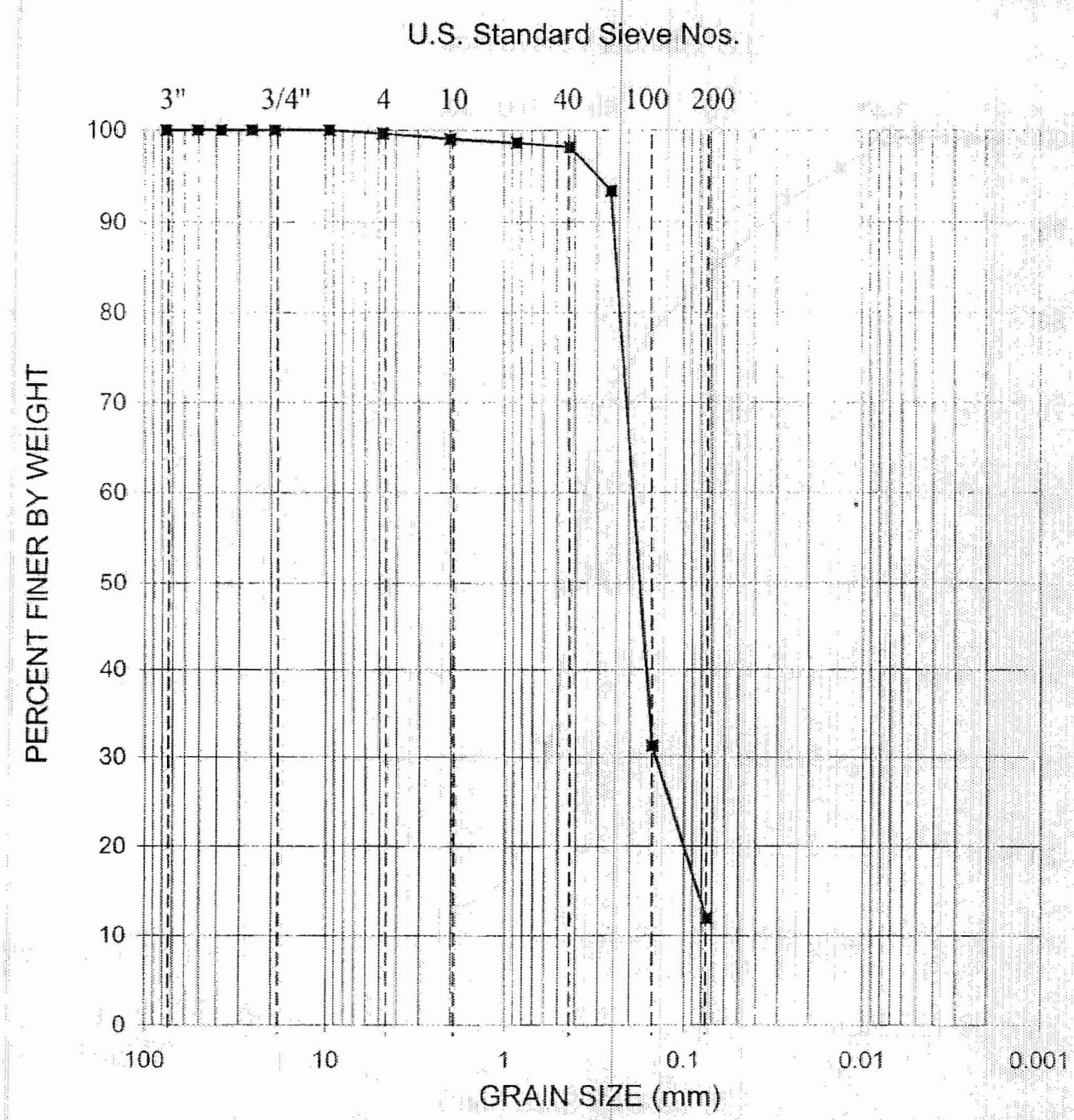


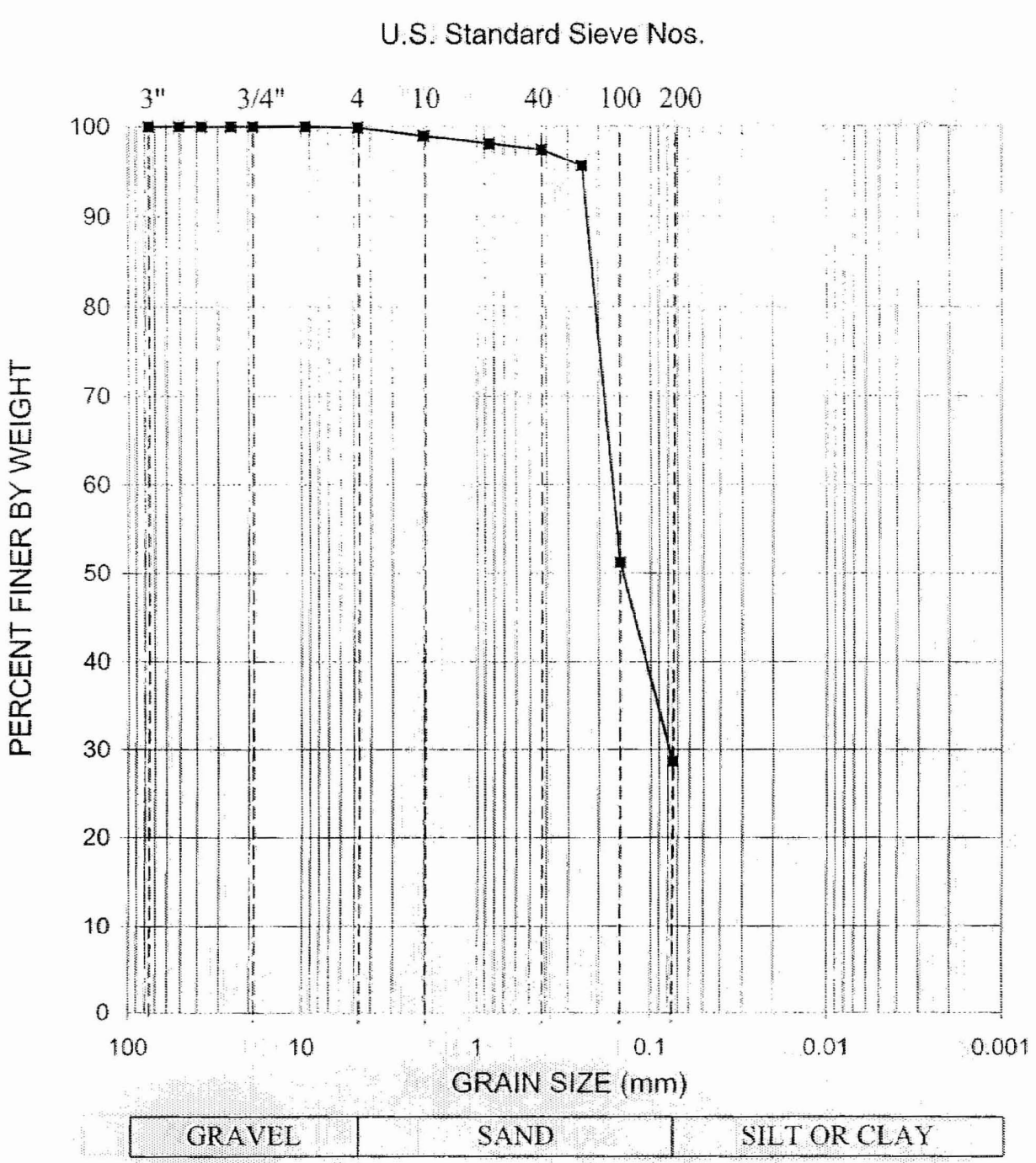
GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 8/28/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-315	63.5	Poorly Graded SAND, with silt, trace shells, dark green	SP-SM	NP	NP

