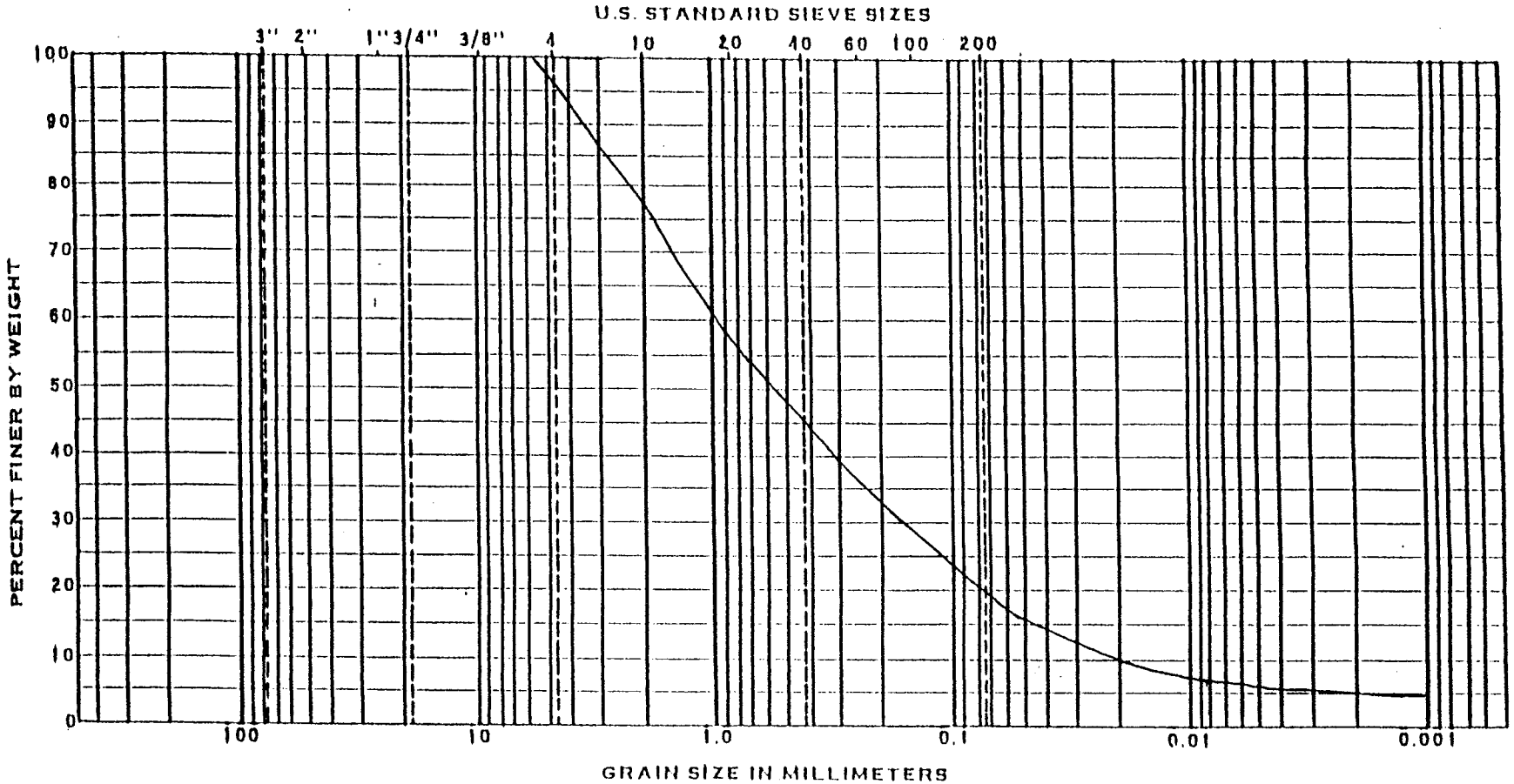
APPENDIX H

GEOTECHNICAL ANALYSIS RESULTS AND GRANULAR FILTER PACK APPROVAL REQUEST

GEOTECHNICAL ANALYSIS RESULTS

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS



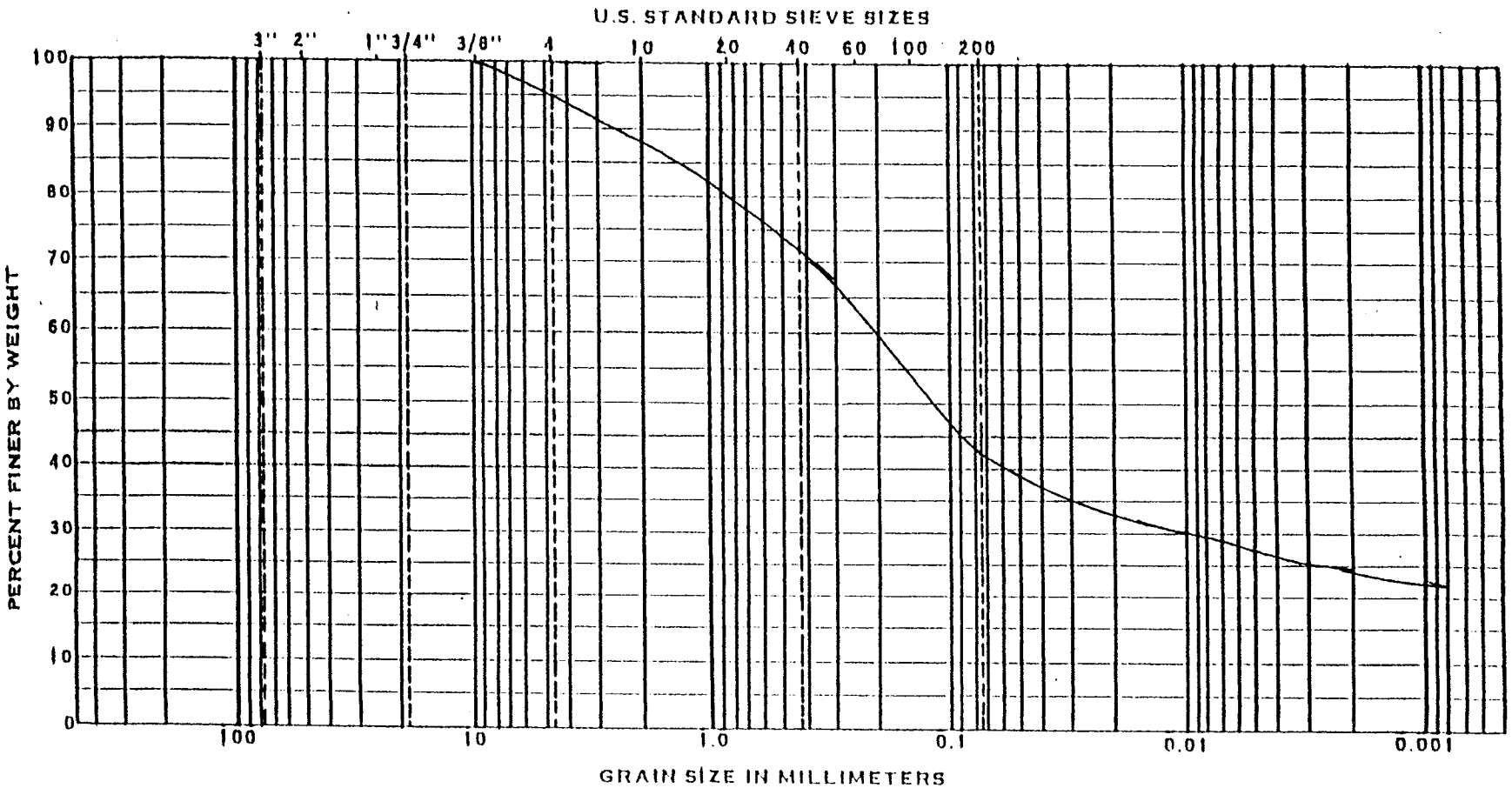
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
LF 2 MW 1-3	10-12	14.0	28	24	4	Silty SAND, Brown. (SM)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

CGC CHATTANOOGA GEOTECHNICAL CONSULTANTS



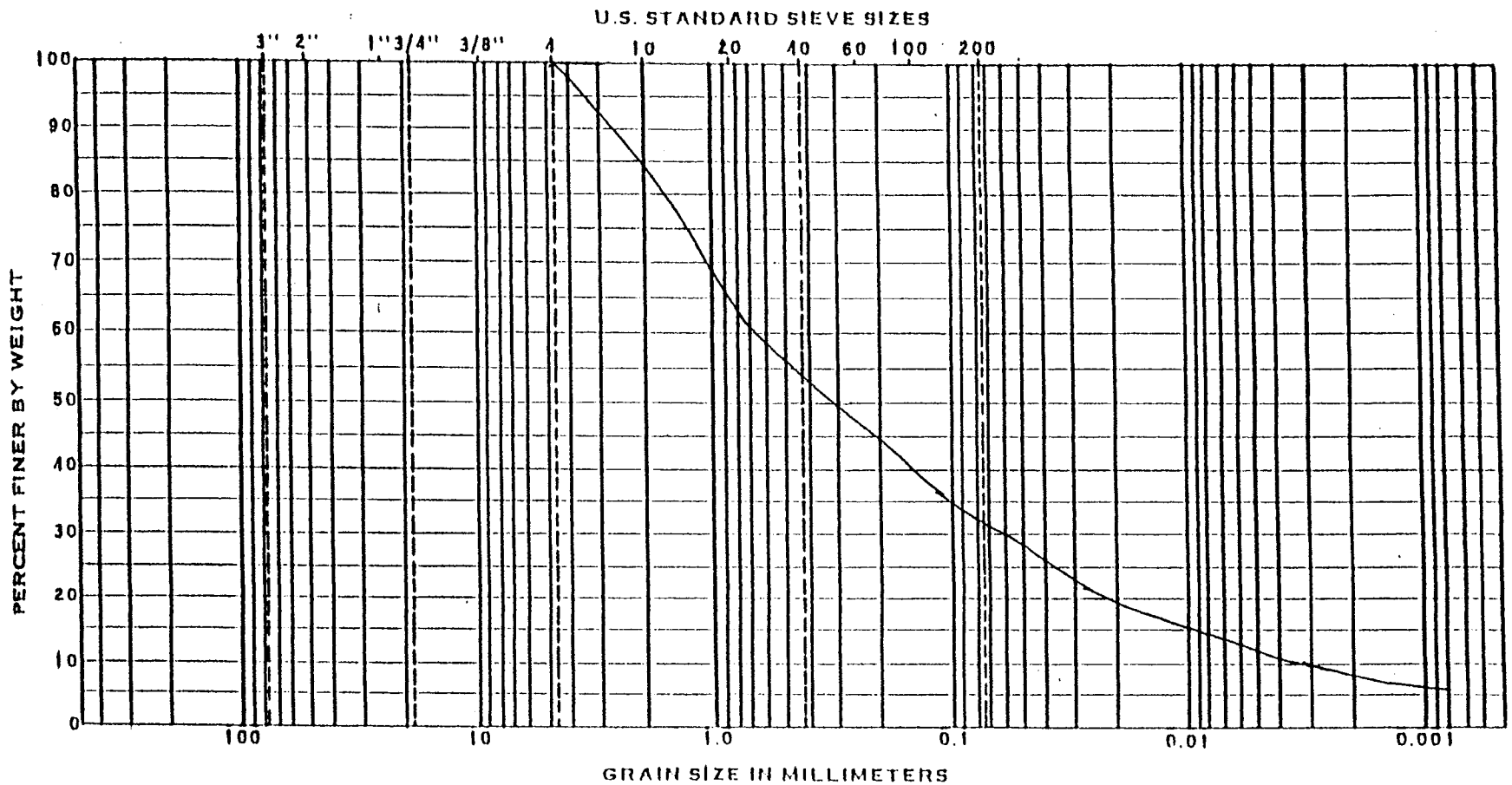
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
LF 2 MW 2-1	0-2	18	25	19	6	Sandy SILT, Brown, Some Clay. (ML)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: E E I
Date: 6-10-92

