GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 **Your Project or Contract No.**

Date: July 11, 1994 **Via:** fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
3	Boring Reports: 113 through 128.

SAMPLES:

Remarks: More reports to follow.

By: _____

L. L. MORRIS

cc:

GOLD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 113

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"-2½"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/8/94	
COMPLETE	7/8/94	
TOTAL HRS.		
BORING FOREMAN	J. Sousa	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Wet medium to coarse GRAVEL, some sand	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")		Wet Gray medium SAND & Gravel	2	12"	-
		2'6"-3'6"	D	"	"	"	(2½")		Medium to coarse GRAVEL, some sand	3	12"	-
		3'6"-4'6"	D	"	"	"	(2½")		Moist Black Brown ORGANICS	4	12"	-
								4'6"				
									Bottom of Boring 4'6"			

Note: Samples wet from trapped water, from a drain or rain water.

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A-Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 4'6"
Rock Coring
Samples 4

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 114

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"-2½"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/8/94	a.m / p.m
COMPLETE	7/8/94	a.m / p.m
TOTAL HRS.		
BORING FOREMAN	J. Sousa	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, stems and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Medium to coarse GRAVEL	1	12'	-
		1'6"-2'6"	D	"	"	"	(3")		Dry Gray medium to coarse SAND, Gravel	2	12'	-
		2'6"-3'6"	D	"	"	"	(2½")		Brown fine SAND & medium Gravel, trace silt	3	12'	-
		3'6"-4'6"	D	"	"	"	(2½")		Moist Brown ORGANICS	4	12'	-
								4'6"	Bottom of Boring 4'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 4'6"
Rock Coring
Samples 4

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 134
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hour

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/10/94	a.m. p.m.
COMPLETE	7/10/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	J. Sousa	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows	not	Taken	(3½")		Dry, Brown medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Gray medium to coarse SAND & Gravel	2	12"	-
									Bottom of Boring 2'6"			
									Possible Utility			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 135
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/10/94	a.m. p.m.
COMPLETE	7/10/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	J. Sousa	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown Gray medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")			2	12"	-
								2'6"				
									Bottom of Boring 2'6"			
									Possible Utility			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
Trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 136
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"-2½"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/10/94	a.m. p.m.
COMPLETE	7/10/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	J. Sousa	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Gray medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")		Wet, Gray medium to coarse SAND & Gravel	2	12"	-
		2'6"-3'6"	D	"	"	"	(2½")			3	12"	-
		3'6"-4'6"	D	"	"	"	(2½")		(No Recovery)	4	12"	0
								4'6"	Bottom of Boring 4'6"			

GROUND SURFACE TO _____ USED _____ CASING. THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 4'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 137

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/10/94	a.m.
COMPLETE	7/10/94	p.m.
TOTAL HRS.		
BORING FOREMAN	J. Sousa	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec.
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not		Taken	(3½")		Gray medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")		Cobbies, little rec. of sand	2	12"	-
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Conesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: July 13, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
	Boring Reports: 138 through 152.

SAMPLES:

Remarks: More reports to follow.

By: _____

L. L. MORRIS

cc:

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 138
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	
COMPLETE	7/11/94	
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen.	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown Gray medium to coarse SAND & Gravel	1	12"	
		1'6"-2'6"	D	"	"	"	(3")			2	12"	
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET - OF -

DATE

HOLE NO. 139

LINE & STA.

OFFSET

SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ. NO

SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	A.M. P.M.
COMPLETE	7/11/94	A.M. P.M.
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown Gray medium to coarse GRAVEL & Sand	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Gray medium to coarse SAND & Gravel	2	12"	-
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

BUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 140
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size: D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m p.m
COMPLETE	7/11/94	a.m p.m

TOTAL HRS.
BORING FOREMAN J. Souza
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Gray medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")			2	12"	-
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 141
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m. p.m.
COMPLETE	7/11/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Gray medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")	2'6"		2	12"	-
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ. NO

SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

DATE

HOLE NO. 142

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m. p.m.
COMPLETE	7/11/94	a.m. p.m.

TOTAL HRS.

BORING FOREMAN J. Souza

INSPECTOR

SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Gray medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")		" some cobbles	2	12"	-
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
O: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ____
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 143
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m. p.m.
COMPLETE	7/11/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown Gray medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")		Dry, Gray medium to coarse SAND & Gravel, Cobbles	2	12"	-
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 45%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

SOILS DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ. NO.

SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE

HOLE NO. 144

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m / p.m
COMPLETE	7/11/94	a.m / p.m
TOTAL HRS.		
BORING FOREMAN	J. Sousa	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken (3½")				1'6"	Dry, Brown Gray medium to coarse SAND & Gravel	1	12"	-
									Bottom of Boring 1'6"			
									Refusal on Cobble or Boulder at 1'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
Cohesive Consistency
0-4 Soft
4-8 M/Stiff
30 + Hard

SUMMARY
Earth Boring 1'6"
Rock Coring
Samples 1

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 145
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. 05
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m. p.m.
COMPLETE	7/11/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown Gray medium to coarse SAND & Gravel, Tar substance	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")		Dry, Gray medium to coarse SAND & Gravel	2	12"	-
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 146
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m.
COMPLETE	7/11/94	p.m.
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND, coarse Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Gray medium to coarse SAND & Gravel	2	12"	-
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 147
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m. p.m.
COMPLETE	7/11/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown Gray medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Gray medium to coarse SAND & Gravel	2	12"	-
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING. THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 148
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	A.M. P.M.
COMPLETE	7/11/94	A.M. P.M.

TOTAL HRS.
BORING FOREMAN J. Souza
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Dry, Gray medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")		Moist, Gray medium to coarse SAND & Gravel	2	12"	-
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O D Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I.

SHEET 1 OF 1
DATE
HOLE NO. 149
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m.
COMPLETE	7/11/94	p.m.
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium to coarse SAND & Gravel, Cobbles	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")		Pushed Cobble (No Recovery)	2	12"	-
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 150
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m. p.m.
COMPLETE	7/11/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium to coarse SAND & Gravel, Cobbles	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")			2	12"	-
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 151
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At ____ ____ ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m. p.m.
COMPLETE	7/11/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium to coarse SAND & Gravel, Cobbles	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")			2	12"	-
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed

Proportions Used
trace 0 to 10%

140 lb Wt. x 30" fall on 2 O D Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I.

SHEET 1 OF 1
DATE
HOLE NO. 152
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/11/94	a.m. p.m.
COMPLETE	7/11/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	J. Souza	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown Gray medium to coarse SAND & Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")			2	12"	-
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: July 14, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
	Boring Reports: 153 through 162.

SAMPLES:

Remarks: More reports to follow.

By: _____

L. L. MORRIS

cc:

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

SHEET ___ OF ___
DATE
HOLE NO. 153
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/12/94	
COMPLETE	7/12/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium to coarse SAND & Gravel	1	12	8
		1'6"-2'6"	D	"	"	"	(3")			2	12	6
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ____
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 154
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/12/94	a.m. p.m.
COMPLETE	7/12/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown medium to coarse SAND & Gravel	1	12"	6"
		1'6"-2'6"	D	"	"	"	(3")		(No Recovery)	2	12"	0"
		2'6"-3'6"	D	"	"	"	(3")		Brown medium to coarse SAND & Gravel	3	12"	8"
								3'6"				
									Bottom of Boring 3'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 3'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 155
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/12/94	
COMPLETE	7/12/94	

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Brown medium to coarse SAND & Gravel (Dry)	1	12'	7
		1'6"-2'6"	D	"	"	"	(3")		Pushed Cobble (No Rec.)	2	12'	0
		2'6"-3'6"	D	"	"	"	(3")		Brown medium to coarse SAND & Gravel (Dry)	3	12'	6
								3'6"				
									Bottom of Boring 3'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 3'6"
Rock Coring
Samples 3

GOLD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 156

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after ___ Hours

At _____ after ___ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/12/94	
COMPLETE	7/12/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium to coarse SAND & Gravel	1	12"	9
		1'6"-2'6"	D	"	"	"	(3")			2	12"	7
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET ___ OF ___

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ NO

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 157

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after ___ Hours

At _____ after ___ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/12/94	
COMPLETE	7/12/94	
TOTAL HRS.		
BORING FOREMAN	R.Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry - Pushed Cobble	1	12"	0
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Moist, Brown medium to coarse SAND & Gravel	2	12"	1
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ___
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 158
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/12/94	a.m. p.m.
COMPLETE	7/12/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium to coarse SAND & Gravel	1	12"	8"
		1'6"-2'6"	D	"	"	"	(3")		" trace silt	2	12"	11"
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Augered
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O.D. Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 159
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/12/94	
COMPLETE	7/12/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium to coarse SAND & Gravel	1	12"	6"
		1'6"-2'6"	D	"	"	"	(3")		Moist, Brown medium to coarse SAND & Gravel, trace silt	2	12"	8"
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 160
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/12/94	a.m. p.m.
COMPLETE	7/12/94	a.m. p.m.

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								0"	Asphalt - Gravel			
		6"-1'6"	D	Blows not		Taken	(3½")		Brown medium to coarse SAND & Gravel	1	12"	10"
		1'6"-2'6"	D	"	"	"	(3")		Pushed Cobble (No Rec.)	2	12"	0"
		2'6"-3'6"	D	"	"	"	(3")		Dark Brown medium to coarse SAND & Gravel, trace silt	3	12"	12"
								3'6"				
									Bottom of Boring 3'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 3'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 161
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size. D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/12/94	a.m.
COMPLETE	7/12/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to coarse SAND & Gravel	1	12"	12"
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Brown medium to coarse SAND & Gravel	2	12"	6"
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 162
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ NO
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/12/94	a.m. p.m.
COMPLETE	7/12/94	a.m. p.m.

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec.
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium to coarse SAND & Gravel	1	12"	10
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Brown fine SAND, trace silt & coarse gravel	2	12"	12
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored A: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41

Your Project or Contract No.

Date: July 15, 1994

Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
	Boring Reports: 163 through 175.

SAMPLES:

Remarks: More reports to follow.

By: _____

L. L. MORRIS

cc:

[redacted]

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I.

SHEET 1 OF 1
DATE
HOLE NO. 163
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after ___ Hours

At _____ after ___ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	
COMPLETE	7/13/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown medium to coarse SAND & Gravel (Dry)	1	12"	
		1'6"-2'6"	D	"	"	"	(3")	2'6"		2	12"	
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP Undisturbed Piston
TP: Test Pit A-A...

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

100 WATER STREET EAST PROVIDENCE, R I

DATE
HOLE NO. 164
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	a.m p.m
COMPLETE	7/13/94	a.m p.m

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½") Dry		Brown fine to medium SAND & medium to coarse Gravel	1	12	6"
		1'6"-2'6"	D	"	"	"	(3") Dry	2'6"	Brown medium SAND & medium to coarse Gravel	2	12	9"
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O D Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med. Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	
50 +	Very Dense	15-30	V. Stiff	

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

HOLE NO 164

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 165
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	
COMPLETE	7/13/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Brown medium to coarse SAND & Gravel (Dry)	1	12"	10
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Brown medium SAND & medium to coarse Gravel (Dry)	2	12"	9
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING" THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 166
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	
COMPLETE	7/13/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½") Dry		Brown fine to medium SAND & medium to coarse Gravel	1	12	12
		1'6"-2'6"	D	"	"	"	(3") Moist		Greenish Brown silty medium to fine SAND & medium to coarse Gravel	2	12	7
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ____
Samples 2

HOLE NO. 166

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 167
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	a.m. p.m.
COMPLETE	7/13/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown silty fine to medium SAND, little coarse gravel	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")		Brown medium to coarse SAND & Gravel, trace silt	2	12"	10
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30+ Hard

SUMMARY:
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET ___ OF ___

DATE ___

HOLE NO. 168

LINE & STA. ___

OFFSET ___

SURF. ELEV. ___

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ. NO. ___

SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At ___ after ___ Hours

At ___ after ___ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	___
Size I D	___	3½"-3"	___
Hammer Wt	___	300#	BIT
Hammer Fall	___	30"	___

	Date	Time
START	7/13/94	___ a.m. p.m.
COMPLETE	7/13/94	___ a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING ___

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to medium SAND & medium to coarse Gravel, trace silt	1	12"	8"
		1'6"-2'6"	D	"	"	"	(3")		" color change to Grayish Brown	2	12"	9"
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ___ USED ___ CASING THEN ___

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ___
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 169
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	a.m. p.m.
COMPLETE	7/13/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown Gray fine to medium SAND & medium to coarse Gravel, trace silt	1	12	12
		1'6"-2'6"	D	"	"	"	(3")		Moist, Gray to Green medium to fine SAND, little medium to coarse gravel, trace sil	2	12	8
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

SOILS DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. 05 | PROJ. NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 170

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall			

	Date	Time
START	7/13/94	A.M. P.M.
COMPLETE	7/13/94	A.M. P.M.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel, trace silt	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown Gray fine to medium SAND & medium to coarse Gravel, trace silt	2	12"	8
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density
0-10 Loose
10-30 Med. Dense
Cohesive Consistency
0-4 Soft
4-8 M/Stiff
30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 171
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At 2' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	
COMPLETE	7/13/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown to Gray silty fine to medium SAND & medium to coarse Gravel	1	12	1'10
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Wet, Brown to Gray silty fine to medium SAND & coarse Gravel	2	12	1' 7
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 172
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	a.m.
COMPLETE	7/13/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Light Brown medium to coarse SAND & Gravel	1	12	8
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Gray silty fine SAND & medium to coarse Gravel	2	12	1
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb WI x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET ___ OF ___

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 173

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At 2.5' after ___ Hours

At ___ after ___ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	a.m p.m
COMPLETE	7/13/94	a.m p.m

TOTAL HRS.

BORING FOREMAN R. Allen

INSPECTOR

SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec.
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND with coarse Gravel	1	12"	8"
		1'6"-2'6"	D	"	"	"	(3")		Wet, Gray & Brown silty medium SAND with coarse Gravel	2	12"	12"
								2'6"	Bottom of Boring 2'6"			

OFFICIAL RECORD COPY MI 10

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GROUND SURFACE TO ___ USED ___ CASING THEN ___

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ___
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 174
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At 2' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	a.m / p.m
COMPLETE	7/13/94	a.m / p.m

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	9"
		1'6"-2'6"	D	"	"	"	(3")		Wet, Gray silty medium SAND & coarse Gravel	2	12"	10
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ____

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 175
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At 2.5' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/13/94	
COMPLETE	7/13/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brownish Gray fine to medium SAND & coarse Gravel, trace silt	1	12"	8
		1'6"-2'6"	D	"	"	"	(3")		Wet, Brown medium SAND & coarse Gravel, trace silt	2	12"	1
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: July 18, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
	Boring Reports: 176 through 188.

SAMPLES:

Remarks: More reports to follow.

By: _____
L. L. MORRIS

cc:

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 176
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. 05 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/14/94	a.m. p.m.
COMPLETE	7/14/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Medium to coarse SAND & Gravel	1	12"	10
		1'6"-2'6"	D	"	"	"	(3")		Gray fine to medium SAND & medium to coarse Gravel	2	12"	3"
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UD: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ____

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 177
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/14/94	a.m. p.m.
COMPLETE	7/14/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								1"	Asphalt			
		6"-1'6"	D	Blows not Taken			(3½")		Brown medium SAND & coarse Gravel (Dry)	1	12"	2
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Gray fine to medium SAND & coarse Gravel (Dry)	2	12"	4
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard; 4-8 M/Stiff

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

[illegible] DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ. NO.

SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

DATE

HOLE NO. 178

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/14/94	a.m. p.m.
COMPLETE	7/14/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec.
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not		Taken	(3½")		Dry, Brown & Gray medium to coarse SAND & coarse Gravel	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Brown & Gray fine to medium SAND & coarse Gravel	2	12"	6"
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO

SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

DATE

HOLE NO. 179

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/15/94	
COMPLETE	7/15/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12"	
		1'6"-2'6"	D	"	"	"	(3")		Moist, Brown medium SAND & medium to coarse Gravel, trace silt	2	12"	1
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2 OD Sampler

Cohesionless Density		Cohesive Consistency	
0-10	Loose	0-4	Soft
10-30	Med Dense	4-8	M/Stiff
			30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET ___ OF ___

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 180

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START		
COMPLETE		
TOTAL HRS.		

BORING FOREMAN R. Allen

INSPECTOR

SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel	1	12"	8
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Moist, Gray medium SAND with medium to coarse Gravel	2	12"	1
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ___
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 181
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/15/94	a.m. p.m.
COMPLETE	7/15/94	a.m. p.m.

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light Brown fine to medium SAND & coarse Gravel	1	12"	10
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Moist to Wet, Light Brown fine to medium SAND & coarse Gravel	2	12"	8
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 182
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/15/94	
COMPLETE	7/15/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	10
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Moist, Brown fine to medium SAND & medium to coarse Gravel, trace silt	2	12"	5
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger / Core Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

SOILS DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ NO

SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

DATE

HOLE NO. 183

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/15/94	a.m / p.m
COMPLETE	7/15/94	a.m / p.m
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light Brown medium SAND with medium to coarse Gravel	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")		Moist, Light Brown fine to medium SAND & medium to coarse Gravel	2	12"	12
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored A: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET __ OF __

DATE

HOLE NO. 184

LINE & STA.

OFFSET

SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ. NO

SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At __ after __ Hours

At __ after __ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/15/94	a.m.
COMPLETE	7/15/94	p.m.
TOTAL HRS.		a.m.

BORING FOREMAN R. Allen

INSPECTOR

SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Dry, Brown medium SAND & coarse Gravel	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Brown fine to medium SAND & medium to coarse Gravel	2	12"	7
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO __ USED __ CASING THEN __

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring __
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 185
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/15/94	
COMPLETE	7/15/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light Brown fine to medium SAND & medium to coarse Gravel	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")			2	12"	12
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 186
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ___ Hours
At _____ after ___ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/15/94	a.m. p.m.
COMPLETE	7/15/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Dark Brown medium SAND & medium to coarse Gravel	1	12"	6
		1'6"-2'6"	D	"	"	"	(3")		Moist, Reddish Brown fine to medium SAND & medium to coarse Gravel	2	12"	9
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UD: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GOLD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ. NO.

SAMPLES SENT TO Tak at Site OUR JOB NO 95-41

SHEET 1 OF 1

DATE

HOLE NO 187

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVAT

At ____ after ____ H

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/15/96	
COMPLETE	7/15/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Pinkish/Light Brown fine to medium SAND & med. Gravel, trace coarse gravel, trace silt	1	12	8'
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Brown fine to medium SAND, tr. coarse gravel	2	12	9'
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density
0-10 Loose
10-30 Med Dense
Cohesive Consistency
0-4 Soft
4-8 M/Stiff
30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 188
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/15/94	a.m.
COMPLETE	7/15/94	p.m.
TOTAL HRS.		

BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-2'	D	Blows not		Taken	(3½")		Brown medium SAND & coarse Gravel	1	24"	12
		2'-3'	D	"	"	"	(3")		Brown medium SAND & coarse Gravel	2	12"	6"
								3'	Hit Refusal at 3'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 3'
Rock Coring
Samples 2

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: July 19, 1994 Via: fcm

To: Texas Instruments
34 Forest Street.
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
	Boring Reports: 189 through 206.

SAMPLES:

Remarks: More reports to follow.

By: _____

L. L. MORRIS

cc::

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 189
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/15/94	a.m.
COMPLETE	7/15/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & medium to coarse Gravel	1	12"	5
		1'6"-2'6"	D	"	"	"	(3")		Wet, Light Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	9
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 190
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	a.m.
COMPLETE	7/16/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
		0'-1'	D	Blows not Taken			(3½")		Dry, Light Brown/Dark Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	1
		1'-2'	D	"	"	"	(3")		Wet, Gray fine to medium silty SAND & coarse Gravel	2	12"	1
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

DATE
HOLE NO. 191
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At 1.5' after Hours
At after Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	
COMPLETE	7/16/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
		0'-1'	D	Blows not Taken			(3½")		Dry, Light Brown fine SAND & coarse Gravel, trace silt	1	12	1'
		1'-2'	D	"	"	"	(3")		Wet, Light Brown fine SAND & coarse Gravel, trace silt, trace wood	2	12	7
								2'	Bottom of Boring 2'			

GROUND SURFACE TO USED "CASING THEN

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140lb Wt x 30" fall on 2" OD Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 192
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At 2' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size O.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	a.m.
COMPLETE	7/16/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Moist, Light Brown fine to medium SAND & coarse Gravel, trace silt, trace wood	1	12"	6"
		1'-2'	D	"	"	"	(3")		Mostly WOOD, little Brown sand with coarse gravel	2	12"	11
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE
HOLE NO. 193
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At 2' after ___ Hours
At ___ after ___ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	a.m. p.m.
COMPLETE	7/16/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Moist, Dark Brown fine to medium SAND & coarse Gravel	1	12	1'5'
		1'-2'	D	"	"	"	(3")		Wet, Brown medium SAND & coarse Gravel (Pushed Cobble)	2	12	1'3'
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ___ USED ___ CASING THEN ___

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2 O D Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO. 193

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 194
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS		CASING	SAMPLER	CORE BAR
At ____ after ____ Hours	Type		S/S	
	Size I D		3½"-3"	
At ____ after ____ Hours	Hammer Wt		300#	BIT
	Hammer Fall		30"	

	Date	Time
START	7/16/94	a.m.
COMPLETE	7/16/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel	1	12"	12"
		1'-2'	D	"	"	"	(3")		Moist, Light Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	10"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2 O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO. 194

SOIL BORING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 195
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size: D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	A.M. P.M.
COMPLETE	7/16/94	A.M. P.M.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Brown medium SAND & medium to coarse Gravel	1	12"	7"
		1'-2'	D	"	"	"	(3")		Little Light Brown medium SAND & coarse Gravel (Pushed Cobble)	2	12"	3"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

SOIL BORING SERVICE, INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ NO.

SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE

HOLE NO 196

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS		CASING	SAMPLER	CORE BAR
At ____ after ____ Hours	Type		S/S	
	Size I D		3½"-3"	
At ____ after ____ Hours	Hammer Wt		300#	BIT
	Hammer Fall		30"	

	Date	Time
START	7/16/94	a.m.
COMPLETE	7/16/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Brown medium SAND & medium to coarse Gravel	1	12"	8"
		1'-2'	D	"	"	"	(3")		Gray fine to medium SAND & coarse Gravel, trace silt	2	12"	9"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Auger
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO 196

[illegible] DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

DATE
HOLE NO. 197
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size-D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	a m / p m
COMPLETE	7/16/94	a m / p m
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Reddish Brown medium SAND & coarse Gravel	1	12"	8"
		1'-2'	D	"	"	"	(3")		Gray fine to medium SAND & coarse Gravel, trace silt	2	12"	6"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2 OD Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO. 197

GOLD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 198
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	
COMPLETE	7/16/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
		0'-1'	D	Blows not Taken			(3½")		Brown to Dark Brown medium SAND, trace silt - FILL (Plastic & Metal)	1	12"	1
		1'-2'	D	"	"	"	(3")		Brown medium SAND, trace silt & coarse gravel	2	12"	
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O D Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO. 198

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

DATE
HOLE NO. 199
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	a.m. p.m.
COMPLETE	7/16/94	a.m. p.m.
TOTAL HRS.		
BORIN FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not		Taken	(3½")		Light Brown fine to medium SAND & medium to coarse Gravel, trace silt (Dry)	1	12"	9"
		1'-2'	D	"	"	"	(3")		Light Brown fine to medium SAND & coarse Gravel, trace silt (Wet)	2	12"	4"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" OD Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 200
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass,
LOCATION Attleboro, Mass,
PROJ. NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	a m / p m
COMPLETE	7/16/94	a m / p m
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Brown medium SAND & medium to coarse Gravel	1	12"	10
		1'-2'	D	"	"	"	(3")		Gray medium to coarse SAND & Gravel	2	12"	3"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2 O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 201
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At 2' after ... hours
At ... after ... hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	a.m. p.m.
COMPLETE	7/16/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken (3½")					Brown to Gray medium SAND with coarse Gravel, trace silt	1	12"	-
		1'-2'	D	"	"	"	(3")		Grayish Brown fine to med. SAND & coarse Gravel, trace silt	2	12"	-
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ... USED ... CASING THEN ...

Sample Type
D: Dry C: Cored W: Augered
UP: Undisturbed Piston
TP: Test Pit A-A...

Proportions Used
trace 0 to 10%
little 10 to 20%
... 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 202
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At 2' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	
COMPLETE	7/16/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Dry, Light Brown fine to medium SAND & coarse Gravel	1	12"	5
		1'-2'	D	"	"	"	(3")		Wet, Light Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	7
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 203
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	am pm
COMPLETE	7/16/94	am pm
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Brown medium SAND & coarse Gravel	1	12"	11
		1'-2'	D	"	"	"	(3")			2	12"	12
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D - Dry C - Cored W - Washed
UD - Undisturbed Piston
TP - Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 204
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	a.m. p.m.
COMPLETE	7/16/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From	To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'		D	Blows not Taken			(3½")		Brown TOPSOIL - Loam (Dry)	1	12"	12
		1'-2'		D	"	"	"	(3")		Light to Dark Brown medium SAND & Gravel (Dry)	2	12"	11
									2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D-Dry C-Cored A-Augered
U-Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'
Rock Coring —

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 205
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/16/94	
COMPLETE	7/16/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Dry, Light Brown LOAM, trace coarse gravel	1	12"	1(
		1'-2'	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel	2	12"	(
								2'				
									Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D-Dry C-Cored A-Augered
UD-Undisturbed Piston
TP-Test Pit A-A... W/Cone Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140lb Wt x 30" fall on 2 O D Sampler
Cohesionless Density
0-10 Loose
10-30 Med Dense
Cohesive Consistency
0-4 Soft
4-8 M/Stiff
8+ Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO 95-41

DATE
HOLE NO 206
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE	R
Type		S/S		
Size I D		3½"-3"		
Hammer Wt		300#	BIT	
Hammer Fall		30"		

	Date	Time
START	7/16/94	
COMPLETE	7/16/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Dry, Dark Brown to Light TOPSOIL - Loam changing to medium SAND & coarse Gravel	1	12"	9"
		1'-2'	D	"	"	"	(3")		Dry, Brown medium SAND & coarse Gravel	2	12"	10
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density
0-10 Loose
10-30 Med Dense
30-50 Dense

Cohesive Consistency
0-4 Soft
4-8 M/Stiff
30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: July 20, 1994 Via: fcm

To: Texas Instruments
34 Forest Street.
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
	Boring Reports. 207 through 219

SAMPLES:

Remarks: More reports to follow.

By: _____
L. L. MORRIS

cc:

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 207
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	a.m. p.m.
COMPLETE	7/17/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken (3½")					Dry, Light Brown LOAM & coarse Gravel	1	12"	11
		1'-2'	D	"	"	"	(3")		Dry, Gray fine to medium SAND & coarse Gravel	2	12"	10
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D - Dry C - Cored W - Washed
UP - Undisturbed Piston
TP - Test Pit A - Auger W - Wash Bore

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 208
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #2
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	a.m p.m
COMPLETE	7/17/94	a.m p.m
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken (3½")					Brown LOAM & medium to coarse Gravel (Dry)	1	12"	12
		1'-2'	D	"	"	"	(3")		Light Brown medium SAND & medium to coarse Gravel (Dry)	2	12"	12
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 209
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	a.m. p.m.
COMPLETE	7/17/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec.
		0'-1'	D	Blows not Taken			(3½")		Dry, Brown TOPSOIL - Loam & medium to coarse Gravel	1	12"	12
		1'-2'	D	"	"	"	(3")		Dark Brown Loam to medium to coarse SAND & Gravel, trace silt (Dry)	2	12"	12
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 210
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	a.m. p.m.
COMPLETE	7/17/94	a.m. p.m.

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel	1	12"	7"
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Brown SAND & medium to coarse Gravel	2	12"	10"
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 211
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO
SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	a.m. p.m.
COMPLETE	7/17/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Gray medium SAND & coarse Gravel - Fill	1	12"	8"
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Brown medium SAND & medium to coarse Gravel, trace silt	2	12"	11"
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 212
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	a.m. p.m.
COMPLETE	7/17/94	a.m. p.m.

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Dark Gray & Light Gray & Light Brown medium SAND & coarse Gravel	1	12	1'10
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Light Brown medium SAND & coarse Gravel	2	12	1'11
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2 O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ NO
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO 213
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size O		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	a.m. p.m.
COMPLETE	7/17/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light Brown medium SAND & coarse Gravel	1	12	10"
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown medium SAND & medium to coarse Gravel, trace silt	2	12	8"
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UD: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

HOLE NO 213

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 214
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	a.m. p.m.
COMPLETE	7/17/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Moist, Gray/Light Brown fine to medium SAND, little coarse gravel, trace silt	1	12"	12"
		1'6"-2'6"	D	"	"	"	(3")		Moist, Dark Brown fine to medium SAND, trace medium to coarse gravel, tr. silt	2	12"	10"
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 215
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	a.m. p.m.
COMPLETE	7/17/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light Brown medium SAND & medium to coarse Gravel	1	12"	9
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light & Dark Brown fine to medium SAND, little coarse gravel	2	12"	12
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ____
Samples 2

HOLE NO. 215

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 216
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	A.M.
COMPLETE	7/17/94	P.M.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light Gray to Dark Br. fine to medium SAND & coarse Gravel, trace silt	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Light Gray medium SAND & coarse Gravel	2	12"	11
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140lb Wt x 30" fall on 2 O.D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GOLD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1

DATE

HOLE NO. 217

LINE & STA.

OFFSET

SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ. NO.

SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	
COMPLETE	7/17/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light Gray to Brown medium SAND & coarse Gravel	1	12"	7"
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Brown medium SAND & coarse Gravel, trace silt	2	12"	1'
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 218
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	a.m. p.m.
COMPLETE	7/17/94	a.m. p.m.

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light Brown fine to medium SAND & coarse Gravel	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Brown medium SAND & coarse Gravel, trace silt	2	12"	11
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 219
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ NO
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/17/94	
COMPLETE	7/17/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Dry, Light Brown fine to medium SAND & coarse Gravel	1	12"	1'
		1'6"-2'6"	D	"	"	"	(3")		Dry, Rust to Light Brown medium SAND & coarse Gravel, trace silt	2	12"	1(
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 **Your Project or Contract No.**

Date: July 21, 1994 **Via:** fcm

To: Texas Instruments
34 Forest Street.
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
	Boring Reports: 220 through 232.

SAMPLES:

Remarks: More reports to follow.

By: _____
L. L. MORRIS

cc:

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 220
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	
COMPLETE	7/18/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	1'
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel	2	12"	1'
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	

SUMMARY
Earth Boring 2'6"
Rock Coring ____
Samples 2

HOLE NO. 220

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 221
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	a.m.
COMPLETE	7/18/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel, trace silt	1	12"	9"
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	10
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
O: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 222
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	
COMPLETE	7/18/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
		0'-1'	D	Blows not Taken			(3½")		Dry, Light & Dark Brown fine to medium SAND & coarse Gravel	1	12"	1'
		1'-2'	D	"	"	"	(3")		Dry, Light Brown/Gray fine to medium SAND & coarse	2	12"	
								2'	Gravel, trace silt			
									Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ "CASING. THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

100 WATER STREET EAST PROVIDENCE, R I.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. 05 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 223
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	a.m. p.m.
COMPLETE	7/18/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist.	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Dry, Brown medium to fine SAND & coarse Gravel, trace silt	1	12"	10"
		1'6"-2'	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	6"	6"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ "CASING: THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense; 30-50 Dense; 50 + Very Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 15-30 V-Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO 223

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

HOLE NO. 224
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	a.m.
COMPLETE	7/18/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc.	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown medium SAND & coarse Gravel (Dry)	1	12"	12"
		1'6"-2'	D	"	"	"	(3")		Light Brown fine to medium SAND & medium to coarse Gravel, trace silt (Dry)	2	6"	6"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ "CASING: THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency	
0-10	Loose	0-4	Soft
10-30	Med. Dense	4-8	M/Stiff
30-50	Dense	8-15	Stiff
50+	Very Dense	15-30	V-Stiff
		30+	Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO 224

100 WATER STREET EAST PROVIDENCE, R. I.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

HOLE NO. 225
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	a.m. p.m.
COMPLETE	7/18/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows	not	Taken	(3½")		Dry, Light to Dark Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	9"
		1'6"-2'	D	"	"	"	(3")		Dark Brown fine to medium SAND & medium to coarse Gravel, trace silt	2	6"	5"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt x 30" fall on 2" O D Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med. Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	
50 +	Very Dense	15-30	V-Stiff	

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO 225

100 WATER STREET EAST PROVIDENCE, R

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

HOLE NO. 226
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	a.m. p.m.
COMPLETE	7/18/94	a.m. p.m.
TOTAL HRS.		

BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc.	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not		Taken	(3½")		Brown/Dark Brown fine to medium SAND & medium to coarse Gravel, trace silt	1	12"	8"
		1'6"-2'	D	"	"	"	(3")		Brown fine to medium SAND & coarse Gravel, trace silt	2	6"	6"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O D Sampler

Cohesionless Density		Cohesive Consistency	
0-10	Loose	0-4	Soft
10-30	Med. Dense	4-8	M/Stiff
30-50	Dense	8-15	Stiff
50 +	Very Dense	15-30	V-Stiff
		30 +	Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO 226

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE
HOLE NO. 227
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	a.m. p.m.
COMPLETE	7/18/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows	not	Taken	(3½")		Dry, Brown medium SAND & coarse Gravel, trace silt	1	12"	12"
		1'6"-2'	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	6"	6"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med. Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	
50 +	Very Dense	15-30	V-Stiff	

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO 227

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #2 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 228
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	
COMPLETE	7/18/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Dry, Light Brown LOAM - Topsoil, trace coarse gravel	1	12	1'1(
		1'-2'	D	"	"	"	(3")		Dry, Light Brown fine to medium SAND & medium to coarse gravel	2	12	1'1(
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Thinwall

Proportions Used	
trace	0 to 10%
little	10 to 20%
some	20 to 35%
and	35 to 50%

140 lb Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency	
0-10	Loose	0-4	Soft
10-30	Med. Dense	4-8	M/Stiff
30-50	Dense	8-15	Stiff
50 +	Very Dense	15-30	V-Stiff
		30 +	Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO 228

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

DATE
HOLE NO 229
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	
COMPLETE	7/18/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	12
		1'-2'	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	11
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense; 30-50 Dense; 50 + Very Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

HOLE NO 229

SOIL BORING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ. NO.

SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE

HOLE NO. 230

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	
COMPLETE	7/18/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Light, Rust & Dark fine to medium SAND & coarse Gravel, trace silt (Dry)	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")		Gray fine to medium SAND, trace coarse gravel, trace silt (Dry)	2	12"	5
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

DATE
HOLE NO. 231
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	
COMPLETE	7/18/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Pushed Cobble	1	12"	0'
		1'6"-2'6"	D	"	"	"	(3")		Pushed Cobble	2	12"	0'
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med. Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

HOLE NO. 231

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

DATE
HOLE NO. 232
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/18/94	a.m. p.m.
COMPLETE	7/18/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light Br./Dark Brown fine to medium SAND & coarse Gravel, trace silt (Fuel Odor)	1	12"	10"
		1'6"-2'6"	D	"	"	"	(3")		Dry, Gray medium SAND & coarse Gravel, trace silt	2	12"	10"
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UD: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and- 35 to 50%

140lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

HOLE NO. 232

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 34-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 **Your Project or Contract No.**

Date: July 22, 1994 **Via:** fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
	Boring Reports: 233 through 243.

SAMPLES:

Remarks: More reports to follow.

By: _____
L. L. MORRIS

cc:

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 233
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	
COMPLETE	7/19/94	

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per Ft	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12"	6
		1'6"-2'6"	D	"	"	"	(3")		Dry, Gray Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	4
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Thin-wall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O D Sampler

Cohesionless Density		Cohesive Consistency	
0-10	Loose	0-4	Soft
10-30	Med. Dense	4-8	M/Stiff
30-50	Dense	8-15	Stiff
50 +	Very Dense	15-30	V-Stiff
		30 +	Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

HOLE NO 233

100 WATER STREET EAST PROVIDENCE, R I.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

DATE
HOLE NO. 234
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	a.m p.m
COMPLETE	7/19/94	a.m p.m

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light to Dark Br. fine to medium SAND & coarse Gravel, trace silt	1	12	12'
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Brown Gray fine to med. SAND & medium to coarse Gravel, trace silt	2	12'	6'
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING. THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med. Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	

SUMMARY:
Earth Boring 2'6"
Rock Coring
Samples 2

HOLE NO. 234

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO 235
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	a.m. p.m.
COMPLETE	7/19/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, Wood, trace silt	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown Gray fine to medium SAND & coarse	2	12"	10
								2'6"	Gravel, trace silt			
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

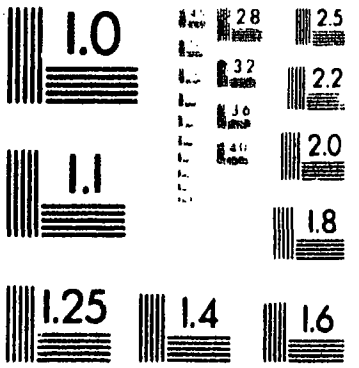
Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

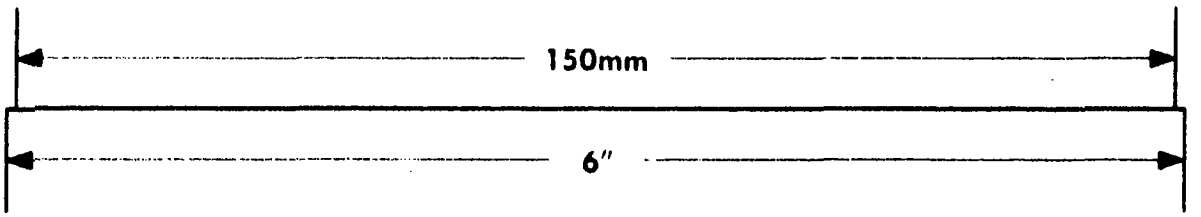
Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

IMAGE EVALUATION TEST TARGET (MT-3)





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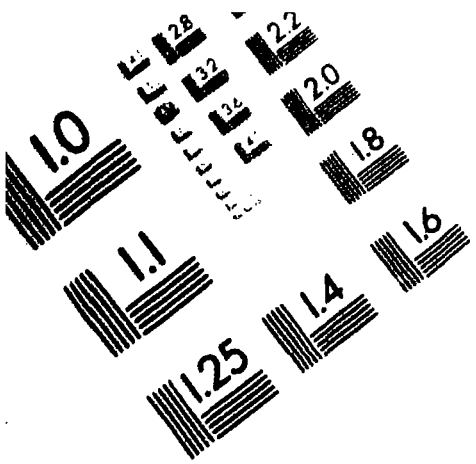
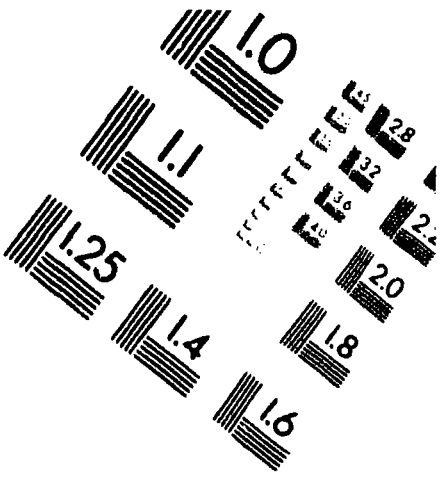
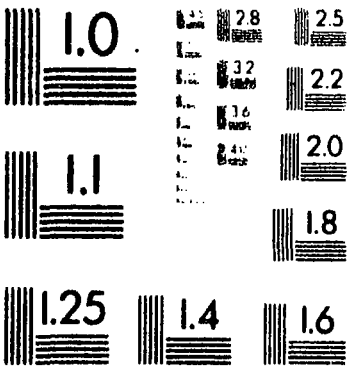
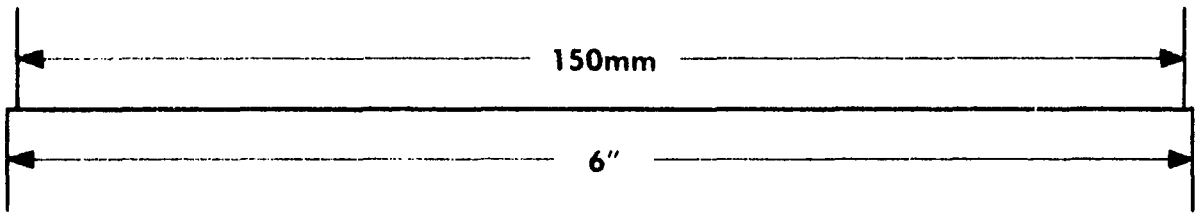
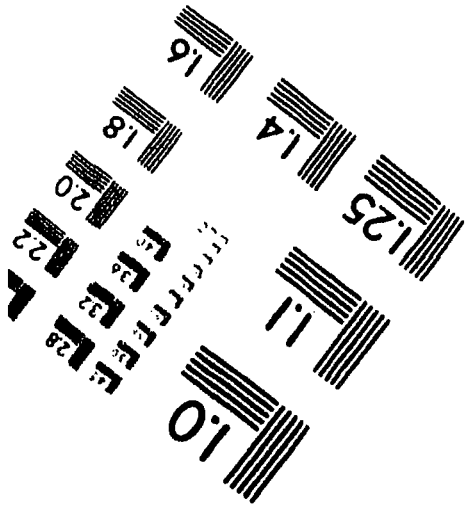


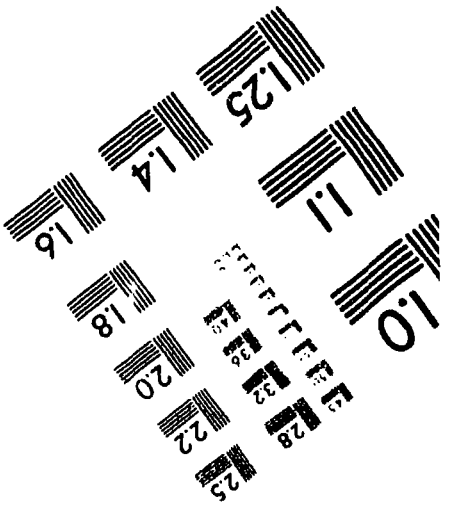
IMAGE EVALUATION TEST TARGET (MT-3)











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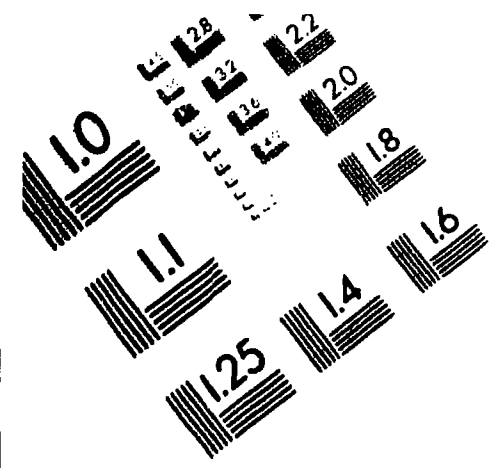
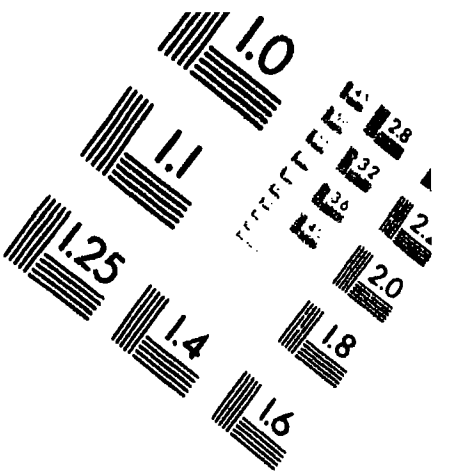
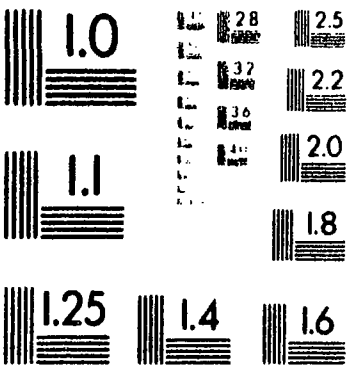
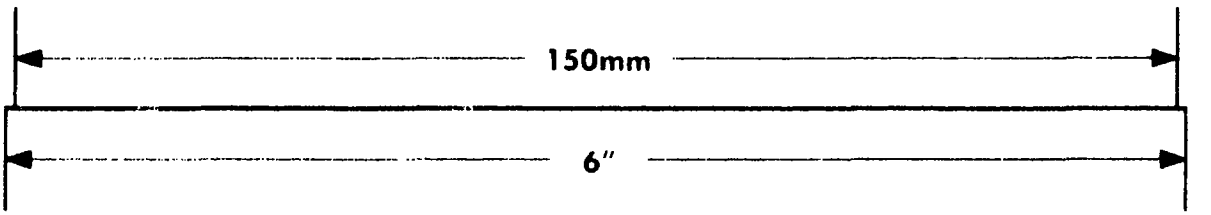
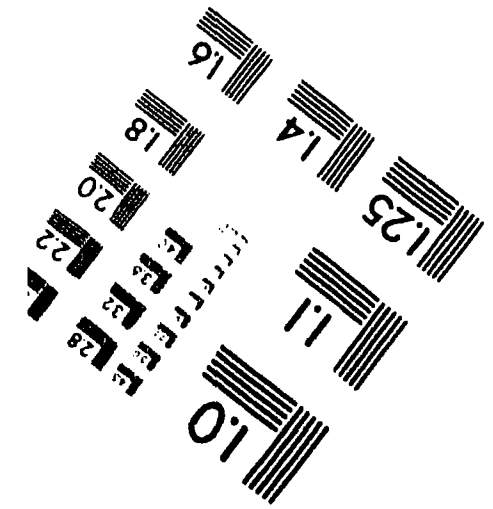


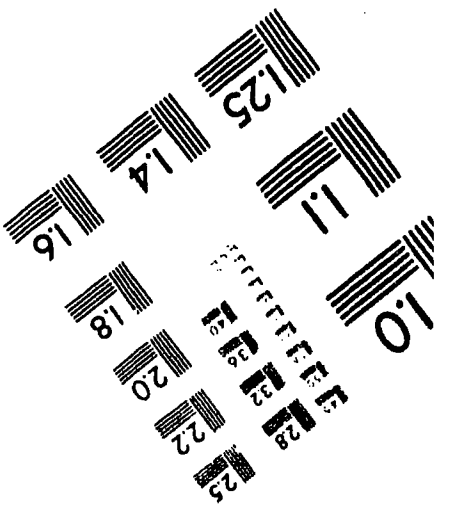
IMAGE EVALUATION TEST TARGET (MT-3)











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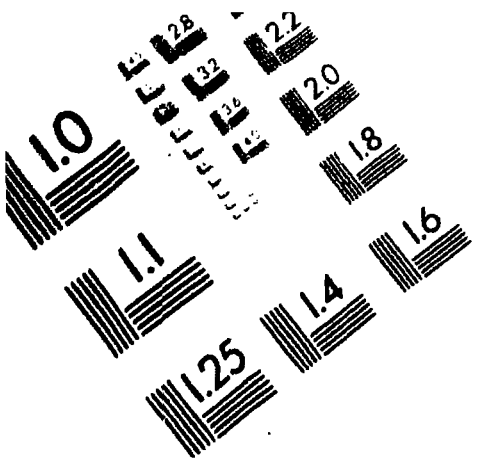
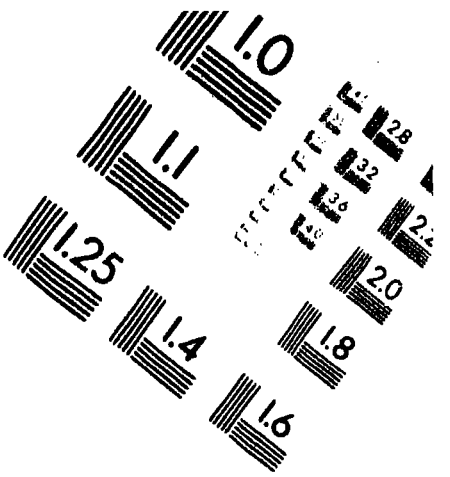
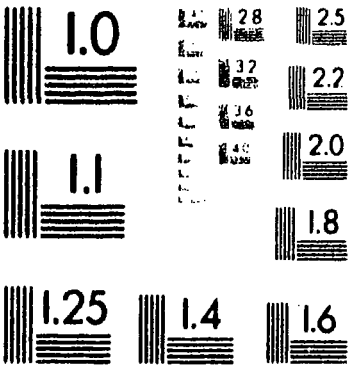
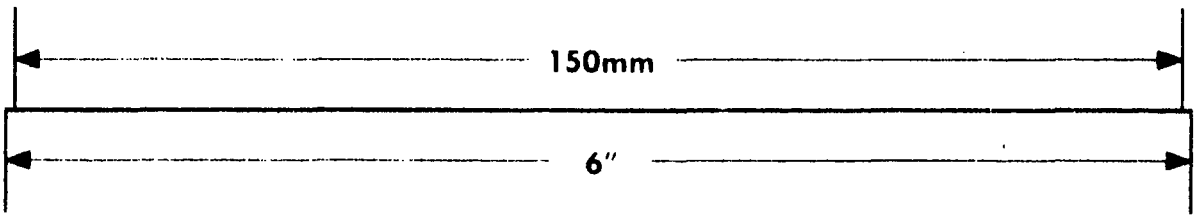
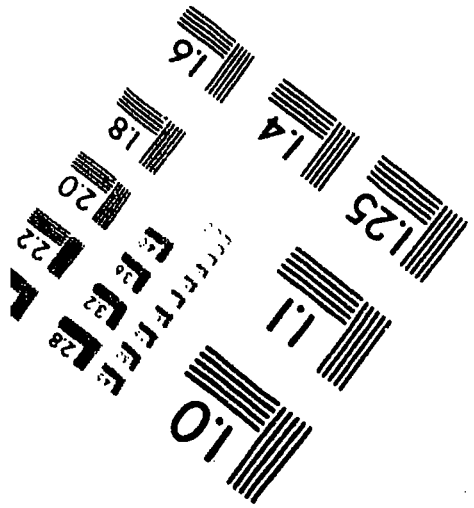


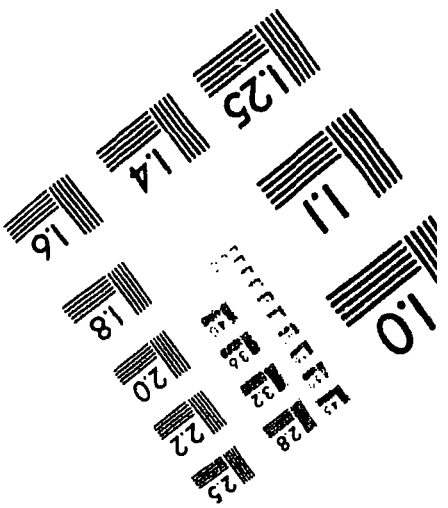
IMAGE EVALUATION TEST TARGET (MT-3)











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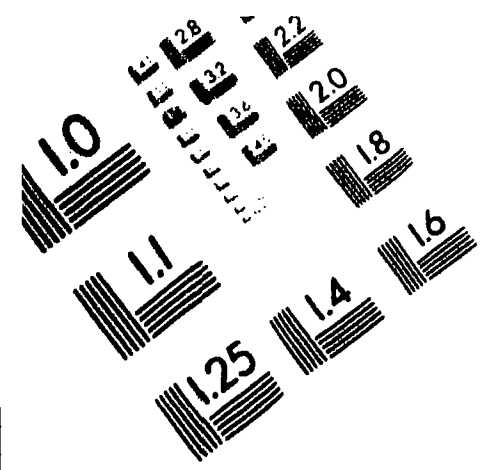
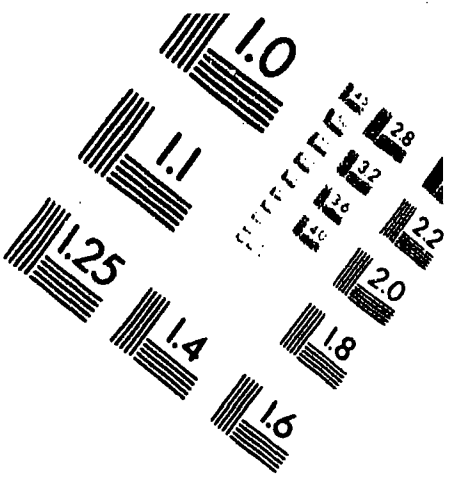
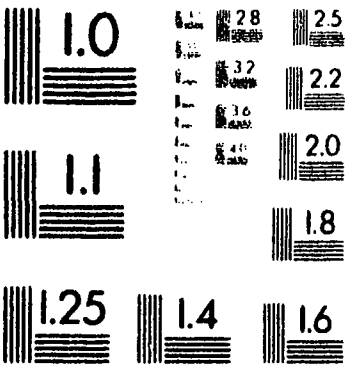
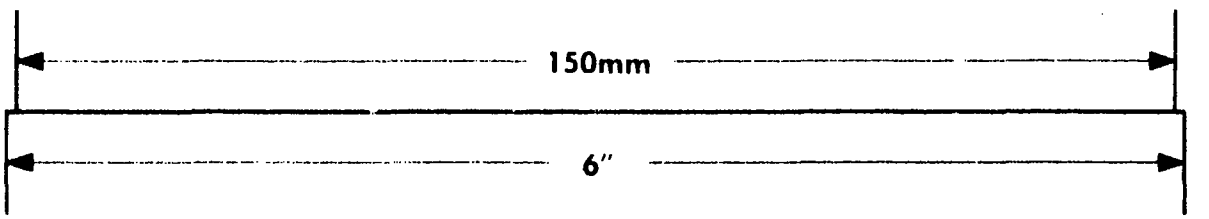
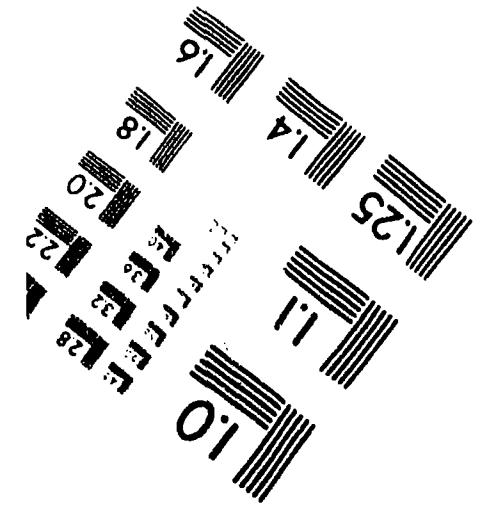


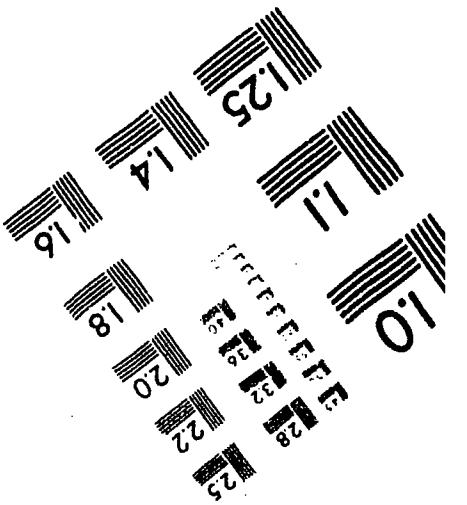
IMAGE EVALUATION TEST TARGET (MT-3)











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SOILS ENGINEERING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE
HOLE NO. 236
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	a.m.
COMPLETE	7/19/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel, trace silt	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown to Gray medium SAND & medium to coarse Gravel, trace silt	2	12"	-
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored A: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30 fall on 2 O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 237
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size: D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	a m / p m
COMPLETE	7/19/94	a m / p m
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Light Br, Rust to Gray fine to medium SAND & medium to coarse Gravel, trace silt	1	12"	11
		1'6"-2'6"	D	"	"	"	(3")		Dry, Dark Brown to Gray fine to medium SAND & coarse Gravel, trace silt	2	12"	12
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 238
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	a.m. p.m.
COMPLETE	7/19/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown medium SAND & coarse Gravel, trace silt	2	12"	1
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 239
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	a.m.
COMPLETE	7/19/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel, trace silt	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	9"
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
T.P.: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 240
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	
COMPLETE	7/19/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist.	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc.	SAMPLE No	Pen	Re
		0'-1'	D	Blows not Taken			(3½")		Dry, Topsoil - Light Brown fine SAND, trace coarse gravel	1	12"	1
		1'-2'	D	"	"	"	(3")		Dry, Brown medium SAND & coarse Gravel	2	12"	1
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density
0-10 Loose
Cohesive Consistency
0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 241
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	A.M. / P.M.
COMPLETE	7/19/94	A.M. / P.M.

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Pushed Cobble	1	12"	0'
		1'6"-2'6"	D	"	"	"	(3")		Pushed Cobble	2	12"	0'
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density
0-10 Loose
10-30 Med Dense

Cohesive Consistency
0-4 Soft
4-8 M/Stiff
30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 242
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	
COMPLETE	7/19/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Brown medium SAND & coarse Gravel, trace silt	2	12"	1
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2' O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF
DATE
HOLE NO. 243
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At 6' after Hours
At after Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/19/94	
COMPLETE	7/19/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
		0'-2'	D	Blows not Taken			(3½")		Brown fine to medium SAND & medium to coarse Gravel, trace silt	1	24"	1
		2'-4'	D	"	"	"	(3")		Dark Brown fine to medium SAND & medium to coarse Gravel, trace silt	2	24"	1
		4'-6'	D	"	"	"	(3½")		Light & Dark Brown fine to medium SAND & medium to coarse Gravel, trace of silt	3	24"	1
		6'-8'	D	"	"	"	(3")		Dark silty fine to medium SAND	4	24"	2
		8'-10'	D	"	"	"	(3½")		Gray silty fine SAND	5	24"	1
								10'	Bottom of Boring 10'			

GROUND SURFACE TO USED CASING THEN

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 10'
Rock Coring

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: July 25, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
1	Boring Reports: 244 through 255.

SAMPLES:

Remarks: More reports to follow.

By: _____

L. L. MORRIS

cc:

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 244
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At 6' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/20/94	a.m.
COMPLETE	7/20/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-2'	D	Blows not	Taken		(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	24'	12"
		2'-4'	D	"	"	"	(3")		Moist, Brown fine to medium SAND & medium to coarse Gravel, trace silt	2	24'	6"
		4'-6'	D	"	"	"	(3½")		Wet, Dark Brown, Light Br. & Dark Brown fine to medium SAND, trace silt	3	24'	18"
		6'-8'	D	"	"	"	(3")		Wet, Gray silty fine SAND & Dark Brown Peat	4	24'	16"
		8'-10'	D	"	"	"	(3½")		Wet, Gray fine to medium SAND, trace silt	5	24'	24"
								10'	Bottom of Boring 10'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 10'
Rock Coring
Samples 5

[illegible] DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

DATE
HOLE NO. 245
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At 6' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/20/94	a.m. p.m.
COMPLETE	7/20/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-2'	D	Blows not Taken			(3½")		Dry, Rust Brown fine to medium SAND & medium to coarse Gravel, trace silt	1	24"	12"
		2'-4'	D	"	"	"	(3")		Dry, Brown fine to medium SAND & medium to coarse Gravel, trace silt	2	24"	10"
		4'-6'	D	"	"	"	(3½")		Wet, Brown fine to medium SAND & medium to coarse Gravel, trace silt	3	24"	12"
		6'-8'	D	"	"	"	(3")		Wet, Grayish Brown medium SAND & coarse Gravel, trace silt	4	24"	24"
		8'-10'	D	"	"	"	(3½")		Wet, Gray fine SAND, trace coarse gravel, trace silt	5	24"	24"
								10'	Bottom of Boring 10'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 10'
Rock Coring
Samples 5

SOIL DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

DATE
HOLE NO. 246
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At 5' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/20/94	
COMPLETE	7/20/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-2'	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	24"	18"
		2'-4'	D	"	"	"	(3")		Brown fine to medium SAND & coarse Gravel, trace silt (Dry)	2	24"	2"
		4'-6'	D	"	"	"	(3½")		Wet, Light Brown fine to medium SAND & coarse Gravel, trace silt	3	24"	4"
		6'-8'	D	"	"	"	(3")		Wet, Brown silty fine SAND & coarse Gravel	4	24"	4"
		8'-10'	D	"	"	"	(3½")		Brown Gray silty fine SAND, trace coarse gravel (Wet)	5	24"	24"
								10'	Bottom of Boring 10'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 10'
Rock Coring
Samples 5

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 247
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At 4' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/20/94	a.m. p.m.
COMPLETE	7/20/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-2'	D	Blows	not	Taken	(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	24"	12"
		2'-4'	D	"	"	"	(3")		Wet, Brown fine to medium SAND & medium to coarse	2	24"	4"
		4'-6'	D	"	"	"	(3½")		Gravel, trace silt	3	24"	12"
		6'-8'	D	"	"	"	(3")		Brown fine to medium SAND & medium to coarse Gravel (Wet)	4	24"	18"
		8'-10'	D	"	"	"	(3½")		Wet, Gray silty fine SAND, trace coarse gravel	5	24"	24"
								10'	Bottom of Boring 10'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 10'
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 248
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At 6' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/21/94	a.m. p.m.
COMPLETE	7/21/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-2'	D	Blows not Taken			(3½")		Brown fine to medium SAND & medium to coarse Gravel	1	24"	16
		2'-4'	D	Blows not Taken			(3")			2	24"	12
		4'-6'	D	"	"	"	(3½")			3	24"	4"
		6'-8'	D	"	"	"	(3")		Gray Brown silty fine SAND, trace coarse gravel	4	24"	3"
		8'-10'	D	"	"	"	(3½")		Gray silty fine SAND	5	24"	24"
								10'	Bottom of Boring 10'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 10'
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 249
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/21/94	A.M.
COMPLETE	7/21/94	P.M.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")			2	12"	1
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 250
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/21/94	a.m. p.m.
COMPLETE	7/21/94	a.m. p.m.

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	6'
		1'6"-2'6"	D	"	"	"	(3")			2	12"	8"
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 251
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/21/94	a.m / p.m
COMPLETE	7/21/94	a.m / p.m
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" or Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12"	8"
		1'6"-2'6"	D	"	"	"	(3")			2	12"	2"
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 252
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/21/94	a.m. p.m.
COMPLETE	7/21/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12	1'10
		1'-2'	D	"	"	"	(3")		Wet, Gray silty fine to medium SAND & coarse Gravel	2	12	1'10
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 253
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/21/94	a.m. p.m.
COMPLETE	7/21/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc.	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Dry Brown fine to medium SAND & coarse Gravel	1	12"	1'
		1'-2'	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel	2	12"	2'
								2'	(Pushed Cobble)			
									Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 254
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/21/94	
COMPLETE	7/21/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per Foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
		0'-1'	D	Blows not Taken			(3½")		Dry, Light Brown fine to medium SAND, trace coarse gravel, trace silt	1	12"	-
		1'-2'	D	"	"	"	(3")		Moist, Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	-
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ "CASING. THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 255
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/21/94	a.m. p.m.
COMPLETE	7/21/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12"	2'
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Brown medium SAND & coarse Gravel	2	12"	6'
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
Trace 0 to 10%
Little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: July 26, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
3	Boring Reports: 256 through 268.

SAMPLES:

Remarks: More reports to follow.

By: _____
L. L. MORRIS

cc:

SOILS DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ NO

SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

DATE

HOLE NO 256

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size OD		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/22/94	
COMPLETE	7/22/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Dry, Brown medium SAND & coarse Gravel	1	12"	4
		1'6"-2'6"	D	"	"	"	(3")		Pushed Cobble	2	12"	-
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" OD Sampler

Cohesionless Density		Cohesive Consistency		
0-10	Loose	0-4	Soft	30 + Hard
10-30	Med Dense	4-8	M/Stiff	
30-50	Dense	8-15	Stiff	

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 257
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/22/94	
COMPLETE	7/22/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken		(3½")			Dry, Brown medium SAND & coarse Gravel	1	12"	1'
		1'6"-2'6"	D	"	"	"	(3")		Light Brown & Gray fine to medium SAND & coarse Gravel, trace silt	2	12"	7"
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 258
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/22/94	
COMPLETE	7/22/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Br., Dark Br. & Gray medium SAND & coarse Gravel, trace silt	2	12"	8
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored A: Washed
UD: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard; 4-8 M/Stiff

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 259
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ hours
At _____ after ____ hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START		
COMPLETE		
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Brown fine to medium SAND & coarse Gravel	2	12"	8
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed

Proportions Used
trace 0 to 10%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density 0-4 Loose
Cohesive Consistency 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE R I

SHEET 1 OF 1
DATE
HOLE NO 260
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/22/94	a.m. p.m.
COMPLETE	7/22/94	a.m. p.m.
TOTAL HRS		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Per	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Grayish Brown fine to medium SAND & coarse Gravel	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")		Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	3"
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored A: Augered
UD: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ____

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 261
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/22/94	a.m. p.m.
COMPLETE	7/22/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From-To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Ele.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown & Gray medium SAND & coarse Gravel	1	12"	-
		1'6"-2'6"	D	"	"	"	(3")		(No Recovery)	2	12"	0
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D Dry C Cored A Augered
U Undisturbed Piston
TP Test Pit S Split Spoon Test

Proportions used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency	
0-0	Loose	0-4	Soft
10-30	Med Dense	4-8	M/Stiff
		30 +	Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ____
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 262
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fal.		30"	

	Date	Time
START	7/22/94	
COMPLETE	7/22/94	
TOTAL HRS		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		" color change to Light Brown	2	12"	7
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 263
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ hours
At ____ after ____ hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/22/94	
COMPLETE	7/22/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown Gray fine to medium SAND & coarse Gravel, trace silt	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Dry, Gray medium SAND & coarse Gravel, trace silt	2	12"	1
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
O: Dry C: Cored A: Augered
UD: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O D Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 264
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size O.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fal.		30"	

	Date	Time
START	7/22/94	
COMPLETE	7/22/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sample: From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel	2	12"	2
								2'6"				
									Bottom of Boring 2'6"			

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GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored A: Augered
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30 fall on 2 O.D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 265
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest
LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5
PROJ NO
SAMPLES SENT TO Taken at Site
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/22/94	
COMPLETE	7/22/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
		0'-1'	D	Blows not Taken			(3½")		Dry, TOPSOIL, Brown Loam, powdery, trace coarse gravel	1	12	1'
		1'-2'	D	"	"	"	(3")		Gray medium to fine SAND & coarse Gravel, trace silt	2	12	1'
								2'				
									Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 266
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/22/94	a.m.
COMPLETE	7/22/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
		0'-1'	D	Blows not Taken			(3½")		Dry, TOPSOIL, powdery Loam, trace coarse gravel	1	12"	1
		1'-2'	D	"	"	"	(3")		Dry, Brown fine SAND, trace coarse gravel	2	12"	5
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF
DATE
HOLE NO. 267
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/22/94	
COMPLETE	7/22/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
		0'-1'	D	Blows not	Taken		(3½")		Dry, Brown TOPSOIL, powdery & coarse Gravel	1	12	1
		1'-2'	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	12	"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UR: Undisturbed Piston

Proportions Used
trace 0 to 10%

140 lb Wt x 30" fall on 2' O D Sampler
Cohesionless Density
0-10 Loose

Cohesive Consistency
0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 268
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/22/94	a.m. p.m.
COMPLETE	7/22/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-1'	D	Blows not Taken			(3½")		Dry, Brown fine SAND (Topsoil & coarse Gravel	1	12"	12"
		1'-2'	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel	2	12"	10"
								2'	Bottom of Boring 2'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'
Rock Coring

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: July 27, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
	Boring Reports: 269 through 276.

SAMPLES:

Remarks: More reports to follow.

By: _____

L. L. MORRIS

cc::

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 269
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At N/A after Hours
At after Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/23/94	a.m.
COMPLETE	7/23/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND, trace coarse gravel	1	12"	8'
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown fine to medium SAND & medium to coarse	2	12"	5'
								2'6"	Gravel, trace silt			
									Bottom of Boring 2'6"			

GROUND SURFACE TO USED CASING THEN

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard; 4-8 M/Stiff

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 270
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/24/94	
COMPLETE	7/24/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12"	1'
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown medium SAND & coarse Gravel	2	12"	8"
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2 O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 271
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D.		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/24/94	
COMPLETE	7/24/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown, Tint of Gray fine to medium SAND & coarse Gravel	2	12"	1
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
Trace 0 to 10%
Little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 272
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/24/94	a.m.
COMPLETE	7/24/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist.	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown & Rust in color medium SAND & coarse Gravel	2	12"	8
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2 O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 273
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/24/94	a.m. p.m.
COMPLETE	7/24/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Moist, Brown medium SAND & coarse Gravel	1	12"	10
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Dark Brown medium SAND & coarse Gravel	2	12"	2"
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
Trace 0 to 10%
Little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30+ Hard

SUMMARY:
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 274
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/24/94	
COMPLETE	7/24/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Wet, Brown fine to medium SAND & medium to coarse Gravel	1	12"	10
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Wet, Brown silty fine SAND & medium to coarse Gravel	2	12"	6
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 275
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/24/94	a.m. p.m.
COMPLETE	7/24/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")			2	12"	8"
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

SOILS DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET - OF -

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 276

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/24/94	a m / p m
COMPLETE	7/24/94	a m / p m

TOTAL HRS.

BORING FOREMAN R. Allen

INSPECTOR

SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		1'6"-2'6"	D	Blows not Taken			(3½")		Wet to Dry, Brown medium SAND & medium to coarse Gravel, trace silt	1	12"	-
		2'6"-3'6"	D	"	"	"	(3")	3'6"	Dry, Brown medium SAND & coarse Gravel	2	12"	-
									Bottom of Boring 3'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 3'6"
Rock Coring
Samples 2

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: July 28, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
3	Boring Reports: 277 through 287.

SAMPLES:

Remarks: More reports to follow.

By: _____
L. L. MORRIS

cc:

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 277
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/25/94	
COMPLETE	7/25/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	
		1'6"-2'6"	D	"	"	"	(3")		Dry, Grayish Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density
0-10 Loose

Cohesive Consistency

SUMMARY
Earth Boring 2'6"

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 278
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/25/94	
COMPLETE	7/25/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Grayish Brown medium SAND & coarse Gravel	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Dry, Gray medium SAND & coarse Gravel, trace silt	2	12"	8
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D-Dry C-Cored W-Washed

Proportions Used
trace 0 to 10%

140lb Wt x 30" fall on 2 OD Sampler
Cohesionless Density | Cohesive Consistency

SUMMARY
Earth Boring 2'6"

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 279
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/25/94	
COMPLETE	7/25/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown Gray fine to medium SAND & coarse Gravel, trace silt	1	12"	8
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Light Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	2
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored A: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 280
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/25/94	a.m. p.m.
COMPLETE	7/25/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to coarse SAND & medium to coarse Gravel, trace silt	1	12	10'
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Grayish Brown medium SAND & coarse Gravel, trace silt	2	12"	5'
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 28

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/25/94	
COMPLETE	7/25/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	9
		1'6"-2'6"	D	"	"	"	(3")			2	12"	1
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP - Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 282
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	A.M.
COMPLETE	7/26/94	P.M.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist.	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel	1	12	11
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Grayish Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	-
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit S: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 283
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	
COMPLETE	7/26/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken		(3½")			Dry, Brown medium SAND & coarse Gravel	1	12"	12"
		1'6"-2'6"	D	"	"	"			No Recovery - Pushed Cobble	2	12"	0
		2'6"-3'6"	D	"	"	"	(3")		Dry, Grayish Green fine to medium SAND & medium to coarse Gravel, trace silt	3	12"	12"
								3'6"	Bottom of Boring 3'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 3'6"
Rock Coring
Samples 3

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 284
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	a.m p.m
COMPLETE	7/26/94	a.m p.m

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Brown fine to medium SAND & coarse Gravel	1	12"	11"
		1'6"-2'6"	D	"	"	"	(3")		Grayish Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	10"
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2 O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 285
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	
COMPLETE	7/26/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	10
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel	2	12"	2
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 OD Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 286
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	A.M.
COMPLETE	7/26/94	P.M.
TOTAL HRS		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Gray Brown fine to medium SAND & coarse Gravel	1	12"	10"
		1'6"-2'6"	D	"	"	"	(3")			2	12"	10"
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit & Auger W Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 287
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	a.m.
COMPLETE	7/26/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Dark Br. to Light Br. silty fine SAND & coarse Gravel	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")		Gray fine to medium SAND & coarse Gravel, trace silt	2	12"	10
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: July 29, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
	Boring Reports: 288 through 294.

SAMPLES:

Remarks: More reports to follow.

By: _____

L. L. MORRIS

cc:

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 288
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	
COMPLETE	7/26/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Gray Brown fine to medium SAND & medium to coarse Gravel	1	12"	9
		1'6"-2'6"	D	"	"	"	(3")		Dry, Light Brown fine to medium SAND & coarse Gravel	2	12"	8
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 289
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	8:1
COMPLETE	7/26/94	8:1
TOTAL HRS		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12"	1'
		1'6"-2'6"	D	"	"	"	(3")			2	12"	1'
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 290
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	
COMPLETE	7/26/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	6
		1'6"-2'6"	D	"	"	"	(3")		Dry, Gray Brown fine to medium SAND & medium to coarse Gravel	2	12"	3
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 291
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	
COMPLETE	7/26/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	5
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dark Gray to Brown fine to medium SAND & medium to coarse Gravel	2	12"	4
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GOLD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ NO

SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE

HOLE NO. 292

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size: D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	
COMPLETE	7/26/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to medium SAND & coarse Gravel	1	12"	7
									Dark Brown to Dark Gray			
		1'6"-2'6"	D	"	"	"	(3")		fine to medium SAND & coarse Gravel, trace silt	2	12"	8
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GOLD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE
HOLE NO. 293
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	
COMPLETE	7/26/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist.	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Gray Brown fine to medium SAND & medium to coarse Gravel	1	12"	
		1'6"-2'6"	D	"	"	"	(3")		Dry, Gray fine to medium SAND & medium to coarse Gravel, trace silt	2	12"	
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test P[illegible] A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE
HOLE NO. 294
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size O		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/26/94	
COMPLETE	7/26/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Grayish Brown medium SAND & coarse Gravel	1	12"	5
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Light Brown medium SAND & coarse Gravel	2	12"	3
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density
0-10 Loose
10-30 Med. Dense
Cohesive Consistency
0-4 Soft
4-8 M/Stiff
30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: August 1, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
3	Boring Reports: 295 through 303.

SAMPLES:

Remarks: More reports to follow.

By: _____
L. L. MORRIS

cc:

GOLD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 295

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/27/94	
COMPLETE	7/27/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12	1'
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown medium SAND & coarse Gravel	2	12	1'
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF
DATE
HOLE NO. 296
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/27/94	
COMPLETE	7/27/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")			2	12"	
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 297
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/27/94	
COMPLETE	7/27/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12	"1(
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Brown medium SAND & coarse Gravel	2	12	" 9
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 298
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/27/94	
COMPLETE	7/27/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel, trace silt	1	12	11
		1'6"-2'6"	D	"	"	"	(3")		Brown & Dark Brown fine to medium SAND & coarse Gravel, trace silt	2	12	10
								2'6"				
									Bottom of Boring 2'6"			
									Note: @ 1.5' - Broke spoon - Lost in Hole - Retrieved spoon & sampled.			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET __ OF __

DATE

HOLE NO. 299

LINE & STA.

OFFSET

SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ. NO.

SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At __ after __ Hours

At __ after __ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/27/94	
COMPLETE	7/27/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12"	1'
		1'6"-2'6"	D	"	"	"	(3")		Dry, Grayish Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	1'
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO __ USED __ CASING THEN __

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 300
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/27/94	
COMPLETE	7/27/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Dry, Dark Brown fine to medium SAND & coarse Gravel	1	12"	1'
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown fine to medium SAND & medium to coarse Gravel, trace silt	2	12"	1(
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ CASED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UD: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I.

SHEET 1 OF 1
DATE
HOLE NO. 301
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/27/94	a.m. p.m.
COMPLETE	7/27/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Elev. Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	1' 1
		1'6"-2'6"	D	"	"	"	(3")		Gray fine to medium SAND & medium to coarse Gravel, trace silt	2	12"	6'
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O.D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 302
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/27/94	a.m / p.m
COMPLETE	7/27/94	a.m / p.m

TOTAL HRS.
BORING FOREMAN R. Allen
INSPECTOR
SOILS ENGR.

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel	1	12	10'
		1'6"-2'6"	D	"	"	"	(3")		Moist, Gray Brown fine to medium SAND & medium to coarse Gravel, trace silt	2	12	11'
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
U: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 303

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At ____ after ____ Hours

At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/27/94	
COMPLETE	7/27/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12	12
		1'6"-2'6"	D	"	"	"	(3")			2	12	10
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D Dry C Cored W Washed
UP Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: August 2, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
3	Boring Reports: 304 through 311.

SAMPLES:

Remarks: More reports to follow.

By: _____
Sheila Erice

cc:

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 304
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/28/94	
COMPLETE	7/28/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to med. SAND & coarse Gravel, trace of Silt	1	12	10
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Brown to Gray fine to med. SAND & coarse Gravel, tr. of Silt	2	12	8'
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D-Dry C-Cored W-Washed
UP-Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 305
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/28/94	
COMPLETE	7/28/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown, Gray to Green fine to med. SAND & coarse Gravel, tr. of Silt (odor noted)	1	12"	
		1'6"-2'6"	D	"	"	"	(3")		Gray fine to med. SAND & coarse Gravel, tr. of Silt	2	12"	
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 306
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/28/94	
COMPLETE	7/28/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown med. SAND & coarse Gravel, tr. of Silt (little odor noted)	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Brown fine to med. SAND & coarse Gravel, tr. of Silt	2	12"	7
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density | Cohesive Consistency
0-10 Loose | 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF
DATE
HOLE NO. 307
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At 2.5' after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/28/94	
COMPLETE	7/28/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not	Taken		(3½")		Brn. & Rust Layers fine to med. SAND & coarse Gravel, tr. of Silt	1	12"	
		1'6"-2'6"	D	"	"	"	(3")		Brown fine to med. SAND to coarse Gravel, tr. of Silt	2	12"	
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE R I

SHEET 1 OF 1
DATE
HOLE NO 308
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. 05
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At 2.5' after hours
At after hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/28/94	
COMPLETE	7/28/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to med. SAND coarse Gravel, tr. of Silt	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Brn. fine to med. SAND & med. to coarse Gravel, tr. of Silt	2	12"	1
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO USED CASING THEN

Sample Type
D Dry C Cored A Augered

Proportions Used
trace 0 to 10%

140 lb Wt x 30" fall on 2 O.D. Sampler
Cohesionless Density | Cohesive Consistency

SUMMARY
Earth Boring 2'6"

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 309
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/28/94	
COMPLETE	7/28/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown & Rust fine to med. SAND & coarse Gravel, tr. of Silt	1	12"	
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Brn. to Light Brn. fine to med. SAND & med. to coarse Gravel, tr. of Silt	2	12"	
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UD: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med. Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 310
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/28/94	
COMPLETE	7/28/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to med. SAND & med. to coarse Gravel, tr. of Silt	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Brown f-m SAND & med. to coarse Gravel, trace of Silt	2	12"	8
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140lb Wt x 30" fall on 2" OD Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE R I

SHEET 1 OF _____
DATE _____
HOLE NO 311
LINE & STA _____
OFFSET _____
SURF ELEV _____

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO _____
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size-D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/28/94	
COMPLETE	7/28/94	
TOTAL HRS		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	R
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown & Rust fine to med. SAND, med. to coarse Gravel, trace of Silt	1	12"	
		1'6"-2'6"	D	"	"	"	(3")		Dark Gray fine to med. SAND & med. to coarse Gravel trace of Silt	2	12"	
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed

Proportions Used
trace 0 to 10%

140lb Wt x 30 fall on 2 O D Sampler
Cohesionless Density | Cohesive Consistency

SUMMARY
Earth Boring 2'6"

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: August 3, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
3	Boring Reports: 312 through 320.

SAMPLES:

Remarks: More reports to follow.

By: _____
Sheila Erice

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 312
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size O		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/29/94	a.m. p.m.
COMPLETE	7/29/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to med. SAND & med. to coarse Gravel, tr. of Silt	1	12"	4"
		1'6"-2'6"	D	"	"	"	(3")		Brown to Dark Brown fine to med. SAND & coarse Gravel, tr. of Silt	2	12"	10"
								2'6"	Bottom of Boring 2'6"			

E TO ____ USED ____ CASING THEN ____

Proportions Used | 140 lb Wt x 30" fall on 2 O.D.
Cohesionless

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 313
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/29/94	
COMPLETE	7/29/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sample: From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine SAND & med. to coarse Gravel	1	12	1
		1'6"-2'6"	D	"	"	"	(3")		Brown fine to med. SAND & med. to coarse Gravel, tr. of Silt	2	12	1
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 314
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/29/94	
COMPLETE	7/29/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brn. fine to med. SAND & med. to coarse Gravel, tr. of Silt	1	12	1'
		1'6"-2'6"	D	"	"	"	(3")		Brown fine to med. SAND & coarse Gravel, tr. of Silt	2	12	3'
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ "CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2 O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R. I

SHEET 1 OF 1
DATE
HOLE NO. 315
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size O		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/29/94	
COMPLETE	7/29/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to med. SAND & coarse Gravel, tr. of Silt	1	12	4"
									Brown to Gray fine to med.			
		1'6"-2'6"	D	"	"	"	(3")		SAND and coarse Gravel, trace of Silt	2	12	10
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored A: Washed
UD: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

105 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF
DATE
HOLE NO 316
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size O D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/29/94	
COMPLETE	7/29/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to med. SAND, med. to coarse Gravel, tr. of Silt	1	12	9
		1'6"-2'6"	D	"	"	"	(3")		Dark Brown fine to med. SAND & med. to coarse Gravel trace of Silt	2	12	1
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF
DATE
HOLE NO. 317
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/29/94	
COMPLETE	7/29/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	R
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown to Gray fine to med. SAND, med. to coarse Gravel tr. of Silt	1	12"	
		1'6"-2'6"	D	"	"	"	(3")		Brn. fine to med. SAND & med. to coarse Gravel, tr. of Silt	2	12"	
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ "CASING: THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY:
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 318
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. 45 | PROJ. NO
SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/29/94	
COMPLETE	7/29/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to med. SAND & coarse Gravel	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")		Brown fine to med. SAND & med. to coarse Gravel, tr. of Silt	2	12"	
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D - Dry C - Cored W - Washed

Proportions Used
trace 0 to 10%

140 lb Wt x 30" fall on 2 O.D. Sampler
Cohesionless Density | Cohesive Consistency
0-10 Loose

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I.

SHEET 1 OF
DATE
HOLE NO 319
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/29/94	
COMPLETE	7/29/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	R
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to med. SAND, med. to coarse Gravel	1	12	4
		1'6"-2'6"	D	"	"	"	(3")		" ", little Sand, fine to med. Gravel (pushed cobble at end of shoe)	2	12	2
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose
Cohesive Consistency: 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 320
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/29/94	
COMPLETE	7/29/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Brown fine to med. SAND & coarse Gravel, tr. of Silt	1	12	11
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Brown fine to med. SAND & med. to coarse Gravel, tr. of Silt	2	12	12
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C-Cored W: Washed
UP-Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: August 5, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
3	Boring Reports: 321 through 329

SAMPLES: More reports to follow.

Remarks:

By: _____
L. L. MORRIS

cc:

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF
DATE
HOLE NO. 321
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO.
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/30/94	
COMPLETE	7/30/94	
TOTAL HRS.		
BORING FOREMAN	C. O'Donnell	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	R
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown medium SAND & coarse Gravel, trace silt	1	12"	
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 322
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/30/94	
COMPLETE	7/30/94	
TOTAL HRS.		
BORING FOREMAN	C. O'Donnell	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Grayish Brown medium SAND & coarse Gravel, trace silt	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O.D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I.

SHEET 1 OF 1

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ. NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO. 323

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/30/94	
COMPLETE	7/30/94	
TOTAL HRS.		
BORING FOREMAN	C. O'Donnell	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	1
		1'6"-2'6"	D	"	"	"	(3")			2	12"	9
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored A: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2 O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1

DATE

HOLE NO. 324

LINE & STA.

OFFSET

SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ NO

SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR.
Type		S/S	
Size ID		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/30/94	
COMPLETE	7/30/94	
TOTAL HRS.		
BORING FOREMAN	C. O'Donnell	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12	11
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown fine SAND & medium to coarse Gravel, trace silt	2	12	8
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 325
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/31/94	
COMPLETE	7/31/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	9
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown fine to medium SAND & medium to coarse	2	12"	9
								2'6"	Gravel, trace silt			
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt. x 30" fall on 2 O.D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 326
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/31/94	
COMPLETE	7/31/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12	11
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown fine to medium SAND & medium to coarse	2	12	9
								2'6"	Gravel, little silt			
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
U: Undisturbed Piston
T.P.: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET ___ OF ___

TO Texas Instruments | ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 | PROJ NO.

SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE

HOLE NO 327

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At ___ after ___ Hours

At ___ after ___ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/31/94	
COMPLETE	7/31/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	1'
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel,	2	12"	8'
								2'6"	trace silt			
									Bottom of Boring 2'6"			

GROUND SURFACE TO ___ USED ___ CASING THEN ___

Sample Type
D: Dry C: Cored W: Washed
UD: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
Trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30 fall on 2 O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ___
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 328
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS -
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/31/94	a.m. p.m.
COMPLETE	7/31/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & med. to coarse Gravel (Hot Hole from 6" to 1'6")	1	12	12
		1'6"-2'6"	D	"	"	"	(3")		Dry, Brown fine to medium SAND & coarse Gravel,	2	12	12
								2'6"	trace silt			
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 329
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"-3"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	7/31/94	a.m. p.m.
COMPLETE	7/31/94	a.m. p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken			(3½")		Dry, Brown fine to medium SAND & medium to coarse Gravel, trace silt	1	12"	12
		1'6"-2'6"	D	"	"	"	(3")	2'6"	Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	10
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D Dry C = Cored W = Washed
UP = Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density 0-10 Loose
Cohesive Consistency 0-4 Soft 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring

TRANSMITTAL SHEET

GUILD DRILLING CO., INC.

100 WATER STREET, EAST PROVIDENCE, R.I. 02914
(401) 434-0750

Subject: Boring Data - Low Level Radiation Investigation/Bldg. #5

Location: Attleboro, Mass. (Willard Street)

Our Job No: 95-41 Your Project or Contract No.

Date: August 9, 1994 Via: fcm

To: Texas Instruments
34 Forest Street
Attleboro, Mass. 02703

Attention of: Mr. Michael Elliot

Copies / or Sets	DESCRIPTION
3	Boring Reports: 330 through 346.

SAMPLES:

Remarks: More reports to follow.

By: _____
L. L. MORRIS

cc:

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 330
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO.
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/1/94	a.m.
COMPLETE	8/1/94	p.m.
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-2'	D	Blows not Taken					Dry, Brown fine to medium SAND & medium to coarse Gravel, trace wood, trace silt - FILL	1	24"	18'
		2'-4'	D	"	"	"			Moist, Brown/Dark Brown fine to medium SAND & coarse Gravel, trace silt, type of Peat (small amount)	2	24"	15'
		4'-6'	D	"	"	"			Dark Brown silty fine to medium SAND & coarse Gravel	3	24"	18'
		6'-6'3"	D	"	"	"			Pushed Cobble	4	3"	0"
		7'-8'	D	"	"	"			Gray fine to medium SAND, trace silt & medium gravel (Wet)	5	12"	12'
		8'-10'	D	"	"	"			Gray silty fine SAND (Wet)	6	24"	24'
								10'	Bottom of Boring 10'			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 10'
Rock Coring
Samples 6

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 331
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO. 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/1/94	
COMPLETE	8/1/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Dry, Brown fine to medium SAND & medium to coarse Gravel	1	12"	1'
		1'6"-2'6"	D	"	"	"			Dry, Brown fine to medium SAND & medium to coarse Gravel, trace silt	2	12"	3'
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D Dry C Cored W Washed
UD Undisturbed Piston
TP Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 332
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after ____ Hours
At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size O.D.		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/1/94	
COMPLETE	8/1/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Dry, Brown fine SAND & coarse Gravel, trace silt	1	12"	1
		1'6"-2'6"	D	"	"	"			Dry, Light Brown to Rust color Brown fine SAND & coarse Gravel, trace silt	2	12"	1
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D Dry C Cored A Augered
UP Undisturbed Piston
TP Test Pit A Auger V Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%

(140 lb Wt x 30 fall on 2 O.D. Sampler)
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ____
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 333
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO.
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS

At _____ after _____ Hours

At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size - D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/1/94	
COMPLETE	8/1/94	
TOTAL HRS		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Dark Brown fine to medium SAND & coarse Gravel	1	12"	3
		1'6"-2'6"	D	"	"	"			Moist, Brown silty fine SAND & coarse Gravel	2	12"	11
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored A: Augered
UD: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30 fall on 2 O.D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GOLD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 334
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I.D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/1/94	
COMPLETE	8/1/94	
TOTAL HRS		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Dry, Dark Brown medium SAND & coarse Gravel, trace silt	1	12"	1
		1'6"-2'6"	D	"	"	"			Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	1
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D-Dry C-Cored A-Auger
UD-Undisturbed Piston
TP-Test Pit P-Pusher V-Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30 fall on 2 O.D Sampler
Cohesionless Density
0-10 Loose
10-30 Med Dense
Cohesive Consistency
0-4 Soft 30 + Hard
4-8 M/Stiff

SUMMARY
Earth Boring 2'6"
Rock Coring ____
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 335
LINE & STA.
OFFSET
SURF ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size-D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/1/94	
COMPLETE	8/1/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" or Sample: From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Dry, Brown fine to medium SAND & coarse Gravel	1	12"	1"
		1'6"-2'6"	D	"	"	"			Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D-Dry C-Cored A-Washed
UD-Undisturbed Piston
TP-Test Pit A-Auger V-Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30 fall on 2" OD Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 336
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ NO
SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size D		3½"	
Hammer Wt		300#	BIT
Hammer Fal		30"	

	Date	Time
START	8/1/94	
COMPLETE	8/1/94	
TOTAL HRS		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6 on Sample From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Dry, Brown/Gray fine to medium SAND & coarse Gravel, trace silt	1	12"	
		1'6"-2'6"	D	"	"	"			Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30+ Hard; 4-8 M/Stiff

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 337
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO
SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size I D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/1/94	
COMPLETE	8/1/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Dry, Brown fine to medium SAND & medium to coarse Gravel, trace silt	1	12"	1
		1'6"-2'6"	D	"	"	"			Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	12"	1
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D-Dry C-Cored W-Washed
UD-Undisturbed Piston
TP-Test Pit A-Auger (Volume Test

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO. 338
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO.
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ hours
At ____ after ____ hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/1/94	
COMPLETE	8/1/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Dry, Brown fine to medium SAND (Pushed Cobble)	1	12"	
		1'6"-2'6"	D	"	"	"			Brown silty fine to medium SAND & coarse Gravel	2	12"	12
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored A: Washed
UP: Undisturbed Piston

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1
DATE
HOLE NO 339
LINE & STA
OFFSET
SURF. ELEV.

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size ID		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/1/94	A.M.
COMPLETE	8/1/94	P.M.
TOTAL HRS		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	12"	8"
		1'6"-2'6"	D	"	"	"			Brown silty fine to medium SAND & coarse Gravel	2	12"	10"
								2'6"				
									Bottom of Boring 2'6"			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cores A: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" OD Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30+ Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF 1

TO Texas Instruments ADDRESS Attleboro, Mass.

PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.

REPORT SENT TO above / Bldg. #5 PROJ NO.

SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE

HOLE NO 340

LINE & STA.

OFFSET

SURF. ELEV.

GROUND WATER OBSERVATIONS

At _____ after ____ Hours

At _____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size O.D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/1/94	
COMPLETE	8/1/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Brown fine to medium SAND & medium to coarse Gravel, trace silt	1	12"	
		1'6"-2'6"	D	"	"	"			Light Brown silty fine SAND trace coarse gravel	2	12	1
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored A: Auger
UD: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring ____
Samples 2

GUILD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

SHEET 1 OF
DATE
HOLE NO. 341
LINE & STA.
OFFSET
SURF. ELEV.

TO Texas Instruments
PROJECT NAME Low Level Radiation Invest
REPORT SENT TO above / Bldg. #5
SAMPLES SENT TO Taken at Site

ADDRESS Attleboro, Mass.
LOCATION Attleboro, Mass.
PROJ. NO
OUR JOB NO 95-41

GROUND WATER OBSERVATIONS
At ____ after ____ hours
At ____ after ____ hours

	CASING	SAMPLER	CORE BAR
Type		S/S	
Size O.D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/2/94	
COMPLETE	8/2/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
								6"	Asphalt - Gravel			
		6"-1'6"	D	Blows not Taken					Dry, Br. fine to med. SAND & turning to Light Brown silty SAND, tr. coarse gravel	1	12	1
		1'6"-2'6"	D	"	"	"			Moist, Light Br. silty fine SAND, little plasticity to silt sand with coarse gravel	2	12	1
								2'6"	Bottom of Boring 2'6"			

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored A: Auger
UP: Undisturbed Piston
TP: Test Pit

Proportions Used
trace 0 to 10%
little 10 to 20%

140 lb Wt x 30" fall on 2 O.D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 30 + Hard

SUMMARY
Earth Boring 2'6"
Rock Coring
Samples 2

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO
SAMPLES SENT TO Taken at Site | OUR JOB NO 95-41

DATE
HOLE NO. 342
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type	Auger	S/S	
Size I D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/2/94	
COMPLETE	8/2/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAM No	SAM Pe
		0'-2'	D	Blows not Taken					Brown fine SAND & coarse Gravel, trace silt	1	24
		2'-4'	D	"	"	"			Brown fine to medium SAND & coarse Gravel, trace silt	2	24
		4'-6'	D	"	"	"			Brown Gray fine to medium SAND & coarse Gravel, trace silt	3	24
		6'-8'	D	"	"	"			Dark Gray fine to medium SAND & coarse Gravel, trace silt	4	24
		8'-10'	D	"	"	"			Gray silty fine SAND, trace coarse gravel	5	24
								10'	Bottom of Boring 10'		

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test
UT: Undisturbed Tube

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt. x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring
Rock Coring
Samples

HOLE NO. 1

[illegible] DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO
SAMPLES SENT TO Taken at Site OUR JOB NO. 95-41

DATE
HOLE NO. 343
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type	Auger	S/S	
Size I D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/2/94	
COMPLETE	8/2/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Re
		0'-2'	D	Blows not Taken					Dry, Light Brown/Dark Brown silty fine to medium SAND & coarse Gravel	1	24"	18
		2'-4'	D	"	"	"			Dry, Light Brown silty fine to medium SAND & coarse Gravel	2	24"	13
		4'-6'	D	"	"	"			Dry, Dark Brown fine to medium SAND & coarse Gravel, trace silt	3	24"	6
		6'-8'	D	"	"	"			Wet, Gray silty fine to medium SAND & coarse Gravel	4	24"	10
		8'-10'	D	"	"	"				5	24"	10
								10'	Bottom of Boring 10'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2 O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 10'
Rock Coring
Samples 5

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 344
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type	Auger	S/S	
Size I D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/3/94	
COMPLETE	8/3/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	6-12	To 12-18	Moisture Density or Consist.	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-2'	D	Blows not Taken					Dry, Brown fine to medium SAND & coarse Gravel, trace silt	1	24'	18'
		2'-4'	D	"	"	"			Dry, Dark Brown fine to medium SAND & medium to coarse Gravel, trace silt	2	24'	16'
								4.5'	Refusal - Boulder Pushed Cobble			
									Bottom of Boring 4.5'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 4.5'
Rock Coring
Samples 2

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments | ADDRESS Attleboro, Mass,
PROJECT NAME Low Level Radiation Invest | LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 | PROJ. NO.
SAMPLES SENT TO Taken at Site | OUR JOB NO. 95-41

DATE
HOLE NO. 345
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At _____ after _____ Hours
At _____ after _____ Hours

	CASING	SAMPLER	CORE BAR
Type	Auger	S/S	
Size I D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/3/94	
COMPLETE	8/3/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock - color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-2'	D	Blows not		Taken			Dry, Brown Black silty fine SAND & coarse Gravel	1	24"	16"
		2'-4'	D	"	"	"			Dry, Brown fine to medium SAND & coarse Gravel, trace silt	2	24"	20"
		4'-5'	D	"	"	"				3	12"	3"
		5'-7'	D	"	"	"			Wet, Gray Brown fine to medium SAND & coarse Gravel, trace silt	4	24"	14"
		7'-9'	D	"	"	"				5	24"	20"
		9'-10'	D	"	"	"		10'	Gray silty fine SAND	6	12"	12"
									Bottom of Boring 10'			

GROUND SURFACE TO _____ USED _____ CASING THEN _____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O D Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense; 30-50 Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 8-15 Stiff; 30 + Hard

SUMMARY
Earth Boring 10'
Rock Coring
Samples 6

GOLD DRILLING CO., INC.

100 WATER STREET EAST PROVIDENCE, R I

TO Texas Instruments ADDRESS Attleboro, Mass.
PROJECT NAME Low Level Radiation Invest LOCATION Attleboro, Mass.
REPORT SENT TO above / Bldg. #5 PROJ. NO
SAMPLES SENT TO Taken at Site OUR JOB NO 95-41

DATE
HOLE NO. 346
LINE & STA.
OFFSET
SURF. ELEV.

GROUND WATER OBSERVATIONS
At ____ after ____ Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR
Type	Auger	S/S	
Size I D		3½"	
Hammer Wt		300#	BIT
Hammer Fall		30"	

	Date	Time
START	8/3/94	
COMPLETE	8/3/94	
TOTAL HRS.		
BORING FOREMAN	R. Allen	
INSPECTOR		
SOILS ENGR.		

LOCATION OF BORING

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist	Strata Change Elev	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc Rock-color, type, condition, hardness, Drilling time, seams and etc	SAMPLE No	Pen	Rec
		0'-2'	D	Blows not Taken					Brown medium SAND & coarse Gravel, trace silt	1	24"	16"
		2'-4'	D	"	"	"			Brown Gray silty fine to medium SAND & coarse Gravel	2	24"	8"
								4'	Bottom of Boring 4' (Refusal)			

OFFICIAL RECORD COPY ML 10

118945

GROUND SURFACE TO ____ USED ____ CASING THEN ____

Sample Type
D: Dry C: Cored W: Washed
UP: Undisturbed Piston
TP: Test Pit A: Auger V: Vane Test

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%

140 lb Wt x 30" fall on 2" O.D. Sampler
Cohesionless Density: 0-10 Loose; 10-30 Med Dense
Cohesive Consistency: 0-4 Soft; 4-8 M/Stiff; 30 + Hard

SUMMARY
Earth Boring 4'
Rock Coring
Samples 2

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TEXAS INSTRUMENTS INCORPORATED

Attleboro, Massachusetts

REMEDIATION OF THE METALS RECOVERY AREA

NRC License/Docket No: SNM-23/70-33

FINAL REPORT

Version: 1.0

Prepared by

CPS Environmental, Inc.
October 1996

TEXAS INSTRUMENTS INCORPORATED
FINAL REPORT: REMEDIATION OF THE METALS RECOVERY AREA

License:SNM-23 **Date: October 1996**
Docket No: 70-33 **Version: 1.0**

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TEXAS INSTRUMENTS INCORPORATED
FINAL REPORT: REMEDIATION OF THE METALS RECOVERY AREA

License:SNM-23
Docket No: 70-33

Date: October 1996
Version: 1.0

1.0 SCOPE

This report provides documentation regarding the remediation of an area defined as the Metals Recovery Area. This area was identified as having soil contamination during final surveys of the site subsequent to completion of the Burial Site remediation. Further investigation of this area identified that this area was a former waste management area. These findings resulted in the commencement of remediation activities and concurrently, a site wide supplemental radiological survey. This report addresses only the Metals Recovery Area and an area immediately adjacent to this area identified as the Switch Gear Area.

2.0 BACKGROUND INFORMATION

2.1 Metals Recovery Area

During final site surveys in 1993 subsequent to the Burial Site remediation, it was ascertained by TI that the Metals Recovery Area in the vicinity of Building 5 was formerly used as a waste management area. According to a 1961 insurance report, it housed a water evaporation process, an incinerator, and a drum storage area during the time of the nuclear operations. In late 1993, TI conducted preliminary surveys and identified the existence of elevated radiation levels on the west and south side of Building 5. Subsequent surveys, including subsurface soil measurements (March 1994) indicated the need to perform remediation activities at this location. TI notified the NRC of its intentions in March of 1994, and received their approval to proceed with the remediation in accordance with the 1992 Remediation Plan. Remediation activities commenced at the Metals Recovery Area on April 28, 1994 and were completed in November of 1994 resulting in 115,000 cubic feet of contaminated soil dispositioned to a licensed waste facility in Utah .

2.2 Summary of Radiological Surveys

Numerous surveys throughout the site have been conducted. Those surveys conducted prior to 1992 focused on areas identified by the NRC and ORISE as being primarily associated with the HFIR operations and the burial area. As a result of additional surveys conducted subsequent to the remediation efforts of the burial area (as part of the Final Survey of the remediated burial area), additional areas were identified including the Metals Recovery Area. These surveys resulted in larger scoping surveys, the initiation of remediation activities at the Metals Recovery Area, the development of a "Supplemental Radiological Survey Program" to investigate the entire site, and the generation of a supplement to the 1992 Remediation Plan.

Radiological surveys of the Metals Recovery Area included an initial scoping survey, a comprehensive systematic supplemental radiological survey which was performed in conjunction with remediation activities, and a final radiological survey.

This report describes the results of these surveys and demonstrates that the Metals Recovery Area now satisfies the NRC guidelines for release for unrestricted use. These surveys are detailed in this report.

3.0 SITE DESCRIPTION

3.1 General Description

The TI site, located in Attleboro, Massachusetts, is approximately 48 kilometers south of Boston on Route 123 (see figure 3.1). The area discussed within this report is the area identified as the Metals Recovery Area located at Building 5 and its immediate surroundings (see figure 3.2).

The underground utilities throughout the Metals Recovery Area presented a logistical issue since subsurface sampling and excavation was conducted throughout this area. The utilities in the area included a water main, a sewer main, and high voltage electric lines, gas lines, low voltage electrical service, high voltage overhead lines, and utility poles.

3.2 Survey Findings

3.2.1 Background Levels and Baseline Concentrations

The 1982 ORAU survey reported background exposure rates and dose rates along with baseline radionuclide concentrations in soil and water for five locations, from the Attleboro area (but not on or near TI property). The reported exposure rates ranged from 10-11 μR/h, both at contact and at 1 meter above the surface. Dose rates measured at the surface ranged from 21 to 31 μrad/h. Concentration ranges of radionuclides in soil were: U-235, <0.11 to <0.34 pCi/g (picocuries per gram); U-238, <0.78 to 2.74 pCi/g; Th-232, 0.54 to 1.23 pCi/g; and Ra-226, 0.41 to 0.84 pCi/g. Gross alpha and gross beta concentrations in water ranged from <0.32 to 0.59 pCi/l (picocuries per liter) and 1.42 to 3.07 pCi/l, respectively. These levels and concentrations are typical of those normally occurring in nature. As part of the remedial activities the radiological contractor, Creative Pollution Solutions, Inc., also collected a background soil sample from an area in Attleboro (but not on or near TI property). This sample was submitted for alpha spectrographic analysis. Concentrations of radionuclides in this background soil sample were: U-235 - 0.025 pCi/g, U-238 - 0.7 pCi/g and U-234 - 0.7 pCi/g .

3.2.2 Scoping Surveys at the Metals Recovery Area

Preliminary walkover surveys indicated significant elevated detector responses in an area along the west side of building 5 starting approximately 10 feet from the northwest corner and extending south along the west side of the building. An additional area was identified approximately 30 feet southwest of the southwest corner of Building 5 along the fence line. Further surveys indicated small localized spots of contamination in the paved metals staging area of the Metals Recovery Area where the pavement integrity was compromised by cracks, potholes, and thinning.

Initial soil sampling of the area along the northwest side of building 5 indicated uranium soil concentrations in excess of the criteria at locations ranging from near surface to depths greater than 30 cm. The depths of greatest contamination for this limited sampling appeared to be within the first 15 cm with a maximum observed concentration in excess of 17,000 pCi/g total uranium.

Surface soil sampling in the area southwest of the southwest corner of Building 5 (designated as Outlying Area #1) resulted in a sample in excess of 3,200 pCi/g total uranium.

The area within the paved metals staging area located approximately 140 feet southeast of the southeast corner of building 5 designated as Outlying Area #2 (Figure 3.3) indicated uranium concentrations ranging from background to 245 pCi/g total uranium. This area was initially estimated at approximately 35 square meters with maximum concentrations identified at depths between 30 cm and 45 cm.

Within this investigation no significant debris was identified as reflected within the waste characterization profile presented within Appendix B. Appendix B also includes radiological analysis and chemical testing necessary for waste site acceptance.

4.0 MANAGEMENT COMMITMENT AND PROJECT ORGANIZATION

4.1 Management Policy

From the outset of the project, TI established the goal to remediate the Metals Recovery Area to the levels prescribed in Option 1 of the BTP. TI had expected a more limited remediation effort than was eventually required to complete the remediation activities. TI originally expected volumes of soils and debris requiring disposal not to exceed 10,000 cubic feet. The final volume shipped for disposal was approximately 115,000 cubic feet.

The health and safety procedures and policies implemented during the site operations took priority over all other site operations. A conservative approach was always exercised with regard to personnel and environmental monitoring. During the site excavation, twenty four hour security was maintained to protect the public from the physical dangers of an excavation site. During the excavation process and prior to backfilling, a permanent chain linked fence was erected to prevent unauthorized access to the Metals Recovery Area.

TI proactively disseminated information to the local public officials and the site workforce. Prior to the physical excavation TI issued a supervisor's work bulletin which explained exactly what contaminants were involved on the site and what measures were being taken to rectify the problem. As the time period over which the physical excavation took place was extended, TI issued periodic updates. TI's Environmental Department routinely conducted management and supervisor briefings to update site personnel on the status of the project.

To assist in all of the above, TI established a Task Force which met on a weekly basis to oversee the physical actions on the site. The Task Force was a multi-disciplinary committee consisting of TI personnel from: the Metals Recovery operations, environmental engineering, health and safety, facilities, transportation, purchasing, security, and human resources. The committee also included representatives from the two primary contractors on the site: Creative Pollution Solutions (CPS) and Franklin Environmental Services (FES). This task force assisted in making all decisions involving health and safety, remediation, public information, waste disposal, etc.

4.2 Project Organization

TI contracted with two companies to perform the majority of the work on site. CPS was contracted for the radiological support for site operations. This included advising TI on areas requiring excavation as well as providing radiological health and safety support on site. FES was contracted for the excavation portion of the site work. In addition, FES provided all non-radiological health and safety support. Odeh Engineering was contracted to address structural concerns during the physical excavation in and around Building 5. One other principal contractor for TI, Guild Drilling, was asked to work in cooperation with CPS. The oversight of all site operations was the responsibility of TI. Figure 4.1 shows an organizational chart for the project.

5.0 REMEDIATION ACTIVITIES

5.1 Remediation Criteria

The purpose of the remediation of the Metals Recovery Area was to excavate contaminated soil to the extent necessary to achieve clean-up criteria prescribed in Option 1 of the BTP.

For processed uranium (uranium without daughter products) the criteria for surface contamination or contamination of soil in areas without use restriction are 35 pCi/g for depleted uranium and 30 pCi/g for enriched uranium. The acceptable exposure rate at one meter above the surface as prescribed by the NRC is 10 μR/h above background or 21 μR/h total for this location (i.e., approximately 2 times background). This goal was to be achieved by using the approach outlined in the "1992 Remediation Plan".

5.2 Chronology of Site Operations

This section outlines the chronology of site operations involved in the remediation of the Metals Recovery Area. The operations described below took place between April 1994 and November 1994. Table 5.1 shows a detailed chronology of the excavation process. The extent of the excavation is depicted in Figure 5.1.

5.2.1 Excavation of Baseline Area and Outlying Areas

Initially, the scope of the excavation was limited to an area on the northwest side of Building 5 adjacent to the building (Baseline Area), an area southwest of Building 5 (Outlying Area #1), and an area east of Building 5 (Outlying Area #2). At each location floor grab sampling along with split spoon sampling was performed to verify the extent of the excavation. Final survey results are included within Appendix D.

Within the Baseline Area and the Outlying Area #1 a few of the excavation floor samples were determined to be slightly greater than 30 pCi/g. TI made a decision not to excavate deeper based, in part, on concerns of potential structural damage to Building 5. Additionally, sub-surface soil samples through the floor of Building 5 indicated no contamination under the adjacent portion of the building.

In early May 1994, the excavation was initiated within Outlying Area #2. While excavation continued attempts were being made to determine the extent of the area by performing split spoon samples around the perimeter. As the scope of Outlying Area #2 increased, it was realized that systematic sub-surface soil sampling was necessary to adequately define the areas requiring excavation. This systematic sampling effort began on 7/8/94 and was completed on 8/3/94.

5.2.2 Systematic Sub-Surface Soil Sampling

Systematic Sub-Surface soil sampling was conducted on the established 30' x 30' grid system. A sampling pattern consistent with the TI Decommissioning plan was selected. Grid cells with averages greater than or equal to 30 pCi/g total Uranium were identified for remediation. This systematic sampling encompassed the entire Metals Recovery Area, the Switchgear Area, and the Rail Spur Area. The Rail Spur was identified as contaminated, however, it was designated as an area separate from the Metals Recovery Area and was remediated in 1995 and 1996. Figure 5.2 indicates the locations of the sub-surface soil samples and Figure 5.3 indicates the grid cell averages for the sub-surface soil samples.

To calculate the sub-surface soil sample grid cell averages, the average concentration at each depth of sampling was determined and the highest value was recorded as the grid cell average (Figure 5.3). The analytical results used to generate the grid cell averages originated from the direct alpha counting results presented within Appendix C - Attachment 1. The range of grid cell average concentrations for the systematic sub-surface soil sample survey was from background to 311 pCi/g Total U.

The borehole logs for all split spoon samples are included within Appendix F and the calculation of the sub-surface soil sample grid cell averages are included within Appendix D.

While the systematic sub-surface soil sampling was underway, excavation of Outlying Area #2 continued.

5.2.3 Excavation of Identified Grid Areas Exceeding Criteria

Beyond the "Baseline Area", "Outlying Area #1", and "Outlying Area #2", the remaining excavated areas were identified by the systematic sub-surface soil sampling described in section 5.2.2. Excavation of the remaining areas was completed in October 1994. The scope of the excavation encompassed a large percentage of the Building 5 Scrap Yard Area as well as a small area beneath Building 5 Annex.

The process of remediation was to segment the site into areas whereby each area was excavated, surveyed and backfilled prior to beginning the next area. The surveys were conducted in accordance with methodologies established for the Final Radiological Survey in Appendix D. Each area was backfilled with either clean imported bank-run gravel or soils processed on-site and determined to be less than 30 pCi/g total Uranium.

5.2.4 Soil Processing and Rock Washing

Throughout the excavation, soils removed from the identified areas were mechanically screened to remove large aggregate. The aggregate was then washed to remove residual contaminated soil from the surface and then surveyed for free release in accordance with NRC guidelines for "Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material" (April 1993), as specified within the Health and Safety Plan (Appendix A). The aggregate rock was either used during the backfilling operation or staged in the southeast corner of the site.

The water runoff was collected, filtered and discharged. In order to meet Environmental Protection Agency (EPA) requirements, TI obtained a National Pollution Discharge Elimination System (NPDES) permit exclusion for the discharge of the effluent. The filtered water was sampled to assure concentrations were below allowable limits prescribed in the EPA's Interim Drinking Water Standards as well as 10 CFR 20, Appendix B, Table II concentrations of uranium. Appendix E contains the results of these samples as well as a description of the filtering system and a copy of the NPDES Permit Exclusion.

The processed soils were sampled and staged for disposition. In instances where survey data indicated that only a portion of a given grid was contaminated, efforts were made to segregate the soils which would potentially be less than the criteria. In these instances, if the results of the composite sample taken after processing the soils was less than the 30 pCi/g limit, the soils were staged for use during backfill operations. All other soils which were excavated were staged for shipment to EnviroCare of Utah. Details of the waste characterization and manifesting are contained within Appendix B.

5.2.5 Site Health and Safety Program

FES performed the physical excavation work and provided non-radiological health and safety support for the site. CPS established the Radiological Health and Safety Plan and maintained the health physics programs for all activities during the remediation process. Appendix A includes a copy of the Radiological Health and Safety Plan as well as the results of the established monitoring programs. During the conduct of operations on the site no action limits as specified within the Health and Safety Plan were exceeded.

5.3 Final Survey

The final survey was conducted to demonstrate that the criteria outlined in Option 1 of the BTP was achieved. It included three main components: excavation floor soil samples, walkover surveys conducted on the floor of the excavation, and exposure rate measurements taken on the floor of the excavation area. These surveys were performed in accordance with the 1992 Remediation Plan and the 1994 Supplemental Plan. Details of these surveys are included in Appendix D.

For purposes of comparison against the criteria outlined in Option 1 of the BTP, the average concentration in soil (pCi/g total Uranium) was established for each grid cell based on the excavation floor soil sample results. The method for establishing grid cell averages and the calculated values are presented in Appendix D. The data used to generate the grid cell averages originated from the direct alpha counting results presented within Appendix C - Attachment 2.

For the excavation floor soil samples, an arithmetic average of all confirmatory samples (Figure 5.4) for each grid cell was used to determine the grid cell average (Figure 5.5). One grid cell was determined to have an average concentration greater than 30 pCi/g. At this location (30-60S x 210-240 W -- 49 pCi/g), excavation was halted due to safety concerns with the depth of the excavation and the proximity of a high voltage electric duct bank.

Evidence that the residual contamination at this location is limited in extent is confirmed by subsurface soil samples within the grid cell and immediately adjacent to the area of concern. The adjacent subsurface soil samples were well within the release criteria.

6.0 CONCLUSIONS

Between April 1994 and November 1994, the Metals Recovery Area and Switch Gear Area at TI were successfully remediated. The final volume of contaminated soil requiring disposal was 115,000 cubic feet. Radiological surveys demonstrate that the remediation efforts were effective in reducing residual activity within the Metals Recovery Area and Switch Gear Area to meet NRC Option 1 BTP criteria limits for release for unrestricted use.

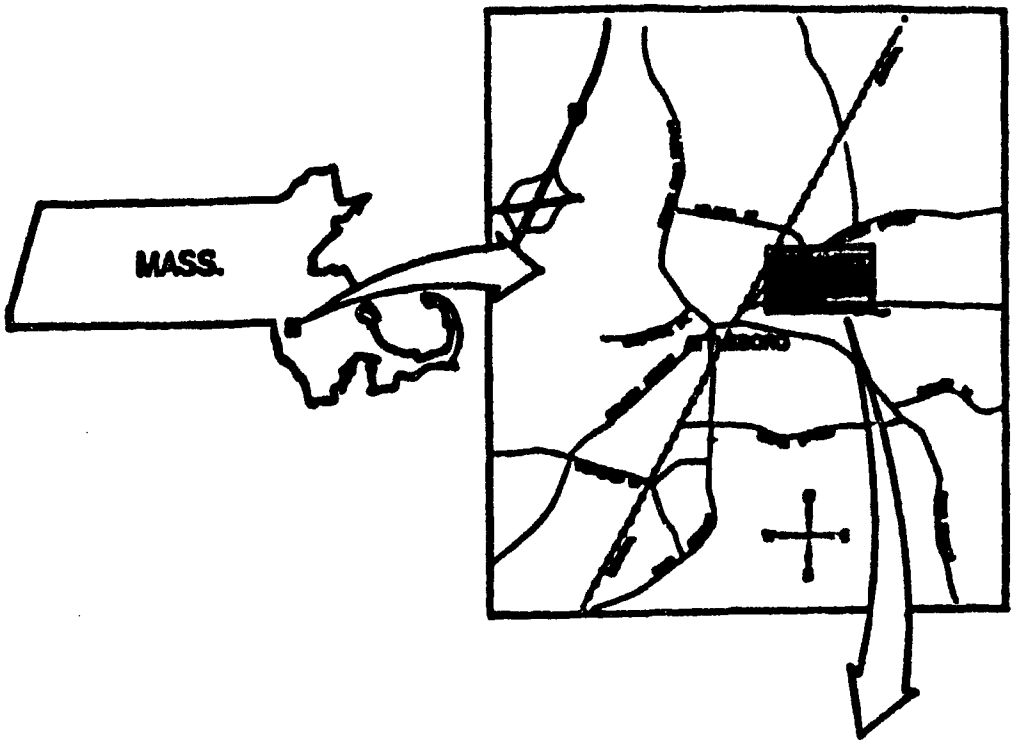
Table 5.1

Chronology of Metals Recovery Area Excavation

Date of Excavation	Area of Excavation
4/28/94-5/4/94	Area Adjacent to West side of Bldg. 5 (Baseline Area)
5/4/94-5/5/94	Outlying Area #1(SouthWest of Bldg. 5)
5/4/94-5/13/94	Outlying Area #2 (South East of Bldg. 5)
5/13/94-5/28/94	North Fence Line Area (Eastern Portion)
5/28/94-7/2/94	North Fence Line Area (Western Portion)
7/2/94-8/2/94	East Fence Line Area (Southern Portion)
8/2/94-8/9/94	South Fence Line Area (Eastern Portion)
8/10/94	East Fence Line (Into the SwitchGear Area)
8/11/94-8/13/94	South Fence Line Area (Eastern Portion)
8/13/94-8/25/94	North side of Building (Adjacent to Building 5)
8/26/94	Inside of Building 5
8/26/94-9/10/94	North side of Building (Adjacent to Building 5)
9/11/94-9/25/94	Excavation from the East End of Bldg. 5 extended
9/25/94-10/25/94	South Fence Line Area (Western Portion)
10/25/94-11/14/94	Final Soil Processing and Clean-up of RockWash Area along the North Fence (Western Portion)

Figure 3.1

Map of Massachusetts and Attleboro Showing Location and Plan View of the Texas Instruments Incorporated Site



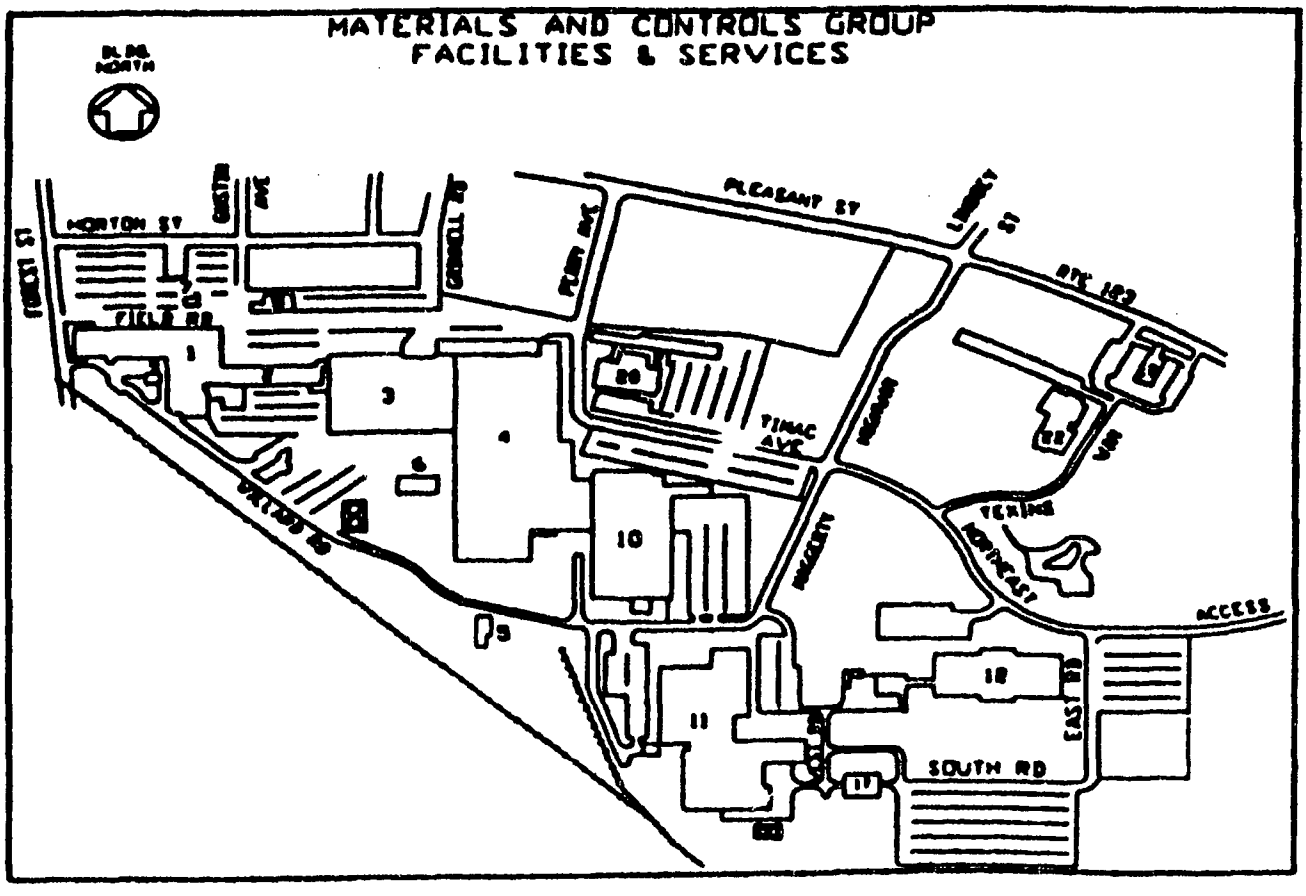
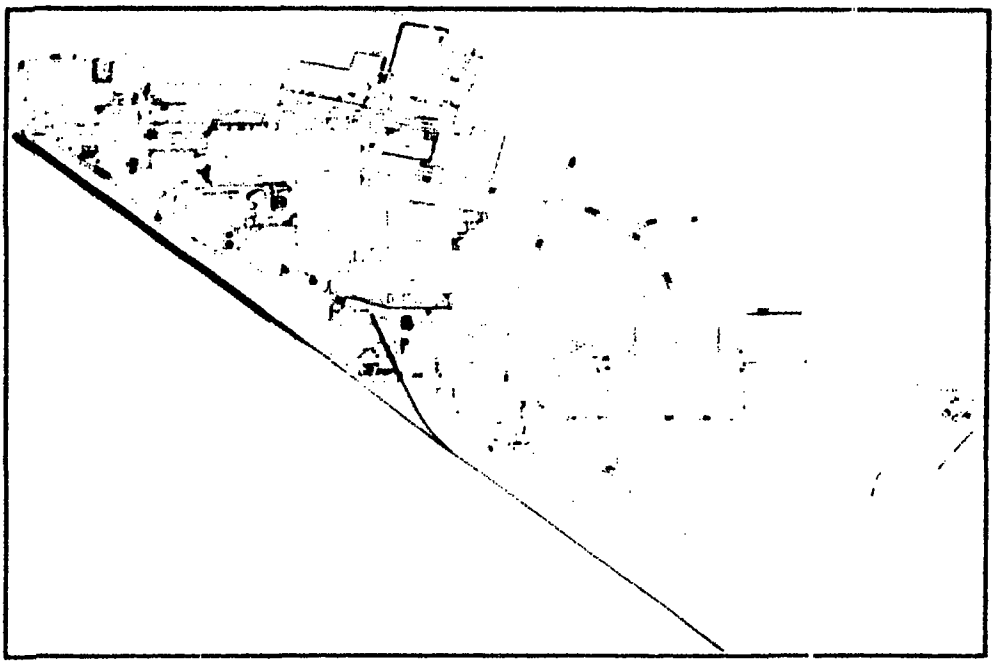


Figure 3.2
Metals Recovery Area and Building 5 Map



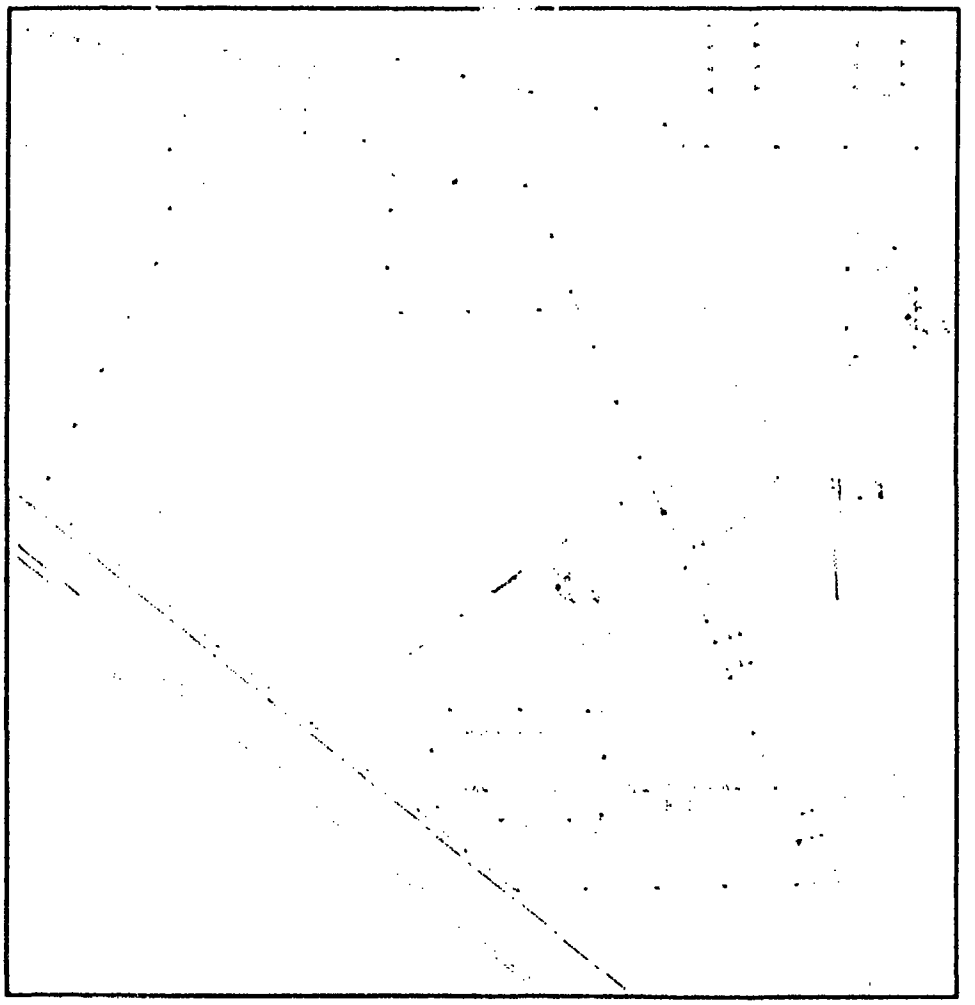


Figure 3.3
Baseline Area and Outlying Area Designation

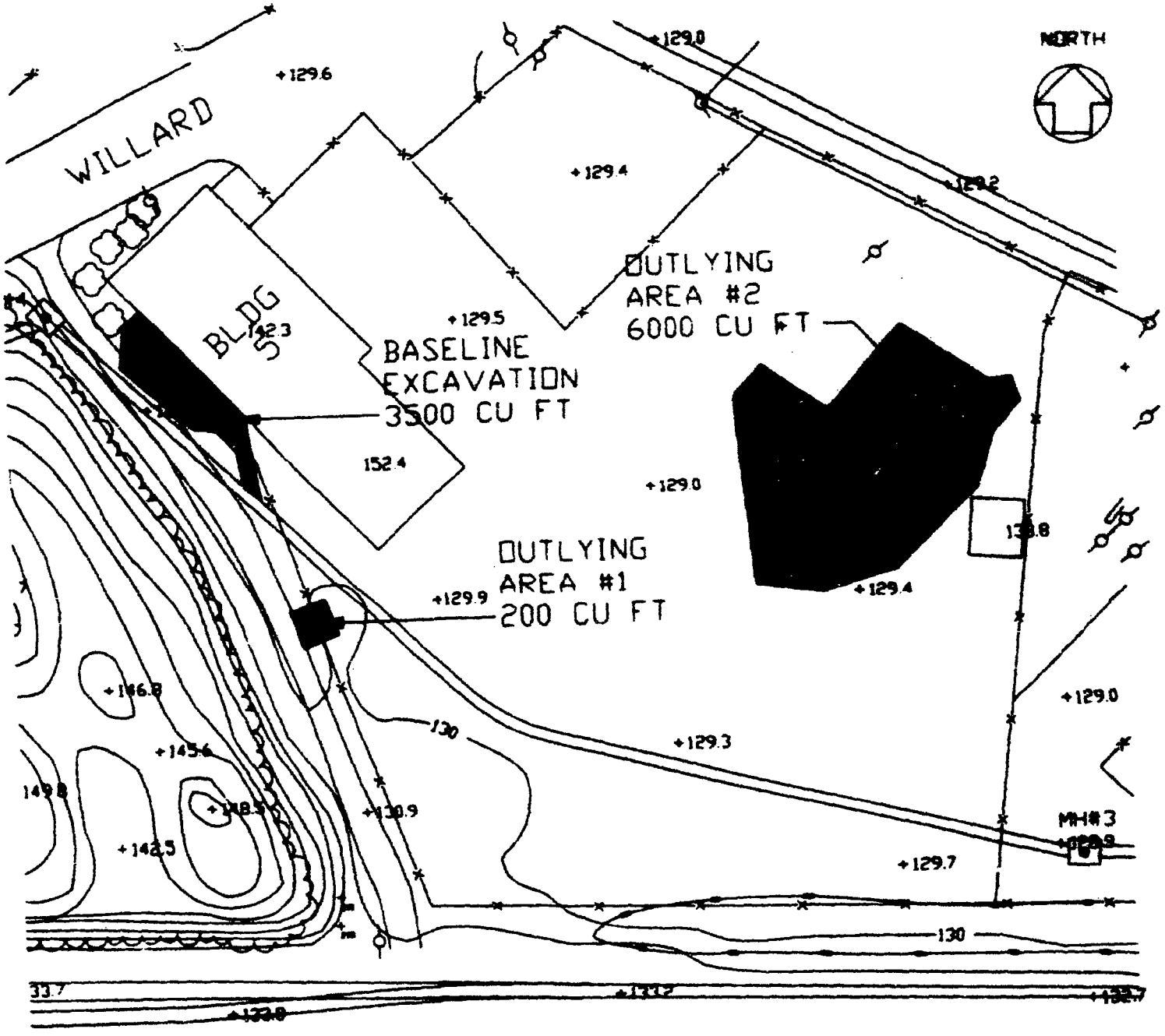


Figure 4.1
Organizational Chart

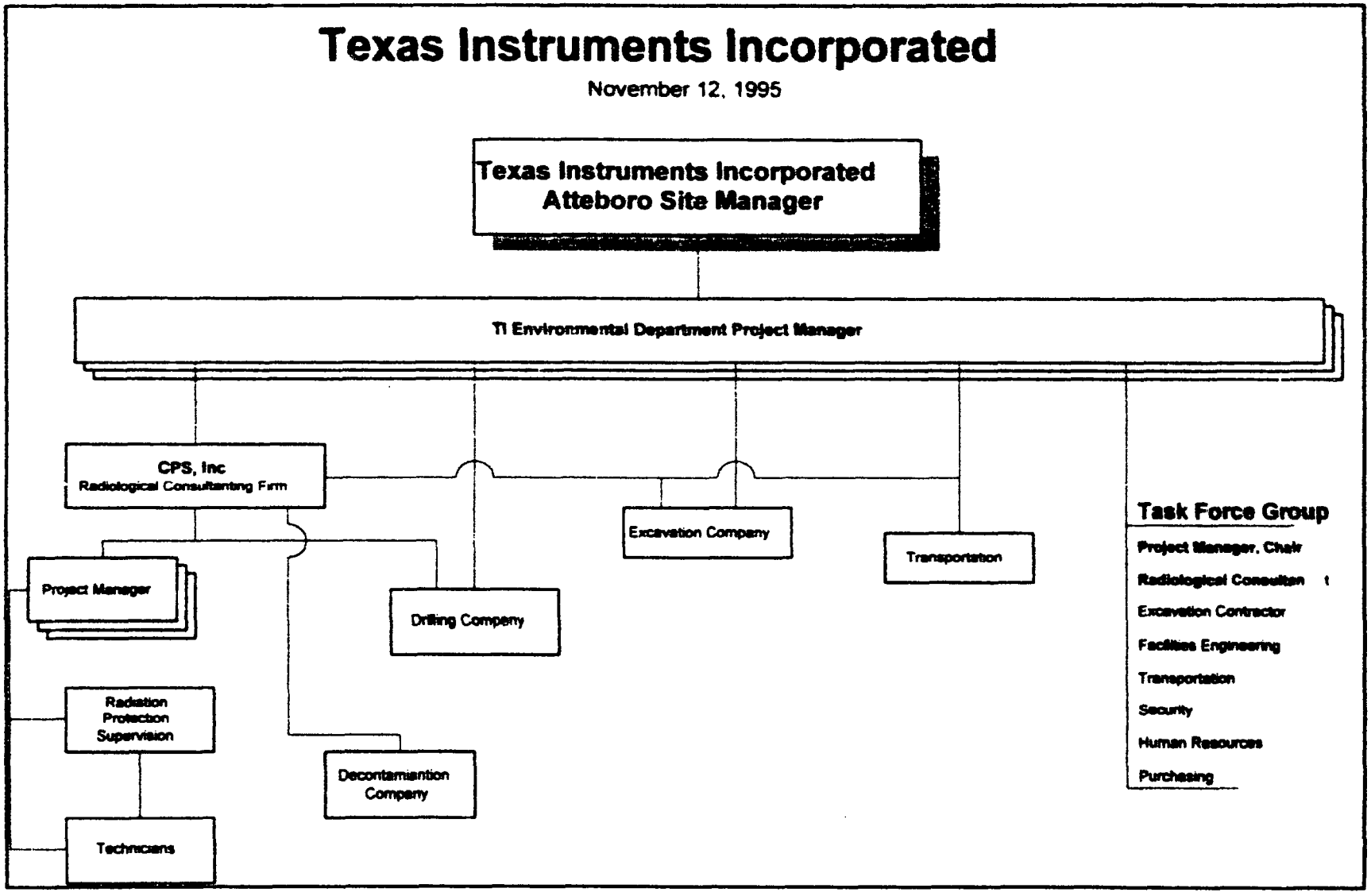


Figure 5.1
Extent of Excavation

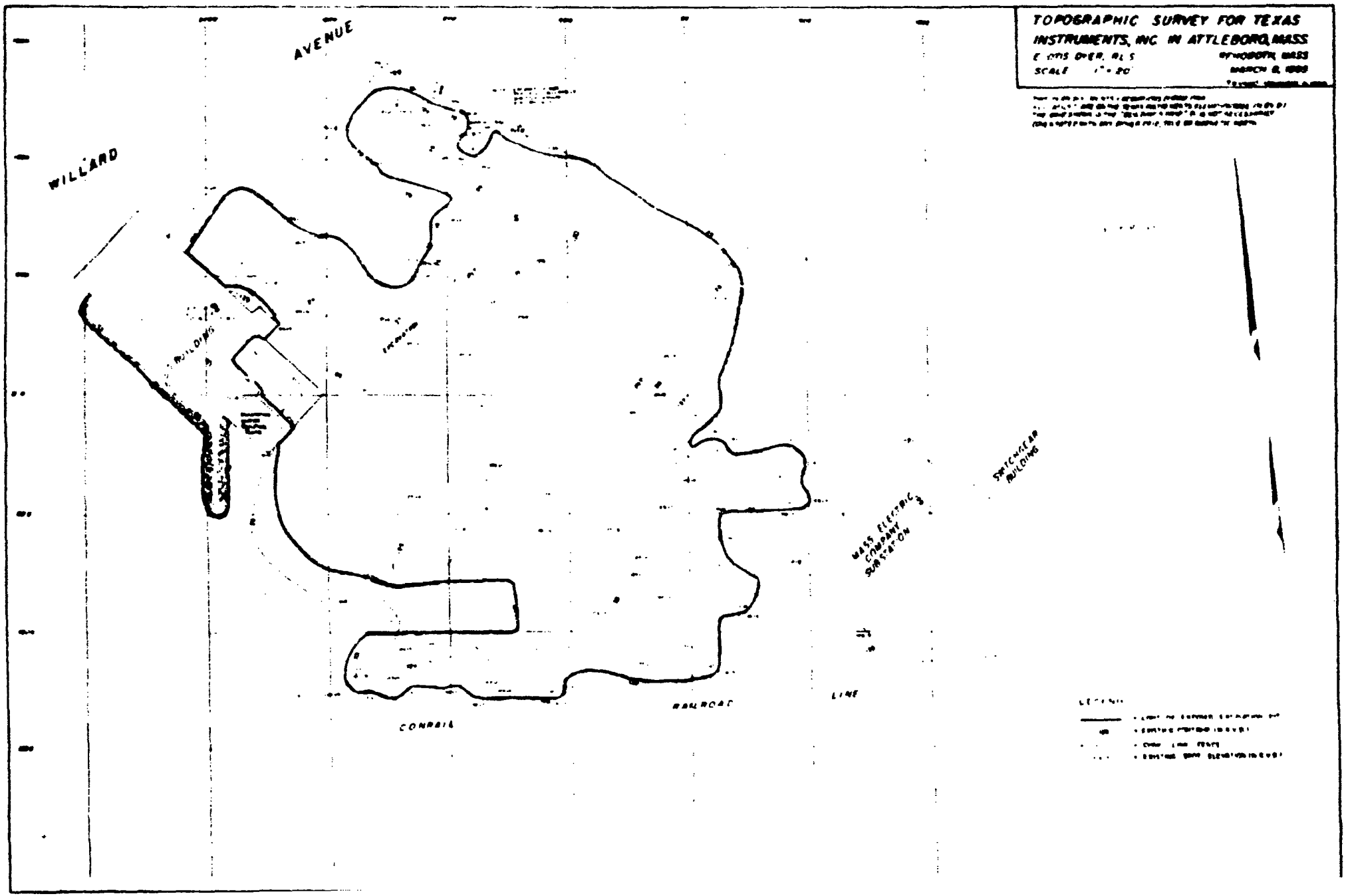


Figure 5.2
Metals Recovery Area / Sub-Surface Soil Sample Locations

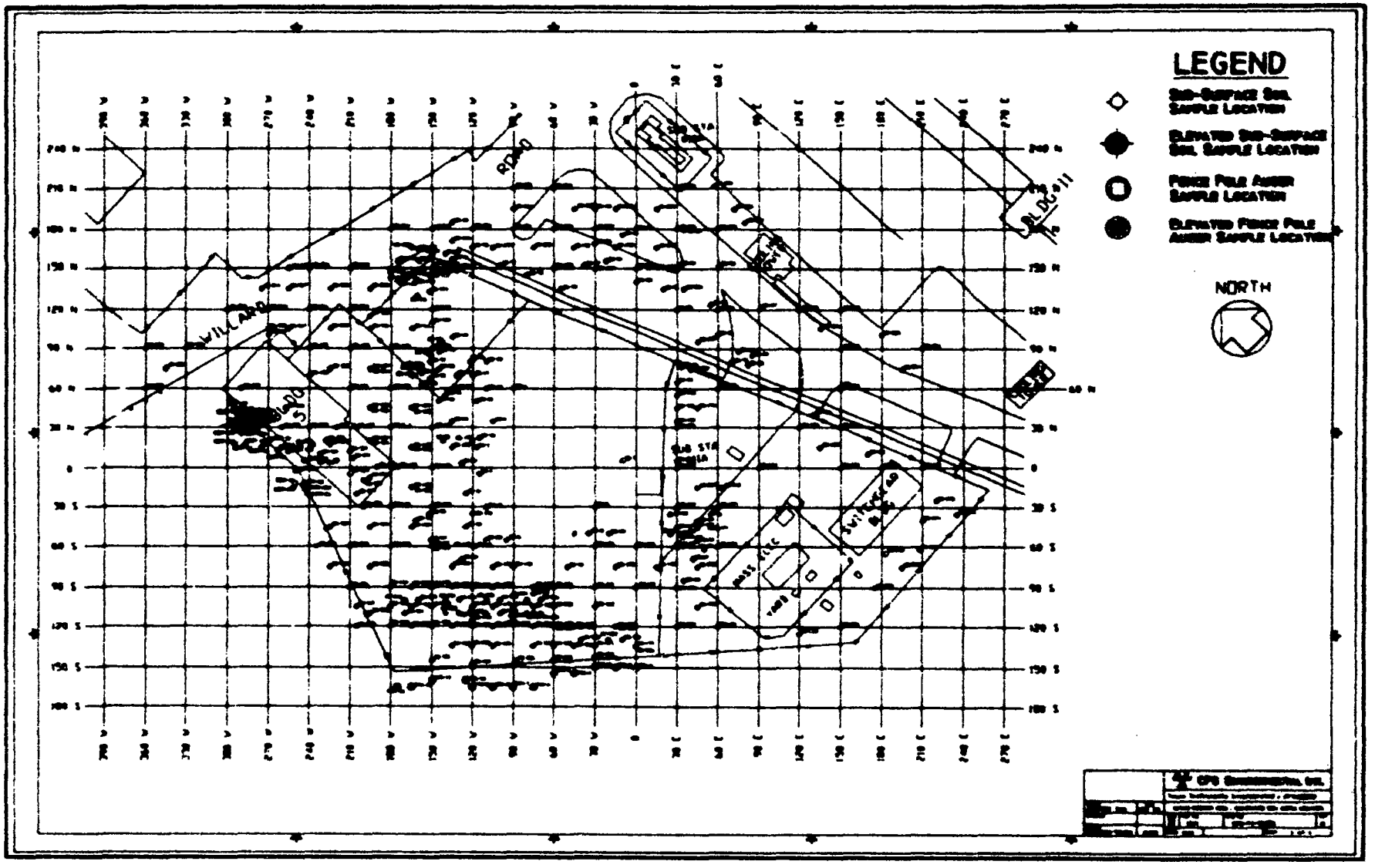


Figure 5.3
Metals Recovery Area / Sub-Surface Soil Sample Grid Cell Averages

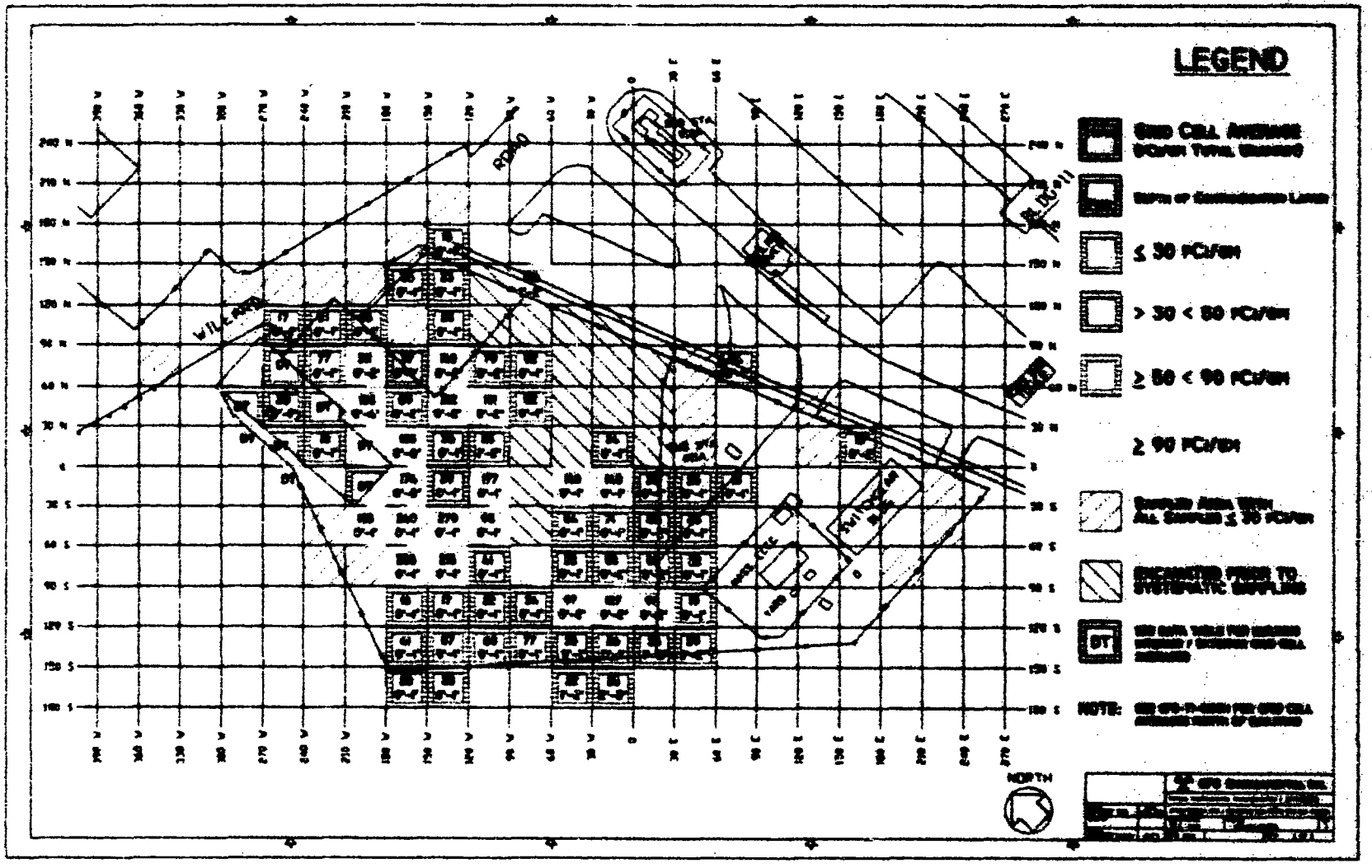
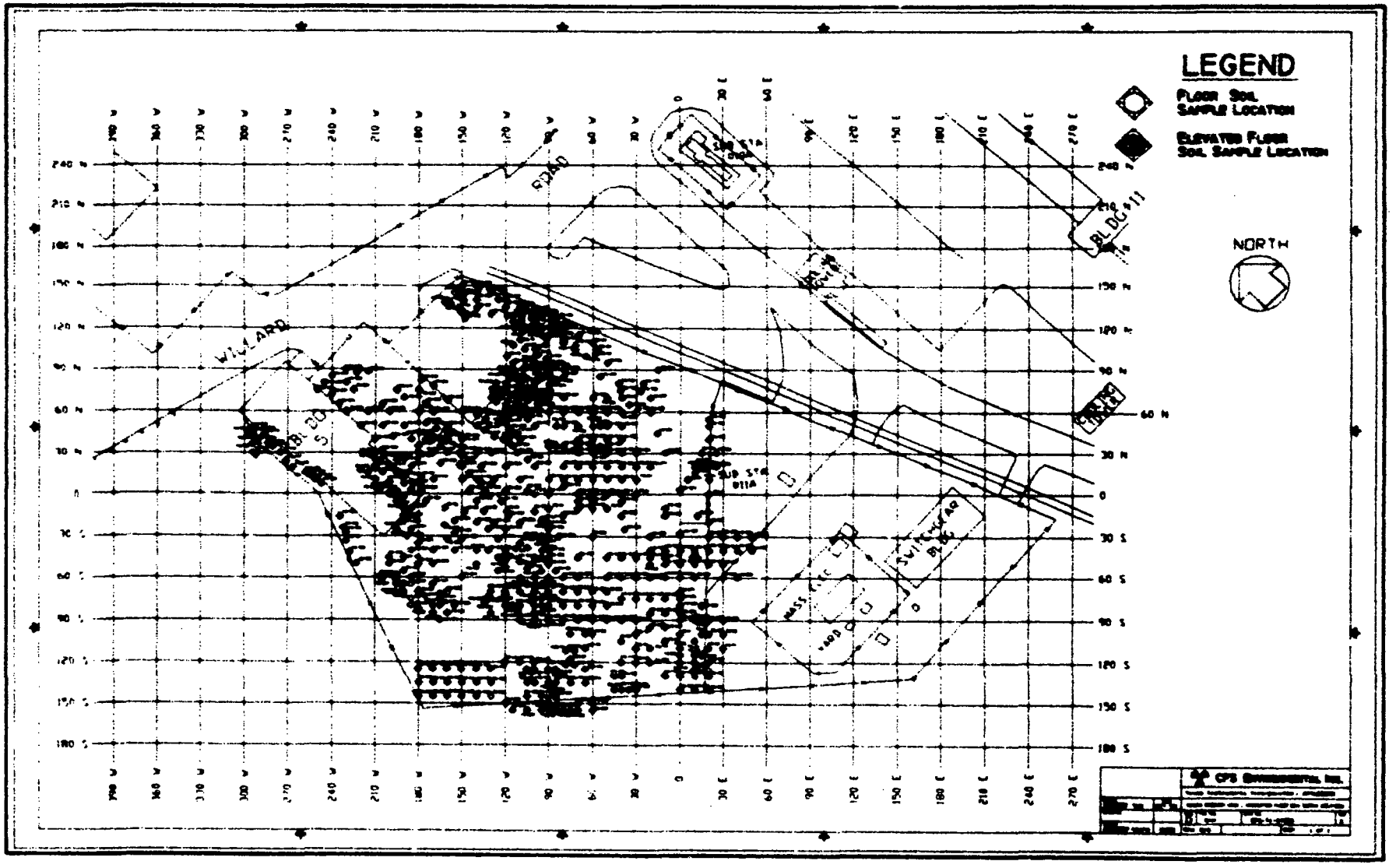


Figure 5.4
Metals Recovery Area / Excavation Floor Soil Sample Locations



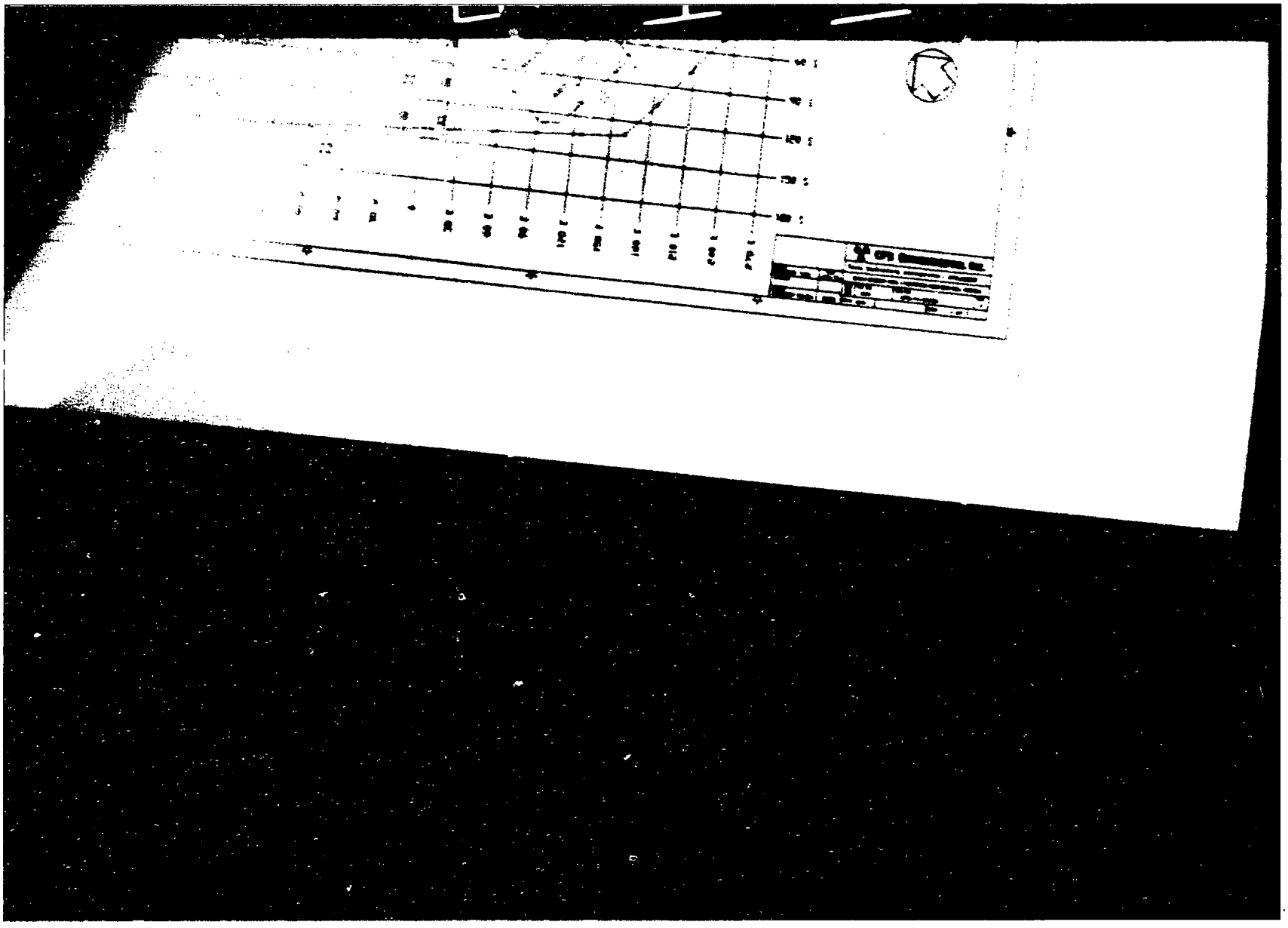


Figure 5.3
Metals Recovery Area / Sub-Surface Soil Sample Grid Cell Averages

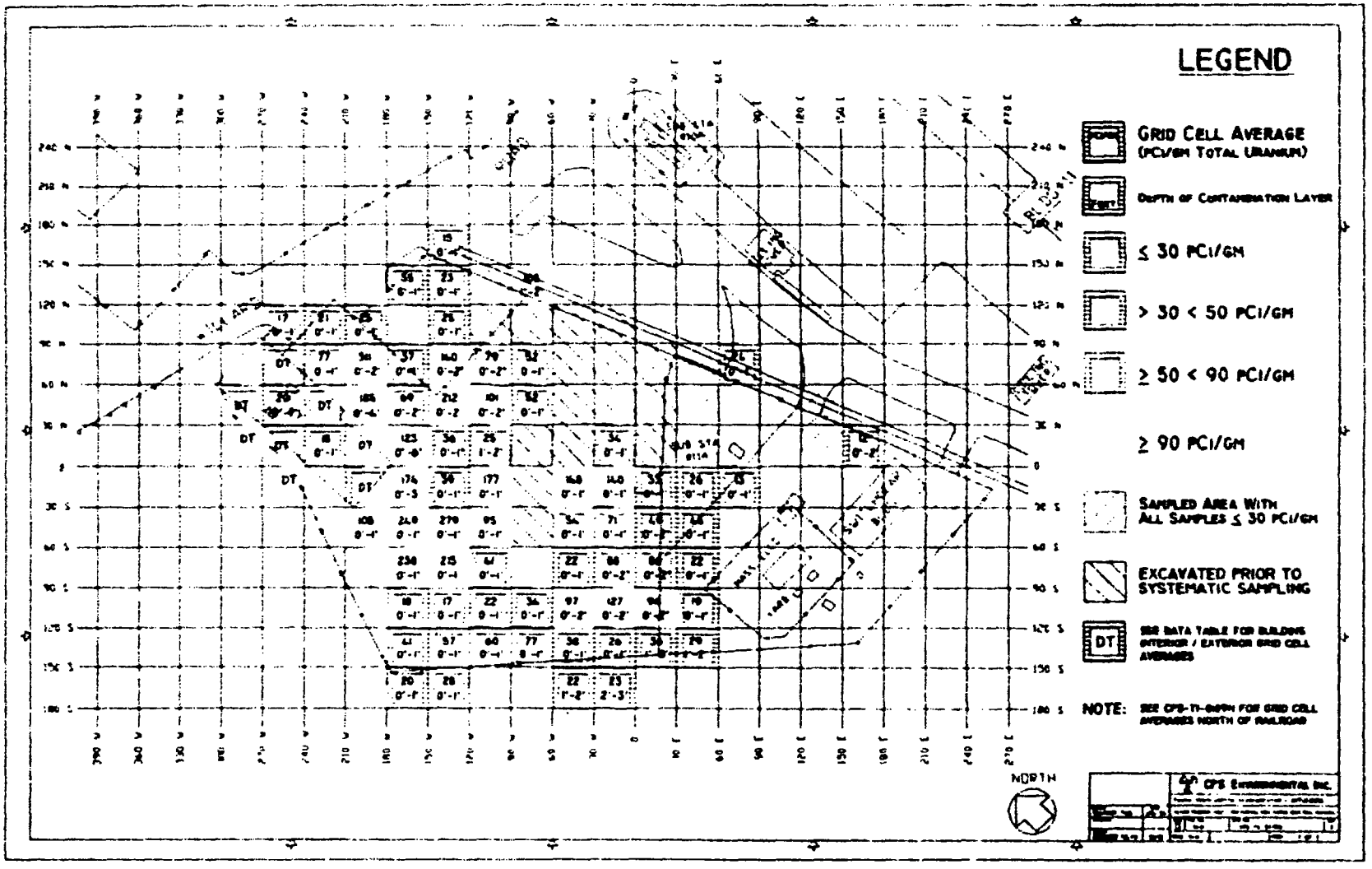


Figure 5.4
Metals Recovery Area / Excavation Floor Soil Sample Locations

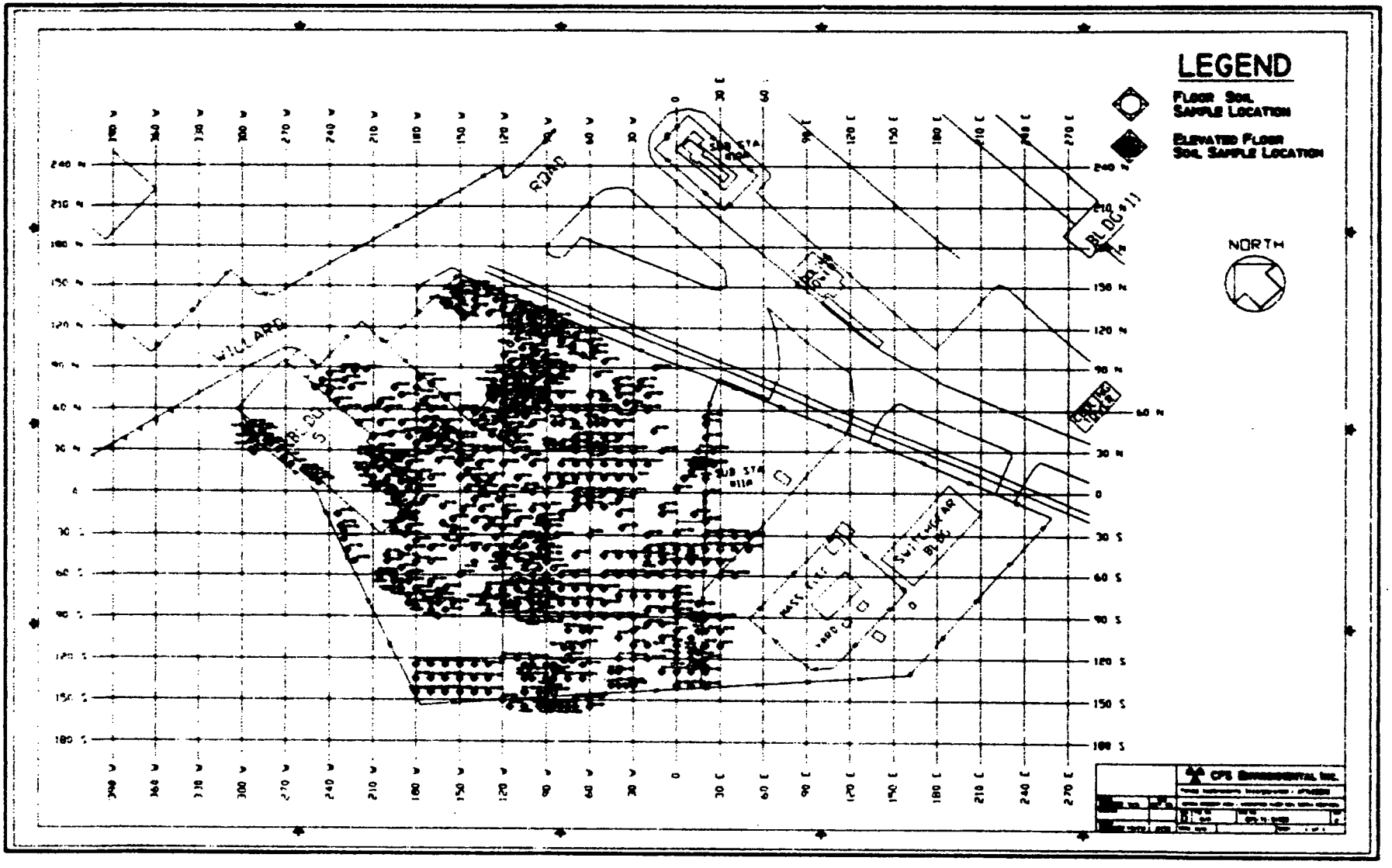
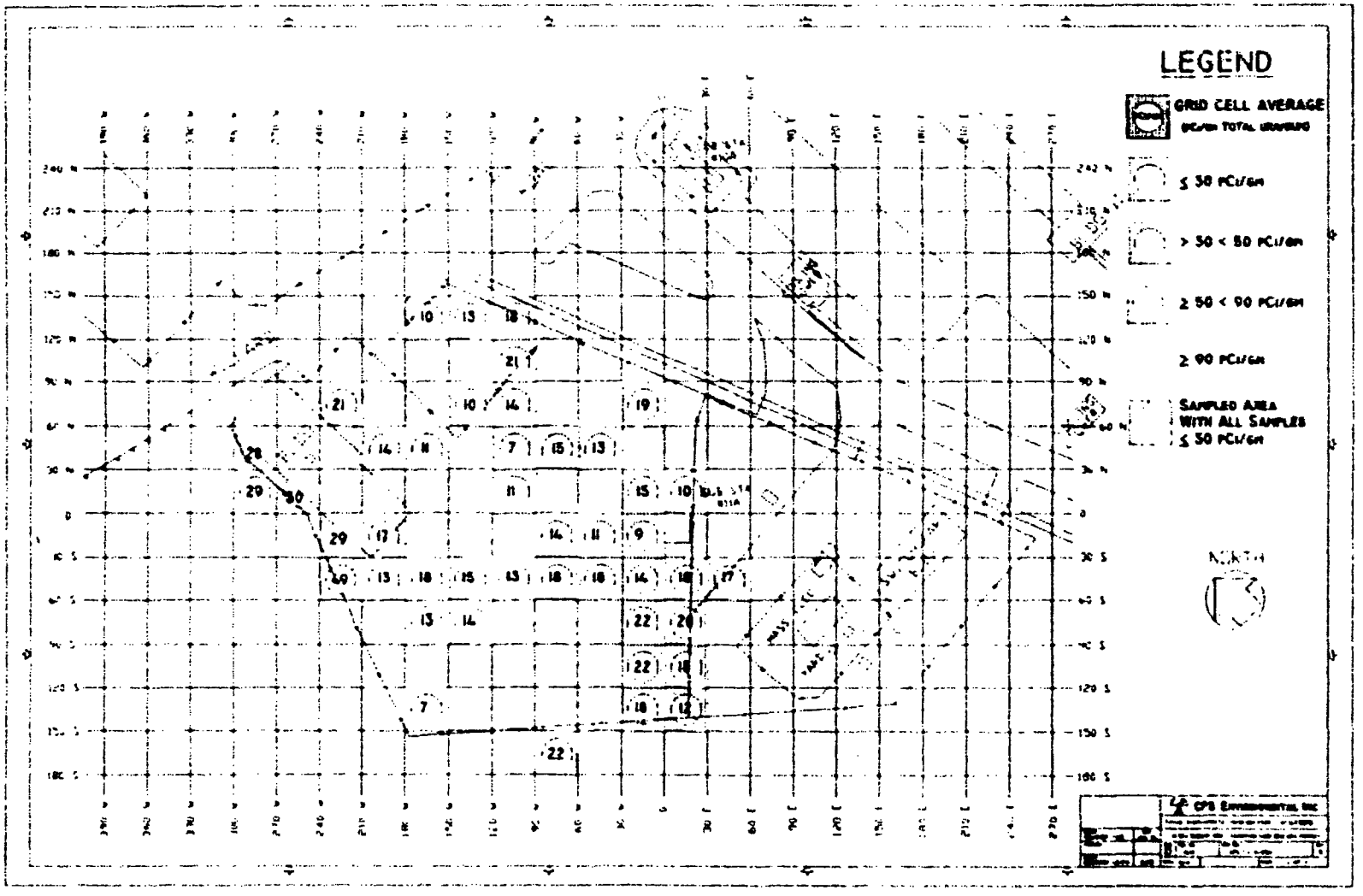


Figure 5.5
Metals Recovery Area / Excavation Floor Grid Cell Averages



Appendix A

Health and Safety Activities During Remediation of the Texas Instruments Incorporated Attleboro Site

Contents

Appendix A1

Health and Safety Plan

RADIOLOGICAL HEALTH AND SAFETY PLAN

Developed for Texas Instruments Incorporated
Materials and Control Group

By

Creative Pollution Solutions, Inc.

Version 1.0

April 24, 1994

RADIOLOGICAL HEALTH AND SAFETY PLAN

TABLE OF CONTENTS

I. Scope

This health and safety plan is established for the radiological health and safety aspects of subsurface sampling to be performed in the Building 5 Area at the Texas Instruments Incorporated facility in Attleboro, Massachusetts. In part, this plan will be based, when applicable, to the USNRC license SNM-23 Health and Safety Plan and incorporating relevant sections by inclusion or reference to the generic health and safety plan developed by Guild Drilling, Inc.

This health and safety plan details the site specific requirements for radiation protection purposes only. General health and safety considerations, including physical hazards, are addressed in the general health and safety plan developed by Guild Drilling.

II. Site History and Description

HISTORY

In 1952, the General Plate Division of Metals & Controls, Incorporated (M&C) became involved in the nuclear materials field to fabricate enriched uranium into thin foils for use in reactor experiments. In 1956, M&C received a contract form the Federal Government to manufacture the fuel core of the submarine "Triton". Additional contracts for Triton refuelings were completed by January 1959.

In 1959, M&C merged with Texas Instruments Incorporated, Materials and Control Group (TI) and continued processing nuclear materials. TI's involvement in the nuclear business, including the fabrication of High Flux Isotope Reactors (HFIR), extended to 1981.

The Atomic Energy Commission (AEC) approved the burial of low level contaminated construction materials and refuse in the disposal area east of building 10 (see site map appendix A). It is TI's belief that only low level scrap waste was disposed of on site. TI has indicated that there is no evidence, documentation, or records of any source material ores being disposed of on-site.

In 1982 decontamination and decommissioning activities in the area within building 10 were conducted. Having met the established standards for decommissioning work on the interior of the buildings, the NRC then dictated that TI would have to meet acceptable health and safety

levels for residual radiation with regard to the grounds outside the buildings. In particular, the former on-site disposal area between buildings 11 and 12 was the primary area of concern.

Subsequently, TI performed a radiological survey and Oak Ridge Associated Universities (ORAU) performed a verification study (published 12 February 1985), and CPS performed a pilot excavation/sampling study (June 1992). These studies helped to identify the areas for excavation between buildings 11 and 12.

Subsequent to the completion of the successful remediation of the "Former Burial Area" between Buildings 11 and 12, Texas Instruments Incorporated performed walkover surveys around Building 5, a former radioactive waste treatment area. Areas with elevated surface readings were identified (see Appendix A).

DESCRIPTION

The Texas Instruments Incorporated, Materials and Control Group, Attleboro, MA, site is located in Attleboro, approximately 48 kilometers south of Boston on Route 123. The area of concern for this subsurface sampling project is the area on the northwest side of Building 5 (see Appendix A).

III. Responsible Organizations and Key Personnel

Specific individuals specified within the organizations shall be identified by the site access log detailed in appendix B.

A. Organizations

1. Texas Instruments, Inc.

Texas Instruments, Inc. by virtue of ownership is responsible for all aspects of the project scope. Departments involved include: Environmental Health and Safety, Security, Waste Water Treatment, and Facilities.

2. Franklin Environmental Services

Franklin Environmental Services is responsible for the physical excavation of identified excavation areas. Personnel involved include operations and health and safety.

3. Creative Pollution Solutions, Inc.

Creative Pollution Solutions, Inc. to provide: Site Specific Radiological Health and Safety Plan, radiation protection and controls during site activity, and recommendations to Texas Instruments Incorporated regarding radiation protection.

B. Key Personnel

1. Texas Instruments, Inc.

Environmental Health and Safety
Health and Safety
Site Technicians
Site Security
Facilities
Shipping and Receiving

2. Franklin Environmental Services

Operations Manager
Safety and Compliance Officer
Machine Operator
Laborers

3. Creative Pollution Solutions, Inc.

Field Supervisor/Health Physicist
Certified Health Physicist
Health Physics Technician
Health Physics Analytical Support

A telephone contact list of key personnel is included on the following page.

IV. Work Stop Authority

Any individual or organization has the right to shut down the operations on the site. In the event of a disagreement, the most conservative approach shall be taken. A meeting shall be convened by identified representatives of each organization to assess the decision at hand.

V. Site Radiological Characteristics

Radiological hazards associated with this site are the result of previous NRC licensed activities which involved the manufacturing and processing of uranium. Hence, site radiological hazards are those associated with this material.

Concentrations of Radionuclides in Surface Soil

Initial samples indicate the concentration of U-238 in soil ranges from < 0.38 - 250 pCi/g. U-235 concentrations ranged from < 0.11 to 230 pCi/g. Th-232 concentrations ranged from 0.13 - 1.2 pCi/g.

Concentrations of Radionuclides Sub-Surface Soil

Initial samples indicate the concentration of U-238 in soil ranges from < 0.38 - 410 pCi/g. U-235 concentrations ranged from < 0.11 to 440 pCi/g. Th-232 concentrations ranged from 0.13 - 1.2 pCi/g.

External Exposure Rates (Scrap Yard Area)

Expsoure rates within the scrap yard ranged from approximately 10 - 200 μR/h. The highest external exposure rates were found in the area of the baseline excavation.

VI. Personnel Training Requirements

All site personnel will have received training consistent with that required under the general health and safety plan developed by FES. Site specific training regarding radiation protection and control will be conducted by CPS. An outline of the radiological control training is as follows:

1. Organization
2. Health and Safety Plan
3. Responsibilities
4. Site Characterization
5. Radiation Properties (site specific)
6. Contamination Controls
7. Frisking Procedures
8. Dose Control
9. Personnel Access
10. Work Stop Authority

A training log will be established to keep a record of the site specific radiation training (see Appendix D).

VII. Site Control

The site will be broken down into four primary zones: the Exclusion Zone, the Work Area, the Contamination Reduction Zone and the Support Zone. These zones are all to be considered part of the larger Restricted Area. Only authorized personnel will be allowed within the Restricted Area. See Appendix B for locations of zones within the site map.

Exclusion Zone (Hot Zone) -- Exclusion zone is the area within the Restricted Area where the baseline excavation will take place. The exclusion zone will require level D protective clothing.

Work Area -- This will be the area where excavated soils are processed and staged for disposition. This area will have an access point directly to the support zone. This access point is only for heavy equipment and trucks.

Contamination Reduction Zone (Decon Area) -- Within the contamination reduction zone a control point will be established to control personnel access to the Work Area and the Exclusion Zone. A personnel decontamination will be established at the access point.

Support Zone --- The support zone will include a command center and a field radiaiton laboratory.

VIII. Personnel Protective Equipment

Personnel in the Exclusion Area will maintain, as a minimum, level D protective equipment. The minimum protective equipment required includes: hard hat and steel toed safety shoes, shoe covers, and gloves. Additional protective equipment may be required as conditions warrant. Decisions to upgrade or downgrade protective equipment at any time during the site operation will be made jointly by Texas Instruments Incorporated, Materials and Control Group personnel and Creative Pollution Solutions, Inc. personnel.

IX. Monitoring and Sampling

This section describes the radiological sampling and monitoring to be done during site operations in order to protect site personnel and the community. Action Levels have been established for certain aspects of sampling and monitoring (Appendix C).