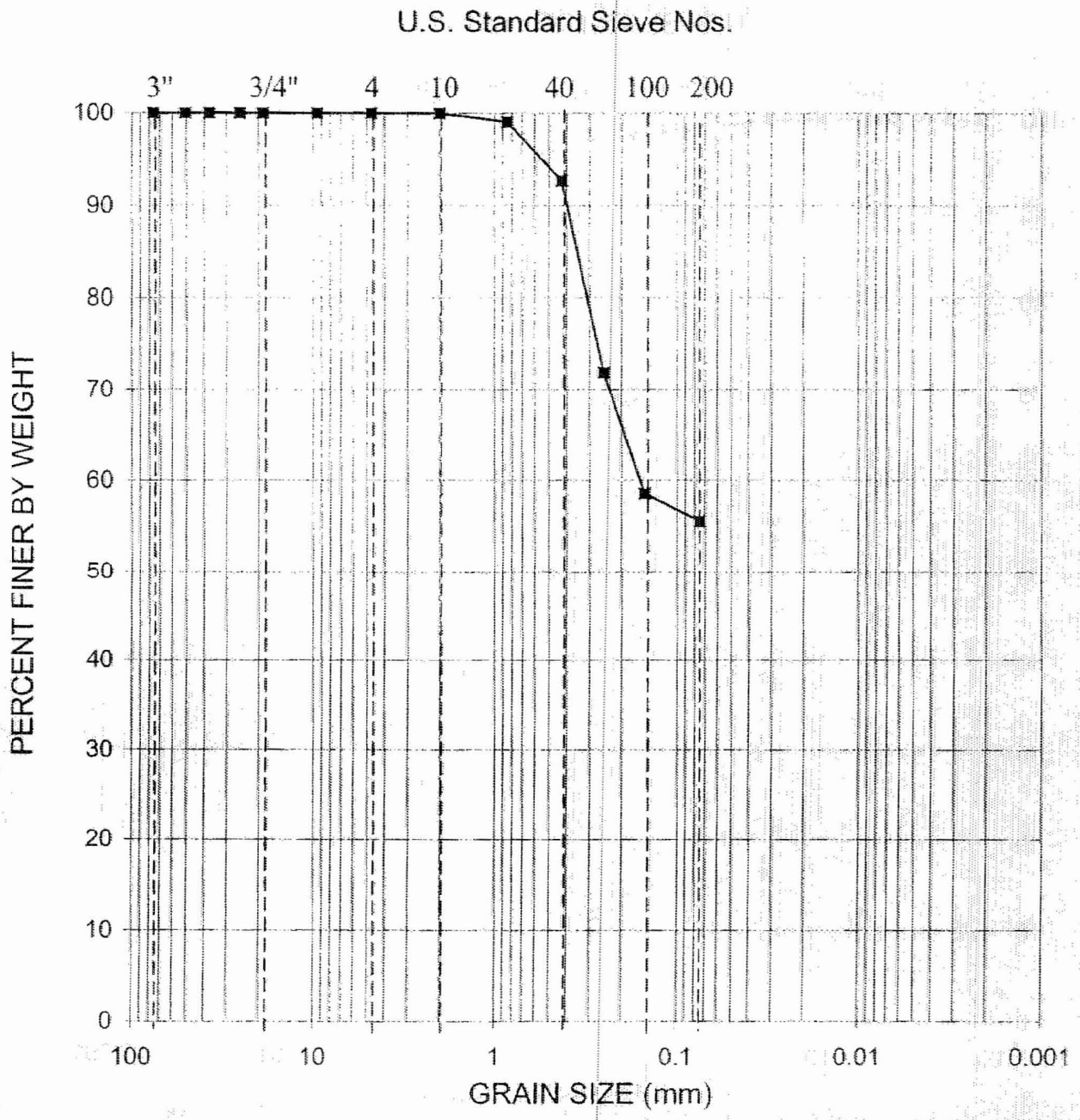
Schnabel Engineering



GRADATION CURVE

ASTM D422

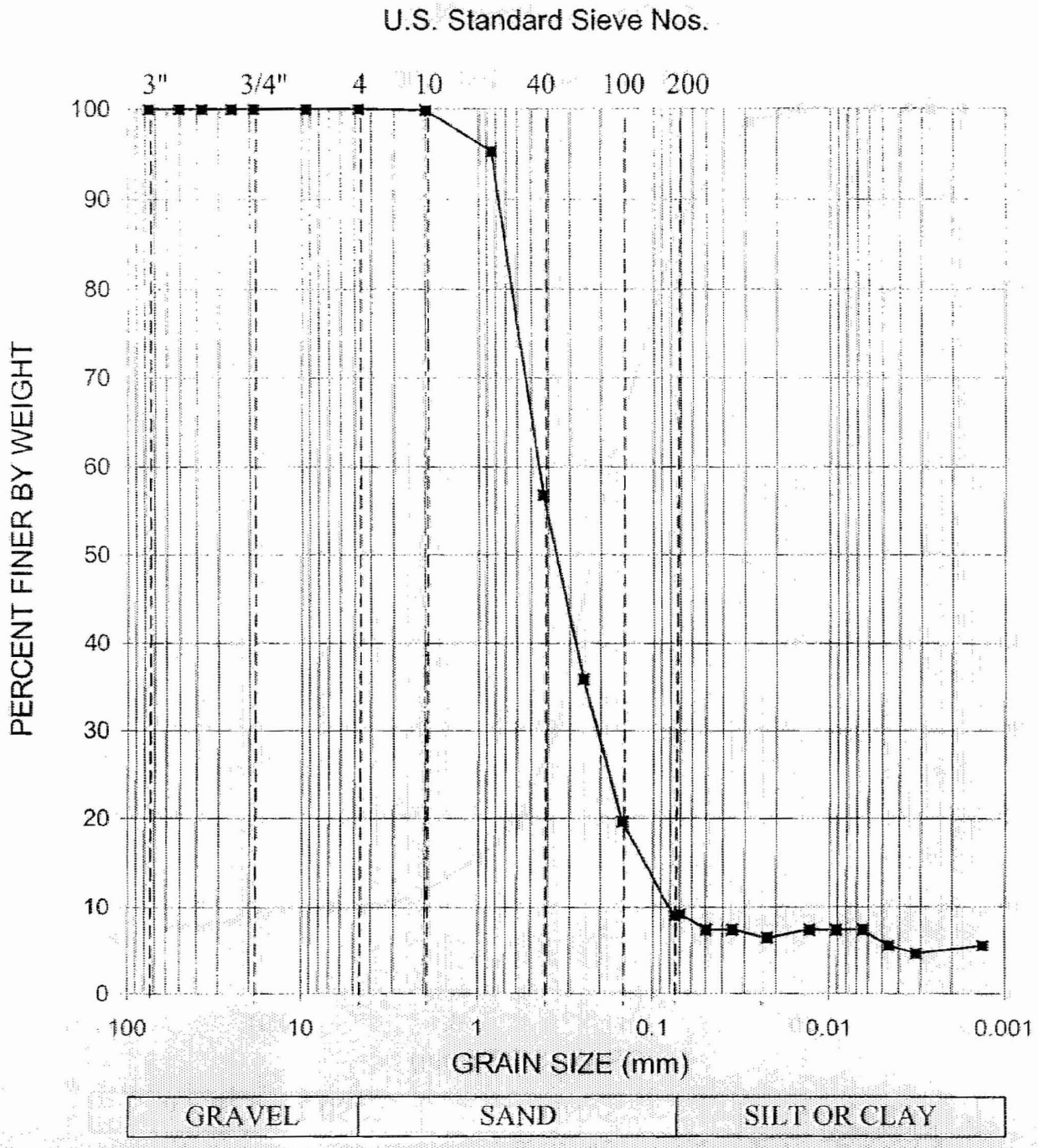
Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 8/28/2006	
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-315	83.5	Silty SAND, contains shells, green	SM	NP	NP	Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 8/21/2006	
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-316	7.5	Sandy LEAN CLAY, brown	CL			Schnabel Engineering