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS



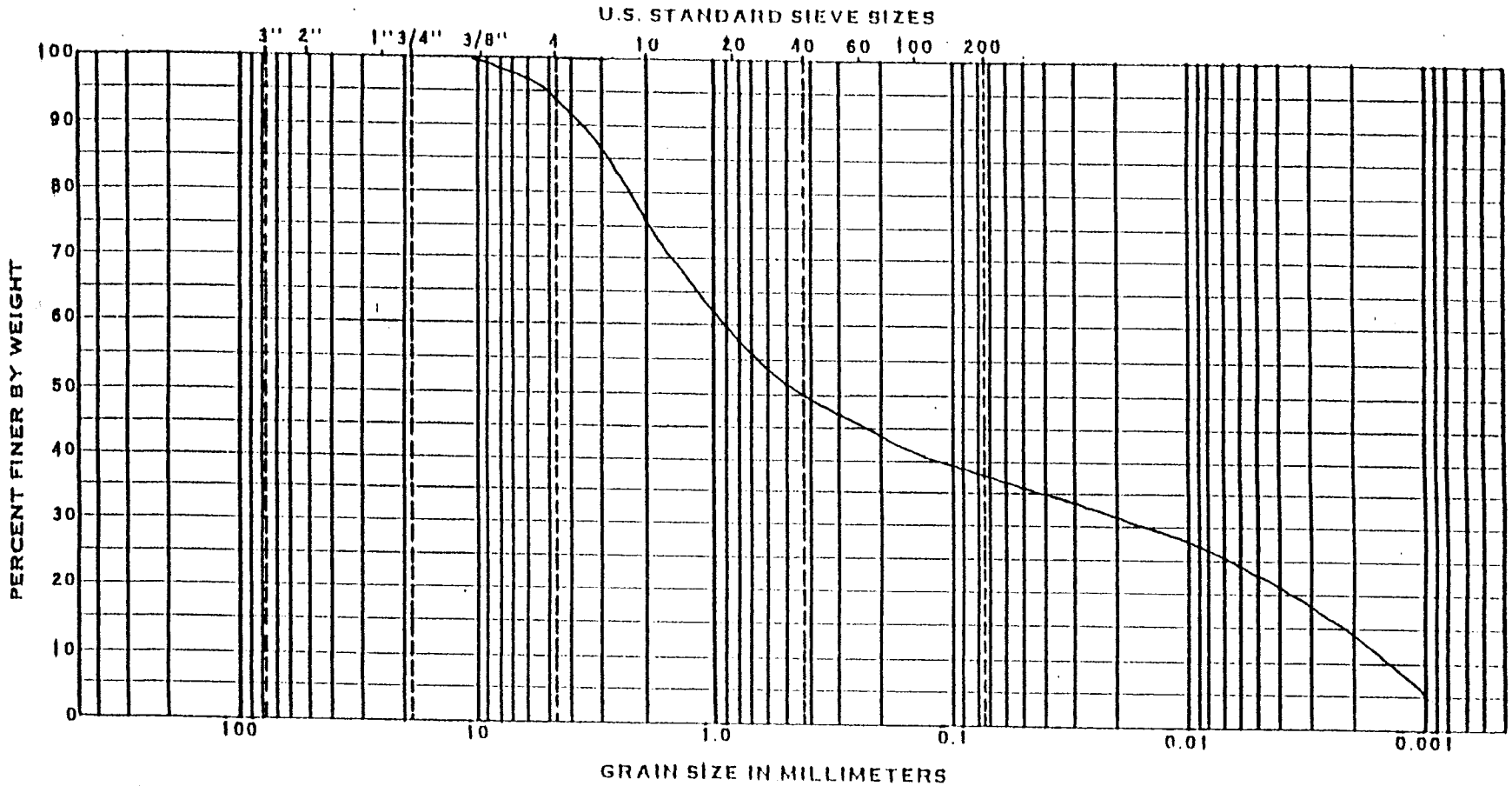
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
LF 2 MW 3-2	5-7	15	29	24	5	Silty SAND, Brown, Trace Clay. (SM)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS



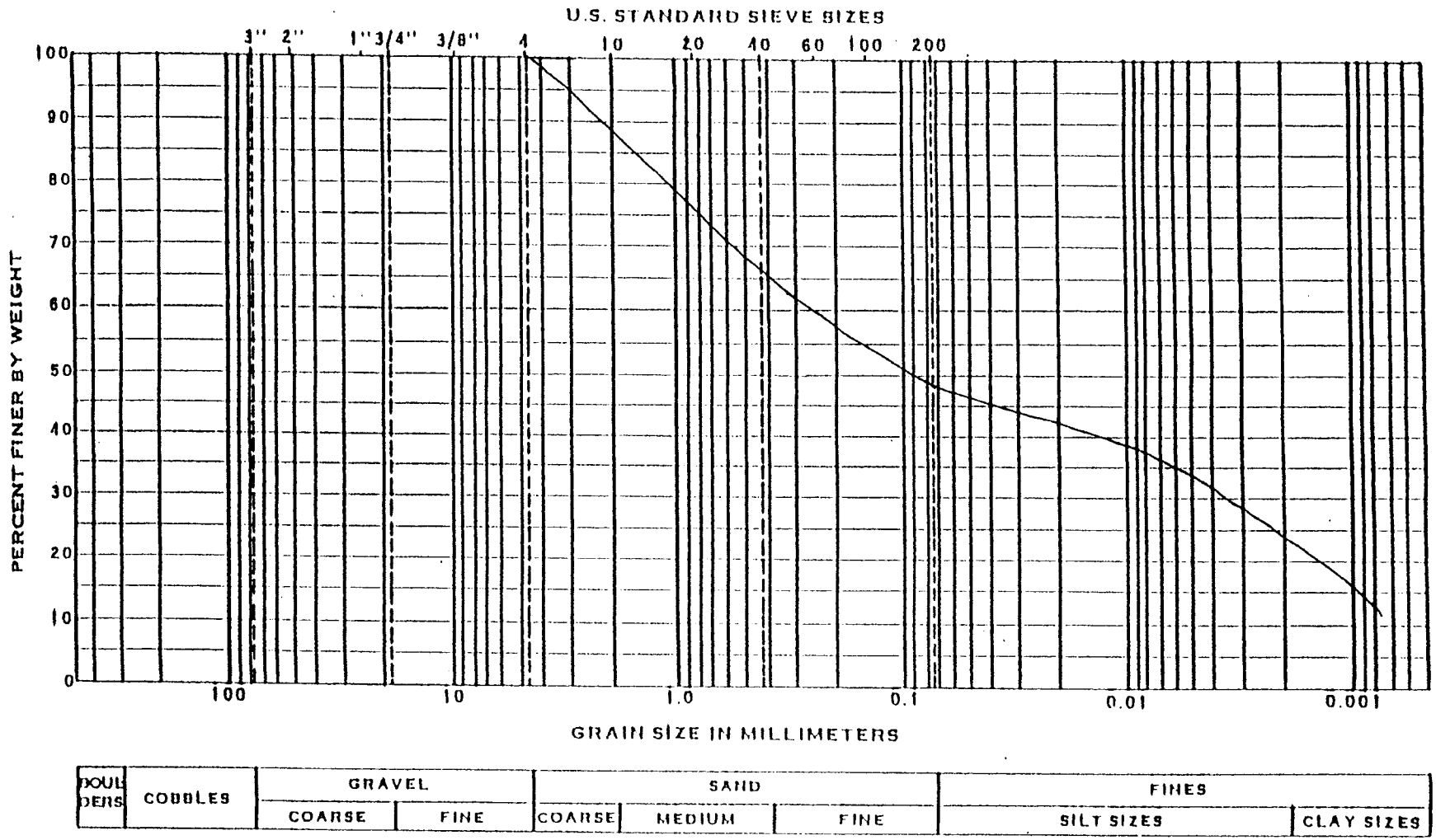
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
LF 2 MW 3-3	7.5-9.5	16	22	14	8	Silty SAND, Brown, Some Clay. (SC)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft.McCellan
Project #: 92-234,17
Client: EEI
Date: 6-10-92

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS

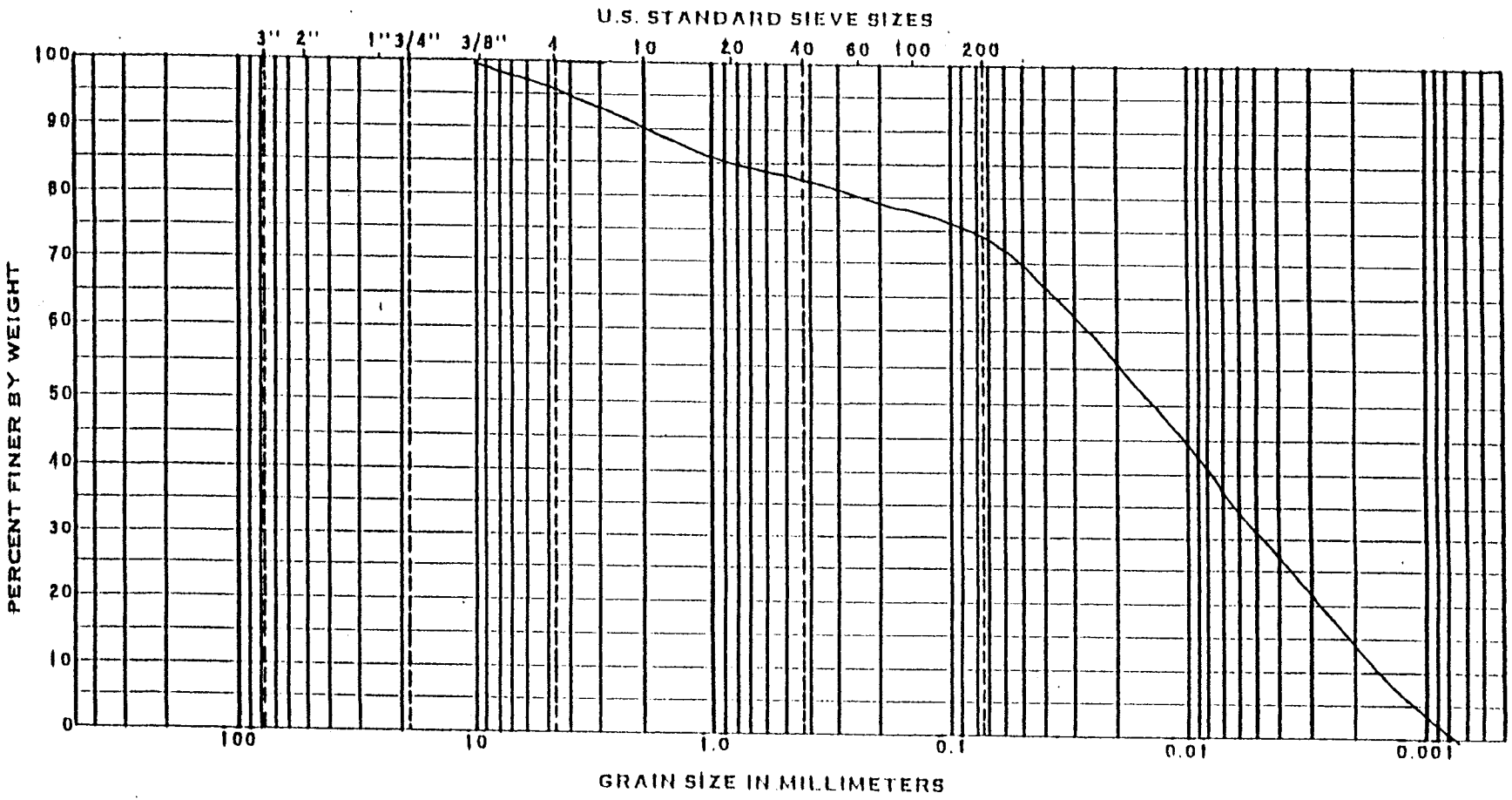


BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
OLF 6-4	15-17	25	41	31	10	Silty SAND, Red Brown, Some Clay. (SM)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS



