



April 1, 2023

981898

Angel Camacho
SET Environmental
450 Sumac Road
Wheeling, Illinois 60090

RE: Thorium Monitoring – City of Chicago Department of Transportation
CDOT Permit: 1792550
AR Term Central Contract B-2-817 530-979 N. Michigan Ave.

Dear Mr. Camacho:

Stan A. Huber Consultants, Inc (SAHCI) was hired by your firm to provide radiation monitoring during the removal of concrete for new bus pad installations by the City of Chicago Department of Transportation (CDOT) on Michigan Avenue between Ohio Street and Ontario Street in Chicago, Illinois.

The monitoring was performed by Mark Dewald, SAHCI Health Physics Technician, on March 20, March 27, and March 28, 2023. All activities were conducted under the guidance of document *SET General Procedure for Thorium Monitoring*.

Thorium contamination exceeding the 7.1 picocuries per gram (pCi/g) threshold limit was identified on March 27, 2023.

Instrumentation

Surface gamma scans were performed using a Ludlum Model 2221 Scaler / Ratemeter (serial no. 99147) with attached Ludlum Model 44-10 2"x2" NaI Detector (w/ 6" collimated lead shield). The instrument was calibrated on May 3, 2022. The US Environmental Protection Agency (USEPA) threshold limit of 7.1 pCi/g total thorium for this instrument is 6,936 counts per minute (cpm).

The average background count rate for these locations was measured at 1,633 cpm.

Soil Gamma Scans

Gamma surface scans were performed using the Ludlum Model 2221 Scaler / Ratemeter described above. Survey data was collected by performing a surface gamma scan prior to concrete removal and then again after concrete removal by entering the excavation and recording the highest count rate for the floor to a maximum depth of 12 inches below

ground surface. All concrete was loaded into a truck for disposal. No soil was removed or handled during this portion of the project.

The maximum gamma count rate for each lift was recorded on Attachment A - Radiation Survey Form. Three separate locations were identified that exceeded the count rate threshold indicative of 7.1 pCi/g. Maximum count rates of 11,000 cpm were observed in Area 24, 24,000 cpm in Area 29, and 31,000 cpm in Area 31. See below for additional details. Except for these three areas, the count rates in the excavations were all below the count rate threshold of 6,936 cpm.

Soil Contamination

On March 27, 2023, count rates exceeding the 7.1 pCi/g threshold limit were observed in Area 24. This location is approximately 60 feet south of Erie St on the western side of Michigan Ave. The area of surface contamination is approximately 2 feet by 8 feet. The maximum count rate of 11,000 cpm was identified 1 foot below ground surface, directly underneath the concrete layer. Since the contamination has not yet been removed, the maximum depth is unknown at this time.

On March 27, 2023, count rates exceeding the 7.1 pCi/g threshold limit were observed in Area 29. This location is between 40 and 60 feet north of Ontario St. on the western side of Michigan Ave. The area of surface contamination is approximately 2 feet by 20 feet. The maximum count rate of 24,000 cpm was identified 1 foot below ground surface, directly underneath the concrete layer. Since the contamination has not yet been removed, the maximum depth is unknown at this time.

On March 27, 2023, count rates exceeding the 7.1 pCi/g threshold limit were observed in Area 31. This location is between 10 and 23 feet north of Ontario St. on the western side of Michigan Ave. The area of surface contamination is approximately 6 feet by 13 feet. The maximum count rate of 31,000 cpm was identified 1 foot below ground surface, directly underneath the concrete layer. Since the contamination has not yet been removed, the maximum depth is unknown at this time.

Immediately after the discovery of potential contamination, Glenn Huber contacted Verneta Simon and Eugene Jablonowski from USEPA Region 5. Photographs of the 3 locations were submitted, per their request. These photos can be found in Attachment B – Exclusion Zone Photographs.

The underside of the pieces of concrete in contact with the potentially contaminated soil were screened for surface contamination using a Ludlum Model Survey Meter (serial no. 95056) with attached Ludlum Model 44-9 G-M Detector. No count rates over background levels were observed. The concrete was then released for offsite disposal.

Since this project did not involve the handling of any soil, no cleanup of the contaminated areas was attempted. The CDOT paving contractor, Bigane Paving, placed asphalt patch

over the top of the contaminated area to prevent any contact with personnel and equipment. The following day the areas were filled with concrete.

Additional Monitoring

No decision has been made yet regarding the possible characterization or removal of the contaminated material.