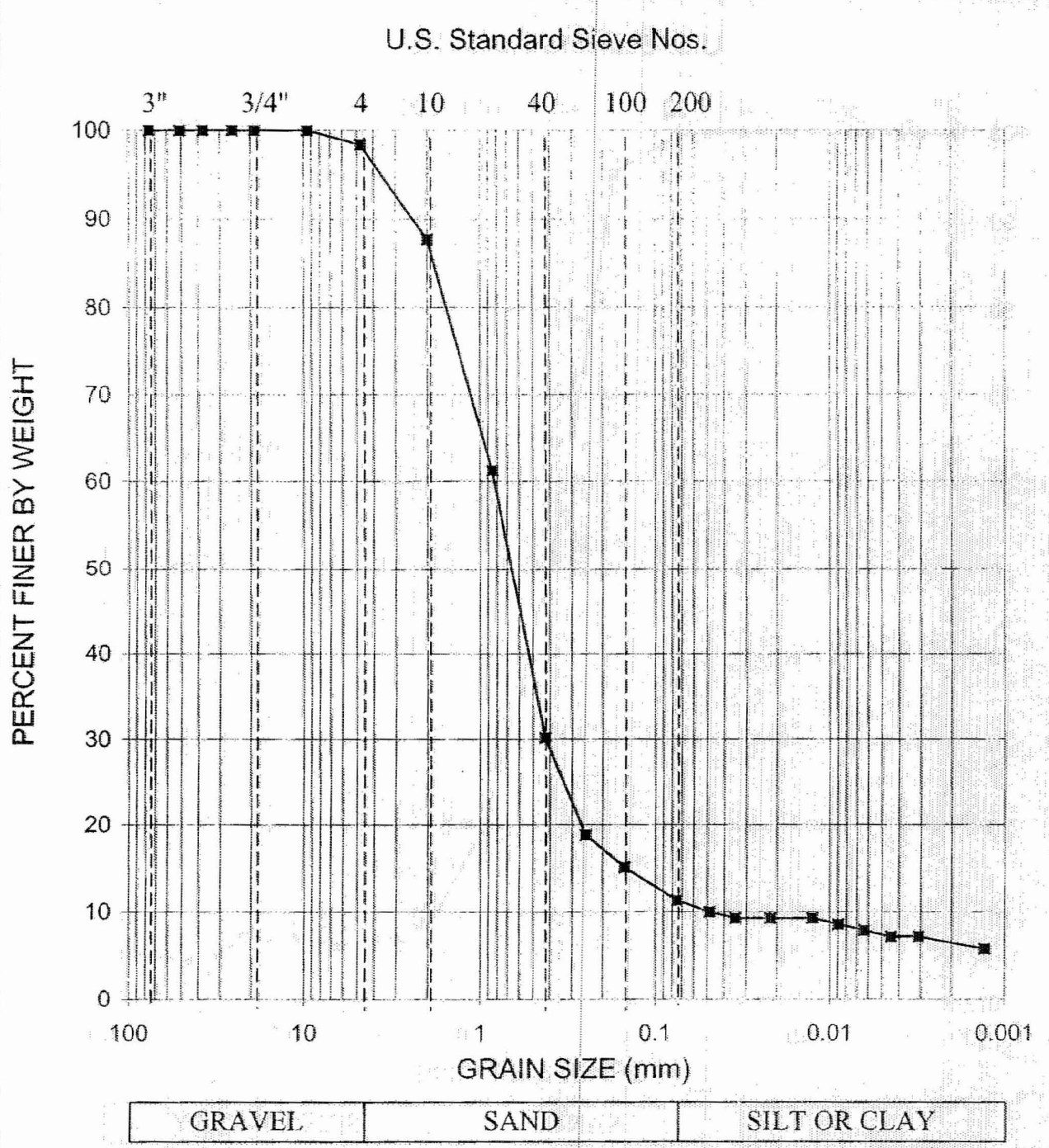
GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 8/25/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-316	23.5	Poorly Graded SAND, with silt, tan	SP-SM	NP	NP