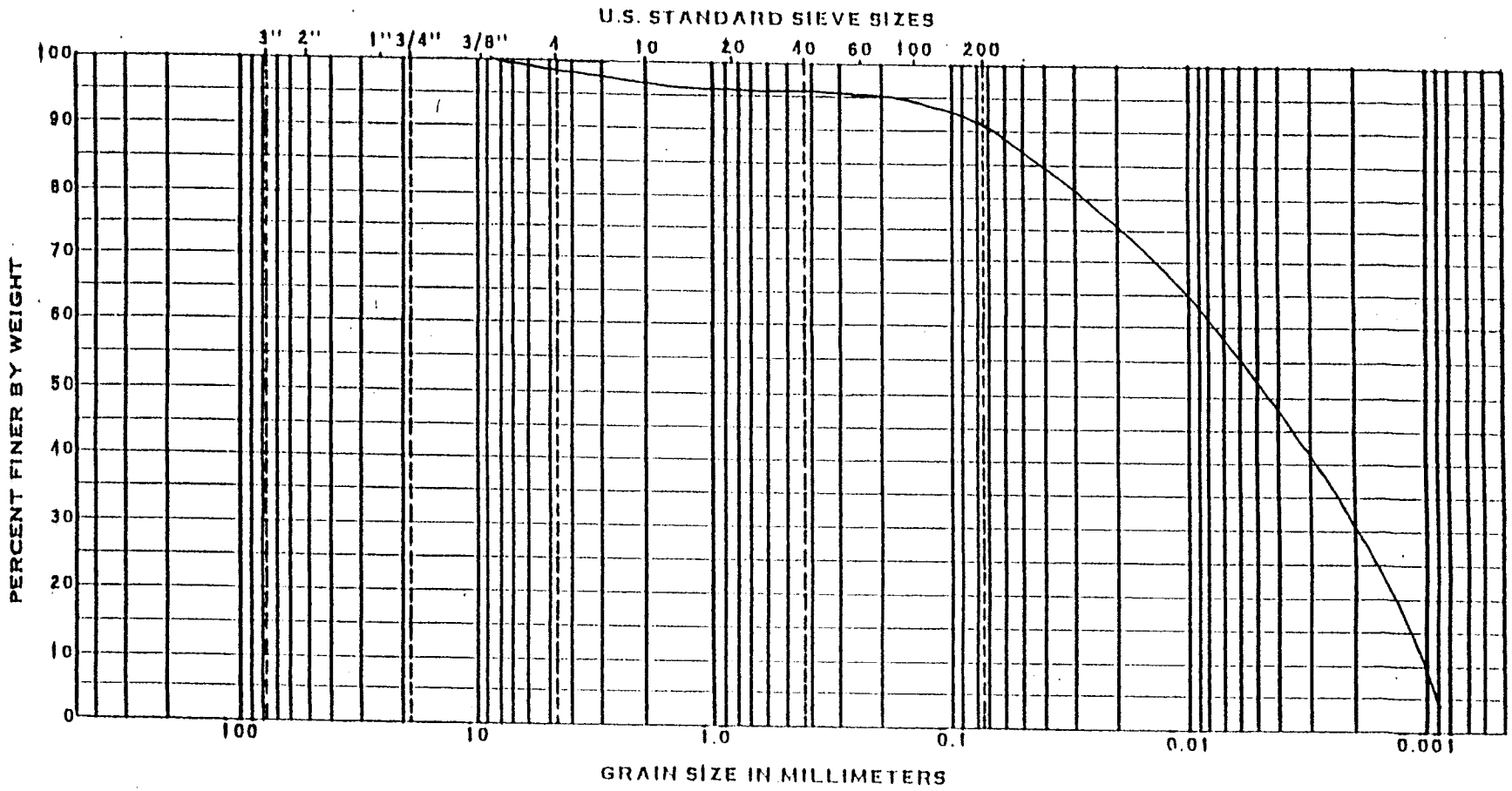
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
OLF 6-8	35-37	26	42	32	10	Clayey SILT, Yellow Brown, Some Sand. (ML)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS



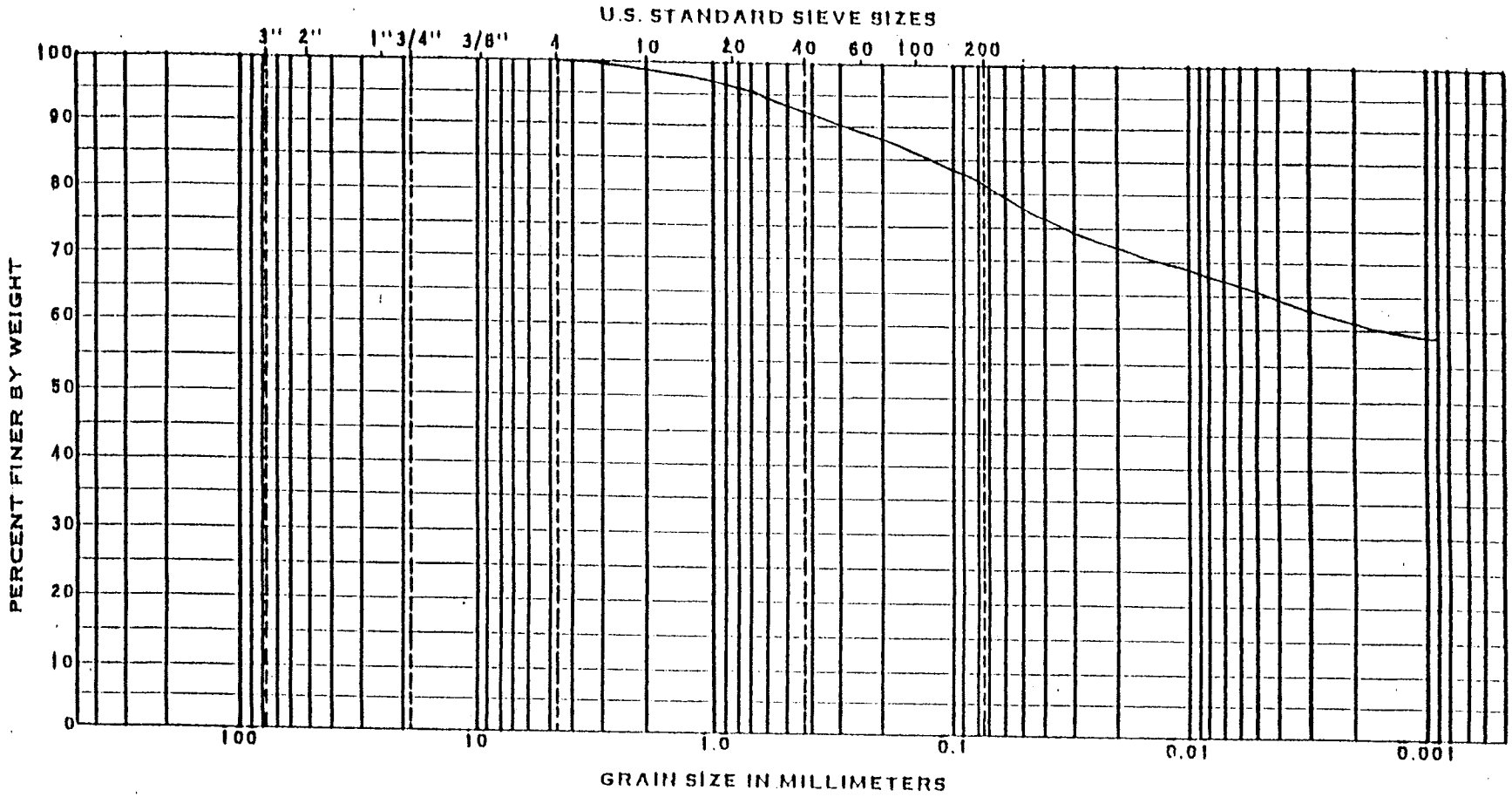
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
OLF 7-10	22.5-24.5	18	31	28	4	Clayey SILT, Red Brown, Trace Sand. (ML)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS



