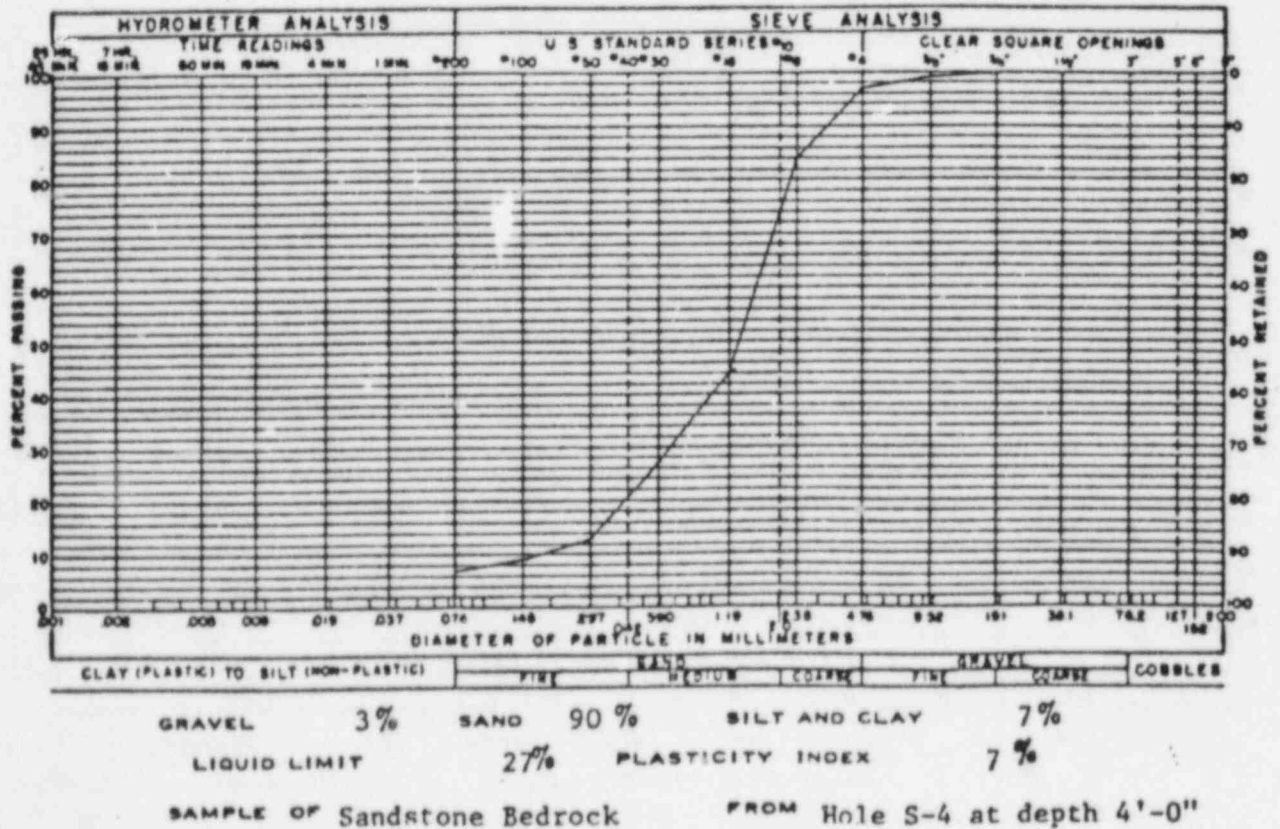