Schnabel Engineering



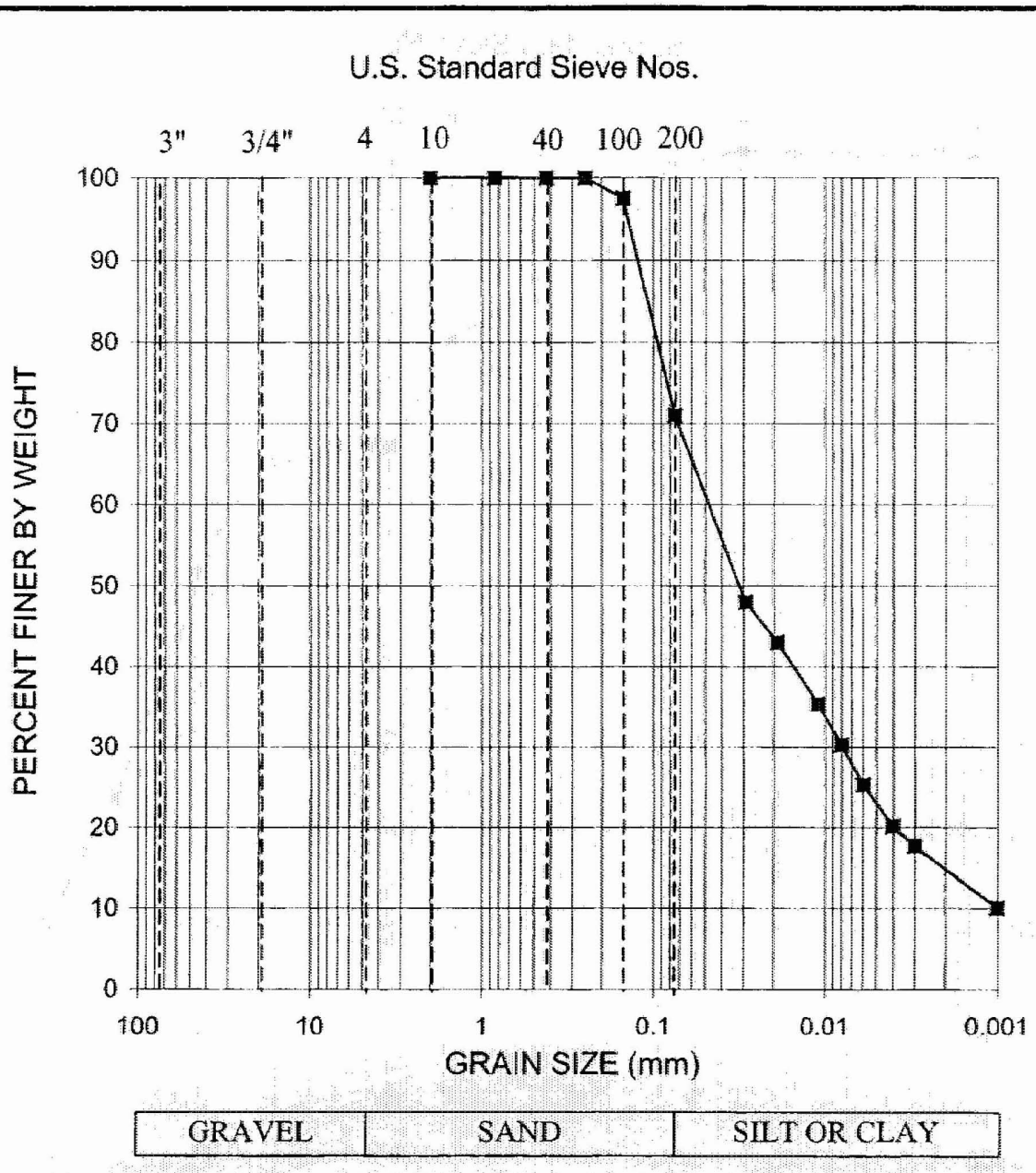
GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 8/18/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-316	33.5	Poorly Graded SAND, with silt, trace gravel, light brown	SP-SM	43	26

Schnabel Engineering



Key	Sample	Depth(ft.)	Sample Description	Class.	LL	PI
■	B-316	43.5-45.5	LEAN CLAY with sand - gray	CL	44	28
▲						
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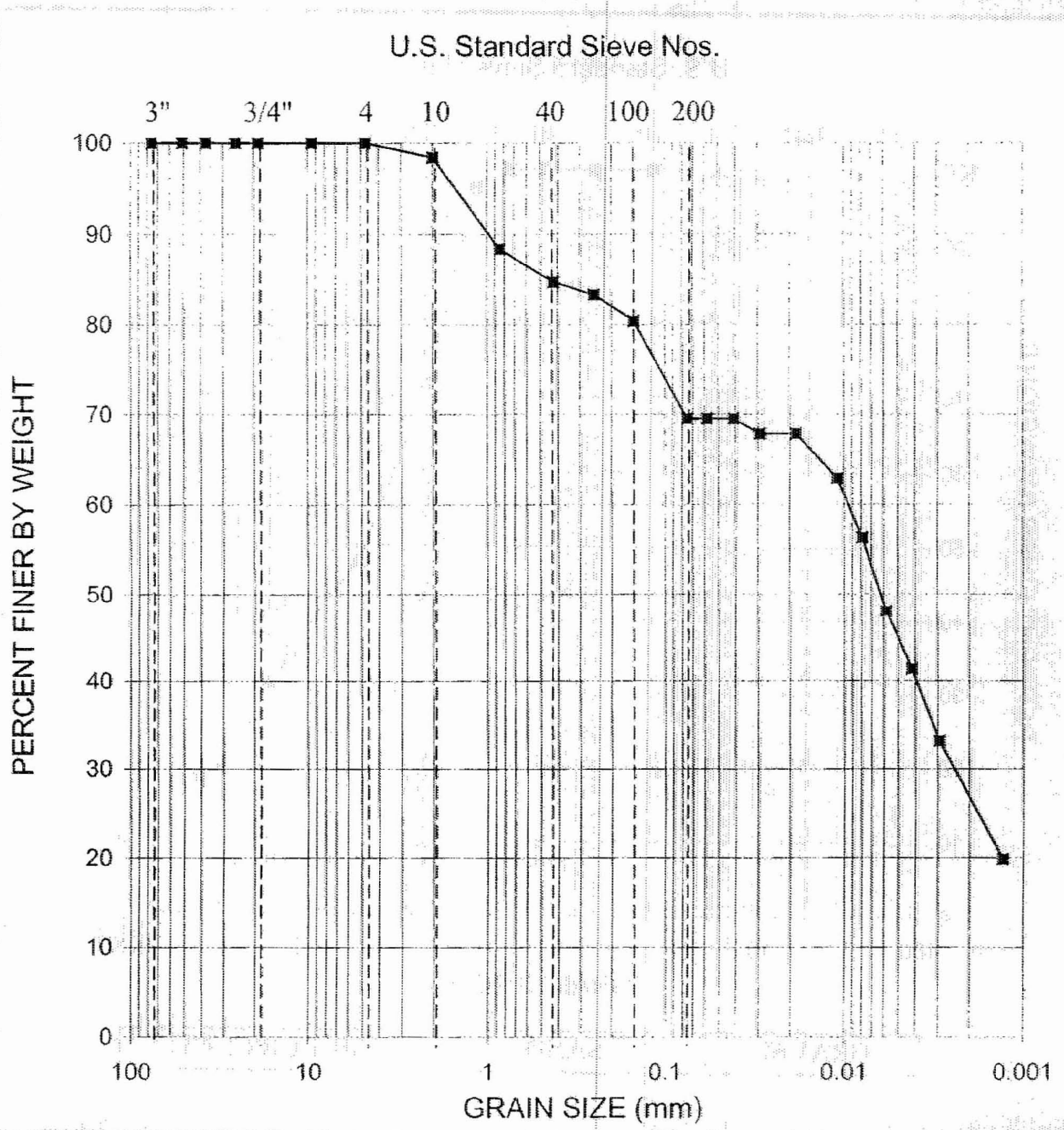
Schnabel Engineering

