



May 12, 2020

958185

Mike Lanenga  
SET Environmental  
450 Sumac Road  
Wheeling, Illinois 60090

RE: Thorium Monitoring – City of Chicago Department of Transportation  
CDOT Permit: 1237206 – 233 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 and construction of concrete medians at 233 E. Sub-Lower Wacker Drive in Chicago, Illinois. The monitoring was performed by Mark Dewald, SAHCI Health Physicist, on May 4 through May 6, 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. 126496) with attached Ludlum Model 44-10 2"x2" NaI Detector (w/ 6" collimated lead shield). The instrument was calibrated on October 18, 2019. The US Environmental Protection Agency (USEPA) action level of 7.1 picocuries per gram (pCi/g) total thorium for this instrument is 7,102 counts per minute (cpm).

The average background count rate for this location ranged from 1,255 cpm to 1,387 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 a maximum excavation depth of 18 inches below ground surface. All concrete was loaded directly into a truck for disposal.

The maximum gamma count rate for each lift was recorded on the attached Radiation Survey Form. The count rates in the excavation ranged from 800 cpm to 2,600 cpm. No count rates were found at any time that exceeded the threshold limit of 7,102 cpm.

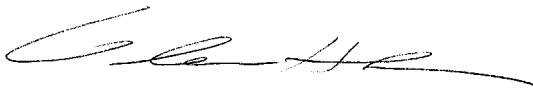
Additional Monitoring

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.

A handwritten signature in black ink, appearing to read 'Glenn Huber', written in a cursive style.

Glenn Huber, CHP  
President

## Radiation Survey Form

**Location/ Project ID:** CDOT 233 E. Sub-Lower Wacker Dr

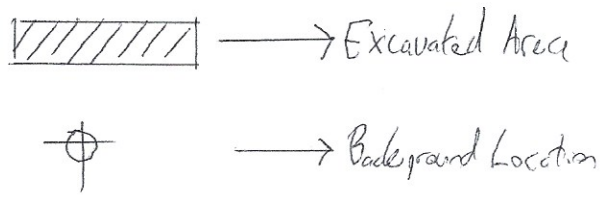
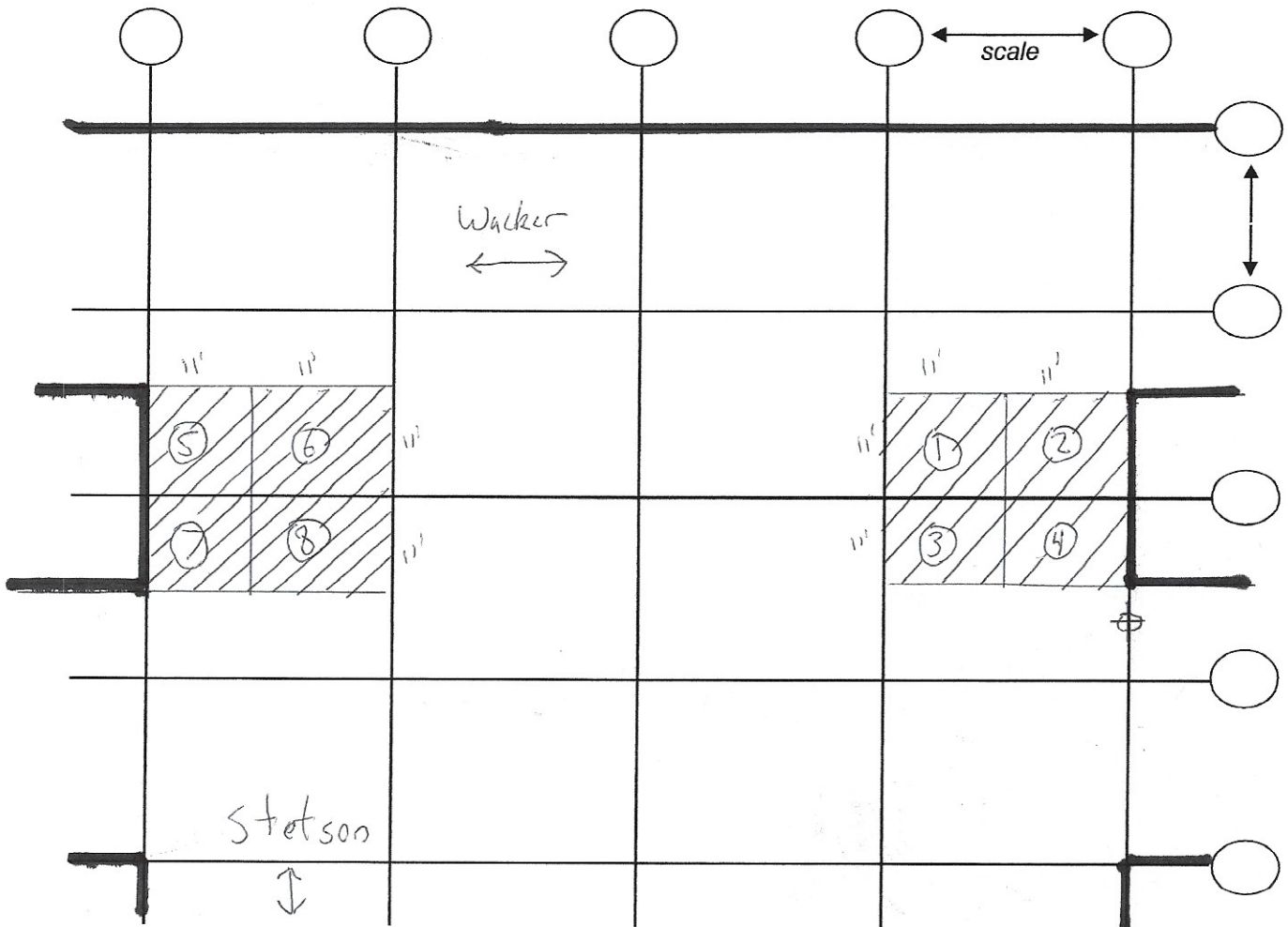
**Date:** 5/4/2020      **Technician:** Mark Oswald