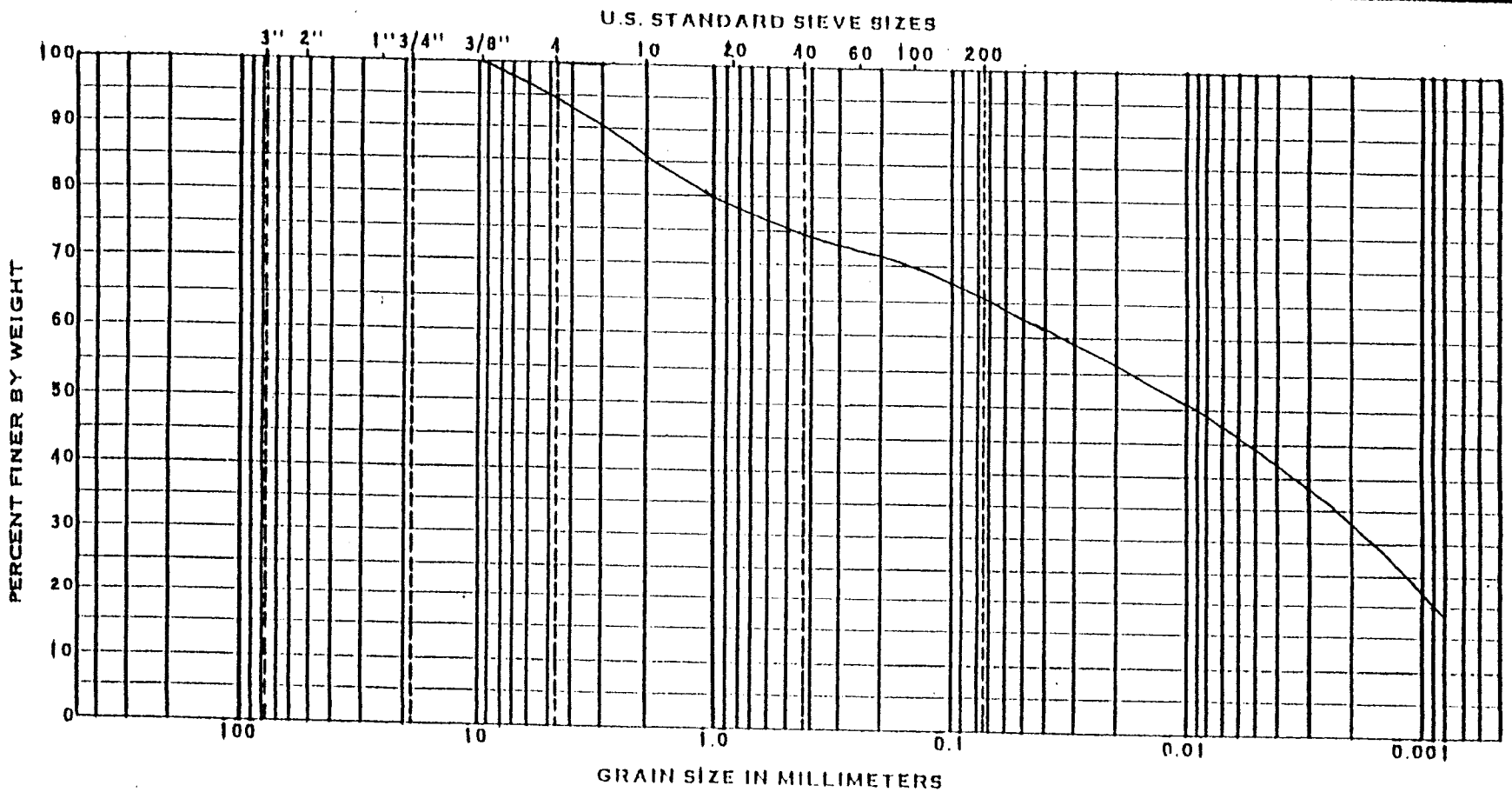
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
OLF 8-2	10-12	39	63	27	36	Silty CLAY, Red Brown, Trace Sand.(CH)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft, McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

CGC CHATTANOOGA GEOTECHNICAL CONSULTANTS



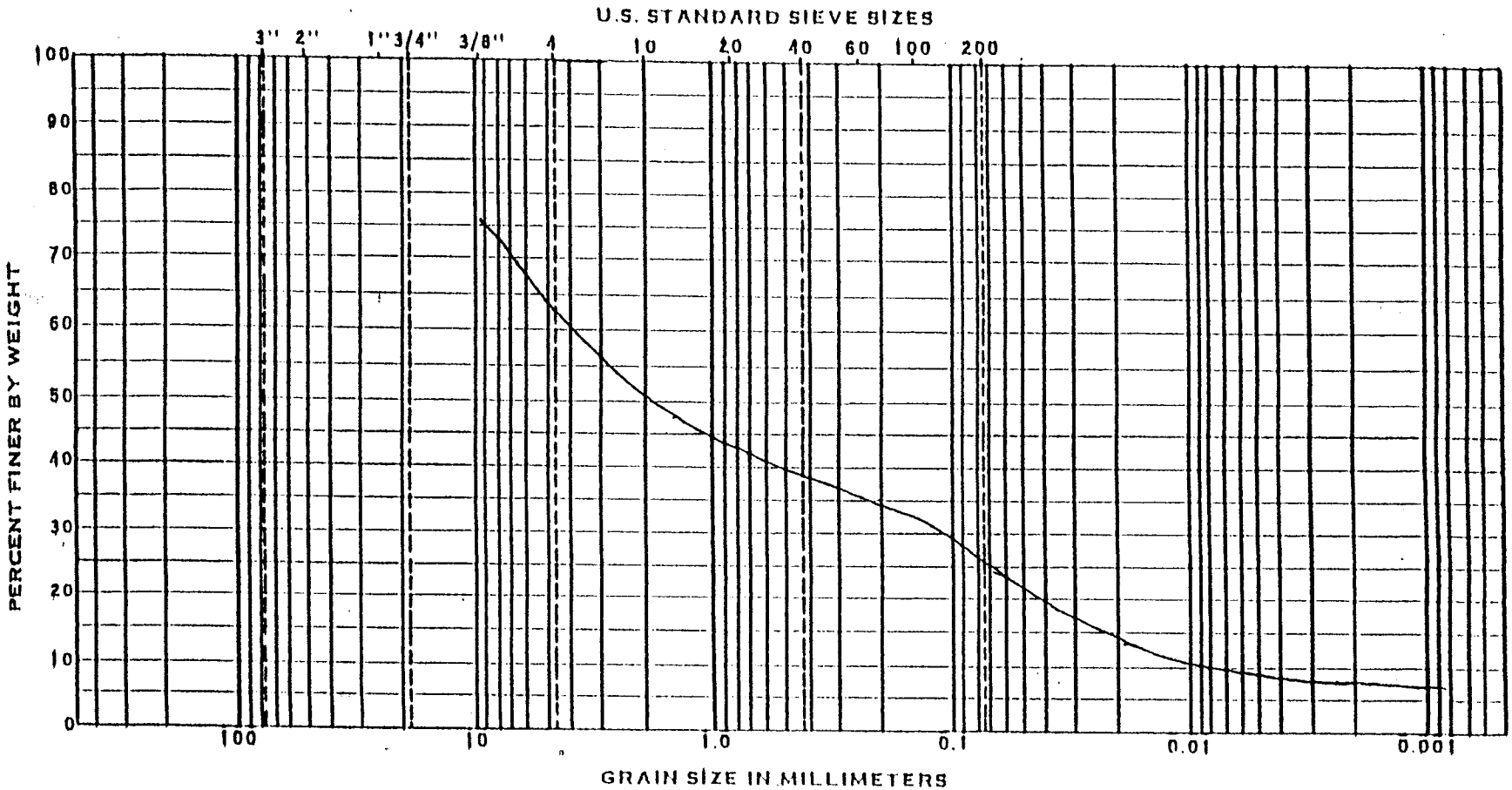
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
OLF 8-3	15-17	34	45	33	12	Clayey SILT, Brown, Some Sand. (ML)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS



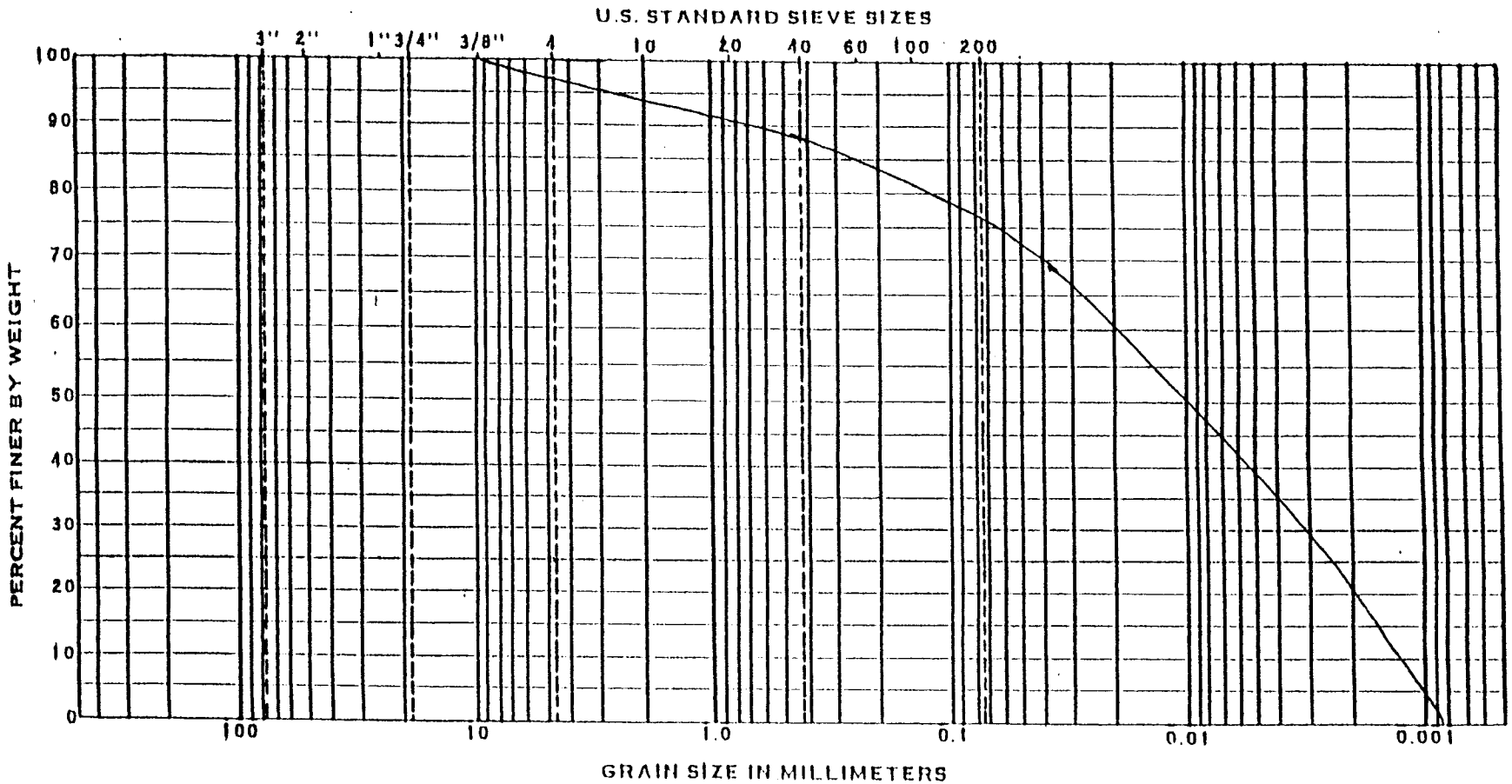
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
OLF 8-6	30-32	23.5	-	-	-	Sandy GRAVEL, Brown, Some Silt and Clay. (GM-GC) Note: Insufficient material for Atterberg Limits