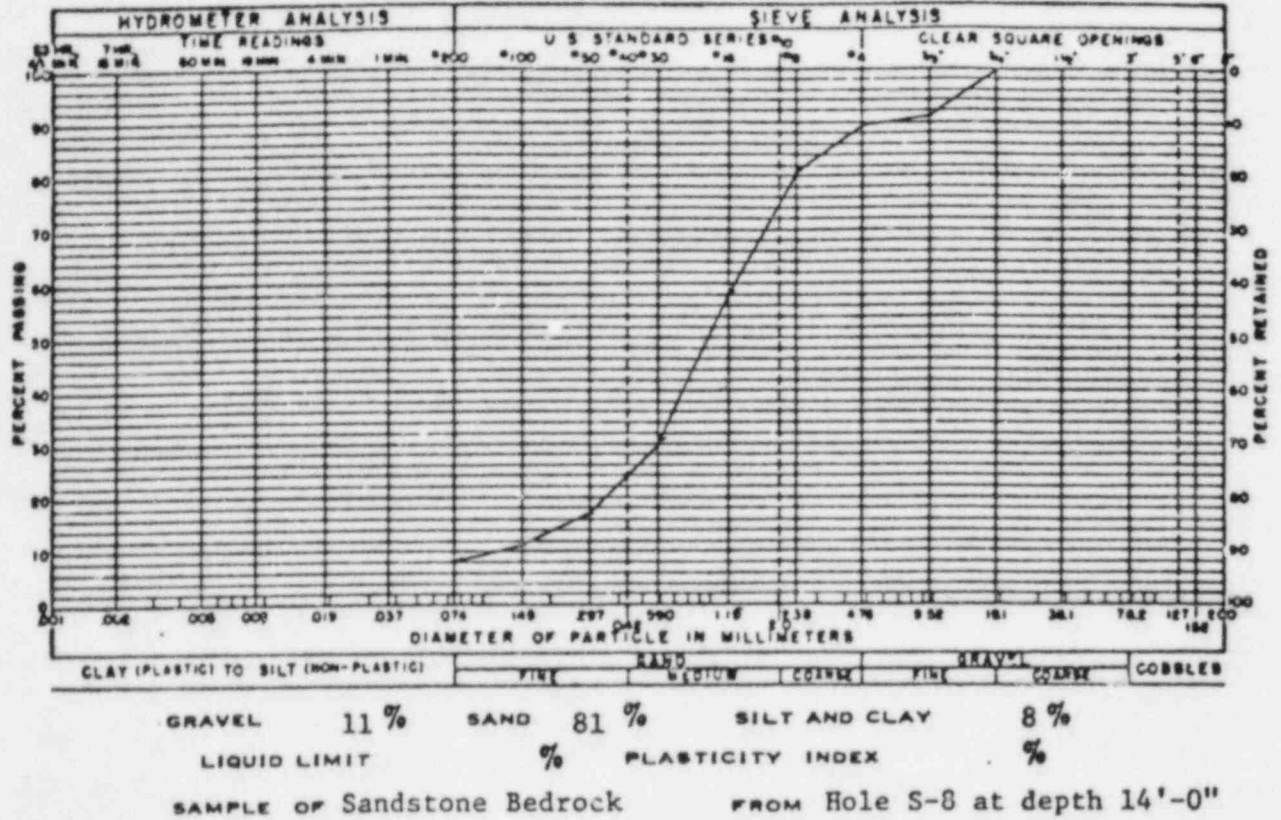
LEGEND AND NOTES