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: Michigan Ave. Erie St. to Ohio St. Bus Pads - Bigane Paving

Date: 3/20/23, 3/27/23, 3/28/23

Technician: Mark Dewald

Inst Model: Ludlum 2221

Serial No.: 99147

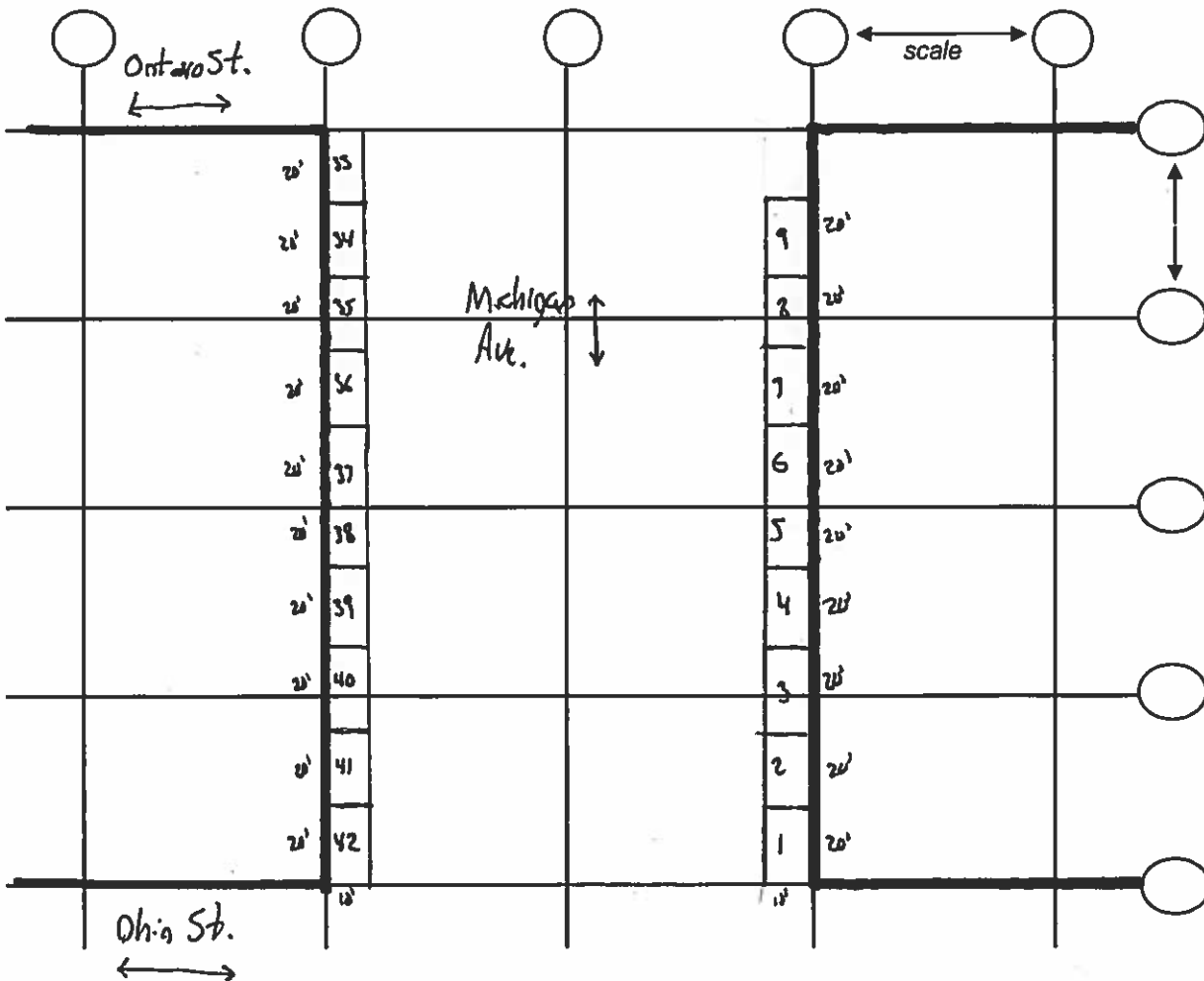
Probe Type: 1"x1" NaI 2"x2" NaI
 Shielded Not Shielded

Lift Elevation: Surface to -12" BGS

Background 1,633 cpm

Action Level: 6,936 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.



	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9	
0-18"	1200	1300	1200	1400	1100	1200	1200	1100	1300	
12-30"	2300	2200	2100	2400	2700	2600	2600	2200	2500	
	Area 33	Area 34	Area 35	Area 36	Area 37	Area 38	Area 39	Area 40	Area 41	Area 42
0-18"	1300	1500	1400	1300	1300	1100	1300	1200	1300	1500
12-30"	2100	2400	2400	2500	2300	2600	2400	2400	2500	2800