Air Sampling

Area air sampling will be performed during site operations at perimeter locations and work areas. Perimeter locations will be based on prevailing conditions.

Dose Rate Monitoring

Direct reading dose rate monitoring will be performed during all site operations. This monitoring will be performed to assess direct worker exposure levels.

Contamination Monitoring

Frisking of personnel and equipment shall be performed prior to exit from the work area. Frisking will be done to assure personnel, equipment, and materials are not contaminated. Surface contamination surveys will be conducted with standard pancake type GM probes (Ludlum 44-9) coupled to a Ludlum Model 3 Ratemeter in accordance with procedures outlined in the "Supplement to the 1992 Remediation Plan".

X. Decontamination

Personnel Decontamination

Personnel decontamination will be performed in accordance with standard decontamination practices as outlined in the "Occupational Safety and Health Manual for Hazardous Waste Site Activities". In addition to standard waste site procedures, frisking out of all personnel will take place prior to exiting the exclusion zone.

Equipment Decontamination

All equipment shall be surveyed to determine disposition. Disposition shall include decontamination for free release (see Appendix C) or disposed of as appropriate.

XI. Medical Surveillance

Medical surveillance shall be performed for all personnel working in the exclusion zone. Medical surveillance shall be in accordance with the general health and safety plan developed by Franklin Environmental Services.

XII. Informational Programs

Informational programs are the responsibility of Texas Instruments Incorporated, Materials and Control Group. These programs will inform TI employees and the community of the site work as necessary.

XIII. Record Keeping

Site records will be kept including but not limited to: Site log, site training records, air sampling results, and site sampling and monitoring results.

XIV. Emergency Response Contingency Plan

Emergency procedures will be consistent with those outlined in the general health and safety plan developed by Franklin Environmental Services (FES) and Texas Instruments Incorporated, Materials and Control Group Disaster Emergency Management Plan.

Appendix A

Site Map

Appendix B

Site Access Log

Site Access Log

Name	Date	Company	Position/Purpose

Appendix C

Action Limits

Air Sample (General Area)

General Area Air Sampling is performed to assess airborne concentrations of radionuclides. Action Limits are established in accordance with NRC published concentration limits (Derived Air Concentrations, DACs).

Concentration	Action
< 25%	No Action
25% < X < 75 %	Investigate and notify radiation protection supervision
75% < X < 100%	Stop work. Notify radiation protection supervision.

Personnel Exposure

External Dose

Thermoluminescent Dosimetry (TLDs) shall be the dose of record for those issued. Self reading pocket dosimeters are for exposure control purposes, dose of record for those not issued TLDs, and to serve as a backup to TLDs. Action limits are established for dose control purposes using the self reading pocket dosimeters.

SRD Reading	Action
< 20 mR	No Action
20 mR < X < 100 mR	Notify Radiation Protection Supervision for Investigation
> 100 mR	Remove worker from area and notify and notify Radiation Protection Supervision.

Breathing Zone Air Samples (BZA)

BZAs are worn by a representative group of workers based on job function. BZAs are used to assess potential intakes of radionuclides. Action Limits are as follows:

BZA Result	Action
< 150 dpm	No Action
> 150 dpm	Investigation Level. Verify by Bioassay

Bioassay (Urine Analysis)

Urine samples are obtained to assess intakes and verify the effectiveness of the respiratory protection. Bioassay results are reported in the units of µg/l. The results are compared to baseline values and/or to Investigation/Action levels.

Bioassay Results	Action
< 5 µg/l	No Action
> 5 µg/l	Investigation

Contamination Levels

In accordance with USNRC guidelines for "Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material", Dated April 1993, the following is established:

Acceptable Surface Contamination Levels

Nuclide (Note a)	Average (Note b,c,f)	Maximum (Note b,d,f)	Removable (note b,e,f)
U-Natural, ^{235}U, ^{238}U, and associated decay products	5,000 dpm /100 cm^2	15,000 dpm /100cm^2	1,000 dpm /100cm^2
Transuranics, ^{226}Ra, ^{228}Ra, ^{230}Th, ^{228}Th, ^{231}Pa, ^{227}Ac, ^{125}I, ^{129}I	100 dpm/100cm^2	300 dpm/100cm^2	20 dpm/100cm^2
Th-nat., ^{232}Th, ^{90}Sr, ^{223}Ra, ^{224}Ra, ^{232}U, ^{126}I, ^{131}I, ^{133}I	1,000 dpm/100cm^2	3,000 dpm/100cm^2	200 dpm/100cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except ^{90}Sr and others noted above. Includes mixed fission products containing ^{90}Sr and others noted above.	5,000 dpm /100cm^2	15,000 dpm /100cm^2	1,000 dpm /100cm^2

Notes:

a. Where surface contamination by both alpha and beta-gamma emitting nuclides exists, the limits established for alpha and beta-gamma emitting nuclides should apply independently

b. As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrument.

c. Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

d. The maximum contamination level applies to an area of not more than 100 cm^2.

e. The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface area should be wiped.

f. The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h at 1 cm and 1.0 mrad at 1 cm, respectively, measured through not more than 7 mg/100 cm^2 of total absorber.

Exposure Rates

Action Limits for external exposure rates are specified as follows:

Exposure Rate	Action
Background < X < 1 mR/h	No Action
1 mR/h < X < 10mR/h	Stop work and Radiation Protection Supervision Notified for Investigation
10 mR/h < X < 100 mR/h	Stop Work. Personnel retire to area of exposure rate less than 1 mR/h. Radiation protection supervision notified for investigation.
> 100 mR/h	Stop work. evacuate to control point and exit to command center. Radiation Protection supervision notified.

Appendix A2

Air Sampling and Bioassay Methodology and Analysis

Air Sampling Methodology and Analysis

Air sampling was established for the general area within the excavation site to assess the potential for airborne radioactivity generated from the physical intrusion into the affected area. The location of the air sampling systems were varied dependent upon the prevailing conditions at the time. The air sampling system was usually located adjacent to the reed screen operation or adjacent to the excavation area. The system was used to establish a worst case airborne concentration on the worksite.

The air sampling systems were comprised of a rotary vane pump with a restricted orifice to maintain an established flow rate of 20 $l.m^{-1}$. The air sampling media was glass fiber contained within a 2" open filter head coupled to the pump system with a polyethelne tube.

During the radiological characterization phase of the project air samples were analyzed within the field using a two count method to discriminate against radon progeny for initial assessment. These were then analyzed later at a time sufficiently long to allow the radon progeny to decay for final assessment of the airborne radioactivity. The results during this phase indicated that the air samples were at the minimum detectable levels. Accordingly, it was decided that the analysis method should be the latter method described unless on-site conditions dictated otherwise. No such conditions arose.

Counting of air samples was conducted on a Ludlum model 43-10-1 ZnS/Plastic Scintillating detector arrangement coupled to a Ludlum model 2929 Scaler or on a ZnS screen coupled to a photomuliplier tube arrangement connected to a model 2200 Scaler/Ratemeter. Results of counting are presented in the attached tables for the area and date specified. The airborne concentration was determined as follows:

$$U(\mu Ci/ml) = \frac{\frac{C_{s+b}(counts)}{t_{s+b}(min)} - \frac{C_b(counts)}{t_b(min)}}{\epsilon(c/d) \cdot 2.22E6(dpm/\mu Ci) \cdot F(lpm) \cdot 1000(cm^3/l) \cdot R \cdot t(min)}$$

Where:

	U	is the airborne concentration (μCi/ml),
	C_{s+b}	is the sample count (counts),
	C_b	is the background count (counts),
	t_{s+b}	is the sample count time (min),
	t_b	is the background count time (min),
	ϵ	is the system counting efficiency (counts/disintegration),
	F	is the flow Rate (lpm),

R is the filter retention (unitless), and
τ is the sampling time (min).

The values of 2.22E6 dpm/μCi and 1000 cm^3/l represent unit conversions.

Errors for the concentration can be propagated from the individual errors from each of factors representing the above equation. Standard errors for the parameters F, t, R, and τ are not known and are assumed to be independent. Therefore the only errors which may be propagated will be those associated with counting errors.

$$\sigma_U = [\sigma_e^2 + \sigma_{R_{s+b}}^2 + \sigma_{R_b}^2]^{1/2}$$

Where:
σ_U is the standard error in the concentration,
$\sigma_{R_{s+b}}$ is the standard error in the counting rate of the sample plus background,
σ_{R_b} is the standard error in the background counting rate, and
σ_e is the standard error in the efficiency.

$$\sigma_U = [\sigma_e^2 + \frac{C_{s+b}}{t_{s+b}^2} + \frac{C_b}{t_b^2}]^{1/2}$$

When the sample counts do not differ significantly from background it is appropriate to evaluate the sample with regards to a statistical evaluation for which at a given count above background, activity is said to be present with a specified degree of confidence. Those counts less than this value is said to below the minimum detectable activity or extended to the minimum detectable concentration.

The formula for minimum detectable activity/concentration can be developed as follows:

$$LLD = \frac{k^2}{T_{s+b}} + 2k\sigma_b\left(1 + \frac{T_b}{T_{s+b}}\right)^{\frac{1}{2}}$$

Where:
LLD is the Lower Level of Detection,
k is defined for a 95% confidence interval of a one tail test and is equal to 1.65, and
σ_b is the standard deviation in the background count.

If T_b and T_{s+b} are equal (i.e., $T_b = T_{s+b} = T$), then

$$LLD = \frac{k^2}{T} + 2\sqrt{2}k\sigma_b$$

The minimum detectable activity would then follow as:

$$MDA = K\frac{(LLD)}{\epsilon T}$$

Where:
- MDA is the minimum detectable activity,
- ϵ is the counting efficiency,
- T is the counting time, and
- K is a conversion constant.

It would follow then that the minimum concentration would be developed from the MDA as it was from activity previously as follows:

$$MDC = \frac{MDA}{V}$$

Where:
- MDC is the minimum detectable concentration and
- V is the volume of air sample.

The results presented within the follow tables indicate that all values are well below the minimum detectable activity and hence the minimum detectable concentration.

General Area Air Sample Results

Air Sample Description	Date Sampled	Flow Rate (lpm)	Duration of Sam. (hrs)	Alpha Count	Time	Air Conc. uCi/ml	MDC uCi/ml
General Area	2-May	40	8.37	2	5	4.48E-14	6.07E-14
General Area	3-May	30	8	8	20	6.26E-14	2.12E-14
General Area	4-May	40	4.45	2	5	8.44E-14	1.14E-13
General Area	6-May	30	5	3	20	3.75E-14	3.39E-14
General Area	11-May	30	10	7	5	1.75E-13	6.77E-14
General Area	13-May	30	10.75	11	5	2.56E-13	6.30E-14
General Area	18-May	30	7.57	9	10	1.49E-13	4.47E-14
General Area	19-May	30	8.71	3	10	4.31E-14	3.89E-14
General Area	23-May	30	7.65	2	10	3.27E-14	4.43E-14
General Area	24-May	20	8.85	7	10	1.48E-13	5.74E-14
General Area	25-May	20	4	0	10	0.00E+00	1.27E-13
General Area	26-May	20	7.87	1	10	2.38E-14	6.45E-14
General Area	27-May	20	5.97	1	10	3.14E-14	8.51E-14
General Area	31-May	30	9.18	1	10	1.36E-14	3.69E-14
General Area	1-2 Jun	20	24.17	1	10	7.77E-15	2.10E-14
General Area	2-Jun	30	7.92	1	10	1.58E-14	4.28E-14
General Area	5-Jun	20	24.4	4	10	3.08E-14	2.08E-14
General Area	6-Jun	30	7.78	3	10	4.82E-14	4.35E-14
General Area	7-Jun	20	8.28	6	10	1.36E-13	6.13E-14
General Area	8-Jun	20	24	2	10	1.56E-14	2.12E-14
General Area	9-10 Jun	20	31.76	6	10	3.55E-14	1.60E-14
General Area	13-Jun	20	9	1	10	2.09E-14	5.64E-14
General Area	14-Jun	20	23.09	3	10	2.44E-14	2.20E-14
General Area	15-Jun	30	4.94	2	10	5.07E-14	6.85E-14
General Area	16-Jun	20	8.55	0	10	0.00E+00	5.94E-14
General Area	20-Jun	20	5.84	5	10	1.61E-13	8.70E-14
General Area	21-Jun	20	7.44	4	10	1.01E-13	6.83E-14
General Area	22-Jun	20	9.73	2	10	3.86E-14	5.22E-14
General Area	23-Jun	20	10.55	6	10	1.07E-13	4.81E-14
General Area	24-Jun	20	10.68	4	10	7.03E-14	4.76E-14
General Area	27-Jun	20	8.07	5	10	1.16E-13	6.29E-14
General Area	28-Jun	20	9.27	6	10	1.21E-13	5.48E-14
General Area	29-Jun	20	6	3	10	9.38E-14	8.46E-14
General Area	30-Jun	20	2.98	12	10	7.56E-13	1.70E-13
General Area	1-Jul	20	7.67	6	10	1.47E-13	6.62E-14
General Area	5-Jul	20	8.73	1	10	2.15E-14	5.82E-14
General Area	6-Jul	20	8.43	7	10	1.56E-13	6.02E-14
General Area	7-Jul	20	6.64	3	10	8.48E-14	7.65E-14
General Area	8-Jul	20	5.23	5	10	1.79E-13	9.71E-14
General Area	11-Jul	20	6.63	7	10	1.98E-13	7.66E-14
General Area	12-Jul	20	9.37	4	10	8.01E-14	5.42E-14
General Area	13-Jul	20	8.45	4	10	8.88E-14	6.01E-14
General Area	14-Jul	20	2.88	3	10	1.96E-13	1.76E-13
General Area	15-Jul	20	9.35	3	10	6.02E-14	5.43E-14
General Area	18-Jul	20	7.07	4	10	1.06E-13	7.18E-14
General Area	19-Jul	20	5.57	2	10	6.74E-14	9.12E-14

General Area Air Sample Results

Air Sample Description	Date Sampled	Flow Rate	Duration of Sam.	Alpha		Air Conc.	MDC
		(lpm)	(hrs)	Count	Time	uCi/ml	uCi/ml
General Area	20-Jul	20	7.54	7	10	1.74E-13	6.74E-14
General Area	21-Jul	20	7.29	5	10	1.29E-13	6.97E-14
General Area	26-Jul	20	7.17	5	10	1.31E-13	7.08E-14
General Area	27-Jul	30	7.43	7	10	1.18E-13	4.56E-14
General Area	28-Jul	20	5.76	2	10	6.52E-14	8.82E-14
General Area	29-Jul	20	7.4	3	10	7.61E-14	6.86E-14
General Area	30-Jul	20	7.23	3	10	7.79E-14	7.02E-14
General Area	1-Aug	20	6.64	3	10	8.48E-14	7.65E-14
General Area	2-Aug	20	9.2	3	10	6.12E-14	5.52E-14
General Area	3-Aug	20	7.35	4	10	1.02E-13	6.91E-14
General Area	4-Aug	20	10.69	5	10	8.78E-14	4.75E-14
General Area	5-Aug	20	7.58	4	10	9.90E-14	6.70E-14
General Area	8-Aug	20	9.45	6	10	1.19E-13	5.37E-14
General Area	9-Aug	20	9.85	9	10	1.71E-13	5.16E-14
General Area	10-Aug	20	7.72	7	10	1.70E-13	6.58E-14
General Area	11-Aug	20	7.45	10	10	2.52E-13	6.82E-14
General Area	12-Aug	20	6.7	6	10	1.68E-13	7.58E-14
General Area	13-Aug	20	7.3	6	10	1.54E-13	6.96E-14
General Area	15-Aug	20	4.96	5	10	1.89E-13	1.02E-13
General Area	16-Aug	20	8.02	8	10	1.87E-13	6.33E-14
General Area	17-Aug	20	8.63	9	10	1.96E-13	5.89E-14
General Area	19-Aug	20	4.94	3	10	1.14E-13	1.03E-13
General Area	23-Aug	20	6.2	4	10	1.21E-13	8.19E-14
General Area	26-Aug	30	14.66	8	10	6.8?E-14	2.31E-14
General Area	6-Sep	20	6.04	3	10	9.32E-14	8.41E-14
General Area	7-Sep	20	7.59	4	10	9.89E-14	6.69E-14
General Area	8-Sep	20	7.09	5	10	1.32E-13	7.16E-14
General Area	9 Sep	20	6.41	5	10	1.46E-13	7.92E-14
General Area	12 Sep	20	6.5	4	10	1.16E-13	7.81E-14
General Area	13-Sep	20	8.22	8	10	1.83E-13	6.18E-14
General Area	14-Sep	20	7.61	5	10	1.23E-13	6.67E-14
General Area	15-Sep	20	8.37	8	10	1.79E-13	6.07E-14
General Area	16-Sep	20	9.54	5	10	9.84E-14	5.32E-14
General Area	17-Sep	20	7.8	2	10	4.81E-14	6.51E-14
General Area	19-Sep	20	8	7	10	1.64E-13	6.35E-14
General Area	20-Sep	20	8.26	8	10	1.82E-13	6.15E-14
General Area	21-Sep	20	7.41	4	10	1.01E-13	6.85E-14
General Area	22-Sep	20	8.05	9	10	2.10E-13	6.31E-14
General Area	28-Sep	20	8.1	3	10	6.95E-14	6.27E-14
General Area	29-Sep	20	9.1	6	10	1.24E-13	5.58E-14
General Area	30-Sep	20	20.34	5	10	4.61E-14	2.50E-14
General Area	1-Oct	20	6.7	4	10	1.12E-13	7.58E-14
General Area	2-Oct	20	9.03	2	10	4.16E-14	5.62E-14
General Area	3-Oct	20	7.44	9	10	2.27E-13	6.83E-14
General Area	4-Oct	20	8.58	7	10	1.53E-13	5.92E-14
General Area	5-Oct	20	24	10	10	7.82E-14	2.12E-14

General Area Air Sample Results

Air Sample Description	Date Sampled	Flow Rate	Duration of Sam.	Alpha		Air Conc.	MDC
		(lpm)	(hrs)	Count	Time	uCi/ml	uCi/ml
General Area	6-Oct	20	8.68	8	10	1.73E-13	5.85E-14
General Area	7-Oct	20	10.12	11	10	2.04E-13	5.02E-14
General Area	8-Oct	20	10.25	3	10	5.49E-14	4.96E-14
General Area	10-Oct	20	8.99	6	10	1.25E-13	5.65E-14
General Area	11-Oct	20	9.21	4	10	8.15E-14	5.51E-14
General Area	12-Oct	20	9.91	2	10	3.79E-14	5.13E-14
General Area	13-Oct	20	8.35	5	10	1.12E-13	6.08E-14
General Area	14-Oct	20	9.2	7	10	1.43E-13	5.52E-14
General Area	15-Oct	20	4.29	4	10	1.75E-13	1.18E-13
General Area	17-Oct	20	9.25	8	10	1.62E-13	5.49E-14
General Area	18-Oct	20	9.96	5	10	9.42E-14	5.10E-14
General Area	19-Oct	20	9.45	12	10	2.38E-13	5.37E-14
General Area	20-Oct	20	9	4	10	8.34E-14	5.64E-14
General Area	21-Oct	20	9	3	10	6.26E-14	5.64E-14
General Area	22-Oct	20	7.5	3	10	7.51E-14	6.77E-14
General Area	24-Oct	20	6.71	4	10	1.12E-13	7.57E-14
General Area	25-Oct	20	8.5	5	10	1.10E-13	5.98E-14
General Area	26-Oct	20	6.32	6	10	1.78E-13	8.04E-14
General Area	30-Oct	20	7	6	10	1.61E-13	7.26E-14
General Area	3-Nov	20	9	4	10	8.34E-14	5.64E-14
General Area	4-Nov	20	8.29	3	10	6.79E-14	6.13E-14
General Area	7-Nov	20	5.87	4	10	1.28E-13	8.65E-14
General Area	8-Nov	20	8.03	5	10	1.17E-13	6.32E-14
General Area	10-Nov	20	8.75	6	10	1.29E-13	5.80E-14
General Area	17-Nov	20	6.5	2	10	5.78E-14	7.81E-14
General Area	18-Nov	20	5.3	6	10	2.12E-13	9.58E-14
General Area	21-Nov	20	5	4	10	1.50E-13	1.02E-13
General Area	22-Nov	20	7	8	10	2.15E-13	7.26E-14
General Area	23-Nov	20	7.5	6	10	1.50E-13	6.77E-14
General Area	2-Dec	20	8.5	12	10	2.65E-13	5.98E-14
General Area	15-Dec	20	17	4	10	4.42E-14	2.99E-14

Bioassay

In vitro bioassay analysis was provided to the primary excavation personnel. The scope of uranilysis was limited based on the results of the site air sampling which indicated bioassay was not warranted. This analysis was performed on 9/31/94. The bioassay process involved flourometric analysis of uranium within urine. The analysis was performed by Bolton and Galanek, Inc.

At no time did the bioassay results exceeded action levels specfied within the Health and Safety Plan. All reported values were less than 1 μg/l. These results are considered normal for the non-exposed populations.

Results of bioassays are attached.

To Be
Withheld from Public Disclosure

Pursuant to
Privacy Act of 1974

(Privacy Act of 1974, Public Law 93-579, 5 U S C 552a)

Appendix B

Waste Characterization, Manifesting, and Disposal

Appendix B

Waste Characterization, Manifesting, and Disposal

Table of Contents

Waste Characterization, Manifesting, and Disposal

Physical Description of Waste:

The material designated for disposal as radioactive waste was comprised primarily of soils along with a small amount of building debris, and other solids. The excavated soils were reed screened to remove rock aggregate in order to minimize waste volumes.

Waste Site Requirements:

Envirocare of Utah, Inc. was chosen for the disposal site. This waste site is particularly suited for this material since this facility was designed in part to receive uranium contaminated materials. In addition, the availability of rail heads at both Envirocare of Utah, Inc. and Texas Instruments Incorporated permitted box loading and bulk loading of railcars for transport and disposal thereby reducing transportation costs. The only significant disadvantage associated with rail shipments were the availability of rail cars, the need to construct rail car covers, and the scheduling for transport and receipt at the EnviroCare of Utah, Inc. site (Envirocare of Utah requires a 72 hour).

Each waste disposal facility has site specific requirements and EnviroCare is no exception. Requirements for disposal are specified within Envirocare of Utah, Inc. agreement state license, DRC-03 (August 1989). Specific implementing documents include the Waste Characterization Plan, Low Activity Waste Characterization Plan (form EC-0200), Physical properties Evaluation for Disposal at the Envirocare of Utah (form EC-0500), and Radiological Evaluation for Disposal at the Envirocare of Utah Facility (form EC-0650). The requirements are for the most part universal to all waste sites and conform to 10CFR61 for radioactive material disposal at low level waste sites and RCRA requirements for toxicity characteristic leaching properties (TCLP 40CFR261.24).

Waste Characterization:

Soils were analyzed with regards to the quantities of radionuclides and relative concentration. This analysis incorporated Alpha Spectroscopy and Gamma spectroscopy performed by independent laboratories. These results were correlated to alpha screening methods presented in greater detail within Appendix C. From these results scaling factors were established to generate the activity concentration for each radionuclide of interest. From the weight of each container the total gram quantity of material was established and the total activity was calculated for each radionuclide. TCLP analysis was performed by Texas Instruments Incorporated with duplicate samples sent to Envirocare of Utah, Inc. as required by Envirocare. The results of this analysis, included in Attachment 2, indicated a waste stream that was acceptable for disposition at the Envirocare of Utah's Clive facility.

Packaging, Marking, Labeling, Shipping, and Manifesting:

All packaging, marking, labeling, shipping, and manifesting was performed in accordance with applicable DOT and NRC regulations. Shipments included bulk loaded rail shipments and bulk load truck shipments.

All shipments were made pursuant to the provisions of 49CFR173.425, "Transport Requirements for Low Specific Activity (LSA) Radioactive Materials". Additional requirements for unpackaged bulk shipments were made under the provision set forth within subparagraph c (iii) of this section. All shipments were less than RQ values. All boxes packaged for shipment were labeled as LSA, and all rail cars and/or trucks were placarded as required for the shipment of LSA radioactive Materials.

Manifesting of each shipment was performed in the manner established by Envirocare of Utah, Inc. and 10CFR61. Each Radioactive Shipment Record/Manifest was prepared from a detailed spread sheet generated for each shipment. A summary of the waste shipments is included as Table 1 of this appendix.

Surveys were conducted of all packaging and transport modes and were found to be well within the limits established for vehicles consigned as exclusive use. Contingency plans were developed for the mode of transportation and driver instructions established for trucks consigned as exclusive use. These instructions are provided as Attachment 3 to this appendix.

Table 1: Summary of Waste Shipments (4/94-12/94)

Record Number	Trailer/Car Number	Date of Shipment	Volume cu.ft.	Weight Tons	U-238 Activity mCi	U-235 Activity mCi	U-234 Activity mCi	U-235 Mass grams
0249-01-0060	A931	5/7/94	359.2	20.35	2.10E-01	3.40E-01	6.70E+02	160
0249-01-0061	E841	5/7/94	404.9	20.85	2.10E-01	3.50E-01	1.23E+02	164
0249-01-0062	E871	5/7/94	370.3	19.07	1.76E-01	2.98E-01	1.08E+01	141
0249-01-0063	M871	5/7/94	380.6	19.6	1.81E-01	3.06E-01	1.11E+01	145
0249-01-0064	901	5/7/94	398.1	20.5	2.15E-01	3.48E-01	1.74E+01	164
0249-01-0065	F841	5/7/94	384.5	19.8	2.08E-01	3.36E-01	1.23E+01	159
0249-01-0066	F821	5/7/94	407.8	21	2.10E-01	3.44E-01	1.76E+01	163
0249-01-0067	9100A	5/14/94	417.9	21.52	0.24	0.26	10.47	121.7
0249-01-0068	9300A	5/14/94	431.7	22.23	0.25	0.26	10.73	124.7
0249-01-0069	1346	5/14/94	426.3	21.95	0.243	0.261	10.54	123.1
0249-01-0070	750	5/14/94	420.8	21.67	0.166	0.177	7.23	83.92
0249-01-0071	19450	5/14/94	415.2	21.38	0.16	0.171	6.94	80.6
0249-01-0072	I-9013	5/14/94	411.5	21.19	0.16	0.17	6.88	79.88
0249-01-0073	19222	5/14/94	448.2	23.08	0.106	0.114	4.65	53.98
0249-01-0074	13797	5/14/94	442.38	22.78	0.305	0.326	13.26	154.1
0249-01-0075	40201A	5/14/94	420	21.63	0.156	0.167	6.8	79.04
0249-01-0076	78	5/15/94	398.3	20.51	0.091	0.097	3.95	45.95
0249-01-0077	C9446	5/15/94	399.9	20.59	0.034	0.036	1.463	16.99
0249-01-0078	50901A	5/15/94	415.6	21.4	0.04	0.043	1.747	20.3
0249-01-0079	508	5/15/94	447.24	23.03	0.046	0.049	1.995	23.17
0249-01-0080	207201C	5/15/94	418.5	21.55	0.086	0.092	3.753	43.6
0249-01-0081	207200C	5/15/94	431.5	22.22	0.0887	0.0952	3.869	44.96
0249-01-0082	130	5/15/94	402.97	20.75	0.051	0.055	2.23	25.87
0249-01-0083	CR-587905	6/17/94	1841	97.8	0.22	0.23	9.54	110.3
0249-01-0084	CR-587759	6/17/94	1848	95.17	0.16	0.17	7.02	81.5
0249-01-0085	CR-588426	6/17/94	1776	91.43	0.162	0.174	7.06	83.5
0249-01-0086	CR-588635	6/17/94	1853.8	95.46	0.15	0.16	6.63	6.94
0249-01-0087	CR-587462	6/17/94	1834.4	94.46	0.2	0.22	8.85	105.5
0249-01-0088	CR-587328	6/17/94	1807	93	0.205	0.221	8.952	105.9
0249-01-0089	CR-588327	6/22/94	1860	95.76	0.16	0.171	6.98	7.311
0249-01-0090	CR-587223	6/22/94	1817	93.58	0.149	0.16	6.496	76.738

Table 1: Summary of Waste Shipments (4/94-12/94)

Record Number	Trailer/Car Number	Date of Shipment	Volume cu.ft.	Weight Tons	U-238 Activity mCi	U-235 Activity mCi	U-234 Activity mCi	U-235 Mass grams
0249-01-0091	CR-588506	6/22/94	1809	93.15	0.171	0.183	7.436	87.77
0249-01-0092	CR-588564	6/22/94	1831	94.28	0.146	0.157	6.381	75.3
0249-01-0093	CR-587756	6/22/94	1847	95.12	0.133	0.144	5.778	68.105
0249-01-0094	CR-588639	6/22/94	1840	94.76	0.151	0.162	6.578	77.698
0249-01-0095	CR-587959	6/29/94	1882	96.9	0.152	0.164	6.63	77.2
0249-01-0096	CR-587780	6/29/94	1883	94.37	0.132	0.141	5.72	66.69
0249-01-0097	CR-587383	6/29/94	1864	95.99	0.166	0.178	7.23	84.28
0249-01-0098	CR-588009	6/29/94	1828	94.13	0.154	0.165	6.68	75.6
0249-01-0099	CR-587371	6/29/94	1815	93.47	0.134	0.144	5.83	68.06
0249-01-0100	CR-588339	6/29/94	1878	96.69	0.129	0.138	5.61	65.43
0249-01-0101	CR-588331	7/14/94	1866	96.09	0.275	0.295	12.007	141.486
0249-01-0102	CR-587465	7/14/94	1823	93.89	0.377	0.405	16.457	194.244
0249-01-0103	CR-587924	7/14/94	1839	94.72	0.241	0.259	10.521	124.226
0249-01-0104	CR-588370	7/14/94	1866	96.07	0.302	0.324	13.171	155.395
0249-01-0105	CR-587093	7/14/94	1827	94.08	0.461	0.494	20.083	236.93
0249-01-0106	CR-587072	7/14/94	1835	94.49	0.282	0.303	12.299	145.323
0249-01-0107	CR-588643	7/21/94	1823	93.87	0.161	0.172	6.99	81.62
0249-01-0108	CR-587771	7/21/94	1866	96.1	0.142	0.152	6.16	71.62
0249-01-0109	CR-588131	7/21/94	1849	95.21	0.318	0.342	13.85	161.5
0249-01-0110	CR-587923	8/9/94	1862	95.87	0.145	0.156	6.31	73.5
0249-01-0111	CR-587986	8/9/94	1816	93.53	0.121	0.13	5.264	61.33
0249-01-0112	CR-588638	8/9/94	1864	95.97	0.124	0.133	5.402	62.93
0249-01-0113	CR-588007	8/9/94	1857	95.63	0.133	0.143	5.746	67.5
0249-01-0114	CR-588049	8/9/94	1848	95.16	0.117	0.126	5.109	59.51
0249-01-0115	CR-587439	8/9/94	1844	94.97	0.129	0.138	5.592	65.12
0249-01-0116	CR-587248	9/27/94	1835	94.5	0.147	0.157	6.396	75.3
0249-01-0117	CR-588646	9/27/94	1864	96	0.111	0.119	4.832	59.014
0249-01-0118	CR-588379	9/27/94	1838	94.65	0.111	0.119	4.846	57.074
0249-01-0119	CR-587806	9/27/94	1856	95.57	0.135	0.145	5.888	69.54
0249-01-0120	CR-587042	9/27/94	1813	93.34	0.126	0.135	5.508	64.95
0249-01-0121	CR-588181	10/5/94	1816	93.5	0.125	0.134	5.436	64.27

Table I: Summary of Waste Shipments (4/94-12/94)

Record Number	Trailer/Car Number	Date of Shipment	Volume cu.ft.	Weight Tons	U-238 Activity mCi	U-235 Activity mCi	U-234 Activity mCi	U-235 Mass grams
0249-01-0122	CR-588518	10/5/94	1814	93.42	0.158	0.17	6.89	81.55
0249-01-0123	CR-587890	10/5/94	1791	92.21	0.119	0.128	5.201	61.39
0249-01-0124	CR-588427	10/5/94	1805	92.94	0.107	0.115	4.678	55.16
0249-01-0125	CR-588371	10/5/94	1819	93.67	0.11	0.118	4.496	56.51
0249-01-0126	CR-587201	10/5/94	1814	93.42	0.173	0.186	7.539	89.208
0249-01-0127	MP-641023	10/13/94	1787	92.01	0.0824	0.0884	3.593	42.398
0249-01-0128	CR-588635	10/18/94	1794	92.39	0.0827	0.0888	3.608	42.59
0249-01-0129	CR-587427	10/18/94	1828	94.14	0.111	0.119	4.82	57.0742
0249-010130	CR-587038	10/19/94	1818	93.59	0.0969	0.104	4.223	49.88
0249-01-0131	CR-588308	10/19/94	1811	93.26	0.174	0.187	7.607	89.688
0249-01-0132	CR-588098	10/19/94	1803	92.85	0.113	0.121	4.915	58.0334
0249-01-0133	CR-588366	10/21/94	1838	94.62	0.0961	0.103	4.187	49.4
0249-01-0134	CR-587061	10/21/94	1811	93.24	0.11	0.117	4.773	56.115
0249-01-0135	CR-588040	11/14/94	1855	95.5	0.097	0.104	4.226	49.88
0249-01-0136	CR-588405	11/14/94	1811	93.24	0.119	0.127	5.178	60.911
0249-01-0137	CR-587239	11/14/94	1811	93.23	0.0909	0.0975	3.964	46.762
0249-01-0138	CR-587405	11/14/94	1745	89.84	0.116	0.125	5.0672	59.952
0249-01-0139	CR-587206	11/14/94	1828	94.15	0.0881	0.0945	3.84	45.324
0249-01-0140	CR-587093	11/14/94	1821	93.76	0.0896	0.0961	3.905	46.091
0249-01-0141	CR-588370	12/14/94	1837	94.57	0.096	0.103	4.185	49.4
0249-01-0142	CR-588071	12/14/94	1841	94.79	0.0868	0.0931	3.784	44.65
0249-01-0143	CR-588074	12/14/94	1825	93.96	0.12	0.128	5.218	61.391
0249-01-0144	CR-587245	12/14/94	1838	94.63	0.0923	0.099	4.0235	47.482
0249-01-0145	CR-588379	12/22/94	1827	94.06	0.142	0.153	6.203	73.381
0249-01-0146	CR-588090	12/22/94	1819	93.67	0.0671	0.72	2.926	34.532
0249-01-0147	CR-587806	12/22/94	1826	94.04	0.073	0.0783	3.182	37.554
0249-01-0148	CR-587042	12/22/94	1836	94.55	0.224	0.24	9.763	115.108
0249-01-0149	CR-588223	12/22/94	1847	95.12	0.0738	0.0792	3.219	37.986
0249-01-0150	CR-587209	12/22/94	1811	94.8	0.0849	0.0911	3.702	43.693
0249-01-0151	CR-588366	12/28/94	1823	93.83	0.072	0.078	3.17	37

Attachment 1

EnviroCare License and Site Requirements

DRC-03
August 1989

UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF RADIATION CONTROL
RADIOACTIVE MATERIAL LICENSE

Pursuant to Section 19-3-104 of the Utah Code Annotated 1953, and the Utah Department of Environmental Quality Rules for the Control of Ionizing Radiation, and in reliance of statements and representations heretofore made by the licensee designated below, a license is hereby issued authorizing such licensee to transfer, receive, possess and use the radioactive material designated below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, and orders now or hereafter in effect and to any conditions specified below.

	LICENSEE		
1. Name	Envirocare of Utah, Inc.	3. License Number	UT 2300249 Amendment #11, in its entirety
2. Address	215 South State Street Suite 1160 Salt Lake City, Utah 84111	4. Expiration Date	February 28, 1996
		5. License Category	4-a

6. Radioactive Material (Element and Mass Number)		7. Chemical and/or Physical Form		8. Maximum Concentration In Waste for Disposal	
A.	Silver-110m	A.	Volumetric bulky materials or structural debris	A.	5.6E+02 pCi/g
B.	Americium-241	B.	Volumetric bulky materials or structural debris	B.	2.3E+02 pCi/g
C.	Americium-243	C.	Volumetric bulky materials or structural debris	C.	1.7E+03 pCi/g
D.	Beryllium-7	D.	Volumetric bulky materials or structural debris	D.	3.8E+04 pCi/g
E.	Calcium-45	E.	Volumetric bulky materials or structural debris	E.	4.0E+08 pCi/g
F.	Cadmium-109	F.	Volumetric bulky materials or structural debris	F.	4.6E+04 pCi/g
G.	Cobalt-56	G.	Volumetric bulky materials or structural debris	G.	3.6E+02 pCi/g
H.	Cobalt-57	H.	Volumetric bulky materials or structural debris	H.	1.9E+04 pCi/g

UTAH DIVISION OF RADIATION CONTROL
RADIOACTIVE MATERIAL LICENSE
SUPPLEMENTARY SHEET

License # UT 2300249

6. Radioactive Material (Element and Mass Number)		7. Chemical and/or Physical Form		8. Maximum Concentration In Waste for Disposal	
I.	Cobalt-58	I.	Volumetric bulky materials or structural debris	I.	1.6E+03 pCi/g
J.	Cobalt-60	J.	Volumetric bulky materials or structural debris	J.	3.6E+02 pCi/g
K.	Chromium-51	K.	Volumetri bulky materials or structural debris	K.	6.8E+04 pCi/g
L.	Cesium-134	L.	Volumetric bulky materials or structural debris	L.	1.2E+03 pCi/g
M.	Cesium-137	M.	Volumetric bulky materials or structural debris	M.	5.6E+02 pCi/g
N.	Europium-152	N.	Volumetric bulky materials or structural debris	N.	1.7E+03 pCi/g
O.	Europium-154	O.	Volumetric bulky materials or structural debris	O.	1.4E+03 pCi/g
P.	Iron-55	P.	Volumetric bulky materials or structural debris	P.	1.8E+06 pCi/g
Q.	Mercury-203	Q.	Volumetric bulky materials or structural debris	Q.	1.0E+04 pCi/g
R.	Potassium-40	R.	Volumetric bulky materials or structural debris	R.	1.0E+04 pCi/g
S.	Iridium-192	S.	Volumetric bulky materials or structural debris	S.	2.5E+03 pCi/g
T.	Manganese-54	T.	Volumetric bulky materials or structural debris	T.	5.6E+03 pCi/g

UTAH DIVISION OF RADIATION CONTROL
RADIOACTIVE MATERIAL LICENSE
SUPPLEMENTARY SHEET

License # UT 2300249

6. Radioactive Material (Element and Mass Number)		7. Chemical and/or Physical Form		8. Maximum Concentration In Waste for Disposal	
U.	Niobium-94	U.	Volumetric bulky materials or structural debris	U.	1.6E+02 pCi/g
V.	Nickel-59	V.	Volumetric bulky materials or structural debris	V.	7.0E+02 pCi/g
W.	Nickel-63	W.	Volumetric bulky materials or structural debris	W.	2.0E+06 pCi/g
X.	Lead-210	X.	Volumetric bulky materials or structural debris	X.	2.3E+05 pCi/g*
Y.	Polonium-210	Y.	Volumetric bulky materials or structural debris	Y.	2.0E+04 pCi/g
Z.	Radium-226	Z.	Volumetric bulky materials or structural debris	Z.	2.0E+03 pCi/g*
AA.	Radium-228	AA.	Volumetric bulky materials or structural debris	AA.	1.8E+03 pCi/g
BB.	Radium-228 1 year	BB.	Volumetric bulky materials or structural debris	BB.	1.2E+03 pCi/g*
CC.	Radium-228 5 years	CC.	Volumetric bulky materials or structural debris	CC.	6.7E+02 pCi/g*
DD.	Radium-228 10 years	DD.	Volumetric bulky materials or structural debris	DD.	5.6E+02 pCi/g*
EE.	Ruthenium-106	EE.	Volumetric bulky materials or structural debris	EE.	1.9E+04 pCi/g*
FF.	Antimony-124	FF.	Volumetric bulky materials or structural debris	FF.	7.9E+02 pCi/g

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6. Radioactive Material (Element and Mass Number)	7. Chemical and/or Physical Form	8. Maximum Concentration In Waste for Disposal
GG. Antimony-125	GG. Volumetric bulky materials or structural debris	GG. 5.3E+03 pCi/g
HH. Tin-113	HH. Volumetric bulky materials or structural debris	HH. 7.3E+05 pCi/g
II. Strontium-90	II. Volumetric bulky materials or structural debris	II. 2.0E+04 pCi/g
JJ. Thorium-230	JJ. Volumetric bulky materials or structural debris	JJ. 1.5E+04 pCi/g
KK. Thorium-232	KK. Volumetric bulky materials or structural debris	KK. 6.8E+02 pCi/g*
LL. Uranium-234	LL. Volumetric bulky materials or structural debris	LL. 3.7E+04 pCi/g
MM. Uranium-235	MM. Volumetric bulky materials or structural debris	MM. 7.7E+02 pCi/g
NN. Uranium-236	NN. Volumetric bulky materials or structural debris	NN. 3.6E+04 pCi/g
OO. Uranium-238	OO. Volumetric bulky materials or structural debris	OO. 2.8E+04 pCi/g
PP. Uranium-natural	PP. Volumetric bulky materials or structural debris	PP. 1.8E+04 pCi/g
QQ. Uranium-depleted	QQ. Volumetric bulky materials or structural debris	QQ. 1.1E+05 pCi/g
RR. Zinc-65	RR. Volumetric bulky materials or structural debris	RR. 1.1E+04 pCi/g

*Daughters are assumed to be present at same concentrations in equilibrium.

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9. AUTHORIZED USE

Radioactive material as radioactive waste may be received, stored and disposed of by land burial. The licensee shall not accept low-level radioactive waste generated outside the region comprised of the party states to the Northwest Interstate Compact on Low-Level Radioactive Waste Management ("Compact") namely Alaska Hawaii, Idaho, Montana, Oregon, Utah and Washington, unless the provisions of Articles IV and V of the Compact are met. Prior to receiving any such shipments, the licensee shall submit to the Utah Division of Radiation Control documentation evidencing compliance with these Compact provisions.

CONDITIONS

10. Licensed material shall be used at the licensee's facility located in Section 32 of Township 1 South and Range 11 West, Tooele County, Utah.

11. The licensee shall not possess at any time, more than 300,000 cubic yards of radioactive waste material which is not disposed of in accordance with the finished design requirements. This includes all wastes in storage or active processing.

12. Pursuant to R447-12-54(1), the licensee is granted as exemption to R447-25-9, as it relates to land ownership and assumption of ownership.

13. The maximum quantity of special nuclear material which the licensee may possess, undisposed of, at any one time shall not exceed 350 grams of U-235.

14. Licensed material specified in Item 6.A through 6.RR shall not be placed in a disposal cell unless it has been determined that the concentration of radionuclides is appropriately homogeneous within the physical form of the waste. This does not pertain to structural debris superficially contaminated with licensed materials.

15. A. If a mixture of radionuclides a, b, and c are present in the waste in the concentrations C_a, C_b, and C_c and if the applicable maximum waste concentrations from Item 8 of this license are MWC_a, MWC_b, and MWC_c respectively, then the concentration in the waste shall be limited so that the following relationship exists.

$$\frac{C_a}{MWC_a} + \frac{C_b}{MWC_b} + \frac{C_c}{MWC_c} \leq 1$$

B. If a single radionuclide is present in the waste, the concentration shall not exceed the applicable value found in Item 8 of this license.

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16. A. The licensee may receive for treatment, storage, and disposal any radioactive waste as authorized by thi license that contains hazardous constituents as permitted by the "RCRA Hazardous Waste Operation Permit" issued by the Executive Secretary, Utah Solid and Hazardous Waste Committee and "HWS/ Permit" issued by the U.S. Environmental Protection Agency.

    B. The licensee shall dispose of these wastes in the "mixed waste" disposal embankment only.

17. Sealed sources as defined in R447-12-3(64) shall not be accepted for disposal.

18. Radioactive waste containing liquid, shall not be accepted for disposal except as provided by the Ground Wate Discharge Permit, number UGW 450005, issued by the Executive Secretary of the Utah Water Quality Board

19. The licensee shall comply with the provisions of Chapter R447-18, "Notices, Instructions and Reports tc Workers by Licensees or Registrants, Inspections" and Chapter R447-15, "Standards for Protection Agains Radiation".

20. The licensee may transport licensed material or deliver licensed material to a carrier for transport in accordance with the provisions of R447-19-100 "Transportation".

21. Written procedures shall be maintained and available at the disposal facility for operations involving radioactive materials. The procedures shall incorporate operating instructions and appropriate safety precautions for the work. The employee training program shall include detailed review of the operating procedures applicable tc the employee's assignments. The requirement for written procedures shall include establishment of procedures for conduct of the radiation safety and environmental monitoring programs, including analytical procedures and instrument calibration requirements. Written procedures and subsequent changes to the procedure shall be reviewed and approved by the Corporate Radiation Safety Officer and the Project Manager. At least annually, all procedures shall be reviewed to assure continued applicability.

22. The Corporation Radiation Safety Officer shall perform and document weekly inspections of the facility and report any findings of non-compliance, affecting radiological safety, to the Project Manager. Items for inspection include: operating procedures, license requirements and safety practices.

23. The licensee shall conduct contamination surveys in accordance with Table 7.2 of the license amendment application dated September 20, 1990.

24. The licensee shall conduct a bioassay and occupational airborne radioactive contamination monitoring program in accordance with Section 7.4.8.3 of the license amendment application dated September 20, 1990.

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25. The use of respirators shall be controlled by a respiratory protection program as stipulated in R447-15-103.

26. The licensee shall calibrate air sampling equipment at intervals not to exceed six months.

27. The operational environmental monitoring program shall be conducted in accordance with Section 4.5, Tabl 4.7 and Figure 4.6 of the license amendment application dated September 20, 1990.

28. Vehicles, facilities, equipment or other items for unrestricted use shall not be released from the licensee's contro if contamination measurements exceed the following limits:

Nuclide[a]	Column I Average [b,c,f]	Column II Maximum [b,d,f]	Column III Removable [b,e,f]
U-nat, U-235, U-238, and associated decay products	5,000 dpm alpha/ 100 cm^2	15,000 dpm alpha/ 100 cm^2	1,000 dpm alpha/ 100 cm^2
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm^2	300 dpm/100 cm^2	20 dpm/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000 dpm/100 cm^2	3,000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emissions or spontaneous fission) except Sr-90 and other noted above.	5,000 dpm beta-gamma/100 cm^2	15,000 dpm beta-gamma/100 cm^2	1,000 dpm beta-gamma/100 cm^2

a. Where surface contamination by both alpha- and beta-gamma emitting nuclides exists, the limits established for alpha- and beta-gamma emitting nuclides should apply independently.

b. As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

c. Measurements of average contaminant should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each such object.

d. The maximum contamination level applies to an area of not more than 100 cm^2.

e. The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping the area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of know efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

f. The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters shall not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

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29. A quarterly report shall be prepared by the Corporate Radiation Safety Officer for the Project Manager and Company President evaluating employee exposures, effluent releases and environmental data to determine:

    A. If there are any upward trends in personnel exposures for identifiable categories of workers or types of operations or in effluent releases;

    B. If exposures and effluents might be lowered under the concept of maintaining exposures and effluents as low as reasonably achievable; and

    C. If equipment for exposure and effluent control is being properly used and maintained.

30. In accordance with R447-25-33, the licensee shall submit annual reports to the Division of Radiation Control by the end of the first calendar quarter of each year for the preceding year. The reports shall include:

    A. Specification of the quantity of each of the principal contaminants released to unrestricted areas in liquid and in airborne effluents during the preceding year.

    B. The results of the environmental monitoring program:

    C. A summary of licensee disposal unit survey and maintenance activities; and

    D. A summary of the volume, radioisotopes and their activities for materials disposed of.

31. Except as provided by this condition, the licensee shall maintain the results of sampling, analyses, surveys, and instrument calibration, reports on inspections and audits, employee training records as well as any related reviews, investigations and corrective actions, for five (5) years. The licensee shall maintain personnel exposure records in accordance with R447-15-401.

32. Operations shall be conducted by or under the supervision of Vernon E. Andrews, Corporate Radiation Safety Officer, or other individuals designated by the Corporate Radiation Safety Officer upon successful completion of the licensee's training program.

33. The licensee shall staff the operations of the facility in accordance with the organization chart (Figure 8.1) of the license amendment application dated September 20, 1990.

34. The licensee staff shall meet the qualifications as described in Section 8.2 and shall have the responsibilities as described in Section 8.1.2 of the license amendment application dated September 20, 1990.

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35. The licensee shall not initiate disposal operations in newly excavated areas until the Division of Radiation Control has inspected and approved the cell/embankment liner.

36. The licensee shall provide "as built drawings" of the facility, at intervals not to exceed six (6) months. Drawings shall be submitted by February 1 and August 1 of each year. The drawings shall show conditions on the site as they existed no earlier than thirty (30) days prior to the submittal of the drawings to the Division of Radiation Control. Drawings submitted as, "as built drawings" will be marked as such, and will be marked in the same place on each drawing. Record drawings showing approved future designs, final or finished conditions at the site may be included in the "as built drawings", but shall be marked as "record drawings".

37. Radioactive waste which have been off loaded shall be placed in the appropriate disposal embankment and stored in a manner approved by the Division of Radiation Control.

38. For the purpose of this license, debris is defined as any radioactive waste for disposal other than soils. Compactible debris is defined as: (A) having a gradation that will pass through a four inch (4") grizzly and; (B) as having a density greater than seventy pounds per cubic foot dry weight in accordance with ASHTO T-99. Contaminated materials, other than soil, not meeting these criteria are defined as noncompactible debris.

39. The licensee shall place bulk radioactive materials in twelve inch (12") uncompacted lifts.

40. In-place bulk radioactive waste shall be compacted at a moisture content of zero percent (0%) to three percent (3%) of optimum as determined by the Standard Proctor Method ASTM D-698.

41. The licensee shall compact each lift to not less than ninety percent (90%) of optimum density as determined by Standard Proctor Method ASTM D-698. Sampling points for compaction testing shall include locations immediately adjacent to debris when debris is included in the lift.

42. All debris shall be less than ten inches (10") in at least one (1) dimension, and no longer than eight feet (8') in any dimension.

43. The final 24 inches of the radioactive waste material embankment, within the side slopes and the top surface, shall be free of debris.

44. A lift or any portion of a lift shall be limited to less than ten percent (10%) by volume of noncompactible debris and the debris shall be uniformly distributed throughout the lift. However, noncompactible debris in the form of concrete, stone or solid metal may be placed in the lift up to twenty-five percent (25%) by volume, of the total lift if uniformly distributed throughout the lift.

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45. The licensee shall excavate the disposal cell liner, consisting of native materials, to a depth of twenty-four inches (24") and replace it with imported clay in six inch (6") uncompacted lifts. Each lift shall be compacted to not less than ninety-five percent (95%) optimum density as determined by ASTM D-698 and field permeability of 1.0×10^{-7} cm/sec.

46. The licensee shall not place, compactible nor non-compactible debris, in the first lift.

47. The disposal cell liner and radon barrier shall be constructed with a moisture content of zero percent (0%) to three percent (3%) of optimum moisture as determined by Standard Proctor Method ASTM D-698.

48. The licensee shall compact the radon barrier to not less than 95 percent of optimum density as determined by Standard Proctor Method ASTM D-698 and a field permeability of 1.0×10^{-7} cm/sec.

49. The licensee shall record, at the time of acceptance, the date and time of day that any lift or portion of a lift has been accepted by the licensee as finished in accordance with all specifications and license conditions.

The licensee shall use rock filter zone and rock erosion barrier that has been sized and graded in accordance with Section 3.1.1.2 and 9.2.5 of the license amendment application dated September 20, 1990.

51. The licensee shall test rock erosion barrier and filter zone rock in accordance with the provisions found in Section 9 of the license amendment application dated September 20, 1990.

52. The licensee shall utilize a manifest ("Radioactive Waste Shipment and Disposal Record," Envirocare Form E-100) containing the information required in R447-15-311(2) and (3) including:

    A. Specification of any solidification agents utilized;

    B. Identification of wastes containing more than 0.1% by weight of chelating agents. Chelating agents means amine polycarboxylic acids, hydroxyl-carboxylic acids, gluconic acids and polycarboxylic acids;

    C. An estimate of the weight percentage of any chelating agents in waste.

53. The licensee shall not accept radioactive waste for storage and disposal unless the licensee has received a complete "Radioactive Waste Shipment and Disposal Record" (Form #E-100) from the shipper.

54. The licensee shall maintain copies of complete manifests or equivalent documentation until the Division of Radiation Control authorizes their disposition.

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55. The licensee shall immediately notify the Division of Radiation Control or the Division's on-site representative of any waste shipment where a violation of applicable regulations or license conditions has been found.

56. The licensee shall require anyone who transfers radioactive waste to the facility comply with the requirements in R447-15-311(4)(a) through (h).

57. The licensee shall acknowledge receipt of the waste within one (1) week of receipt by returning a signed copy of the manifest or equivalent documentation to the shipper. The shipper to be notified is the licensee who last possessed the waste and transferred the waste to the licensee. The returned copy of the manifest or equivalent documentation shall indicate any discrepancies between materials listed on the manifest and materials received.

58. The licensee shall notify the shipper (i.e., the generator, the collector, or processor) and the Division of Radiation Control when any shipment or part of a shipment has not arrived within 60 days after the advance manifest was received.

The licensee shall maintain a record for each shipment of waste disposed of at the site. As a minimum, the record shall include:

A. The date of disposal of the waste;

B. The location of waste in the disposal site;

C. The condition of the waste packages received;

D. Any discrepancy between the waste listed on the shipment manifest or shipping papers and the waste received in the shipment.

E. A description of any evidence of leaking or damaged packages or radiation or contamination in excess of applicable regulatory limits; and

D. A description of any repackaging operations of any of the waste packages in the shipment.

60. In accordance with R447-25-31 the licensee shall maintain a Utah Division of Radiation Control Surety (Trust) Agreement adequate to fund the decommissioning and reclamation of the grounds, equipment and facilities. These costs, identified in Section 10 of the license amendment application dated September 20, 1990, shall be reviewed and updated annually and a report submitted to the Utah Division of Radiation Control within 60 days after July 1, of each year. The survey arrangement shall be updated as necessary to reflect decommissioning and reclamation costs.

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61. Truck, railcar, waste hauling and other earth moving equipment washdown (decontamination) facilities, including evaporation ponds, shall be controlled and fenced to prevent intrusion.

62 All burial embankments and waste storage areas, including immediately adjacent drainage structures, shall be controlled areas, surrounded by a six foot (6') high, chain link fence, topped with twisted selvedge. All permanent fence shall be chain link, six feet (6') high, topped with three strand barbed wire, top tension wire and twisted selvedge.

63. The licensee shall fulfill and maintain compliance with all conditions and shall meet all compliance schedules stipulated in the Ground Water Discharge Permit, number UGW 450005, issued by the Executive Secretary of the Utah Water Quality Board.

64. One (1) year prior to the anticipated closure of the site, the licensee shall submit a final version of the site closure, decontamination and decommissioning plan. As part of this plan, the licensee shall demonstrate by measurements and/or modeling that concentrations of radioactive materials which may be released to the general environment, after site closure, will not result in an annual dose exceeding 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public.

65. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in Item 6, 7, and 8 of this license and conduct site operations in accordance with statements, representations, operating procedures, and disposal criteria, heretofore made by the licensee or his authorized representative in application for and subsequent to issuance of Utah Radioactive Material License No. UT 2300249 and amendments thereto.

March 16, 1992
Date

Larry F. Anderson, Executive Secretary, Utah Radiation Control Board

Final - Approval

WASTE CHARACTERIZATION PLAN

Purpose and Scope.

This plan describes the procedures for characterizing, sampling, and accepting incoming waste at the Envirocare South Clive facility.

This plan is a requirement of Envirocare's Ground Water Quality Discharge Permit. The plan is designed to identify and characterize wastes destined for disposal at the Envirocare South Clive Facility and to ensure that wastes accepted for management are characterized and controlled.

Implementation of this plan will aid in ensuring that wastes with radioactive, organic and inorganic characteristics and constituents are identified as such and are managed in a way that is within the limits of the license and protective of the site ground water.

This plan applies to the radioactive component of all waste destined for disposal at the Envirocare of Utah, Inc., South Clive facility and to the chemical component of wastes destined for Envirocare's non-RCRA facilities.

The chemical components of wastes destined for the mixed waste management are accepted to the mixed waste facility according to waste analysis plans administered by the U.S. Environmental Protection Agency and by the Utah Division of Solid and Hazardous Waste. Therefore, the requirements of this plan for chemical-screening analyses do not apply to pre-shipment characterization or to the analysis of incoming shipments for the chemical and physical characteristics of wastes destined for management as mixed waste.

Outline of Waste Characterization Plan Procedures.

There are three critical steps that are taken during the incoming shipment procedures.

The first is a characterization of the waste by the generator. The characterization procedures are described below in the Pre-shipment Waste Characterization Procedures of this plan.

In the second step, Envirocare will sample and analyze the incoming waste shipments for radiological and chemical screening analyses. The requirements for the radiological and chemical screening analysis are outlined in the Acceptance Sampling and Analysis Procedures of this plan.

The third step is a decision to accept or reject the material following its arrival at the South Clive site. This determination is made according to the Procedures for Accepting or Rejecting a Shipment outlined below.

STEP 1 -- Pre-shipment Waste Characterization Procedures.

Prior to shipment, Envirocare must obtain a description of the material to be managed at the Envirocare facility. This characterization is documented using forms EC-0200 and EC-0650. (See Exhibits 1 and 2.) The characterization of the waste includes the following items:

- A determination by the generator that the radioactive characteristics of the material are within those limits outlined in the license.
- A determination by the generator that the material is not a liquid waste and does not contain free liquids.
- A determination by the generator that the material is not a hazardous waste[1] subject to RCRA regulation.

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[1] Hazardous wastes are wastes which:

(a) exhibit one or more of the hazardous waste characteristics outlined in 40 CFR 261 Subpart C. The four hazardous waste characteristics are:

- Ignitability (FP ≤ 140 F, or an oxidizer.)
- Corrosivity (pH ≥ 12.5 or pH ≤2.)
- Reactivity (Air- or water-reactive, unstable or liberates cyanide or sulfide gases in excessive quantities.)
- Toxicity The toxicity characteristic is based on the results of the Toxicity Characteristic Leaching Procedure (TCLP) outlined in 40 CFR 268 Appendix I. The procedure includes the organic and inorganic hazardous constituent parameters listed below. A waste is a hazardous waste when any of these constituents exceed the limits specified in Table 1 in 40 CFR 261.24:

Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver
Endrin(1,2,3,4,10,10-hexachloro-1,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,endo-5,8-dimethano naphthalene)
Lindane (1,2,3,4,5,6, hexa-chloro-cyclohexane, gamma isomer)
Methoxychlor (1,1,1-Trichloro-2,2-bis(p-methoxyphenyl)ethane)
Toxaphene ($C_{10}H_{10}Cl_8$, technical chlorinated camphene, 67-69 percent chlorine)
2,4-D (2,4-dichlorophenoxyacetic acid)
2,4,5-TP (Silvex) (2,4,5-trichloro-phenoxypropionic acid)
Benzene, Carbon Tetrachloride, Chlordane, Chlorobenzene, Chloroform
o-Cresol, m-Cresol, p-Cresol, Cresol, 1,4-Dichlorobenzene, 1,2-Dichloroethane
1,1-Dichloroethylene, 2,4-Dinitrotoluene, Heptachlor (and its hydroxide)
Hexachlorobenzene, Hexachlorobutadiene, Hexachloroethane, Methyl Ethyl Ketone
Nitrobenzene, Pentachlorophenol, Pyridine, Tetrachloroethylene, Trichloroethylene
2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, Vinyl Chloride

(b) are listed in 40 CFR 261.31-33.

Listed wastes include the F-, K-, P-, and U-listed wastes. There are 21 F-listed wastes, 101 K-listed wastes, and more than 200 P- and U-listed wastes.

This characterization takes place before a waste arrives at the Envirocare facility for management. Envirocare reviews these documents and provides a notice to the generator that the pre-shipment waste characterization requirements of this plan have been met by issuing a "Notice to Transport", form EC-1800, to the generator or owner of the waste. (See Exhibit 3.)

Should a generator or waste owner send a shipment of waste to the Envirocare facility prior to receiving a Notice to Transport from Envirocare, Envirocare must reject the shipment and provide immediate (24-hour) notice of the shipment to the Utah Division of Radiation Control.

As part of the characterization, where possible[2], the following analytical results must be included for each waste stream -- Soil pH, Cyanide Reactivity, Sulfide Reactivity, TCLP (8 metals and 32 organics), Radionuclides.

Envirocare must not accept wastes for management in non-RCRA units which are identified by generators as hazardous waste. Wastes excluded from RCRA regulations that otherwise exhibit hazardous waste characteristics pursuant to the regulatory levels of the Toxicity Characteristic Leaching Procedure (TCLP, 40 CFR 261.24, Table 1) or that would otherwise be regulated as listed RCRA wastes are referred to by Envirocare as "exempt" waste. Envirocare must receive a written variance on a case-by-case basis from the Executive Secretary of the Utah Water Quality Board before exempt waste streams can be shipped to the facility.

In addition to the informational and analytical requirements outlined above, the generator must send a sample or a number of samples of the waste to Envirocare during the pre-shipment characterization period. These pre-shipment samples are to be analyzed to establish parameter-specific incoming-shipment acceptance tolerances for several parameters.

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[2] It is noted that some wastes do not lend themselves to sampling or to the analyses required in this plan. Examples of these wastes are (incomplete list):

Lead Bricks	Tree Stumps
Wood	Lead Shielding
Concrete	Construction Debris
Building Debris	Other Debris
Bricks	Sheet Metal
Discarded Containers	Metal (Rebar, frames, equipment)
Dry Wall (Sheet Rock)	Soft Waste (Gloves, Suits, Boots, Paper Towels)
Wire	Plastic Waste
Wood Pallets	Glass

When a waste is being characterized or when an incoming shipment arrives with such waste, alternative sampling methods may be used to obtain, samples for analysis. Where analytical methods do not lend themselves to the waste being characterized or to the waste contained in a shipment, the analyses may be waived by the generator (for characterization) or by Envirocare (for incoming shipments) after receipt of written approval from the Executive Secretary of the Water Quality Board.

The parameters[1] for the pre-shipment sample analysis are:

- Solid/Soil pH, Method EC-0700
- Paint Filter Liquids Test or visual assurance, Method EC-0725
- Oxidizer/Reducer Test, Method EC-0750
- Cyanide/Sulfide Test, Method EC-0775
- Photoionizer "sniffer" Test, Method EC-0800
- Pyrophoricity, Method EC-1350
- Shock Sensitivity, Method EC-1375
- Air Reactivity, Method EC-1400
- Water Reactivity, Method EC-1425

When these pre-shipment sample analyses are completed, the results and incoming-shipment tolerances are recorded on form EC-1775, Exhibit 4. The tolerances are established according to the ranges in Table 1.

Envirocare must keep a copy of the completed forms EC-0200 and EC-0650 and the pre-shipment analyses on form EC-1775 for a period of five (5) years.

STEP 2 -- Acceptance Sampling and Analysis Procedures.

During the acceptance procedures for a waste, Envirocare must obtain samples from incoming shipments of the waste. There are two types of analyses to be performed on samples collected for these procedures -- chemical screening analyses and third-party radiologic analyses. The samples for these analyses must be representative samples of the incoming waste material.

The radiologic analysis of samples must be completed by an independent organization or "third party" to confirm that the waste is within the parameters of the license. The chemical screening analysis may be completed either by Envirocare or by an off-site laboratory to ensure that the disposal of hazardous constituents is controlled.

Off-site analytical laboratories used for purposes of this plan must hold a current certification from the generator's state -- OR -- must meet the requirements of the generator's state for chemical or radiological laboratories -- OR -- must hold a current certification for the applicable chemical or radiologic analytes from the Utah Department of Health insofar as such official certifications are given.

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[1] The EC methods are attached to the plan.

TABLE 1 CHEMICAL-SCREENING TOLERANCES	
PARAMETER	**ACCEPTABLE TOLERANCES**
Solid/Soil pH	Range of the mean +/- 2 std. deviations of the pre-shipment sample results
Paint Filter Liquids Test	Pass paint filter or visually assured of no liquids
Oxidizer/Reducer Test	Must match initial sample result or must be neither oxidizer or reducer
Cyanide/Sulfide Test	Must match initial sample result or be not detectable
Photoionizer "sniffer" Test	Range from not detectable up to mean + 2 std. dev. or within range of 5 samples
Pyrophoricity	Pass pyrophoricity
Shock Sensitivity	Pass shock sensitivity
Air Reactive	Pass air reactivity
Water Reactive	Pass water reactivity

Envirocare must take chemical-screening samples of incoming shipments according to the frequencies outlined in the Frequency of Analyses and Sample Collection Requirements section. Chemical-screening sample parameters are listed below. There are two categories of chemical-screening parameters (1) immediate and (2) deferred.

Immediate Chemical Screening Parameters[4]:

- Solid/Soil pH
- Paint Filter Liquids Test or visual assurance
- Oxidizer/Reducer Test
- Cyanide/Sulfide Test
- Photoionizer "sniffer" Test
- Pyrophoricity
- Shock Sensitivity
- Air Reactivity
- Water Reactivity

[4] These are the same tests used in Envirocare's RCRA Waste Analysis Plan.

- TCLP (8 Metals and 32 Organics)

The immediate chemical-screening parameters must be analyzed before the shipment may be accepted. The deferred chemical-screening parameters may be analyzed within the time frames established for obtaining results outlined in Step 3. The results of these analyses are provided on form EC-1775.

The required radiological analytical parameters from the independent, third-party analytical laboratory are:

- Gamma scan. The laboratory must identify and quantify each observed peak.

- Quantify each non-gamma emitting radionuclide identified by the generator on the RSR.

Envirocare documents that the required samples for radiological and deferred chemical-screening parameters have been taken and that the immediate chemical-screening parameters have been analyzed and determined to be within acceptable parameters by signing the Radioactive Waste Shipment and Disposal form (RSR)[3]. The RSR will not be signed until Envirocare has obtained the samples for the radiological and chemical screening analyses.

STEP 3 -- Procedures for Accepting or Rejecting a Shipment

Envirocare must receive laboratory results within 90 days of the applicable shipment's arrival, showing that the material was within the parameters of the license. (When ^{90}Sr is required, the time period is 120 days.) For the immediate chemical-screening parameters, the results must be obtained before the shipment is moved for further management.

Should the results from the immediate chemical-screening parameters be beyond the tolerances, the shipment must be rejected and Envirocare must make notice of this rejection to the generator. Such a shipment may be accepted when a sample of the shipment is analyzed for the characteristic in question and when that characteristic is within the limits for non-hazardous waste.

Should the results from the independent, third-party analytical laboratory for radiologic parameters or from the deferred chemical screening analysis show that the waste was beyond the limits of the license, Envirocare must follow the Contingency Plan for Non-Conforming Results outlined below. Additionally,

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[3] The RSR is a manifest for shipments of radioactive waste.

Envirocare will not place another generator's waste on top of the waste until the laboratory results have been received and the results show that the waste is conforming.

This acceptance or rejection is based on the immediate chemical-screening parameters and is documented by completing form EC-1775. (See Exhibit 4.)

As a result of the radiological and chemical-screening procedures taken as outlined above, Envirocare will either accept or reject a shipment. Additionally, the following guidelines will be used to accept or reject a shipment:

If the waste is found to contain free liquids as a result of inspection or the Paint Filter Liquids Test, Envirocare must either:

- reject the waste from management at the site, or
- solidify and accept or reject after a retest of the waste for liquids as per the approved Ground-Water Discharge Minimization and Control Plan.

Results of tests will be recorded and maintained in the site files for a minimum period of five (5) years.

Frequency of Analyses and Sample Collection Requirements.

For ease in counting, one rail car (any type) will represent 100 cubic yards and one highway shipment (any type) will represent 20 cubic yards.

Radiological Analysis. For each waste stream, the minimum number of samples to be analyzed for the independent, third-party laboratory radiological analyses is:

- One sample for each of the first ten (10) shipments (rail or highway) -- OR -- One sample for each of the first 100 cubic yards (yd^3) up to 1,000 yd^3

-- THEREAFTER --

- One sample for each additional 500 yd^3 following the first ten (10) shipments or following the first 1,000 yd^3

Immediate Chemical Screening Parameters Analysis. For each waste stream, the minimum number of samples to be analyzed for the immediate chemical screening parameters is:

- One sample for each shipment (rail or highway) for the first 1,000 yd3.

-- THEREAFTER --

- One sample for each set of ten (10) shipments following the first 1,000 yd^3

Deferred Chemical Screening Parameters Analysis. For each waste stream, the minimum number of samples to be analyzed for the deferred chemical screening parameters is:

- One sample for the first set of ten (10) shipments (rail or highway).

-- THEREAFTER --

- One sample for each 1,000 yd^3 following the first ten (10) shipments.

In order to collect a more representative sample for verification of radionuclide content and deferred chemical-screening parameters, the following procedure for sample collection is provided according to the applicable frequencies. Although minimum numbers of aliquots are provided, the samplers should collect enough aliquots as appropriate to ensure that all portions of the corresponding waste volume are represented.

- Bulk Rail Shipments. The sample shall be a composite sample consisting of six aliquots from different locations.

- Bulk Highway Shipments. The sample shall be a composite sample consisting of two aliquots from different locations.

- 20-yd^3 Boxes. The sample shall be a composite sample consisting of two aliquots from different locations in the box.

- B-25 Boxes (3.5-yd^3). The sample shall be a composite sample consisting of one aliquot from each of six boxes. Where there is less than six boxes, the requirement is a minimum of 6 aliquots different locations ensuring that at least one aliquot is taken from each box.

- Drums, Barrels and Smaller Containers (Drums). The sample shall be a composite sample consisting of one aliquot from each drum. Where the shipment contains more

than six drums, a total of six aliquots will be taken from different drums to form the composite sample.

Contingency Plan for Non-Conforming Results

If the results from the independent, third-party laboratory or from the deferred chemical screening parameters analysis show that the waste is beyond the limits of the license, Envirocare must follow the procedure below:

(1) Within 24 hours of discovering that non-conforming[6] material had been disposed, Envirocare must notify the Utah Division of Water Pollution Control of the situation.

(2) Within 7 calendar days of the notice, Envirocare must provide the Utah Division of Water Pollution Control with a written description of the situation. The following information must be included in the written description:

- Name of Generator
- Name of Non-Conforming Waste Stream
- Amount of Non-Conforming Disposed Waste
- Location of Non-Conforming Waste in the Disposal Cell
- Date Non-Conforming Waste was Accepted
- Date Non-Conforming Waste was Placed in Disposal Cell
- Description of Waste Placed on and Around Non-Conforming Waste

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[6] Non-Conforming Waste is a waste that (1) exceeds the limits of the radioactive material disposal license or (2) exhibits hazardous waste characteristics and which has not been granted a case-by-case variance as an exempt material to the prohibited waste requirements of Part I D 6 of the permit by the Executive Secretary of the Utah Water Quality Board, prior to shipment of the waste to the facility.

WASTE NAME: Each waste stream must have a separate form completed. Enter here the descriptive name of the waste stream.

NAME AND FIRM OF PERSON COMPLETING FORM:
TITLE:
PHONE: Self-explanatory; this person may be a consultant; however, the generator must sign the form.

1. GENERATOR INFORMATION: This information pertains to the original generator of the waste and to the location where the waste was generated. Where the generator is not the person completing the form, a contact person for the generator must be provided.

2. ADDITIONAL REMARKS OR DESCRIPTIONS: Use as necessary.

3. WASTE STREAM INFORMATION: Each waste stream requires, as a minimum, gamma spectral analysis for all naturally occurring and all manmade radionuclides. In the waste stream is known to contain radionuclides which cannot be readily quantitated by gamma spectral analysis - for example, Sr-90 or Th-232 - it must also be analyzed by radiochemical analysis for the radionuclides expected.

Envirocare's license permits acceptance of several radionuclides in equilibrium with their daughter products. For Th-232 ,Ra-226 and Ru-106 it is not necessary to report the concentrations of their daughters. If Ra-228 is present in equilibrium with its daughters they need not be reported; however, if the daughters are not in equilibrium with the Ra-228 and the concentration limits for freshly separated Ra-228 or at 1 or 5 years is to be used, the daughter concentrations determined from gamma spectroscopy must also be listed.

Uranium is acceptable, at appropriate concentrations, in several forms. Natural uranium should be analyzed and reported only as U-Nat - not as U-234, U-235 and U-238. Depleted uranium should be reported as the total uranium activity concentration as DU or U-Dep. Because DU contains some of all the original uranium isotopes, the analysis should reflect the total activity of the three nuclides. If the waste is known to contain natural uranium (U-Nat) it should be analyzed by an appropriate method - such as fluorometry - and reported accordingly.

Only a few nuclides are listed in item 3 for examples. use the blank line or an additional page, properly identified as such, to list additional nuclide information. If you have any questions, please contact Envirocare prior to sample analysis.

4. LICENSED MATERIAL: Self-explanatory

5. RESULTS PROVIDED: A copy of the laboratory results must accompany this form for Envirocare's evaluation.

GENERATOR'S CERTIFICATION OF WASTE: This form must be signed by the generator, testifying to the completeness and accuracy of information provided.

INSTRUCTIONS FOR FORM EC-0200
LOW ACTIVITY WASTE PROFILE RECORD

PURPOSE. The Low Activity Waste Profile Record provides certified documentation from the generator of the properties of the waste to be disposed of at Envirocare. This information is very important -- not only for waste management purposes but also for compliance with the waste analysis plans in Envirocare's licenses and permits, and for references in the disposal agreement or contract. Therefore, please fill out Form EC-0200 as completely as possible.

IN COMPLETING THE FORM, IT IS VERY IMPORTANT THAT ALL APPLICABLE ASPECTS OF THE WASTE IN TERMS OF WHETHER THE WASTE WOULD BE CONSIDERED A HAZARDOUS WASTE AS DEFINED BY 40 CFR 261. (See the instructions for Item Number 7.)

SIGNATORY REQUIREMENTS. After completion of Form EC-0200, the generator of the waste must sign and initial the form in the spaces provided. The person who signs as the generator should have signature approval for the organization and should have overall responsibility for the management of the waste in question. Although the generator may enlist the help of brokers, consultants or others outside of the generator's organization, it is the generator who must sign and initial the completed form -- even when the waste has been manifested and transported to a permitted storage facility at a different location. The purpose of initialing each page of the form is to document that the generator has reviewed the requirements of the form and the responses provided for completion.

CERTIFYING SIGNATURE. The signature of the generator at the bottom of the first page of the form corresponds to the form and to the certifications preceding the signature. Before signing the completed form, the generator should read and understand these certifications.

ITEMS NOT APPLICABLE. When an item in the form is not applicable, the generator should place N/A or a similar expression as a response. Additionally, for items not applicable, an explanation of the non-applicability should be provided or justified in the description in Item Number 7 on page 2 of the form.

***** INSTRUCTIONS FOR PAGE 1 OF EC-0200 *****

DATE OF COMPLETION, ORIGINAL SUBMISSION (Y/N), REVISION NUMBER. These items help differentiate final and draft versions. Additionally, if the waste stream is to arrive at Envirocare over a period of one year or more, as a requirement of Envirocare's permit, soon after the anniversary date of the first shipment, the generator will need to update form EC-0200. The update may be a letter of update or a renewed profiling of the waste.

Letter of Update. This letter is a written statement to Envirocare to the effect that the previously-submitted Low Activity Waste Profile Record is still representative of the waste, that the process generating the waste has not changed, and that the Low Activity Waste Profile Record is still representative of the generator's waste.

Renewed Profiling of the Waste. A renewed profiling of the waste means that the a new Low Activity Waste Profile Record is completed for the waste, new analytical results are provided with the Low Activity Waste Profile Record, five new pre-shipment samples are sent to the facility for analysis, and new incoming-shipment tolerances are established. Additionally, the generator must submit to Envirocare a renewed profiling in the following circumstances:

1. When the process generating the waste has changed.
2. When Envirocare has reason to suspect that the process generating the waste has changed.

NAME, TITLE AND FIRM OF PERSON COMPLETING FORM. This item should reflect such information for the person providing the information for the form. This person may be a consultant. However, the generator is the one to sign and initial the form.

ITEM NUMBER 1 -- GENERATOR INFORMATION. This information is applicable to the initial generator of the waste and to the location that the waste was generated. Where the generator is not the person completing the form, a contact person for the generator must be provided. If the waste has been moved from the location of generation, the waste's current location must also be provided in the description in Item Number 7 on page 2 of the form.

ITEM NUMBER 2 -- WASTE STREAM INFORMATION. This item provides Envirocare with general information about the waste. The name of the waste provided in this space should be the name which will be used to refer to the waste in conversations and correspondence between Envirocare and the generator or others. The name should be as concise as possible, descriptive of the waste and recognizable to the generator. Envirocare will be using this waste name to refer to this waste. General information as to the waste's color and any distinctive odors should also be provided, where applicable. The total amount of waste to be delivered to Envirocare should be estimated or stated as part of the waste stream information. Unless otherwise specified, the contract refers to this amount of waste as the amount of waste specified for the disposal contract, so this amount can be important.

ITEM NUMBER 3 -- WASTE PHYSICAL PROPERTIES. Place an "X" or otherwise indicate which of these categories most accurately describes the waste stream.

ITEM NUMBER 4 -- DENSITY. Please provide the value or an estimate for the density of the waste. This value may be provided as a result of analysis or through knowledge of the waste. Also, circle the appropriate dimensions. (S.G. is for specific gravity where water at 4°C is 1 g/ml.)

ITEM NUMBER 5 -- IGNITABILITY. Please indicate the flash point, if applicable, of the waste. Also indicate whether the waste is an oxidizer as defined by 40 CFR 261.21(a)(4).

ITEM NUMBER 6 -- CHEMICAL COMPOSITION. Many generators know the composition of their waste through material balance knowledge, analysis, inherent composition or otherwise. Where chemicals or constituents of the waste is known, please indicate the component and its concentration.

This space is also appropriate for estimates of composition (e.g. 98% soil and debris). It is not required to conduct additional analyses of the waste solely to complete this item.

Knowledge of the waste may be used or chemical composition may be addressed in the description of the waste in Item Number 7 on page 2 of the form. However, where concentrations of constituents are known, please provide this information in this item.

***** INSTRUCTIONS FOR PAGE 2 OF EC-0200 *****

ITEM NUMBER 7 -- DESCRIPTION OF THE WASTE. In this item, the generator is to provide a comprehensive description of the waste along with explanations and justifications of other responses provided in the form. The generator should fully describe the waste as instructed.

Additionally, any other items in the form determined to be non-applicable or otherwise incompletely described should be fully justified or described in Item Number 7. Many of the items in the form direct that additional descriptions be provided in Item Number 7, including an explanation of any item marked "Y" in Items 10, 11, or 12, and any item without a corresponding laboratory analysis in Item 15.

A detailed visual description of the waste is to be provided in this item so that any portion of the waste stream in a shipment which is visually inspected at Envirocare's site during the required incoming-shipment procedures may have a corresponding description reflected in this item. If such description is not provided, the shipment may be rejected.

Often, a generator will need to use additional space or will need to attach additional material, lists, safety sheets, analytical results, etc., to provide this comprehensive description of the waste and its history.

Where the results of analyses provided with the form indicate the possibility of any EPA Hazardous Waste Codes or Numbers, the generator should explain why the Codes or Numbers are or are not applicable. Where the regulations provide an exclusion or exemption for the waste, the generator should explain that the exclusion or exemption is applicable to the waste and cite the regulation.

***** VERY IMPORTANT ***** Any applicable EPA Hazardous Waste Codes or Numbers should be listed in the space provided. Should the waste contain any additional hazardous constituents or chemicals beyond those for which the generator has determined that EPA Hazardous Waste Numbers or Codes are applicable, please provide or attach a justification or a determination as to the generator's decision that such numbers or codes are not applicable. For example, if a waste is analyzed to contain trace quantities of benzene, and if the generator determines the waste to have EPA Hazardous Waste Numbers or Codes other than those applicable to benzene (i.e., U019, D018, and/or F005), then the generator should provide a corresponding justification or statement as to why any of the benzene-related codes or numbers are not applicable.

Therefore, a discussion should be provided which addresses all hazardous waste constituents including their concentrations, how they became a constituent in the waste, their use elsewhere in the generator's operations, whether and why the generator determines to categorize (or not categorize) any corresponding EPA Hazardous Waste Number or Code for the constituent.

ITEM NUMBER 8 -- ANALYTICAL RESULTS FOR CHARACTERISTIC HEAVY METALS. The generator should provide the results of total or TCLP heavy metals analyses in the appropriate spaces.

ITEM NUMBER 9 -- OTHER POSSIBLE CHEMICAL COMPONENTS OR HAZARDOUS WASTE CHARACTERISTICS. This item requires the generator to perform a checklist of known or possible components of the waste. Although a laboratory analysis is not required for each element in this item, the person completing this item should complete an appropriate level of research to determine whether the element in question is associated (commingled, mixed, contaminated, derived from, wasted to, or otherwise) with this waste.

While completing this item, file reviews of operations associated with the waste, review of analytical results of samples of the waste, and interviews of individuals who have managed those operations, analyses or the generation of this waste should be made. Where known or possible association or composition with regard to these elements can be made, the response should be checked or under the "Y" column and an explanation of this indication should be made as part of the description in Item Number 7 on page 2 of the form.

If, as a result of this exercise, additional known or possible chemical components are identified, those should be noted and described in Item Number 7.

***** INSTRUCTIONS FOR PAGE 3 OF EC-0200 *****

ITEM NUMBERS 10, 11, AND 12 -- HISTORY OF WASTE SINCE GENERATION. The completion of these items helps Envirocare to better determine and understand the waste and its history. It is very important that wastes that have been transported or manifested from their initial generation location be noted as such in the responses to these questions. These questions will help to determine the extent of the applicable EPA Hazardous Waste Codes or Numbers for the waste.

ITEM NUMBER 13 -- SAMPLE OF WASTE TO ENVIROCARE. For the 2 or more representative samples, please send samples that separately represent the diversity, possible extremes, and average of the waste stream. These samples will be analyzed for the 10 incoming-shipment parameters for which samples of the incoming-shipments of this waste will be analyzed. The 10 incoming-shipment parameters are the following:

Solid/Soil pH
Paint Filter Liquid Test or visual assurance
Oxidizer/Reducer Test
Cyanide Test
Sulfide Test
Photoionizer "sniffer" Test
Pyrophoricity
Air Reactivity
Water Reactivity
Shock Sensitivity

Results of the on-site analyses of the preliminary samples will be used to establish the range of tolerances for the results of analyses of samples from the incoming shipments. Therefore, if a shipment of the waste stream arrives and the results of an analysis of that sample is beyond this range, the shipment may be rejected or an additional Low-Activity Waste Profile Record form EC-0200 may be required to be completed before the waste may be accepted. THIS ISSUE IS VERY IMPORTANT since the delay required to obtain samples and analytical results to fully correct the problem may take weeks and may necessitate a return of the shipment to the shipper.

ITEM NUMBER 14 -- CHEMICAL LABORATORY ANALYSES. Item Number 14 provides a reminder and caution to the generator as to the issue of certified laboratories. Please read and understand these items.

ITEM NUMBER 15 -- REQUIRED CHEMICAL LABORATORY ANALYSIS CHECKLIST. Sample results for a full TCLP analysis (metals, organics, volatiles, semi-volatiles, herbicides and pesticides -- D004 through D043) of the waste must be submitted to complete this form.

8 METALS (D004-D011): D004 Arsenic (As), D005 Barium (Ba), D006 Cadmium (Cd), D007 Chromium (Cr), D008 Lead (Pb), D009 Mercury (Hg), D010 Selenium (Se), and D011 Silver (Ag)

32 ORGANICS: (D012 - D043) May be generally categorized as follows (some categories overlap, others may fit another category than listed below or in the list following Item 9 of the form):

HERBICIDES AND PESTICIDES: (D012 - D017, D020, AND D031)

D012 Endrin,
D013 Lindane,
D014 Methoxychlor,
D015 Toxaphene,
D016 2,4-D (2,4-Dichlorophenoxyacetic acid),
D017 2,4,5-TP (2,4,5-Trichlorophenoxypropionic acid),
D020 Chlordane,
D031 Heptachlor (and its epoxide).

VOLATILES: (D018, D019, D021, D022, D027, D028, D029, D033, D035, D038, D039, D040, D043)

D018 Benzene,
D019 Carbon Tetrachloride,
D021 Chlorobenzene,
D022 Chloroform,
D027 1,4-Dichlorobenzene,
D028 1,2-Dichloroethane,
D029 1,1-Dichloroethylene,
D033 Hexachlorobutadiene,
D035 Methyl Ethyl Ketone,
D038 Pyridine,
D039 Tetrachloroethylene,
D040 Trichloroethylene,
D043 Vinyl Chloride.

SEMI-VOLATILES: (D023, D024, D025, D026, D030, D032, D033, D034, D036, D037, D038, D041, D042)

D023 o-Cresol,
D024 m-Cresol,
D025 p-Cresol,
D026 Cresols,
D030 2,4-Dinitrotoluene,
D032 Hexachlorobenzene,
D033 Hexachlorobutadiene,
D034 Hexachloroethane,
D036 Nitrobenzene,
D037 Pentachlorophenol,
D038 Pyridine
D041 2,4,5-Trichlorophenol,
D042 2,4,6-Trichlorophenol.

Where a parameter or class of analysis does not apply, an indication of non-applicability should be made with a corresponding justification in Item Number 7 on page 2. However, it should be noted that, in most instances, analytical results for 15A, 15B, 15C, and 15D are required. Where such analyses are not available are not applicable, a waiver approval from the Utah Board of Water Quality is required prior for Envirocare to be able to accept the waste.

All analytical results should be submitted with the completed form.

Please read the caution which addresses Utah-certified laboratories and in Item Number 14. There are additional quality-assurance package requirements for data from other-than-Utah-certified laboratories.

Please address all items by attaching analytical results or by providing an appropriate justification for non-applicability in Item Number 7 on page 2.

Attachment 2

Waste Profile Analysis

TEXAS INSTRUMENTS

May 3, 1994

Ms. Susan Rice
ENVIROCARE OF UTAH, INC.
46 West Broadway
Suite 240
Salt Lake City, UT 84101

Dear Ms. Rice,

Texas Instruments Incorporated (TI) is submitting the modified waste profile forms for additional waste shipments that we intend to ship to Envirocare during the next few weeks. The first shipment is scheduled to depart on Saturday, May 7, and arrive at the Envirocare facility 4-5 days later. The material being shipped is the same waste stream as was previously shipped to Envirocare during 1992 and 1993. The one major difference, and the reason why the waste profile forms need to be modified, is because the ratio of the isotopic concentrations of uranium is slightly different than the earlier shipments. Envirocare Form EC0650 is being resubmitted to reflect the change in the isotopic ratios, and Envirocare Form EC0200 is being resubmitted to reflect the additional TCLP testing requirements for copper and zinc.

TI is not submitting any pre-shipment samples, as the original parameter profile range will still be valid for this additional material that is being shipped. TI anticipates shipping approximately 10,000 cubic feet via surface trucks in bulk dump trailers.

In addition to the waste profile forms, it is still necessary to re-engage the disposal contract between Envirocare and TI. As soon as you are able to process the forms with the information we discussed, I will have them signed by the appropriate TI official.

Sincerely yours,

MATERIALS & CONTROLS GROUP

M. J. Elliott

Michael J. Elliott
Environmental, Safety & Health Dept.
Environmental Manager

MJE:bvs

Enclosure

TEXAS INSTRUMENTS INCORPORATED • 34 FOREST STREET • ATTLEBORO, MA 02703
508-699-3800 • TELEX 210801 • CABLE TEXINS

RADIOLOGICAL EVALUATION

(EC-0650) (Rev. 11/10/93)

Generator Name Texas Instruments Incorporated; Generator #/Waste Stream #: _____

Contractor Name N/A; Waste Stream Name Uranium Contaminated Sc

Volume of Waste Material: Approx. 10,000 cu.ft. additional X LARW. __ MW. __ NORM. Delivery Date: May 11, 1994

Original Submission? __ Y. X N Revision # 1 Date May 2, 1994

Name & Title of Person Completing Form _____; Date _____

In order to comply with Envirocare's NORM license #2300249 issued by the State Of Utah Department of Environmental Quality, Division of Radiation Control, Envirocare requires generators to provide the following radiological information. Should you have any questions while completing this form, contact Envirocare's Radiation Safety Officer at (801) 532-1330. **WASTE CANNOT BE ACCEPTED AT ENVIROCARE OF UTAH UNLESS THIS FORM IS COMPLETED AND A LABORATORY ANALYSIS IS SUBMITTED.**

1. GENERATOR INFORMATION

EPA ID # MAD 007325814

NAME OF GENERATOR Texas Instruments Incorporated

MAILING ADDRESS 34 Forest Street
M/S 10-2
Attleboro, MA 02703

PHONE (508) 699-1809

FAX (508) 699-3839

LOCATION OF MATERIAL Same

GENERATOR CONTACT Same

TITLE Same

MAILING ADDRESS Same

PHONE Same

FAX Same

3. WASTE STREAM INFORMATION

For each radioactive isotope associated with the waste, please list the following information (use additional copies of this form if necessary.)

	ISOTOPES	CONCENTRATION (pCi/g) AVG.	RANGE
a.			
b.			
c.			
d.	Total Uranium	250	30-20000
e.	U-234	236	18-17000
f.	U-235	7	0.5-400
g.	U-238	7	0.5-400
h.	Th-228	0.6	0.5-2.0
i.	Th-230	1.4	0.5-3.0
j.	Th-232	0.8	0.5-2.0
k.			

2. **ADDITIONAL REMARKS OR DESCRIPTIONS.** This is the same waste stream from the same site as the previous shipments in 1992 and 1993. As one might expect from the versatile nature of disposal practices, the nature of the Uranium contamination is somewhat different for these particular soils. These soils exhibit enriched abundancies of U-235, rather than depleted or natural, as was found with the previous soils.

4. (Y) N **LICENSED MATERIAL** Is the waste material listed or included on an active Nuclear Regulatory Commission or Agreement State license? (Please circle)

(If Yes) **TYPE OF LICENSE:** Source____ Special Nuclear Material X By-Product____ NORM____

LICENSING AGENCY: NRC

GENERATOR'S CERTIFICATION OF WASTE: As generator of this waste, I certify to Envirocare of Utah, Inc that the information provided on this form is complete, true and correct and is accurately supported and documented by laboratory testing. The results of the testing have been submitted to Envirocare of Utah, Inc.

Generator's Signature for certification M. Elliott Date May 2, 1994

Radiological Evaluation · EC-0650-2

5. N/A A Pre-Shipment Sample Profile Record, form EC-2000, should be sent to Envirocare with the pre-shipment samples. Previously Submitted

6. Laboratory Certification Information. Please indicate below which of the following categories applies to your laboratory data.

___ GENERATOR'S STATE CERTIFICATION. The laboratory holds a current certification from the generator's State insofar as such official certifications are given, or

___ GENERATOR'S STATE LABORATORY REQUIREMENTS. The laboratory meets the requirements of the generator's State or congnizant agency for chemical or radiological laboratories, or

X UTAH CERTIFIED. The laboratory holds a current certification for the applicable chemical or radiologic parameters from the Utah Department of Health insofar as such official certifications are given.

If using a non-certified laboratory, briefly describe the generator state's requirements for radiological analytical laboratories to defend the determination that the laboratory used meets those requirements, especially in terms of whether the requirements are parameter specific, method specific, or involve CLP or other QA data packages.

_____

_____

_____

_____

7. For analytical work done by laboratories which are not Utah-certified, please provide the following information:

State or Other Agency Radiological Program Contact Person	Generator's State	Telephone Number

Lab Contact Person	Laboratory's State	Telephone Number

8. X For analytical work done by Utah-certified laboratories, please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for analyses required by this form and form EC-0200 or EC-0175.

Remarks: _____

_____

_____

_____

Initials MJE

ATTACHMENT C

LOW-ACTIVITY RADIOACTIVE WASTE PROFILE RECORD

(EC-0200)

(Rev. 09/93)

Generator Name: Texas Instruments Incorporated ; Generator #/Waste Stream #: _____

Contractor Name: N/A ; Waste Stream Name: Uranium contaminated s

Volume of Waste Material: Approx. 10,000 cu.ft. Additional X LARW. __ MW. __ NORM; Delivery Date: May 11, 1994

Original Submission? __ Y: X N: Revision # 1 Date: May 2, 1994

Name & Title of Person Completing Form: Michael J. Elliott, Environmental Manager; Date: May 2, 1994

Generators of solid waste are required to determine whether their wastes are hazardous waste as defined by 40 CFR 261. Please complete a copy of this form for each waste to provide the information on which this determination is based. Should you have any questions while completing this form, contact Envirocare at (801) 532-1330. **WASTES CANNOT BE ACCEPTED AT ENVIROCARE OF UTAH UNLESS THIS FORM IS COMPLETED.** If a category does not apply, please indicate.

1. GENERATOR INFORMATION

EPA ID # MAD 007325814

Name of Generator Tex nstruments Incorporated

Generator Contact Mi J. Elliott

Title Environmental Manager

Mailing Address 34 Forest Street
M/S 10-2
Attleboro, MA 02703

Phone (508) 699-1809

Fax (508) 699-3839

Location of Material Same

Contact Person Same

Title Same

Mailing Address Same

Phone Same

Fax Same

2. WASTE STREAM INFORMATION

Color Brown Odor None

3. WASTE PHYSICAL PROPERTIES

_____ Liquid X Solid

_____ Sludge _____ Powder/Dust

4. DENSITY (Indicate dimensions)

1.5-1.6 g/cc (S.G.) lb./ft³ Kg/m³

5. IGNITABILITY (40 CFR 262.21[a][2],[4].)

Flash Point >160 (°F) °C

Oxidizer(s) Y (N)

6. CHEMICAL COMPOSITION (List known chemical or other constituents and circle the applicable concentration dimensions.)

Chemical Component	Concentration	
see attached	_____	% ppm
analytical reports	_____	% ppm
_____	_____	% ppm
_____	_____	% ppm
_____	_____	% ppm
_____	_____	% ppm

GENERATOR'S CERTIFICATION OF NON-HAZARDOUS WASTE: As the generator of this waste, I certify to Envirocare of Utah, Inc., that the information provided on this form is complete, true and correct, and is accurately supported and documented by any laboratory testing, as required by Envirocare of Utah, Inc. The results of any said testing have been submitted to Envirocare of Utah, Inc. I further certify and warrant to Envirocare of Utah, Inc., that the waste represented on this form is not a hazardous waste as defined by 40 CFR 261.

Generator's Signature M. J. Elliott Title, Environmental Manager Date May 2, 1994

(Sign for the above certification. Please initial each page.)

Low-Activity Radioactive Waste Profile Record - EC-0200-2

7. **DESCRIPTION OF WASTE:** (Briefly describe the waste. Include a description of the process in which it was generated. List the chemicals and materials used in or commingled with the waste. List any associated EPA Hazardous Waste Numbers and all of the applicable exclusions, delistings or exemptions. Attach any product information or Material Safety Data Sheets for the products from which the waste is derived.)

Uranium contaminated soils removed during decontamination and decommissioning of the TI facility. Soils were removed as part of a remediation project.

EPA Hazardous Waste Number(s) None

8. **TOXICITY CHARACTERISTIC FOR HEAVY METALS AND ORGANIC CHEMICALS.** (Indicate Toxicity Characteristic [TCLP] concentrations in mg/liter in the extract.)

TCLP Metals:				TCLP Organic Chemicals (Detected)			
Arsenic	ND	Lead	ND	None			
Barium	ND	Mercury	ND				
Cadmium	ND	Selenium	ND				
Chromium	ND	Silver	ND				
Copper	ND	Zinc	ND				

9. **OTHER POSSIBLE CHEMICAL COMPONENTS/CHARACTERISTICS**

	(Y)	(N)		(Y)	(N)		(Y)	(N)
Cyanides		X	Sulfides		X	Dioxins		X
Pesticides		X	Herbicides		X	PCBs		X
Explosives		X	Pyrophorics		X	Solvents		X
Organics		X	Phenolics		X	Infectious		X
Ignitable		X	Corrosive		X	Reactive		X
Antimony		X	Beryllium		X	Copper		X
Nickel		X	Strontium		X	Thallium		X
Vanadium		X	Zinc		X	Alcohols		X
*TCLP Volatiles		X	**TCLP Organics		X	***TCLP Semi-volatiles		X

*TCLP Volatiles include benzene, carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichloroethane, 1,1-dichloroethylene, methyl ethyl ketone, tetrachloroethylene, trichloroethylene, vinyl chloride.

**TCLP Organics include 2,4-D, heptachlor hydroxide, pyridine, 2,4,5-TP (Silvex).

***TCLP Semi-volatiles include chlordane, o-cresol, m-cresol, p-cresol, cresol, 1,4-dichlorobenzene, 2,4-dinitrotoluene, Endrin, heptachlor, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, lindane, methoxychlor, nitrobenzene, pentachlorophenol, toxaphene, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol.

(NOTE: ATTACH RESULTS FROM LABORATORY ANALYSES, MATERIAL SAFETY DATA SHEETS, ALL OTHER ADDITIONAL INFORMATION AND CONTINUATIONS OF ABOVE DESCRIPTIONS.)

Initials MJE

Low-Activity Radioactive Waste Profile Record - EC-0200-3

WASTE HISTORY. Please circle the appropriate answer. If yes, please describe in 7. above.

10. Y (N) Was this waste mixed, treated, neutralized, solidified, commingled, dried, or otherwise processed upon generation or at any time thereafter?

11. Y (N) Has this waste been transported or otherwise removed from the location or site where it was originally generated?

12. Y (N) Was this waste derived from (or is the waste a residue of) the treatment, storage, and/or disposal of hazardous waste defined by 40 CFR 261?

SAMPLES OF WASTE TO ENVIROCARE

13. N/A Please send 5 representative samples of your waste to Envirocare. These samples will used to establish the waste's incoming shipment acceptance parameter tolerances and may be analyzed for additional parameters. Send at least 1-kg. (2-lb.) for each sample in an air-tight clean glass container via United Parcel Post (UPS) to:

Acceptance parameter tolerances already established for this waste stream.

Envirocare of Utah, Inc.
Attn: Sample Control
Tooele County USI-80 Exit 49
Clive, Utah 84029

14. **CHEMICAL LABORATORY ANALYSES.** The generator is cautioned as follows:

a. **Utah Certified Laboratories.** If a Utah-certified laboratory is not used, the analytical laboratory must hold a current certification from the generator's state or must meet the requirements of the generator's state for chemical or radiological laboratories insofar as such official certifications are given. During the process of appealing a notice of violation or other enforcement actions, the Utah Department of Environmental Quality will not admit laboratory data which is not from a Utah-certified laboratory. Utah certification is obtained from the Utah Bureau of Lab Improvement (801) 584-8400.

b. **Utah Certification is Parameter-Specific.** Laboratories are certified by parameter. One should not assume that every result from a "Utah-certified" laboratory is acceptable for a compliance appeal. A laboratory may certify for some parameters and not for others. It is a good practice to check with a laboratory to ensure parameter certification. A laboratory's certification is dynamic. A laboratory may lose certification or may not renew their certification for parameters from one period to the next.

c. **Approved Sampling.** For all sampling, the analytical method's sampling procedures must be followed.

d. **Generators Determine Whether a Waste is Hazardous.** The requirements of 40 CFR 262.11 state that it is the generator's responsibility to determine whether their waste is hazardous.

e. **Generator's Waste may be Sampled at the Disposal Facility by Envirocare or by Environmental Regulators.** Should the results of subsequent analysis of a waste show that the waste is hazardous for additional EPA hazardous waste numbers and corresponding treatment standards which were not identified by the generator, then the waste may be removed, refused, and may be returned to the generator pursuant to the terms of the disposal agreement.

f. **Envirocare Accepts Waste According to a Waste Characterization Plan. Envirocare does not assume or accept any responsibility imposed on the generator by law or the disposal agreement.**

15. **REQUIRED LABORATORY WASTE ANALYSES AND CHECKLIST.** Generator must submit results of analyses of samples of the waste. Results are required from a qualified laboratory for the following analytical parameters unless nonapplicability of the analysis for the waste can be stated and justified in attached statements or in 7. above. Attach all analytical results and QA/QC documentation. **(CAUTION: PRIOR TO ARRANGING FOR LABORATORY ANALYSES, REFER TO 14 REGARDING UTAH-CERTIFIED LABORATORIES.)**

X A. Toxicity Characteristic Leaching Procedure (TCLP) from 40 CFR 268 Appendix I for 8 metals and 32 organic analysis. Also, TCLP results for copper (Cu) and zinc (Zn).

X B. Soil pH and Paint Filter Liquids Test, SW-846 Methods 9045 and 9095, respectively.

X C. Test Method (from SW-846 Chapter 7) to Determine Hydrogen Cyanide Released from Wastes.

X D. Test Method (from SW-846 Chapter 7) to Determine Hydrogen Sulfide Released from Wastes.

____ E. Other analyses may be required after Envirocare has reviewed this document. These may include results of other SW-846 analytical methods.

Initials MJS

Low-Activity Radioactive Waste Profile Record · EC-0200-4

16. N/A A Pre-Shipment Sample Profile Record, form EC-2000, should be sent to Envirocare with the pre-shipment samples. Previously Submitted

17. Laboratory Certification Information. Please indicate below which of the following categories applies to your laboratory data. (Certifications are based on applicable RCRA requirements.)

___ GENERATOR'S STATE CERTIFICATION. The laboratory holds a current certification from the generator's State insofar as such official certifications are given, or

___ GENERATOR'S STATE LABORATORY REQUIREMENTS. The laboratory meets the requirements of the generator's State for chemical or radiological laboratories, or

X UTAH CERTIFIED. The laboratory holds a current certification for the applicable chemical or radiologic parameters from the Utah Department of Health insofar as such official certifications are given.

Briefly describe the generator state's requirements for analytical information used to make or defend hazardous waste determinations per 40 CFR 262.11, especially in terms of whether the requirements are parameter specific, method specific, or involve CLP or other QA data packages. Utah-certified laboratories are certified by both parameter and method.

18. For analytical work done by laboratories which are not Utah-certified, please provide the following information:

State HW/RCRA Lab Program Contact Person | Generator's State | Telephone Number

Lab Contact Person | Laboratory's State | Telephone Number

19. ___ For analytical work done by Utah-certified laboratories, please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for analyses required by this form and form EC-0650.

Remarks: _____

Initials MJB

Mountain States Analytical

April 25, 1994

Mr. Richard Derby
Texas Instruments Inc.
34 Forest Street
Attleboro, MA 02703

Reference:
Project: Pre-Acceptance Analysis
MSAI Group: 4370

Dear Mr. Derby:

Enclosed are the analytical results for your project referenced above. The following sample is included in the report.

SCRP-3BSN-13-2.0-30

All holding times were met for the tests performed on these samples.

If the report is acceptable, please approve the enclosed invoice and forward it for payment.

Thank you for selecting Mountain States Analytical, Inc. to serve as your analytical laboratory on this project. If you have any questions concerning these results, please feel free to contact me at any time.

We look forward to working with you on future projects.

With Regards,

W. Scott Fraser

W. Scott Fraser
Project Manager

Mountain States Analytical
The Quality Solution

Texas Instruments Inc.
34 Forest Street
Attleboro, MA 02703

Attn: Mr. Richard Derby
Project: Pre-Acceptance Analysis

Sample ID: SCRP-3BSN-13-2.0-30
Matrix: Soil

MSAI Sample: 18016
MSAI Group: 4370
Date Reported: 04/25/94
Discard Date: 05/25/94
Date Submitted: 04/21/94
Date Sampled: 04/20/94
Collected by: JS
Purchase Order:
Project No.:

Test	Analysis	Results as Received	Units	Limit of Quantitation
0253G	Copper on TCLP Extract by ICP Method: SW-846 6010A	0.060	mg/l	0.050
0272G	Zinc on TCLP Extract by ICP Method: SW-846 6010A	4.76	mg/l	0.10

Respectfully Submitted,
Reviewed and Approved by:

W. Scott Fraser

W. Scott Fraser
Project Manager

Mountain States Analytical
The Quality Solution

CLIENT: Texas Instruments
34 Forest Street
Attleboro, MA 02703

ATTN: Mr. Richard Derby

LAB NO: 18016
GROUP NO: 4370
DATE SAMPLED: 04/20/94
DATE RECEIVED: 04/21/94
DATE REPORTED 04/26/94
DISPOSAL DATE: 05/27/94

SAMPLE ID: SCRP-3BSN-13-2.0-30

ANALYSIS: TCLP Metals; EPA SW-846 Methods 1311/6010/7470

METALS	FINAL RESULT	
Copper	0.06	mg/l
Zinc	4.76	mg/l

The metals analyses were performed on a non-volatile toxicity characteristic leachate of the submitted waste. The leachate was prepared according to the procedure specified in the March 29 and the June 29,1990 Federal Registers.

A sample is considered to have failed the Toxicity Characteristic (TC) test and is therefore considered a hazardous waste if any of the metal concentrations (mg/l) in the leachate exceed the following maxima:

Arsenic	5.0	Lead	5.0
Barium	100.0	Mercury	0.2
Cadmium	1.0	Selenium	1.0
Chromium	5.0	Silver	5.0

The limits are published in the March 29, 1990 Federal Register, pp. 11845-6.

The leachate results are no longer corrected for spike recoveries as per Federal Register Tuesday, November 24,1992 Vol 57, No. 227.

Respectfully submitted,

Glenn A. Sorensen

Glenn A. Sorensen, B.S.
Manager, Inorganics Department

Michael O. Leavitt
Governor
Rod L. Betit
Executive Director
A. Richard Mallon, Dr. P.H.
Director

State of Utah
DEPARTMENT OF HEALTH

Division of Laboratory Services
46 N. Medical Drive
Salt Lake City, Utah 84113-1106
(801) 584-8400

NOV 10 1993

DOUGLAS W. LATER. PH.D.
MOUNTAIN STATES ANALYTICAL
1645 W. 2200 SO.
SALT LAKE CITY, UT 84119

Certificate No.: E-87
Account No: 8019730050

On the basis of your most recent audit results, the laboratory listed is hereby certified to perform environmental monitoring under the Resource Conservation and Recovery Act for the following parameters:

METALS
- ALUMINUM 6010
- ALUMINUM 7020
- ANTIMONY 6010
- ANTIMONY 7040
- ANTIMONY 7041
- ARSENIC 6010
- ARSENIC 7060
- ARSENIC 7061
- BARIUM 6010
- BARIUM 7080
- BARIUM 7081
- BERYLLIUM 6010
- BERYLLIUM 7090
- BERYLLIUM 7091
- CADMIUM 6010
- CADMIUM 7130
- CADMIUM 7131
- CHROMIUM 6010
- CHROMIUM 7190
- CHROMIUM 7191
- CHROMIUM, HEXAVALENT 7196
- COBALT 6010
- COBALT 7200
- COBALT 7201
- COPPER 6010
- COPPER 7210
- COPPER 7211
- IRON 6010
- IRON 7380
- IRON 7381
- LEAD 6010
- SILVER 7761
- THALLIUM 6010
- THALLIUM 7840
- THALLIUM 7841
- TIN 7870
- VANADIUM 6010
- VANADIUM 7910
- VANADIUM 7911
- ZINC 6010
- ZINC 7950
- ZINC 7951

MINERALS
- BORON 6010
- CALCIUM 6010
- CALCIUM 7140
- POTASSIUM 6010
- POTASSIUM 7610
- SODIUM 6010
- SODIUM 7770

MISCELLANEOUS
- AROMATIC VOLATILE ORG 8020
- CHLORIDES 9252
- CHLORINATED HERBICIDES 8150
- CORROSIVITY 1110
- CYANIDE TOTAL/AMENABLE 9010
- EDB & DBCP 8011
- HALOGENATED VOLATILE ORG 8010
- IGNITABILITY 1010
- NITRATE 9200
- NONHALOGEN VOLATILE ORG 8015

LEAD 7421
MAGNESIUM 6010
MAGNESIUM 7450
MANGANESE 6010
MANGANESE 7460
MANGANESE 7461
MERCURY 7470
MERCURY 7471
MOLYBDENUM 6010
MOLYBDENUM 7480
MOLYBDENUM 7481
NICKEL 6010
NICKEL 7520
* SELENIUM 6010
* SELENIUM 7740
* SELENIUM 7741
SILVER 6010
SILVER 7760

ORGANOCHL PEST 8080
ORGANOPHOSPHORUS PEST 8140
PAINT FILTER LIQUID TST 9095
PCB 8080
PH 9045
PHENOLICS 9065
PHENOLS 8040
REACTIVITY SEC 2.1.3
REACTIVITY SEC 8.3
SEMIVOLATILES 8270
SPECIFIC CONDUCTANCE 9050
SULFATES 9038
SULFIDES 9031
* TCLP METAL 1311
TCLP SEMI-VOLATILE 1311
TCLP VOLATILE 1311
TOTAL ORGANIC HALIDES 9020
VOLATILES 8240

* Provisional Certification

The expiration date for this certificate is APR 09 1995.

The parameters for which a laboratory is certified at any given time will be those indicated in the most recent certified letter. Please review for completeness and accuracy. Any discrepancies must be documented and notice received by this bureau within 15 days of receipt. Copies of this letter will be on file in (1) the Bureau of Laboratory Improvement, Division of Laboratory Services and (2) in the Department of Environmental Quality. The certification will be recalled in the event that your Laboratory's certification is revoked.

Respectfully,

David B. Mendenhall
Interim Director

cc. Richard Denton
Dennis Downs
U.S. EPA Region VIII QAO
Management Services Coordinator

CHARGE TO:

SALE OF ASSETS
OUTSIDE PROCESSING
TRANSFER
[illegible]
OTHER

DIV/AGCY

QUANTITY	DESCRIPTION/PART #/PC
01	ENVIRONMENTAL SAMPLE

GROSS WEIGHT	NO. OF CONTAINERS	ORIGINATOR'S NAME (TYPED)	ORIGINATOR'S
11	1	2. RICHARD L. [illegible]	

S-G15148 1/92

PACKING SLIP COPY

118945

Mountain States Analytical

№ 2584

Sample Chain of Custody

Client Name: Texas Instruments/Richard P.O. # Derby

Phone #: (508) 699-1650 Fax #: (508) 699-1683

Project Name/#: BLDG 5 Soil Removal

Sampler: JE SZLACHCIUK

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total of Containers	Analysis Required: TCLP Cr, Zn	Rush?	Remarks	Temp of Samples Upon Receipt
SCRP-3BSN-13-2.0-30	4/20/94	2 PM			✓				X	X	~24hr Rush	
(Low Level Radioactive Soil											* PLEASE RETURN Sample AFTER ANALYSIS IS Complete	
								Sample @ 5.8°C				

Name of Shipper	Airbill No.	Date	Time	Sample relinquished by:	Date	Time	Sample received by:	Date	Time
TEXAS INSTRUMENTS		4/20/94		Richard Derby			W. Scott Jacobsen	9.45 ← → 04/21/94	

Received By (Lab)	Date	Time	Seals Intact?

Turnaround Time Requested (please circle): Normal (Rush)

(Rush TAT is subject to MSAI approval and surcharge)

Report Results By: (Date)

Rush results requested by (please circle): Phone (Fax)

Report Results to: Rick Derby 508 699 1663

Type of Disposal:

Date/Time of Disposal:

Authorized for Disposal by:

Disposed of by:

1645 West 2200 South, Salt Lake City, Utah 84119 (801) 973-0050 FAX (801) 972-6278

REPORT OF ANALYSIS
17 DECEMBER 1993

TELEDYNE ISOTOPES
50 Van Buren Ave., P.O. Box 1235
Westwood, N.J. 07675-1235
Phone: 201/664-7070
FAX: 201/664-3586

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 12/16/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE
3-5042		11/17/93	12/20/93	4

MIKE ELLIOTT
KAS INSTRUMENTS INC
TERIALS & CONTROLS
FOREST STREET BLDG 10
TLEBORO MA 02703-2401

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/N *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
33772	SCRP-4-3	6- 9 IN 14	11/06				U-235	1.2 +-0.1 E 01		12/14			4
							TH-234	1.7 +-0.2 E 01		12/14			4
							PB-214	4.0 +-0.5 E-01		12/14			4
							BI-214	4.5 +-0.5 E-01		12/14			4
							AC-228	8.0 +-1.1 E-01		12/14			4
							PB-212	5.5 +-0.6 E-01		12/14			4
							TL-208	2.0 +-0.3 E-01		12/14			4
							K-40	1.5 +-0.2 E 01		12/14			4
							CS-137	7.6 +-2.1 E-02		12/14			4
33773	SCRP-4-4	9-12 IN 15	11/06				U-235	6.0 +-0.6 E 00		12/14			4
							TH-234	9.8 +-1.0 E 00		12/14			4
							PB-214	5.4 +-0.5 E-01		12/14			4
							BI-214	4.1 +-0.5 E-01		12/14			4
							AC-228	7.6 +-1.1 E-01		12/14			4
							PB-212	5.4 +-0.5 E-01		12/14			4
							TL-208	2.1 +-0.3 E-01		12/14			4
							K-40	1.6 +-0.2 E 01		12/14			4
							CS-137	L.T. 4. E-02		12/14			4
33774	SCRP-1-2	3- 6 IN 02	11/06				U-235	4.4 +-0.4 E 02		12/14			4
							TH-234	4.1 +-0.4 E 02		12/14			4
							PB-214	5.9 +-1.4 E-01		12/14			4
							BI-214	4.4 +-1.2 E-01		12/14			4
							AC-228	9.8 +-2.6 E-01		12/14			4
							PB-212	3.0 +-0.1 E 00		12/14			4
							TL-208	4.6 +-0.8 E-01		12/14			4
							K-40	1.4 +-0.1 E 01		12/14			4
							CS-137	1.2 +-0.1 E 00		12/14			4
							U-234	1.7 +-0.1 E 04		12/07			6
							TH-230	3.0 +-0.4 E 00		12/06			6
							U-235	4.4 +-0.2 E 02		12/07			6

The alpha spectroscopy results (LAB 6) for TI#33774, 33775, and 33777 were normalized to the gamma spectroscopy results (LAB 4) through U-235.

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 12/16/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 5
3-5042		11/17/93	12/20/93	

MR MIKE ELLIOTT
TEXAS INSTRUMENTS INC
MATERIALS & CONTROLS
34 FOREST STREET BLDG 10
ATTLEBORO MA 02703-2481

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	TYPE	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-R U/R *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-R *	LAB.
33774	SCRP-1-2	3- 6 IN 02	11/04				U-238	2.4 +-0.2 E 02		12/07			6
							TH-232	9.2 +-2.3 E-01		12/06			6
							TH-228	1.0 +-0.3 E 00		12/06			6
33775	SCRP-2-1	0- 3 IN 04	11/04				U-235	2.3 +-0.2 E 02		12/15			4
							TH-234	2.5 +-0.3 E 02		12/15			4
							PB-214	5.1 +-1.8 E-01		12/15			4
							BI-214	3.7 +-1.2 E-01		12/15			4
							AC-228	1.2 +-0.4 E 00		12/15			4
							PB-212	1.1 +-0.2 E 00		12/15			4
							TL-208	3.6 +-0.9 E-01		12/15			4
							K-40	1.4 +-0.2 E 01		12/15			4
							CS-137	1.7 +-0.2 E 00		12/15			4
							U-234	8.5 +-0.6 E 03		12/09			6
							TH-230	1.3 +-0.3 E 00		12/06			6
							U-235	2.3 +-0.2 E 02		12/09			6
							U-238	1.7 +-0.1 E 02		12/09			6
							TH-232	8.8 +-2.3 E-01		12/06			6
							TH-228	8.2 +-3.0 E-01		12/06			6
33776	SCRP-3-2	3- 6 IN 09	11/04				U-235	1.4 +-0.1 E 01		12/15			4
							TH-234	2.5 +-0.3 E 01		12/15			4
							PB-214	5.3 +-1.1 E-01		12/15			4
							BI-214	5.4 +-1.0 E-01		12/15			4
							AC-228	7.5 +-2.1 E-01		12/15			4
							PB-212	7.2 +-0.8 E-01		12/15			4
							TL-208	3.1 +-0.6 E-01		12/15			4
							K-40	1.5 +-0.2 E 01		12/15			4
							CS-137	2.0 +-0.7 E-01		12/15			4
							U-234	4.0 +-0.2 E 02		12/07			6
							TH-230	5.3 +-1.4 E-01		12/06			6
							U-235	1.1 +-0.1 E 01		12/07			6

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 12/16/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE
3-5042		11/11/93	12/20/93	6

MR MIKE ELLIOTT
TEXAS INSTRUMENTS INC
MATERIALS & CONTROLS
34 FOREST STREET BLDG 10
ATTLEBORO MA 02703-2481

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
33776	SCRP-3-2	3- 6 IN 09	11/06				U-238	2.0 +-0.2 E 01		12/07			6
							TH-232	3.5 +-1.1 E-01		12/06			6
							TH-228	5.1 +-1.8 E-01		12/06			6
33777	SCRP-4-1	0- 3 IN 12	11/06				U-235	2.1 +-0.2 E 02		12/15			4
							TH-234	2.0 +-0.2 E 02		12/15			4
							PB-214	4.9 +-1.2 E-01		12/15			4
							BI-214	4.5 +-1.4 E-01		12/15			4
							AC-228	1.1 +-0.3 E 00		12/15			4
							PB-212	1.4 +-0.2 E 00		12/15			4
							TL-208	2.8 +-0.7 E-01		12/15			4
							K-40	1.6 +-0.2 E 01		12/15			4
							CS-137	1.2 +-0.1 E 00		12/15			4
							U-234	8.0 +-0.6 E 03		12/07			6
							TH-230	8.1 +-1.8 E-01		12/06			6
							U-235	2.1 +-0.1 E 02		12/07			6
							U-238	9.8 +-0.6 E 01		12/07			6
							TH-232	4.0 +-1.3 E-01		12/06			6
							TH-228	4.4 +-1.7 E-01		12/06			6

LAST PAGE OF REPORT

J Buenther.

APPROVED BY J. GUENTHER 12/16/93

SEND 1 COPIES TO TE940S MR MIKE ELLIOTT

2 - GAS LAB. 3 - RADIO CHEMISTRY LAB. 4 - GE(LI) GAMMA SPEC LAB. 5 - TRITIUM GAS/L.S. LAB. 6 - ALPHA SPEC LAB.

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 12/16/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 1
3-5042		11/17/93	12/20/93	

MIKE ELLIOTT
AS INSTRUMENTS INC
RIALS & CONTROLS
FOREST STREET BLDG 10
LEBORO MA 02703-2481

S O I L

EDYNE MPLE MBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-2 *	LAB.
763	SCRP-1-1	0- 3 IN 01	11/06				U-235	2.0 +-0.2 E 02		12/14			4
							TH-234	2.1 +-0.2 E 02		12/14			4
							PB-214	5.0 +-1.9 E-01		12/14			4
							BI-214	4.2 +-1.5 E-01		12/14			4
							AC-228	8.2 +-2.8 E-01		12/14			4
							PB-212	6.6 +-1.4 E-01		12/14			4
							TL-208	3.8 +-1.8 E-01		12/14			4
							K-40	1.4 +-0.2 E 01		12/14			4
							CS-137	1.4 +-0.2 E 00		12/14			4
764	SCRP-1-3	6-12 IN 03	11/06				U-235	5.6 +-0.6 E 01		12/14			4
							TH-234	6.9 +-0.7 E 01		12/14			4
							PB-214	4.2 +-1.1 E-01		12/14			4
							BI-214	4.7 +-1.0 E-01		12/14			4
							AC-228	6.7 +-2.2 E-01		12/14			4
							PB-212	5.4 +-0.8 E-01		12/14			4
							TL-208	1.9 +-0.5 E-01		12/14			4
							K-40	1.7 +-0.2 E 01		12/14			4
							CS-137	2.6 +-0.6 E-01		12/14			4
765	SCRP-2-2	3- 6 IN 05	11/04				U-235	8.2 +-0.8 E 01		12/14			4
							TH-234	9.9 +-1.0 E 01		12/14			4
							PB-214	3.4 +-1.2 E-01		12/14			4
							BI-214	3.0 +-1.1 E-01		12/14			4
							AC-228	6.0 +-2.4 E-01		12/14			4
							PB-212	9.6 +-1.4 E-01		12/14			4
							TL-208	2.6 +-0.8 E-01		12/14			4
							K-40	1.5 +-0.2 E 01		12/14			4
							CS-137	4.7 +-1.0 E-01		12/14			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 12/16/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE
3-5042		11/17/93	12/20/93	2

) MIKE ELLIOTT
EAS INSTRUMENTS INC
ITERIALS & CONTROLS
) FOREST STREET BLDG 10
TLEBORO MA 02703-2481

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	COLLECTION-DATE START TIME	COLLECTION-DATE STOP DATE	COLLECTION-DATE STOP TIME	TYPE	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
13766	SCRP-2-3	6- 9 IN 06	11/04					U-235	1.7 +-0.2 E 01		12/14			4
								TH-234	2.4 +-0.2 E 01		12/14			4
								PB-214	4.4 +-0.9 E-01		12/14			4
								BI-214	3.6 +-0.8 E-01		12/14			4
								AC-228	5.8 +-1.8 E-01		12/14			4
								PB-212	6.1 +-0.7 E-01		12/14			4
								TL-208	2.5 +-0.5 E-01		12/14			4
								K-40	1.6 +-0.2 E 01		12/14			4
								CS-137	1.3 +-0.5 E-01		12/14			4
13767	SCRP-2-4	9-12 IN 07	11/06					U-235	2.1 +-0.2 E 01		12/14			4
								TH-234	2.6 +-0.3 E 01		12/14			4
								PB-214	3.8 +-0.9 E-01		12/14			4
								BI-214	4.6 +-0.8 E-01		12/14			4
								AC-228	8.4 +-1.9 E-01		12/14			4
								PB-212	7.4 +-0.7 E-01		12/14			4
								TL-208	2.2 +-0.5 E-01		12/14			4
								K-40	1.7 +-0.2 E 01		12/14			4
								CS-137	1.5 +-0.4 E-01		12/14			4
13768	SCRP-3-1	0- 3 IN 08	11/06					U-235	1.4 +-0.1 E 01		12/14			4
								TH-234	2.9 +-0.3 E 01		12/14			4
								PB-214	6.9 +-0.8 E-01		12/14			4
								BI-214	5.0 +-0.8 E-01		12/14			4
								AC-228	8.7 +-1.6 E-01		12/14			4
								PB-212	8.8 +-0.9 E-01		12/14			4
								TL-208	2.8 +-0.4 E-01		12/14			4
								K-40	1.6 +-0.2 E 01		12/14			4
								CS-137	3.9 +-0.5 E-01		12/14			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 12/16/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE
3-5042		11/17/93	12/20/93	3

MIKE ELLIOTT
RAS INSTRUMENTS INC
MERIALS & CONTROLS
FOREST STREET BLDG 10
TLEBORO MA 02703-2481

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	TYPE	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/A *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-MENT-% *	LAB.
3769	SCRP-3-3	6- 9 IN 10	11/06					U-235	1.1 +-0.1 E 01		12/14			4
								TH-234	1.7 +-0.2 E 01		12/14			4
								PB-214	5.0 +-0.9 E-01		12/14			4
								BI-214	5.4 +-0.9 E-01		12/14			4
								AC-228	9.4 +-1.7 E-01		12/14			4
								PB-212	7.4 +-0.7 E-01		12/14			4
								TL-208	2.8 +-0.5 E-01		12/14			4
								K-40	1.7 +-0.2 E 01		12/14			4
								CS-137	3.1 +-0.5 E-01		12/14			4
3770	SCRP-3-4	9-12 IN 11	11/06					U-235	5.0 +-0.5 E 00		12/14			4
								TH-234	1.5 +-0.2 E 01		12/14			4
								PB-214	5.7 +-0.7 E-01		12/14			4
								BI-214	4.7 +-0.6 E-01		12/14			4
								AC-228	7.9 +-1.4 E-01		12/14			4
								PB-212	6.6 +-0.7 E-01		12/14			4
								TL-208	2.4 +-0.3 E-01		12/14			4
								K-40	1.7 +-0.2 E 01		12/14			4
								CS-137	1.7 +-0.3 E-01		12/14			4
3771	SCRP-4-2	3- 6 IN 13	11/06					U-235	4.1 +-0.4 E 01		12/14			4
								TH-234	3.4 +-0.3 E 01		12/14			4
								PB-214	3.7 +-0.6 E-01		12/14			4
								BI-214	3.3 +-0.5 E-01		12/14			4
								AC-228	7.0 +-1.2 E-01		12/14			4
								PB-212	5.3 +-0.5 E-01		12/14			4
								TL-208	2.0 +-0.3 E-01		12/14			4
								K-40	1.6 +-0.2 E 01		12/14			4
								CS-137	2.8 +-0.4 E-01		12/14			4

TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES

REPORT OF ANALYSIS

RUN DATE 07/21/94

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 1
5-2005		06/30/94	08/02/94	

MICHAEL J ELLIOT ENVIRON. MGR
TEXAS INSTRUMENTS INC
ENVIRONMENTAL SAFETY & HEALTH DEPT
34 FOREST STREET BLDG 10
ATTLEBORO MA 02703-2401

SOIL

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NBR	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-R U/D *	MID-COUNT TIME DATE	MID-COUNT TIME	VOLUME - UNITS ASH-UNIT-R *	LAB.
94777	TI05555 09200230		05/20				CS-137	L.T. S. E-02		07/06			4
							U-235	3.97+-0.46E 01		07/06			4
							TH-234	4.65+-0.60E 01		07/06			4
							PB-214	6.78+-0.97E-01		07/06			4
							BI-214	9.51+-0.63E-01		07/06			4
							AC-228	8.47+-1.49E-01		07/06			4
							PB-212	9.06+-0.66E-01		07/06			4
							TL-208	2.22+-0.44E-01		07/06			4
							K-40	1.32+-0.13E 00		07/06			4
94778	TI05555 05230241		05/23				CS-137	7.09+-2.46E-02		07/07			4
							U-235	7.79+-1.88E-01		07/07			4
							TH-234	9.05+-1.60E 00		07/07			4
							PB-214	5.63+-0.64E-01		07/07			4
							BI-214	5.99+-0.50E-01		07/07			4
							AC-228	6.98+-1.20E-01		07/07			4
							PB-212	5.75+-0.90E-01		07/07			4
							TL-208	2.92+-0.30E-01		07/07			4
							K-40	1.70+-0.18E 01		07/07			4
94779	TI05555 05230243		05/23				CS-137	4.48+-2.15E-02		07/07			4
							U-235	3.93+-1.36E-01		07/07			4
							TH-234	3.47+-0.46E 00		07/07			4
							PB-214	5.01+-0.50E-01		07/07			4
							BI-214	4.32+-0.44E-01		07/07			4
							AC-228	7.05+-0.93E-01		07/07			4
							PB-212	5.95+-0.68E-01		07/07			4
							TL-208	2.20+-0.25E-01		07/07			4
							K-40	1.77+-0.18E 01		07/07			4

TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES

REPORT OF ANALYSIS — RUN DATE 07/21/94

WORK ORDER NUMBER: — CUSTOMER P.O. NUMBER: — DATE RECEIVED: — DELIVERY DATE: — PAGE 2

MICHAEL J ELLIOT ENVIRON. MGR
TEXAS INSTRUMENTS INC
ENVIRONMENTAL SAFETY & HEALTH DEPT
34 FOREST STREET MS 16
ATTLEBORO MA 02703-2401

3-2065 — 06/30/94 — 06/02/94

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TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	MDCL-UNIT-S U/A *	AID-COUNT TIME DATE	AID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-S *	LAB.
54780	T1055SS 05230249		05/23				CS-137	1.95+-0.90E-01		07/07			4
							U-235	5.10+-1.72E-01		07/07			4
							TH-234	1.73+-0.13E 01		07/07			4
							PB-214	6.19+-0.62E-01		07/07			4
							BI-214	5.40+-0.54E-01		07/07			4
							AC-228	9.60+-1.23E-01		07/07			4
							PB-212	7.71+-0.77E-01		07/07			4
							TL-208	2.92+-0.31E-01		07/07			4
							K-40	1.72+-0.17E 01		07/07			4
54781	T1055SS 05170159		05/17				CS-137	L.T. 3. E-02		07/07			4
							U-235	4.97+-1.78E-01		07/07			4
							TH-234	2.44+-0.55E 00		07/07			4
							PB-214	7.82+-0.78E-01		07/07			4
							BI-214	5.47+-0.62E-01		07/07			4
							AC-228	1.18+-0.14E 00		07/07			4
							PB-212	8.23+-0.82E-01		07/07			4
							TL-208	3.00+-0.35E-01		07/07			4
							K-40	1.84+-0.18E 01		07/07			4
54782	T105*GS 0606580		06/06				CS-137	L.T. 4. E-02		07/07			4
							U-235	9.67+-1.91E-01		07/07			4
							TH-234	3.34+-0.59E 00		07/07			4
							PB-214	5.64+-0.68E-01		07/07			4
							BI-214	5.67+-0.57E-01		07/07			4
							AC-228	9.34+-1.17E-01		07/07			4
							PB-212	8.69+-0.89E-01		07/07			4
							TL-208	2.49+-0.31E-01		07/07			4
							K-40	2.04+-0.20E 01		07/07			4

TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES

REPORT OF ANALYSIS — RUN DATE 07/21/94

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE
3-2065		06/30/94	08/02/94	3

MICHAEL J ELLIOT ENVIRON. MGR
TEXAS INSTRUMENTS INC
ENVIRONMENTAL SAFETY & HEALTH DEPT
34 FOREST STREET MLOC 18
ATTLEBORO MA 02703-2401

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-R U/R #	RED-COUNT TIME DATE	RED-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-R #	LAB.
94783	TIDSF6S 0526669		05/26				CS-137	L.T. 4. E 00		07/07			6
							U-235	5.40+-0.35E 02		07/07			6
							TH-234	2.78+-0.29E 00		07/07			6
							PB-214	L.T. 2. E 01		07/07			6
							BI-214	L.T. 7. E 00		07/07			6
							AC-228	L.T. 1. E 01		07/07			6
							PB-212	L.T. 7. E 00		07/07			6
							TL-208	L.T. 4. E 00		07/07			6
							K-40	L.T. 2. E 01		07/07			6

LAST PAGE OF REPORT

APPROVED BY J. GUENTHER 07/21/94

SEND 1 COPIES TO TE9405 MICHAEL J ELLIOT ENVIRON. MGR

2 - GAS LAB. 3 - RADIO CHEMISTRY LAB. 4 - GE(LI) GAMMA SPEC LAB. 5 - TRITIUM GAS/L.S. LAB. 6 - ALPHA SPEC LAB.

TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES

REPORT OF ANALYSIS

RUN DATE 07/21/94

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE
3-2069		06/30/94	07/13/94	1

MICHAEL J ELLIOT ENVIRON. MGR
TEXAS INSTRUMENTS INC
ENVIRONMENTAL SAFETY & HEALTH DEPT
34 FOREST STREET ALOG 30
ATTLEBORO MA 02703-2401

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M ±	RTO-COUNT TIME DATE	RTO-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% ±	LAB.
54777	TIB5SS1 05280230		05/28				U-234	5.2 +-0.4 E 02		07/19			6
							TH-230	4.5 +-1.7 E-01		07/13			6
							U-235	1.3 +-0.1 E 01		07/19			6
							U-238	6.2 +-0.8 E 00		07/19			6
							TH-232	2.4 +-0.4 E 00		07/13			6
54782	TIB5FGS 0606500		06/06				U-234	4.6 +-0.3 E 01		07/12			6
							TH-230	4.5 +-1.8 E-01		07/13			6
							U-235	1.9 +-0.3 E 00		07/12			6
							U-238	7.8 +-0.6 E 00		07/12			6
							TH-232	3.2 +-1.6 E-01		07/13			6
54783	TIB5FGS 0526609		05/26				U-234	NOT ANALYZED					6
							TH-230	1.6 +-0.5 E 00		07/13			6
							U-235	NOT ANALYZED					6
							U-238	NOT ANALYZED					6
							TH-232	9.9 +-0.7 E 00		07/13			6

LAST PAGE OF REPORT

APPROVED BY J. GUENTHER 07/21/94

SEND 1 COPIES TO TEXAS MICHAEL J ELLIOT ENVIRON. MGR

2 - GAS LAB. 3 - RADIO CHEMISTRY LAB. 4 - GEILI GAMMA SPEC LAB. 5 - TRITIUM GAS/L.S. LAB. 6 - ALPHA SPEC LAB.

The uranium activity of Teledyne #54783 was too high for alpha spectroscopy analysis to be accurate.

TELEDYNE
BROWN ENGINEERING
Environmental Services

TELEDYNE BROWN ENGINEERING ENVIRONMENTAL SERVICES

INTERIM REPORT OF ANALYSIS

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED
3-0646		04/28/94

MICHAEL J ELLIOT ENVIRON. MGR
TRIAL INSTRUMENTS INC
[illegible] & HEALTH DEPT
[illegible] BLDG 18
ATTLEBORO MA 02703-2401

SOLIDS

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	MDA	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	[illegible]	NUCL-UNIT-S D/M	NID-COUNT DATE	NID-COUNT TIME
46947	SCRAP SW-10 3.0-4.0		03/24								
46948	SCRAP SW-11 0.0-2.0		03/24								
46949	SCRAP SW-10 1.0-2.0		03/24								
46950	SCRAP SW-11 2.0-3.0		03/24								

Gamma Analysis Results

4-27-94 118945
H. Jeter

OFFICIAL RECORD COPY MT. 10

RAD DATA REPORT (rad1)

Texas Instruments * Attelboro,Ma

Rad Samples (Project TEXAS-RAD)

Client Sample ID: SCRP-DAR1-1

Date Collected: 20-APR-94

Matrix: Soil

LAL Sample ID: L1800-1

Date Received: 29-APR-94

Login Number: L1800

Th-234	02-MAY-94	GAMMA SPEC	LAL-0044_0013	24.9	2.1	1.6	pCi/g
Ra-226(GAMMA)	02-MAY-94	GAMMA SPEC	LAL-0044_0013	4	4.9	1.4	pCi/g
Pb-214	02-MAY-94	GAMMA SPEC	LAL-0044_0013	0.492	0.06	0.053	pCi/g
Bi-214	02-MAY-94	GAMMA SPEC	LAL-0044_0013	0.387	0.067	0.063	pCi/g
U-235(GAMMA)	02-MAY-94	GAMMA SPEC	LAL-0044_0013	70.4	5	0.59	pCi/g
Ac-228	02-MAY-94	GAMMA SPEC	LAL-0044_0013	0.84	0.11	0.11	pCi/g
Pb-212	02-MAY-94	GAMMA SPEC	LAL-0044_0013	0.764	0.094	0.056	pCi/g
Tl-208	02-MAY-94	GAMMA SPEC	LAL-0044_0013	0.245	0.04	0.032	pCi/g
K-40	02-MAY-94	GAMMA SPEC	LAL-0044_0013	18.5	3	0.33	pCi/g
Co-57	02-MAY-94	GAMMA SPEC	LAL-0044_0013	-0.021	0.054	0.089	pCi/g
Eu-60	02-MAY-94	GAMMA SPEC	LAL-0044_0013	0.006	0.011	0.021	pCi/g
Cs-137	02-MAY-94	GAMMA SPEC	LAL-0044_0013	0.036	0.018	0.022	pCi/g
U-233/4	04-MAY-94	U-ISOTOPIC	LAL-0100_0012	3160	220	6.6	pCi/g
U-235	04-MAY-94	U-ISOTOPIC	LAL-0100_0012	102	24	4.9	pCi/g
U-238	04-MAY-94	U-ISOTOPIC	LAL-0100_0012	18	10	6.2	pCi/g

DRAFT

RAD DATA REPORT (ra01)

Texas Instruments * Attolboro,Ma

Rad Samples (Project TEXAS-RAD)

Client Sample ID: SCRP-SW-12-0.0-2.0 LAL Sample ID: L1719-1

Date Collected: 19-APR-94 Date Received: 20-APR-94

Matrix: Soil Login Number: L1719

Th-234	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.10	0.62	0.75		pCi/g
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
Pb-214	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.492	0.062	0.055		pCi/g
Bi-214	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.358	0.067	0.065		pCi/g
U-235(GAMMA)	28-APR-94	GAMMA SPEC	LAL-0064_7777	4.28	0.26	0.21		pCi/g
Ac-228	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.08	0.11	0.12		pCi/g
Pb-212	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.701	0.068	0.051		pCi/g
Tl-208	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.225	0.039	0.038		pCi/g
K-40	28-APR-94	GAMMA SPEC	LAL-0064_7777	16.6	1.8	0.87		pCi/g
Co-57	28-APR-94	GAMMA SPEC	LAL-0064_7777	-0.016	0.017	0.03		pCi/g
Co-60	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.021	0.013	0.021		pCi/g
Cs-137	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.336	0.047	0.026		pCi/g
Cs-134	28-APR-94	GAMMA SPEC	LAL-0064_7777	-0.0081	0.0079	0.023		pCi/g

Revised 5/3/94 mbf

DRAFT

RAD DATA REPORT (ra01)

Texas Instruments * Attelboro,Ma

Rad Samples (Project TEXAS-RAD)

Client Sample ID: SCRP-SW-2-COMP

Date Collected: 19-APR-94

Matrix: Soil

LAL Sample ID: L1719-2

Date Received: 20-APR-94

Login Number: L1719

Th-234	28-APR-94	GAMMA SPEC	LAL-0064_7777	89.6	6.6	2.7	pCi/g
[redacted]							
Pb-214	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.58	0.064	0.068	pCi/g
Bi-214	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.38	0.075	0.067	pCi/g
U-235(GAMMA)	28-APR-94	GAMMA SPEC	LAL-0064_7777	104.0	7.5	0.85	pCi/g
Ac-228	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.8	0.12	0.13	pCi/g
Pb-212	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.793	0.1	0.073	pCi/g
Tl-208	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.278	0.049	0.039	pCi/g
K-40	28-APR-94	GAMMA SPEC	LAL-0064_7777	17	1.9	0.31	pCi/g
Co-57	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.05	0.13	0.12	pCi/g
Co-60	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.016	0.017	0.03	pCi/g
Cs-137	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.641	0.082	0.036	pCi/g
Cs-134	28-APR-94	GAMMA SPEC	LAL-0064_7777	0.015	0.016	0.029	pCi/g

Revised 5/3/94 mcf

Attachment 3

Emergency Response and

Instructions to Drivers

Texas Instruments Incorporated
Emergency Response Procedures for Radioactive Material LSA

Scope:

This procedure is established to provide guidance in regards to emergency procedures in the transport radioactive material LSA.

Description:

This emergency response is appropriate for the following types of material:
RADIOACTIVE MATERIAL, LSA, N.O.S., UN 2912. DOT Response Guide 62.

Physical Nature of Material:

Soils and Debris

Emergency Phone Numbers:

Provided on Radioactive Shipment Record

Health Hazard:

The quantity of Radioactive Material present in this conveyance presents no significant hazard.

Fire or Explosion:

This material is not flammable or explosive

Immediate Actions:

Call the emergency response numbers.

Accident (No Fire)

If no spill or leak has occurred and packaging is intact, treat injured person(s) according to the injury. Take actions to prevent further accidents and secure the vehicle. Keep all unnecessary people at least 150 feet away.

Accident (Fire)

If fire is not associated with the load, extinguish as rapidly as possible.

If Fire is affecting the load, keep unnecessary people at least 150 ft upwind. Greater distances may be necessary for people upwind. Detain uninjured persons and equipment until arrival of qualified radiation authorities.

Spill or Leak

Isolate area and keep unnecessary people 150 feet upwind.

First Aid

Call emergency care. Advise medical personnel if persons were in contact with unpackaged material.

Texas Instruments Incorporated
Emergency Procedures for Limited Empty Packaging

Scope:

This procedure is established to provide guidance in regards to emergency procedures in the transport of Excepted Quantities of Radioactive Mat -ial as Empty Packaging.

Description:

This emergency response is appropriate for the following types of material: RADIOACTIVE MATERIAL, Empty Packaging, N.O.S., UN 2910. DOT Response Guide 61.

Physical Nature of Material:

Empty Packages.

Emergency Phone Numbers:

Attached

Health Hazard:

Minimal radiation hazard.

Fire or Explosion:

This material is not flammable or explosive

Immediate Actions:

Call the emergency response numbers.

Accident (No Fire)

If no spill or leak has occurred and packaging is intact, treat injured person(s) according to the injury. Take actions to prevent further accidents and secure the vehicle. Keep all unnecessary people at least 150 feet away and deny entry.

Accident (Fire)

If fire is not associated with the load, extinguish as rapidly as possible.

If Fire is affecting the load, keep unnecessary people at least 150 ft upwind. Detain uninjured persons and equipment until arrival of qualified radiation authorities.

Spill or Leak

Isolate area and keep unnecessary people 150 feet upwind.

First Aid

Call emergency care. Advise medical personnel if persons were in contact with unpackaged material.

Texas Instruments Incorporated
Emergency Response Information

Scope:

This procedure is established to provide guidance in regards to emergency procedures in the transport of LSA quantities of Radioactive Material.

Description:

This emergency response information is appropriate for the following types of material:
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY, n.o.s., UN 2912

Physical Nature of Material:

The material is principaly contaminated soil with a debris content of approximately 1%. The contaminate is Uranium oxide and metals.

Emergency Phone Numbers:

a. **PRINTED ON RADIOACTIVE SHIPMENT RECORD**
b. Additional response assistance and guidance is available from CHEMTREC

Health Hazards:

a. No external Radiation Hazard.
b. If package is intact, no significant internal radiation hazards.
c. If package is broken, leaking or otherwise questionable; assume the package and immediate areas are contaminated and a potential exists for internal contamination.

Fire or Explosion Potential:

The material is not flammable or explosive

Immediate Actions:

Call the emergency response numbers.

Accident (No Fire)

If no spill or leak has occurred, the risk of contamination is remote, treat injured person(s) according to the injury immediately. If packaging is intact and braced take actions to prevent further accidents and secure the vehicle.

Accident (Fire)

If fire is not located in cargo area, extinguish as rapidly as possible.

If fire is located in cargo area or threatens cargo area, keep unnecessary personnel 150 feet upwind. Isolate area and deny entry. If in doubt, Level B or A protective clothing will provide adequate protection. Use dry chemical, CO_2, water spray or Foam. Detain uninjured persons and equipment which may be potentially contaminated until arrival of qualified radiation authorities.

Spill or Leak:

Do not touch or move damaged packages or spilled material. Isolate the area and keep unnecessary people 150 feet upwind.

First Aid:

Call emergency care. Persons in contact with unpackaged material or in contact with smoke may be contaminated. If so, advise medical personnel that the injured person(s) may be contaminated with radioactive material.

Example Shipping Certification

Shipment Identification Number: TI-1100

Shipper

Texas Instruments Incorporated
34 Forest Street
North Attleboro, Massachusetts 02703

Contact Person:	Mike Elliott
Telephone (Normal Hours):	(508) 699-1809
Emergency Telephone (24 hours):	(508) 699-3800

Consignee

Envirocare of Utah, Inc.
Clive Disposal Site
Interstate 80, Exit 49
West of Salt Lake City, Utah

Telephone: (801)532-1330

Description

1. - Number of Packages: 4 Weight: 38,850 pounds
   - Radioactive Material, Low Specific Activity LSA, n.o.s. UN2912
   - DOT Emergency Guide # 62
   - Quantiies: Uranium = 4.93 mCi
   - Class 7
   - Form: Solid; Chemical form: UO_x and U metals
   - Label: Radioactive LSA
   - Exclusive Use Shipment.

2. - Number of Packages: 3 Weight: 1980 pounds
   - Radioactive Material, Excepted Package - Empty Packaging n.o.s, UN2910; No Label Required
   - DOT Emergency Guide # 61
   - Class 7
   - Description: Empty Packages

Carrier:

Kindrick Trucking
Rte 8, Box 342
Harriman, Tennesee 37748

Telephone: (615) 882-0457

Certifications:

a. This is to certify that the above named material are properly classified, described, packaged, marked and labeled, and labeled and are in proper condition for transportation according to applicable regulations of the Department of Transportation.

b. Received the property as described above in apparent good order, except as noted, marked, consigned and destined as indicated above with said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its place of delivery at said location.

Shipper: _____ Date: _____

Carrier: _____ Date: _____

_____ Date: _____

Instructions Regarding Controls for Shipments Consigned as Exclusive Use.

Definition of Exclusive Use

49 CFR 173.403(i)

"Exclusive Use" (as referred to in other regulations as "sole use" or "full load") means the sole use of a conveyance by a single consignor and for which all initial, intermediate, and final loading and unloading is carried out in accordance with the direction of the consignor or consignee. Any loading or unloading must be performed by personnel having radiological training and resources appropriate for safe handling of the consignment. Specific instructions for maintenance of exclusive use shipment controls must be issued in writing and included with the shipping paper information provided to the carrier by the consignor.

Responsibility

These written instructions are provided to the carrier named on the shipping papers for the referenced shipment and are to be maintained with said shipping papers. It is the carriers responsibility to that these instructions are conveyed to the driver(s) and administrative personnel, as appropriate, for the duration of the movement to the final destination.

Instructions/Requirements

1. Maintain exclusive use of this vehicle for the duration of the movement. No other freight is to be loaded with this shipment except as directed by the consignor.

2. All loading or unloading of freight in this shipment shall be done, or as directed by the consignor or consignee.

3. The shipper is to move this shipment without delay, but in accordance with the legal statues of jurisdiction.

4. The shipper is to take positive steps en-route and during necessary stops to segregate this shipment from other freight, buildings, and personnel.

5. The shipping documents contain information prescribed by DOT regulations for a shipment of radioactive material. These documents must accompany all carriers of this shipment.

6. Drivers shall inspect the loaded transport vehicle pursuant to:
    a. 49 CFR 392.7 Driver's Equipment Inspection,
    b. 49 CFR 392.8 Driver's Emergency Equipment Inspection,

c. 49 CFR 392.9 Driver's Inspection Load,
and verified compliance.

7. Proper, packaging,, marking, labeling, and shippers certification indicated on the shipping papers.

8. Vehicle is placarding is provided and affixed by the shipper. The carrier is responsible for replacing any placards that are lost or damaged.

9. Driver qualifications are to include hazardous material endorsement of the Commercial Drivers License (CDL) as required under Federal Motor Carrier Regulations (DOT).

10. Notification of delays.

When it is apparent that delays for any reason will delay delivery time significantly, advise Texas Instrument Incorporated of the new estimated time of arrival and the causes for the delay.

11. Inspection by Authorized Officials en Route.

This shipment is proceeding under the full compliance of all known regulations. If an inspection by authorized officials occurs, then this document and bill of lading should be presented for their inspection purposes and they are permitted access to the truck and its load for their inspection purposes. Under no conditions should anyone except the consignee be permitted to release any blocking or bracing, or open any container without written authorization from Texas Instruments Incorporated.

12. Emergencies

In the event of an emergency follow the emergency instructions provided.

October 12, 1992

Contingency Plan

Rail Transportation of Contaminated Soils with Debris

The following is a contingency plan for the rail transport of contaminated soils with debris from Texas Instruments Incorporated, Attleboro Massachusetts to EnviroCare of Utah, Clive, Utah.

I. Basic description and technical of hazardous materials involved in shipment:

The shipment includes soils and debris contaminated with radioactive material. The radioactive material involved is Uranium. Uranium, principally an alpha emitter, could pose a risk if inhaled. Uranium poses minimum risk from an external exposure standpoint.

Proper Shipping Name: Radioactive Material, Low Specific Activity, UN2912

II. Immediate Hazard to Health:

There is no immediate hazard to health.

III. Risk of Fire or Explosion:

None

IV. Immediate Precautions to be taken in the event of an accident or incident:

Control access to immediate area.

Avoid direct contact with material.

V. Immediate methods for handling fires:

Material is non-flammable. If involved in a fire, avoid direct contact with material or residue.

VI. Initial methods for handling spills or leaks in the absence of fire:

Control access to immediate area.

Avoid direct contact with material.

VII. Preliminary first aid measures:

Standard first aid practices should be employed. If there is direct contact with material, mild soap and water should be used to decontaminating (washing) the victim.

In the event of a life threatening situation, first aid takes precedence over decontamination of the victim.

In the event of transport of a victim to a hospital, the hospital should be notified that radioactive materials may be involved.

VII. Emergency contacts:

Texas Instruments	Mike Elliott	(508) 699-1809
	Frank Veale	(508) 699-3800
Texas Instruments Emergency Phone		(508) 699-1843
National Response Center		(800) 424-8802
Chem-Trec		(800) 424-9300

Appendix C

Soil Sample Radiological Anlaysis

Appendix C: Soil Sampling Results

Scope

This appendix presents soil sampling methodologies and results for the Metals Recovery Area remediation project.

Methods

Sample Collection

The types of soil samples collected consisted of subsurface soil samples and excavation floor soil samples. Subsurface soil samples were obtained using split spoon sampling methods. Sampling depths ranged from near surface to depths of fifteen feet with nominal one foot intervals. These subsurface samples were used for initial scoping and characterization data (see Drawing CPS-TI-0105C). The depth and extent of these sa ples was based in part on historical information obtained by Texas Instruments project management.

Final Survey Excavation floor soil samples were collected in a manner consistent with surface soil sampling as described within NUREG-CR5849. The locations for all confirmatory excavation floor soil samples are shown in Drawing CPS-TI-0105B.

Sample Preparation

All samples (split spoon samples and excavation floor samples) collected were nominally enough to fill a one liter container. The container was marked with respect to location, date and type of sample collected. These samples were than homogenized and an aliquot was taken for on-site analysis. The sample was then entered into the sampling log and assigned a unique archival number prior to being placed in on-site storage.

Sample Analysis

On-site analysis of soil samples was performed using the gross alpha counting technique. This methodology is described extensively within the following reports related to the Texas Instruments Incorporated Decommissioning Project: (1) Remediation of the Former Radioactive Waste Burial Site, Final Report, September 1993; (2) Supplement to the 1992 Remediation Plan, December 1994; and (3) Radiological Surveys of Open Land Areas, January 1995. The direct alpha counting results for the Systematic Sub-Surface Sampling Survey and the Final Survey are included within Attachment 1 and Attachment 2 of this appendix respectively.

In addition to the on-site analysis, 1% and 5% of archived confirmatory samples were analyzed by an independent laboratory using alpha spectroscopy and gamma spectroscopy respectively. These analyses were used in part for the overall quality assurance program. These results are presented within Attachment 3 and Attachment 4 of this appendix.

Results

The results presented in this appendix include all subsurface soil sampling results and final survey excavation floor soil samples. This data is presented in the following attachments: Attachment 1: Systematic Subsurface Soil Samples Direct Alpha Counting Results; Attachment 2: Final Survey Excavation Floor Soil Samples Direct Alpha Counting Results; Attachment 3: Alpha Spectroscopy Results; and Attachment 4: Gamma Spectroscopy Results.

It should be noted that the results presented within this appendix are individual soil sample results. The Grid Cell Averages, by which final radiological status is determined, are presented within Appendix D.

Attachment 1

Sub-Surface Soil Sample

Direct Alpha Counting Results

DOCUMENT PAGE(S) PULLED

SEE APERTURE CARD FILES

APERTURE CARD/PAPER COPY AVAILABLE THROUGH NRC FILE CENTER

NUMBER OF OVERSIZE PAGES FILMED ON APERTURE CARD(S) 1

ACCESSION NUMBERS OF OVERSIZE PAGES:

9709160168-02

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SCRP-1	11/6/93	38NX285W	0-3"	Not Analyzed
			3-6"	17388
			6-9"	Not Analyzed
			9-12"	Not Analyzed
SCRP 2	11/6/93	41NX288W	0-3"	7990
			3-6"	3342
			6-9"	Not Analyzed
			9-12"	Not Analyzed
SCRP-3	11/6/93	31NX290W	0-3"	Not Analyzed
			3-6"	400
			6-9"	Not Analyzed
			9-12"	214
SCRP-4	11/6/93	35NX286W	0-3"	8210
			3-6"	2740
			6-9"	Not Analyzed
			9-12"	241
SCRP-5	26-Mar	32NX285W	0-2'	421
			2-3'	81
SCRP-6	26-Mar	38NX287W	0-2'	291
			2-3'	284
			3-4'	450
			4-5'	120
			5-6'	19
SCRP-7A	26-Mar	40NX292W	0-2'	94
			2-3'	31
SCRP-8	26-Mar	28NX290W	0-2'	45
			2-3'	145
			3-4'	92
SCRP-9	26-Mar	38NX282W	0-2'	225
			2-3'	195
SCRP-10	26-Mar	45NX295W	0-2'	57
			1-2'	
			2-3'	39
			3-4'	31
SCRP-11	26-Mar	18NX272W	0-2	207
			2-3'	30

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SCRP-12	26-Mar	20NX269W	0-2'	225
			1-2'	
			2-3'	
			3-4'	
SCRP-13	26-Mar	18NX295W	0-2'	21
			1-2'	
			2-3'	19
			3-4'	
SCRP-14	26-Mar	10NX262W	0-2'	27
			1-2'	
			2-3'	36
			3-4'	
SCRP-15	26-Mar	15NX260W	0-2'	105
			1-2'	
			2-3'	
			3-4'	
SCRP-15A	26-Mar	12NX255W	0-1'	
			1-2'	
			2-3'	32
			3-4'	17
SCRP-16A	26-Mar	27NX295W	0-1'	10
			1-2'	21
			2-3'	
			3-4'	
SCRP-16	26-Mar	25NX290W	0-1'	R
			1-2'	R
			2-3'	R
			3-4'	R
SCRP-17	26-Mar	17NX287W	0-1'	12
			1-2'	22
			2-3'	29
			3-4'	
SCRP-18	26-Mar	15NX275W	0-1'	68
			1-2'	62
			2-3'	
			3-4'	

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SCRP-19	26-Mar	5NX242W	0-1'	369
			1-2'	1080
			2-3'	140
			3-4'	112
SCRP-20	26-Mar	3SX250W	0-1'	405
			1-2'	44
			2-3'	31
			3-4'	
SCRP-21	26-Mar	12SX250W	0-1'	28
			1-2'	32
SCRP-22	26-Mar	13SX245W	0-1'	31
			1-2'	216
			2-3'	352
SCRP-23	26-Mar	15SX251W	0-1'	16
			1-2'	31
SCRP-24	26-Mar	40NX286W	0-1'	1680
			1-2'	500
			2-3'	482
			3-4'	1540
			4-5'	228
			5-6'	266
SCRP-25	26-Mar	35NX282W	0-1'	581
			1-2'	96
			2-3'	58
			3-4'	341
			4-5'	254
SCRP-26	26-Mar	20SX241W	0-1'	386
SCRP-26A	26-Mar	16SX243W	1-2'	660
			2-3'	500
			3-4'	116
			4-5'	84

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-1	16-May	60 N X 90 W	0-1'	52
			1'-2'	24
			2'-3'	6
SS-2	16-May	35 N X 105 W	0-1'	58
			1'-2'	18
			2'-3'	
SS-3	16-May	15 N X 117 W	0-1'	10
			1'-2'	14
			2'-3'	
SS-4	16-May	5 S X 115 W	0-1'	80
			1'-2'	20
			2'-3'	22
SS-5	16-May	30 S X 110 W	0-1'	274
			1'-2'	8
			2'-3'	6
SS-6	16 May	55S X 95 W	0-1'	22
			1-2'	10
			2-3'	
SS-7	16-May	5 N X 10 W	0-1'	34
			1-2'	20
			2-3'	20
SS-8	16 May	30 S X 30 W	0-1'	140
			1-2'	NR
			2-3'	26
SS-9	16 May	50 S X 35 W	0-1'	20
			1-2'	18
			2-3'	8
SS 10	16-May	75 S X 50 W	0-1'	8
			1-2'	8
			2-3'	4
SS 11	16-May	20 S X 125 W	0-1'	26
			1-2'	8
			2-3'	12

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-12	16-May	45 S X 125 W	0-1'	60
			1-2'	2
			2-3'	6
SS-13	17-May	80 N X 110 W	0-1'	36
			1-2'	20
			2-3'	10
SS-14	17-May	60 N X 110 W	0-1'	42
			1-2'	10
			2-3'	
SS-15	17-May	22 N X 115 W	0-1'	
			1-2'	72
			2-3'	
SS-16	17-May	80 N X 122 W	0-1'	44
			1-2'	28
			2-3'	
SS-17	17-May	70 N X 120 W	0-1'	172
			1-2'	270
			2-3'	
SS-18	17-May	70 N X 132 W	0-1'	384
			1-2'	546
			2-3'	
SS 19	17-May	50 N X 117 W	0-1'	250
			1-2'	202
			2-3'	
SS-20	17-May	60 N X 132 W	0-1'	236
			1-2'	130
			2-3'	
SS-21	17-May	55 N X 140 W	0-1'	700
			1-2'	400
			2-3'	
SS-22	17-May	50 N X 145 W	0-1'	36
			1-2'	10
			2-3'	

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID #	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-23	17-May	35 N X 135 W	0-1'	24
			1-2'	10
			2-3'	
SS-24	17-May	3 N X 128 W	0-1'	26
			1-2'	20
			2-3'	
SS-25	17-May	20 S X 142 W	0-0.5'	22
			0.5-1'	24
			1-2'	10
SS-26	17-May	35 S X 152 W	0-1'	NR
			1-2'	40
			2-3'	
SS-27	17-May	55 S X 151 W	0-1'	70
			1-2'	10
			2-3'	
SS-28	18-May	55 S X 110 W	0-1'	12
			1-2'	NR
			2-3'	
SS-29	18-May	60 S X 118 W	0-1'	86
			1-2'	12
			2-3'	
SS-30	18-May	70 S X 128 W	0-1'	10
			1-2'	8
			2-3'	
SS-31	18-May	40 S X 162 W	0-1'	16
			1-2'	2
			2-3'	
SS-32	18-May	59 S X 150 W	0-1'	6
			1-2'	10
			2-3'	
SS-33	18-May	75 N X 145 W	0-1'	12
			1-2'	14
			2-3'	

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-34	18-May	185 N X 135 W	0-1'	20
			1-2'	10
			2-3'	
SS-35	18-May	68 N X 152 W	0-1'	14
			1-2'	10
			2-3'	
SS-36	18-May	63 N X 158 W	0-1'	8
			1-2'	16
			2-3'	
SS 37	18 May	95 N X 143 W	0-1'	32
			1-2'	20
			2 3'	
SS 38	18 May	85 N X 152 W	0-1'	24
			1-2'	18
			2-3'	
SS 39	18 May	77 N X 158 W	0-1'	74
			1-2'	16
			2-3'	
SS-40	18 May	70 N X 165 W	0 1'	18
			1-2'	16
			2-3'	
SS-41	19 May	72 N X 158 W	0-1'	10
			1 3'	8
			3-4.5'	12
SS-42	19-May	80 N X 152 W	0-2'	8
			2-4'	8
			4 6'	8
SS-43	19 May	87 N X 145 W	0-2'	8
			2-4'	12
			4-6'	10
SS-44	19-May	98 N X 135 W	0-2'	26
			2-4'	24
			4 5'	12

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-45	19-May	77 N X 30 E	0-1'	12
			1-2'	16
SS-45A	19-May	75 N X 40E	0-1'	20
			1-2'	12
			2-3'	10
SS-46	19-May	5 N X 30 E	0-1'	20
			1-2'	12
			2-3'	18
SS-47	19-May	50 S X 32 E	0-1'	84
			1-2'	18
			2-3'	24
SS-48	19-May	195 N X 30 W	0-1'	16
			1-2'	10
			2-3'	8
SS-49	19-May	180 N X 0	0-1'	14
			1-2'	12
			2-3'	10
SS-50	19-May	155 N X 35 E	0-1'	61
			1-2'	R
			2-3'	R
SS-50A	19-May	155 N X 35 E	0-1'	38
			1-2'	234
			2-3'	164
SS-51	19-May	135 N X 20 E	0-1'	314
			1-2'	102
			2-3'	
SS-52	19-May	140 N X 0	0-1'	10
			1-2'	20
			2-3'	
SS-53	19-May	120 N X 60 E	0-1'	94
			1-2'	10
			2-3'	
SS '	19-May	124 N X 55 E	0-1'	115
			1-2'	110

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-55	19-May	120 N X 30 E	0-6"	20
SS-56	19-May	100 N X 60 E	0-1'	234
			1-2'	3000
SS-57	19-May	122 N X 92 E	0-1'	12
			1-2'	25
SS-58	19-May	152 N X 61 E	0-1'	12
			1-2'	34
SS-59	19-May	179 N X 35 E	0-1'	18
			1-2'	32
SS-60	19-May	35 S X 25 E	0-1'	48
			1-2'	18
SS-61	19-May	50 S X 25 E	0-1'	60
			1-2'	84
SS-62	20-May	58 S X 30 E	0-1'	26
			1-2'	10
SS-63	20-May	45 S X 30 E	0-1'	44
			1-2'	76
SS-64	20-May	52 S X 35 E	0-1'	80
			1-2'	30
SS-65	23-May	40 S X 45 E	0-1'	50
			1-2'	26
SS-66	23-May	55 S X 45 E	0-1'	50
			1-2'	48
SS-67	23-May	69 S X 42 E	0-1'	22
			1-2'	18
SS-68	23-May	85 S X 35 E	0-1'	16
			1-2'	18
SS-69	23-May	50 S X 20 W	0-1'	42
			1-2'	18
SS-70	23-May	165 N X 120 W	0-1'	24
			1-2'	14

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-71	23-May	152 N X 100 W	0-1'	6
			1-2'	10
SS-72	23-May	145 N X 80 W	0-1'	92
			1-2'	174
SS-73	23-May	135 N X 55 W	0-1'	34
			1-2'	34
SS-74	24 May	150 N X 140 W	0-1'	74
			1-2'	53
			2-3'	26
SS 75	24-May	150 N X 150 W	0-1'	10
			1-2'	20
			2-3'	12
SS-76	24-May	32 S X 58 E	0-1'	38
			1-2'	12
SS 77	24-May	45 S X 55 E	0-1'	24
			1 2'	14
SS-78	24-May	62 S X 50 E	0-1'	16
			2'	24
SS 79	24 May	80 N X 70 E	0-1'	24
			1-2'	8
SS 80	24-May	88 N X 75 E	0-1'	72
			1-2'	40
SS 81	24 May	155 N X 22 W	0 1'	60
			1-2'	12
SS 82	24-May	175 N X 10 W	0-1'	22
			1-2'	28
SS-83	24-May	78 N X 82 E	0-1'	10
			1-2'	10
SS-84	24-May	85 N X 85 E	0-1'	20
			1-2'	16
SS-85	24-May	90 S X 75 W	0-1'	16
			1-2'	22

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-86	25-May	95 S X 75 W	0-1'	56
			1-2'	6
SS-87	25-May	152 N X 38 W	0-1'	98
			1-2'	20
SS-88	25-May	168 N X 30 W	0-1'	16
			1-2'	49
SS-89	25-May	110 S X 75 W	0-1'	13
			1-2'	7
SS-90	25-May	165 N X 45 W	0-1'	140
			1-2'	12
SS-91	25-May	150 N X 140 W	0-1'	6
			1-2'	18
SS-92	25-May	150 N X 150 W	0-1'	18
			1-2'	16
SS-93	2-Jun	150 N X 130 W	0-1'	15
			1-2'	18
SS-94	2-Jun	156 N X 135 W	0-1'	8
			1-2'	9
SS-95	2-Jun	160 N X 140 W	0-1'	13
			1-2'	7
SS-96	2-Jun	144 N X 170 W	0-1'	72
			1-2'	17
SS-97	2-Jun	155 N X 160 W	0-1'	19
			1-2'	19
SS-98	2-Jun	160 N X 150 W	0-1'	13
			1-2'	3
SS-99	2-Jun	65 N X 30 E	0-1'	9
			1-2'	13
SS-100	2-Jun	55 N X 30 E	0-1'	18
			1-2'	15

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-101	2-Jun	45 N X 30 E	0-1'	17
			1-2'	13
SS-102	2-Jun	35 N X 30 E	0-1'	7
			1-2'	12
SS-103	4-Jun	140 N X 175 W	0-1'	16
			1-2'	10
SS-104	4-Jun	145 N X 170 W	0-1'	60
			1-2'	10
SS-105	4-Jun	155 N X 168 W	0-1'	6
			1-2'	20
SS-106	4-Jun	155 N X 175 W	0-1'	12
			1-2'	20
SS-107	4-Jun	164 N X 160 W	0-1'	18
			1-2'	10
SS-108	4-Jun	142 N X 162 W	0-1'	14
			1-2'	20
SS-109	4-Jun	145 N X152 W	0-1'	116
			1-2'	18
SS-110	4-Jun	133 N X 152 W	0-1'	67
			1-2'	12
SS-111	4-Jun	130 N X 161 W	0-1'	10
			1-2'	10
SS-112	4-Jun	120 N X 150 W	0-1'	26
			1-2'	12
SS-113	8-Jul	30 S X 150 W	0-1'	
			1-2'	22
			2-3'	16
			3-4'	6
SS-114	8-Jul	30 S X 180 W	0-1'	460
			1-2'	10
			2-3'	22
			3-4'	12

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS 115	8-Jul	15 S X 165 W	0-1'	194
			1-2'	90
			2-3'	42
			3-4'	18
SS-116	8-Jul	0 N X 150 W	0-1'	70
			1-2'	10
			2-3'	
			3-4'	6
SS-117	8-Jul	0 N X 180 W	0-1'	208
			1-2'	74
			2-3'	56
			3-4'	
SS-118	8-Jul	15 N X 165 W	0-1'	220
			1-2'	112
			2-3'	112
			3-4'	126
SS-119	8-Jul	30 N X 150 W	0-1'	66
			1-2'	10
			2-3'	14
			3-4'	6
SS-120	9-Jul	30 N X 180 W	0-1'	79
			1-2'	96
			2-3'	
			3-4'	15
SS-121	9-Jul	15 N X 195 W	0-1'	158
			1-2'	
			2-3'	82
			3-4'	17
SS-122	9-Jul	30 N X 210 W	0-1'	307
			1-2'	149
			2-3'	18
			3-4'	
SS-123	9-Jul	45 N X 165 W	0-1'	82
			1-2'	
			2-3'	11
			3-4'	11

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-124	9-Jul	60 N X 180 W	0-1'	30
			1-2'	8
			2-3'	7
			3-4'	17
SS-125	9-Jul	45 N X 195 W	0-1'	163
			1-2'	33
			2-3'	10
			3-4'	63
SS-126	9-Jul	60 N X 210 W	0-1'	258
			1-2'	13
			2-3'	14
			3-4'	
SS-127	9-Jul	75 N X 195 W	0-1'	844
			1-2'	R
			2-3'	R
			3-4'	R
SS-128	9-Jul	90 N X 210 W	0-1'	34
			1-2'	16
			2-3'	12
			3-4'	16
SS-129	10-Jul	75 N X 225 W	0-1'	40
			1-2'	10
			2-3'	12
			3-4'	10
SS-130	10-Jul	60 N X 240 W	0-1'	13
			1-2'	10
			2-3'	14
			3-4'	13
SS-131	10-Jul	90 N X 240 W	0-1'	49
			1-2'	8
			2-3'	16
			3-4'	17
SS-132	10-Jul	45 S X 165 W	0-1'	25
			1-2'	8
			2-3'	
			3-4'	9

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-133	10-Jul	60 S X 180 W	0-1'	19
SS-134	10-Jul	90 S X 180 W	0-1'	19
			1-2'	13
SS-135	10-Jul	105 S X 165 W	0-1'	35
			1-2'	15
SS-136	10-Jul	90 S X 60 W	0-1'	20
			1-2'	10
			2-3'	10
			3-4'	R
SS-137	10-Jul	105 S X 75 W	0-1'	10
			1-2'	4
SS-138	11-Jul	120 S X 60 W	0-1'	32
			1-2'	16
SS-139	11-Jul	115 S X 90 W	0-1'	38
			1-2'	8
SS-140	11-Jul	115 S X 120 W	0-1'	20
			1-2'	18
SS-141	11-Jul	90 S X 120 W	0-1'	10
			1-2'	6
SS-142	11-Jul	75 S X 135 W	0-1'	22
			1-2'	12
SS-143	11-Jul	90 S X 150 W	0-1'	10
			1-2'	8
SS-144	11-Jul	60 S X 150 W	0-1'	1148
			1-2'	
SS-145	11-Jul	60 S X 120 W	0-1'	118
			1-2'	8
SS-146	11-Jul	75 S X 105 W	0-1'	6
			1-2'	12
SS-147	11-Jul	105 S X 105 W	0-1'	30
			1-2'	18

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-148	11-Jul	75 S X 90 W	0-1'	18
			1-2'	12
SS-149	11-Jul	120 S X 180 W	0-1'	22
			1-2'	R
SS-150	11-Jul	120 S X 150 W	0-1'	32
			1-2'	6
SS-151	11-Jul	150 S X 150 W	0-1'	82
			1-2'	22
SS-152	11-Jul	135 S X 135 W	0-1'	60
			1-2'	24
SS-153	12-Jul	120 S X 120 W	0-1'	20
			1-2'	22
SS-154	12-Jul	150 S X 120 W	0-1'	14
			1-2'	16
SS-155	12-Jul	146 S X 88 W	0-1'	42
			1-2'	14
SS-156	12-Jul	135 X S 105 W	0-1'	64
			1-2'	
SS-157	12-Jul	135 S X 75 W	0-1'	356
			1-2'	32
			0-1'R	350
SS 158	12-Jul	145 S X 60 W	0-1'	10
			1-2'	16
SS-159	12-Jul	145 S X 30 W	0-1'	28
			1-2'	6
SS-160	12-Jul	75 N X 160 W	0-1'	228
			1-2'	20
SS-161	12-Jul	90 N X 150 W	0-1'	22
			1-2'	12
SS-162	12-Jul	110 N X 150 W	0-1'	20
			1-2'	20

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-163	12-Jul	115 N X 195 W	0-1'	10
			1-2'	16
SS-164	13-Jul	105 N X 165 W	0-1'	14
			1-2'	22
SS-165	13-Jul	90 N X 180 W	0-1'	12
			1-2'	10
SS-166	13-Jul	105 N X 195 W	0-1'	14
			1-2'	8
SS-167	13-Jul	120 N X 45 W	0-1'	38
			1-2'	32
SS-168	13-Jul	105 S X 30 W	0-1'	262
			1-2'	340
SS-169	13-Jul	120 S X 15 W	0-1'	26
			1-2'	26
SS-170	13-Jul	0 X 135 S	0-1'	12
			1-2'	32
SS-171	13-Jul	90 S X 30 W	0-1'	62
			1-2'	24
SS-172	13 Jul	0 X 90 S	0-1'	250
			1-2'	178
SS-173	13-Jul	75 S X 15 W	0-1'	28
			1-2'	10
SS-174	13-Jul	75 S X 15 E	0-1'	34
			1-2'	12
SS-175	13-Jul	60 S X 0	0-1'	98
			1-2'	28
SS-176	13-Jul	60 S X 30 W	0-1'	10
			1-2'	12
SS-177	14-Jul	20 N X 120 W	0-1'	30
			1-2'	7

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-178	14-Jul	15 N X 135 W	0-1'	14
			1-2'	12
SS-179	14-Jul	35 S X 120 W	0-1'	66
			1-2'	14
SS-180	15-Jul	60 S X 30 E	0-1'	12
			1-2'	20
SS-181	15-Jul	45 S X 45 E	0-1'	54
			1-2'	22
SS-182	15-Jul	30 S X 60 E	0-1'	34
			1-2'	12
SS-183	15-Jul	15 S X 63 E	0-1'	10
			1-2'	30
SS-184	15-Jul	0 N X 90 E	0-1'	6
			1-2'	4
SS-185	15-Jul	30 N X 120 E	0-1'	14
			1-2'	10
SS-186	15-Jul	40 N X 130 E	0-1'	8
			1-2'	16
SS-187	15-Jul	15 N X 135 E	0-1'	10
			1-2'	18
SS-188	15-Jul	30 N X 150 E	0-1'	10
			1-2'	8
SS-189	15-Jul	0 N X 150 E	0-1'	8
			1-2'	6
			2-4'	10
SS-190	16-Jul	105 S X 45 E	0-1'	31
			1-2'	6
SS-191	16-Jul	120 S X 60 E	0-1'	10
			1-2'	18
SS-192	16-Jul	120 S X 30 E	0-1'	6
			1-2'	40

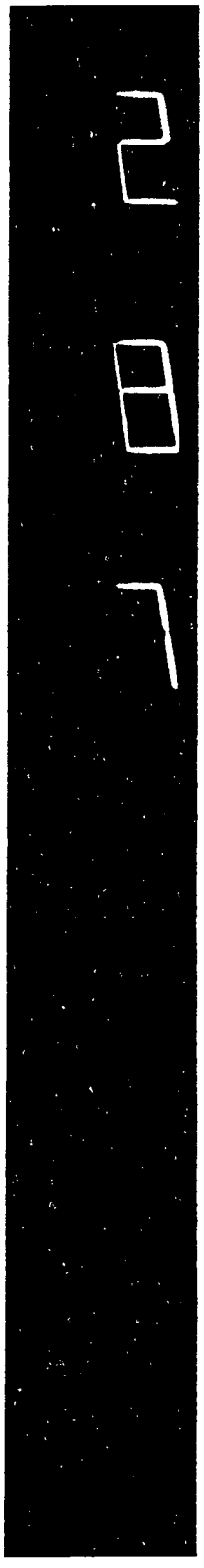
Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
SS-193	16-Jul	90 S X 30 E	0-1'	30
			1-2'	16
SS-194	16-Jul	0 N X 30 E	0-1'	20
			1-2'	18
SS-195	16-Jul	30 N X 30 E	0-1'	18
			1-2'	6
SS-196	16-Jul	45 N X 45 E	0-1'	16
			1-2'	8
SS-197	16-Jul	30 S X 30 E	0-1'	46
			1-2'	16
SS-198	16-Jul	60 N X 60 E	0-1'	10
			1-2'	6
SS-199	16-Jul	60 S X 60 E	0-1'	32
			1-2'	16
SS-200	16-Jul	15 S X 45 E	0-1'	12
			1-2'	8
SS-201	16-Jul	60 S X 60 E	0-1'	10
			1-2'	18
SS-202	16-Jul	75 S X 45 E	0-1'	18
			1-2'	2
SS-203	16-Jul	60 N X 150 E	0-1'	12
			1-2'	10
SS-204	16-Jul	185 N X 80 E	0-1'	112
			1-2'	88
SS-205	16-Jul	195 N X 72 E	0-1'	32
			1-2'	122
SS-206	16-Jul	212 N X 58 E	0-1'	54
			1-2'	154
207	17-Jul	95 N X 45 E	0-1'	14
			1'-2'	30

Sub-Surface Soil Sample Results
Metals Recovery Area Excavation

Spoon ID#	Date	Split Spoon Location	Depth (feet)	Alpha Screening Counts/10 minutes
208	17-Jul	180 N X 60 E	0-1'	17
			1'-2'	81
209	17-Jul	210 N X 30 E	0-1'	122
			1'-2'	146
210	17-Jul	120 N X 270 W	0-1'	6
			1'-2'	10
211	17-Jul	120 N X 240 W	0-1'	18
212	17-Jul	120 N X 210 W	0-1'	10
			1'-2'	10
213	17-Jul	150 N X 210 W	0-1'	10
			1'-2'	18
214	17-Jul	180 N X 180 W	0-1'	22
			1'-2'	16
215	17-Jul	180 N X 150 W	0-1	16
			1'-2'	10
216	17-Jul	180 N X 120 W	0-1'	16
			1'-2'	10
217	17-Jul	105 N X 255 W	0-1'	10
			1'-2'	14
218	17-Jul	105 N X 225 W	0-1'	20
			1'-2'	14
219	17-Jul	135 N X 195 W	0-1'	22
			1'-2'	12
220	18-Jul	165 N X 165 W	0-1'	10
			1'-2'	22
221	18-Jul	210 N X 90 W	0-1'	14
			1'-2'	10
222	18-Jul	210 N X 60 W	0-1'	38
			1'-2'	24

292	7/26	110 S X 100 W	0-1'	18
			1'-2'	16
293	27-Jul	110 S X 80 W	0-1'	84
			1'-2'	10
294	27-Jul	120 S X 75 W	0-1'	26
			1'-2'	32
295	27-Jul	110 S X 70 W	0-1'	14
			1'-2'	18
296	27-Jul	100 S X 70 W	0-1'	16
			1'-2'	12
297	27-Jul	90 S X 75 W	0-1'	12
			1'-2'	16
98*	27-Jul	105 S X 60 W	0-1'	184
			1'-2'	12
300	27-Jul	120 S X 60 W	0-1'	60
			1'-2'	30
301	27-Jul	135 S X 45 W	0-1'	34
			1'-2'	10
302	28-Jul	135 S X 60 W	0-1'	20
			1'-2'	10
303	28-Jul	130 S X 20 W	0-1'	22
			1'-2'	12
304	28-Jul	135 S X 30 W	0-1'	34
			1'-2'	6
305	28-Jul	130 S X 10 W	0-1'	66
			1'-2'	46
306	28-Jul	135 S X 0 W	0-1'	26
			1'-2'	56



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Final Survey Alpha Spectroscopy Results and Comparison with Direct Alpha Counting Results

Archive Number	Sample Location	U-234 pCi/g	U-235 pCi/g	U-238 pCi/g	U-Total pCi/g	Direct Alpha Total U-- pCi/g	Ratio U-234/U-235)
B5-FGC-0718-1693	60 S X 20 W	11.4347	0.4077	7.6712	19.5136	28	28.04684817
B5-FGC-0527-547	60 N X 40 W	1.5743	0.0676	0.6306	2.2725	12	23.28846154
B5-FGC-0801-1711	30 N X 15 E	0.9617	0.0766	0.8649	1.9032	18	12.55483029
B5-FGC-0609-689	142 N X 151 W	16.2446	0.6577	10.5045	28.0068	36	25.61137297
B5-FGC-0609-688	137 N X 158 W	1.2568	0.0428	1.054	2.3536	10	29.36448598
B5-FGC-0804-1730	80 S X 15 E	5.1802	0.2275	3.2635	8.6712	27	22.77010989
B5-FGC-0606-576	127 N X 102 W	11.241	0.3446	6.2275	17.8131	12	32.62042948
B5-FGC-0531-552	20 N X 50 W	0.1892	0.0135	0.1171	0.3198	10	14.01481481
B5-FGC-0614-1621	96 N X 101 W	12.3896	0.4234	1.5045	14.3175	21	29.26216344
B5-FGC-0920-3266	10 S X 190 W	74.3559	2.241	11.5856	88.1825	89	33.17978581
B5-FGS-0614-1631	120 N X 110 W	3.5721	0.1847	4.5563	8.3131	16	19.34001083
B5-FGC-0607-598	105 N X 72 W	23.8153	0.7095	1.7477	26.2725	20	33.56631431
						Average Ratio =	25.30163563

ISOTOPIC URANIUM RESULTS SUMMARY

Lab Name: Analytical Technologies, Inc. Date Collected: 07/18/94

Client Name: Creative Pollution Solution Date Analyzed: 04/26/95

Client Project ID : TI-QA-1094-001 Sample Matrix: Soil

Lab Workorder Number : 95-04-092 Count Duration: 400 Min.

