



November 9, 2020

Mike Lanenga
SET Environmental
450 Sumac Road
Wheeling, Illinois 60090

RE: Thorium Monitoring – City of Chicago Department of Assets, Information, and Services (AIS)
CDOT Permit: 1728808 – 401 E. Sub-Lower Wacker Dr.

Dear Mr. Lanenga:

Stan A. Huber Consultants, Inc (SAHCI) was hired by your firm to provide radiation monitoring during the excavation for installation of a sprinkler water line extending across 401 E. Sub-Lower Wacker Dr. in Chicago, Illinois. The monitoring was performed by Mark Dewald and DJ Shaw, SAHCI Health Physics Technicians, from October 21, 2020 through October 28, 2020. All activities were conducted under the guidance of document *SET General Procedure for Thorium Monitoring*.

Instrumentation

Surface gamma scans were performed using a Ludlum Model 2221 Scaler / Ratemeter (serial no. 132844) with attached Ludlum Model 44-10 2"x2" NaI Detector (w/ 6" collimated lead shield). The instrument was calibrated on July 28, 2020. The US Environmental Protection Agency (USEPA) action level of 7.1 picocuries per gram (pCi/g) total thorium for this instrument is 7,592 counts per minute (cpm).

The average background count rate for these locations was measured at 1,055 cpm.

Soil Gamma Scans

Gamma surface scans were performed using the Ludlum Model 2221 Scaler / Ratemeter described above. Survey data was collected by entering the excavation and recording the highest count rate for the floor and walls to an excavation depth of 4 feet below ground surface. Any material excavated from 4 feet to 7 feet below ground surface was surveyed as it was removed and stockpiled on the surface.

The maximum gamma count rate for each lift was recorded on the attached Radiation Survey Form. The count rates in the excavation ranged from 1,000 cpm to 3,800 cpm. No count rates were found at any time that exceeded the threshold limit of 7,592 cpm.

Additional Monitoring

Since no count rates were identified above the 7.1 pCi/gram threshold limit, no additional soil sampling, air monitoring, or personnel monitoring were performed.

I will be providing a copy of this report to both the City of Chicago Department of Public Health and US Environmental Protection Agency, as required.

Thank you for your assistance with this project. If you have any questions or need additional information, please call me at (815) 485-6161.

Sincerely,
Stan A. Huber Consultants, Inc.

Glenn Huber, CHP
President

Radiation Survey Form

Location/ Project ID: 401 E. Sub-Lower Wacker Dr. AIS Riverwalk Sprinkler

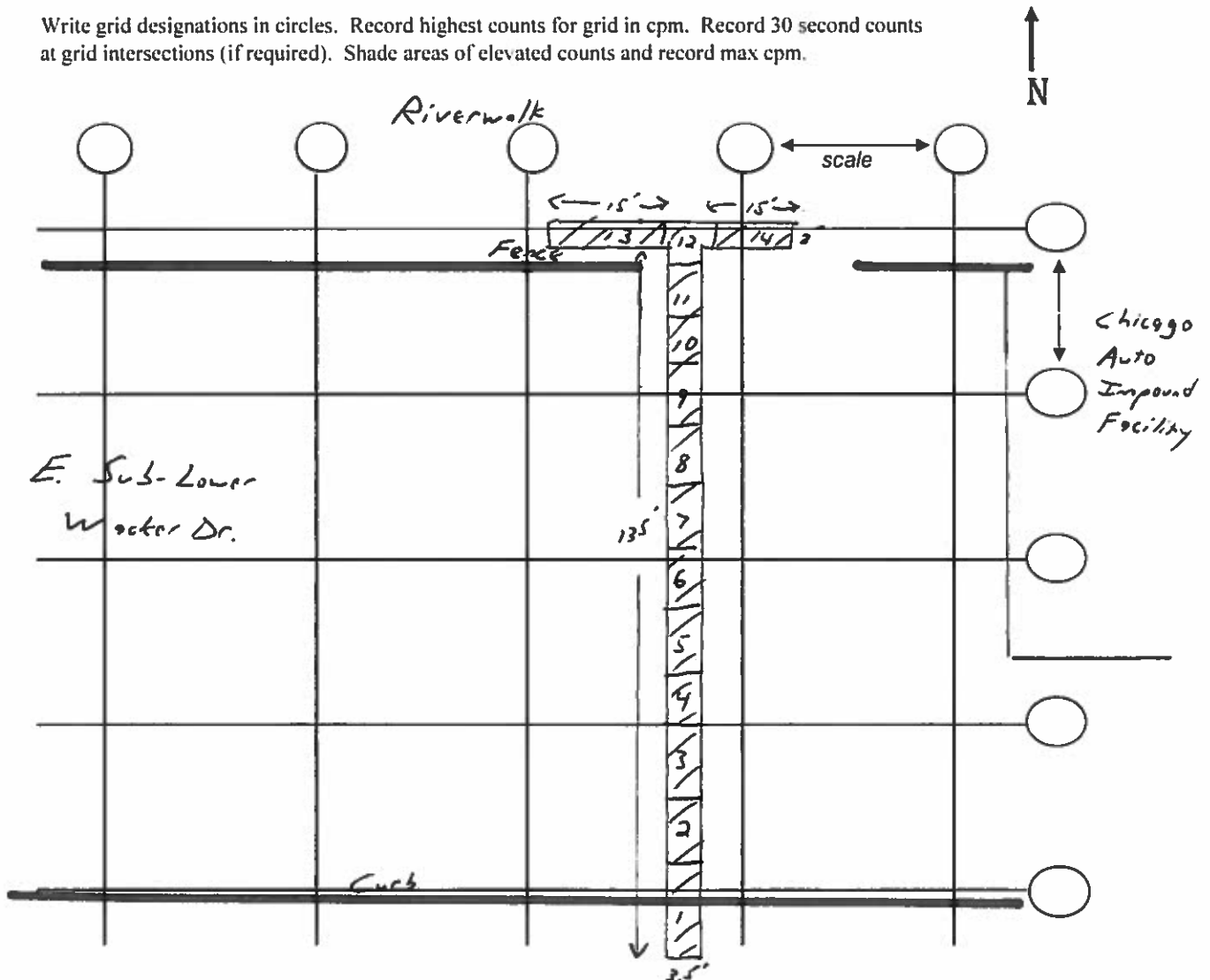
Date: 10/21/20 - 10/28/20 **Technician:** Mark Dewald / DJ Shaw