GRADATION CURVES

Project: Calvert Cliffs Nuclear Power Plant

Contract No. 06120048

Date: 10/26/06 Method: ASTM D422



GRAVEL	SAND	SILT OR CLAY

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 8/28/2006

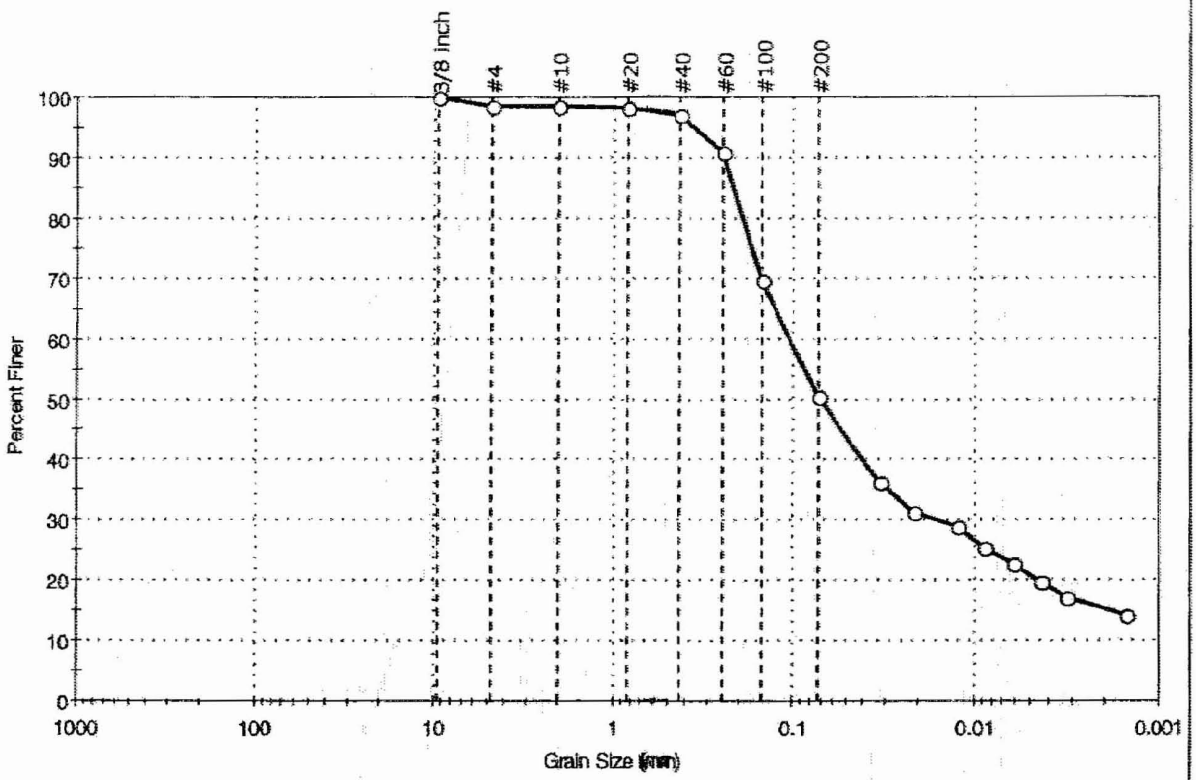
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-316	48.5	Sandy ELASTIC SILT, gray	MH		

Schnabel Engineering

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.				
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP				
Location:	Calvert County, MD			Project No:	GTX-6880
Boring ID:	B-316	Sample Type:	tube	Tested By:	sam
Sample ID:	S-14	Test Date:	10/19/06	Checked By:	mcm
Depth :	53.5-55.5 ft	Test Id:	101127		
Test Comment:	---				
Sample Description:	Moist, dark olive gray sandy clay				
Sample Comment:	---				

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	1.3	48.3	50.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3/8 inch	9.51	100		
#4	4.75	99		
#10	2.00	99		
#20	0.84	98		
#40	0.42	97		
#60	0.25	91		
#100	0.15	70		
#200	0.074	50		
--	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
--	0.0328	36		
--	0.0211	31		
--	0.0122	29		
--	0.0087	25		
--	0.0062	23		
--	0.0044	20		
--	0.0032	17		
--	0.0015	14		

Coefficients

D_{85} = 0.2165 mm D_{30} = 0.0156 mm
D_{60} = 0.1052 mm D_{15} = 0.0019 mm
D_{50} = 0.0724 mm D_{10} = 0.0005 mm
C_u = N/A C_c = N/A

Classification

ASTM Sandy lean clay (CL)