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS



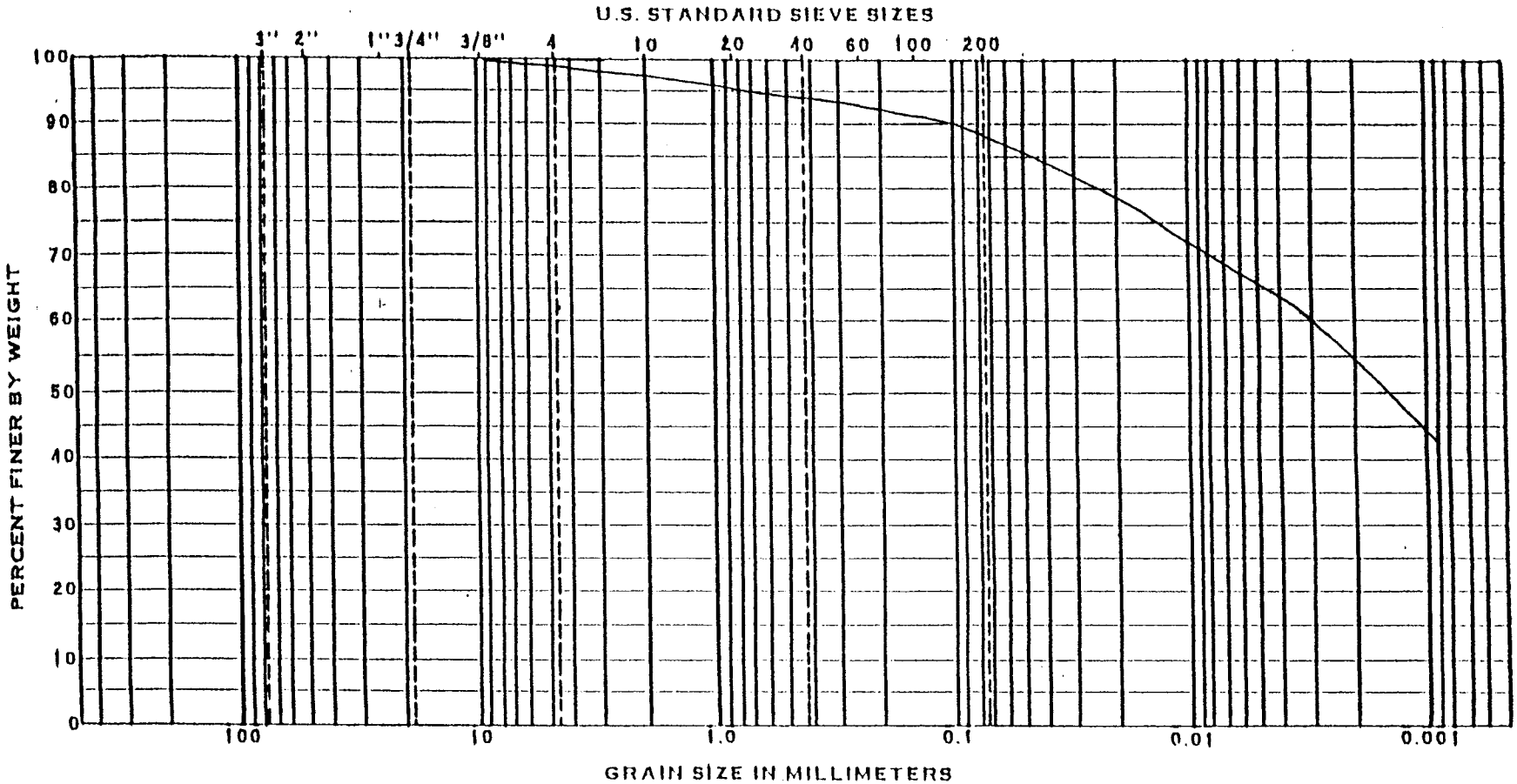
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
OLF 9-4	15-17	42	46	38	8	Sandy SILT, Yellow Red, Trace to Some Clay. (ML)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS



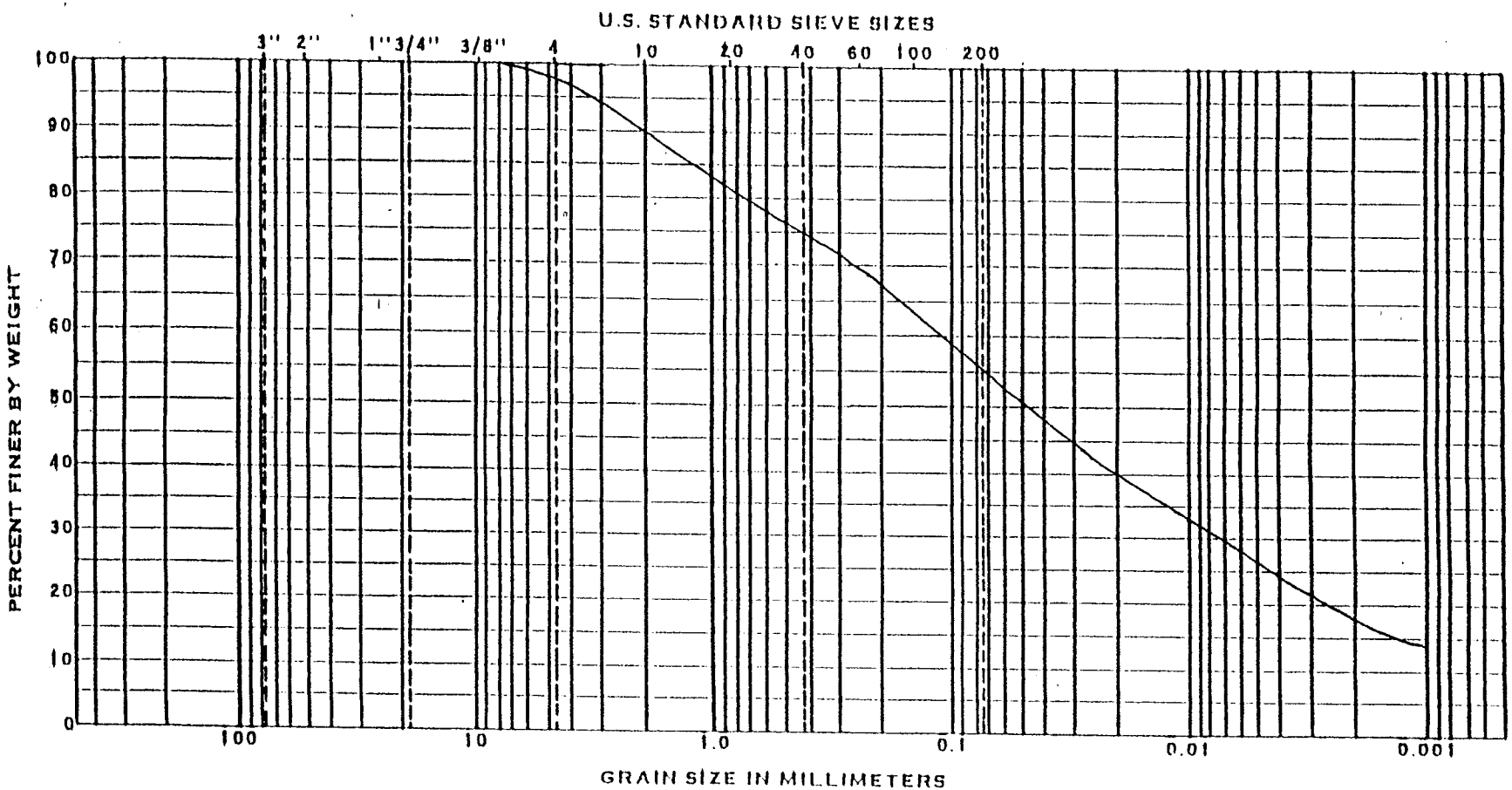
BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
OLF 10-3	10-12.5	42	54	31	23	Silty CLAY, Yellow Red, Trace Sand. (CH)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

CGC CHATTAHOOCHEE GEOTECHNICAL CONSULTANTS



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	ELEV. OR DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
OLF 10-6	20-22	15	36	26	10	Clayey Silty SAND, Yellow Brown. (SM,SC)

GRAIN SIZE DISTRIBUTION

Project: SAIC Ft. McCellan
Project #: 92-234.17
Client: EEI
Date: 6-10-92

GRANULAR FILTER PACK APPROVAL REQUEST

GRANULAR FILTER PACK APPROVAL REQUEST

Army Installation for Intended Use: Fort McClellan, AL

1. **Filter Material Brand Name:** # 1 · WELL GRAVEL
2. **Lithology:** SAND
3. **Grain Size Distribution:** ATTACHED
4. **Source:**

   Company that made product: MORIE CO.

   Location of pit/quarry of origin: Georgia
5. **Processing Method:** WASHED / Sieved
6. **Slot Size of Intended Screen:** # 10

Submitted by:

Company: SAIC

Person: Christopher Manikos

Telephone: (703) 827-4832

Date: 4-9-92

USATHAMA APPROVAL/DISAPPROVAL: (check one)

Project Officer Name/Date:	A	D
Project Geologist Name/Date:	A	D

Laboratory Report

04. 07. 92 10:19 AM *MORIE CO/GA SILICA P01

CUSTOMER: ENVIRONMENTAL EXPLORATIOI
P.O. NUM:
GRADE: I #1 WELL GRAVEL
DATE: 04-07-1992
L.C. NO: 1182-92

U.S. STANDARD

SIEVE	CUM %	% RET	% PASS
4	8:8	8:8	100:8
8	0.0	0.0	100.0
10	0.0	0.0	100.0
12	3.8	3.8	96.2
14	17.5	13.7	82.5
16	37.4	19.9	62.6
18	81.2	43.8	18.8
20	94.7	13.5	5.3
25	99.2	4.5	0.8
30	99.8	0.6	0.2
35	99.9	0.1	0.1
40	100.0	0.1	0.0
50	100.0	0.0	0.0
70	100.0	0.0	0.0
PAN	100.0	0.0	0.0

EFFECTIVE SIZE MM 0.896
UNIFORMITY CO-EFF 1.316
NOTES:

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 3

To Ben Keeler	From Linda
Co. Env. Explor.	Co. Morie
Dept.	Phone # 404-269-3294
Fax # 404-389-0625	Fax # 404-269-3191

WATER APPROVAL REQUEST

Army Installation for Intended Use:

1. **Water source:** Fort McClellan / Pelham Range
   Owner: Fort McClellan, AL (U.S. Army)

   Address: Fort McClellan, Anniston, AL

   Telephone Number: 1-205-848-3758 (Bldg 3270) Base Environmental Office

2. **Water tap location:** Bldg 1298 (Main Post) / Bldg 8802 (Pelham Range)
   Operator: Fort McClellan, Alabama
   Address: Anniston, AL

3. **Type of source:** SURFACE / TAP

   Aquifer: UNKNOWN

   Well depth: UNKNOWN

   Static water level from ground surface: UNKNOWN

   Date measured: N/A

4. **Type of treatment prior to tap:** Bldg 1298 (chlorinated)
   Bldg 8802 (sampled prior to chlorination)

5. **Type of access:** Bldg 1298 (hose)
   Bldg 8802 (tap)

6. **Cost per gallon charged by Owner/Operator:** $0.00

7. Attach results and dates of chemical analyses for past two years. Include name(s) and address(s) of analytical laboratory(s). Sources sampled as per SOW. Data in IRDIMIS

8. Attach results and dates of duplicate chemical analyses for project analytes by the laboratory certified by, or in the process of being certified by, USATHAMA for those analytes.

N/A

SUBMITTED BY:

Company: SAIC

Person: Christopher S. Manikas

Telephone Number: (703) 827-4832

Date: 4-9-92

USATHAMA APPROVAL/DISAPPROVAL: (check one)

Project Officer:	A	D
Project Geologist/Date:	A	D
Project Chemist/Date:	A	D

BENTONITE APPROVAL REQUEST

Army Installation for Intended Use: Fort McClellan, AL

1. **Bentonite Brand Name:** Enviroplug (granular) and Naturalgel (powder)

2. **Bentonite Manufacturer:** WYO-BEN, Inc.

3. **Manufacturer's Address and Telephone Number:** P.O. Box 1979
Billings, MT 59103
(406) 652-6351

4. **Product Description (from package label or attach brochure):**
ATTACHED

5. **Intended Use:** Mix w/ cement for grout and granular pellets for bentonite seals.