Analyzed By : EB

Client Sample ID	Lab Sample ID	U-234 (pCi/g)	U-235 (pCi/g)	U-238 (pCi/g)
B5-FGC-0718-1693	04-092-01	11.4 ± 1.4	0.41 ± 0.08	7.67 ± 0.94
B5-FGC-0527-547	04-092-03	1.57 ± 0.22	0.07 ± 0.03	0.63 ± 0.11
17-SSS-1017-4958	04-092-06	24.6 ± 2.9	0.72 ± 0.12	8.4 ± 1.0
12-SSS-1030-5262	04-092-08	1.01 ± 0.16	0.03 ± 0.02	0.91 ± 0.14
B17-SUR-1112-SP1	04-092-09	138 ± 16	4.06 ± 0.54	22.5 ± 2.7
B17-SUR-1112-SP2	04-092-10	95 ± 11	2.74 ± 0.38	16.8 ± 2.0
B17-SUR-1112-SP3	04-092-11	43.4 ± 5.1	1.27 ± 0.20	5.95 ± 0.75
B5-FGC-0801-1711	04-092-12	0.96 ± 0.16	0.08 ± 0.03	0.86 ± 0.15
B5-FGC-0609-689	04-092-17	16.8 ± 2.0	0.66 ± 0.12	10.5 ± 1.3
B5-FGC-0609-688	04-092-22	1.26 ± 0.19	0.04 ± 0.02	1.05 ± 0.17
B5-FGC-0804-1730	04-092-24	5.18 ± 0.66	0.23 ± 0.06	3.26 ± 0.43
B5-FGC-0606-576	04-092-26	11.2 ± 1.4	0.34 ± 0.07	6.23 ± 0.77
B5-FGC-0531-552	04-092-30	0.19 ± 0.05	0.01 ± 0.01	0.12 ± 0.04
B5-FGC-0614-1621	04-092-32	12.4 ± 1.5	0.42 ± 0.09	1.50 ± 0.22
B5-FGC-0920-3266	04-092-34	74.4 ± 8.7	2.24 ± 0.32	11.6 ± 1.4
B5-FGS-0614-1631	04-092-38	3.57 ± 0.46	0.18 ± 0.05	4.56 ± 0.58
B5-FGC-0607-598	04-092-40	23.8 ± 2.8	0.71 ± 0.12	1.75 ± 0.24
Blank	04-092-B1	0.08 ± 0.03	< 0.02	0.09 ± 0.03
Duplicate	04-092-D1	11.1 ± 1.3	0.52 ± 0.10	7.30 ± 0.90
Duplicate	04-092-D2	95 ± 11	2.77 ± 0.38	17.0 ± 2.0

Reported Uncertainty is the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of TPU determinations.

These samples were prepared using ATI SOP721FC and ATI SOP718FC and analyzed using ATI SOP714FC.

< = Below Detection Limit; see method for DL determination

Remarks:

Sample 95-04-092-D1 is a duplicate of sample 95-04-092-01.
Sample 95-04-092-D2 is a duplicate of sample 95-04-092-10.

ISOTOPIC URANIUM RESULTS SUMMARY

Lab Name: Analytical Technologies, Inc. Date Collected: 10/17/94

Client Name: Creative Pollution Solution Date Analyzed: 04/27/95

Client Project ID : TI-QA-1094-001 Sample Matrix: Soil

Lab Workorder Number : 95-04-092 Count Duration: 400 Min.

Analyzed By : EB

Client Sample ID	Lab Sample ID	U-234 (pCi/g)	U-235 (pCi/g)	U-238 (pCi/g)
17-SSS-1017-4957	04-092-07	45.1 ± 5.3	1.63 ± 0.26	21.7 ± 2.6
Blank	04-092-B2	0.07 ± 0.03	< 0.02	0.06 ± 0.03

Reported Uncertainty is the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of TPU determinations.

These samples were prepared using ATI SOP721FC and ATI SOP718FC and analyzed using ATI SOP714FC.

< = Below Detection Limit; see method for DL determination

QUALITY ASSURANCE
DATA REVIEW

Date: 4·21·95

ATI Workorder: 95·04·059 Analysis: Bo U in soil

The data contained in the following report have been reviewed and approved by the personnel listed below:

Radiochemistry Instrumentation/Reporting

Radiochemistry Final Data Review

CERTIFICATION

Analytical Technologies, Inc. certifies that the analyses reported herein are true, complete, and correct within the limits of the methods employed.

A case narrative ✓ is __ is not included with this report.

Narrative Comments for ATI Work Order 95-04-059
Isotopic Uranium Analysis in Soil
04/21/95

ATI Work Order 95-04-059 was received on 04/07/95 and scheduled for isotopic uranium. The isotopic uranium analysis was completed 04/20/95.

The small amount of uranium in the soil blank sample (95-04-059-B1) is normal as the process blank is an actual reagent silica sand.

Daniel Anna
Radiochemistry Instrument Technician

Analytical Technologies, Inc

QUALITY ASSURANCE
DATA REVIEW

Date: 4-27-95

ATI Workorder: 95-04-092 Analysis: Gr. α in Soil

The data contained in the following report have been reviewed and approved by the personnel listed below

Radiochemistry Instrumentation/Reporting

Radiochemistry Final Data Review

CERTIFICATION

Analytical Technologies, Inc. certifies that the analyses reported herein are true, complete, and correct within the limits of the methods employed.

A case narrative ✓ is __ is not included with this report

Narrative Comments for ATI Work Order 95-04-092
Isotopic Uranium Analysis in Soil
04/27/95

ATI Work Order 95-04-092 was received on 04/12/95 and scheduled for isotopic uranium The isotopic uranium analysis was completed on 04/27/95

The small amount of uranium in the blank sample is normal, as the process blank is an actual reagent silica sand

Due to insufficient space in the summary page "Remarks" section, the client project ID was omitted The Full Client Project ID is "Texas Instruments -- TI-QA-1094-001"

Note that the Isotopic Uranium Results Summary page does not list the prefix "B" in the Client Sample ID (CSID) column for ATI ID numbers 95-04-092-06, -07, and -08 This is a result of software limitations which do not allow for more than 16 characters on CSID's (Note that the electronic disk deliverables for these samples contain the correct CSID's)

Sample B17-222-1017-4957 (ATI # 95-04-092-07) encountered difficulty during sample preparation and was terminated during the first run The sample was re-prepared with a duplicate of itself The duplicate failed to yield a chemical recovery, however the sample yielded sufficient chemical recovery to report All other quality control samples passed ATI requirements for the second analysis

ATI apologizes for any inconvenience this may have caused

John Mitchell
Radiochemistry Instrument Technician

Analytical Technologies, Inc. 725 Commerce Drive Fort Collins, Colorado 80524 (303) 490-1511

April 28, 1995

Mr. William Lorenzen
Creative Pollution Solutions, Inc.
5 Cleveland Road
Waltham, MA 02154

RE: ATI Workorder: 95-04-092
Client Project Name: Texas Instruments
Client Project Number: TI-QA-1094-001

Dear Mr. Lorenzen:

Fort[illegible] soil samples were received from Creative Pollution Solut[illegible]s, Inc. on April 12, 1995. The samples were scheduled for Gamma Spectrometry and Alpha Spectrometry analyses. The results for the Gamma Spectrometry were sent to you in a report dated April 21, 1995. The results for the Alpha Spectrometry are contained in the enclosed report. The Electronic Data Deliverables will be sent to you upon completion.

Please note that all results are reported on a dry weight basis.

Thank you for your confidence in Analytical Technologies, Inc. Should you have any questions, please call.

Sincerely,

Jim W. Barnaby

Jim Barnaby
Project Manager

JB/ll

Enclosures

ALPHA SPECTROMETRY QA RESULTS SUMMARY

Lab Name: Analytical Technologies, Inc.

Date Collected: 04/17/95

Client Name: Creative Pollution Solution

Date Analyzed : 04/20/95

Client Sample ID : Blank Spike

Sample Matrix : Soil

Lab Sample ID : 95-04-059-S1

Chemical Recovery : 0.815

Nuclide	Known Value	Rep't Value	Control Range	Flag
U-234	5.2 ± 1.3	5.2 ± 0.7	1.9- 6.5	Pass
U-238	5.2 ± 1.3	5.3 ± 1.3	3.9- 6.5	Pass

Reported Uncertainty is the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of TPU determinations.

ATI sets control limits for alpha spectroscopy measurements as follows:
Control Limits = Known (μ) ± 0.17 * μ, for μ > 0.1 pCi/l in water.
Control Limits = Known (μ) ± 0.25 * μ, for μ > 0.1 pCi/g in soil.

Acceptance Range for blank spike samples is the Known Value ± the control limits stated above. The reported value, without the uncertainty, should be compared to these ranges.

ALPHA SPECTROMETRY QA RESULTS SUMMARY

Lab Name: Analytical Technologies, Inc. Date Collected: 04/20/94

Client Name: Creative Pollution Solution Date Analyzed : 04/26/95

Client Sample ID : Blank Spike Sample Matrix : Soil

Lab Sample ID : 95-04-092-S1 Chemical Recovery : 0.820

Nuclide	Known Value	Rep't Value	Control Range	Flag
U-234	5.2 ± 1.3	5.8 ± 0.7	3.9- 6.5	Pass
U-238	5.2 ± 1.3	5.7 ± 1.3	3.9- 6.5	Pass

Reported Uncertainty is the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of TPU determinations.

ATI sets control limits for alpha spectroscopy measurements as follows :
Control Limits = Known (μ) ± 0.17 * μ, for μ > 0.1 pCi/l in water.
Control Limits = Known (μ) ± 0.25 * μ, for μ > 0.1 pCi/g in soil.

Acceptance Range for blank spike samples is the known value ± the control limits stated above. The reported value, without the uncertainty, would be compared to that range.

ALPHA SPECTROMETRY QA RESULTS SUMMARY

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Client Sample ID : Blank Spike

Lab Sample ID : 95-04-092-S2

Date Collected: 04/26/95

Date Analyzed : 04/27/95

Sample Matrix : Soil

Chemical Recovery : 0.775

Nuclide	Known Value	Rep't Value	Control Range	Flag
U-234	5.2 ± 1.3	5.1 ± 0.7	3.9- 6.5	Pass
U-238	5.2 ± 1.3	5.2 ± 1.3	3.9- 6.5	Pass

Reported Uncertainty is the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 7435PC for details of TPU determinations.

ATI sets control limits for alpha spectroscopy measurements as follows :
Control Limits = Known (μ) ± 0.17 * μ, for μ > 0.1 pCi/l in water.
Control Limits = Known (μ) ± 0.25 * μ, for μ > 0.1 pCi/g in soil.

Acceptance Range for blank spike samples is the known value ± the control limits stated above. The reported value, without the uncertainty, should be compared to that range.

ISOTOPIC URANIUM RESULTS SUMMARY

Lab Name: Analytical Technologies, Inc. Date Collected: 09/15/94

Client Name: Creative Pollution Solution Date Analyzed: 04/20/95

Client Project ID : Texas Instruments Sample Matrix: Soil

Lab Workorder Number : 95-04-059 Count Duration: 400 Min.

Analyzed By : DCA

Client Sample ID	Lab Sample ID	U-234 (pCi/g)	U-235 (pCi/g)	U-238 (pCi/g)
MP1-2-Split	04-059-15	6.25 ± 0.78	0.24 ± 0.06	7.51 ± 0.93
Rockpile-Split	04-059-16	10.2 ± 1.3	0.53 ± 0.10	11.9 ± 1.4
138N-113E-Split	04-059-18	4.45 ± 0.57	0.22 ± 0.07	6.8 ± 1.1
134N-118E-Split	04-059-20	1.56 ± 0.21	0.07 ± 0.04	2.15 ± 0.31
MP4-Split	04-059-21	2.00 ± 0.28	0.13 ± 0.04	3.23 ± 0.42
Blank	04-059-B1	0.07 ± 0.03	< 0.01	0.07 ± 0.03
Duplicate	04-059-D1	5.70 ± 0.72	0.21 ± 0.05	7.32 ± 0.90

Reported Uncertainty is the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743PC for details of TPU determinations.

These samples were prepared using ATI SOP 713PC and ATI SOP 738PC and analyzed using ATI SOP 714PC.

< = Below Detection Limit; see method for DL determination

Remarks:

Sample 95-04-059-D1 is a duplicate of sample 95-04-059-15.
Full Client Project ID is Texas Instruments - TI QA 1094-001.

Attachment 4

Gamma Spectroscopy Results

Final Survey Gamma Spectroscopy Results

CLIENT ID	U-235 pCi/g	U-238 pCi/g	U-234 (Ass. Ratio 25.3)	Total U pCi/g - projected)	Total U Direct Alpha
B5-FGC-0718-1693	1.02	<6.05	25.806	<32.88	28
B5-FGC-0614-1619	1 32	<4.58	33.396	<39 30	34
B5-FGC-0527-547	<0.423	<12.7			12
B5-FGC-0810-1785	<0.177	<4.05			18
B5-FGC-0608-684	<0 095	<3.52			18
B5-FGC-0801-1711	<0.149	<3.48			18
B5-FGC-0610-623	<0 178	<5.36			18
B5-FGC-0614-1620	0.525	<5.75	13.2825	<19.55	90
B5-FGC-0606-584	<0.167	<4.57			10
B5-FGC-0606-577	<0.149	<3 75			17
B5-FGC-0609-689	0 682	<4 07	17.2546	<22.01	36
B5-FGC-0527-539	<0.186	<4 11			12
B5-FGC-0525-651	<0.179	<3.79			26
B5-FGC-0610-628	1 31	<5 10	33.143	<39.55	24
B5-FGC-0606-574	1.39	<9.44	35.167	<46	24
B5-FGC-0609-688	<0 137	<3.74			10
B5-FGC-0801-1705	<0.165	<3 02			14
B5-FGC-0804-1730	<0.131	4.64			27
B5-FGC-0603-619	0.5	<3.42	12.65	<16.57	29
B5-FGC-0606-576	0 86	<5.46	21 758	<28.08	12
B5-FGC-0614-1613	<0.187	<4.79			10
B5-FGC-0801-1709	<0.174	<4.36			13
B5-FGC-0802-1716	<0.189	<4.78			8
B5-FGC-0531-552	< 369	<6.59			10
B5-FGC-0702-1669	< 360	<10.5			9
B5-FGC-0614-1621	0.445	<2 8	11 2585	<14.5	21
B5-FGC-0614-1627	<0 136	<2 17			38
B5-FGC-0920-3266	2.53	11.8	64.009	78.339	89
B5-FGC-0607-594	<0 153	<3.44			10
B5-FGC-0527-540	1.03	12	26 059	39.089	28
B5-FGC-0804-1742	<0.163	<3.5			20
B5-FGS-0614-1631	<0 100	<3.29			16
B5-FGC-0603-618	<0.066	<1 89			18
B5-FGC-0607-598	<0 172	<2 83			20
B5-FGC 0603-615	<0.147	<3.92			22
B5-FGC-0428-3262	0.656	<3 42	16 5968	<20.67	26
B5-FGC-0428-3264	0 644	<3.74	16.2932	<20.68	40
B5-FGC-0429-3263	2.55	<5.52	64.515	<72.6	88
B5-FGC 0429-3261	< 262	<7.00			54
B5-FGC-0429-3256	< 460	<9.51			36
B5-FGC-0429-3258	< 292	<5.62			22
B5-FGC-0607-590	0.404	10.4	10.2212	21.0252	33
B5-FGC-0607-592	<0.155	<2.66			10
B5-FGC-0527-531	<0.242	<5.29			18
B5-FGC-0606-575	<0 089	<3.14			14
B5-FGC-0524-646	0 303	<5.52	7.6659	<13.49	26

Final Survey Gamma Spectroscopy Results

CLIENT ID	U-235 pCi/g	U-238 pCi/g	U-234 (Ass Ratio 25.3)	Total U pCi/g - projected)	Total U Direct Alpha
B5-FGC-0916-3267	1.21	<8.52	30.613	<40.34	43
B5-FGC-0607-596	<0.168	<3.46			10
B5-FGC-0527-544	<0.214	<5.12			15
B5-FGC-0802-1722	<0.019	<0.513			18
B5-FGC-0524-639	<0.168	<3.74			12
B5-FGC-0920-3265	1.04	<4.29	26.312	<31.64	42
B5-FGC-0607-602	<0.126	<2.58			10
B5-FGC-0527-512	<0.336	<9.32			14
B5-FGS-0610-622	0.476	<2.48	12.0428	<15	30

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-01

Client Sample ID: B5-FGC-0718-1693

Date Collected: 07/18/94 12:00

Date Analyzed: 04/19/95 10:03

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	1.02 ± 0.232	22.8
U-238	< 6.05	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0409201.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-D1

Client Sample ID: Duplicate

Date Collected: 07/18/94 12:00

Date Analyzed: 04/19/95 21:34

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	1.09 ± 0.212	19.5
U-238	8.39 ± 3.96	47.1

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

Remarks: Sample 95-04 092-D1 is a duplicate of 95-04-092-01.

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GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-02

Client Sample ID: B5-FGC-0614-1619

Date Collected: 06/14/94 12:00

Date Analyzed: 04/19/95 10:04

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	1.32 ± 0.250	18.9
U-238	< 4.58	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

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GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-03

Client Sample ID: B5-FGC-0527-547

Dat Collected: 05/27/94 12:00

Date Analyzed: 04/19/95 10:05

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.423	BDL
U-238	< 12.7	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0409203.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-04

Client Sample ID: B5-FGC-0810-1785

Date Collected: 08/10/94 12:00

Date Analyzed: 04/19/95 10:09

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.177	BDL
U-238	< 4.05	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743PC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0409204.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-05

Client Sample ID: B5-FGC-0608-684

Date Collected: 06/08/94 12:00

Date Analyzed: 04/19/95 10:14

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.095	BDL
U-238	< 3.52	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0409205.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-12

Client Sample ID: B5-FGC-0801-1711

Date Collected: 08/01/94 12:00

Date Analyzed: 04/19/95 13:29

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.149	BDL
U-238	< 3.48	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

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GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-13

Client Sample ID: B5-FGC-0610-623

Date Collected: 06/10/94 12:00

Date Analyzed: 04/19/95 13:29

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.178	BDL
U-238	< 5.36	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

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GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-14

Client Sample ID: B5-FGC-0614-1620

Date Collected: 06/14/94 12:00

Date Analyzed: 04/19/95 13:31

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	0.525 ± 0.251	47.9
U-238	< 5.75	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0409214.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-15

Client Sample ID: B5-FGC-0606-584

Date Collected: 06/06/94 12:00

Date Analyzed: 04/19/95 13:40

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.167	BDL
U-238	< 4.57	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0409215.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-D2

Client Sample ID: Duplicate

Date Collected: 06/06/94 12:00

Date Analyzed: 04/19/95 21:10

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.131	BDL
U-238	< 5.21	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Remarks: Sample 95-04-092-D2 is a duplicate of 95-04-092-15.

Data stored in file \gdr\prt\S04092D2.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-16

Client Sample ID: B5-FGC-0606-577

Date Collected: 06/06/94 12:00

Date Analyzed: 04/19/95 16:47

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.149	BDL
U-238	< 3.75	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0409216.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-17

Client Sample ID: B5-FGC-0609-689

Date Collected: 06/09/94 12:00

Date Analyzed: 04/19/95 16:48

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	0.682 ± 0.212	31.1
U-238	< 4.07	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit ; see method for DL determination

Data stored in file \gdr\pr...\S0409217.95P

c. Date Collected: 06/09/94 12:00

ion Date Analyzed: 04/19/95 17:00

Sample Matrix: Soil

Count Duration: 180 Min.

Lab Name: Analytical Technologies, Inc. Dat

Client Name: Creative Pollution Solution Dat

Lab Sample ID: 95-04-092-23 Sam

Client Sample ID: B5-FGC-0801-1705 Cou

i/gram)	% Uncertainty
	BDL
	BDL

Nuclide	Activity (pCi/gram)
U-235	< 0.165
U-238	< 3.02

ted Total Propagated Uncertainty (2σ).
TPU determination.

Reported Uncertainties are the Estimated Total
See ATI SOP 743.C for details of the TPU determ

od for DL determination

BDL = Below Detection Limit; see method for DL

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GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-40

Client Sample ID: B5-FGC-0607-598

Date Collected: 06/07/94 12:00

Date Analyzed: 04/20/95 08:55

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.172	BDL
U-238	< 2.83	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743PC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\B9409240.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-01

Client Sample ID: B5-FGC-0603-615

Date Collected: 06/03/94 12:00

Date Analyzed: 04/14/95 09:26

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.147	BDL
U-238	< 3.92	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0405901.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 04/28/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/14/95 09:36

Lab Sample ID: 95-04-059-02 Sample Matrix: Soil

Client Sample ID: B5-FGC-0428-3262 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	0.656 ± 0.168	25.5
U-238	< 3.42	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0405902.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 04/28/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 11:22

Lab Sample ID: 95-04-059-03 Sample Matrix: Soil

Client Sample ID: B5-FGC-0428-3264 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	0.644 ± 0.170	26.3
U-238	< 3.74	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0405903.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-06

Client Sample ID: B5-FGC-0429-3263

Date Collected: 04/29/94 12:00

Date Analyzed: 04/14/95 09:36

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	2.55 ± 0.335	13.2
U-238	< 5.52	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL - Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0405906.1 P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-D1

Client Sample ID: Duplicate

Date Collected: 04/29/94 12:00

Date Analyzed: 04/14/95 19:08

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	2.39 ± 0.316	13.2
U-238	< 5.51	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Remarks:

Sample 95-04-059-D1 is a duplicate of 95-04-059-06.

Data stored in file \gdr\prt\940590D1.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 04/29/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 11:24

Lab Sample ID: 95-04-059-09 Sample Matrix: Soil

Client Sample ID: B5-PGC-0429-3261 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.262	BDL
U-238	< 7.00	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (1σ). See ATI SOP 743PC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr prt\S0405909.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-10

Client Sample ID: B5-FGC-0429-3256

Date Collected: 04/29/94 12:00

Date Analyzed: 04/17/95 14:29

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.460	BDL
U-238	< 9.51	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr_prt\S0405910.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-11

Client Sample ID: B5-FGC-0429-3258

Date Collected: 04/29/94 12:00

Date Analyzed: 04/17/95 14:34

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/GRAMS)	% Uncertainty
U-235	< 0.292	BDL
U-238	< 5.62	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0405911.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 06/07/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 16:24

Lab Sample ID: 95-04-069-15 Sample Matrix: Soil

Client Sample ID: B5-FGC-0607-590 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	0.404 ± 0.118	29.2
U-238	10.4 ± 2.27	21.9

Reported Uncertainties are the Estimated Total Propagated Uncertainty (1σ).
See ATI SOP 743FC for details of the TPU determination.

Data stored in file \gdr\prt\S0406915.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 06/07/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 19:41

Lab Sample ID: 95-04-069-D2 Sample Matrix: Soil

Client Sample ID: Duplicate Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	0.346 ± 0.117	33.9
U-238	10.4 ± 2.46	23.7

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743PC for details of the TPU determination.

Remarks:

Sample 95-04-069-D2 is a duplicate of 95-04-069-15.

Data stored in file \gdr\prt\S04069D2.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-069-14

Client Sample ID: B5-FGC-0607-592

Date Collected: 06/07/94 12:00

Date Analyzed: 04/17/95 16:24

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.155	BDL
U-238	< 2.66	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ).
See ATI SOP 743FC for details of the TPU determination.

BDL - Below Detection Limit; see method for DL determination

Data stored in file \gdr\pr\S0406914.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 05/27/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 16:23

Lab Sample ID: 95-04-069-13 Sample Matrix: Soil

Client Sample ID: B5-FGC-0527-531 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.242	BDL
U-238	< 5.29	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination.

Data stored in file \gdr\prt\S0406913.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 06/06/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 16:21

Lab Sample ID: 95-04-069-12 Sample Matrix: Soil

Client Sample ID: B5-FGC-0606-575 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.089	BDL
U-238	< 3.14	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406912.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-069-11

Client Sample ID: B5-FGC-0524-646

Date Collected: 05/24/94 12:00

Date Analyzed: 04/17/95 19:38

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	0.303 ± 0.182	60.2
U-238	< 5.52	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406911.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 09/16/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 18:59

Lab Sample ID: 95-04-069-10 Sample Matrix: Soil

Client Sample ID: B5-FGC-0916-3267 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	1.21 ± 0.378	31.3
U-238	< 8.52	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406910.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-069-09

Client Sample ID: B5-FGC-0607-596

Date Collected: 06/07/94 12:00

Date Analyzed: 04/17/95 19:32

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.168	BDL
U-238	< 3.46	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406909.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 05/27/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 16:12

Lab Sample ID: 95-04-069-07 Sample Matrix: Soil

Client Sample ID: B5-FGC-0527-544 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.214	BDL
U-238	< 5.12	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406907.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Date Collected: 08/02/94 12:00

Client Name: Creative Pollution Solution

Date Analyzed: 04/17/95 16:09

Lab Sample ID: 95-04-069-06

Sample Matrix: Soil

Client Sample ID: B5-FGC-0802-1722

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.019	BDL
U-238	< 0.513	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406906.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 05/24/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 16:07

Lab Sample ID: 95-04-069-05 Sample Matrix: Soil

Client Sample ID: B5-FGC-0524-639 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.168	BDL
U-238	< 3.74	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743TC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406905.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 09/20/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 19:17

Lab Sample ID: 95-04-069-04 Sample Matrix: Soil

Client Sample ID: B5-PGC-0920-3265 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	1.04 ± 0.191	18.3
U-238	< 4.29	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743PC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406904.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-069-D1

Client Sample ID: Duplicate

Date Collected: 09/20/94 12:00

Date Analyzed: 04/17/95 23:33

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	1.09 ± 0.200	18.4
U-238	< 3.40	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Remarks:

Sample 95-04-069-D1 is a duplicate of 95-04-069-04.

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GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 06/07/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/15/95 00:38

Lab Sample ID: 95-04-069-03 Sample Matrix: Soil

Client Sample ID: B5-FGC-0607-602 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.126	BDL
U-238	< 2.58	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406903.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 05/27/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/14/95 23:21

Lab Sample ID: 95-04-069-02 Sample Matrix: Soil

Client Sample ID: B5-FGC-0527-512 Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.336	BDL
U-238	< 9.32	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406902.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-069-01

Client Sample ID: B5-FGS-0610-622

Date Collected: 06/10/94 12:00

Date Analyzed: 04/14/95 20:15

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	0.476 ± 0.159	33.3
U-238	< 2.48	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0406901.95P

Analytical Technologies, Inc. 2475 Commerce Drive Fort Collins, Colorado 80524 (303) 490-1511

April 21, 1995

Mr. William Lorenzen
Creative Pollution Solutions, Inc.
5 Cleveland Road
Waltham, MA 02154

RE: ATI Workorder: 95-04-092
Client Project Name: Texas Instruments
Client Project Number: TI-QA-1094-001

Dear Mr. Lorenzen:

Forty soil samples were received from Creative Pollution Solutions, Inc. on April 12, 1995. The samples were scheduled for Gamma Spectrometry and alpha spectrometry analyses. The results for the Gamma Spectrometry are contained in the enclosed report. The results for the Alpha Spectrometry and Electronic Data Deliverables will be sent to you upon completion.

These results are being sent Federal Express due to difficulties encountered in the faxing process.

Please note that all results are reported on a dry weight basis.

Thank you for your confidence in Analytical Technologies, Inc. Should you have any questions, please call.

Sincerely,

Jim Barnaby
Project Manager

JB/ll

Analytical Technologies, Inc. 225 Commerce Drive Fort Collins, Colorado 80524 (303) 490-1511

April 25, 1995

Mr. William Lorenzen
Creative Pollution Solutions, Inc.
5 Cleveland Road
Waltham, MA 02154

RE: ATI Workorder: 95-04-069
Client Project Name: Texas Instruments
Client Project Number: TI-QA-1094-001

Dear Mr. Lorenzen:

Fifteen soil samples were received from Creative Pollution Solutions, Inc. on April 10, 1995. The samples was scheduled for Gamma Spectrometry analysis. The results and Electronic Data Deliverables for this analysis are contained in the enclosed report.

Please note that all results are reported on a dry weight basis.

Thank you for your confidence in Analytical Technologies, Inc. Should you have any questions, please call.

Sincerely,

Jim Barnaby
Project Manager

JB/ll

Enclosures

Analytical Technologies, Inc. 225 Commerce Drive Fort Collins, Colorado 80524 (303) 490-1511

April 25, 1995

Mr. William Lorenzen
Creative Pollution Solutions, Inc.
5 Cleveland Road
Waltham, MA 02154

RE: ATI Workorder: 95-04-059
Client Project Name: Texas Instruments
Client Project Number: TI-QA-1094-001

Dear Mr. Lorenzen:

Twenty-one soil samples were received from Creative Pollution Solutions, Inc. on April 7, 1995. The samples was scheduled for Gamma Spectrometry and Isotopic Uranium analyses. The results and Electronic Data Deliverables for these analyses are contained in the enclosed report.

Please note that all results are reported on a dry weight basis.

Thank you for your confidence in Analytical Technologies, Inc. Should you have any questions, please call.

Sincerely,

Jim Barnaby
Project Manager

JB/ll

Enclosures

Analytical Technologies, Inc. 225 Commerce Drive Fort Collins, Colorado 80524 (303) 490-1511

April 26, 1995

Mr. William Lorenzen
Creative Pollution Solutions, Inc.
5 Cleveland Road
Waltham, MA 02154

RE: ATI Workorder: 95-04-092
Client Project Name: Texas Instruments
Client Project Number: TI-QA-1094-001

Dear Mr. Lorenzen:

Forty soil samples were received from Creative Pollution Solutions, Inc. on April 12, 1995. The samples were scheduled for Gamma Spectrometry and Alpha Spectrometry analyses. The results for the Gamma Spectrometry were sent to you in a report dated April 21, 1995. The results for the Alpha Spectrometry and Electronic Data Deliverables will be sent to you upon completion.

Unfortunately the original report contained an error in the data collected for sample "B5-FGC-0614-1621. An amended data page is enclosed. ATI apologizes for any inconvenience this may have caused.

Thank you for your confidence in Analytical Technologies, Inc. Should you have any questions, please call.

Sincerely,

Jim Barnaby
Project Manager

JB/ll

Enclosures

Analytical Technologies, Inc

QUALITY ASSURANCE
DATA REVIEW

Date: 4/17/95

ATI Workorder: 95-04-059 Analysis: Ra-226

The data contained in the following report have been reviewed and approved by the personnel listed below:

Radiochemistry Instrumentation/Reporting

John Mitchell

Radiochemistry Final Data Review

CERTIFICATION

Analytical Technologies, Inc. certifies that the analyses reported herein are true, complete, and correct within the limits of the methods employed.

A case narrative ✓ is __ is not included with this report.

Narrative Comments for Work Order 95-04-059
Gamma Spectroscopy Analysis in Soil
04/17/95

Work Order 95-04-059 was received on 04/07/95 and scheduled gamma spectroscopy. The gamma analyses were completed on 04/17/95.

Samples B5-FGC-0429-3256 and B5-FGC-0429-3258 (ATI # 95-04-059-10 and 95-04-059-11) contained insufficient sample to accurately represent ATI current geometry standards. Samples measurements are slightly overestimated.

John Mitchell
Radiochemistry Instrument Technician

QUALITY ASSURANCE
DATA REVIEW

Date: 1-18-95

ATI Workorder: 95-01-064 Analysis: Y

The data contained in the following report have been reviewed and approved by the personnel listed below:

Radiochemistry Instrumentation/Reporting

Radiochemistry Final Data Review

CERTIFICATION

Analytical Technologies, Inc. certifies that the analyses reported herein are true, complete, and correct within the limits of the methods employed

A case narrative ✓ is __ is not included with this report.

Narrative Comments for Work Order 95-04-069
Gamma Spectroscopy Analysis in Soil
04/18/95

Work Order 95-04-069 was received on 04/10/95 and scheduled gamma spectroscopy. The gamma analyses were completed on 04/17/95.

Sample B5-FGC-0609-687 (ATI # 95-04-069-08) contained insufficient sample to accurately represent ATI current geometry standards. Sample measurements may be overestimated.

John Mitchell
Radiochemistry Instrument Technician

Analytical Technologies, Inc

QUALITY ASSURANCE
DATA REVIEW

Date: 04/20/95

ATI Workorder: 95-04-092 Analysis: Y in Soil

The data contained in the following report have been reviewed and approved by the personnel listed below:

Radiochemistry Instrumentation/Reporting

John Mitchell

Radiochemistry Final Data Review

CERTIFICATION

Analytical Technologies, Inc. certifies that the analyses reported herein are true, complete, and correct within the limits of the methods employed.

A case narrative __ is ✓ is not included with this report.

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-B1

Client Sample ID: Blank

Date Collected: 04/12/95 12:00

Date Analyzed: 04/14/95 19:03

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.104	BDL
U-238	< 2.67	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S04059B1.95P

GAMMA SPECTROMETRY QA RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-S1

Client Sample ID: Lab Control

Date Collected: 04/01/94 10:00

Date Analyzed : 04/14/95 19:05

Sample Matrix : Soil

Count Duration: 30 Min.

Nuclide	Reported Activity	Known Value	Percent Recovery	Flag
Am-241	499	5 1	99.7	Pass
Cd-109	703	7110	98.9	Pass
Co-57	151	157	96.0	Pass
Ce-139	217	209	104	Pass
Sn-113	492	456	108	Pass
Cs-137	204	205	99.4	Pass
Y-88	674	720	93.9	Pass
Co-60	302	313	96.3	Pass

ATI sets control limits for gamma spectroscopy as follows :
Control Limits = Known ± 15%

Data stored in file \gdr\prt\S04059S1.95P

GAMMA SPECTROMETRY QA RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-069-S1

Client Sample ID: Lab Control

Date Collected: 04/01/94 10:00

Date Analyzed : 04/14/95 20:54

Sample Matrix : Soil

Count Duration: 30 Min.

Nuclide	Reported Activity	Known Value	Percent Recovery	Flag
Am-241	971	1010	95.9	Pass
Cd-109	14490	14400	101	Pass
Co-57	304	317	96.0	Pass
Ce-139	395	421	93.8	Pass
Sn-113	950	920	103	Pass
Cs-137	418	414	101	Pass
Y 88	1361	1450	93.4	Pass
Co-60	601	632	95.1	Pass

ATI sets control limits for gamma spectroscopy as follows :
Control Limits = Known ± 10%

Data stored in file \gdr\prt\S04069S1.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-B2

Client Sample ID: Blank

Date Collected: 04/02/95 12:00

Date Analyzed: 04/17/95 13:46

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/GRAMS)	% Uncertainty
U-235	< 0.186	BDL
U-238	< 4.56	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2s). See ATI SOP 7439C for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S04059B2.05P

GAMMA SPECTROMETRY QA RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-S2

Client Sample ID: Lab Control

Date Collected: 04/01/94 10:00

Date Analyzed : 04/17/95 13:54

Sample Matrix : Soil

Count Duration: 30 Min.

Nuclide	Reported Activity	Known Value	Percent Recovery	Flag
Am-241	972	1010	96.0	Pass
Cd-109	14400	14400	100	Pass
Co-57	302	317	95.3	Pass
Ce-139	399	421	94.5	Pass
Sn-113	951	920	103	Pass
Cs-137	418	414	101	Pass
Y-88	1360	1450	93.8	Pass
Co-60	602	632	95.2	Pass

ATI sets control limits for gamma spectroscopy as follows :
Control Limits = Known ± 10%

Data stored in file \gdr\prt\S04059S2.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 04/12/95 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/17/95 19:40

Lab Sample ID: 95-04-069-B1 Sample Matrix: Soil

Client Sample ID: Blank Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.161	BDL
U-238	< 4.42	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S04069B1.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-B2

Client Sample ID: Blank

Date Collected: 04/17/95 12:00

Date Analyzed: 04/19/95 21:35

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.182	BDL
U-238	< 4.78	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S04092B2.95P

GAMMA SPECTROMETRY QA RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-S1

Client Sample ID: Lab Control

Date Collected: 04/01/94 10:00

Date Analyzed : 04/19/95 22:00

Sample Matrix : Soil

Count Duration: 30 Min.

Nuclide	Reported Activity	Known Value	Percent Recovery	Flag
Am-241	455	501	90.8	Pass
Cd-109	7610	7110	107	Pass
Co-57	149	157	95.1	Pass
Ce-139	203	209	97.2	Pass
Sn-113	474	456	104	Pass
Cs-137	202	205	98.4	Pass
Y-88	673	720	93.5	Pass
Co-60	300	313	95.9	Pass

All sets control limits for gamma spectroscopy as follows :
Control Limits = Known ± 10%

Data stored in file \gdr\prt\S04092S1.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-B1

Client Sample ID: Blank

Date Collected: 04/17/95 12:00

Date Analyzed: 04/20/95 10:49

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.100	BDL
U-238	< 2.54	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743PS for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr-prt\S04092B1.95P

GAMMA SPECTROMETRY QA RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-092-S2

Client Sample ID: Lab Control

Date Collected: 04/01/94 10:00

Date Analyzed : 04/20/95 12:47

Sample Matrix : Soil

Count Duration: 30 Min.

Nuclide	Reported Activity	Known Value	Percent Recovery	Flag
Am-241	965	1010	95.2	Pass
Cd-109	14800	14400	103	Pass
Co-57	309	317	97.4	Pass
Ce-139	420	421	99.7	Pass
Sn-113	940	920	102	Pass
Cs-137	407	414	98.2	Pass
Y-88	1400	1450	96.3	Pass
Co-60	616	632	97.5	Pass

All results control limits for gamma spectroscopy as follows :
Control Limits = Known ± 10%

Data stored in file \gdr prt\S04092S2.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-15

Client Sample ID: MP1-2-split

Date Collected: 09/15/94 12:00

Date Analyzed: 04/14/95 15:58

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	0.271 ± 0.088	32.6
U-238	< 2.37	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0405915.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 09/15/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/14/95 15:59

Lab Sample ID: 95-04-059-16 Sample Matrix: Soil

Client Sample ID: Rockpile Split Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	0.618 ± 0.140	22.6
U-238	8.94 ± 2.39	26.7

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ).
See ATI SOP 743FC for details of the TPU determination.

Data stored in file \gdr\prt\S0405916.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 08/03/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/14/95 16:54

Lab Sample ID: 95-04-059-18 Sample Matrix: Soil

Client Sample ID: 138N-113E-Split Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.138	BDL
U-238	< 2.68	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0405918.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc.

Client Name: Creative Pollution Solution

Lab Sample ID: 95-04-059-20

Client Sample ID: 134N-118E-split

Date Collected: 08/03/94 12:00

Date Analyzed: 04/14/95 19:40

Sample Matrix: Soil

Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.142	BDL
U-238	< 3.65	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (2σ). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\rt\S040520.95P

GAMMA SPECTROMETRY RESULTS SUMMARY

Method 901.1 (Modified)

Lab Name: Analytical Technologies, Inc. Date Collected: 08/03/94 12:00

Client Name: Creative Pollution Solution Date Analyzed: 04/14/95 23:19

Lab Sample ID: 95-04-059-21 Sample Matrix: Soil

Client Sample ID: MP4-split Count Duration: 180 Min.

Nuclide	Activity (pCi/gram)	% Uncertainty
U-235	< 0.119	BDL
U-238	< 3.29	BDL

Reported Uncertainties are the Estimated Total Propagated Uncertainty (Es). See ATI SOP 743FC for details of the TPU determination.

BDL = Below Detection Limit; see method for DL determination

Data stored in file \gdr\prt\S0405921.95P

Appendix D

Radiological Survey Results

Appendix D: Radiological Survey Results

Systematic Sub-Surface Soil Sampling Survey

Subsurface soil samples were obtained using methods described within Appendix C. These subsurface samples were used for initial scoping and characterization data (see Appendix C, Drawing CPS-TI-0105C). The depth and extent of these samples were based in part on historical information obtained by Texas Instruments project management. Sampling depths ranged from near surface to depths of fifteen feet with nominal one foot intervals. Sampling methods, preparation, and analysis methods are further detailed within Appendix C.

In the process of sub-surface soil sampling, those areas exceeding the criteria were excavated. For the grid cells where systematic sub-surface soil sampling was conducted, the grid cell averages were calculated using simple arithmetic averaging of the sub-surface soil sample data within each grid at each depth. The highest calculated grid cell average (from each depth) was recorded as the grid cell average and is presented in Drawing CPS-TI-0105G included within this appendix.

The systematic sub-surface soil sampling survey results are presented within Appendix D-1.

Final Status Radiological Survey

Introduction

The final survey consisted of walk over near surface surveys, floor soil samples from the excavated area, and static exposure rate measurements. The walk over surveys were conducted to verify that exposure rates were below the acceptable levels outlined in the option 1 criteria of the NRC branch technical position. The excavation floor soil samples were taken in accordance with the remediation plan to assure that grid cell averages meet the 30 pCi/g limit established in the option 1 criteria.

Walk Over Survey

CPS conducted an extensive walkover survey of the excavation area. This survey was conducted using a Ludlum model 3 survey meter with a Ludlum model 44-2 one inch x one inch sodium iodide scintillation detector in accordance with procedures outlined within the "Supplement to the 1992 Remediation Plan". All readings for this portion of the survey were taken within two inches of the surface. Radiation levels in the excavation area were found to be between one and one and one-half times background.

Static Exposure Rate Measurements

In addition to the sodium iodide walkover survey an exposure rate survey was conducted at appropriate grid intersections within the defined excavation area. These measurements were performed using a Victoreen 450 P High Pressure Ionization Chamber in accordance with procedures outlined within the "Supplement to the 1992 Remediation Plan" Nominal background as determined in previous reports (ORAU, 1983) was between 10-11 μR/hr (based on measurements with a pressurized ion chamber) According to Option 1 of the NRC branch technical position (BTP) an acceptable exposure level is 10 μR/hr above background In the conduct of these exposure rate surveys no measurements were found to exceed this criteria.

The results of the Exposure Rate Survey are included within Appendix D-3

Excavation Floor Soil Sampling

The soil sampling plan for the excavated area consisted of excavation floor soil samples collected in a manner consistent with surface soil sampling as described within NUREG/CR-5849 Samples were obtained in a grid pattern fashion with a minimum sampling density consistent with that specified in the 1992 Remediation Plan (5 samples per 30' x 30' grid) however, in most cases, the sampling density far exceeded this minimum (typically 10 foot on center within the grid representing an ideal sample density of 16 per grid) Information related to sample collection, preparation and analysis is presented within Appendix C

Grid cell averages were generated for the excavation area in order to allow for comparison against the NRC BTP Option 1 criteria of 30 pCi/g Total Uranium The grid cell averages were generated by simple arithmetic averaging The use of background soil concentrations for the data analysis were taken into account using the method as detailed in the "Supplement to the 1992 Remediation Plan" This method accounts for the over-response characteristics of the on-site gross alpha counting method for low soil concentrations of Uranium Specifically, on-site gross alpha counting data of 14 counts/10 minutes is attributable to natural background uranium concentrations of 1-2 pCi/g In comparing non-corrected data to corrected data for grid cell averaging, both methods were found to yield the same conclusions A map showing the excavation floor grid cell averages is included in this appendix (CPS-TI-0105H)

The results of the final survey excavation floor soil sample grid cell averages are included within Appendix D-2

Survey Results

The results presented in this appendix includes all systematic sub-surface soil sample grid cell averages, excavation floor soil sample grid cell averages, and exposure rate measurements performed on the floor of the excavation. The data is presented in the following sections: Appendix D-1: Systematic Sub-Surface Soil Sample Grid Cell Averages, Appendix D-2: Final Survey Excavation Floor Soil Sample Grid Cell Averages; Appendix D-3 Final Survey Exposure Rate Measurements; and Appendix D-4: Building 5 Grid System on Massachusetts Coordinate System

Appendix D-1

Systematic Sub-Surface Soil Sample

Grid Cell Averages

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Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
180Nx150W		B5-215	16	2					
		B5-216	16	2					
		B5-240	2	2					
		B5-98	2	2					
		B5-70	24	2					
		B5-95	2	2					
		B5-94	2	2					
		B5-93	15	18					
		B5-92	18	16					
		B5-75	2	20	2				
		B5-91	2	18					
		B5-74	74	53	26				
		AVERAGE	**16**	**12**	**14**				
150Nx180W		B5-103	16	2					
		B5-104	60	2					
		B5-96	72	17					
		B5-105	2	20					
		B5-92	18	16					
		B5-75	2	20	2				
		B5-109	116	18					
		B5-108	2	20					
		B5-110	67	2					
		B5-112	26	2					
		B5-111	2	2					
		AVERAGE	**35**	**11**	**2**				
150Nx150W		B5-75	2	20	2				
		B5-92	18	16					
		B5-91	2	18					
		B5-74	74	53	26				
		B5-93	15	18					
		B5-112	26	2					
		AVERAGE	**23**	**21**	**14**				
150Nx90W		B5-72	92	174					
		B5-233	24	42					
		AVERAGE	**58**	**108**					
120Nx270W		B5-210	2	2					
		B5-258	26	2					
		B5-257	2	2					
		B5-217	2	2					
		B5-131	49	2	16	17			
		B5-211	18						
		AVERAGE	**17**	**2**	**16**	**17**			

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
120Nx240W		B5-211	18						
		B5-212	2	2					
		B5-217	2	2					
		B5-131	49	2	16	17			
		B5-128	34	16	2	16			
		AVERAGE	**21**	**6**	**9**	**17**			
120Nx160W		B5-112	26	2					
		B5-162	20	20					
		B5-44	26	26	24	24	2		
		B5-161	22	2					
		B5-37	32	20					
		AVERAGE	**25**	**14**	**24**	**24**	**2**		
90Nx270W		B5-131	49	2	16	17			
EXTERIOR		B5-130	2	2	2	2			
		AVERAGE	**26**	**2**	**9**	**10**			
90Nx240W		B5-131	49	2	16	17			
		B5-130	2	2	2	2			
		B5-129	40	2	2	2			
		B5-128	34	16	2	16			
		B5-126	258	2	2				
		AVERAGE	**77**	**5**	**5**	**9**			
90Nx210W		B5-128	34	16	2	16			
		B5-165	2	2					
		B5-127	844						
		B5-344	696	696	2	2			
		B5-126	258	2	2				
		B5-124	30	2	2	17			
		AVERAGE	**311**	**144**	**2**	**12**			
90Nx180W		B5-165	2	2					
		B5-161	22	2					
		B5-38	24	18					
		B5-42	2	2	2	2	2		
		B5-39	74	16					
		B5-160	228	20					
		B5-41	2	2	2	2			
		B5-35	2	10					
		B5-36	2	16					
		B5-124	30	2	2	17			
		B5-40	18	16					
		AVERAGE	**37**	**10**	**2**	**7**	**2**		

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
90Nx150W		B5-161	22	2					
		B5-43	2	2	2	2	2		
		B5-33	2	2					
		B5-20	236	130					
		B5-18	384	546					
		B5-17	172	270					
		B5-16	44	28					
		AVERAGE	123	140	2	2	2		
90Nx120W		B5-17	172	270					
		B5-13	36	20	2				
		B5-14	42	2					
		B5-1	52	24	2				
		AVERAGE	76	79	2				
90Nx90W		B5-1	52	24	2				
		AVERAGE	52	24	2				
60Nx300W		B5-267	2	2					
INTERIOR		AVERAGE	2	2					
60Nx300W		SCRP-1	31						
EXTERIOR		SCRP-2	31						
		SCRP-9	225	225	195				
		SCRP-25	581	96	58	341	254		
		SCRP-24	1680	500	48	1540	266		
		SCRP-3	31						
		SCRP-5	421	421	81				
		SCRP-4	31						
		SCRP-6	291	291	284	450	120		
		SCRP-7A	94	94	31				
		SCRP-10	57	57	39	31			
		AVERAGE	316	241	105	591	213		
60Nx270W		B5-274	2	2					
		B5-269	38	18					
		B5-268	20	2					
		AVERAGE	20	7					
60Nx240W		B5-269	38	18					
INTERIOR		B5-319	2	2					
		AVERAGE	20	10					
60Nx240W		B5-126	258	2	2				
EXTERIOR		AVERAGE	258	2	2				

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
60Nx210W		B5-126	258	2	2				
		B5-124	30	2	2	17			
		B5-125	163	33	2	63			
		B5-342	273	273	74	74			
		B5-122	307	149	18				
		B5-120	79	96	15				
		AVERAGE	**185**	**93**	**19**	**51**			
60Nx180W		B5-124	30	2	2	17			
		B5-123	82		2	2			
		B5-343	86	86	20	20	23	23	2
		B5-120	79	96	15				
		B5-119	66	2	2	2			
		AVERAGE	**69**	**47**	**8**	**10**	**23**	**23**	**2**
60Nx150W		B5-20	236	130					
		B5-21	700	400					
		B5-22	36	2					
		B5-119	66	2	2	2			
		B5-23	24	2					
		AVERAGE	**212**	**107**	**2**	**2**			
60Nx120W		B5-1	52	24	2				
		B5-14	42	2					
		B5-19	250	202					
		B5-2	58	18					
		AVERAGE	**101**	**62**	**2**				
60Nx90W		B5-1	52	24	2				
		AVERAGE	**52**	**24**	**2**				
30Nx300W		B5-17	172	270					
		B5-18	384	546					
		B5-11	26	2	2				
		SCRP-16	2	21					
		SCRP-16A							
		SCRP-8	45	45	145	92			
		SCRP-13	21	21	19				
		AVERAGE	**108**	**151**	**55**	**92**			
30Nx270W		SCRP-12	225	225					
EXTERIOR		SCRP-15	105	105					
		SCRP-15A			32	17			
		SCRP-14	27	27	36				
		SCRP-19	369	1080	140	112			
		AVERAGE	**182**	**359**	**69**	**65**			

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
30Nx270W		B5-274	2	2					
INTERIOR		B5-269	38	18					
		AVERAGE	**20**	**10**					
30Nx240W		B5-269	38	18					
		B5-319	2	2					
		B5-320	16	2					
		B5-270	2	2					
		B5-327	2	2					
		B5-273	64	38					
		B5-322	17	2					
		B5-321	2	2					
		AVERAGE	**18**	**9**					
30Nx210W		B5-327	2	2					
INTERIOR		B5-271	34	304					
		B5-326	23	128					
		AVERAGE	**20**	**175**					
30Nx210W		B5-122	307	149	18				
EXTERIOR		B5-120	79	96	15				
		B5-121	158		82	17			
		B5-341	38	38	22	22	2	2	16
		AVERAGE	**146**	**94**	**34**	**20**	**2**	**2**	**16**
30Nx180W		B5-120	79	96	15				
		B5-119	66	2	2	2			
		B5-118	220	112	112	126			
		B5-340	96	96	17	17	37	20	18
		B5-116	70	2	2				
		B5-117	208	74	56				
		AVERAGE	**123**	**64**	**34**	**48**	**37**	**20**	**18**
30Nx150W		B5-119	66	2	2	2			
		B5-116	70	2	2				
		B5-25	24	2					
		B5-177	30	2					
		B5-178	2	2					
		B5-24	26	20					
		AVERAGE	**36**	**5**	**2**	**2**			

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
30Nx120W		B5-177	30	2					
		B5-3	2	2					
		B5-15		72					
		AVERAGE	**16**	**25**					
30Nx30W		B5-7	34	20	20				
		AVERAGE	**34**	**20**	**20**				
30Nx150E		B5-188	2	2					
		B5-241	36	36	2	2	2	2	2
		B5-189	2	2	2				
		B5-242	2	2	22	22	2	2	2
		AVERAGE	**11**	**11**	**9**	**12**	**2**	**2**	**2**
0x270W		SCRP-20	405	44	31				
		SCRP-21	28	32					
		SCRP-23	16	31					
		SCRP-22	31	216	352				
		SCRP-26	386						
		SCRP-26A		660	500	116	84		
		AVERAGE	**173**	**197**	**294**	**116**	**84**		
0x210W		B5-323	15	2					
INTERIOR		B5-326	23	128					
		B5-272	28	2					
		B5-325	22	19					
		B5-324	16	2					
		AVERAGE	**21**	**31**					
0x210W		B5-339	32	2					
EXTERIOR		B5-114	460	2	22	2			
		AVERAGE	**246**	**2**	**22**	**2**			
0x180W		B5-116	70	2		2			
		B5-117	208	74	56				
		B5-115	194	90	42	18			
		B5-328	90	2			16	2	2
		B5-113	22	16	2				
		B5-114	460	2	22	2			
		AVERAGE	**174**	**31**	**31**	**7**	**16**	**2**	**2**
0x150W		B5-116	70	2		2			
		B5-11	26	2	2				
		B5-113	22	16	2				
		AVERAGE	**39**	**7**	**2**	**2**			

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
0x120W		B5-4	80	20	22				
		B5-5	274	2	2				
		AVERAGE	177	11	12				
0x60W		B5-8	140		26				
		AVERAGE	140		26				
0x30W		B5-8	140		26				
		AVERAGE	140		26				
0x0		B5-194	20	18					
		B5-197	46	16					
		AVERAGE	33	17					
0x30E		B5-194	20	18					
		B5-200	2	2					
		B5-197	46	16					
		B5-182	34	2					
		AVERAGE	26	10					
0x60E		B5-184	2	2					
		B5-183	2	30					
		B5-182	34	2					
		AVERAGE	13	11					
30Sx210W		B5-339	32	2					
		B5-114	460	2	22	2			
		B5-334	2	2					
		B5-333	26	2					
		B5-133	19						
		AVERAGE	108	2	22	2			
30Sx180W		B5-114	460	2	22	2			
		B5-113		22	16	2			
		B5-26		40					
		B5-31	16	2					
		B5-132	25	2		2			
		B5-133	19						
		B5-27	70	2					
		B5-32	2	2					
		B5-144	1148						
		AVERAGE	249	10	19	2			

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
30Sx150W		B5-113		22	16	2			
		B5-179	66	14					
		B5-12	60	2	2				
		B5-145	118	2					
		B5-32	2	2					
		B5-144	1148						
		AVERAGE	279	8	9	2			
30Sx120W		B5-5	274	2	2				
		B5-179	66	2					
		B5-145	118	2					
		B5-29	86	2					
		B5-28	2						
		B5-6	22	2					
		AVERAGE	95	2	2				
30Sx60W		B5-9	20	18	2				
		B5-176	2	2					
		B5-8	140		26				
		AVERAGE	54	10	14				
30Sx30W		B5-8	140		26				
		B5-176	2	2					
		B5-69	42	18					
		B5-175	98	28					
		AVERAGE	71	16	26				
30Sx0		B5-175	98	28					
		B5-197	46	16					
		B5-60	48	18					
		B5-63	44	76					
		B5-61	60	84					
		B5-62	26	2					
		B5-100	18	15					
		AVERAGE	49	34					

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-5'	5'-8'	8'-10'
30Sx30E		B5-197	46	16					
		B5-182	34	2					
		B5-76	38	2					
		B5-65	50	26					
		B5-181	54	22					
		B5-77	24	2					
		B5-63	44	76					
		B5-47	84	18	24				
		B5-64	80	30					
		B5-66	50	48					
		B5-199	32	16					
		B5-100	18	15					
		B5-62	26	2					
		AVERAGE	45	21	24				
60Sx180W		B5-133	19						
		B5-134	19	2					
		B5-313	2	16					
		B5-143	2	2					
		B5-144	1148						
		AVERAGE	238	7					
60Sx150W		B5-144	1148						
		B5-143	2	2					
		B5-145	118	2					
		B5-275	20	20					
		B5-141	2	2					
		B5-30	2	2					
		AVERAGE	215	6					
60Sx120W		B5-145	118	2					
		B5-29	86	2					
		B5-148	18	2					
		B5-146	2	2					
		B5-289	20	22					
		B5-141	2	2					
		AVERAGE	41	5					
60Sx60W		B5-176	2	2					
		B5-171	62	24					
		B5-136	20	2	2				
		B5-10	2	2	2				
		AVERAGE	22	8	2				

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
60Sx30W		B5-176	2	2					
		B5-171	62	24					
		B5-173	28	2					
		B5-175	98	28					
		B5-172	250	178					
		AVERAGE	88	47					
60Sx0		B5-175	98	28					
		B5-172	250	178					
		B5-174	34	2					
		B5-100	18	15					
		B5-193	30	16					
		AVERAGE	86	48					
60Sx30E		B5-100	18	15					
		B5-78	16	24					
		B5-199	32	16					
		B5-67	22	18					
		B5-202	18	2					
		B5-68	16	18					
		B5-193	30	16					
		AVERAGE	22	16					
90Sx180W		B5-134	19	2					
		B5-313	2	16					
		B5-143	2	2					
		B5-310	2	16					
		B5-312	16	2					
		B5-279	2	2					
		B5-135	35	15					
		B5-280	30	2					
		B5-311	26	2					
		B5-149	22						
		B5-278	28	2					
		B5-150	32	16					
		AVERAGE	18	7					

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
90Sx150W		B5-143	2	2					
		B5-275	20	20					
		B5-141	2	2					
		B5-281	20	2					
		B5-280	30	2					
		B5-276	2	2					
		B5-277	2	2					
		B5-282	30	18					
		B5-283	16	2					
		B5-153	20	22					
		B5-284	22	2					
		B5-150	32	16					
		B5-140	20	18					
		AVERAGE	17	8					
90Sx120W		B5-141	2	2					
		B5-289	20	22					
		B5-285	64	2					
		B5-277	2	2					
		B5-288	16	2					
		B5-290	2	18					
		B5-147	30	18					
		B5-286	24	30					
		B5-140	20	18					
		B5-153	20	22					
		B5-287	32	16					
		B5-139	38	2					
		B5-292	18	2					
		AVERAGE	22	12					
90Sx90W		B5-297	2	16					
		B5-85	16	22					
		B5-89	2	2					
		B5-86	56	2					
		B5-136	20	2	2				
		B5-291	2	2					
		B5-290	2	18					
		B5-296	16	2					
		B5-298	184	2					
		B5-137	2	2					
		B5-293	84	2					
		B5-139	38	2					
		B5-294	26	32					
		B5-138	32	16					
		B5-300	60	30					
		B5-295	2	18					
		AVERAGE	34	11	2				

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
90Sx60W		B5-136	20	2	2				
		B5-171	62	24					
		B5-168	262	340					
		B5-298	184	2					
		B5-138	32	16					
		B5-300	60	30					
		B5-167	38	32					
		B5-309	118	106					
		AVERAGE	97	69	2				
90Sx30W		B5-171	62	24					
		B5-172	250	178					
		B5-168	262	340					
		B5-169	26	26					
		B5-307	34	18					
		AVERAGE	127	117					
90Sx0		B5-172	250	178					
		B5-193	30	16					
		B5-192	2	40					
		AVERAGE	91	78					
90Sx30E		B5-193	30	16					
		B5-190	31	2					
		B5-192	2	40					
		B5-191	2	18					
		AVERAGE	16	19					
120Sx180W		B5-149	22						
		B5-278	28	2					
		B5-150	32	16					
		B5-151	82	22					
		AVERAGE	41	13					
120Sx150W		B5-150	32	16					
		B5-284	22	2					
		B5-153	20	22					
		B5-152	60	24					
		B5-253	184	28					
		B5-154	2	16					
		B5-151	82	22					
		AVERAGE	57	19					

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
120Sx120W		B5-153	20	22					
		B5-287	32	16					
		B5-253	184	28					
		B5-156	64						
		B5-154	2	16					
		AVERAGE	60	21					
120Sx90W		B5-294	26	32					
		B5-138	32	16					
		B5-300	60	30					
		B5-157	356	32					
		B5-302	20	2					
		B5-158	2	16					
		B5-155	42	2					
		AVERAGE	77	19					
120Sx60W		B5-138	32	16					
		B5-300	60	30					
		B5-167	38	32					
		B5-309	118	106					
		B5-308	18	2					
		B5-304	34	2					
		B5-301	34	2					
		B5-302	20	2					
		B5-158	2	16					
		B5-159	28	2					
		FPA-3	33	30	26				
		AVERAGE	38	22	26				
120Sx30W		B5-169	26	26					
		B5-307	34	18					
		B5-303	22	2					
		B5-304	34	2					
		B5-159	28	2					
		FPA-3	33	30	26				
		FPA-2	2	2	22				
		FPA-1	18	17	20				
		B5-170	2	32					
		B5-306	26	56					
		B5-305	66	46					
		AVERAGE	26	21	23				
120Sx0		B5-170	2	32					
		B5-306	26	56					
		B5-192	2	40					
		FPA-1	18	17	20				
		AVERAGE	12	36	20				

Sub-Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID	SAMPLE LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium) 0'-1'	1'-2'	2'-3'	3'-4'	4'-6'	6'-8'	8'-10'
120Sx30E		B5-192	2	40					
		B5-191	2	18					
		AVERAGE	**2**	**29**					
150Sx180W		FPA-11	35	18	17				
		FPA-12	24	2	2				
		FPA-13	2	25					
		AVERAGE	**20**	**15**	**10**				
150Sx150W		FPA-9	18	2					
		FPA-10	32	2	16				
		FPA-11	35	18	17				
		AVERAGE	**28**	**7**	**17**				
150Sx60W		FPA-3	33	30	26				
		FPA-4	2	17	2				
		FPA-5	2	20	21				
		AVERAGE	**12**	**22**	**16**				
150Sx30W		FPA-1	18	17	20				
		FPA-2	2	2	22				
		FPA-3	33	30	26				
		AVERAGE	**18**	**16**	**23**				
90Nx60E		B5-79	24	2					
		B5-83	2	2					
		B5-84	20	16					
		B5-80	72	40					
		B5-198	2	2					
		AVERAGE	**24**	**12**					

Appendix D-2

Final Survey
Excavation Floor Soil Sample

Grid Cell Averages

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
150Nx180W	F5-223	2
	F5-197	2
	F5-194	36
	F5-175	17
	F5-174	2
	F5-156	20
	F5-155	2
	F5-181	2
	AVERAGE	**10**
150Nx150W	F5-223	2
	F5-181	2
	F5-176	24
	F5-155	2
	F5-135	2
	F5-157	36
	F5-180	33
	F5-196	29
	F5-228	2
	F5-195	2
	F5-179	18
	F5-177	2
	F5-159	2
	F5-142	20
	AVERAGE	**13**
150Nx120W	F5-177	2
	F5-159	2
	F5-141	29
	F5-117	36
	F5-98	20
	F5-96	16
	F5-116	15
	F5-158	46
	F5-134	2
	F5-138	2
	F5-115	2
	F5-111	33
	F5-101	2
	F5-95	33
	F5-137	28
	AVERAGE	**18**

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
120Nx120W	F5-98	20
	F5-96	16
	F5-95	33
	F5-101	2
	F5-85	16
	F5-81	22
	F5-80	2
	F5-77	38
	F5-63	2
	F5-57	2
	F5-55	18
	F5-700	33
	F5-693	34
	F5-53	22
	F5-43	31
	F5-673	2
	F5-672	2
	F5-671	98
	F5-695	2
	F5-699	31
	AVERAGE	21
90Nx240W	F5-675	18
	F5-668	2
	F5-666	20
	F5-655	25
	F5-629	20
	F5-604	24
	F5-594	22
	F5-540	31
	F5-498	25
	F5-497	22
	AVERAGE	21
90Nx150W	F5-667	2
	F5-628	2
	F5-627	32
	F5-601	2
	F5-538	2
	F5-535	2
	F5-490	25
	F5-560	2
	F5-551	24
	AVERAGE	10

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
90Nx120W	F5-673	2
	F5-672	2
	F5-671	98
	F5-669	16
	F5-653	18
	F5-623	20
	F5-654	2
	F5-627	32
	F5-599	28
	F5-619	2
	F5-598	34
	F5-570	28
	F5-601	2
	F5-606	30
	F5-552	2
	F5-509	2
	F5-488	18
	F5-483	2
	F5-535	2
	F5-538	2
	F5-556	2
	F5-489	2
	F5-593	2
	F5-624	2
	F5-559	2
	AVERAGE	**14**
90Nx30W	F5-674	21
	F5-703	16
	F5-705	34
	F5-592	2
	F5-499	16
	F5-495	23
	AVERAGE	**19**
60Nx210W	F5-496	2
	F5-493	2
	F5-446	17
	F5-448	2
	F5-377	32
	F5-410	18
	F5-380	20
	F5-350	24
	F5-322	19
	F5-334	2
	F5-357	18
	AVERAGE	**14**

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
60Nx180W	F5-493	2
	F5-492	2
	F5-490	25
	F5-473	2
	F5-441	2
	F5-430	2
	F5-409	33
	F5-376	17
	F5-375	16
	F5-374	2
	F5-372	2
	F5-408	20
	F5-371	18
	F5-315	17
	F5-316	18
	F5-334	2
	F5-317	2
	F5-320	2
	F5-357	18
	F5-356	24
	AVERAGE	11
60Nx120W	F5-489	2
	F5-483	2
	F5-488	18
	F5-509	2
	F5-476	2
	F5-471	2
	F5-439	2
	F5-429	2
	F5-366	2
	F5-412	2
	F5-368	2
	F5-355	2
	F5-332	33
	F5-364	28
	AVERAGE	7

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
60Nx90W	F5-509	2
	F5-508	18
	F5-507	2
	F5-505	24
	F5-457	22
	F5-456	2
	F5-455	2
	F5-453	22
	F5-388	2
	F5-386	2
	F5-364	28
	F5-363	2
	F5-362	26
	F5-361	18
	F5-360	36
	F5-330	25
	F5-329	20
	AVERAGE	15
60Nx60W	F5-505	24
	F5-503	2
	F5-501	2
	F5-499	16
	F5-453	22
	F5-451	2
	F5-450	2
	F5-448	17
	F5-386	2
	F5-384	2
	F5-382	28
	F5-360	36
	F5-359	2
	F5-358	20
	F5-329	20
	F5-327	2
	F5-326	24
	F5-324	18
	AVERAGE	13

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
30Nx120W	F5-332	33
	F5-301	2
	F5-268	22
	F5-267	24
	F5-18	18
	F5-33	2
	F5-260	2
	F5-259	2
	F5-5	2
	F5-13	2
	AVERAGE	11
30Nx30W	F5-324	18
	F5-331	15
	F5-279	2
	F5-274	38
	F5-24	15
	F5-6	18
	F5-310	2
	AVERAGE	15
30Nx0	F5-314	18
	F5-323	2
	F5-266	2
	F5-270	2
	F5-273	2
	F5-278	17
	F5-213	22
	F5-21	36
	F5-310	2
	F5-1	2
	F5-27	2
	AVERAGE	10

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
0 x210W	F5-265	2
	F5-2	16
	F5-37	16
	F5-251	26
	F5-435	2
	F5-253	32
	F5-256	20
	F5-257	23
	F5-304	2
	F5-290	36
	F5-258	18
	F5-254	15
	AVERAGE	17
0x90W	F5-13	2
	F5-528	17
	F5-41	19
	F5-292	2
	F5-306	17
	F5-347	18
	F5-342	2
	F5-222	2
	F5-39	2
	F5-40	2
	F5-437	38
	F5-438	34
	F5-15	26
	F5-10	16
	AVERAGE	14
0x60W	F5-10	16
	F5-528	17
	F5-437	38
	F5-39	2
	F5-38	2
	F5-8	2
	F5-6	18
	F5-7	2
	F5-435	2
	F5-221	16
	F5-305	2
	AVERAGE	11
0x30W	F5-6	18
	F5-338	2
	F5-35	2
	F5-219	22
	F5-308	2
	AVERAGE	9

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
30Sx210W	F5-254	15
	F5-250	15
	F5-252	33
	F5-416	2
	F5-462	2
	F5-418	2
	F5-466	15
	F5-520	2
	F5-495	23
	F5-490	25
	AVERAGE	**13**
30Sx180W	F5-250	15
	F5-353	22
	F5-352	2
	F5-396	17
	F5-397	26
	F5-462	2
	F5-246	22
	F5-519	37
	AVERAGE	**18**
30Sx150W	F5-352	2
	F5-351	15
	F5-393	15
	F5-395	31
	F5-394	2
	F5-415	19
	F5-428	18
	F5-461	22
	F5-519	37
	F5-479	2
	F5-474	2
	AVERAGE	**16**

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
30Sx120W	F5-349	18
	F5-347	18
	F5-365	2
	F5-354	23
	F5-404	32
	F5-425	34
	F5-405	2
	F5-469	22
	F5-532	2
	F5-517	21
	F5-482	2
	F5-518	2
	F5-474	2
	F5-428	18
	F5-431	2
	F5-414	24
	F5-426	16
	F5-475	2
	F5-367	15
	F5-394	2
	AVERAGE	**13**
30Sx90W	F5-347	18
	F5-342	2
	F5-404	32
	F5-425	34
	F5-469	22
	F5-491	31
	F5-532	2
	F5-531	17
	F5-529	2
	F5-528	17
	F5-423	19
	AVERAGE	**18**
30Sx60W	F5-422	24
	F5-421	32
	F5-419	2
	F5-528	17
	F5-527	2
	F5-526	18
	F5-524	28
	AVERAGE	**18**

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
30Sx30W	F5-338	2
	F5-419	2
	F5-400	16
	F5-417	2
	F5-465	2
	F5-524	28
	F5-521	26
	F5-391	2
	F5-413	2
	F5-460	31
	F5-458	15
	F5-511	31
	F5-514	24
	F5-389	18
	AVERAGE	14
30Sx0	F5-389	18
	F5-458	15
	F5-511	31
	F5-512	21
	F5-459	18
	F5-411	2
	F5-390	32
	F5-337	2
	F5-339	24
	F5-401	20
	F5-398	16
	F5-467	16
	F5-523	19
	F5-463	21
	AVERAGE	18
30Sx30E	F5-339	24
	F5-340	2
	F5-341	2
	F5-401	20
	F5-402	16
	F5-467	16
	F5-403	32
	F5-523	19
	F5-525	26
	AVERAGE	17

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
60Sx180W	F5-581	2
	F5-652	2
	F5-682	2
	F5-663	23
	F5-641	21
	F5-544	2
	F5-596	2
	F5-519	37
	F5-580	20
	F5-610	15
	F5-640	2
	F5-639	22
	F5-662	21
	AVERAGE	13
60Sx150W	F5-519	37
	F5-579	15
	F5-597	2
	F5-609	2
	F5-595	20
	F5-578	28
	F5-637	2
	F5-661	22
	F5-619	2
	AVERAGE	14
60Sx30W	F5-524	28
	F5-521	26
	F5-514	24
	F5-511	31
	F5-613	2
	F5-612	2
	F5-607	2
	F5-571	26
	F5-606	30
	F5-631	30
	F5-658	20
	F5-677	34
	F5-659	32
	F5-664	20
	F5-685	23
	AVERAGE	22

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
60Sx0	F5-511	31
	F5-512	21
	F5-523	19
	F5-571	26
	F5-631	30
	F5-638	27
	F5-658	20
	F5-677	34
	F5-678	2
	F5-691	2
	F5-606	30
	F5-683	2
	F5-684	15
	AVERAGE	**20**
90Sx30W	F5-685	23
	F5-677	34
	F5-697	16
	F5-698	2
	F5-49	16
	F5-72	25
	F5-70	26
	F5-61	16
	F5-68	32
	F5-82	2
	F5-102	38
	F5-108	28
	F5-109	21
	F5-4	22
	AVERAGE	**22**

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
90Sx0	F5-677	34
	F5-679	2
	F5-691	2
	F5-683	2
	F5-684	15
	F5-4	22
	F5-46	15
	F5-47	20
	F5-48	17
	F5-68	32
	F5-60	33
	F5-69	18
	F5-71	23
	F5-107	2
	F5-83	20
	F5-84	16
	F5-103	18
	F5-102	38
	AVERAGE	**18**
120Sx180W	F5-130	2
	F5-129	2
	F5-128	36
	F5-127	2
	F5-166	2
	F5-167	18
	F5-168	2
	F5-169	2
	F5-206	2
	F5-205	2
	F5-204	2
	F5-203	15
	AVERAGE	**7**
120Sx30W	F5-109	21
	F5-108	28
	F5-102	38
	F5-149	36
	F5-143	2
	F5-190	2
	F5-187	2
	AVERAGE	**18**

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
120Sx0	F5-102	38
	F5-103	16
	F5-107	2
	F5-143	2
	F5-120	38
	F5-147	17
	F5-151	2
	F5-185	2
	F5-189	2
	F5-187	2
	AVERAGE	12
150Sx90W	F5-227	2
	F5-226	2
	F5-238	30
	F5-236	18
	F5-235	36
	F5-234	34
	F5-233	22
	F5-232	30
	AVERAGE	22
60Nx300W	F5-706	26
	F5-707	40
	F5-708	24
	F5-709	24
	F5-710	16
	F5-711	22
	F5-712	36
	F5-713	50
	F5-714	28
	F5-715	16
	AVERAGE	28
30Nx300W	F5-715	16
	F5-716	24
	F5-717	54
	F5-718	20
	AVERAGE	29

Surface Soil Sample Grid Cell Averages
Metals Recovery Area Excavation

GRID LOCATION	SAMPLE I.D.	SAMPLE RESULTS (pCi/g Total Uranium)
30Nx270W	F5-719	36
	F5-720	2
	F5-721	28
	F5-722	28
	F5-723	58
	AVERAGE	30
0x240W	F5-724	30
	F5-725	28
	F5-726	30
	AVERAGE	29
30Sx240W	F5-727	32
	F5-728	26
	F5-729	88
	AVERAGE	49

Appendix D-3

Exposure Rate Measurements

Exposure Rate Measurements -- Metals Recovery Excavation Floor

Metals Recovery Area Grid Location	Exposure Rate Measure (uR/hr)
0 X 105 W	7
0 X 120 W	16
0 X 135 W	11
0 X 160 W	3
0 X 45 W	9
0 X 75 W	4
10 N X 195 W	9
10 N X 5 W	14
10 S X 10 E	7
10 S X 110 W	6
10 S X 25 W	13
10 S X 5 W	12
100 N X 105 W	6
100 N X 25 W	11
100 S X 10 E	6
100 S X 20 E	9
100 S X 25 W	6
100 S X 42 W	8
100 S X 60 W	6
105 N X 40 W	11
105 N X 70 W	12
105 N X 80 W	4
108 S X 10 W	16
110 N X 115 W	3
110 N X 50 W	12
110 N X 95 W	4
110 S X 10 E	5
110 S X 20 E	12
110 S X 78 W	5
115 N X 70 W	4
115 S X 44 W	3
115 S X 60 W	14
12 S X 130 W	5
12 S X 150 W	6
120 S X 0	6
120 S X 30 W	3
123 N X 85 W	5
125 S X 40 W	6
130 N X 100 W	8
130 S X 100 W	12
130 S X 110 W	11
130 S X 130 W	6
130 S X 140 W	4
130 S X 160 W	5
130 S X 170 W	11
130 S X 70 W	11

Exposure Rate Measurements -- Metals Recovery Excavation Floor

Metals Recovery Area Grid Location	Exposure Rate Measure (uR/hr)
130 S X 80 W	10
135 N X 110 W	8
135 N X 125 W	4
135 N X 135 W	3
135 S X 12 E	8
135 S X 15 W	8
135 S X 20 E	14
140 N X 140 W	8
140 N X 160 W	8
140 S X 100 W	8
140 S X 110 W	6
140 S X 130 W	3
140 S X 140 W	10
140 S X 160 W	7
140 S X 170 W	6
140 S X 38 W	7
140 S X 55 W	8
145 S X 70 W	14
145 S X 80 W	3
15 N X 135 W	16
15 N X 15 E	8
15 N X 170 W	4
15 N X 185 W	5
15 N X 215 W	6
15 N X 90 W	6
15 S X 165 W	9
15 S X 185 W	11
15 S X 45 W	11
15 S X 60 W	11
155 S X 105 W	7
155 S X 75 W	17
20 N X 105 W	2
20 N X 155 W	5
20 N X 40 W	8
20 N X 60 W	12
20 S X 15 W	11
20 S X 75 W	8
22N X 207 W	4
25 N X 195 W	9
25 N X 5 E	9
25 S X 12 E	5
25 S X 175 W	4
25 S X 195 W	14
27 N X 20 E	11
30 N X 10 E	12
30 N X 10 E	6

Exposure Rate Measurements -- Metals Recovery Excavation Floor

Metals Recovery Area Grid Location	Exposure Rate Measure (uR/hr)
30 N X 150 W	15
30 N X 30 W	7
30 N X 45 W	13
30 N X 75 W	3
30 N X 8 W	11
30 S X 100 W	4
30 S X 120 W	3
30 S X 135 W	13
30 S X 150 W	2
30 S X 30 E	9
30 S X 30 W	8
30 S X 45 W	7
30 S X 5 W	9
30 S X 60 E	8
30 S X 60 W	6
30 S X 75 W	7
32 N X 122 W	10
35 N X 115 W	2
35 N X 160 W	7
35 N X 170 W	5
35 N X 85 W	2
35 S X 10 E	6
36 N X 25 W	7
40 N X 10 W	6
40 N X 135 W	7
40 N X 180 W	9
40 N X 30 W	5
40 N X 95 W	3
40 S X 170 W	11
40 S X 190 W	12
43 N X 45 W	5
45 N X 20 E	10
45 N X 200 W	8
45 N X 5 E	8
45 N X 65 W	3
45 S X 105 W	8
45 S X 130 W	8
45 S X 140 W	7
45 S X 200 W	8
45 S X 25 E	4
45 S X 45 E	8
45 S X 70 W	11
45 S X 90 W	13
5 N X 15 E	7
5 N X 190 W	7
5 S X 195 W	8

sure Rate Measurements -- Metals Recovery Excavation Floor

Metals Recovery Area Grid Location	Exposure Rate Measure (uR/hr)
5 S X 90 W	4
50 N X 100 W	5
50 N X 115 W	4
50 N X 140 W	9
50 N X 190 W	7
50 N X 20 W	8
50 S X 155 W	10
50 S X 190 W	6
50 S X 20 W	12
50 S X 50 W	3
50 S X 70 W	10
55 N X 70 W	6
55 N X 75 W	6
55 N X 80 W	4
55 S X 10 E	4
55 S X 95 W	10
60 N X 0	4
60 N X 150 W	9
60 N X 165 W	4
60 N X 210 W	11
60 N X 32 W	5
60 N X 50 W	5
60 S X 10 W	6
60 S X 110 W	14
60 S X 135 W	5
60 S X 150W	6
60 S X 30 E	7
60 S X 30 W	4
60 S X 60 E	8
60 S X 60 W	4
60 S X 85 W	8
65 N X 102 W	6
65 N X 125 W	8
65 N X 73 W	8
70 N X 175 W	2
70 N X 225 W	3
70 S X 10 E	3
70 S X 15 W	3
70 S X 195 W	5
70 S X 45 W	4
72 N X 42 W	6
75 N X 0	12
75 N X 115 W	8
75 N X 15 W	9
75 N X 175 W	6
75 N X 93 W	11

Exposure Rate Measurements -- Metals Recovery Excavation Floor

Metals Recovery Area Grid Location	Exposure Rate Measure (uR/hr)
5 S X 90 W	4
50 N X 100 W	5
50 N X 115 W	4
50 N X 140 W	9
50 N X 190 W	7
50 N X 20 W	8
50 S X 155 W	10
50 S X 190 W	6
50 S X 20 W	12
50 S X 50 W	3
50 S X 70 W	10
55 N X 70 W	6
55 N X 75 W	6
55 N X 80 W	4
55 S X 10 E	4
55 S X 95 W	10
60 N X 0	4
60 N X 150 W	9
60 N X 165 W	4
60 N X 210 W	11
60 N X 32 W	5
60 N X 50 W	5
60 S X 10 W	6
60 S X 110 W	14
60 S X 135 W	5
60 S X 150W	6
60 S X 30 E	7
60 S X 30 W	4
60 S X 60 E	8
60 S X 60 W	4
60 S X 85 W	8
65 N X 102 W	6
65 N X 125 W	8
65 N X 73 W	8
70 N X 175 W	2
70 N X 225 W	3
70 S X 10 E	3
70 S X 15 W	3
70 S X 195 W	5
70 S X 45 W	4
72 N X 42 W	6
75 N X 0	12
75 N X 115 W	8
75 N X 15 W	9
75 N X 175 W	6
75 N X 93 W	11

Exposure Rate Measurements -- Metals Recovery Excavation Floor

Metals Recovery Area Grid Location	Exposure Rate Measure (uR/hr)
5 S X 90 W	4
50 N X 100 W	5
50 N X 115 W	4
50 N X 140 W	9
50 N X 190 W	7
50 N X 20 W	8
50 S X 155 W	10
50 S X 190 W	6
50 S X 20 W	12
50 S X 50 W	3
50 S X 70 W	10
55 N X 70 W	6
55 N X 75 W	6
55 N X 80 W	4
55 S X 10 E	4
55 S X 95 W	10
60 N X 0	4
60 N X 150 W	9
60 N X 165 W	4
60 N X 210 W	11
60 N X 32 W	5
60 N X 50 W	5
60 S X 10 W	6
60 S X 110 W	14
60 S X 135 W	5
60 S X 150W	6
60 S X 30 E	7
60 S X 30 W	4
60 S X 60 E	8
60 S X 60 W	4
60 S X 85 W	8
65 N X 102 W	6
65 N X 125 W	8
65 N X 73 W	8
70 N X 175 W	2
70 N X 225 W	3
70 S X 10 E	3
70 S X 15 W	3
70 S X 195 W	5
70 S X 45 W	4
72 N X 42 W	6
75 N X 0	12
75 N X 115 W	8
75 N X 15 W	9
75 N X 175 W	6
75 N X 93 W	11

Exposure Rate Measurements -- Metals Recovery Excavation Floor

Metals Recovery Area Grid Location	Exposure Rate Measure (uR/hr)
75 S X 100 W	13
75 S X 130 W	8
75 S X 185 W	4
75 S X 85 W	4
78 N X 36 W	7
8 N X27 W	12
8 N X 200 W	6
80 N X 220 W	12
80 N X 240 W	11
80 N X 28 W	10
80 N X 60 W	9
80 S X 10 E	4
80 S X 150 W	9
80 S X 175 W	6
80 S X 21 W	14
80 S X 45 W	7
80 S X 60 W	8
85 N X 15 W	8
85 S X 115 W	12
85 S X 165 W	3
85 S X 85 W	6
90 N X 100 W	8
90 N X 120 W	5
90 N X 37 W	8
90 N X 75 W	15
90 S X 130 W	11
90 S X 165 W	3
90 S X 30 E	8
90 S X 4 W	8
95 S X 83 W	8

Appendix D-4

Building 5 Grid System on

Massachusetts Grid Coordinates

E. OTIS DYER

368 FAIRVIEW AVENUE
BOX 5
REHOBOTH, MASS. 02769
Telephone: (508) 252-4363

Registered Professional Engineer and Land Surveyor
in Massachusetts, Rhode Island and North Carolina

MARCH 28, 1995
TEXAS INSTRUMENTS, INC.
IN ATTLEBORO, MASSACHUSETTS
BUILDING 5 GRID
ON MASSACHUSETTS GRID COORDINATES

IN FEET	IN FEET
60S, 60E	345, 045.43, 662, 977.99
60S, 0E	345, 051.08, 662, 918.27
60S, 60W	345, 056.73, 662, 858.52
60S, 120W	345, 062.38, 662, 789.79
60S, 180W	345, 068.03, 662, 739.06
60S, 240W	345, 073.68, 662, 679.32
0N, 60E	345, 105.16, 662, 983.64
0N, 0E	345, 110.81, 662, 923.91
0N, 60W	345, 116.46, 662, 864.17
0N, 120W	345, 112.11, 662, 804.44
0N, 180W	345, 127.76, 662, 744.71
0N, 240W	345, 133.41, 662, 684.97
120S, 60E	344, 985.70, 662, 972.34
120S, 0E	344, 991.35, 662, 912.61
120S, 60W	344, 996.99, 662, 852.87
120S, 120W	345, 002.65, 662, 793.14
120S, 180W	345, 008.29, 662, 733.41
120S, 240W	345, 013.94, 662, 673.67

T.L
BUILDING 5 GRID
PAGE 2 OF 2

IN FEET	**IN FEET**
60N, 60E	345, 164.89, 662, 989.29
60N, 0E	345, 170.54, 662, 929.56
60N, 60W	345, 176.19, 662, 869.82
60N, 120W	345, 181.84, 662, 810.09
60N, 180W	345, 187.49, 662, 750.36
60N, 240W	345, 193.14, 662, 690.62
120N, 60E	345, 224.62, 662, 994.94
120N, 0E	345, 230.27, 662, 935.21
120N, 60W	345, 235.92, 662, 875.47
120N, 120W	345, 241.57, 662, 815.74
120N, 180W	345, 247.22, 662, 756.01
120N, 240W	345, 252.87, 662, 696.27

Appendix E

Water Discharge Filtering and Sampling

Methods and Results

OVERSIZE DOCUMENT PAGE(S) PULLED

SEE APERTURE CARD FILES

APERTURE CARD/PAPER COPY AVAILABLE THROUGH NRC FILE CENTER

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Appendix E: Water Discharge Filtering and Sampling Methods and Results

This appendix provides methodology used and sampling data obtained for water discharges performed during remediation activities. In the course of remediation activities water infiltration (principally rain) of the excavated areas required discharge in order to complete the remediation process. In order to discharge the liquid, an exclusion permit from the Environmental Protection Agency (EPA) in accordance with the National Pollution Discharge Elimination System requirements was required. The filtered water was sampled to assure concentrations were below allowable limits prescribed in the EPA's Interim drinking water standard as well as 10CFR20, Appendix B, Table II concentrations for Uranium.

Attachment 1 to this appendix presents the request to the EPA for the exclusion discharge permit and details the methodology used to ensure that the discharge quantities were within the appropriate limits. Attachment 2 to this appendix is a copy of the permit as issued by the EPA. Attachment 3 to this appendix incorporates the sample data obtained from the discharge process for compliance determination. All discharges were within the permissible limits. The results as presented within this Appendix are not intended for use in the final radiological status survey.

Attachment 1

Request for Exclusion from NPDES Requirements

TEXAS INSTRUMENTS

April 20, 1994

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. David W. Tordoff, On-Scene Coordinator
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Environmental Services Division
Emergency Response Section
60 Westview Street
Lexington, MA 02173-3185

Re: Request for Exclusion From NPDES Requirements
Metals Recovery Area (Bldg-5) Soil Excavation
Proposed Start Date - April 28, 1994
Texas Instruments Incorporated
34 Forest Street
Attleboro, MA 02703

Dear Mr. Tordoff:

Texas Instruments Incorporated (TI) is writing to request an emergency exclusion from the National Pollutant Discharge Elimination System (NPDES) for a soil excavation project located adjacent to the Metals Recovery Area (Bldg-5) at TI's Attleboro, Massachusetts facility. TI is pursuing this excavation project to remediate soils contaminated with low levels of radioactive material, primarily Uranium, and to a lesser extent, Thorium. The excavation is expected to generate somewhere between 100 and 150 cubic yards of soil. Excavation is scheduled to commence on April 28, 1994, and it is expected to be complete by mid-May. TI is authorized to perform this remediation in accordance with its special nuclear material license administered through the U.S. Nuclear Regulatory Commission (NRC).

The sole purpose of the exclusion permit is to evacuate groundwater should it be encountered during the excavation. Given the fact that the majority of the excavation will not penetrate more than two to three feet below the surface, and groundwater is generally six feet below the surface at this location, we do not expect to generate large volumes of water. Therefore, this project will not generate a continuous flow, but rather, an intermittent flow when groundwater is encountered.

The radionuclide contaminants that one finds in the subsurface at this location are insoluble and easily removed via conventional filtration unit operations. Therefore, TI plans to pass the

extracted groundwater prior to discharge through a proven treatment system consisting of a series of bag and cartridge filters. (Last year TI successfully employed the same system in a similar application for which an exclusion permit was issued on May 3, 1993. In that case, the system was sized to treat a continuous flow of up to 125 gpm. It ran for a period of approximately one and a half months, and successfully removed the radionuclides of concern to below detectable limits ,i.e. well below the applicable discharge limits.)

GENERAL INFORMATION:

Project Name: Metals Recovery Area Soil Excavation
Proposed Dewatering/Filtration System

Site Location: Texas Instruments Incorporated
34 Forest Street, MS 10-02
Attleboro, MA 02703

Contact: Michael J. Elliott
Environmental Manager
(508) 699-1809

EPA I.D. No: MAD007325814
NPDES Permit No: MA0001791
U.S. NRC Special Nuclear Material License No. 23

Proposed Discharge Location: Outfall No. 005 - This outfall discharges into an un-named brook that flows into Cooper's Pond. Cooper's Pond is a tributary to the Wading River which is part of the Taunton River Watershed.

Discharge Rate: 50-100 gpm. The exact volume will be determined in the field.

Security: All equipment related to this project will be contained within a fenced and locked area. Armed security guards regularly patrol the entire grounds including this area.

MECHANICAL/HYDRAULIC CONCEPTUAL DESIGN:

The following is an outline of the proposed dewatering and filtration system. Refer to the attached schematic line diagram representing the same information.

- A perforated drum shall be located in the deepest section of the excavation area with a suction line connected to pump #1, gas operated trash pump or electric sump pump.
- A 400 gallon baffled tank will receive flow from pump #1. Large settleable solids will be removed by returning flow to the excavation as needed.
- A second pump will draw from the stilling tank and supply pressurized flow to a bag filter rated for flows to 100 GPM.
- The pressurized flow will continue through cartridge filter #1 containing forty 30" cartridge filters.
- The flow will continue to cartridge filter #2, removing suspended solids to the target particle size (10 microns or less).
- The discharge will drain to outfall #005. When operating the effluent will be monitored continuously for flow. Samples will be collected for radiological and chemical analysis according to the schedule described below.

Manufacturers' specifications from the MWM Company are attached. These describe the proposed filtering equipment for this project.

MONITORING AND REPORTING PROGRAM:

Effluent monitoring can be divided into two categories: one being radiological, and the other being chemical.

1. Radiological Monitoring

In accordance with NRC regulations, the proposed dewatering project is subject to regulations contained in 10 CFR 20, "Standards for Radiation Protection." In particular, paragraph 106 states that the licensee shall not discharge an effluent stream concentration that exceeds the limits specified in Appendix B, Table II as averaged over a year. In the case for Uranium, the regulations place an allowable ceiling limit for both Natural and Enriched forms at 3.0 E-5 μCi/ml.

The filtered effluent will be monitored on a regular basis to demonstrate compliance. Since the effluent will be intermittent, the sampling frequency will be based primarily on volume. TI proposes grab one sample every 100,000 gallons, but not more frequently than three(3) times in the first week, and not more than once per week thereafter.

2. Chemical Monitoring

TI proposes to collect grab samples at the same frequency as the Radiological Monitoring Samples will be analyzed for Aromatic Hydrocarbons (EPA Method 602), and Total Petroleum Hydrocarbons (EPA Method 418.1). (Note that Aromatic Hydrocarbons include Benzene, Toluene, Ethyl-Benzene, and Xylene "BTEX".)

The results of the monitoring program will be submitted to your office by the 28th day of the following month. Data will be reported on summary tables with the original laboratory results and QA/QC documentation attached.

Please feel free to contact me if you have any questions or concerns. I would be happy to supply any additional information which you may deem necessary.

Sincerely,

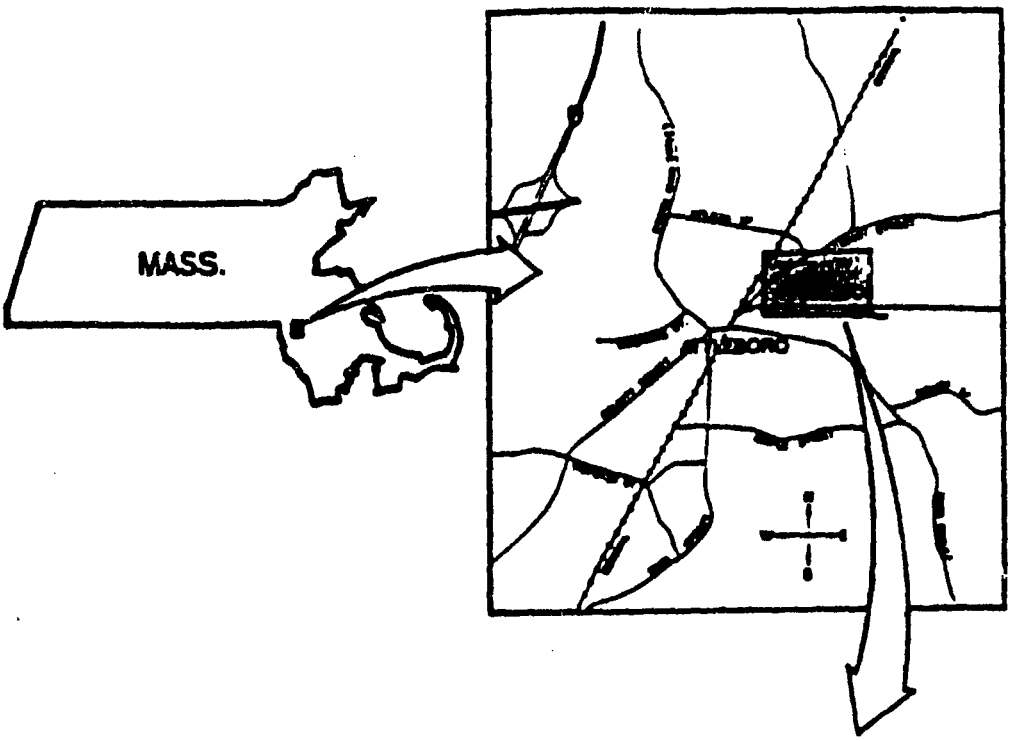
MATERIALS AND CONTROLS GROUP

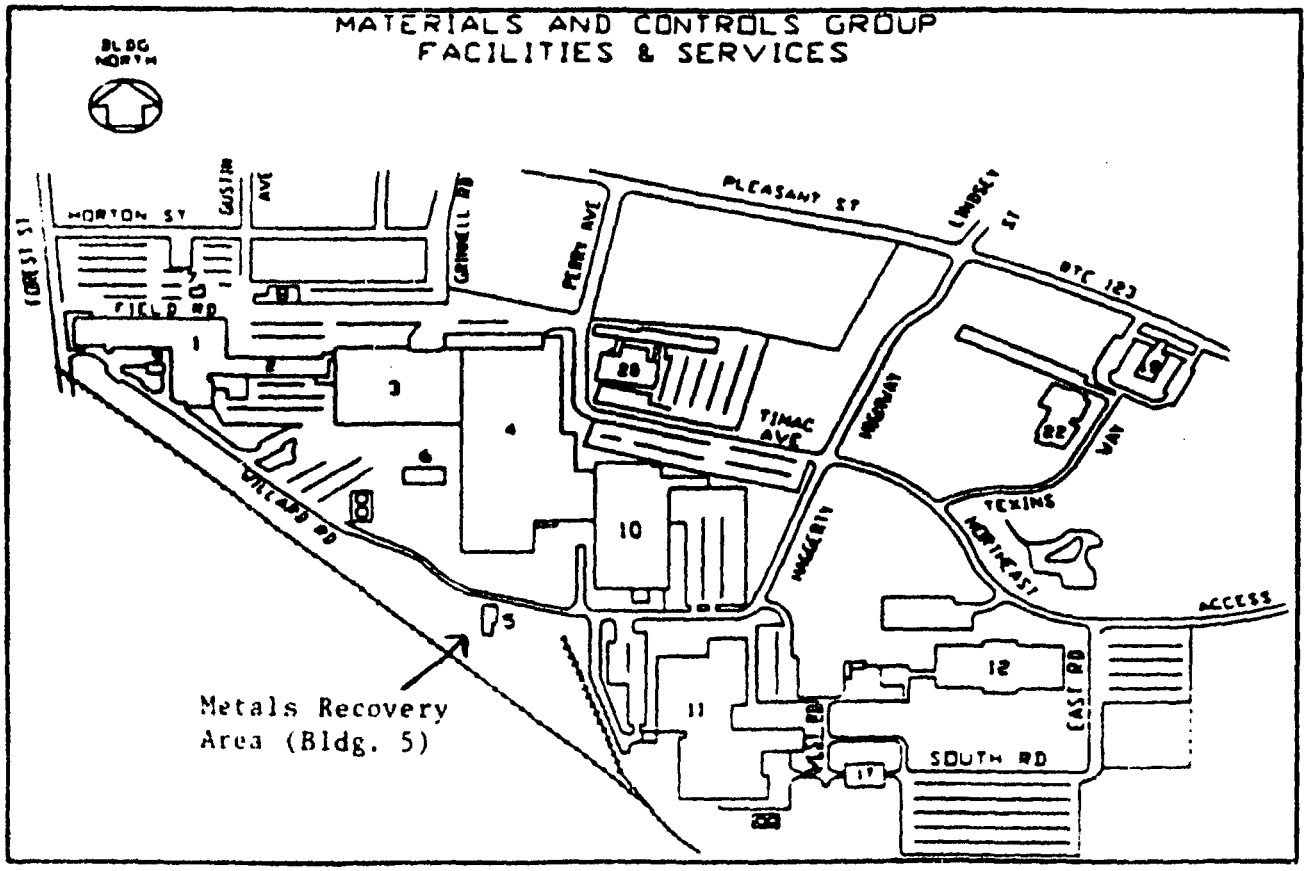
Michael J. Elliott
Evironmental Manager
Environmental, Safety & Health Dept.

Attachments

cc: Mr. Mark Roberts, U.S. NRC - Region I
Mr. Daniel V. Bartosh, Jr., TI - Dallas
Mr. John O'Donnell, TI - Dallas
Mr. Francis J. Veale, Jr., TI - Attleboro

Figure 2.1
Map of Massachusetts and Attleboro Showing Location and Plan View of the Texas Instruments Site.





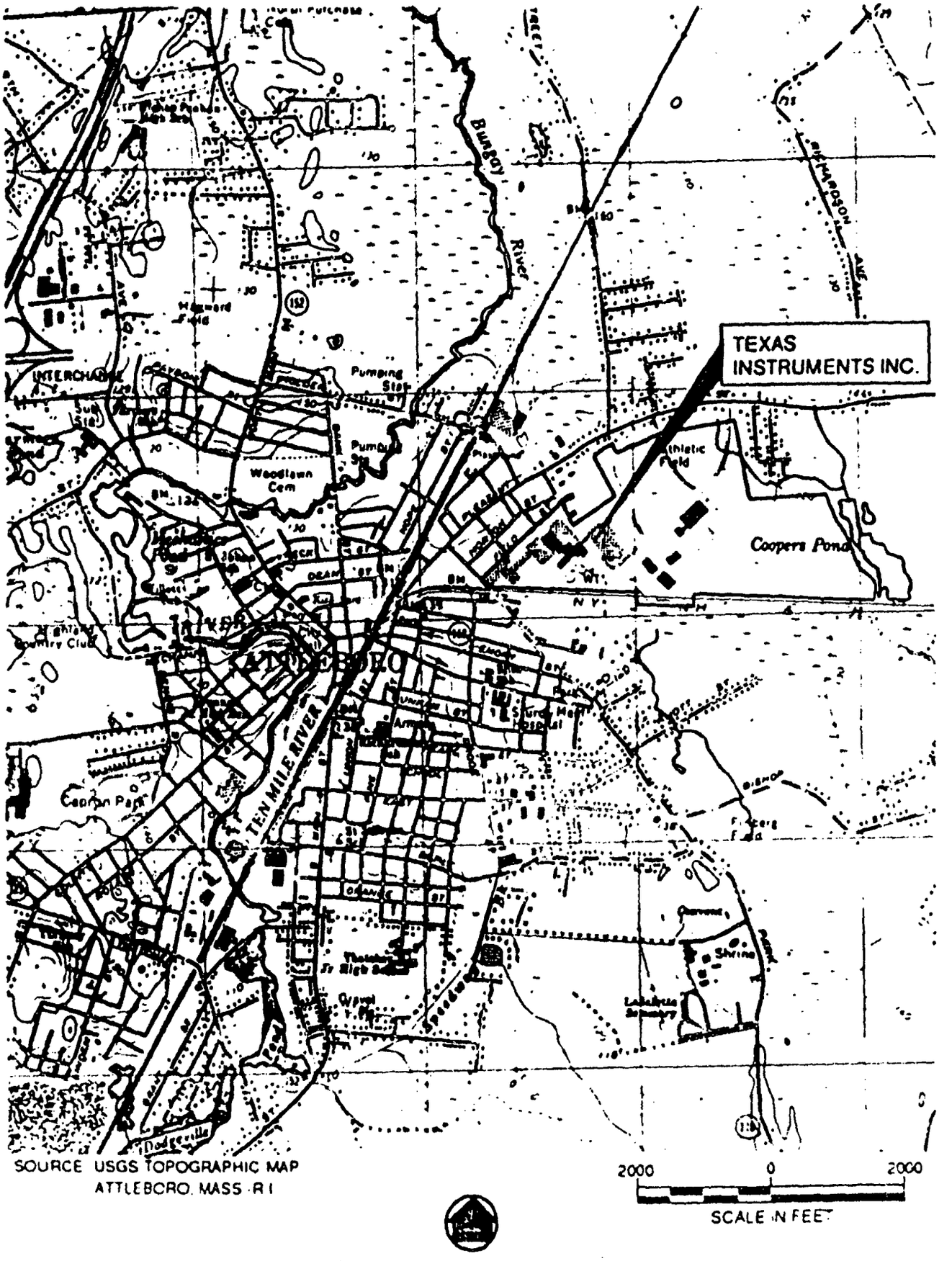
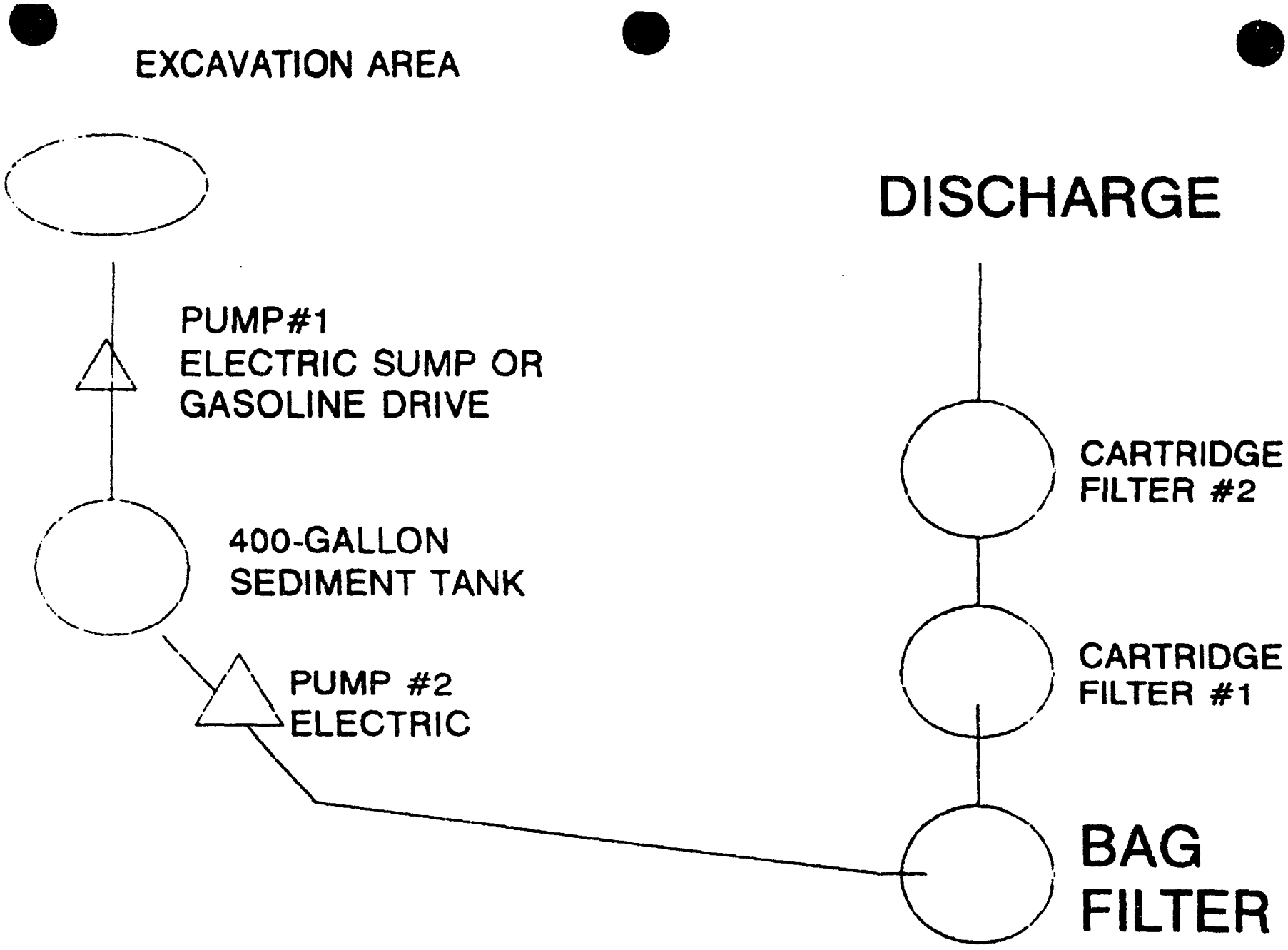


FIGURE 1-1. LOCATION PLAN - TI ATTLEBORO SITE


EXCAVATION AREA
DISCHARGE
PUMP#1
ELECTRIC SUMP OR
GASOLINE DRIVE
400-GALLON
SEDIMENT TANK
PUMP #2
ELECTRIC
CARTRIDGE
FILTER #2
CARTRIDGE
FILTER #1
BAG
FILTER

Attachment 2

NPDES Permit Exclusion

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
ENVIRONMENTAL SERVICES DIVISION
60 WESTVIEW STREET, LEXINGTON, MASSACHUSETTS 02173-3185

April 28, 1994

Mr. Michael Elliott
Texas Instruments, Inc.
34 Forest Street
Attleborough, Massachusetts 02703

Re: NPDES Permit Exclusion for dewatering during soil excavation at your Metals Recovery Site, 34 Forest Street.

Dear Mr. Elliott:

Based on information provided in your April 20th letter, I grant you, pursuant to 40 CFR 122.3(d), an emergency exclusion from the National Pollution Discharge Elimination System (NPDES), in order that dewatered during soil excavation may be performed at the referenced location.

Subject to other controls that may be established by the State of Massachusetts, and the Town of Attleborough, you are authorized to discharge up to 100 gallons per minute of treated water from a treatment system consisting of groundwater depression leading to a holding and settling tank, then through a bag filtration unit, and then through two particulate filters prior to discharge into an unnamed tributary of Cooper's Pond. Operations must be conducted in accordance with the following conditions:

1. No discharge of oil, sufficient to cause a sheen (as defined in 40 CFR 110), occurs to the tributary. The discharge of a sheen of oil constitutes an oil spill and must be reported, immediately, by you or your contractor to the National Response Center [(800) 424-8802.

2. Security provisions are maintained to assure that system failure, vandalism, or other incident will be addressed in a timely fashion, preventing the loss of oil or contaminated water to the receiving waters.

3. Sampling and analysis, in accordance with EPA methods, is performed for Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX). Total BTEX is not to exceed 100 ppb, while Benzene may not exceed 5 ppb. Total Petroleum Hydrocarbons may not exceed 5 ppm. The liquid effluent may not exceed the levels prescribed in 10 CFR 20.106 for radioactivity. Co-60 may not exceed 3.0 x 10-5. Cs-137 and Eu-154 may not exceed 2.0 x 10-55. Eu-152 may not exceed 8.0 x 10-5, and no other radionuclide may exceed 3.0 x 10-6.

Sampling and analysis of the influent to particulate removal, between filters (if more than one is used in series), and the effluent to the unnamed tributary, is to be conducted every other day for the first week of operations, then at least weekly for the balance of operations.

Analytical Reports, with quality control information, are to be reported to the DEP Regional Engineer, and to this office by the 28th of the following month.

4. You, or your representative, provide 24 hours notice of system start-up, if start-up occurs after April 29, 1994.

This exclusion is granted for a period of four weeks. Although four weeks, with a flow of up to 100 gpm is anticipated, the exclusion may be adjusted, verbally, based on operational conditions (ie; adverse weather).

If any questions should arise, please do not hesitate to contact me at (617) 860-4362.

Sincerely,

David W. Tordoff
On-Scene Coordinator
Emergency Response Section

cc: T. Landry USEPA-Permits
K. Keohane Mass DEP-DWPC
L. Domizio Mass DEP-DSHW
J. Kowell Mass DEP-DSHW

Attachment 3

Excavation Dewatering Sampling Results

SUMMARY REPORT
METALS RECOVERY AREA EXCAVATION DEWATERING
TEXAS INSTRUMENTS INCORPORATED

OPERATING PERIOD: May 17, 1994 to November 09, 1994.

Parameters: smpl.# date - time:	TSS in mg/l.			TPH mg/l	METHOD 602 all results in ug/l.				
	Influent	Filter #1	Effluent	TPH	Ben	Tol	Eth-Ben	M+P-XYL	O-XYL
NO.1 May 17 (1630)	398.00	510.00	14.00	BRL*	BRL**	16.00	BRL**	2.00	BRL**
NO.2 May 19 (1030)	3820.00	2223.00	2389.00	BRL*	BRL**	20.00	BRL**	3.00	BRL**
NO.3 May 25 (1220)	2533.00	381.00	13.00	BRL*	BRL**	2.00	BRL**	BRL**	BRL**
NO.4 May 27 (0930)	1737.00	1950.00	196.00	BRL*	BRL**	3.00	BRL**	BRL**	BRL**
NO.5 May 31 (1000)	1624.00	731.00	57.00	BRL*	BRL**	BRL**	BRL**	BRL**	BRL**
NO.6 Jun 15 (1930)	1810.00	1324.00	74.00	1.00	BRL**	BRL**	BRL**	BRL**	BRL**
NO.7 Jul 08 (1930)	796.00	563.00	135.00	BRL*	BRL**	BRL**	BRL**	BRL**	BRL**
NO.8 Jul 12 (2100)	978.00	973.00	65.00	BRL*	BRL**	BRL**	BRL**	BRL**	BRL**
NO.9 Jul 29 (2100)	3815.00	2487.00	616.00	BRL*	BRL**	BRL**	BRL**	BRL**	BRL**
NO.10 Aug 09 (2000)	924.00	926.00	9.00	BRL*	BRL**	BRL**	BRL**	BRL**	BRL**
NO.11 Aug 18 (2000)	1460.00	1198.00	9.00	2.40	BRL**	BRL**	BRL**	BRL**	BRL**
NO.12 Sep 14 (1830)	2304.00	102.00	21.00	0.80	BRL**	BRL**	BRL**	BRL**	BRL**
NO.13 Sep 20 (1800)	1534.00	16.00	15.00	BRL*	3.00	0.90	BRL**	BRL**	BRL**
NO.14 Oct 08 (2000)	733.00	234.00	72.00	BRL*	BRL**	BRL**	BRL**	BRL**	BRL**
NO.15 Oct 11 (1830)	1550.00	906.00	364.00	BRL*	BRL**	BRL**	BRL**	BRL**	BRL**
NO.16 Oct 20 (1830)	3340.00	1114.00	352.00	BRL*	BRL**	BRL**	BRL**	BRL**	BRL**
NO.17 Oct 28 (1130)	786.00	658.00	280.00	N/A	BRL**	9.00	10.00	49.00	20.00
NO.18 Nov 09 (1930)	1122.00	1030.00	990.00	Samples lost in transit.					

BRL* = below reporting limit, reporting limit is 0.5 mg/l.
BRL** = below reporting limit, reporting limit is 1.0 ug/l.
N/A = not available
L.T. = less than

Abbreviations:
Ben = Benzene
Tol = Toluene
Eth-Ben = Ethylbenzene
M+P-XYL = Meta and para-Xylene
O-XYL = Ortho-benzene

SUMMARY REPORT
METALS RECOVERY AREA EXCAVATION DEWATERING
TEXAS INSTRUMENTS INCORPORATED

OPERATING PERIOD: MAY 17, 1994 TO MAY 31, 1994.
RADIOCHEMISTRY
WATER QUALITY

RADIONUCLIDE:	SAMPLE #1 SAMPLED MAY 17 pCi/L	SAMPLE #2 SAMPLED MAY 19 pCi/L	SAMPLE #3 SAMPLED MAY 25 pCi/L	SAMPLE #4 SAMPLED MAY 27 pCi/L	SAMPLE #5 SAMPLED MAY 31 pCi/L
GAMMA SPEC.					
Co-60	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 4. E 00
CS-137	L.T. 3. E 00	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 5. E 00
EU-152	L.T. 5. E 00	L.T. 9. E 00	L.T. 1. E 01	L.T. 1. E 01	L.T. 1. E 01
EU-154	L.T. 9. E 00	L.T. 9. E 00	L.T. 9. E 00	L.T. 1. E 01	L.T. 1. E 01
RA-226	L.T. 6. E 01	L.T. 6. E 01	L.T. 8. E 01	L.T. 7. E 01	L.T. 1. E 02
AC-228	L.T. 1. E 01	L.T. 1. E 01	L.T. 2. E 01	L.T. 2. E 01	L.T. 2. E 01
U-235	L.T. 2. E 01	L.T. 2. E 01	L.T. 3. E 01	L.T. 3. E 01	L.T. 4. E 01
U-238/TH-234	1.3 +-0.3 E 02	L.T. 7. E 01	L.T. 9. E 01	L.T. 9. E 01	L.T. 1. E 02
ALPHA SPEC.					
TH-230	L.T. 6. E 01	L.T. 6. E 01	L.T. 8. E 01	L.T. 3. E-01	L.T. 6. E-01
U-235	L.T. 2. E 01	L.T. 2. E 01	L.T. 3. E 01	L.T. 1. E-01	6.7 +-2.0 E 00
U-238	1.3 +-0.3 E 02	L.T. 7. E 01	L.T. 9. E 01	8.9 +-3.5 E-01	2.0 +-0.3 E 02
TH-232	L.T. 1. E 01	L.T. 1. E 01	L.T. 2. E 01	L.T. 4. E- 01	L.T. 6. E- 01

L.T. = less than

SUMMARY REPORT
METALS RECOVERY AREA EXCAVATION DEWATERING
TEXAS INSTRUMENTS INCORPORATED

OPERATING PERIOD: JUNE 15, 1994 TO JULY 12, 1994.
RADIOCHEMISTRY
WATER QUALITY

RADIONUCLIDE:	SAMPLE #6 SAMPLED JUN 15 pCi/L	SAMPLE #7 SAMPLED JUL 08 pCi/L	SAMPLE #8 SAMPLED JUL 12 pCi/L
GAMMA SPEC.			
Co-60	L.T. 3. E 00	L.T. 3. E 00	L.T. 3. E 00
CS-137	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00
EU-152	L.T. 9. E 00	L.T. 1. E 01	L.T. 9. E 00
EU-154	L.T. 9. E 00	L.T. 1. E 01	L.T. 8. E 00
TH-230/RA-226	L.T. 6. E 01	L.T. 7. E 01	L.T. 7. E 01
TH-232/AC-228	L.T. 1. E 01	L.T. 2. E 01	L.T. 1. E 01
U-235	L.T. 2. E 01	L.T. 3. E 01	L.T. 3. E 01
U-238/TH-234	L.T. 6. E 01	L.T. 6. E 01	L.T. 8. E 01

L.T. = less than

.66H

SUMMARY REPORT
METALS RECOVERY AREA EXCAVATION DEWATERING
TEXAS INSTRUMENTS INCORPORATED

OPERATING PERIOD: JULY 26, 1994 TO SEPTEMBER 20, 1994.
RADIOCHEMISTRY
WATER QUALITY

RADIONUCLIDE:	SAMPLE #09 SAMPLED JUL 26 pCi/L	SAMPLE #10 SAMPLED AUG 04 pCi/L	SAMPLE #11 SAMPLED AUG 18 pCi/L	SAMPLE #12 SAMPLED SEP 14 pCi/L	SAMPLE #13 SAMPLED SEP 20 pCi/L
GAMMA SPEC.					
Co-60	L.T. 2. E 01	L.T. 3. E 00	L.T. 4. E 00	L.T. 3. E 00	L.T. 4. E 00
CS-137	L.T. 2. E 01	L.T. 3. E 00	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00
EU-152	L.T. 5. E 01	L.T. 9. E 00	L.T. 1. E 01	L.T. 9. E 00	L.T. 1. E 01
EU-154	L.T. 5. E 01	L.T. 8. E 00	L.T. 1. E 01	L.T. 1. E 01	L.T. 1. E 01
TH-230	L.T. 2. E- 01	4.6 +-3.6 E-01	L.T. 4. E- 00	4.9 +-3.4 E-01	3.2 +-2.8 E-01
RA-226	L.T. 3. E 02	L.T. 6. E 01	L.T. 7. E 01	L.T. 8. E 01	L.T. 7. E 01
TH-232	L.T. 2. E- 01	L.T. 2. E- 01	L.T. 6. E- 01	L.T. 2. E-01	L.T. 2. E- 01
U-235	6.3 +- 1.0 E 01	L.T. 2. E- 01	6.5 +- 3.0 E- 01	8.0 +-1.3 E 00	L.T. 2. E- 01
U-238	5.7 +-0.5 E 01	2.2 +-0.6 E 00	5.4 +-0.9 E 00	6.5 +-0.6 E 01	4.6 +-2.9 E-01
TH-234	L.T. 2. E- 01	L.T. 8. E 01	L.T. 8. E 01	L.T. 9. E 01	L.T. 6. E 01
TH-230	L.T. 2. E- 01	4.6 +-3.6 E-01	L.T. 4. E- 01	4.9 +-3.4 E-01	3.1 +-2.8 E-01

L.T. = less than

.66H

SUMMARY REPORT
METALS RECOVERY AREA EXCAVATION DEWATERING
TEXAS INSTRUMENTS INCORPORATED

OPERATING PERIOD: OCTOBER 08, 1994 TO NOVEMBER 09, 1994.
RADIOCHEMISTRY
WATER QUALITY

RADIONUCLIDE:	SAMPLE #14 SAMPLED OCT 08 pCi/L	SAMPLE #15 SAMPLED OCT 11 pCi/L	SAMPLE #16 SAMPLED OCT 20 pCi/L	SAMPLE #17 SAMPLED OCT 28 pCi/L	SAMPLE #18 SAMPLED NOV 09 pCi/L
GAMMA SPEC.					
Co-60	L.T. 4. E 00	L.T. 3. E- 01	L.T. 4. E 00	L.T. 4. E 00	L.T. 3. E 00
CS-137	L.T. 4. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 5. E 00	L.T. 5. E 00
EU-152	L.T. 1. E 01	L.T. 1. E 01	L.T. 1. E 01	L.T. 1. E 01	L.T. 1. E 01
EU-154	L.T. 1. E 01	L.T. 1. E 01	L.T. 1. E 01	L.T. 1. E 01	L.T. 9. E 00
TH-230	L.T. 3. E- 01	2.9 +-2.8 E- 01	L.T. 2. E- 01	L.T. 2. E- 01	L.T. 1. E 02
RA-226	L.T. 3. E- 01	L.T. 1. E 02	L.T. 8. E 01	L.T. 9. E 01	L.T. 7. E 01
TH-232	L.T. 2. E- 01	L.T. 2. E- 01	L.T. 4. E- 01	L.T. 2. E- 01	L.T. 3. E- 01
U-235	L.T. 2. E- 01	1.6 +-0.5 E 00	1.1 +-0.4 E 00	5.9 +-1.1 E 00	6.3 +-1.3 E 00
U-238	6.1 +-3.5 E- 01	1.6 +-0.2 E 01	9.1 +-1.3 E 00	4.2 +-0.4 E 01	5.0 +-0.5 E 01
TH-234	L.T. 1. E 02	N/A	L.T. 9. E 01	L.T. 1. E 02	L.T. 9. E 01

L.T. = less than
N/A = not avaliable

TEXAS INSTRUMENTS INCORPORATED

Attleboro, Massachusetts

REMEDIATION OF BUILDING INTERIORS
BUILDINGS 4, 5, AND 10

NRC License/Docket No: SNM-23/70-33

Report
Version: 1.0

Prepared by

WESTON

October 1996

CONTENTS

FIGURES

TABLES

ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
CEDE	committed effective dose equivalent
CFR	Code of Federal Regulations
CI	cast iron
DAC	derived air concentration
EDE	external dose equivalent
EPA	U.S. Environmental Protection Agency
G-M	Geiger-Mueller
HASP	health and safety plan
HEPA	high efficiency particulate air
HFIR	high-flux isotope reactor
M&C	Metals & Controls, Inc.
MDA	minimum detectable activity
MPA	materials processing area
NaI	sodium iodide
NIST	National Institute of Standards and Technology
NPDES	National Pollutants Discharge Elimination System
NRC	U.S. Nuclear Regulatory Commission
NUREG	Nuclear Regulatory Agency
PVC	polyvinyl chloride
RCA	radiological controlled area
RCM	remediation/construction manager
SDMP	Site Decommissioning Management Plan
SNM	special nuclear materials (license)
SOP	standard operating procedure
SWAs	standard work areas
TEDE	total effective dose equivalent
TI	Texas Instruments Incorporated
TLD	thermoluminescent dosimeter
VC	vitreous clay
WESTON	Roy F. Weston, Inc.

UNITS AND MEASUREMENTS

µR	microroentgen
cm	centimeter
cpm	counts per minute
dpm	disintegrations per minute
ft	feet
ft^2	square feet
ft^3	cubic feet
g	gram
lf	linear foot
m	meter
mrem	millliroentgen equivalent in man
pCi/g	picocuries per gram

1.0. INTRODUCTION

Texas Instruments Incorporated (TI) has completed decontamination of its Attleboro Facility, including termination surveys. The results of the termination surveys have been documented in a series of reports, including this one, each focusing on selected parts of the site.

This report describes the decontamination and termination surveys of Buildings 4, 5, and 10. Decontamination activities in Buildings 4, 5, and 10 included removal of concrete slabs, roofing material, drains, cinder block walls, excavation of underlying soil, scarification of building surfaces and other similar measures. Approximately 34,600 cubic feet (ft^3) of waste exceeding remediation criteria was transported off-site for disposal in a licensed disposal facility in Clive, Utah. As a result of the decontamination activities, the total contamination in Buildings 4, 5, and 10 was reduced from an estimated 282 millicuries (mCi) to an estimated 4 mCi.

Termination surveys, completed in accordance with U.S. Nuclear Regulatory Commission (NRC) guidance, confirm that decontamination has been successful. Based on the results of the termination surveys in Buildings 4, 5, and 10, and similar surveys documented in the other reports that TI has submitted to the NRC, TI will request termination of the NRC Special Nuclear Materials (SNM)-23 license and release of the entire Attleboro site for unrestricted release.

1.1. PURPOSE OF REPORT

This report documents the results of the remediation of building interiors and the termination surveys performed by Roy F. Weston, Inc. (WESTON®), from 1995 to 1996 at the TI Attleboro facility. Previous reports have documented surveys of other areas; this report documents the final radiological termination surveys of affected areas defined in Buildings 4, 5, and 10. Remediation activities and termination surveys have been completed in accordance with:

- The TI radioactive materials license (SNM-23).
- The TI *1992 Remediation Plan.*
- The *Supplement to the 1992 Remediation Plan.* Option 1 of the 1981 Branch Technical Position (46 FR 52061, October 23, 1981).
- NRC *Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material.*
- Nuclear Regulatory Agency(NUREG)/CR-5849, *Manual for Conducting Radiological Surveys in Support of License Termination.*
- The U.S. Atomic Energy Commission, Regulatory Guide 1.86, *Termination of Operating Licenses for Nuclear Reactors.*

The objective of this report is to provide information to support NRC termination of SNM-23 and release of the Attleboro site for unrestricted use.

classification surveys, formal document submissions to the NRC, and response to NRC comments resulting from onsite visits and document review. Several test and pilot-scale decommissioning efforts were undertaken to further refine quality assurance (QA), sampling, decontamination, and radiological safety processes. These elements were consolidated into project plans to provide a comprehensive, systematic means to implement field activities. A summary of correspondence and formal documentation is included below:

Date	Subject	Submitted to NRC
92-JUL-25	Amendment Request attached to Burial Site Remediation Plan	✓
94-DEC-XX	Supplement to the 1992 Remediation Plan, Rev. 0	✓
95-MISC	Classification and Characterization Surveys	
95-JUN-XX	Response to Comments	✓
95-JUN-XX	Building Interiors Remediation Project Plan	
95-OCT-02	Response to Comments	✓

1.3. BACKGROUND INFORMATION

The TI facility in Attleboro, Massachusetts, was owned and operated by Metals & Controls Corporation (M&C), until 1959, at which time M&C merged with TI. The General Plate Division of M&C began processing nuclear materials in 1952. From 1952 through 1959, M&C fabricated uranium fuel elements for the Naval Reactors Program and for government research reactors. After the merger in 1959, TI continued fabricating fuel elements for the U.S. Navy and the government. Source materials (e.g., natural uranium, depleted uranium, and thorium) were used under the same programs. TI's involvement in the U.S. Navy's nuclear program continued into the mid 1960s. The final chapter of TI's nuclear business involved the fabrication of high flux isotope reactor (HFIR) fuels. The HFIR project spanned several years from about 1964 to 1981. Work with nuclear materials was gradually reduced, beginning about 1967. By 1981, TI had disengaged from the HFIR project and, by so doing, permanently concluded its involvement with uranium fuel-element manufacturing.

Nuclear manufacturing operations were primarily performed in the northern third of Building 10. Support activities, including transportation and storage, were performed in the balance of Building 10. Prior to the construction of Building 10, milling operations took place in the central area of Building 4. Building 5 was used for waste management activities, including the operation of an incinerator and of an evaporation tank. These buildings have undergone numerous upgrades and modifications since nuclear manufacturing operations stopped.

2.1. GENERAL SITE DESCRIPTION

The TI Facility is located in Attleboro, Massachusetts, approximately 48 kilometers south of Boston on Route 123 (Figure 1). The facility is located in a mixed area of industrial, residential, and commercial zoning, and includes over 20 buildings covering approximately 275 acres. This report describes remediation activities and final surveys of areas located in Buildings 4, 5, and 10 (Figure 1). Buildings 4 and 10 are open-floor manufacturing buildings, with structural columns supporting roof sections of 20 to 30 feet (ft) in height. Various locations on the manufacturing floors have been modified with temporary and permanent walls and other barriers. Building 5 is an office/manufacturing building, with structural walls supporting roof sections ranging from 15 to 25 ft in height. Additional site and building descriptions are included in the Supplement to the 1992 Remediation Plan.

2.2. DETERMINATION OF AFFECTED AREAS

Based upon characterization and classification surveys performed in 1995, approximately 45,000 ft^2 of affected floor space was defined in Buildings 4, 5, and 10. The nature of contamination, as defined in these surveys, was surface contamination on concrete floors and utility trench rims exceeding the unrestricted release criteria presented in the *Supplement to the 1992 Remediation Plan.* Characterization surveys, performed in affected areas immediately prior to decontamination activities with the intent of providing exact contamination boundaries, identified an additional 10,000 ft^2 of contiguous affected floor area and localized areas of subsurface soil contamination.

Roof characterization surveys performed in the summer of 1995 identified approximately 8,000 ft^2 of affected area on the roof of Building 10. Roof surveys were implemented based on historical use of direct exhausting uranium processing equipment through roof penetrations that have since been sealed. During roof decontamination activities, approximately 2,000 ft^2 of additional affected surface area was defined.

Affected areas in each building were further subdivided into "decontamination areas" based upon physical barriers such as walls and partitions, and historical operations at that particular location (i.e., Areas 1 and 4 — former uranium cladding operations, Areas 6 and 12 — acid dissolution). The use of decontamination areas was also intended to facilitate future cost recovery associated with specific contract operations. A total of 18 decontamination areas were defined. The locations of these areas within each building are illustrated on Figures 2, 3, and 4. Decontamination operations were performed over 64 grids (10 meter-by-10 meter) inside of Buildings 4, 5, and 10, and 23 grids on the roof of Building 10. The grid system was placed over affected areas, independent of decontamination area boundaries, and serves as the basic reference to present termination survey data.

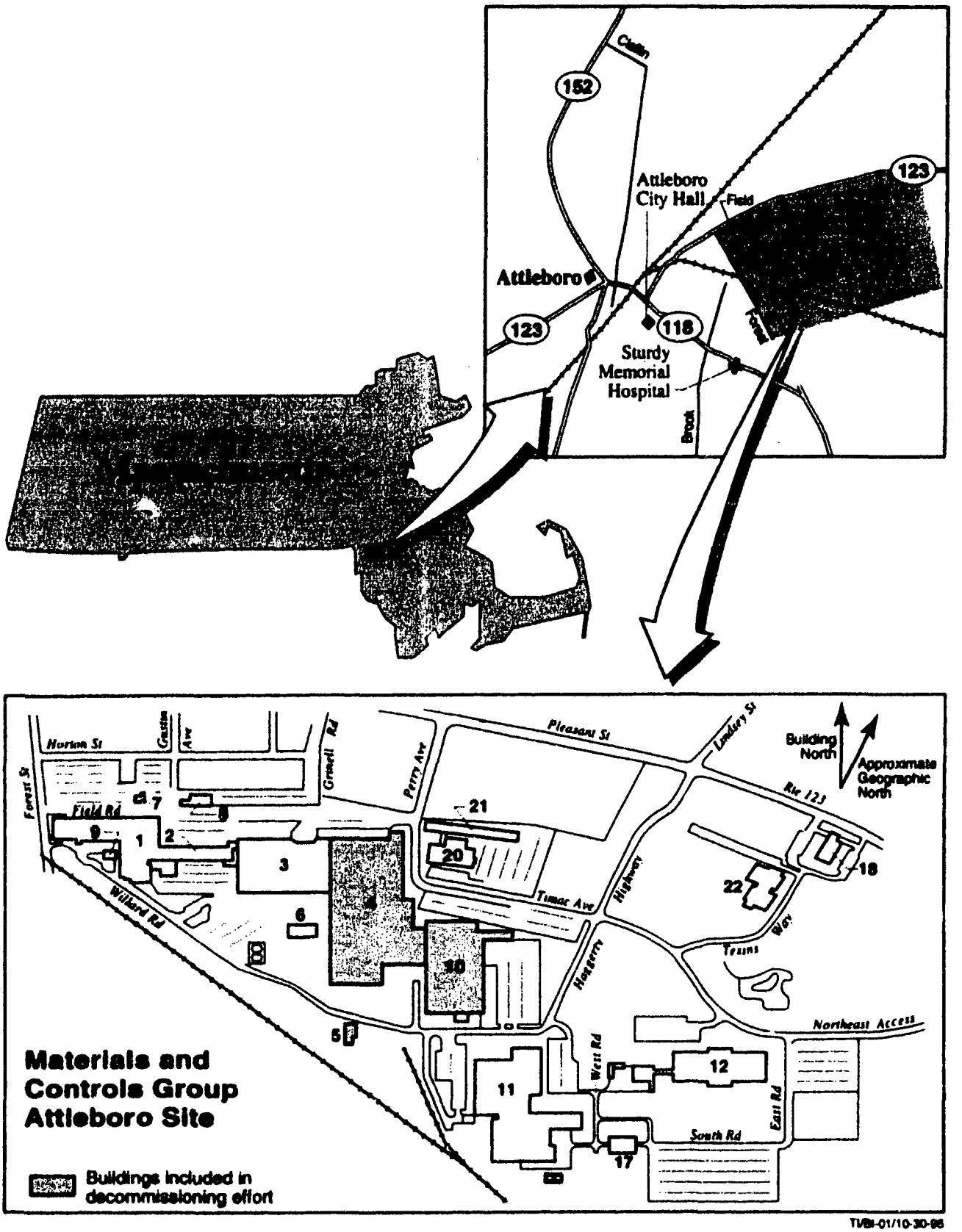


Figure 1. Map of Massachusetts and Attleboro Showing Location and Plan View of the Texas Instruments Site

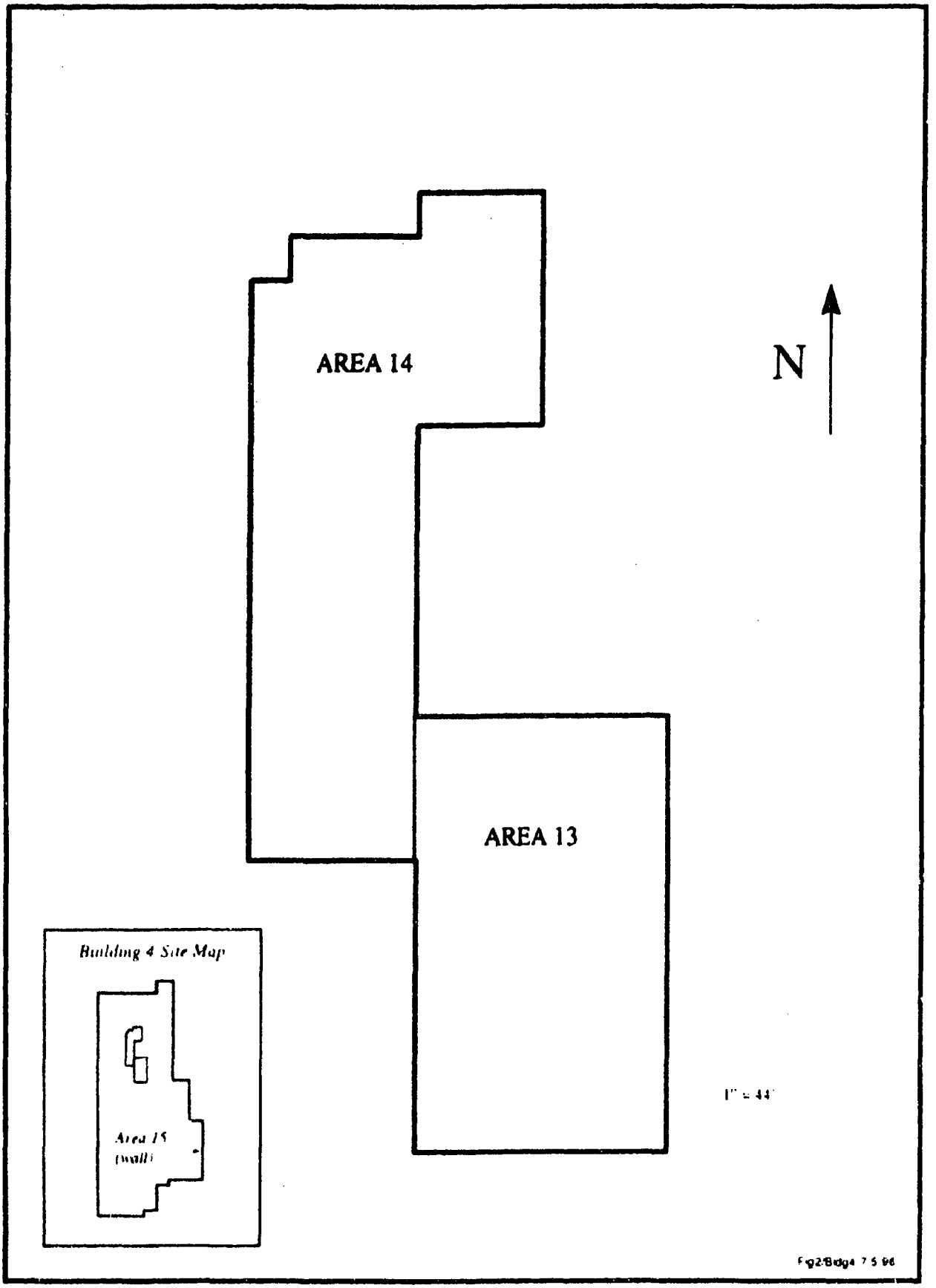


Figure 2. Building 4 - Affected Areas.

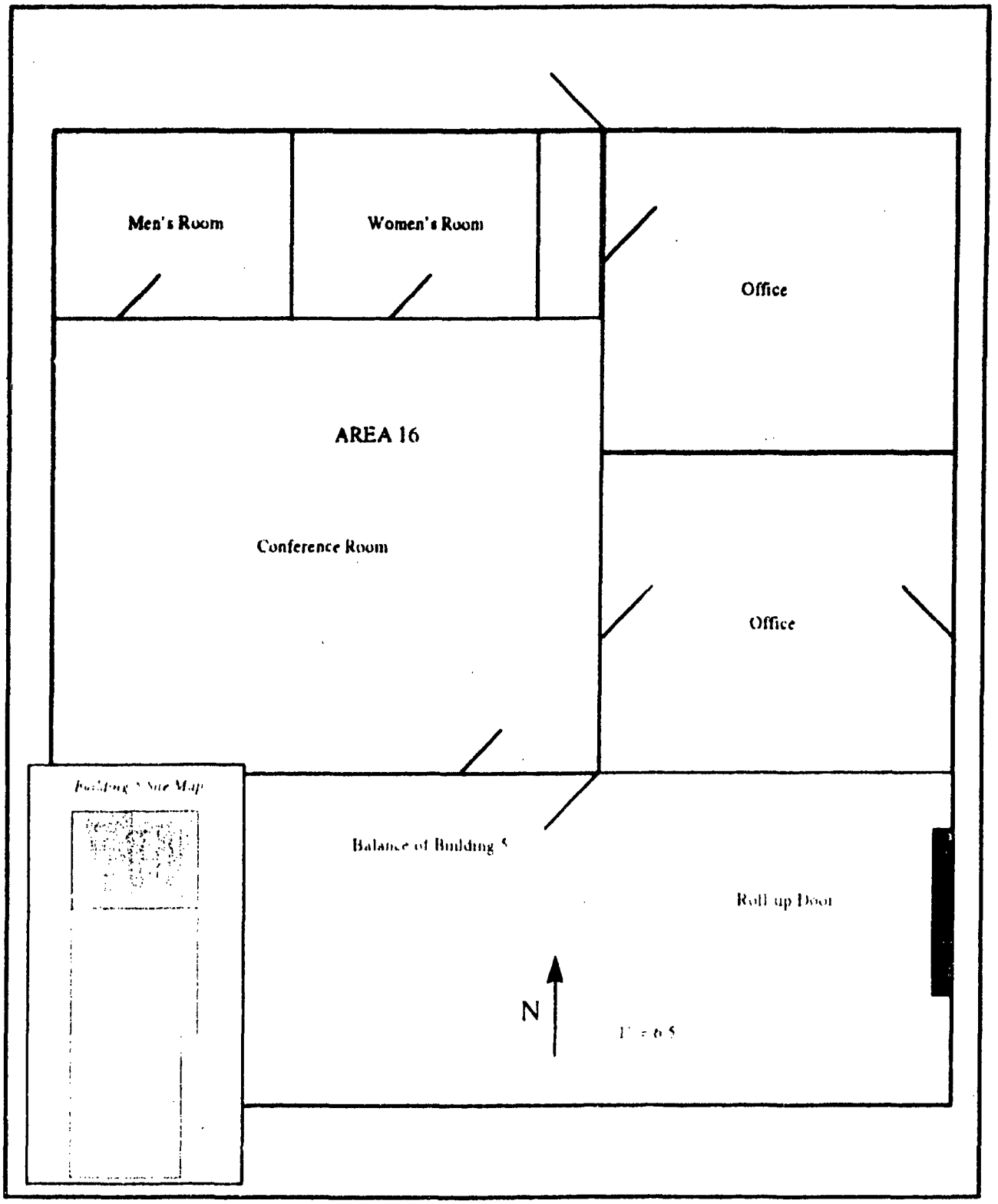


Figure 3. Building 5 - Affected Areas

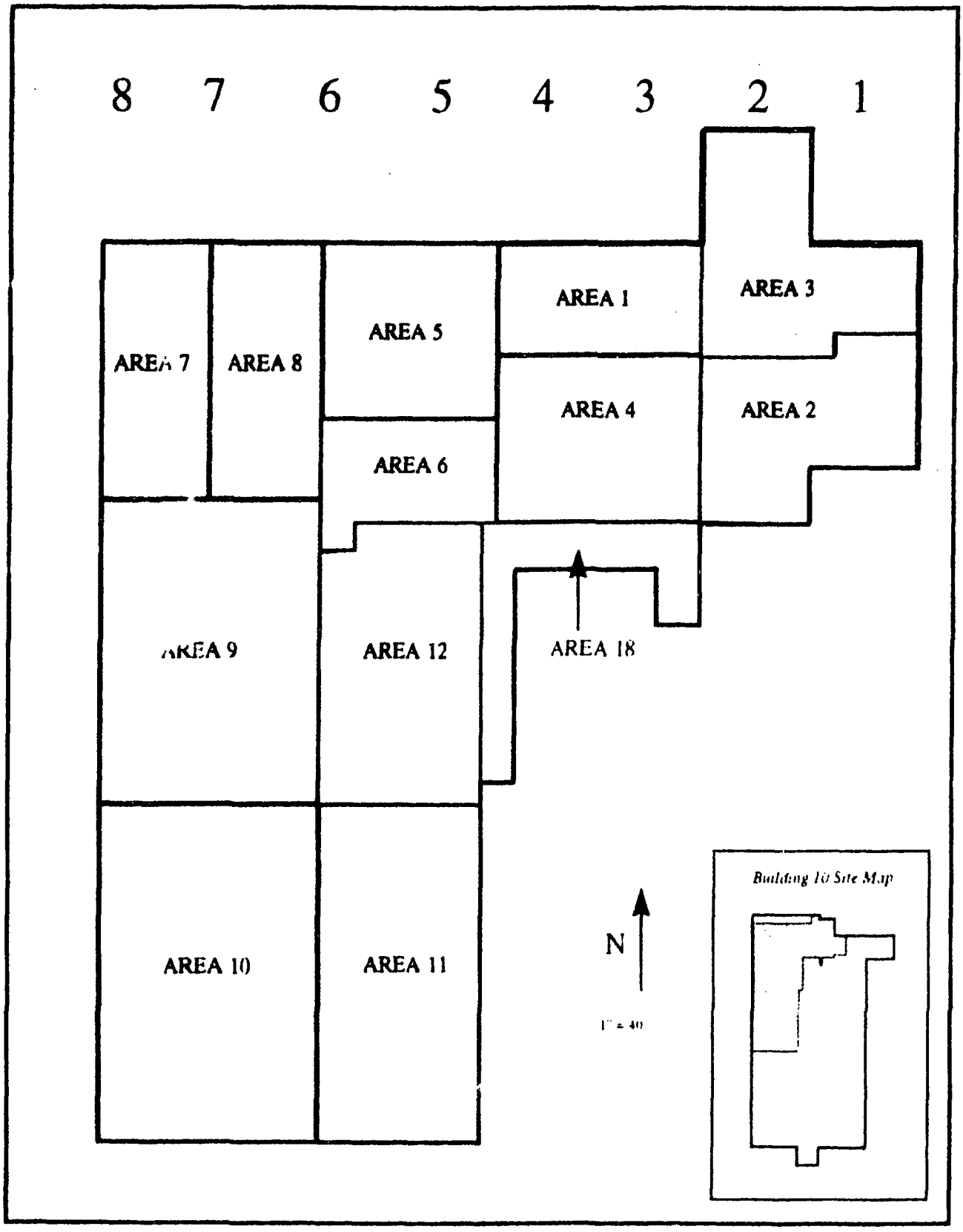


Figure 4. Building 10 - Affected Areas

2.3. HISTORICAL REMEDIATION

Extensive decontamination efforts and release surveys to support license termination were undertaken from 1981 through 1982 and involved "washing" of interior areas of Buildings 4 and 10, followed by surface contamination surveys. The results of these activities were summarized and submitted to the NRC in 1983.

Soil and parking lot areas adjacent to Building 5 were remediated in 1994 and are summarized in a report entitled *Remediation of the Metals Recovery Area*. Other historical soil remediation activities exterior to plant buildings were described in the *Remediation of the Bldg 12 Former Burial Site and Remediation of Exterior Areas Adjacent to Buildings 11 and 12 Final Report* that were previously submitted to the NRC.

A test decontamination was undertaken in several areas of Building 10 in February 1995. This demonstrated the ineffectiveness of concrete scarification techniques and was completed in March 1995.

A comprehensive "pilot" remediation program was initiated on an area of more than 7,000 ft^2 that was formerly used for uranium cladding operations in the northern section of Building 10. The pilot program was executed in July 1995 through TI's contractor, WESTON. The pilot program objectives were to remediate contaminated surfaces and underlying bulk material and to develop unit costs for various decontamination activities. The pilot program was completed in August 1995.

Based on pilot program findings, a drainage-system characterization program was implemented as part of the overall decommissioning process in September 1995. The characterization program findings were incorporated into the full-scale decommissioning program, and are included in this report.

2.4. SITE CONDITIONS AT THE TIME OF FINAL SURVEY FOR REMEDIATION ACTIVITIES

Due to active manufacturing operations and the need for storage of stock and equipment in affected areas, relocation of loose material and rescheduling operations were necessary to perform termination surveys and decontamination activities. At the time of final survey, full or partial grid cells inside buildings could be in the following conditions:

Condition 1. Intact concrete slab that had been subject to bulk material sampling and preliminary surface contamination surveys. Adjacent wall surfaces were intact.

Condition 2. Sections of contaminated concrete slab had been removed as contaminated bulk material. Exposed soil had been excavated to various depths based on field screening measurements and analytical sample data. Where necessary, subsurface features such as trenches, drain lines, and sumps had been decontaminated or removed. Adjacent wall surfaces were either intact or had been scabbled to remove surface contamination.

Condition 3. All concrete had been removed as contaminated bulk material. Exposed soil had been excavated to various depths as necessary. Where necessary, subsurface features such as trenches, drain lines, and sumps had been decontaminated or removed. Adjacent wall surfaces were either intact, had been scabbled, or entire sections had been removed.

Condition 4. Roof decontamination operations required the vacuuming of contaminated dust and gravel and removal of contamination trapped between roof tar layers. At the time of the final survey, roof grid cells could be completely opened to the underlying insulation and support beams, or could have small sections removed to the underlying insulation, or could have been vacuumed and mopped to remove loose contamination.

2.5. RELEASE GUIDELINES

Section 3.3.1 of the *Supplement to the 1992 Remediation Plan* (December 1994) defines volumetric release criteria for bulk material and soils to be removed during the remediation of contaminated building interiors at the TI Attleboro Facility. Release criteria defined in this document are based on discussion presented in an NRC Branch Technical Position (BTP) (46 FR 52061, October 1981). The release criterion for natural and enriched uranium is 30 picocuries per gram (pCi/g) and 35 pCi/g for depleted uranium. The acceptable exposure rate at 1 meter (m) above the surface as prescribed by the NRC is 10 microroentgen per hour (μR/hr) above background. In addition to the volumetric contamination criteria, surface contamination levels on personnel, equipment, and materials leaving radiological controlled areas (RCAs) must not exceed the surface contamination limits specified in *Regulatory Guide 1.86, Termination of Operating License for Nuclear Reactors*, Table I, and Appendix E of the *Supplement to the 1992 Remediation Plan*. These surface contamination limits are 1,000 disintegrations per minute (dpm)/100 square centimeters (cm^2) (removable), 5,000 dpm/100 cm^2 (total), and 15,000 dpm/100 cm^2 (maximum) and also are applied to all residual surfaces in affected areas following decontamination. Project plans incorporated policies and procedures to guide remediation activities so that the release criteria specified in the aforementioned references were achieved.

3.0. MANAGEMENT AND PROJECT ORGANIZATION

3.1. MANAGEMENT POLICY

The TI management policy mandated that all surfaces and bulk material within affected areas would be sampled and surveyed for comparison to the release guidelines specified in the Supplement to the 1992 Remediation Plan and supporting documents identified in Sections 1.1 to 1.2 of this report. If this characterization indicated that release guidelines were exceeded, areas would be decontaminated to reduce surface and bulk material radioactivity to as low as reasonably achievable below the release guidelines. If contaminated areas were identified that posed an immediate health risk to plant workers or the public, these areas would be subject to immediate control and remediation.

3.2. PROJECT ORGANIZATION AND RESPONSIBILITIES

WESTON was retained by TI as the project remediation/construction manager (RCM). WESTON provided comprehensive technical, health and safety, cost and schedule, and subcontractor management services. In managing the remediation, WESTON retained five primary subcontractors (Figure 5) and over 20 second-tier support subcontractors.

4.0. REMEDIATION ACTIVITIES

The following section provides a brief discussion of the remediation activities performed in decontamination areas 1 through 18, located within Buildings 4, 5, and 10. Discussion is provided for remediation of concrete wall and floor surfaces; building roofs; special features including utility trenches, sumps, equipment pads, and capital equipment; and underlying soils. Contaminated materials consisted of bulk soil and concrete, piping, metal and miscellaneous debris, and protective clothing. Contaminated materials were transported to a materials processing area for assay, packaging, and shipment. The processing area also was used for soils remediated external to the buildings.

Remediation activities were performed under a comprehensive radiological/health and safety plan (HASP) and systematic radiological protection operating procedures. As remediation tasks were completed, termination surveys and sampling were performed. Verification samples were archived for future confirmatory analyses by the NRC.

4.1. BUILDING 10

Building 10 included interior decontamination areas 1 through 12 and 18, which covered approximately 41,500 ft^2. A portion of the roof of Building 10, covering approximately 10,000 ft^2, was defined as decontamination area 17. Several special features and the underlying drainage system were subject to extensive remediation activities. Special features included subsurface sumps, utility trenches, and equipment pads.

4.1.1. Areas 1 through 12 and 18 Concrete Floors and Underlying Soils

Approximately 15,000 ft^2 of concrete slab (ranging in thickness from 6 to 18 inches) was completely removed and transported to the materials processing area (MPA). To facilitate crushing and processing operations, slabs were separated at the MPA to segregate between material exhibiting surface contamination only versus material exhibiting bulk contamination. Standard removal techniques included the application of concrete saws, breakers, and miscellaneous heavy equipment used for loading. An additional 800 ft^2 of concrete surface (including floors and walls) was subject to scarification with several types of pneumatic and electric scabbling equipment. Concrete remediation activities resulted in the generation of approximately 18,000 ft^3 of waste transported to the MPA.

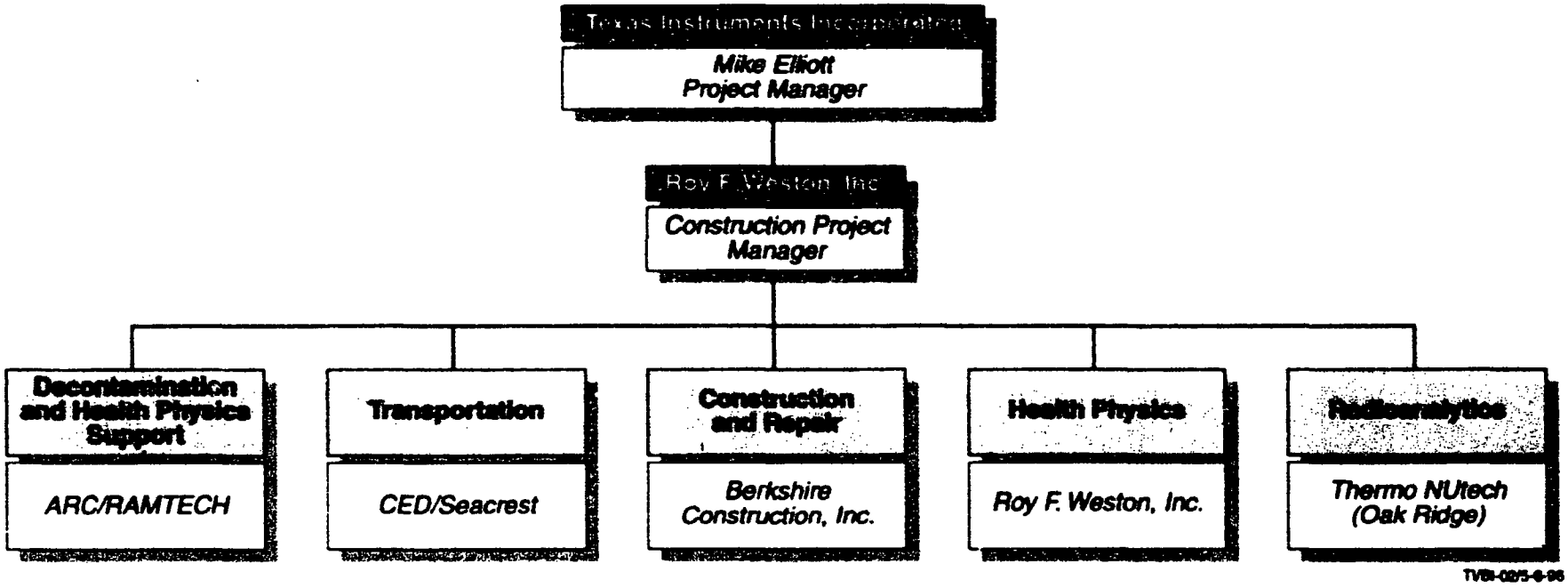


Figure 5. Project Organization

Approximately 30,000 ft^3 of contaminated soil was excavated and transported to the exterior MPA for processing. The extent of the excavation was determined through field radiological measurements and soil sample analyses from surface and core samples. Excavation and transport were performed with a variety of heavy equipment including excavators and Bobcat loaders. In September 1996, an additional 1200 ft^3 were excavated below two electrical substations located in these areas.

4.1.2. Area 17, Building 10 Roof

Approximately 10,000 ft^2 of Building 10's roof was subject to decontamination techniques including vacuuming of gravel and dust, scraping of roof tar layers, and roof section removal. Roofing material was transferred directly to intermodal shipping containers using a sealed hopper/chute system. Scraping and roof section removal were performed with roof cutters and hand tools. Decontamination and removal operations resulted in approximately 1,000 ft^3 of radioactive waste to be transported for disposal.

4.1.3. Special Features

After the contaminated concrete slabs and soil were removed in Building 10, several special features were exposed and subject to decontamination and termination surveys. These included nine sumps, four utility trenches, and one equipment pad. Sumps varied in size and depth, and were cleared of fill material and cleaned with a mild detergent and/or scabbled to reduce surface contamination to below cleanup criteria. Two sumps were completely or partially removed. Utility trenches ranged from 2.5 to 5 ft in depth. They were cleared of debris and, where possible, process piping. Approximately 180 linear ft of concrete utility trench and metal framing were completely removed and disposed of as radioactive waste. Approximately 60 linear ft of utility trench was decontaminated through removal of metal frame, scabbling, and breaking. Following decontamination, the sumps and trenches were subject to a termination survey, were backfilled with clean soil or gravel, and were covered with a concrete slab. Decontamination and removal of special features resulted in approximately 1500 ft^3 of radioactive waste transported for disposal.

4.1.4. Drainage System

Drainage systems servicing affected areas of Building 10 that had accepted flow from roof and floor drains and were subject to complete removal, *in-situ* decontamination, or no action. Sections of lines were designated based on results of supplemental surveys. Drainage systems consisted primarily of cast iron (CI) and vitreous clay (VC) lines, with some near-surface polyvinyl chloride (PVC) lines. Approximately 580 linear feet (lf) of VC, 540 lf of CI, and 360 lf of PVC lines were subject to complete removal. Approximately 320 lf of VC and 300 lf of CI were decontaminated using high-pressure wash techniques. All remaining drain lines exhibited bulk material concentrations of less than 30 pCi/g and were designated for no action.

Drain line sections that were completely removed were sealed and disposed of as radioactive waste. Complete drain line removal resulted in approximately 1,000 ft^3 of radioactive waste to be transported for disposal. *In-situ* decontamination of drain lines resulted in 200 ft^3 of sludge and filter media to be disposed of as radioactive waste, and approximately 2,500 gallons of filtered water that was treated, sampled, and released.

4.2. BUILDING 4

Building 4 included decontamination areas 13 and 14, which covered approximately 12,000 ft^2 of manufacturing floor space. Decontamination area 15 was also located within Building 4 and consisted of a wall area of approximately 100 ft^2. This wall was referred to as the "4/10 Connector" because a portion of the wall connects Buildings 4 and 10. Primary remediation activities in Building 4 consisted of concrete floor surface scabbling and, to a lesser extent, slab removal and soil excavation. The Lewis Mill, a large piece of capital machinery located in decontamination area 13, was treated as a special feature. No accumulation of radioactive material exceeding cleanup criteria was identified in the underlying drainage system of Building 4.

4.2.1. Areas 13 through 15 Concrete Floors, Underlying Soils, and Brick Wall

Approximately 250 ft^2 of contaminated concrete slab was removed and transported to the MPA. Standard removal techniques involved the application of impact breakers and miscellaneous heavy equipment used for loading and transport. An additional 730 ft^2 of concrete and wall surfaces was subject to scarification with several types of pneumatic and electric scabbling equipment. An embedded metal beam in the wall at decontamination area 15 was hammered out using a pneumatic impactor. Approximately 200 ft^2 of concrete floor surface was subject to a test chemical decontamination extraction process. This failed due to a high rate of evaporation caused by elevated ambient temperatures. This surface area was then subject to standard scarification techniques. Concrete and wall remediation activities generated approximately 300 ft^3 of waste that was transferred to the MPA.

Limited soil excavation was performed in concrete slab removal areas. Approximately 400 ft^3 of contaminated soil was excavated and transferred to the MPA. Excavation and loading was performed with excavators and Bobcat loaders.

4.2.2. Special Features

The Lewis Mill was the only special feature defined in Building 4. The mill was subject to a comprehensive survey - decontamination - survey process. Equipment surfaces, residue collection points, and service sumps and traps were surveyed and decontaminated with mild detergent where necessary. Underlying concrete surfaces were treated by standard scabbling techniques. Limited amounts of decontamination media were generated and packaged for disposal as radioactive waste.

decontamination was present in the drainage system underlying areas 13 and 14. One small section of a feed line was removed during concrete and soil removal operations in area 14.

4.3. BUILDING 5 — AREA 16 CINDERBLOCK WALLS, CONCRETE FLOORS, AND UNDERLYING SOILS

Approximately 700 ft^2 of contaminated concrete slab and cinder block wall was removed and transported to the MPA. Standard removal techniques involved the application of impact breakers and miscellaneous heavy equipment used for loading and transport. An additional 500 ft^2 of concrete and wall surfaces was subject to scarification with several types of pneumatic and electric scabbling equipment. Concrete and wall remediation activities generated approximately 1,000 ft^3 of waste transferred to the MPA. Minor amounts of underlying soil were removed in conjunction with concrete slab remediation and transported to the MPA.

4.4. WASTE PROCESSING

Waste generated from interior decommissioning activities included concrete rubble, soil, roof tar and gravel, scrap metal, clay and iron drain lines, and protective clothing/expendable supplies. Waste generated inside buildings was loaded into transport hoppers and transferred to the Exteriors soil project MPA. Roof gravel and debris were transferred directly into intermodal shipping containers using a sealed chute system. At the MPA, surface-contaminated concrete was segregated from bulk-contaminated slabs. Several slabs from one location of Building 10 contained a former surface layer consisting of acid resistant brick tile that exhibited total uranium concentrations ranging from 500 to 700 pCi/g. Table 1 presents a summary of the waste type and volume resulting from the aforementioned remediation activities.

During remediation activities, approximately 30,000 ft^3 of near-surface low activity soil (<100 pCi/g) and surface-contaminated concrete were generated. This volume of waste was subject to processing by mechanical screening to segregate concrete and cobbles from soil. After processing, approximately 13,000 ft^3 of rubble, 10,000 ft^3 of contaminated soil (> 30 pCi/g total uranium), and 7,000 ft^3 of non-contaminated soil resulted. The concrete and cobbles were subject to crushing through a hydraulic press, resulting in a coarse material with a maximum 4-inch aggregate diameter. When the crushed concrete was sampled for total uranium, it was found that bulk activity was less than 30 pCi/g. Material containing less than 30 pCi/g total uranium was retained onsite for TI use. In an isolated excavation extending to a maximum depth of 8 ft, approximately 20,000 ft^3 of soil with total uranium concentrations exceeding 200 pCi/g was generated from decontamination areas 5, 6, and 12 in Building 10.

Table 1. Summary of Waste Type and Volume Resulting from Remediation Activities

Remediation Activity	Estimated Waste Volume (ft^3)
Areas 1 through 12 and 18, Concrete Floors (Building 10)	18,000
Areas 1 through 12 and 18, Underlying Soils (Building 10)	31,200
Area 17, Building 10 Roof	1,000
Building 10 Special Features	1,500
Building 10 Drainage System	1,200
Areas 13 through 15, Concrete Floors (Building 4)	300
Areas 13 through 15, Underlying Soils (Building 4)	400
Area 16, Concrete Floors (Building 5)	1,000
Total Prior to Processing	54,600
Crushed Rubble Reclaimed by Processing	13,000
Segregated Soil < 30 pCi/g	7,000
Total Volume for Disposal	34,600

4.5. WASTE DISPOSAL

All waste exceeding remediation criteria was transported to and disposed of at the EnviroCare of Utah, Inc. facility in Clive, Utah. Due to its relatively high total uranium concentration when compared to exterior soils, interior waste was blended with these soils to optimize the total uranium-235 mass to less than 350 grams (g) per rail car. The total waste volume of 34,600 ft^3 resulted in a total mass of 2,064 tons distributed in 109 intermodal transportation containers. These containers were distributed over 32 rail cars shipped during August 1995 through April 1996. A truck shipment of approximately 1,200 ft^3 of waste was transported from the site in October 1996.

The total waste activity was 0.273 curies (Ci) of uranium and included 4,501 g of uranium-235 (special nuclear material). Detailed waste inventory information is included in Attachment 7.

4.6. HEALTH AND SAFETY/COMPLIANCE STATISTICS

Interior remediation and support activities were conducted under two levels of the Health and Safety Plan. The most restrictive level of HASP was applied to subcontractors performing remediation activities subject to the provisions of 29 Code of Federal Regulations (CFR) 1910.120. This HASP addressed construction and industrial hazards, hazardous materials, and radiological safety. It also established all monitoring requirements and protective measures. Subcontractors operating under the comprehensive HASP included ARC, RAMTECH, RSI, and Franklin. Onsite WESTON personnel were required to read, sign, and abide by the provisions of the comprehensive HASP.

Subcontractors not engaged in hazardous waste operations were required to conduct operations under a narrow-scope industrial HASP that addressed construction and industrial hazards. The industrial HASP incorporated provisions of the TI Contractor Safety Manual. These subcontractors typically performed support or repair functions in decontaminated areas. Subcontractors included Berkshire Construction, Guild Drilling, Demers Trucking, Gaudette Machinery Movers, Amolins Structural Engineers, and Gorman Roofing.

4.6.1. Lost-Time Injuries

Throughout the entire remediation operation (June 1995 through September 1996), no lost-time injuries occurred. During the period that remediation operations proceeded on a continuous basis (June 1995 through April 1996), this represented approximately 16,000 labor hours of work performed by subcontractor personnel from ARC; RAMTECH Services, Inc.; Berkshire Construction; Gorman Roofing; Guild Drilling; Gaudette Machinery Movers; Demers Trucking; Amolins Structural Engineers; Forbes Painting; Sita Janitorial; and National Fence. WESTON personnel performed approximately 10,000 labor hours of work.

4.6.2. Personnel Dose Summary

WESTON and subcontractor dose summaries were prepared for the third and fourth quarters of 1995, and the first quarter of 1996. Dose summaries included contributions from external and internal exposure sources, calculated based on thermoluminescent dosimeter (TLD) badge results and area air sampling data. TLD badge results provided an estimate of each worker's external dose equivalent (EDE) received from penetrating radiation, while air sampling data were used to calculate the committed effective dose equivalent (CEDE) from internally deposited radionuclides. All worker total effective dose equivalent (TEDE) results were less than 20 milliroentgen equivalent in man (mrem) in each quarter. All worker TEDEs were considerably less than the acceptable limit (10 CFR Part 20) (January 1994) of 1,250 mrem per calendar quarter. Personnel exposure records and data are maintained on file at the TI Attleboro facility.

4.6.3. Air Sampling/Offsite Emissions

Table 2 lists the monthly average percentage of the 10 CFR Part 20, Appendix B, Table 1, Column 3, derived air concentration (DAC) of uranium for work area samplers and personnel lapel samplers during remediation activities. Air sample data are on file at the TI Attleboro Facility.

July	<5%	14%
August	<5%	12%
September	<5%	12%
October	<12%	1,150%[a]
November	<5%	10%
December	<5%	14%
January	<5%	11%
February	<5%	10%
March	<5%	13%
September	<10%	<10%

[a] *Maximum reading for 4-hour shift. Dust control measure implemented.*

Air sampling was performed during all intrusive remediation activities and results were compared to the most restrictive isotopic uranium DAC from Title 10 CFR Part 20, Appendix B, Table 1, Column 3. Table 2 presents the monthly average uranium concentration as a percentage of the DAC, as well as maximum readings for the month. It should be noted that all airborne concentrations exceeding 25 percent of the DAC were measured during outdoor roof remediation activities; indoor remediation activities were subject to the application of containment tents and/or high efficiency, particulate air (HEPA) filtration. The remediation activities did not result in the offsite release of airborne radioactive materials.

Airborne radionuclide concentrations were applied to work-area stay times and respiratory protection factors to estimate the CEDE to workers. Despite the elevated air samples collected in October 1995, all quarterly CEDEs were calculated to be 20 mrem.