GRADATION TEST RESULTS

CHEN AND ASSOCIATES

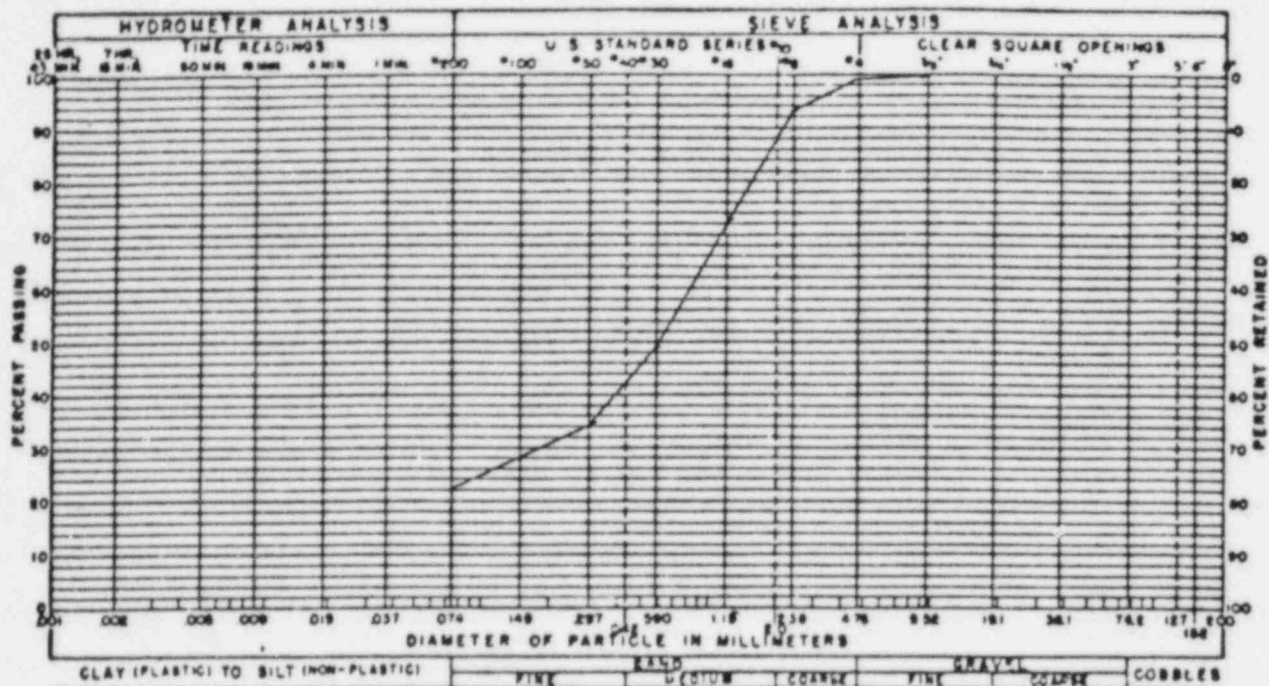
Consulting Soil and Foundation Engineers



GRADATION TEST RESULTS

CHEN AND ASSOCIATES

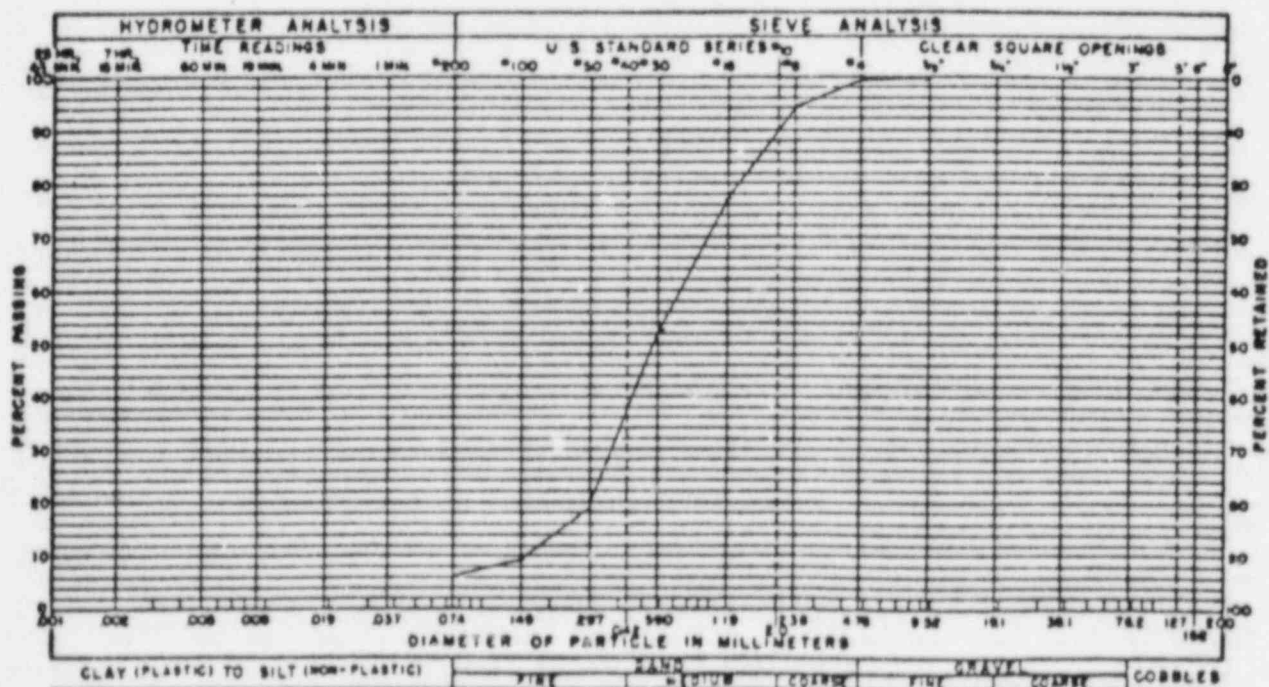
Consulting Soil and Foundation Engineers