Inst Model: Ludlum 2221 **Serial No.:** 132844

Probe Type: 1"x1" NaI 2"x2" NaI
Shielded / Not Shielded **Lift Elevation:** Surface to -7' BGS

Background 1,055 cpm **Action Level:** 7,228 cpm

Write grid designations in circles. Record highest counts for grid in cpm. Record 30 second counts at grid intersections (if required). Shade areas of elevated counts and record max cpm.



Note: Survey Form compiled by Glenn Huber from field data provided by DJ Shaw and Mark Dewald. GAH 11-9-20

Radiation Survey Form - Data

Location / Project ID:	40 E. Sub-Lower Wacker Dr. Riverwalk Sprinkler Line
HP Technician:	Mark Dewald 10/21/20-10/23/20; DJ Shaw 10/26/20-10/28/20
Date:	10/21/20 - 10/28/20
Instrument ID:	Ludlum Model 2221 Scaler/Ratemeter (serial # 132844) w/ Ludlum Model 44-10 2" NaI Detector (w/ 6" shield)
7.1 pCi/g Action Level:	7,592 cpm

Area 1	
Depth	CPM
0"-12"	1100
12"-30"	1800
30"-48"	1200
48"-66"	2900
66"-84"	3600

Area 2	
Depth	CPM
0"-12"	1000
12"-30"	1800
30"-48"	1200
48"-66"	2000
66"-84"	1800
84"-102"	2200

Area 3	
Depth	CPM
0"-12"	1200
12"-30"	1800
30"-48"	3100
48"-66"	3800
66"-84"	3300
84"-102"	1900

Area 4	
Depth	CPM
0"-12"	1300
12"-30"	1900
30"-48"	2300
48"-66"	1700
66"-84"	2600

Area 5	
Depth	CPM
0"-12"	1200
12"-30"	2200
30"-48"	2200
48"-66"	2100
66"-84"	2200

Area 6	
Depth	CPM
0"-12"	1000
12"-30"	1600
30"-48"	2400
48"-66"	2300
66"-84"	2000

Area 7	
Depth	CPM
0"-12"	1100
12"-30"	1900
30"-48"	2100
48"-66"	1700
66"-84"	2000

Area 8	
Depth	CPM
0-18"	2300
18"-36"	1600
36"-54"	1900
54"-72"	2000

Area 9	
Depth	CPM
0-18"	2200
18"-36"	2300
36"-54"	2000
54"-72"	2400

Area 10	
Depth	CPM
0-18"	2000
18"-36"	2300
36"-54"	1900
54"-72"	2000

Area 11	
Depth	CPM
0-18"	2300
18"-36"	2400
36"-54"	2200
54"-72"	2100

Area 12	
Depth	CPM
0-18"	2200
18"-36"	2300
36"-54"	1800
54"-72"	1900

Area 13	
Depth	CPM
0-18"	2000
18"-36"	2100
36"-54"	2000
54"-72"	2500

Area 14	
Depth	CPM
0-18"	2200
18"-36"	2000