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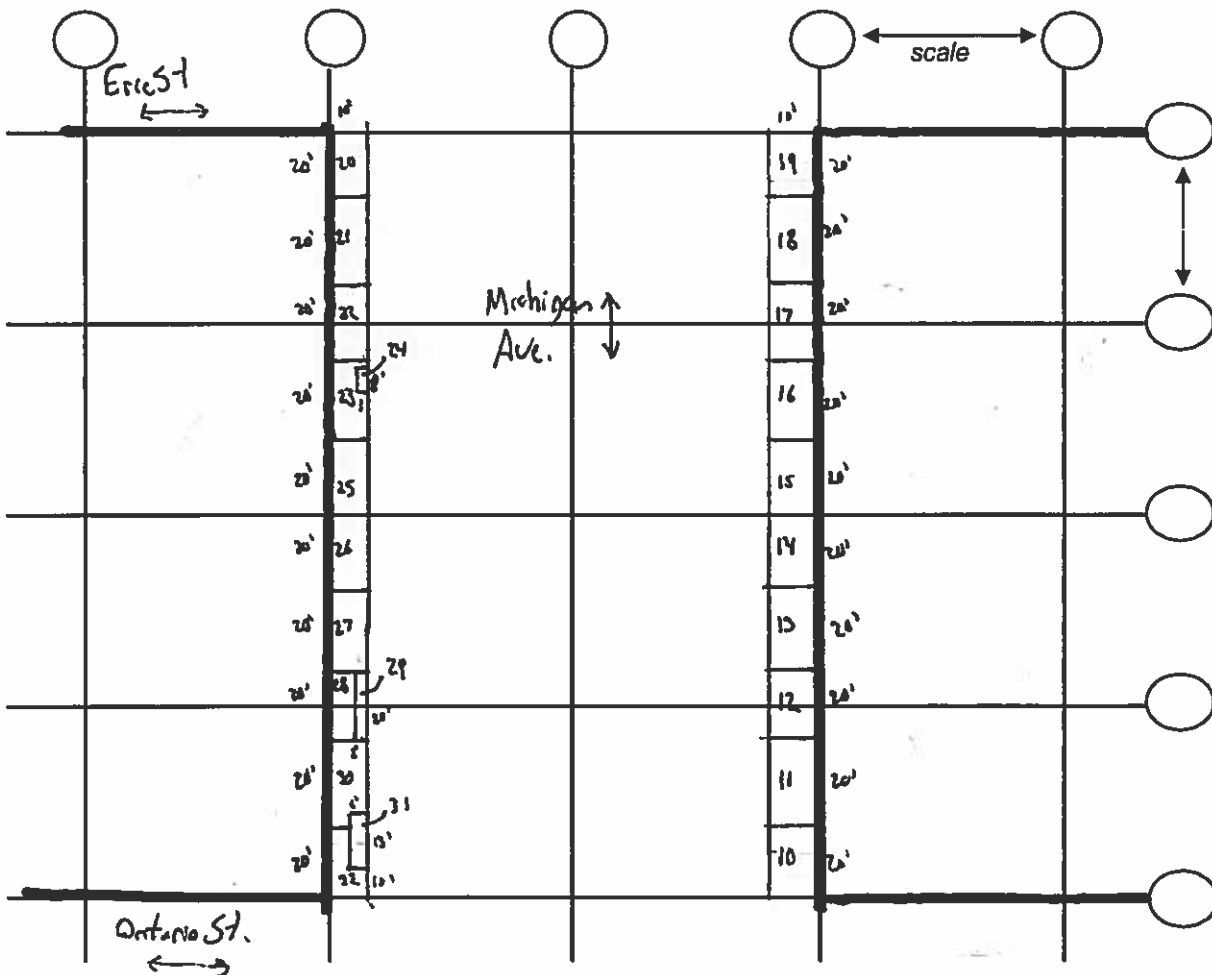
Probe Type: 1"x1" NaI 2"x2" NaI
 Shielded Not Shielded

Lift Elevation: Surface to -12" BGS

Background 1,633 cpm

Action Level: 6,936 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.



	Area 10	Area 11	Area 12	Area 13	Area 14	Area 15	Area 16	Area 17	Area 18	Area 19			
0-18"	1400	1400	1500	1300	1400	1600	1300	1500	1200	1300			
12-30"	2200	2200	2300	2200	2100	2500	2400	2300	2300	2500			
	Area 20	Area 21	Area 22	Area 23	Area 24	Area 25	Area 26	Area 27	Area 28	Area 29	Area 30	Area 31	Area 32
0-18"	1400	1200	1300	1200	1400	1200	1300	1300	1600	1400	1500	1500	1500
12-30"	2300	2900	2700	3000	11000	3200	4100	4700	5400	24000	5900	31000	4900

Attachment B – Exclusion Zone Photographs

Spot 1 (Area 24): 8' x 2' = 11 kcpm max



Attachment B – Exclusion Zone Photographs

Spot 2 (Area 29): 2' x 20' = 24 kcpm max



Attachment B – Exclusion Zone Photographs

Spot 3 (Area 31): 13' x 6' = 31 kcpm max