GRAVEL 1% SAND 76% SILT AND CLAY 23%

LIQUID LIMIT 36% PLASTICITY INDEX 12%

SAMPLE OF Sandstone Bedrock FROM Hole N-2 at depth 4'-0"



GRAVEL 1% SAND 93% SILT AND CLAY 6%

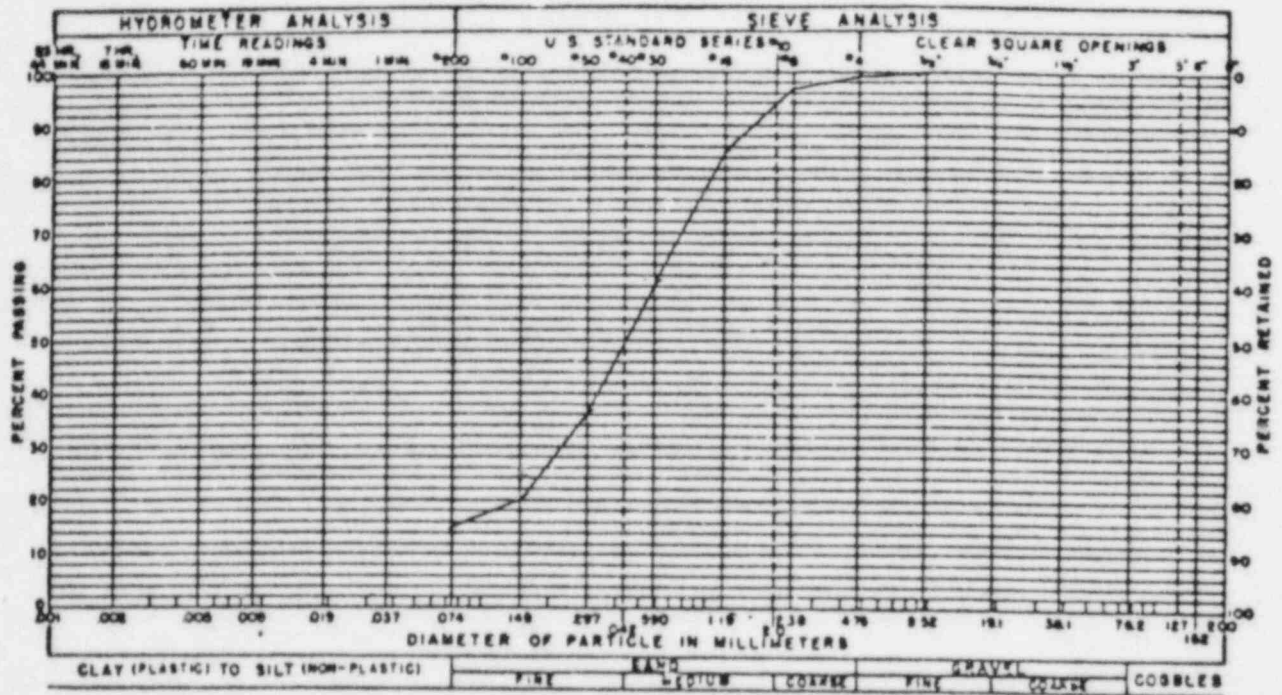
LIQUID LIMIT % PLASTICITY INDEX NP%

SAMPLE OF Sandstone Bedrock FROM Hole N-2 at depth 19'-0"