4.6.4. Effluent Discharges

The only liquid effluent resulting from interior remediation activities was cooling water generated from concrete and rock washing and cutting operations. Approximately 4,000 gallons of water was generated and combined with over 1 million gallons of rock wash-water filtered effluent generated during the exterior soils remediation project. A complete discharge summary is presented in the *Remediation of Exterior Areas Adjacent to Buildings 11 and 12 Final Report.*

5.0. FINAL SURVEY OVERVIEW

5.1. SURVEY OBJECTIVES

The purpose of the final survey was to demonstrate that the radiological conditions in the affected building areas having undergone remediation from 1995 to 1996 at the TI Attleboro facility satisfied the NRC

guidelines and that these areas could be released for unrestricted use. Specific objectives of the survey were to present the following:

- Surface contamination levels in affected areas do not exceed 1,000 dpm/100 cm^2 removable, 5,000 dpm/100 cm^2 total, and 15,000 dpm/100 cm^2 maximum as specified in NRC regulatory guidance.
- The total uranium concentrations in soils beneath affected areas are at or below the cleanup criteria of 30 pCi/g.
- Exposure rates at 1 m from the surface do not exceed 10 μR/hr above background.
- Reasonable efforts are made to identify, evaluate, and remove, if necessary, areas of residual contamination exceeding the guideline values.

5.2. SURVEY PROCEDURES

Survey plans and standard operating procedures (SOPs) were developed in accordance with NUREG/CR-2082, *Monitoring for Compliance With Termination Survey Criteria*, and NRC guidance as expressed in the TI *1992 Remediation Plan* and *Supplement to the 1992 Remediation Plan*. NUREG/CR-5849, *Manual for Conducting Radiological Surveys in Support of License Termination*, was used as a source for calculation methods in data interpretation.

5.2.1. Area Classification

Areas of Buildings 4, 5, and 10 were classified as unaffected or affected as the result of preliminary characterization and classification surveys performed in 1994-1995. The basis for the classification of these areas may be found in the *Supplement to the 1992 Remediation Plan* and in Section 4.2.1 of NUREG/CR-5849, the *Manual for Conducting Radiological Surveys in Support of License Termination*. The affected areas within these buildings were further subdivided into 18 working decontamination areas tied to building features such as walls and capital equipment. Decontamination areas also were delineated based on localized historical operations (cladding, autoclaving, etc.). Figures 2 through 4 illustrate the 18 decontamination areas through Buildings 4, 5, and 10. Area 17 was added based upon supplemental characterization surveys performed in the spring of 1995. Area 18 was added as a result of decontamination operations in contiguous areas.

5.2.2. Reference Grids

A 10-by-10 m reference grid system was established for affected areas in Buildings 4 and 10. Affected areas in Building 5 were diagrammed separately due to the limited surface area. Affected areas of Building 10's roof were retained on the original 30-by-30-ft grid system implemented during

to these grid coordinate systems.

5.2.5. Standard Operating Procedures

WESTON and its subcontractors used a variety of SOPs to efficiently and safely execute remediation and termination survey activities at the TI Attleboro facility. SOPs fall into three primary categories: radiological and occupational safety, characterization and decontamination operations, and support functions.

The breakdown of these procedures is as follows:

Radiological Safety/Occupational Health and Safety Procedures

SOP 1.0	Worker Training Requirements
SOP 2.0	Radiation Work Permit Preparation
SOP 3.0	Access Control
SOP 4.0	External Dosimetry Program
SOP 5.0	Internal Dosimetry Program
SOP 6.0	Respiratory Protection Program
SOP 7.0	Personnel and Equipment Frisking with Ludlum Model 12/Model 43-5
SOP 12.0	Air Particulate Monitoring with Real-Time Aerosol Monitor
SOP 14.0	Heavy Equipment Inspection and Operation
SOP 20.0	Intermediate Volume Air Particulate Sampling
SOP 21.0	Heat Stress Prevention and Monitoring
SOP 27.0	Personal Air Particulate Sampling
SOP 34.0	Measurement of Gamma-Ray Fields

Characterization and Decontamination Operations

SOP 8.0	Operation of Ludlum Model 2350 Data Logger/43-68 Probe or Model 239-1F Floor Monitor
SOP 9.0	Personnel Decontamination Procedure
SOP 10.0	Function Check of Portable and Stationary Radiation Detection Instrumentation
SOP 11.0	Removable Alpha Contamination Measurements with Ludlum Model 2000 Scaler/Model 43-10 Alpha Tray Counter
SOP 13.0	Preparation of Soil Samples for Gross Alpha Counting with Large-Area Alpha Detector (Ludlum Model 43-1)
SOP 16.0	Termination Survey Requirements
SOP 22.0	Sampling Identification Procedure
SOP 25.0	Concrete Core Sample Collection

Support Functions

SOP 28.0	Sample Archival Procedure

The SOPs are on file at the TI Attleboro facility.

5.2.4. Concrete and Wall Surface Contamination Measurements

One hundred percent of the concrete surfaces remaining in each 10-by-10-m grid following decontamination was surveyed with gas flow detectors and scaler/ratemeters. Adjacent permanent wall surfaces were surveyed to a height of 1 m. Total beta measurements were performed based on the application of an efficiency modification factor associated with uranium at 2 to 3 percent enrichment. The surveys were performed in accordance with SOPs 8.0 and 16.0.

Removable contamination measurements were performed daily in all decontamination areas according to SOP 11.0. In all cases, removable contamination levels did not exceed 200 dpm/100 cm^2, and were commonly lower than the counting system minimum detectable activity (MDA) (ranging from 15 to 30 dpm/100 cm^2).

Remaining sections of special features, such as utility trenches and sumps, were subject to the same protocol prior to backfilling.

5.2.5. Sampling and Analyses of Concrete and Soil

Concrete slabs remaining after decontamination were sampled systematically to determine that total uranium concentrations did not exceed 30 pCi/g. Likewise, exposed soil areas following concrete removal and/or soil excavation were systematically sampled to demonstrate compliance with the bulk material cleanup guidelines for total uranium.

Preliminary sampling protocols were implemented based on total beta measurements with a plastic scintillation detector according to SOP 16.0. Areas exceeding 125 percent of the detector background were further remediated and/or sampled and analyzed per SOP 13.0.

Termination surveys were implemented following successful decontamination as demonstrated with the preliminary sampling protocol. A sampling system was implemented over each 10-by-10-m grid cell (or exposed portion) according to the frequency defined in a sampling and analysis plan. This plan incorporated sampling patterns presented in NUREG/CR-5849, Figure 4-4, page 4.17.

5.2.6. Surface Contamination Measurements of Roofing Material

Remaining roof surfaces were subject to surface contamination surveys following decontamination. In many instances, complete roof sections were removed down to their support beams and termination surveys were not implemented. Where surveys were implemented, surface contamination measurements were performed using pancake Geiger-Mueller (G-M) detectors and alpha scintillators per SOP 7.0. Alpha

scintillators were applied to regular (flat), dry surfaces. Removable contamination measurements were performed per SOP 11.0.

5.2.7. Exposure Rate Measurements

All affected areas were subject to walkover gamma exposure rate surveys following decontamination to demonstrate that gamma exposure rates did not exceed 10 µR/hr above background. Surveys were performed according to the methods presented in SOP 34.0.

5.3. INSTRUMENTATION

Four types of scientific equipment were maintained onsite, including portable health and safety monitoring equipment, portable radiation detection equipment, portable calibration equipment, and stationary radiation detection instruments. Portable equipment was used in standard work areas (SWAs) and radiological control areas (RCAs), while stationary radiation detection equipment was operated solely within the WESTON field trailer. Equipment model numbers and monitoring characteristics or functions are included in Table 3.

Table 3. Radiation Detection Instrumentation

Manufacturer	Model	Description	Application
Ludlum Ludlum	2350,2221 43-68, 43-37	Scaler Gas Flow Detector	Surface Contamination Surveys
Ludlum Ludlum	12 43-5	Ratemeter Alpha Scintillator	Frisking
Ludlum Ludlum	2000/2200 43-10	Scaler Alpha Tray Counter	Swipe Analysis Air Sample Analysis
Ludlum Ludlum	12 44-9	Ratemeter G-M Detector	General Contamination Monitoring/Frisking, Surface Contamination Surveys
Ludlum Ludlum	2221/2300/2200 43-1	Ratemeter/Scaler Alpha Scintillator	Soil/Concrete - Sample Screening
Ludlum Ludlum	2221 44-1	Ratemeter/Scaler Beta Scintillator	Excavation Control Monitoring
Ludlum Ludlum	2221 44-10	Ratemeter/Scaler NaI(Tl) 2X2 Detector	Area Gamma Count Rate Surveys
Ludlum	19	Micro-R Meter	Gamma Exposure Rates

G-M - Geiger-Mueller
NaI - sodium iodide

All equipment was operated according to the requirements of the SOPs and manufacturer's specifications. All equipment was subject to a full calibration in accordance with American Society for Testing and Materials (ASTM)/American National Standards Institute (ANSI) methods using National Institute of Standards and Technology (NIST) reference radioactive sources and secondary standards. SOP 10.0

identifies a method and frequency to perform response and function checks. These checks were documented and performed at least daily. Any instrument or equipment failing a function check and then repaired was re-calibrated before being put back into service. Electronic equipment components were subject to routine calibration on an annual cycle, while probes were subject to semiannual calibration. All calibrations were documented using standard calibration forms, which are on file at the TI Attleboro facility.

5.4. BACKGROUND LEVELS DETERMINATION

Implementation of bulk sampling and surface contamination measurements in and on a variety of media required the collection of multiple background instrumentation measurements and samples for total and isotopic uranium analyses. Prior to the initiation of decontamination activities, a background measurement and sampling location was selected in the southeast corner of Building 10, well away from affected decontamination areas. At this location, concrete core and underlying soil samples were collected and analyzed for total and isotopic uranium. Concrete floor and cinderblock wall surfaces were subject to surface measurements with gas-flow and G-M detection systems. Area background gamma exposure rates were taken with a μR meter.

Instrument background measurements were typically performed at this location prior to use and recorded on data forms. Instrument "system" background was recorded in the field equipment and counting trailer on a daily basis. Table 4 presents instrumentation background and bulk material background sample analytical results.

Table 4. Background Levels - Building Interior Remediation

Instrument	Application	System Background	Field Background
Ludlum 43-68/2350; 2221	Wall Surveys (termination)	280 - 380 cpm	300 - 400 cpm
	Floor Surveys (termination)	280 - 380 cpm	325 - 500 cpm
Ludlum 44-9/12; 3	Floor Surveys (informational)	40 - 60 cpm	50 - 70 cpm
Ludlum 44-1	Exposed Soil (informational)	40 - 50 cpm	50 -80 cpm
Ludlum 19	Exposure Rate Surveys	7 -13 μR/hr	7 -13 μR/hr

Bulk Material Background Concentrations	Total Uranium (pCi/g)	U-234 (pCi/g)	U-235 (pCi/g)	U-238 (pCi/g)
Concrete Slab	2 -3	1.1	0.07	1.3
Soil	2 -3	1.5	0.05	1.8

cpm-counts per minute
μR/hr-microroentgen per hour
pCi/g-picocuries per gram

5.5. SAMPLE ANALYSES

The frequency and locations of verification samples for residual concrete slabs and exposed soils were *as specified in a sampling and analysis plan*. All verification samples were split prior to offsite shipment, with the split sample packaged and archived.

All samples of bulk material (concrete, soil, drain line residue, and roof dust) were submitted for analytical laboratory analyses, including total uranium per ASTM D5714 and/or isotopic uranium per EML U02 Modified. These analytical methods were applied to all systematic concrete and soil termination samples collected in grid cells having undergone decontamination. Field gross alpha screening of bulk material samples was performed for general information only. Where necessary, total uranium samples were converted to isotopic concentrations based on the average uranium enrichment as developed from other isotopic samples in the area.

All bulk material samples were analyzed by Thermo NUtech (formerly TMA Eberline) of Oak Ridge, Tennessee. As part of standard quality assurance protocol, Thermo NUtech implemented analysis of duplicate and spike samples for each batch of samples.

Surface contamination measurements were corrected for counting system background and, in some cases, concrete and wall background as measured with a particular instrument combination.

5.6. DATA INTERPRETATION

Data conversions and evaluations were performed as established in the TI radioactive materials license (SNM-23); the TI *1992 Remediation Plan*; the *Supplement to the 1992 Remediation Plan*; NUREG/CR-5849, the *Manual for Conducting Radiological Surveys in Support of License Termination*; and the SOPs. Calibration methods complied with ANSI N323-1978 and ASTM standards. All measurement data were converted to units consistent with the regulatory requirements and guidelines.

Exposure rate measurements were corrected for contributions from the natural site background. No soil sample results were corrected for natural background concentrations of uranium, thus providing a more conservative basis of comparison to the bulk material cleanup criterion.

All in-place soil and concrete sample data were averaged by grid cell and compared to the site guideline level of 30 pCi/g. Weighted averages for the grid cells were calculated and compared to the guideline when elevated areas inside the grid cell were found.

5.7. RECORDS

All verification samples and survey data for this project have been archived at the TI facility. Duplicate records are stored at the WESTON office in Albuquerque, New Mexico. The project filing system key is presented in Attachment 1.

6.0. FINAL SURVEY RESULTS

6.1. BACKGROUND LEVELS

Background data for the final survey for the Building Interiors Remediation Project are presented in Table 4.

6.2. TERMINATION SURVEY DATA EVALUATION — AFFECTED AREAS

Termination survey data from the 18 decontamination areas within Buildings 4, 5, and 10 are presented by grid cell, special features, drainage systems and, where applicable, roof surveys.

Grid cell data include surface contamination measurement and bulk sample analyses for concrete left in place Where underlying soil has been exposed, total beta measurements and bulk sample analyses of soil are presented.

Special features include utility trenches, sumps, and equipment pads left in place following decontamination. Termination survey data include surface contamination measurements and, in some cases, sample analyses for residue left in the feature.

Drainage system data include bulk samples of pipe interior residues collected during characterization studies. Where drain lines were not completely removed or decontaminated, the average inventory and total uranium concentration present were calculated to confirm that the concentration was below bulk concentration limits of 30 pCi/g.

Roof termination survey data include total and removable surface contamination measurements of remaining roof sections.

6.2.1. Building 10 Grid Cells

Building 10 contained decontamination areas 1 through 12 and 18, and included 47 full or partial 10-by-10-m grid cells. None of the remaining concrete surfaces in the grid cells exceeded the surface contamination guidelines. Three of the grid cells in which soil excavation had taken place exhibited discrete sample concentrations exceeding 30 pCi/g, the highest being 68 pCi/g. When averaged with the

other samples in their respective grid cells in accordance with NRC guidance and the applicable project standard operation procedure, all average concentrations were less than 30 pCi/g. Subsurface residual radioactivity features (other than exposed soil) are discussed in Section 6.2.8. Detailed Building 10 termination survey and sampling data are presented in Attachment 2.

6.2.2. Building 10 Roof

The Building 10 roof included 23, 30-by-30-ft grid cells that underwent full removal or decontamination. All residual surfaces were subject to surface survey and were found not to exceed surface contamination criteria. Detailed roof termination survey data are presented in Attachment 3.

6.2.3. Building 10 Special Features

Building 10 special features included two utility trenches, one equipment pad, and eight subsurface sumps. All sump contents were sampled, removed, and disposed of as necessary. After decontamination and, in some cases, full or partial removal, all special features were subject to surface contamination measurements.

All residual surfaces were found not to exceed surface contamination guidelines. Sample data from the utility trenches were applied to residual contamination assessments for the Beckhart Wire Machine as described in Section 6.3. Detailed termination surveys for special features are presented in Attachment 3.

6.2.4. Buildings 10 and 4 Drainage

Approximately 1,300 lf of cast iron, clay, and PVC lines was removed and disposed of as radioactive waste. Another 400 lf of lines was subject to *in-situ* decontamination. Where sections of drain lines were not removed or decontaminated in place, bulk drain line total uranium concentrations do not exceed 30 pCi/g. The activity is attributed to a thin layer of residue lining the interior of the drain line. The residual radioactivity associated with these lines and their residue is approximately 0.04 mCi total uranium. Detailed drainage system assessments are presented in Attachment 4.

6.2.5. Building 4 Grid Cells

Building 4 contained decontamination areas 13, 14, and 15, and included 16 full or partial 10-by-10-m grid cells, and one wall grid at decontamination area 15. None of the remaining concrete surfaces in the grid cells exceeded the surface contamination guidelines. Two cells had been subject to minor soil excavation and exhibited soil sample concentrations of less than 30 pCi/g total uranium. Detailed Building 4 termination survey and sampling data are presented in Attachment 2.

6.2.6. Building 4 Special Features

The primary special feature of consideration in Building 4 was the Lewis Mill. During decontamination, the mill was degreased and cleaned, with underlying concrete scabbled as necessary. A catch basin and sump were cleaned, sampled, and surveyed. Surface contamination surveys of the Lewis Mill indicated that surface contamination guidelines were not exceeded. No significant accumulation points of contaminated residue were encountered. Termination survey and sampling results are presented in Attachment 3.

6.2.7. Building 5 Grid Cells

Building 5 contained decontamination area 16, which was not placed on a grid system due to its relatively small surface area. No remaining concrete surfaces exceeded the surface contamination guidelines. Underlying soils were sampled and found not to exceed 30 pCi/g total uranium. Detailed Building 5 termination survey and sampling data are presented in Attachment 2.

6.2.8. Residual Activity Inventory

A few isolated areas in Building 10 were not accessible for decontamination because they are under or adjacent to vital utilities and structures, such as structural element footings, and heavy equipment. The amounts of contamination in and around these residual contamination areas were calculated to be extremely small, and their decontamination would have required structural demolition or other extreme measures, with related significant expense. TI determined that, because of the low exposure potential associated with the slightly contaminated areas, these areas need not be disturbed. This decision was discussed with the NRC Project Manager, who concurred in this approach.

A total of eight residual contamination features were identified in Building 10 and characteristics of these areas are presented in Attachment 6. These were generally located beneath major capital equipment and structural column footings. The estimated total uranium inventory associated with these features is 3.4 mCi. No residual contamination features were identified in Buildings 4 or 5. Given that the total uranium inventory removed during decontamination operations was approximately 282 mCi, the contamination removal efficiency for the project is calculated as 98.8%.

In all instances, the residual contamination features are isolated from routine manufacturing operations and worker contact. Isolation is provided by clean soil and new concrete slab buffers. Because of the inaccessibility of these features, inadvertent intrusion is virtually impossible. Any maintenance or other activities that would require access to these areas would be of short duration. Based on the very limited doses received by full-time decontamination (radiation) workers over the duration of the building remediation involving similar concentration levels (i.e., <20 mrem per quarter), potential exposure levels to

workers who could conceivably intrude upon these areas are almost certain to be of even less significance

6.3. FINAL GAMMA EXPOSURE RATE SURVEY

All gamma exposure rates recorded in affected areas of Buildings 4, 5, and 10 were less than 10 μR/hr above background, which was recorded to range from 7 to 13 μR/hr. Buildings 4 and 5 gamma exposure rates ranged from 4 to 10 μR/hr (inclusive of background), while Building 10 results ranged from 4 to 15 μR/hr. Exposure rates of less than the measured background of 7 to 13 μR/hr are the result of terrestrial material shielding by large pieces of capital equipment. Detailed gamma exposure rate survey data are included in Attachment 8.

7.0. CONCLUSION

Building interiors remediation activities at the TI Attleboro facility began in June 1995 and were completed in September 1996. These activities were executed in a phased approach using WESTON as construction project manager and as the manager of numerous subcontractors.

Activities were planned and executed in accordance with applicable documents, NRC regulations and regulatory guidance and NRC inspections and comments. Termination surveys were performed following remediation activities to verify that cleanup guidelines were achieved. The few limited exceptions to these guidelines are noted and discussed. Termination survey results demonstrate that the affected areas in Buildings 4, 5, and 10 have been remediated adequately to support the TI request for termination of NRC license SNM-23 and release of the buildings for unrestricted use.

8.0. REFERENCES

8.1 Texas Instruments Incorporated. Radioactive Materials License (Special Nuclear Materials-23).

8.2 Texas Instruments Incorporated. 1992. *1992 Remediation Plan.*

8.3 Texas Instruments Incorporated. 1994. *Supplement to the 1992 Remediation Plan.*

8.4 NUREG/CR-5849. *Manual for Conducting Radiological Surveys in Support of License Termination.*

8.5 U.S. Atomic Energy Commission. Regulatory Guide 1.86, *Termination of Operating Licenses for Nuclear Reactors.*

8.6 U.S. Nuclear Regulatory Commission. Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material.

8.7 U.S. NRC, 1981. Branch Technical Position (46 FR 52061, October 23, 1981).

8.8 Roy F. Weston, Inc. 1996b. *Draft Remediation of Exterior Areas Adjacent to Buildings 11 and 12 Final Report.* May 1996

ATTACHMENT 1
BUILDING INTERIORS REMEDIATION
FILE CODES

ROY F. WESTON, INC.
(10923-004-001/002)
PROJECT FILE KEY
Revised 22 April 1996

1.0 CONTRACT DOCUMENTATION
- 1.1 Proposal and Pre-Award
  - 1.1.1 Pre-Award
  - 1.1.2 Proposal
  - 1.1.3 Statement of Work/Total Cost Estimates
- 1.2 Prime Contract Documentation/Terms & Conditions
- 1.3 Contract Modifications
- 1.4 Project Closeout

2.0 CORRESPONDENCE/COMMUNICATIONS
- 2.1 Client
- 2.2 Internal
- 2.3 Subcontractor
- 2.4 Legal
- 2.5 Regulatory Agencies
- 2.6 Client-Regulatory (Third Party)

3.0 FINANCIAL
- 3.1 Planning
- 3.2 Monitoring & Control
  - 3.2.1 Wkly Proj. Details
  - 3.2.2 Backup
  - 3.2.3 Labor Transfers
  - 3.2.4 Commitment Reports
- 3.3 TI/WESTON Invoicing
- 3.4 Subcontractor Billing/Invoicing
  - 3.4.1 Structural Engineering Svcs.
  - 3.4.2 Equipment Rental
  - 3.4.3 Decontamination Subcont. Costs
  - 3.4.4 Analytical Services
  - 3.4.5 Repair Subcontractor Costs
  - 3.4.6 Equipment Relocation
  - 3.4.7 Intermodal Changeout and Loading
  - 3.4.8 Intermodal Deliveries & Rental
  - 3.4.9 Drilling Subcontractors Costs
  - 3.4.10 Asbestos Subcontractors Costs
  - 3.4.11 Waste Processing Sub. Costs
  - 3.4.12 Drain Line Decon Sub. Costs
  - 3.4.13 Misc. Subcontractor Costs

4.0 SUBCONTRACT DOCUMENTATION
- 4.1 Subcontractor Proposals/Bids (D&D)
  - Aerojet
  - Affrex
  - ARC
  - B&W
  - Bartlett Nuclear
  - Chemrad
  - Clean Harbors
  - Franklin Environment
  - NES, Inc.
  - Rad. Safety Assoc.
  - SEG
- 4.2 Tier Subcontract Procurement
  - 4.2.1 Structural Engineering Svcs.
  - 4.2.2 Equipment Rental
  - 4.2.3 Decontamination Subcontractors
  - 4.2.4 Analytical Services
  - 4.2.5 Repair Subcontractors

- 4.2.6 Equipment Relocation
- 4.2.7 Intermodal Changeout and Loading
- 4.2.8 Intermodal Deliveries & Rentals
- 4.2.9 Drilling Subcontractors
- 4.2.10 Asbestos Subcontractors
- 4.2.11 Waste Processing Subcontractors
- 4.2.12 Drain Line Decon Subcontractors
- 4.2.13 Misc. Subcontractors/Vendors

4.3 Subcontractor Employee Tests/Trainings

- 4.3.1 Applied Rad. Control, Inc. (ARC)
- 4.3.2 RAMTECH Environmental Contractors
- 4.3.3 Berkshire Construction Svcs., Inc.
- 4.3.4 Gaudette Machinery Movers
- 4.3.5 Atlantic Abatement Corp. Of RI
- 4.3.6 Demers Brothers Trucking, Inc.
- 4.3.7 Guild Drilling Co., Inc.

5.0 QUALITY ASSURANCE

- 5.1 Quality Assurance Plans
- 5.2 Quality Assurance Audits
- 5.3 Laboratory Quality
- 5.4 Planned Change Notifications
- 5.5 Corrective Action Reports

6.0 PROJECT STATUS, SURVEILLANCE, & CONTROL

- 6.1 Monthly/Weekly/Daily Reports
- 6.2 Meetings
- 6.3 Task Descriptions
  - 6.3.1 Decontamination Schedule
- 6.4 Project Status
- 6.5 Project Resumes

7.0 HEALTH & SAFETY

- 7.1 Health & Safety Plans (HASPs)
- 7.2 Health & Safety Surveillance/Audits
- 7.3 WESTON Field Operating Procedures
- 7.4 Employee Credentials Verifications
- 7.5 Daily Safety Tailgate Meetings
  - 7.5.1 HASP (Rev. 3) Training
  - 7.5.2 Lockout/Tagout Training
  - 7.5.3 Confined Space Entry Training
- 7.6 Material Safety Data Sheets
- 7.7 Project Injuries/Near Misses
- 7.8 Incident Reports
- 7.9 Health and Safety Misc.
- 7.10 Work Area Access Control
- 7.11 Respirator Info./Misc
- 7.12 Misc. Health & Safety

8.0 DECONTAMINATION PROCEDURES

- 8.1 Rad. License
- 8.2 Rad. Work Permit
- 8.3 Roof Permit
- 8.4 Hot Work Permit
- 8.5 Confined Space Permit

9.0 PROGRAM PLANS

- 9.1 Project Plan
- 9.2 Work Plan
- 9.3 Sampling & Analysis Plan
- 9.4 Standard Operating Procedures

- 9.5 Presentations
  - Fuel Cycle Forum
- 10.0 Reserved for later use
- 11.0 TECHNICAL INFORMATION
  - 11.1 Field Data
    - 11.1.1 Boring Data (lithology)
    - 11.1.2 Radiological, soil
    - 11.1.3 Radiological, water
      - Sediment Trap Characterization
    - 11.1.4 Radiological, air
    - 11.1.5 Alpha Smears from Equipment
    - 11.1.6 Equipment Function Checks
    - 11.1.7 Chemical
    - 11.1.8 Formal Calibration Data
    - 11.1.9 Misc. Field Data
      - Daily Sign-in/Attendance
      - Chain of Custody - Completed
      - Equip. & Supplies Checklist
      - Equipment Inspections
  - 11.2 Engineering
    - 11.2.1 Calculations/evaluations
    - 11.2.2 Drawings
  - 11.3 Graphics
    - 11.3.1 Photos
    - 11.3.2 Maps and Sketches
    - 11.3.3 Transparencies
  - 11.4 Asbestos Abatement
- 12.0 DATA & INFORMATION
  - 12.1 Field Survey Plans/Sampling & Evaluation Plans
    - 12.1.1 Grid Cells
      - Bldg. 10
      - Bldg. 4
      - Bldg. 5
    - 12.1.2 Special Features
      - Sumps
      - Trenches
    - 12.1.3 Residual Contamination Surveys
    - 12.1.4 Equipment Total Alpha/Beta Surveys
    - 12.1.5 Trailer & General Area Surveys
    - 12.1.6 Bldg. 10 Roof Term Surveys
    - 12.1.7 Bldg. 5 Roof Surveys (non-term)
    - 12.1.8 Drain Line Surveys & Data
  - 12.2 Analytical Data & Reports
    - 12.2.1 Chemical
    - 12.2.2 Radiological
    - 12.2.3 Urinalysis
    - 12.2.4 TLD
    - 12.2.5 Asbestos
    - 12.2.6 Internal Dosimetry
  - 12.3 Logbooks, Field Notes
    - Logbook #451
    - Logbook #473
    - Logbook #453
    - Logbook #454
  - 12.4 Field Forms
  - 12.5 Field Equipment Info./Data

- 12.6 Waste Management
  - 12.6.1 EnviroCare of Utah, Inc./Profiles
  - 12.6.2 Waste Calculations
  - 12.6.3 Final Deliverables to EnviroCare
  - 12.6.4 Waste Volume Estimates
- 18.0 REVIEW DOCUMENTATION (for DELIVERABLES)
  - 18.1 Comments & Responses to Deliverables
  - 18.2 Drafts
  - 18.3 Draft Finals
- 19.0 FINAL DELIVERABLES
  - 19.1 Camera-Ready Originals
  - 19.2 Final Deliverable Documents
  - 19.3 Approvals of Final Deliverables
- 20.0 REFERENCE MATERIALS & INFORMATION (NON-WESTON)
  - 20.1 Regulatory Info./Reports
  - 20.2 Property Issues
  - 20.3 Media
  - 20.4 Graphics & Maps
  - 20.5 Misc.

ATTACHMENT 2
BUILDINGS 4, 5, AND 10
GRID CELL TERMINATION DATA

ATTACHMENT 2
BUILDINGS 4, 5, AND 10 GRID CELL TERMINATION DATA

This attachment presents termination survey data for concrete slabs and underlying soil parcels as defined within a comprehensive site grid coordinate system covering affected areas of Buildings 4, 5, and 10. Decontamination of floor surfaces in these buildings required the application of concrete scarification (scabbling) and bulk removal techniques to floors and wall surfaces. Concrete slab sections were designated for removal based upon surface radiological characterization surveys and bulk material sampling. Scabbling techniques were typically applied to localized or difficult-to-access areas of surface contamination. An attempt was made to use the CORPEX™ chemical extraction system over approximately 200 square feet (ft^2) in Building 4, but failed due to the relatively high ambient temperature and associated rate of solution evaporation. This area was later scabbled to remove surface contamination.

Exposed soils (following concrete slab removal) were subject to walkover radiological measurements and bulk material sampling (surface and depth) to determine the need for excavation. Where necessary, contaminated underlying soils were excavated and disposed of as radioactive waste. Termination survey data for subsurface features, including trenches and sumps, are addressed in Attachment 4. Features above or near areas of defined residual contamination are discussed in Attachment 6. The total affected floor surface area through Buildings 4, 5, and 10 was 55,000 ft^2. Detailed termination sampling and survey protocol are discussed in the Building Interiors Remediation project plans, and are designed to demonstrate compliance with surface and bulk uranium contamination criteria (defined in the *Supplement to the 1992 Remediation Plan*).

The data presented in this attachment include:

- Total beta surface contamination surveys of remaining concrete slabs and adjacent wall surfaces.
- Total and isotopic uranium analyses for systematic concrete cores representing bulk slabs left in place.
- Total beta measurements for exposed soil surfaces following slab removal and excavation.
- Total and isotopic uranium analyses for systematic soil samples following concrete slab removal and/or excavation.

It should be noted that only field and sample data pertinent to termination of the facility are presented in this attachment. It also should be noted that bulk samples to support termination have been analyzed at analytical laboratories using ASTM D5714 (total uranium) and EML UO2 Modified (isotopic - alpha spectroscopy) procedures, rather than having been derived from field correlations to gross counting techniques. Total surface contamination measurements of concrete slabs have been modified by an enriched uranium modification factor, which has been discussed in previous submissions by Texas

Instruments Incorporated to the U.S. Nuclear Regulatory Commission (September 1995 Response to Comments on *Supplement to the 1992 Remediation Plan*).

Site Grid System

A 10-by-10-meter (m) grid and coordinate system was placed over the affected areas in Buildings 4, 5, and 10. Where present, adjacent wall surfaces were added to a height of 1 m above the floor grid. The grid system serves as reference for systematic bulk material termination sampling protocol for concrete and underlying soil and for surface contamination measurements. Figures 2.1 to 2.3 illustrate the grid system placed over the affected areas of Buildings 4, 5, and 10, respectively. A total of 64 full or partial 10-by-10-m grid blocks covered the affected areas of the facility. Where non-contaminated concrete slabs were left in place, the 10-by-10-m grid system was further subdivided into 1-m grid squares to support surface termination surveys. Detailed termination sampling locations, sample numbering systems, and sample quality assurance/control measures are discussed in Section 6.0 of the Building Interiors project plans.

Concrete Survey Results

Figures 2.4 to 2.6 illustrate areas where contaminated concrete slabs were removed in Buildings 4, 5, and 10, respectively.[4] These figures also identify concrete areas that were subject to surface decontamination techniques. All remaining concrete surfaces were subject to a final termination survey.

Table 2.1. Concrete Decontamination Information

Building	Area Removed as Radioactive Waste (ft^2)	Area Scabbled and Released (ft^2)	Area Surveyed and Sampled as Clean Only (ft^2)
Building 4	250	700	11,900
Building 5	700	500	800
Building 10	14,600	800	26,800

Termination surface contamination surveys for each grid block within these buildings are included in the data summary sheets at the end of this attachment. Total contamination survey results are presented in disintegrations per minute (dpm)/100 square centimeters (cm^2) over 1-m grid squares within each of the larger 10-m^2 grid blocks. Where detected, maximum point contamination levels also are recorded on the data summary sheets. The associated survey instrument minimum detectable activity (MDA) is presented for the series of surface contamination measurements performed within a grid block (in the case of multiple day measurements, the most limiting MDA was selected).

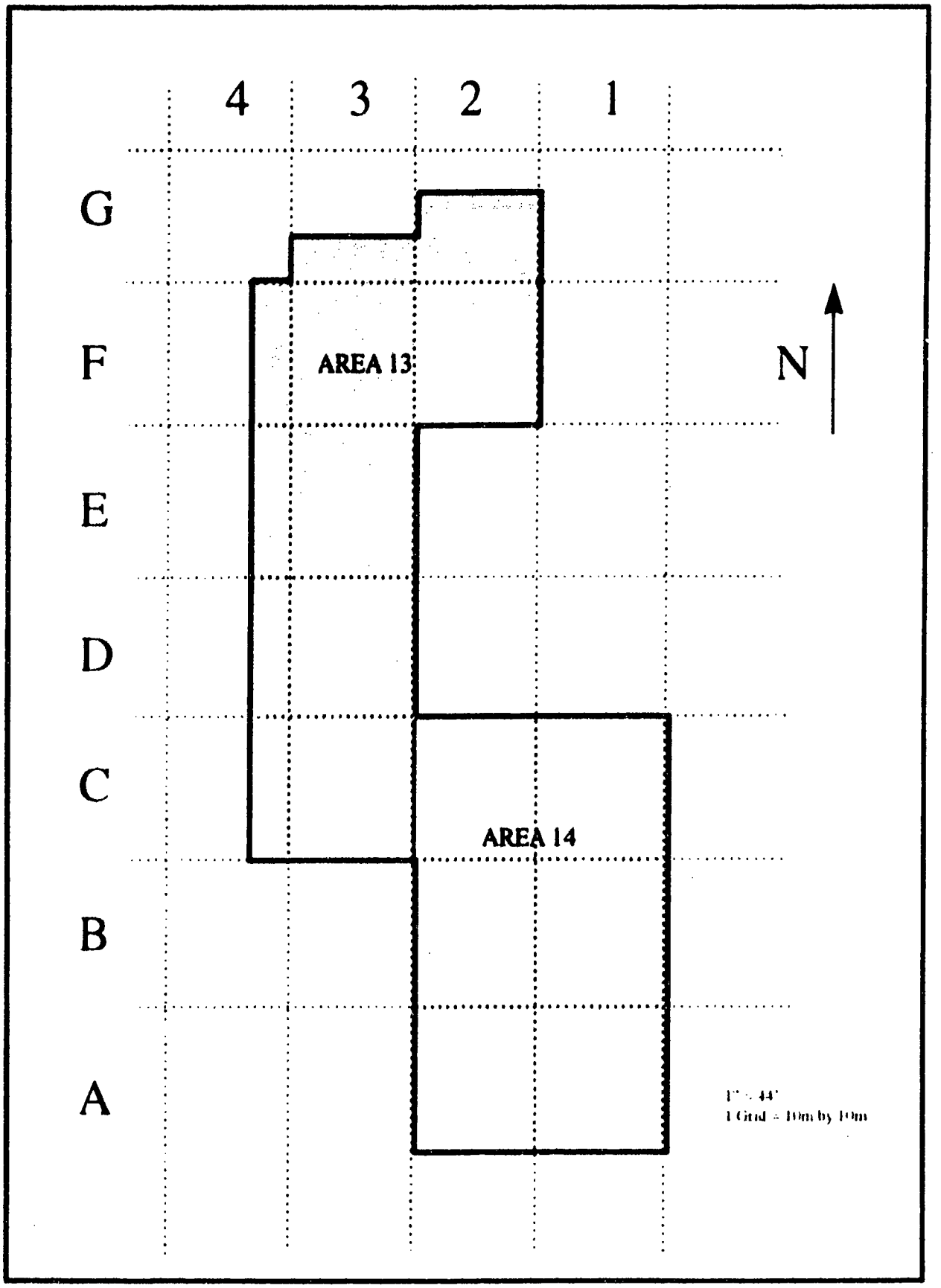


Figure 2.1. Building 4 - Grid System

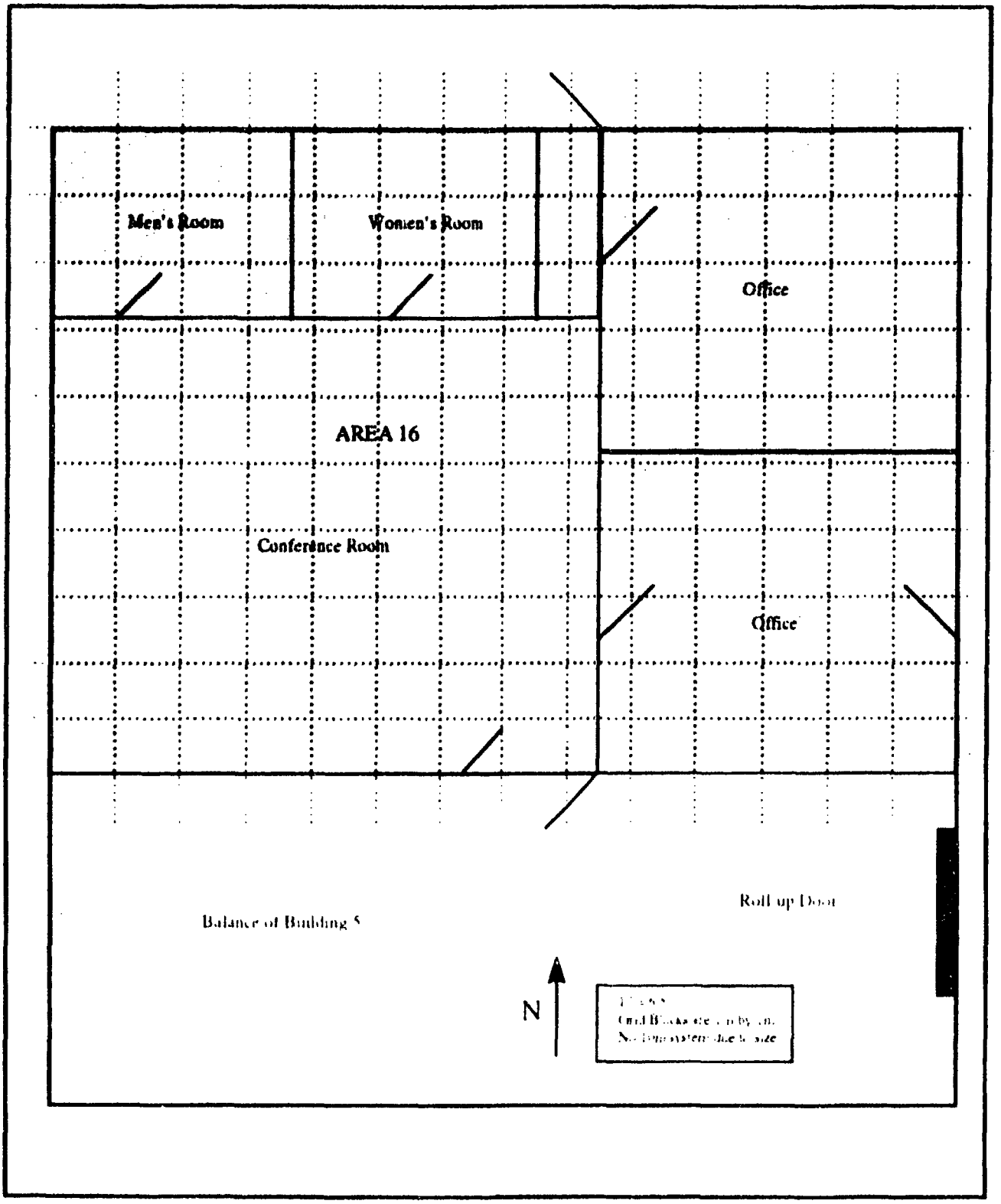


Figure 2.2. Building 5 - Grid System

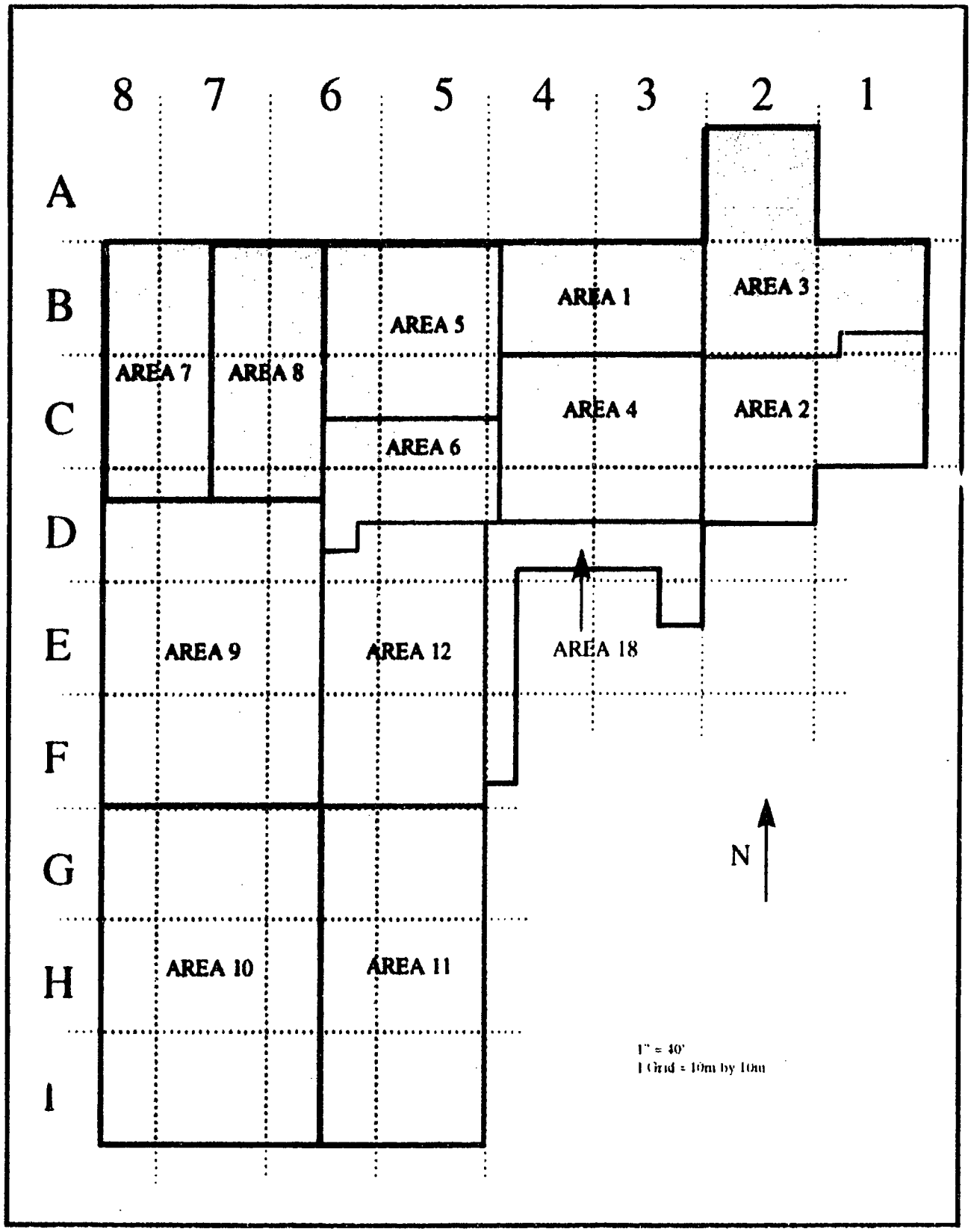


Figure 2.3. Building 10 - Grid System

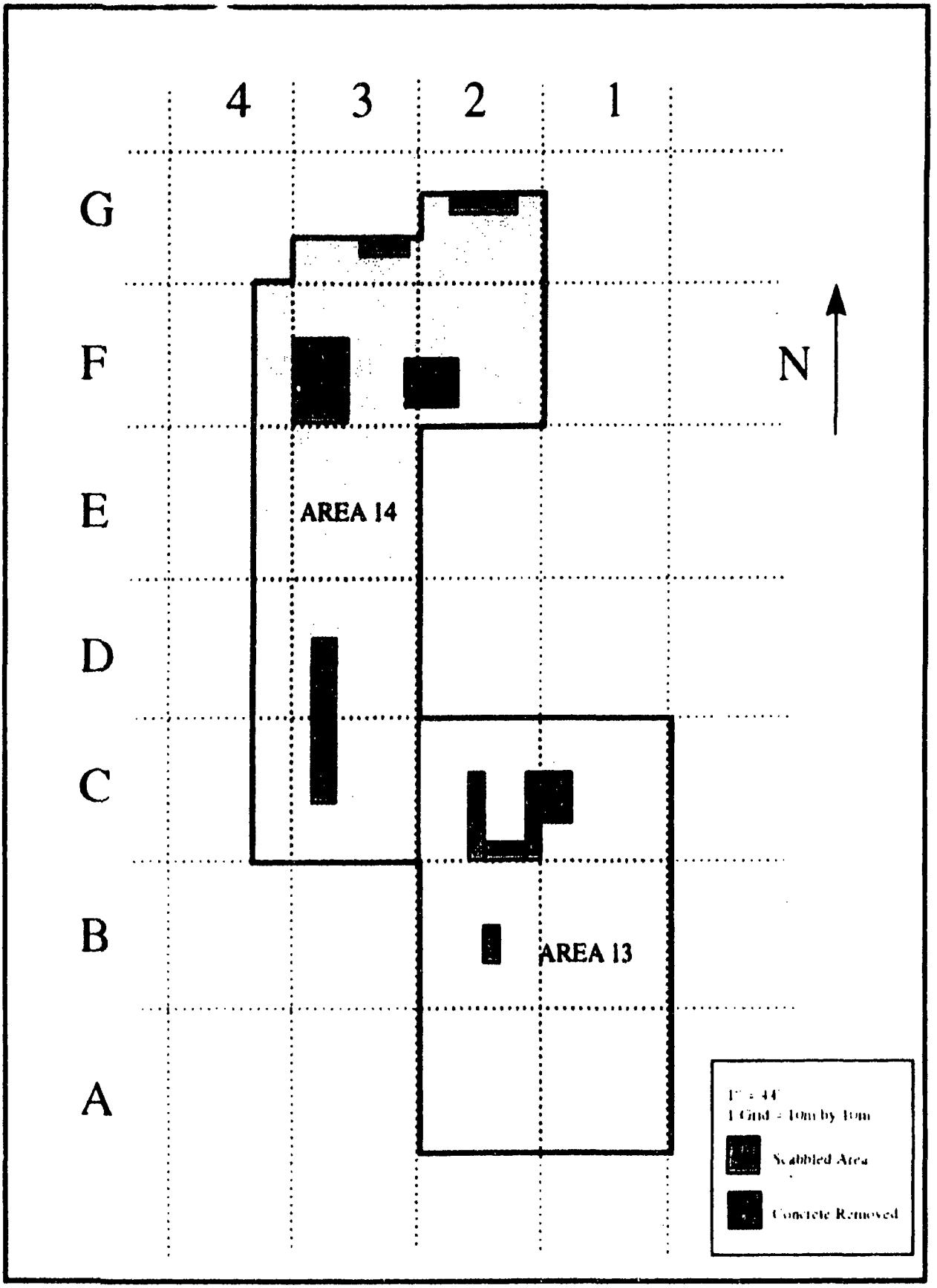


Figure 2.4. Building 4 - Concrete Removal/Scabbling Areas

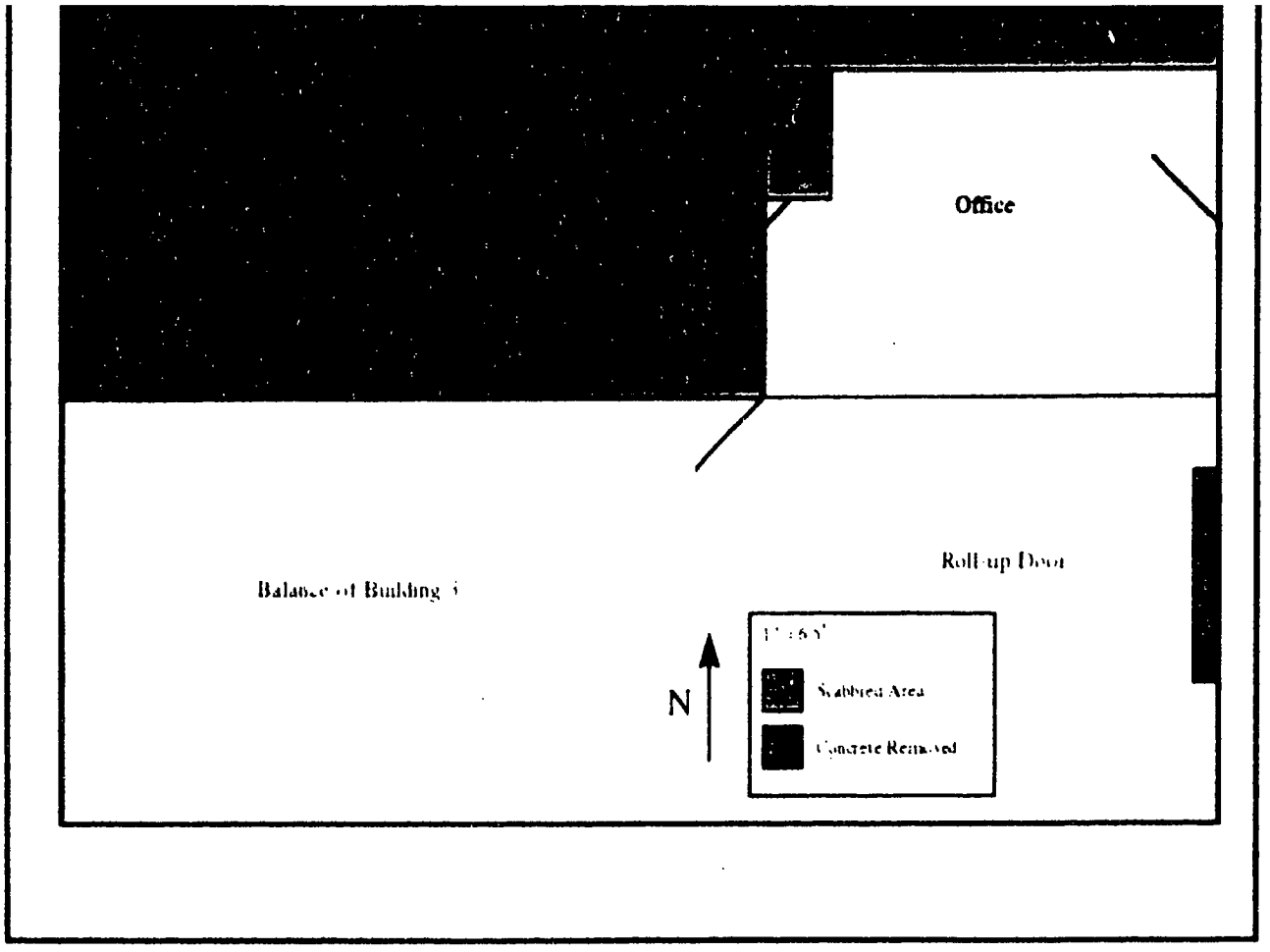


Figure 2.5. Building 5 - Concrete Removal and Scabbled Areas

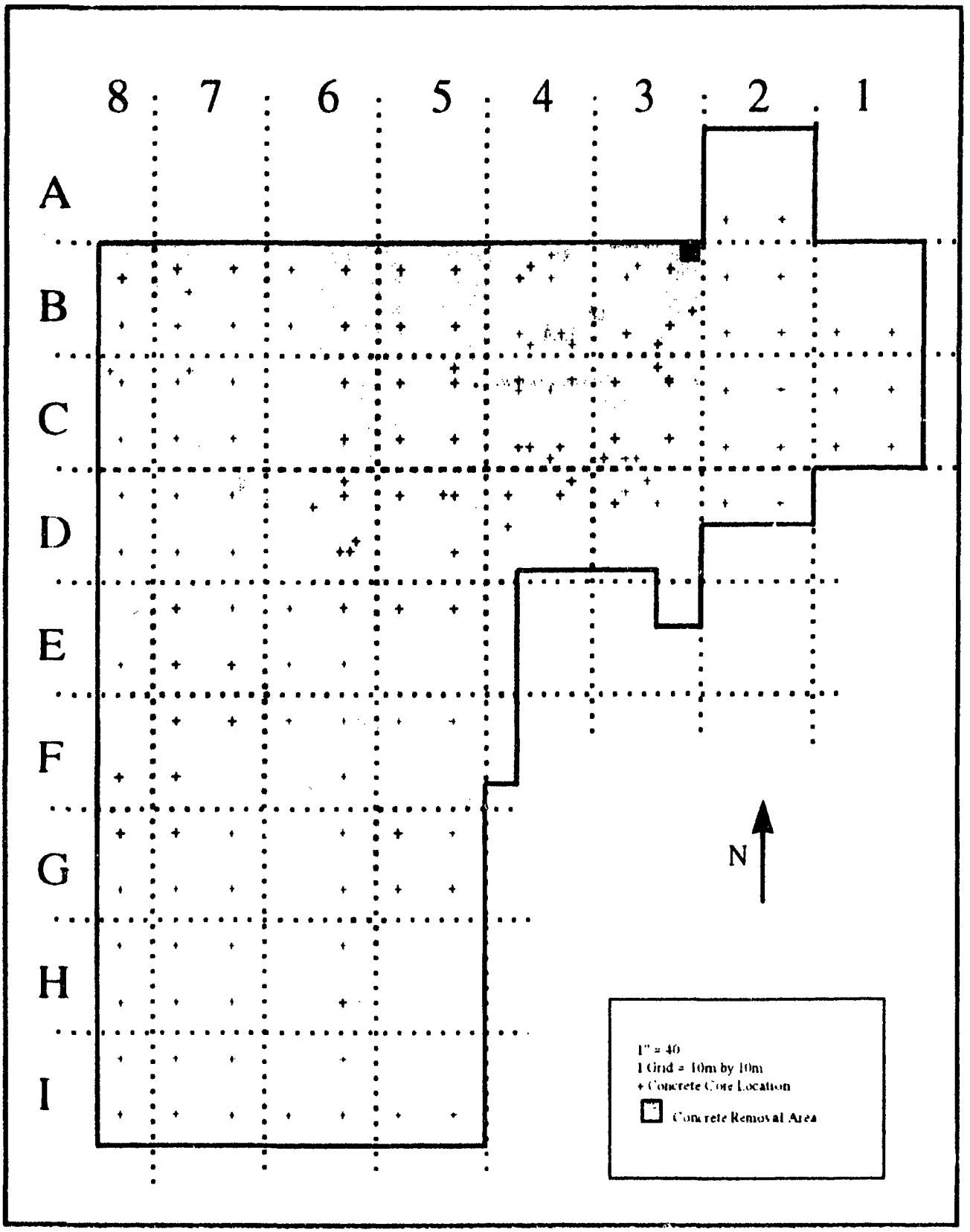


Figure 2.6. Building 10 - Concrete Removal Areas

Total surface contamination measurements (when averaged over the entire 1-m^2 block) did not exceed 5,000 dpm/100 cm^2 on any of the concrete surfaces left in place. Maximum point surface contamination measurements did not exceed 15,000 dpm/100 cm^2. Removable contamination was negligible during the characterization and decontamination phases of the project (based on daily area surveys), with maximum removable contamination levels never exceeding 200 dpm/100 cm^2. For this reason, final termination survey data sheets do not summarize removable contamination levels within each grid block.

Total and isotopic uranium analyses for systematic concrete core samples are presented on the summary data sheets. These cores were collected on a distribution defined in the sampling plan (over 10 x 10 m grid cells) and NUREG/CR-5849. Uranium concentrations were averaged over the remaining bulk concrete slab in each grid cell. Grid cell averages did not exceed 8 picocuries per gram (pCi/g), in comparison to the bulk material cleanup criteria of 30 pCi/g. Most concrete left in place exhibited background total uranium concentrations ranging from 2.5 to 4 pCi/g.

Soil Survey Results

Figures 2.7 and 2.8 illustrate soil excavation depth profiles for each 10-m^2 grid block in Buildings 4 and 10, respectively. In some instances, no soil needed to be removed after the concrete was taken away, while in other instances soil was excavated to a maximum depth of 8.5 ft and was disposed of as radioactive waste. Relatively deep excavation typically was needed for special features, such as trenches and sumps, that penetrated through the floors into the underlying soil. Table 2.2 presents a summary of the estimated volume of soil removed from each of the three buildings containing affected areas.

Table 2.2. Estimated Volume of Subsurface Soils Removed During Decontamination

Building	Estimated Volume of Soil Removed (ft^3)	Comments
Building 4	400	Near furnace
Building 5	Negligible	Only slab removed
Building 10	30,000	Majority — Areas 5 and 6

Soil removal was based on laboratory data from core samples, iterative measurements using beta scintillators over *in-situ* soils, and gross alpha counting response of bulk soil samples. After these activities were performed over multiple iterations, systematic termination soil samples were collected from the exposed excavations. These samples were collected in conformance with the frequencies defined in the sampling plan and in NUREG/CR-5849. Samples were analyzed for total and isotopic uranium concentration to determine if the bulk cleanup criteria of 30 pCi/g had been exceeded. Final survey data forms (included at the end of this attachment) present the final surface beta count rate measured following excavation and/or survey and the systematic soil sample results from total and isotopic uranium analyses. A total of three 10-m^2 grid blocks had discrete systematic sample points exceeding 30 pCi/g (exclusive of residual contamination zones). Of these grid blocks, only one exhibited an average of all samples that exceeded 30 pCi/g.

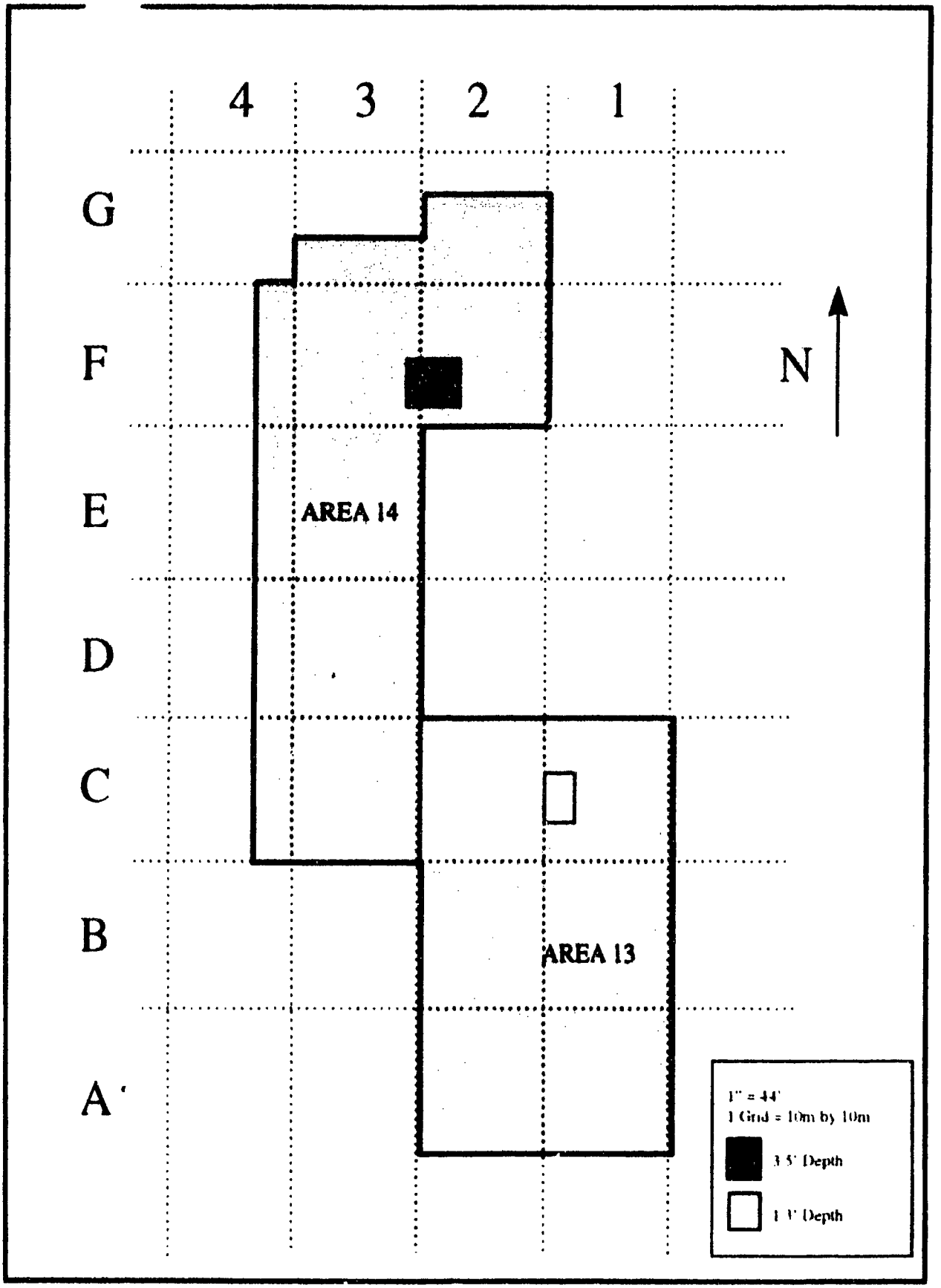


Figure 2.7. Building 4 - Soil Excavation Profile

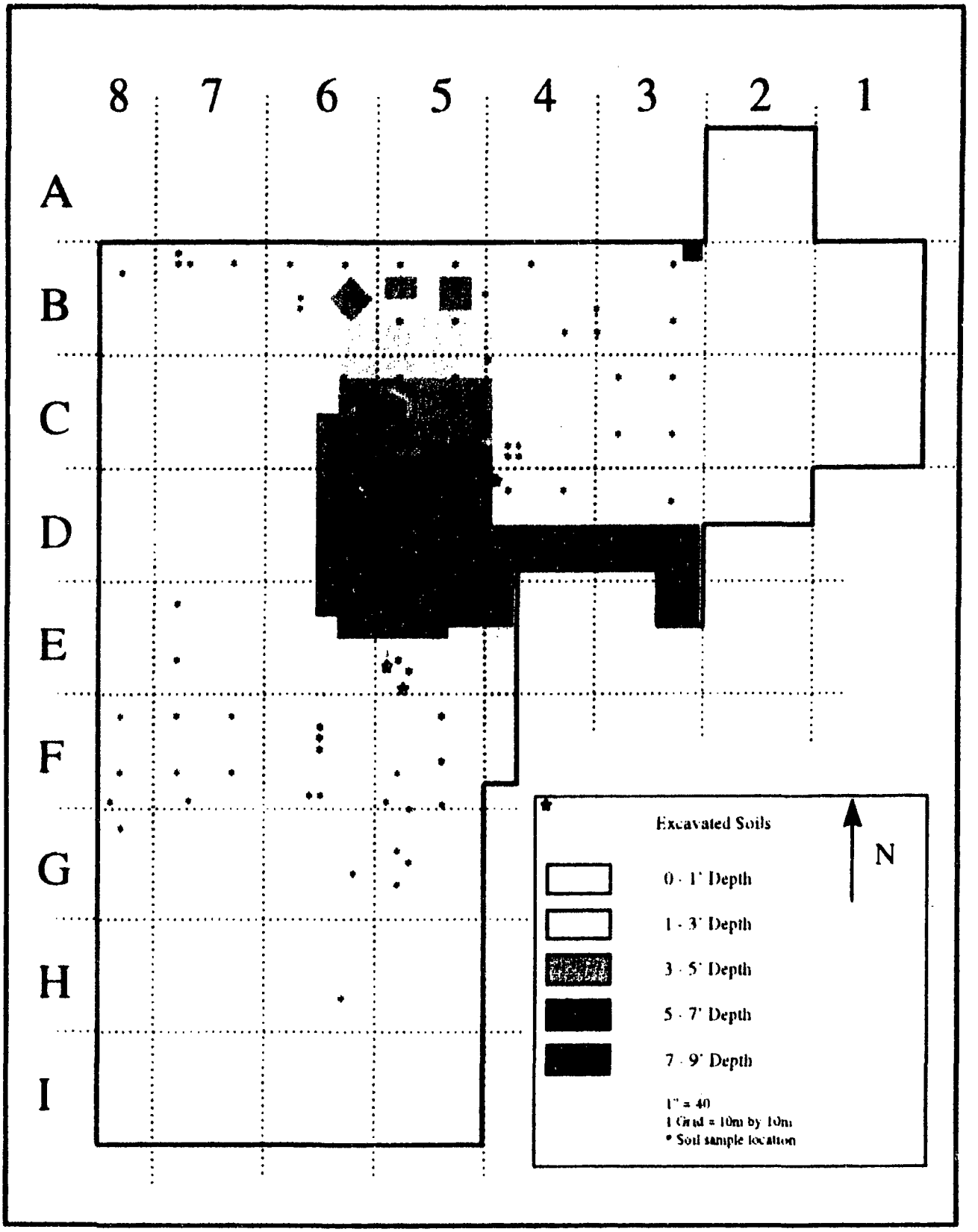


Figure 2.6. Building 10 - Soil Excavation Profile

Wall Survey Results

Per the definition of affected area, permanent wall surfaces contiguous to grid cells were subject to surface contamination surveys to a height of 1 meter from the floor. (Permanent wall surfaces were defined as cinderblock or brick bordering the exterior of the building, or providing some means of structural or anchoring support.) Where necessary, these surfaces were decontaminated using standard scabbling techniques or complete removal of cinderblocks or bricks. Termination survey results for permanent wall surfaces can be found in the outside cells presented in the data summary sheets at the end of this attachment. All wall surfaces were remediated below the unrestricted release criteria.

Surface contamination survey results for Area 15 (Buildings 4/10 Connector) are presented after the data summary sheets in this attachment.

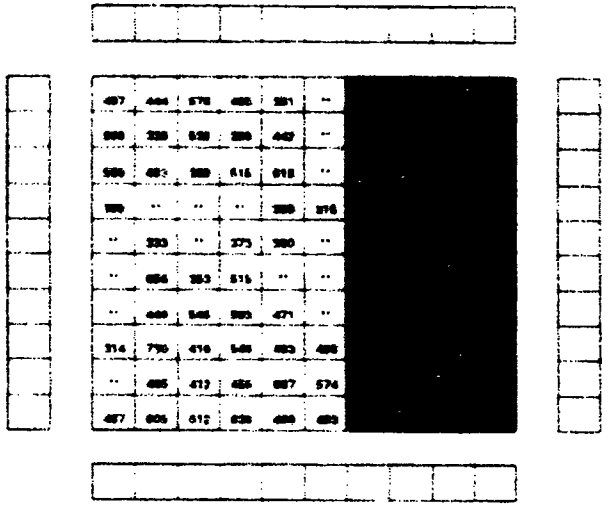
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block I.D. Number 1A

Survey Dates: 10/27/95 11/13/95 11/14/95 11/30/95 1/17/96



NOTE

Countrate in DPM / 100 cm^2

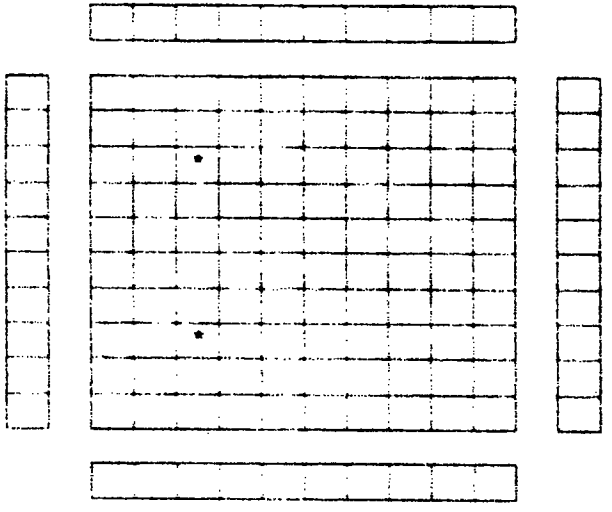
** Designates where count rate less than MDA

Minimum MDA: 298

Comments: No underlying soils accessed

System background utilized.

Denotes outside of defined affected area.



NOTE

* Denotes Concrete Core Sample Location

Comments: Systematic core results are as follows:

Conversion made assuming 2% enriched uranium

SC 04	2.81	(pCi/g)	
SC 03	2.23	(ug/g)	(3.1 pCi/g)
Avg	2.91	(pCi/g)	

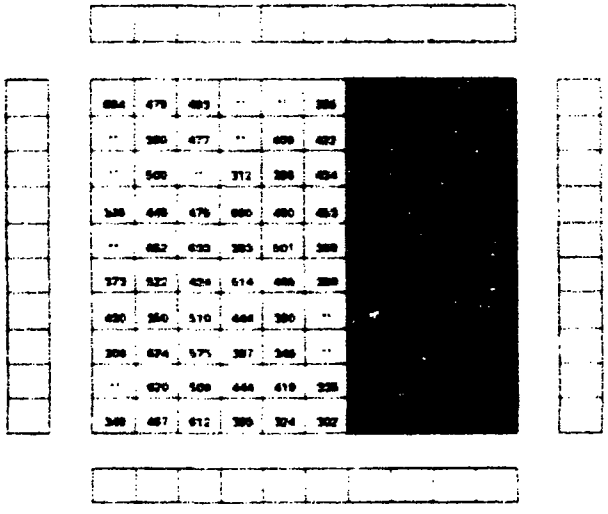
Surface Survey of Concrete

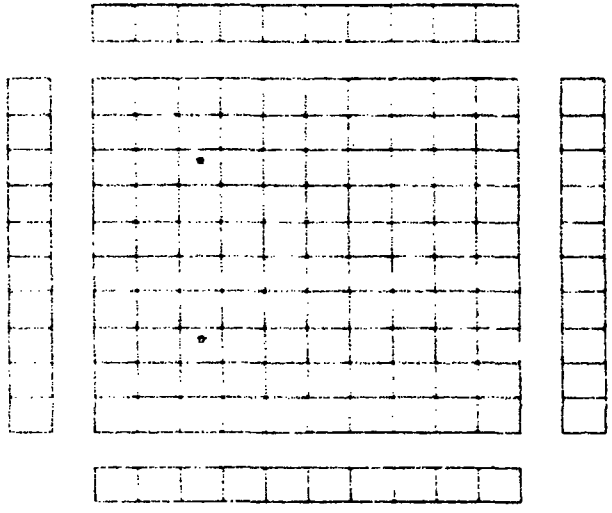
Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block I.D. Number 1B

Survey Dates 10/27/95 11/13/95 11/27/95 11/30/95 1/15/96 1/17/96





NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 298

Comments: No underlying soils accessed

System background utilized

Denotes outside of defined affected area

NOTE

* Denotes Concrete Core Sample Location

Comments: Systematic core samples are as follows:

SC 02	2.47	(ug/g)
SC 03	2.23	(ug/g)
Composite	4.04	(pCi/g)

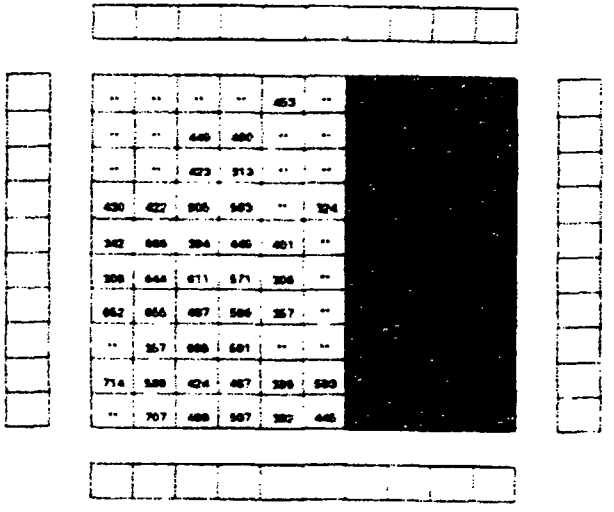
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block I D Number: 1C

Survey Dates 10/26/95 10/27/95 11/10/95 11/13/95 11/14/95 11/16/95 11/17/95 1/15/96



NOTE

Countrate in DPM / 100 cm^2

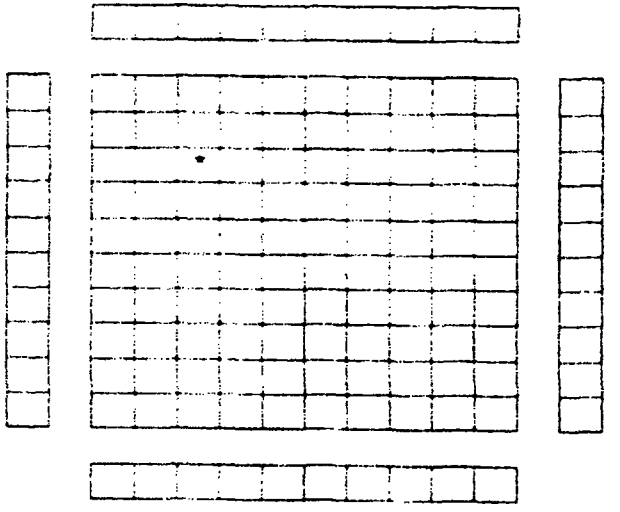
** Designates where count rate less than MDA

Minimum MDA: 298

Comments: No underlying soils accessed

System background utilized

Denotes outside of defined affected area.



NOTE:

* Denotes Concrete Core Sample Location

Comments: Systematic core results as follows:

SC 03 Located under capital machinery

SC 02 4 04 (pCi/g)

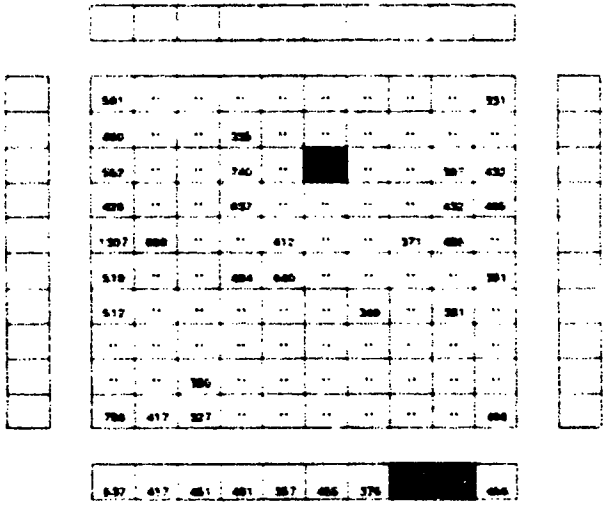
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block I.D. Number 2A

Survey Dates 12/28/95 1/8/96 11/15/95 11/30/95 1/17/96 2/13/96



NOTE

Countrate in DPM / 100 cm^2

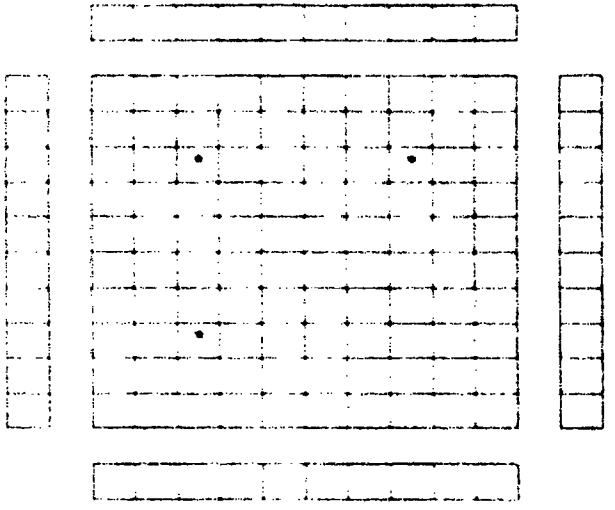
** Designates where count rate less than MDA

Minimum MDA 327

Comments: No underlying soils accessed

System background utilized

Denotes stationary capital equipment



NOTE

• Denotes Concrete Core Sample Location

Comments: Systematic core results are as follows:

SC 01	2.02	(ug/g)
SC 02	1.89	(ug/g)
SC 03	1.56	(ug/g)
SC 04	2.32	(pCi/g)
Composite	1.89	(pCi/g)

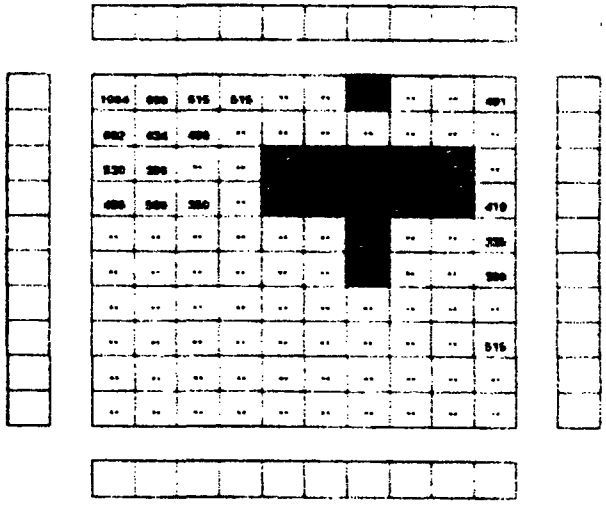
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number: 4

Grid Block I.D. Number 2B

Survey Dates 10/26/95 10/27/95 11/8/95 11/13/95 1/15/96 2/1/96



NOTE:

Count rate in DPM / 100 cm^2

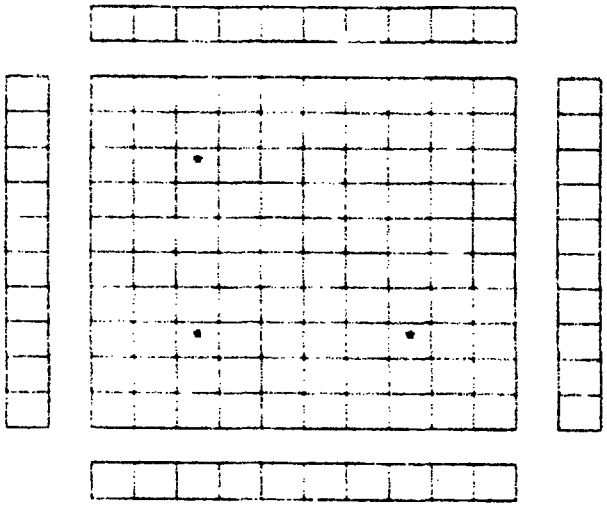
** Designates where count rate less than MDA

Minimum MDA: 299

Comments No underlying soils accessed

System background utilized

Denotes stationary capital equipment



NOTE:

* Denotes Concrete Core Sample Location

Comments Systematic core results are as follows.

Sample located under capital machinery

SC 02	2.07	(ug/g)	(2.9 pCi/g)
SC 03	2.09	(ug/g)	(2.9 pCi/g)
SC 04	3.93	(pCi/g)	
AVG	3.25	(pCi/g - Derived)	

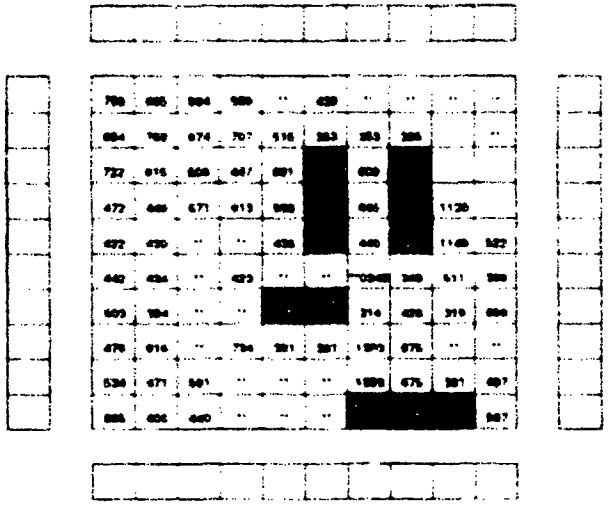
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block I.D. Number 2C

Survey Dates: 10/26/95 10/27/95 11/8/95 11/13/95 11/16/95 11/17/95 1/2/96



NOTE

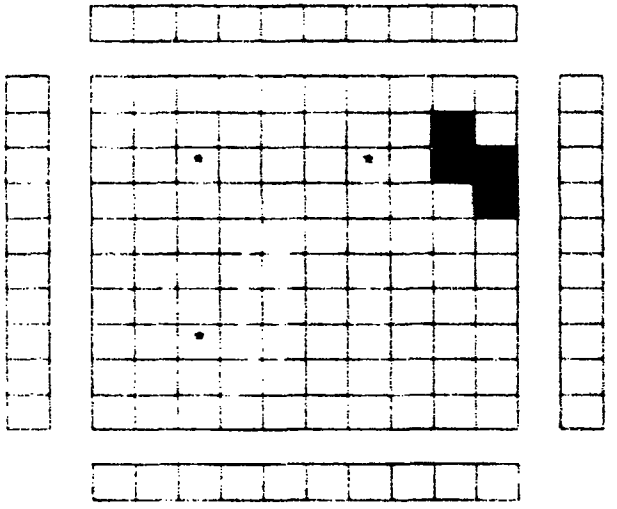
Countrate in DPM / 100 cm**2

** Designates where count rate less than MDA

Minimum MDA: 298

Comments: System background utilized

Denotes stationary capital equipment



NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Systematic core results are as follows

Comments:

SC 01	2.96	(ug/g)
SC 02	1.82	(ug/g)
SC 03	1.92	(ug/g)
SC 04	2.40	(pCi/g)
Composite	5.74	(pCi/g)

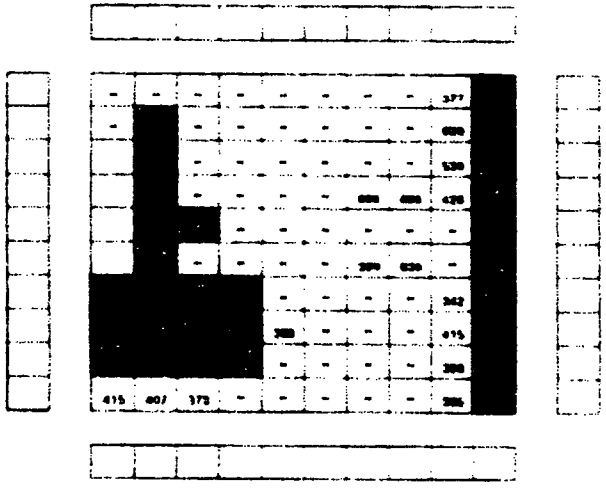
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block ID Number 21

Survey Dates 11/16/95 11/17/95 1/31/96



NOTE

Countrate in DPM / 100 cm^2

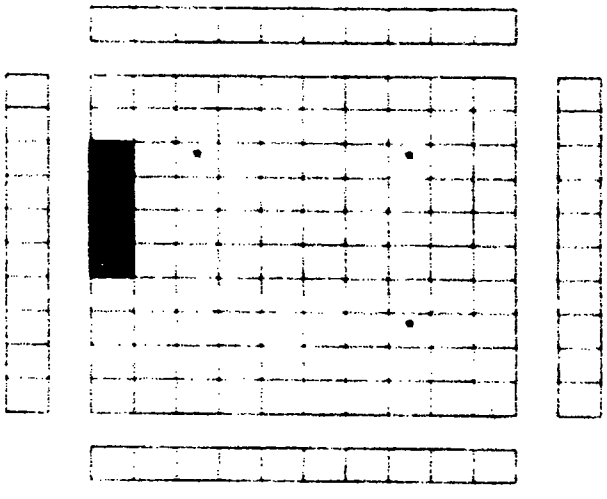
** Designates where count rate less than MDA

Minimum MDA 336

Comments System background utilized

Denotes outside of defined affected area

Denotes stationary capital equipment



NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments Systematic core results are as follows:

SC 01	1 59	(ug/g)
SC 02	1 74	(ug/g)
SC 04	1 76	(ug/g)
Composite	2 88	(pCi/g)

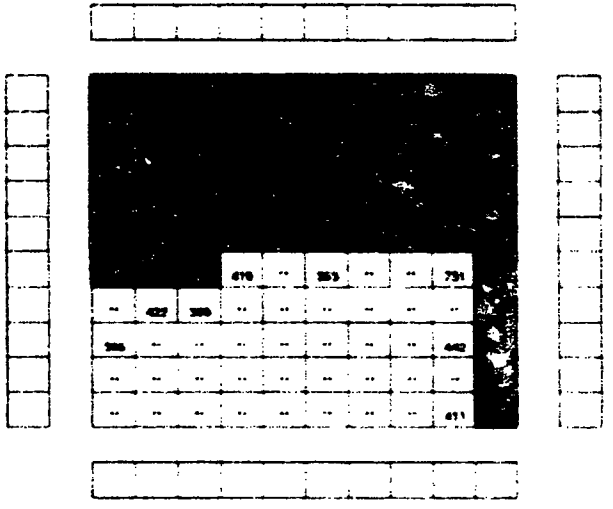
Surface Survey of Concrete

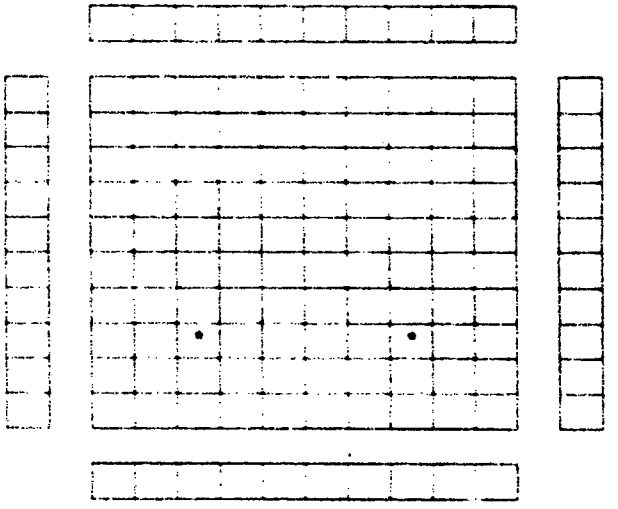
Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block ID Number 2G

Survey Dates 11/17/95 1/31/96 2/1/96





NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 336

Comments No underlying soils accessed

System background utilized

Denotes outside of defined affected area

NOTE

* Denotes Concrete Core Sample Location

Comments Systematic core results are as follows:

SC 03	2.25	(ug/g)
SC 04	1.98	(ug/g)
Composite	2.70	(pCi/g)

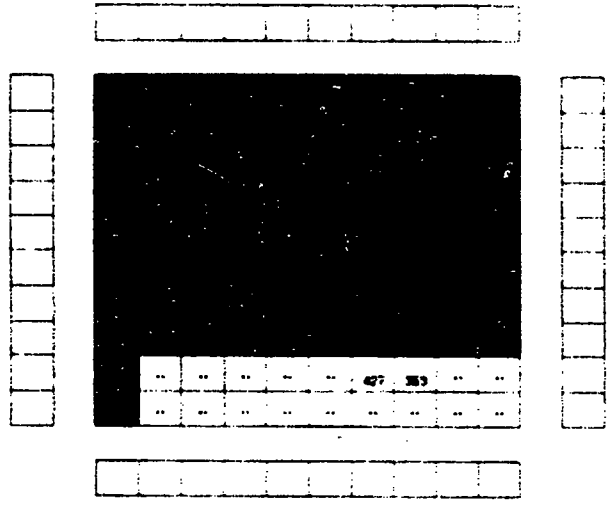
Surface Survey of Concrete

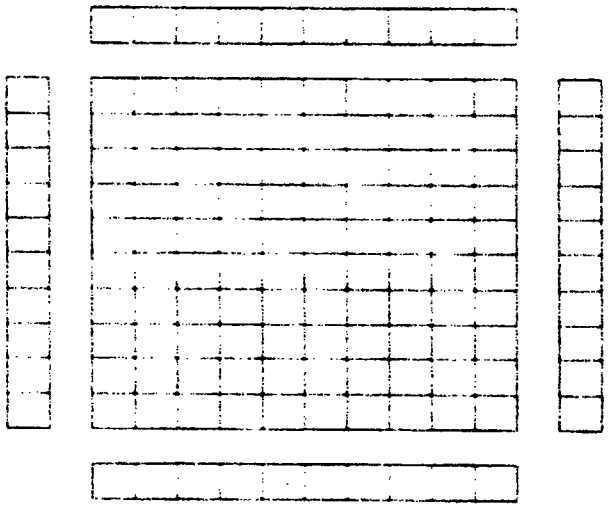
Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block / D Number 3G

Survey Dates 11/14/95 11/15/95 1/31/96





NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 34 /

Comments: No underlying soils accessed

System background utilized

Denotes outside of defined affected area

Comments: No systematic samples sent for analysis

Limited surface area

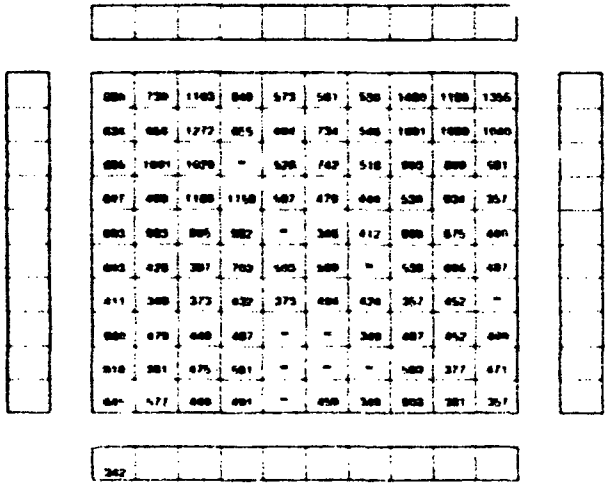
Surface Survey of Concrete

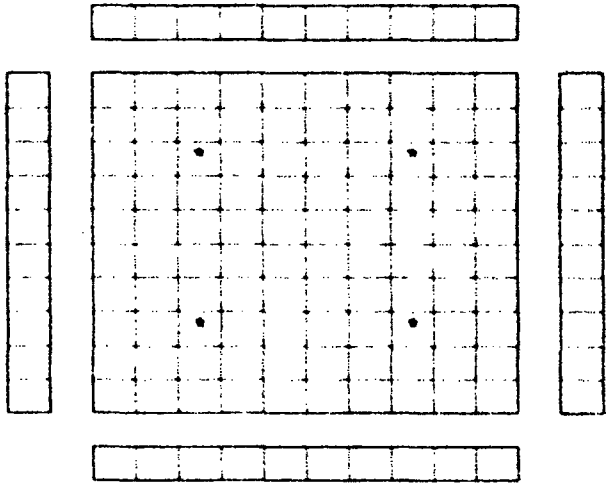
Removed Concrete and Concrete Core Sample Locations

Building Number: 4

Grid Block I.D. Number: 3C

Survey Dates: 11/09/86 11/13/86





NOTE

Countrate in DPM / 100 cm**2

** Designates where count rate less than MDA

Minimum MDA 323

Comments: No underlying soils accessed

System background utilized

NOTE

* Denotes Concrete Core Sample Location

Comments: Systematic core results are as follows

SC 01	1.83	(ug/g)
SC 02	1.79	(ug/g)
SC 03	1.87	(ug/g)
SC 04	2.04	(ug/g)
Composite	4.19	(pCi/g)

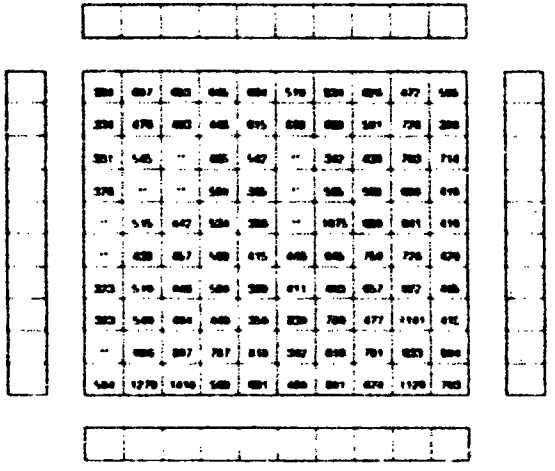
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number: 4

Grid Block I.D. Number: 3D

Survey Dates: 11/10/95 11/13/95 2/8/96



NOTE

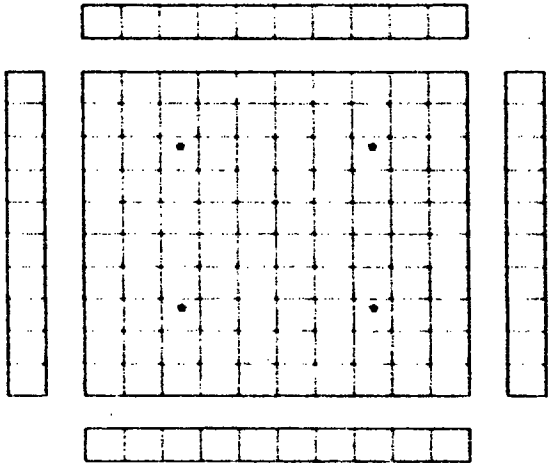
Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 31.9

Comments: No underlying soils accessed

System background utilized



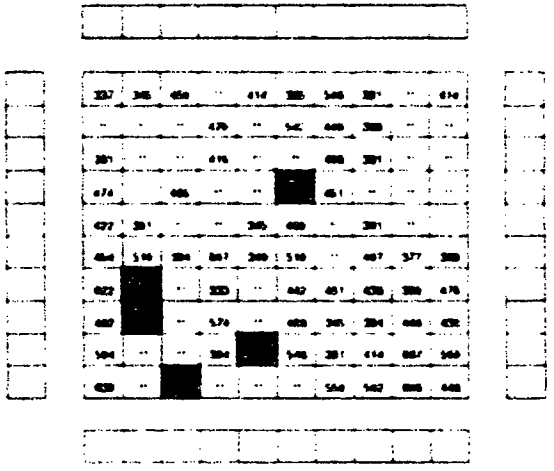
NOTE

* Denotes Concrete Core Sample Location

Comments: Systematic core results are as follows:

SC 01	1.79	(ug/g)
SC 02	2.49	(ug/g)
SC 03	2.62	(ug/g)
SC 04	2.88	(ug/g)
Composite	3.27	(pCi/g)

Surface Survey of Concrete



NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 328

Comments No underlying soils accessed

System background utilized

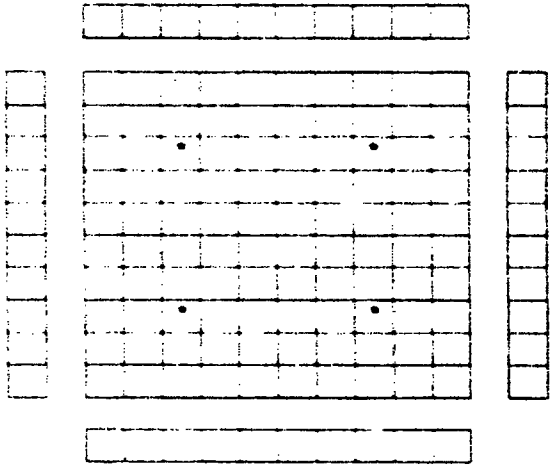
Denotes stationary capital equipment

Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block I.D. Number 3E

Survey Dates 11/14/95 11/27/95 3/5/96



NOTE

• Denotes Concrete Core Sample Location

Comments Systematic core results are as follows:

SC 01	2.32	(ug/g)
SC 02	1.91	(ug/g)
SC 03	1.68	(ug/g)
SC 04	1.93	(ug/g)
Composite	2.91	(pCi/g)

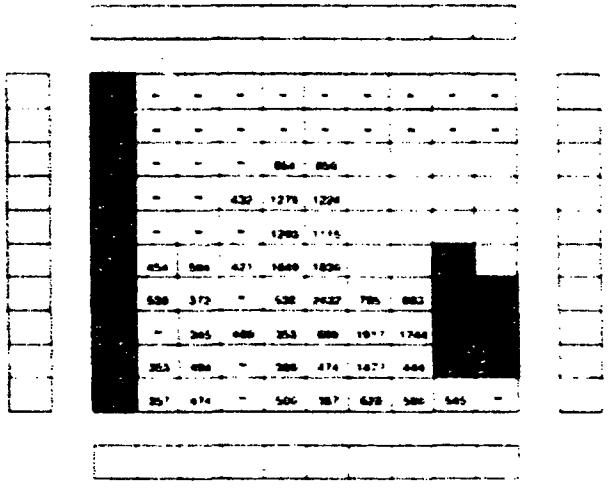
Surface Survey of Concrete

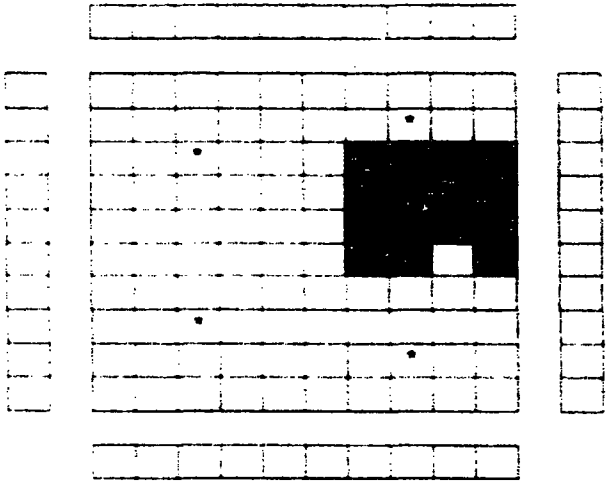
Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block ID Number 2F

Survey Dates 11/14/95 11/15/95 3/5/96





NOTE:

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 34*

Comments: No underlying soils accessed

System background utilized

Denotes outside of defined affected area

Denotes stationary capital equipment

NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments: Systematic core results are as follows:

Conversions made assuming 2% enriched uranium

SC 01	2.04	(ug/g)	(2.9 pCi/g)
SC 02	1.65	(ug/g)	(2.31 pCi/g)
SC 03	2.3	(ug/g)	(3.22 pCi/g)
SC 04	1.27	(ug/g)	(1.8 pCi/g)
AVG	2.6	(pCi/g)	Derived:

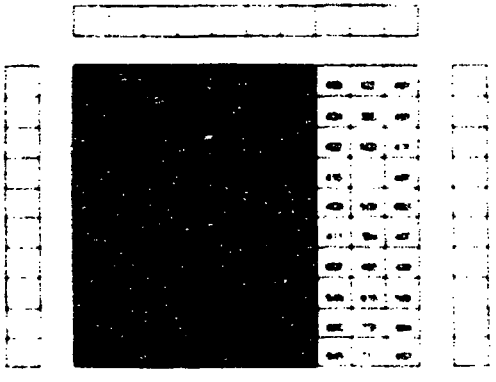
Surface Survey of Concrete

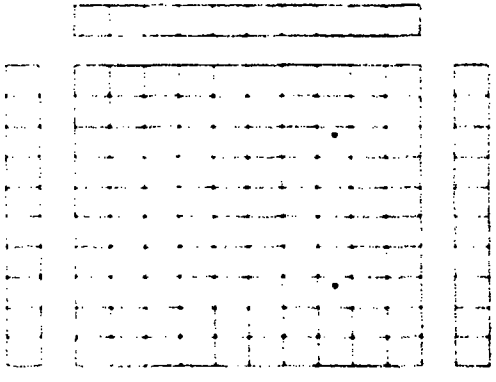
Removed Concrete and Concrete Core Sample Locations

Building Number: 4

Grid Block / ID Number: 6C

Survey Dates: 11/13/95





NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 3C*

Comments: No underlying soils accessed

System background utilized

Denotes outside of defined affected area

NOTE

* Denotes Concrete Core Sample Location

Comments: Systematic core results are as follows

SC 01	2.06	(ug/g)
SC 04	2.29	(ug/g)
Composite	1.91	(pCi/g)

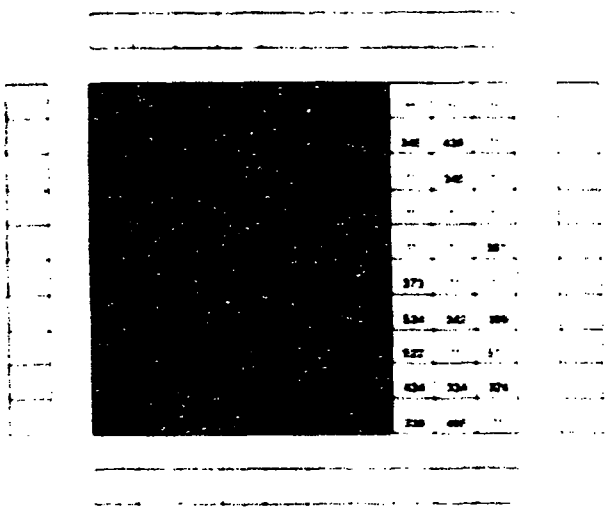
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block [illegible] Number 4b

Survey Dates [illegible]



NOTE

Countrate in CPM [illegible] cm²

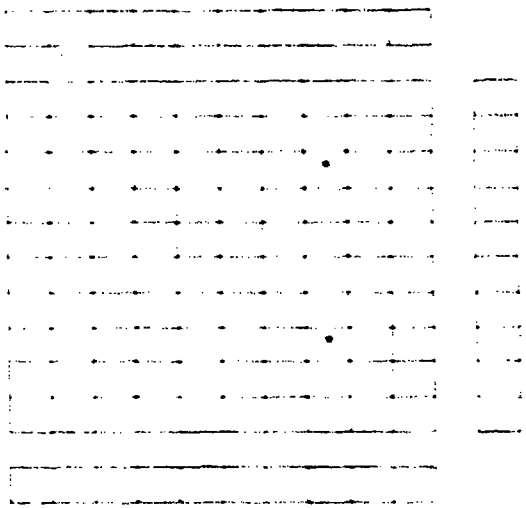
** Designates where countrate less than MCA

Minimum MCA 2[illegible]

Comments No underlying soils accessed

System background obtained

Denotes outside of defined affected area



NOTE

• Denotes Concrete Core Sample Location

Comments Systematic core results are as follows

[illegible]	2.22	(uCi/g)
SC 04	1.98	(uCi/g)
Composite	4.42	(pCi/g)

[illegible]

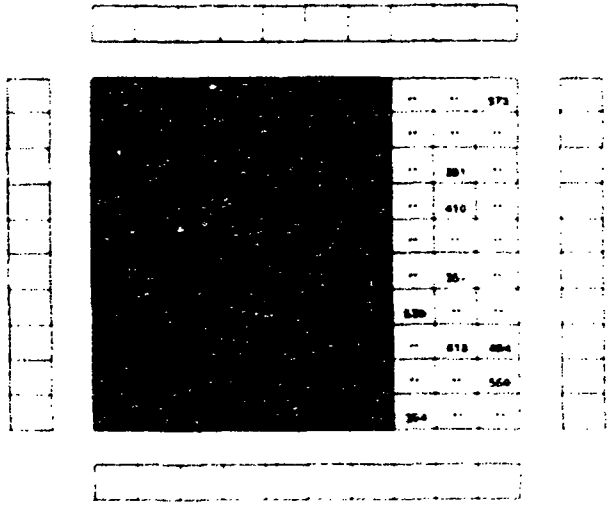
Surface Survey of Concrete

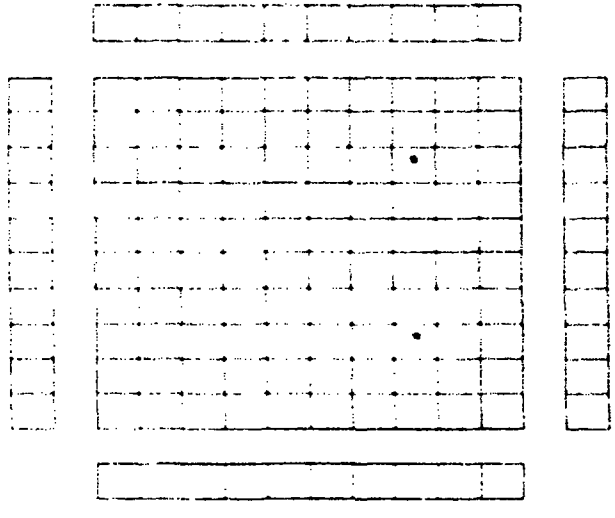
Removed Concrete and Concrete Core Sample Locations

Building Number 4

Grid Block / Number 4E

Survey Dates 11/14/95





NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 354

Comments No underlying soils accessed

System background utilized

Denotes outside of defined affected area

NOTE

* Denotes Concrete Core Sample Location

Comments Systematic core results are as follows

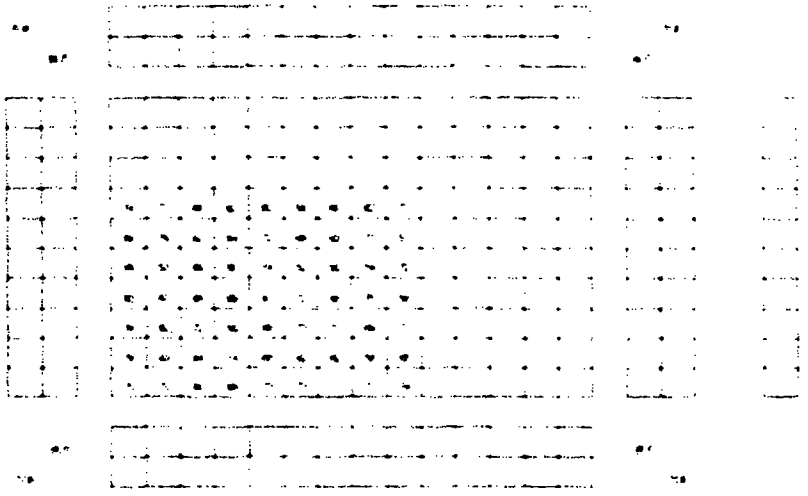
SC 01	1 79	(ug/g)
SC 04	1 93	(ug/g)
Composite	4 93	(pCi/g)

Surface Survey of Exposed Soils

Building Number: 4

Building 4 as one grid block

Survey Dates: 2/29/96

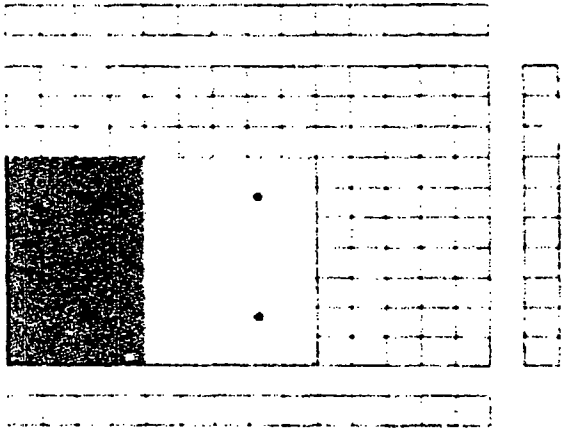


NOTE

Count rate in CPM

Soil survey for information only

Soil Depths and Soil Sample Locations



NOTE

Denotes 1 - 2 feet

Denotes 2 - 4 feet

* Denotes Soil Sample Location

Comments: Systematic and results are as follows

SS 01	3.2e	(pCi/g)
SS 02	9.5e	(pCi/g)
SS 03	3.1.7	(pCi/g)
SS 04	2.5e	(pCi/g)
AVG	4.3	(pCi/g)

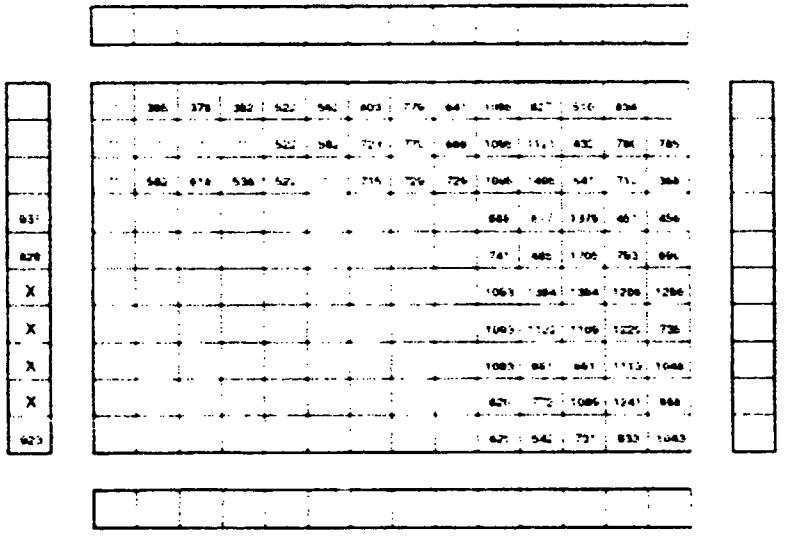
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 5

Building 5 as one grid block

Survey Dates 2/8/96 2/29/96 3/1/96 3/26/96 3/27/96



NOTE

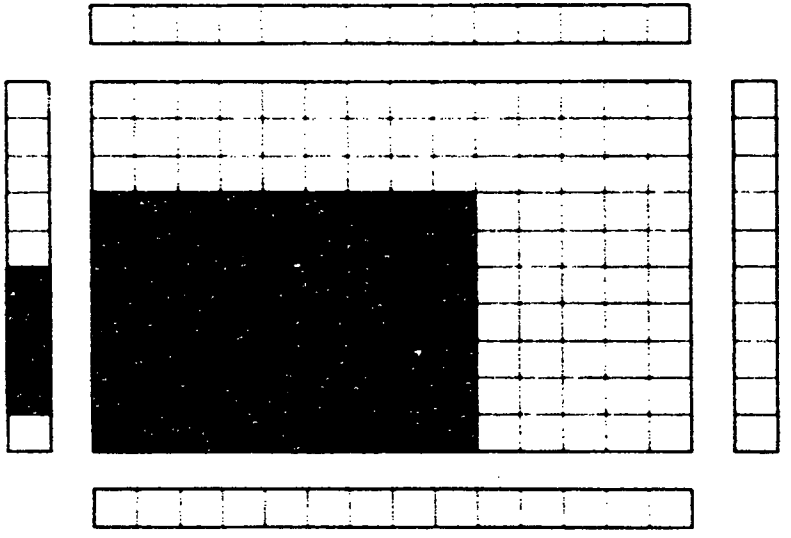
Countrate in DPM 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 319

Comments System background utilized

X Denotes section of wall removed



NOTE

Designates where concrete was removed

Comments All primary concrete removed as radwaste

Several cinderblock wall sections removed

OFFICIAL RECORD COPY ML 10

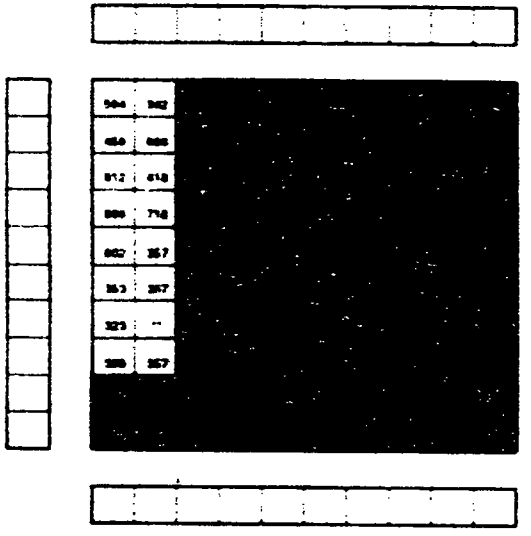
Surface Survey of Concrete

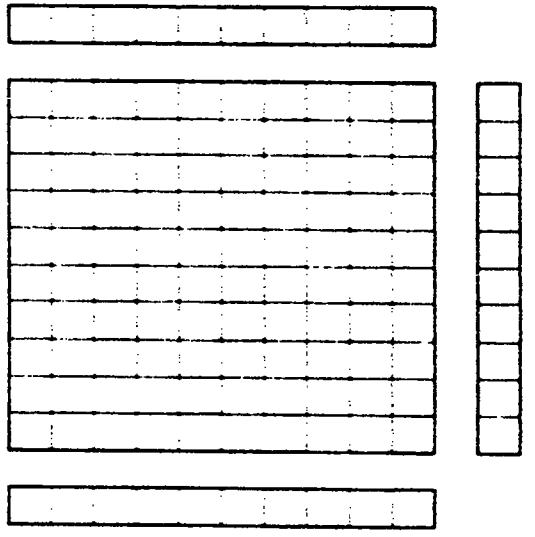
Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I.D. Number 0C

Survey Dates 12/12/96





NOTE

Countrate in DPM : 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 311

Comments No underlying soils accessed

System background utilized

Denotes outside of defined affected area

Comments No samples sent for analysis

Due to small surface area, no concrete cores collected

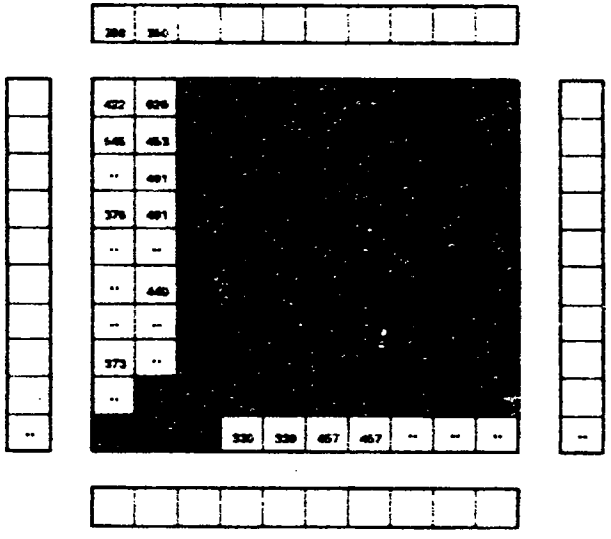
Surface Survey of Concrete

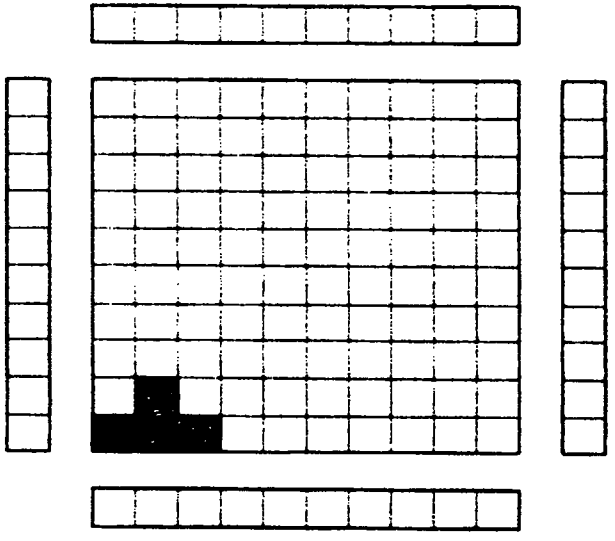
Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I D Number 18

Survey Dates 12/7/95 12/11/95





NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 329

Comments No underlying soils accessed

System background utilized

Denotes outside of defined affected area

Denotes stationary capital equipment

Comments No samples sent for analysis

Due to small surface area, no concrete cores collected

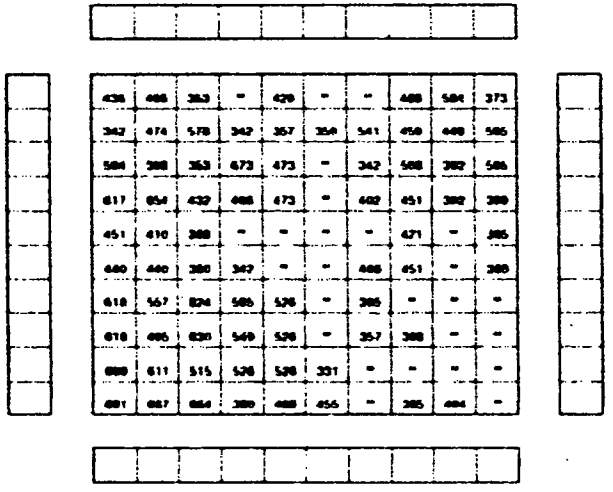
Surface Survey of Concrete

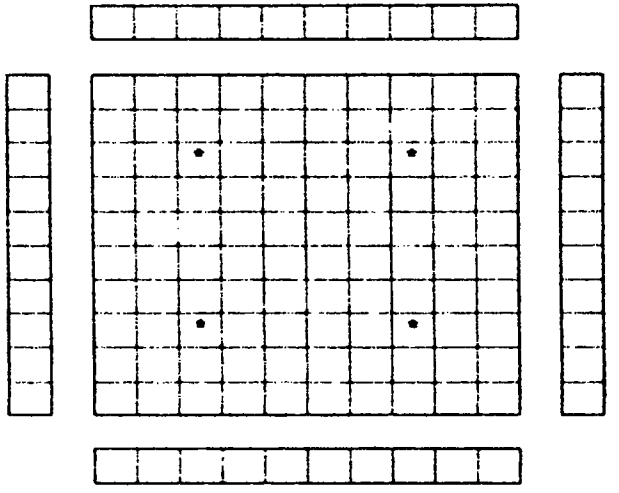
Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 29

Survey Dates: 12/6/95 12/7/95 12/11/95 12/13/95





NOTE:

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA.

Minimum MDA: 311

Comments: No underlying soils accessed.

System background utilized.

S Denotes location of stairs

NOTE:

* Denotes Concrete Core Sample Location

Comments: Systematic core results as follows:

Conversions made assuming 2% enrichment

SC 01	2.01	(ug/g)	(2.8 pCi/g)
SC 02	2.62	(ug/g)	(3.7 pCi/g)
SC 03	2.37	(ug/g)	(3.3 pCi/g)
SC 04	1.80	(ug/g)	(2.5 pCi/g)
Avg.	3.1	(pCi/g - Derived)	

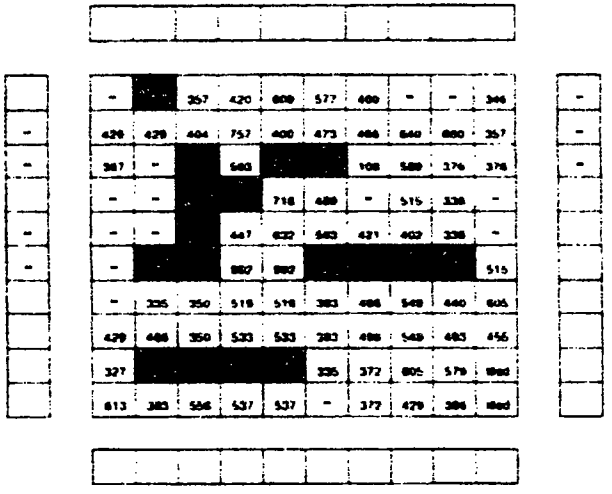
Surface Survey of Concrete

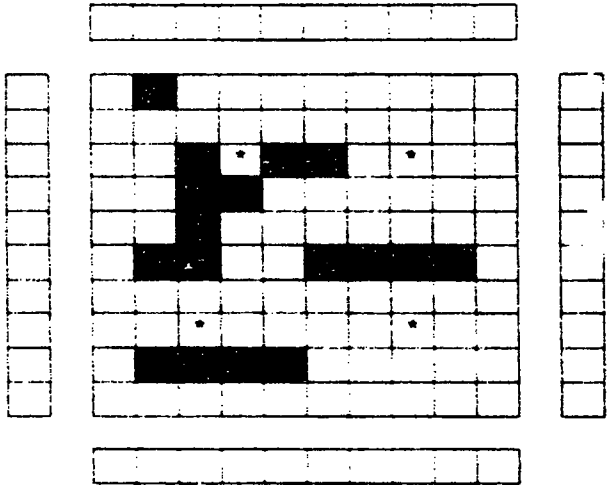
Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block ID Number: 10

Survey Dates: 12/6/95 12/7/95 12/11/95 12/12/95 12/13/95





NOTE:

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 311

Comments: No underlying soils accessed.

System background utilized

Denotes area covered by capital equipment

NOTE

* Denotes Concrete Core Sample Location

Comments: Systematic core results as follows:

SC 01	4.71	(ug/g)
SC 02	1.92	(ug/g)
SC 03	1.79	(ug/g)
SC 04	2.58	(ug/g)
Composite	2.48	(pCi/g)

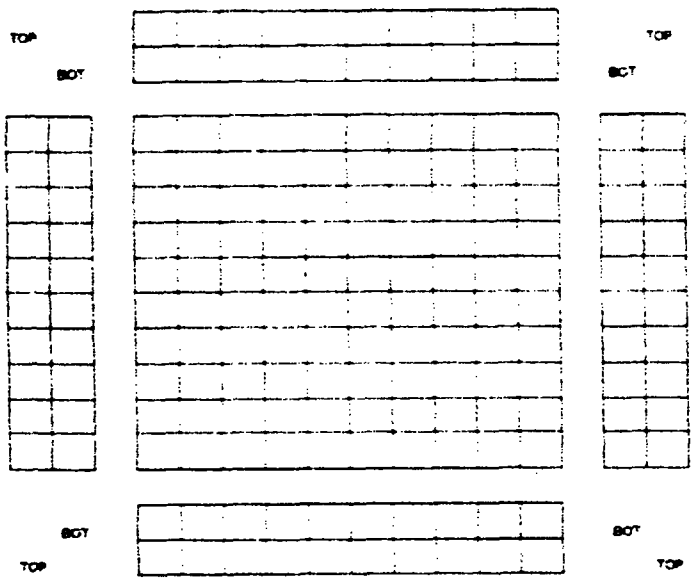
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 12

Grid Block I.D. Number 2C

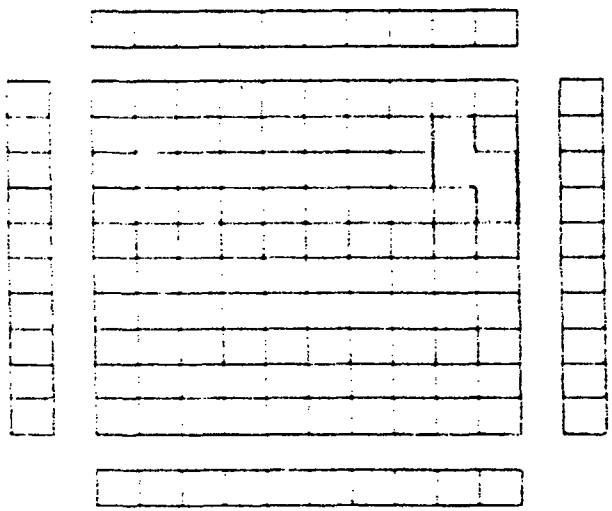
Survey Dates 9-8



NOTE

Count rate in CPM

Soil survey for information only



NOTE.

Denotes 0 - 2 feet

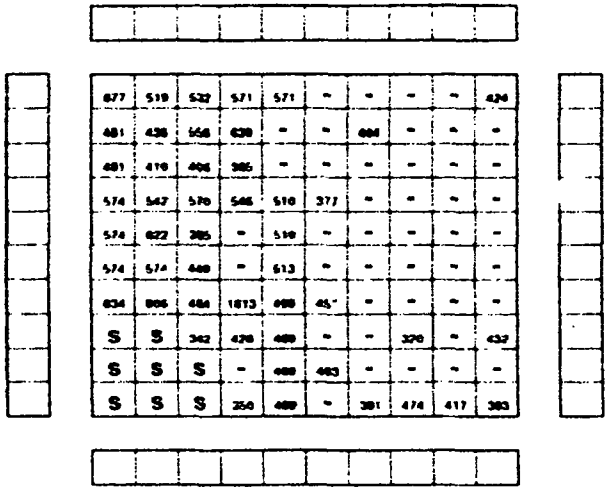
Surface Survey of Concrete

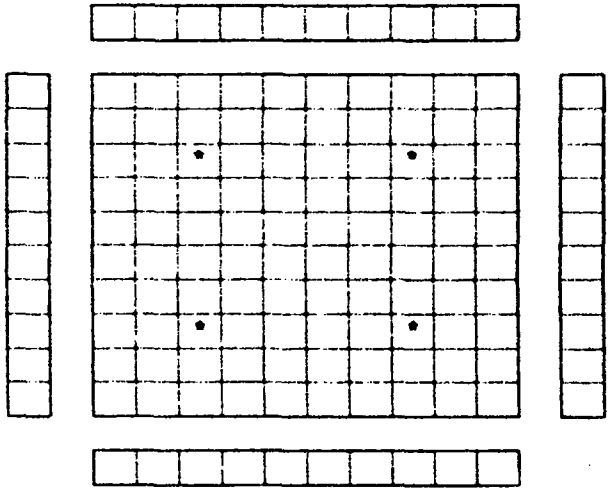
Removed Concrete and Concrete Core Sample Locations

Building Number: 19

Grid Block I.D. Number: 2C

Survey Dates: 12/5/95 12/7/95 12/8/95 12/11/95 12/12/95 12/13/95





NOTE:

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA.

Minimum MDA: 311

Comments: No underlying soils accessed

System background utilized.

S Denotes location of stairs

NOTE:

* Denotes Concrete Core Sample Location

Comments: Systematic core results as follows:

SC 01	1.84	(ug/g)
SC 02	1.86	(ug/g)
SC 03	2.03	(ug/g)
SC 04	1.8	(ug/g)
Composite	1.99	(pCi/g)

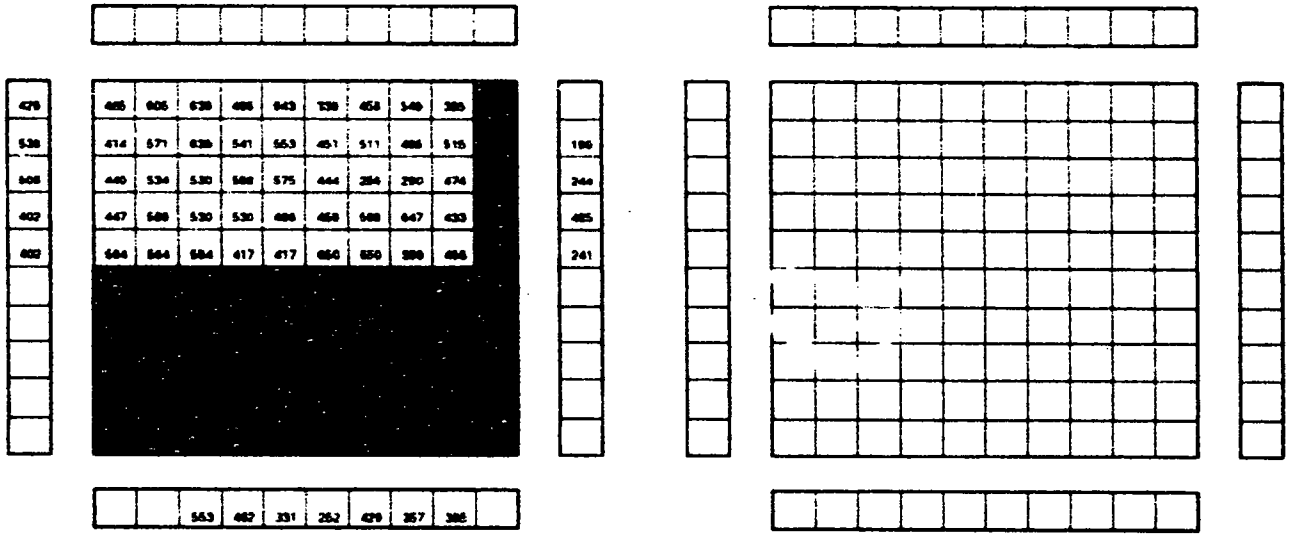
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I D Number 1D

Survey Dates 12/12/95 12/13/95



NOTE:

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA.

Minimum MDA: 311

Comments: No samples sent for analysis

No cores collected due to shock sensitive equipment in area

Comments No underlying soils accessed

System background utilized.

Denotes outside of defined affected area.

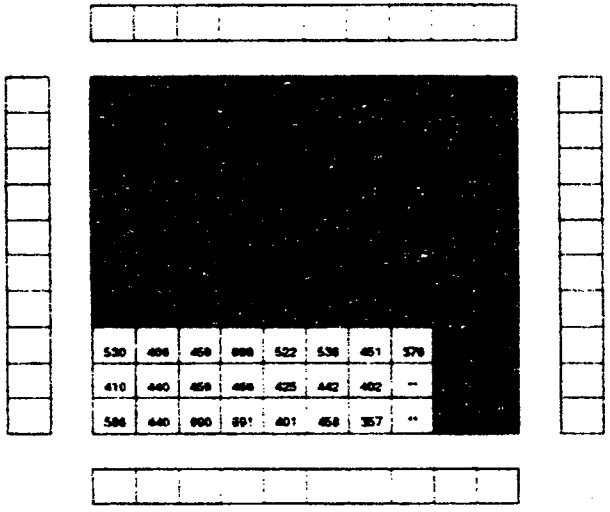
Surface Survey of Concrete

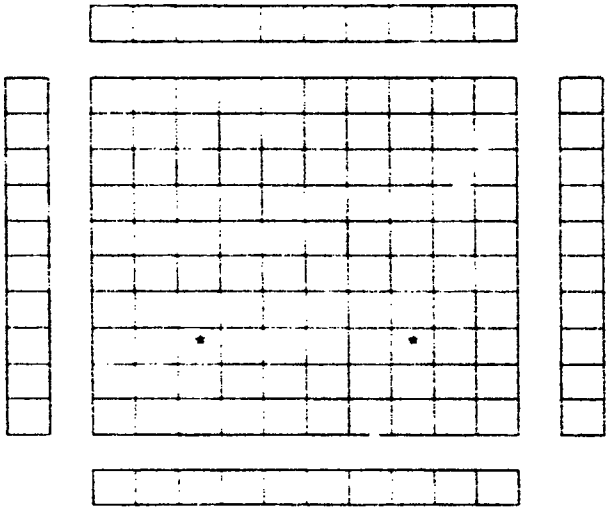
Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I D Number: 2A

Survey Dates: 12/5/95 12/8/95





NOTE:

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 329

Comments: No underlying soils accessed.

System background utilized

Denotes outside of defined affected area.

NOTE

* Denotes Concrete Core Sample Location

Comments: Systematic core results as follows:

SC 03	1.41	(ug/g)
SC 04	1.65	(ug/g)
Composite	2.09	(pCi/g)

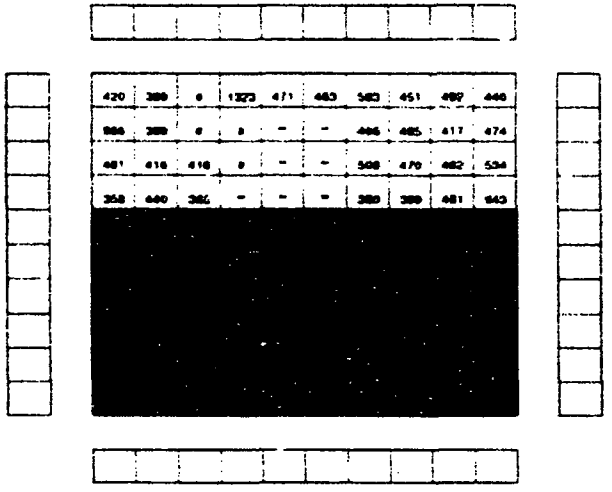
Surface Survey of Concrete

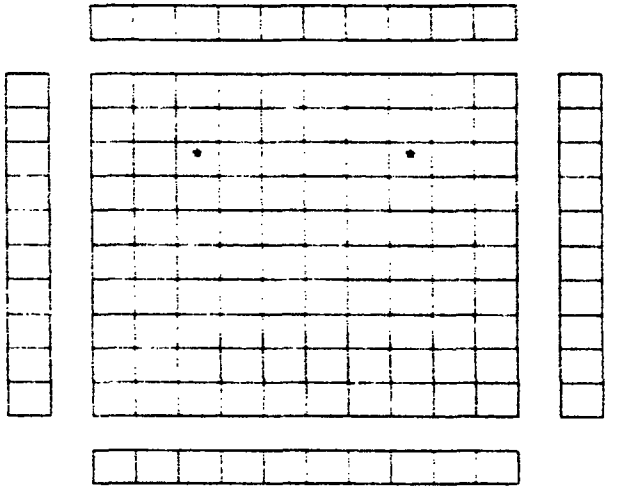
Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I.D. Number: 2D

Survey Dates 12/7/95 12/12/95 12/13/95





NOTE:

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 311

Comments: No underlying soils accessed

System background utilized.

Denotes outside of defined affected area

\# Area not accessible

NOTE.

* Denotes Concrete Core Sample Location

Comments: Systematic core results as follows:

SC 01	3.18	(ug/g)
SC 02	1.81	(ug/g)
Composite	2.33	(pCi/g)

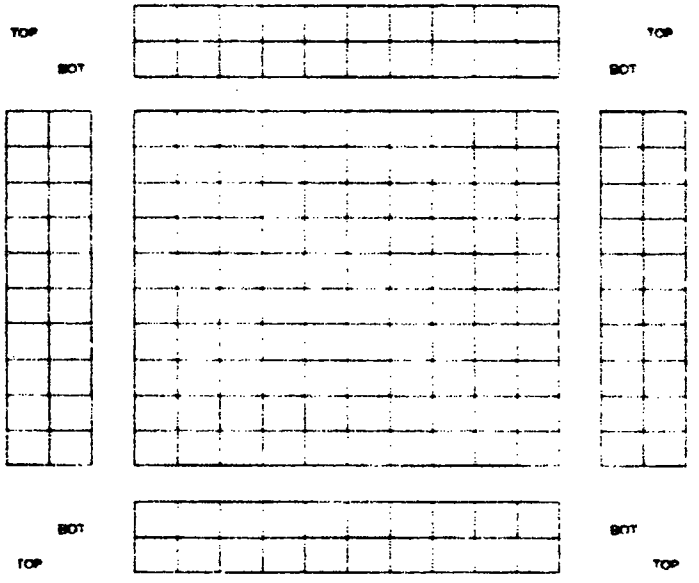
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 10

Grid Block I.D. Number 2E

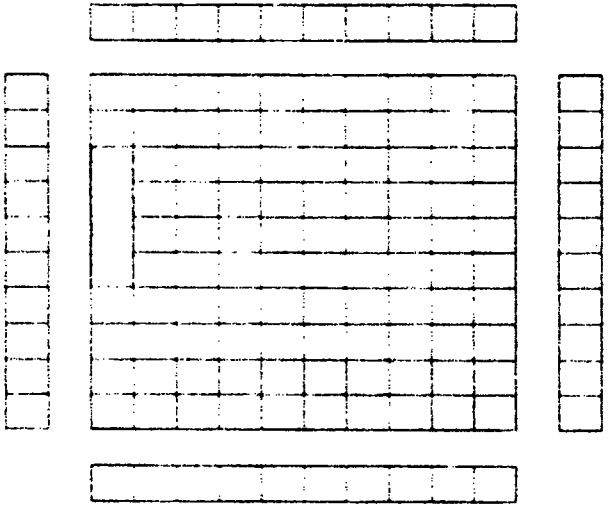
Survey Dates 0/0



NOTE:

Count rate in CPM

Soil survey for information only



NOTE

Denotes 0 - 2 feet.

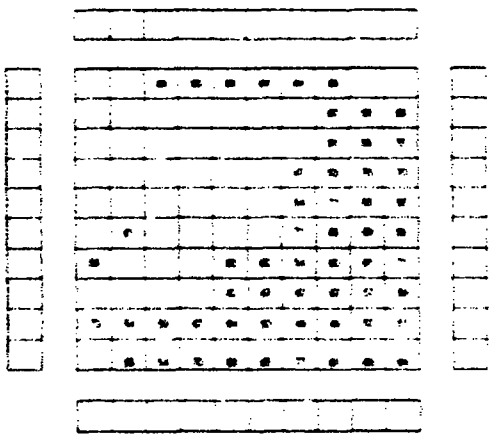
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number [redacted]

Grid Block / D. Number [redacted]

Survey Date [redacted]

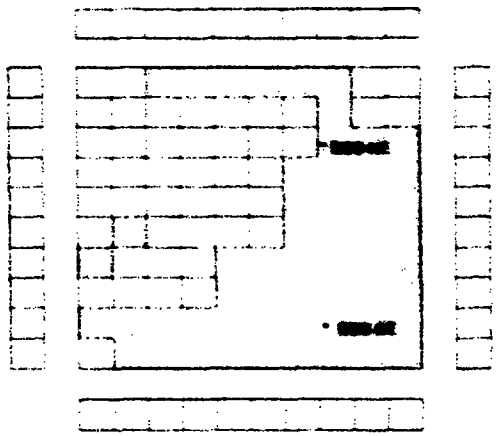


NOTE

Count rate in CPM

Soil survey for information only

Comments Sample taken for verification



NOTE

Depths 0 - 2 feet

* Denotes Soil Sample Location

Comments BSS NE 2.88 (pCi/g)

BSS SE 2.3[illegible] (pCi/g)

AVG 2.59 (pCi/g) (derived)

[redacted] SHEET

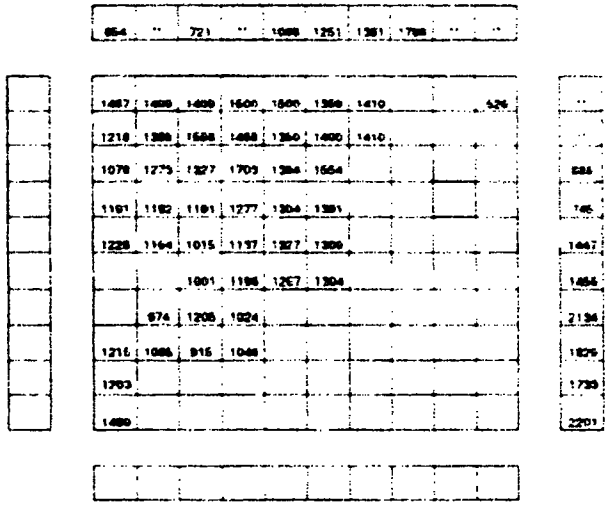
Surface Survey of Concrete

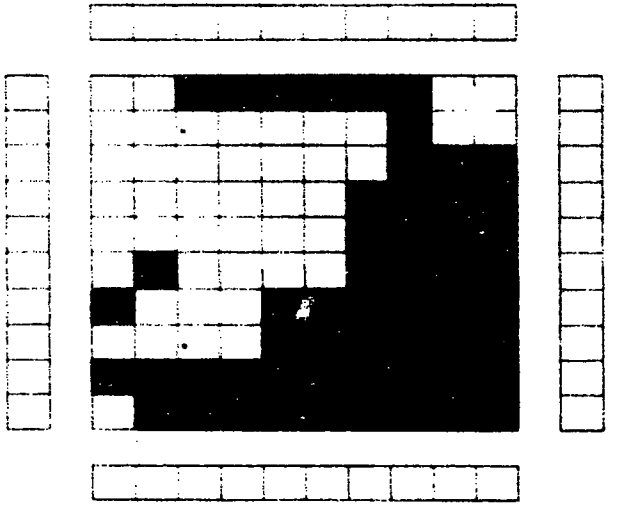
Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I.D. Number 3B

Survey Dates 8/4/95 8/28/95 12/11/95





NOTE:

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA

Minimum MDA 329

Comments System background utilized

NOTE:

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments: Systematic core results as follows:

SC 02	2.60	(pCi/g)
SC 03	2.17	(pCi/g)
Avg	2.39	(pCi/g - Derived)

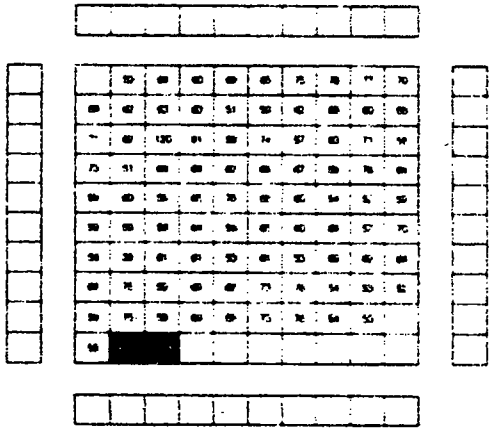
Surface Survey of Exposed Soils

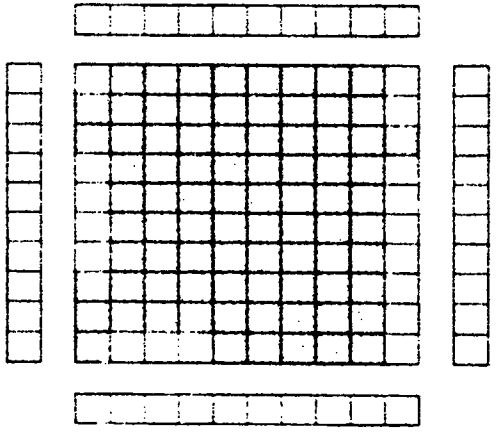
Soil Depths and Soil Sample Locations

Building Number 10

Grid Block / D Number 3C

Survey Date 8/18/95





NOTE

Count rate in CPM

Soil survey for information only

Comments ■ Denotes Sump

Denotes Soil too wet to survey at 8 feet

Sample taken for verification

NOTE

Denotes 0 - 2 feet

* Denotes Soil Sample Location

Comments				
	SS 01	3.10	(ug/g)	
	SS 02	4.80	(ug/g)	
	SS 03	2.60	(ug/g)	
	SS04	2.80	(ug/g)	
	AVG.	3.32	(ug/g)	(derived)
		4.6	(pCi/g)	(assume 2% enriched)

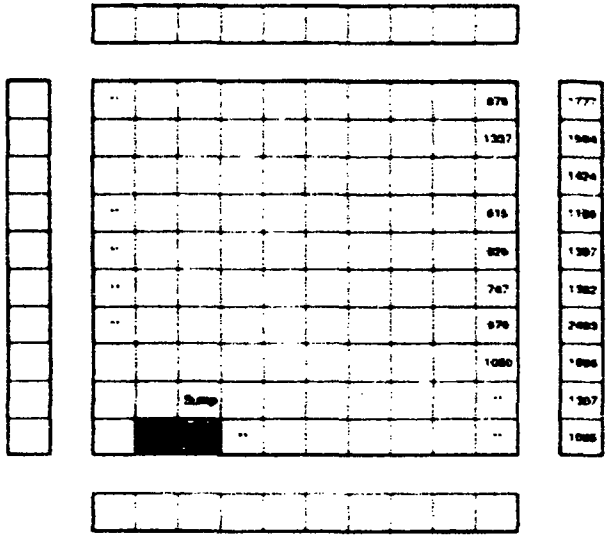
Surface Survey of Concrete

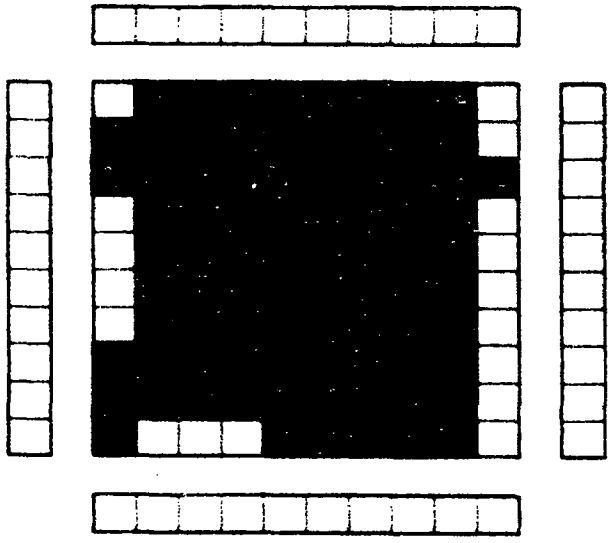
Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I D Number 3C

Survey Date 8/18/95





NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 576

Comments System background utilized

Denotes Sump

NOTE

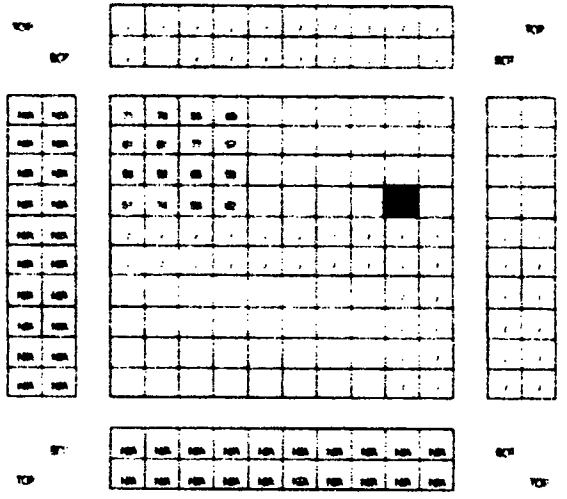
* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments No samples taken - most concrete removed as radioactive waste

Surface Survey of Exposed Soils

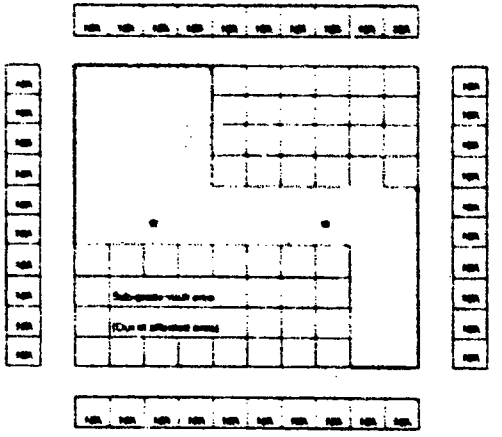
Building Number 10
Grid Block I D Number 3D
Survey Date 8/18/86



NOTE
Count rate in CPM
Soil survey for information only

Comments: Denotes Sump
Denotes Soil too wet to survey at 8 feet
Sample taken for verification

Soil Depths and Soil Sample Locations



NOTE:
Denotes 0 - 2 feet
Denotes 8 + feet

Denotes Soil Sample Location

Comments: Systematic samples taken 2m north of predetermined location due to vault
Systematic soil results are as follows

SS 03	4.05	(pCi/g)	
SS 04	3.66	(pCi/g)	
AVG.	3.86	(pCi/g)	(derived)

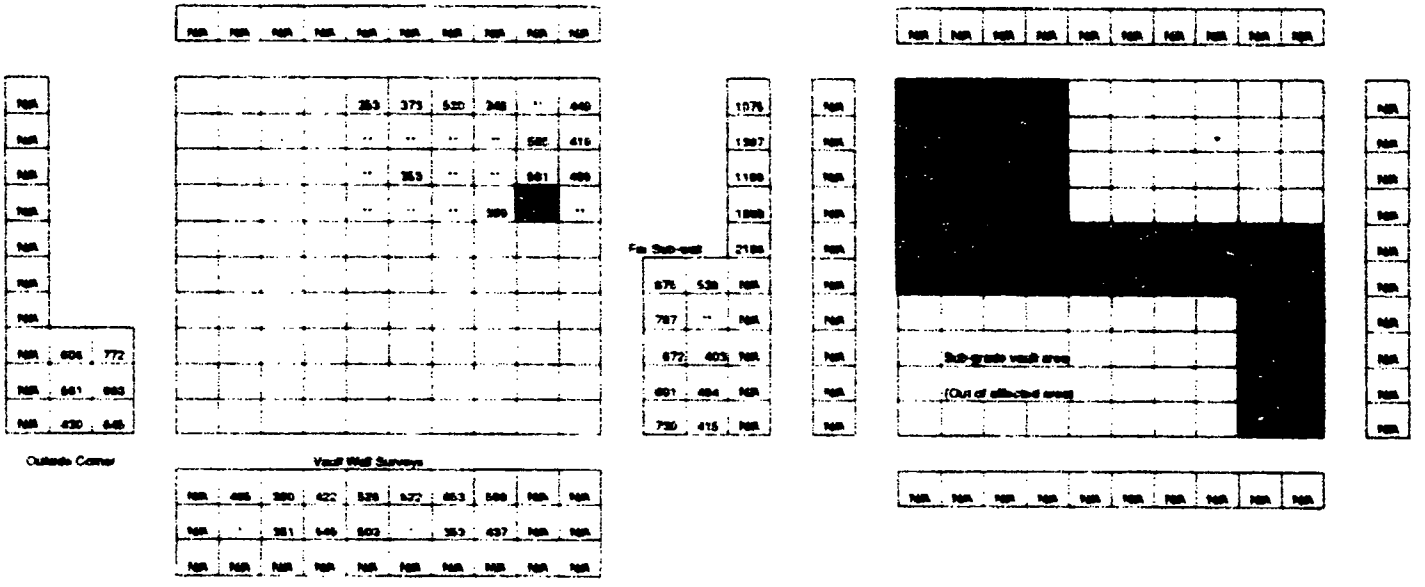
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I D Number 3D

Survey Dates: 8/18/95 2/12/96



NOTE:

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 326

Comments: System background utilized

Denotes Sump

NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic core results as follows:

SC-01 2.10 (pCi/g)

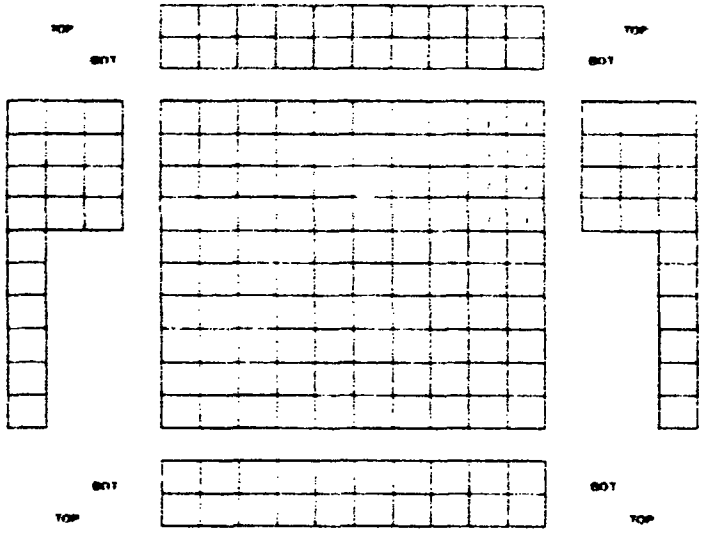
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number: 10

Grid Block I.D. Number: [redacted]

Survey Date [redacted]



NOTE

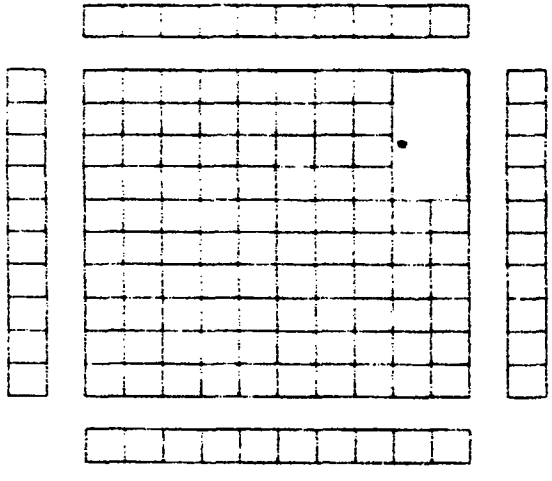
Count rate in CPM

Soil survey for information only

Comments: All concrete removed as rad waste

' Denotes soil to wet to survey

Samples taken for verification



NOTE

Denotes 8 + feet.

* Denotes Soil Sample Location

Comments: Systematic soil results as follows:

SS 01 223.34 (pCi/g)

Area discussed in detail as residual cont. area.

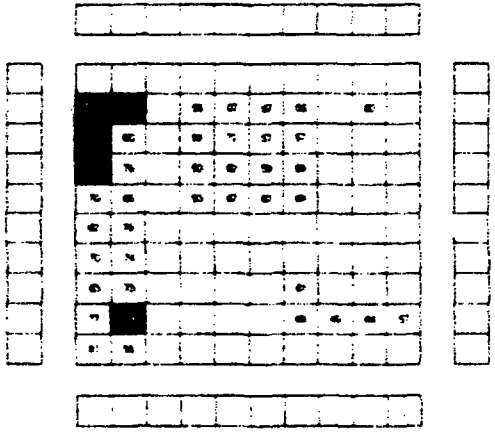
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 10

Grid Block : D Number 48

Survey Dates 8/19/95 1/23/96

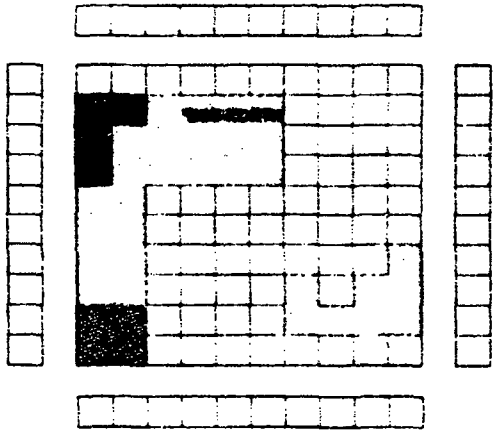


NOTE:

Count rate in CPM

Soil survey for information only

Comments ■ Denotes Sump or Footing



NOTE:

Denotes 0 - 2 feet

Denotes 2 - 4 feet

* Denotes Soil Sample Location

Comments BSS N 4.94 (pCi/g)

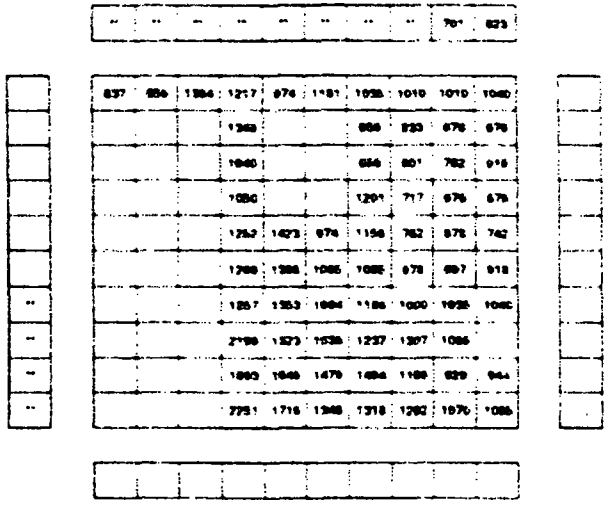
Surface Survey of Concrete

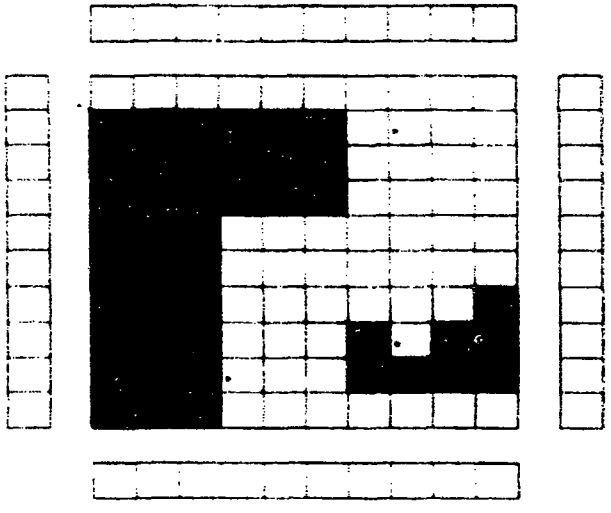
Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 4B

Survey Dates: 8/3/95 11/1/95





NOTE:

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA

Minimum MDA: 323

Comments: System background utilized

NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments: Systematic core results as follows:

SC 01	2.04	(pCi/g)
SC 03	3.7	(pCi/g)
SC 04	2.05	(pCi/g)
AVG	2.9	(pCi/g - Derived)

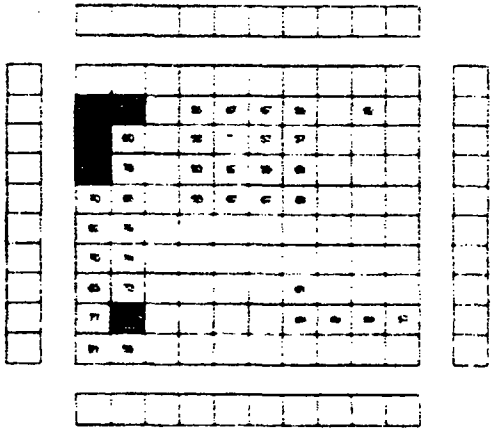
Surface Survey of Exposed Soils

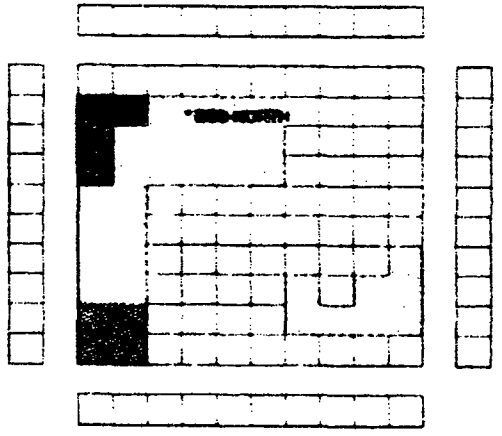
Soil Depths and Soil Sample Locations

Building Number 19

Grid Block / ID Number 4C

Survey Dates 8/1/955 1/23/96





NOTE

Count rate in CPM

Soil survey for information only

Comments Denotes Sump or Footing

NOTE

Denotes 0 - 2 feet

Denotes 2 - 4 feet

* Denotes Soil Sample Location

Comments BSS N 4.94 (pCi/g)

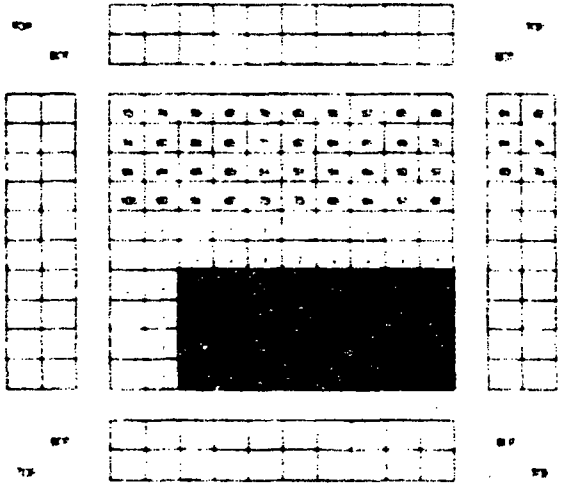
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 19

Grid Block / ID Number 4C

Survey Dates 8/1985 1-23-86



NOTE

Count rate in CPM

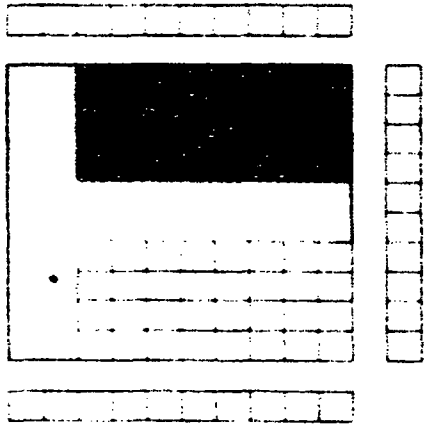
Soil counts for information only

Comments All concrete removed as rad waste

Denotes outside of defined affected area

/ Denotes soil to wall to survey

Samples taken for verification



NOTE

Denotes 0 - 2 feet

Denotes 4 - 6 feet

Denotes 8 + feet

• Denotes Soil Sample Location

Comments Systematic soil results as follows

Conversions made assuming 2% enriched uranium

SS 01	4.76	(ug/g)	(5.9 pCi/g)
SS 02	4.80	(ug/g)	(5.8 pCi/g)
SS 03	27.09	(pCi/g)	
AVG	13.2	(pCi/g)	

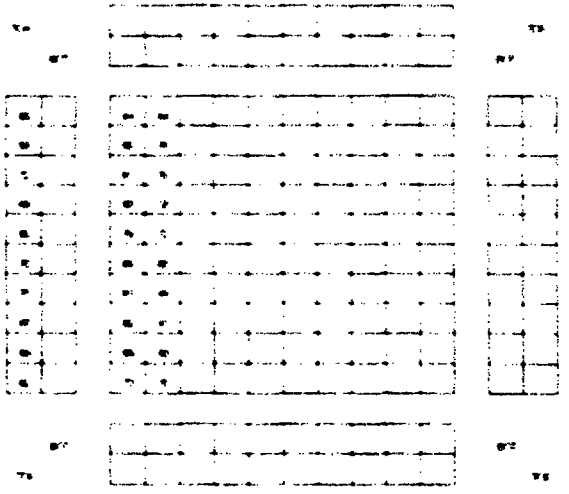
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 10

Grid Block Number 46

Survey Date 2/16/1999

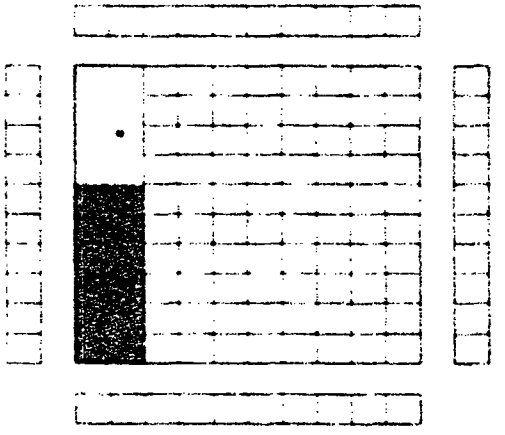


NOTE

Count rate in CPM

Soil survey for information only

Comments All concrete removed as rad waste



NOTE

Denotes 2 - 4 feet

Denotes 8 + feet

* Denotes Soil Sample Location

Comments Systematic soil results as follows

SS 02	5.6	(pCi/g)
SS 03	6.02	(pCi/g)
AVG	5.8	(pCi/g) (derived)

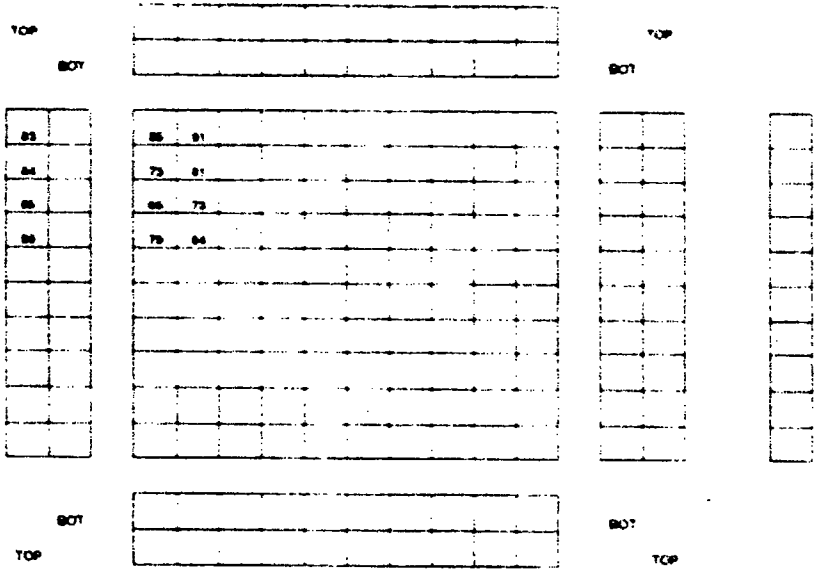
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 10

Grid Block : D Number 4F

Survey Date 2/16/95

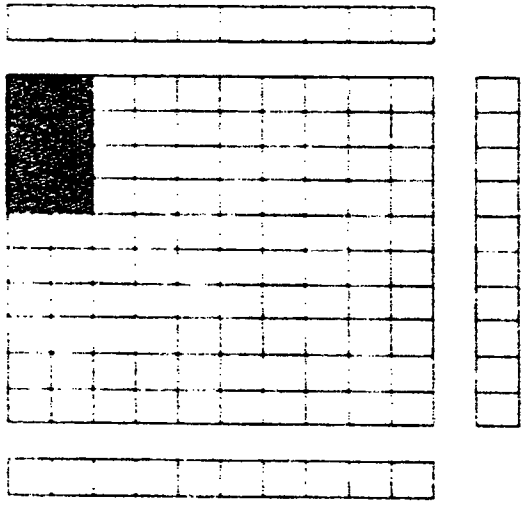


NOTE

Count rate in CPM

Soil survey for information only

Comments All concrete removed as rad waste



NOTE

Denotes 2 4 feet

* Denotes Soil Sample Location

No sample collected due to small area

Comments

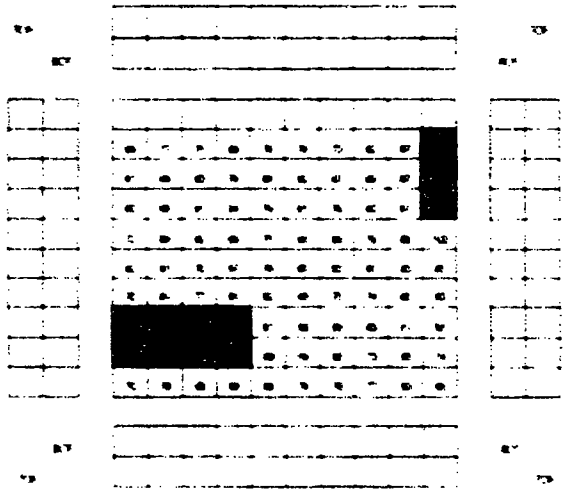
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 15

Grid Block (D Number 20

Survey Date 1/23/06



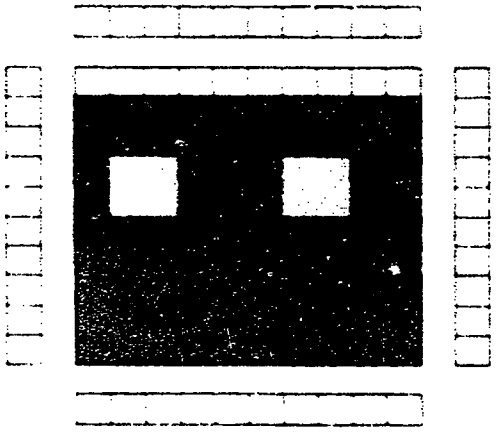
NOTE

Count rate in CPM

Soil survey for information only

Comments: Denotes subsurface structure

Denotes survey



NOTE

Denotes 0 2 feet

Denotes 2 4 feet

Denotes 4 6 feet

* Denotes soil sample location

Comments: Systematic soils results are as follows

SS 01	3.75	pCi/g;	
SS 02	3.06	pCi/g;	
SS 03	8.55	pCi/g;	
SS 04	5.86	pCi/g;	
AVG	5.3	pCi/g;	Derived

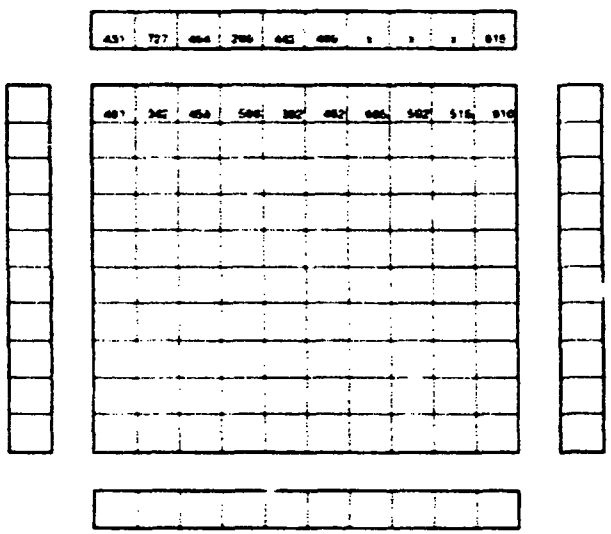
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I D Number 58

Survey Dates 11/1/96 12/11/96



NOTE

Countrate in DPM : 100 cm^2

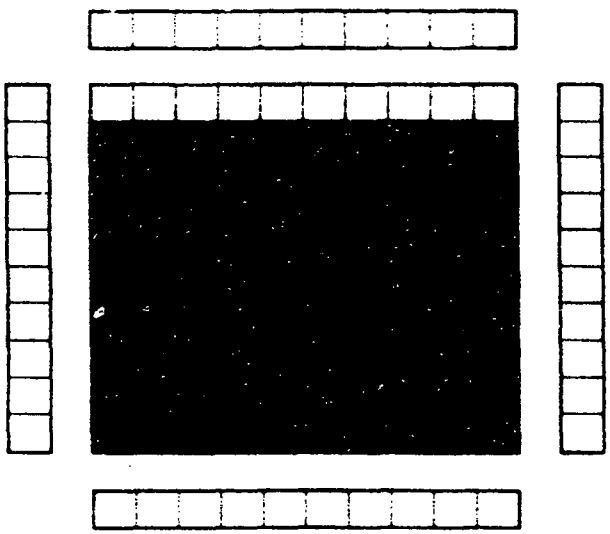
** Designates where count rate less than MDA

Minimum MDA 323

Comments System background utilized

x Denotes wall not surveyed due

to wall covered with electrical panels



NOTE

Designates where concrete was removed

Comments No core samples collected - most concrete

removed as radwaste

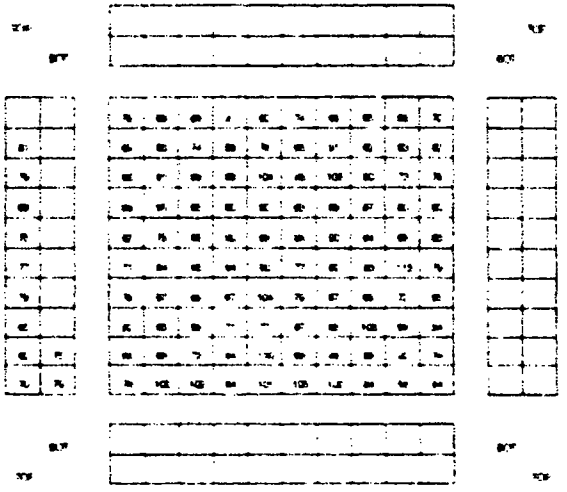
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 15

Grid Block I.D. Number 5C

Survey Dates 1/31/96 1/13/96 1/27/96

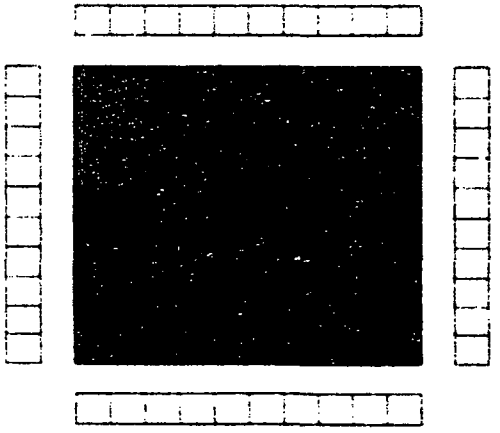


NOTE

Count rate in CPM

Soil survey for information only

Comments All concrete removed as rad waste



NOTE

Denotes 2 - 4 feet

Denotes 4 - 6 feet

Denotes 6 - 8 feet

* Denotes Soil Sample Location

Comments Systematic soil results are as follows

SS 04 excluded from average due to debris

Surface survey did not indicate contamination

SS 01	7.58	(pCi/g)	
SS 02	8.06	(pCi/g)	
SS 03	16.70	(pCi/g)	
SS 04	546.70	(pCi/g)	
AVG	16	(pCi/g)	Derived

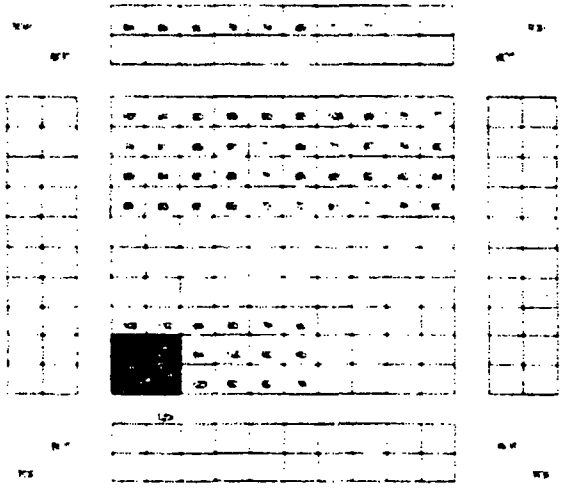
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number [illegible]

Grid Block - D Number 55

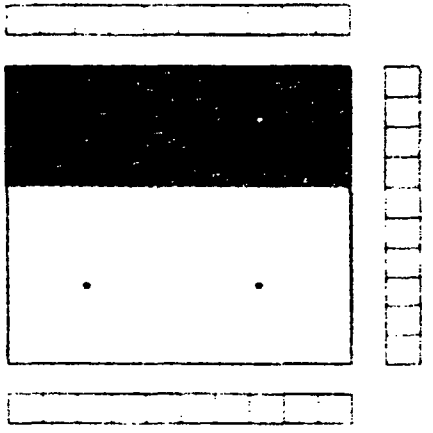
Survey Dates 1/4/95 1/23/95



NOTE

Count rate in CPM

Soil survey for information only



NOTE

Denotes 4 - 6 feet

Denotes 6 - 8 feet

Denotes 8 + feet

Comments: All concrete removed as rad waste

Denotes soil too wet to survey

Sample taken for verification

Denotes sump

Denotes Soil Sample Location

Comments: Systematic soils are as follows

SS 01	3.11	(pCi/g)	
SS 02	1.83	(pCi/g)	
SS 03	23.01	(pCi/g)	
SS 04	48.12	(pCi/g)	
AVG	19	(pCi/g)	(Derived)

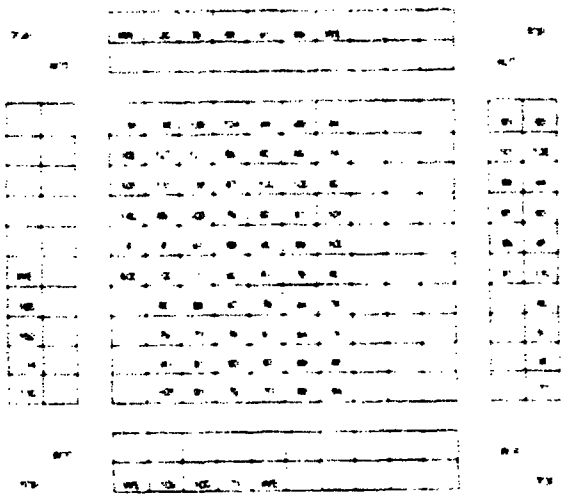
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 10

Grid Block ID Number SE

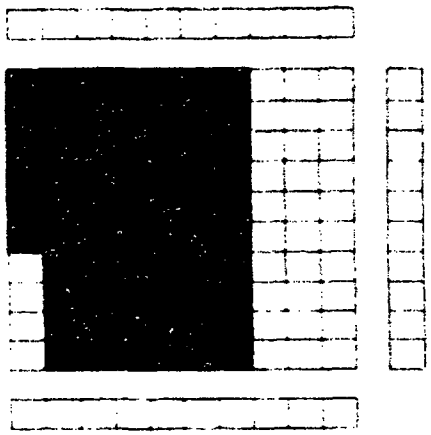
Survey Dates 12/12/95 1/8/96



NOTE

Count rate in CPM

Soil survey for information only



NOTE

Denotes 4 - 6 feet

Denotes 6 - 8 feet

Comments Hot spot excavated by hand (800 cpm)

WF Denotes where a wall ends

# Denotes location not accessible

• Denotes Soil Sample Location

Comments Systematic soil results as follows

SS 01	3.3*	(pCi/g)	
SS 02*	29.52	(ug/g)	(41.3 pCi/g)
SS 03	2.72	(ug/g)	(3.81 pCi/g)
AVG	16.1	(pCi/g)	(Derived)

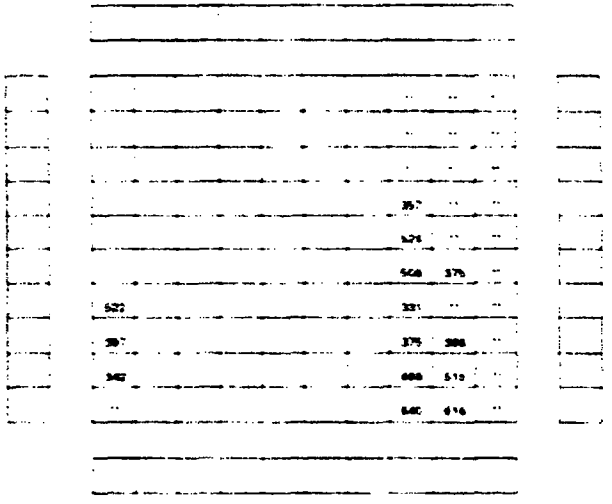
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number

Grid Block Number 55

Survey Dates N/A



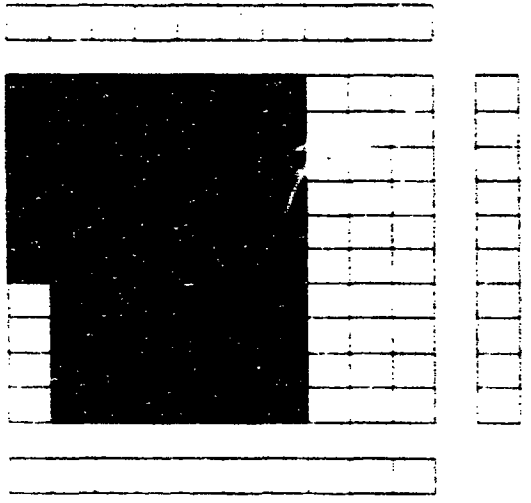
NOTE

Countrate in DPM

** Designates where countrate less than MDA

Minimum MDA

Comments System background utilized



NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments Systematic core results as follows

Conversions made assuming 2% enriched uranium

SC 01	3.18	(ug/g)	(4.5 pCi/g)
SC 02	3.06	(ug/g)	(4.3 pCi/g)
AVG	3.12	(ug/g)	(4.4 pCi/g)

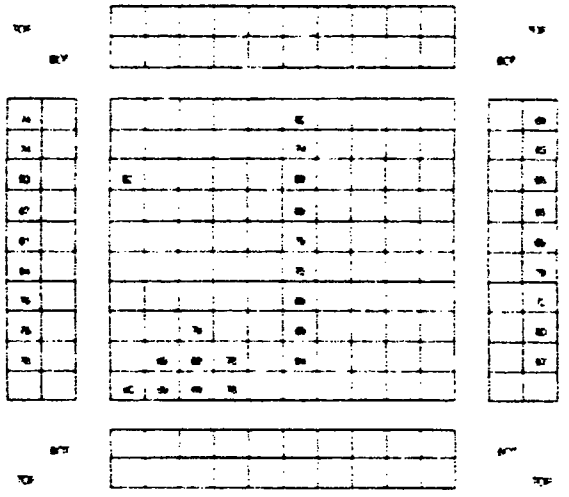
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 16

Grid Block : D Number SE

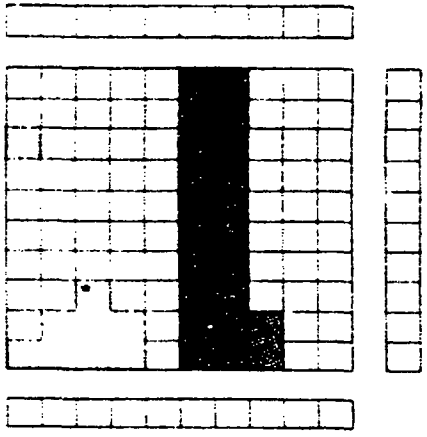
Survey Date N/A



NOTE

Count rate in CPM

Soil survey for information only



NOTE

Denotes 0 - 2 feet

Denotes 2 - 4 feet.