SUBMITTED BY:

Company: SAIC

Person: Christopher S. Manikas

Telephone: (703) 827-4832

Date: 4-9-92

USATHAMA APPROVAL/DISAPPROVAL: (check one)

Project Officer/Date: A D

Project Geologist/Date: A D

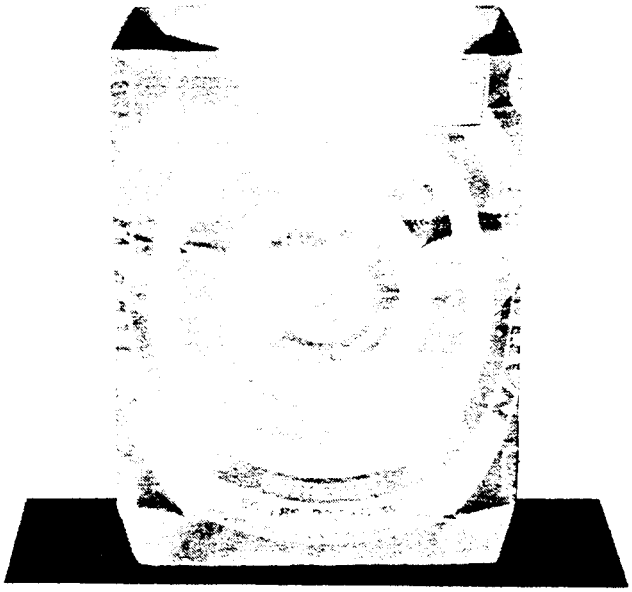
NATURALGEL®

NATIONAL SANITATION FOUNDATION NSF®

NATURALGEL®

ALL NATURAL

For use in drilling operations where **unaltered** high quality sodium bentonite is desirable. Ideal for drilling water monitor wells where additives may affect chemical analysis.



- 200 mesh viscosity builder.
- Meets or exceeds API 13A Sec. 5
- Naturally enhances fluid loss characteristics.
- Aids in bore hole stabilization.
- Has no chemical additives to influence water analysis.
- pH of 9.1 ± .1

TYPICAL CHEMICAL ANALYSIS

	%		%
SiO_2	61.4	TiO_2	.2
Al_2O_3	18.1	K_2O	.1
Fe_2O_3	3.5	Other	.07
Na_2O	2.3	H_2O	7.8
MgO	1.7	L.O.I.	4.4
CaO	.4		

Note: Expression of elements as oxides results from standard chemical analysis method. Elements are not present in bentonite as oxides.

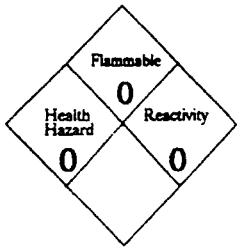
- Mix 20 to 50 pounds per 100 gallons of make-up water.
- Allow extra circulation time before drilling to insure proper hydration of NATURALGEL®.
- Packaged in 50 pound or 100 pound multi-walled paper bags.

* NATURALGEL is a registered trademark of Wyo-Ben Inc.

Wyo-Ben® WYO-BEN, INC. P.O. Box 1979 (406) 652-6351 Billings, Montana 59103

WYO-BEN, INC.

MATERIAL SAFETY DATA SHEET



NFPA FIRE HAZARD IDENTIFICATION SYSTEM

I. PRODUCT IDENTIFICATION

Trade Name(s): NATURALGEL®

Generic Name(s): Wyoming (Western) Bentonite (CAS No. 1302-78-9)

Chemical Name(s): Sodium Montmorillonite (CAS No. 1318-93-0)

Manufacturer: WYO-BEN, INC.
Address: P.O. Box 1979
Billings, Montana 59103

Telephone Numbers:
Information: (406) 652-6351
EMERGENCY: (406) 652-6351

II. HAZARDOUS INGREDIENTS

Ingredient	CAS No.	%	Hazard
Crystalline Silica (SiO_2)	7631-86-9		Low concentrations of crystalline silica (SiO_2) in the form of quartz, crystobalite, and tridymite may be present in airborne bentonite dust. The concentration level of total free silica in airborne bentonite dust is variable depending upon origin of bentonite ore, fineness of product, moisture content of product, local humidity and wind conditions, etc. (See Section VI)

III. PHYSICAL DATA

Boiling Point (°F): NA	Specific Gravity (H_2O=1): 2.45-2.55
Vapor Pressure (mm. Hg): NA	Melting Point: Approx. 1450°C
Vapor Density (Air = 1): NA	Evaporation Rate (Butyl Acetate = 1): NA
Solubility in Water: Insoluble, forms colloidal suspension.	pH: 8-10 (5% aqueous suspension)
Density (at 20° C): 55 lbs./cu.ft. as product.	

Appearance and Odor: Bluegray to green as moist solid, light tan to gray as dry powder. No odor.

IV. FIRE AND EXPLOSION DATA

Flash Point: NA	Flammable Limits: LEL: NA UEL: NA

Special Fire Fighting Procedures: NA

Unusual Fire and Explosion Hazards: None. Product will not support combustion.

Extinguishing Media: None for product. Any media can be used for the packaging.

V. REACTIVITY

Stability: Stable

Hazardous Polymerization: None

Incompatibility: None

Hazardous Decomposition Products: None

NA = Not Applicable ND = Not Determined

Date Prepared: March 9, 1990

VI. HEALTH HAZARD INFORMATION

Routes of Exposure and Effects:

Skin: Possible drying resulting in dermatitis.

Eyes: Mechanical irritant.

Inhalation: Acute (short term) exposure to dust levels exceeding the PEL may cause irritation of respiratory tract resulting in a dry cough.

Chronic (long term) exposure to free silica containing airborne bentonite dust where levels are higher than TLV's may lead to development of silicosis or other respiratory problems. Persistent dry cough and labored breathing upon exertion are symptomatic.

Ingestion: No adverse effects.

Permissible Exposure Limits: (for air contaminants)	OSHA PEL (8hr. TWA)	ACGIH TLV
Bentonite as nuisance dust		
Total dust	$15 mg/m^3$	ND
Respirable dust	$5 mg/m^3$	ND
Crystalline Quartz (respirable)	$0.1 mg/m^3$	$0.1 mg/m^3$

Where crystobalite or tridymite are present use 1/2 of the PEL or TLV value for crystalline quartz.

Carcinogenicity: Bentonite is not listed by NTP, IARC or OSHA. IARC, 1987, concludes that there is limited evidence suggesting the carcinogenicity in humans of inhaled crystalline silica (IARC Class 2A).

Acute Oral LD_{50}: ND	Acute Dermal LD_{50}: ND	Aquatic Toxicology LC_{50}: ND

Emergency and First Aid Procedures:

Skin: Wash with soap and water until clean.

Eyes: Flush with water until irritation ceases.

Inhalation: Move to area free from dust. If symptoms of irritation persist contact physician. Inhalation may aggravate existing respiratory illness.

VII. HANDLING AND USE PRECAUTIONS

Steps to be Taken if Material is Released or Spilled: Avoid breathing dust; wear respirator approved for silica bearing dust. Vacuum up to avoid generating airborne dust. Avoid using water. Product slippery when wetted.

Waste Disposal Methods: Product should be disposed of in accordance with applicable local, state and federal regulations.

Handling and Storage Precautions: Use NIOSH/MSHA respirators approved for silica bearing dust when free silica containing airborne bentonite dust levels exceed PEL/TLV's. Clean up spills promptly to avoid making dust. Storage area floors may become slippery if wetted.

VIII. INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements: Mechanical, general room ventilation. Use local ventilation to maintain PEL's/TLV's.

Respirator: Use respirators approved by NIOSH/MSHA for silica bearing dust.

Eye Protection: Generally not necessary. Personal preference.

Gloves: Generally not necessary. Personal preference.

Other Protective Clothing or Equipment: None

IX. SPECIAL PRECAUTIONS

Avoid prolonged inhalation of airborne dust.

DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping Name: Common Ground Clay (NOIBN)	Hazard Class: Not Hazardous

Hazardous Substance: None

Cautionary Labeling: None required

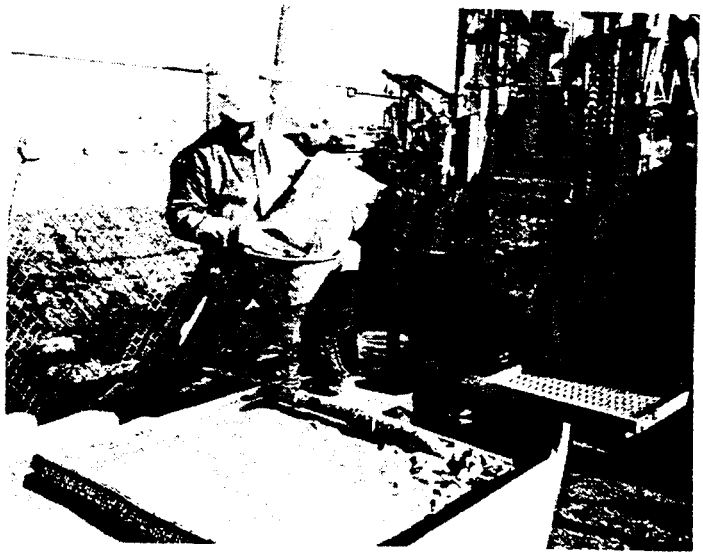
All information presented herein is believed to be accurate, however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances. No warranty or guarantee, expressed or implied is made by WYO-BEN, INC. as to this information, or as to the safety, toxicity or effect of the use of this product.

EXTRA HIGH YIELD GEL

EXTRA HIGH YIELD GEL is a premium grade beneficiated Wyoming Bentonite designed for use in mineral exploration, water well, and seismic drilling operations. In field applications it has been successful in reducing the amount of bentonite needed to effectively carry drilled solids from the bore hole.

- High yielding bentonite viscosifier: 220 barrel yield.
- Mixes rapidly for fast hydration.
- Carries cuttings in mud with lower solids content.
- Enhances fluid loss characteristics; reduces seeping into permeable formations.
- Assists in bore hole stabilization.
- Helps eliminate loss circulation conditions.

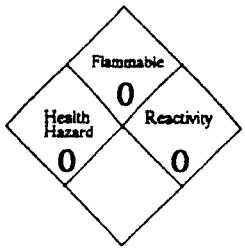
- **Mix 15 to 25 pounds per 100 gallons of make-up water.**
- **Increase to 20 to 40 pounds per 100 gallons in areas of unstable formations.**
- **Packaged in 50 pound multi-walled paper bags.**



WYO-BEN. WYO-BEN. INC. P.O. Box 1979 (406) 652-6351 Billings, Montana 59103

WYO-BEN, INC.