GRADATION TEST RESULTS

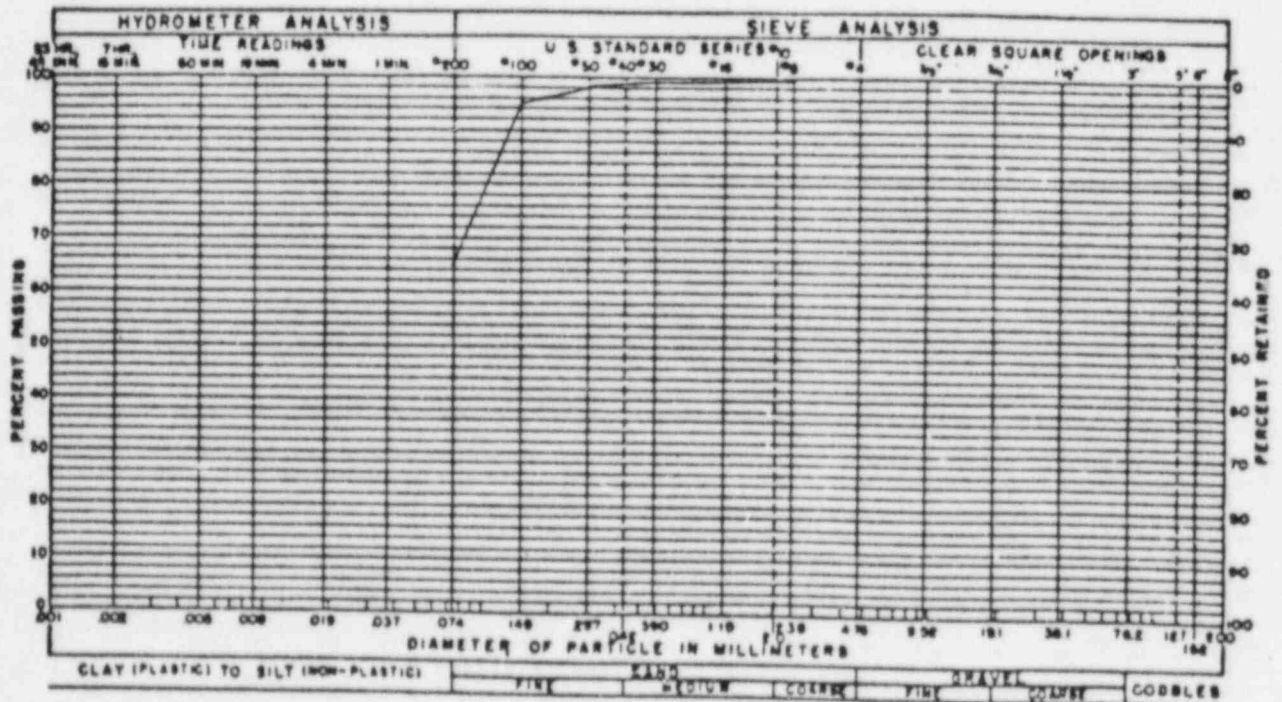
CHEN AND ASSOCIATES

Consulting Soil and Foundation Engineers



GRAVEL 1 % SAND 84 % SILT AND CLAY 15 %
 LIQUID LIMIT 22 % PLASTICITY INDEX NP %