AASHTO Clayey Soils (A-6 (8))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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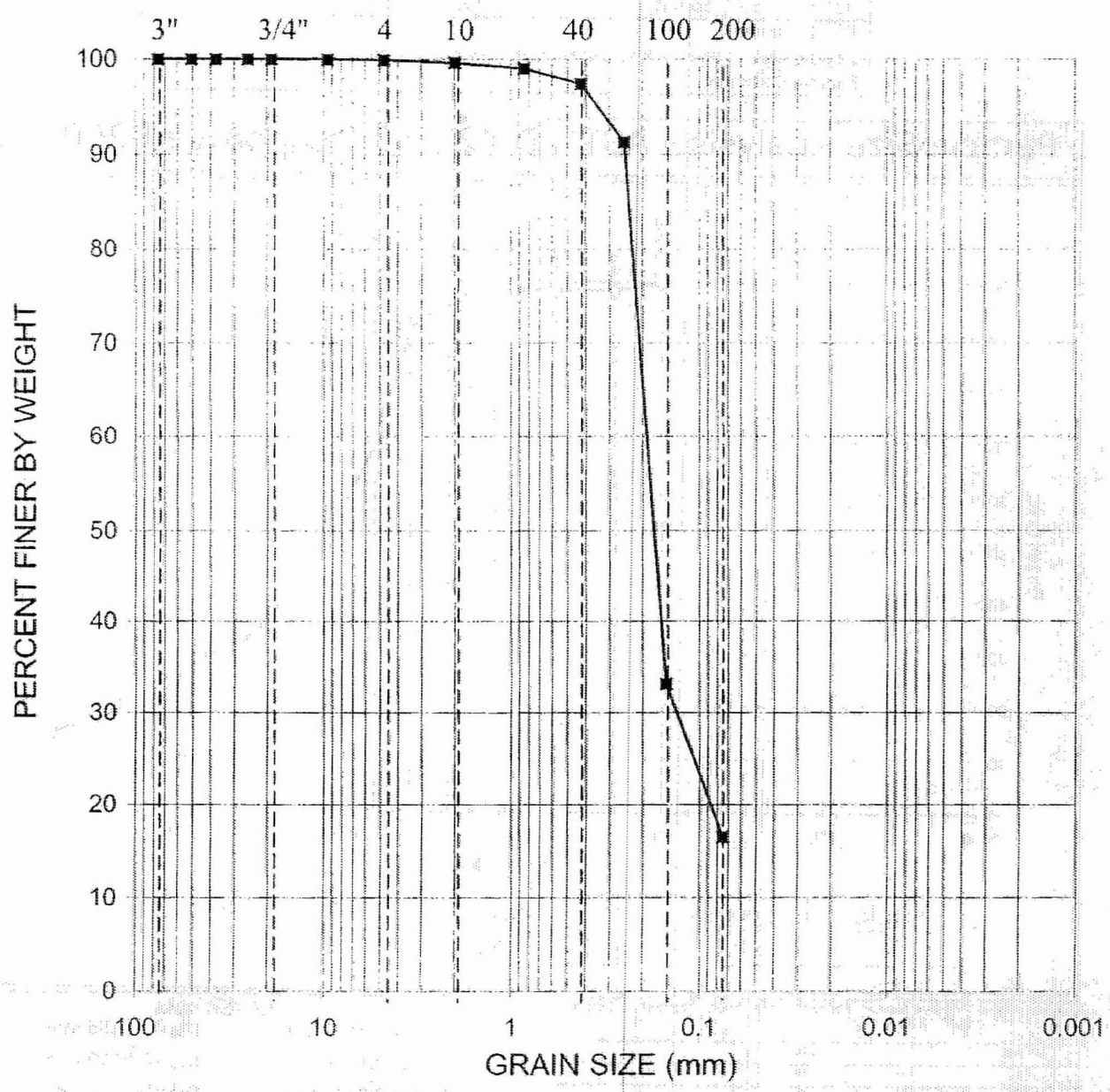
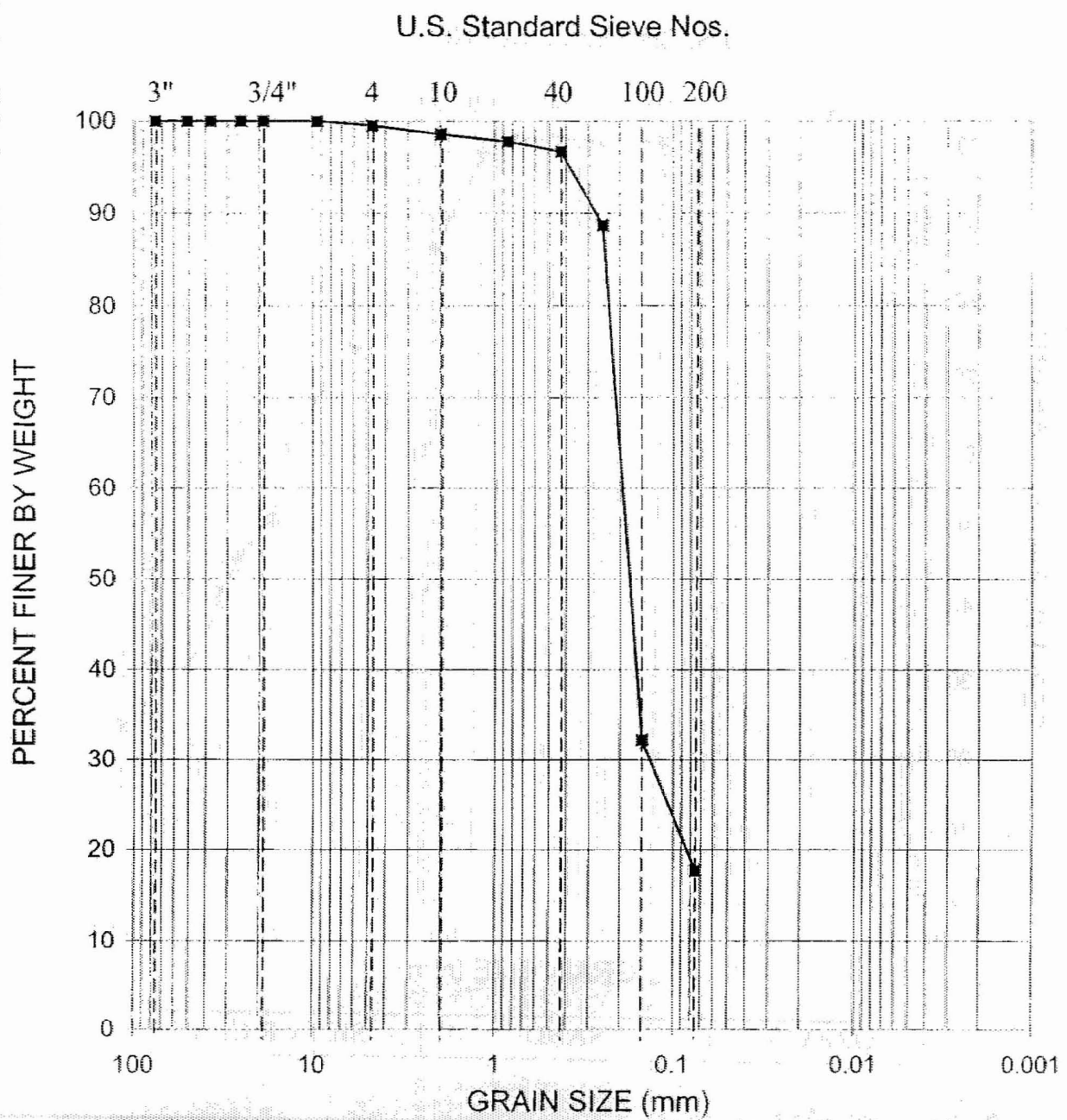


GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 8/21/2006	
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-316	68.5	Silty SAND, contains shells, dark green	SM			Schnabel Engineering



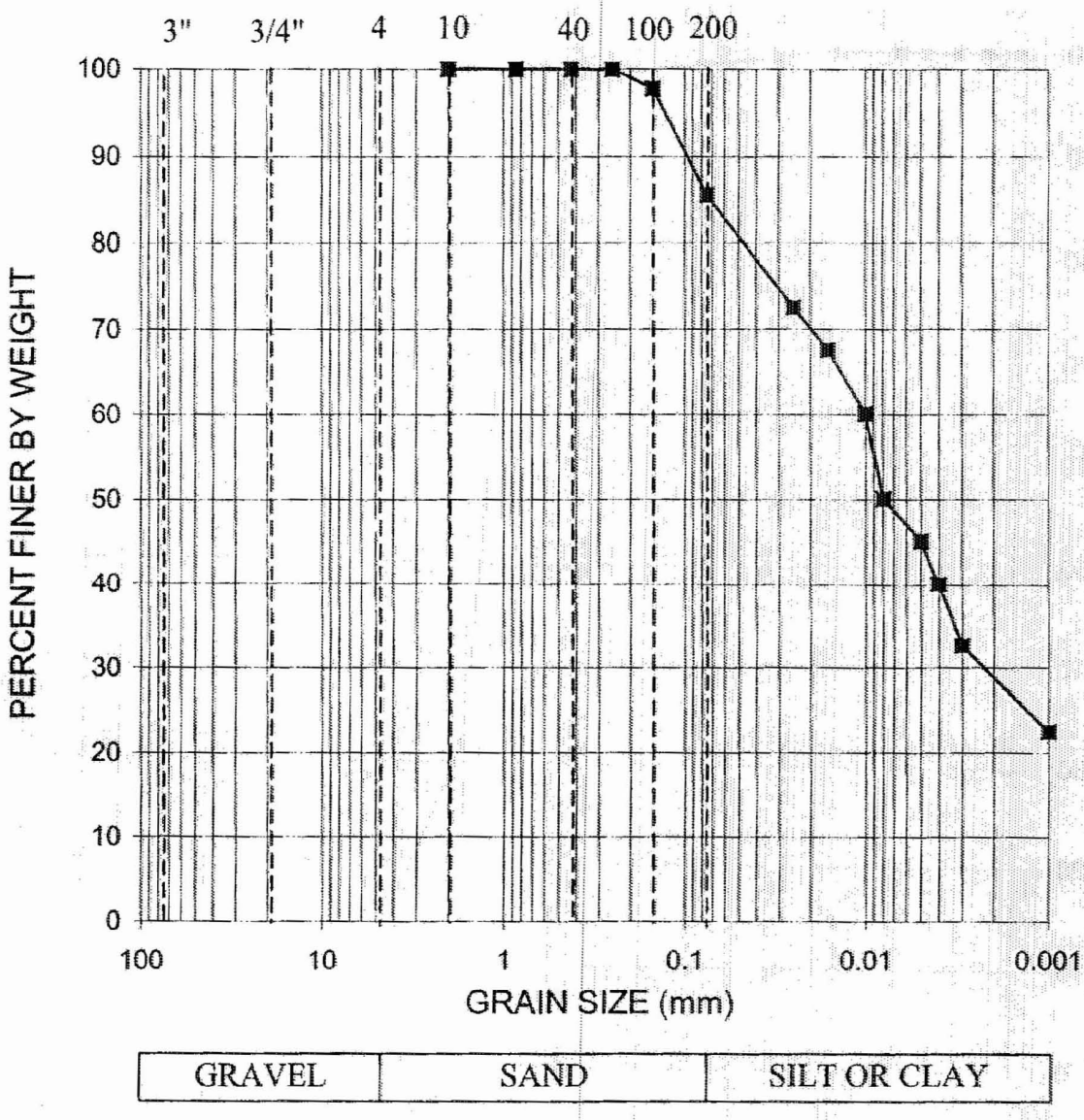
GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 8/21/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-316	93.5	Clayey SAND, contains shells, dark gray	SC		