Denotes 4 - 6 feet

* Denotes Soil Sample Location

Comments Systematic soil results as follows

SS 03	2.02	(pCi/g)
BSS N	4.81	(pCi/g)
BSS S	8.86	(pCi/g)
AVG.	5.5	(pCi/g) (Derived)

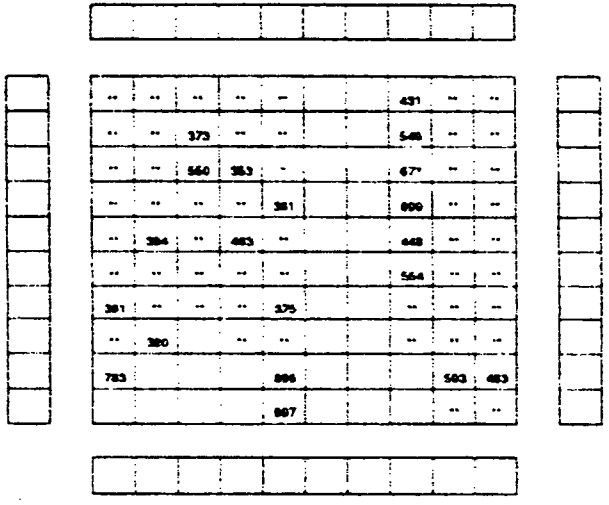
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I.D. Number 5F

Survey Dates: 10/4/95 10/31/95 11/2/95 11/8/95 11/9/95



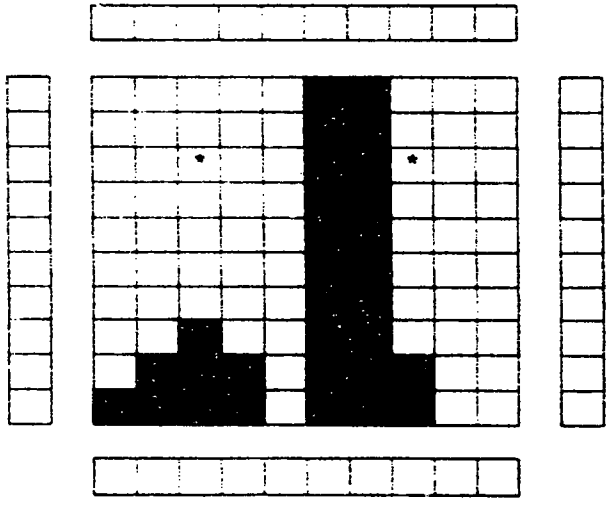
NOTE:

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA

Maximum MDA: 328

Comments: System background utilized



NOTE:

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic core results as follows:

SC 01	2.20	(ug/g)
SC 02	2.36	(ug/g)
Composite	2.16	(pCi/g)

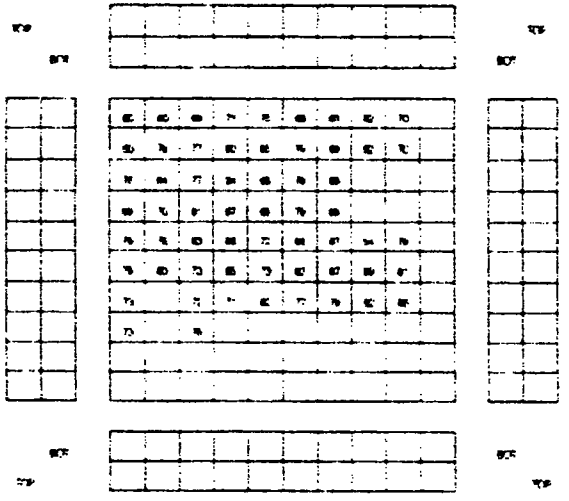
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 10

Grid Block I D Number 5G

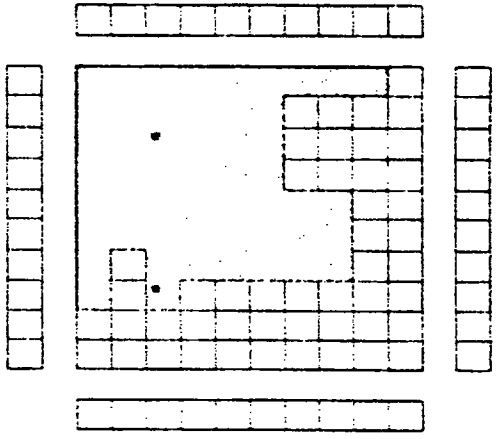
Survey Dates: 11/15/95 11/20/95



NOTE

Count rate in CPM

Soil survey for information only



NOTE

Denotes 0 - 2 feet

* Denotes Soil Sample Location

Comments: Systematic soil results are as follows:

SS 02	2.16	(pCi/g)
SS 03	6.86	(pCi/g)
AVG	4.51	(pCi/g)

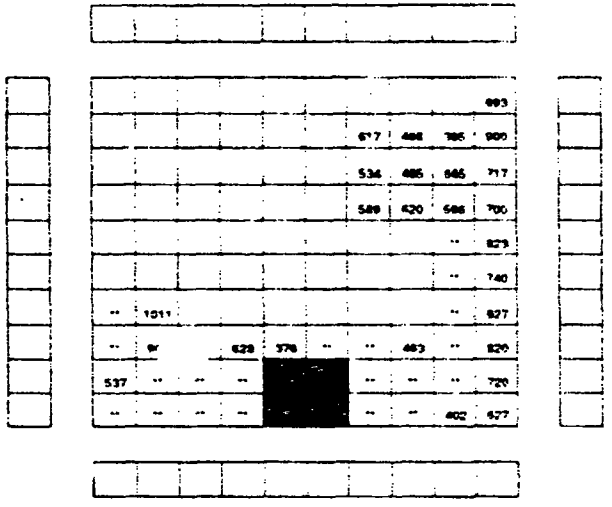
Surface Survey of Concrete

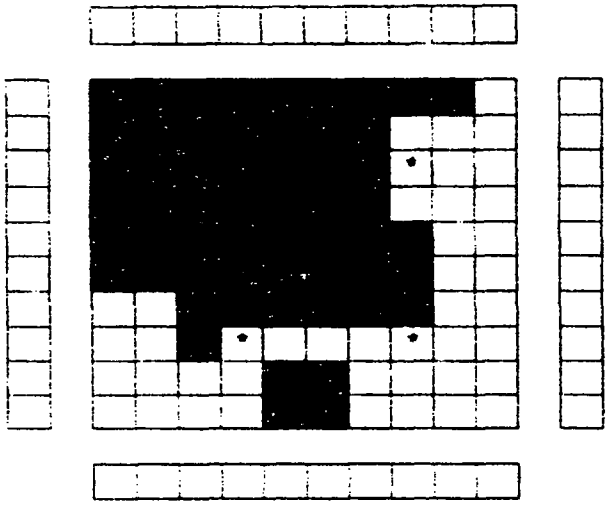
Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block ID Number SG

Survey Dates: 10/4/95 10/5/95 10/13/95 11/16/95





NOTE:

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA

Minimum MDA: 463

Comments: System background utilized

Denotes stationary capital equipment

NOTE:

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments: Systematic core results are as follows;

Conversions made assuming 2% enriched uranium

SC 01	3.31	(ug/g)
SC 03	2.22	(pCi/g)
SC 04	3.70	(ug/g)
AVG.	3.6	(pCi/g - Derived)

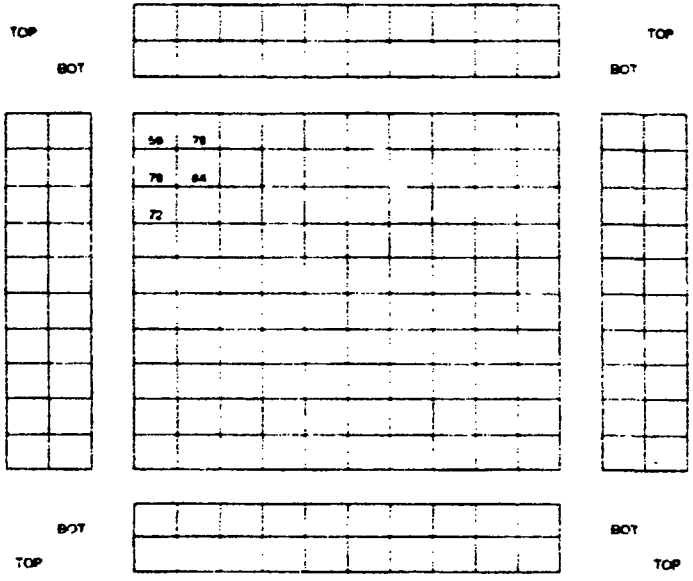
Surface Survey of Exposed Soils

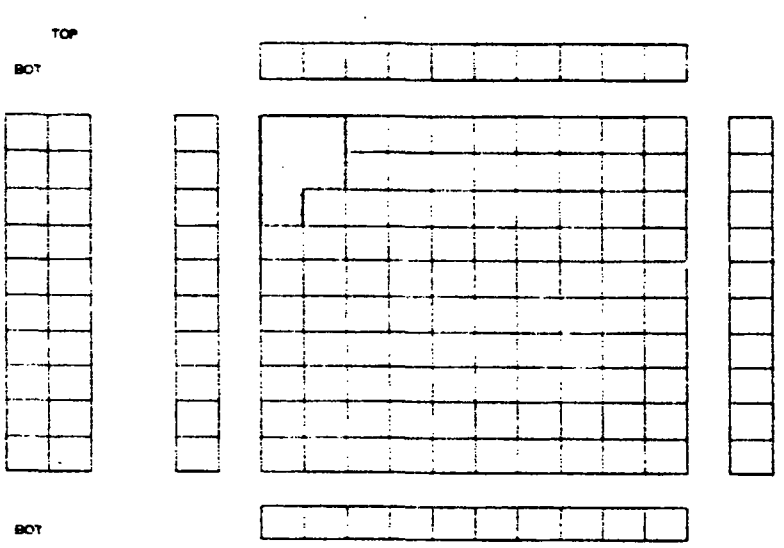
Soil Depths and Soil Sample Locations

Building Number: 10

Grid Block I.D. Number: SH

Survey Dates: 11/15/95 11/20/95





NOTE:

Count rate in CPM.

Soil survey for information only

NOTE:

Denotes 0 - 2 feet

* Denotes Soil Sample Location

Comments: No soil samples collected due to limited area.

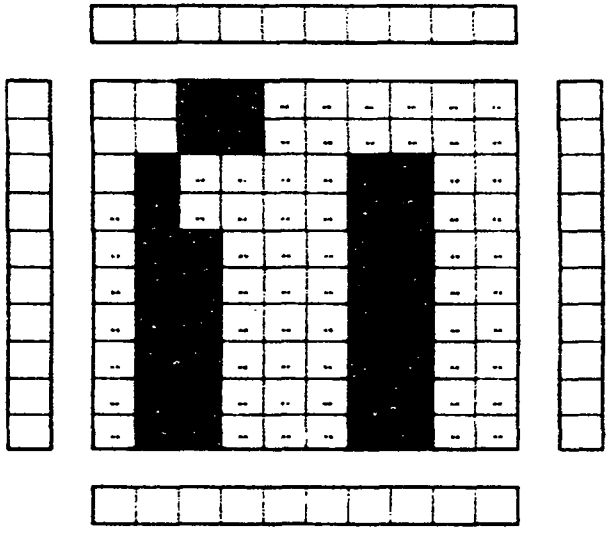
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I.D. Number 5H

Survey Dates. 10/6/95 10/13/95



NOTE:

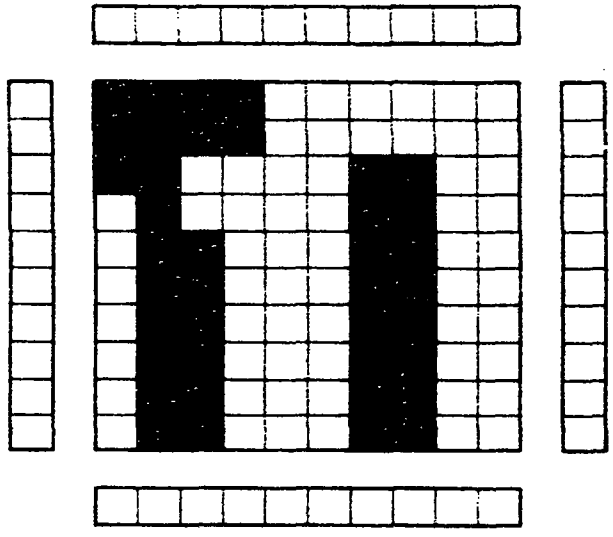
Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA.

Minimum MDA: 557

Comments: System background utilized

Denotes stationary capital equipment.



NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic samples not collected due to floor coverage by capital machinery and support equipment

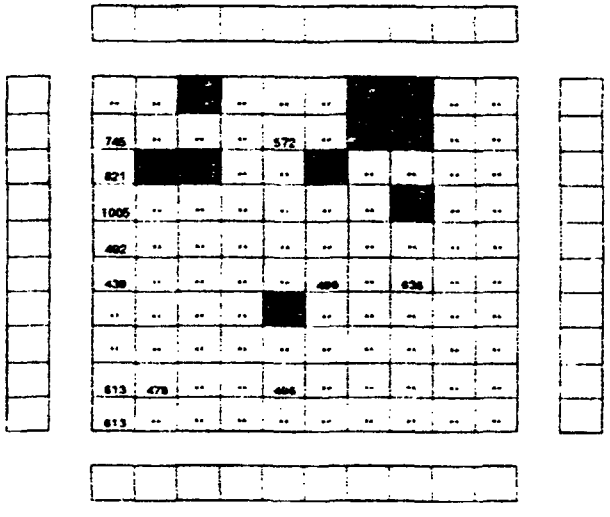
Surface Survey of Concrete

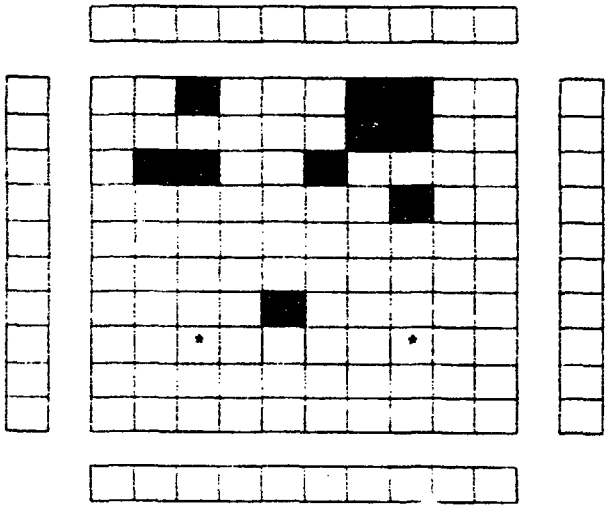
Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number 5I

Survey Dates: 10/4/95 10/5/95 10/6/95 10/9/95 10/12/95 10/13/95





NOTE:

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA

Minimum MDA. 478

Comments: No underling soils accessed

System background utilized.

Denotes stationary capital equipment

NOTE:

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic core results are as follows:

SC 01, 02 not collected due to equipment coverage

Conversions made assuming 2% enriched uranium

SC 03	3.76	(ug/g)	(5.3 pCi/g)
SC 04	3.20	(ug/g)	(4.5 pCi/g)
AVG.	3.48	(ug/g)	(4.9 pCi/g - derived)

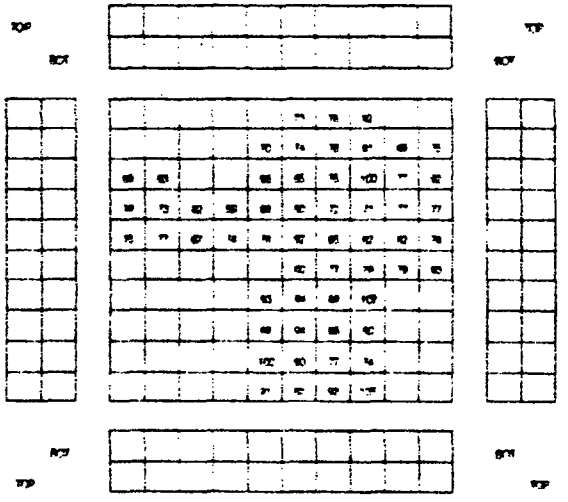
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 10

Grid Block I.D. Number 66

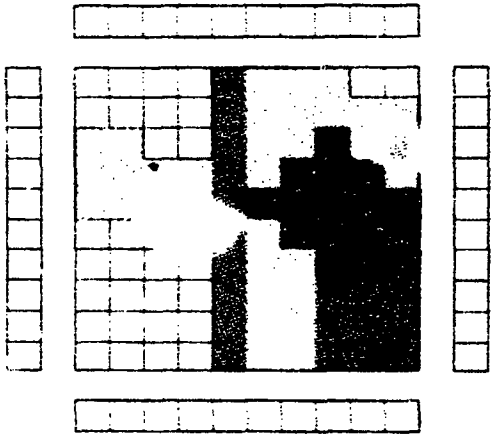
Survey Dates: 10/26/95 1/12/96 1/15/96



NOTE

Count rate in CPM

Soil survey for information only



NOTE:

Denotes 0 - 2 feet

Denotes 2 - 4 feet

Denotes 4 - 6 feet

* Denotes Soil Sample Location

Comments: Systematic soil results are as follows.

SS 01	2.74	(pCi/g)
SS 02	42.62	(pCi/g)
SS 04	11.91	(pCi/g)
AVG.	19.1	(pCi/g)

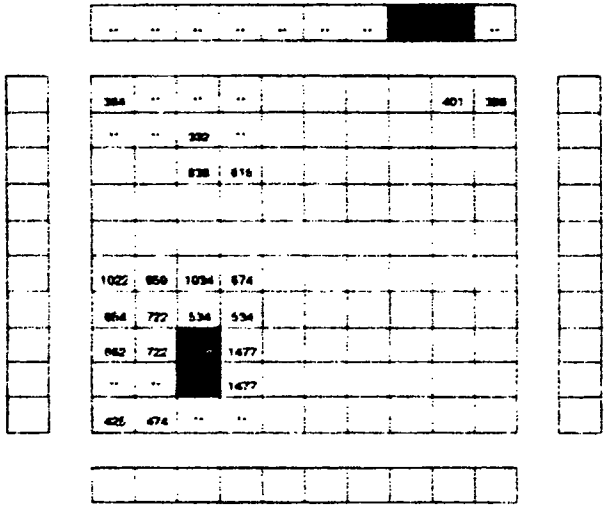
Surface Survey of Concrete

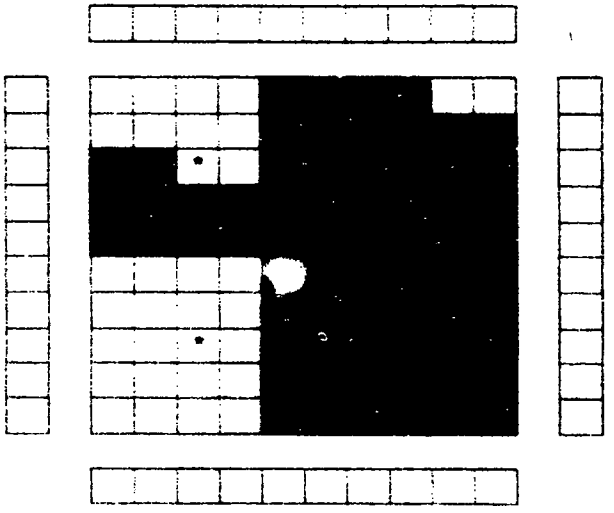
Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 6B

Survey Dates: 10/19/95 - 10/20/95





NOTE

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA

Minimum MDA: 295

Comments: System background utilized

Denotes ustationary capital equipment

NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic core results are as follows:

SC 02	2.30	(ug/g)
SC 03	2.30	(ug/g)
Composite	3.7	(pCi/g)

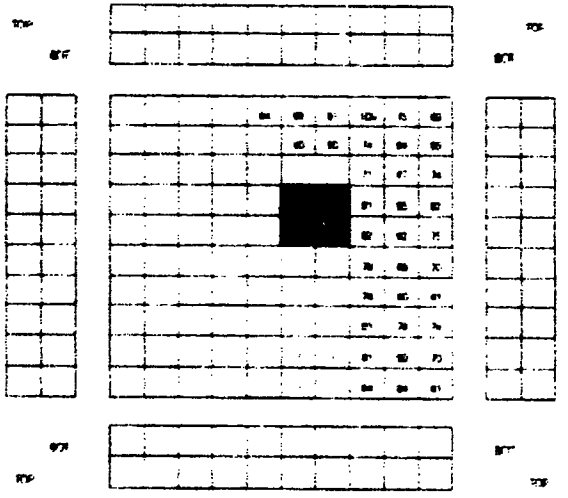
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 19

Grid Block I.D. Number 8C

Survey Dates 1/15/96 1/16/96



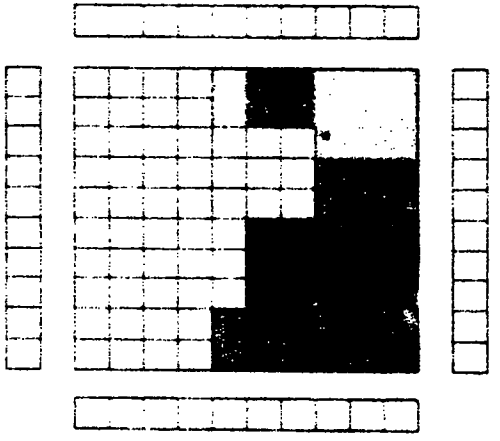
NOTE

Count rate in CPMs

Soil survey for information only

Comments Denotes soil too wet to survey

Equipment pad - left in place



NOTE

Denotes 0 - 2 feet

Denotes 2 - 4 feet

Denotes 6 - 8 feet

* Denotes Soil Sample Location

Comments Systematic soil results are as follows:

SS 01	8.77	(ug/g)	(12.3 pCi/g)
SS 04	17.59	(ug/g)	(24.6 pCi/g)
AVG	13.2	(ug/g)	(18.5 pCi/g - derived)
* NSS Floor			(7.7 pCi/g)

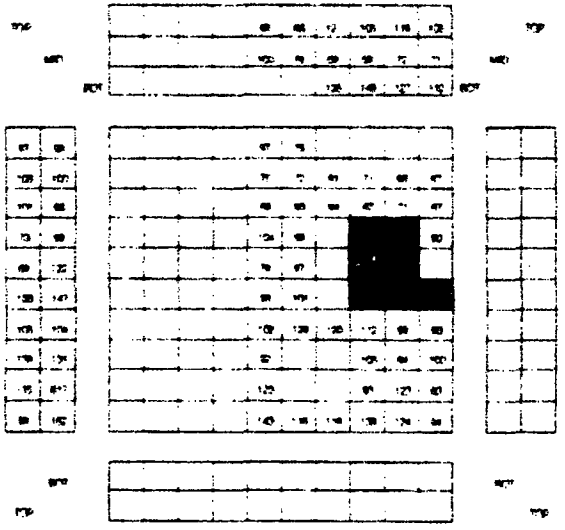
Surface Survey of Exposed Soils

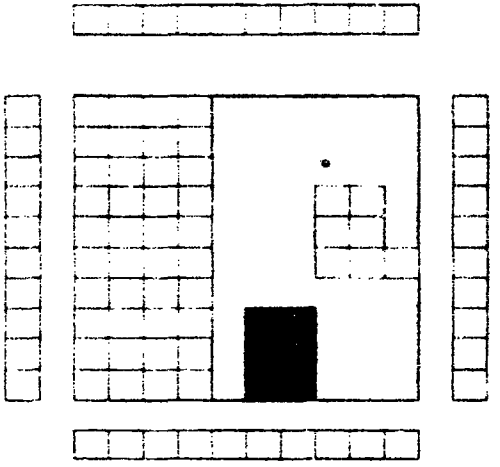
Soil Depths and Soil Sample Locations

Building Number 10

Grid Block / D Number 6D

Survey Dates 1/6/96 1/10/96 1/16/96





NOTE

Count rate in CPM / 100 cm^2

Soil survey for information only

NOTE

Denotes 6 - 8 feet

Denotes 8 + feet

Comments: Denotes material underlying I beam left in place

* Denotes Soil Sample Location

Comments Systematic soil results as follows

	SS 01	2.04	(pCi/g)
*	SSS Floor	21.9	(pCi/g)

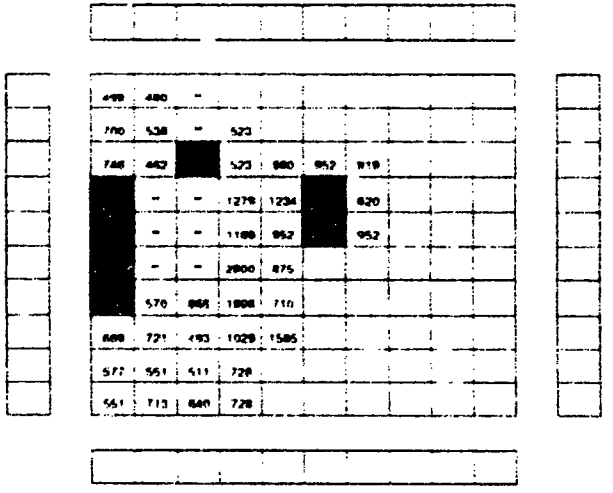
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 13

Grid Block / ID Number 6C

Survey Dates 10/23/95 10/27/95



NOTE:

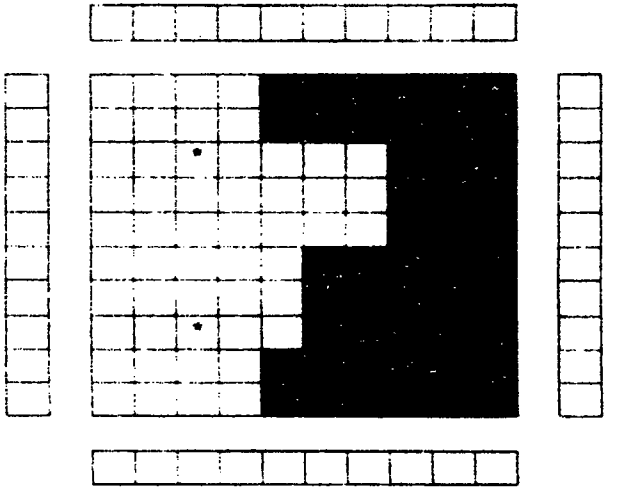
Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA

Minimum MDA: 274

Comments: System background utilized

Denotes stationary capital equipment.



NOTE:

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic core results are as follows:

SC 02	3.15	(ug/g)
SC 03	2.47	(ug/g)
Composite	4.88	(pCi/g)

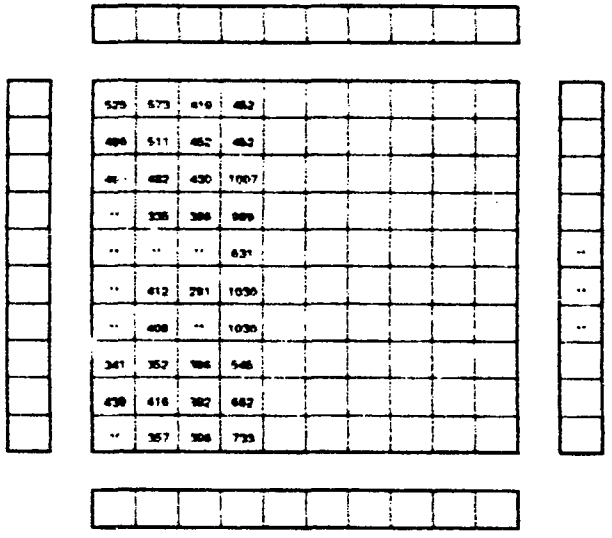
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I D Number 6D

Survey Dates 10/27/95 10/31/95 11/1/95



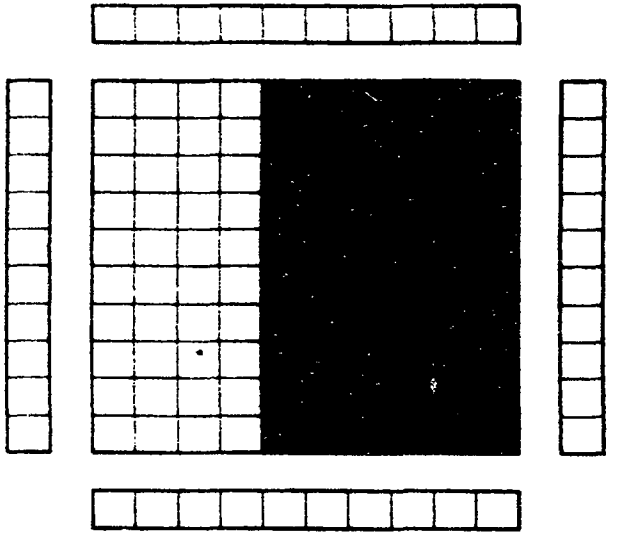
NOTE:

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 298

Comments: System background utilized.



NOTE:

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic Core Results as Follows

SC 04 used in lieu of SC 03 - Lost Sample

SC 04 2.69 (pCi/g)

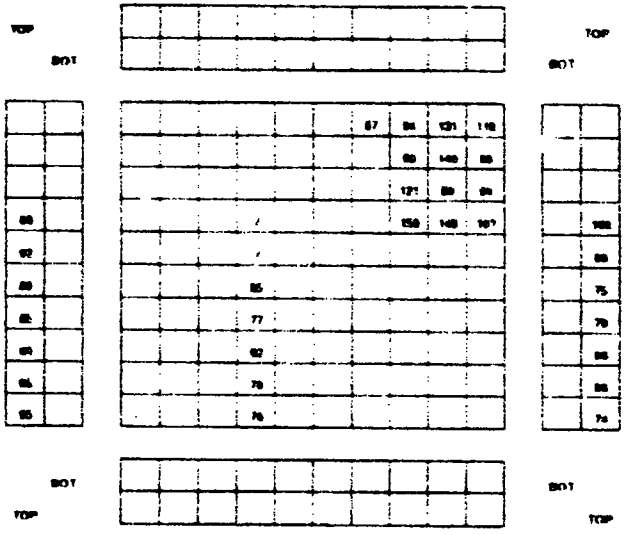
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number: 10

Grid Block I.D. Number: 6E

Survey Dates: 11/1/95 12/1/95 1/4/96

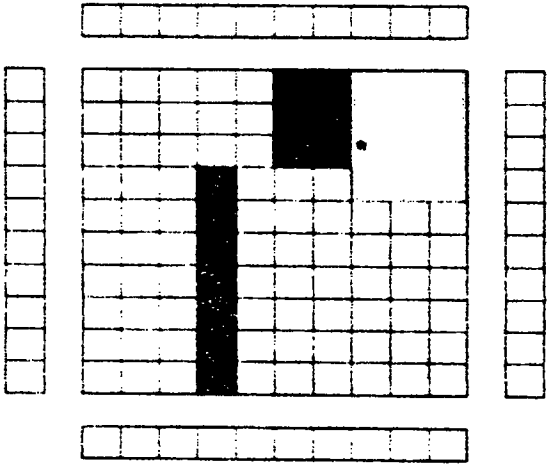


NOTE

Count rate in CPM

Soil survey for information only

Comments: / Denotes where surface was too wet to survey



NOTE:

Denotes 2 - 4 feet.

Denotes 6 - 8 feet

Denotes 8 + feet.

* Denotes Soil Sample Location

Comments: Systematic soil results are as follows:

	SS 01	2.37	(pCi/g)
♀	SSS Floor	21.9	(pCi/g)

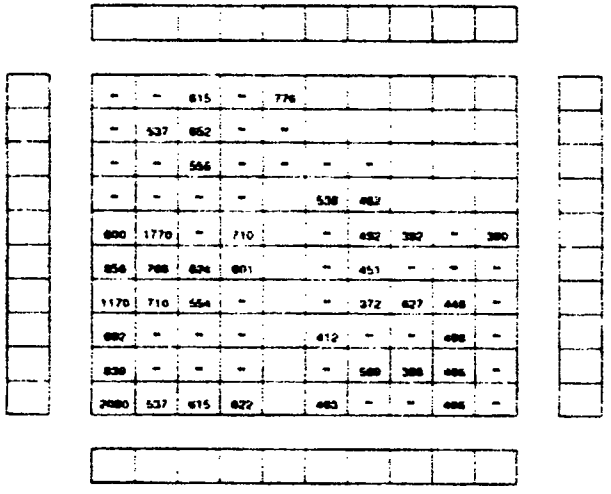
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 6E

Survey Dates: 10/12/95 10/16/95 10/17/95 10/30/95 1/24/96



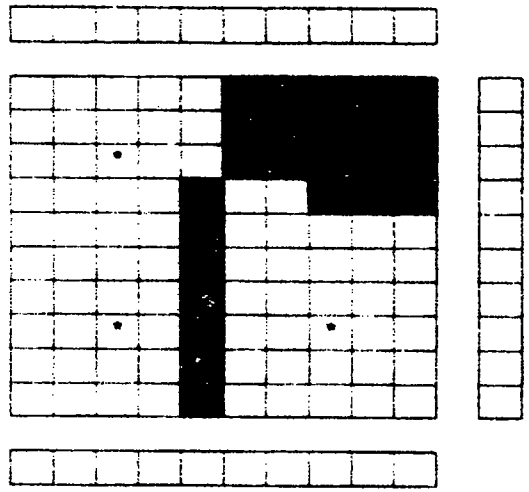
NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 311

Comments: System background utilized.



NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic core results as follows:

Conversions made assuming 2% enriched uranium

SC 02	3.12	(ug/g)	(4.4 pCi/g)
SC 03	2.79	(ug/g)	(3.9 pCi/g)
SC 04	4.13	(ug/g)	(5.8 pCi/g)
AVG.	3.35	(ug/g)	(4.7 pCi/g)

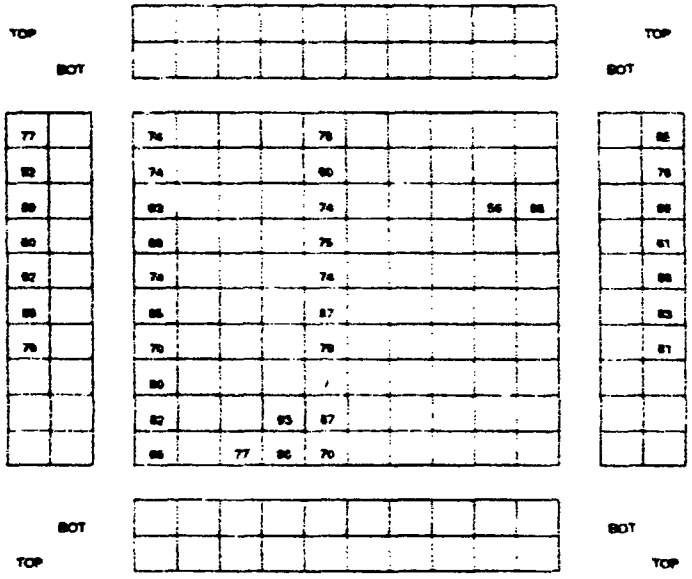
Surface Survey of Exposed Soils

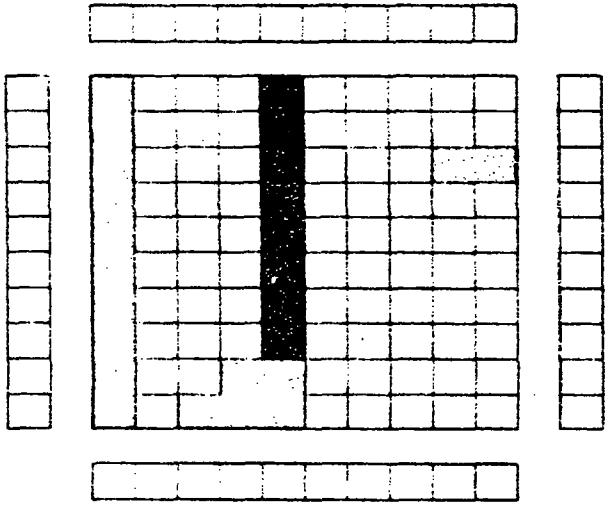
Soil Depths and Soil Sample Locations

Building Number 10

Grid Block I D Number 6F

Survey Dates 11/11/95 12/1/95 12/8/95





NOTE:

Count rate in CPM.

Soil survey for information only.

NOTE:

Denotes 0 - 2 feet.

Denotes 2 - 4 feet.

Comments: / Denotes soil too wet to survey

Sample taken for verification

Comments Biased Soil Sample Results as Follows:

6 E,F Trench Comp 10.33 (pCi/g)

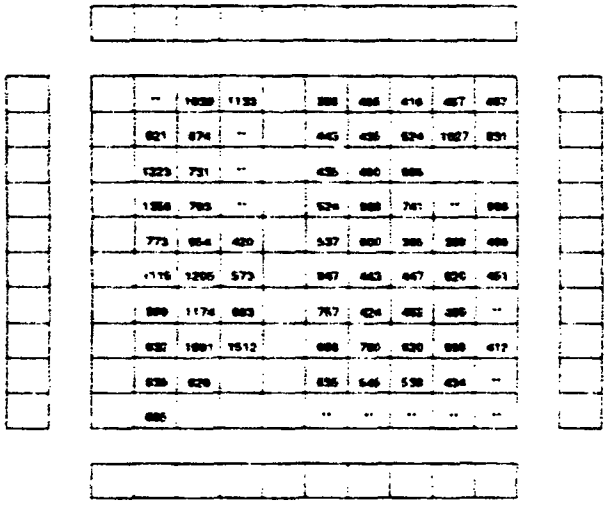
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 18

Grid Block I.D. Number 6E

Survey Dates 10/16/95 11/1/95 11/2/95 11/8/95 11/8/95 11/9/95



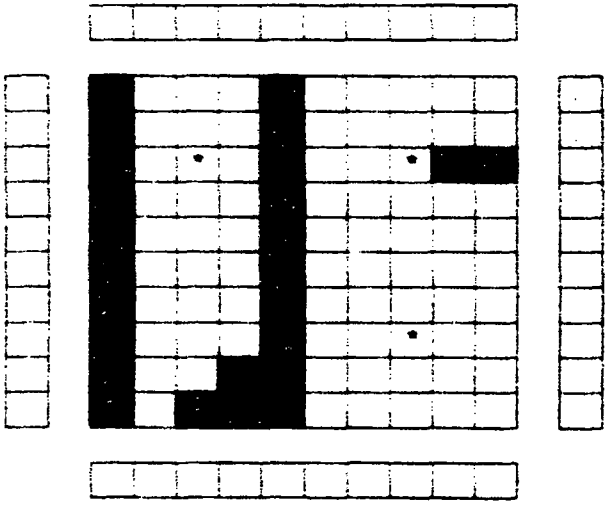
NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 313

Comments System background utilized



NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic core results as follows:

SC 03 Covered by Capital Equipment

Conversions made assuming 2% enriched uranium

SC 01	2.05	(ug/g)	(2.9 pCi/g)
SC 02	3.89	(pCi/g)	
SC 04	2.38	(ug/g)	(3.3 pCi/g)
AVG	3.4	(pCi/g - derived)	

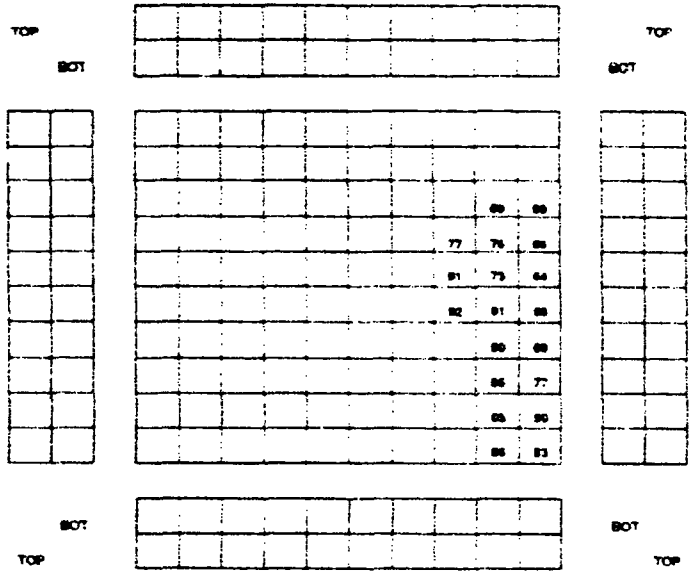
Surface Survey of Exposed Soils

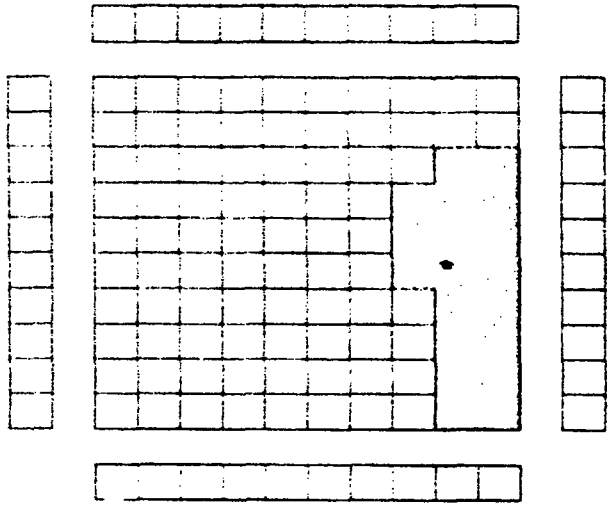
Soil Depths and Soil Sample Locations

Building Number 10

Grid Block I.D. Number 6G

Survey Dates: 11/19/95





NOTE

Count rate in CPM

Soil survey for information only

NOTE:

Denotes 0 - 2 feet.

* Denotes Soil Sample Location

Comments: Biased soil sample results as follows

BSS 00 CUT 3 2.84 pCi/g

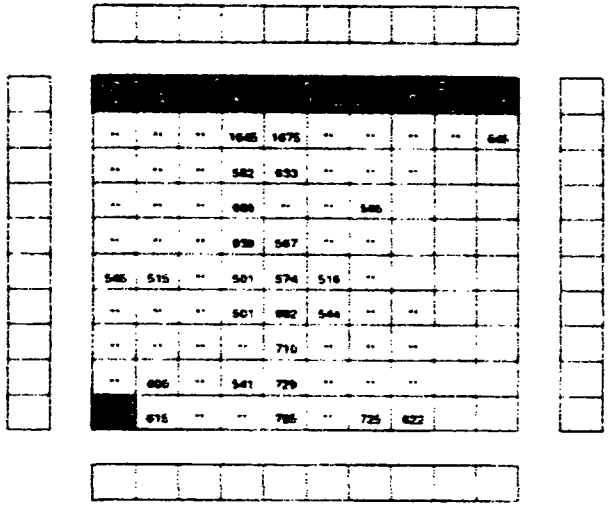
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I D Number: 6G

Survey Dates: 10/13/95 10/16/95 10/18/95



NOTE

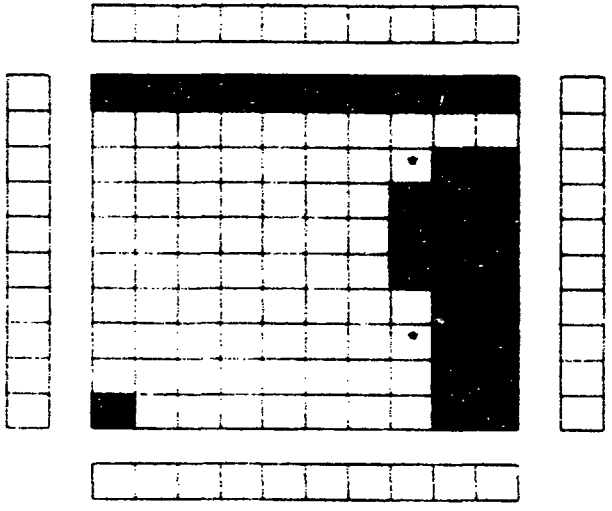
Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 501

Comments: System background utilized

Denotes stationary capital equipment



NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic core results are as follows.

Conversion made assuming 2% enriched uranium

SC 02, 03 Covered by Capital Equipment

SC 01	2.85	(ug/g)	(3.99 pCi/g)
SC 04	2.17	(ug/g)	(3.03 pCi/g)
AVG.	2.55	(ug/g)	(3.51 pCi/g - Derived)

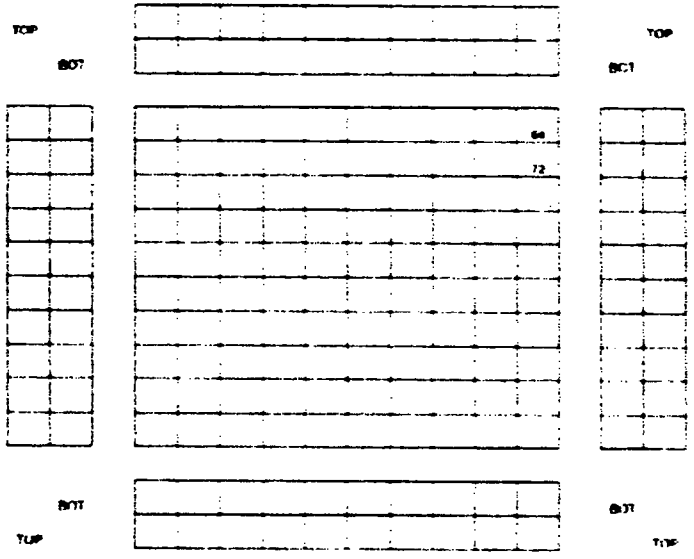
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 10

Grid Block : D Number 8H

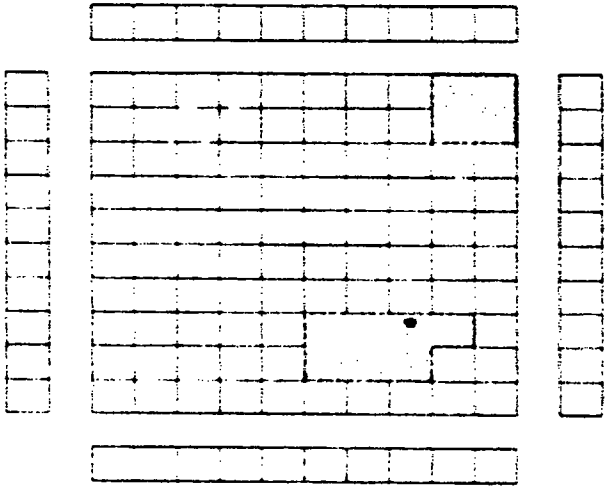
Survey Date 10/15/96



NOTE

Count rate in CPM

Soil survey for information only



NOTE

Denotes 0 2 feet

* Denotes Soil Sample Location

Comments Systematic soil results are as follows

SS 04 2 42 (pCi/g)

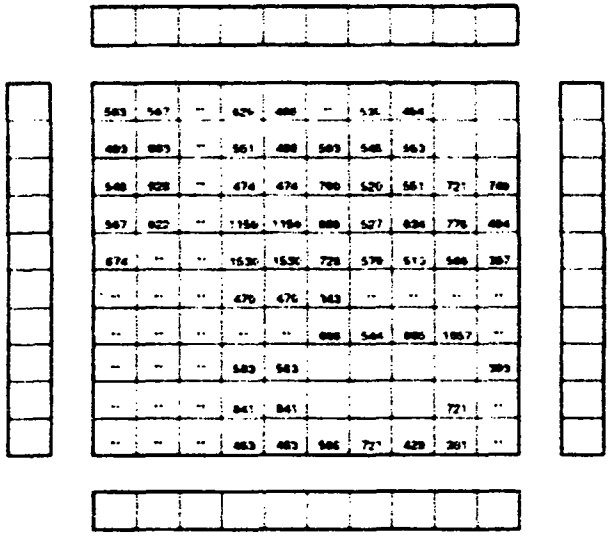
Surface Survey of Concrete

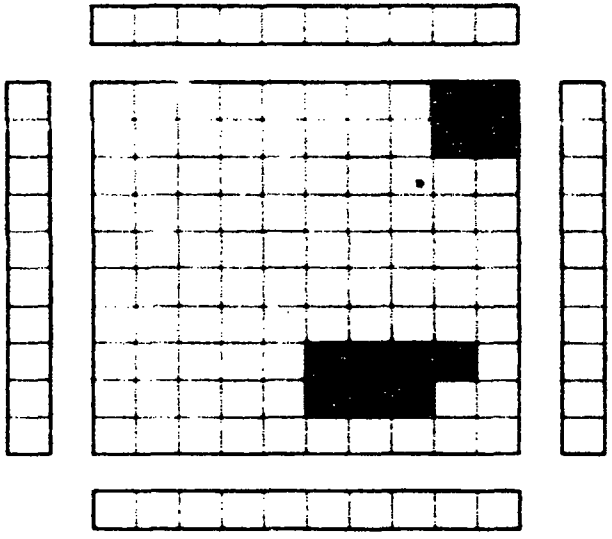
Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I D Number 6H

Survey Dates 10/3/95 10/5/95 10/6/95 10/14/95 10/16/95 10/18/95 10/19/95





NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 295

Comments System background utilized

NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments Systematic core results are as follows

Conversion made assuming 2% enriched uranium

SC 02, 03 covered by capital machinery

SC 01 3.12 (ug/g) (4.48 pCi/g)

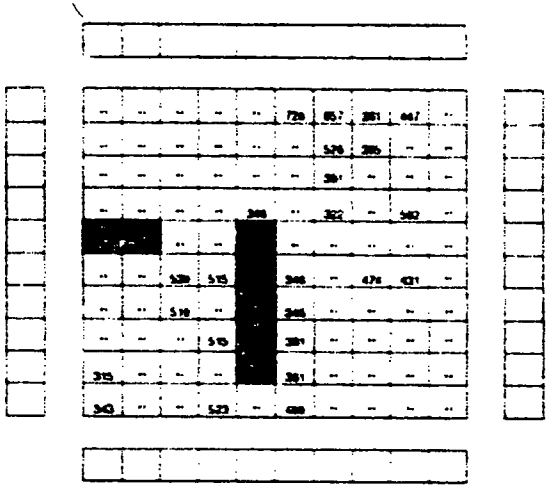
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block : D. Number 8

Survey Dates 10/5/95 10/6/95 10/19/95 10/20/95



NOTE:

Countrate in DPM / 100 cm^2

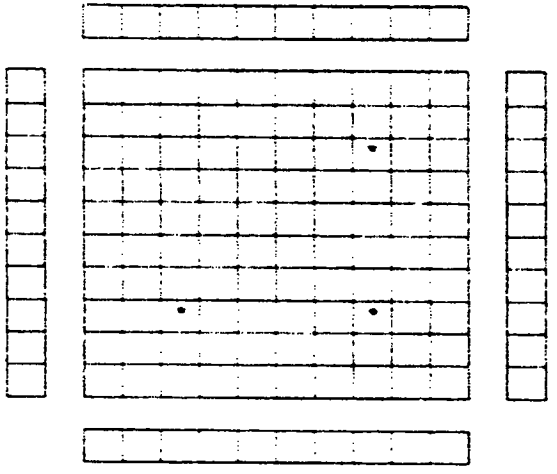
** Designates where count rate less than MDA.

Minimum MDA: 295

Comments: No underlying soils accessed

System background utilized

Denotes stationary capital equipment



NOTE:

• Denotes Concrete Core Sample Location

Comments: Systematic core results are as follows

Conversion made assuming 2% enriched uranium

SC #2 covered by capital equipment

SC 01	2.39	(ug/g)	(3.3 pCi/g)
SC 03	2.06	(pCi/g)	
SC 04	2.65	(ug/g)	(3.7 pCi/g)
AVG	3.02	(pCi/g - derived)	

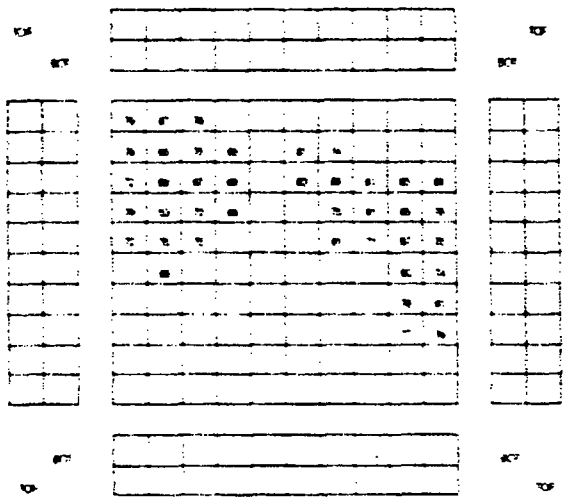
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 10

Grid Block I D Number 7B

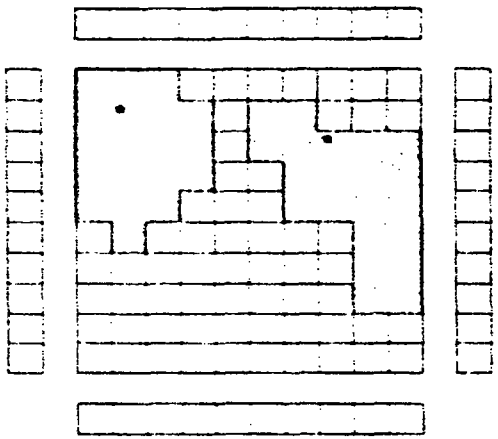
Survey Dates 11/1985 11/1985



NOTE:

Count rate in CPM

Soil survey for information only



NOTE

Denotes 0 - 2 feet

* Denotes Soil Sample Location

Comments Systematic soil results as follows.

SS 01	2.56	(pCi/g)
SS 03	42 6	(pCi/g)
AVG	23 6	(pCi/g - Derived)

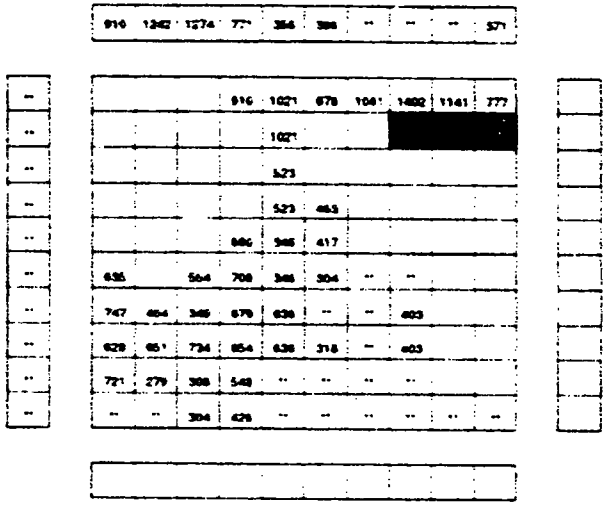
Surface Survey of Concrete

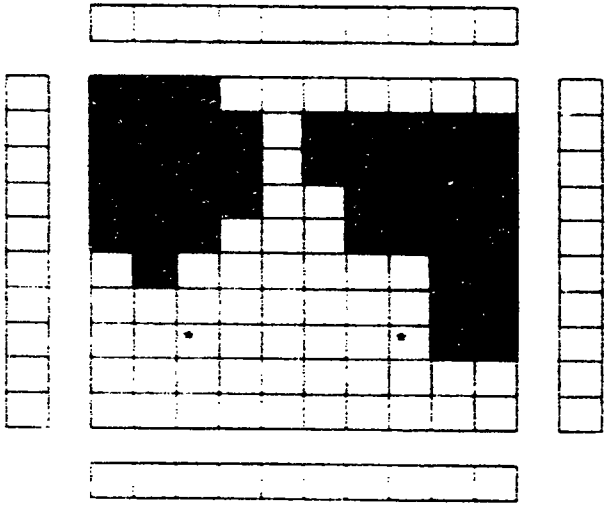
Removec Concrete and Concrete Core Sample Locations

Building Number 18

Grid Block I D Number 78

Survey Dates 7/28/95 10/19/95





NOTE:

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA

Minimum MDA. 210

Comments System background utilized

Denotes stationary capital equipment

NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments: Synematic core results as follows.

SC 03	4.33	(pCi/g)
SC 04	2.4	(pCi/g)
AVG	3.35	(pCi/g - Derived)

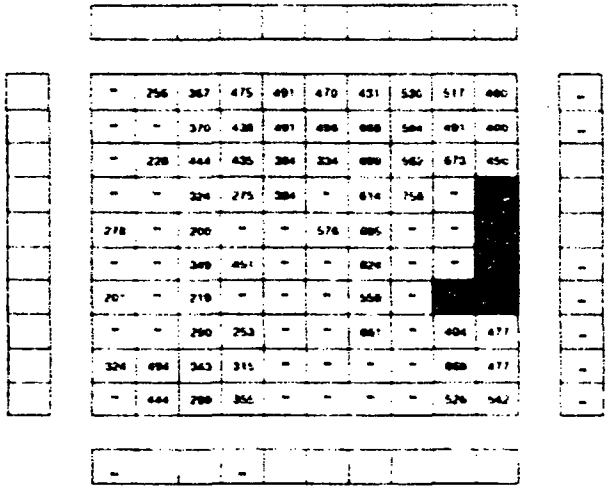
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number: 16

Grid Block I.D. Number: 7C

Survey Dates: 8/6/95 10/23/95 10/26/95 10/27/95



NOTE

Countrate in DPM / 100 cm^2

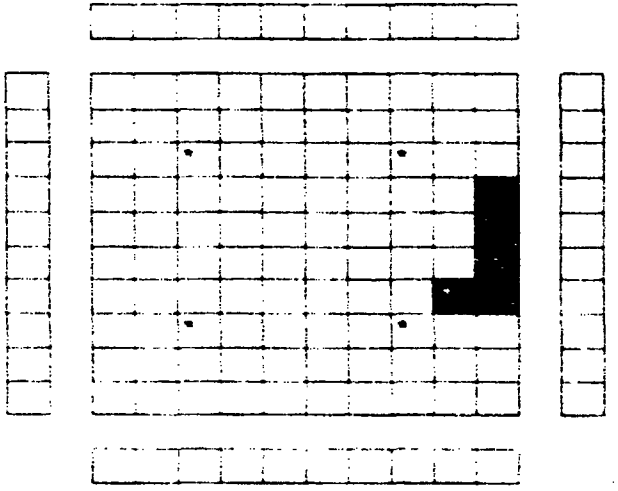
** Designates where count rate less than MDA

Minimum MDA: 197

Comments: System background utilized

Denotes stationary capital equipment

No concrete removed or underlying soils accessed



NOTE

* Denotes Concrete Core Sample Location

Comments: Sysematic core results as follows:

Conversion made assuming 2% uranium enrichment

SC 01	2.1	(ug/g)	(2.94 pCi/g)
SC 02	4.78	(pCi/g)	
SC 03	23.2	(pCi/g)	
SC 04	1.8	(ug/g)	(2.52 pCi/g)
AVG	8.4	(pCi/g - Derived)	

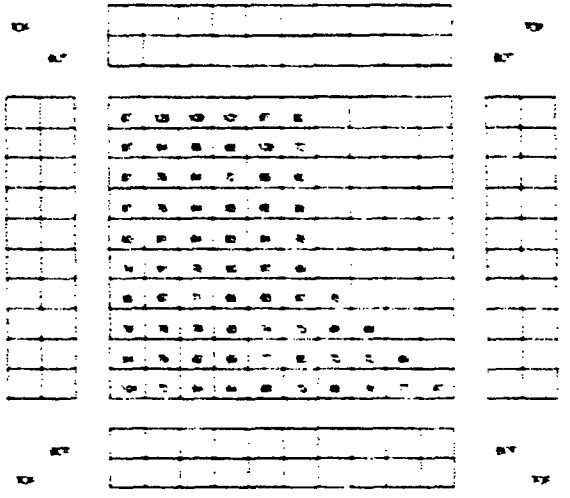
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 25

Grid Block : D Number 75

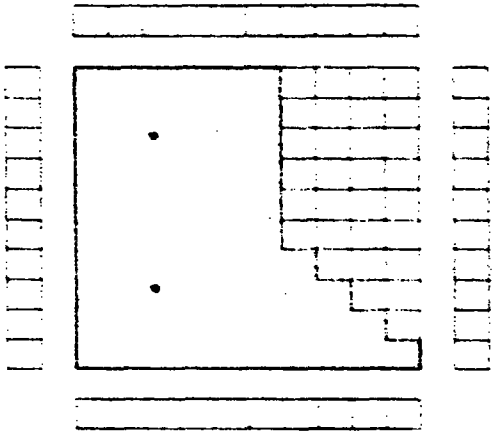
Survey Dates: 11/9/86 11/10/86



NOTE

Count rate in CPM

Soil survey for information only



NOTE

Denotes 0 2 feet

* Denotes Soil Sample Location

Comments Systematic soil results as follows

SS 02	2.09	pCi/g
SS 03	2.57	pCi/g
AVG	2.33	pCi/g Derived

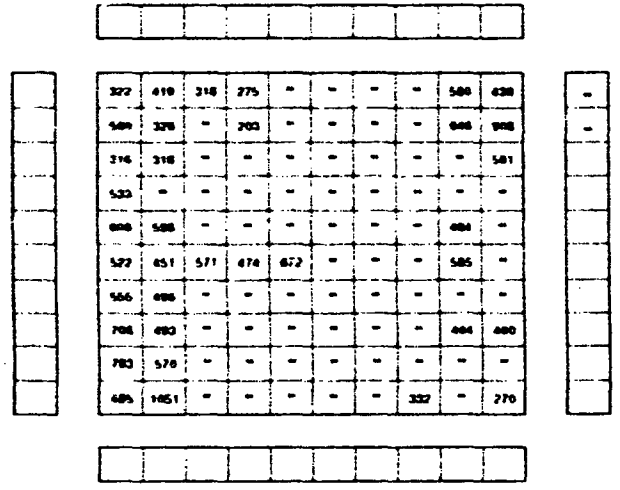
Surface Survey of Concrete

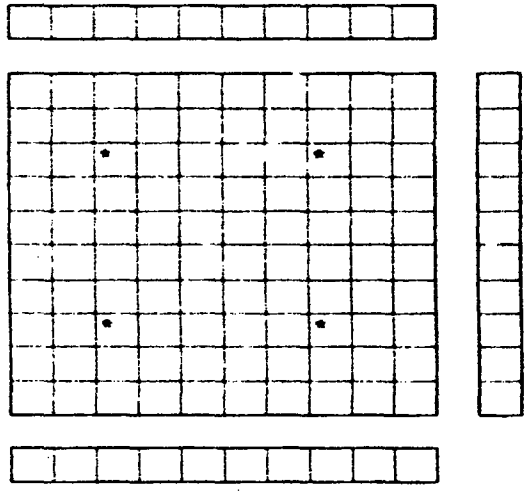
Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 7D

Survey Dates: 8/5/95 10/23/95 10/26/95 10/27/95 10/31/95 11/1/95 11/21/95





NOTE:

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 197

Comments: System background utilized.

No concrete removed or underlying soils accessed

NOTE:

* Denotes Concrete Core Sample Location

Comments: Systematic core results as follows:

Conversion made assuming 2% uranium enrichment

SC 01	7.06	(ug/g)	(9.9 pCi/g)
SC 02	2.66	(ug/g)	(3.7 pCi/g)
SC 03	1.90	(ug/g)	(2.7 pCi/g)
SC 04	2.20	(ug/g)	(3.1 pCi/g)
AVG.	4.9	(pCi/g - Derived)	

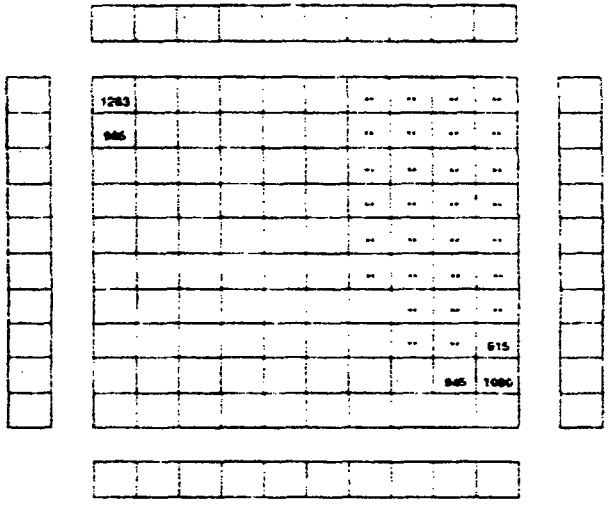
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 7E

Survey Dates: 10/16/95 10/17/95 10/19/95 10/20/95



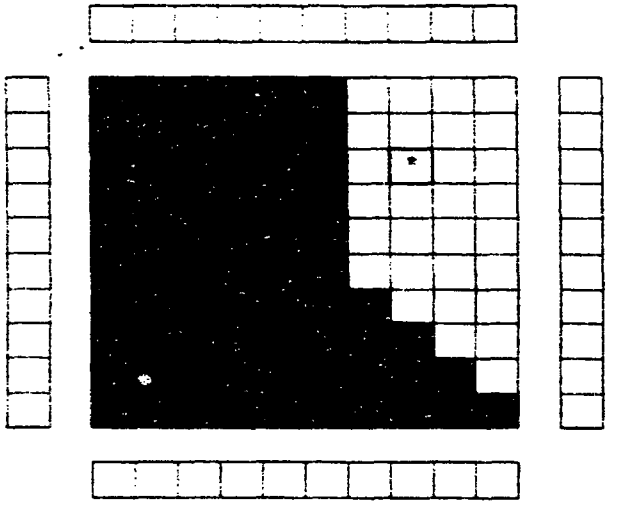
NOTE:

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 315

Comments: System background utilized



NOTE:

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Sysematic core results as follows:

Conversions made assuming 2% uranium enrichment

SC 01	1.87	(ug/g)	(2.6 pCi/g)
SC 04	5.49	(ug/g)	(7.7 pCi/g)
AVG.	5.2	(pCi/g - Derived)	

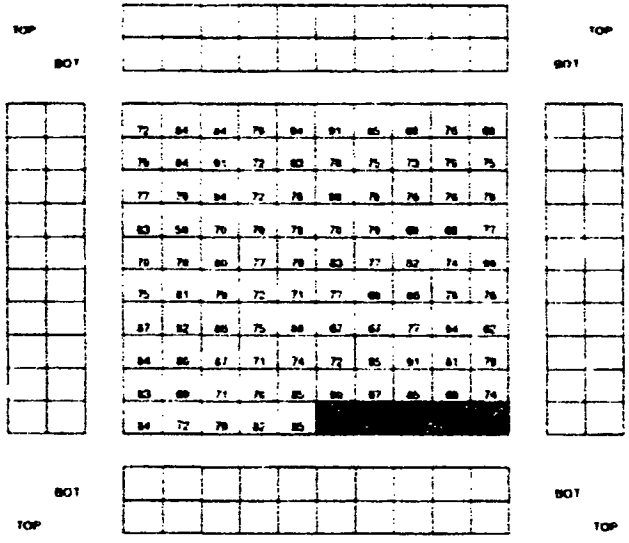
Surface Survey of Exposed Soils

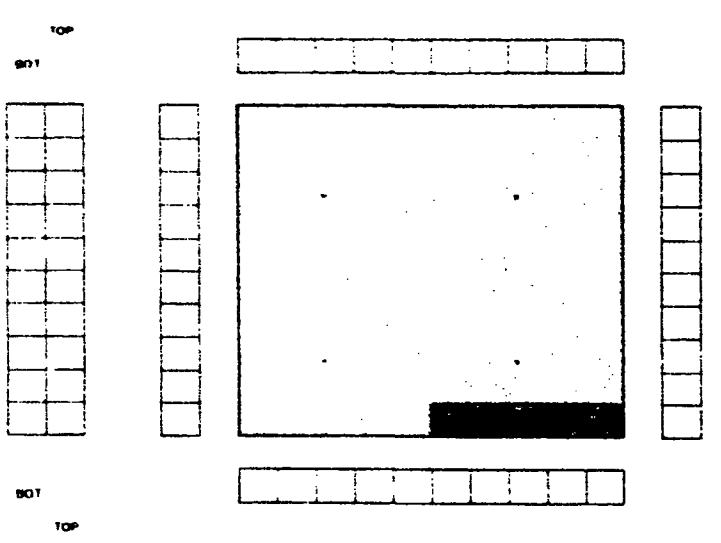
Soil Depths and Soil Sample Locations

Building Number 16

Grid Block I.D. Number 2E

Survey Dates 11/08/95 11/09/95





NOTE

Count rate in CPM

Soil survey for information only

Comments All concrete removed as soil waste

Denotes stationary counting equipment

NOTE

Denotes a 2 foot

Denotes Soil Sample Location

Comments Systematic soils are as follows

SS 01	3.56	pCi/g
SS 02	2.62	pCi/g
SS 03	1.86	pCi/g
SS 04	2.24	pCi/g
AVG	2.45	pCi/g Dalweb

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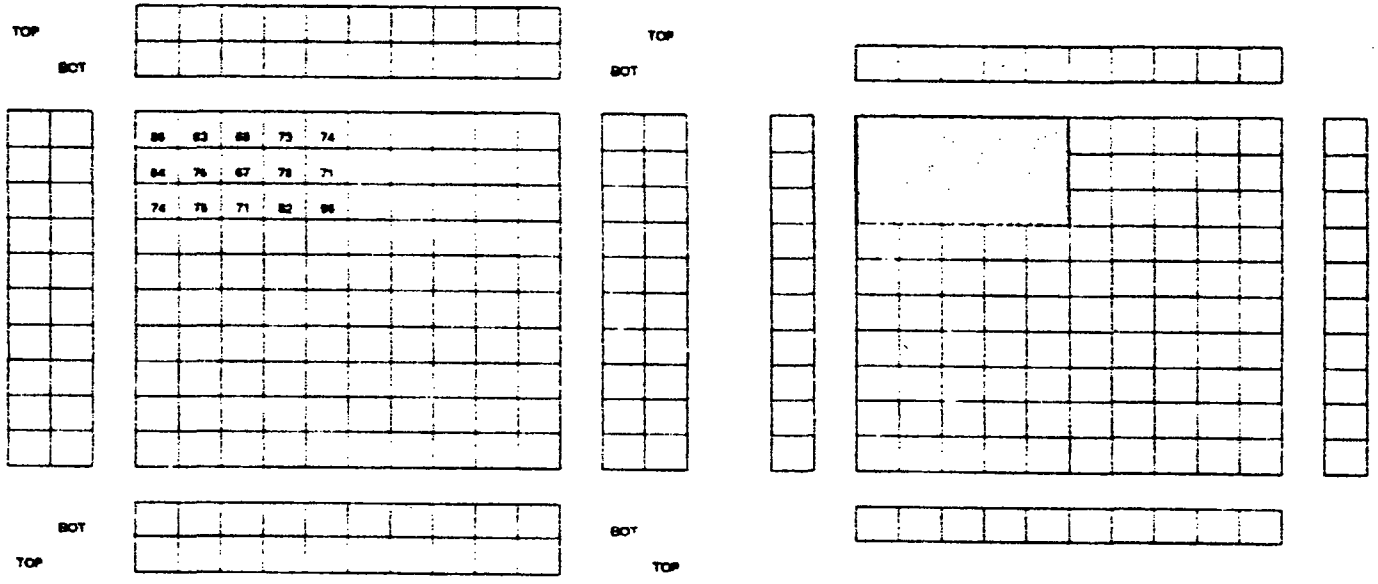
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number: 10

Grid Block I.D. Number: 7G

Survey Date: 11/11/95



NOTE:

Count rate in CPM

Soil survey for information only.

NOTE:

Denotes 0 - 2 feet.

* Denotes Soil Sample Location

Comments: No soil sample collected due to limited area

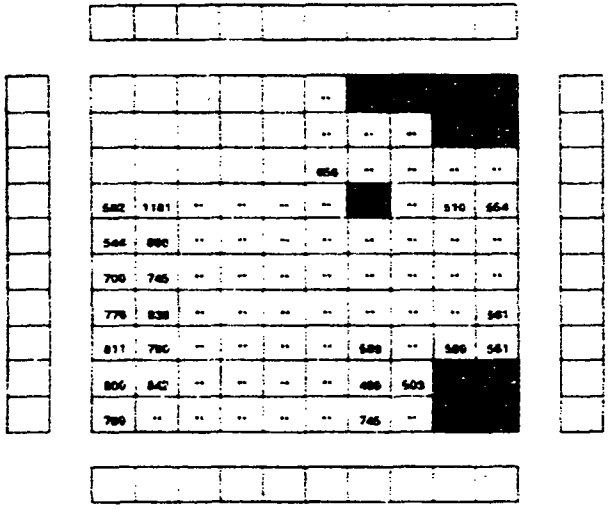
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 7G

Survey Dates: 10/6/95 10/9/95 10/13/95 10/17/95



NOTE:

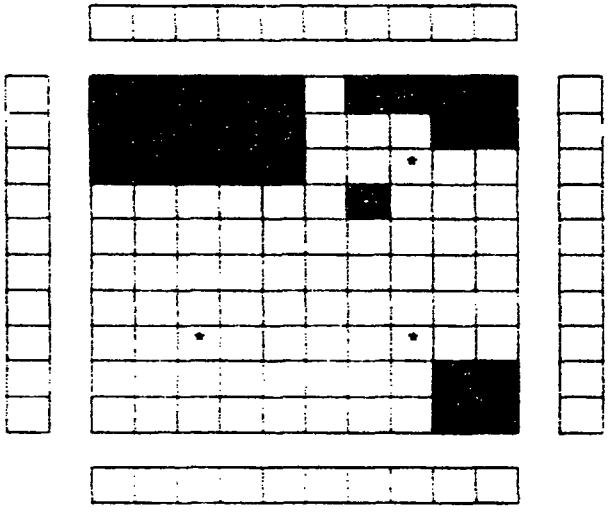
Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 490

Comments: System background utilized.

Denotes stationary capital equipment.



NOTE:

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic core results are as follows:

Conversions made assuming 2% enrichment

SC 01	2.63	(ug/g)	(3.7 pCi/g)
SC 03	1.60	(ug/g)	(2.2 pCi/g)
SC 04	2.04	(ug/g)	(2.9 pCi/g)
AVG.	2.9	(pCi/g -Derived)	

2.833333

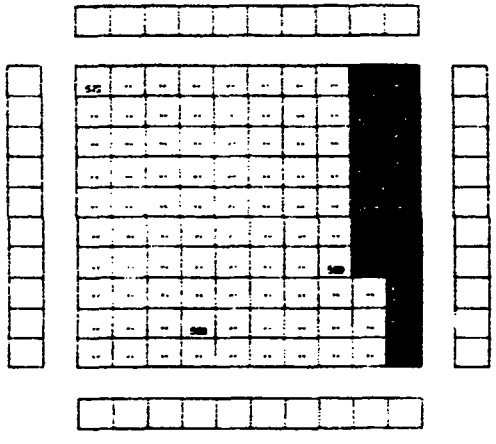
Surface Survey of Concrete

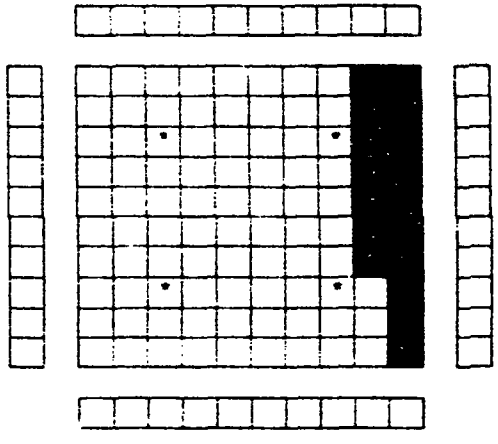
Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I D Number 7H

Survey Dates 10/6/95 10/10/95 10/12/95 10/13/95 .





NOTE:

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA 549

Comments: No underlying soils accessed.

System background utilized

Denotes stationary capital equipment

NOTE:

* Denotes Concrete Core Sample Location

Comments: Systematic core results are as follows.

SC 01	2.5	(ug/g)
SC 04	2.89	(ug/g)
SC 03	1.95	(ug/g)
SC 04	1.86	(ug/g)
Composite	2.21	(pCi/g)

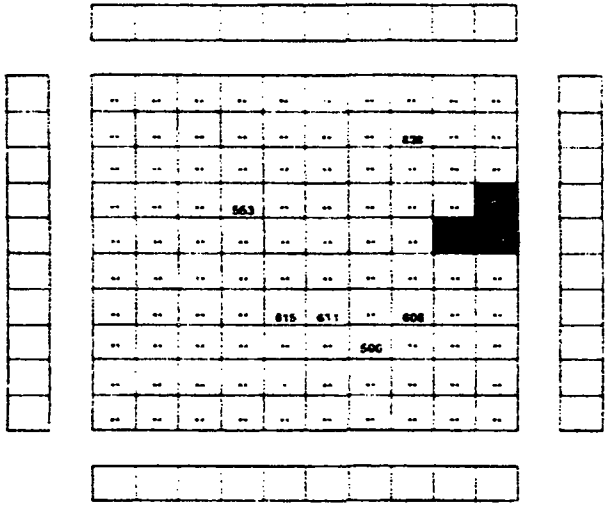
Surface Survey of Concrete

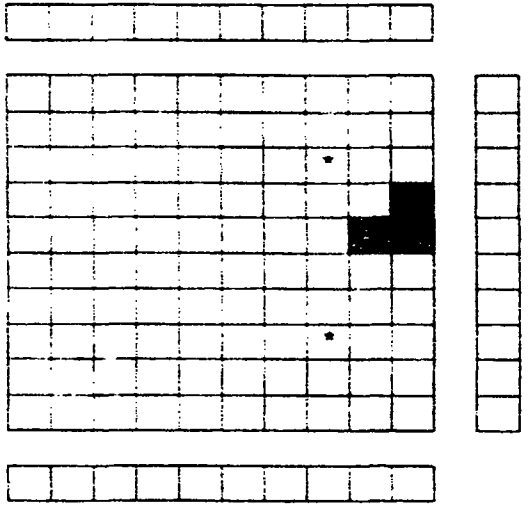
Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 7

Survey Dates: 10/6/95 10/10/95 10/12/95 10/13/95





NOTE:

Count rate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 546

Comments: No underlying soils accessed.

System background utilized.

Denotes stationary capital equipment

NOTE:

* Denotes Concrete Core Sample Location

Comments: Systematic core results are as follows:

SC 02, 03 at inaccessible locations

SC 01	1.99	(ug/g)
SC 04	1.85	(ug/g)
Composite	2.98	(pCi/g)

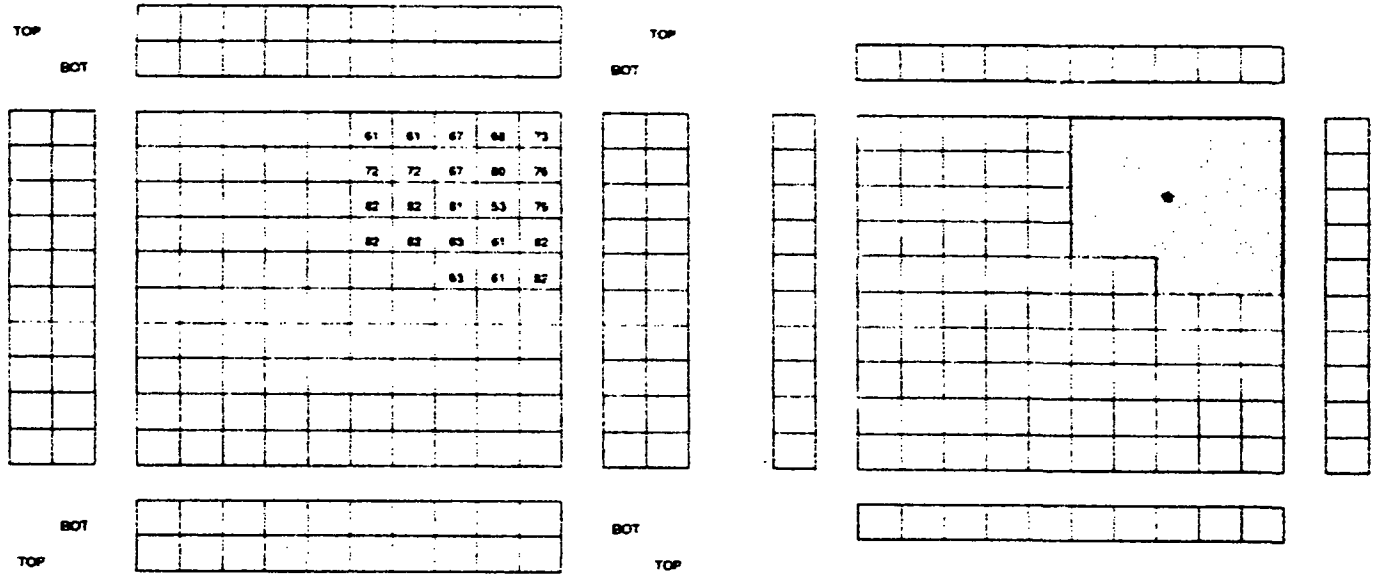
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number: 10

Grid Block I.D. Number: 8B

Survey Dates: 7/28/95



NOTE:

Count rate in CPM

Soil survey for information only

NOTE:

[ ] Denotes 0 - 2 feet.

* Denotes Soil Sample Location

Comments: Systematic soil results as follows

SS 01 5.6 (pCi/g)

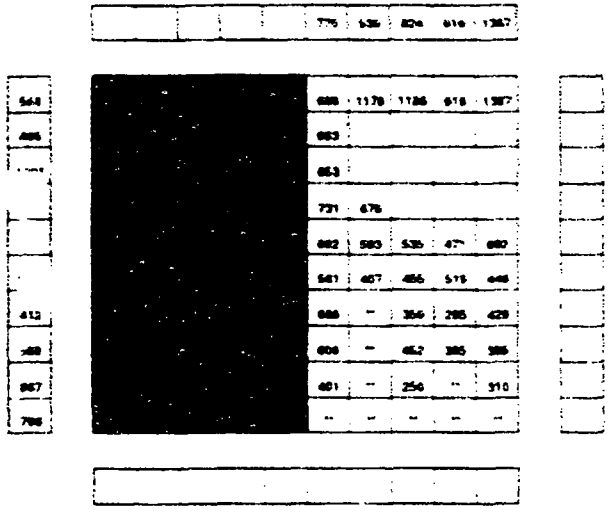
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 88

Survey Dates: 7-29/95 3/1/96



NOTE:

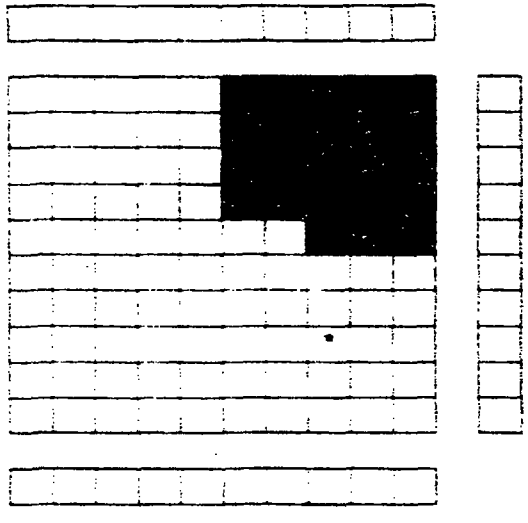
Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 210

Comments: System background utilized.

Denotes outside of delineated affected area.



NOTE:

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments: Systematic core results as follows:

SC 04 3.63 pCi/g

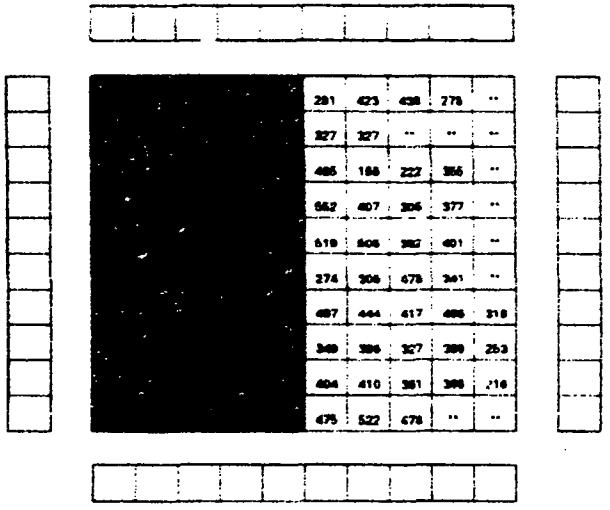
Surface Survey of Concrete

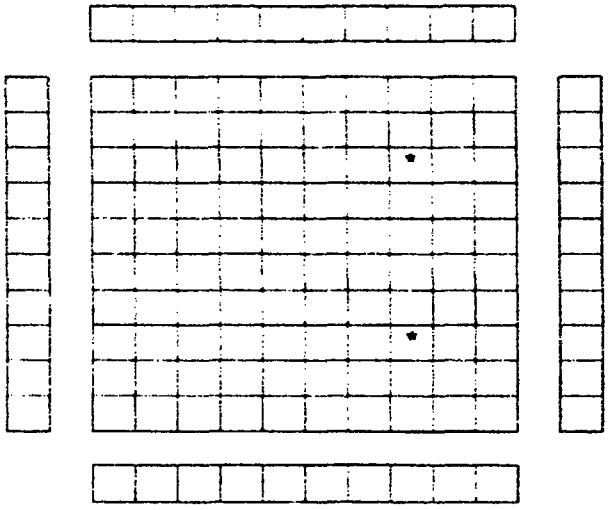
Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 8C

Survey Dates: 8/5/95





NOTE:

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA.

Minimum MDA: 197

Comments: System background utilized

Denotes outside of defined affected area

NOTE:

* Denotes Concrete Core Sample Location

Comments: Systematic core results as follows:

SC 01	4.19	(pCi/g)
SC 04	2.03	(pCi/g)
Avg.	3.11	(pCi/g - Derived)

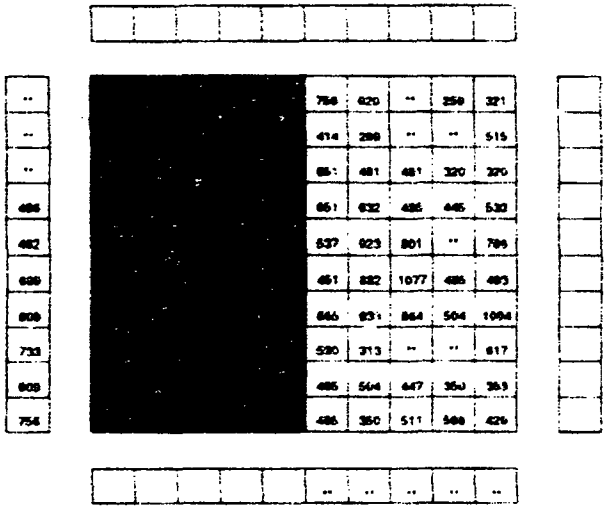
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 8C

Survey Dates: 8/8/95 10/11/95 10/20/95 10/23/95



NOTE:

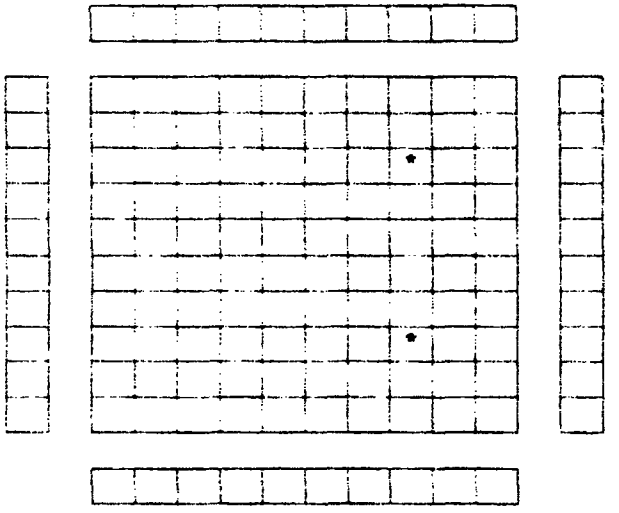
Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA

Minimum MDA: 197

Comments: System background utilized

Denotes outside of defined affected area.



NOTE

* Denotes Concrete Core Sample Location

Comments: Systematic core results as follows:

Conversions made assuming 2% enriched uranium

SC 01	2.00	(ug/g)	(2.8 pCi/g)
SC 04	2.20	(ug/g)	(2.9 pCi/g)
Composite	2.4	(pCi/g)	

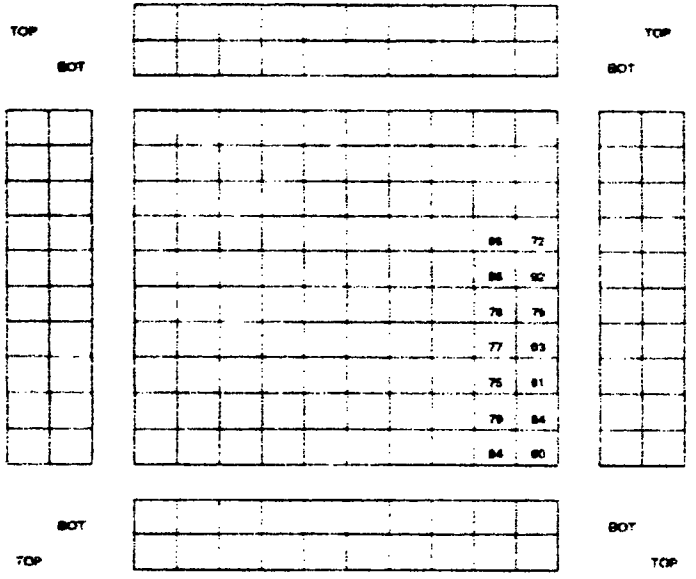
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number 10

Grid Block I.D. Number 8E

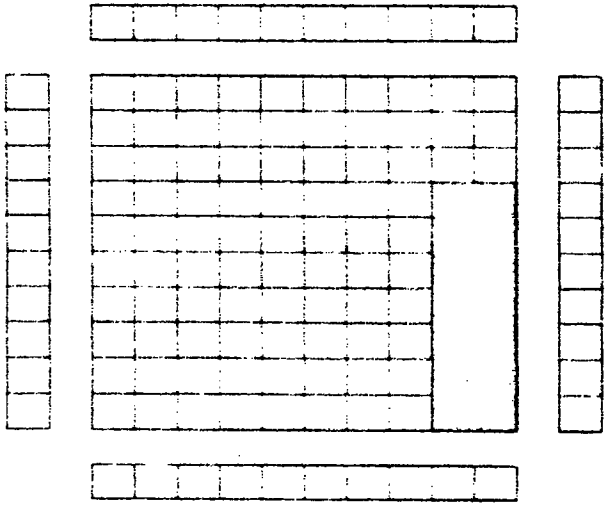
Survey Dates. 11/11/95



NOTE

Count rate in CPM

Soil survey for information only



NOTE:

Denotes 0 2 feet

Comments: No soil sample collected due to small area.

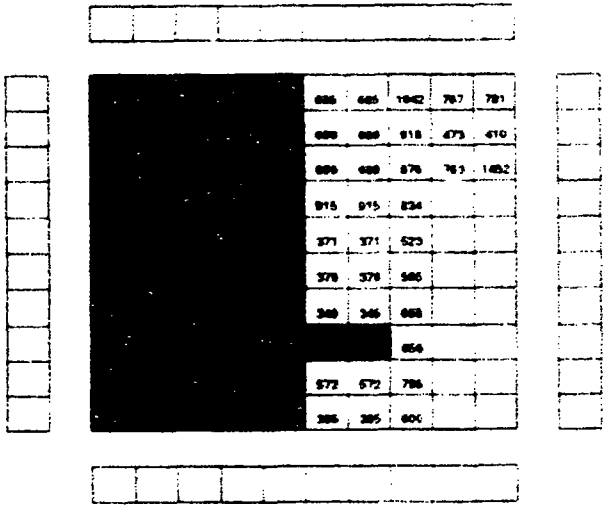
Surface Survey of Concrete

Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I.D. Number 8E

Survey Dates 10/14/95 10/20/95 10/23/95



NOTE:

Countrate in DPM / 100 cm^2

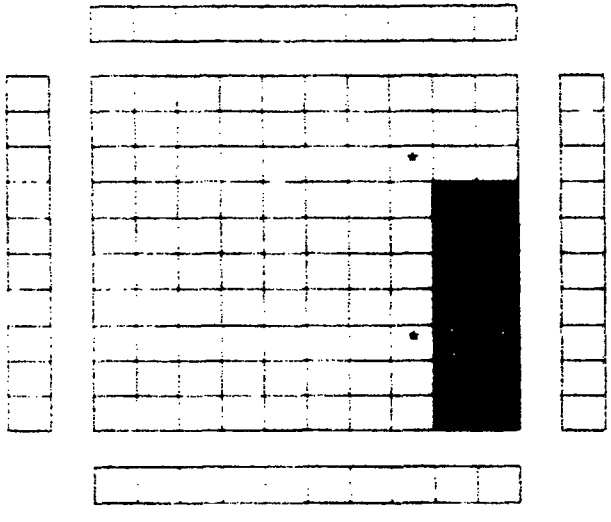
** Designates where count rate less than MDA

Minimum MDA 295

Comments: System background utilized

Denotes outside of defined affected area

Denotes stationary capital equipment



NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed.

Comments: Systematic core results as follows:

SC 01	2.65	(pCi/g)
SC 04	1.91	(pCi/g)
Avg.	2.28	(pCi/g - Derived)

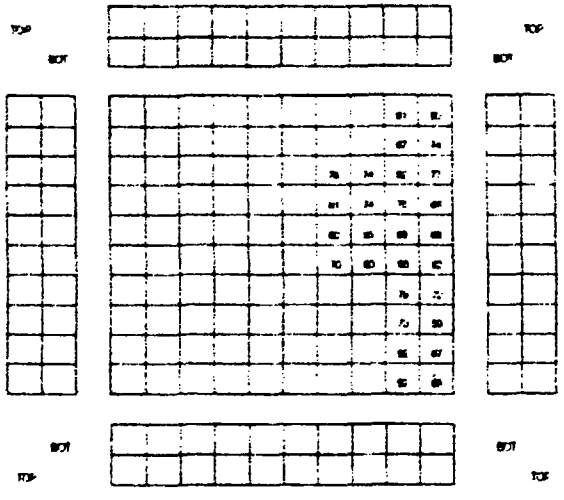
Surface Survey of Exposed Soils

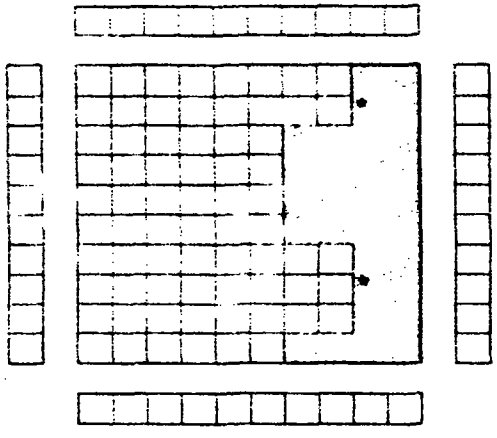
Soil Depths and Soil Sample Locations

Building Number: 10

Grid Block I D Number: BF

Survey Dates: 11/11/95





NOTE

Count rate in CPM.

Soil survey for information only

NOTE:

Denotes 0 - 2 feet

* Denotes Soil Sample Location

Comments: Systematic soil results as follows:

SS 01	2.62	(pCi/g)
SS 04	28.64	(pCi/g)
AVG.	15.6	(pCi/g - Derived)

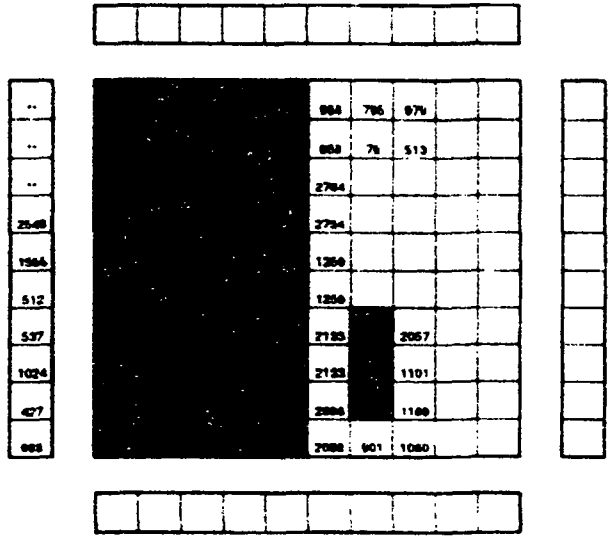
Surface Survey of Concrete

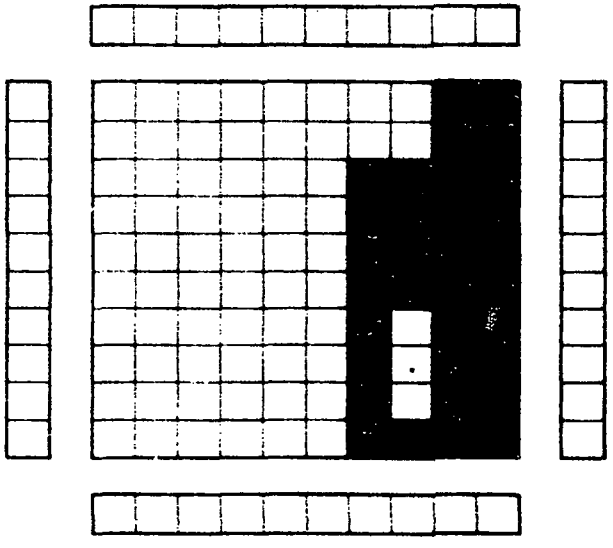
Removed Concrete and Concrete Core Sample Locations

Building Number 19

Grid Block I.D. Number AF

Survey Dates 10/17/95 10/18/95





NOTE

Countrate in DPM / 100 cm^2

-- Designates where count rate less than MDA

Minimum MDA 30dv

Comments System background utilized

Denotes sump

Denotes outside of defined affected area

NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments systematic core results as follows

SC 04 1.99 pCi/g

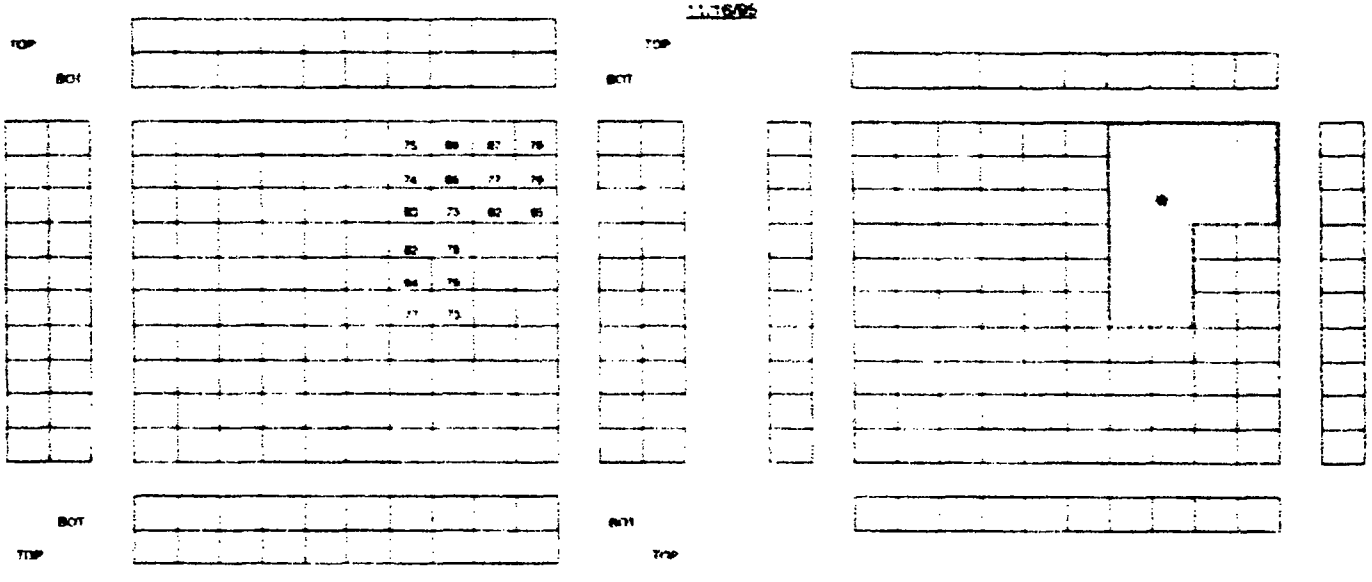
Surface Survey of Exposed Soils

Soil Depths and Soil Sample Locations

Building Number: 12

Grid Block : D Number: 8G

Survey Dates: 10/4/95 10/5/95 10/13/95 11/16/95



NOTE

Count rate in CPM

Rad survey for information only

NOTE:

Denotes 0 - 2 feet

* Denotes Soil Sample Location

Comments: Systematic soil results are as follows.

SS 01 2.65 (pCi/g)

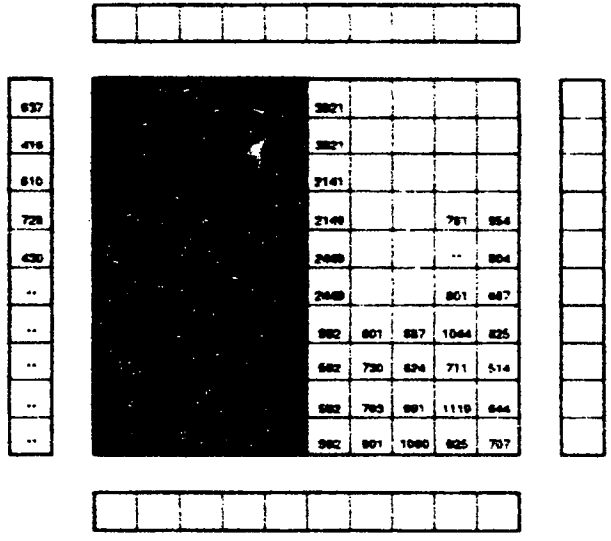
Surface Survey of Concrete

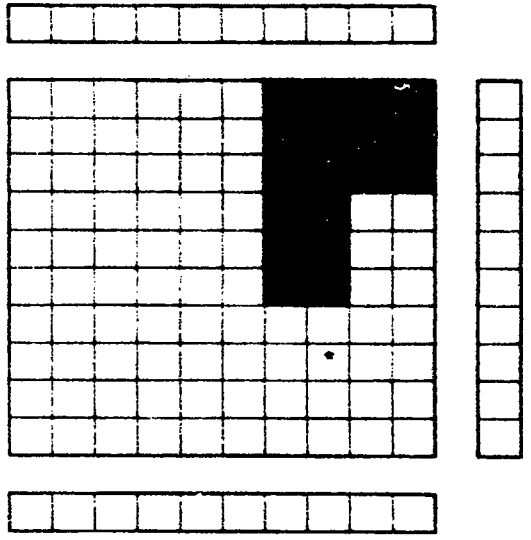
Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I D Number 8G

Survey Dates 10/17/95





NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA.

Minimum MDA 350

Comments System background utilized.

Denotes outside of defined affected area.

NOTE

* Denotes Concrete Core Sample Location

Designates where concrete was removed

Comments: Systematic core results are as follows:

Conversion made assuming 2% enrichment

SC 04 2.10 (ug/g) (2.94 pCi/g)

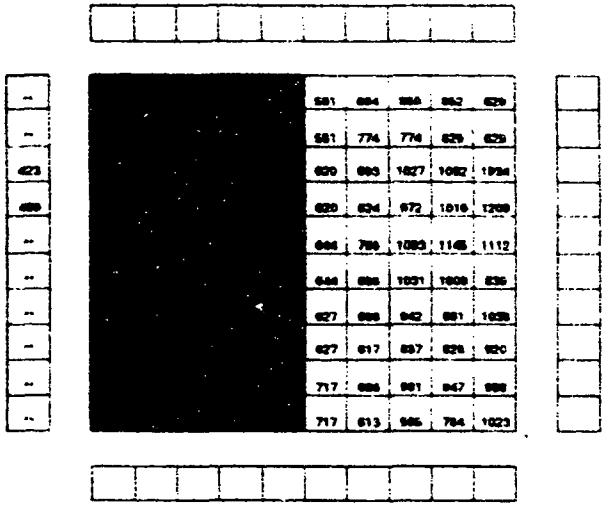
Surface Survey of Concrete

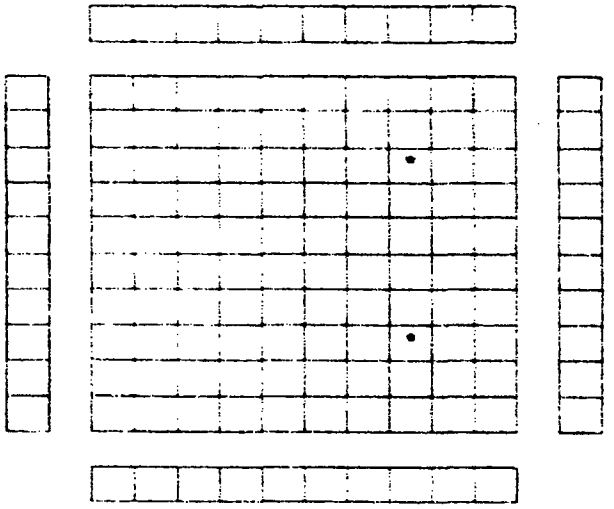
Removed Concrete and Concrete Core Sample Locations

Building Number 10

Grid Block I.D. Number 8H

Survey Dates 10/16/95 10/17/95





NOTE:

Countrate in DPM / 100 cm^2.

** Designates where count rate less than MDA

Minimum MDA: 350

Comments: No underlying soils accessed.

System background utilized.

Denotes outside of defined affected area.

NOTE:

* Denotes Concrete Core Sample Location

Comments: Systematic core results are as follows:

SC 01	2.20	(ug/g)
SC 04	1.90	(ug/g)
Composite	2.00	(pCi/g)

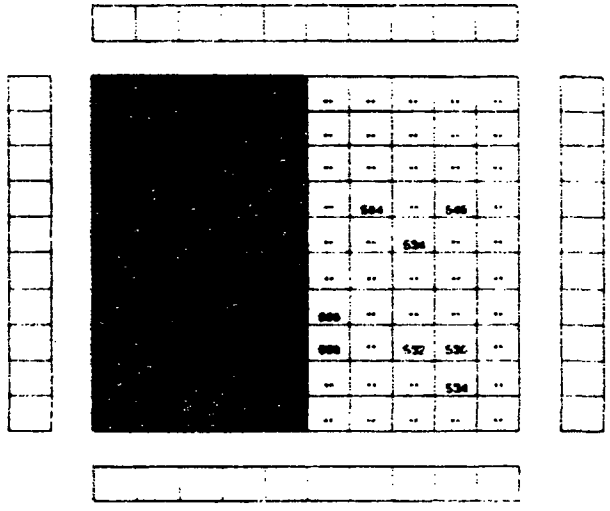
Surface Survey of Concrete

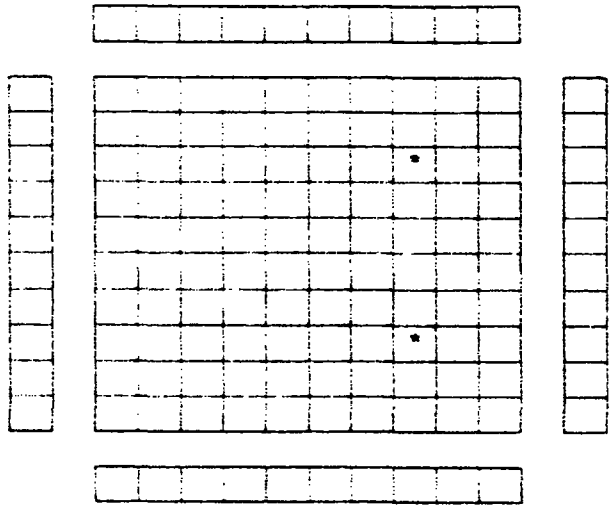
Removed Concrete and Concrete Core Sample Locations

Building Number: 10

Grid Block I.D. Number: 8I

Survey Dates: 10/13/95





NOTE

Countrate in DPM / 100 cm^2

** Designates where count rate less than MDA.

Minimum MDA: 530

Comments: No underlying soils accessed

System background utilized.

Denotes outside of defined affected area

NOTE:

* Denotes Concrete Core Sample Location

Comments: Systematic core results are as follows:

SC 01	1.82	(ug/g)
SC 04	2.01	(ug/g)
Composite	1.86	(pCi/g)

ATTACHMENT 3
ROOF TERMINATION SURVEY DATA

ATTACHMENT 3
ROOF TERMINATION SURVEY DATA

Decontamination of roof surfaces was undertaken on several sections of the Building 10 roof as illustrated in Figure 3.1. Preliminary roof characterization surveys performed in 1995 identified nine grids, including numbers 9 through 14, 43, 44, and 46 as requiring some degree of decontamination. Supplemental characterization surveys performed in October 1995 identified sections of 12 additional grids (1, 2, 39 through 42, 46, 48, 50, 55, and 66) requiring partial decontamination. It should be noted that the original 30-by-30-foot (ft) grid system developed during preliminary surveys was retained for decontamination activities and termination surveys.

Three roof decontamination techniques were applied to contaminated roof sections. These techniques included vacuuming pea gravel and dust, hand scraping tar layers, and completely removing sections using a roof cutter. All contaminated grid sections were vacuumed prior to scraping and cutting. Cutting and scraping were typically efficient in removing roof material to the insulation or, in some cases, leaving open spaces directly to the Building 10 production floor. Contaminated roofing debris was transferred directly to intermodal shipping containers through enclosed chutes.

Table 3.1 presents a summary of the decontaminated roof surface area by grid and decontamination technique. A total of 9,414 ft^2 of roof surfaces was decontaminated.

Following contaminated roofing removal, the remaining surfaces were surveyed where possible. The survey techniques included total alpha surface contamination measurements performed with alpha scintillators, total beta-gamma measurements performed with pancake Geiger-Mueller (G-M) detectors (alternated depending on moisture conditions), and removable alpha contamination measurements. In many instances, the resulting surfaces were too rough or nonexistent (openings through the roof) and were not surveyed. Available termination survey data support the conclusion that, where sections of roof were completely removed, termination surveys were not warranted. Detailed termination survey procedures may be referenced to the Building Interiors Remediation Project Plan.

The attached grid summary sheets (Figures 3.2 to 3.11) illustrate the sections of roofing material subject to decontamination. Each sheet is oriented so that north is at the top of the page, and so that these sheets may be readily referenced to Figure 3.1. Radiological termination surveys of remaining roof sections after decontamination indicated that total, removable, and maximum surface contamination criteria were not exceeded.

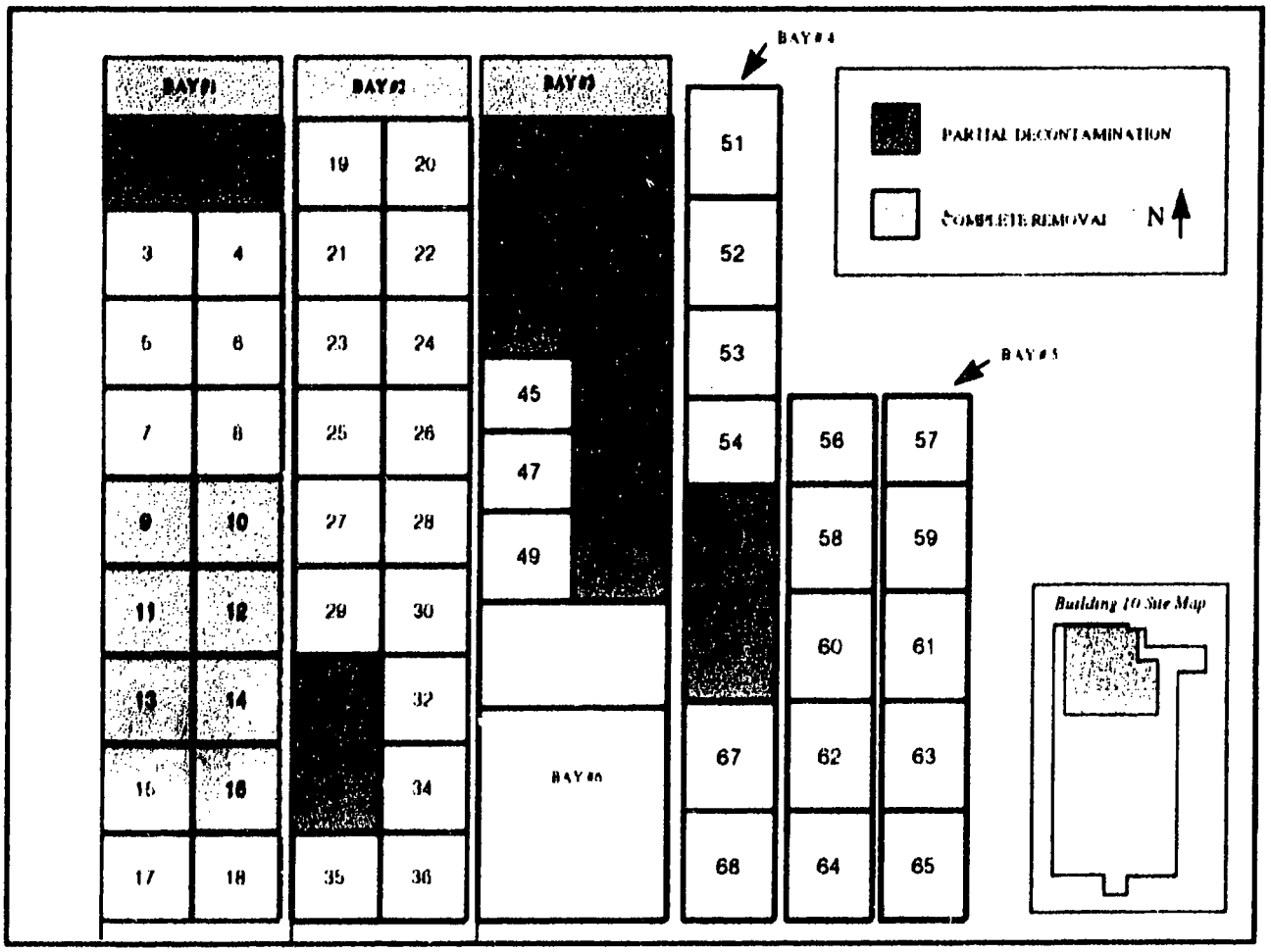


Figure 3.1. Building 10 Roof Grid System

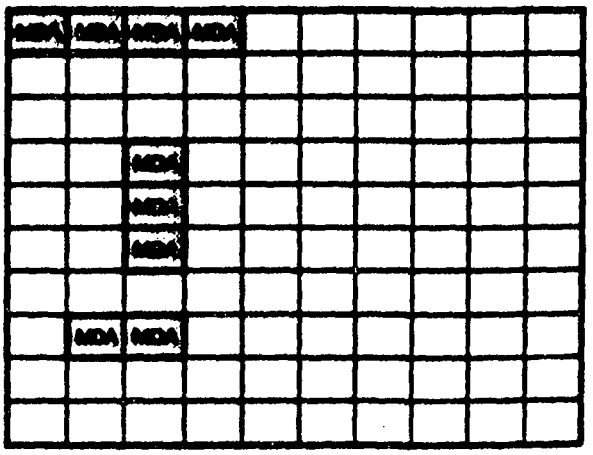
Table 3.1. Roof Decontamination Summary

Grid Number	Technique	Area (ft^2)	Grid Number	Technique	Area (ft^2)
1	removal	104	39	vacuum	200
2	removal	81	40	vacuum	250
9	removal	900	41	removal	350
10	removal	900	42	removal	140
11	removal	900	43	removal	300
12	removal	900	44	removal	180
13	removal	900	46	removal	360
14	removal	900	48	scraped	9
15	removal	400	50	scraped	16
16	removal	900	55	scraped	400
31	removal	90	66	scraped	134
33	removal	100			

ROOF GRID BLOCK NUMBER 1

SURVEY DATE 10/13/1995

REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

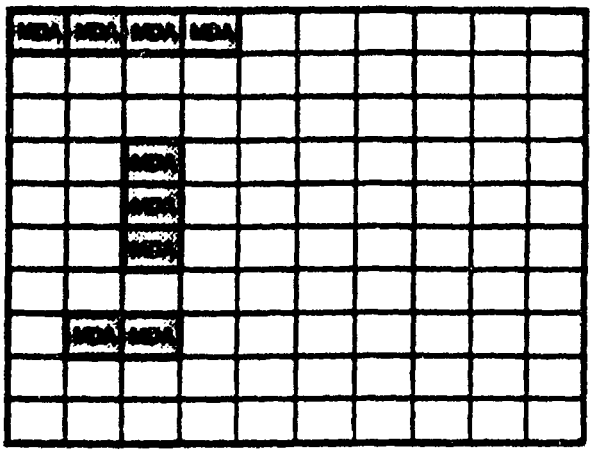
DETECTION SYSTEM 43-10/1000

MDA 3 dpm/100 cm²

ROOF GRID BLOCK NUMBER 1

SURVEY DATE 10/13/1995

TOTAL CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-5/12

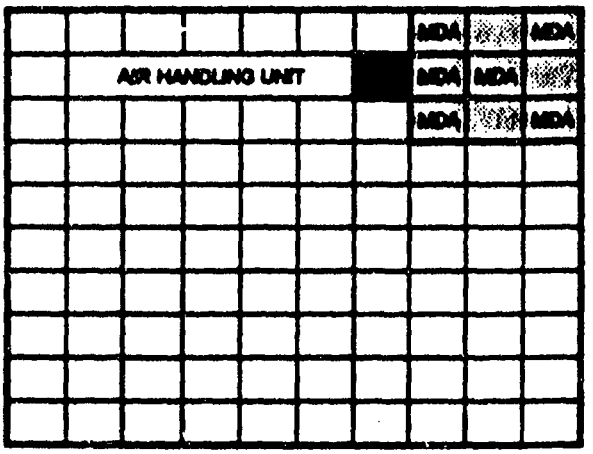
MDA 27 dpm/100 cm²

COMMENTS Partial roofing removed - approx 104 sq ft; implemented damp mopping of exposed areas

ROOF GRID BLOCK NUMBER 2

SURVEY DATE 10/13/95

REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

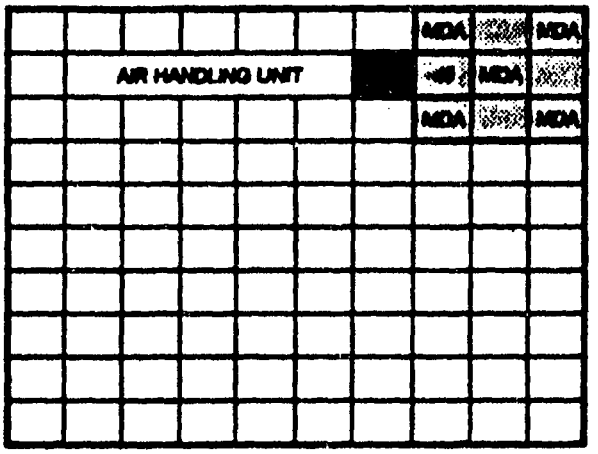
DETECTION SYSTEM 43-10/1000

MDA 3 dpm/100 cm²

ROOF GRID BLOCK NUMBER 2

SURVEY DATE 10/13/95

TOTAL CONTAMINATION SURVEY



Designates Roofing Removal Areas

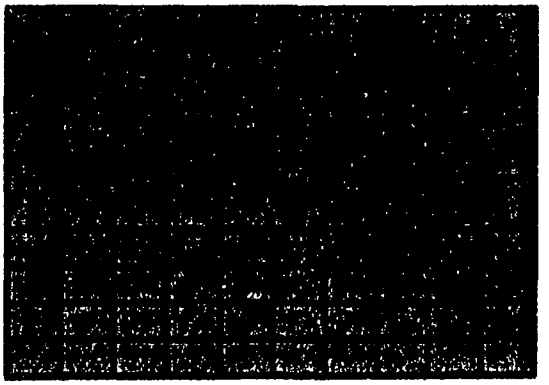
DETECTION SYSTEM 43-5/12

MDA 27 dpm/100 cm²

COMMENTS Partial roofing removed - approx 81 sq ft; implemented damp mopping of exposed areas

Figure 3.2. Roof Grids 1 and 2

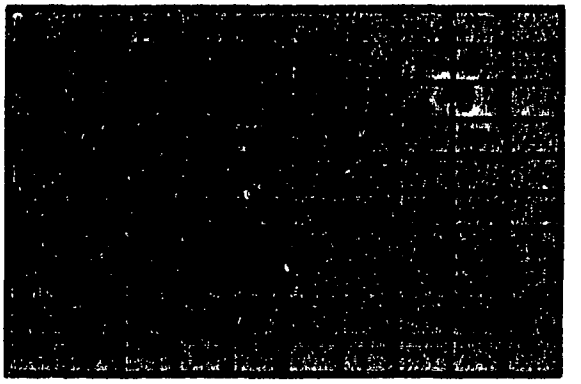
ROOF GRID BLOCK NUMBER 9
SURVEY DATE 10/3/1995
REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000
MDA 4 dpm/100 cm^2
COMMENTS All roofing removed - spot survey - exposed structures

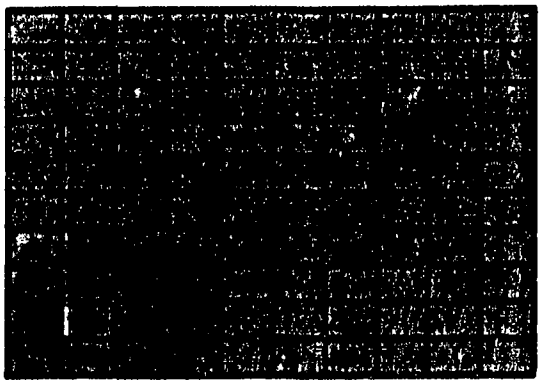
ROOF GRID BLOCK NUMBER 9
SURVEY DATE 10/3/1995
TOTAL CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-5/12
MDA 32 dpm/100 cm^2
COMMENTS All roofing removed - spot survey - exposed structures

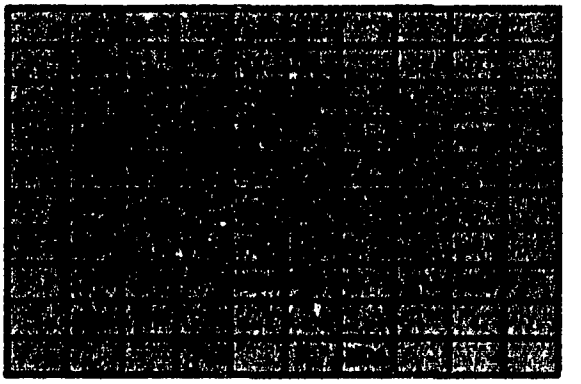
ROOF GRID BLOCK NUMBER 10
SURVEY DATE 10/3/1995
REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000
MDA 4 dpm/100 cm^2
COMMENTS All roofing removed - spot survey - exposed structures

ROOF GRID BLOCK NUMBER 10
SURVEY DATE 10/3/1995
TOTAL CONTAMINATION SURVEY

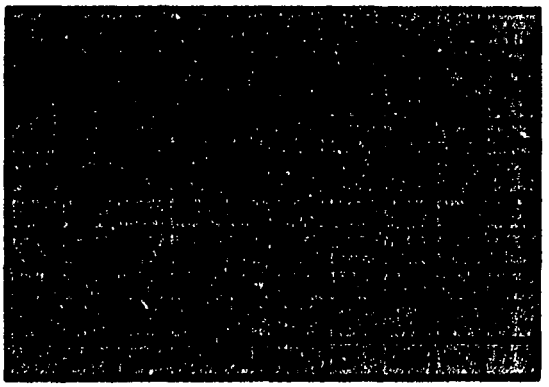


Designates Roofing Removal Areas

DETECTION SYSTEM 43-5/12
MDA 32 dpm/100 cm^2
COMMENTS All roofing removed - spot survey - exposed structures

Figure 3.3. Roof Grids 9 and 10

ROOF GRID BLOCK NUMBER 11
SURVEY DATE 10/3/1995 10/10/1995
REMOVABLE CONTAMINATION SURVEY

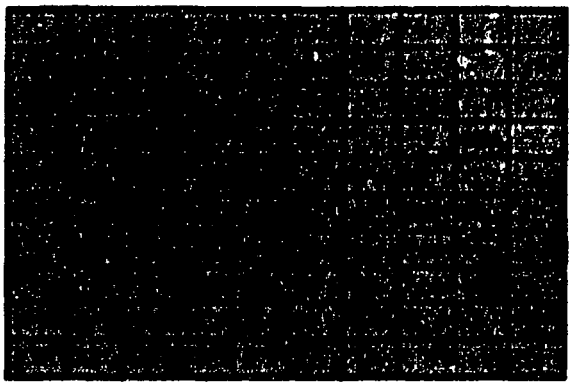


Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000
MDA 4 dpm/100 cm^2
COMMENTS All roofing removed - spot survey - exposed structures

Implemented damp mopping of areas 10-10 survey

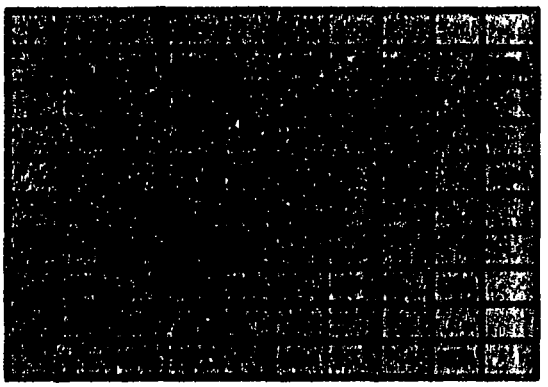
ROOF GRID BLOCK NUMBER 11
SURVEY DATE 10/3/1995
TOTAL CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-5/12
MDA 32 dpm/100 cm^2
COMMENTS All roofing removed - spot survey - exposed structures

ROOF GRID BLOCK NUMBER 12
SURVEY DATE 10/3/1995 10/10/95
REMOVABLE CONTAMINATION SURVEY

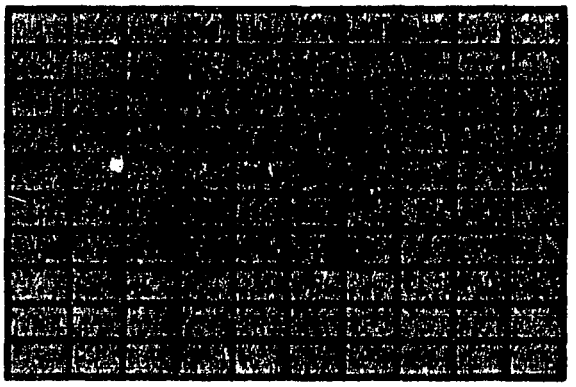


Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000
MDA 4 dpm/100 cm^2
COMMENTS All roofing removed - spot survey - exposed structures

Implemented damp mopping of areas 10-10 survey

ROOF GRID BLOCK NUMBER 12
SURVEY DATE 10/3/1995
TOTAL CONTAMINATION SURVEY

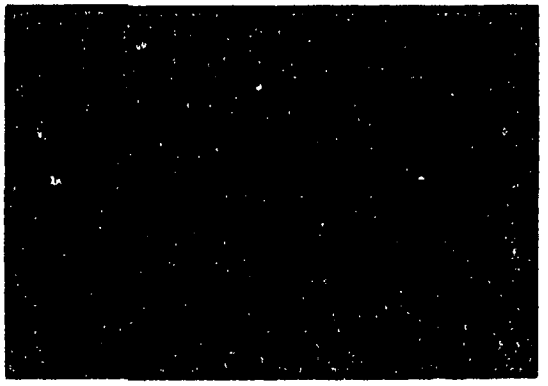


Designates Roofing Removal Areas

DETECTION SYSTEM 43-5/12
MDA 32 dpm/100 cm^2
COMMENTS All roofing removed - spot survey - exposed structures

Figure 3.4. Roof Grids 11 and 12

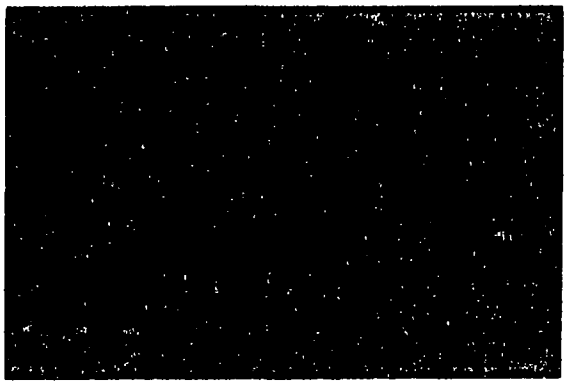
ROOF GRID BLOCK NUMBER 13
SURVEY DATE 10/11/1995
REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000
MDA 17 dpm/100 cm^2
COMMENTS All roofing removed - spot survey - exposed structures

ROOF GRID BLOCK NUMBER 13
SURVEY DATE NA
TOTAL CONTAMINATION SURVEY

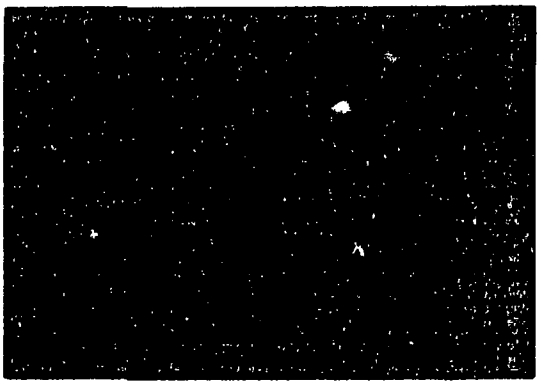


Designates Roofing Removal Areas

DETECTION SYSTEM NA
MDA NA
COMMENTS All roofing removed - spot survey - exposed structures

Implemented damp mopping of areas

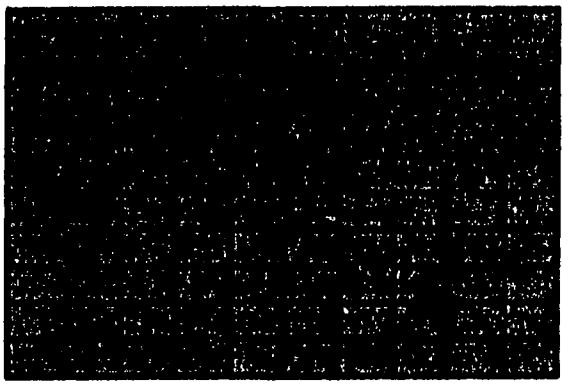
ROOF GRID BLOCK NUMBER 14
SURVEY DATE 10/11/1995
REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000
MDA 17 dpm/100 cm^2
COMMENTS All roofing removed - spot survey - exposed structures

ROOF GRID BLOCK NUMBER 14
SURVEY DATE NA
TOTAL CONTAMINATION SURVEY



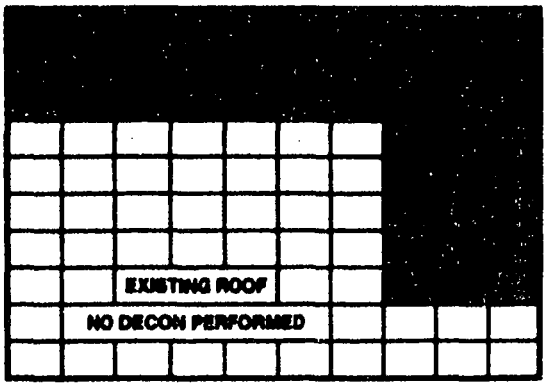
Designates Roofing Removal Areas

DETECTION SYSTEM NA
MDA NA
COMMENTS All roofing removed - spot survey - exposed structures

Implemented damp mopping of areas

Figure 3.5. Roof Grids 13 and 14

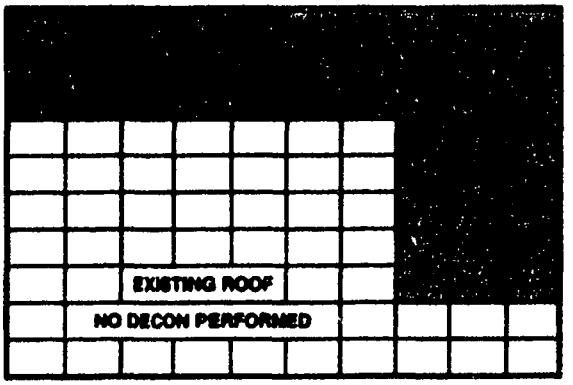
ROOF GRID BLOCK NUMBER 15
SURVEY DATE 10/12/1995
REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000
MDA 12 dpm/100 cm^2

ROOF GRID BLOCK NUMBER 15
SURVEY DATE 10/12/1995
TOTAL CONTAMINATION SURVEY

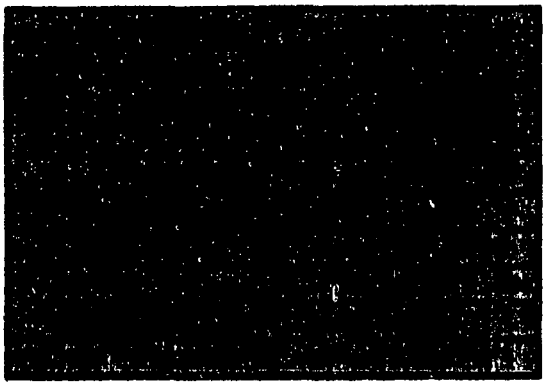


Designates Roofing Removal Areas

DETECTION SYSTEM 44-9/12
MDA 2580 dpm/100 cm

COMMENTS Partial roofing removed - approx 400 sq ft; implemented damp mopping of exposed areas

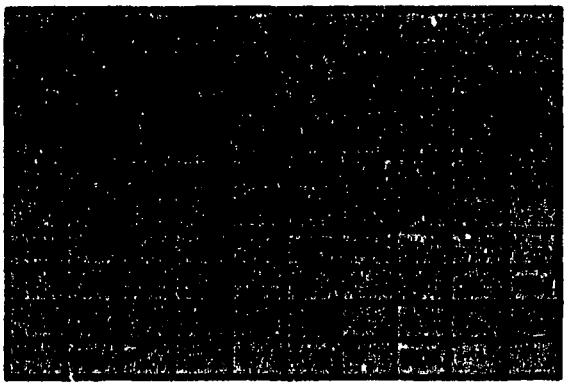
ROOF GRID BLOCK NUMBER 16
SURVEY DATE 10/12/1995
REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000
MDA 12 dpm/100 cm^2

ROOF GRID BLOCK NUMBER 16
SURVEY DATE 10/12/1995
TOTAL CONTAMINATION SURVEY



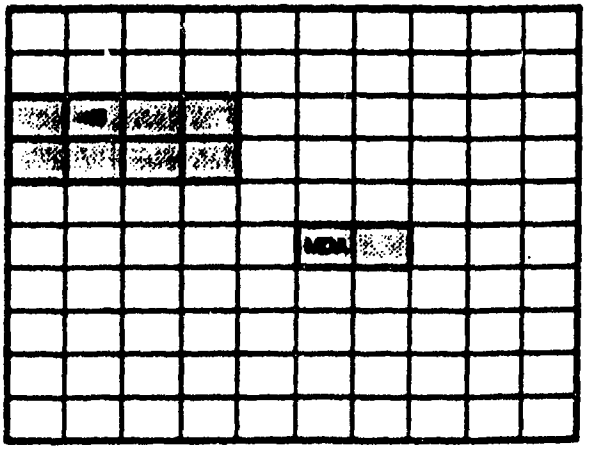
Designates Roofing Removal Areas

DETECTION SYSTEM 44-9/12
MDA 2580 dpm/100 cm^2

COMMENTS All roofing removed - spot survey - exposed structures: implemented damp mopping of exposed areas.

Figure 3.6. Roof Grids 15 and 16

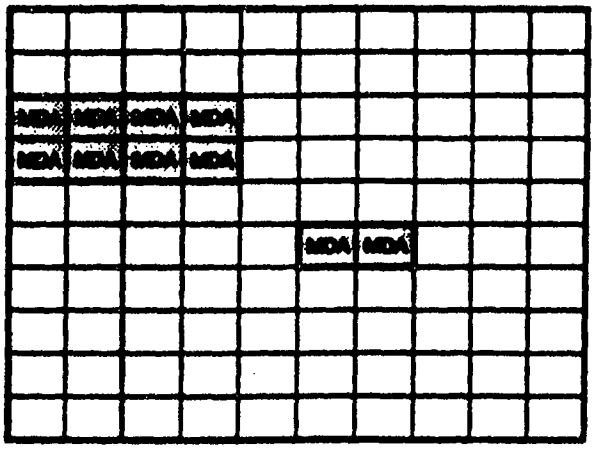
ROOF GRID BLOCK NUMBER 31
SURVEY DATE 9/29/1995
REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000
MDA 3 dpm/100 cm²

ROOF GRID BLOCK NUMBER 31
SURVEY DATE 9/29/1995
TOTAL CONTAMINATION SURVEY

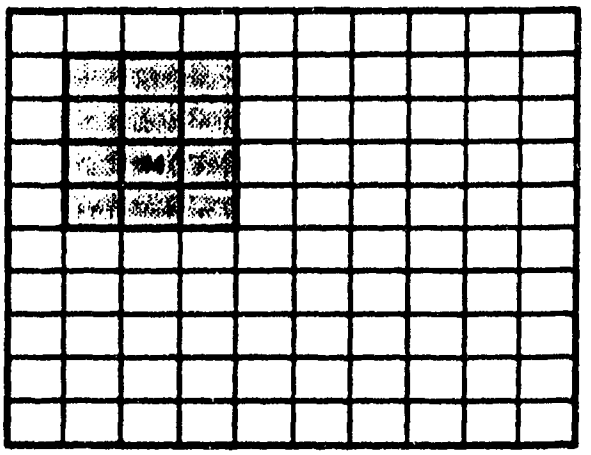


Designates Roofing Removal Areas

DETECTION SYSTEM 44-9/12
MDA 3000 dpm/100 cm²

COMMENTS Partial roofing removed - approx 94 sq ft; implemented damp mopping of exposed areas

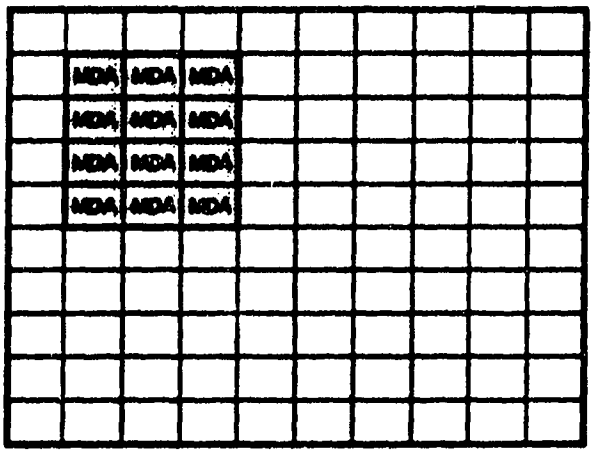
ROOF GRID BLOCK NUMBER 33
SURVEY DATE 9/29/95
REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000
MDA 3 dpm/100 cm²

ROOF GRID BLOCK NUMBER 33
SURVEY DATE 9/29/95
TOTAL CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 44-9/12
MDA 3000 dpm/100 cm²

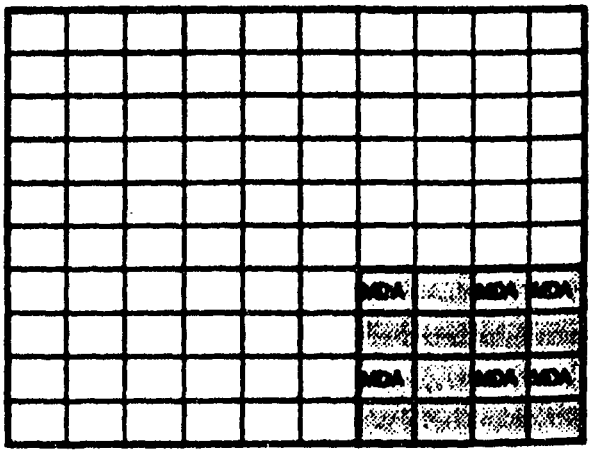
COMMENTS Partial roofing removed - approx 100 sq ft; implemented damp mopping of exposed areas

Figure 3.7. Roof Grids 31 and 33

ROOF GRID BLOCK NUMBER 42

SURVEY DATE 10/11/1995

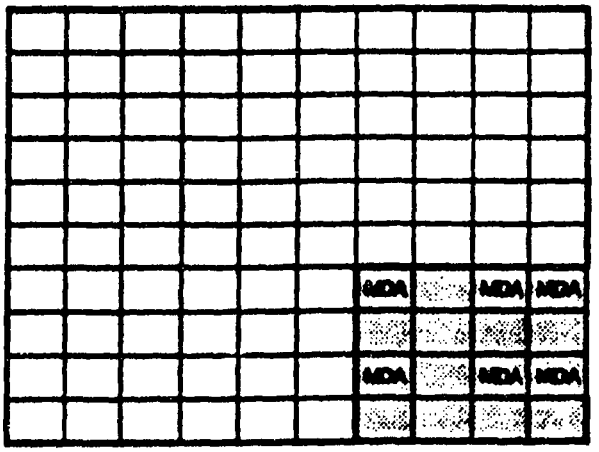
REMOVABLE CONTAMINATION SURVEY



ROOF GRID BLOCK NUMBER 42

SURVEY DATE 10/11/1995

TOTAL CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 43-10/1000

MDA 12 dpm/100 cm^2

DETECTION SYSTEM 44-9/12

MDA 3226 dpm/100 cm^2

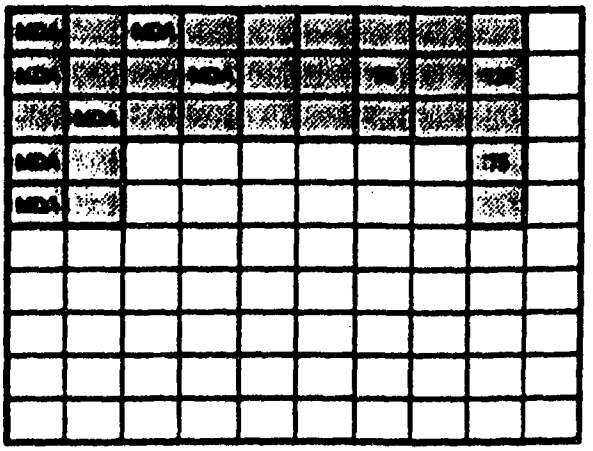
COMMENTS Approximately 140 sq ft removed - area mopped following removal.
Characterization survey data used for release.

Figure 3.8. Roof Grids 42

ROOF GRID BLOCK NUMBER 43

SURVEY DATE 10/23/1995

REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

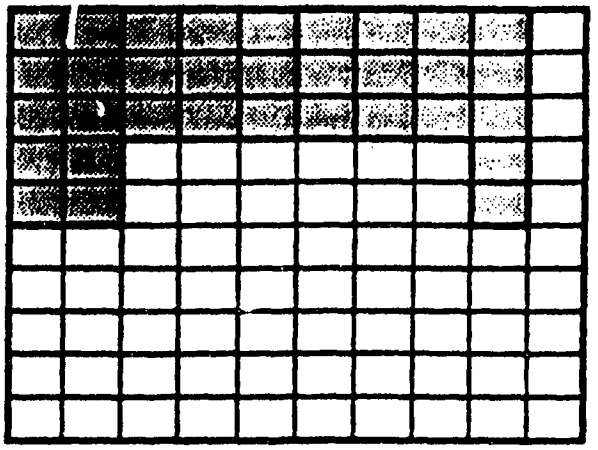
DETECTION SYSTEM 43-10/1000

MDA 17 dpm/100 cm^2

ROOF GRID BLOCK NUMBER 43

SURVEY DATE 10/23/95

TOTAL CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 44-9/12

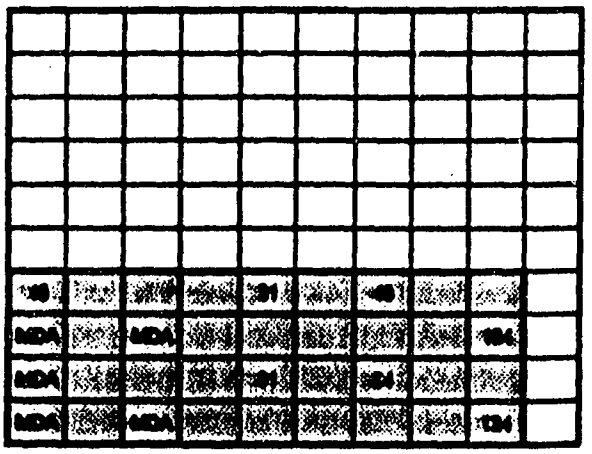
MDA 3800 dpm/100 cm^2

COMMENTS Approximately 350 sq ft of roofing cut/areas damp mopped following removal and survey

ROOF GRID BLOCK NUMBER 41

SURVEY DATE 10/23/95

REMOVABLE CONTAMINATION SURVEY



Designates Roofing Removal Areas

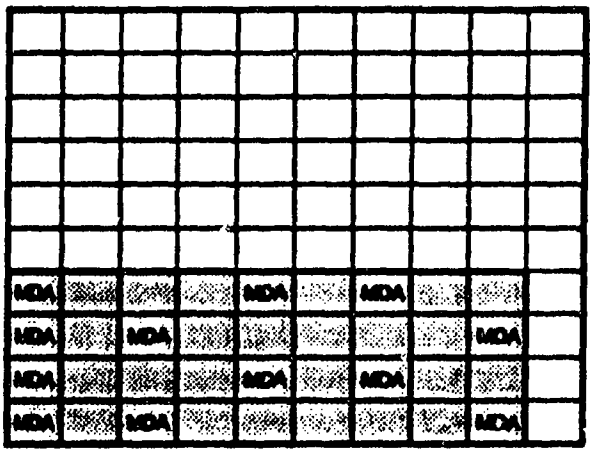
DETECTION SYSTEM 43-10/1000

MDA 17 dpm/100 cm^2

ROOF GRID BLOCK NUMBER 41

SURVEY DATE 10/23/95

TOTAL CONTAMINATION SURVEY



Designates Roofing Removal Areas

DETECTION SYSTEM 44-9/12

MDA 3800 dpm/100 cm^2

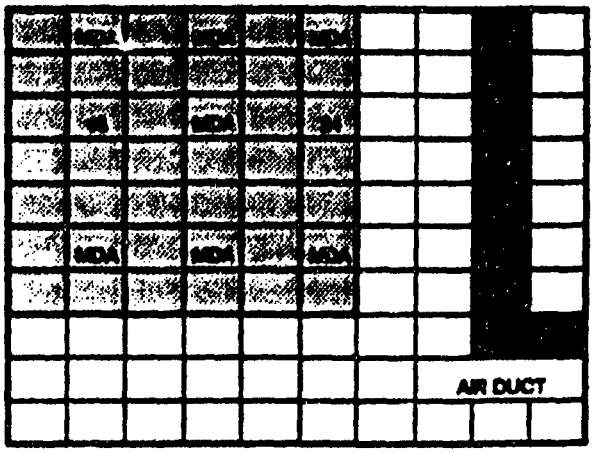
COMMENTS Approximately 350 sq ft of roofing cut/areas damp mopped following removal and survey.

Figure 3.9. Roof Grids 41 and 43

ROOF GRID BLOCK NUMBER 46

SURVEY DATE 10/23/1995

REMOVABLE CONTAMINATION SURVEY



Designates Area Subject to Cutting

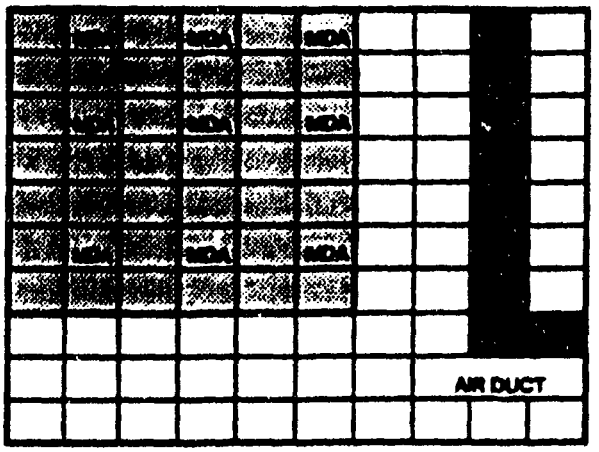
DETECTION SYSTEM 43-10/1000

MDA 17 dpm/100 cm^2

ROOF GRID BLOCK NUMBER 46

SURVEY DATE 10/23/1995

TOTAL CONTAMINATION SURVEY



Designates Area Subject to Cutting

DETECTION SYSTEM 44-9/12

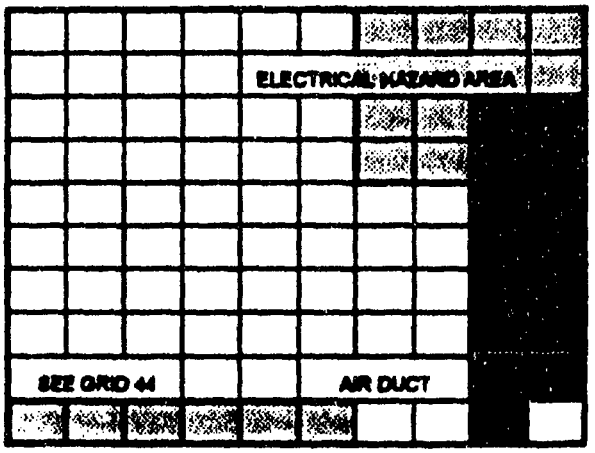
MDA 3077 dpm/100 cm^2

COMMENTS Designated roof areas cut - Total beta-gamma survey performed

ROOF GRID BLOCK NUMBER 44

SURVEY DATE 10/23/1995

REMOVABLE CONTAMINATION SURVEY



Designates Area Subject to Cutting

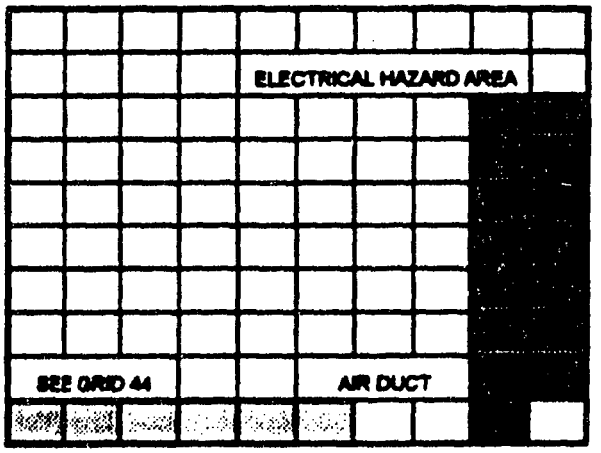
DETECTION SYSTEM 43-10/1000

MDA 17 dpm/100 cm^2

ROOF GRID BLOCK NUMBER 44

SURVEY DATE 10/23/1995

TOTAL CONTAMINATION SURVEY



Designates Area Subject to Cutting

DETECTION SYSTEM NA

MDA NA

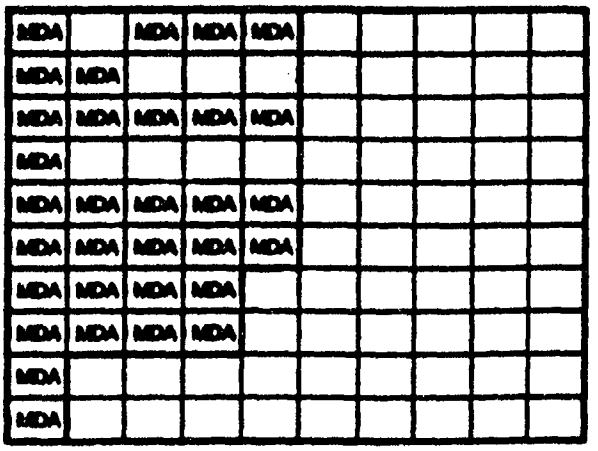
COMMENTS 2" by 2" NaI readings 2-4 times background in electrical hazard area

Figure 3.10. Roof Grids 46 and 44

ROOF GRID BLOCK NUMBER 55

SURVEY DATE 10/19/1995

REMOVABLE CONTAMINATION SURVEY



Designates Area Subject to Scraping

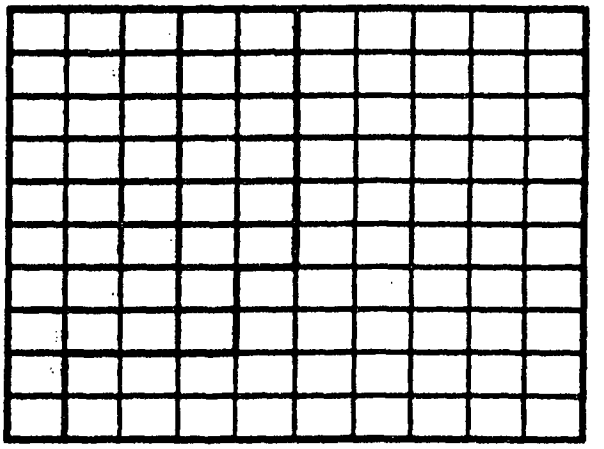
DETECTION SYSTEM 43-10/1000

MDA 17 dpm/100 cm^2

ROOF GRID BLOCK NUMBER 55

SURVEY DATE NA

TOTAL CONTAMINATION SURVEY



Designates Area Subject to Scraping

DETECTION SYSTEM NA

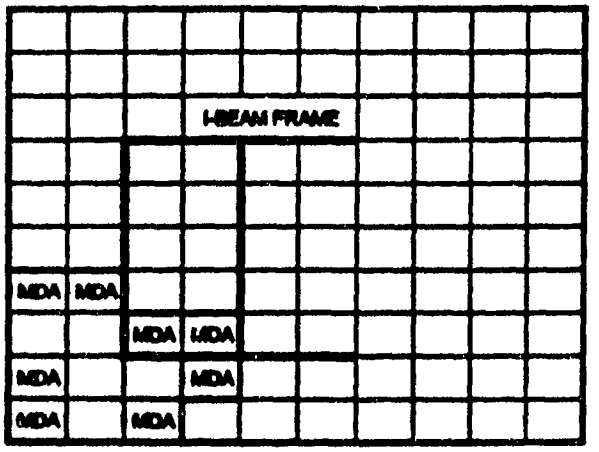
MDA NA

COMMENTS Designated roof areas scraped - Total survey not performed due to irregular surfaces.

ROOF GRID BLOCK NUMBER 66

SURVEY DATE 10/18/1995

REMOVABLE CONTAMINATION SURVEY



Designates Area Subject to Scraping

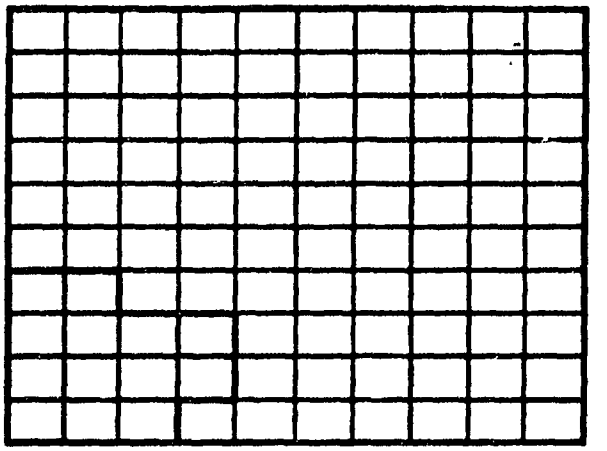
DETECTION SYSTEM 43-10/1000

MDA 16 dpm/100 cm^2

ROOF GRID BLOCK NUMBER 66

SURVEY DATE 10/18/1995

TOTAL CONTA ATION SURVEY



Designates Area Subject to Scraping

DETECTION SYSTEM NA

MDA NA

COMMENTS Designated roof areas scraped - Total survey not performed due to irregular surfaces.

Figure 3.11. Roof Grids 55 and 66

ATTACHMENT 4
BUILDINGS 4 AND 10 SPECIAL FEATURES

ATTACHMENT 4
BUILDINGS 4 AND 10 SPECIAL FEATURES

Building Interiors Remediation Project activities in Building 10 required the decontamination and survey of a network of utility trenches and subsurface sumps that were identified after the contaminated concrete slabs were removed. In some instances, these features were completely or partially removed; in other instances, they were decontaminated, filled, and left in place. Figure 4.1 illustrates the relative location of these features within Building 10. Table 4.1 presents a summary of the decontamination status of trenches and sumps left in place. No contaminated trenches or sumps were identified in affected areas of Buildings 4 and 5. Termination survey results for an equipment pad identified under the grade in Area 5 also are included. This pad required significant decontamination efforts, including air hammer application and scabbling. Survey results for the Lewis Mill, a special feature in Building 4, are presented and discussed.

Gas flow proportional detectors were used for all maximum and total radiological termination surface contamination measurements. These detectors were applied over 1-square meter (m^2) grid blocks delineated on the floor and walls of each sump and trench. Removable contamination measurements were determined through the collection and counting of smears over grid blocks with total surface contamination measurements exceeding 1,000 disintegrations per minute (dpm)/100 square centimeters (cm^2). Detailed termination survey procedures may be referenced to Section 9.0 of the *Building Interiors Remediation Project Plan.*

Utility Trenches

Approximately 360 linear feet (lf) of utility trenches were identified in affected areas of Building 10 (including Areas 9 through 12 and 18). The trench depths ranged from 2.5 to 6 feet (ft) and, in some cases, residue and other debris were identified on the floor trenches. Some trench bottoms were inaccessible due to piping running through the trench. Approximately 260 lf of trenches were removed and disposed of as radioactive waste. Figure 4.1 illustrates trench sections that were removed during decontamination activities.

The remaining 100 lf of trenches were decontaminated where necessary, followed by termination surveys to demonstrate compliance with surface contamination criteria. Decontamination techniques included concrete scabbling and pressure-washing of residue left in the trenches. Where residue was left in place below active utility lines, a sample of the material was collected and analyzed for isotopic uranium content. In many cases, the metal rims at the top of the trenches (used to support steel cover plates) were contaminated and required complete removal. The trenches that were decontaminated and left in place were filled with clean soil and gravel and covered with new concrete slabs.

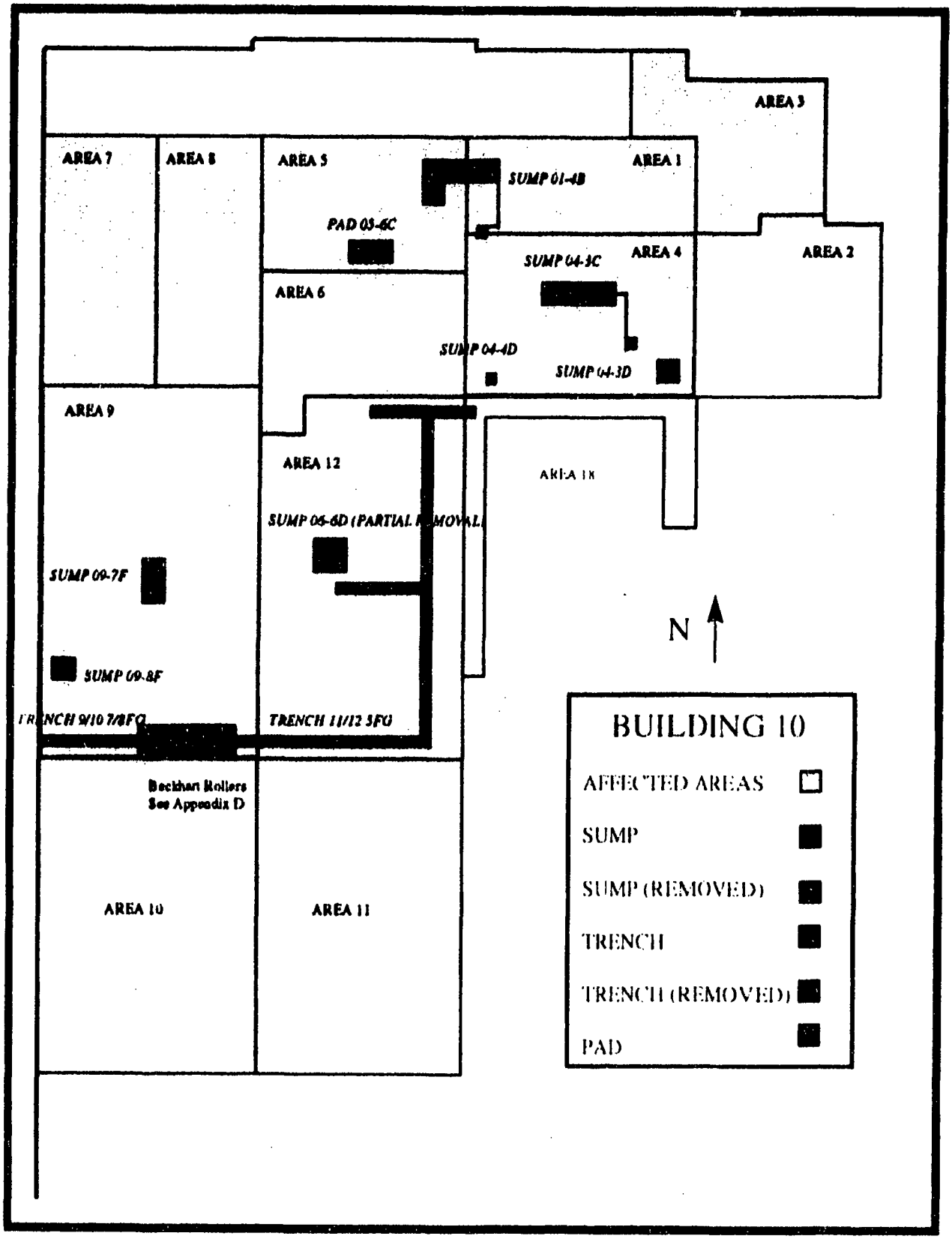


Figure 4.1. Building 10 - Special Feature Locations

Table 4.1. Trench and Sump Status

Feature Type	Identification Number	Technique	Status	Comments
Trench	9/10 7/8 FG East-West	scabbled, rim removal, washing	complete, filled - new slab	residue sampled
Trench	11/12 5 FG East-West	scabbled, rim removal, washing	complete, filled - new slab	residue sampled
Sump	04-3C (large)	hot spots scabbled, washing	complete, filled w/gravel	former mixed waste sump
Sump	04-3C (small)	washed	complete, filled w/gravel	feed to former mixed waste sump
Sump	01-4B	hot spots scabbled, contaminated debris removed	complete, filled - new slab	decontamination performed in two sections
Sump	04-3D	no decontamination	survey only, sump filled	water pumped out
Sump	04-4D	no decontamination	survey only, sump filled	water pumped out
Sump	09-7F	scabbled	complete, filled - new slab	near Beckhart rollers
Sump	09-8F	scabbled, rim removed, cover plate ground	complete, left open in place	soil floor, soil sampled
Sump	06-6D	no decontamination	survey only, 3 ft from grade removed	soil floor, post-nuclear placement
Pad	05-6C	impact breaking, scabbling, debris removal	complete, surveyed	residue removed initially

Termination survey data for the trenches are presented for two sections of the same utility trench, which is divided by the Beckhart Wire Drawing Machine roller system. The western portion of the trench divides affected Areas 9 and 10, is approximately 30 ft in length, and is designated on Figure 4.1 as Trench 9/10 7/8 FG East-West. The eastern portion of the trench divides affected Areas 11 and 12, is approximately 30 ft in length, and is designated on Figure 4.1 as Trench 11/12 5 FG East West.

Radiological termination surveys of the remaining utility trenches indicated that total, removable, and maximum surface contamination release criteria were not exceeded. Summary termination survey forms (included in this attachment) present all readings in dpm/100 cm^2. All forms are oriented with north at the top of the page. Trench floors and walls are designated on the forms. Residue samples collected from beneath piping in the trenches yielded total uranium concentrations ranging from 22 to 41 picocuries per gram (pCi/g).

Sumps

Eight subsurface sumps were identified during decontamination activities in Building 10. Sumps were designated by the grid block number in which they were located and by a verbal description of the sump.

The locations of these sumps within Building 10 are designated on Figure 4.1. The sizes and depths of these sumps varied greatly and, in some cases, the sumps contained contaminated debris that was removed and disposed of as radioactive waste. After debris removal, the sump walls and floors were decontaminated by scabbling and pressure-washing where necessary. One sump was identified as having a soil bottom, and the soil was sampled and analyzed for total and isotopic uranium concentrations.

Radiological termination surveys of remaining subsurface sumps indicated that total, removable, and maximum surface contamination release criteria were not exceeded. Summary termination survey forms (included in this attachment) present all readings in dpm/100 cm^2. All forms are oriented with north at the top of the page. Sump floors and walls are designated on the forms. Residue samples collected from beneath piping in the sumps yielded total uranium concentrations ranging from 20 to 50 pCi/g.

Lewis Mill — Building 4

The Lewis Mill was a large piece of capital milling machinery that was known to have been used on uranium metal. The mill is located in decontamination area 14 in Building 4, and is actively used for current metal milling operations. The mill was subject to decontamination of internal and external surfaces with a degreasing agent prior to survey. Several concrete floor areas under and near the power generation system were scabbled prior to termination survey. A cooling oil sump was drained and subjected to spot surveys and sampling. Total and removable contamination measurements were performed on the Lewis Mill after decontamination. In all cases, the contamination did not exceed the unrestricted release criteria. Formal survey data are included in this attachment.