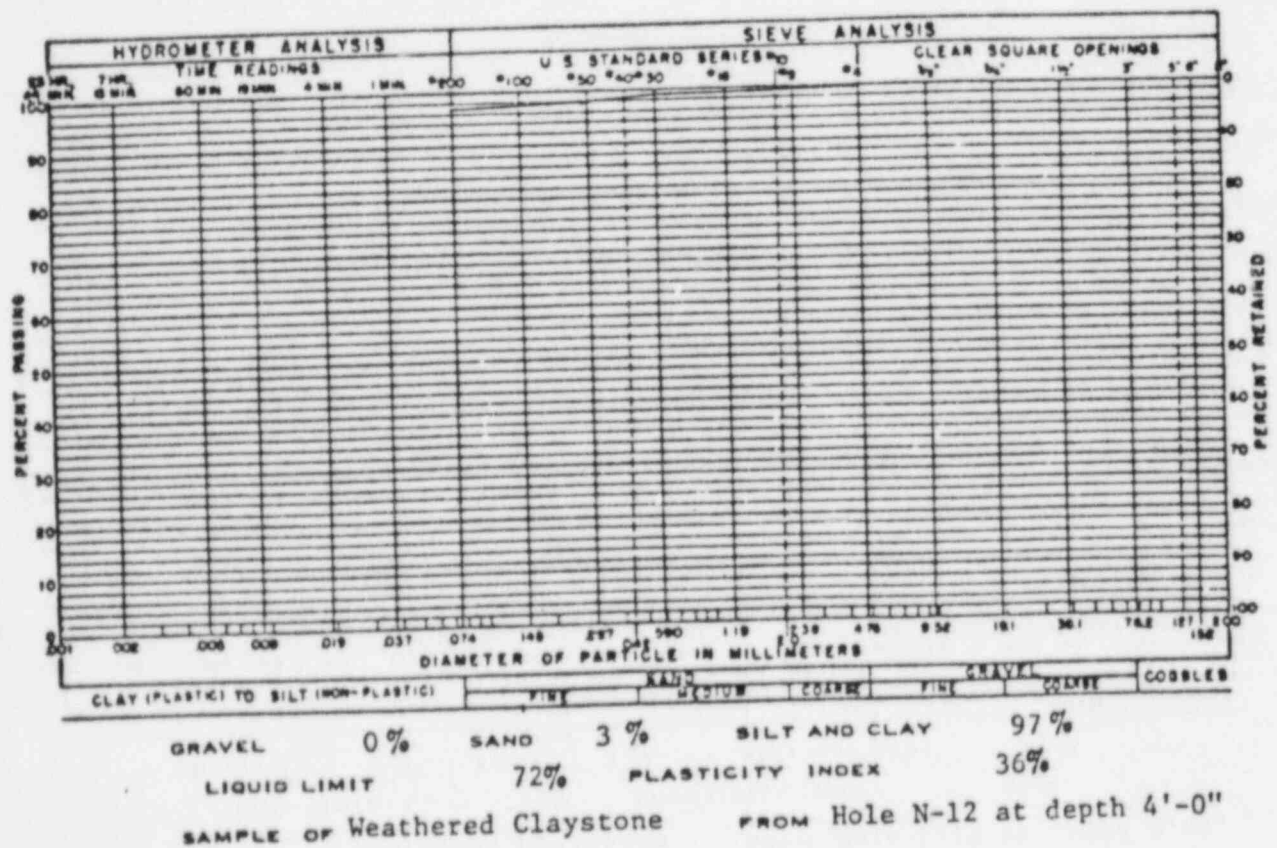
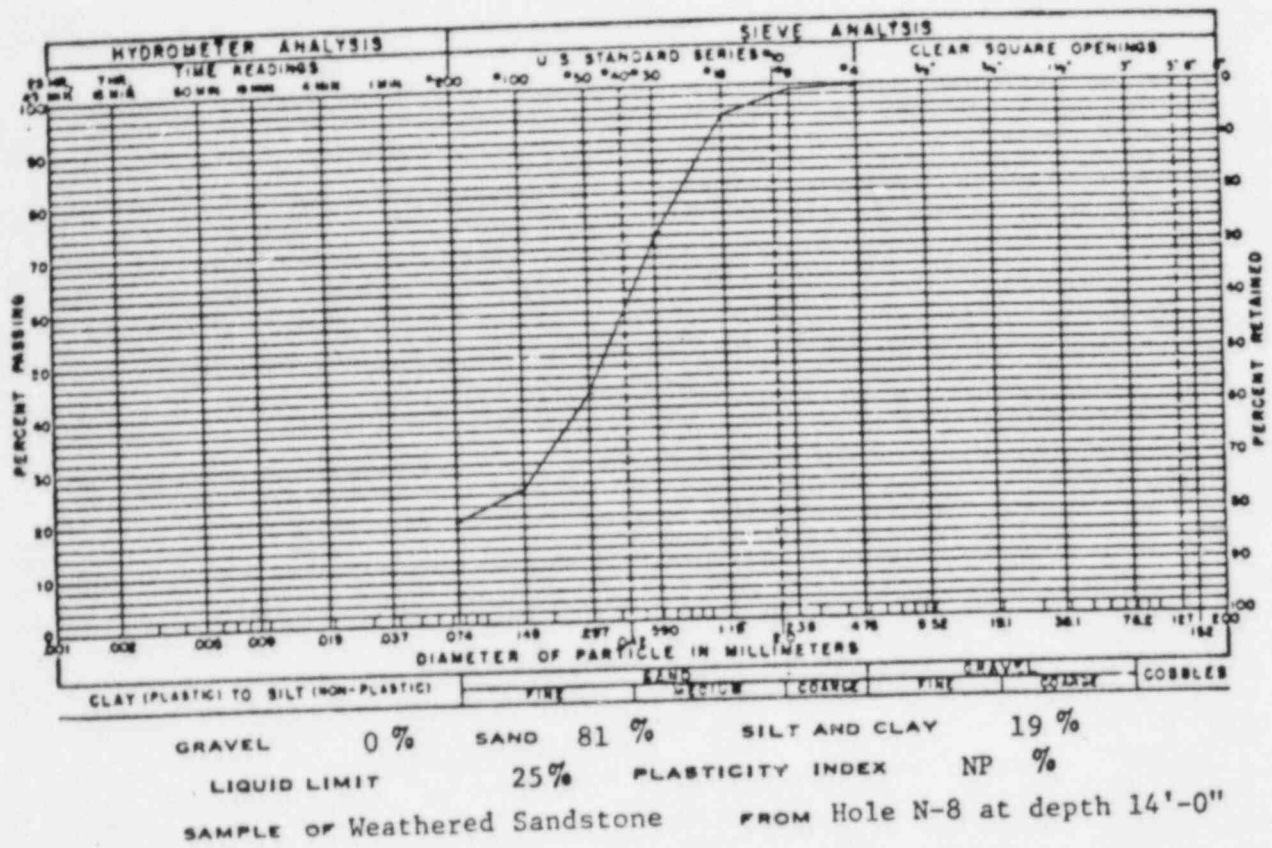
SAMPLE OF Weathered Sandstone FROM Hole N-4 at depth 9'-0"



GRAVEL 0 % SAND 35 % SILT AND CLAY 65 %
 LIQUID LIMIT 30 % PLASTICITY INDEX 9 %

SAMPLE OF Weathered Claystone-Sandstone FROM Hole N-8 at depth 4'-0"

GRADATION TEST RESULTS



GRADATION TEST RESULTS

CHEN AND ASSOCIATES.

Consulting Engineers
Soil and Foundation Engineering