Schnabel Engineering



Key	Sample	Depth(ft.)	Sample Description	Class.	LL	PI
■	B-317	28.5-30.5	LEAN CLAY, trace sand - gray	CL	27	8
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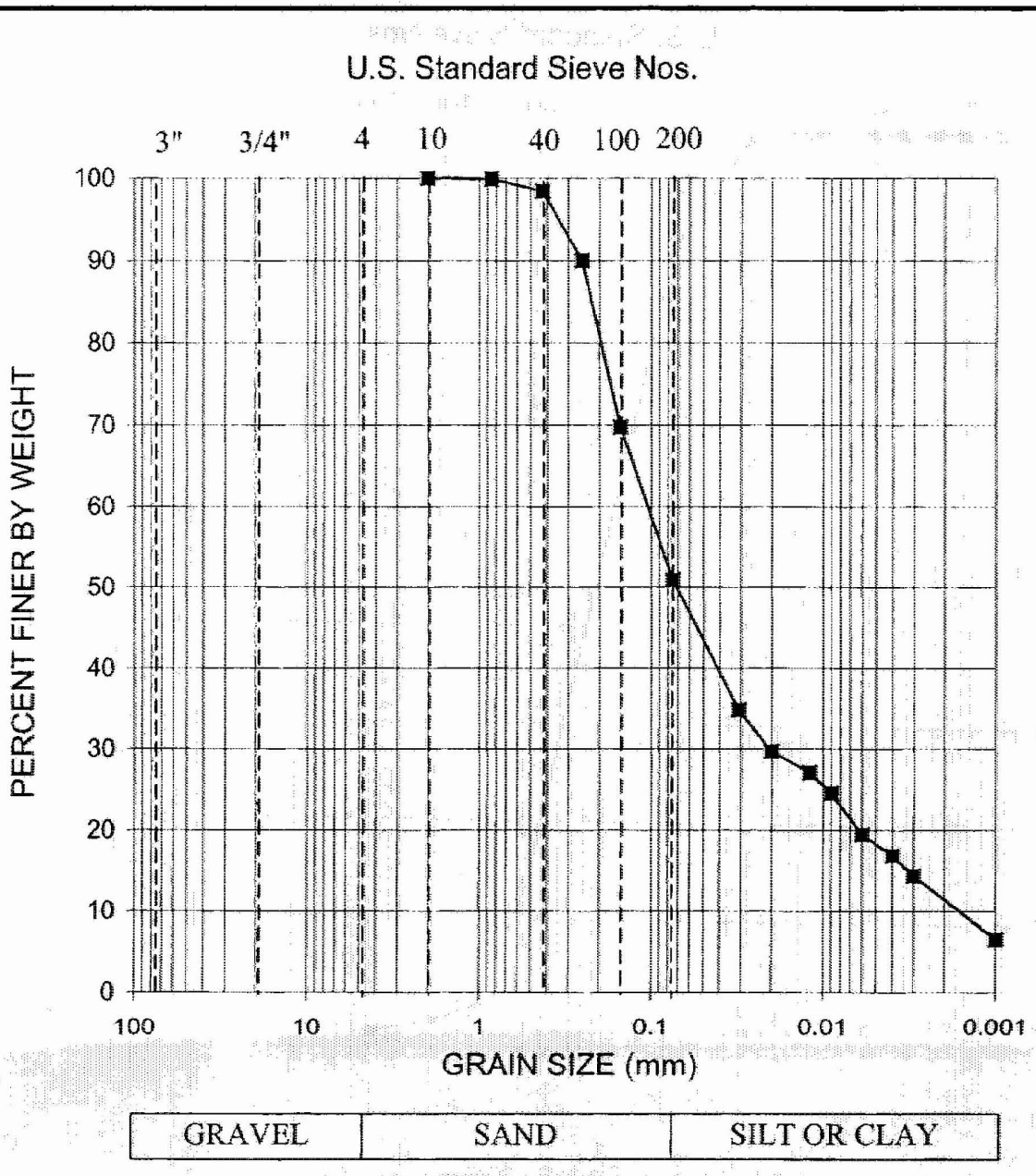
Schnabel Engineering