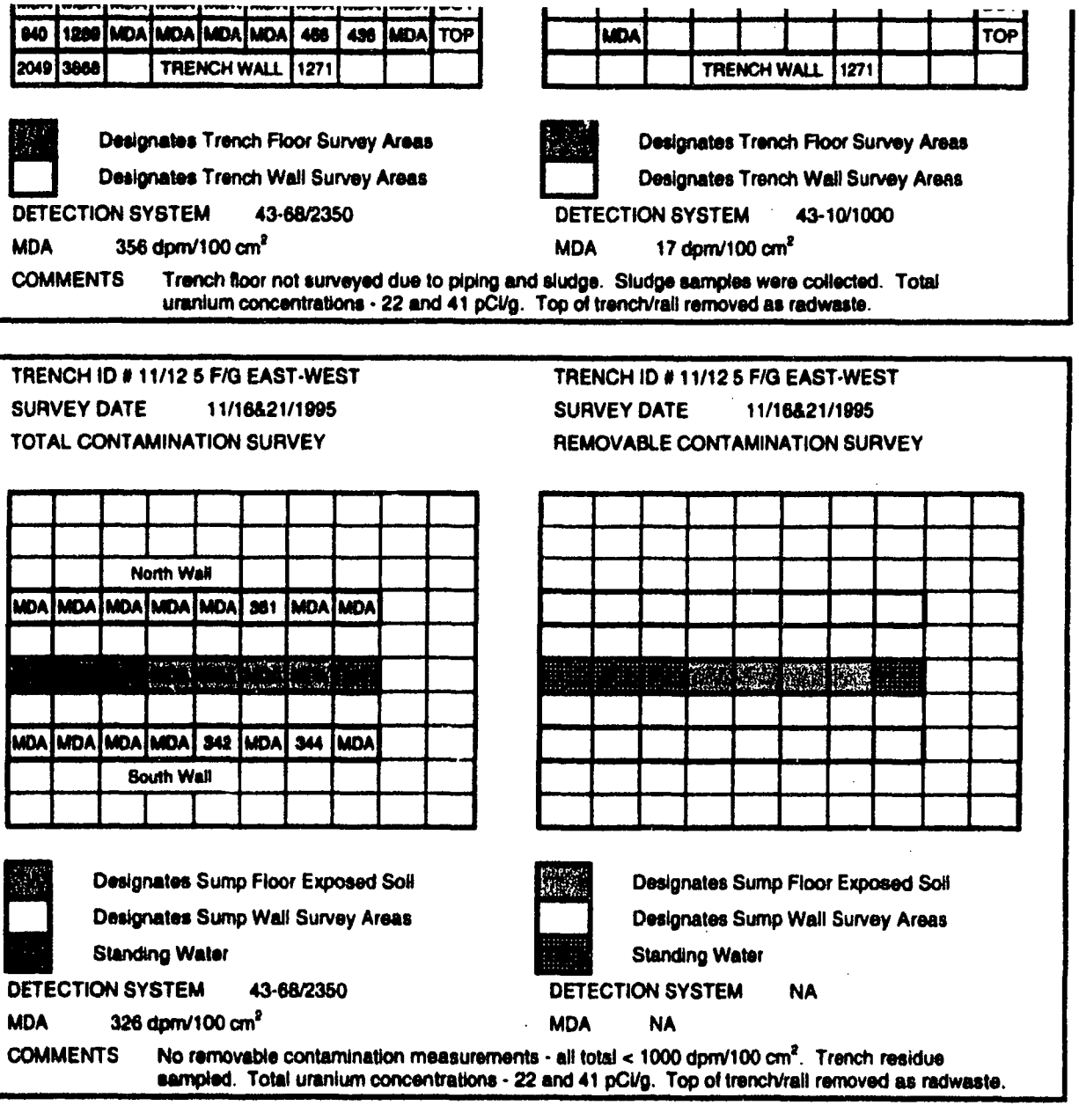
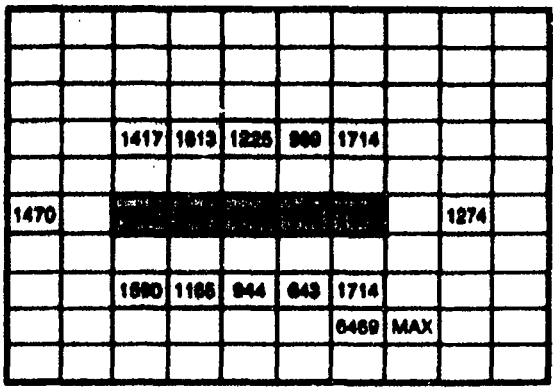


Figure 4.2. Trench 7/8 FG, 5/6 FG

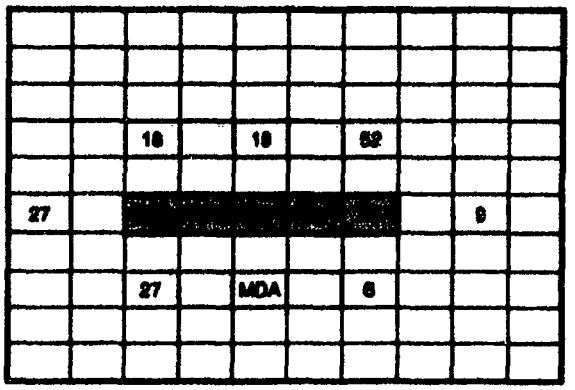
SUMP ID # 04-3C (LARGE)
SURVEY DATE 10/10/1995
TOTAL CONTAMINATION SURVEY



Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-68/2350
MDA 585 dpm/100 cm^2
COMMENTS Former mixed waste sump.

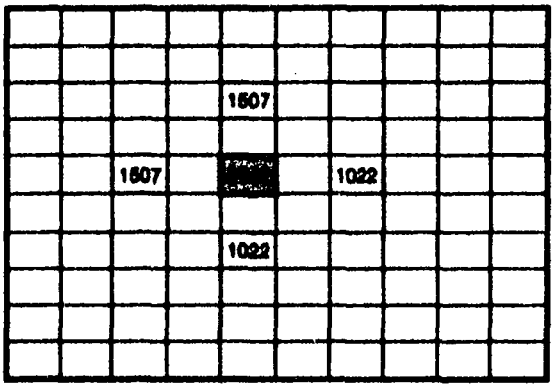
SUMP ID # 04-3C (LARGE)
SURVEY DATE 10/10/1995
REMOVABLE CONTAMINATION SURVEY



Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-10/1000
MDA 3 dpm/100 cm^2

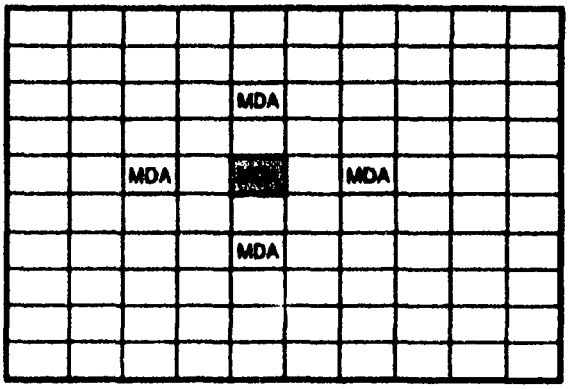
SUMP ID # 04-3C (SMALL)
SURVEY DATE 10/10/1995
TOTAL CONTAMINATION SURVEY



Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-68/2350
MDA 585 dpm/100 cm^2
COMMENTS Former mixed waste sump.

SUMP ID # 04-3C (SMALL)
SURVEY DATE 10/10/1995
REMOVABLE CONTAMINATION SURVEY

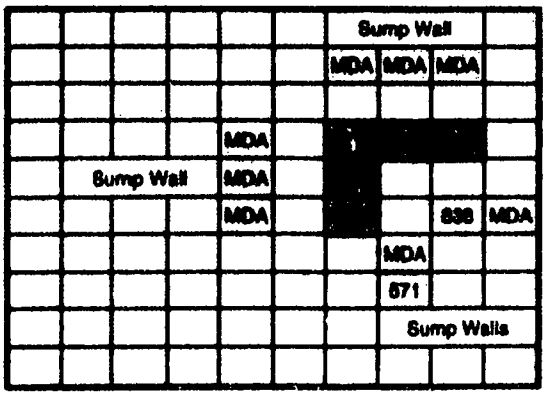


Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-10/1000
MDA 3 dpm/100 cm^2

Figure 4.3. SUMP 04-3C

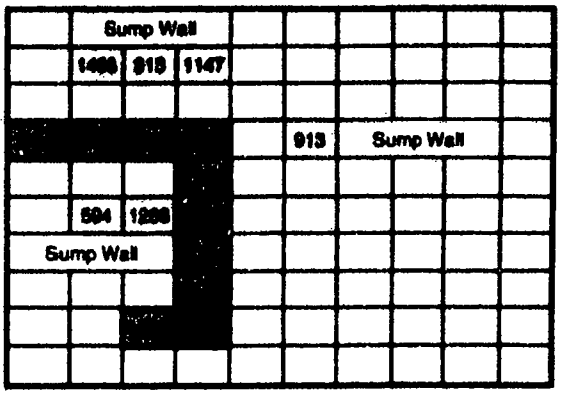
SUMP ID #01-4B
SURVEY DATE 1/17/1996
TOTAL CONTAMINATION SURVEY



Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-68/2350
MDA 580 dpm/100 cm^2

SUMP ID # 01-4B
SURVEY DATE 10/11/1995
TOTAL CONTAMINATION SURVEY

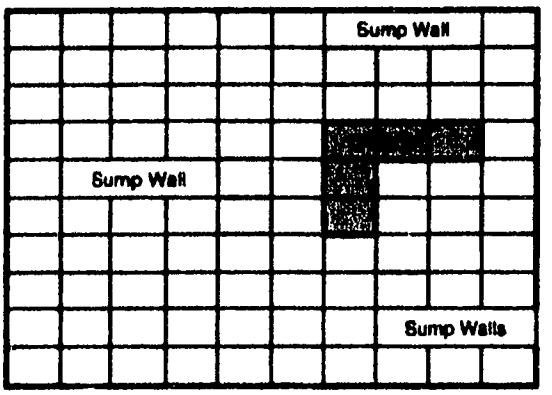


Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-68/2350
MDA 580 dpm/100 cm^2

COMMENTS Exposed portion of sump 01-4B surveyed after scabbling on 10/11/95. Balance of sump surveyed after exposure and scabbling in January 1996. Diagrams connect portions of sump.

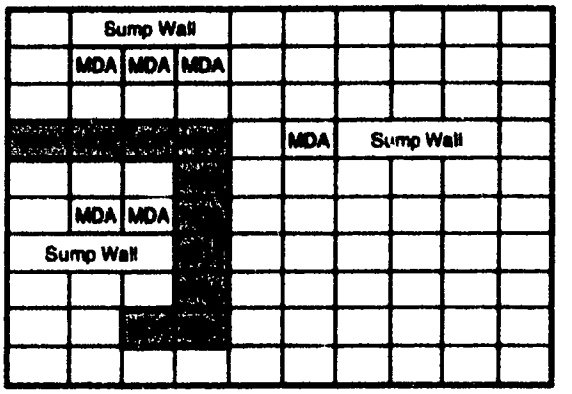
SUMP ID # 01-4B
SURVEY DATE 1/17/1996
REMOVABLE CONTAMINATION SURVEY



Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-68/2350
MDA 28 dpm/100 cm^2

SUMP ID # 01-4B
SURVEY DATE 10/11/1995
REMOVABLE CONTAMINATION SURVEY



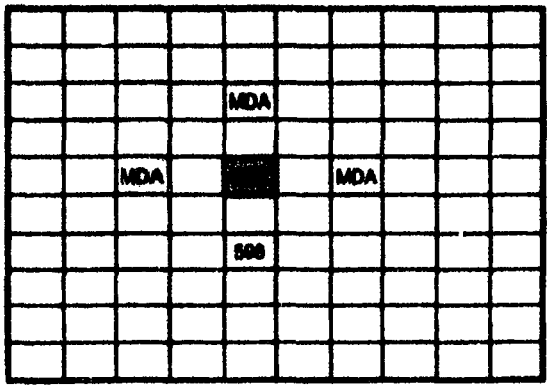
Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-10/1000
MDA 17 dpm/100 cm^2

COMMENTS Exposed portion of sump 01-4B surveyed after scabbling on 10/11/95.

Figure 4.4. SUMP 01-4B

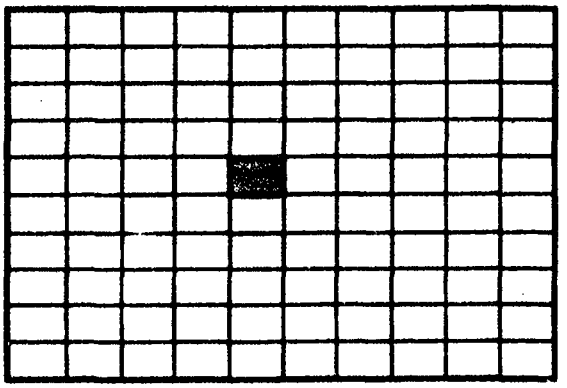
SUMP ID # 04-3D
SURVEY DATE 10/10/1995
TOTAL CONTAMINATION SURVEY



Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-68/2350
MDA 585 dpm/100 cm^2

SUMP ID # 04-3D
SURVEY DATE 10/10/1995
REMOVABLE CONTAMINATION SURVEY

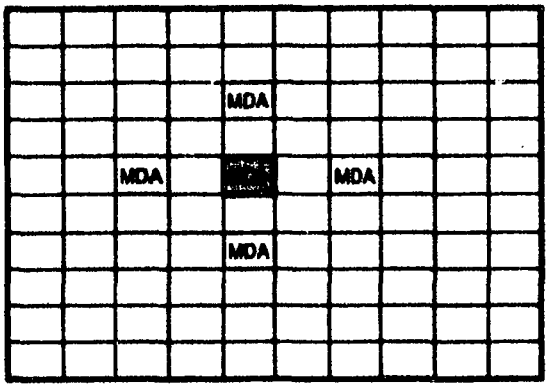


Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM NA
MDA NA

COMMENTS No removable contamination measurements - all total < 1000 dpm/100 cm^2.

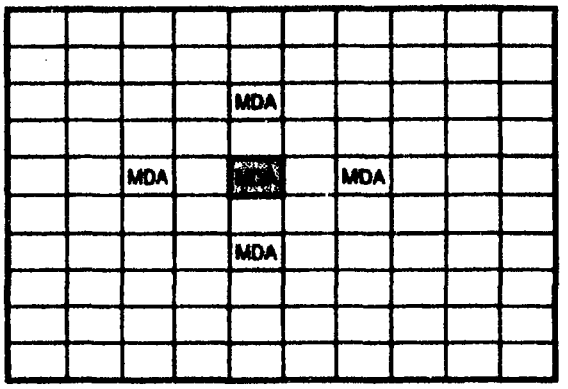
SUMP ID # 04-4D
SURVEY DATE 8/26/1995
TOTAL CONTAMINATION SURVEY



Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-68/2350
MDA 585 dpm/100 cm^2

SUMP ID # 04-4D
SURVEY DATE 8/26/1995
REMOVABLE CONTAMINATION SURVEY



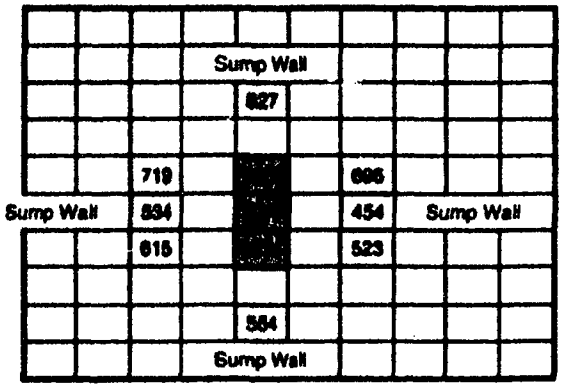
Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM NA
MDA NA

COMMENTS No removable contamination measurements - all total < 1000 dpm/100 cm^2.

Figure 4.5. SUMP 04-3D, 04-4D

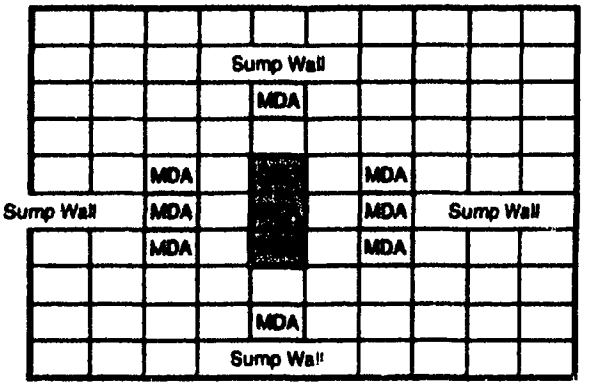
SUMP ID # 09-7F
SURVEY DATE 11/8/1995
TOTAL CONTAMINATION SURVEY



Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-68/2350
MDA dpm/100 cm^2
COMMENTS

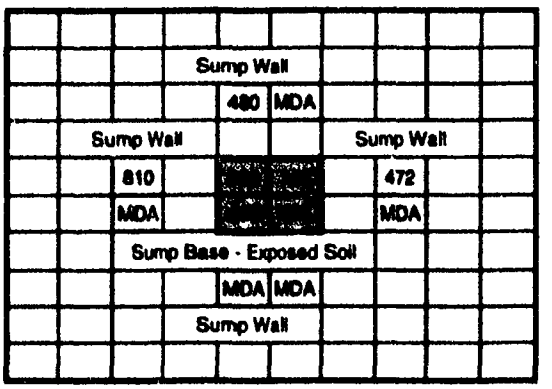
SUMP ID # 09-7F
SURVEY DATE 11/8/1995
REMOVABLE CONTAMINATION SURVEY



Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-10/1000
MDA 25 dpm/100 cm^2

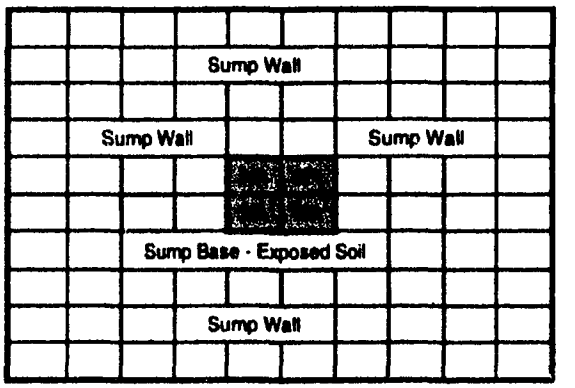
SUMP ID # 09-8F
SURVEY DATE 11/18/1995
TOTAL CONTAMINATION SURVEY



Designates Sump Floor Exposed Soil
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-68/2350
MDA 344 dpm/100 cm^2

SUMP ID # 09-8F
SURVEY DATE 11/18/1995
REMOVABLE CONTAMINATION SURVEY



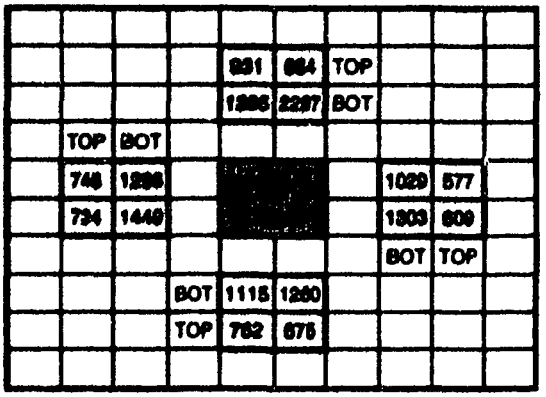
Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM NA
MDA NA

COMMENTS No removable contamination measurements - all total < 1000 dpm/100 cm^2.

Figure 4.6. SUMP 09-7F, 09-8F

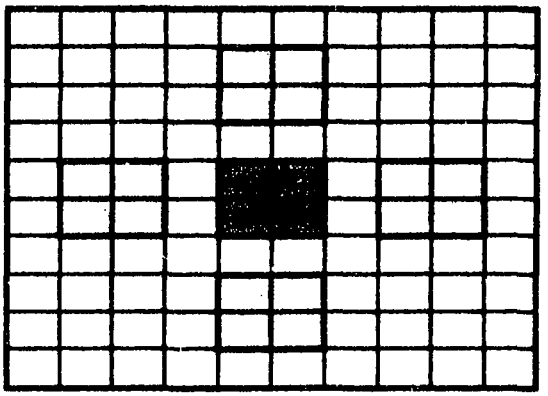
SUMP ID # 06-6D (EXTERIOR)
SURVEY DATE 1/4/1996
TOTAL CONTAMINATION SURVEY



Designates Sump Floor
Designates Sump Wall Survey Areas

DETECTION SYSTEM 43-68/2350
MDA 336 dpm/100 cm²

SUMP ID # 06-6D (EXTERIOR)
SURVEY DATE 1/4/1996
REMOVABLE CONTAMINATION SURVEY



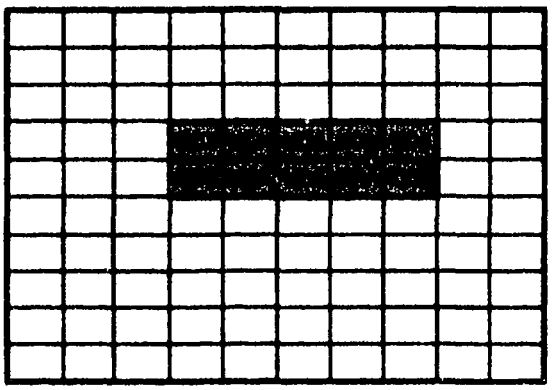
Designates Sump Floor Survey Areas
Designates Sump Wall Survey Areas

DETECTION SYSTEM NA
MDA NA

COMMENTS Survey of sump exterior after excavation. Site information indicates sump put into location after cessation of nuclear manufacturing activities.

Figure 4.7. SUMP 06-6D

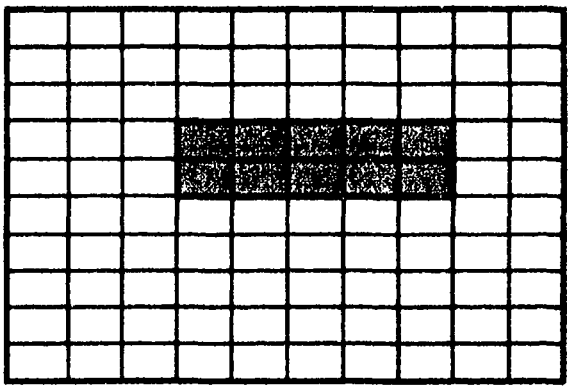
PAD ID # 05-6C
SURVEY DATE 1/12/1996
TOTAL CONTAMINATION SURVEY



Designates Pad Survey Areas

DETECTION SYSTEM 43-68/2350
MDA 299 dpm/100 cm²

PAD ID # 05-6C
SURVEY DATE 1/12/1996
REMOVABLE CONTAMINATION SURVEY



Designates Pad Survey Areas

DETECTION SYSTEM NA
MDA NA

COMMENTS Concrete background 516 cpm. No removable contamination measurements performed. All total readings approximately 1000 dpm/100 cm² or less.

Figure 4.8. PAD 05-6C

ATTACHMENT 5
BUILDINGS 4 AND 10 DRAINAGE SYSTEM DATA

ATTACHMENT 5
BUILDINGS 4 AND 10 DRAINAGE SYSTEM DATA

This attachment describes sections of the subsurface drainage system that were removed or decontaminated *in situ* during remediation activities in Buildings 4 and 10. Figures 5.1 and 5.2 illustrate the subsurface drainage system through affected areas of Buildings 4 and 10, respectively, prior to full-scale decontamination program implementation. No access or arterial lines were identified below the affected areas of Building 5. Where drain lines containing small quantities of uranium-contaminated residue were left in place, an estimate of the residual radioactive material inventory is presented. Where applied, *in-situ* decontamination techniques resulted in a reduction of in-line contamination levels. Due to the high moisture content associated with active lines and to the irregular inner pipe surfaces resulting from residue accumulation, surface contamination levels are not quantified. However, a significant amount of both surface and loose contamination was removed using a two-step process.

Drainage System Description

Buildings 4 and 10 drainage systems consist of 4-inch vitreous clay (VC) and 4-, 5-, and 6-inch cast iron (CI) lines referred to as arterial lines. These lines are located 2 to 3 feet (ft) below facility grade. The arterial lines, which typically run from north to south or south to north, usually flow into east-west lines of 6 to 12 inches in diameter (referred to as main lines). Floor penetrations or "cleanout" points (referred to as feeder lines) are typically 4 inches in diameter and may be encountered at various locations above the subsurface drainage system. Main lines are routed to a lift station, followed by discharge to a stream channel running from the facility.

Conversations with Texas Instruments Incorporated personnel indicated that VC lines accepted flow from floor drains, while the CI lines accepted flow from the roof drains. These personnel also indicated that there have been historical instances of "cross-routing" between these systems. The terms drain and line are used interchangeably.

Characterization and Prioritization

Prior to the full-scale remediation project, a comprehensive characterization of the subsurface drainage system was performed. Characterization results were used to designate three levels of drain line decontamination prioritization with respect to the volume and concentration of radioactive material. Priority 1 lines exhibited residue blockage greater than or equal to 10 percent and/or total uranium concentrations in excess of 1,000 picocuries per gram (pCi/g), and were identified for complete removal and disposal as radioactive waste.

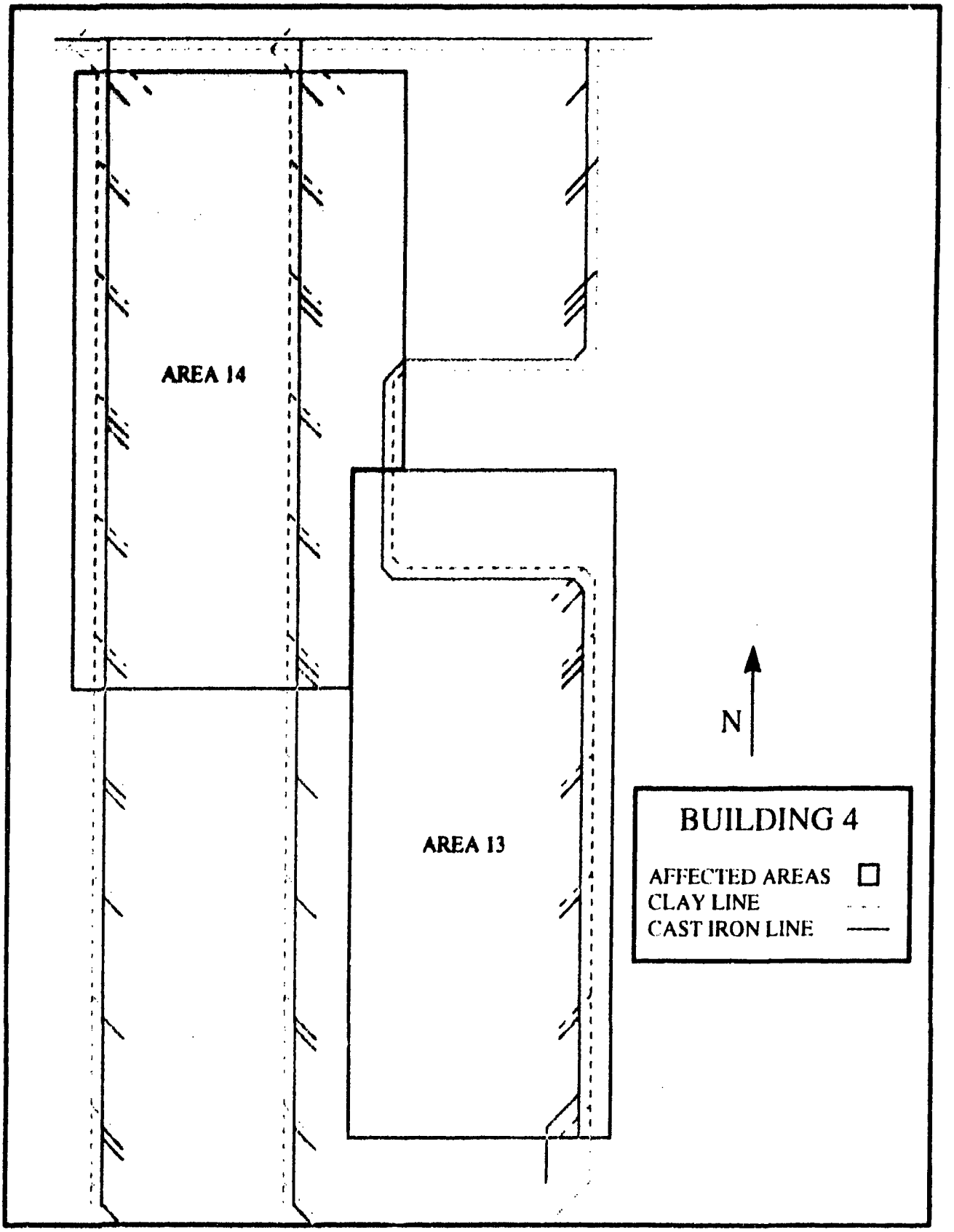


Figure 5.1. Building 4 Drainage System

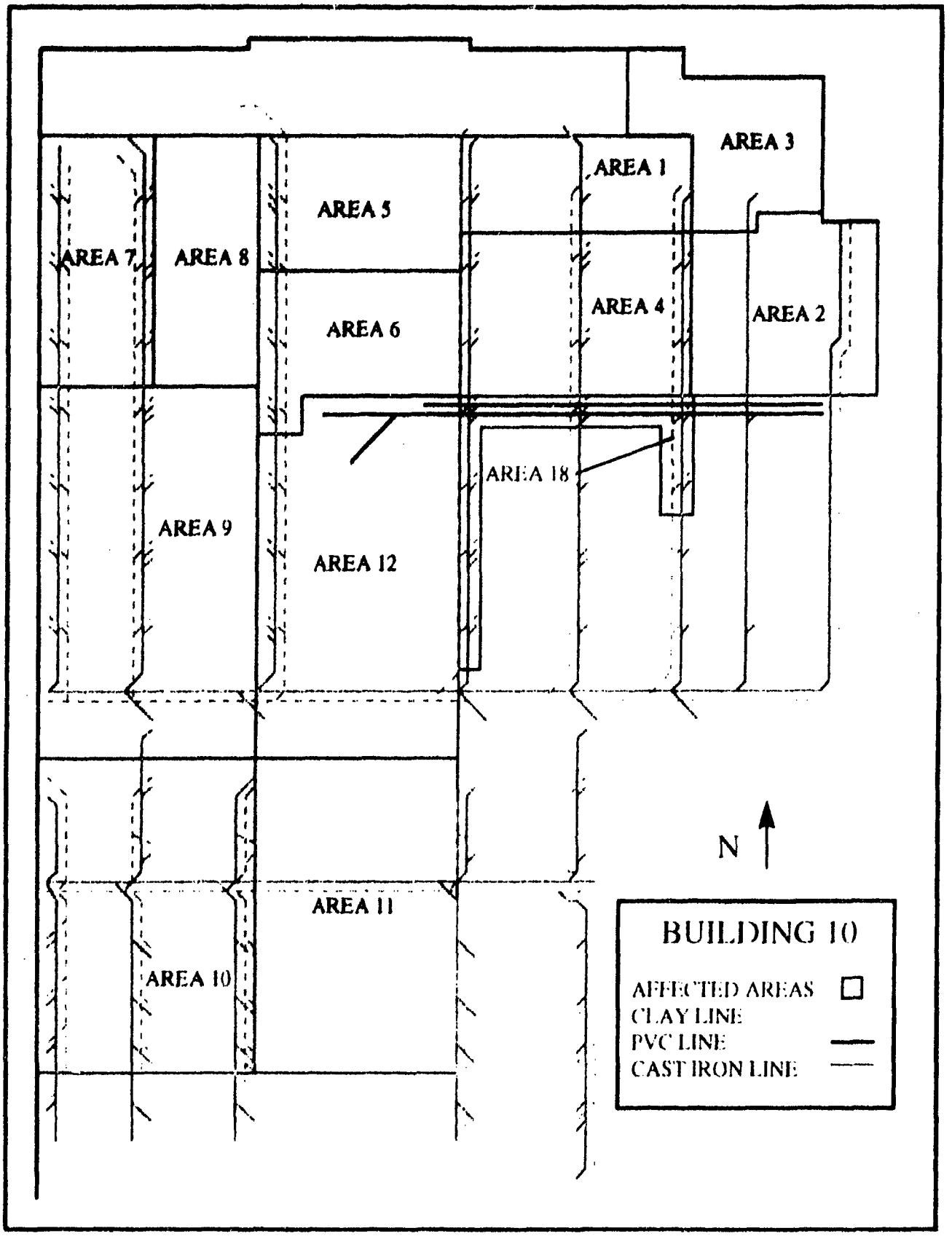


Figure 5.2. Building 10 Drainage System

Priority 2 lines exhibited residue blockage of less than 10 percent and/or total uranium concentrations of 500 to 1,000 pCi/g, and were subject to in-situ decontamination using hydrolasing techniques. If a drain line contained less than 5 percent blockage and/or a total uranium concentration in residue of less than 500 pCi/g, the line was designated as Priority 3 or no action.

Priority 1 Drain Line Removal

Priority 1 drain line removal was executed solely in Building 10, and resulted in the complete removal and disposal of approximately 520 linear feet (lf) of 4-inch VC drainage, 400 lf of CI drainage, and 360 lf of near-surface polyvinyl chloride (PVC) line. Drain line sections that were completely removed are illustrated on Figure 5.3. All cleanout or feed lines were removed along with these sections of drain lines.

Approximately 90 lf (70 lf during the pilot decontamination project) of near-surface recirculation piping was removed in conjunction with concrete slab decontamination. This recirculation piping had been left in place after large pieces of processing equipment were removed due to manufacturing requirement changes.

Priority 2 Drain Line Decontamination

Figure 5.4 presents sections of the Building 10 drainage system that, as Priority 2 lines, were subject to *in-situ* decontamination. The total Priority 2 drain line length was approximately 20 lf of 4-inch VC and 600 lf of 4-5-inch CI. Figure 5.4 designates sections of line that are represented by a discrete residue sample analyzed for total and isotopic uranium. These sections are the basis of analysis presented in Table 5.1. Table 5.1 applies a mass dilution factor (MDF)[1] to isotopic uranium concentrations representing the section of line. From this, the isotopic activity concentration per unit length of pipe is calculated, given the percentage of residue accumulation. As the residue accumulation decreases to an infinitesimal layer having no volume, the MDF and adjusted mass concentrations approach zero.

Table 5.1. Priority 2 Drain Bulk Contamination Levels Prior to Decontamination

Section of Line from Figure 5.4	Type	Length (ft)	Uranium Isotope	Concentration (pCi/g)	MDF	Adjusted Mass Concentration (pCi/g)
1	VC	160	U-234	795	0.08	64
			U-235	36	0.08	3
			U-238	61	0.08	5
2	VC	25	U-234	467	0.08	37
			U-235	21	0.08	2
			U-238	65	0.08	5
3	CI/VC	150 (ea)	U-234	437	0.09	39
			U-235	21	0.09	2
			U-238	43	0.09	4
4	CI	150	U-234	444	0.16	71
			U-235	30	0.16	5
			U-238	33	0.16	5

[1] The MDF is based upon the density and volume of residue and the thickness and density of CI and VC line matrices.

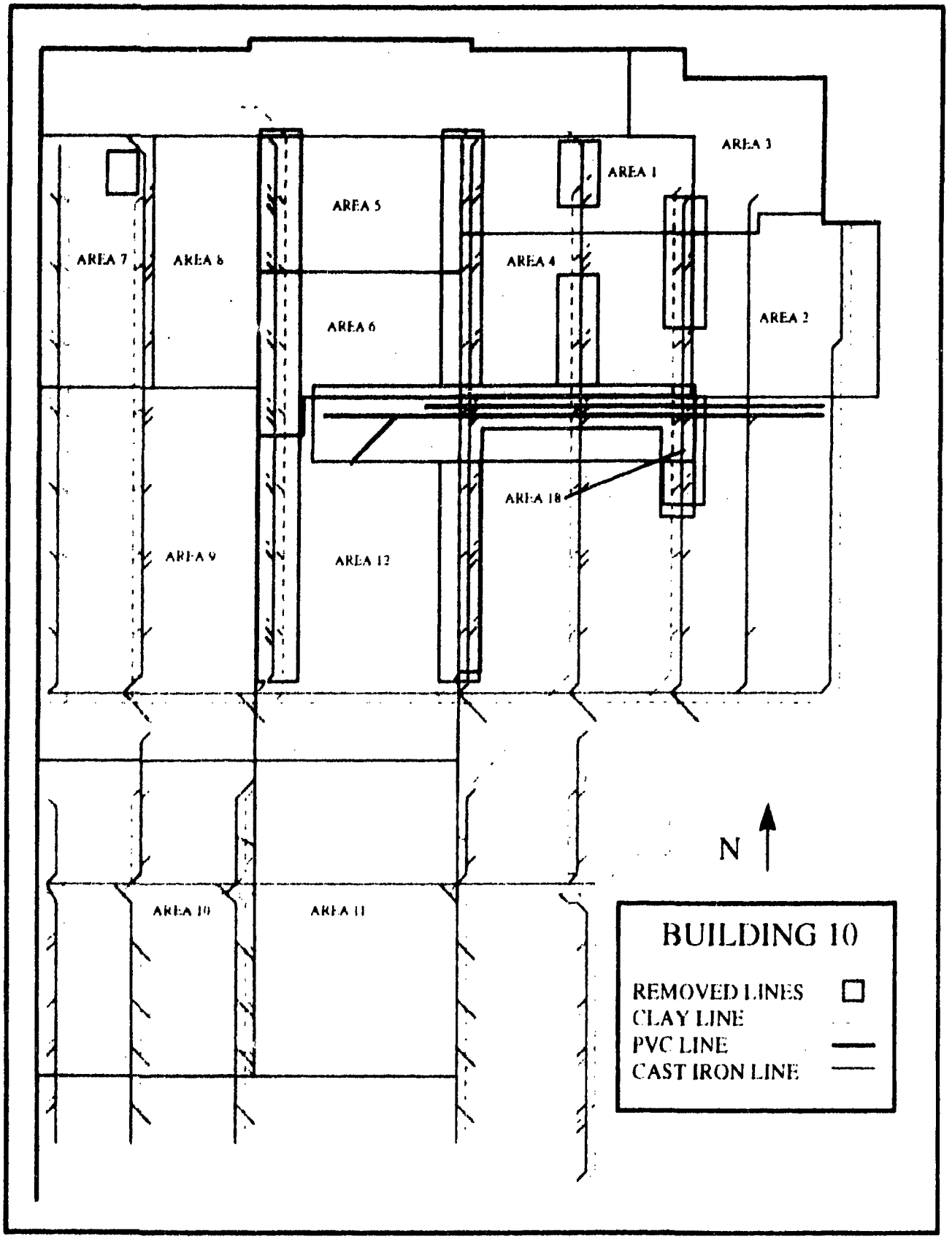


Figure 5.3. Priority 1 Drain Lines Subject to Total Removal

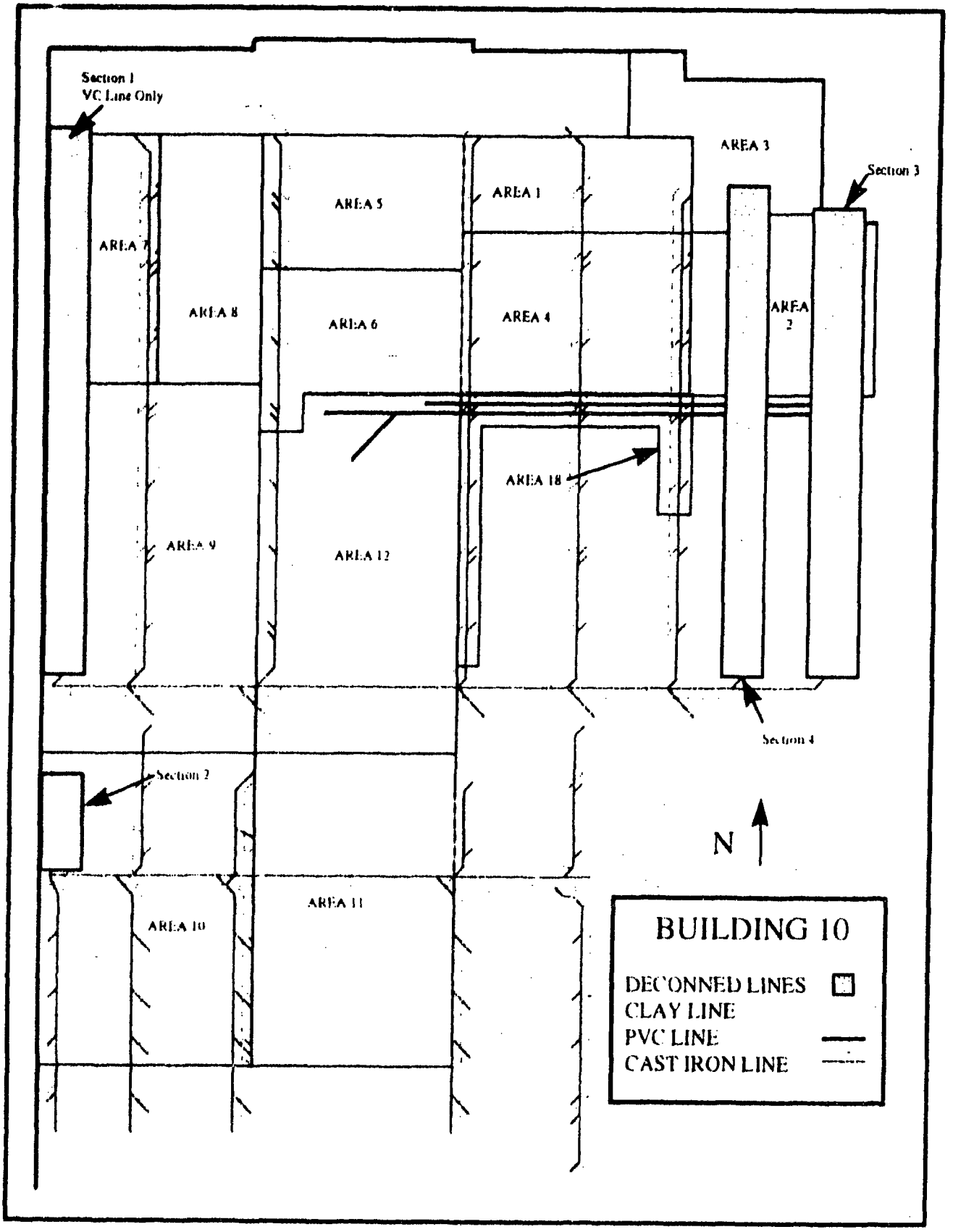


Figure 5.4. Priority 2 Drain Lines Subject to *In-Situ* Decontamination

Although, on an adjusted mass basis, the total uranium concentrations were only slightly above the bulk release criterion of 30 pCi/g (ranging from 44 to 81 pCi/g), a two-step decontamination process was implemented. The initial step included removal of loose bulk material from the line using a specially designed vacuum. Once the loose material and water were removed from the line, a hydrolaser was used to remove fixed-surface contamination. The contaminated material was removed from the line and sampled at the lift station. Finally, a video camera was sent through the decontaminated pipes to document the absence of potentially contaminated debris. Table 5.2 presents the analytical results of the debris removed from the pipes. The video tapes will be made available for review upon request.

Table 5.2. Bulk Material Removed from Priority 2 Drain Lines

Section of Line from Figure 5.4	Type	Length (ft)	Material Sampled	Uranium Isotope	Concentration (pCi/g)
1 & 3	VC	310	Sediment	U-234 U-235 U-238	3345.00 235.10 151.50
3 & 4	CI	300	Sediment	U-234 U-235 U-238	342.60 12.74 22.56
1 & 3	VC	310	Sediment, debris	U-234 U-235 U-238	1522.00 39.26 19.81
3 & 4	CI	300	Sediment, debris, scale, rust	U-234 U-235 U-238	1764.00 75.66 24.62

Analytical data from sediment and debris samples confirm that the decontamination techniques were effective in removing contamination as identified during drainline characterization.

Residual Inventory Assessment

Priority 1 lines that were completely removed and Priority 2 lines that were decontaminated are assumed not to contribute residual activity to the drainage system inventory. Priority 3 lines contribute a minor isotopic activity and are highlighted in Figure 5.5. Table 5.3 presents the isotopic uranium inventory in each designated pipe section, based on the mass and volume of residue.

It should be noted that application of the MDF (typically 0.08 to 0.2) results in bulk contamination levels less than 30 pCi/g total uranium. Based upon the residual activity estimate for each Priority 3 line described in Table 5.3, the total residual inventories are uranium-234: 0.03 millicuries (mCi); uranium-235: 0.002 mCi; and uranium-238: 0.008 mCi.

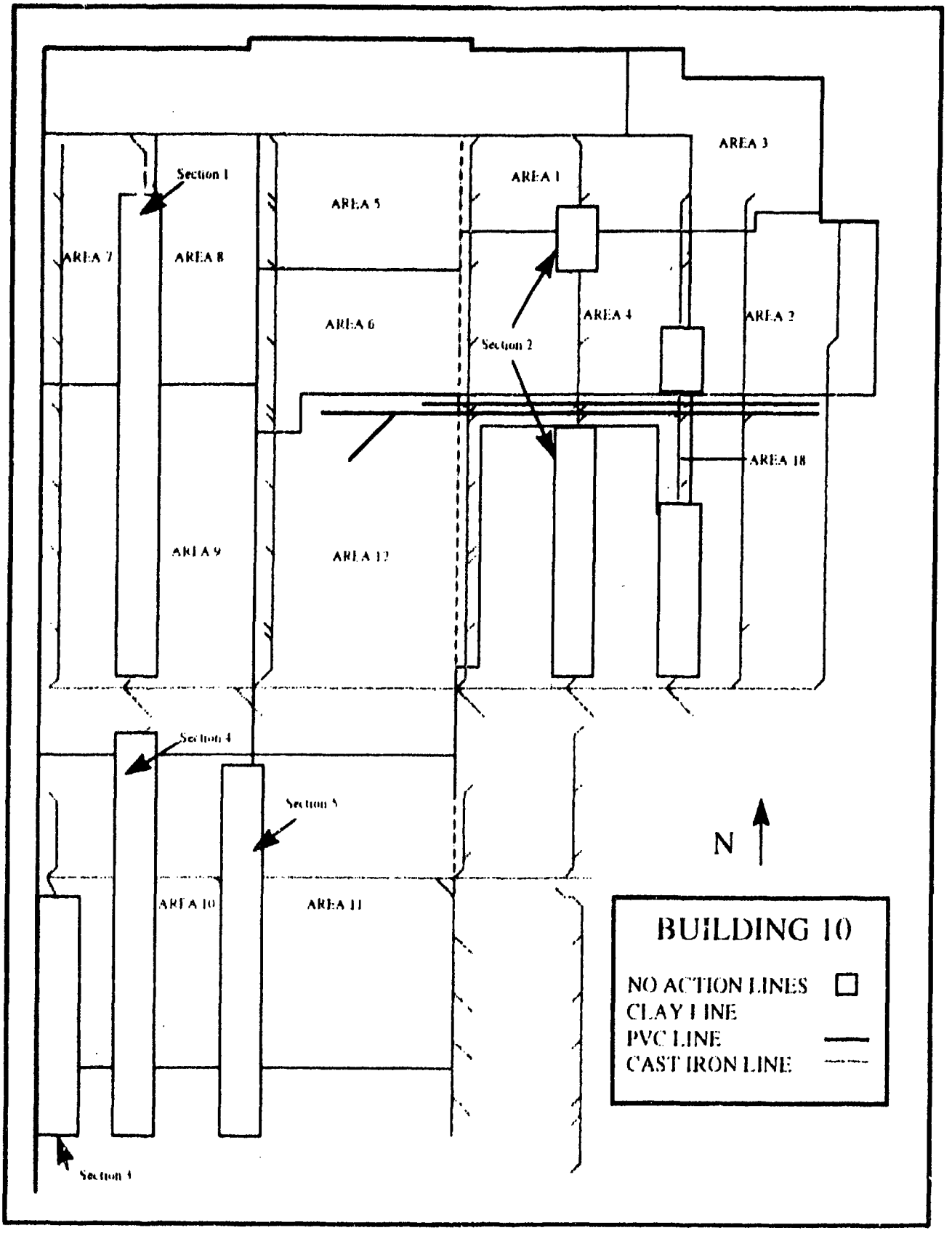


Figure 5.5. Priority 3 (No Action) Drain Lines

Table 5.3. Residual Radioactivity Inventory of Priority 3 Lines

Section Number	Type of Line (pipe)	Diameter (inch)	Length (feet)	Diameter (cm)	Length (cm)	Volume (cm^3)	Discharge	Volume Built Up	U-235 Conc. (pCi/g)	Activity U-235 (uCi)	Mass Conc. (g/kg)	Activity TCE (uCi)	Activity Th-232 (uCi)	Activity TCE (uCi)
1	VC	4	150	10.16	4572	370868	0.1	37087	5.4	3.2E-04	127.5	7.6E-03	23.8	1.4E-03
	CI	4	60	10.16	1829	148267	0.1	14827	0.84	2.0E-05	18.5	4.4E-04	34.9	8.3E-04
		5	20	12.7	609.6	77222	0.1	7722	0.84	1.0E-05	18.5	2.3E-04	34.9	4.3E-04
		6	40	15.24	1219	222401	0.1	22240	0.84	3.0E-05	18.5	6.6E-04	34.9	1.2E-03
		8	30	20.32	914.4	296534	0.1	29653	0.84	4.0E-05	18.5	8.8E-04	34.9	1.7E-03
2	CI	4	20	10.15	609.6	49422	0.05	2471	16.5	6.5E-05	400.8	1.6E-03	19.8	7.8E-05
	CI	5	60	12.7	1829	231667	0.05	11583	16.5	3.1E-04	400.8	7.4E-03	19.8	3.7E-04
	CI	6	10	15.24	304.8	55600	0.05	2780	16.5	7.3E-05	400.8	1.8E-03	19.8	8.8E-05
	VC (ASSUME)	4	90	10.16	2743	222401	0.05	11120	16.5	2.9E-04	400.8	7.1E-03	19.8	3.5E-04
Undefined	CI	4	90	10.16	2743	222401	0.05	11120	0.8	1.4E-05	10.5	1.9E-04	2.8	5.0E-05
	VC (ASSUME)	4	90	10.16	2743	222401	0.05	11120	0.8	1.4E-05	10.5	1.9E-04	2.8	5.0E-05
3	VC	4	70	10.16	2134	172978	0.075	12973	13	2.7E-04	2	4.2E-05	13	2.7E-04
	CI	4	70	10.16	2134	172978	0.075	12973	1.8	3.7E-05	2	4.2E-05	1.8	3.7E-05
4	VC	4	100	10.16	3048	247112	0.075	18533	13	3.9E-04	2	5.9E-05	13	3.9E-04
	CI	4	100	10.16	3048	247112	0.075	18533	1.8	5.3E-05	2	5.9E-05	1.8	5.3E-05
5	VC	4	100	10.16	3048	247112	0.05	12356	1.4	2.8E-05	41	8.1E-04	6.6	1.3E-04
	CI	5	35	12.7	1067	135129	0.05	6757	2.6	2.8E-05	13	1.4E-04	2.9	3.1E-05
	CI	6	65	15.24	1981	261401	0.05	18070	2.6	7.5E-05	13	3.8E-04	2.9	8.4E-05

TOTAL	2.1E-03		3.0E-02	7.5E-03

ATTACHMENT 6
RESIDUAL ACTIVITY INVENTORY

ATTACHMENT 6
RESIDUAL ACTIVITY INVENTORY

This attachment describes the few isolated areas associated with the Building Interiors Remediation Project that exhibit residual contamination levels in excess of the site cleanup criteria identified in the supplement to the 1992 Remediation plan. These areas are under or adjacent to vital facility utilities and structures, such as structural element footings and heavy equipment. They could not be decontaminated without incurring a large expense that would have been disproportionate to the small amount of contamination present.

Figure 6.1. shows the locations of the eight residual contamination areas, all of which are in Building 10. There are no residual contamination areas in Buildings 4 and 5. Table 6.1 identifies each of the eight areas, with the associated soil mass and uranium activity.

Table 6.1. Residual Contamination Feature Characteristics

Feature Description	Map Item Number	Type of Residual Contamination	Approximate Soil Mass (kg)	Associated Uranium Activity (nCi)
Column Footing SSE of Substation 10-1	3	Bulk Soil	4,080	0.9
Column Footing ESE of Substation 10-1	4	Bulk Soil	10,800	2.4
Beckhart Wire Drawing Machine Rollers	6	Bulk Sediment	740	0.02
M-125 Machine - Expansion Joints	7	Surface - In Expansion Joint	Negligible	Negligible - Surface Contamination
Structural Column Footing - West Side Area 4	8	Surface	Negligible	Negligible - Surface Contamination
Structural Column Footing - Central Area 4	9	Surface, Bulk Expansion Material	120	0.035
Structural Column Footing - South Side Area 4	10	Surface	Negligible	Negligible - Surface Contamination
Deep Soil Foundation Area 18	11	Bulk Soil	11,900	0.04

Note; Map Items 1, 2, and 5 were removed during supplemental work in performed September 1996.

Figures 6.2 to 6.9 provide more information about each of the residual contamination areas (Map Items 1 to 9). Each figure includes a diagram of estimated dimensions and location relative to utilities and structural elements and the estimated residual inventory for each uranium isotope.

Volumes of residual material left were estimated using excavation data (i.e., depth and thickness of contamination) acquired during decontamination and excavation building layout. Knowledge of how various features aid or inhibit the transport of contaminated materials (e.g., drainpipes aiding the movement of material) were also used in volume development. Volume estimates for each feature can be found in Figures 6.2 to 6.9.

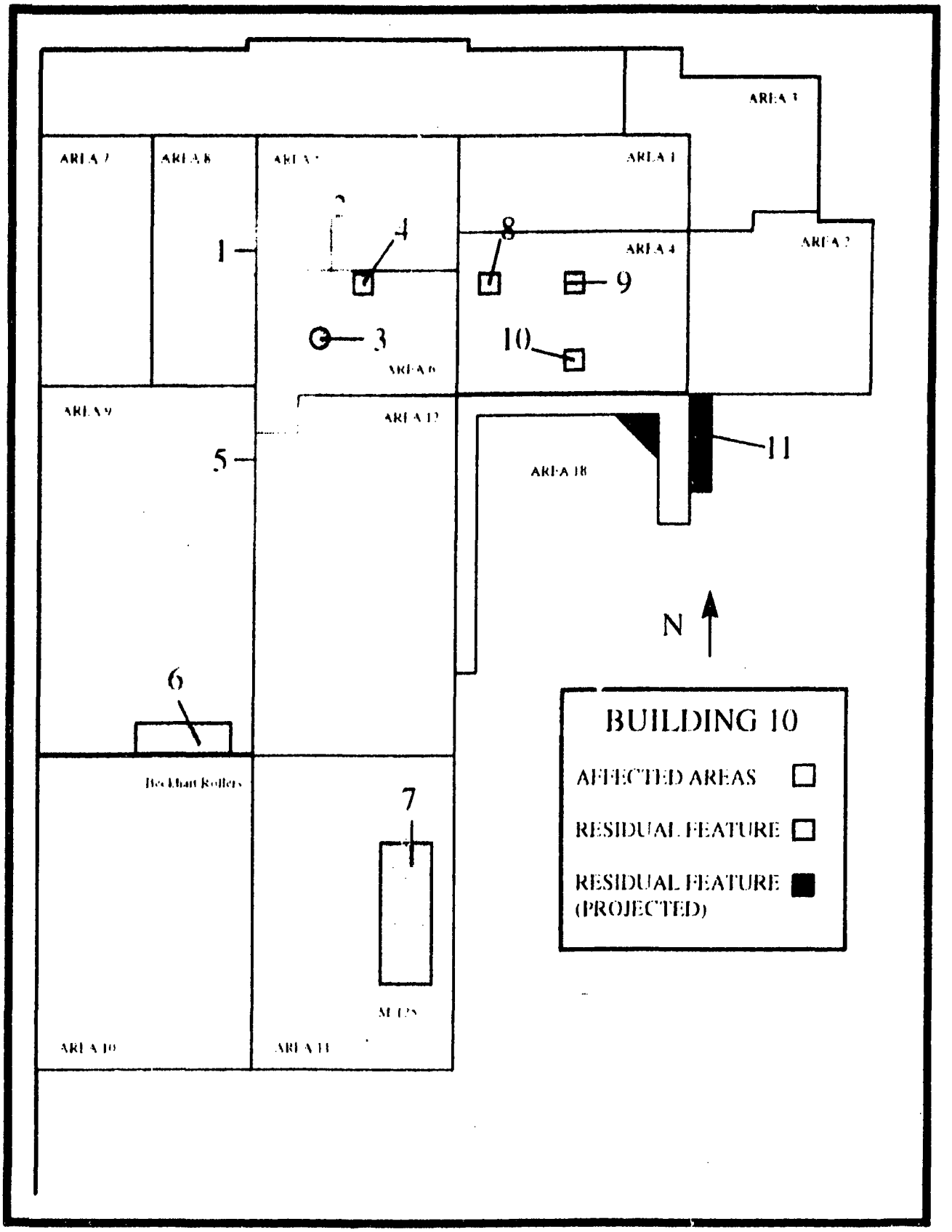


Figure 6.1. Residual Radioactive Material Areas - Building 10

Texas Instruments: Attleboro, Building Remediation

Building #	10

Summary Map Item #	3

Grid #	6D

Feature Description:	Column footing south, south, east of sub station 10-1. Feature is a footing for a structural column in Building 10. Material was left in place under and around the footing, from 1 to 1.6 meters

Average Surface Contamination Levels (dpm/100cm^2)		
Feature	none	dpm/100 cm^2
Feature		dpm/100 cm^2
Feature		dpm/100 cm^2

Samples Collected:		Activity (pCi/g)		
Sample ID #	Sample Description	U-234	U-235	U-238
0104-06-6C-BSS	Under Sub Station	133	5.47	84.9

Estimated Residual Soil Volume	3.37 (m^3)
Estimated Residual Soil Mass	4.08E+06 (g)

Residual Activity:	Uranium-234	0.542632907(mCi)
	Uranium-235	0.022317308(mCi)
	Uranium-238	0.346387472(mCi)

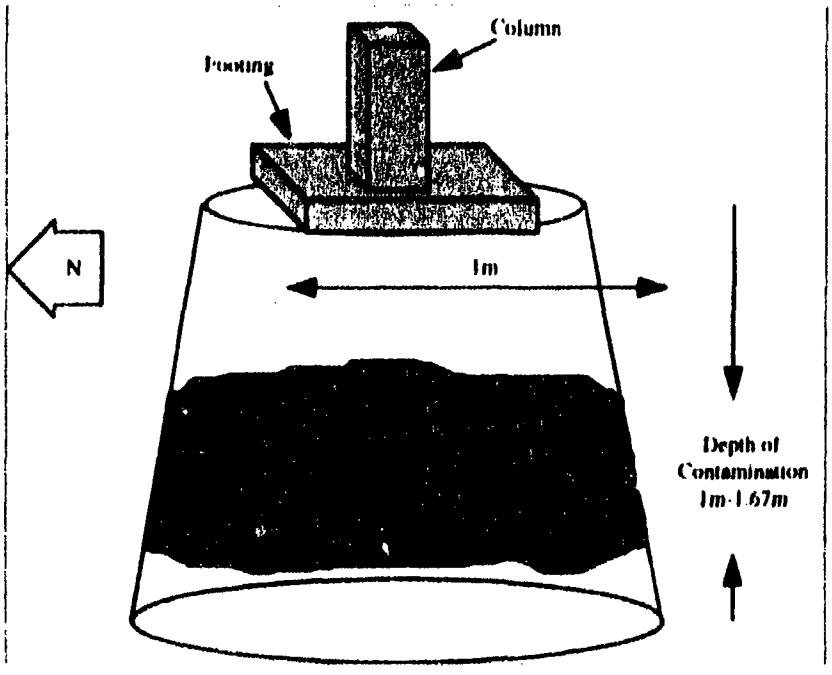


Figure 6.2. Summary Map Item 3

Texas Instruments: Attleboro, Building Remediation

Building #	10

Summary Map Item #	4

Grid #	5C

Feature Description:	Column footing east, south, east of sub station 10-1. Feature is a footing for a structural column in Building 10. Material was left in place under and around the footing, from 1 to 1.6 meters. North substation sample used as representative sample.

Average Surface Contamination Levels (dpm/100cm^2)		
Feature	none	dpm/100 cm^2
Feature		dpm/100 cm^2
Feature		dpm/100 cm^2

Samples Collected:		Activity (pCi/g)		
Sample ID #	Sample Description	U-234	U-235	U-238
0104-06-6C-BSS	Under Sub Station	133	5.47	84.9

Estimated Residual Soil Volume	8.9 (m^3)
Estimated Residual Soil Mass	1.08E+07(g)

Residual Activity:	Uranium-234	1.433066133	(mCi)
	Uranium-235	0.058938885	(mCi)
	Uranium-238	0.91479184	(mCi)

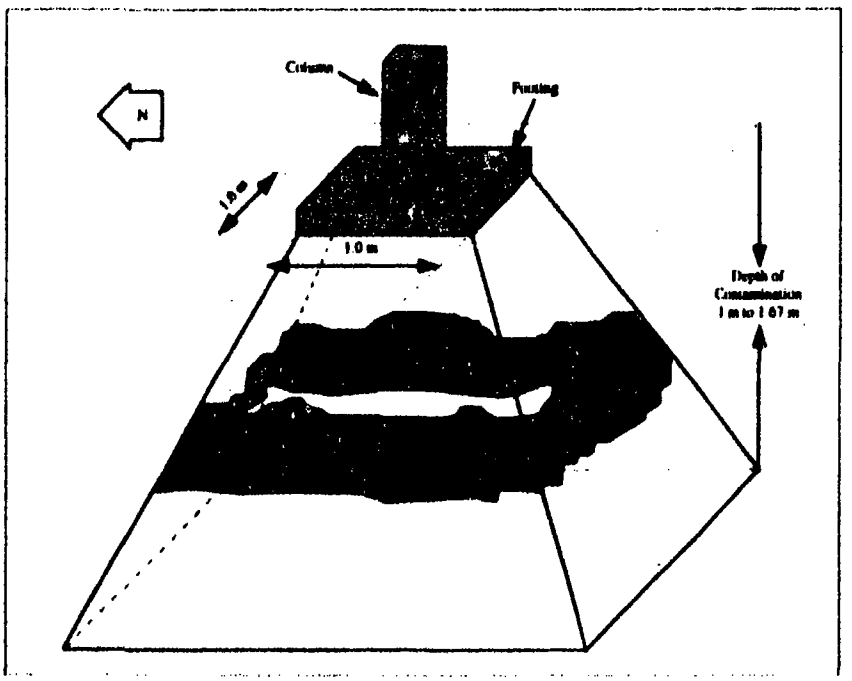


Figure 6.3. Summary Map Item 4

Texas Instruments: Attleboro, Building Remediation

Building #	10

Summary Map Item #	6

Grid #	6/7,F/G

Feature Description:	Beckhart Wire Drawing Machine. Feature is a large piece of machinery, which, due to its size and near constant use, was not movable. Material was left in place in concrete trench, under wire spool roller system. Trench runs from a depth of 1.3m at the east end, to 2m at the west end and is roughly 25m long. Radioactive residue was removed from the trench except for spaces under a pipe (see figures) situated in the bottom of the trench. Internal pipe surfaces were not contaminated.

Average Surface Contamination Levels (dpm/100cm^2)		
Feature	none	dpm/100 cm^2
Feature		dpm/100 cm^2
Feature		dpm/100 cm^2

Samples Collected:		Activity (pCi/g)		
Sample ID #	Sample Description	U-234	U-235	U-238
1121-09-7G-BSS	Trench East (of w. leg)	32.1	1.13	7.89
1121-09-8G-BSS	Trench West (of w. leg)	16.4	0.535	5.05
1130-12-5G-BSS	Trench East (of e. leg)	46	2.05	3.92
1130-12-5G-BSS	Trench West (of e. leg)	10.7	0.505	2.29
Mean		26.3	1.055	4.7875

Estimated Residual Soil Volume	0.612 (m^3)
Estimated Residual Soil Mass	7.41E+05 (g)

Residual Activity:	Uranium-234	0.01948641 (mCi)
	Uranium-235	0.00078168 (mCi)
	Uranium-238	0.00354719 (mCi)

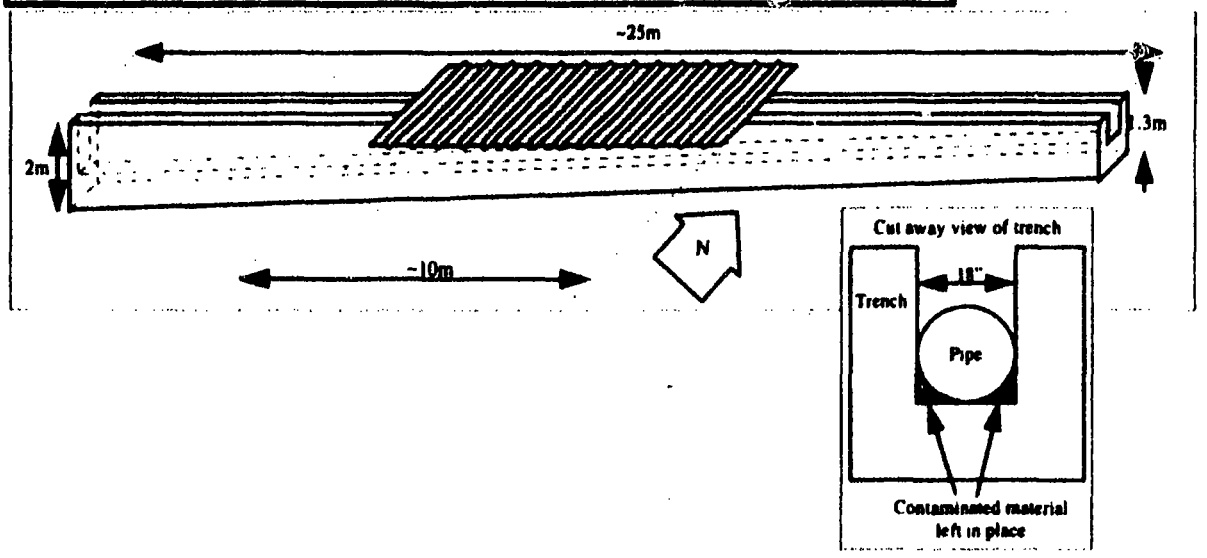


Figure 6.4. Summary Map Item 6

Texas Instruments: Attleboro, Building Remediation

Building #	10	Summary Map Item #	7

Grid #	5G/H

Feature Description:	M-125 Wire Drawing Machine. Feature is a large piece of machinery, which, due to its size and near constant use, was not movable. Isolated contamination, in a crack in the concrete floor ran up to and under the west side of the machine. No laboratory samples were collected however surface readings and swipes suggested that the contamination was very isolated. All swipes and surface readings other than those listed below, were less than MDA.

Average Surface Contamination Levels (dpm/100cm^2)

Location #	Feature	Level	Fixed, Removable, Total	Alpha, Beta, or Gamma
1	Concrete edge	51	R	A
1	Concrete edge	6450	T	B,G
1	Concrete edge (after decon)	24	R	A
2	Concrete edge, SE of M-125	29	R	A

Samples Collected:		Activity (pCi/g)		
Sample ID #	Sample Description	U-234	U-235	U-238
None				

Estimated Residual Soil Volume	~0	(m^3)
Estimated Residual Soil Mass	~0	(g)

Residual Activity:	Uranium-234	~0	(mCi)
	Uranium-235	~0	(mCi)
	Uranium-238	~0	(mCi)

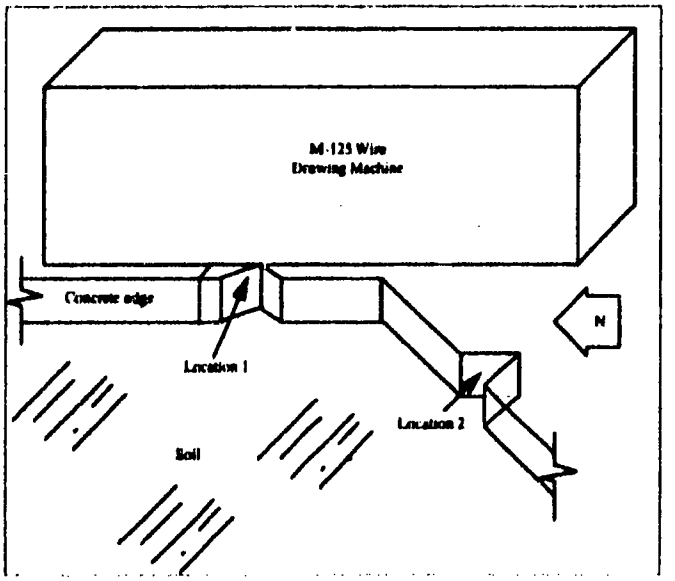


Figure 6.5. Summary Map Item 7

Texas Instruments: Attleboro, Building Remediation

Building #	10

Summary Map Item #	8

Grid #	4C

Feature Description:	Building 10 structural column footing on west side of area 4. Surface contamination was left in place on the footing. Footing in not subject to random inadvertent contact, and material is not considered to add substantially to material left in place.

Average Surface Contamination Levels (dpm/100cm^2)		
Feature:	South Face	30000 dpm/100 cm^2
		dpm/100 cm^2
		dpm/100 cm^2

Samples Collected:		Activity (pCi/g)		
Sample ID #	Sample Description	U-234	U-235	U-238
N/A				

Estimated Residual Soil Volume	0	(m^3)
Estimated Residual Soil Mass	0.00E+00	(g)

Residual Activity:		
	Uranium-234	0 (mCi)
	Uranium-235	0 (mCi)
	Uranium-238	0 (mCi)

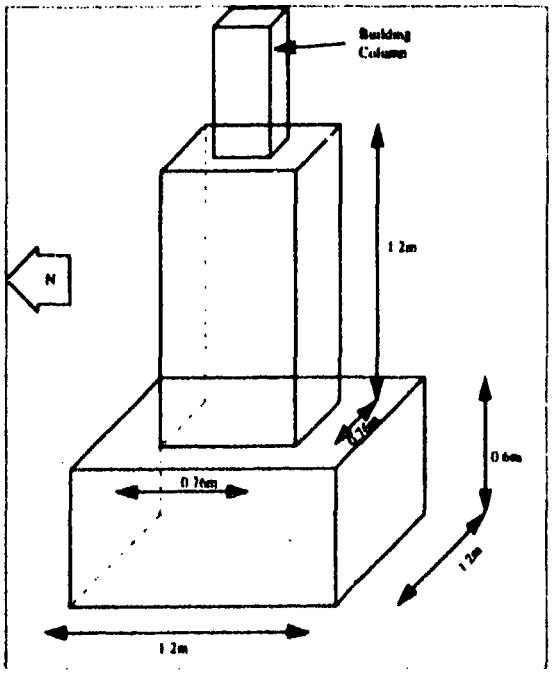


Figure 6.6. Summary Map Item 8

Texas Instruments: Attleboro, Building Remediation

Building # 10	Summary Map Item # 9
Grid # 3C	

Feature Description:	Building 10 structural column footing in central, area 4. Surface contamination was left in place on the footing. Small amount of residue from expansion joint had fallen in sump / footing interface.

Average Surface Contamination Levels (dpm/100cm^2)		
Feature:	South Face	10000 dpm/100 cm^2
		dpm/100 cm^2
		dpm/100 cm^2

Samples Collected:		Activity (pCi/g)		
Sample ID #	Sample Description	U-234	U-235	U-238
0712-04-3C-BC-00	Biased Soil	83.5	5	203

Estimated Residual Soil Volume	0.1 (m^3)
Estimated Residual Soil Mass	1.21E+05 (g)

Residual Activity:	Uranium-234	0.010109067 (mCi)
	Uranium-235	0.000605333 (mCi)
	Uranium-238	0.024576533 (mCi)

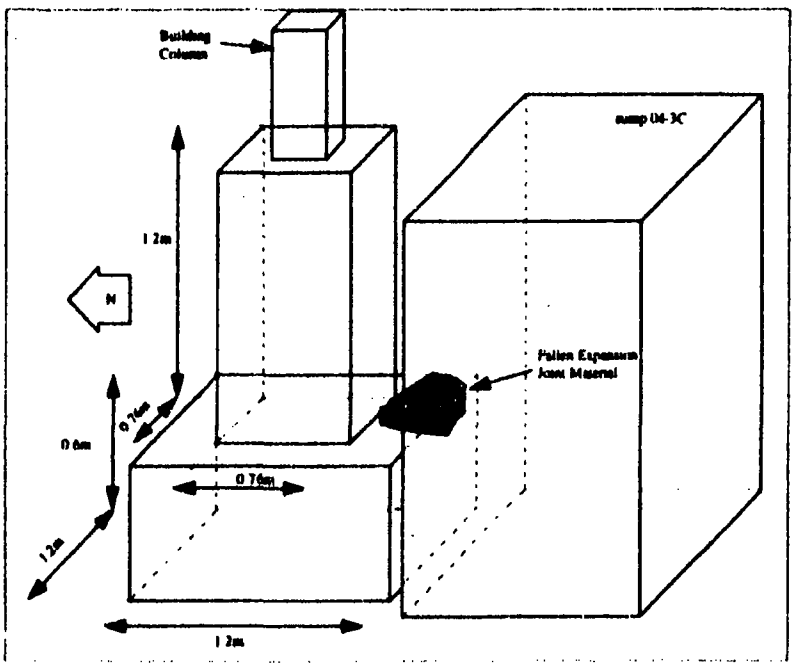


Figure 6.7. Summary Map Item 9

Texas Instruments: Attleboro, Building Remediation

Building #	10

Summary Map Item #	10

Grid #	3D

Feature Description:	Building 10 structural column footing on south side of area 4. Surface contamination was left in place on the footing. Footing in not subject to random inadvertent contact, and material is not considered to add substantially to material left in place.

Average Surface Contamination Levels (dpm/100cm^2)		
Feature:	South Face	10000 dpm/100 cm^2
	West Face	20000 dpm/100 cm^2
		dpm/100 cm^2

Samples Collected:		Activity (pCi/g)		
Sample ID #	Sample Description	U-234	U-235	U-238
N/A				

Estimated Residual Soil Volume	0 (m^3)
Estimated Residual Soil Mass	0.00E+00 (g)

Residual Activity:	Uranium-234	0 (mCi)
	Uranium-235	0 (mCi)
	Uranium-238	0 (mCi)

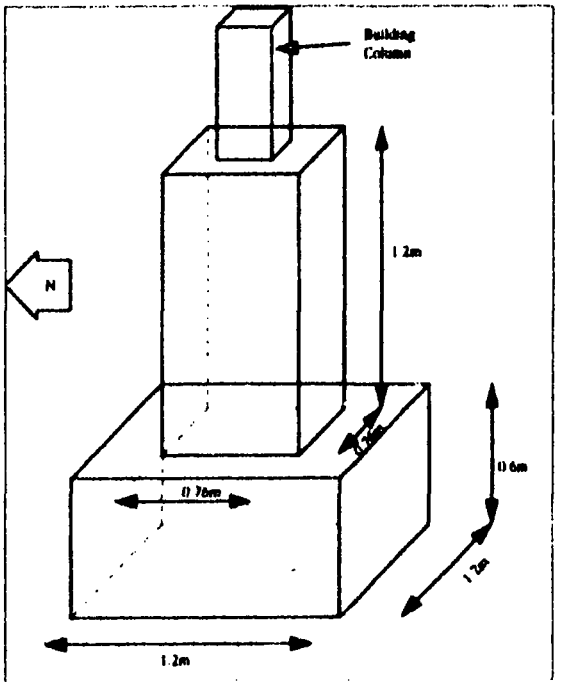


Figure 6.8. Summary Map Item 10

Texas Instruments: Attleboro, Building Remediation

Building #	10

Summary Map Item #	11

Grid #	3D/E

Feature Description:	Sub-foundations. Feature is sub-foundations in Building 10. Material was left in place for support along about 20 m of sub-foundation. Calculations of material left in place include only those left to support subfoundations, and not possible materials under the foundations themselves.

Average Surface Contamination Levels (dpm/100cm^2)		
Feature	none	dpm/100 cm^2
Feature		dpm/100 cm^2
Feature		dpm/100 cm^2

Samples Collected:		Activity (pCi/g)		
Sample ID #	Sample Description	U-234	U-235	U-238
0219-18-3D-SS	04-06-00	2.67	0.114	0.872
0219-18-3E-SS	04-06-00	212	8.15	3.19
0220-18-3D-SS	03-06-00	2.72	0.235	1.09
MEAN		72.46	2.83	1.72

Estimated Residual Soil Volume	9.8 (m^3)
Estimated Residual Soil Mass	1.19E+07 (g)

Residual Activity:	Uranium-234	0.031678304 (mCi)
	Uranium-235	0.001352557 (mCi)
	Uranium-238	0.010345873 (mCi)

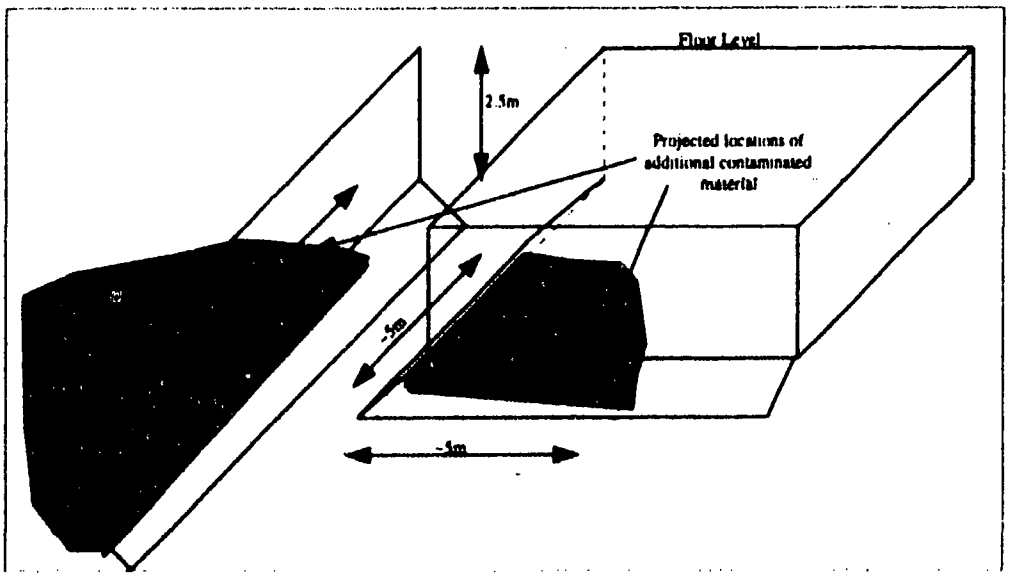


Figure 6.9. Summary Map Item 11

Masses of contaminated material were calculated using the estimated volumes, as mentioned above, and an estimated density for soil of 1.67 tons per cubic yard, which is equivalent to 119,748 grams per cubic meter. Contaminated materials were assumed to be homogenous throughout the estimated volume. Isotopic uranium activities were applied from samples collected in or near a specific feature. Volume and isotopic uranium activity (for features with bulk residual contamination) were combined to derive the isotopic uranium inventory in millicuries (mCi).

The total residual inventories associated with the 8 features summarized in this attachment are estimated as uranium-234: 2.0mCi; uranium-235: 0.08mCi; and uranium-238: 1.3mCi.

ATTACHMENT 7
BUILDING INTERIORS REMEDIATION WASTE SHIPPING SUMMARY

ATTACHMENT 7
BUILDING INTERIOR REMEDIATION WASTE SHIPPING SUMMARY

Waste packaging and shipping activities associated with the Building Interiors Remediation Project were performed from August 1995 through October 1996. Waste was placed into intermodal shipping containers (IMCs) for transport to the EnviroCare of Utah, Inc., facility in Clive, Utah. The IMCs were loaded onto railcars for offsite transport (a maximum of six per car). In addition to the rail shipments, truck shipments of an additional 1200 ft^3 of waste were executed in October 1996. A variety of waste streams was transported during the project. These waste streams consisted of concrete, soil, roof debris, drainage debris and other building materials.

The contents of each IMC was weighed prior to rail-car loading. Isotopic uranium sample data were reviewed for applicability to each container and, if found representative, entered into a spreadsheet to calculate the isotopic uranium inventory in millicuries (mCi). The specific activities of uranium-235 and of the uranium-235 sample concentration were applied to the IMC weight to calculate the mass of uranium-235 in each IMC. Each group of IMCs placed on a flatcar was managed so that the uranium-235 mass did not exceed 350 grams (g). This process required mixing of higher activity building interior waste with lower-activity exterior soils.

Table 7.1 presents a summary of the IMCs and associated rail cars used to transport building interior waste. The weight of interior waste in each IMC is also presented; the total interior waste weight is estimated at 2,000 tons. Based upon representative sample concentrations, the isotopic uranium activities in each box are calculated. Total isotopic uranium activities shipped during the project were uranium-234: 242 mCi; uranium-235: 10 mCi; and uranium-238: 31 mCi. The total uranium-235 mass associated with all building interior waste is 4,462 g (4.5 kilograms).

Eighteen IMCs (shaded in Table 7.1) contained a significant mass of exterior soils that was used for mixing. However, approximately 90 percent of the total radioactivity within each IMC is attributable to the interior waste component. It is conservatively assumed that all IMC activity is attributed to the building interior waste.

Table 7.1. Building Interiors Remo[illegible]on Project Waste Shipping Summary (page 1 of 3)

Rail Car #	BIC #	Weight (tons)	[illegible] Activity (mCi)	U-235 Activity (mCi)	U-238 Activity (mCi)	Shipped Mass (g U-235)
0047	00310	19.46	0.23	0.01	0.03	5.18
0019	01926	21.05	0.25	0.01	0.03	5.61
	01654	24.42	0.29	0.01	0.04	6.5
	03003	24.42	0.29	0.01	0.04	6.5
0022	100002	17.09	0.2	0.01	0.03	4.55
	200016	17.75	0.21	0.01	0.03	4.73
0010	05650	8.53	0.064	0.002	0.034	0.92
0047	08089	8.76	0.066	0.002	0.035	0.95
0009	U25-136	32.03	0.86	0.03	0.02	12.19
0059	20001	28.72	0.44	0.02	0.19	8.61
0074	01891	22.47	0.74	0.02	0.02	10.51
0029	01735	25.91	0.4	0.02	0.017	7.76
0082	01063	15.01	0.01	0.001	0.76	0.39
0019	02882	13.47	0.01	0.001	0.69	0.35
0001	05032	8.92	0.808	0.037	0.426	16.76
0050	07884	20.85	2.439	0.115	0.548	52.63
	06487	21.09	2.467	0.116	0.554	53.24
	07966	19.92	2.33	0.11	0.523	50.29
	06213	21.8	2.55	0.12	0.573	55.03
	10620	21.26	1.492	0.074	0.786	33.74
0067	03169	25.06	3.251	0.152	0.586	69.67
	01309	21.12	2.47	0.116	0.555	53.32
0069	10527	23.94	2.861	0.132	0.282	60.34
	00920	22.57	2.697	0.124	0.266	56.89
	03467	22.04	2.634	0.121	0.259	55.55
	04479	22.63	2.704	0.124	0.266	57.04
0078	00555	20.8	2.319	0.107	0.258	49
	10810	23.71	2.644	0.122	0.294	55.86
	10804	20.58	2.295	0.106	0.255	48.48
	03507	21.08	2.351	0.108	0.261	49.66
	10208	20.88	2.328	0.107	0.259	49.19
	06492	19.92	2.221	0.102	0.247	46.93
0005	08284	24.51	3.091	0.145	0.593	66.36
	02542	16.13	2.034	0.095	0.39	43.67
	03961	26.96	3.497	0.163	0.63	74.95
	07375	21.33	2.378	0.11	0.265	50.25
0033	02584	21.57	2.69	0.111	0.069	50.95
	11190	20.46	2.55	0.105	0.066	48.3
	03894	20.86	5.543	0.221	0.125	101 53
0047	11040	20.34	2.565	0.12	0.492	55.07
	10949	19.11	2.41	0.113	0.462	51.74

Table 7.1. Building Interiors Remediation Project Waste Shipping Summary (page 2 of 3)

Roll Car #	BBC #	Weight (tons)	U-234 Activity (mCi)	U-235 Activity (mCi)	U-238 Activity (mCi)	SNM Mass (g U-235)
0010	01973	22.06	2.837	0.114	0.109	52.28
	01525	20.17	4.58	0.182	0.126	83.54
	05650	24.01	3.088	0.124	0.118	56.89
	04545	19.09	2.455	0.099	0.094	45.23
	04083	22.76	2.927	0.118	0.112	53.93
0029	05621	7.11	3.156	0.122	0.246	55.9
	08419	6.56	2.92	0.113	0.231	51.71
	01736	6.7	3.154	0.121	0.326	55.28
	10668	6.74	3.03	0.117	0.28	53.5
	03408	6.64	2.92	0.113	0.215	51.83
	07647	6.44	3.174	0.12	0.39	55.17
0030	06759	19.23	2.398	0.099	0.062	45.43
	05198	23.75	2.961	0.122	0.076	56.1
	07924	24.94	3.11	0.128	0.08	58.91
	02007	18.67	2.328	0.096	0.06	44.11
	03240	22.33	4.289	0.171	0.129	78.41
	02429	17.98	2.24	0.093	0.058	42.43
0071	00133	5.65	2.359	0.092	0.116	42.29
	07585	7.95	3.488	0.135	0.252	61.95
	08427	7.05	3.214	0.124	0.288	56.66
	06872	7.2	3.148	0.122	0.223	55.94
	05500	6.24	3.05	0.116	0.365	53.09
	00679	6.89	3.004	0.116	0.209	53.42
0031	03111	20.55	2.034	0.077	0.299	35.09
	02990	24.01	2.376	0.089	0.349	41
	03148	23.39	2.315	0.087	0.34	39.94
	04519	22.31	2.208	0.083	0.324	38.1
	11225	22.06	2.183	0.082	0.31	37.67
	00874	21.83	2.161	0.081	0.317	37.28
0095	04484	22.58	2.235	0.084	0.328	38.56
	10759	23.64	2.34	0.088	0.343	40.37
	10975	25.17	2.491	0.094	0.366	42.98
	10770	20.74	2.053	0.077	0.301	35.42
	01891	23.74	2.35	0.088	0.345	40.54
	00766	21.46	2.124	0.08	0.312	36.65
0074	03852	22.33	2.21	0.083	0.324	38.13
	02305	24.00	2.375	0.089	0.349	40.98
	10297	22.26	2.203	0.083	0.323	38.01
	07879	18.96	1.877	0.071	0.275	32.38
	00658	20.08	1.987	0.075	0.292	34.29
	05393	26.96	2.668	0.1	0.392	46.04

Table 7.1. Building Interiors Remediation Project Waste Shipping Summary (page 3 of 3)

Rail Car #	BMC #	Weight (tons)	U-234 Activity (mCi)	U-235 Activity (mCi)	U-238 Activity (mCi)	SNM Mass (g U-235)
0049	07734	17.53	1.735	0.065	0.255	29.94
	01823	22.96	2.272	0.085	0.334	39.21
	01042	24.34	2.409	0.091	0.354	41.57
	04273	19.91	1.971	0.074	0.289	34
	00386	20.54	2.033	0.076	0.289	35.08
	10234	24.71	2.446	0.092	0.359	42.2
0069	10527	23.12	0.511	0.018	0.271	7.32
	00128	19.62	0.151	0.009	0.285	4.09
	03467	23.92	2.387	0.089	0.348	40.85
	00920	24.40	0.716	0.025	0.228	11.42
0078	10810	20.19	1.998	0.075	0.293	34.48
	10804	22.17	2.194	0.083	0.322	37.86
	04479	23.79	2.355	0.089	0.346	40.63
	00656	10.03	1.278	0.048	0.297	21.21
0090	02286	25.48	2.622	0.095	0.370	43.51
0059	04378	7.31	3.188	0.123	0.211	59.38
	04627	6.57	2.712	0.106	0.159	48.45
	02120	7.37	3.329	0.128	0.261	58.71
	01744	7.70	3.651	0.139	0.390	63.89
	03810	6.37	2.781	0.107	0.184	49.16
	01274	22.64	2.241	0.084	0.329	38.66
0037	10173	23.85	2.380	0.089	0.346	40.73
	03908	20.93	2.071	0.078	0.304	35.74
	00684	22.56	2.233	0.084	0.328	38.53
	04524	24.90	2.464	0.093	0.362	42.52
	10261	20.59	2.038	0.077	0.299	35.16
Truck Shipment	——	66.5	0.082	0.096	1.996	37.70
	TOTALS	2129.56	240.568	9.81	32.088	4500.68

118945

ATTACHMENT 8
FINAL GAMMA EXPOSURE RATE SURVEY DATA

ATTACHMENT 8
FINAL GAMMA EXPOSURE RATE SURVEY DATA

This attachment presents gamma exposure rate data collected following decontamination and repair in affected areas of Buildings 4, 5, and 10. Gamma exposure rate surveys were performed over 47 full or partial 10-by-10-meter (m) grid cells in Building 10, and 16 full or partial 10-by-10-m grid cells in Building 4. Building 5 was surveyed as a complete unit due to its relatively limited surface area.

Specific gamma exposure rate survey protocols are presented in SOP 34 of the Project Plan, Building Interiors Decontamination and Decommissioning Project. In general, the response of a Micro R Meter held at a height of 1 m above the surface was recorded at four locations in each grid cell. Unusual responses noted during the walkover process were recorded on row field survey data forms. Gamma exposure rates were compared to background survey results (collected at three unaffected locations) to determine if the total exposure rate criterion of 10 micro R per hour (μR/hr) above background was exceeded.

Table 8.1 presents the range of gamma exposure rates recorded at three background grid cell locations. The background exposure rate ranges from 7 to 13 μR/hr. Table 8.2 presents the range of gamma exposure rates recorded in 16 grid cells located in Building 4. The gamma exposure rates range from 4 to 10 μR/hr in Building 10. The gamma exposure rates range from 4 to 15 μR/hr.

All gamma exposure rate data from Buildings 4, 5, and 10 are reported inclusive of background. The data indicate that no affected areas exceed the remediation criterion of 10 μR/hr above background (17 to 23 μR/hr).

Table 8.1. Background Gamma Exposure Rates*

	Survey Point 01 µR/hr	Survey Point 02 µR/hr	Survey Point 03 µR/hr	Survey Point 04 µR/hr	Grid Block Range µR/hr
BGA 1	8	10	11	9	8-11
BGA 2	10	9	12	11	9-12
BGA 3	9	10	9	9	9-10

*Background areas surveyed with a Ludlum M-19 Micro R Meter

Table 8.2. Building 4 Gamma Exposure Rates*

Grid Block	Survey Point 01 µR/hr	Survey Point 02 µR/hr	Survey Point 03 µR/hr	Survey Point 04 µR/hr	Grid Block Range µR/hr
1A	7	7	7	7	6-7
1B	8	4	6	7	4-8
1C	7	7	7	8	5-8
2A	8	9	8	7	7-9
2B	6	6	7	No Access	6-7
2C	7	7	8	7	6-8
2F	7	7	6	7	6-8
2G	NA	NA	8	7	7-8
3C	10	10	9	9	8-10
3D	8	7	9	9	7-9
3E	9	7	8	9	7-9
3F	9	10	8	8	8-10
3G	NA	NA	9	8	8-9
4C	7	NA	NA	9	7-9
4D	7	NA	NA	7	7-8
4E	8	NA	NA	8	7-8
4F	8	NA	NA	9	8-9

*Systematic radiation grid survey using a Ludlum M 19 Micro R Meter

Table 8.3. Building 10 Gamma Exposure Rates (page 1 of 2)*

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0C	NA	13	12	NA	12-13
1B	14	12	12	12	11-14
1C	13	12	12	12	11-13
1D	12	11	NA	NA	11-12
2A	NA	NA	14	13	12-14
2B	13	12	12	10	10-13
2C	12	11	No Access	12	11-12
2D	12	13	NA	NA	12-13
3B	13	13	11	13	10-13
3C	10	9	10	10	9-10
3D	11	11	10	10	10-11
3E	No Access	No Access	No Access	No Access	No Access
4B	12	14	14	12	11-15
4C	10	10	9	10	9-11
4D	10	11	9	No Access	9-11
4E	NA	9	9	NA	9-10
4F	NA	8	8	NA	8-9
5B	15	15	15	14	14-15
5C	14	15	12	12	11-15
5D	10	11	7	8	7-12
5E	9	No Access	7	8	6-9
5F	6	6	6	7	6-7
5G	6	No Access	9	7	6-9
5H	No Access	No Access	6	No Access	5-6
5I	7	5	6	6	5-7
6B	14	11	8	14	8-14
6C	13	8	9	13	8-13
6D	11	9	No Access	8	7-12
6E	8	9	9	7	7-9
6F	7	7	6	7	5-7
6G	6	5	6	5	5-6
6H	6	5	5	8	5-9
6I	4	4	No Access	4	4-7
7B	13	13	11	11	9-13
7C	10	11	8	8	8-12
7D	9	9	9	9	8-10
7E	10	10	10	10	9-11
7F	10	12	10	8	8-12
7G	7	11	8	7	7-11

Table 8.3. Building 10 Gamma Exposure Rates (page 2 of 2)*

Grid Block	Survey Point 01 µR/hr	Survey Point 02 µR/hr	Survey Point 03 µR/hr	Survey Point 04 µR/hr	Grid Block Range, µR/hr
7H	9	9	8	8	7-9
7I	7	9	9	8	7-9
8B	13	NA	NA	11	9-13
8C	10	NA	NA	9	8-13
8D	8	NA	NA	13	8-13
8E	12	NA	NA	12	10-15
8F	12	NA	NA	8	7-15
8G	7	NA	NA	7	6-8
8H	No Access	NA	NA	6	4-6
8I	10	NA	NA	No Access	8-11

*Systematic radiation grid survey using a Ludlum M-19 Micro R Meter

Texas Instruments Incorporated
Materials and Controls Group

TEXAS INSTRUMENTS

34 Forest Street
P.O. Box 7964
Attleboro, MA 02703-0964

(508) 236 3800

August 26, 1996

Mr. Mark Roberts, CHP
Senior Health Physicist
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Re: Texas Instruments Incorporated
NRC License/Docket No. SNM-23/70-33
Submittal of Report for Exterior Phase of Decommissioning Project

Dear Mr. Roberts:

Enclosed please find a report documenting decommissioning and termination surveys for the final exterior phase of decontamination and decommissioning work at the Attleboro facility. The work documented in the report includes all remaining areas identified by the Radiological Surveys of Open Land Areas Report (May 1995) as requiring surveys or decontamination. Documentation of some prior work at three additional small areas is also included as attachments.

A report on the decontamination termination surveys of the interiors of Buildings 4,5 and 10 will be submitted separately. The report will be submitted following completion of the one remaining decontamination activity, remediation of the soil under a large electrical sub-station. Because the sub-station is critical to manufacturing operations, the work had to be scheduled during manufacturing shutdown over the Labor Day weekend.

If you have any questions, please contact me at (508) 236-1809.

Sincerely,

Materials & Controls Group

Michael J. Elliott
Environmental Manager
Environmental, Safety & Health Dept.

MJE:bvs

Encl.

cc: Mr. Al Gutterman, Morgan, Lewis & Bockius
Mr. John Price, Roy F. Weston, Inc.
Mr. Francis J. Veale, Jr., Texas Instruments Incorporated

TEXAS INSTRUMENTS INCORPORATED

Attleboro, Massachusetts

REMEDIATION OF EXTERIOR AREAS ADJACENT TO BUILDINGS 11 AND 12

NRC License/Docket No: SNM-23/70-33

FINAL REPORT

Version: 1.0

Prepared by

WESTON

August 1996

CONTENTS

ATTACHMENTS

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

Ag	silver
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
DAC	derived air concentration
EPP	exterior project plan
GAC	granular-activated carbon
G-M	Geiger-Mueller
HASP	health and safety plan
HFIR	high-flux isotope reactor
M&C	Metals & Controls, Inc.
MPA	materials processing area
NaI	sodium iodide
NRC	U.S. Nuclear Regulatory Commission
NUREG	Nuclear Regulatory Agency
ORAU	Oak Ridge Associated Universities
ORISE	Oak Ridge Institute for Science and Environment
RCA	radiological controlled area
SNM	special nuclear materials (license)
SOP	standard operating procedure
TEDE	total effective dose equivalent
TI	Texas Instruments Incorporated
WESTON	Roy F. Weston, Inc.
ZnS	zinc sulfide

UNITS AND MEASUREMENTS

cpm	counts per minute
ft	feet
m	meter
µR	microroentgen
mrem	millliroentgen equivalent man
pCi/g	picocuries per gram

This report provides documentation that exterior remediation activities performed by Roy F. Weston, Inc. (WESTON), in 1995 at the Texas Instruments Incorporated (TI) Attleboro Facility have been completed. Previous reports have documented surveys of other areas; this report documents the final radiological surveys of areas adjacent to Buildings 11 and 12. Remediation and surveys have been completed in accordance with:

- The TI radioactive materials license (Special Nuclear Materials [SNM]-23).
- The TI *1992 Remediation Plan.*
- The *Supplement to the 1992 Remediation Plan.*
- Nuclear Regulatory Agency (NUREG)/CR-5849, *Manual for Conducting Radiological Surveys in Support of License Termination.*
- The U.S. Atomic Energy Commission Regulatory Guide 1.86, *Termination of Operating Licenses for Nuclear Reactors.*
- The U.S. Nuclear Regulatory Commission (NRC) *Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material.*
- NRC Branch Technical Position (BTP) (46 FR 52061, October 1981).

This report will provide the NRC, Region 1, with support information to grant SNM-23 license termination. This report also provides documentation of remediation of three small remediation activities performed prior to 1995:

- Remediation of Building 10 Laboratory Wing Area (Exterior).
- Remediation of Building 12 Thermal Ice Storage Area.
- Remediation of Building 17 Hillside.

accordance with NUREG/CR-5849 and have been documented in previous submittals to NRC. Some of the reports submitted to the NRC over the past several years that were used to support and guide the WESTON remediation effort are:

Date	Subject	From
92-JUL-25	Amendment Request	TI
92-JUL-30	Approval Request for Remediation Plan for Low-Level Radiological Waste Burial Site	TI
92-DEC-10	Radiological Survey Plan for Confirmation	ORISE
93-JAN-25	Interim Radiological Survey Letter Report	ORISE
93-FEB-04	Analysis, Gamma Spectroscopy, and Alpha Screening	ORISE
93-SEP-XX	Remediation of Former Radiological Waste Burial Site	TI
94-DEC-XX	Supplement to 1992 Remediation Plan, Rev. 0	TI
95-MAY-XX	Radiological Surveys of Open Land Areas, Rev. 0	TI
95-JUN-XX	Response to Comments	TI
95-OCT-02	Response to Comments	TI

1.3. BACKGROUND INFORMATION

The TI facility in Attleboro, Massachusetts, was owned and operated by Metals & Controls, Inc. (M&C), until 1959, at which time M&C merged with TI. The General Plate Division of M&C began processing nuclear materials in 1952. From 1952 through 1959, M&C fabricated uranium foils for reactor experiments and fuel components and reactor fuel cores for the U.S. Navy. After the merger in 1959, TI continued fabricating reactor fuel cores for government research and production reactors in addition to the U.S. Navy nuclear program. Source materials (e.g., natural uranium, depleted uranium, and thorium) were used under the same programs. TI's involvement in the U.S. Navy's nuclear program continued into 1968. The final chapter of TI's nuclear business involved the fabrication of high flux isotope reactor (HFIR) fuels. The HFIR project spanned 15 years (1965 to 1981). By 1981, TI had disengaged from the HFIR project and, by so doing, permanently concluded its involvement with uranium fuel-element manufacturing. Work with nuclear materials was gradually reduced, beginning in 1968.

2. SITE INFORMATION

2.1. GENERAL SITE DESCRIPTION

The TI Attleboro Facility is located approximately 48 kilometers south of Boston on Route 123 (Figure 1). This report describes remediation activities and final surveys of areas located to the west and south of Building 12 and to the west of Building 11 (Railspur/Stockade Area) (Figure 1).

2.2. HISTORICAL REMEDIATION AND SUPPLEMENTAL RADIOLOGICAL SURVEYS USED TO SUPPORT THE WESTON EFFORT

Remediation of the Burial Site

TI previously remediated another area in the vicinity of Building 12, the Building 12 Burial Site, and submitted the *Remediation Plan for the Identified Building 12 Burial Area* (the *1992 Remediation Plan*) to NRC in July 1992. NRC approved the plan in August 1992 in Amendment No. 16 to the license.

On August 31, 1992, TI initiated the Burial Site remediation. The project was completed in July 1993. TI documented the project activities and the survey results in a final report dated September 1993.

In December 1993, NRC and its contractor (Oak Ridge Institute for Science and Environment [ORISE], formerly known as ORAU) conducted a confirmatory survey of the Building 12 Burial Site. ORISE issued a survey report in February 1994 and concluded that the Burial Site remediation had met the NRC guidance criteria contained in the 1981 Branch Technical Position for unrestricted release.

Remediation of the Building 12 Thermal Ice Storage Area was not included in the report for the Burial Site. Documentation of termination surveys of this small area is included in this report as Attachment 9.

Remediation of the Metals Recovery Area

In March 1994, TI notified NRC of its intent to remediate the Metals Recovery Area in the vicinity of Building 5 to the west of Building 11. Remediation activities began on April 28, 1994, and were completed by November 14, 1994. TI has prepared termination survey results that are pending final submittal to NRC.

Remediation the Building 10 Laboratory Wing Area (Exterior) was conducted concurrently with the remediation activities of the Metals Recovery Area. Documentation of termination surveys of the former has not previously been submitted to the NRC, and is included in this report as Attachment 9.

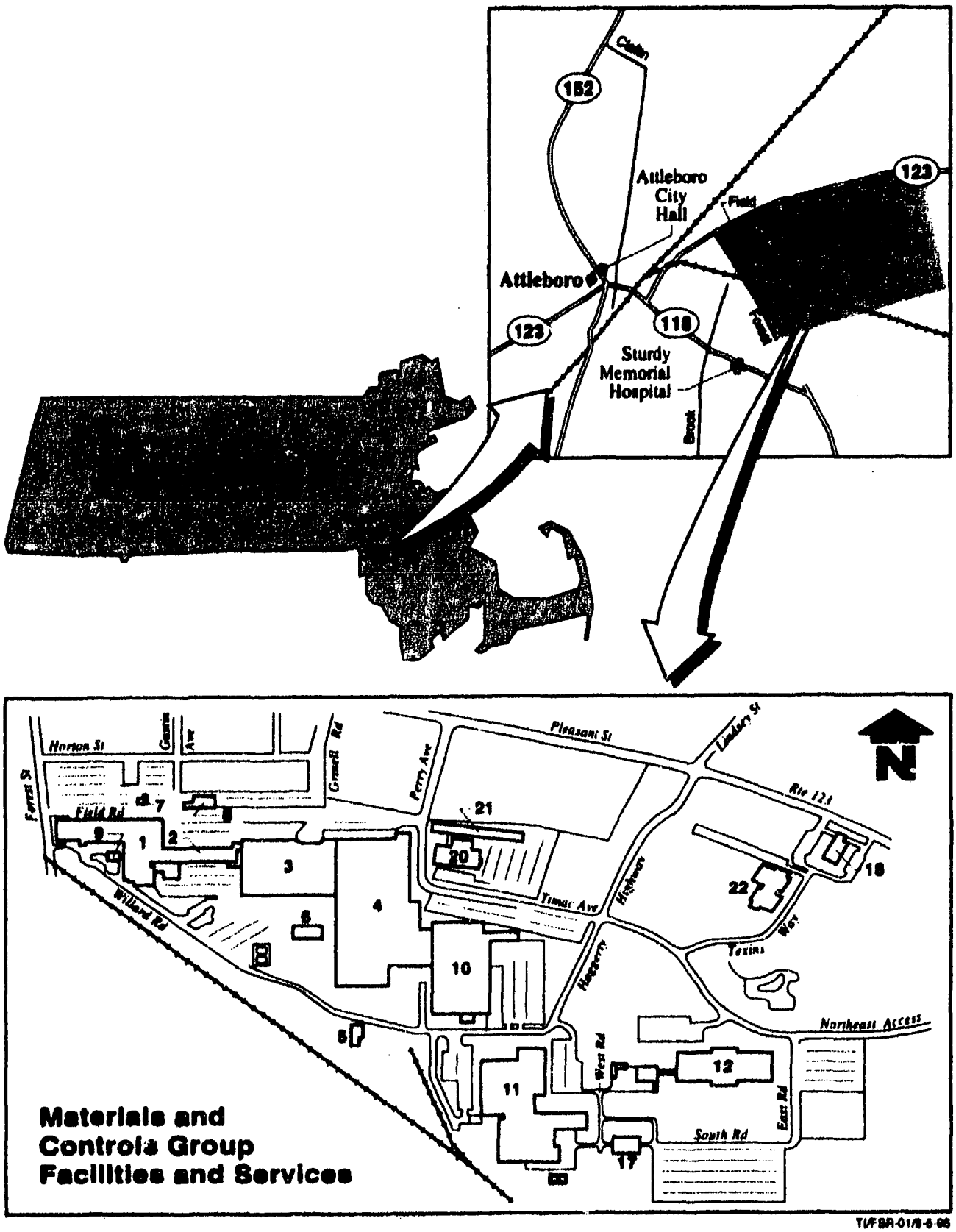


Figure 1. Map of Massachusetts and Attleboro Showing Location and Plan View of the Texas Instruments Site

Remediation of another area, the Building 17 Hillside, was also conducted concurrently with the remediation activities of the Metals Recovery Area. Documentation of termination surveys of the former has not previously been submitted to the NRC and is included in this report as Attachment 9.

Radiological Surveys of Open Land Areas

In July 1994, TI began performing supplemental radiological surveys of open land areas at the facility. Field work was completed by December 1994 and a supplemental radiological survey report was submitted to NRC in May 1995. The remediation performed in the Building 11 and 12 areas was based on findings from this supplemental radiological survey.

2.3. SITE CONDITIONS AT THE TIME OF FINAL SURVEY FOR REMEDIATION ACTIVITIES

Based on the *Radiological Surveys of Open Land Areas Report* (May 1995), an approximately 7,700-square-meter (m^2) area in the proximity of Buildings 11 and 12 contained soil and other materials above the site cleanup criteria of 30 picocuries per gram (pCi/g). At the time of remediation, the depth of contamination in these areas ranged from the surface to depths of 10 feet (ft), with average grid total uranium concentrations ranging from 8 pCi/g to 823 pCi/g.

At the time of the final survey, 90 of the 93 grid areas that were excavated were completely remediated to below the radiological cleanup criteria of 30 pCi/g. In three areas, limited exceptions to the cleanup criteria were made during remediation activities when utilities critical to facility operations were encountered or when worker health and safety would have been threatened by continued remediation. The threat to worker safety was due to the potential for trench collapse in deep excavations below the water table. These exceptions were consistent with verbal discussions with the NRC. These limited exceptions are documented in Attachment 6.

2.4. RELEASE GUIDELINES

Section 3.3.1 of the *Supplement to the 1992 Remediation Plan* (December 1994) defines volumetric release criteria for bulk material and soils to be removed during the remediation of contaminated building interiors at the TI Attleboro Facility. Release criteria defined in this document are based on discussion presented in an NRC Branch Technical Position (BTP) (46 FR 52061, October 1981). The release criterion for natural and enriched uranium is 30 picocuries per gram (pCi/g) and 35 pCi/g for depleted uranium. The acceptable exposure rate at 1 meter (m) above the surface as prescribed by the NRC is 10 microroentgen per hour (mR/hr) above background. In addition to the volumetric contamination criteria, surface contamination

levels on personnel, equipment, and materials leaving radiological controlled areas (RCAs) must not exceed the surface contamination limits specified in *Regulatory Guide 1.86, Termination of Operating License for Nuclear Reactors*, Table I, and Appendix E of the *Supplement to the 1992 Remediation Plan*. These surface contamination limits are 1,000 disintegrations per minute (dpm)/100 square centimeters (cm^2) (removable), 5,000 dpm/100 cm^2 (total), and 15,000 dpm/100 cm^2 (maximum) and also are applied to all residual surfaces in affected areas following decontamination. The policies and standard operating procedures that were used during the remediation activities were developed to achieve the release criteria specified in the aforementioned references.

3. MANAGEMENT AND PROJECT ORGANIZATION

3.1. MANAGEMENT POLICY

TI's goal was to remediate all exterior areas that exceeded the release guidelines. The effort was based on the 1994 supplemental radiological survey, which estimated that 77 10-by-10-m grids would require remediation. The actual number of grids remediated was 93.

3.2. PROJECT ORGANIZATION AND RESPONSIBILITIES

WESTON was retained by TI as a construction project manager. WESTON employees provided services that included the site superintendent and project health and safety and health physics support. In addition, WESTON retained over 15 second-tier subcontractors to provide the variety of services required for the project (Figure 2).

As the remediation/construction management contractor, WESTON was responsible for providing project planning, technical expertise for regulatory interaction and permitting, subcontractor procurement, site construction management, health and safety oversight, health physics support, and project close-out/termination activities. WESTON was also responsible for providing professional health physics and safety staff and for subcontracting with Bartlett Nuclear, Inc., for the health physics technician staff. Creative Pollution Solutions, Inc., was subcontracted to provide technical expertise and historical knowledge of past remediation and radiological survey efforts.

Franklin Environmental Services provided the majority of the subcontractor services, primarily construction remediation services. Approximately 15 other subcontractors were used by WESTON to perform the site remediation work. Subcontractor services ranged from temporary secretarial help to railroad repair.

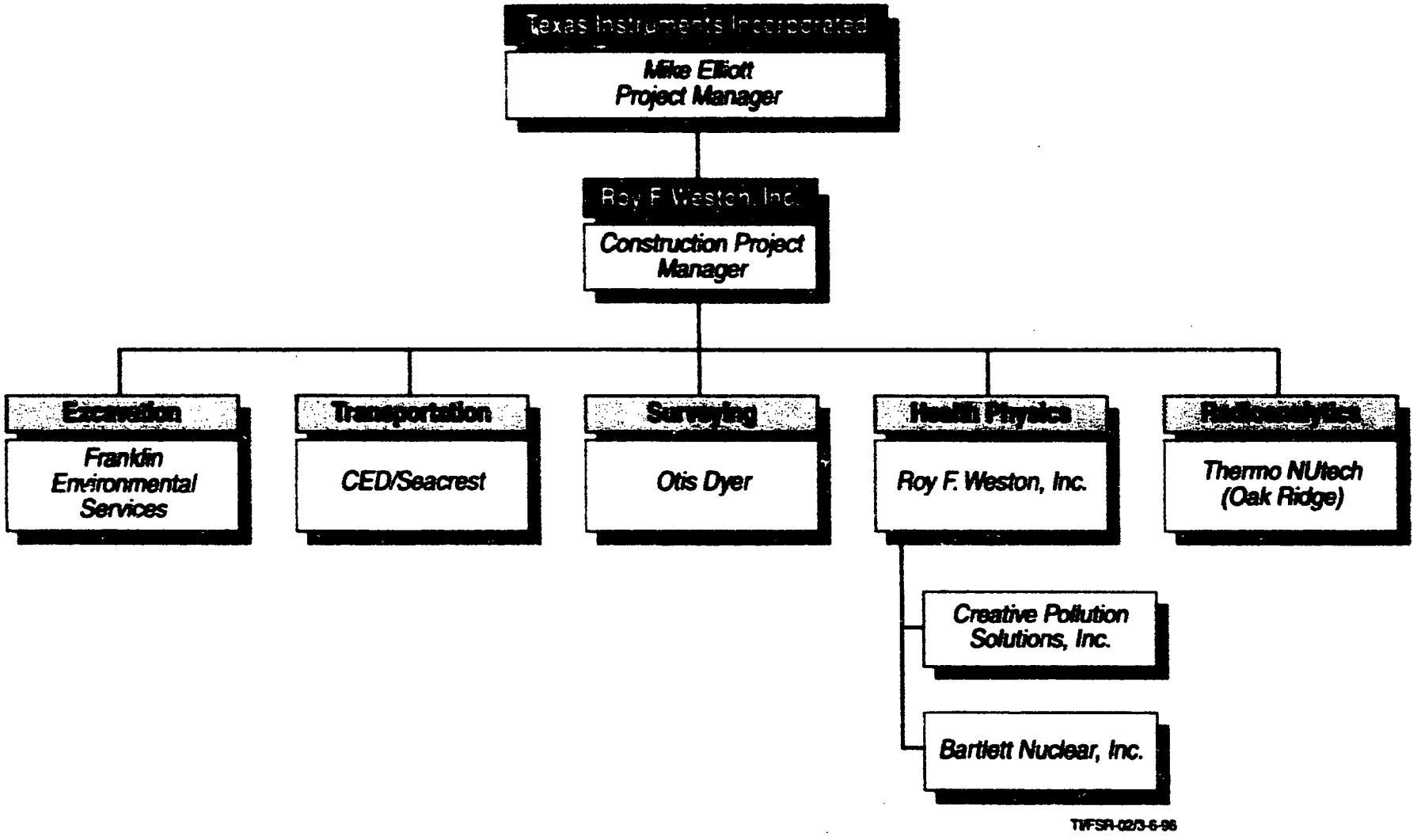


Figure 2. Project Organization

4. REMEDIATION ACTIVITIES

This section provides a brief description of exterior soil areas remediated at the TI Attleboro Facility from June 1995 to December 1995. Contaminated materials in the remediation areas consisted of debris, glacial rock, and soil; these materials were transported to the materials processing area (MPA), where excavated material segregation and decontamination was performed. Potentially contaminated water was pumped out of excavations and transported by tanker truck to the MPA. Soil remediation was performed using fugitive dust control techniques to control dust that might be generated. Water, covers, and calcium chloride agents were used, as necessary, to control contaminated materials as they were removed and transported to the MPA. Standard construction-type equipment was used for soil and utility removal work. The construction remediation equipment typically consisted of excavators, front-end loaders, a rock screener, dump trucks, compactors, water tanker trucks, and other small miscellaneous tools.

As the soil remediation tasks were completed, final radiation surveys were performed. Verification samples were archived for future confirmatory analysis by the NRC.

4.1. BUILDING 12 EXCAVATIONS

The contaminated areas in the West Lawn Area and South Lawn Area adjacent to Building 12 were remediated in separate phases. This phased approach was adopted to minimize impacts to the manufacturing facilities and to simplify health and safety control of the remediation areas. Each area is discussed in the following sections.

4.1.1. West Lawn Area

The Building 12 West Lawn Area includes all grid blocks east of 130E to 170E and north of 140N to 210N. Five 10-by-10-m grids were remediated in the Building 12 West Lawn Area. Supplemental radiological survey data from the Radiological Surveys of Open Land Areas Report (May 1995) identified these grids as having average contamination ranging from 32 to 115 pCi/g at depths from 0 to 8 ft. Figure 3 presents the exact locations of these contamination areas. Average depths of excavation ranged from 2.8 to 9.5 ft. A total of 20,412 cubic feet (ft^3) of soil that potentially exceeded the release guidelines was excavated from this area and transported to the MPA.

4.1.2. South Lawn Area

The Building 12 South Lawn Area includes all grid blocks east of 120E to 290E and south of 150N to 060N. Thirty-nine 10-by-10-m grids were fully or partially remediated in the Building 12 South Lawn Area.

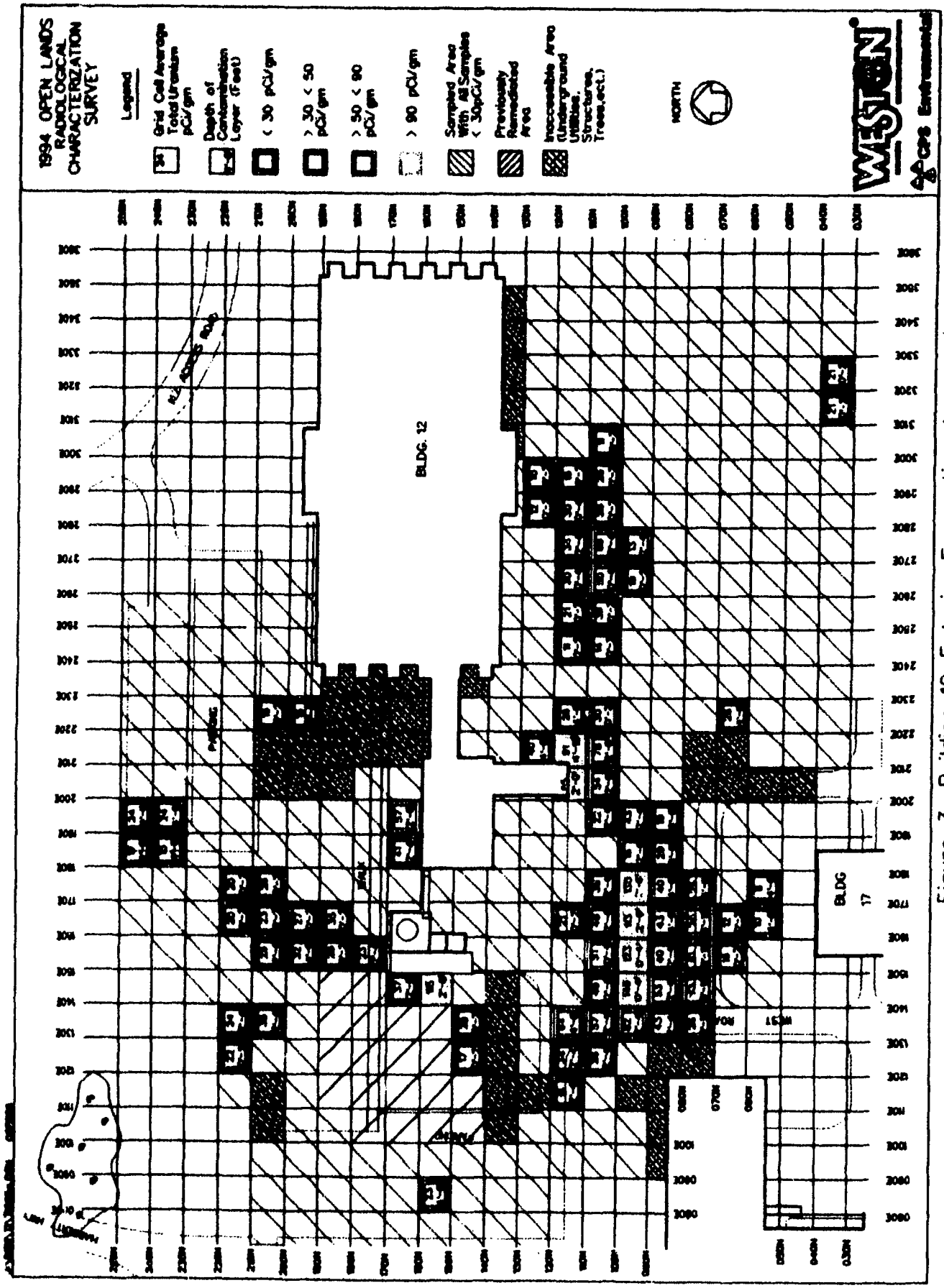


Figure 3. Building 12 Exterior Excavation Areas.

Supplemental radiological survey data from the Radiological Surveys of Open Land Areas Report (May 1995) identified these grids as having average contamination ranging from 30 to 149 pCi/g at depths from 0 to 10 ft. Figure 3 presents the exact locations of these contamination areas. Average depths of excavation ranged from 4 to 10.5 ft. A total of 145,584 ft^3 of potentially contaminated soil that exceeded the release guidelines was excavated from this area.

4.2. BUILDING 11 EXCAVATIONS

The contaminated areas in the Stockade Area and Railspur Area adjacent to Building 11 were remediated in separate phases to minimize impacts to the manufacturing facilities and to simplify health and safety control. Each area is discussed in the following sections.

4.2.1. Stockade Area

The Stockade Area includes all grid blocks east of 50E to 150E and 10S to 90S. Thirty-seven 10-by-10-m grids were remediated in the Building 11 Stockade Area. Supplemental radiological survey data from the Radiological Surveys of Open Land Areas Report (May 1995) identified these grids as having average contamination ranging from 8 to 471 pCi/g at depths from 0 to 10 ft. Figure 4 presents the exact locations of these contamination areas. Average depths of excavation ranged from 2.8 to 9.5 ft. A total of 100,926 ft^3 of soil that potentially exceeded the release guidelines was excavated from this area.

4.2.2. Railspur Area

The Railspur Area includes all grid blocks west of 50E to 0 and south of 0 to 90S. Twenty-one 10-by-10-m grids were fully remediated and three grids were partially remediated in the Building 11 Stockade Area. Supplemental radiological survey data from the Radiological Surveys of Open Land Areas Report (May 1995) identified these grids as having average contamination ranging from 19 to 823 pCi/g at depths from 0 to 6 ft. Figure 4 presents the exact locations of these contamination areas. Average depths of excavation ranged from 2 to 6.5 ft. A total of 76,221 ft^3 of soil that potentially exceeded the release guidelines was excavated from this area.

4.3. SOIL PROCESSING AND ROCK WASHING

As contaminated material was removed from the excavation areas it was transported to the MPA, which was located in parking lot R south of Building 12. Once in the MPA, the material was mechanically screened and segregated into soil, rock, and debris piles. The rock was washed to remove residual

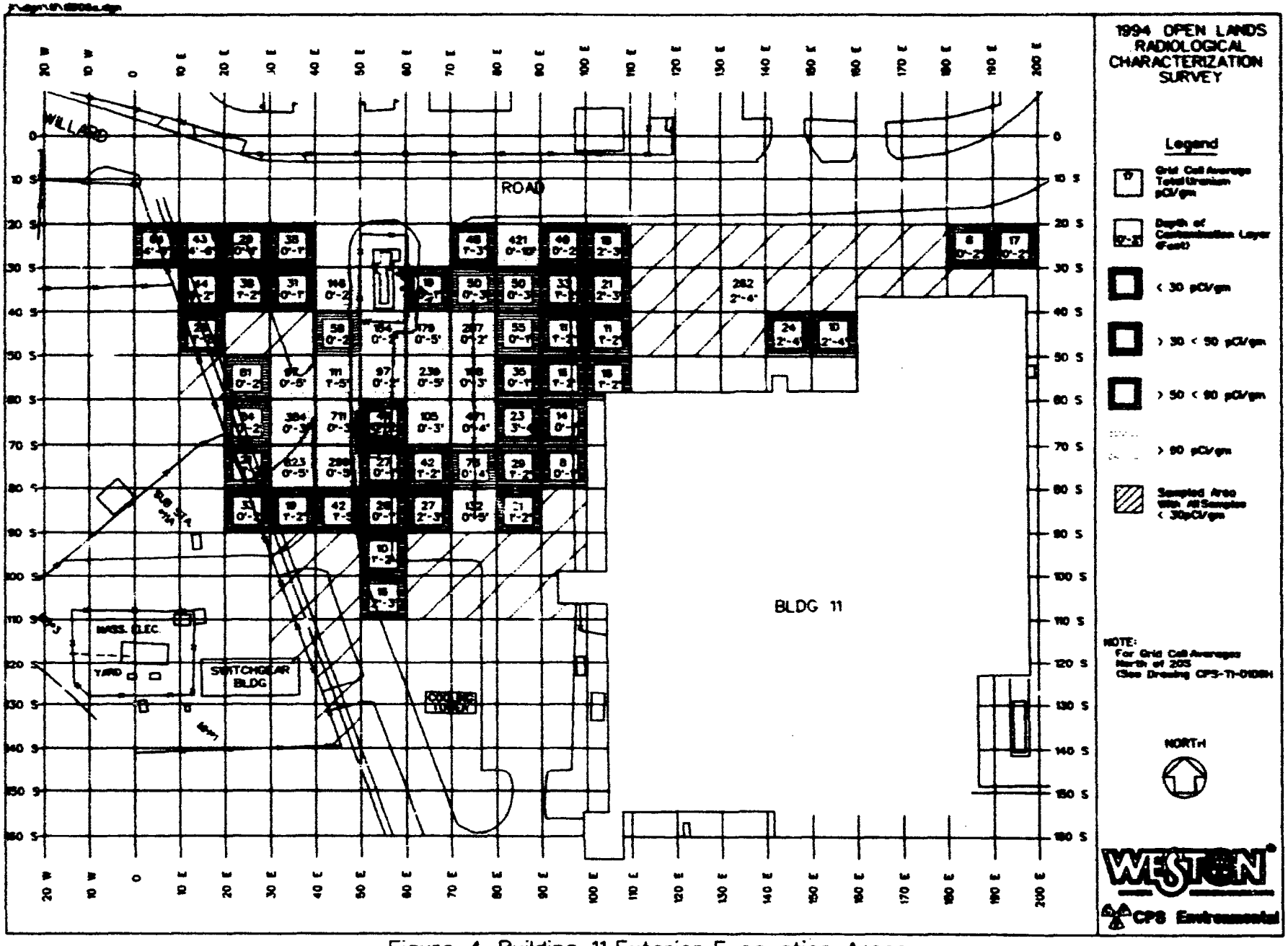


Figure 4. Building 11 Exterior Excavation Areas.

contaminated soil from the surface and then surveyed for free release in accordance with NRC *Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material.* Six thousand tons of rock was decontaminated and released from the MPA. After release from the MPA, the rock was crushed, staged in an open area east and south of parking lot S, and used for onsite backfill and road pack. The excess decontamination water was collected in a fractionation tank, filtered, and effluent-discharged to the storm sewer in accordance with the National Pollutant Discharge Elimination System (NPDES). Discharge monitoring results are discussed in Section 4.5.4.

4.4. WASTE DISPOSAL

Waste generated as a result of remediation activities was disposed of at the EnviroCare of Utah, Inc., facility in Clive, Utah. The major waste streams from the remediation consisted of soil, a minor amount of metal debris, and personal protective equipment. A total of 179 railcar shipments containing 376,690.31 ft^3 of waste was transported to EnviroCare of Utah, Inc. The total activity waste generated was 1,558.26 Ci of total uranium, which contained 15,285.91 grams of U-235 special nuclear material. These quantities are inclusive of material shipped as a result of D&D of the interiors of Buildings 4, 5, and 10. The building material was less than 10 percent of the total volume.

4.5. HEALTH AND SAFETY/COMPLIANCE STATISTICS

The excavation remediation activities were conducted under an approved WESTON Health and Safety Plan (HASP). This plan addressed construction and industrial hazards, hazardous materials, and radiological safety. It also established all monitoring requirements and programs. All subcontractor safety plans and documentation were required to be as stringent as the WESTON HASP and were reviewed by the WESTON site health physicist and site health and safety coordinator. All subcontractor personnel attended site radiological and standard health and safety training prior to performing onsite work. Daily safety briefings were conducted prior to commencement of work.

4.5.1. Lost-Time Injuries

During the period that excavation remediation operations were conducted (June 1995 to July 1996), no lost-time injuries occurred. This represents approximately 15,211 labor hours of work performed by subcontractor personnel from Franklin Environmental Services, Inc.; Otis Dyer Surveyors, Inc.; Walsh Construction, Inc.; Onsite Environmental, Inc.; Creative Pollution Solutions, Inc.; Deangelis Railroad

Contractors; National Renta Fence, Inc.; Winthrop Old Farm Nursery, Inc.; PSI; Ferreira Construction, Inc.; Tibbetts Engineering; and Bartlett Nuclear, Inc. WESTON personnel performed 8,068 labor hours of work.

4.5.2. Personnel Dose Summary

WESTON and subcontractor dose summaries were prepared for the third and fourth quarters of 1995 and for the first quarter of 1996. Dose summaries included contributions from external and internal exposure sources, calculated based on thermoluminescent dosimeter badge results and area and personnel air sampling data. All worker total effective dose equivalent (TEDE) results were less than 20 milliroentgen equivalent in man (mrem) in each quarter. All worker TEDEs were considerably less than the acceptable federal limit of 1,250 mrem per calendar quarter. Personnel exposure records and data are maintained on file at the TI Attleboro Facility.

4.5.3. Air Sampling/Offsite Emissions

Table 1 lists the monthly average percentage of the 10 Code of Federal Regulations (CFR) Part 20, Appendix B, Table 1, Column 3, derived air concentration (DAC) of uranium for work area samplers and personnel lapel samplers during excavation remediation activities. Air sample data are on file at the TI Attleboro Facility. In most cases, the lapel samples exhibited a higher percentage of DAC than the area samplers because the lower volume of air in the lapel samples gave a higher minimum detectable activity reading. During excavation remediation operations, no air sample exceeded 25 percent of the DAC, which was the site administrative As Low As Reasonably Achievable (ALARA) action limit.

Table 1. Average Air Sample Results

Month of 1995	% of the DAC - Area Sampler	% of the DAC - Personnel Sampler
July	<1	5
August	<1	3
September	<1	3
October	<1	4
November	<1	3
December	<1	4

4.5.4. Effluent Discharges

TI obtained an NPDES permit exclusion for the discharge of the rock wash water filtered effluent. The filtered water was sampled weekly to verify that concentrations being discharged were below the allowable

limits prescribed in 10 CFR Part 20, Appendix B, Table II, concentrations for uranium. The average weekly concentration for uranium-234, -235, and -238 in water discharged for the duration of the remediation project was 96, 5, and 97 pCi/L, respectively. This translates to 32 percent, 2 percent, and 32 percent of the 10 CFR Part 20 limit. During remediation of grids 51 and 54, a granular-activated carbon (GAC) filter was set up to absorb organic compounds potentially present in water to be pumped from those locations. A pre-filter removed suspended solids from the effluent prior to filtration in the GAC. For a 2-hour period after the GAC was set up, the pre-filter was not used. During this period, effluent samples were collected and, because of the absence of the pre-filter, the uranium concentrations exceeded the limits in 10 CFR Part 20. The maximum concentrations of uranium-234, -235, and -238 in water discharged at any one time were 983, 52, and 1,051 pCi/L, respectively. This translates into 328 percent, 17 percent, and 350 percent of the 10 CFR Part 20 limit. This discharge, at a maximum, represented less than 1.5 percent of the 1,104,970 gallons discharged for the duration of the project and was a one-time event. Despite the exceedance of the standard for a 2-hour period, the weekly average concentrations and cumulative average for the life of the project were both well below the standard. The one-time discharge represents a low risk to the public and the environment. Water sample analysis results are on file at the TI Attleboro Facility.

5. FINAL SURVEY OVERVIEW

5.1. SURVEY OBJECTIVES

The purpose of the final survey was to demonstrate that the radiological conditions in the exterior areas remediated by WESTON in 1995 at the TI Attleboro Facility satisfied the NRC guidelines and that these areas can be released for unrestricted use. Specific objectives of the survey were to present the following:

- The average total uranium concentrations in the exterior soils are at or below the NRC guideline value of 30 pCi/g.
- Reasonable efforts had been made to identify, evaluate, and remove, if practicable, areas of residual contamination exceeding the guideline values.
- Exposure rates at 1 m from the surface do not exceed 10 μR/hr above background.

5.2. SURVEY PROCEDURES

Survey plans and standard operating procedures (SOPs) were developed in accordance with NUREG.CR-2082, *Monitoring for Compliance With Termination Survey Criteria*, and NRC guidance described in the TI *1992 Remediation Plan* and *Supplement to the 1992 Remediation Plan*. NUREG/CR-5849, the *Manual for*

Conducting Radiological Surveys in Support of License Termination, was used as a source for calculational methods and data interpretation.

5.2.1. Area Classification

To establish the sampling and measurement frequency and pattern, the site was divided into affected and unaffected areas during the 1994 supplemental radiological survey of open land areas. Figures 2 and 3 present the affected areas adjacent to Buildings 11 and 12 that required final survey following remediation. The basis for the classification of these areas may be found in the *Supplement to the 1992 Remediation Plan* and in Section 4.2.1 of NUREG/CR-5849, the *Manual for Conducting Radiological Surveys in Support of License Termination*.

5.2.2. Reference Grids

A professional engineer registered in Massachusetts and a licensed surveyor established 10-by-10-m grids throughout the affected areas around Buildings 11 and 12 at the TI Attleboro Facility. These grids were established on Massachusetts state grid coordinates to provide a permanent reproducible reference for sampling locations and survey measurements. This same reference grid system was used for the 1994 supplemental radiological survey.

5.2.3. Standard Operating Procedures

WESTON and its subcontractors used a variety of SOPs to efficiently and safely execute remediation and final survey activities at the TI Attleboro Facility. SOPs fall into three primary categories: radiological and occupational safety, supplemental radiological survey and decontamination operations, and support functions.

The breakdown of these procedures is as follows:

Radiological Safety/Occupational Health and Safety Procedures

SOP 1.0	Worker Training Requirements
SOP 2.0	Radiation Work Permit Preparation
SOP 3.0	Access Control
SOP 4.0	External Dosimetry Program
SOP 5.0	Internal Dosimetry Program
SOP 6.0	Respiratory Protection Program
SOP 7.0	Personnel and Equipment Frisking with Ludlum Model 12/Model 43-5
SOP 12.0	Air Particulate Monitoring with Real-Time Aerosol Monitor
SOP 14.0	Heavy Equipment Inspection and Operation

SOP 20.0 Intermediate Volume Air Particulate Sampling
SOP 21.0 Heat Stress Prevention and Monitoring
SOP 28.0 Personal Air Particulate Sampling
SOP 34.0 Measurement of Gamma-Ray Fields

Supplemental Radiological Survey and Decontamination Operations

SOP 8.0 Operation of Ludlum Model 2350 Data Logger/43-68 Probe or Model 239-1F Floor Monitor

SOP 9.0 Personnel Decontamination Procedure

SOP 10.0 Function Check of Portable and Stationary Radiation Detection Instrumentation

SOP 11.0 Removable Alpha Contamination Measurements with Ludlum Model 2000 Scaler/Model 43-10 Alpha Tray Counter

SOP 29.0 Preparation of Soil Samples for Gross Alpha Counting with Large-Area Alpha Detector (Ludlum Model 43-1)

SOP 30.0 Gross Alpha Counting of Soil Samples with Large-Area Alpha Detector (Ludlum Model 43-1)

SOP 31.0 Collection of Surface Soil Samples

SOP 35.0 Excavation Control Using Geiger-Mueller (G-M) Pancake and Plastic Beta Scintillation Detectors

Support Functions

SOP 27.0 Sample Archival Procedure
SOP 32.0 Transportation of Radioactive Materials
SOP 33.0 Exterior Sampling Identification Procedure
SOP 36.0 Log Book Use and Control

The SOPs are on file at the Texas Instruments Incorporated Attleboro facility.

5.2.4. Soil Surface Scans and Exposure Rate Measurements

Scanning soil surfaces to identify locations of residual surface and near-surface uranium contamination and elevated gamma surface activity were performed using the following methods:

- One hundred percent of the accessible 10-by-10-m grid area was surveyed for alpha/beta/gamma radiation using a Ludlum ratemeter coupled to a G-M pancake detector. The measurements being recorded in counts per minute (cpm). The surveys were performed in accordance with SOP 35.0.

- One hundred percent of the accessible 10-by-10-m grid area was surveyed for gamma radiation using a Ludlum scaler/ratemeter coupled to a 2-by-2-inch sodium iodine (NaI)

scintillation detector. Measurements were recorded in cpm at the grid corners. The surveys were performed in accordance with SOP 34.0.

- One hundred percent of the accessible 10-by-10-m grid area was surveyed at the surface and at 1 m from the surface. The gamma exposure survey used a Ludlum μR meter; the exposure rate measurements at the grid corners were recorded in μR/hr. The surveys were performed in accordance with SOP 34.0.

5.2.5. Soil Sampling

Soil sampling with onsite gross alpha analysis was the primary method used to determine if the release criterion of up to 30 pCi/g of total uranium was met. The soil sampling in affected areas included the following:

- ***Preliminary Sampling*** — The preliminary sampling protocol was implemented in accordance with SOP 31.0 if health physics technicians determined, by surface survey with a G-M pancake detector, that all areas of the 10-by-10-m grid were less than two times background. Thirteen soil samples were collected in a pattern and sample density consistent with NUREG CR-5849, Figure 4-5, page 4.18.

- ***Verification Sampling*** — Verification sampling was implemented if gross alpha screening results from the preliminary sampling averaged less than 30 pCi/g total uranium for the grid cell. A composite sample from five locations within any given grid cell was collected in accordance with SOP 31.0. This sample was collected following a modified sample pattern presented in NUREG CR-5849, Figure 4-4, page 4.17. The verification pattern was slightly modified to include a sample collection location at the center point of the grid cell.

- ***Residual Sampling*** — In the three grids blocks where soil above the cleanup criteria remained, the soil was sampled to characterize the residual activity.

The grid cell was determined to be below the release limit if the five verification samples averaged less than 30 pCi/g total uranium.

5.3. INSTRUMENTATION

Four types of scientific detection equipment were maintained onsite, including portable health and safety monitoring equipment, portable radiation detection equipment, portable calibration equipment, and stationary radiation detection instrumentation. Portable equipment was used in standard work areas and RCAs, while stationary radiation detection equipment was operated solely within the WESTON field trailer. Equipment model numbers and monitoring characteristics or functions are included in Table 2.

Ludlum Ludlum	12 43-5	Ratemeter Alpha Scintillator	Frisking
Ludlum Ludlum	2000/2200 43-10	Scaler Alpha Tray Counter	Swipe Analysis Air Sample Analysis
Ludlum Ludlum	12 44-9	Ratemeter G-M Detector	General Contamination Monitoring Excavation Control Monitoring
Ludlum Ludlum	2221/2300/2200 43-1	Ratemeter/Scaler Alpha Scintillator	Soil Sample Analyses
Ludlum Ludlum	2221 44-1	Ratemeter/Scaler Beta Scintillator	General Contamination Monitoring Excavation Control Monitoring
Ludlum Ludlum	2221 44-10	Ratemeter/Scaler NaI(Tl) 2X2 Detector	Gamma Count Rate Surveys
Ludlum	19	Micro-R Meter	Gamma Exposure Rates

All equipment was operated according to the requirements of the SOPs and manufacturer's specifications. All equipment was subject to a full calibration in accordance with American Society for Testing and Materials (ASTM)/American National Standards Institute (ANSI) methods using National Institute of Standards and Technology reference radioactive sources and secondary standards. SOP 10.0 identifies a method and frequency to perform response and function checks. These checks were documented and performed at least daily. Any instrument or equipment failing a function check and then subsequently being repaired was re-calibrated before being put back into service. All calibrations were documented using standard calibration forms, which are on file at the TI Attleboro Facility.

5.4. BACKGROUND LEVELS DETERMINATION

Background activity levels for this phase of the remediation and final survey were determined for soil total uranium concentrations, gross alpha counting of soils, gamma exposure rate and count rate of soils, and beta-gamma count rate surveys of soils for excavation control. Direct background measurements and samples were collected from soil types similar to those onsite at seven locations in unaffected areas on TI property and in the surrounding communities. The background locations and measurements are described and documented in WESTON Log Book #455.

5.5. SAMPLE ANALYSIS

Sample analysis for the final survey incorporated a variation of the alpha soil screening protocol that was used during the TI facility study described in Appendix C of the *Supplemental Radiological Survey Plan*

(December 1994). The analytical instrumentation used for the final (1995) remediation survey detects alpha radiation by the same principle as the previous (1994) system, but is set up in a different geometry. The previous detection system methodology used zinc sulfide (ZnS) (silver [Ag]) in direct contact with the soil in a petri dish. The petri dish was then placed on top of a photomultiplier tube in a light-tight container and counted. The WESTON counting system uses an alpha scintillation detector (Ludlum Model 43-1) that contains an 83-cm^2 Mylar window with an active area of 75 cm^2, a ZnS (Ag) layer, a light pipe, and a photomultiplier tube housed in a light-tight probe.

Soil samples were collected and processed according to SOP 29.0. After processing, the samples were placed in a constant geometry sample holder directly under the Ludlum 43-1 probe and counted for 10 minutes according to SOP 30.0.

The field gross alpha counting system was correlated to known analytical results from an outside analytical laboratory. Twelve archive samples from the 1994 radiological surveys were split and sent to an outside laboratory for isotopic uranium analysis. The sample isotopic results were summed for total uranium activity, which ranged from 3.01 to 60.7 pCi/g. The splits from these samples were processed according to SOP 29.0 and counted eight times each (SOP 30.0). The average gross counts/10 minutes were then correlated with the offsite analytical results through a linear regression. The slope of this comparison provided a calibration factor for converting the counts/10 minutes to pCi/g. Calibration and further explanation of the field counting system was provided to NRC in response to NRC comments on October 2, 1995.

Verification samples from each grid cell were composited, split, and counted with the onsite system. The quality assurance splits were then sent to an offsite analytical laboratory for isotopic uranium analysis. The quality assurance splits showed good correlation with the onsite verification samples. Also, the quality assurance splits generally showed a slightly lower activity than the onsite samples, indicating a conservative bias to the cleanup based on the onsite results.

5.6. DATA INTERPRETATION

Data conversions and evaluations were performed as provided in the TI radioactive materials license (SNM-23); the TI *1992 Remediation Plan*; the *Supplement to the 1992 Remediation Plan*; NUREG/CR-5849, the *Manual for Conducting Radiological Surveys in Support of License Termination*; and the SOPs listed in Section 5.2.3 of this report. Calibration methods complied with ANSI N323-1978 and ASTM standards. All measurement data were converted to units consistent with the regulatory requirements and guidelines. Exposure rate and gamma count rate measurements were corrected for contributions from the

natural site background. No soil sample results were corrected for natural background concentrations of uranium.

5.7. RECORDS

All verification samples and survey data for this project have been archived at the TI Attleboro facility. Duplicate records are stored at the WESTON office in Albuquerque, New Mexico. The project filing system key is presented in Attachment 1.

6. SURVEY FINDING AND RESULTS

6.1. BACKGROUND LEVELS

Background data for the final survey for the WESTON Exterior Remediation Project are presented in Table 3.

Table 3. Background Soil Results

Background Location Number	Ludlum Model 44-9 G-M Pancake Detector cpm (*)	Ludlum Model 44-1 Alpha Scint. cpm	Ludlum Model 44-1 Alpha Scint. Direct Alpha Background Activity (counts in 1 min.)	Gross Alpha Activity (pCi/g)	Ludlum Model 19 (µR/hr)	Ludlum Model 44-40 Shielded G-M Pancake Detector cpm
1	65-70	57	72	12	9	3221
2	60-70	68	60	7	9	3370
3	70-90	55	52	2	8	2996
4	40-60	62	41	1	8	2996
5	70-90	79	64	8	9	3637
6	60-70	61	62	8	9	3441
7	80-100	71	49	1	10	3688
Average Background	71	65	57	6	9	3336

(*) The Ludlum 44-40 shield G-M pancake detector background is equivalent to the Ludlum Model 44-9 G-M pancake detector.

6.2. AFFECTED AREAS SURVEY

The grid cell final survey database is presented in Attachment 2. The bar charts in Attachment 3 depict sample average concentration for each grid cell compared to the guidelines. The bar charts in Attachment 4 present quality assurance results for onsite gross alpha analysis of composite samples and the quality assurance split-sample offsite analytical results. The bar charts are presented without the usual error bars. Quality assurance results indicate good data comparability. These grid cell gamma exposure rate and gamma count rate survey data are presented in Attachment 5. The grid cell data summary is found in Attachment 6. Figures 5 and 6 provide the final survey results.

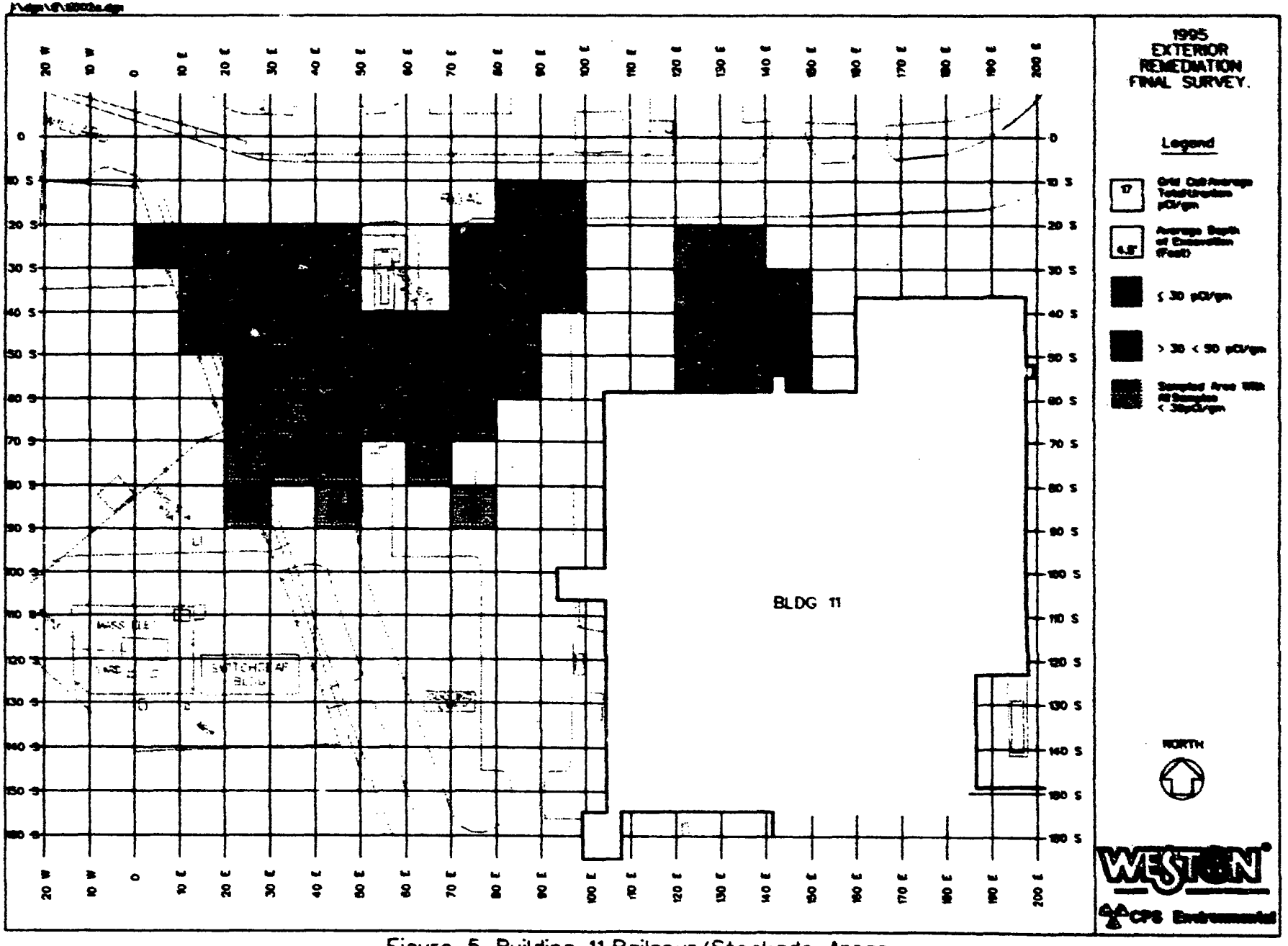


Figure 5. Building 11 Railspur/Stockade Areas.

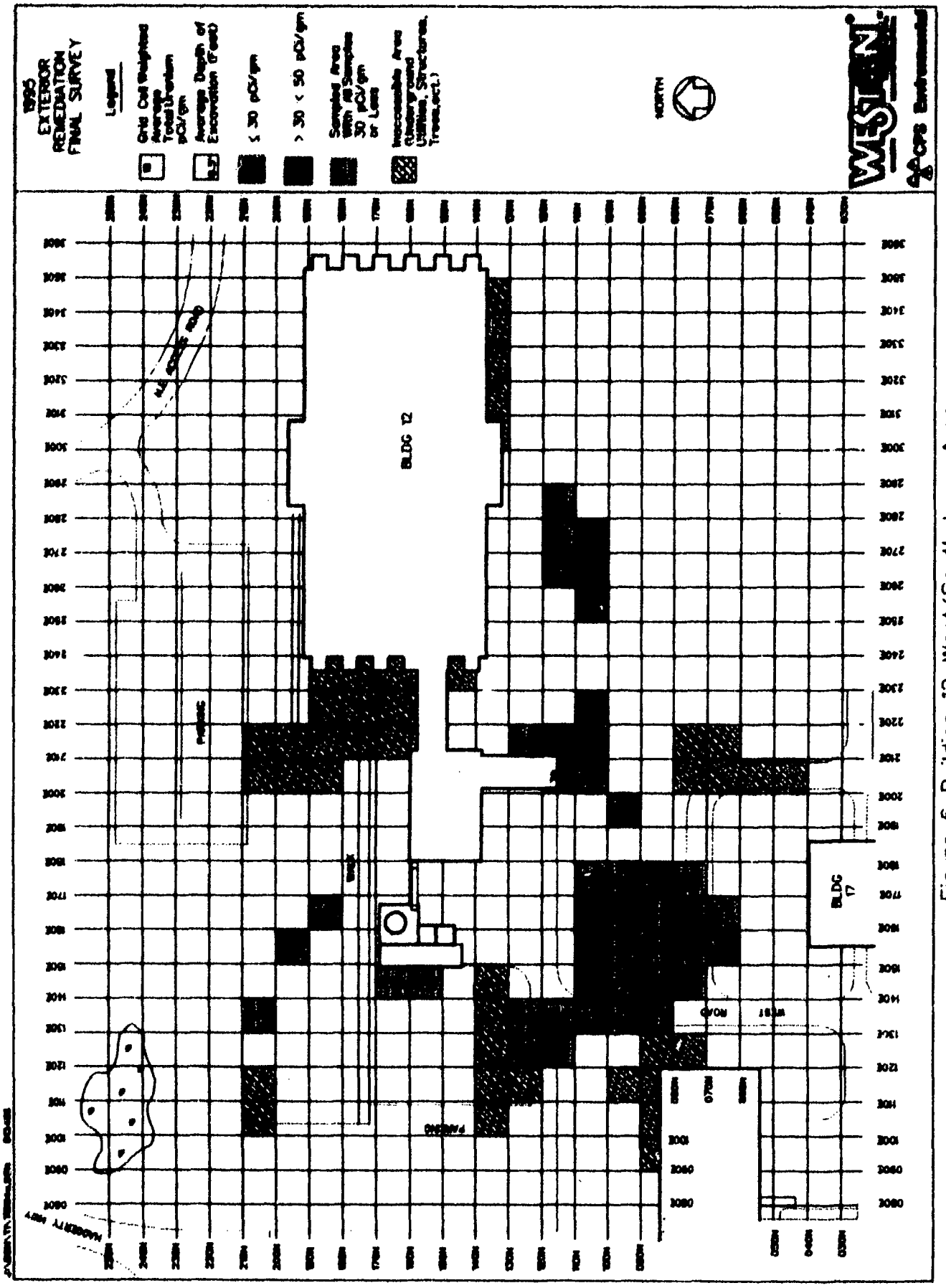


Figure 6. Building 12 West/South Lawn Areas.

6.3. DATA EVALUATION

The comparison of the weighted average activity levels of all survey units with the applicable guidelines indicated that the guidelines were satisfied, with the exception of three grid cell survey units. The three units are located in the Building 11 Stockade Area and are identified as Grid # 0103 (20S40E), #0052 (30S90E), and #0053 (20S90E). Further remediation of these units could not be undertaken due to worker health and safety concerns, the risk of damaging vital facility utilities, and the risk of damaging facility structures. Diagrams of these grid cells (with the location of contaminated material identified, sample results and locations, and utilities) are provided in Attachment 7. Iso-activity representations of each grid cell "hot spot" locations are contained in Attachment 8. "Hot spots" are isolated locations with contamination concentrations greater than 30 pCi/g total uranium. These representations identify all existing "hot spot" locations within the grid cells.

6.4. RESIDUAL ACTIVITY INVENTORY

Locations, volumes, source term data, and depth of contamination of major sources of residual activity under utilities and structures can be found in the table and diagrams in Attachment 7. The average gross residual uranium concentration in the grid cell subsurface soils is 14 pCi/g and in the surface soils is 10 pCi/g.

7. CONCLUSION

Excavation remediation activities by WESTON at the TI Attleboro Facility began in June 1995 and were completed in December 1995. Waste shipping was completed in July 1996. These activities occurred in phases between the areas surrounding Buildings 11 and 12. All activities were planned in conjunction with the NRC and reported to the NRC throughout the period of performance. Final surveys were conducted at the completion of each remediation phase to ensure compliance with project commitments and release guidelines. The results of these surveys demonstrate that the remediation actions were effective in reducing residual uranium activity in the areas around Buildings 11 and 12 to well below the NRC guidelines and limits for unrestricted use.

8. REFERENCES

8.1 Texas Instruments Incorporated Radioactive Materials License (Special Nuclear Materials-23)

8.2 Texas Instruments Incorporated. 1992. *1992 Remediation Plan.*

8.3 Texas Instruments Incorporated. 1994. *Supplement to the 1992 Remediation Plan.*

8.4 NUREG/CR-5849. *Manual for Conducting Radiological Surveys in Support of License Termination.*

8.5 U.S. Atomic Energy Commission. Regulatory Guide 1.86, *Termination of Operating Licenses for Nuclear Reactors.*

8.6 U.S. Nuclear Regulatory Commission. *Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material.*

8.7 NRC Branch Technical Position (BTP) (46 FR 52061, October 1981).

ROY F. WESTON, INC.
CONFIDENTIAL CLIENT (10923-003-001)
PROJECT FILE KEY
REVISED 30 JANUARY 1996

1.0 CONTRACT DOCUMENTATION
- 1.1 Proposal and Pre-Award
  - 1.1.1 Pre-Award
  - 1.1.2 Proposal
  - 1.1.3 Statement of Work/total cost estimates
- 1.2 Prime Contract Documentation/Terms & Conditions
- 1.3 Contract Modifications
- 1.4 Project Closeout

2.0 CORRESPONDENCE/COMMUNICATIONS
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- 2.2 Internal
- 2.3 Subcontractor
  - 2.3.1 PSI
  - 2.3.2 Bartlett Nuclear
  - 2.3.3 Conrail/Pittsburgh-Customer Service
  - 2.3.4 Consulting Engineering Diversified (CED)
  - 2.3.5 D B Kelly
  - 2.3.6 E. Otis Dyer
  - 2.3.7 EnviroCare of Utah
  - 2.3.8 Franklin Environmental Services, Inc.
  - 2.3.9 TMA/Eberline
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- 2.5 Regulatory Agencies

3.0 FINANCIAL
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- 3.2 Monitoring & Control
  - 3.2.1 Weekly Project Details
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- 3.3 TI/WESTON Invoicing
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  - 3.4.3 Conrail/Pittsburgh-Customer Service
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  - 3.4.8 Franklin Environmental Services, Inc.
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4.0 SUBCONTRACT DOCUMENTATION
- 4.1 Subcontractor Proposals/Bids
  - 4.1.1 PSI
  - 4.1.2 Bartlett Nuclear

8.0 PROJECT LICENSES/PERMITS
- 8.1 Rad License
- 8.2 Rad Work Permit
- 8.3 Hot Work Permits
- 8.4 Confined Space Entry Permits

9.0 PROGRAM PLANS
- 9.1 Project Plan
- 9.2 Work Plan
- 9.3 Sampling and Analysis Plan
- 9.4 Waste Analysis Plan
- 9.5 Standard Operating Procedures

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11.0 TECHNICAL INFORMATION
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  - 11.1.1 Calibration of SKC Personal Air Sampler
  - 11.1.2 Certificates of Calibration
  - 11.1.3 Equipment/Trucking Inspection
  - 11.1.4 Equipment Function Check Record
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  - 11.1.6 Work Area Access Control Roster
  - 11.1.7 Excavated Grid Soil Chain of Custody
  - 11.1.8 Survey Data
    - 11.1.8.1 Equipment Release Surveys
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    - 11.1.8.3 Railcar DOT Surveys
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- 11.2 Engineering
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    - 11.2.1.1 Screened Rock Calculations
    - 11.2.1.2 Grid Depth Calculations
    - 11.2.1.3 MPA Loaded Material
  - 11.2.2 Drawings
- 11.3 Graphics
  - 11.3.1 Photographs
  - 11.3.2 Maps and Sketches
  - 11.3.3 Transparencies
- 11.4 Proctor Soil Analysis
- 11.5 Compaction Tests

12.0 DATA & INFORMATION
- 12.1 Field Survey Plans/Sampling
- 12.2 Analytical Data & Reports
  - 12.2.1 Chemical Soil Analysis
  - 12.2.2 Radiological Soil Analysis
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12.2.5 Moisture Density Report
12.3 Logbooks, Field Notes
12.4 Field Forms
12.5 Field Equipment Info/Data
12.6 Waste Management
12.6.1 Waste Shipment Summaries
12.7 Excavation Data

18.0 REVIEW DOCUMENTATION FOR DELIVERABLES
18.1 Comments & Responses to Deliverables
18.2 Preliminary/Initial Drafts
18.3 Working Drafts
18.4 Draft Finals

19.0 FINAL DELIVERABLES
19.1 Camera-Ready Originals
19.2 Final Deliverable Documents
19.3 Approvals of Finals Deliverables

20.0 REFERENCES MATERIALS & INFORMATION (NON-WESTON)
20.1 Regulatory Info./Reports
20.2 Property Issues
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20.4 Graphics & Maps
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Texas Instruments, Attleboro:
Exterior Post-Remediation Grid Block Data

GRID #
0001

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		#DIV/0!

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
208N150E-073185-VER-0001-1a	1	77	12	
208N150E-073185-VER-0001-2a	2	61	12	
208N150E-073185-VER-0001-3a	1	160	23	
208N150E-073185-VER-0001-4a	2	59	3	
208N150E-073185-VER-0001-5a	1	116	31	16

TOTAL AVERAGE CONCENTRATION (pCi/g)
16

Composite System #(1 or 2)
1

COMPOSITE SAMPLE 208N150E-073185-VER-0001-Cs

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	SUBLINE ANALYSIS (pCi/g)
82	14	17

GRID #
0002

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		#DIV/0!

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
190N160E-080285-VER-0002-1c	2	65	6	
190N160E-080285-VER-0002-2c	2	75	10	
190N160E-080285-VER-0002-3c	2	63	5	
190N160E-080285-VER-0002-4c	2	128	30	
190N160E-080285-VER-0002-5c	2	71	8	12

TOTAL AVERAGE CONCENTRATION (pCi/g)
12

Composite System #(1 or 2)
2

COMPOSITE SAMPLE 190N160E-080285-VER-0002-Cc

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	SUBLINE ANALYSIS (pCi/g)
61	4	5

GRID #
0003

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		#DIV/0!

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
210N130E-080185-VER-0003-1a	1	116	31	
210N130E-080185-VER-0003-2a	2	63	13	
210N130E-080185-VER-0003-3a	1	92	19	
210N130E-080185-VER-0003-4a	2	79	11	
210N130E-080185-VER-0003-5a	2	76	10	17

TOTAL AVERAGE CONCENTRATION (pCi/g)
17

Composite System #(1 or 2)
2

COMPOSITE SAMPLE 210N130E-080185-VER-0003-Cs

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	SUBLINE ANALYSIS (pCi/g)
102	20	16

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post-Remediation Grid Block Data

GRID # 0004

Check Samples	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		#DIV/0!

Verification Samples	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
170N140E-080885-VER-0004-1c	1	81	14	
170N140E-080885-VER-0004-2c	1	68	8	
170N140E-080885-VER-0004-3c	1	83	15	
170N140E-080885-VER-0004-4c	1	88	21	
170N140E-080885-VER-0004-5c	1	82	5	13

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
13	2

COMPOSITE SAMPLE	170N140E-080885-VER-0004-Cs	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
82	16	7

GRID # 0005

Check Samples	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		#DIV/0!

Verification Samples	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
160N140E-080885-VER-0005-1a	2	98	17	
160N140E-080885-VER-0005-2a	2	78	10	
160N140E-080885-VER-0005-3a	2	101	19	
160N140E-080885-VER-0005-4a	2	91	16	
160N140E-080885-VER-0005-5a	2	70	8	14

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
14	2

COMPOSITE SAMPLE	160N140E-080885-VER-0005-Cs	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
47	<1	5

GRID # 0006

Check Samples	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
120N120E-100885-CHK-0006-1a	2	67	6	
120N120E-100885-CHK-0006-2a	2	74	9	
120N120E-100885-CHK-0006-3a	2	58	3	
120N120E-100885-CHK-0006-4a	1	79	13	
120N120E-100885-CHK-0006-5a	2	88	14	
120N120E-100885-CHK-0006-6a	1	78	12	
120N120E-100885-CHK-0006-7a	1	52	1	
120N120E-100885-CHK-0006-8a	1	48	1	
120N120E-100885-CHK-0006-9a	1	81	14	
120N120E-100885-CHK-0006-10a	1	63	5	
120N120E-100885-CHK-0006-11a	1	56	2	
Not Taken	N/A	N/A		
120N120E-100885-CHK-0006-13a	2	80	11	8

Verification Samples	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
120N120E-101085-VER-0006-1a	2	83	13	
120N120E-101085-VER-0006-2a	2	58	2	
120N120E-101085-VER-0006-3a	2	70	8	
120N120E-101085-VER-0006-4a	2	48	1	
120N120E-101085-VER-0006-5a	2	51	1	5

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
7	2

COMPOSITE SAMPLE	120N120E-101085-VER-0006-Cs	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
66	8	4

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post-Remediation Grid Block Data

GRID # 0007

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
120N130E-100885-CHK-0007-1a	1	40	1	
120N130E-100885-CHK-0007-2a	1	55	1	
120N130E-100885-CHK-0007-3a	2	48	1	
120N130E-100885-CHK-0007-4a	1	48	1	
120N130E-100885-CHK-0007-5a	2	34	1	
120N130E-100885-CHK-0007-6a	2	61	4	
120N130E-100885-CHK-0007-7a	1	71	9	
120N130E-100885-CHK-0007-8a	2	53	1	
120N130E-100885-CHK-0007-9a	2	46	1	
120N130E-100885-CHK-0007-10a	1	58	3	
Not Taken	N/A	N/A		
120N130E-100885-CHK-0007-12a	2	52	1	
120N130E-100885-CHK-0007-13a	2	51	1	2

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
120N130E-101085-VER-0007-1a	2	53	1	
120N130E-101085-VER-0007-2a	2	48	1	
120N130E-101085-VER-0007-3a	2	52	1	
120N130E-101085-VER-0007-4a	2	62	5	
120N130E-101085-VER-0007-6a	2	42	1	2

TOTAL AVERAGE CONCENTRATION (pCi/g): 2

Composite System # (1 or 2): 2

COMPOSITE SAMPLE	120N130E-101085-VER-0007-Cs	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
55	2	2

GRID # 0008

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
110N130E-101085-CHK-0008-1a	1	55	1	
110N130E-101085-CHK-0008-2a	2	50	1	
110N130E-101085-CHK-0008-3a	1	85	8	
110N130E-101085-CHK-0008-4a	2	58	3	
110N130E-101085-CHK-0008-5a	2	84	5	
110N130E-101085-CHK-0008-6a	1	82		
110N130E-101085-CHK-0008-7a	1	59	3	
110N130E-101085-CHK-0008-8a	1	60	4	
110N130E-101085-CHK-0008-9a	2	47	1	
110N130E-101085-CHK-0008-10a	2	98	16	
110N130E-101085-CHK-0008-11a	1	60	4	
110N130E-101085-CHK-0008-12a	1	71	9	
110N130E-101085-CHK-0008-13a	1	63	5	5

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
110N130E-101085-VER-0008-1a	2	76	10	
110N130E-101085-VER-0008-2a	2	77	10	
110N130E-101085-VER-0008-3a	2	63	5	
110N130E-101085-VER-0008-4a	2	63	5	
110N130E-101085-VER-0008-6a	2	47	1	5

TOTAL AVERAGE CONCENTRATION (pCi/g): 5

Composite System # (1 or 2): 2

COMPOSITE SAMPLE	110N130E-101085-VER-0008-Cs	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
71	8	2

GRID # 0009

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
110N140E-091885-CHK-0009-W1	2	223	66	
110N140E-091885-CHK-0009-W2	1	72	10	
110N140E-091885-CHK-0009-W3	2	93	16	
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
110N140E-091885-CHK-0009-9a	1	62	5	
110N140E-091885-CHK-0009-10a	1	78	12	
110N140E-091885-CHK-0009-11a	2	65	6	
110N140E-091885-CHK-0009-12a	2	72	8	
110N140E-091885-CHK-0009-13a	1	88	21	18

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
110N140E-092585-VER-0009-1b	2	63	5	
110N140E-092585-VER-0009-2b	2	98	18	
110N140E-092585-VER-0009-3b	2	88	15	
110N140E-092585-VER-0009-4b	2	54	2	
110N140E-092585-VER-0009-5b	2	83	13	11

TOTAL AVERAGE CONCENTRATION (pCi/g): 15

Composite System # (1 or 2): 2

COMPOSITE SAMPLE	110N140E-092585-VER-0009-Cs	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
90	4	2

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post-Remediation Grid Block Data

GRID # 0010

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
116N150E-082985-CHK-0010-1a	1	47	1	
116N150E-082985-CHK-0010-2a	2	85	17	
116N150E-082985-CHK-0010-3a	1	57	2	
116N150E-082985-CHK-0010-4a	2	70	8	
116N150E-082985-CHK-0010-5a	1	55	1	
116N150E-082985-CHK-0010-6a	2	85	6	
116N150E-082985-CHK-0010-7a	1	82	7	
116N150E-082985-CHK-0010-8a	2	45	1	
116N150E-082985-CHK-0010-9a	1	83	15	
116N150E-082985-CHK-0010-10a	2	85	13	
116N150E-082985-CHK-0010-11a	1	66	7	
116N150E-082985-CHK-0010-12a	2	146	38	
116N150E-082985-CHK-0010-13a	1	85	6	9

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
116N150E-082985-VER-0010-1b	2	48	1	
116N150E-082985-VER-0010-2b	2	52	1	
116N150E-082985-VER-0010-3b	2	58	3	
116N150E-082985-VER-0010-4b	2	61	16	
116N150E-082985-VER-0010-5b	2	55	2	5

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System # (1 or 2)
9	2

COMPOSITE SAMPLE	116N150E-082985-VER-0010-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
58	16	3

GRID # 0011

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
110N160E-082795-CHK-0011-1a	1	80	4	
110N160E-082795-CHK-0011-2a	2	46	1	
110N160E-082795-CHK-0011-3a	1	59	1	
110N160E-082795-CHK-0011-4a	2	66	6	
110N160E-082795-CHK-0011-5a	1	68	8	
110N160E-082795-CHK-0011-6a	2	65	6	
110N160E-082795-CHK-0011-7a	1	158	50	
110N160E-082795-CHK-0011-8a	2	93	16	
110N160E-082795-CHK-0011-9a	1	89	18	
110N160E-082795-CHK-0011-10a	2	58	3	
110N160E-082795-CHK-0011-11a	1	79	13	
110N160E-082795-CHK-0011-12a	2	65	6	
110N160E-082795-CHK-0011-13a	2	50	1	10

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
110N160E-082985-VER-0011-1a	2	58	2	
110N160E-082985-VER-0011-2a	2	61	12	
110N160E-082985-VER-0011-3a	2	79	11	
110N160E-082985-VER-0011-4a	2	72	8	
110N160E-082985-VER-0011-5a	2	69	9	8

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System # (1 or 2)
10	2

COMPOSITE SAMPLE	110N160E-082985-VER-0011-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
66	17	5

GRID # 0012

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
110N170E-082985-CHK-0012-1a	1	55	1	
110N170E-082985-CHK-0012-2a	1	56	2	
110N170E-082985-CHK-0012-3a	1	70	8	
110N170E-082985-CHK-0012-4a	1	81	14	
110N170E-082985-CHK-0012-5a	1	48	1	
110N170E-082985-CHK-0012-6a	2	118	26	
110N170E-082985-CHK-0012-7a	1	79	13	
110N170E-082985-CHK-0012-8a	1	55	1	
110N170E-082985-CHK-0012-9a	2	59	3	
110N170E-082985-CHK-0012-10a	1	68	7	
110N170E-082985-CHK-0012-11a	2	58	3	
110N170E-082985-CHK-0012-12a	1	83	15	
110N170E-082985-CHK-0012-13a	1	76	11	8

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
110N170E-082985-VER-0012-1a	2	48	1	
110N [illegible]-082985-VER-0012-2a	2	53	1	
110N170E-082985-VER-0012-3a	2	53	1	
110N170E-082985-VER-0012-4a	2	52	1	
110N170E-082985-VER-0012-6a	2	80	15	4

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System # (1 or 2)
7	2

COMPOSITE SAMPLE	110N170E-082985-VER-0012-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
65	6	4

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0013

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
100N130E-101085-CHK-0013-1a	2	73	9	
100N130E-101085-CHK-0013-2a	2	70	8	
100N130E-101085-CHK-0013-3a	2	111	23	
100N130E-101085-CHK-0013-4a	2	67	6	
100N130E-101085-CHK-0013-5a	2	83	16	
100N130E-101085-CHK-0013-6a	2	65	6	
100N130E-101085-CHK-0013-7a	2	67	6	
100N130E-101085-CHK-0013-8a	2	80	11	
100N130E-101085-CHK-0013-9a	2	44	1	
100N130E-101085-CHK-0013-10a	2	77	10	
100N130E-101085-CHK-0013-11a	2	54	2	
100N130E-101085-CHK-0013-12a	2	51	1	
100N130E-101085-CHK-0013-13a	2	55	2	8

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
100N130E-101185-VER-0013-1a	2	84	5	
100N130E-101185-VER-0013-2a	2	84	5	
100N130E-101185-VER-0013-3a	2	58	3	
100N130E-101185-VER-0013-4a	2	51	1	
100N130E-101185-VER-0013-5a	2	88	18	8

TOTAL AVERAGE CONCENTRATION (pCi/g): 7

Composite System #(1 or 2): 1

COMPOSITE SAMPLE	100N130E-101185-VER-0013-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
52	<1	2

GRID # 0014

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
100N140E-091085-CHK-0014-1a	1	82	14	
100N140E-091085-CHK-0014-2a	2	74	9	
100N140E-091085-CHK-0014-3a	1	103	24	
100N140E-091085-CHK-0014-4a	2	66	6	
100N140E-091085-CHK-0014-5a	1	51	1	
100N140E-091085-CHK-0014-6a	2	69	7	
100N140E-091085-CHK-0014-7a	2	69	7	
100N140E-091085-CHK-0014-8a	1	55	1	
100N140E-091085-CHK-0014-9a	1	84	15	
100N140E-091085-CHK-0014-10a	2	71	8	
100N140E-091085-CHK-0014-11a	1	62	5	
100N140E-091085-CHK-0014-12a	2	86	14	
130N140E-091085-CHK-0014-13a	1	83	15	10

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
100N140E-092585-VER-0014-1b	2	[illegible]	21	
100N140E-092585-VER-0014-2b	2	39	1	
100N140E-092585-VER-0014-3b	2	85	13	
100N140E-092585-VER-0014-4b	2	100	19	
100N140E-092585-VER-0014-5b	2	41	1	11

TOTAL AVERAGE CONCENTRATION (pCi/g): 10

Composite System #(1 or 2): 2

COMPOSITE SAMPLE	100N140E-092585-VER-0014-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
82	12	4

GRID # 0015

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
100N150E-082885-CHK-0015-1b	1	57	2	
100N150E-082885-CHK-0015-2b	2	46	1	
100N150E-082885-CHK-0015-3b	1	78	12	
100N150E-082885-CHK-0015-4b	2	90	15	
100N150E-082885-CHK-0015-5b	1	59	3	
100N150E-082885-CHK-0015-6b	2	97	18	
100N150E-082885-CHK-0015-7b	1	52	1	
100N150E-082885-CHK-0015-8b	2	87	6	
100N150E-082885-CHK-0015-9b	1	61	4	
100N150E-082885-CHK-0015-10b	2	80	4	
100N150E-082885-CHK-0015-11b	1	60	4	
100N150E-082885-CHK-0015-12b	2	112	24	
100N150E-082885-CHK-0015-13b	1	53	1	7

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
100N150E-082885-VER-0015-1a	2	97	18	
100N150E-082885-VER-0015-2a	2	78	10	
100N150E-082885-VER-0015-3a	2	69	7	
100N150E-082885-VER-0015-4a	2	89	15	
100N150E-082885-VER-0015-5a	2	61	4	11

TOTAL AVERAGE CONCENTRATION (pCi/g): 9

Composite System #(1 or 2): 2

COMPOSITE SAMPLE	100N150E-082885-VER-0015-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
110	35	5

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID #
0016

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		#DIV/0!

