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September 9, 2021

Angel Camacho SET Environmental 450 Sumac Road Wheeling, Illinois 60090

RE: Thorium Monitoring – City of Chicago Department of Transportation CDOT Permits: 1536857, 1527635, 1527384 E. South Water St. between N. Michigan Ave. and N. Stetson Ave.

Dear Mr. Camacho:

Stan A. Huber Consultants, Inc (SAHCI) was hired by your firm to provide radiation monitoring during excavation for removal of concrete columns on Lower E. South Water St. between N. Michigan Ave. and N. Stetson Ave. in Chicago, Illinois. The monitoring for this task was performed by Brian Schmidt and Mark Dewald, SAHCI Health Physics Technicians, on June 5, 2021, to August 24, 2021. All activities were conducted under the guidance of document *SET General Procedure for Thorium Monitoring.*

Work at this location is ongoing and more excavation is likely in the near future. This document is being provided as an interim report on radiation monitoring activities that have taken place through August 31, 2021.

In addition to the monitoring during excavation for concrete column removal, surveys were also performed on August 9, 2021. A separate contractor was performing excavation within the project site to repair a broken conduit. This excavation was started on August 6, 2021, but we were not onsite for the initial monitoring since we were unaware of the work taking place. Apparently this was an emergency repair and monitoring was not scheduled. On August 9, 2021, Jeremy Kieser, SAHCI Health Physics Technician, performed surveys of the soil that had been removed and stockpiled prior to his arrival and surveyed the excavation.

Instrumentation

Surface gamma scans were performed using Ludlum Model 2221 Scaler / Ratemeters (serial nos. 126497, 127242, and 132844) with attached Ludlum Model 44-10 2"x2" Nal Detectors (w/ 6" collimated lead shields). All instruments were last calibrated on May 5, 2021.

The US Environmental Protection Agency (USEPA) action level of 7.1 picocuries per gram (pCi/g) total thorium for instrument 126497 is 6,283 counts per minute (cpm). The USEPA action level for instrument 127242 is 6,995 cpm. The USEPA action level for instrument 132844 is 7,572 cpm.

The average background count rate for these locations ranged from 1,587 cpm to 1,800 cpm.

Surface Gamma Scans – Concrete Column Excavations

Gamma surface scans were performed on fill material surrounding the existing concrete columns using Ludlum Model 2221 Scaler / Ratemeters, serial numbers 126497 and 127242. Survey data was collected by entering the excavations and recording the highest count rate for the floor and walls to a maximum excavation depth of 5 feet below ground surface. After the concrete columns were exposed, they were broken up and taken offsite.

The maximum gamma count rate for each lift was recorded on the attached Radiation Survey Form. The count rates in the excavation ranged from 1,400 cpm to 2,800 cpm. No count rates were found at any time that exceeded the instrument specific count rate threshold limits of 6,283 cpm and 6,995 cpm, respectively.

Surface Gamma Scans – AT&T Repair Excavation

Gamma surface scans were performed using a Ludlum Model 2221 Scaler / Ratemeter (serial no. 132844). Since excavation was near completion, the survey was completed by monitoring the stockpile of soil and fill that had been stockpiled onsite. The maximum count rate of the fill stockpile was 2,800 cpm, which was below the instrument specific threshold limit of 7,572 cpm. See attached Radiation Survey Form.

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

Stan A. Huber Consultants, Inc.

Instrument ID:

Location:CDOT Lower E. South Water St.Name:Brian Schmidt & Mark Dewald

Date:

6/5/21 - 8/24/21

7.1 pCi/g CPM:

Ludlum Model 2221 Scaler/Ratemeter w/ Model 44-10 Nal Detector (w/ 6" Lead Shield) #1 6,283 CPM (serial no. 126497) #2 6,995 CPM (serial no. 127242)

		Depth	0"-18" (bgs)	18"-36" (bgs)	36"-54" (bgs)	54"-72" (bgs)	60"-78" (bgs)
Date	Instrument	Pier Excavation ID	Survey Results (counts per minute)				
6/5/2021	1	S-516	2000	1500	1700		
6/5/2021	1	R-516	1800	1800	2000		
6/5/2021	1	Q-516	1600	1700	2100		
6/5/2021	1	Q-515	1800	2000	2400		
6/11/2021	1	T-516	1700	2200	2200	2300	2400
6/11/2021	1	T-515	1400	1700	1900	2200	2500
6/12/2021	1	T-514	1500	1600	1900	2200	
6/12/2021	1	S-514	1700	1900			
6/12/2021	1	R-512	1400	1600	1700		
6/13/2021	1	R-511	1500	1700	1800		
6/13/2021	1	R-510	1600	1800	2000		
6/13/2021	1	T-511	1600	1900	2100		
6/13/2021	1	S-511	1700				
6/14/2021	1	S-515	1900	2100	2200		
6/15/2021	2	R-515	1800	2100	1900		
6/15/2021	2	S-510	1900	2200	2400		
6/15/2021	2	T-513	1800	2200	2300	2200	
6/16/2021	2	T-512	1600	1900	2400	2600	
6/16/2021	2	S-508	1800	2200	2100	2300	
6/17/2021	2	T-508	1600	2100	1900	2400	
6/17/2021	2	Q-505	1900	1800	2400	2600	
6/17/2021	2	R-505	1800	2000	2500	2600	
6/29/2021	2	S-505	1500	2000	2400	2800	
6/29/2021	2	S-506	1900	2100	2300	2700	

		Depth	0"-18" (bgs)	18"-36" (bgs)	36"-54" (bgs)	54"-72" (bgs)	60"-78" (bgs)
Date	Instrument	Pier Excavation ID	Survey Results (counts per minute)				
7/6/2021	1	S-510	1500	1800	1900		
7/6/2021	1	S-509	1500	2100	2300		
7/6/2021	1	T-509	1800	2200	2300		
7/13/2021	1	T-510	1800	2300	2500	2100	2300
7/20/2021	2	Q-513	1400	1800	2100	1900	2200
7/20/2021	2	Q-514	2100	2500	2400		
7/20/2021	2	R-513	1900	2100	2100		
7/21/2021	2	R-514	1800	2300	2000		
7/21/2021	2	T-507	1900	2000	2000	2100	
7/21/2021	2	R-508	1800	2100	2100	2300	
7/23/2021	2	R-507	1900	2000	2100		
7/23/2021	2	Q-508	2000	2100	2100	2300	
7/27/2021	2	Q-507	2300	2200	2300	2100	
7/27/2021	2	R-507	2400	2100	2200	2200	
7/30/2021	2	Q-506	1900	2100	2100	2200	
7/30/2021	2	R-506	1700	2100	2600	2400	
8/3/2021	1	T-505	1800	2100	2600		
8/3/2021	1	T-506	1900	2000	2300		
8/24/2021	1	S-507	1600	2100	2400	3100	3400
8/24/2021	1	S-508	1700	1900	2400		



= Maximum excavation depth



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Radiation Survey Form

Location/ Project ID:

Stan & Huber Consultants, Inc.

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