GRADATION CURVES

Project: Calvert Cliffs Nuclear Power Plant

Contract No. 06120048

Date: 10/06/06 Method: ASTM D422



Key	Sample	Depth(ft.)	Sample Description	Class.	LL	PI
■	B-317	48.5-50.3	Sandy LEAN CLAY - gray	CL	35	18
▲						
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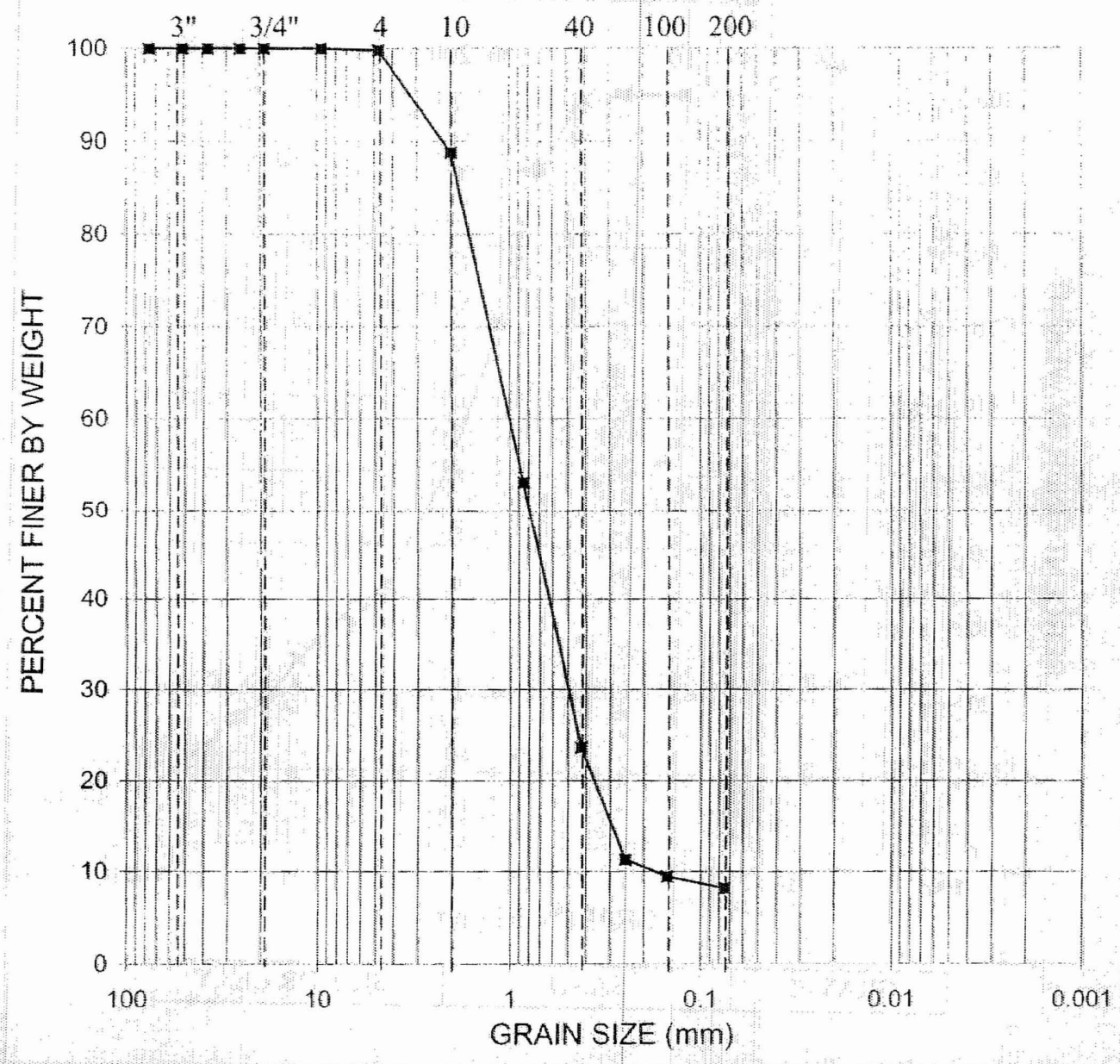
Schnabel Engineering

GRADATION CURVES

Project: Calvert Cliffs Nuclear Power Plant

Contract No. 06120048

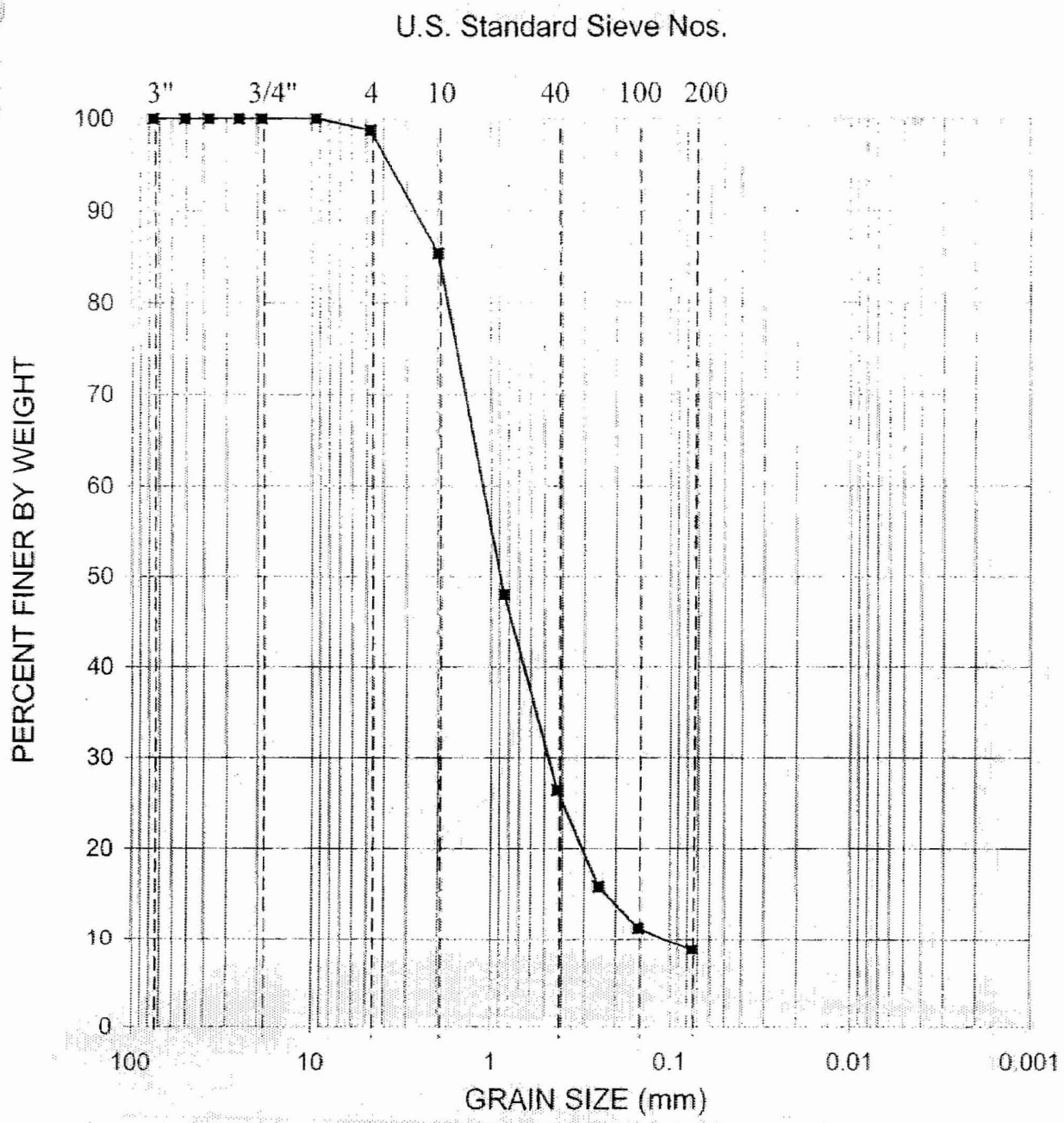
Date: 10/06/06 Method: ASTM D422



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 8/21/2006	
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-319	2.5	Poorly Graded SAND with silt, brown	SP-SM			Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 8/21/2006	
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-319	13.5	Poorly Graded SAND with silt, trace gravel, brown	SP-SM			Schnabel Engineering