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
120N280E-081685-VER-0016-1a	2	108	22	
120N280E-081685-VER-0016-2a	2	69	7	
120N280E-081685-VER-0016-3a	2	125	29	
120N280E-081685-VER-0016-4a	2	98	18	
120N280E-081685-VER-0016-5a	2	89	19	19

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
19	2

COMPOSITE SAMPLE	120N280E-081685-VER-0016-Cs	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
91	13	5

GRID #
0017

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
120N270E-082285-CHK-0017-1b	1	84	8	
120N270E-082285-CHK-0017-2b	2	83	13	
120N270E-082285-CHK-0017-3b	2	56	2	
120N270E-082285-CHK-0017-4b	1	99	23	
120N270E-082285-CHK-0017-5b	1	87	17	
120N270E-082285-CHK-0017-6b	1	74	11	
120N270E-082285-CHK-0017-7b	1	93	20	
120N270E-082285-CHK-0017-8b	2	58	3	
120N270E-082285-CHK-0017-9b	2	28	1	
120N270E-082285-CHK-0017-10b	2	96	17	
120N270E-082285-CHK-0017-11b	1	70	9	
120N270E-082285-CHK-0017-12b	2	61	4	
120N270E-082285-CHK-0017-13b	1	86	16	11

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
120N270E-082285-VER-0017-1a	2	116	25	
120N270E-082285-VER-0017-2a	2	69	4	
120N270E-082285-VER-0017-3a	2	91	16	
120N270E-082285-VER-0017-4a	2	91	16	
120N270E-082285-VER-0017-5a	2	97	16	16

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
12	2

COMPOSITE SAMPLE	120N270E-082285-VER-0017-Cs	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
99	19	9

GRID #
0018

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
120N280E-082485-CHK-0018-1a	2	82	5	
120N280E-082485-CHK-0018-2a	2	78	11	
120N280E-082485-CHK-0018-3a	2	83	5	
120N280E-082485-CHK-0018-4a	2	49	1	
120N280E-082485-CHK-0018-5a	2	89	7	
120N280E-082485-CHK-0018-6a	2	41	1	
120N280E-082485-CHK-0018-7a	2	75	10	
120N280E-082485-CHK-0018-8a	2	141	35	
120N280E-082485-CHK-0018-9a	2	82	5	
120N280E-082485-CHK-0018-10a	2	72	8	
120N280E-082485-CHK-0018-11a	2	159	41	
120N280E-082485-CHK-0018-12a	2	262	81	
120N280E-082485-CHK-0018-13a	2	198	56	20

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
120N280E-080185-VER-0018-1a	2	104	21	
120N280E-080185-VER-0018-2a	2	60	11	
120N280E-080185-VER-0018-3a	2	112	24	
120N280E-080185-VER-0018-4a	2	48	1	
120N280E-080185-VER-0018-5a	2	72	9	13

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
19	2

COMPOSITE SAMPLE	120N280E-080185-VER-0018-Cs	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	BASELINE ANALYSIS (pCi/g)
103	20	9

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0019

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
110N270E-082585-CHK-0019-1a	2	87	6	
110N270E-082585-CHK-0019-2a	2	92	16	
110N270E-082585-CHK-0019-3a	2	132	31	
110N270E-082585-CHK-0019-4a	1	92	19	
110N270E-082585-CHK-0019-5a	2	194	55	
110N270E-082585-CHK-0019-6a	1	101	23	
110N270E-082585-CHK-0019-7a	1	128	36	
110N270E-082585-CHK-0019-8a	2	96	17	
110N270E-082585-CHK-0019-9a	2	109	22	
110N270E-082585-CHK-0019-10a	1	73	10	
110N270E-082585-CHK-0019-11a	1	88	21	
110N270E-082585-CHK-0019-12a	1	61	14	
110N270E-082585-CHK-0019-13a	1	41	1	21

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
110N270E-082585-VER-0019-1a	2	82	12	
110N270E-082585-VER-0019-2a	2	105	21	
110N270E-082585-VER-0019-3a	2	74	9	
110N270E-082585-VER-0019-4a	2	71	6	
Not Taken	N/A	N/A		13

TOTAL AVERAGE CONCENTRATION (pCi/g)
19

Composite System #(1 or 2)
2

COMPOSITE SAMPLE	110N270E-082585-VER-0019-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
99	15	9

GRID # 0020

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
110N280E-082585-CHK-0020-1a	2	84	13	
110N280E-082585-CHK-0020-2a	2	94	17	
110N280E-082585-CHK-0020-3a	2	123	28	
110N280E-082585-CHK-0020-4a	1	75	11	
110N280E-082585-CHK-0020-5b	1	99	23	
110N280E-082585-CHK-0020-6a	2	95	17	
110N280E-082585-CHK-0020-7a	1	112	29	
110N280E-082585-CHK-0020-8a	2	109	22	
110N280E-082585-CHK-0020-9a	2	123	28	
110N280E-082585-CHK-0020-10a	1	78	11	
110N280E-082585-CHK-0020-11a	1	82	14	
110N280E-082585-CHK-0020-12a	1	81	14	
110N280E-082585-CHK-0020-13a	1	64	6	18

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
110N280E-082585-VER-0020-1b	2	129	39	
110N280E-082585-VER-0020-2a	2	89	15	
110N280E-082585-VER-0020-3a	2	123	28	
110N280E-082585-VER-0020-4a	2	119	28	
Not Taken	N/A	N/A		25

TOTAL AVERAGE CONCENTRATION (pCi/g)
28

Composite System #(1 or 2)
2

COMPOSITE SAMPLE	110N280E-082585-CHK-0020-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
112	34	13

GRID # 0021

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
110N250E-082585-CHK-0021-1a	2	147	37	
110N250E-082585-CHK-0021-2a	2	37	1	
110N250E-082585-CHK-0021-3a	1	95	21	
110N250E-082585-CHK-0021-4a	1	72	10	
110N250E-082585-CHK-0021-5a	2	59	3	
110N250E-082585-CHK-0021-6a	1	94	20	
110N250E-082585-CHK-0021-7a	2	66	6	
110N250E-082585-CHK-0021-8a	2	110	23	
110N250E-082585-CHK-0021-9a	1	66	8	
110N250E-082585-CHK-0021-10a	1	73	10	
110N250E-082585-CHK-0021-11a	1	93	20	
110N250E-082585-CHK-0021-12a	2	65	6	
110N250E-082585-CHK-0021-13a	1	97	22	14

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
110N250E-082585-VER-0021-1a	2	76	11	
110N250E-082585-VER-0021-2a	2	98	18	
110N250E-082585-VER-0021-3a	2	79	11	
110N250E-082585-VER-0021-4a	2	47	1	
110N250E-082585-VER-0021-5a	2	92	16	11

TOTAL AVERAGE CONCENTRATION (pCi/g)
14

Composite System #(1 or 2)
2

COMPOSITE SAMPLE	110N250E-082585-VER-0021-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
100	19	4

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID #
0022

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
120N210E-080886-CHK-0022-1a	2	112	24	
120N210E-080886-CHK-0022-2a	1	78	13	
120N210E-080886-CHK-0022-3a	2	94	5	
120N210E-080886-CHK-0022-4a	1	78	13	
120N210E-080886-CHK-0022-5a	2	78	11	
120N210E-080886-CHK-0022-6a	1	72	10	
120N210E-080886-CHK-0022-7a	2	124	28	
120N210E-080886-CHK-0022-8a	1	73	10	
120N210E-080886-CHK-0022-9a	2	156	41	
120N210E-080886-CHK-0022-10a	2	83	5	
120N210E-080886-CHK-0022-11a	2	108	22	
120N210E-080886-CHK-0022-12a	2	146	37	
120N210E-080886-CHK-0022-13a	2	103	20	18

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
120N210E-080886-VER-0022-1a	2	76	10	
120N210E-080886-VER-0022-2a	2	59	3	
120N210E-080886-VER-0022-3a	2	85	17	
120N210E-080886-VER-0022-4a	2	103	28	
120N210E-080886-VER-0022-5a	2	80	15	13

TOTAL AVERAGE CONCENTRATION (pCi/g)
17

Composite System #(1 or 2)
2

COMPOSITE SAMPLE 120N210E-080886-VER-0022-Cb

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
71	8	12

GRID #
0023

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
130N210E-081195-CHK-0023-1a	2	76	10	
130N210E-081195-CHK-0023-2a	2	45	1	
130N210E-081195-CHK-0023-3a	1	72	10	
130N210E-081195-CHK-0023-4a	1	73	10	
130N210E-081195-CHK-0023-5a	1	84	15	
130N210E-081195-CHK-0023-6a	2	95	17	
130N210E-081295-CHK-0023-7b	2	88	14	
130N210E-081195-CHK-0023-8a	2	87	14	
130N210E-081295-CHK-0023-9b	2	75	10	
130N210E-081195-CHK-0023-10a	2	98	18	
130N210E-081295-CHK-0023-11b	1	85	16	
130N210E-081295-CHK-0023-12b	2	87	14	
130N210E-081195-CHK-0023-13a	1	112	29	14

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
130N210E-081295-VER-0023-1a	2	60	4	
130N210E-081295-VER-0023-2a	2	72	8	
130N210E-081295-VER-0023-3a	2	101	19	
130N210E-081295-VER-0023-4a	2	74	9	
130N210E-081295-VER-0023-5a	2	77	10	10

TOTAL AVERAGE CONCENTRATION (pCi/g)
13

Composite System #(1 or 2)
2

COMPOSITE SAMPLE 130N210E-081295-VER-0023-Cb

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
68	7	8

GRID #
0024

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
110N210E-081395-CHK-0024-1a	1	131	38	
110N210E-081395-CHK-0024-2a	1	51	1	
110N210E-081395-CHK-0024-3a	2	53	1	
110N210E-081395-CHK-0024-4a	2	99	19	
110N210E-081395-CHK-0024-5a	1	82	14	
110N210E-081395-CHK-0024-6a	2	158	41	
110N210E-081395-CHK-0024-7a	1	81	14	
110N210E-081395-CHK-0024-8a	2	65	6	
110N210E-081395-CHK-0024-9a	1	115	30	
110N210E-081395-CHK-0024-10a	2	60	4	
110N210E-081395-CHK-0024-11a	2	206	59	
110N210E-081395-CHK-0024-12a	1	83	15	
110N210E-081395-CHK-0024-13a	2	60	4	19

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
110N210E-082195-VER-0024-1b	2	91	19	
110N210E-082195-VER-0024-2b	2	63	5	
110N210E-082195-VER-0024-3b	2	110	23	
110N210E-082195-VER-0024-4b	2	53	1	
110N210E-082195-VER-0024-5b	2	82	12	11

TOTAL AVERAGE CONCENTRATION (pCi/g)
17

Composite System #(1 or 2)
2

COMPOSITE SAMPLE 110N210E-082195-VER-0024-Cb

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
84	13	16

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0025

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
120N200E-091485-CHK-0025-1a	2	93	16	
120N200E-091485-CHK-0025-2a	2	84	13	
120N200E-091585-CHK-0025-3b	1	62	5	
120N200E-091485-CHK-0025-4a	2	72	8	
120N200E-091485-CHK-0025-5a	2	48	1	
120N200E-091485-CHK-0025-6a	2	65	6	
120N200E-091485-CHK-0025-7a	1	42	1	
120N200E-091485-CHK-0025-8a	1	55	1	
120N200E-091485-CHK-0025-9a	2	53	1	
120N200E-091485-CHK-0025-10a	1	60	4	
120N200E-091485-CHK-0025-11a	2	105	21	
120N200E-091485-CHK-0025-12a	2	39	1	
120N200E-091485-CHK-0025-13a	2	54	2	6

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
120N200E-091585-VER-0025-1a	1	87	17	
120N200E-091585-VER-0025-2a	1	155	48	
120N200E-091585-VER-0025-3a	1	108	28	
120N200E-091585-VER-0025-4a	1	41	1	
120N200E-091585-VER-0025-5a	1	54	1	19

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
19	1

COMPOSITE SAMPLE	120N200E-091585-VER-0025-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
103	24	25

GRID # 0026

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
110N200E-091485-CHK-0026-1a	1	39	1	
110N200E-091485-CHK-0026-2a	2	81	12	
110N200E-091485-CHK-0026-3a	1	58	3	
110N200E-091485-CHK-0026-4a	2	61	4	
110N200E-091485-CHK-0026-5a	1	74	11	
110N200E-091485-CHK-0026-6a	2	121	27	
110N200E-091485-CHK-0026-7a	1	68	6	
110N200E-091485-CHK-0026-8a	2	40	1	
110N200E-091485-CHK-0026-9a	1	55	1	
110N200E-091485-CHK-0026-10a	2	66	6	
110N200E-091485-CHK-0026-11a	2	54	2	
110N200E-091485-CHK-0026-12a	2	41	1	
110N200E-091485-CHK-0026-13a	1	52	1	6

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
110N200E-091585-VER-0026-1a	2	77	10	
110N200E-091585-VER-0026-2a	2	63	5	
110N200E-091585-VER-0026-3a	2	90	15	
110N200E-091585-VER-0026-4a	2	62	1	
110N200E-091585-VER-0026-5a	2	74	9	8

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
7	2

COMPOSITE SAMPLE	110N200E-091585-VER-0026-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
56	2	6

GRID # 0027

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
110N220E-091185-CHK-0027-1a	1	128	36	
110N220E-091185-CHK-0027-2a	1	147	46	
110N220E-091185-CHK-0027-3a	2	42	1	
110N220E-091185-CHK-0027-4a	1	88	7	
110N220E-091185-CHK-0027-5a	1	80	13	
110N220E-091185-CHK-0027-6a	2	97	18	
110N220E-091185-CHK-0027-7a	2	78	10	
110N220E-091185-CHK-0027-8a	1	57	2	
110N220E-091185-CHK-0027-9a	2	75	10	
110N220E-091185-CHK-0027-10a	2	118	28	
110N220E-091185-CHK-0027-11a	1	71	9	
110N220E-091185-CHK-0027-12a	2	57	3	
110N220E-091185-CHK-0027-13a	2	117	25	16

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
110N220E-091285-VER-0027-1a	2	60	4	
110N220E-091285-VER-0027-2a	2	88	14	
110N220E-091285-VER-0027-3a	2	67	6	
110N220E-091285-VER-0027-4a	2	108	21	
110N220E-091285-VER-0027-5a	2	58	3	10

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
14	2

COMPOSITE SAMPLE	110N220E-091285-VER-0027-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
104	21	21

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID #
0028

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
100N190E-091585-CHK-0028-1a	1	85	16	
100N190E-091585-CHK-0028-2a	2	82	16	
100N190E-091585-CHK-0028-3a	1	62	5	
100N190E-091585-CHK-0028-4a	2	103	20	
100N190E-091585-CHK-0028-5a	1	80	13	
100N190E-091585-CHK-0028-6a	2	46	1	
100N190E-091585-CHK-0028-7a	1	91	19	
100N190E-091585-CHK-0028-8a	2	58	2	
100N190E-091585-CHK-0028-9a	1	67	7	
100N190E-091585-CHK-0028-10a	2	80	11	
100N190E-091585-CHK-0028-11a	1	78	12	
100N190E-091585-CHK-0028-12a	2	94	17	
100N190E-091585-CHK-0028-13a	1	88	17	12

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
100N190E-091585-VER-0028-1a	2	90	15	
100N190E-091585-VER-0028-2a	2	42	1	
100N190E-091585-VER-0028-3a	2	61	4	
100N190E-091585-VER-0028-4a	2	71	8	
100N190E-091585-VER-0028-5a	2	143	35	13

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
12	2

COMPOSITE SAMPLE	100N190E-091585-VER-0028-Cb	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
74	9	8

GRID #
0029

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
90N140E-091585-CHK-0029-1a	1	72	10	
90N140E-091585-CHK-0029-2a	2	74	9	
90N140E-091585-CHK-0029-3a	1	127	38	
90N140E-091585-CHK-0029-4a	2	43	1	
90N140E-091585-CHK-0029-5a	1	102	24	
90N140E-091585-CHK-0029-W1a	1	70	9	
90N140E-091585-CHK-0029-W2a	2	66	6	
90N140E-091585-CHK-0029-W3a	1	93	20	
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		
Not Taken	N/A	N/A		14

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
90N140E-092585-VER-0029-1b	2	74	9	
90N140E-092585-VER-0029-2b	2	69	7	
90N140E-092585-VER-0029-3b	2	61	4	
90N140E-092585-VER-0029-4b	2	85	13	
90N140E-092585-VER-0029-5b	2	75	10	9

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
12	2

COMPOSITE SAMPLE	90N140E-092585-VER-0029-Cb	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
77	10	5

GRID #
0030

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
90N150E-092585-CHK-0030-1a	1	62	5	
90N150E-092585-CHK-0030-2a	2	67	8	
90N150E-092585-CHK-0030-3a	1	61	4	
90N150E-092585-CHK-0030-4a	2	49	1	
90N150E-092585-CHK-0030-5a	1	54	1	
90N150E-092585-CHK-0030-6a	1	51	1	
90N150E-092585-CHK-0030-7a	1	82	14	
90N150E-092585-CHK-0030-8a	2	52	1	
90N150E-092585-CHK-0030-9a	1	68	8	
90N150E-092585-CHK-0030-10a	2	122	27	
90N150E-092585-CHK-0030-11a	1	70	9	
90N150E-092585-CHK-0030-12a	2	130	30	
90N150E-092585-CHK-0030-13a	1	115	30	11

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
90N150E-092785-VER-0030-1a	2	67	6	
90N150E-092785-VER-0030-2a	2	58	3	
90N150E-092785-VER-0030-3a	2	81	12	
90N150E-092785-VER-0030-4a	2	145	38	
90N150E-092785-VER-0030-5a	2	75	10	13

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
11	2

COMPOSITE SAMPLE	90N150E-092785-VER-0030-Cb	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
106	21	11

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

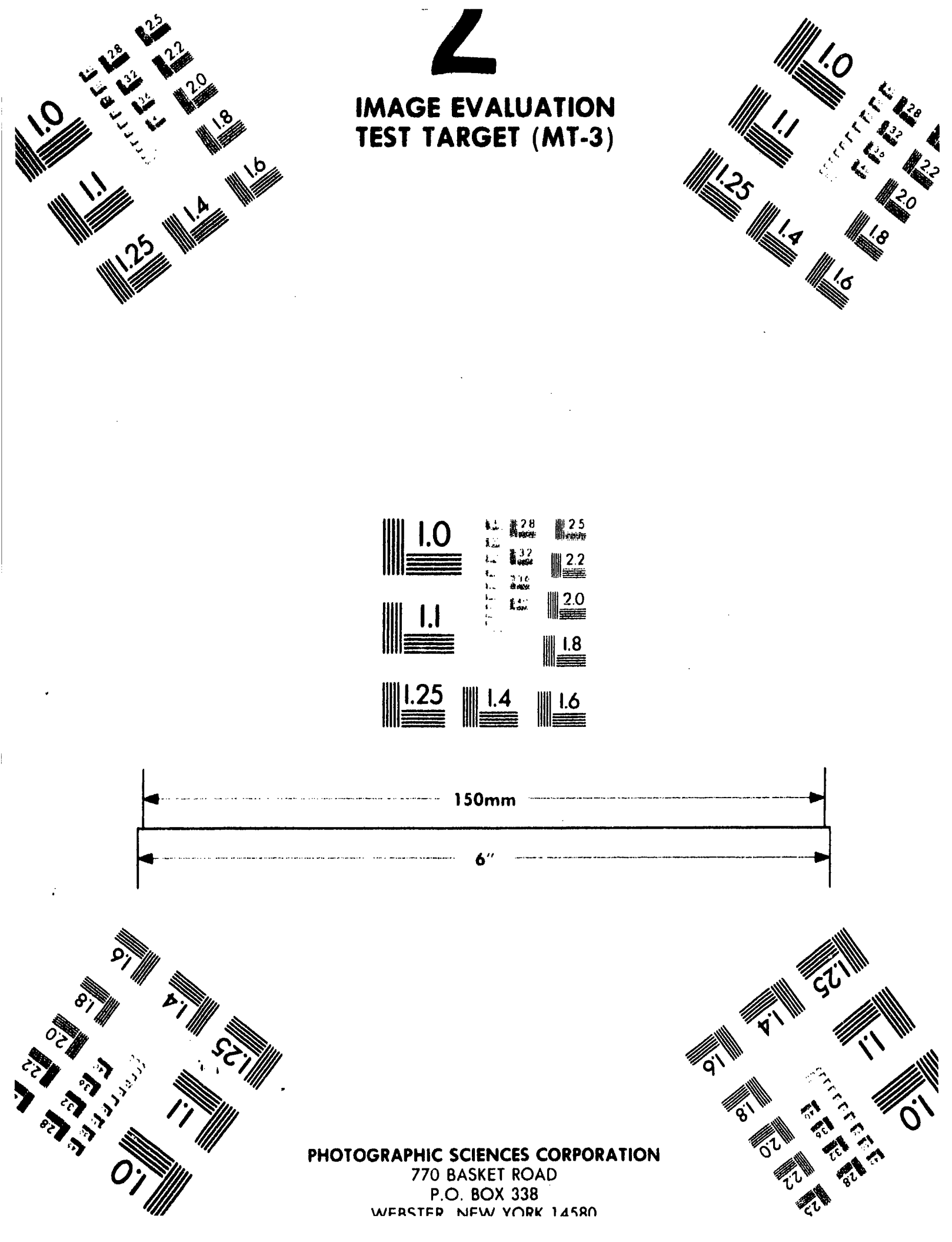
IMAGE EVALUATION
TEST TARGET (MT-3)
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1.4
1.6
1.8
2.0
2.2
2.5
2.8
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6"
PHOTOGRAPHIC SCIENCES CORPORATION
770 BASKET ROAD
P.O. BOX 338
WEBSTER, NEW YORK 14580

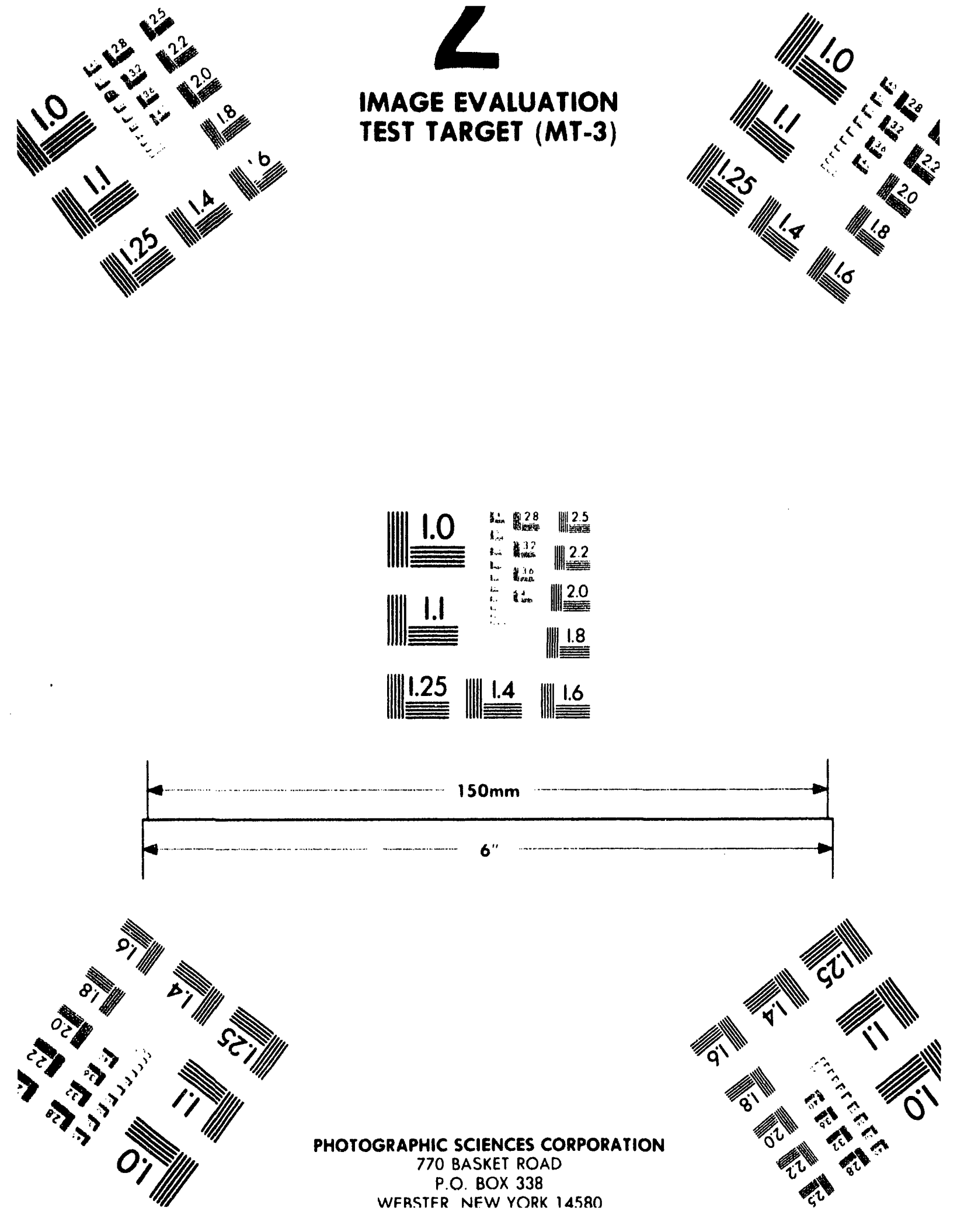
IMAGE EVALUATION
TEST TARGET (MT-3)
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1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
150mm
6"
PHOTOGRAPHIC SCIENCES CORPORATION
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P.O. BOX 338
WEBSTER NEW YORK 14580

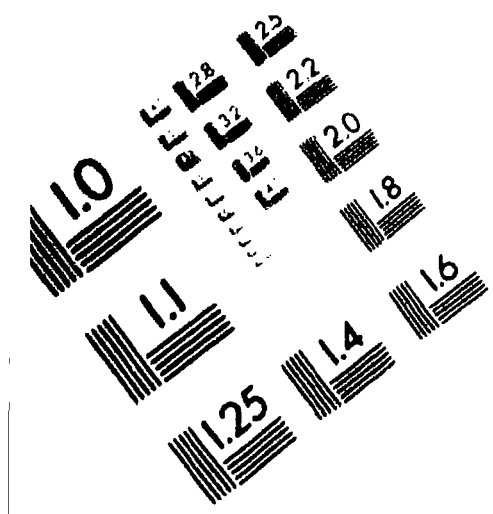
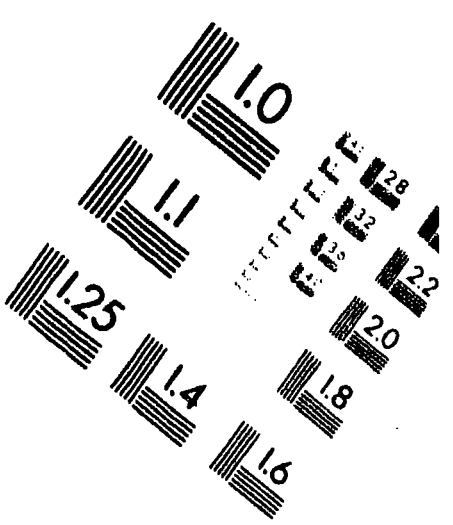
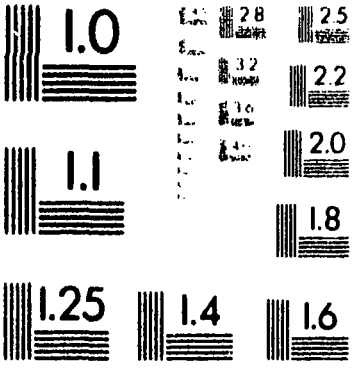
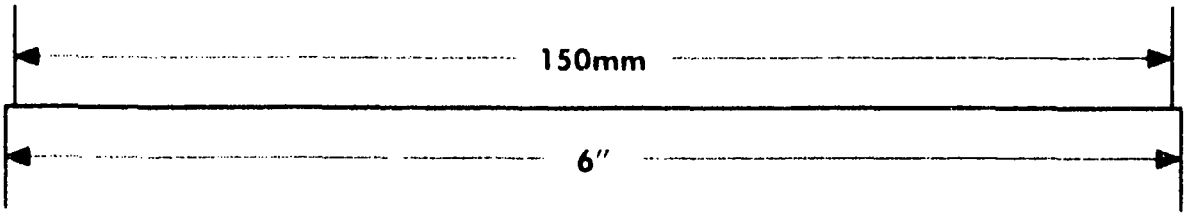
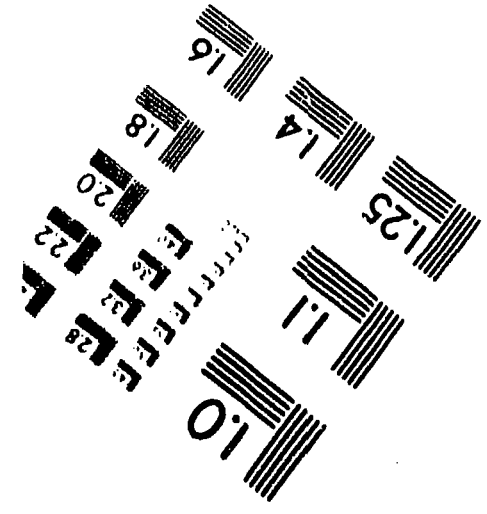


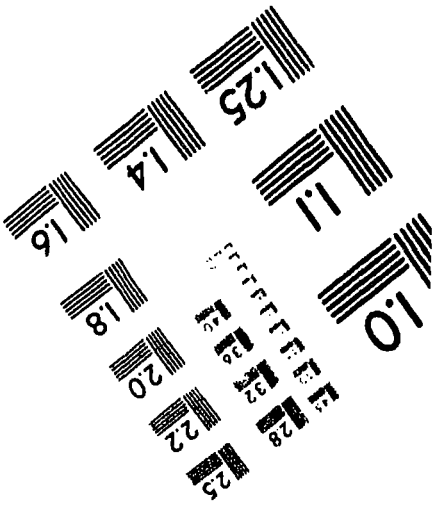
IMAGE EVALUATION TEST TARGET (MT-3)











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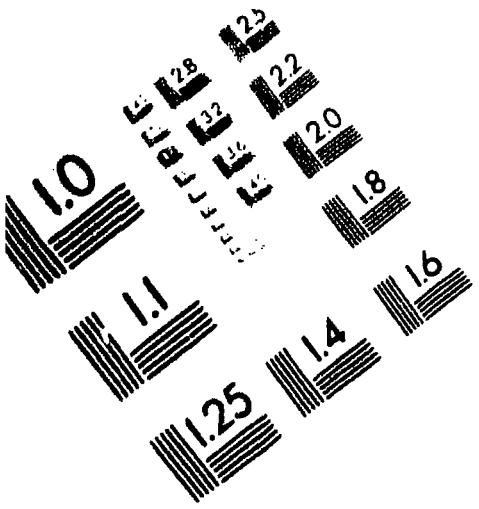
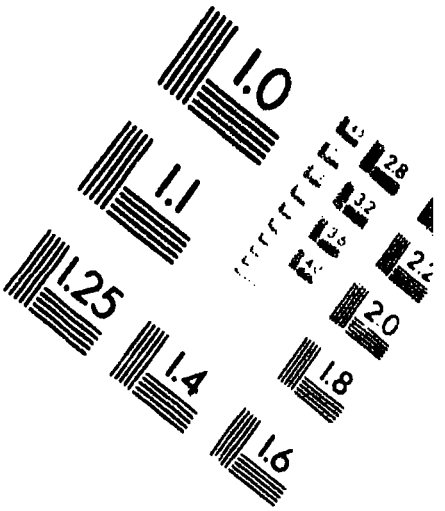
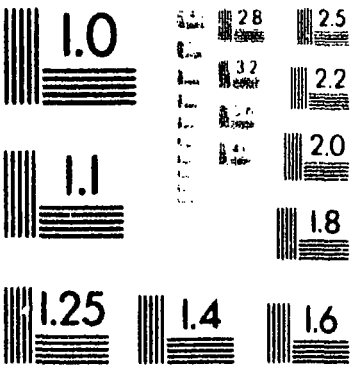
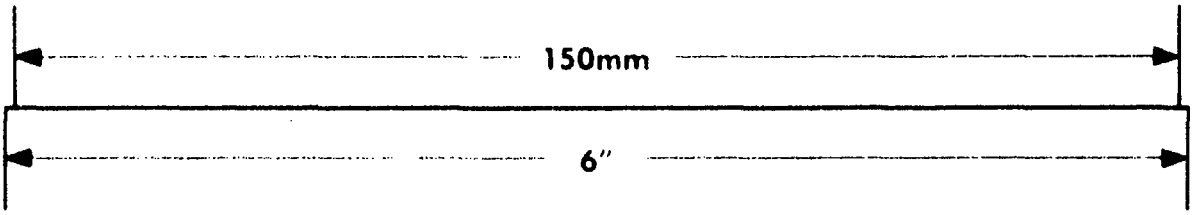
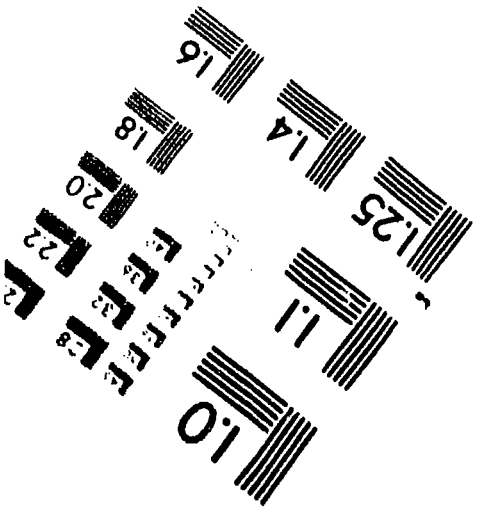


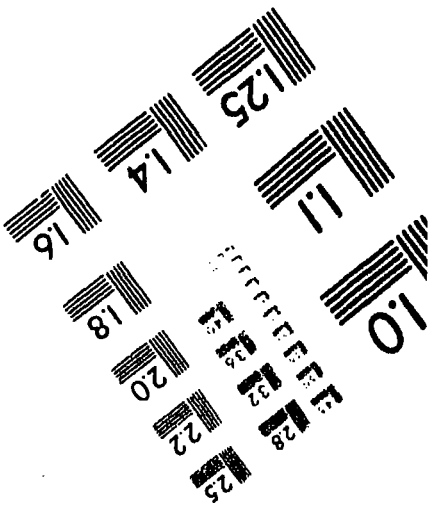
IMAGE EVALUATION TEST TARGET (MT-3)











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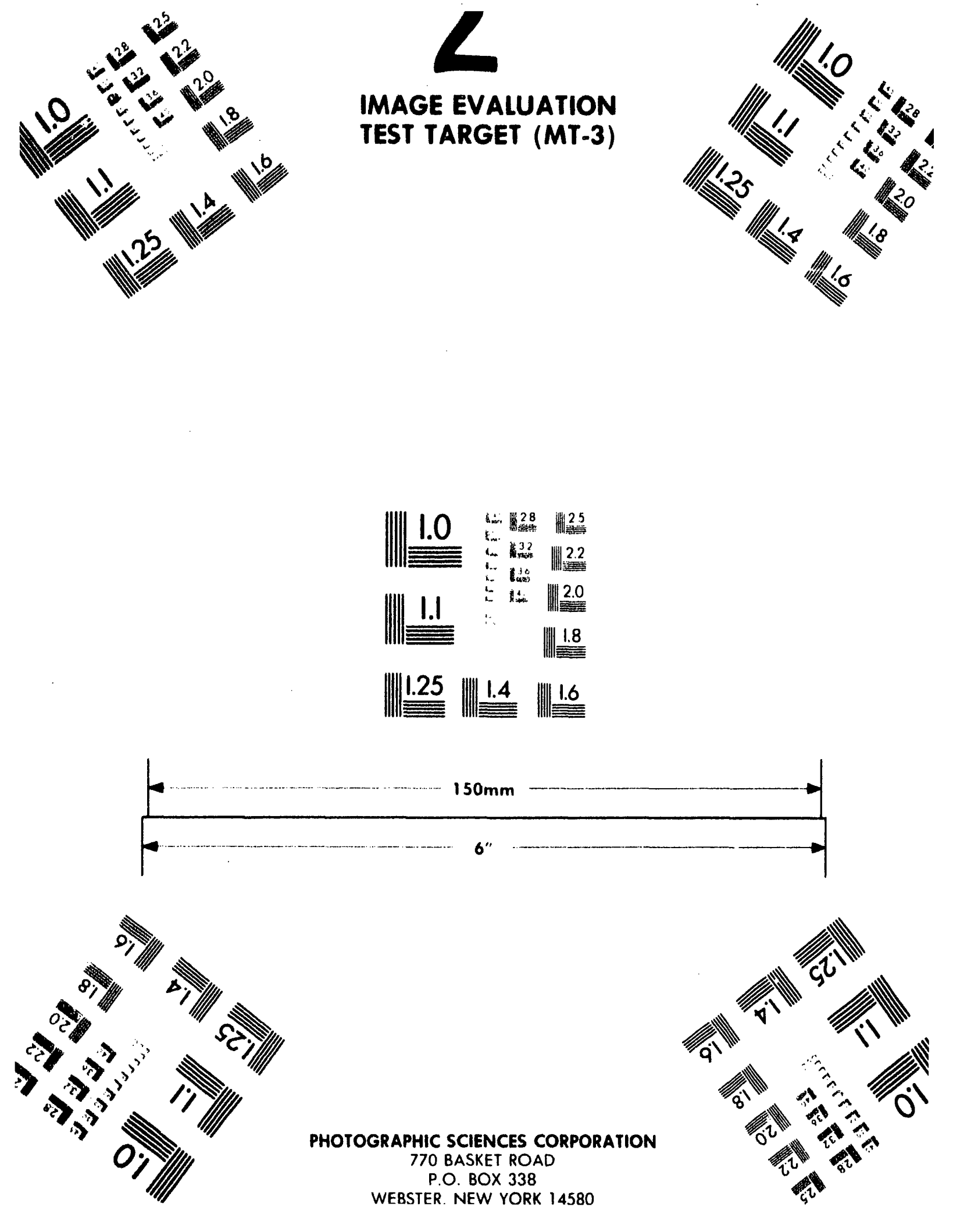
IMAGE EVALUATION
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1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
150mm
6"
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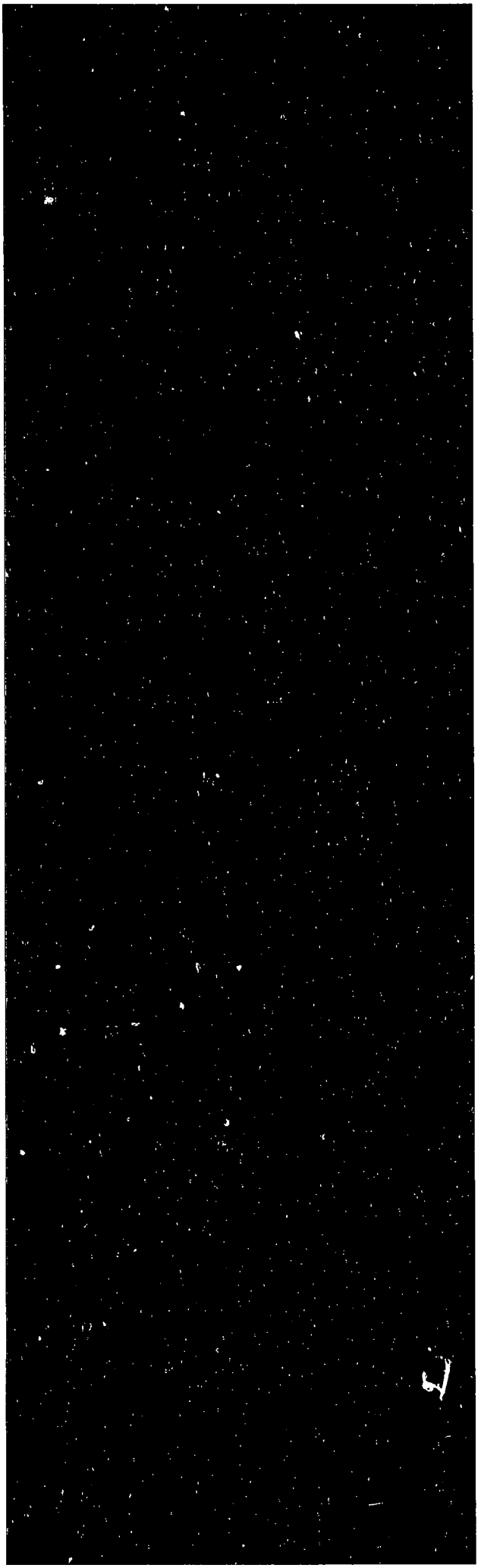


Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID #
0031

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
90N160E-101386-CHK-0031-1a	1	79	13	
90N160E-101386-CHK-0031-2a	2	58	3	
90N160E-101386-CHK-0031-3a	1	58	2	
90N160E-101386-CHK-0031-4a	2	56	2	
90N160E-101386-CHK-0031-5a	2	63	5	
90N160E-101386-CHK-0031-6a	1	82	19	
90N160E-101386-CHK-0031-7a	2	45	1	
90N160E-101386-CHK-0031-8a	2	54	2	
90N160E-101386-CHK-0031-9a	1	58	3	
90N160E-101386-CHK-0031-10a	1	60	4	
90N160E-101386-CHK-0031-11a	2	65	6	
90N160E-101386-CHK-0031-12a	2	81	12	
90N160E-101386-CHK-0031-13a	1	73	10	8

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
90N160E-101786-VER-0031-1a	2	88	15	
90N160E-101786-VER-0031-2a	2	57	3	
90N160E-101786-VER-0031-3a	2	182	43	
90N160E-101786-VER-0031-4a	2	308	97	
90N160E-101786-VER-0031-6a	2	48	1	32

TOTAL AVERAGE CONCENTRATION (pCi/g): 13

Composite System #(1 or 2): 2

COMPOSITE SAMPLE: 90N160E-101786-VER-0031-Co

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
141	36	3

GRID #
0032

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
100N160E-082986-CHK-0032-1a	1	70	9	
100N160E-082986-CHK-0032-2a	2	61	4	
100N160E-082986-CHK-0032-3a	1	127	36	
100N160E-082986-CHK-0032-4a	2	57	3	
100N160E-082986-CHK-0032-5a	1	91	19	
100N160E-082986-CHK-0032-6a	2	119	26	
100N160E-082986-CHK-0032-7a	1	92	19	
100N160E-082986-CHK-0032-8a	2	123	28	
100N160E-082986-CHK-0032-9a	1	58	3	
100N160E-082986-CHK-0032-10a	2	51	1	
100N160E-082986-CHK-0032-11a	1	46	1	
100N160E-082986-CHK-0032-12a	2	53	1	
100N160E-082986-CHK-0032-13a	1	87	17	13

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
100N160E-082786-VER-0032-1a	2	81	12	
100N160E-082786-VER-0032-2a	2	76	10	
100N160E-082786-VER-0032-3a	2	67	8	
100N160E-082786-VER-0032-4a	2	79	11	
100N160E-082786-VER-0032-6a	2	95	17	11

TOTAL AVERAGE CONCENTRATION (pCi/g): 12

Composite System #(1 or 2): 2

COMPOSITE SAMPLE: 100N160E-082786-VER-0032-Co

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
120	27	3

GRID #
0033

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
90N170E-102086-CHK-0033-1a	1	58	3	
90N170E-102086-CHK-0033-2a	2	103	20	
90N170E-102086-CHK-0033-3a	1	114	30	
90N170E-102086-CHK-0033-4a	2	105	21	
90N170E-102086-CHK-0033-5a	1	84	15	
90N170E-102086-CHK-0033-6a	2	69	7	
90N170E-102086-CHK-0033-7a	1	58	3	
90N170E-102086-CHK-0033-8a	2	95	17	
90N170E-102086-CHK-0033-9a	1	67	7	
90N170E-102086-CHK-0033-10a	2	119	26	
90N170E-102086-CHK-0033-11a	1	89	18	
90N170E-102086-CHK-0033-12a	2	113	24	
90N170E-102086-CHK-0033-13a	1	71	9	15

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
90N170E-111786-VER-0033-1a	2	84	5	
90N170E-111786-VER-0033-2a	2	117	25	
90N170E-111786-VER-0033-3a	2	50	1	
90N170E-111786-VER-0033-4a	2	68	7	
90N170E-111786-VER-0033-6a	2	75	10	10

TOTAL AVERAGE CONCENTRATION (pCi/g): 14

Composite System #(1 or 2): 2

COMPOSITE SAMPLE: 90N170E-111786-VER-0033-Co

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
87	6	4

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID #: 0034

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
100N170E-082986-CHK-0034-1a	1	110	28	
100N170E-082986-CHK-0034-2a	2	41	1	
100N170E-082986-CHK-0034-3a	1	61	4	
100N170E-082986-CHK-0034-4a	2	97	16	
100N170E [illegible]-CHK-0034-5a	1	91	19	
100N170E-[illegible]-CHK-0034-6a	2	79	11	
100N170E-082[illegible]-CHK-0034-7a	1	60	4	
100N170E-082[illegible]-CHK-0034-8a	2	66	6	
100N170E-082986-[illegible]-0034-9a	1	44	1	
100N170E-082986-CHK-0034-10a	2	81	12	
100N170E-082986-CHK-0034-11a	1	43	1	
100N170E-082986-CHK-0034-12a	2	126	29	
100N170E-082986-CHK-0034-13a	1	88	22	12

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
100N170E-082986-VER-0034-1a	2	48	1	
100N170E-082986-VER-0034-2a	2	58	3	
100N170E-082986-VER-0034-3a	2	64	5	
100N170E-082986-VER-0034-4a	2	62	5	
100N170E-082986-VER-0034-5a	2	82	18	8

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
19	2

COMPOSITE SAMPLE	100N170E-082986-VER-0034-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
108	25	4

GRID #: 0035

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
90N130E-101186-CHK-0035-1a	1	80	4	
90N130E-101186-CHK-0035-2a	1	74	11	
90N130E-101186-CHK-0035-3a	1	120	33	
90N130E-101186-CHK-0035-4a	1	69	8	
90N130E-101186-CHK-0035-5a	1	86	16	
90N130E-101186-CHK-0035-6a	2	88	14	
90N130E-101186-CHK-0035-7a	2	56	2	
90N130E-101186-CHK-0035-8a	2	76	10	
90N130E-101186-CHK-0035-sW1a	1	92	19	
90N130E-101186-CHK-0035-sW2a	1	75	11	
90N130E-101186-CHK-0035-sW3a	1	60	4	
90N130E-101186-CHK-0035-sW1a	2	110	23	
	N/A	N/A		13

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
90N130E-101286-VER-0035-1a	2	87	14	
90N130E-101286-VER-0035-2a	2	78	11	
90N130E-101286-VER-0035-3a	2	68	7	
90N130E-101286-VER-0035-4a	2	85	13	
90N130E-101286-VER-0035-5a	2	51	1	9

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
12	2

COMPOSITE SAMPLE	90N130E-101286-VER-0035-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
80	11	2

GRID #: 0036

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
west wall south west				
80N140E-102386-CHK-0036-0-2	2	70	8	
80N140E-102386-CHK-0036-2-4	2	75	10	
80N140E-102386-CHK-0036-4-6	2	104	21	
80N140E-102386-CHK-0036-6-8	2	70	8	
80N140E-102386-CHK-0036-8-10	2	42	1	
west wall north west				
80N140E-102386-CHK-0036-0-2	1	82	14	
80N140E-102386-CHK-0036-2-4	1	58	3	
80N140E-102386-CHK-0036-4-6	1	86	18	
80N140E-102386-CHK-0036-6-8	1	60	4	
80N140E-102386-CHK-0036-8-10	1	205	73	
				16

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		#DIV/0!

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
16	1

COMPOSITE SAMPLE	110N210E-111786-CHK-0036-Comp	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
68	8	N/A

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0037

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
80N150E-102095-CHK-0037-1a	1	49	1	
80N150E-101995-CHK-0037-2a	2	79	11	
80N150E-101995-CHK-0037-3a	1	53	1	
80N150E-101995-CHK-0037-4a	2	76	10	
80N150E-101995-CHK-0037-5a	1	72	10	
80N150E-102095-CHK-0037-6a	1	56	2	
80N150E-101995-CHK-0037-7a	1	57	2	
80N150E-101995-CHK-0037-8a	2	59	3	
80N150E-101995-CHK-0037-9a	2	52	1	
80N150E-101995-CHK-0037-10a	2	79	11	
80N150E-101995-CHK-0037-11a	1	57	2	
80N150E-101995-CHK-0037-12a	2	62	5	
80N150E-101995-CHK-0037-13a	1	62	5	5

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
80N150E-111795-VER-0037-1a	2	45	1	
80N150E-111795-VER-0037-2a	2	88	14	
80N150E-111795-VER-0037-3a	2	78	10	
80N150E-111795-VER-0037-4a	2	85	8	
80N150E-111795-VER-0037-5a	2	89	15	8

TOTAL AVERAGE CONCENTRATION (pCi/g): 8

Composite System # (1 or 2): 2

COMPOSITE SAMPLE	80N150E-111795-VER-0037-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
93	16	2

GRID # 0038

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
80N160E-102095-CHK-0038-1a	1	44	1	
80N160E-102095-CHK-0038-2a	2	161	42	
80N160E-102095-CHK-0038-3a	1	70	9	
80N160E-102095-CHK-0038-4a	2	88	7	
80N160E-102095-CHK-0038-5a	1	152	48	
80N160E-102095-CHK-0038-6a	2	84	13	
80N160E-102095-CHK-0038-7a	1	91	19	
80N160E-102095-CHK-0038-8a	2	132	31	
80N160E-102095-CHK-0038-9a	1	46	1	
80N160E-102095-CHK-0038-10a	2	70	6	
80N160E-102095-CHK-0038-11a	1	52	1	
80N160E-102095-CHK-0038-12a	2	98	18	
80N160E-102095-CHK-0038-13a	1	84	6	16

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
80N160E-111795-VER-0038-1a	2	87	8	
80N160E-111795-VER-0038-2a	2	84	13	
80N160E-111795-VER-0038-3a	2	80	11	
80N160E-111795-VER-0038-4a	2	103	20	
80N160E-111795-VER-0038-5a	2	88	8	11

TOTAL AVERAGE CONCENTRATION (pCi/g): 14

Composite System # (1 or 2): 2

COMPOSITE SAMPLE	80N160E-111795-VER-0038-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
84	5	3

GRID # 0039

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
80S70E-100395-CHK-0039-1b	1	37	1	
80S70E-100395-CHK-0039-2b	2	35	1	
80S70E-100395-CHK-0039-3b	1	69	8	
80S70E-100395-CHK-0039-4b	2	89	14	
80S70E-100395-CHK-0039-5b	1	104	25	
80S70E-100395-CHK-0039-6b	2	74	1	
80S70E-100395-CHK-0039-7b	1	19	1	
80S70E-100395-CHK-0039-8b	2	67	6	
80S70E-100395-CHK-0039-9b	1	71	9	
80S70E-100395-CHK-0039-10b	2	58	3	
80S70E-100395-CHK-0039-11b	1	59	3	
80S70E-100395-CHK-0039-12b	2	58	3	
80S70E-100395-CHK-0039-13b	1	88	7	6

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
80S70E-100495-VER-0039-1a	2	45	1	
80S70E-100495-VER-0039-2a	2	84	5	
80S70E-100495-VER-0039-3a	2	82	5	
80S70E-100495-VER-0039-4a	2	78	10	
80S70E-100495-VER-0039-5a	2	82	16	7

TOTAL AVERAGE CONCENTRATION (pCi/g): 7

Composite System # (1 or 2): 2

COMPOSITE SAMPLE	80S70E-100495-VER-0039-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
100	22	12

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0040

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
70S70E-082895-CHK-0040-1b	2	65	6	
70S70E-082895-CHK-0040-2b	2	55	2	
70S70E-082795-CHK-0040-3a	1	108	27	
70S70E-082795-CHK-0040-4a	1	100	23	
70S70E-082795-CHK-0040-5a	1	80	4	
70S70E-082895-CHK-0040-6b	2	61	4	
70S70E-082795-CHK-0040-7a	1	84	15	
70S70E-082795-CHK-0040-8a	1	93	20	
70S70E-082795-CHK-0040-9a	2	69	7	
70S70E-082795-CHK-0040-10a	1	97	22	
70S70E-082795-CHK-0040-11a	2	81	16	
70S70E-082895-CHK-0040-12b	2	51	1	
70S70E-082795-CHK-0040-13a	2	88	14	12

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
70S70E-082895-VER-0040-1a	2	42	1	
70S70E-082895-VER-0040-2a	2	61	4	
70S70E-082895-VER-0040-3a	2	22	1	
70S70E-082595-VER-0040-4a	2	85	17	
70S70E-082895-VER-0040-5a	2	58	3	6

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
18	2

COMPOSITE SAMPLE	70S70E-082895-VER-0040-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
59	3	9

GRID # 0041

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
60S70E-101295-CHK-0041-1a	2	41	1	
60S70E-101295-CHK-0041-2a	2	37	1	
60S70E-101995-CHK-0041-3a	1	97	22	
60S70E-101295-CHK-0041-4a	2	38	1	
60S70E-101295-CHK-0041-5a	2	66	6	
60S70E-101195-CHK-0041-6a	1	56	2	
60S70E-101195-CHK-0041-7a	1	86	16	
60S70E-101995-CHK-0041-8a	2	85	13	
60S70E-101195-CHK-0041-9a	1	47	1	
60S7GE-101295-CHK-0041-10a	2	44	1	
60S70E-101195-CHK-0041-11a	1	89	18	
60S70E-101195-CHK-0041-12a	1	55	1	
60S70E-101995-CHK-0041-13a	1	87	17	8

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
60S70E-102095-VER-0041-1a	1	134	39	
60S70E-102095-VER-0041-2a	1	92	19	
60S70E-102095-VER-0041-3a	1	77	12	
60S70E-102095-VER-0041-4a	1	84	15	
60S70E-102095-VER-0041-5a	1	67	7	18

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
11	1

COMPOSITE SAMPLE	60S70E-102095-VER-0041-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
70	9	10

GRID # 0042

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
70S60E-092595-CHK-0042-1a	1	127	36	
70S60E-092595-CHK-0042-2a	1	103	24	
70S60E-092595-CHK-0042-3a	2	84	13	
70S60E-092595-CHK-0042-4a	2	110	23	
70S60E-092595-CHK-0042-5a	2	129	30	
70S60E-092595-CHK-0042-6a	1	99	23	
70S60E-092595-CHK-0042-7a	1	82	14	
70S60E-092595-CHK-0042-8a	1	61	4	
70S60E-092595-CHK-0042-9a	2	68	6	
70S60E-092595-CHK-0042-10a	2	75	10	
70S60E-092595-CHK-0042-11a	1	59	3	
70S60E-092595-CHK-0042-12a	2	60	4	
70S60E-092595-CHK-0042-13a	1	73	10	15

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
70S60E-092595-VER-0042-1a	1	74	11	
70S60E-092595-VER-0042-2a	1	65	6	
70S60E-092595-VER-0042-3a	1	66	7	
70S60E-092595-VER-0042-4a	1	70	9	
70S60E-092595-VER-0042-5a	1	73	10	8

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
14	1

COMPOSITE SAMPLE	70S60E-092595-VER-0042-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
72	10	10

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0043

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
60S60E-100386-CHK-0043-1a	1	138	40	
60S60E-100386-CHK-0043-2a	2	83	13	
60S60E-100386-CHK-0043-3a	1	80	4	
60S60E-100386-CHK-0043-4a	2	112	24	
60S60E-100386-CHK-0043-5a	1	84	8	
60S60E-100386-CHK-0043-6a	2	67	6	
60S60E-100386-CHK-0043-7a	1	41	1	
60S60E-100386-CHK-0043-8a	2	68	7	
60S60E-100386-CHK-0043-9a	1	52	1	
60S60E-100386-CHK-0043-10a	2	40	1	
60S60E-100386-CHK-0043-11a	1	58	3	
60S60E-100386-CHK-0043-12a	2	55	2	
60S60E-100386-CHK-0043-13a	1	55	1	8

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
60S60E-100386-VER-0043-1a	2	61	4	
60S60E-100386-VER-0043-2a	2	49	1	
60S60E-100386-VER-0043-3a	2	51	1	
60S60E-100386-VER-0043-4a	2	40	1	
60S60E-100386-VER-0043-6a	2	61	4	2

TOTAL AVERAGE CONCENTRATION (pCi/g): 7

Composite System #(1 or 2): 2

COMPOSITE SAMPLE: 60S60E-100386-VER-0043-Ca

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
56	2	2

GRID # 0044

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
50S60E-100986-CHK-0044-1a	1	97	22	
50S60E-100986-CHK-0044-2a	2	120	27	
50S60E-100986-CHK-0044-3a	2	132	31	
50S60E-100986-CHK-0044-4a	1	86	16	
50S60E-100986-CHK-0044-5a	1	103	24	
50S60E-100986-CHK-0044-6a	1	102	24	
50S60E-100986-CHK-0044-7a	2	71	8	
50S60E-100986-CHK-0044-8a	1	64	6	
50S60E-100986-CHK-0044-9a	2	74	9	
50S60E-100986-CHK-0044-10a	2	74	9	
50S60E-100986-CHK-0044-11a	1	58	3	
50S60E-100986-CHK-0044-12a	2	88	6	
50S60E-100986-CHK-0044-13a	2	64	5	15

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
50S60E-101086-VER-0044-1a	1	83	15	
50S60E-101086-VER-0044-2a	1	74	11	
50S60E-101086-VER-0044-3a	1	100	23	
50S60E-101086-VER-0044-4a	1	83	5	
50S60E-101086-VER-0044-5a	1	88	17	14

TOTAL AVERAGE CONCENTRATION (pCi/g): 15

Composite System #(1 or 2): 1

COMPOSITE SAMPLE: 120N120E-101086-VER-0044-Ca

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
71	9	5

GRID # 0045

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
50S70E-101196-CHK-0045-1a	1	59	3	
50S70E-101196-CHK-0045-2a	2	32	1	
50S70E-102096-CHK-0045-3a	1	80	13	
50S70E-101196-CHK-0045-4a	1	48	1	
50S70E-102096-CHK-0045-5a	1	85	16	
50S70E-101196-CHK-0045-6a	1	47	1	
50S70E-101196-CHK-0045-7a	2	83	13	
50S70E-102096-CHK-0045-8a	2	71	8	
50S70E-101196-CHK-0045-9a	2	55	2	
50S70E-101196-CHK-0045-10a	2	46	1	
50S70E-101196-CHK-0045-11a	1	43	1	
50S70E-101196-CHK-0045-12a	2	49	1	
50S70E-102096-CHK-0045-13a	1	102	24	7

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
50S70E-102096-CHK-0045-1a	2	103	20	
50S70E-102096-CHK-0045-2a	2	112	24	
50S70E-102096-CHK-0045-3a	2	34	1	
50S70E-102096-CHK-0045-4a	2	51	1	
50S70E-102096-CHK-0045-5a	2	48	1	9

TOTAL AVERAGE CONCENTRATION (pCi/g): 7

Composite System #(1 or 2): 2

COMPOSITE SAMPLE: 60S70E-102096-CHK-0045-Ca

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
54	2	4

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0046

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
40S70E-101895-CHK-0046-1b	1	101	23	
40S70E-101795-CHK-0046-2a	2	98	18	
40S70E-101795-CHK-0046-3a	1	51	1	
40S70E-101895-CHK-0046-4b	2	48	1	
40S70E-101895-CHK-0046-5b	1	52	1	
40S70E-101795-CHK-0046-6a	2	84	13	
40S70E-101895-CHK-0046-7c	1	56	3	
40S70E-101795-CHK-0046-8a	2	87	8	
40S70E-101795-CHK-0046-9a	1	65	6	
40S70E-101895-CHK-0046-10b	2	53	1	
40S70E-101795-CHK-0046-11a	1	61	4	
40S70E-101795-CHK-0046-12a	2	93	16	
40S70E-101795-CHK-0046-13a	1	60	4	7

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S70E-101995-VER-0046-1a	2	129	30	
40S70E-101995-VER-0046-2a	2	43	1	
40S70E-101995-VER-0046-3a	2	48	1	
40S70E-101995-VER-0046-4a	2	74	9	
40S70E-101995-VER-0046-5a	2	121	27	14

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
9	2

COMPOSITE SAMPLE	40S70E-101995-VER-0046-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
84	13	33

GRID # 0047

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
Not Taken	N/A	N/A		
40S60E-101195-CHK-0047-2a	1	63	5	
40S60E-101195-CHK-0047-3a	1	73	10	
40S60E-101195-CHK-0047-4a	1	56	2	
40S60E-101195-CHK-0047-5a	1	49	1	
40S60E-101195-CHK-0047-6a	1	70	9	
40S60E-101195-CHK-0047-7a	1	60	4	
40S60E-101195-CHK-0047-8a	1	81	14	
40S60E-101195-CHK-0047-9a	1	71	9	
40S60E-101195-CHK-0047-10a	1	59	3	
40S60E-101195-CHK-0047-11a	1	92	19	
40S60E-101195-CHK-0047-12a	1	79	13	
40S60E-101195-CHK-0047-13a	1	45	1	8

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S60E-101895-VER-0047-1a	2	90	15	
40S60E-101895-VER-0047-2a	2	97	18	
40S60E-101895-VER-0047-3a	2	105	21	
40S60E-101895-VER-0047-4a	2	113	24	
40S60E-101895-VER-0047-5a	2	175	48	25

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
13	2

COMPOSITE SAMPLE	40S60E-101895-VER-0047-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
84	13	11

GRID # 0048

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
50S80E-103195-CHK-0048-1a	1	48	1	
50S80E-103195-CHK-0048-2a	1	96	21	
50S80E-103195-CHK-0048-3a	1	102	24	
50S80E-103195-CHK-0048-4a	2	134	32	
50S80E-103195-CHK-0048-5a	1	133	39	
50S80E-103195-CHK-0048-6a	2	101	19	
50S80E-103195-CHK-0048-sW-0-1.5	1	130	37	
50S80E-103195-CHK-0048-sW-1.5-3	2	94	17	
50S80E-103195-CHK-0048-sW-0-1.5	2	121	27	
50S80E-103195-CHK-0048-sW-1.5-3	1	43	1	
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		22

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
50S80E-103195-VER-0048-1a	2	78	11	
50S80E-103195-VER-0048-2a	2	82	12	
50S80E-103195-VER-0048-3a	2	115	25	
50S80E-103195-VER-0048-4a	2	32	1	
50S80E-103195-VER-0048-5a	2	61	4	11

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
19	2

COMPOSITE SAMPLE	50S80E-103195-VER-0048-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
58	8	6

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0049

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
40S80E-103095-CHK-0049-1a	2	70	8	
40S80E-103095-CHK-0049-2a	1	63	5	
40S80E-103095-CHK-0049-3a	1	92	19	
40S80E-103095-CHK-0049-4a	2	49	1	
40S80E-103095-CHK-0049-5a	2	42	1	
40S80E-103095-CHK-0049-6a	2	59	3	
40S80E-103095-CHK-0049-7a	1	105	25	
40S80E-103095-CHK-0049-8a	2	80	4	
40S80E-103095-CHK-0049-9a	1	46	1	
40S80E-103095-CHK-0049-10a	2	68	7	
40S80E-103095-CHK-0049-11a	2	82	12	
40S80E-103195-CHK-0049-12a	1	92	19	
40S80E-103195-CHK-0049-13a	1	85	18	9

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S80E-103195-VER-0049-1a	2	79	11	
40S80E-103195-VER-0049-2a	2	46	1	
40S80E-103195-VER-0049-3a	2	75	10	
40S80E-103195-VER-0049-4a	2	71	8	
40S80E-103195-VER-0049-5a	2	64	5	7

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
9	2

COMPOSITE SAMPLE	40S80E-103195-VER-0049-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
80	11	2

GRID # 0050

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
30S70E-101995-CHK-0050-1a	1	74	11	
30S70E-101995-CHK-0050-2a	2	80	11	
30S70E-101995-CHK-0050-3a	1	89	18	
30S70E-101995-CHK-0050-4a	2	77	10	
30S70E-101995-CHK-0050-5a	1	129	37	
30S70E-101995-CHK-0050-6a	2	76	10	
30S70E-101995-CHK-0050-7a	1	75	11	
30S70E-101995-CHK-0050-8a	2	87	14	
30S70E-101995-CHK-0050-9a	1	95	21	
30S70E-101995-CHK-0050-10a	2	54	2	
30S70E-101995-CHK-0050-11a	1	51	1	
30S70E-101995-CHK-0050-12a	2	60	4	
30S70E-101995-CHK-0050-13a	1	75	11	12

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
30S70E-103095-VER-0050-1a	2	50	1	
30S70E-103095-VER-0050-2a	2	98	18	
30S70E-103095-VER-0050-3a	2	117	25	
30S70E-103095-VER-0050-4a	2	87	14	
30S70E-103095-VER-0050-5a	2	58	3	12

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
12	2

COMPOSITE SAMPLE	30S70E-103095-VER-0050-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
90	15	12

GRID # 0051

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
30S80E-112095-CHK-0051-1a	2	89	15	
not taken	N/A	N/A		
not taken	N/A	N/A		
30S80E-112095-CHK-0051-4a	1	77	12	
30S80E-112095-CHK-0051-5a	1	49	1	
30S80E-112095-CHK-0051-6a	2	61	4	
30S80E-112095-CHK-0051-7a	2	70	11	
30S80E-112095-CHK-0051-8a	1	83	15	
30S80E-112095-CHK-0051-9a	1	65	6	
30S80E-112095-CHK-0051-10a	2	70	11	
30S80E-112095-CHK-0051-11a	1	85	18	
30S80E-112095-CHK-0051-12a	2	53	1	
30S80E-112095-CHK-0051-13a	1	96	21	10

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
30S80E-112095-VER-0051-1a	2	75	10	
30S80E-112095-VER-0051-2a	2	63	5	
30S80E-112095-VER-0051-3a	2	61	4	
30S80E-112095-VER-0051-4a	2	58	3	
30S80E-112095-VER-0051-5a	2	50	1	5

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
5	2

COMPOSITE SAMPLE	30S80E-112095-VER-0051-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
66	6	13

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0052

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
30S80E-120195-CHK-0052-1b	1	233	87	
30S80E-120195-CHK-0052-2b	1	233	87	
30S80E-120195-CHK-0052-3b	2	368	128	
30S80E-120195-CHK-0052-4a	1	69	8	
30S80E-120195-CHK-0052-5a	1	80	13	
30S80E-112195-CHK-0052-6a	2	96	17	
30S80E-112195-CHK-0052-7a	2	70	8	
not taken	N/A	N/A		
30S80E-112195-CHK-0052-9a	1	91	19	
30S80E-112195-CHK-0052-10a	1	92	19	
30S80E-112195-CHK-0052-11a	1	62	5	
30S80E-112195-CHK-0052-12a	1	81	14	
not taken	N/A	N/A		37

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
30S80E-120195-VER-0052-1a	2	233	70	
30S80E-120195-VER-0052-2a	2	302	98	
30S80E-120195-VER-0052-3a	2	45	1	
30S80E-120195-VER-0052-4a	2	64	5	
30S80E-120195-VER-0052-5a	2	80	4	36

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
36	2

COMPOSITE SAMPLE	30S80E-120195-VER-0052-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
90	15	46

GRID # 0053

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
20S80E-112295-CHK-0053-1a	1	113	29	
20S80E-112295-CHK-0053-2a	2	149	38	
20S80E-112295-CHK-0053-3a	1	62	5	
20S80E-112295-CHK-0053-4a	2	136	33	
20S80E-112295-CHK-0053-5a	1	118	32	
20S80E-112295-CHK-0053-6a	2	179	49	
20S80E-112295-CHK-0053-7a	1	149	47	
20S80E-120195-CHK-0053-8a	2	257	79	
20S80E-120195-CHK-0053-9a	2	100	19	
20S80E-120195-CHK-0053-10a	2	144	36	
20S80E-120195-CHK-0053-11a	1	112	29	
20S80E-120195-CHK-0053-12a	2	316	101	
20S80E-120195-CHK-0053-13a	2	151	38	41

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
20S80E-120195-VER-0053-1a	2	126	29	
20S80E-120195-VER-0053-2a	2	77	10	
20S80E-120195-VER-0053-3a	2	184	43	
20S80E-120195-VER-0053-4a	2	301	95	
20S80E-120195-VER-0053-5a	2	118	26	41

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
41	2

COMPOSITE SAMPLE	20S80E-120195-VER-0053-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
128	30	33

GRID # 0054

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
20S80E-112295-CHK-0054-1a	1	86	16	
20S80E-112295-CHK-0054-2a	1	49	1	
20S80E-120195-CHK-0054-3b	1	388	161	
20S80E-120195-CHK-0054-4a	1	54	1	
20S80E-112295-CHK-0054-5a	1	53	1	
20S80E-120195-CHK-0054-6a	2	35	1	
20S80E-120195-CHK-0054-7a	1	69	8	
20S80E-112295-CHK-0054-8a	1	47	1	
20S80E-120195-CHK-0054-9a	2	45	1	
20S80E-120195-CHK-0054-10a	2	102	20	
20S80E-120195-CHK-0054-11a	1	72	10	
20S80E-112295-CHK-0054-12a	1	99	23	
20S80E-120195-CHK-0054-13a	1	254	97	26

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
20S80E-120195-VER-0054-1a	2	114	24	
20S80E-120195-VER-0054-2a	2	54	2	
20S80E-120195-VER-0054-3a	2	75	10	
20S80E-120195-VER-0054-4a	2	108	21	
20S80E-120195-VER-0054-5a	2	94	17	15

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
23	2

COMPOSITE SAMPLE	20S80E-120195-VER-0054-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
110	23	28

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0055

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
20S70E-102895-CHK-0055-1a	1	76	11	
20S70E-102895-CHK-0055-2a	2	96	17	
20S70E-102895-CHK-0055-3a	2	159	41	
20S70E-102895-CHK-0055-4a	1	124	35	
20S70E-102895-CHK-0055-5a	2	130	30	
20S70E-102895-CHK-0055-6a	2	60	4	
20S70E-102895-CHK-0055-7a	1	81	14	
20S70E-102895-CHK-0055-8a	2	68	7	
20S70E-102895-CHK-0055-9a	1	61	4	
20S70E-102895-CHK-0055-10a	2	63	5	
20S70E-102895-CHK-0055-11a	2	125	29	
20S70E-102895-CHK-0055-12a	1	72	10	
20S70E-102895-CHK-0055-13a	1	78	12	17

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
20S70E-102795-VER-0055-1a	2	83	13	
20S70E-102795-VER-0055-2a	2	65	6	
20S70E-102795-VER-0055-3a	2	144	38	
20S70E-102795-VER-0055-4a	2	82	12	
20S70E-102795-VER-0055-5a	2	67	6	15

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
16	2

COMPOSITE SAMPLE	20S70E-102795-VER-0055-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
119	26	14

GRID # 0056

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
40S50E-110895-CHK-0056-1a	2	149	38	
40S50E-110895-CHK-0056-2a	1	84	15	
40S50E-110895-CHK-0056-3a	2	66	6	
40S50E-110895-CHK-0056-4a	2	175	48	
40S50E-110895-CHK-0056-5a	1	96	22	
40S50E-110895-CHK-0056-6a	1	67	7	
40S50E-110895-CHK-0056-7b	2	78	11	
40S50E-110895-CHK-0056-8b	1	59	3	
40S50E-110895-CHK-0056-9b	2	100	19	
40S50E-110895-CHK-0056-10b	2	92	16	
40S50E-110895-CHK-0056-11b	2	85	13	
40S50E-110895-CHK-0056-12b	2	159	41	
40S50E-110895-CHK-0056-13b	1	70	9	19

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S50E-110795-VER-0056-1a	2	83	13	
40S50E-110795-VER-0056-2a	2	68	7	
40S50E-110795-VER-0056-3a	2	90	15	
40S50E-110795-VER-0056-4a	2	91	16	
40S50E-110795-VER-0056-5a	2	149	38	18

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
18	2

COMPOSITE SAMPLE	40S50E-110795-VER-0056-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
89	15	11

GRID # 0057

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
50S50E-101095-CHK-0057-1b	1	76	11	
50S50E-101095-CHK-0057-2b	1	74	11	
50S50E-101095-CHK-0057-3b	1	43	1	
50S50E-101095-CHK-0057-4b	1	32	1	
50S50E-101095-CHK-0057-5b	1	45	1	
50S50E-101095-CHK-0057-6b	1	38	1	
50S50E-101095-CHK-0057-7b	1	25	1	
50S50E-101095-CHK-0057-8b	1	49	1	
50S50E-100995-CHK-0057-9a	2	41	1	
50S50E-100995-CHK-0057-10a	1	60	4	
50S50E-100995-CHK-0057-11a	1	50	1	
50S50E-100995-CHK-0057-12a	1	47	1	
50S50E-100995-CHK-0057-13a	1	34	1	3

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
50S50E-101195-VER-0057-1a	2	56	2	
50S50E-101195-VER-0057-2a	2	131	31	
50S50E-101195-VER-0057-3a	2	73	9	
50S50E-101195-VER-0057-4a	2	39	1	
50S50E-101195-VER-0057-5a	2	43	1	9

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
4	2

COMPOSITE SAMPLE	50S50E-101195-VER-0057-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
57	3	4

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0058

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
not taken	N/A	N/A		
60S60E-100495-CHK-0058-2a	2	87	14	
60S60E-100495-CHK-0058-3a	1	103	24	
not taken	N/A	N/A		
60S60E-100495-CHK-0058-5a	1	91	19	
not taken	N/A	N/A		
60S60E-100495-CHK-0058-7a	1	78	11	
60S60E-100495-CHK-0058-8a	2	25	1	
not taken	N/A	N/A		
60S60E-100495-CHK-0058-10a	2	76	10	
not taken	N/A	N/A		
60S60E-100495-CHK-0058-12a	2	73	9	
not taken	N/A	N/A		13

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
not taken	N/A	N/A		
60S60E-100495-VER-0058-2a	2	108	21	
not taken	N/A	N/A		
60S60E-100495-VER-0058-4a	2	69	7	
60S60E-100495-VER-0058-5a	2	92	16	15

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
13	2

COMPOSITE SAMPLE	60S60E-100495-VER-0058-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
116	26	5

GRID # 0059

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
60S40E-112995-CHK-0059-1a	1	86	16	
60S40E-112995-CHK-0059-2a	2	83	13	
60S40E-112995-CHK-0059-3a	1	66	7	
60S40E-112995-CHK-0059-4a	1	107	26	
60S40E-112995-CHK-0059-5a	2	68	7	
60S40E-112995-CHK-0059-6a	2	86	14	
60S40E-112995-CHK-0059-7a	2	39	1	
60S40E-112995-CHK-0059-8a	1	50	1	
60S40E-112995-CHK-0059-9a	1	86	16	
60S40E-112995-CHK-0059-10a	1	71	9	
60S40E-112995-CHK-0059-11a	2	56	2	
60S40E-112995-CHK-0059-12a	2	45	1	
60S40E-112995-CHK-0059-13a	1	48	1	9

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
60S40E-112995-VER-0059-1a	1	52	1	
60S40E-112995-VER-0059-2a	1	60	4	
60S40E-112995-VER-0059-3a	1	71	9	
60S40E-112995-VER-0059-4a	1	52	1	
60S40E-112995-VER-0059-5a	1	49	1	3

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
7	1

COMPOSITE SAMPLE	60S40E-112995-VER-0059-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
54	1	8

GRID # 0060

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
70S40E-112995-CHK-0060-1b	1	78	12	
70S40E-112795-CHK-0060-2a	1	69	8	
70S40E-112995-CHK-0060-3b	1	84	15	
70S40E-112995-CHK-0060-4b	1	53	1	
70S40E-112995-CHK-0060-5b	1	53	1	
70S40E-112995-CHK-0060-6b	1	67	7	
70S40E-112995-CHK-0060-7b	1	38	1	
70S40E-112995-CHK-0060-8b	1	94	20	
70S40E-112995-CHK-0060-9b	1	51	1	
70S40E-112995-CHK-0060-10b	2	60	4	
70S40E-112795-CHK-0060-11a	1	169	56	
70S40E-112995-CHK-0060-12b	2	49	1	
70S40E-112995-CHK-0060-13b	2	53	1	10

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
70S40E-112995-VER-0060-1a	2	58	2	
70S40E-112995-VER-0060-2a	2	66	6	
70S40E-112995-VER-0060-3a	2	104	21	
70S40E-112995-VER-0060-4a	2	36	1	
70S40E-112995-VER-0060-5a	2	73	9	8

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
8	2

COMPOSITE SAMPLE	70S40E-112995-VER-0060-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
54	2	2

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0061

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
60S40E-112295-CHK-0061-1a	1	59	3	
60S40E-112295-CHK-0061-2a	2	69	7	
60S40E-112295-CHK-0061-3a	1	87	17	
60S40E-112295-CHK-0061-4a	2	75	10	
60S40E-112295-CHK-0061-5a	1	58	3	
60S40E-112295-CHK-0061-6a	2	35	1	
60S40E-112295-CHK-0061-7a	1	25	1	
60S40E-112295-CHK-0061-8a	2	46	1	
60S40E-112295-CHK-0061-9a	1	38	1	
60S40E-112295-CHK-0061-10a	2	65	6	
60S40E-112295-CHK-0061-11a	1	43	1	
60S40E-112295-CHK-0061-12a	2	68	7	
60S40E-112295-CHK-0061-13a	1	52	1	5

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
60S40E-112895-VER-0061-1a	1	47	1	
60S40E-112895-VER-0061-2a	1	73	10	
60S40E-112895-VER-0061-3a	1	138	40	
60S40E-112895-VER-0061-4a	1	73	10	
60S40E-112895-VER-0061-5a	1	102	24	17

TOTAL AVERAGE CONCENTRATION (pCi/g): 8

Composite System #(1 or 2): 1

COMPOSITE SAMPLE	60S40E-112895-VER-0061-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
97	22	16

GRID # 0062

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
50S40E-111495-CHK-0062-1a	2	86	14	
50S40E-111495-CHK-0062-2a	2	105	21	
50S40E-111495-CHK-0062-3a	1	67	7	
50S40E-111495-CHK-0062-4a	2	65	6	
50S40E-111495-CHK-0062-5a	1	43	1	
50S40E-111495-CHK-0062-6a	2	34	1	
50S40E-111495-CHK-0062-7a	1	51	1	
50S40E-111495-CHK-0062-8a	1	35	1	
50S40E-112095-CHK-0062-9a	1	48	1	
50S40E-112095-CHK-0062-10a	1	55	1	
50S40E-112095-CHK-0062-11a	2	81	12	
50S40E-112095-CHK-0062-12a	1	68	6	
50S40E-112095-CHK-0062-13a	2	72	6	6

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
50S40E-112295-VER-0062-1a	2	48	1	
50S40E-112295-VER-0062-2a	2	41	1	
50S40E-112295-VER-0062-3a	2	115	25	
50S40E-112295-VER-0062-4a	2	66	14	
50S40E-112295-VER-0062-5a	2	56	2	9

TOTAL AVERAGE CONCENTRATION (pCi/g): 7

Composite System #(1 or 2): 2

COMPOSITE SAMPLE	50S40E-112295-VER-0062-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
77	10	7

GRID # 0063

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
40S40E-111395-CHK-0063-1a	1	54	1	
40S40E-111395-CHK-0063-2a	2	48	1	
40S40E-111395-CHK-0063-3a	2	65	6	
40S40E-111395-CHK-0063-4a	1	106	26	
40S40E-111395-CHK-0063-5a	2	62	5	
40S40E-111395-CHK-0063-6a	1	52	1	
40S40E-111395-CHK-0063-7a	2	89	15	
40S40E-111395-CHK-0063-8a	1	69	8	
40S40E-111395-CHK-0063-9a	1	59	3	
40S40E-111395-CHK-0063-10a	1	63	5	
40S40E-111395-CHK-0063-11a	1	69	8	
40S40E-111395-CHK-0063-12a	2	63	5	
40S40E-111395-CHK-0063-13a	1	65	6	7

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S40E-111395-VER-0063-1a	2	77	10	
40S40E-111395-VER-0063-2a	2	47	1	
40S40E-111395-VER-0063-3a	2	102	20	
40S40E-111395-VER-0063-4a	2	54	2	
40S40E-111395-VER-0063-5a	2	45	1	7

TOTAL AVERAGE CONCENTRATION (pCi/g): 7

Composite System #(1 or 2): 2

COMPOSITE SAMPLE	40S40E-111395-VER-0063-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
53	1	11

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0064

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
30S40E-111395-CHK-0064-1a	2	56	2	
30S40E-111395-CHK-0064-2a	2	61	12	
30S40E-111395-CHK-0064-3a	2	117	25	
30S40E-111395-CHK-0064-4a	2	74	9	
30S40E-111395-CHK-0064-5a	1	80	13	
30S40E-111395-CHK-0064-6a	2	106	21	
30S40E-111395-CHK-0064-7a	2	61	4	
30S40E-111395-CHK-0064-8a	2	59	3	
30S40E-111395-CHK-0064-9a	2	78	11	
30S40E-111395-CHK-0064-10b	2	80	11	
30S40E-111395-CHK-0064-11a	1	96	22	
30S40E-111395-CHK-0064-12a	2	39	1	
30S40E-111395-CHK-0064-13a	1	38	1	10

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
30S40E-111495-CHK-0064-1a	2	45	1	
30S40E-111495-CHK-0064-2a	2	42	1	
30S40E-111495-CHK-0064-3a	2	55	2	
30S40E-111495-CHK-0064-4a	2	87	14	
30S40E-111495-CHK-0064-5a	2	47	1	4

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
9	2

COMPOSITE SAMPLE	30S40E-111495-CHK-0064-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
73	9	4

GRID # 0065

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
70S30E-112995-CHK-0065-1a	1	46	1	
70S30E-113095-CHK-0065-2a	2	98	18	
70S30E-120195-CHK-0065-3b	2	65	6	
70S30E-113095-CHK-0065-4a	2	97	16	
70S30E-112995-CHK-0065-5a	1	29	1	
70S30E-112995-CHK-0065-6a	1	48	1	
70S30E-112995-CHK-0065-7a	1	116	31	
70S30E-113095-CHK-0065-8a	2	46	1	
70S30E-112995-CHK-0065-9a	1	36	1	
70S30E-112995-CHK-0065-10a	1	145	45	
70S30E-112995-CHK-0065-11a	1	68	8	
70S30E-11[illegible]095-CHK-0065-12a	2	107	22	
not taken	N/A	N/A		13

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
70S30E-120195-VER-0065-1a	2	30	1	
70S30E-120195-VER-0065-2a	2	47	1	
70S30E-120195-VER-0065-3a	2	78	10	
70S30E-120195-VER-0065-4a	2	153	39	
70S30E-120195-VER-0065-5a	2	29	1	10

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
12	2

COMPOSITE SAMPLE	70S30E-120195-VER-0065-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
62	5	25

GRID # 0066

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
60S30E-112295-CHK-0066-1a	1	35	1	
60S30E-112295-CHK-0066-2a	2	34	1	
60S30E-112295-CHK-0066-3a	1	50	1	
60S30E-112295-CHK-0066-4a	2	41	1	
60S30E-112295-CHK-0066-5a	1	36	1	
60S30E-112295-CHK-0066-6a	2	34	1	
60S30E-112295-CHK-0066-7a	1	42	1	
60S30E-112295-CHK-0066-8a	2	34	1	
60S30E-112295-CHK-0066-9a	1	33	1	
60S30E-112295-CHK-0066-10a	2	46	1	
60S30E-112295-CHK-0066-11a	1	42	1	
60S30E-112295-CHK-0066-12a	2	23	1	
60S30E-112295-CHK-0066-13a	1	24	1	1

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
60S30E-120495-VER-0066-1b	2	50	1	
60S30E-120495-VER-0066-2b	2	43	1	
60S30E-120495-VER-0066-3b	2	54	2	
60S30E-120495-VER-0066-4b	2	59	3	
60S30E-120495-VER-0066-5b	2	49	1	2

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
1	2

COMPOSITE SAMPLE	60S30E-120495-VER-0066-Cb	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
58	3	3

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0067

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
50S30E-112295-CHK-0067-1a	1	58	3	
50S30E-112295-CHK-0067-2a	2	76	10	
50S30E-112295-CHK-0067-3a	1	83	15	
50S30E-112295-CHK-0067-4a	2	71	8	
50S30E-112295-CHK-0067-5a	1	40	1	
50S30E-112295-CHK-0067-6a	2	29	1	
50S30E-112295-CHK-0067-7a	1	38	1	
50S30E-112295-CHK-0067-8a	2	67	8	
50S30E-112295-CHK-0067-9a	1	33	1	
50S30E-112295-CHK-0067-10a	2	39	1	
50S30E-112295-CHK-0067-11a	1	68	8	
50S30E-112295-CHK-0067-12a	2	67	6	
50S30E-112295-CHK-0067-13a	1	47	1	5

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
50S30E-112995-VER-0067-1a	2	69	7	
50S30E-112995-VER-0067-2a	2	74	9	
50S30E-112995-VER-0067-3a	2	75	10	
50S30E-112995-VER-0067-4a	2	69	8	
50S30E-112995-VER-0067-5a	2	77	10	8

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
8	2

COMPOSITE SAMPLE	50S30E-112995-VER-0067-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
81	12	10

GRID # 0068

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
30S30E-112895-CHK-0068-1a	1	45	1	
30S30E-112895-CHK-0068-2a	2	100	19	
30S30E-112895-CHK-0068-3a	2	78	11	
30S30E-112895-CHK-0068-4a	2	69	7	
30S30E-112895-CHK-0068-5a	2	53	1	
30S30E-112895-CHK-0068-6a	1	52	1	
30S30E-112895-CHK-0068-7a	1	142	43	
30S30E-112895-CHK-0068-8a	1	82	14	
30S30E-112895-CHK-0068-9a	2	104	21	
30S30E-112895-CHK-0068-10a	2	150	39	
30S30E-112895-CHK-0068-11a	2	82	12	
30S30E-112895-CHK-0068-12a	1	68	6	
30S30E-112895-CHK-0068-13a	1	116	32	16

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
30S30E-120195-VER-0068-1a	2	72	8	
30S30E-120195-VER-0068-2a	2	82	5	
30S30E-120195-VER-0068-3a	2	53	1	
30S30E-120195-VER-0068-4a	2	78	11	
30S30E-120195-VER-0068-5a	2	82	12	7

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
14	2

COMPOSITE SAMPLE	30S30E-120195-VER-0068-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
82	5	7

GRID # 0069

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
20S30E-112895-CHK-0069-1a	2	80	11	
20S30E-112895-CHK-0069-2a	2	100	19	
20S30E-112895-CHK-0069-3a	2	91	16	
20S30E-112895-CHK-0069-4a	2	75	10	
20S30E-112895-CHK-0069-5a	1	57	2	
20S30E-112895-CHK-0069-6a	1	74	11	
20S30E-112895-CHK-0069-7a	1	64	6	
20S30E-112895-CHK-0069-8a	1	66	7	
20S30E-112895-CHK-0069-9a	1	121	33	
20S30E-112895-CHK-0069-10a	1	84	15	
20S30E-112895-CHK-0069-11a	1	124	35	
20S30E-112895-CHK-0069-12a	1	136	40	
20S30E-112895-CHK-0069-13a	2	106	21	17

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
20S30E-120195-VER-0069-1a	1	67	7	
20S30E-120195-VER-0069-2a	1	71	9	
20S30E-120195-VER-0069-3a	1	63	5	
20S30E-120195-VER-0069-4a	1	100	23	
20S30E-120195-VER-0069-5a	1	81	14	12

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
16	1

COMPOSITE SAMPLE	20S30E-120195-VER-0069-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
92	19	8

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0070

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
60S20-112195-VER-TESTPIT-0070-5 (13 SAMPLE AVERAGE)			44	
60S20-112195-VER-TESTPIT-0070-1 (8 SAMPLE AVERAGE)			22	
60S20-112195-VER-TESTPIT-0070-3 (8 SAMPLE AVERAGE)			21	
				29

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
29	2

COMPOSITE SAMPLE	60S20E-112195-VER-0070-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
	<1	3

GRID # 0071

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
not taken	N/A	N/A		
60S20E-112595-CHK-0071-2a	2	100	19	
60S20E-112595-CHK-0071-3a	2	66	6	
60S20E-112595-CHK-0071-4a	2	70	8	
60S20E-112595-CHK-0071-5a	2	26	1	
not taken	N/A	N/A		
60S20E-112595-CHK-0071-7a	2	57	3	
60S20E-112595-CHK-0071-8a	2	148	37	
not taken	N/A	N/A		
60S20E-112595-CHK-0071-10a	1	65	6	
not taken	N/A	N/A		
60S20E-112595-CHK-0071-12a	2	61	4	
60S20E-112595-CHK-0071-13a	2	127	25	13

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
60S20E-112995-VER-0071-1a	2	78	10	
60S20E-112995-VER-0071-2a	2	26	1	
60S20E-112995-VER-0071-3a	2	37	1	
60S20E-112995-VER-0071-4a	2	26	1	
60S20E-112995-VER-0071-5a	2	32	1	3

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
8	2

COMPOSITE SAMPLE	60S20E-112995-VER-0071-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
39	<1	5

GRID # 0072

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
50S20E-112595-CHK-0072-1a	1	49	1	
50S20E-112595-CHK-0072-2a	2	28	1	
50S20E-112595-CHK-0072-3a	2	88	14	
50S20E-112595-CHK-0072-4a	2	43	1	
50S20E-112595-CHK-0072-5a	2	54	2	
50S20E-112595-CHK-0072-6a	1	55	1	
50S20E-112595-CHK-0072-7a	1	45	1	
50S20E-112595-CHK-0072-8a	1	68	6	
50S20E-112595-CHK-0072-9a	2	71	6	
50S20E-112595-CHK-0072-10a	1	33	1	
not taken	N/A	N/A		
50S20E-112595-CHK-0072-12a	2	58	3	
50S20E-112595-CHK-0072-13a	2	149	38	7

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
50S20E-112995-VER-0072-1a	2	26	1	
50S20E-112995-VER-0072-2a	2	34	1	
50S20E-112995-VER-0072-3a	2	21	1	
50S20E-112995-VER-0072-4a	2	36	1	
50S20E-112995-VER-0072-5a	2	23	1	1

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
5	2

COMPOSITE SAMPLE	50S20E-112995-VER-0072-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
36	<1	2

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0073

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
30S20E-112595-CHK-0073-1a	1	75	11	
30S20E-112595-CHK-0073-2a	2	52	1	
30S20E-112595-CHK-0073-3a	1	62	5	
30S20E-112595-CHK-0073-4a	2	56	2	
30S20E-112595-CHK-0073-5a	1	98	22	
30S20E-112595-CHK-0073-6a	2	71	8	
30S20E-112595-CHK-0073-7a	1	63	5	
30S20E-112595-CHK-0073-8a	2	82	12	
30S20E-112595-CHK-0073-9a	1	91	19	
30S20E-112595-CHK-0073-10a	2	102	20	
30S20E-112595-CHK-0073-11a	1	100	23	
30S20E-112595-CHK-0073-12a	2	77	10	
30S20E-112595-CHK-0073-13a	1	100	23	12

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
30S20E-112695-VER-0073-1a	2	75	10	
30S20E-112695-VER-0073-2a	2	87	18	
30S20E-112695-VER-0073-3a	2	108	21	
30S20E-112695-VER-0073-4a	2	124	26	
30S20E-112695-VER-0073-5a	2	88	14	18

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
14	2

COMPOSITE SAMPLE	30S20E-112695-VER-0073-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
86	14	6

GRID # 0074

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
30S10E-112595-CHK-0074-1a	1	80	13	
30S10E-112595-CHK-0074-2a	2	78	11	
30S10E-112595-CHK-0074-3a	1	87	17	
30S10E-112595-CHK-0074-4a	2	93	16	
30S10E-112595-CHK-0074-5a	1	80	13	
30S10E-112595-CHK-0074-6a	2	94	17	
30S10E-112595-CHK-0074-7a	1	47	1	
30S10E-112595-CHK-0074-8a	2	70	8	
30S10E-112595-CHK-0074-9a	1	56	2	
30S10E-112595-CHK-0074-10a	2	128	30	
30S10E-112595-CHK-0074-11a	1	100	23	
30S10E-112595-CHK-0074-12a	2	57	3	
30S10E-112595-CHK-0074-13a	1	59	3	12

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
30S10E-112695-VER-0074-1a	2	68	7	
30S10E-112695-VER-0074-2a	2	57	3	
30S10E-112695-VER-0074-3a	2	115	25	
30S10E-112695-VER-0074-4a	2	93	16	
30S10E-112695-VER-0074-5a	2	78	10	12

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
12	2

COMPOSITE SAMPLE	30S10E-112695-VER-0074-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
117	25	11

GRID # 0075

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
20S10E-112295-CHK-0075-1a	1	69	8	
20S10E-112295-CHK-0075-2a	2	99	19	
20S10E-112295-CHK-0075-3a	2	120	27	
20S10E-112295-CHK-0075-4a	2	58	3	
20S10E-112295-CHK-0075-5a	1	72	10	
20S10E-112295-CHK-0075-6a	1	79	13	
20S10E-112295-CHK-0075-7a	2	74	9	
20S10E-112295-CHK-0075-8a	1	63	5	
20S10E-112295-CHK-0075-9a	2	63	5	
20S10E-112295-CHK-0075-10a	2	46	1	
20S10E-112295-CHK-0075-11a	2	94	17	
20S10E-112295-CHK-0075-12a	1	39	1	
20S10E-112295-CHK-0075-13a	1	78	11	10

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
20S10E-112695-VER-0075-1a	2	60	4	
20S10E-112695-VER-0075-2a	2	54	2	
20S10E-112695-VER-0075-3a	2	108	21	
20S10E-112695-VER-0075-4a	2	103	20	
20S10E-112695-VER-0075-5a	2	51	1	10

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
10	2

COMPOSITE SAMPLE	20S10E-112695-VER-0075-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
92	16	3

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0076

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
not taken	N/A	N/A		
20S0E-112095-CHK-0076-2a	1	114	30	
20S0E-112095-CHK-0076-3a	1	76	11	
not taken	N/A	N/A		
20S0E-112095-CHK-0076-5a	1	70	9	
not taken	N/A	N/A		
20S0E-112095-CHK-0076-7a	2	64	5	
20S0E-112095-CHK-0076-8a	1	105	25	
not taken	N/A	N/A		
20S0E-112095-CHK-0076-10a	2	61	4	
not taken	N/A	N/A		
20S0E-112095-CHK-0076-12a	1	84	15	
20S0E-112095-CHK-0076-13a	2	73	9	14

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
20S0E-112195-VER-0076-1a	2	117	25	
20S0E-112195-VER-0076-2a	2	63	5	
20S0E-112195-VER-0076-3a	2	146	38	
20S0E-112195-VER-0076-4a	2	85	6	
20S0E-112195-VER-0076-5a	2	84	13	17

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
15	2

COMPOSITE SAMPLE	20S0E-112195-VER-0076-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
106	21	21

GRID # 0077

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
30S130E-111795-CHK-0077-1a	1	64	6	
30S130E-111795-CHK-0077-2a	2	73	9	
30S130E-111795-CHK-0077-3a	1	67	7	
30S130E-111795-CHK-0077-4a	1	97	22	
30S130E-111795-CHK-0077-5a	1	74	11	
30S130E-111795-CHK-0077-6a	2	107	22	
30S130E-111795-CHK-0077-7a	1	83	15	
30S130E-111795-CHK-0077-8a	1	93	20	
30S130E-111795-CHK-0077-9a	1	93	20	
30S130E-111795-CHK-0077-10a	1	96	21	
30S130E-111795-CHK-0077-11a	1	49	1	
30S130E-111795-CHK-0077-12a	1	90	18	
30S130E-111795-CHK-0077-13a	1	87	17	15

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
30S130E-120495-VER-0077-1c	1	92	19	
30S130E-120495-VER-0077-2c	1	82	14	
30S130E-120495-VER-0077-3c	1	74	11	
30S130E-120495-VER-0077-4c	1	100	23	
30S130E-120495-VER-0077-5c	1	104	25	18

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
18	1

COMPOSITE SAMPLE	30S130E-120495-VER-0077-Cc	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
77	12	7

GRID # 0078

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
Partial Grid: wall samples all <30	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
130N120E-112895-CHK-0078-6a	2	64	5	
130N120E-112895-CHK-0078-7a	1	101	23	
130N120E-112895-CHK-0078-8a	2	120	27	
130N120E-112895-CHK-0078-9a	1	102	24	
130N120E-112895-CHK-0078-10a	2	71	8	
130N120E-112895-CHK-0078-11a	1	81	14	
130N120E-112895-CHK-0078-12a	2	71	8	
130N120E-112895-CHK-0078-13a	1	59	3	14

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
130N120E-112895-VER-0078-1a	2	121	27	
130N120E-112895-VER-0078-2a	2	65	13	
130N120E-112895-VER-0078-3a	2	78	11	
130N120E-112895-VER-0078-4a	2	59	3	
130N120E-112895-VER-0078-5a	2	52	1	11

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
13	2

COMPOSITE SAMPLE	130N120E-112895-VER-0078-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
106	22	6

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0079

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
Partial Grid: wall samples all <30	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
130S130E-112885-CHK-0079-6a	2	79	11	
130S130E-112885-CHK-0079-7a			1	
130S130E-112885-CHK-0079-8a			1	
130S130E-112885-CHK-0079-9a	1	57	2	
130S130E-112885-CHK-0079-10a	2	83	13	
130S130E-112885-CHK-0079-11a	1	64	6	
130S130E-112885-CHK-0079-12a	2	56	2	
130S130E-112885-CHK-0079-13a	1		1	5

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
130S130E-112885-CHK-0079-1a	2	69	7	
130S130E-112885-CHK-0079-2a	2	68	7	
130S130E-112885-CHK-0079-3a	2	108	21	
130S130E-112885-CHK-0079-4a	2	48	1	
130S130E-112885-CHK-0079-5a	2	48	1	7

TOTAL AVERAGE CONCENTRATION (pCi/g): 6

Composite System #(1 or 2): 2

COMPOSITE SAMPLE: 130S130E-112885-CHK-0079-Ca

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
56	2	7

GRID # 0080

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
60S60E-112085-CHK-0080-1a	2	103	20	
60S60E-112085-CHK-0080-1a	2	115	25	
60S60E-112085-CHK-0080-1a	1	108	27	
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		
not taken	N/A	N/A		24

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
none taken	N/A	N/A		
none taken	N/A	N/A		
none taken	N/A	N/A		
none taken	N/A	N/A		
none taken	N/A	N/A		#DIV/0!

TOTAL AVERAGE CONCENTRATION (pCi/g): 24

Composite System #(1 or 2): N/A

COMPOSITE SAMPLE:

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
N/A		

GRID # 0081

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
No Remediation Performed	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		#DIV/0!

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
not done	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		#DIV/0!

TOTAL AVERAGE CONCENTRATION (pCi/g): #DIV/0!

Composite System #(1 or 2): 1

COMPOSITE SAMPLE:

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID #
0082

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
70N150E-102095-NwallE-0082-0-2	2	109	22	
70N150E-102095-NwallE-0082-2-4	2	59	3	
70N150E-102095-NwallE-0082-4-6	2	75	10	
70N150E-102095-NwallE-0082-6-8	2	112	24	
70N150E-102095-NwallE-0082-8-10	2	69	7	
70N150E-102095-NwallW-0082-0-2	1	83	15	
70N150E-102095-NwallW-0082-2-4	1	84	15	
70N150E-102095-NwallW-0082-4-6	1	82	14	
70N150E-102095-NwallW-0082-6-8	1	129	37	
70N150E-102095-NwallW-0082-8-10	2	122	27	
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		17

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		#DIV/0!

TOTAL AVERAGE CONCENTRATION (pCi/g): 17

Composite System #(1 or 2): N/A

COMPOSITE SAMPLE

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)

GRID #
0083

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
70N160E-102095-NwallW-0083-0-2	2	62	5	
70N160E-102095-NwallW-0083-2-4	2	73	9	
70N160E-102095-NwallW-0083-4-6	2	87	14	
70N160E-102095-NwallW-0083-6-8	2	120	27	
70N160E-102095-NwallW-0083-8-10	2	88	14	
70N160E-102095-NwallE-0083-0-2	2	45	1	
70N160E-102095-NwallE-0083-2-4	2	116	25	
70N160E-102095-NwallE-0083-4-6	2	85	13	
70N160E-102095-NwallE-0083-6-8	2	98	18	
70N160E-102095-NwallE-0083-8-10	2	65	6	
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		13

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		#DIV/0!

TOTAL AVERAGE CONCENTRATION (pCi/g): 13

Composite System #(1 or 2):

COMPOSITE SAMPLE

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)

GRID #
0084

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
80N170E-102395-WwallS-0084-4-6	2	73	9	
80N170E-102395-WwallS-0084-6-8	2	51	1	
80N170E-102395-WwallN-0084-4-6	1	62	5	
80N170E-102395-WwallN-0084-6-8	1	59	3	
80N170E-102395-WwallC-0084-8-10	2	78	11	
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		6

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		#DIV/0!

TOTAL AVERAGE CONCENTRATION (pCi/g): 6

Composite System #(1 or 2): N/A

COMPOSITE SAMPLE

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # **0085**

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
10S80E-102495-CHK-0085-1wall	1	93	20	
10S80E-102495-CHK-0085-2wall	2	142	35	
10S80E-102495-CHK-0085-aNwallW	2	206	59	
10S80E-102495-CHK-0085-bNwallW	1	211	78	
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		48

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		#DIV/0!

TOTAL AVERAGE CONCENTRATION (pCi/g)
48

Composite System #(1 or 2)
1

COMPOSITE SAMPLE		
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)

GRID # **0086**

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
20S120E-111595-CHK-0086-9a	2	64	5	
20S120E-111595-CHK-0086-10a	2	113	24	
20S120E-111595-CHK-0086-11a	1	102	24	
20S120E-111595-CHK-0086-12a	1	93	20	
20S120E-111595-CHK-0086-13a	1	99	23	19

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
20S120E-111695-VER-0086-1a	2	58	3	
20S120E-111695-VER-0086-2a	2	89	15	
20S120E-111695-VER-0086-3a	2	103	20	
20S120E-111695-VER-0086-4a	2	92	16	
20S120E-111695-VER-0086-5a	2	98	18	14

TOTAL AVERAGE CONCENTRATION (pCi/g)
17

Composite System #(1 or 2)
2

COMPOSITE SAMPLE	20S120E-111695-VER-0086-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
56	2	10

GRID # **0087**

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
20S130E-111995-CHK-0087-9a	1	89	18	
20S130E-111995-CHK-0087-10a	2	72	8	
20S130E-111995-CHK-0087-11a	1	72	10	
20S130E-111995-CHK-0087-12a	2	100	19	
20S130E-112795-CHK-0087-13b	1	87	17	14

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
20S130E-113095-VER-0087-1a	1	78	12	
20S130E-113095-VER-0087-2a	1	45	1	
20S130E-113095-VER-0087-3a	1	111	26	
20S130E-113095-VER-0087-4a	1	54	1	
20S130E-113095-VER-0087-5a	1	95	21	13

TOTAL AVERAGE CONCENTRATION (pCi/g)
14

Composite System #(1 or 2)
1

COMPOSITE SAMPLE	20S130E-113095-VER-0087-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
64	8	10

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0068

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
?				
				#DIV/0!

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
?				
				#DIV/0!

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
#DIV/0!	2

COMPOSITE SAMPLE

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)

GRID # 0089

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
30S120E-111495-CHK-0089-1a	1	84	15	
30S120E-111495-CHK-0089-2a	1	110	28	
30S120E-111495-CHK-0089-3a	1	80	13	
30S120E-111495-CHK-0089-4a	1	79	13	
30S120E-111495-CHK-0089-5a	1	108	27	
30S120E-111495-CHK-0089-6a	1	94	20	
30S120E-111495-CHK-0089-7a	1	77	12	
30S120E-111495-CHK-0089-8a	2	79	11	
30S120E-111495-CHK-0089-9a	2	83	13	
30S120E-111495-CHK-0089-10a	2	76	10	
30S120E-111495-CHK-0089-11a	2	102	20	
30S120E-111495-CHK-0089-12a	2	117	25	
30S120E-111495-CHK-0089-13a	2	126	29	18

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
30S120E-111595-VER-0089-1a	2	98	18	
30S120E-111595-VER-0089-2a	2	116	25	
30S120E-111595-VER-0089-3a	2	124	28	
30S120E-111595-VER-0089-4a	2	99	19	
30S120E-111595-VER-0089-5a	2	88	14	21

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
19	2

COMPOSITE SAMPLE 30S120E-111595-VER-0089-Ca

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
110	23	7

GRID # 0090

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
30S140E-112195-CHK-0090-1a	2	93	16	
not taken	N/A	N/A		
30S140E-112195-CHK-0090-3a			1	
30S140E-112195-CHK-0090-4a	1	50	1	
not taken	N/A	N/A		
30S140E-112195-CHK-0090-6a	1	61	4	
30S140E-112195-CHK-0090-7a	2	79	11	
not taken	N/A	N/A		
30S140E-112195-CHK-0090-9a	2	79	11	
not taken	N/A	N/A		
30S140E-112195-CHK-0090-11a	2	68	7	
30S140E-112195-CHK-0090-12a	1	50	1	
30S140E-112195-CHK-0090-13a	1	62	5	6

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
30S140E-113095-VER-0090-1a	1	90	18	
30S140E-113095-VER-0090-2a	1	64	8	
30S140E-113095-VER-0090-3a	1	95	21	
30S140E-113095-VER-0090-4a	1	55	1	
30S140E-113095-VER-0090-5a	1	80	13	12

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
8	1

COMPOSITE SAMPLE 30S140E-113095-VER-0090-Ca

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
56	3	7

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0091

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
40S120E-111695-CHK-0091-1a	2	149	36	
40S120E-111695-CHK-0091-2a	2	62	5	
40S120E-111695-CHK-0091-3a	2	87	14	
40S120E-111695-CHK-0091-4a	2	109	22	
40S120E-111695-CHK-0091-5a	1	112	29	
40S120E-111695-CHK-0091-6a	1	155	49	
40S120E-111695-CHK-0091-7a	1	62	5	
40S120E-111695-CHK-0091-8a	1	92	19	
40S120E-111695-CHK-0091-9a	1	102	24	
40S120E-111695-CHK-0091-10a	2	93	16	
40S120E-111695-CHK-0091-11a	2	106	21	
40S120E-111695-CHK-0091-12a	2	120	27	
40S120E-111695-CHK-0091-13a	1	78	12	22

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S120E-111795-VER-0091-1a	2	165	44	
40S120E-111795-VER-0091-2a	2	89	15	
40S120E-111795-VER-0091-3a	2	63	5	
40S120E-111795-VER-0091-4a	2	90	15	
40S120E-111795-VER-0091-5a	2	115	25	21

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
21	2

COMPOSITE SAMPLE	40S120E-111795-VER-0091-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
85	13	3

GRID # 0092

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
40S130E-113095-CHK-0092-1a	2	94	17	
40S130E-113095-CHK-0092-2a	2	120	27	
40S130E-120195-CHK-0092-3b	1	79	13	
40S130E-113095-CHK-0092-4a	2	104	21	
40S130E-113095-CHK-0092-5a	1	110	28	
40S130E-113095-CHK-0092-6a	2	51	1	
40S130E-120195-CHK-0092-7b	1	79	13	
40S130E-113095-CHK-0092-8a	2	66	7	
40S130E-120195-CHK-0092-9b	1	98	22	
40S130E-120195-CHK-0092-10b	1	107	26	
40S130E-113095-CHK-0092-11a	1	109	27	
40S130E-113095-CHK-0092-12a	2	135	32	
40S130E-113095-CHK-0092-13a	1	117	31	20

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S130E-120495-VER-0092-1b	2	52	1	
40S130E-120495-VER-0092-2b	2	146	36	
40S130E-120495-VER-0092-3b	2	154	40	
40S130E-120495-VER-0092-4b	2	143	35	
40S130E-120495-VER-0092-5b	2	80	4	23

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
21	2

COMPOSITE SAMPLE	40S130E-120495-VER-0092-Cb	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
77	19	3

GRID # 0093

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
40S140E-113095-CHK-0093-1a	1	79	13	
40S140E-113095-CHK-0093-2a	2	117	25	
40S140E-113095-CHK-0093-3a	1	76	11	
40S140E-113095-CHK-0093-4a	2	72	8	
40S140E-113095-CHK-0093-5a	1	88	17	
40S140E-113095-CHK-0093-6a	2	57	3	
40S140E-120195-CHK-0093-7b	1	135	40	
40S140E-120195-CHK-0093-8b	1	60	6	
40S140E-120195-CHK-0093-9a	2	176	48	
40S140E-113095-CHK-0093-10a	2	106	21	
40S140E-113095-CHK-0093-11a	1	60	4	
40S140E-113095-CHK-0093-12a	2	94	17	
40S140E-120195-CHK-0093-13b	1	104	25	18

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S140E-120195-VER-0093-1a	2	115	25	
40S140E-120195-VER-0093-2a	2	142	35	
40S140E-120195-VER-0093-3a	2	205	59	
40S140E-120195-VER-0093-4a	2	66	7	
40S140E-120195-VER-0093-5a	2	111	23	30

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
22	2

COMPOSITE SAMPLE	40S140E-120195-VER-0093-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
104	21	24

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0094

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
not taken	N/A	N/A		
10S90E-120195-CHK-0094-2a	1	111	28	
10S90E-120195-CHK-0094-3a	1	205	73	
10S90E-120195-CHK-0094-4a	1	117	31	
not taken	N/A	N/A		
10S90E-112995-CHK-0094-6a	2	79	11	
10S90E-112995-CHK-0094-7b	1	38	1	
10S90E-112995-CHK-0094-8b	1	88	17	
10S90E-112995-CHK-0094-9b	1	144	44	
10S90E-112995-CHK-0094-10b	1	147	46	
10S90E-112995-CHK-0094-11c	1	180	61	
10S90E-112995-CHK-0094-12c	1	223	82	
10S90E-112995-CHK-0094-13c	2	123	28	38

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
10S90E-120195-VER-0094-1a	1	58	3	
10S90E-120195-VER-0094-2a	1	74	11	
10S90E-120195-VER-0094-3a	1	161	52	
10S90E-120195-VER-0094-4a	1	104	25	
10S90E-120195-VER-0094-5a	1	113	29	24

TOTAL AVERAGE CONCENTRATION (pCi/g): 34

Composite System #(1 or 2): 1

COMPOSITE SAMPLE: 10S90E-120195-VER-0094-Ca

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
124	35	16

GRID # 0095

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
No Remediation Performed	N/A	N/A		
				#DIV/0!

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
?				
				#DIV/0!

TOTAL AVERAGE CONCENTRATION (pCi/g): #DIV/0!

Composite System #(1 or 2):

COMPOSITE SAMPLE

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)

GRID # 0096

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
40S30E-112295-CHK-0096-1a	1	51	1	
40S30E-112295-CHK-0096-2a	1	58	3	
40S30E-112295-CHK-0096-3a	1	42	1	
40S30E-112295-CHK-0096-4a	1	60	4	
40S30E-112295-CHK-0096-5a	1	46	1	
40S30E-112295-CHK-0096-6a	2	83	13	
40S30E-112295-CHK-0096-7a	1	62	5	
40S30E-112295-CHK-0096-8a	2	50	1	
40S30E-112295-CHK-0096-9a	1	59	3	
40S30E-112295-CHK-0096-10a	2	59	3	
40S30E-112295-CHK-0096-11a	2	65	6	
40S30E-112295-CHK-0096-12a	2	69	7	
40S30E-112295-CHK-0096-13a	1	60	4	4

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S30E-112995-VER-0096-1a	1	53	1	
40S30E-112995-VER-0096-2a	1	51	1	
40S30E-112995-VER-0096-3a	1	46	1	
40S30E-112995-VER-0096-4a	1	84	15	
40S30E-112995-VER-0096-5a	1	69	8	5

TOTAL AVERAGE CONCENTRATION (pCi/g): 4

Composite System #(1 or 2): 1

COMPOSITE SAMPLE: 40S30E-112995-VER-0096-Ca

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
80	13	3

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0097

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
40S20E-112585-CHK-0097-1a	1	85	21	
40S20E-112585-CHK-0097-2a	1	71	9	
40S20E-112585-CHK-0097-3a	1	57	2	
40S20E-112585-CHK-0097-4a	2	99	19	
40S20E-112585-CHK-0097-5a	1	86	17	
40S20E-112585-CHK-0097-6a	2	75	11	
40S20E-112585-CHK-0097-7a	1	60	4	
40S20E-112585-CHK-0097-8a	2	87	14	
40S20E-112585-CHK-0097-9a	1	51	1	
40S20E-112585-CHK-0097-10a	1	66	7	
40S20E-112585-CHK-0097-11a	1	51	1	
40S20E-112585-CHK-0097-12a	2	136	33	
40S20E-112585-CHK-0097-13a	2	65	6	11

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S20E-112885-VER-0097-1a	2	52	1	
40S20E-112885-VER-0097-2a	2	51	1	
40S20E-112885-VER-0097-3a	2	112	24	
40S20E-112885-VER-0097-4a	2	74	9	
40S20E-112885-VER-0097-5a	2	63	5	8

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
10	2

COMPOSITE SAMPLE	40S20E-112885-VER-0097-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
61	12	5

GRID # 0098

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
50S120E-111695-CHK-0098-1a	1	109	27	
50S120E-111695-CHK-0098-2a	2	88	14	
50S120E-111695-CHK-0098-3a	1	84	15	
50S120E-111695-CHK-0098-4a	2	72	8	
50S120E-111695-CHK-0098-5a	1	93	20	
50S120E-111695-CHK-0098-6a	2	85	13	
50S120E-111695-CHK-0098-7a	1	104	25	
50S120E-111695-CHK-0098-8a	2	52	1	
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		15

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
50S120E-111795-VER-0098-1a	2	89	15	
50S120E-111795-VER-0098-2a	2	60	7	
50S120E-111795-VER-0098-3a	2	87	14	
50S120E-111795-VER-0098-4a	2	64	5	
50S120E-111795-VER-0098-5a	2	73	9	10

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
13	2

COMPOSITE SAMPLE	50S120E-111795-VER-0098-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
61	4	7

GRID # 0099

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
50S130E-112985-CHK-0099-1a	1	114	30	
50S130E-112795-CHK-0099-2a	2	98	18	
50S130E-112985-CHK-0099-3a	1	85	16	
50S130E-112795-CHK-0099-4a	2	73	9	
50S130E-112985-CHK-0099-5a	1	103	24	
50S130E-112795-CHK-0099-6a	2	118	26	
50S130E-112985-CHK-0099-7a	1	49	1	
50S130E-113095-CHK-0099-8a	2	99	19	
not taken	N/A	N/A		
50S130E-113095-CHK-0099-10a	2	113	24	
not taken	N/A	N/A		
not taken	N/A	N/A		
50S130E-113095-CHK-0099-13a	1	59	3	17

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
50S130E-120195-VER-0099-1a	2	88	7	
50S130E-120195-VER-0099-2a	2	41	1	
50S130E-120195-VER-0099-3a	2	89	7	
50S130E-120195-VER-0099-4a	2	34	1	
50S130E-120195-VER-0099-5a	2	44	1	3

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
12	2

COMPOSITE SAMPLE	40S140E-120185-VER-0099-Ca	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
44	<1	6

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0100

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
50S140E-113086-CHK-0100-1a	2	99	19	
50S140E-113086-CHK-0100-2a	1	93	20	
50S140E-113086-CHK-0100-3a	2	81	12	
50S140E-113086-CHK-0100-4a	2	202	58	
50S140E-113086-CHK-0100-5a	1	82	14	
50S140E-113086-CHK-0100-6a	1	115	32	
50S140E-113086-CHK-0100-7a	1	93	20	
50S140E-113086-CHK-0100-8a	2	82	5	
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		23

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
50S140E-120195-VER-0100-1a	2	135	32	
50S140E-120195-VER-0100-2a	2	52	1	
50S140E-120195-VER-0100-3a	2	44	1	
50S140E-120195-VER-0100-4a	2	146	38	
50S140E-120195-VER-0100-5a	2	88	14	17

TOTAL AVERAGE CONCENTRATION (pCi/g): 20

Composite System #(1 or 2): 2

COMPOSITE SAMPLE: 50S140E-120195-VER-0100-Ca

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
83	13	6

GRID # 0101

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
No Remediation performed				
				#DIV/0!

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
?				
				#DIV/0!

TOTAL AVERAGE CONCENTRATION (pCi/g): #DIV/0!

Composite System #(1 or 2):

COMPOSITE SAMPLE:

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)

GRID # 0102

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
20S20E-112595-CHK-0102-1a	1	38	1	
20S20E-112595-CHK-0102-2a	2	154	40	
20S20E-112595-CHK-0102-3a	1	35	1	
20S20E-112595-CHK-0102-4a	2	86	14	
20S20E-112595-CHK-0102-5a	1	80	13	
20S20E-112595-CHK-0102-6a	2	106	22	
20S20E-112595-CHK-0102-7a	1	38	1	
20S20E-112595-CHK-0102-8a	2	60	4	
20S20E-112595-CHK-0102-9a	1	65	6	
20S20E-112595-CHK-0102-10a	2	60	4	
20S20E-112595-CHK-0102-11a	1	50	1	
20S20E-112595-CHK-0102-12a	2	86	14	
20S20E-112595-CHK-0102-13a	1	116	31	12

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
20S20E-112895-VER-0102-1a	2	78	11	
20S20E-112895-VER-0102-2a	2	133	32	
20S20E-112895-VER-0102-3a	2	50	1	
20S20E-112895-VER-0102-4a	2	86	14	
20S20E-112895-VER-0102-5a	2	107	22	16

TOTAL AVERAGE CONCENTRATION (pCi/g): 13

Composite System #(1 or 2): 2

COMPOSITE SAMPLE: 20S20E-112895-VER-0102-Ca

IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
61	4	3

Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

Concentrations are of Total Uranium (U-234 + U-235 + U-238)

Texas Instruments, Attleboro:
Exterior Post- Remediation Grid Block Data

GRID # 0103

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
20S40E-113086-CHK-0103-6a	1	95	21	
not taken	N/A	N/A		
20S40E-113086-CHK-0103-8a	2	79	11	
20S40E-112986-CHK-0103-9a	1	136	40	
20S40E-112986-CHK-0103-10a	2	95	17	
20S40E-112986-CHK-0103-11a	1	103	24	
20S40E-112986-CHK-0103-12a	2	159	41	
20S40E-112986-CHK-0103-13a	1	139	42	28

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
20S40E-120886-VER-0103-1a	2	94	17	
20S40E-120886-VER-0103-2a	2	108	21	
20S40E-120886-VER-0103-3a	2	87	14	
20S40E-120886-VER-0103-4a	2	97	18	
20S40E-120886-VER-0103-5a	2	297	94	33

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
30	2

COMPOSITE SAMPLE	20S40E-120886-VER-0103-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
113	34	36

GRID # 0104

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
not taken	N/A	N/A		
70S20E-112885-CHK-0104-2a	2	76	10	
70S20E-112585-CHK-0104-3a	1	61	4	
not taken	N/A	N/A		
70S20E-112885-CHK-0104-5a	2	68	7	
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		7

Verification Samples

Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
70S20E-112985-VER-0104-1a	2	73	9	
70S20E-112985-VER-0104-2a	2	86	14	
70S20E-112985-VER-0104-3a	2	60	4	
70S20E-112985-VER-0104-4a	2	53	1	
70S20E-112985-VER-0104-5a	2	48	1	6

TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
6	2

COMPOSITE SAMPLE	70S20E-112985-VER-0104-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
64	5	7

GRID # 0105

Check Samples

Sample #	System # (1 or 2)	Gross Counts	Check Correlation Concentration (pCi/g)	Average Check Sample Concentration (pCi/g)
not taken	N/A	N/A		
	N/A	N/A		
40S10E-112585-CHK-0105-3a	1	119	32	
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
40S10E-112585-CHK-0105-6a	1	110	28	
not taken	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		
	N/A	N/A		30

Verification Samples

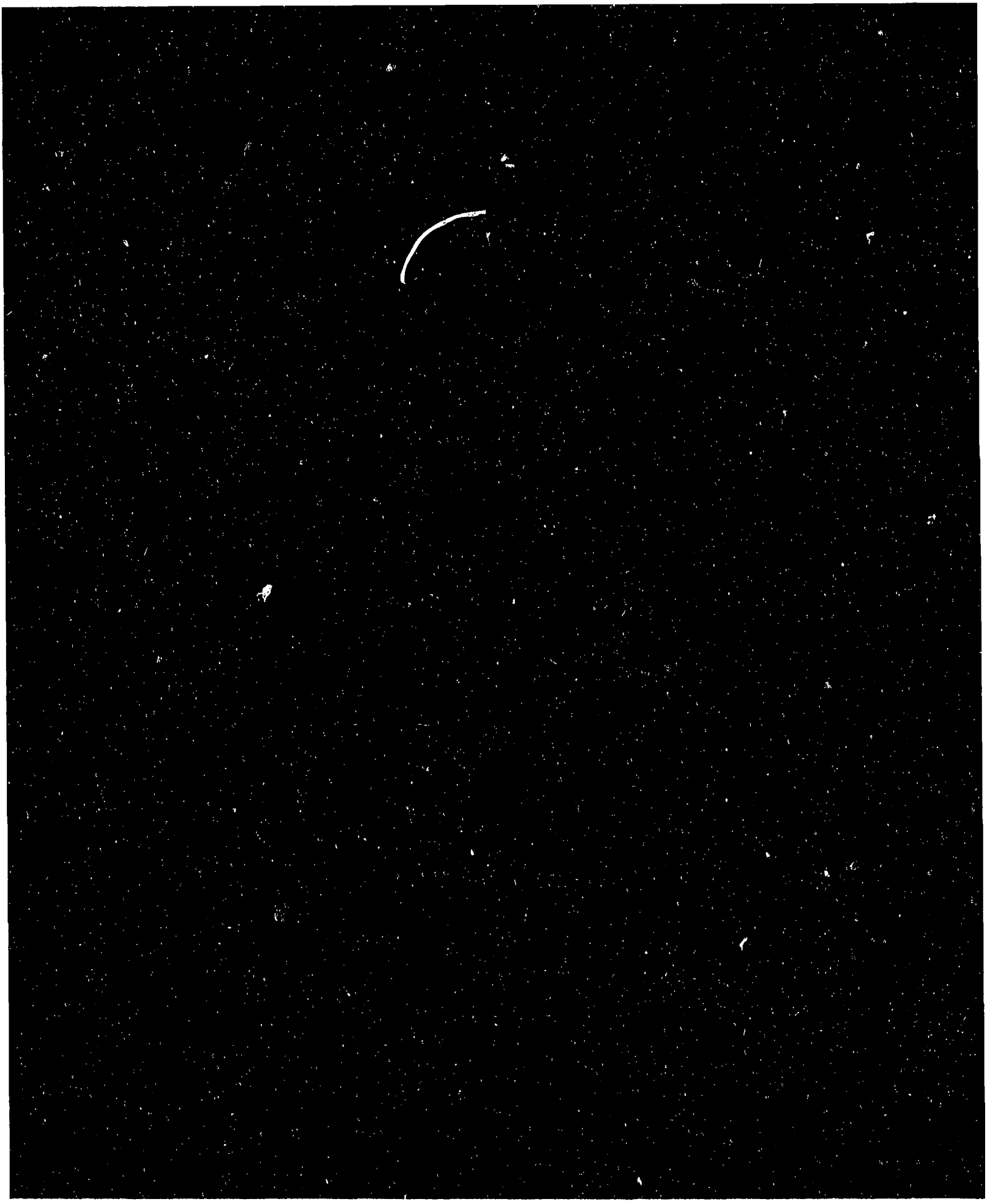
Sample #	System # (1 or 2)	Gross Counts	Verification Correlation Concentration (pCi/g)	Average Verification Sample Concentration (pCi/g)
40S10E-112985-VER-0105-1a	2	92	16	
40S10E-112985-VER-0105-2a	2	32	1	
40S10E-112985-VER-0105-3a	2	50	1	
40S10E-112985-VER-0105-4a	2	26	1	
40S10E-112985-VER-0105-5a	2	42	1	4

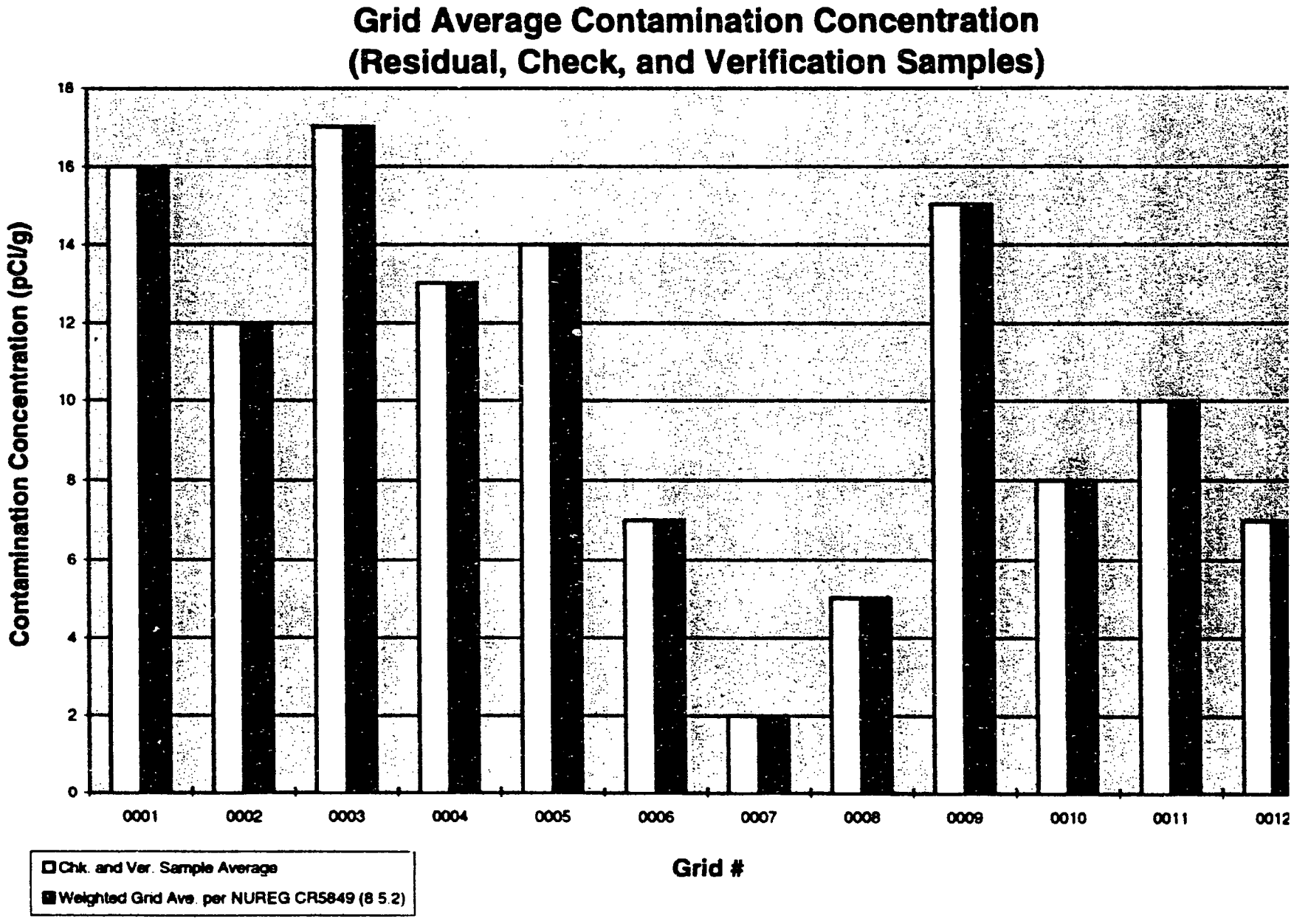
TOTAL AVERAGE CONCENTRATION (pCi/g)	Composite System #(1 or 2)
11	2

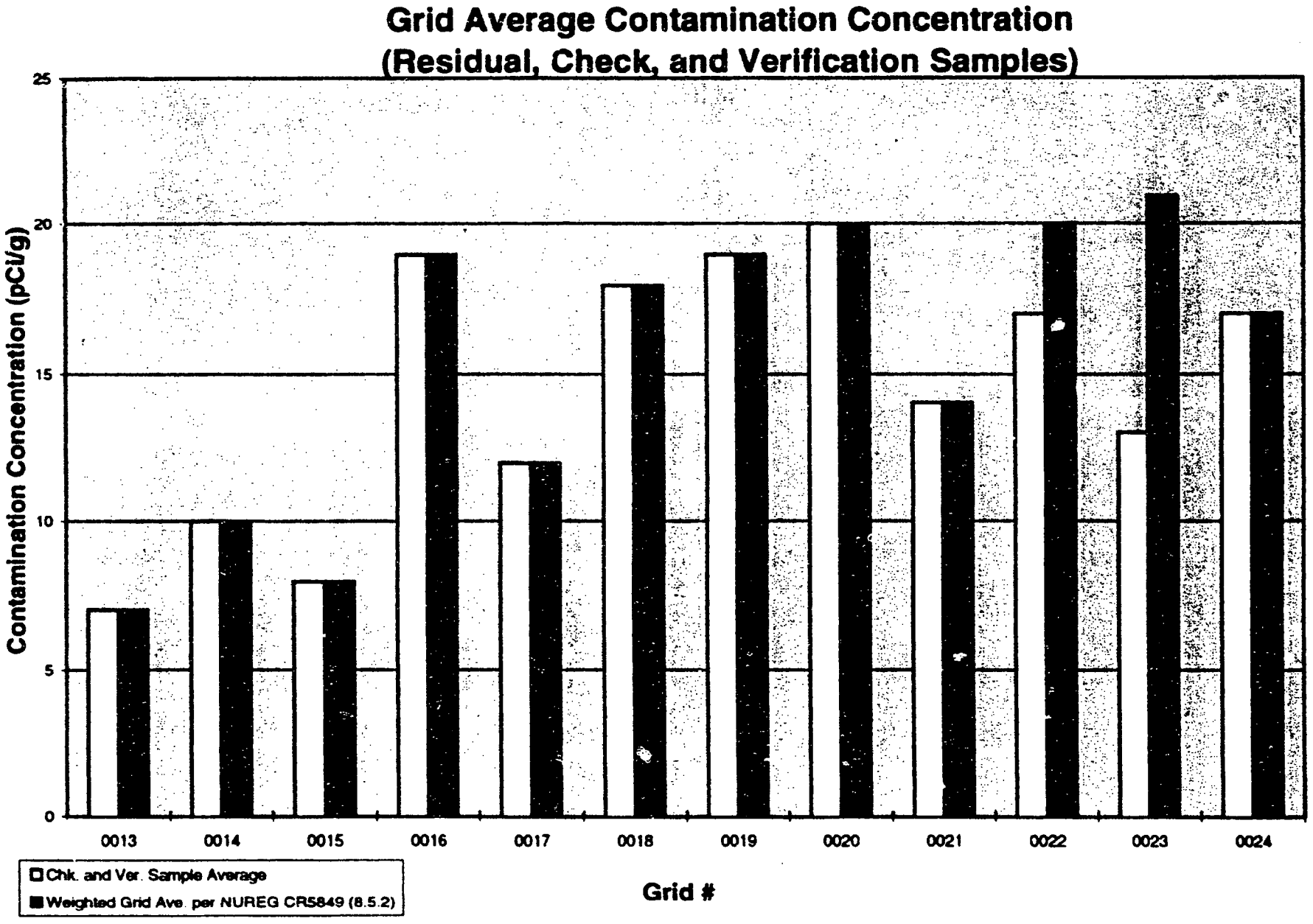
COMPOSITE SAMPLE	40S10E-112985-VER-0105-Co	
IN HOUSE ANALYSIS (gross counts)	(pCi/g)	EBERLINE ANALYSIS (pCi/g)
43	<1	6

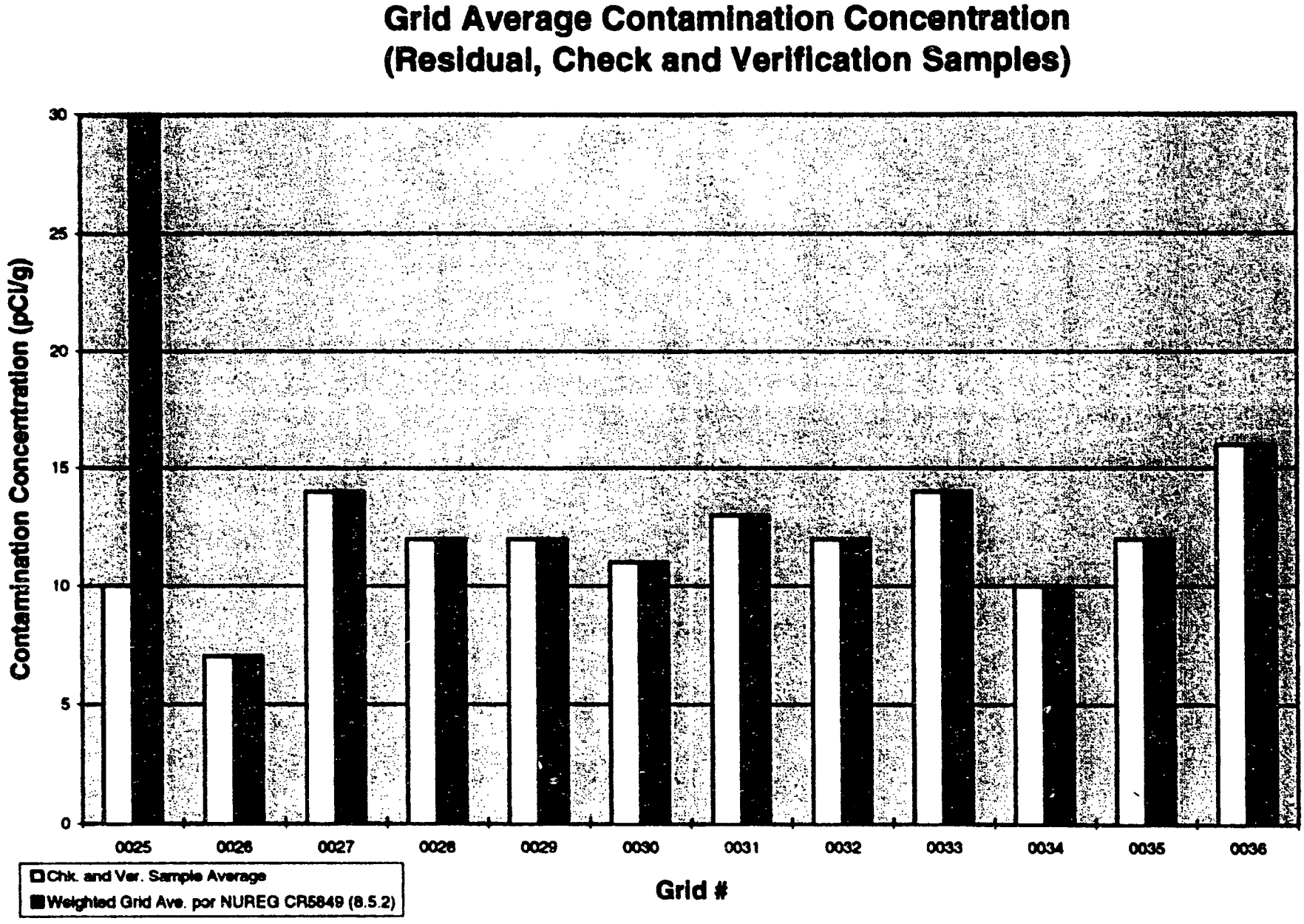
Concentrations Calculated as <1 pCi/g are reported and averaged as =1 pCi/g

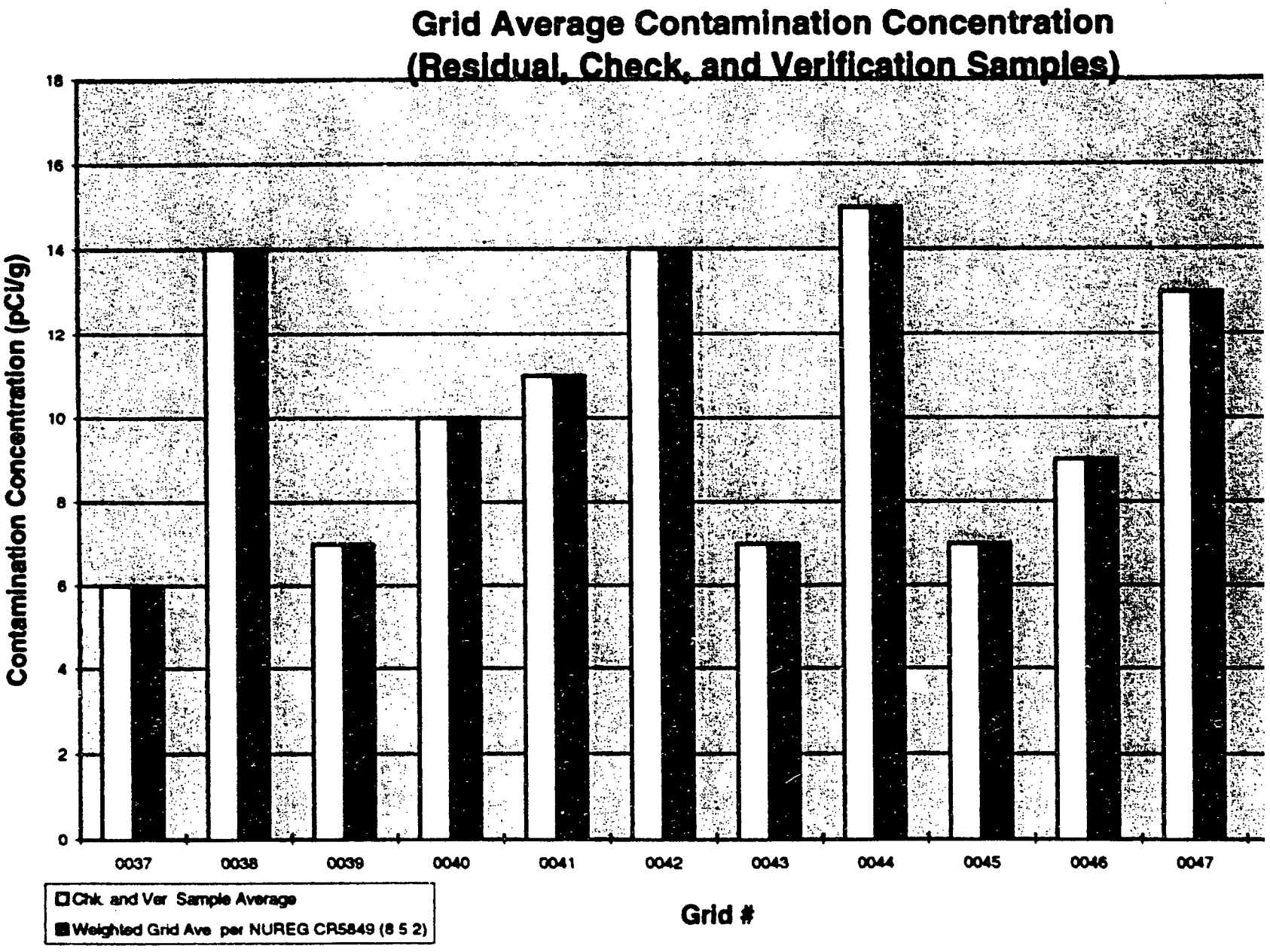
Concentrations are of Total Uranium (U-234 + U-235 + U-238)

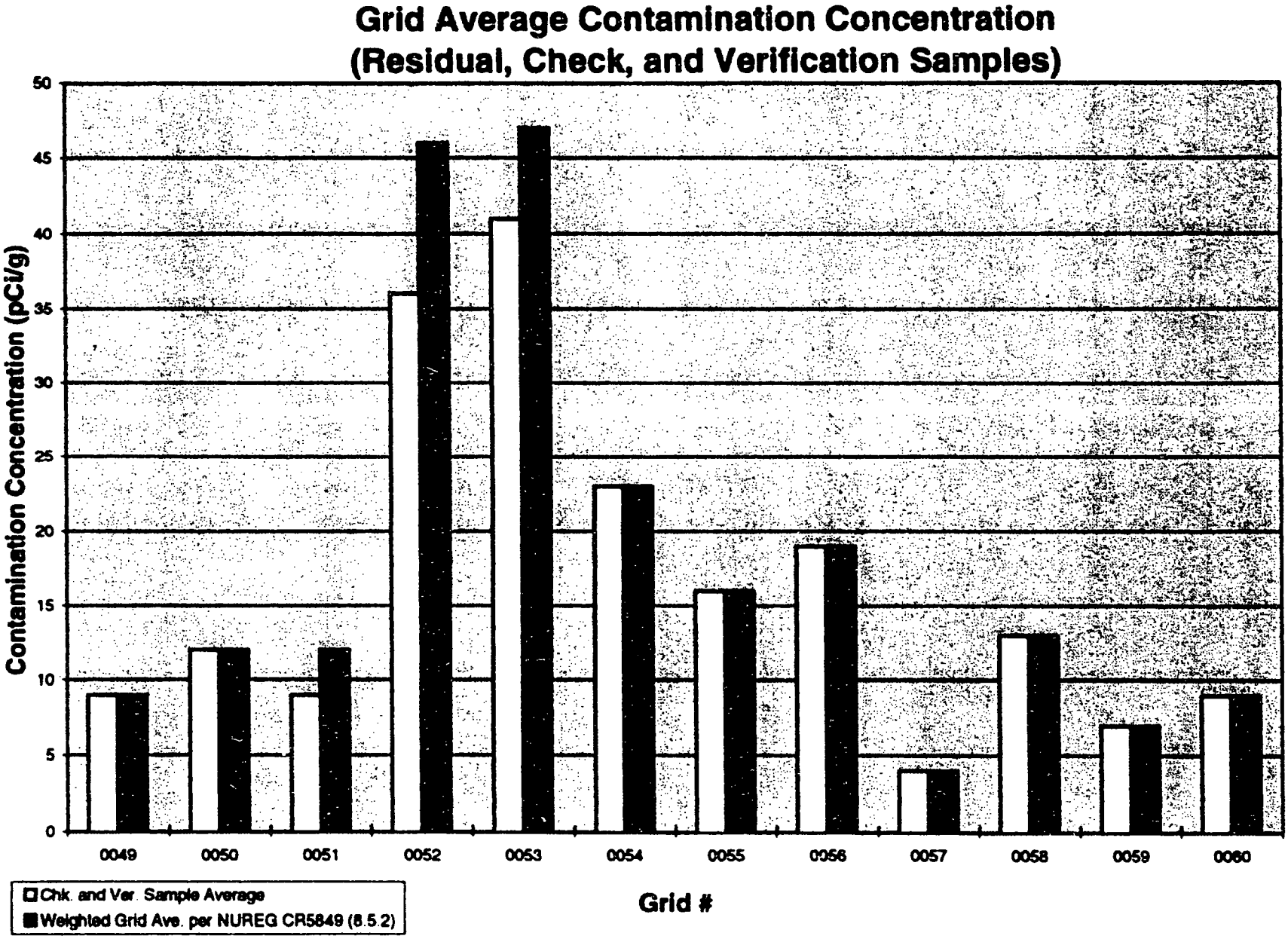



Grid Average Contamination Concentration
(Residual, Check, and Verification Samples)
Contamination Concentration (pCi/g)
18
16
14
12
10
8
6
4
2
0
0001
0002
0003
0004
0005
0006
0007
0008
0009
0010
0011
0012
Grid #
Chk. and Ver. Sample Average
Weighted Grid Ave. per NUREG CR5849 (8 5.2)

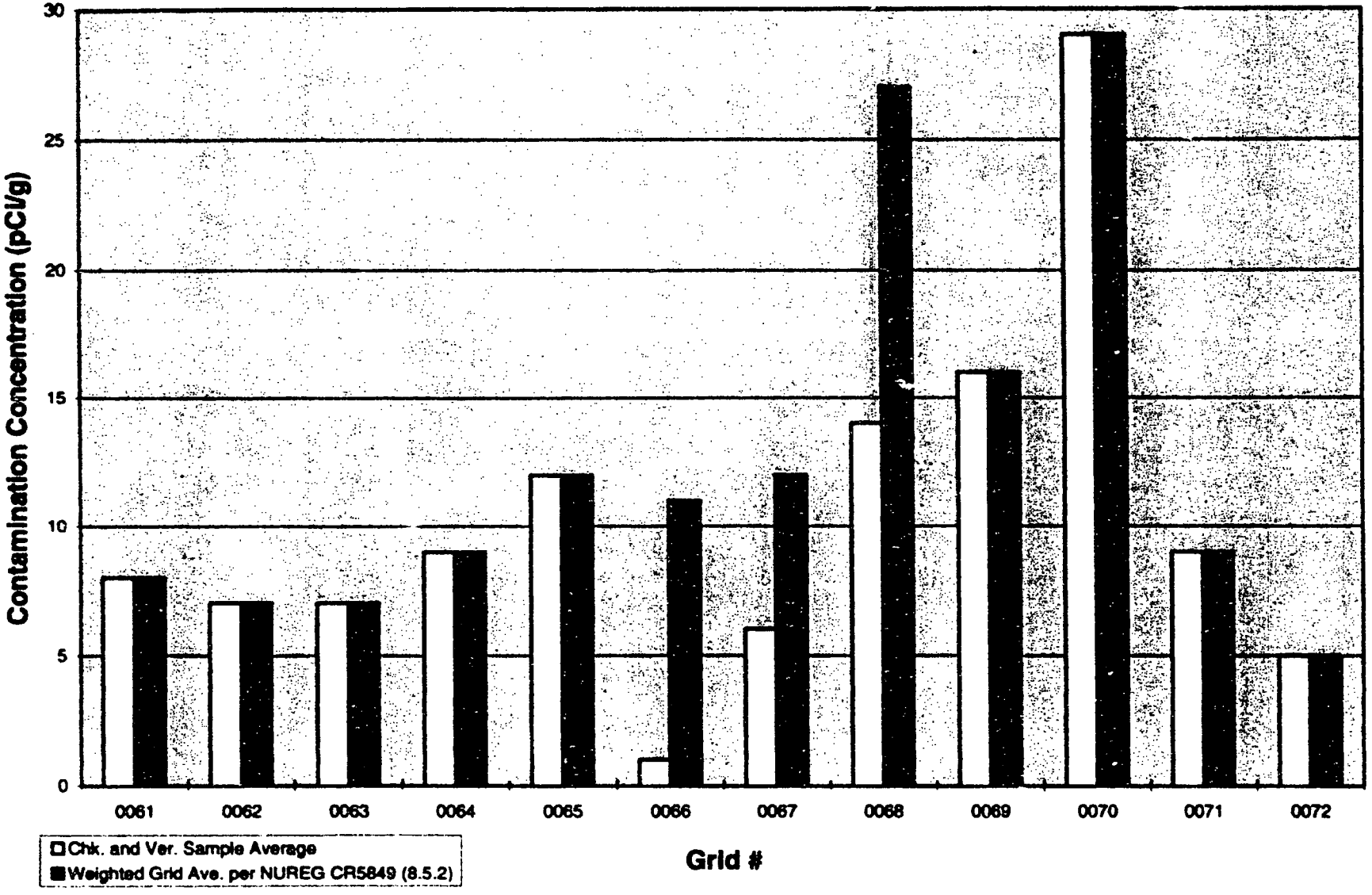

Grid Average Contamination Concentration
(Residual, Check, and Verification Samples)
Contamination Concentration (pCi/g)
25
20
15
10
5
0
0013
0014
0015
0016
0017
0018
0019
0020
0021
0022
0023
0024
Grid #
Chk. and Ver. Sample Average
Weighted Grid Ave. per NUREG CR5849 (8.5.2)



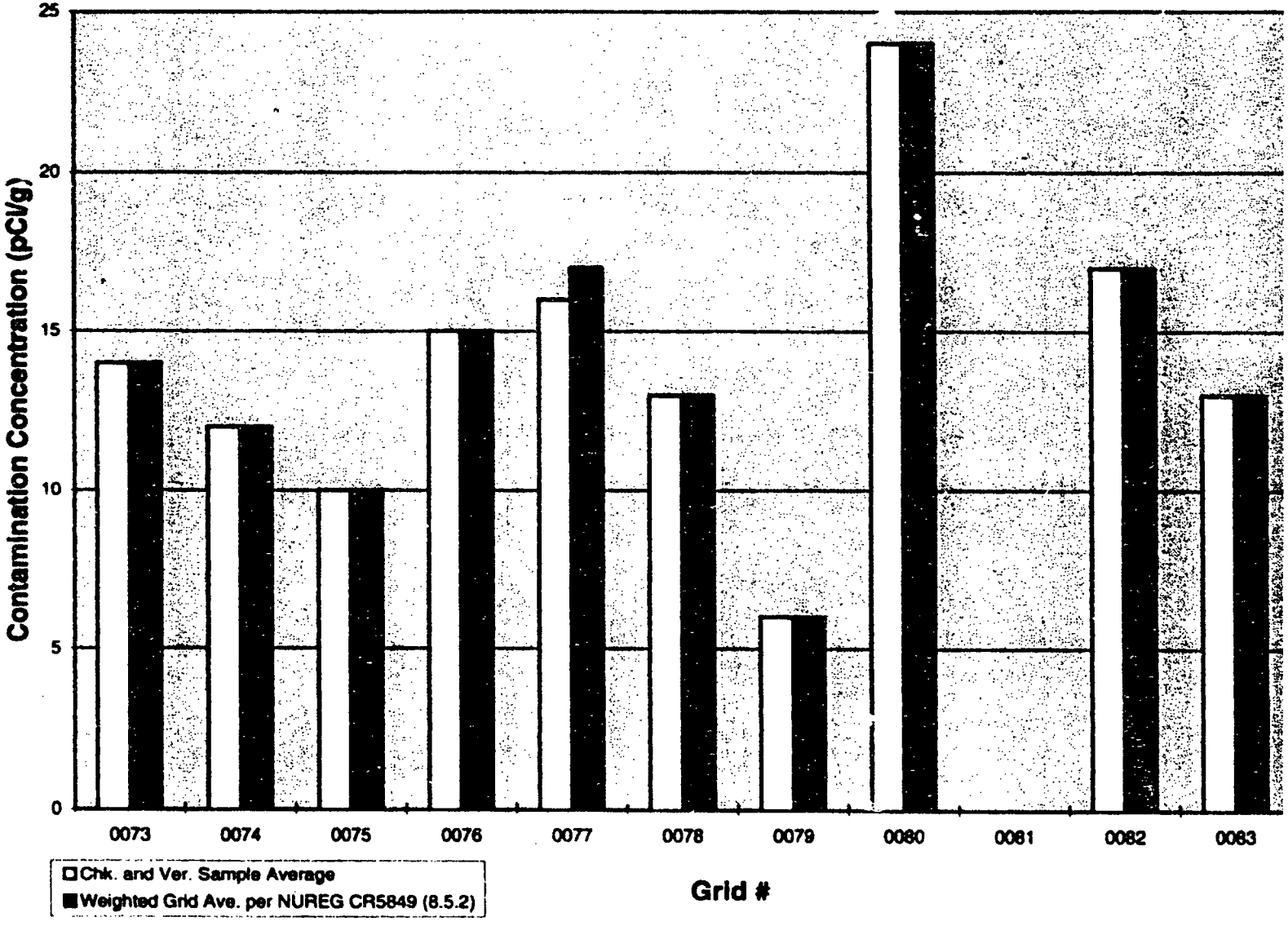

Grid Average Contamination Concentration
(Residual, Check, and Verification Samples)
Contamination Concentration (pCi/g)
18
16
14
12
10
8
6
4
2
0
0037
0038
0039
0040
0041
0042
0043
0044
0045
0046
0047
Grid #
Chk. and Ver Sample Average
Weighted Grid Ave per NUREG CR5849 (8 5 2)

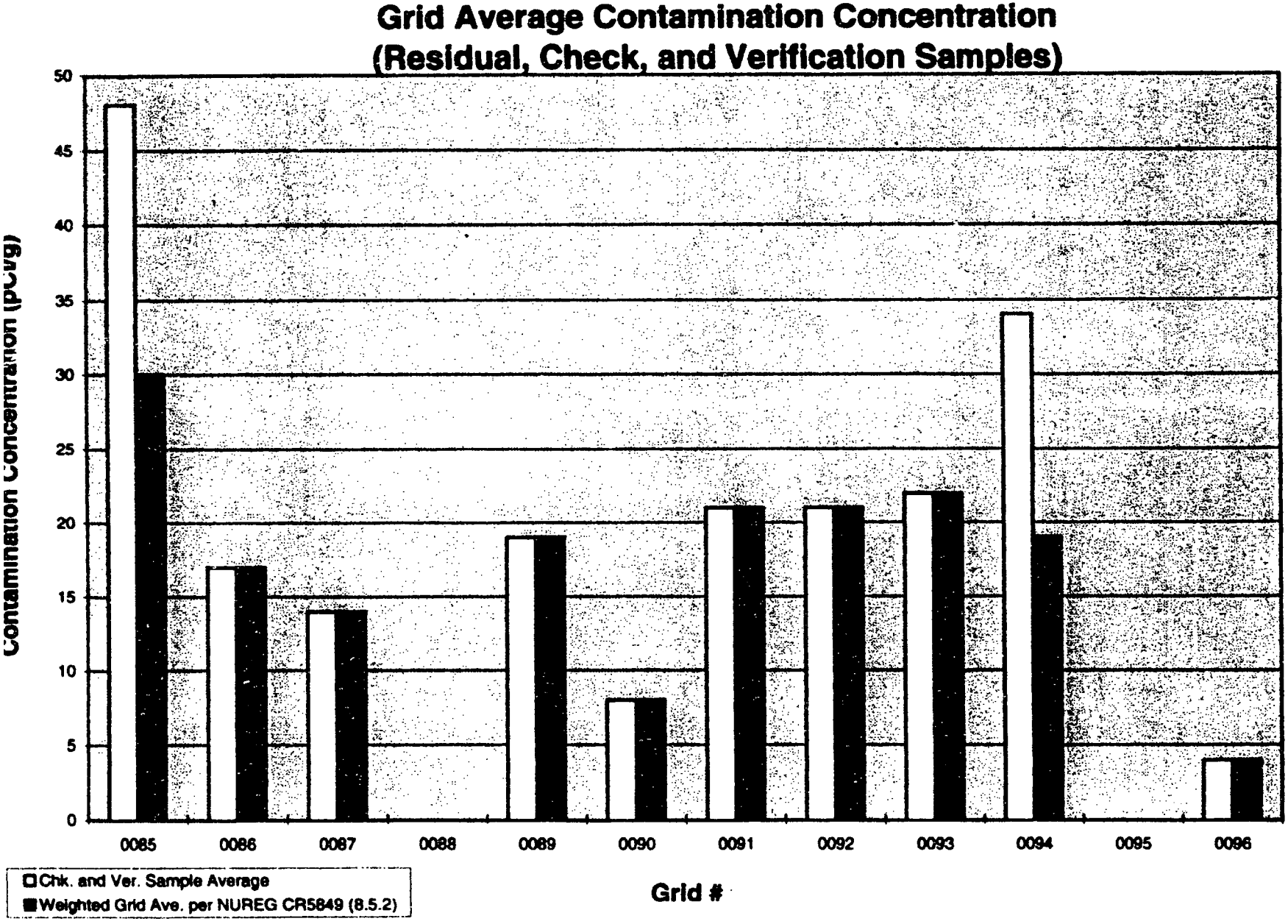

Grid Average Contamination Concentration
(Residual, Check, and Verification Samples)
Contamination Concentration (pCi/g)
50
45
40
35
30
25
20
15
10
5
0
0049
0050
0051
0052
0053
0054
0055
0056
0057
0058
0059
0060
Grid #
Chk. and Ver. Sample Average
Weighted Grid Ave. per NUREG CR5849 (8.5.2)

Grid Average Contamination Concentration (Residual, Check, and Verification Samples)

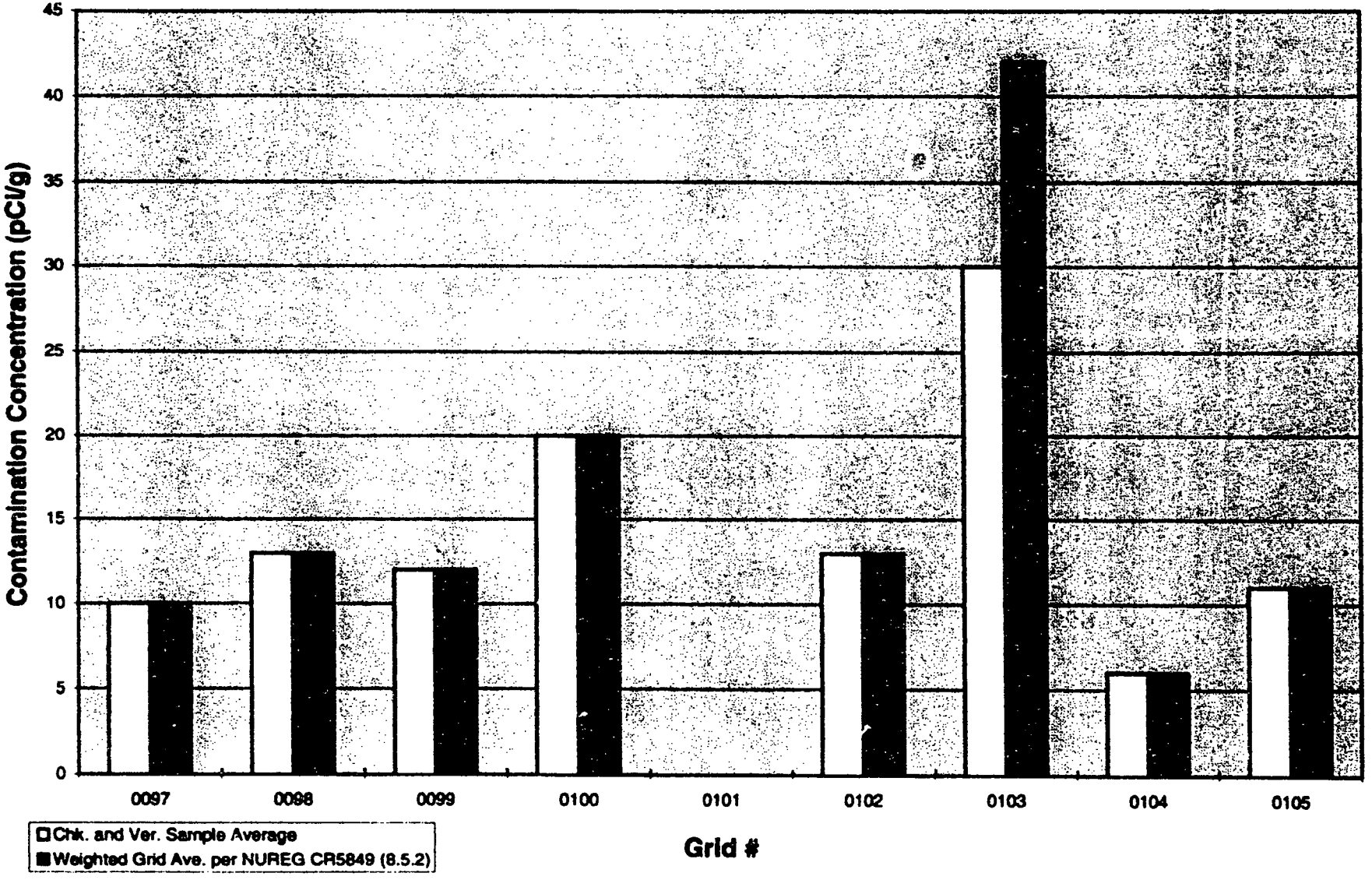


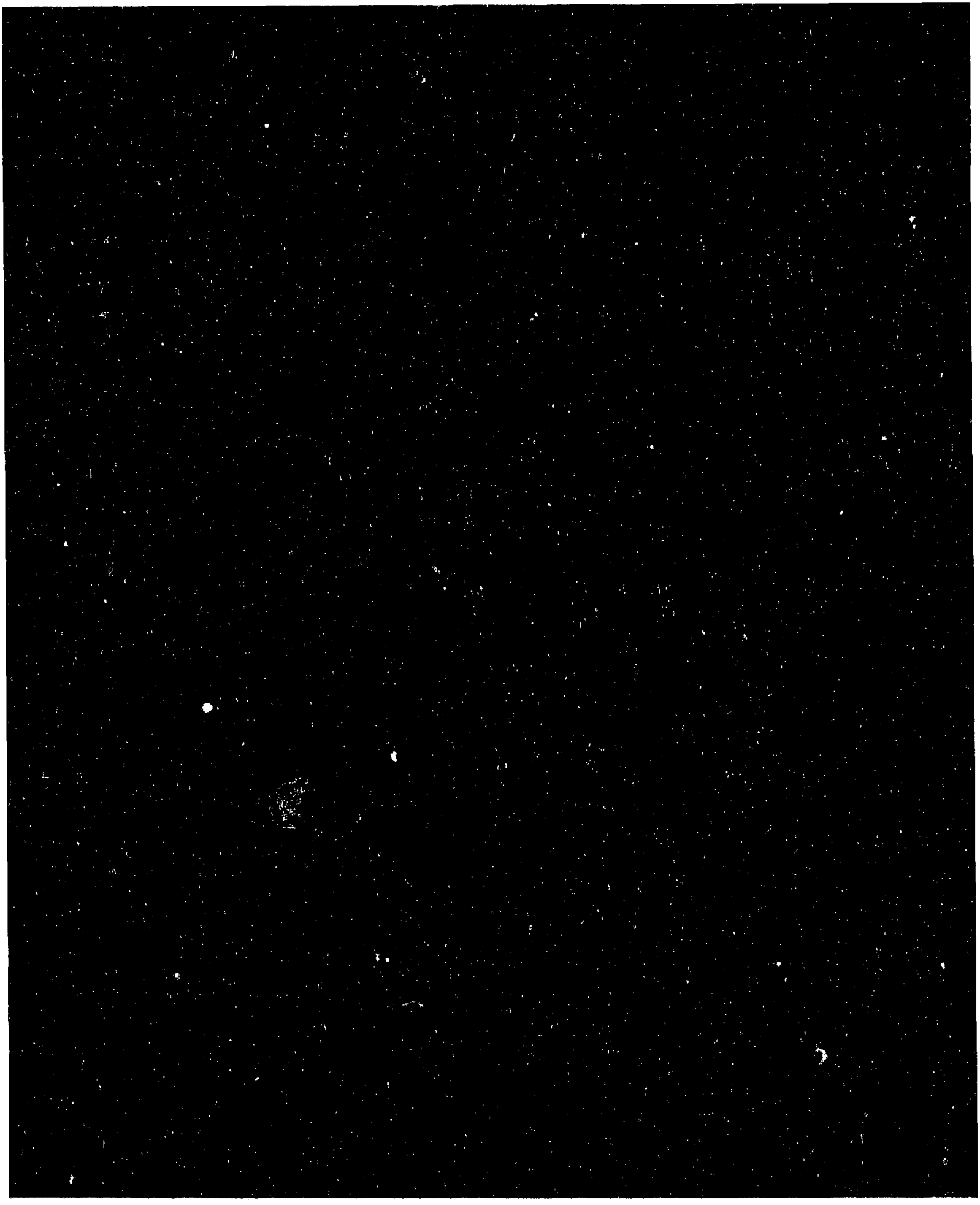
Grid Average Contamination Concentration (Check and Verification Samples)



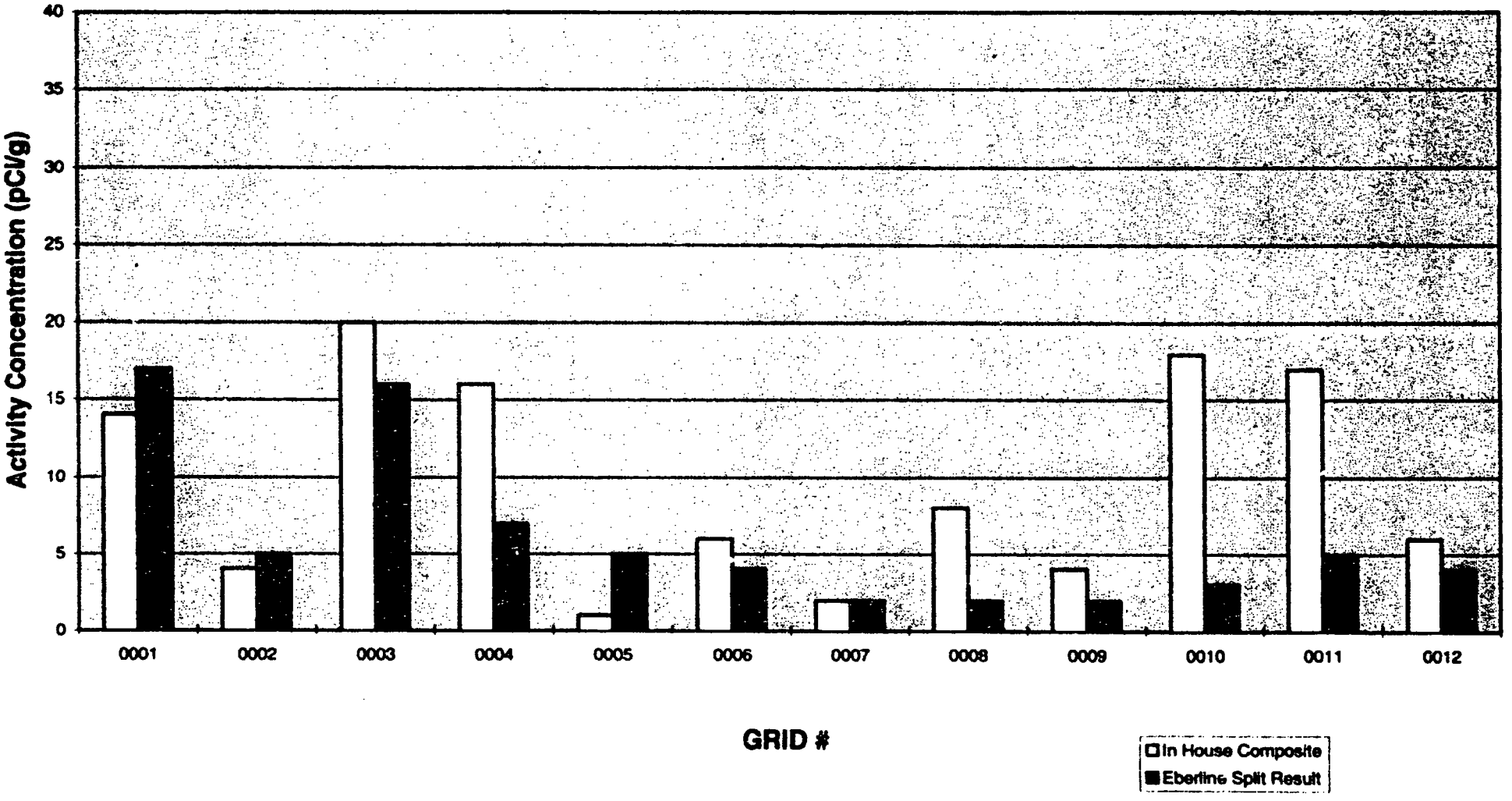

Grid Average Contamination Concentration
(Residual, Check, and Verification Samples)
Contamination Concentration (pCi/g)
50
45
40
35
30
25
20
15
10
5
0
0085
0086
0087
0088
0089
0090
0091
0092
0093
0094
0095
0096
Grid #
Chk. and Ver. Sample Average
Weighted Grid Ave. per NUREG CR5849 (8.5.2)

Grid Average Contamination Concentration (Residual, Check, and Verification Samples)

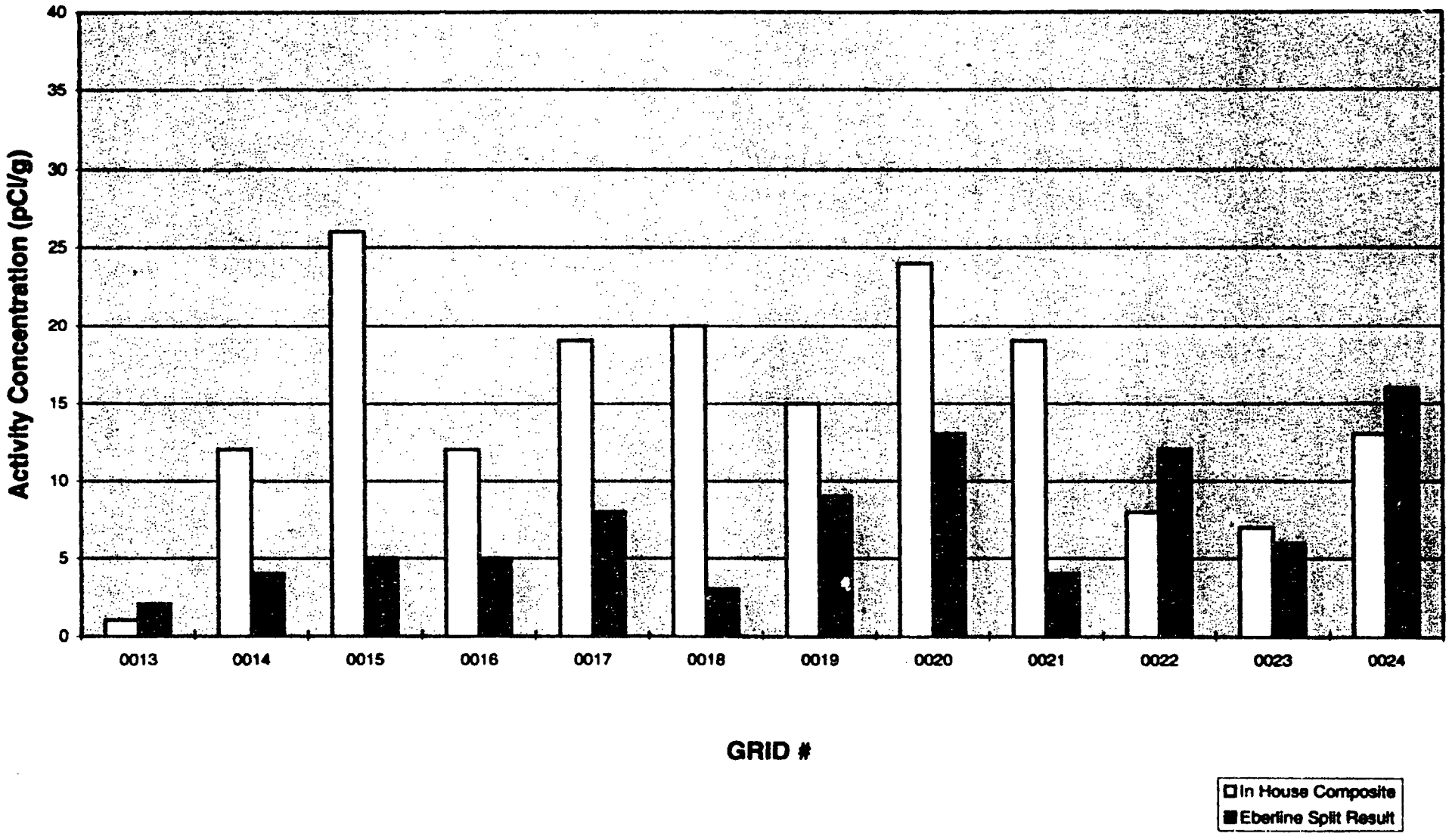




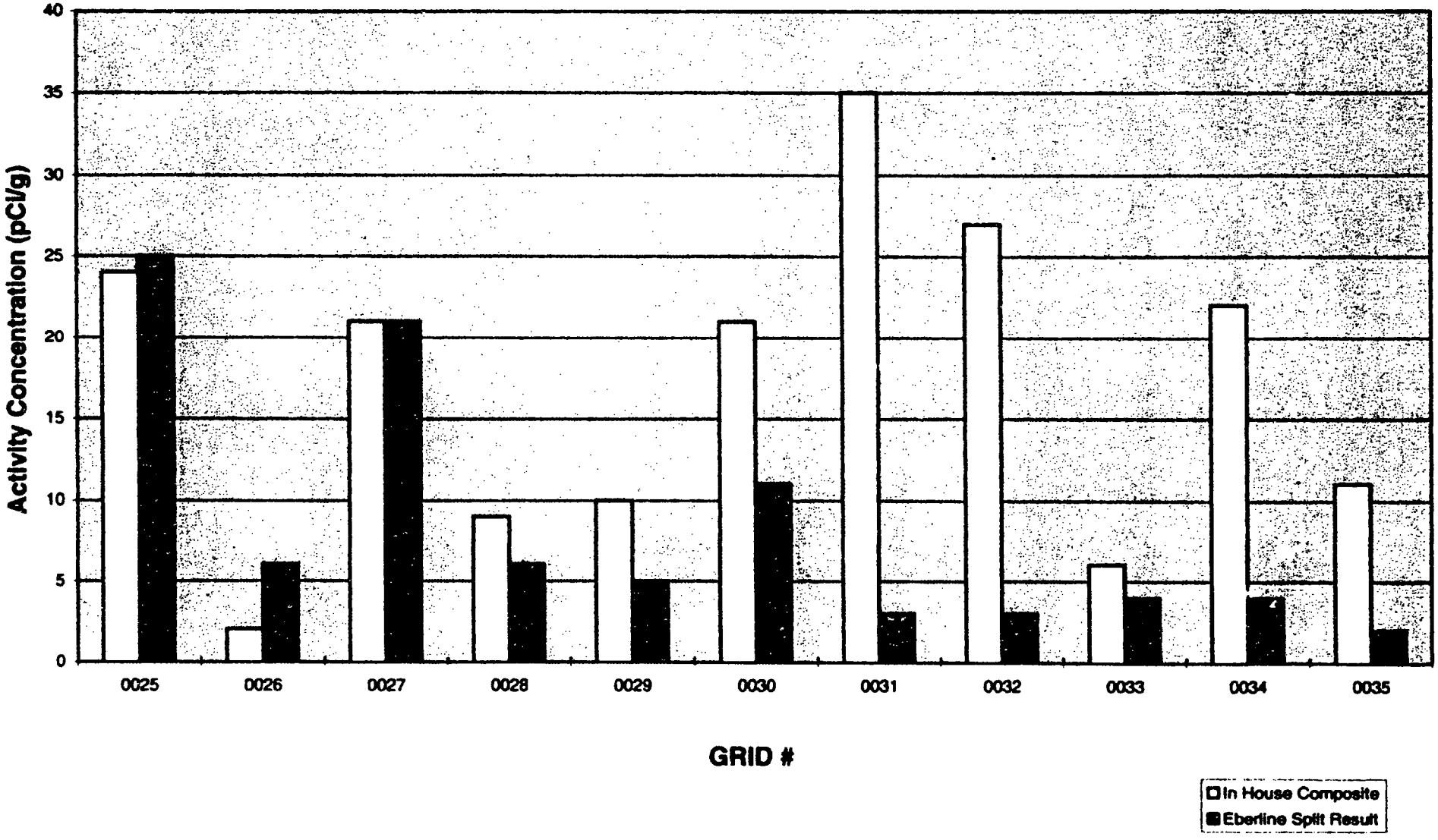
Texas Instruments, Attleboro
Comparison of In-House Composite vs. Offsite Laboratory Results