**Inst Model:** ludlum 2221      **Serial No.:** 126496

**Probe Type:** 1"x1" NaI / 2"x2" NaI      **Lift Elevation:** 0-1.5'  
Shielded / Not Shielded

**Background** 1387 cpm      **Action Level:** 7102 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.



# Radiation Survey Form

CDOT 233 E. Sub-Lower Wacker Dr

Location/ Project ID: \_\_\_\_\_

Date: 5/5-6/2020

Technician: Mark Dewald

Inst Model: Ludlum 2221

Serial No. : 126496

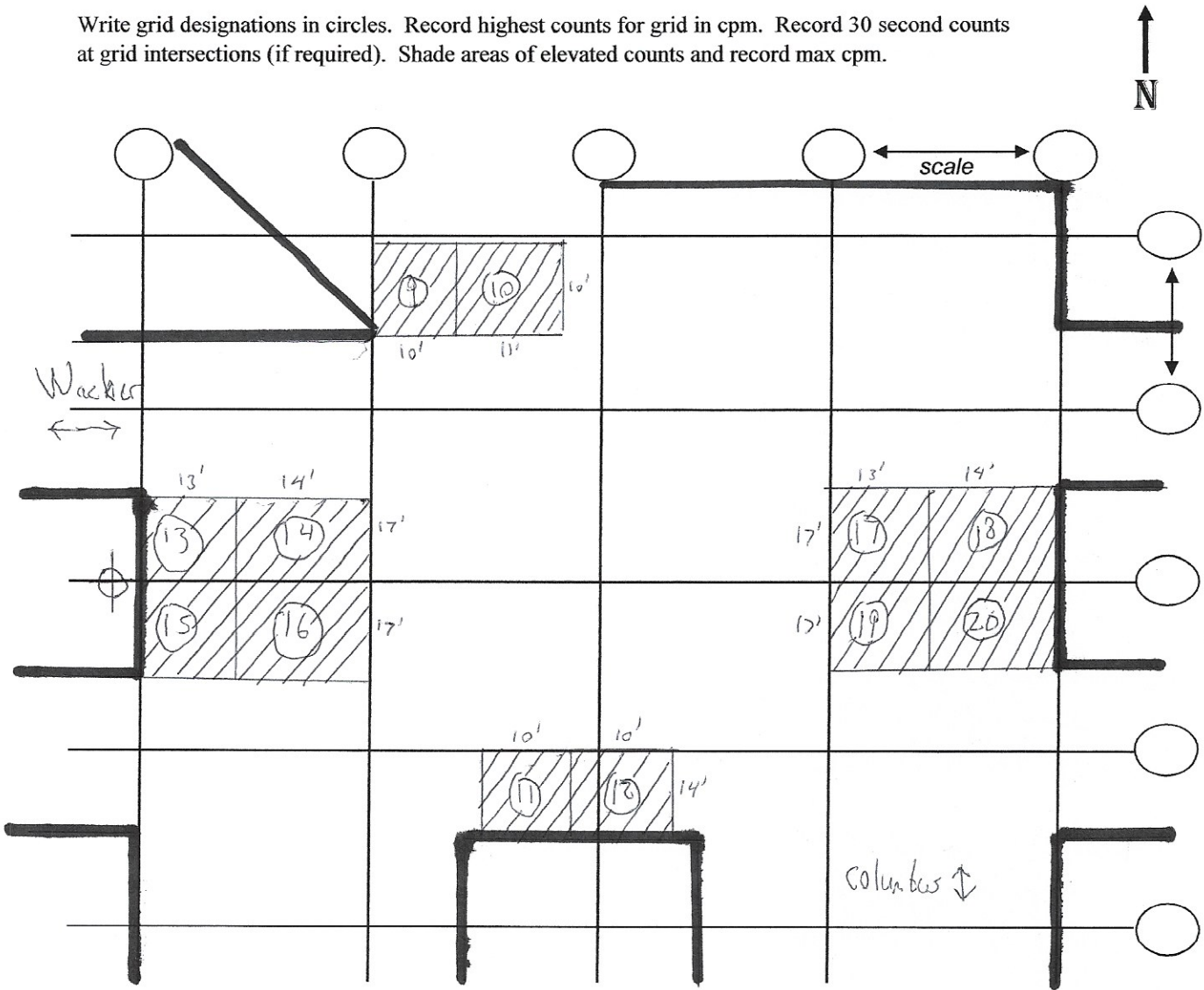
Probe Type: 1"x1" NaI / 2"x2" NaI  
Shielded / Not Shielded


Lift Elevation: 0-1.5'


Background 1255 cpm

Action Level: 7102 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.



 → Excavated Area

 → Background Location

# Radiation Survey Data

233 E Lower Wacker Thorium Monitoring - CDOT

5/4/20 - 5/6/20

	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9	Area 10
Surface	1200	1100	900	1100	1300	1200	800	1400	1200	1300
1.5'	1100	1400	1200	1200	1400	1100	1400	1300	1800	2200

	Area 11	Area 12	Area 13	Area 14	Area 15	Area 16	Area 17	Area 18	Area 19	Area 20
Surface	1500	1100	1000	1100	1100	1300	1200	1400	1100	1200
1.5'	2500	2600	1500	1600	1800	1600	1500	1800	1700	1800

\* All results in counts per minute (CPM)