MATERIAL SAFETY DATA SHEET



NFPA FIRE HAZARD IDENTIFICATION SYSTEM

I. PRODUCT IDENTIFICATION

Trade Name(s): EXTRA HIGH YIELD BENTONITE

Generic Name(s): Wyoming (Western) Bentonite (CAS No. 1302-78-9)

Chemical Name(s): Sodium Montmorillonite (CAS No. 1318-93-0)

Manufacturer: WYO-BEN, INC. Address: P.O. Box 1979 Billings, Montana 59103	Telephone Numbers: Information: (406) 652-6351 EMERGENCY: (406) 652-6351

II. HAZARDOUS INGREDIENTS

Ingredient	CAS No.	%	Hazard
Crystalline Silica (SiO_2)	7631-86-9		Low concentrations of crystalline silica (SiO_2) in the form of quartz, crystobalite, and tridymite may be present in airborne bentonite dust. The concentration level of total free silica in airborne bentonite dust is variable depending upon origin of bentonite ore, fineness of product, moisture content of product, local humidity and wind conditions, etc. (See Section VI)

III. PHYSICAL DATA

Boiling Point (°F): NA	Specific Gravity (H_2O=1): 2.45-2.55
Vapor Pressure (mm. Hg): NA	Melting Point: Approx. 1450°C
Vapor Density (Air = 1): NA	Evaporation Rate (Butyl Acetate = 1): NA
Solubility in Water: Insoluble, forms colloidal suspension.	pH: 8-10 (5% aqueous suspension)
Density (at 20° C): 55 lbs/cu.ft. as product.	

Appearance and Odor: Bluegray to green as moist solid, light tan to gray as dry powder. No odor.

IV. FIRE AND EXPLOSION DATA

Flash Point: NA	Flammable Limits: LEL: NA UEL: NA

Special Fire Fighting Procedures: NA

Unusual Fire and Explosion Hazards: None. Product will not support combustion.

Extinguishing Media: None for product. Any media can be used for the packaging.

V. REACTIVITY

Stability: Stable

Hazardous Polymerization: None

Incompatibility: None

Hazardous Decomposition Products: None

NA = Not Applicable ND = Not Determined

Date Prepared: March 9, 1990

Routes of Exposure and Effects:

Skin: Possible drying resulting in dermatitis.

Eyes: Mechanical irritant.

Inhalation: Acute (short term) exposure to dust levels exceeding the PEL may cause irritation of respiratory tract resulting in a dry cough.

Chronic (long term) exposure to free silica containing airborne bentonite dust where levels are higher than TLV's may lead to development of silicosis or other respiratory problems. Persistent dry cough and labored breathing upon exertion are symptomatic.

Ingestion: No adverse effects.

Permissible Exposure Limits:
(for air contaminants)

	OSHA PEL (8hr. TWA)	ACGIH TLV
Bentonite as nuisance dust		
Total dust	$15mg/m^3$	ND
Respirable dust	$5mg/m^3$	ND
Crystalline Quartz (respirable)	$0.1mg/m^3$	$0.1mg/m^3$

Where crystobalite or tridymite are present use 1/2 of the PEL or TLV value for crystalline quartz.

Carcinogenicity: Bentonite is not listed by NTP, IARC or OSHA. IARC, 1987, concludes that there is limited evidence suggesting the carcinogenicity in humans of inhaled crystalline silica (IARC Class 2A).

Acute Oral LD_{50}: ND	Acute Dermal LD_{50}: ND	Aquatic Toxicology LC_{50}: ND

Emergency and First Aid Procedures:

Skin: Wash with soap and water until clean.

Eyes: Flush with water until irritation ceases.

Inhalation: Move to area free from dust. If symptoms of irritation persist contact physician. Inhalation may aggravate existing respiratory illness.

VII. HANDLING AND USE PRECAUTIONS

Steps to be Taken if Material is Released or Spilled: Avoid breathing dust; wear respirator approved for silica bearing dust. Vacuum up to avoid generating airborne dust. Avoid using water. Product slippery when wetted.

Waste Disposal Methods: Product should be disposed of in accordance with applicable local, state and federal regulations.

Handling and Storage Precautions: Use NIOSH/MSHA respirators approved for silica bearing dust when free silica containing airborne bentonite dust levels exceed PEL/TLV's. Clean up spills promptly to avoid making dust. Storage area floors may become slippery if wetted.

VIII. INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements: Mechanical, general room ventilation. Use local ventilation to maintain PEL's/TLV's.

Respirator: Use respirators approved by NIOSH/MSHA for silica bearing dust.

Eye Protection: Generally not necessary. Personal preference.

Gloves: Generally not necessary. Personal preference.

Other Protective Clothing or Equipment: None

IX. SPECIAL PRECAUTIONS

Avoid prolonged inhalation of airborne dust.

DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping Name: Common Ground Clay (NOIBN)	Hazard Class: Not Hazardous

Hazardous Substance: None

Cautionary Labeling: None required

All information presented herein is believed to be accurate, however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances. No warranty or guarantee, expressed or implied is made by WYO-BEN, INC. as to this information, or as to the safety, toxicity or effect of the use of this product.

ENVIROPLUG® TABLETS

ALL NATURAL

ENVIROPLUG® TABLETS

ENVIROPLUG TABLETS are manufactured for use in piezometer holes, monitor wells and other sealing and plugging applications and are available in ½", ⅜" and ¼" sizes. ENVIROPLUG TABLETS swell in water to more than 10 times their original volume.

ENVIROPLUG TABLETS should be poured directly into the hole or may be placed by the tremie method. Since the result desired is actually a "bentonite pack" some care must be used in placing the tablets to prevent bridging, just as in gravel packing. The tablet seal or plug should be placed against a clay or other impervious formation.

Advantages:

- Clean, dust-free and easy to handle
- Non-toxic, non-polluting
- No mixing; poured into hole dry
- Do not disintegrate upon swelling; seals are tough but flexible and do not crack when subjected to movement.

Amount to Use:

Hole Diameter	2"	3"	4"	5"	6"	7"	8"
Pounds of Tablets Per Foot of Seal	1.75	4	7	11	16	22	28

These are DRY weights and volumes. In use, the swelling of the tablets will increase the length of the seal, depending upon the hole conditions.

ENVIROPLUG TABLETS are packaged in waterproof plastic pails, 50 pounds per pail.

* ENVIROPLUG is a registered trademark of Wyo-Ben, Inc.

WYO-BEN® WYO-BEN, INC. P.O. Box 1979 (406) 652-6351 Billings, Montana 59103

WYO-BEN, INC.

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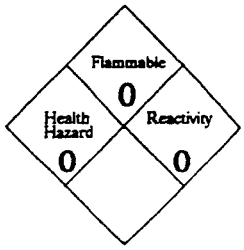

NFPA FIRE HAZARD IDENTIFICATION SYSTEM

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Trade Name(s): ENVIROPLUG® TABLETS

Generic Name(s): Wyoming (Western) Bentonite (CAS No. 1302-78-9)

Chemical Name(s): Sodium Montmorillonite (CAS No. 1318-93-0)

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III. PHYSICAL DATA

Boiling Point (°F): NA	Specific Gravity (H_2O=1): 2.45-2.55
Vapor Pressure (mm. Hg): NA	Melting Point: Approx. 1450°C
Vapor Density (Air = 1): NA	Evaporation Rate (Butyl Acetate = 1): NA
Solubility in Water: Insoluble, forms colloidal suspension.	pH: 8-10 (5% aqueous suspension)
Density (at 20° C): 73 lbs./cu.ft. as product.	

Appearance and Odor: Bluegray to green as moist solid, light tan to gray as dry powder. No odor.

IV. FIRE AND EXPLOSION DATA

Flash Point: NA	Flammable Limits: LEL: NA UEL: NA

Special Fire Fighting Procedures: NA

Unusual Fire and Explosion Hazards: None. Product will not support combustion.

Extinguishing Media: None for product. Any media can be used for the packaging.

V. REACTIVITY

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Hazardous Polymerization: None

Incompatibility: None

Hazardous Decomposition Products: None

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Carcinogenicity: Bentonite is not listed by NTP, IARC or OSHA. IARC, 1987, concludes that there is limited evidence suggesting the carcinogenicity in humans of inhaled crystalline silica (IARC Class 2A).

Acute Oral LD_{50}: ND	Acute Dermal LD_{50}: ND	Aquatic Toxicology LC_{50}: ND

Emergency and First Aid Procedures:

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VII. HANDLING AND USE PRECAUTIONS

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VIII. INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements: Mechanical, general room ventilation. Use local ventilation to maintain PEL's/TLV's.

Respirator: Use respirators approved by NIOSH/MSHA for silica bearing dust.

Eye Protection: Generally not necessary. Personal preference.

Gloves: Generally not necessary. Personal preference.

Other Protective Clothing or Equipment: None

IX. SPECIAL PRECAUTIONS

Avoid prolonged inhalation of airborne dust.

DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping Name: Common Ground Clay (NOIBN)	Hazard Class: Not Hazardous

Hazardous Substance: None

Cautionary Labeling: None required

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GIANT CEMENT COMPANY
Post Office Box 218
Harleyville, South Carolina 29448

Corporate & Sales:
(803) 496-7880

Plant:
(803) 496-5033

GIANT CEMENT COMPANY certifies that all the products manufactured by the company are in complete compliance with all applicable specifications.

GIANT PORTLAND CEMENT, Type I	ASTM C-150-84 SS-C-1960/3B AASHTO M-85
GIANT PORTLAND CEMENT, Type II	ASTM C-150-84 SS-C-1960/3B AASHTO M-85
GIANT MIX MASONRY CEMENT, Type N	ASTM C-91-84 SS-C-1960/1
GIANT TYPE S MASONRY CEMENT	ASTM C-91-84 SS-C-1960/1
GIANT TYPE M MASONRY CEMENT	ASTM C-91-84 SS-C-1960/1
GIANT BUFF MASONRY CEMENT	ASTM C-91-84 SS-C-1960/1
GIANT RED MASONRY CEMENT	ASTM C-91-84 SS-C-1960/1

During the manufacturing of the masonry cements, a waterproofing agent is added. All masonry cements will comply with ASTM C-270, mortar for unit masonry.