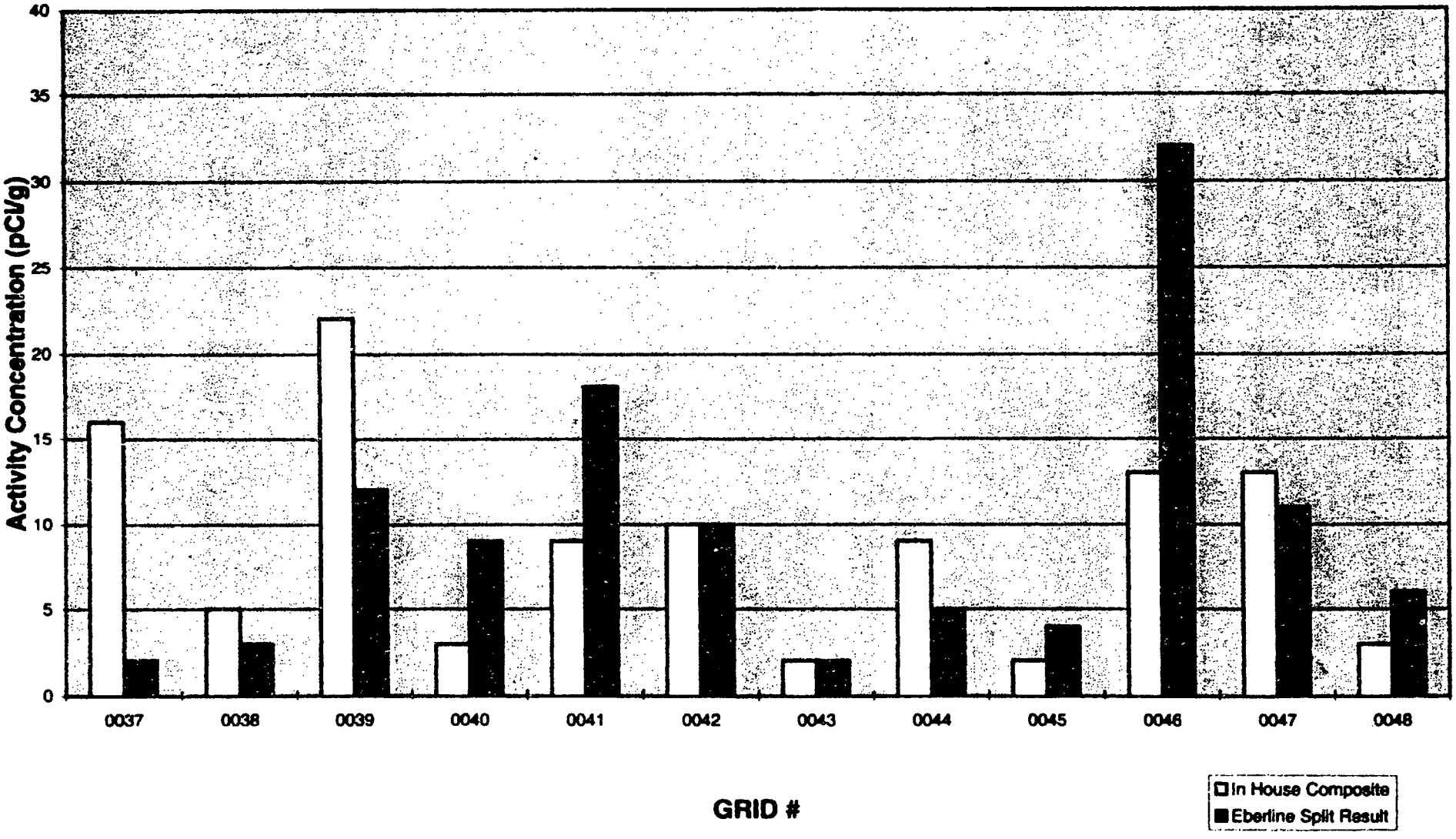
Texas Instruments, Attleboro
Comparison of In-House Composite vs. Offsite Laboratory Results



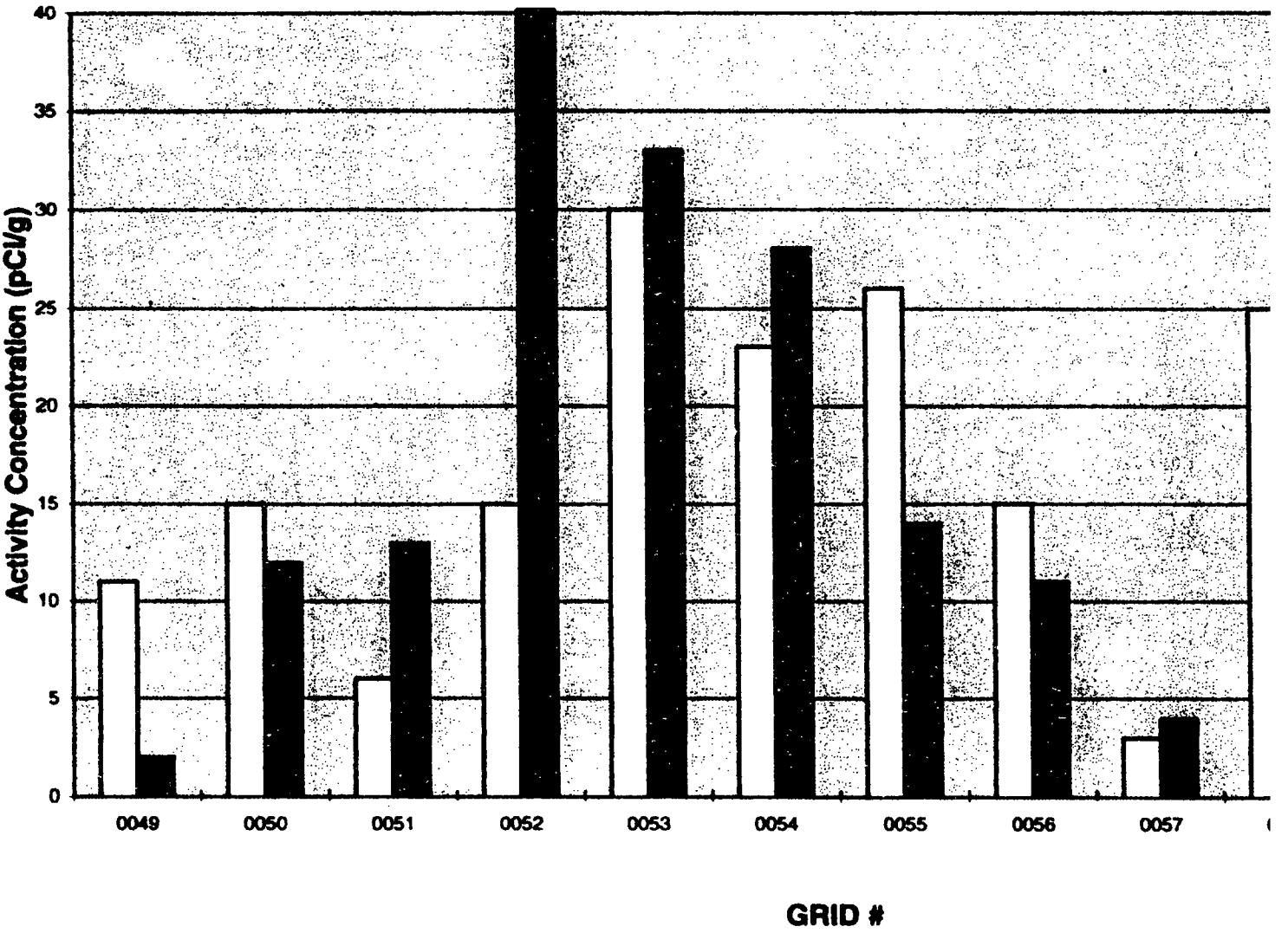
Texas Instruments, Attleboro
Comparison of In-House Composite vs. Offsite Laboratory Results



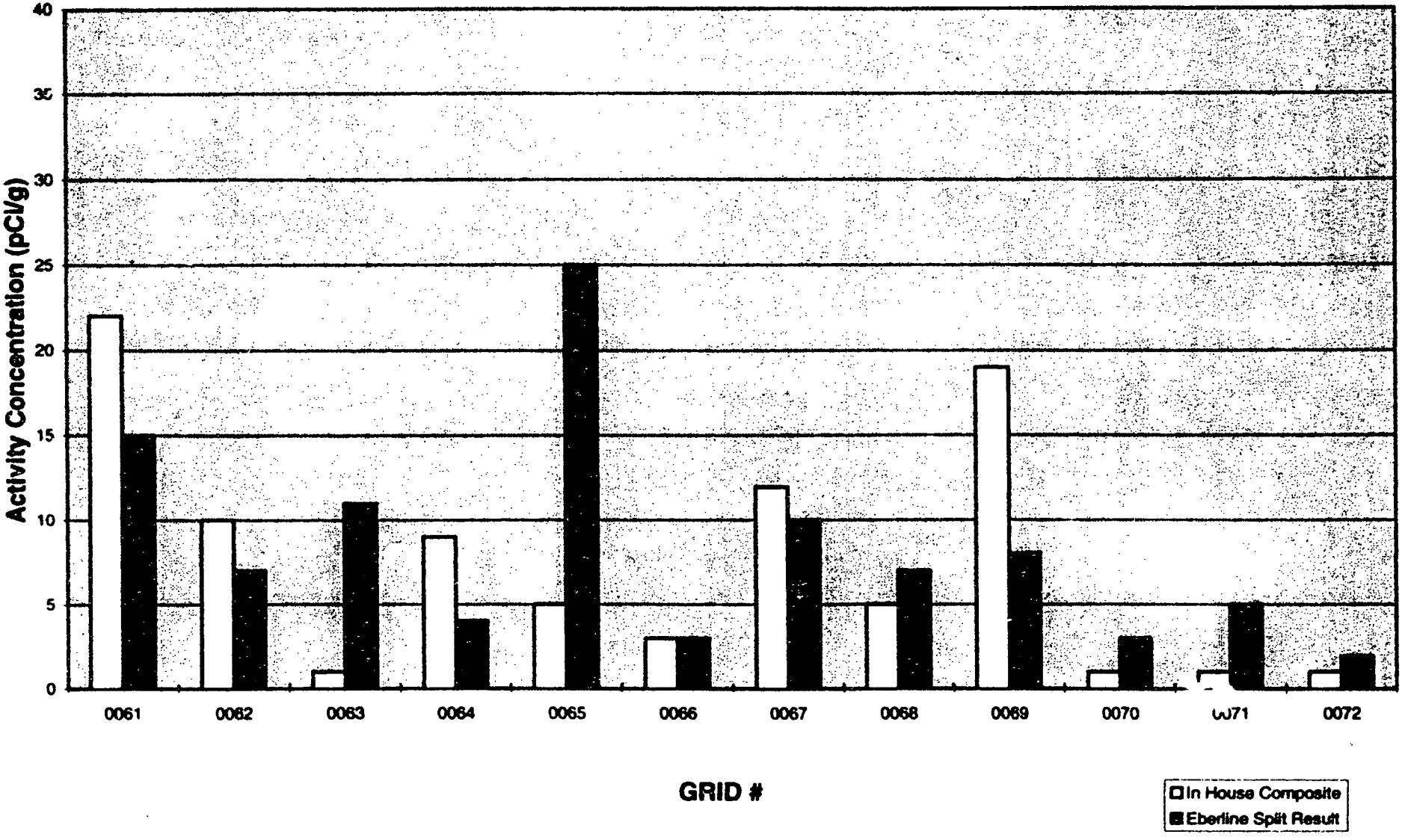
Texas Instruments, Attleboro
Comparison of In-House Composite vs. Offsite Laboratory Results



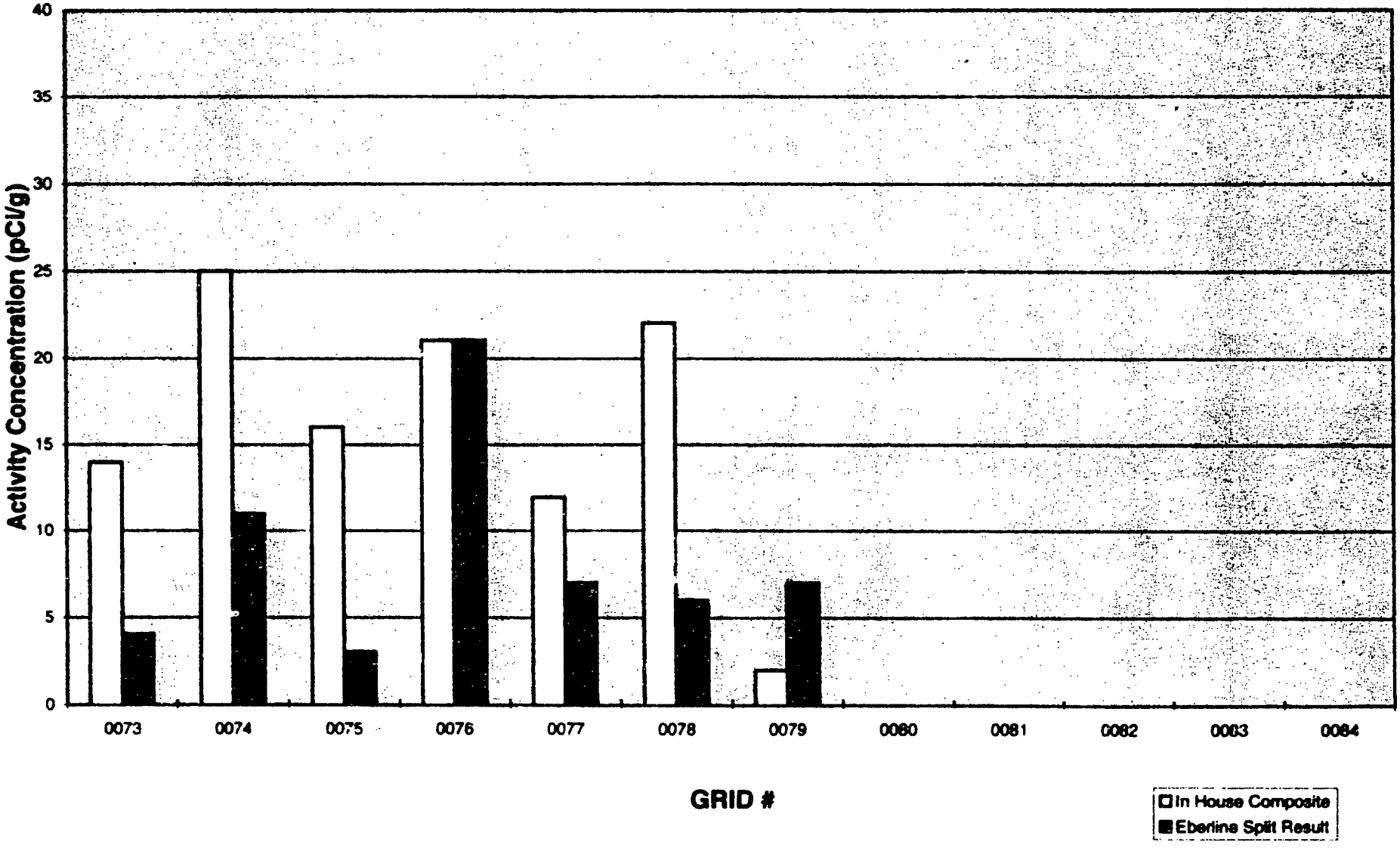
Texas Instruments, Attleboro
Comparison of In-House Composite vs. Offsite Laborato



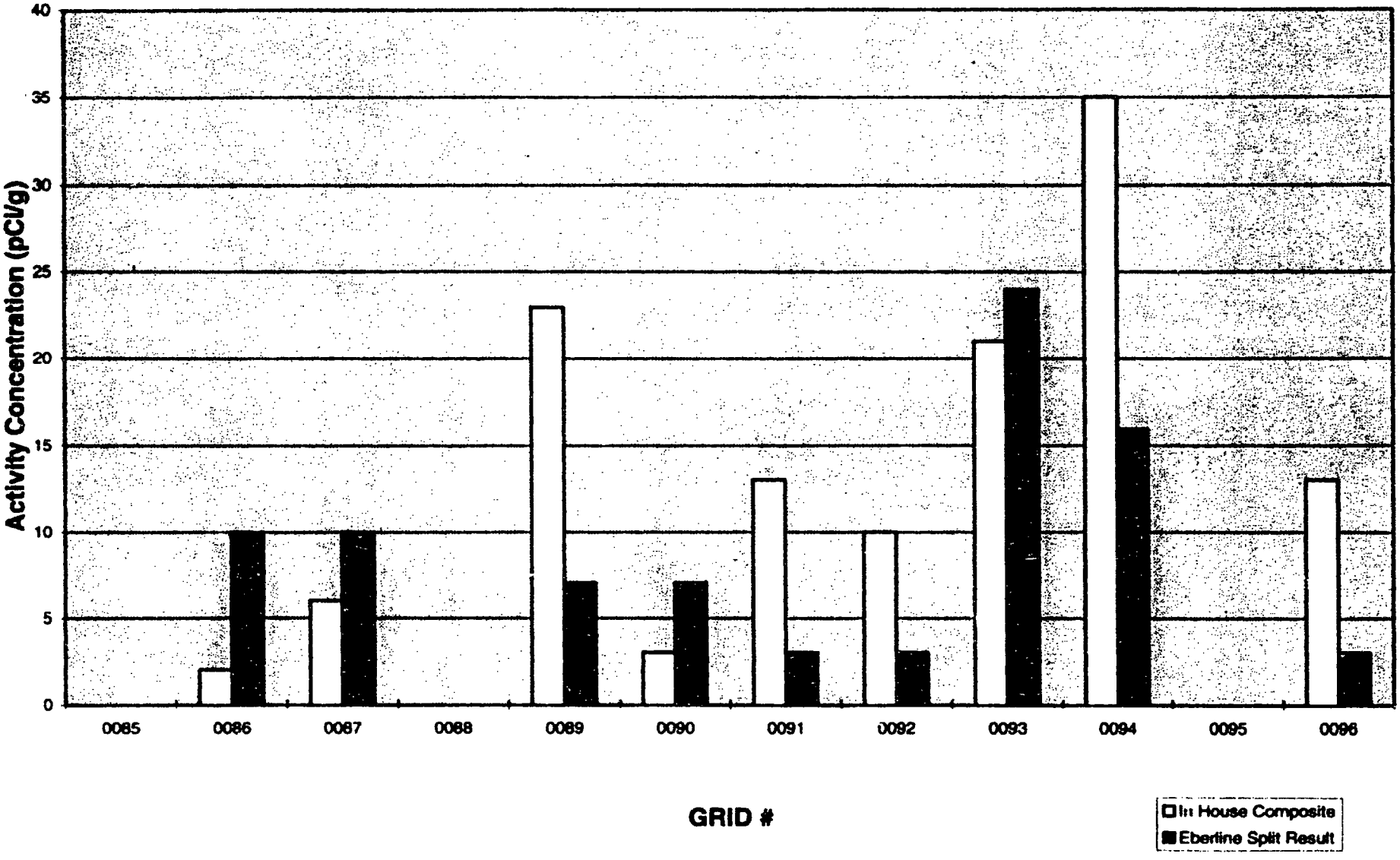
Texas Instruments, Attleboro
Comparison of In-House Composite vs. Offsite Laboratory Results



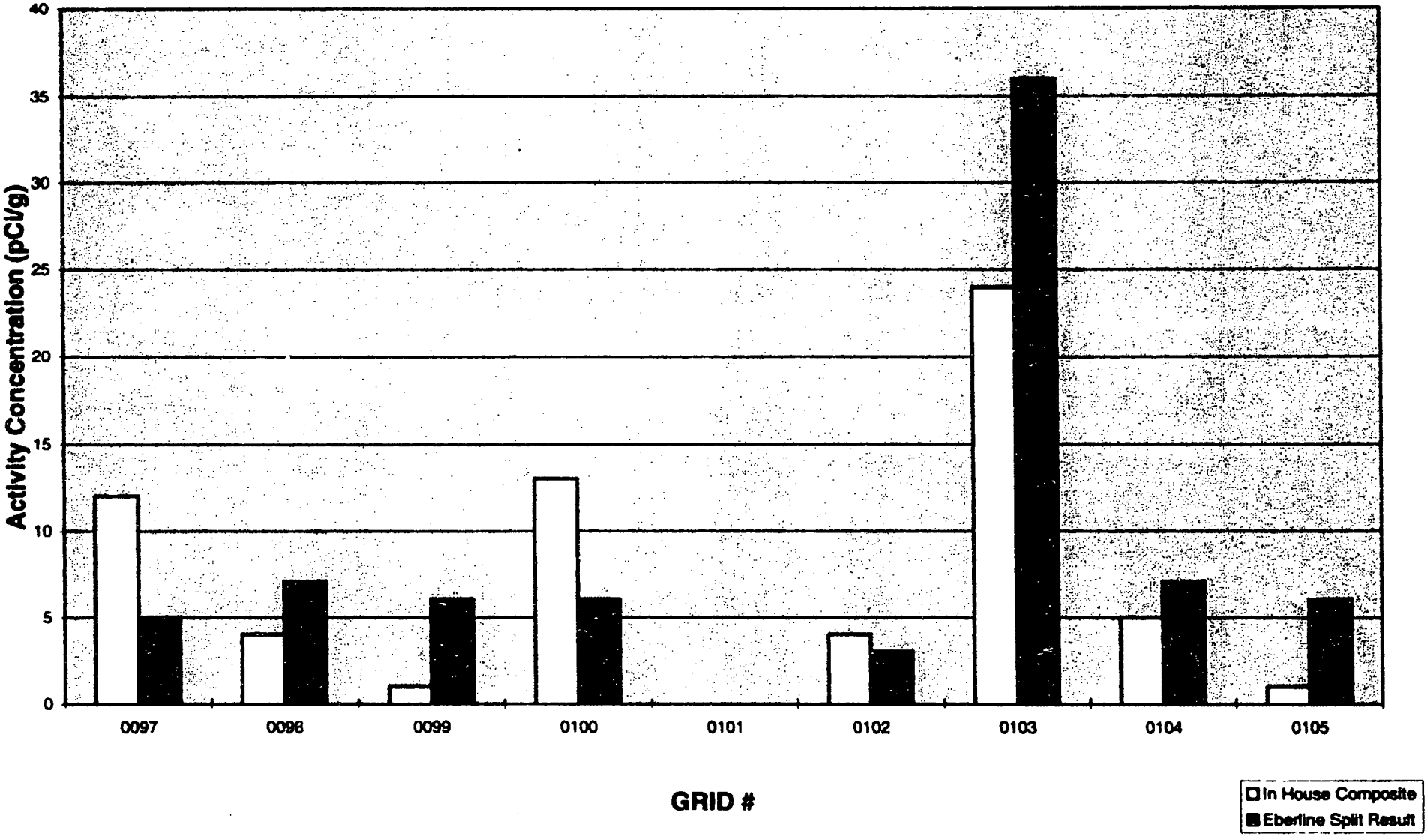
Texas Instruments, Attleboro
Comparison of In-House Composite vs. Offsite Laboratory Results

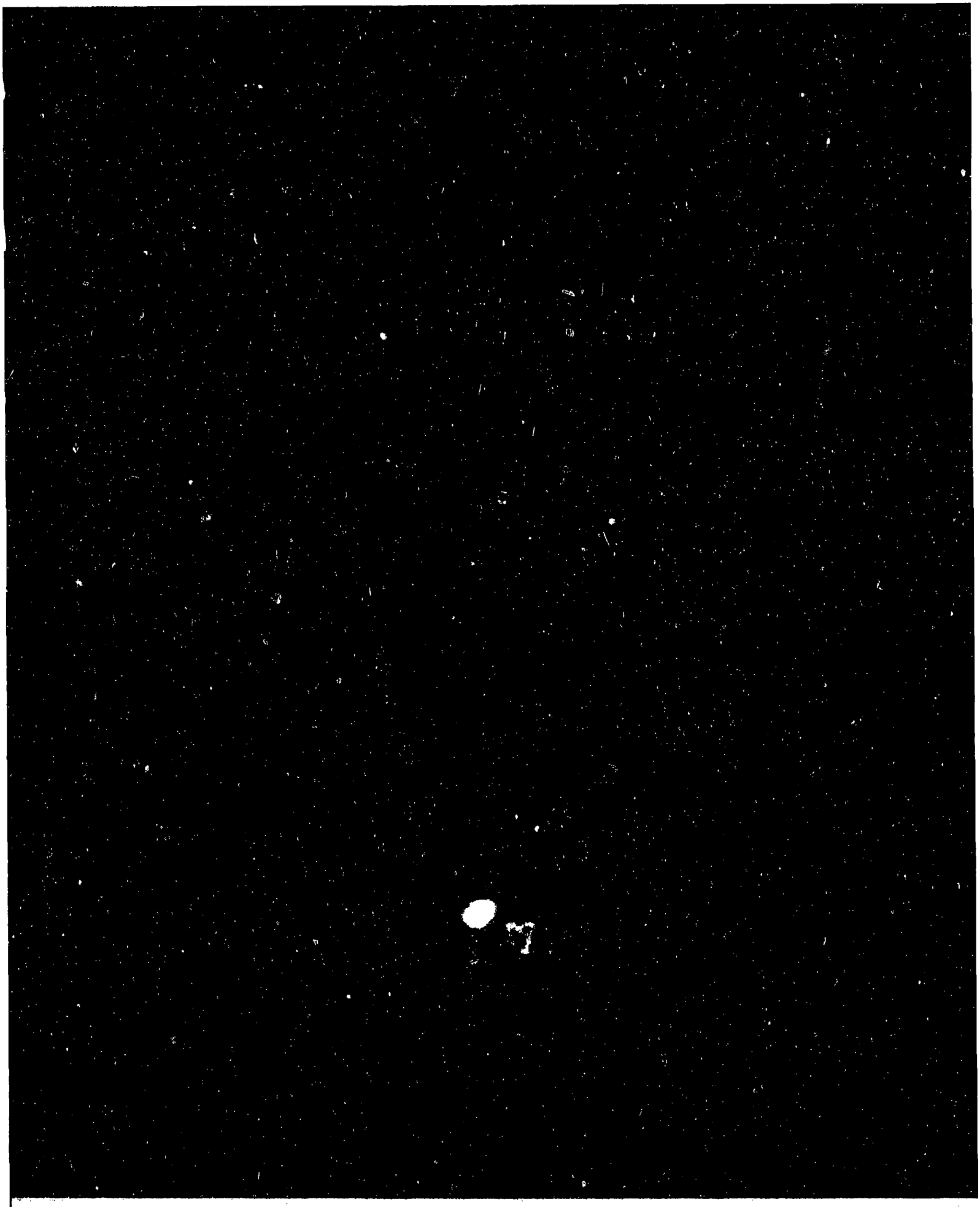


Texas Instruments, Attleboro
Comparison of In-House Composite vs. Offsite Laboratory Results



Texas Instruments, Attleboro
Comparison of In-House Composite vs. Offsite Laboratory Results





POST REMEDIATION GAMMA SURVEY
BUILDING 11- RAIL SPUR /STOCKADE AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
40S X 100E	3600	200	13	12	4	3
30S X 100E	3800	400	12	12	3	3
20S X 100E	3800	400	12	12	3	3
20S X 90E	4000	600	11	11	2	2
30S X 90E	3600	200	12	12	3	3
40S X 90E	3700	300	13	12	4	3
50S X 90E	3900	500	13	13	4	4
60S X 90E	3750	350	13	12	4	3
70S X 90E	3800	400	12	12	3	3
80S X 90E	4000	600	11	11	2	2
90S X 90E	3950	550	11	10	2	1
90S X 80E	4800	1400	15	14	6	5
80S X 80E	4700	1300	15	15	6	6
70S X 80E	5000	1600	15	15	6	6

* NET = GROSS - BACKGROUND
(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.
(-)-indicates that the Gross count rate or Exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 11- RAIL SPUR /STOCKADE AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
60S X 80E	4800	1400	15	15	6	6
50S X 80E	4800	1400	15	15	6	6
40S X 70E	4900	1500	15	14	6	5
30S X 80E	3700	300	13	12	4	3
20S X 80E	3600	200	12	12	3	3
20S X 70E	3700	300	13	12	4	3
30S X 70E	3500	100	13	13	4	4
40S X 70E	4800	1400	15	14	6	5
50S X 70E	4900	1500	15	15	6	6
60S X 70E	5000	1600	14	14	5	5
70S X 70E	4900	1500	15	15	6	6
80S X 70E	4900	1500	15	15	6	6
90S X 70E	4900	1500	15	14	6	5
90S X 60E	4800	1400	15	15	6	6

* NET = GROSS - BACKGROUND
(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.
(-)-indicates that the Gross count rate or Exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 11- RAIL SPUR /STOCKADE AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
80S X 60E	4700	1300	15	15	6	6
70S X 60E	5000	1600	15	14	6	5
60S X 60E	4800	1400	15	14	6	5
50S X 60E	4900	1500	15	14	6	5
40S X 60E	5000	1600	15	15	6	6
30S X 60E	3800	400	13	12	4	3
20S X 60E	3700	300	12	12	3	3
20S X 50E	3800	400	12	12	3	3
30S X 50E	3800	400	13	13	4	4
40S X 50E	4800	1400	15	15	6	6
50S X 50E	4700	1300	15	14	6	5
60S X 50E	4900	1500	15	14	6	5
70S X 50E	5000	1600	15	15	6	6
80S X 50E	4900	1500	15	14	6	5

* NET = GROSS - BACKGROUND

(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.

(-)-indicates that the Gross count rate or Exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 11- RAIL SPUR /STOCKADE AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
90S X 50E	4800	1400	15	14	6	5
90S X 40E	3800	400	13	13	4	4
80S X 40E	3700	300	12	12	3	3
70S X 40E	3700	300	13	12	4	3
60S X 40E	3900	500	12	11	3	2
50S X 40E	3900	500	12	11	3	2
40S X 40E	3700	300	13	13	4	4
30S X 40E	3800	400	13	12	4	3
20S X 40E	3600	200	12	12	3	3
20S X 30E	3600	200	11	11	2	2
30S X 30E	3800	400	10	10	1	1
40S X 30E	3900	500	10	10	1	1
50S X 30E	4000	600	13	12	4	3
60S X 30E	4000	600	12	11	3	2

* NET = GROSS - BACKGROUND

(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.

(-)-indicates that the Gross count rate or Exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 11- RAIL SPUR /STOCKADE AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
70S X 30E	3800	400	12	11	3	2
80S X 30E	3900	500	11	11	2	2
90S X 30E	3700	300	12	12	3	3
90S X 20E	3650	250	13	13	4	4
80S X 20E	3500	100	13	13	4	4
70S X 20E	3900	500	13	12	4	3
60S X 20E	3900	500	12	12	3	3
50S X 20E	3700	300	11	11	2	2
40S X 20E	3800	400	13	13	4	4
30S X 20E	3900	500	13	13	4	4
20S X 20E	4000	600	13	12	4	3
20S X 10E	3800	400	12	12	3	3
30S X 10E	3800	400	12	12	3	3
40S X 10E	4000	600	12	12	3	3

* NET = GROSS - BACKGROUND

(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.

(-)-indicates that the Gross count rate or Exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 11- RAIL SPUR /STOCKADE AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
50S X 10E	3900	500	11	10	2	1
20S X 130E	3400	0	10	9	1	0
30S X 130E	3700	300	10	10	1	1
40S X 130E	3600	200	10	10	1	1
50S X 130E	3600	200	11	10	2	1
60S X 130E	3600	200	10	9	1	0
60S X 140E	3500	100	9	9	0	0
50S X 140E	3400	0	10	10	1	1
40S X 140E	3400	0	10	9	1	0
30S X 140E	3600	200	10	10	1	1
20S X 140E	3500	100	10	9	1	0
20S X 150E	3400	0	10	10	1	1
30S X 150E	3400	0	10	10	1	1
40S X 150E	3400	0	10	9	1	0

* NET = GROSS - BACKGROUND

(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.

(-)-indicates that the Gross count rate or Exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 11- RAIL SPUR /STOCKADE AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
50S X 150E	3500	100	11	10	2	1
60S X 150E	3500	100	10	10	1	1
60S X 160E	3600	200	10	10	1	1
50S X 160E	3400	0	10	10	1	1
40S X 160E	3700	300	9	9	0	0
30S X 160E	3500	100	10	9	1	0
20S X 160E	3500	100	10	10	1	1
40S X 170E	3400	0	10	9	1	0
50S X 170E	3600	200	10	9	1	0
60S X 170E	3600	200	10	10	1	1

* NET = GROSS - BACKGROUND
(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.
(-)-indicates that the Gross count rate or Exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 12-SOUTH LAWN/WEST LAWN AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
120N X 110E	3300	-100	13	12	4	3
120N X 120E	3400	0	12	11	3	2
120N X 130E	3400	0	12	12	3	3
120N X 140E	3600	200	13	13	4	4
120N X 150E	3400	0	12	12	3	3
120N X 160E	3500	100	12	11	3	2
120N X 170E	3600	200	12	11	3	2
130N X 140E	3300	-100	13	13	4	4
130N X 130E	3500	100	13	12	4	3
130N X 120E	3600	200	12	11	3	2
150N X 140E	3400	0	13	12	4	3
150N X 150E	3600	200	12	12	3	3
160N X 140E	3700	300	13	11	4	2
160N X 150E	3800	400	11	11	2	2

* NET = GROSS - BACKGROUND

(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.

(-)-indicates that the Gross count rate or exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 12-SOUTH LAWN/WEST LAWN AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
170N X 140E	3600	200	13	12	4	3
170N X 150E	3600	200	12	12	3	3
200N X 130E	3500	100	12	12	3	3
200N X 140E	3700	300	12	11	3	2
210N X 140E	3700	300	12	11	3	2
210N X 130E	3800	400	12	11	3	2
200N X 150E	3400	0	12	12	3	3
190N X 150E	3500	100	12	12	3	3
190N X 160E	3500	100	11	11	2	2
200N X 160E	3600	200	13	12	4	3
190N X 170E	3700	300	12	11	3	2
180N X 170E	4000	600	13	13	4	4
180N X 160E	3800	400	12	12	3	3
110N X 190E	3600	200	12	11	3	2

* NET = GROSS - BACKGROUND
(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.
(-)-indicates that the Gross count rate or exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 12-SOUTH LAWN/WEST LAWN AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
110N X 180E	3400	0	12	12	3	3
110N X 170E	3500	100	13	12	4	3
110N X 160E	3700	300	12	11	3	2
110N X 150E	3900	500	13	12	4	3
110N X 140E	3800	400	12	12	3	3
110N X 130E	3800	400	12	11	3	2
110N X 120E	3600	200	13	13	4	4
100N X 120E	3700	300	11	11	2	2
100N X 130E	4000	600	12	11	3	2
100N X 140E	3900	500	12	11	3	2
100N X 150E	3700	300	12	12	3	3
100N X 160E	3800	400	12	11	3	2
100N X 170E	3900	500	12	12	3	3
100N X 180E	3500	100	13	12	4	3

* NET = GROSS - BACKGROUND
(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.
(-)-indicates that the Gross count rate or exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 12-SOUTH LAWN/WEST LAWN AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
100N X 190E	3500	100	12	11	3	2
100N X 200E	3600	200	12	12	3	3
90N X 200E	3800	400	12	11	3	2
90N X 190E	3900	500	12	12	3	3
90N X 180E	3800	400	13	12	4	3
90N X 170E	3500	100	12	12	3	3
90N X 160E	3700	300	12	12	3	3
90N X 150E	3600	200	12	12	3	3
90N X 140E	3800	400	13	13	4	4
90N X 130E	3600	200	12	11	3	2
80N X 130E	3600	200	12	12	3	3
80N X 140E	3700	300	12	12	3	3
80N X 150E	3400	0	13	12	4	3
80N X 160E	3500	100	13	13	4	4

* NET = GROSS - BACKGROUND
(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.
(-)-indicates that the Gross count rate or exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 12-SOUTH LAWN/WEST LAWN AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
80N X 170E	3500	100	12	11	3	2
80N X 180E	3800	400	13	12	4	3
70N X 180E	3700	300	12	11	3	2
70N X 170E	3700	300	11	11	2	2
70N X 160E	3850	450	11	11	2	2
70N X 150E	3500	100	13	12	4	3
70N X 140E	3600	200	12	12	3	3
70N X 130E	3700	300	13	13	4	4
120N X 290E	3800	400	13	13	4	4
120N X 280E	3600	200	12	12	3	3
120N X 270E	3500	100	13	12	4	3
120N X 260E	3600	200	12	11	3	2
120N X 250E	3700	300	11	11	2	2
120N X 240E	3800	400	12	11	3	2

* NET = GROSS - BACKGROUND
(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.
(-)-indicates that the Gross count rate or exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 12-SOUTH LAWN/WEST LAWN AREA

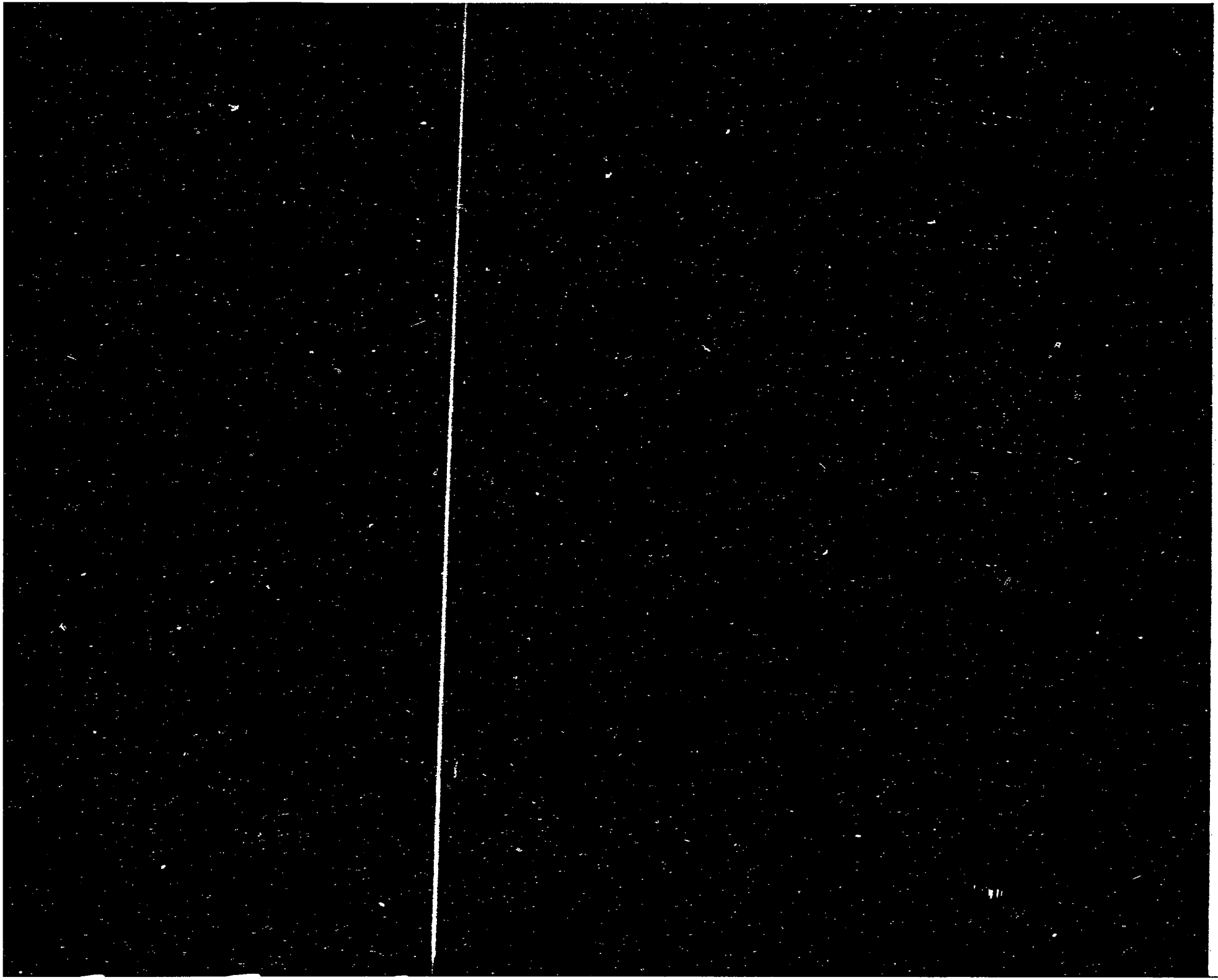
CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
120N X 230E	3500	100	12	11	3	2
120N X 220E	3300	-100	12	11	3	2
120N X 210E	3600	200	13	12	4	3
120N X 200E	4000	600	14	13	5	4
110N X 200E	3800	400	13	13	4	4
120N X 210E	3900	500	13	13	4	4
110N X 220E	3800	400	13	12	4	3
110N X 230E	3400	0	13	13	4	4
110N X 240E	3600	200	12	12	3	3
110N X 250E	3600	200	12	12	3	3
110N X 260E	3500	100	12	11	3	2
110N X 270E	3900	500	12	12	3	3
110N X 280E	4000	600	13	12	4	3
110N X 290E	3700	300	12	12	3	3

* NET = GROSS - BACKGROUND
(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.
(-)-indicates that the Gross count rate or exposure rate was less than the Table 3 site average background.

POST REMEDIATION GAMMA SURVEY
BUILDING 12-SOUTH LAWN/WEST LAWN AREA

CORNER GRID COORDINATES	GROSS GAMMA COUNT RATE (cpm)	* NET GAMMA COUNT RATE (cpm)	GROSS GAMMA EXPOSURE RATE (uR/hr)		* NET GAMMA EXPOSURE RATE (uR/hr)	
	SURFACE	SURFACE	SURFACE	1 METER	SURFACE	1 METER
100N X 280E	3600	200	12	12	3	3
100N X 270E	3700	300	13	12	4	3
100N X 260E	3400	0	12	11	3	2
100N X 250E	3600	200	12	12	3	3
100N X 240E	3800	400	12	12	3	3
100N X 230E	3700	300	12	11	3	2
100N X 220E	3600	200	11	11	2	2
100N X 210E	3500	100	12	11	3	2
100N X 200E	3650	250	12	10	3	1
130N X 220E	3900	500	12	11	3	2
130N X 210E	3500	100	11	11	2	2

* NET = GROSS - BACKGROUND
(0)-indicates that the Gross count rate or Exposure rate was equal to the Table 3 site average background.
(-)-indicates that the Gross count rate or exposure rate was less than the Table 3 site average background.



TEXAS INSTRUMENTS INCORPORATED
ATTLEBORO, MA. FACILITY

POST REMEDIATION FINAL SOIL CONCENTRATION SURVEY RESULTS

GENERAL SITE LOCATION	GRID#	COORDINATES (NW CORNER)	AVERAGE GRID CONCENTRATION BEFORE REMEDIATION (pCi/g) (*)	AVERAGE SAMPLE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	WEIGHTED GRID AVERAGE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	AVERAGE DEPTH OF EXCAVATION (ft.)	MEETS REMEDIATION CRITERIA (Y=YES, N=NO)
BUILDING 12 WEST LAWN	0001	200N150E	32	16	16	6.5	Y
	0002	190N160E	35	12	12	2.8	Y
	0003	210N130E	35	17	17	4	Y
	0004	170N140E	37	13	13	9	Y
	0005	160N140E	115	14	14	9.5	Y
BUILDING 12 SOUTH LAWN	0006	120N120E	34	7	7	6	Y
	0007	120N130E	64	2	2	6	Y
	0008	110N130E	57	5	5	4	Y
	0009	110N140E	40	15	15	4.5	Y
	0010	110N150E	51	8	8	4.5	Y
	0011	110N160E	48	10	10	5.7	Y
	0012	110N170E	38	7	7	7.2	Y
	0013	100N130E	82	7	7	5.5	Y
	0014	100N140E	149	10	10	7	Y
	0015	100N150E	123	8	8	7	Y
	0016	120N280E	30	19	19	6.5	Y
	0017	120N270E	34	12	12	7	Y
	0018	120N260E	30	18	18	5.5	Y
	0019	110N270E	69	19	19	5.5	Y
	0020	110N260E	50	20	20	5.5	Y

CONCENTRATIONS (pCi/g) = TOTAL URANIUM

(*) 1994 SUPPLEMENTAL SURVEY DATA

TEXAS INSTRUMENTS INCORPORATED
ATTLEBORO, MA. FACILITY

POST REMEDIATION FINAL SOIL CONCENTRATION SURVEY RESULTS

GENERAL SITE LOCATION	GRID#	COORDINATES (NW CORNER)	AVERAGE GRID CONCENTRATION BEFORE REMEDIATION (pCi/g) (*)	AVERAGE SAMPLE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	WEIGHTED GRID AVERAGE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	AVERAGE DEPTH OF EXCAVATION (ft.)	MEETS REMEDIATION CRITERIA (Y=YES, N=NO)
BUILDING 12	0021	110N250E	39	14	14	4.3	Y
SOUTH LAWN	0022	120N210E	91	17	20	11	Y
	0023	130N210E	40	13	21	10.5	Y
	0024	110N210E	78	17	17	7.5	Y
	0025	120N200E	95	10	30	7.5	Y
	0026	110N200E	54	7	7	6.5	Y
	0027	110N220E	30	14	14	4.5	Y
	0028	100N190E	43	12	12	4	Y
	0029	90N140E	53	12	12	5.5	Y
	0030	90N150E	40	11	11	6	Y
	0031	90N160E	43	13	13	7	Y
	0032	100N160E	113	12	12	6.5	Y
	0033	90N170E	40	14	14	5.5	Y
	0034	100N170E	130	10	10	6.5	Y
	0035	90N130E	43	12	12	5.5	Y
	0036	80N140E	73	16	16	Wall exposed (10.5)	Y
	0037	80N150E	61	6	6	10.5	Y
	0038	80N160E	70	14	14	10.5	Y
	0078	130N120E	<30	13	13	5.5	Y
	0079	130N130E	<30	6	6	5	Y

CONCENTRATIONS (pCi/g) = TOTAL URANIUM

(*) 1994 SUPPLEMENTAL SURVEY DATA

TEXAS INSTRUMENTS INCORPORATED
ATTLEBORO, MA. FACILITY

POST REMEDIATION FINAL SOIL CONCENTRATION SURVEY RESULTS

GENERAL SITE LOCATION	GRID#	COORDINATES (NW CORNER)	AVERAGE GRID CONCENTRATION BEFORE REMEDIATION (pCi/g) (*)	AVERAGE SAMPLE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	WEIGHTED GRID AVERAGE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	AVERAGE DEPTH OF EXCAVATION (ft.)	MEETS REMEDIATION CRITERIA (Y=YES, N=NO)
BUILDING 12 SOUTH LAWN	0061	70N140E	<30	-	-	Wall exposed (10.5)	Y
	0062	70N150E	16	17	17	Wall exposed (10.5)	Y
	0063	70N160E	12	13	13	Wall exposed (10.5)	Y
	0064	80N170E	25	6	6	Wall exposed (7.5)	Y
BUILDING 11 STOCKADE	0039	80S70E	132	7	7	5	Y
	0040	70S70E	73	10	10	3.5	Y
	0041	60S70E	471	11	11	6	Y
	0042	70S60E	42	14	14	2	Y
	0043	60S60E	105	7	7	8	Y
	0044	50S60E	239	15	15	3	Y
	0045	50S70E	168	7	7	5.5	Y
	0046	40S70E	287	9	9	7.5	Y
	0047	40S60E	179	13	13	3	Y
	0048	50S80E	35	18	18	3.5	Y
	0049	40S80E	55	9	9	4.5	Y
	0050	30S70E	50	12	12	3.5	Y
	0051	30S80E	50	9	12	6.3	Y
	0052	30S90E	33	36	46	5.5	N
	0053	20S90E	49	41	47	8	N
	0054	20S80E	421	23	23	11.5	Y

CONCENTRATIONS (pCi/g) = TOTAL URANIUM

(*) 1994 SUPPLEMENTAL SURVEY DATA

TEXAS INSTRUMENTS INCORPORATED
ATTLEBORO, MA. FACILITY

POST REMEDIATION FINAL SOIL CONCENTRATION SURVEY RESULTS

GENERAL SITE LOCATION	GRID#	COORDINATES (NW CORNER)	AVERAGE GRID CONCENTRATION BEFORE REMEDIATION (pCi/g) (*)	AVERAGE SAMPLE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	WEIGHTED GRID AVERAGE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	AVERAGE DEPTH OF EXCAVATION (ft.)	MEETS REMEDIATION CRITERIA (Y=YES, N=NO)
BUILDING 11 STOCKADE	0055	20S70E	48	16	16	3	Y
	0056	40S50E	154	19	19	5	Y
	0057	50S50E	97	4	4	4.6	Y
	0058	60S50E	44	13	13	3.5	Y
	0077	30S130E	262	16	17	6.5	Y
	0080	60S80E	23	24	24	Wall exposed (6)	Y
	0085	10S80E	<30	48	30	5.5	Y
	0086	20S120E	<30	17	17	Wall exposed (4.6)	Y
	0087	20S130E	<30	14	14	Wall exposed (6.5)	Y
	0088	20S140E	<30	-	-	Wall exposed (6)	Y
	0089	30S120E	<30	19	19	4.6	Y
	0090	30S140E	<30	8	8	6	Y
	0091	40S120E	<30	21	21	6.5	Y
	0092	40S130E	<30	21	21	6	Y
	0093	40S140E	24	22	22	4	Y
	0094	10S90E	<30	34	19	8	Y
	0095	10S70E	<30	-	-	Wall exposed (4)	Y
	0098	50S120E	<30	13	13	5	Y
	0099	50S130E	<30	12	12	4.5	Y
	0100	50S140E	<30	20	20	4	Y

CONCENTRATIONS (pCi/g) = TOTAL URANIUM

(*) 1994 SUPPLEMENTAL SURVEY DATA

TEXAS INSTRUMENTS INCORPORATED
ATTLEBORO, MA. FACILITY

POST REMEDIATION FINAL SOIL CONCENTRATION SURVEY RESULTS

GENERAL SITE LOCATION	GRID#	COORDINATES (NW CORNER)	AVERAGE GRID CONCENTRATION BEFORE REMEDIATION (pCi/g) (*)	AVERAGE SAMPLE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	WEIGHTED GRID AVERAGE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	AVERAGE DEPTH OF EXCAVATION (ft.)	MEETS REMEDIATION CRITERIA (Y=YES, N=NO)
BUILDING 11 STOCKADE	0101	50S150E	<30	-	-	Wall exposed (4)	Y
BUILDING 11 RAILSPUR	0059	80S40E	42	7	7	6.5	Y
	0060	70S40E	299	9	9	6	Y
	0061	60S40E	711	8	8	6	Y
	0062	50S40E	111	7	7	5	Y
	0063	40S40E	58	7	7	4.5	Y
	0064	30S40E	146	9	9	5	Y
	0065	70S30E	823	12	12	6	Y
	0066	60S30E	384	1	11	5	Y
	0067	50S30E	97	6	12	5	Y
	0068	30S30E	31	14	27	4.5	Y
	0069	20S30E	38	16	16	4.5	Y
	0070	80S20E	33	29	29	Test Pits (4)	Y
	0071	60S20E	84	9	9	3	Y
	0072	50S20E	81	5	5	3	Y
	0073	30S20E	38	14	14	4.5	Y
	0074	30S10E	44	12	12	4	Y
	0075	20S10E	43	10	10	5	Y
	0076	20S0E	64	15	15	4	Y
	0096	40S30E	<30	4	4	5	Y

CONCENTRATIONS (pCi/g) = TOTAL URANIUM

(*) 1994 SUPPLEMENTAL SURVEY DATA

TEXAS INSTRUMENTS INCORPORATED
ATTLEBORO, MA. FACILITY

POST REMEDIATION FINAL SOIL CONCENTRATION SURVEY RESULTS

GENERAL SITE LOCATION	GRID#	COORDINATES (NW CORNER)	AVERAGE GRID CONCENTRATION BEFORE REMEDIATION (pCi/g) (*)	AVERAGE SAMPLE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	WEIGHTED GRID AVERAGE CONCENTRATION FOLLOWING REMEDIATION (pCi/g)	AVERAGE DEPTH OF EXCAVATION (ft.)	MEETS REMEDIATION CRITERIA (Y=YES, N=NO)
BUILDING 11 RAILSPUR	0097	40S20E	<30	10	10	5	Y
	0102	20S20E	29	13	13	4	Y
	0103	20S40E	<30	30	42	2	N
	0104	70S20E	21	6	6	Wall exposed (6)	Y
	0105	40S10E	23	11	11	Wall exposed (5)	Y

CONCENTRATIONS (pCi/g) = TOTAL URANIUM

(*) 1994 SUPPLEMENTAL SURVEY DATA

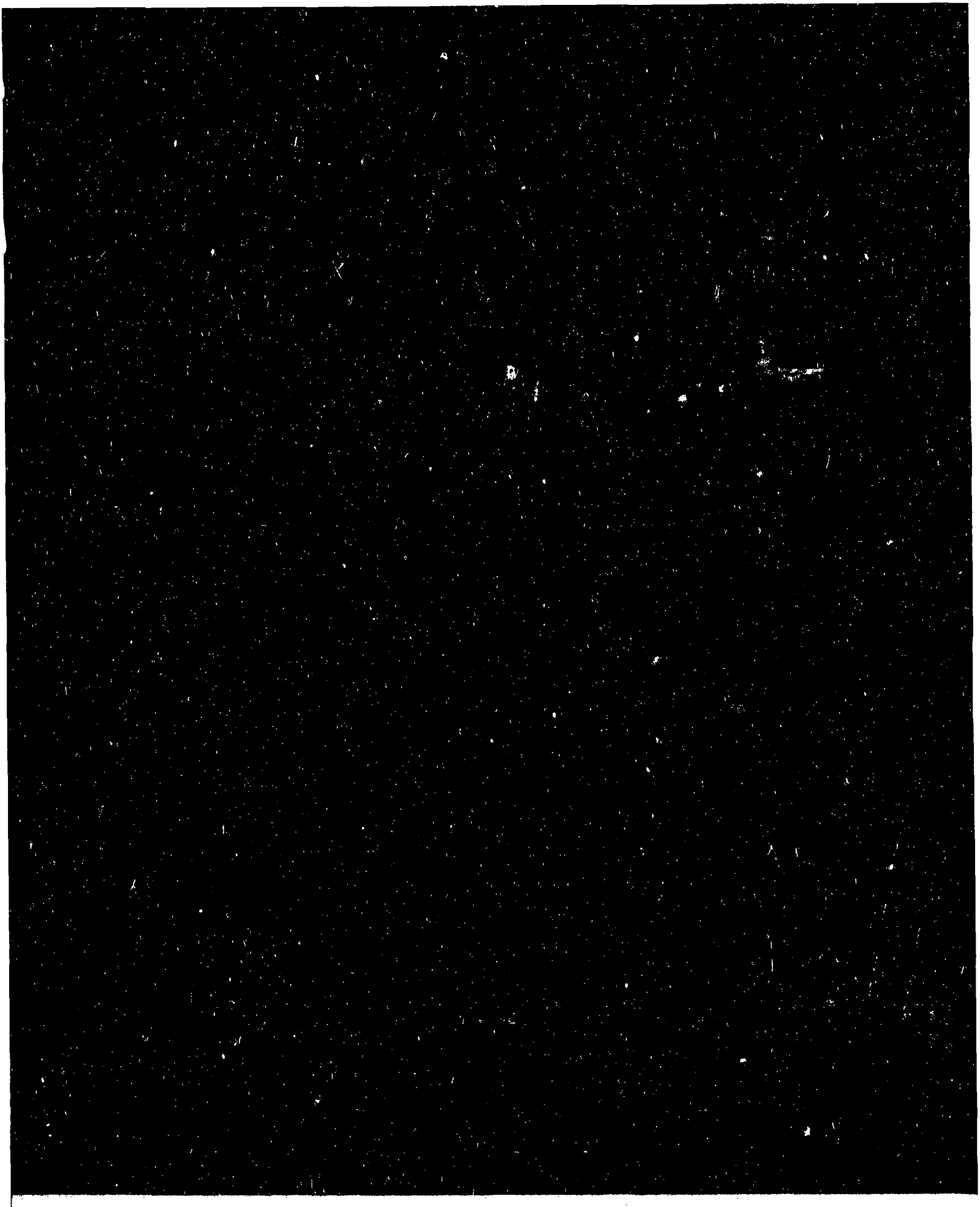


TABLE 1
TEXAS INSTRUMENTS INCORPORATED
ATTLEBORO, MA. FACILITY

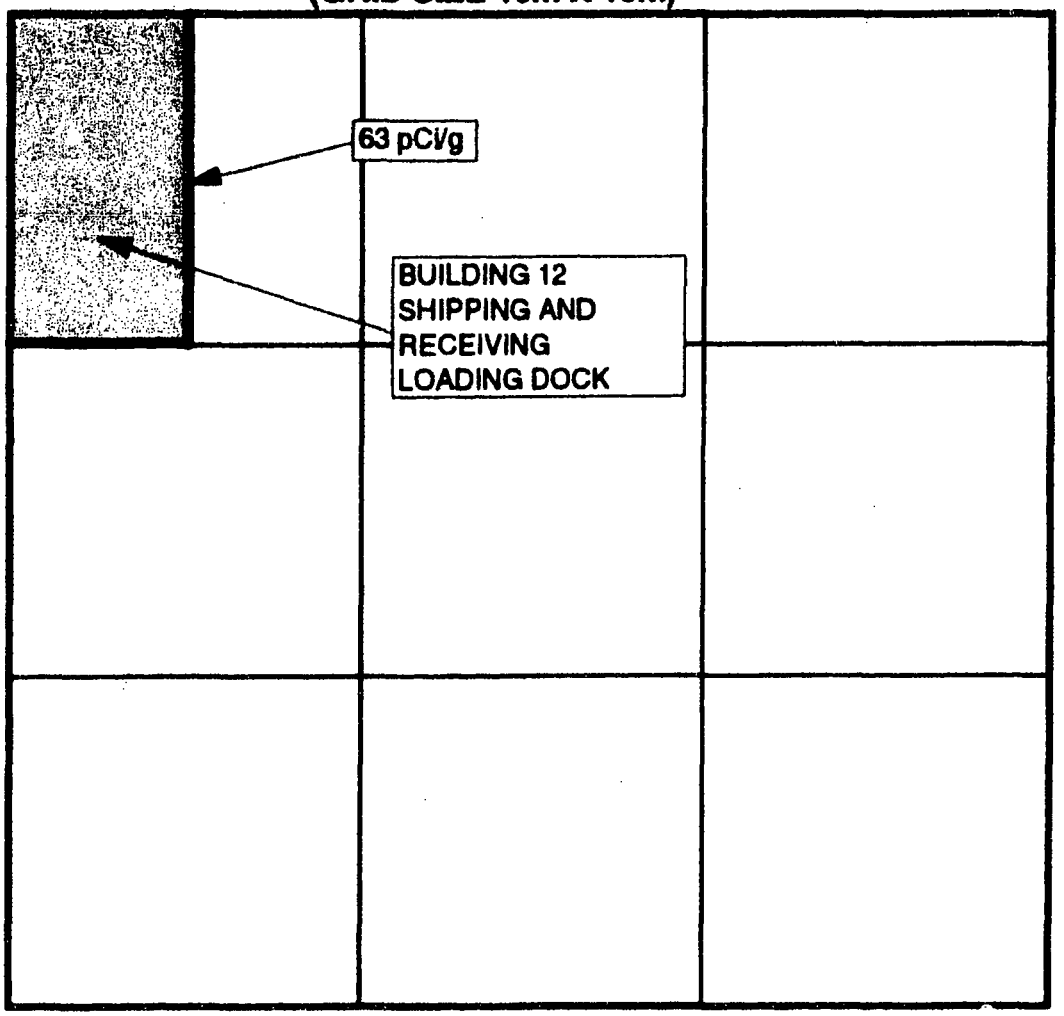
EXTERIOR REMEDIATION RESIDUAL CONTAMINATION DATA FROM INACCESSIBLE AREAS AND OBSTRUCTIONS

GRID#	COORDINATES (NW CORNER)	AVERAGE CONTAMINATION FOLLOWING EXCAVATION (pCi/g)	AVERAGE CONTAMINATION LEFT IN PLACE (pCi/g)	WEIGHTED GRID AVERAGE CONTAMINATION (pCi/g)	ESTIMATED CONTAMINATION VOLUME (ft^3)	CONTAMINATION DIMENSIONS (LxWxD) (ft.)	DEPTH TO CONTAMINATION (ft.)	MEETS REMEDIATION CRITERIA (Y=YES, N=NO)	OBSTRUCTION
0022	120N210E	17	63	20	72	12x6x1	10	Y	Bldg. 12 Loading Dock Foundation
0023	130N210E	13	54	21	198	33x6x1	10	Y	Bldg. 12 Loading Dock Foundation
0025	120N200E	10	58	30	450	15x30x1	10	Y	Bldg. 12 Loading Dock Foundation
0066	60S30E	1	66	11	495	33x5x3	5	Y	Electrical Duct Bank and Sewer Line
0067	50S30E	6	42	12	495	33x5x3	5	Y	Electrical Duct Bank and Sewer Line
0068	30S30E	14	101	27	495	33x5x3	4.5	Y	Electrical Duct Bank and Sewer Line
[illegible]	[illegible]	50	94	42	198	[illegible]	2	N	[illegible]
0051	30S80E	9	62	12	70	2x35x1	8	Y	Sewer Line and Groundwater Infiltration
[illegible]	[illegible]	88	145	48	198	diameter=4, D=2, 2x4x2, 2x28x2	8	N	[illegible]
0065	10S80E	48	48	30	363	2x33x5.5	1	Y	Willard Road and Worker Health & Safety
0094	10S90E	34	34	19	726	11x33x2	8	Y	Chemical Lines, Sewer Line, Electrical Lines, Willard Road, and Worker Health & Safety
[illegible]	[illegible]	41	87	47	1521	12x12x6, 36x36x1	8	N	[illegible]
0077	30S130E	16	70	17	25	diameter=2, D=2	6.5	Y	High Pressure Steam Line

[illegible] Indicates the weighted grid average is greater than 30 pCi/g

L = Length (North-South)
W = Width (East-West)
D = Depth

Remediation Area Grid Block #0022
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 120N210E

Average Grid Contamination level; 17 pCi/g

Weighted Average Grid Contamination level; 20 pCi/g

Comments: Soil averaging 63 pCi/g was left under the foundation of the loading dock in grid block #0023. There is a high probability that the contamination continues to the west under this foundation.

Reasons leaving the soil are :

1) removal of soil would leave no support for the foundation

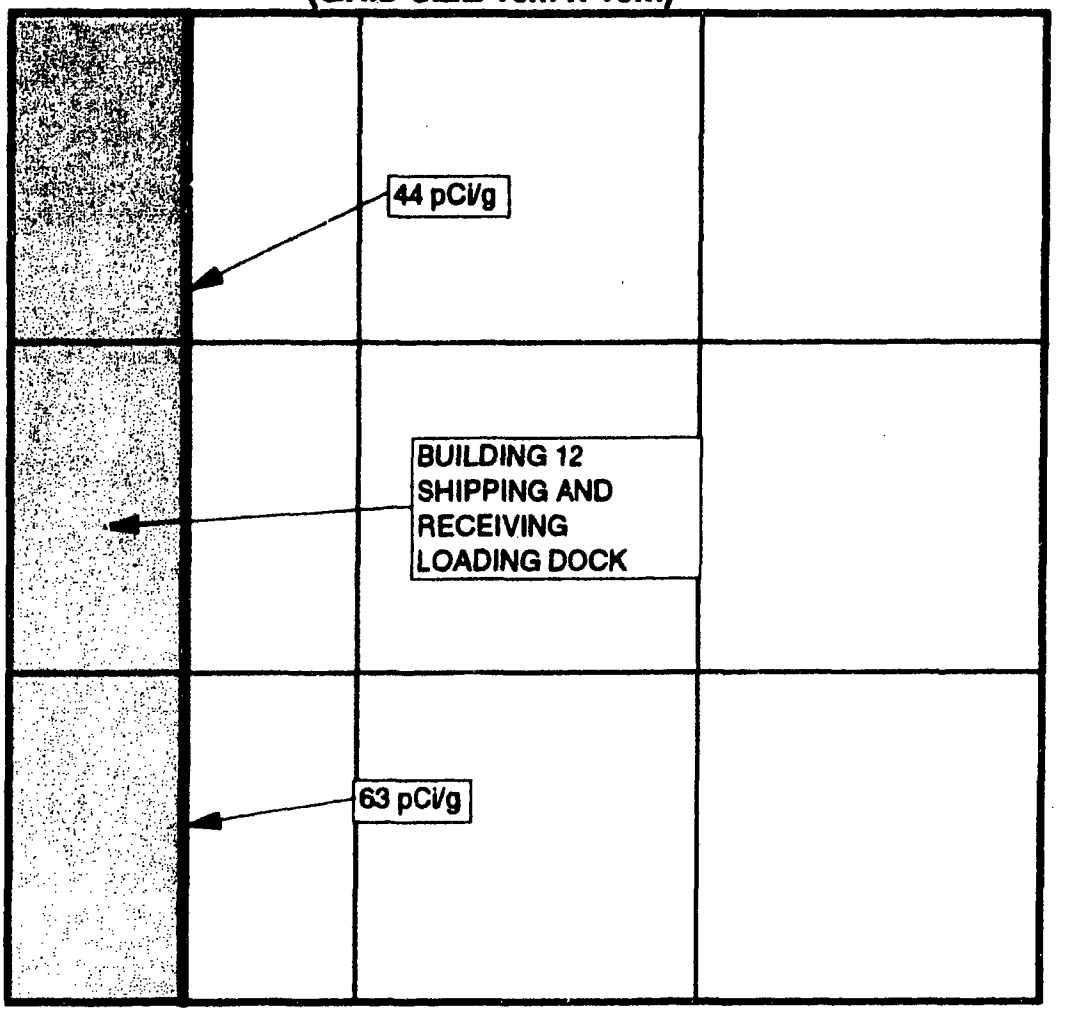
2) continued excavation would compromise worker health & safety

The volume of contaminated soil left in place in grid #0022 is estimated to be 72 cubic feet.

Form Completed By: Steve Shafer Date 12/15/1995

Soil Sample locations

Remediation Area Grid Block #0023
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 130N210E

Average Grid Contamination level; 13 pCi/g

Weighted Average Grid Contamination level; 21 pCi/g

Comments: Soil averaging 54 pCi/g was left under the foundation of the loading dock in grid block #0023. There is a high probability that the contamination continues to the west under this foundation.

Reasons leaving the soil are :

1) removal of soil would leave no support for the foundation

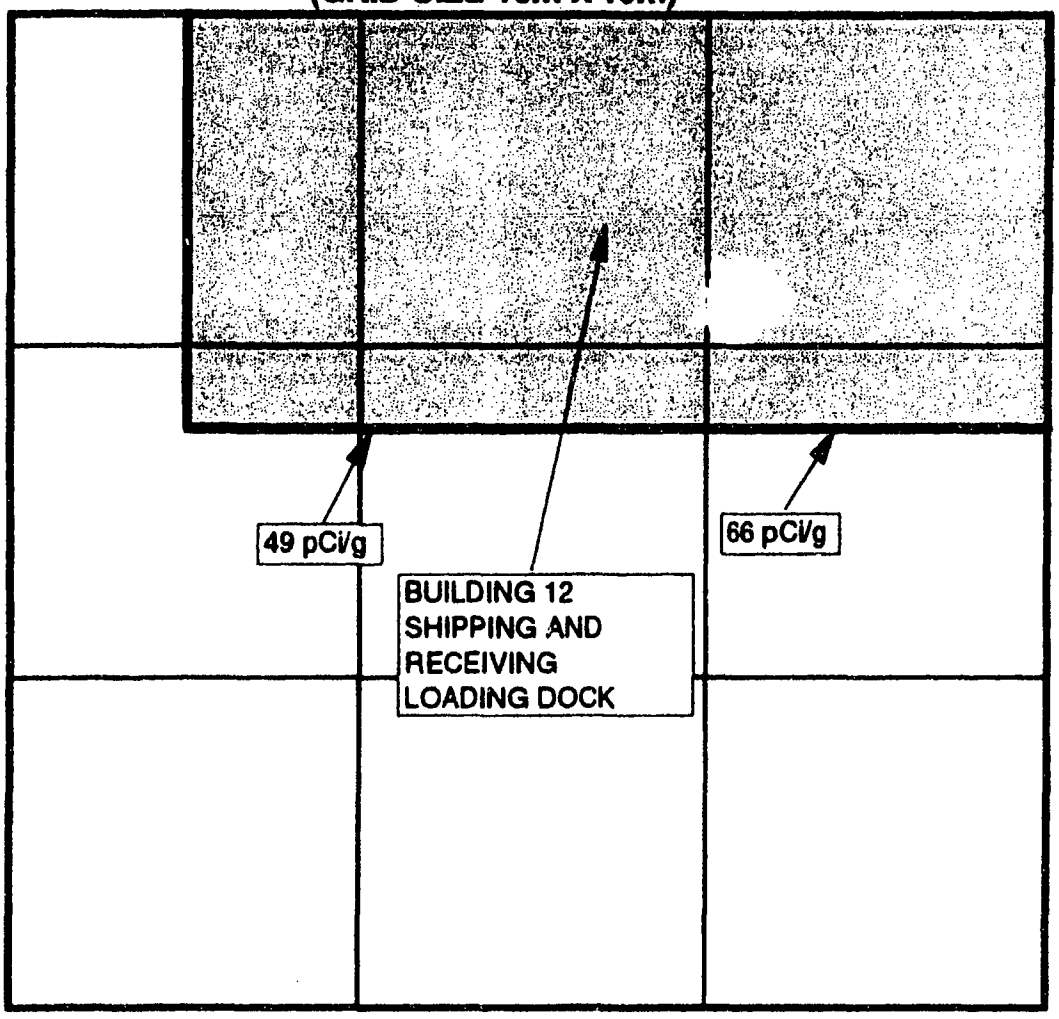
2) continued excavation would compromise worker health & safety

The volume of contaminated soil left in place in grid #0023 is estimated to be 198 cubic feet.

Form Completed By: Steve Shafer Date 12/15/1995

Soil Sample locations

Remediation Area Grid Block #0025
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 120N200E

Average Grid Contamination level; 10 pCi/g

Weighted Average Contamination level; 30 pCi/g

Comments: Soil averaging 58 pCi/g was left under the foundation of the loading dock in grid block #0025. There is a high probability that the contamination continues to the north under this foundation.

Reasons leaving the soil are :

1) removal of soil would leave no support for the foundation

2) continued excavation would compromise worker health & safety

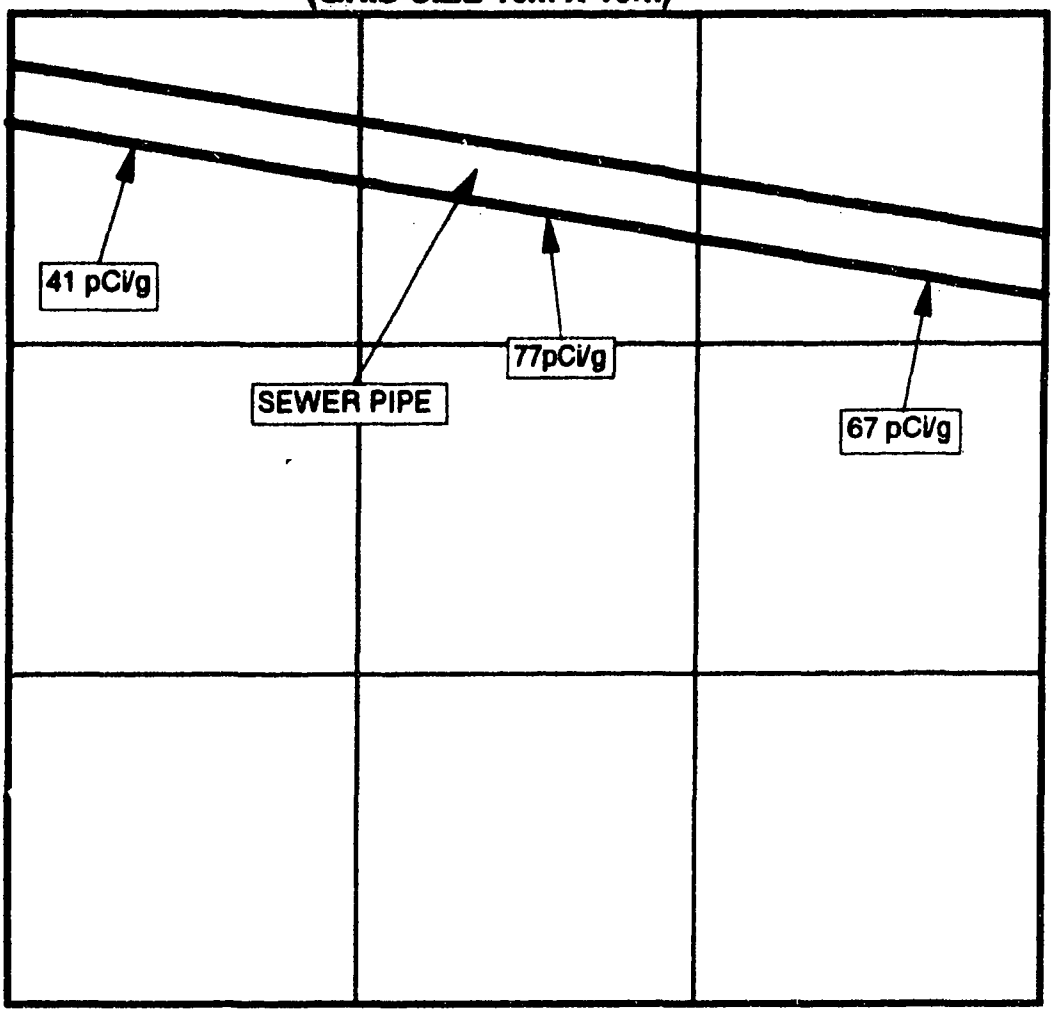
The volume of contaminated soil left in place in grid #0025 is estimated to be 450 cubic feet.

Form Completed By: Steve Shafer Date 12/15/1995

Soil Sample locations

0051.XLS

Remediation Area Grid Block #0051
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 30S80E

Average Grid Contamination level; 9 pCi/g

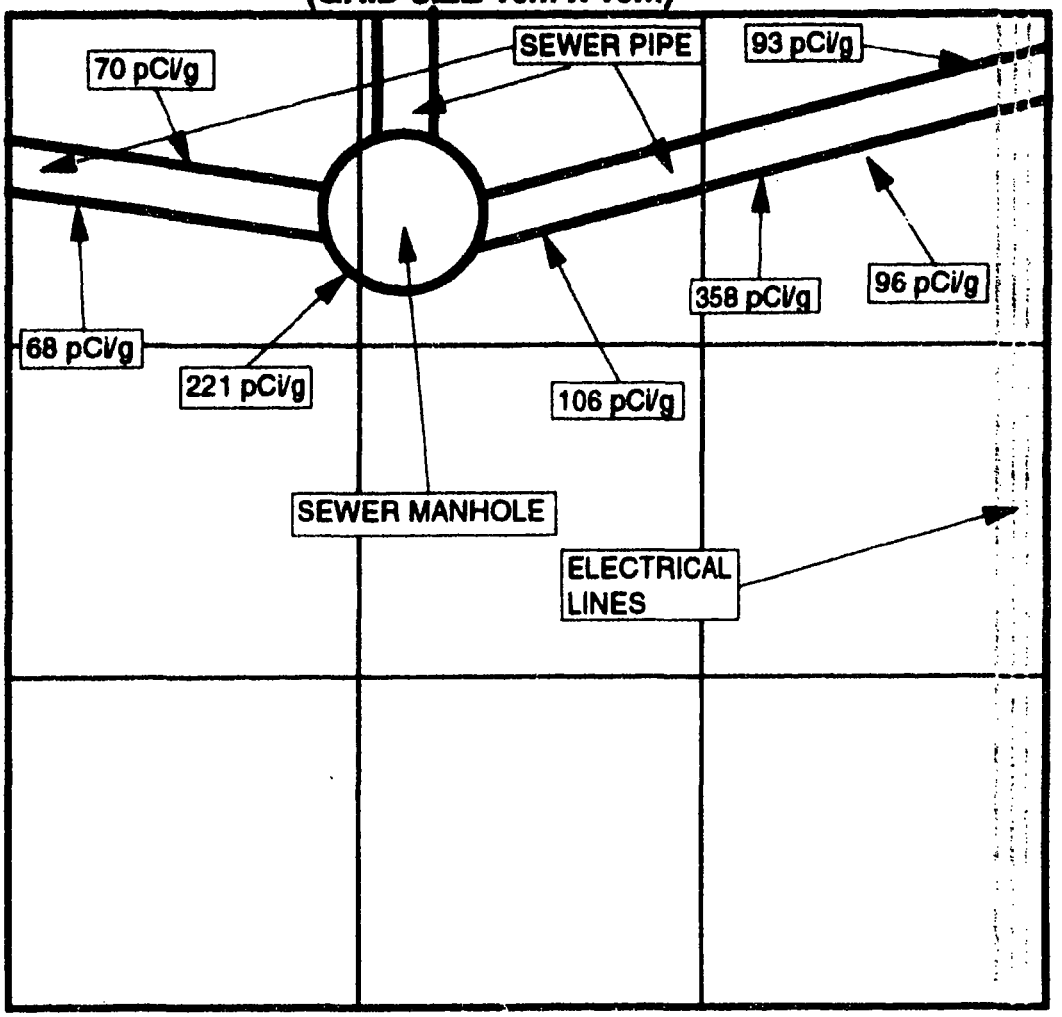
Weighted Average Grid Contamination level; 12 pCi/g

Comments: Soil averaging 62 pCi/g was left under the sewer pipe in grid block #0051.
Reasons for leaving the soil are :
1) uncontrolled infiltration of groundwater
2) removal of soil would damage the integrity of the pipe
3) the pipe system is a vital utility to the facility
4) the overall grid contamination level was cleaned up to approx. 1/3 the site cleanup criteria.
The volume of contaminated soil left in place is estimated to be 70 cubic feet.

Form Completed By: Steve Shafer Date 12/14/1995

Soil Sample locations

Remediation Area Grid Block #0052
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 30S90E

Average Grid Contamination level; 36 pCi/g

Weighted Average Grid Contamination level; 46 pCi/g

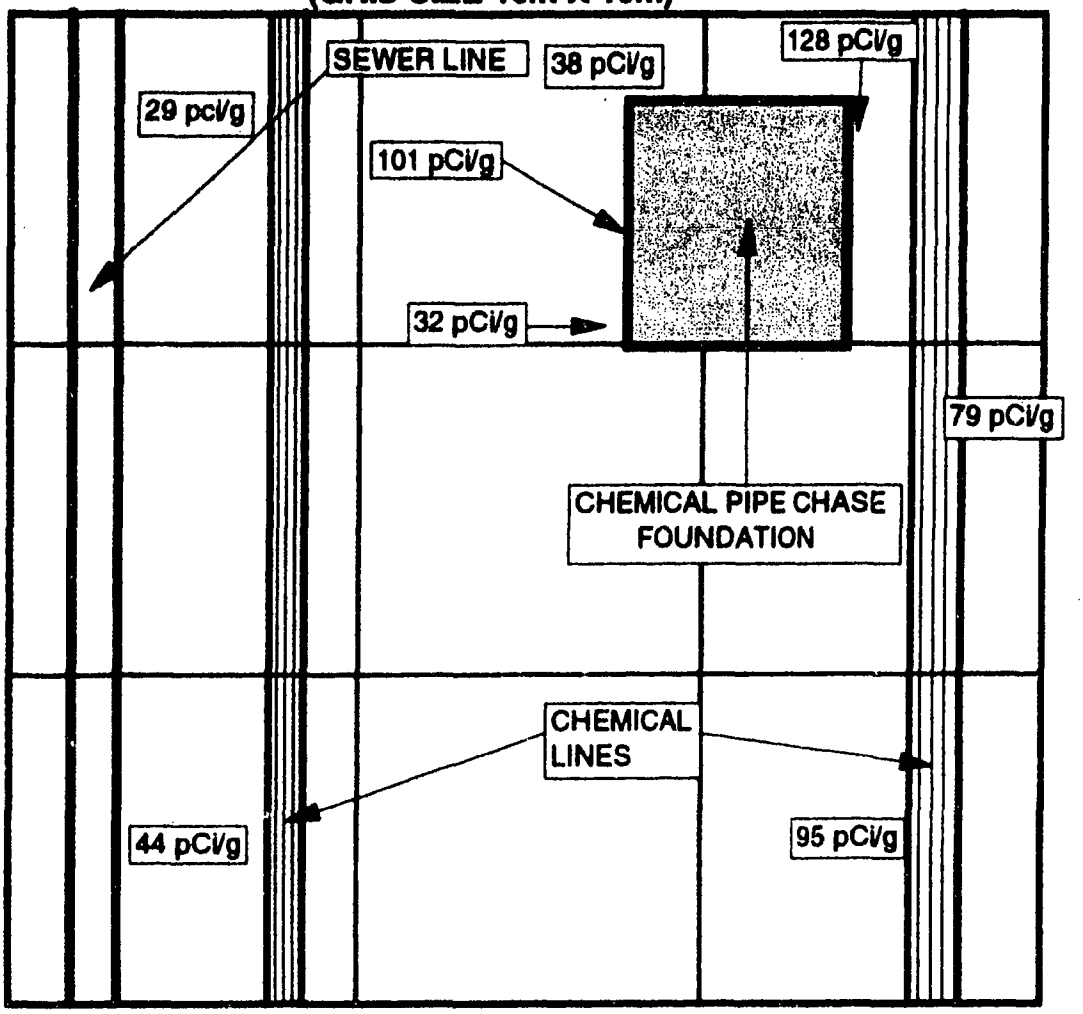
Comments: Soil averaging 145 pCi/g was left under the sewer pipe in grid block #0052.
Reasons for leaving the soil are :
1) uncontrolled infiltration of groundwater
2) removal of soil would damage the integrity of the pipe
3) the pipe system is a vital utility to the facility
4) worker health & safety would be compromised with further excavtion.

Average Grid Contamination level includes verification samples near pipe.
The volume of contaminated soil left in place is estimated to be;
1) sewer line (west) = 16 cubic feet
2) sewer line (east) = 80 cubic feet Total = 198 cubic feet
3) sewer manhole = 102 cubic feet.

Form Completed By: Steve Shafer Date 12/14/1995

Soil Sample Locations

Remediation Area Grid Block #0053
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 20S90E

Average Grid Contamination level; 41 pCi/g

Weighted Average Grid Contamination level; 47 pCi/g

Comments: Soil averaging 87 pCi/g was left under the pipe chase foundation in grid block #0053 Reasons for leaving the soil under the pipe chase are :

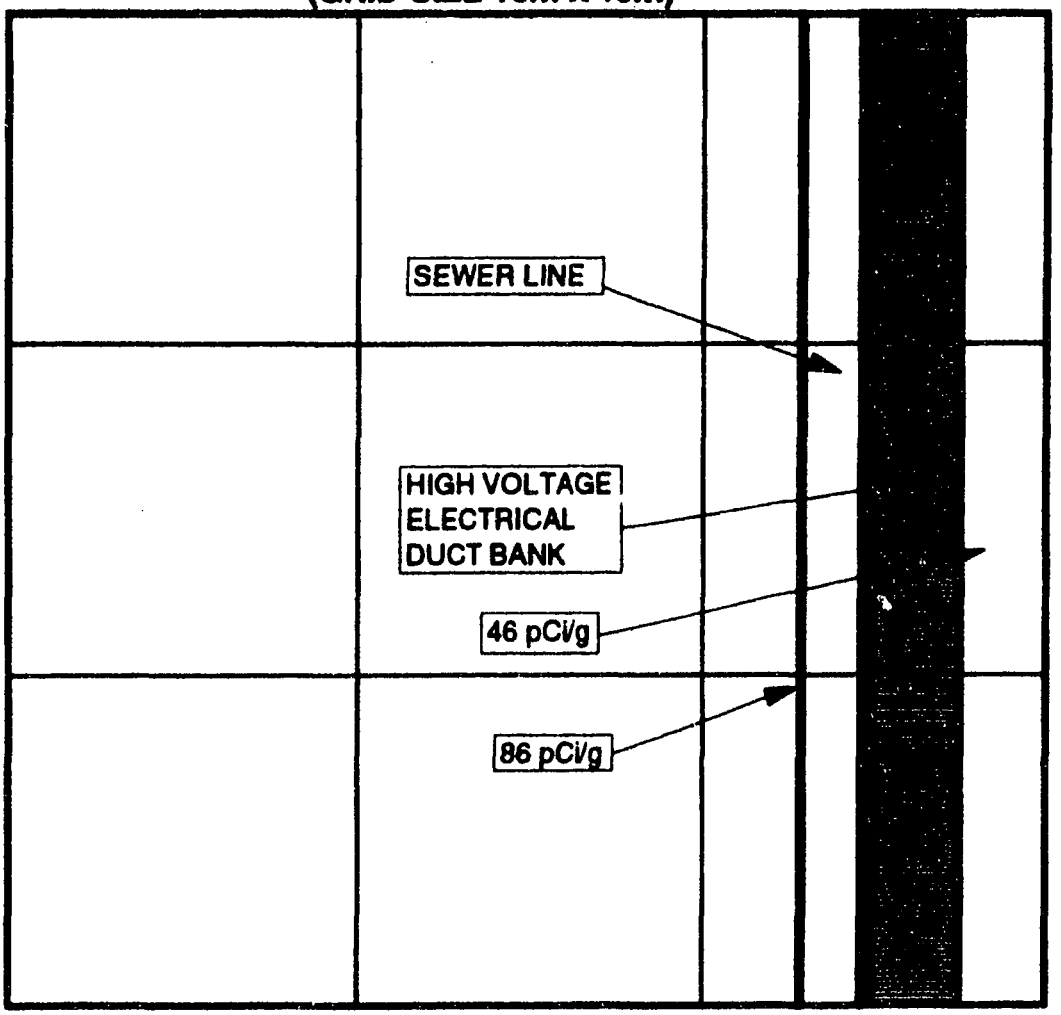
1) uncontrolled infiltration of groundwater
2) removal of soil would damage the integrity of the chemical line support system
3) the chemical pipe system is vital to facility operations
4) worker health & safety would be compromised with further excavation.

The volume of contaminated soil left under the foundation is estimated to be 576 cubic feet. The overall grid average concentration is greater than 30 pCi/g. The estimated volume of contaminated soil remaining in the general grid area is 945 cubic feet. The total contaminated soil remaining in this grid is estimated to be 1521 cubic feet.

Form Completed By: Steve Shafer Date 12/15/1995

Soil Sample locations

Remediation Area Grid Block #0066
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 60S30E

Average Grid Contamination level; 1 pCi/g

Weighted Average Grid Contamination level; 11 pCi/g

Comments: Soil averaging 66 pCi/g was left under the sewer pipe and electrical duct bank. The sample collected was a composite along the length of both sides of the utilities in grid block #0066.

Reasons for leaving the soil are :

1) removal of soil would damage the integrity of the utilities
2) the utilities are vital to the operations in Bldg. 10 and 11.
3) the overall grid contamination level was cleaned to background.

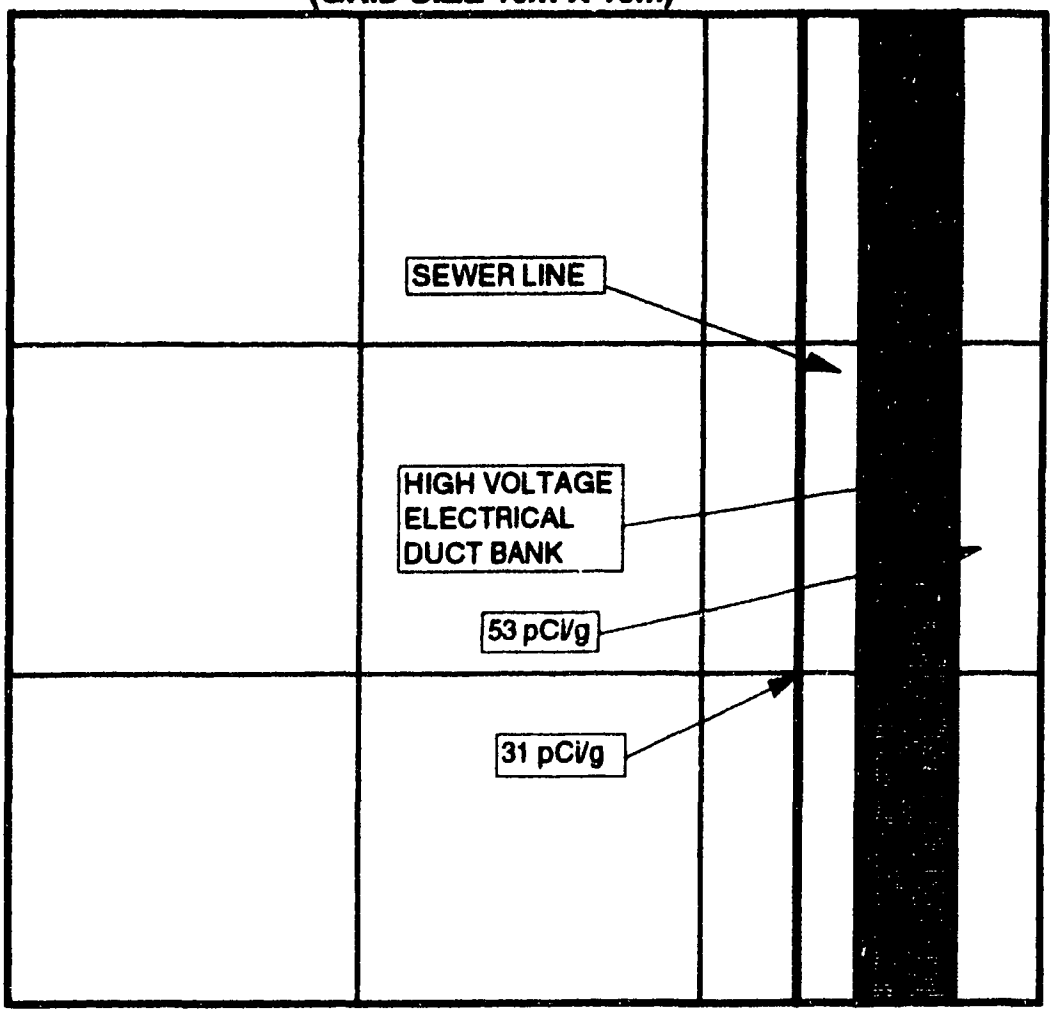
The volume of contaminated soil left in place is estimated to be 495 cubic feet.

Form Completed By: Steve Shafer Date 12/15/1995

Composite Soil Sample

0067 XLS

Remediation Area Grid Block #0067
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 50S30E

Average Grid Contamination level; 6 pCi/g

Weighted Average Grid Contamination level; 12 pCi/g

Comments: Soil averaging 42 pCi/g was left under the sewer pipe and electrical duct bank. The sample collected was a composite along the length of both sides of the utilities in grid block #0067.

Reasons for leaving the soil are :

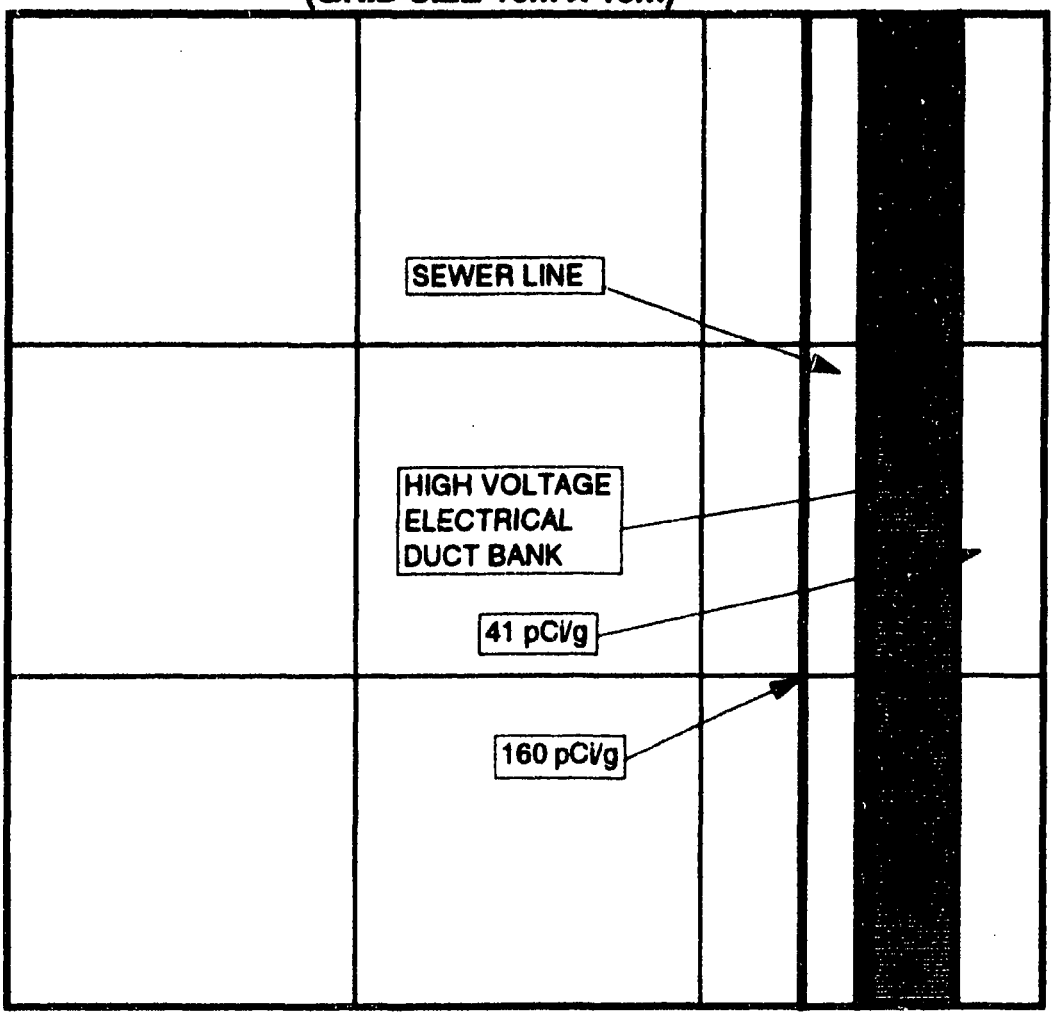
1) removal of soil would damage the integrity of the utilities
2) the utilities are vital to the operations in Bldg. 10 and 11.
3) the overall grid contamination level was cleaned to less than 30 pCi/g.

The volume of contaminated soil left in place is estimated to be to 495 cubic feet.

Form Completed By: Steve Shafer Date 12/15/1995

Composite Soil Sample

Remediation Area Grid Block #0068
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 30S30E

Average Grid Contamination level; 14 *pCi/g*

Weighted Average Grid Contamination level; 27 pCi/g

Comments: Soil averaging 101 pCi/g was left under the sewer pipe and electrical duct bank. The sample collected was a composite along the length of both sides of the utilities in grid block #0068.

Reasons for leaving the soil are :

1) removal of soil would damage the integrity of the utilities
2) the utilities are vital to the operations in Bldg. 10 and 11.
3) the overall grid contamination level was cleaned to less than 30 pCi/g.

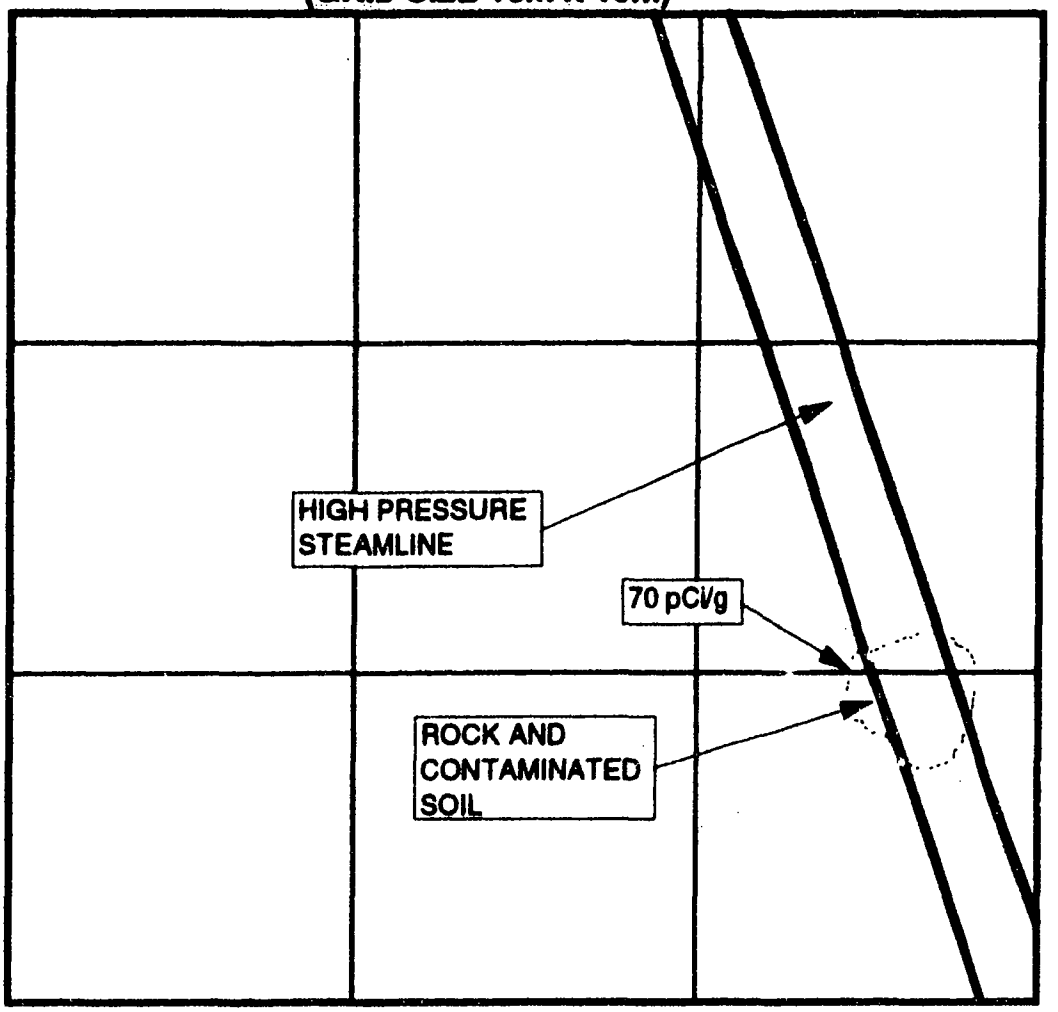
The volume of contaminated soil left in place is estimated to be 495 cubic feet.

Form Completed By: Steve Shafer Date 12/15/1995

Composite Soil Sample

0077.XLS

Remediation Area Grid Block #0077
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 30S130E

Average Grid Contamination level; 16 pCi/g

Weighted Average Grid Contamination level; 17 pCi/g

Comments: Soil averaging 70 pCi/g was left under the steamline in grid block #0077.
Reasons for leaving the soil are :

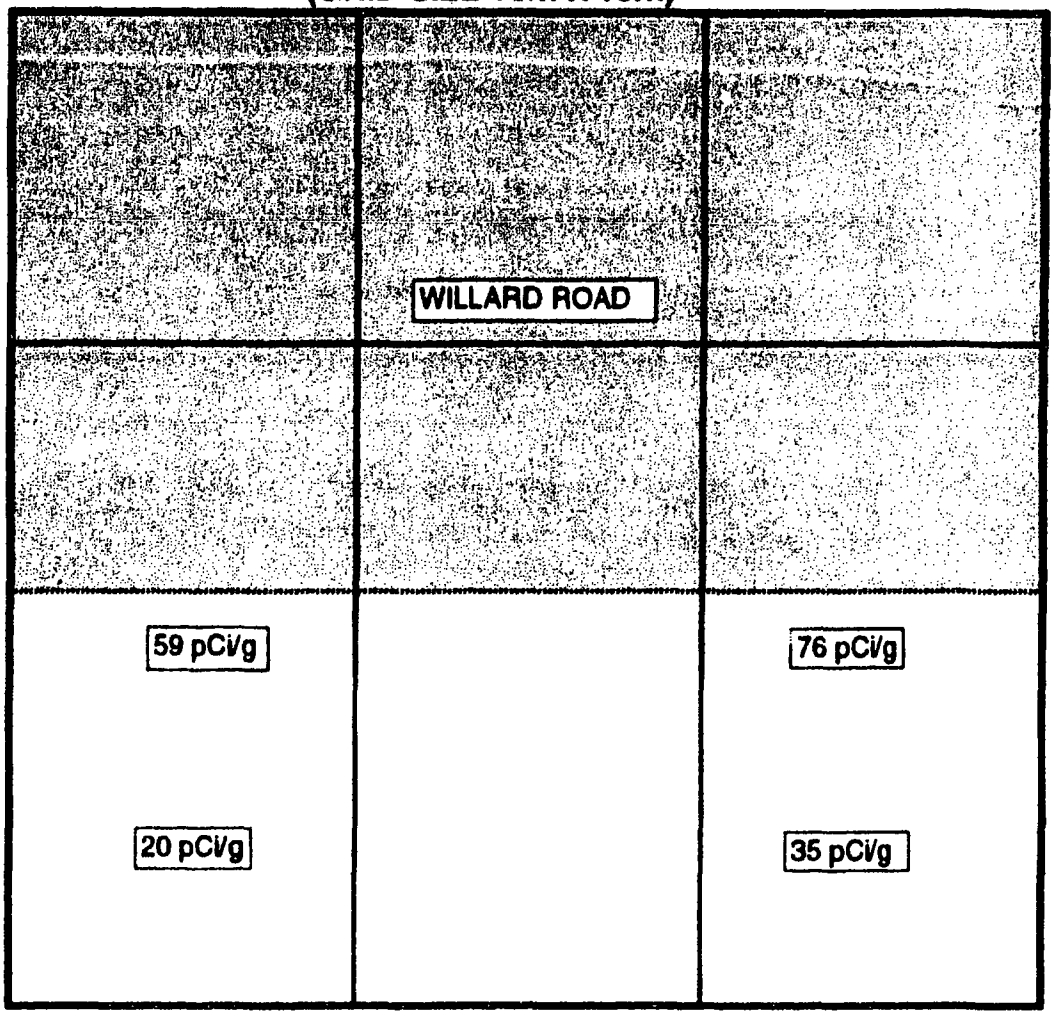
1) contaminated soil surrounded large rock and if rock was removed the integrity of the steamline could be jeopardized.
2) if steamline was fractured the workers health & safety could be compromised.

The volume of contaminated soil left in place is estimated to be 25 cubic feet.

Form Completed By: Steve Shafer Date 12/15/1995

Soil Sample locations

Remediation Area Grid Block #0085
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 10S80E

Average Grid Contamination level; 48 pCi/g (includes north wall)

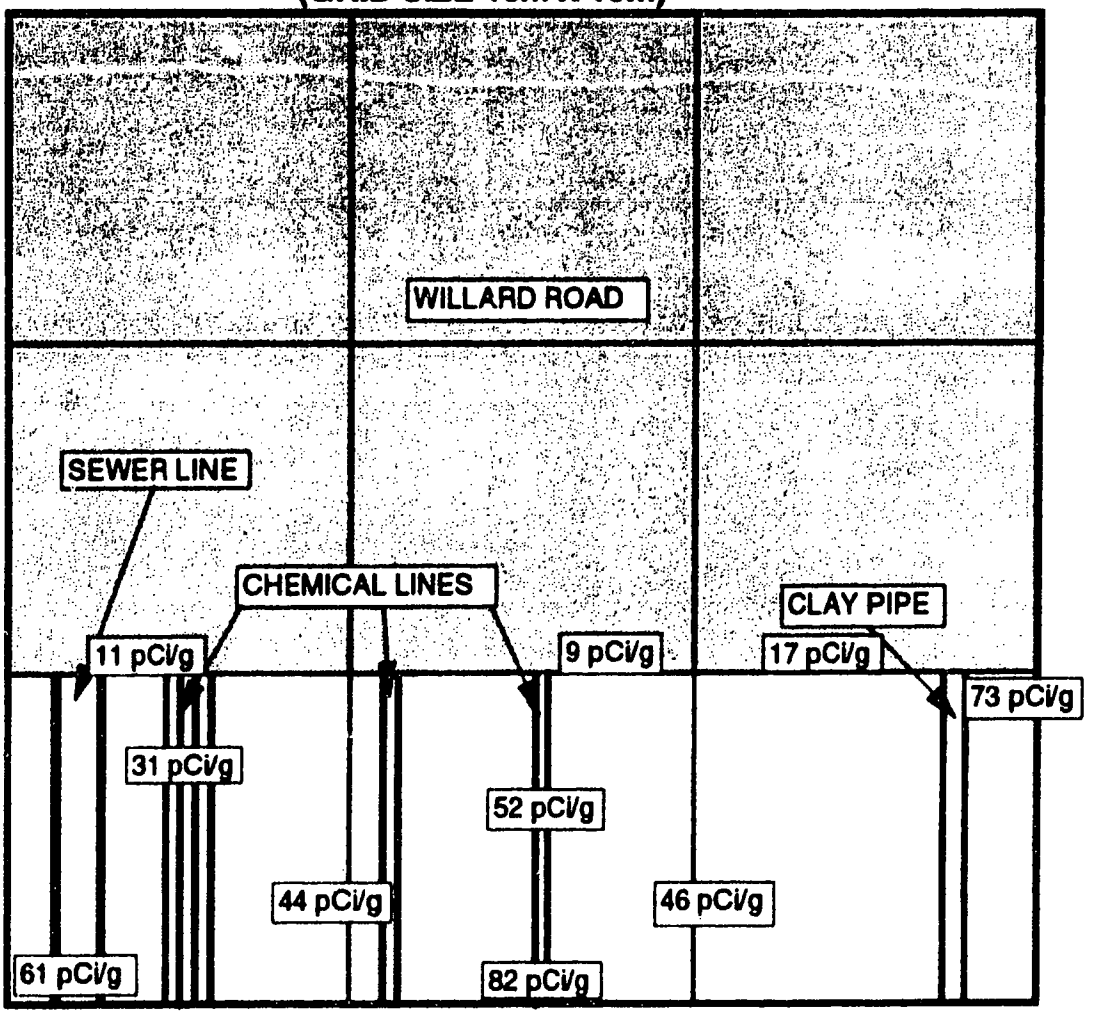
Weighted Average Grid Contamination level; 30 pCi/g

Comments: Soil averaging 48 pCi/g was left in the north wall of grid block #0085.
Reasons for leaving the soil are ;
1) uncontrolled infiltration of groundwater
2) Willard road would have to be closed causing major disruption in operations at the facility
3) worker health & safety would be compromised if excavation continued.
The volume estimate is based on information obtained during cleanup of grid #0094 which is adjacent to this grid (northern extent of contamination).
The volume of contaminated soil left in place is estimated to be 363 cubic feet assuming the contamination continues 2 more feet to the north.

Form Completed By: Steve Shafer Date 12/15/1995

Soil Sample locations | Unexcavated Area | Contaminated Soil

Remediation Area Grid Block #0094
(GRID SIZE 10m X 10m)



N

Grid Coordinates; (NW Corner) 10S90E

Average Grid Contamination level; 34 pCi/g

Weighted Average Grid Contamination level; 19 pCi/g

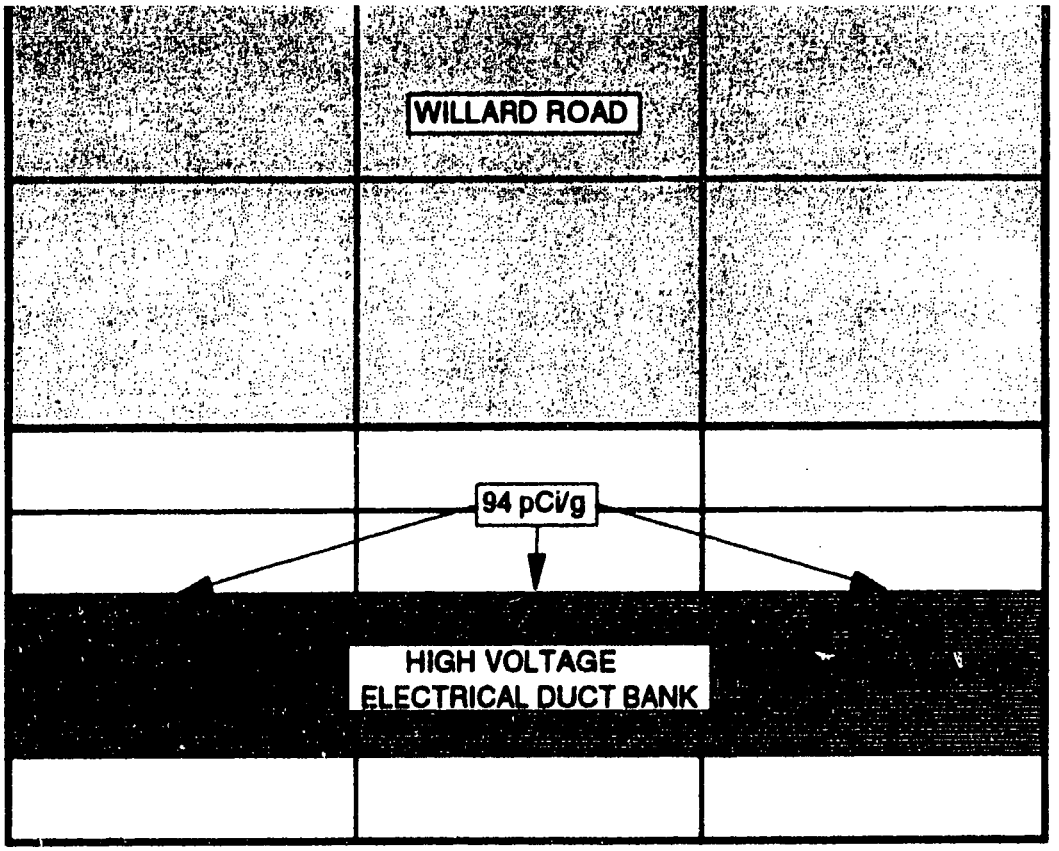
Comments: Soil averaging 34 pCi/g was left under the sewer pipe in grid block #0094. Reasons for leaving the soil are ;

1) uncontrolled infiltration of groundwater
2) removal of soil would damage the integrity of the pipe systems
3) the pipe system is a vital utility to the facility
4) worker health & safety would be compromised if excavation continued
5) continued excavation would cause closure of Willard Road
6) northern extent of contamination cleaned up.

The volume of contaminated soil left in place is estimated to be 726 cubic feet assuming the contamination continues 2 more feet in depth.

Form Completed By: Steve Shafer Date 12/15/1995

Soil Sample locations | Unexcavated Area



N

Grid Coordinates; (NW Corner) 20S40E

Average Grid Contamination level; 30 pCi/g

Weighted Average Grid Contamination level; 42 pCi/g

Comments: Soil averaging 94 pCi/g was left under and between the electrical duct banks in grid block #0103.

Reasons for leaving the soil are :

1) worker health & safety would be compromised with continued excavation.
2) removal of soil would damage the structural integrity of duct bank
3) the electrical system is a vital utility to the facility
4) the overall average grid contamination level was cleaned up to 30 pCi/g.

The volume of contaminated soil left in place is estimated to be 198 cubic feet.

Form Completed By: Steve Shafer Date 12/15/1995

Soil Sample locations | Unexcavated Area

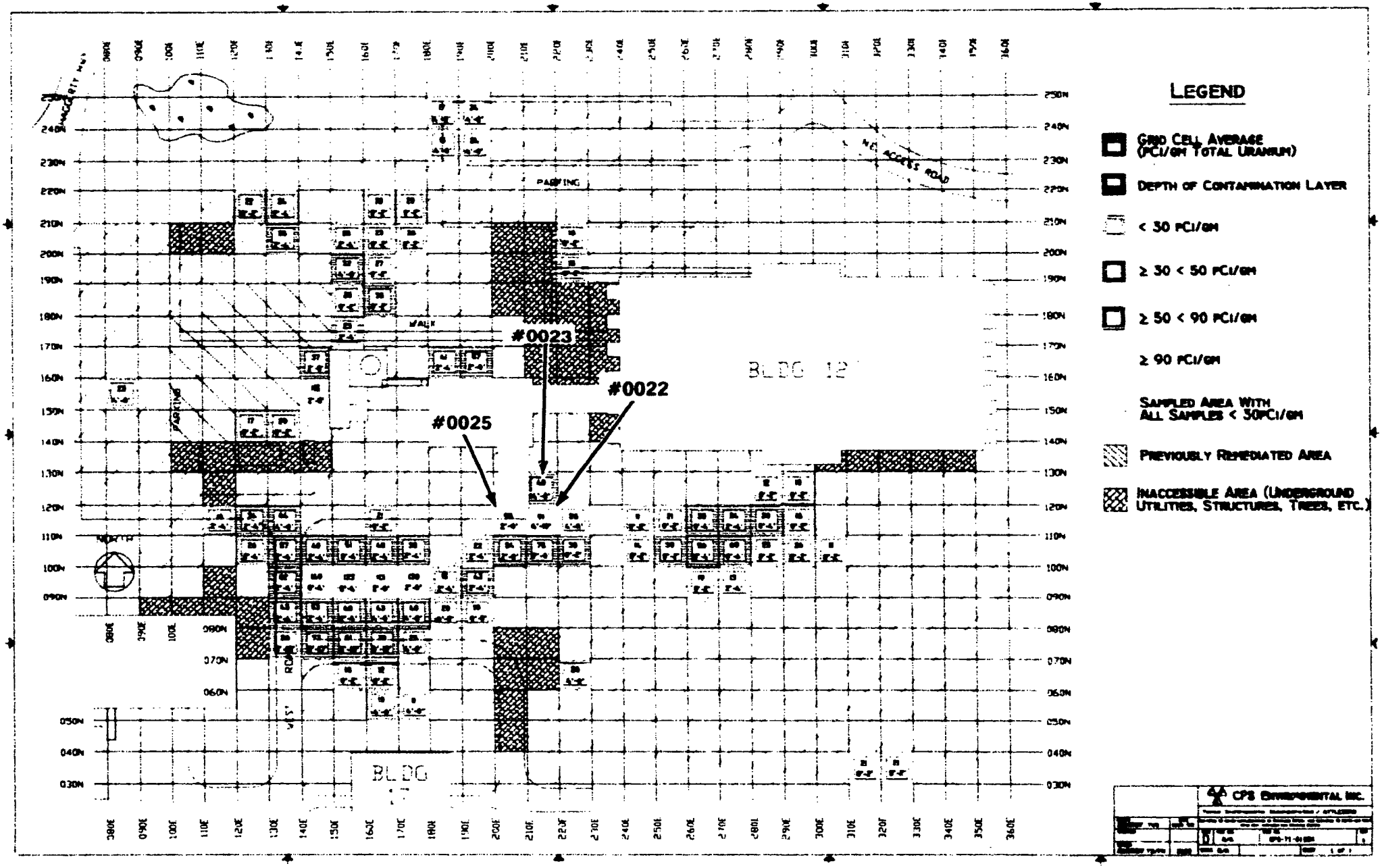


FIGURE 1
BUILDING 12 - SOUTH LAWN AREA

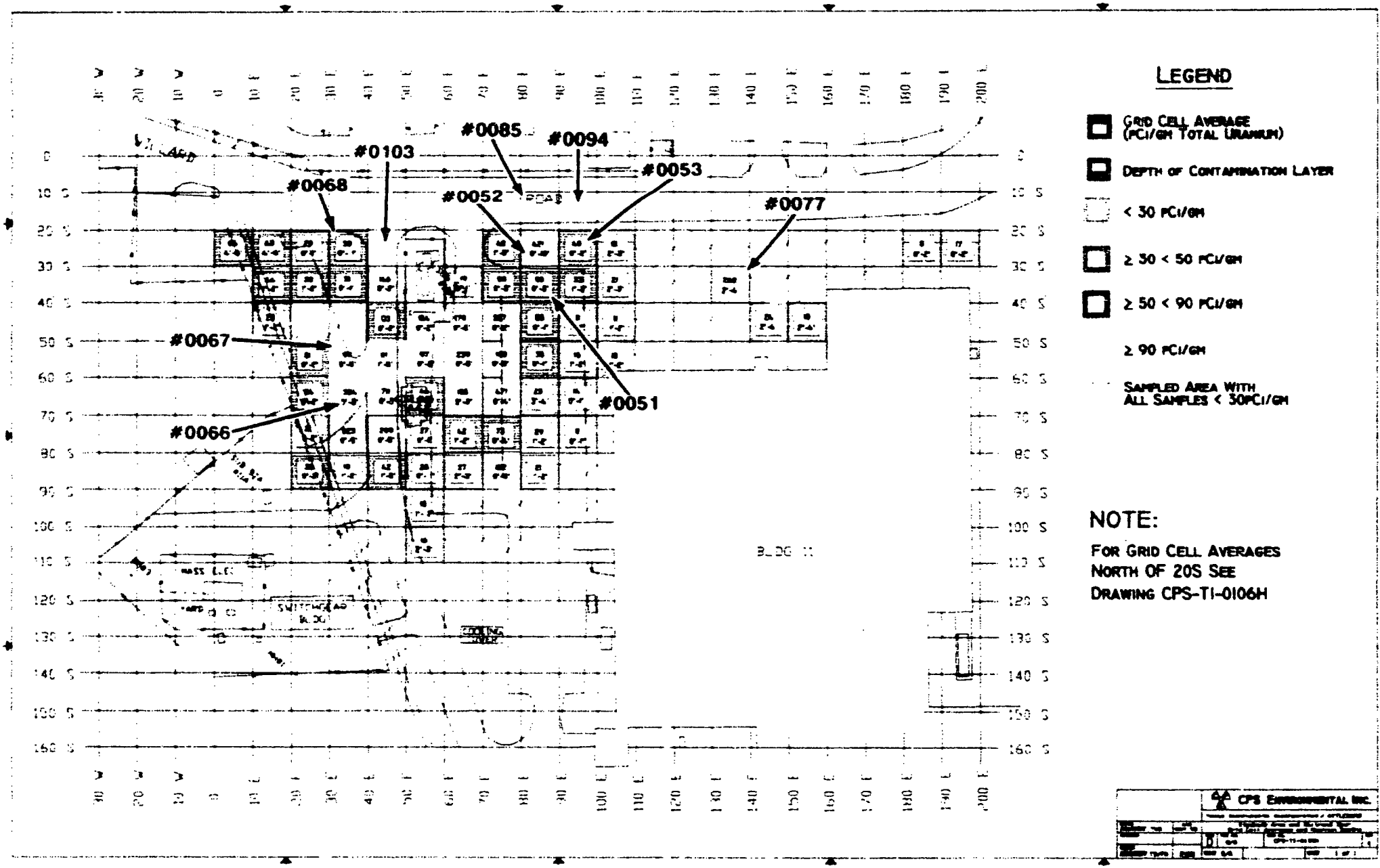


FIGURE 2

BUILDING 11 - RAILSPUR/STOCKADE AREA

POST REMEDIATION
URANIUM CONTAMINATION CONCENTRATION CONTOUR PLOT

NORTH

GRID# 0001, 200N 150E

No Check Samples Taken

GRID# 0002, 190N 160E

No Check Samples Taken

GRID# 0003, 210N 130E

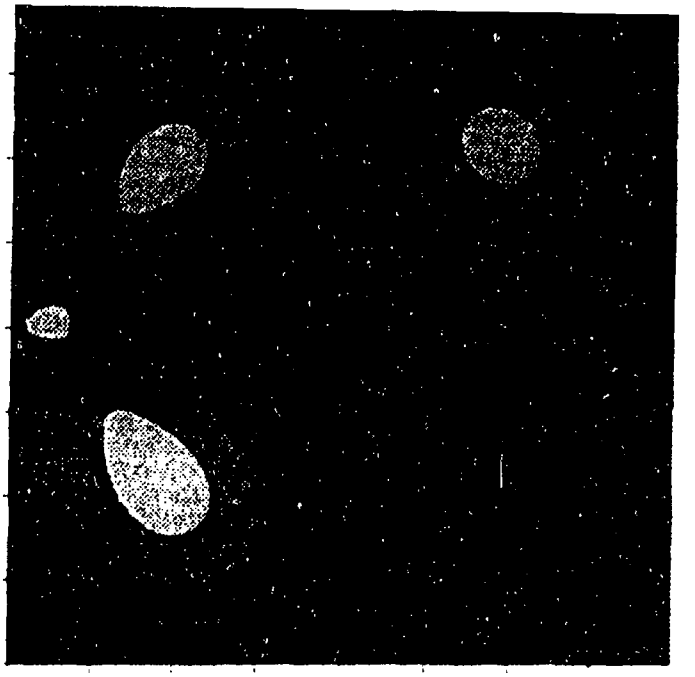
No Check Samples Taken

GRID# 0004, 170N 140E

No Check Samples Taken

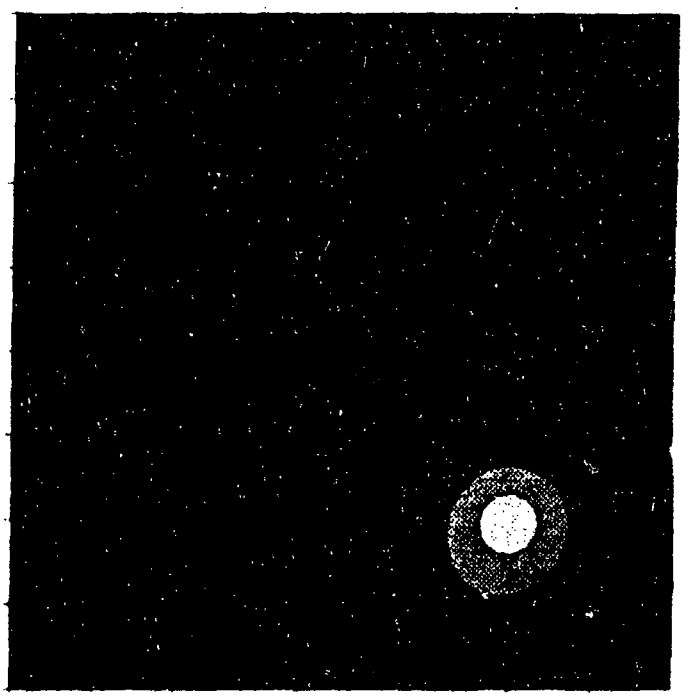
Plots are labled in pCi/g and gradation is every 2 pCi/g

No Check Samples Taken

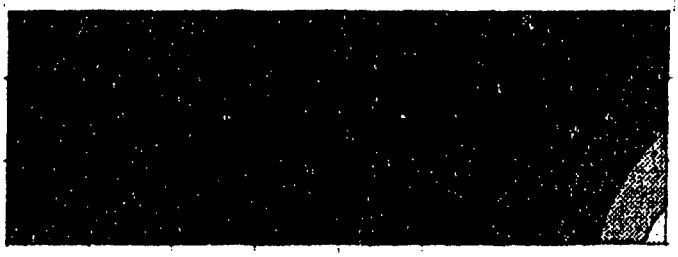


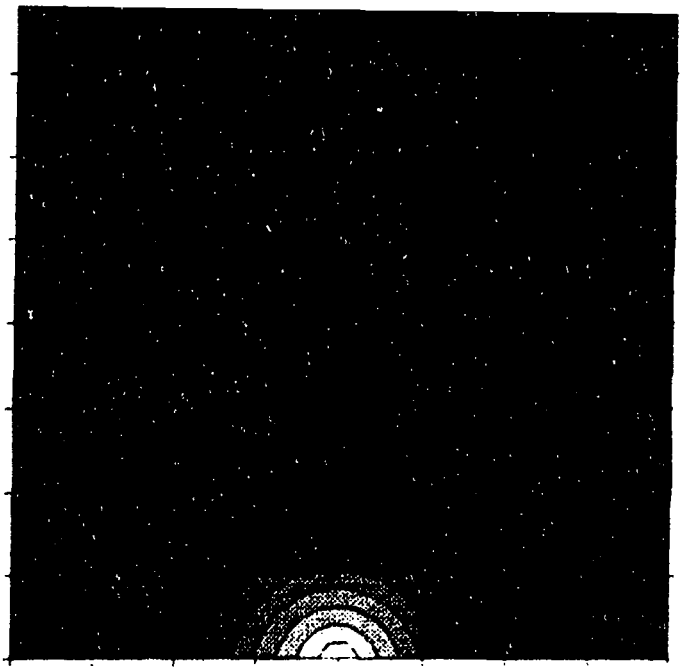
GRID# 0007, 120N 130E

GRID# 0008, 110N 130E

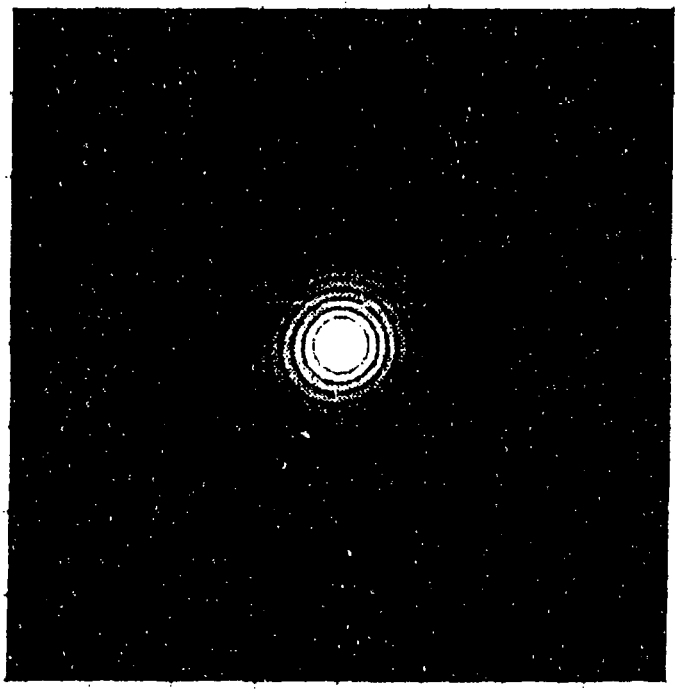


Plots are labled in pCi/g and gradation is every 2 pCi/g



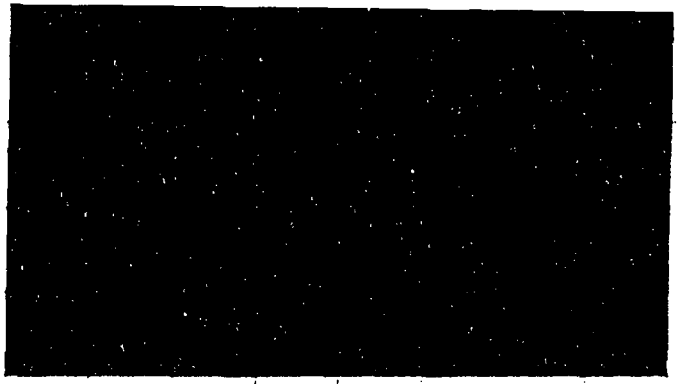


GRID# 0011, 110N 160E



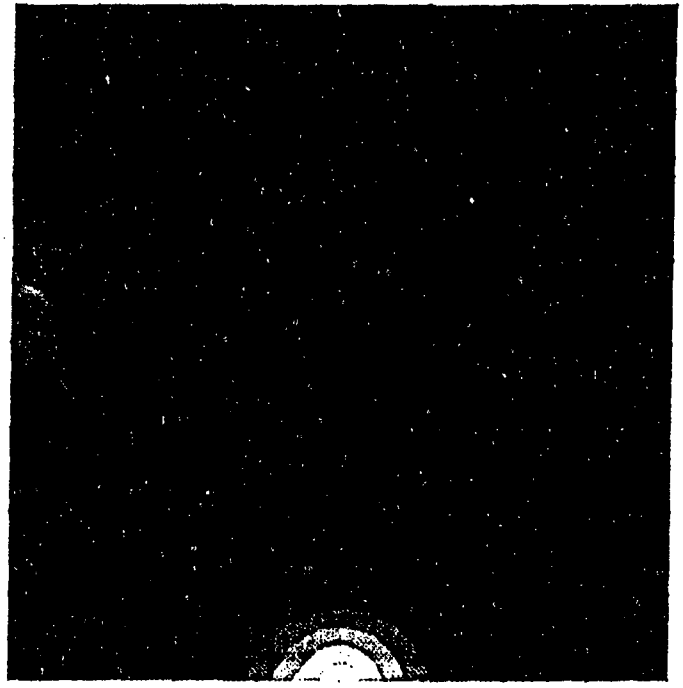
GRID# 0012, 110N 170E

Plots are labled in pCi/g and gradation is every 2 pCi/g



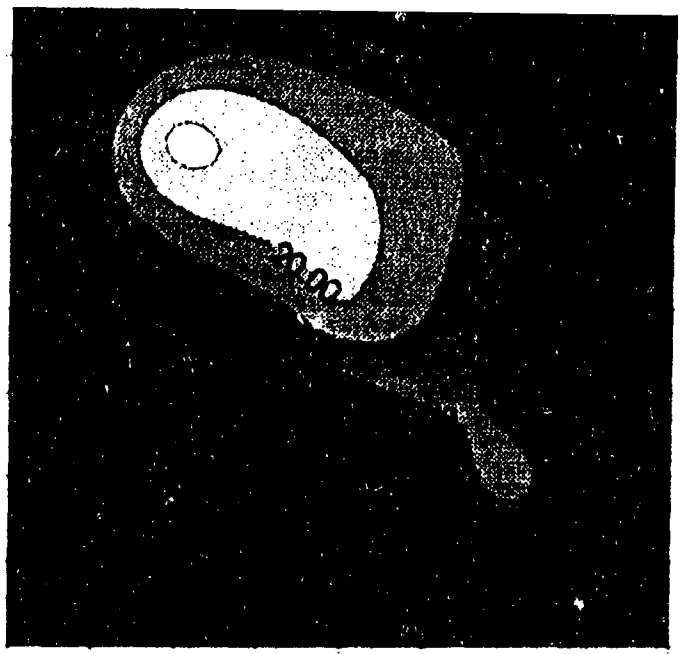
GRID# 0015, 100N 150E

GRID# 0016, 120N 280E



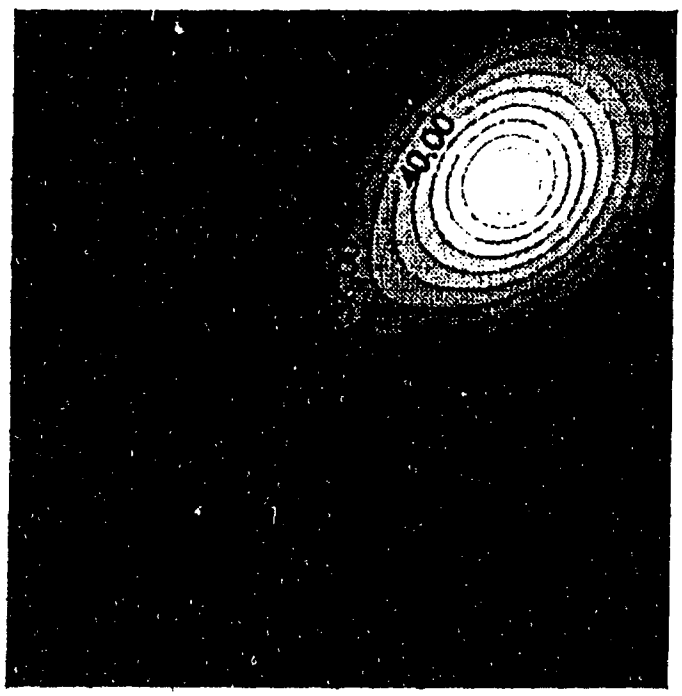
No Bottom Check Samples Taken

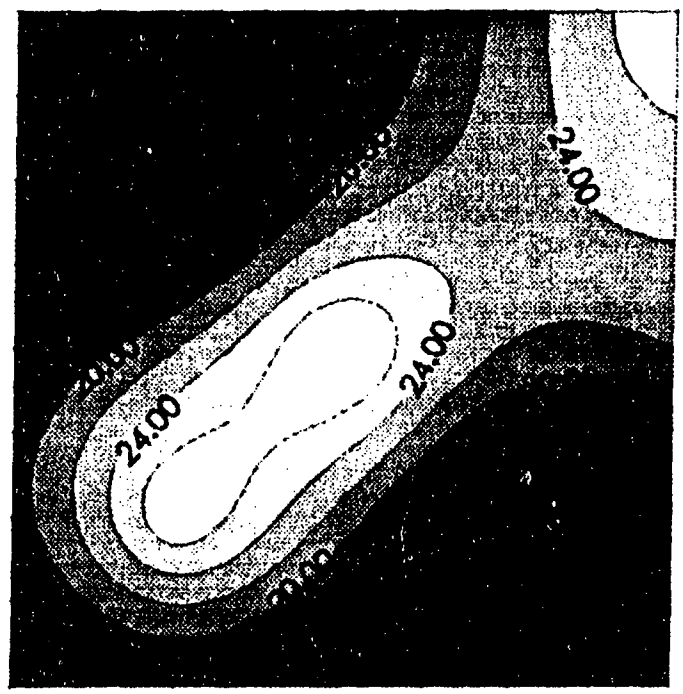
Plots are labled in pCi/g and gradation is every 2 pCi/g



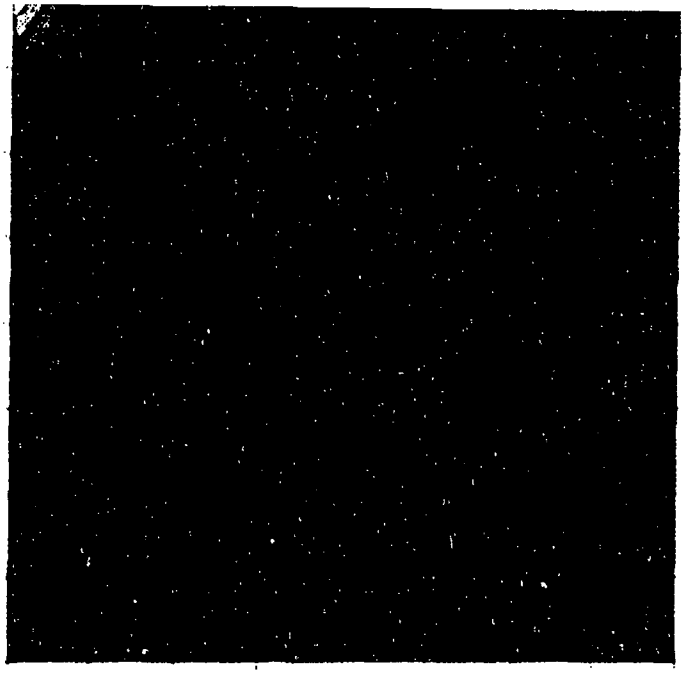
GRID# 0019, 110N 270E

GRID# 0020, 110N 260E



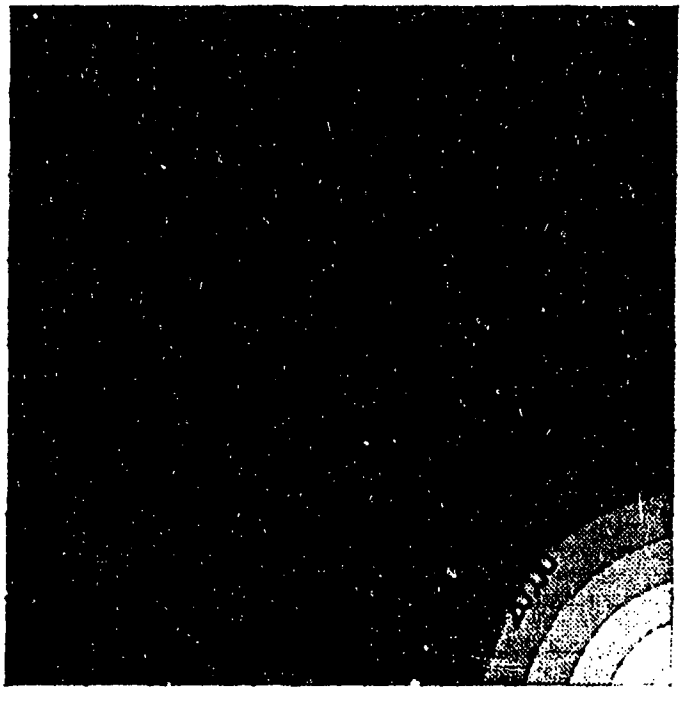


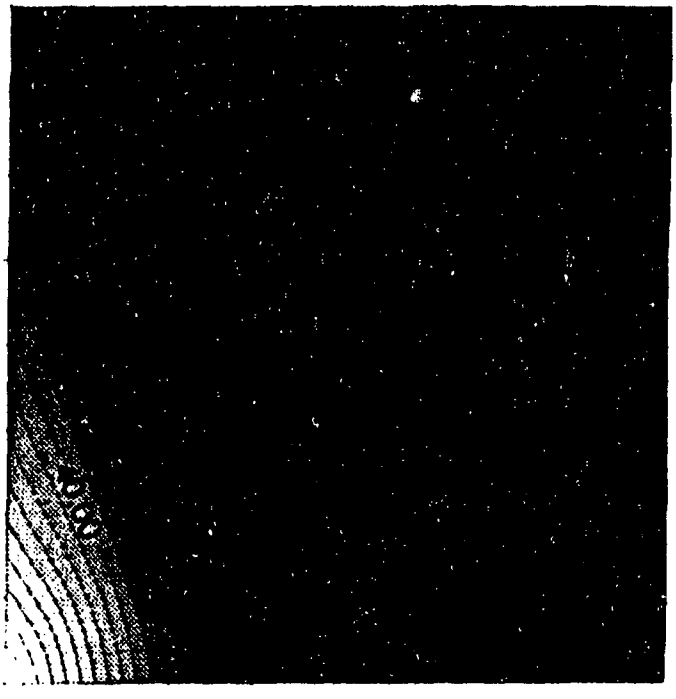
Plots are labled in pCi/g and gradation is every 2 pCi/g



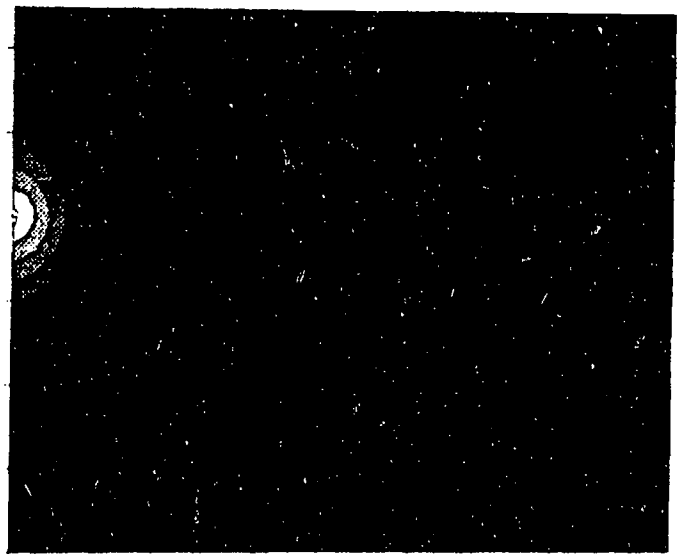
GRID# 0023, 130N 210E

GRID# 0024, 110N 210E

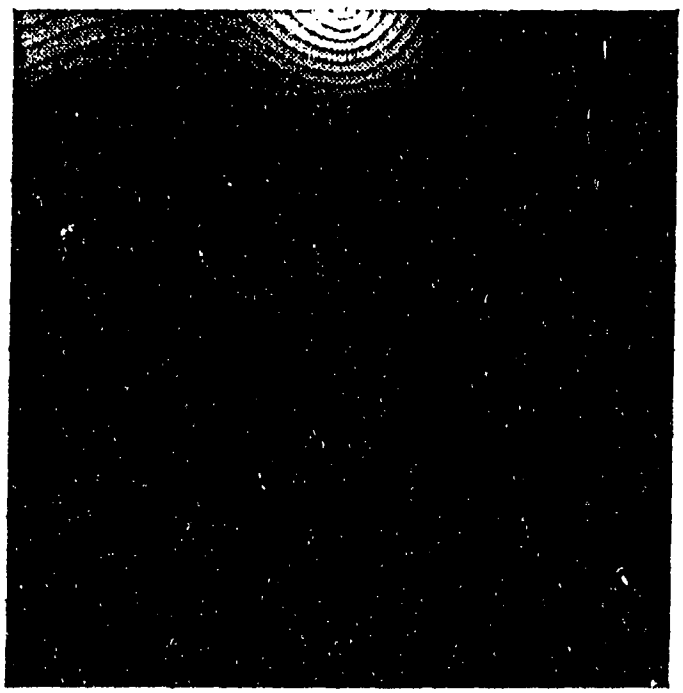




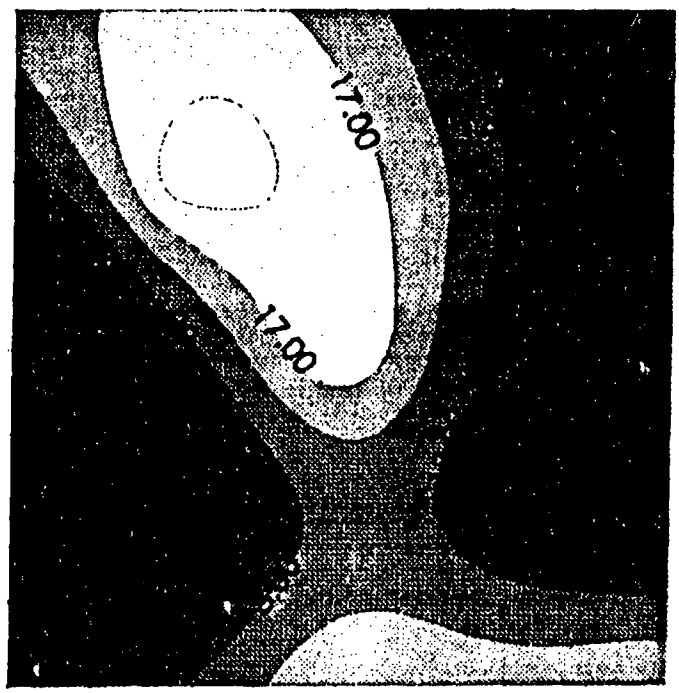
Plots are labled in pCi/g and gradation is every 2 pCi/g



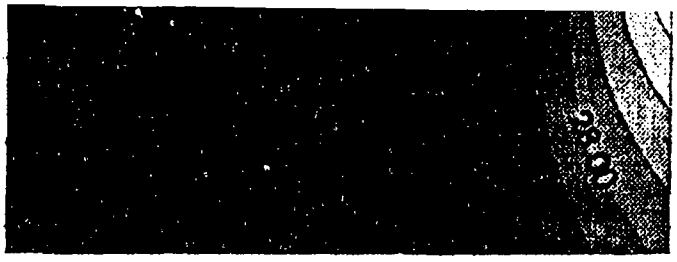
GRID 27, 110N 220E

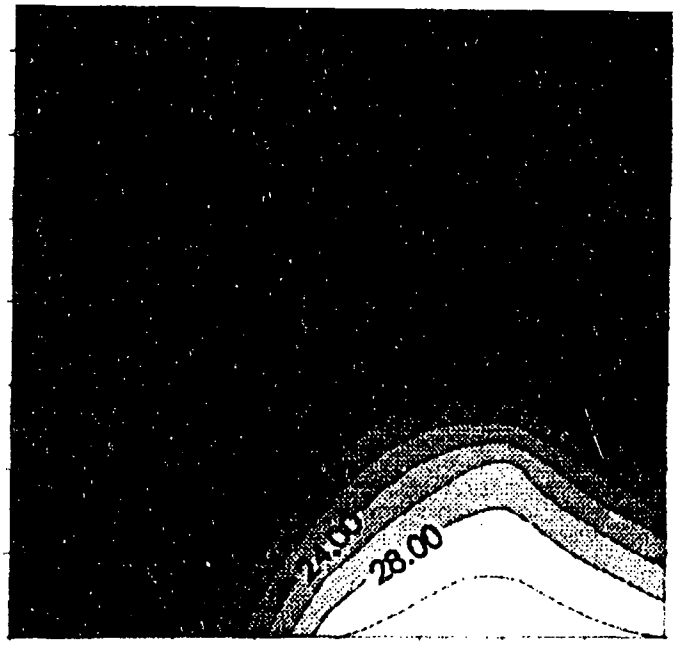


GRID 28, 100N 190E

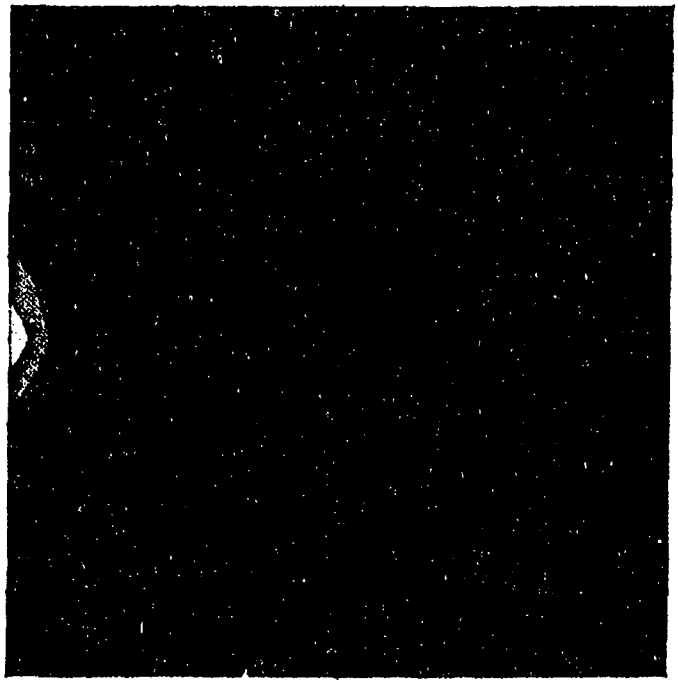


Plots are labled in pCi/g and gradation is every 2 pCi/g

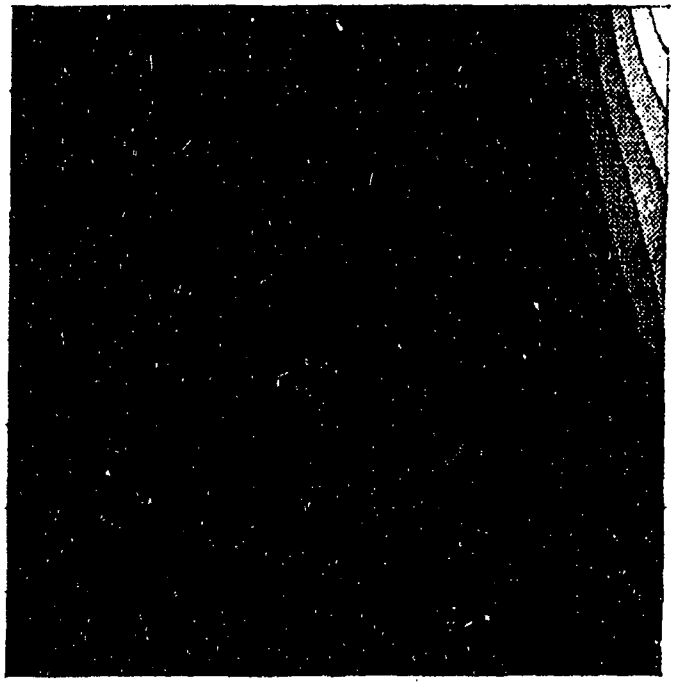




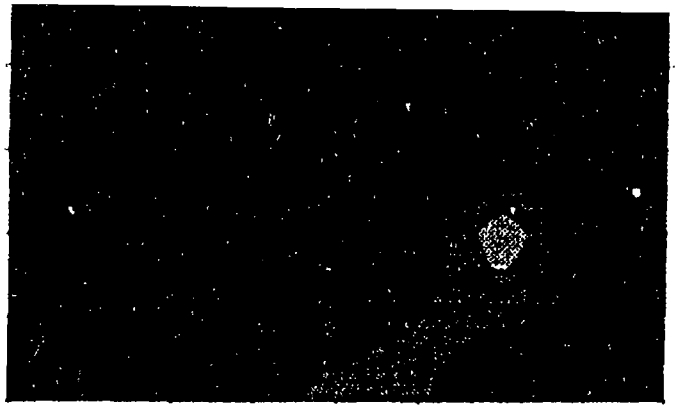
GRID 31, 90N 160E



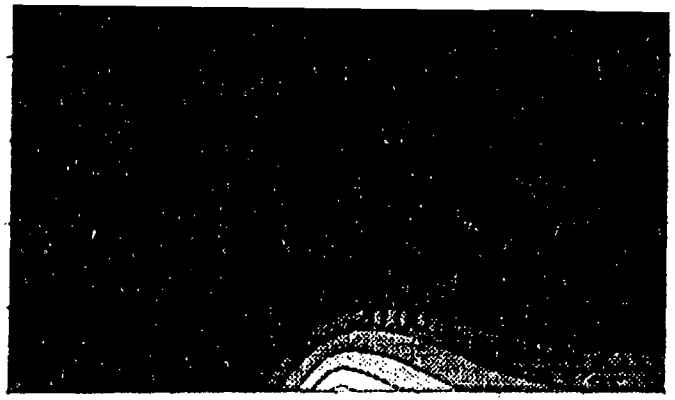
GRID 32, 100N 160E



Plots are labled in pCi/g and gradation is every 2 pCi/g



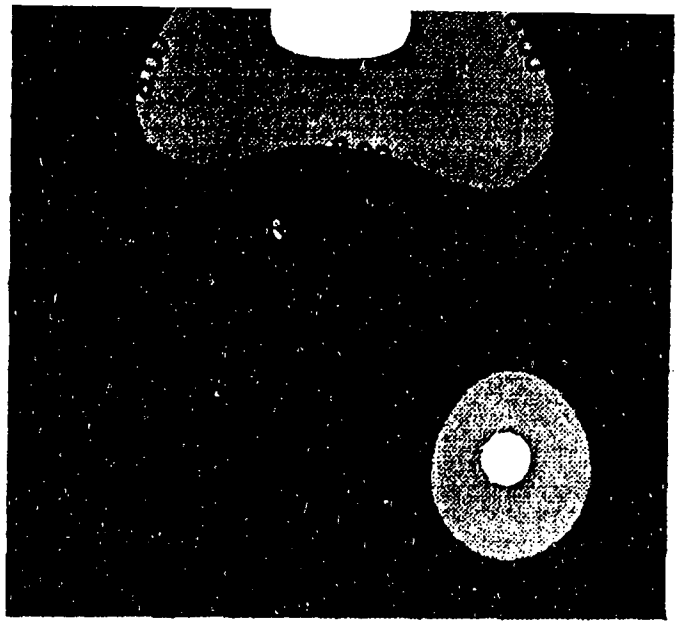
GRID 35, 90N 130E

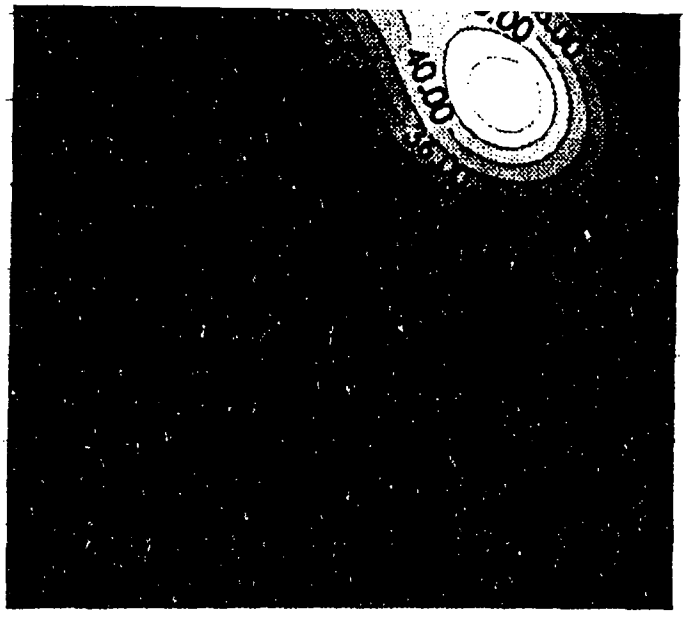


GRID 36, 80N 140E

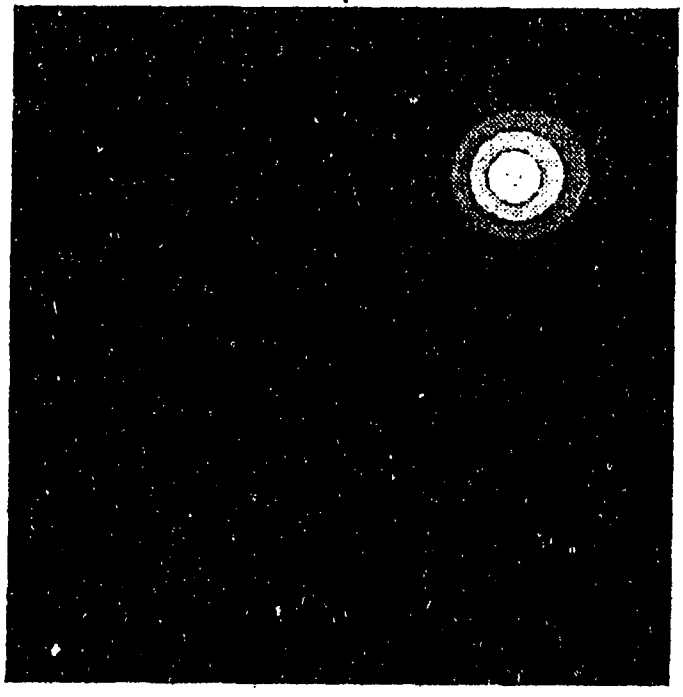
No Floor Check Samples Taken

Plots are labled in pCi/g and gradation is every 2 pCi/g





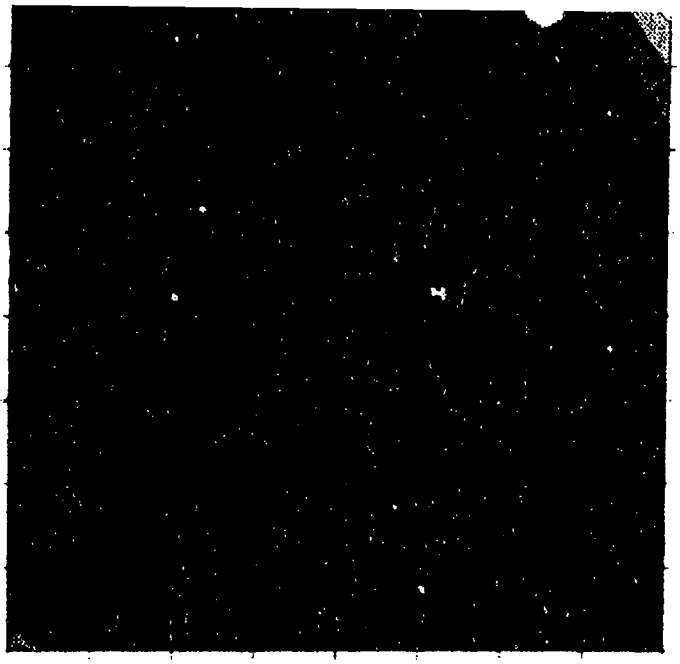
GRID 39, 80S 70E

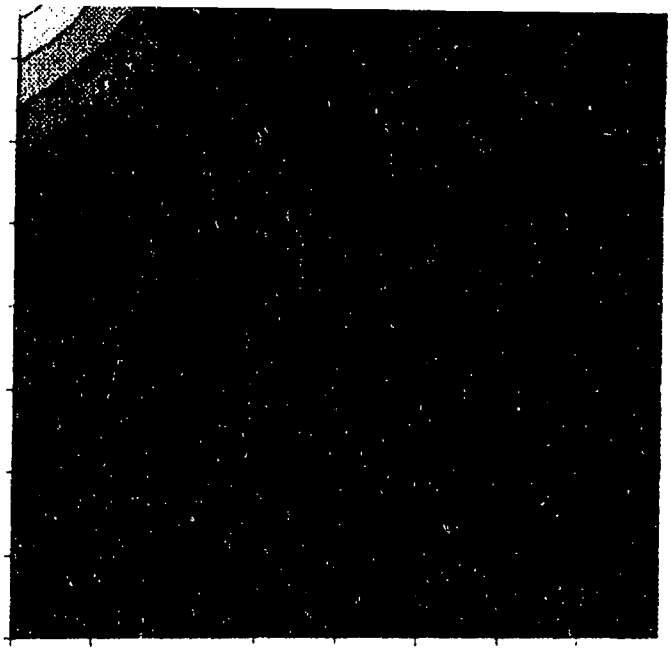


GRID 40 70S 70E

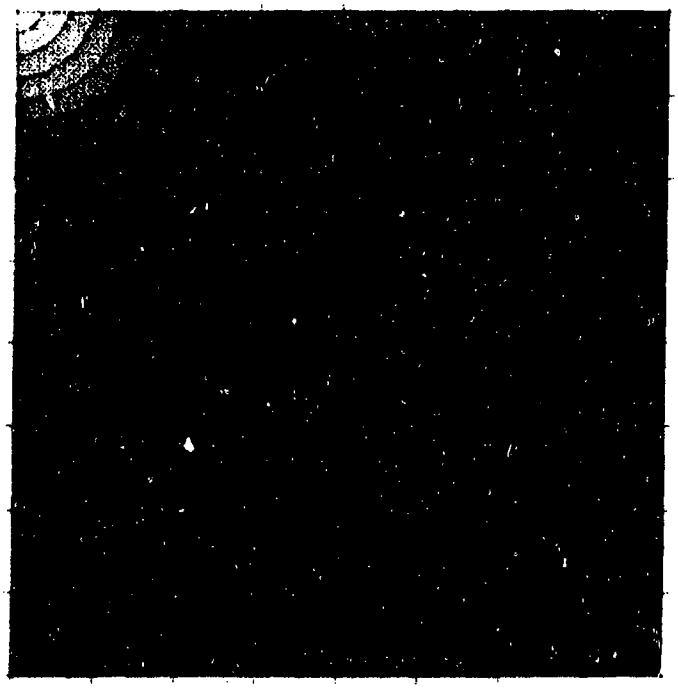
Plots are labled in pCi/g and gradation is every 2 pCi/g

Table 1: Building 12 Thermal Ice Storage

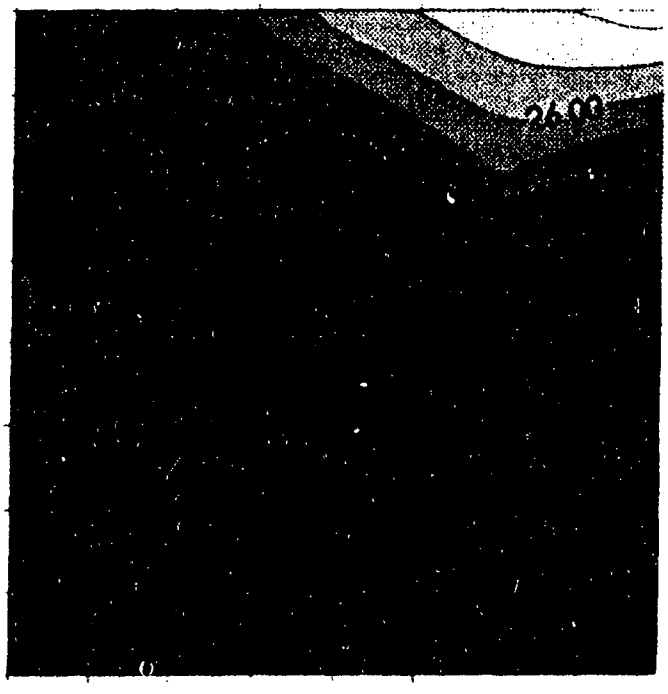




GRID 43, 60S 60E

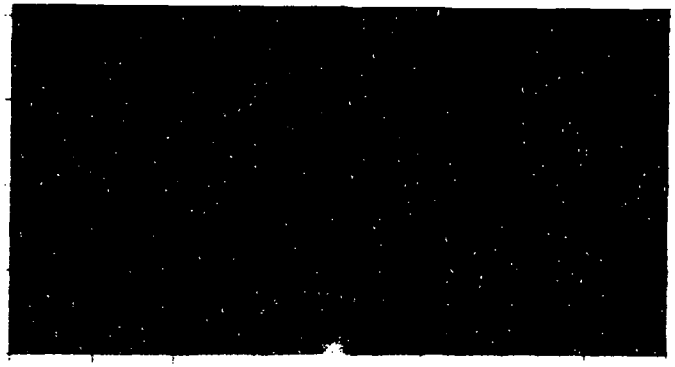


GRID 44, 120N 120E

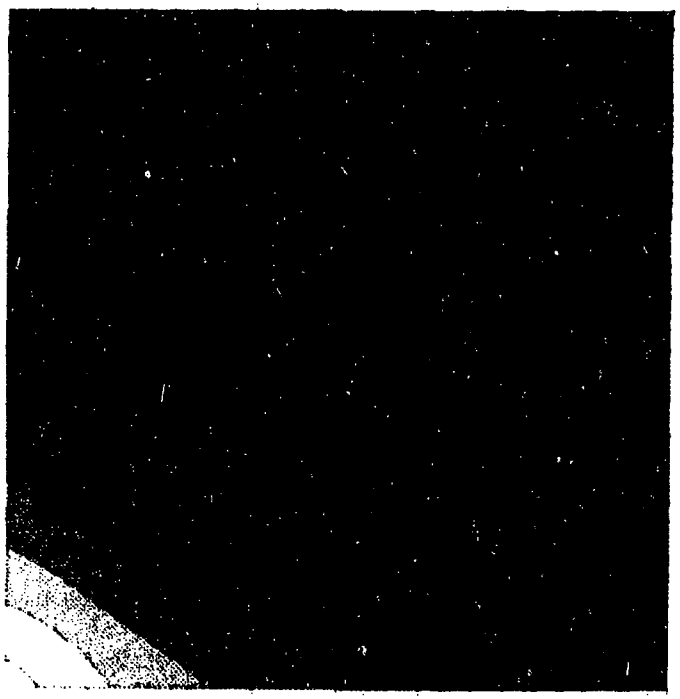


Plots are labled in pCi/g and gradation is every 2 pCi/g

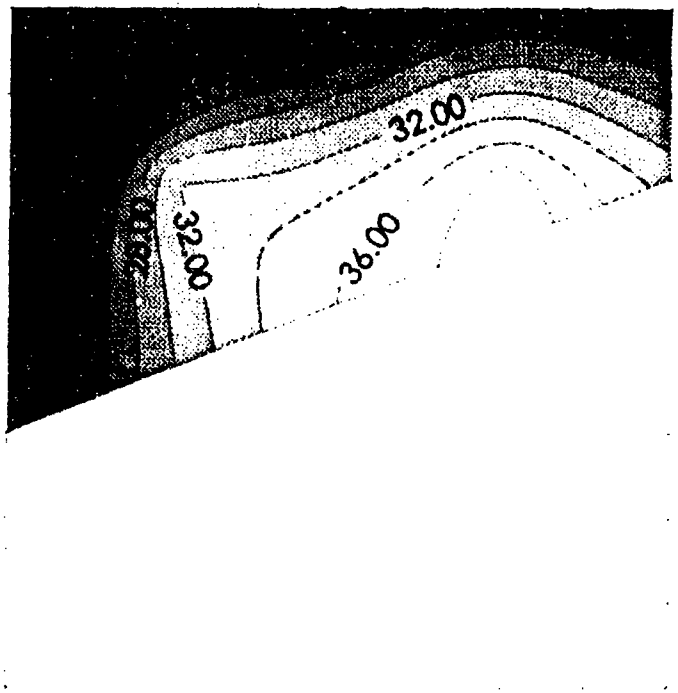
Table 1- Building 12 Thermal Ice Storage



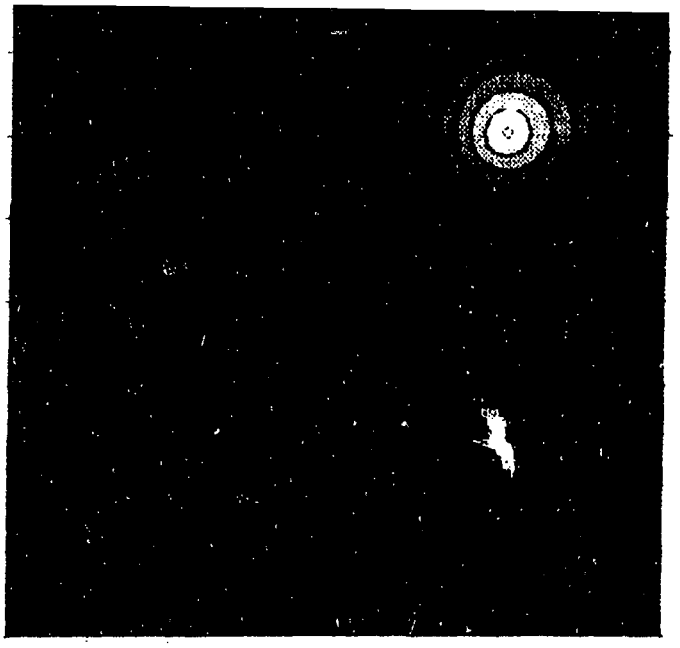
GRID 47, 40S 60E



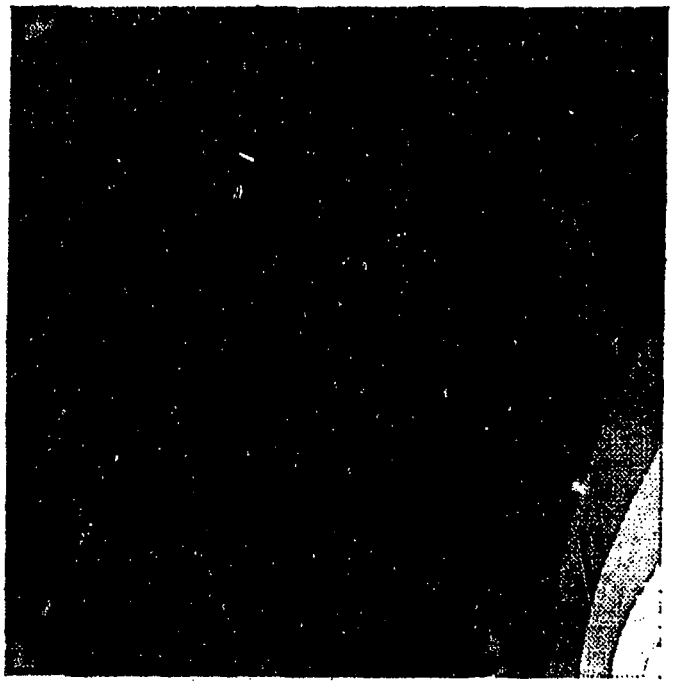
GRID 48, 50S 80E



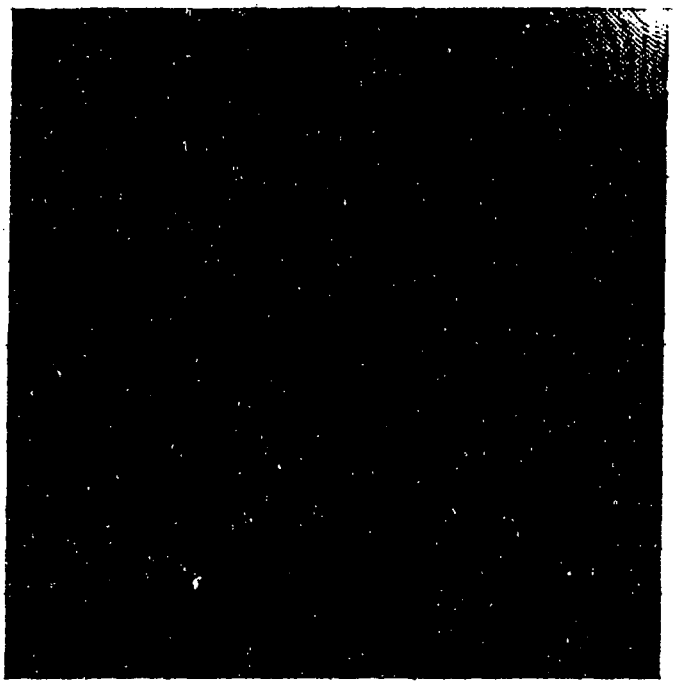
Plots are labled in pCi/g and gradation is every 2 pCi/g



GRID# 0051, 30S 80E



GRID# 0052, 30S 90E



Plots are labled in pCi/g and gradation is every 2 pCi/g