Earl L. King

Giant Cement Company
Earl L. King, C.E.
Director of Technical Services

ELK/rg

SURE-LOK

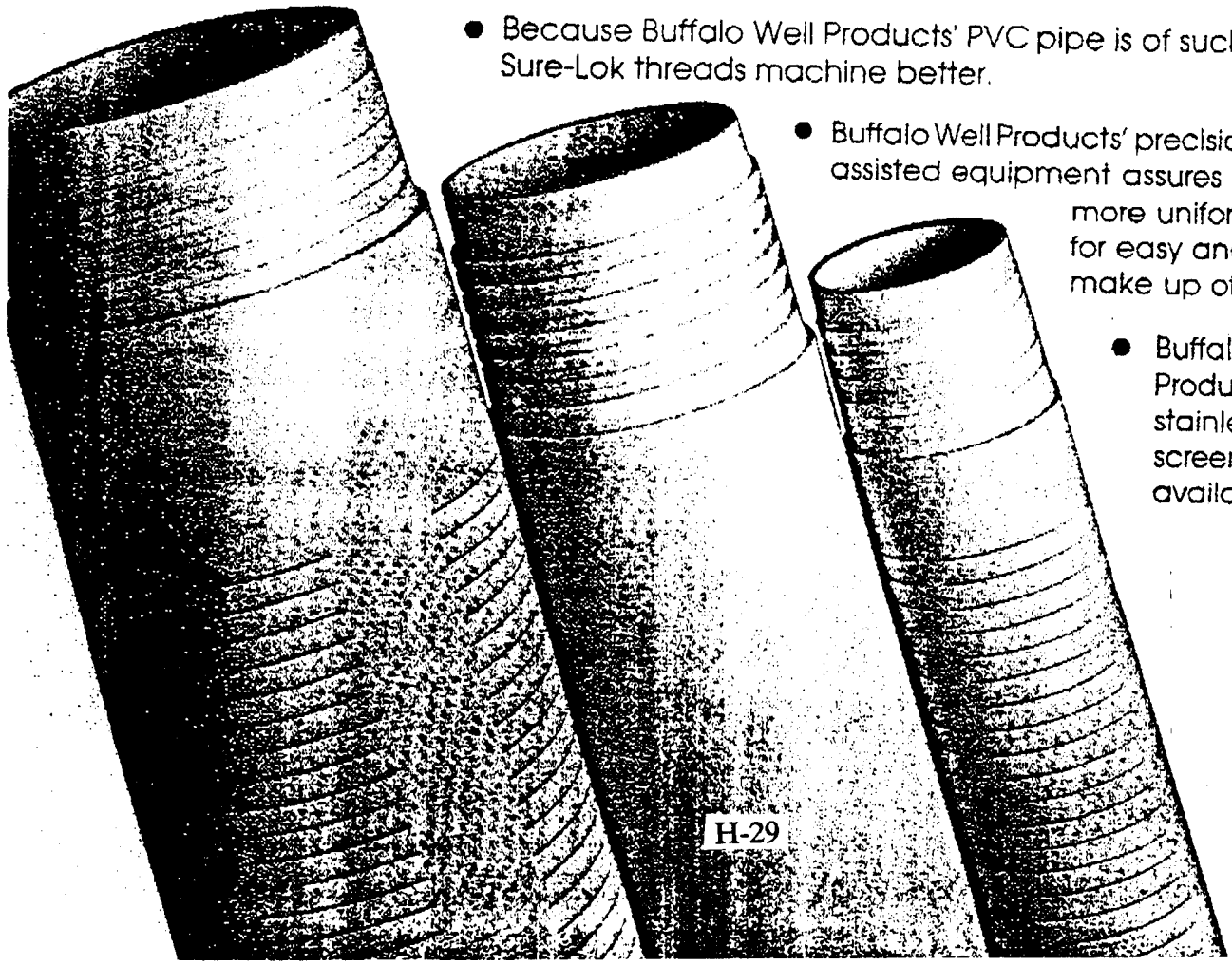
PVC Monitor Pipe & Well Screens By Buffalo Well Products, Inc.

Buffalo Well Products has become a leading manufacturer of high quality flush-threaded PVC screens and casing.

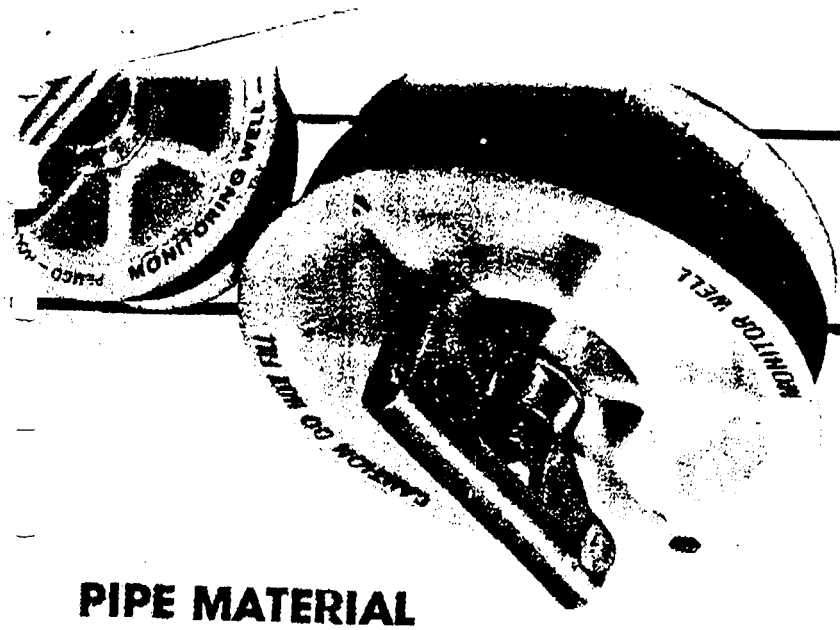
SURE-LOK is Buffalo Well Products' contribution to the increasing demand for specialized PVC products needed by the groundwater monitoring industry.

Buffalo Well Products has established a reputation for quality products, faithful service and competitive prices. Buffalo Well Products is able to provide these high caliber products at a cost savings by using high-tech, fully automated slotting machines and computer programmed lathes.

SUR-LOK PVC screens and casing are the highest quality available because Buffalo Well Products start with the highest quality pipe. SURE-LOK PVC meets or exceeds ASTM standard insuring structural integrity, wall thickness and leak prevention.



- Because Buffalo Well Products' PVC pipe is of such high quality, Sure-Lok threads machine better.
- Buffalo Well Products' precision computer assisted equipment assures stronger, more uniform threads for easy and secure make up of every piece.
- Buffalo Well Products also has stainless steel screens and casing available.



specifications:

PIPE MATERIAL

Sure-Lok is made of Type 1, Grade 1 Polyvinyl Chloride as specified in ASTM 1784.

Sure-Lok Schedule 40 meets or exceeds ASTM Standards D2665 and D1785. Schedule 80 is also available in all sizes.

THREADING

Sure-Lok has two thread designs available, the 4-threads per inch design and the ASTM F-480, 2-threads per inch design. The O-ring groove is standard on the ASTM F-480 but is optional on the 4-threads per inch design. Sure-Lok threads are designed to handle compression in excess of 5000 lbs. on 2" PVC and 15,000 lbs. on 4" PVC.

SCREENING

Sure-Lok screens are fabricated from Schedule 40 in 2.5', 5' 10' and 20' lengths. 2" screens have 4 rows of slots, 4" screens have 6 rows of slots and 6" screens have 8 rows of slots. Stock slot widths are .010 and .020 with a standard spacing of 1/4" between slots.

A wide variety of screen configurations are available and are designed by varying slot widths, spacing between slots and the number of rows of slots. Slot widths available range between .060 and .080 inches.

O-RING

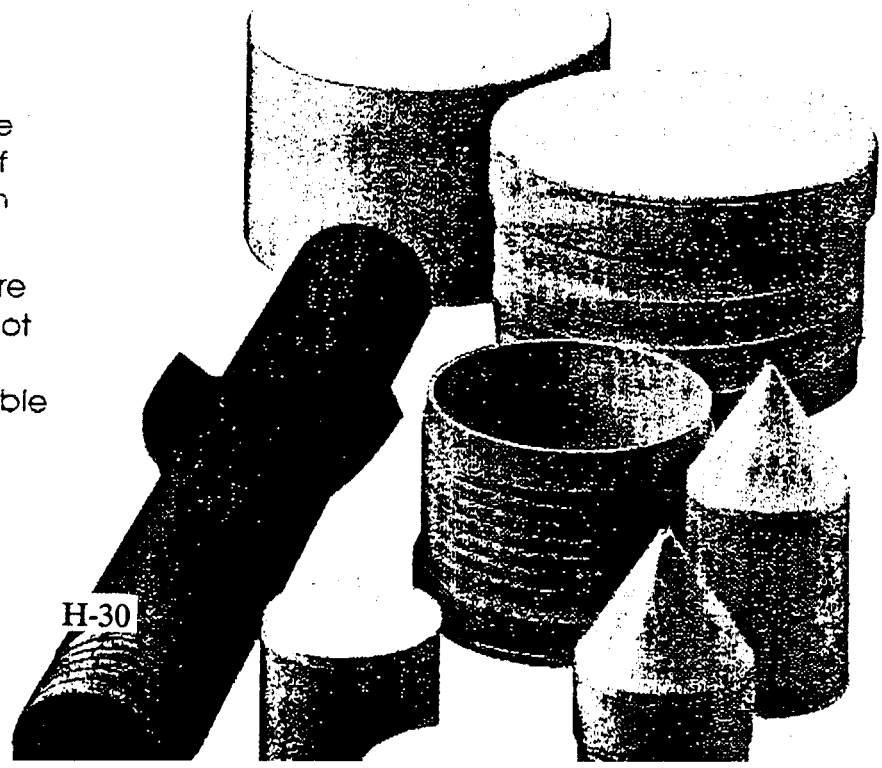
Buffalo Well Products uses a nitrile "O" ring because of its excellent resistence to petroleum products and ability to be used over a wide temperature range (-65o to 250oF).

The Sure-Lok "O" ring is isolated between the two shoulder seals and is not subject to hostile contaminants.

Viton and Teflon "O" rings are also available.

PLASTIC WRAP

Buffalo Well Products' Sure-Lok casings and screens are hermetically sealed in individual 6 mil polyethylene tubes to ensure cleanliness and subsequent analytical test integrity.



Size (")	Part No.	Description
1½	S1502	2.5' Slotted Screen
1½	S1505	5' Slotted Screen
1½	S1510	10' Slotted Screen
1½	S1520	20' Slotted Screen
1½	S15C	1.5" Threaded Cap
1½	S15P	1.5" Threaded plug
1½	S15S	1.5" Slip Cap
2	S2002	2.5' Slotted Screen
2	S2005	5' Slotted Screen
2	S2010	10' Slotted Screen
2	S2020	20' Slotted Screen
2	S20C	2" Threaded Cap
2	S20P	2" Threaded Plug
2	S20S	2" Slip Cap
4	S4002	2.5' Slotted Screen
4	S4005	5' Slotted Screen
4	S4010	10' Slotted Screen
4	S4020	20' Slotted Screen
4	S40C	4" Threaded Cap
4	S40P	4" Threaded Plug
4	S40S	4" Slip Cap
6	S6002	2.5' Slotted Screen
6	S6005	5' Slotted Screen
6	S6010	10' Slotted Screen
6	S6020	20' Slotted Screen
6	S60C	6" Threaded Cap
6	S60P	6" Threaded Cap
6	S60S	6" Slip Cap
Available 1" thru 12" Slot Size .006 thru .080		

BAILERS

Size (")	Part No.	Description
1½	B1503	3' PVC Bailer-clear
1½	B1505	5' PVC Bailer-clear
1¼	B1253	3' PVC Bailer
1¼	B1255	5' PVC Bailer

Size (")	Part No.	Description
1½	R1502	2.5' Riser
1½	R1505	5' Riser
1½	R1510	10' Riser
1½	R1520	20' Riser
2	R2002	2.5' Riser
2	R2005	5' Riser
2	R2010	10' Riser
2	R2020	20' Riser
4	R4002	2.5' Riser
4	R4005	5' Riser
4	R4010	10' Riser
4	R4020	20' Riser
6	R6002	2.5' Riser
6	R6005	5' Riser
6	R6010	10' Riser
6	R6020	20' Riser
All sizes ½" thru 12" available		

PROTECTIVE CASINGS

Size (")	Part No.	Description
4½	4505	4½" x 5'
6	6005	6" x 5'

CENTRALIZERS

Size (")	Part No.	Description
1½	C1501	1½" x 6"
2	C2001	2" x 6"
4	C3001	4" x 6"
Also available in all other sizes		

MISCELLANEOUS

Size (")	Part No.	Description
8 x 12	FRB812	Flush Mount Road Box
12 x 8	FRB128	Flush Mount Road Box
2"	LL20	Locking Caps
4"	LC40	Locking Caps
50 Lb.	BP50	Bentonite Pellets

Buffalo Well Products
33 Hampshire Street
Buffalo, New York 14213
(716) 882-3710 • (800) 875-3745