



May 5, 2018

Mike Lanenga
SET Environmental
450 Sumac Road
Wheeling, Illinois 60090

RE: 550 E. Illinois St. & DuSable Park Thorium Monitoring – City of Chicago
Department of Transportation / ComEd (Private Property)

Dear Mr. Lanenga:

Stan A. Huber Consultants, Inc (SAHCI) was hired by your firm to provide radiation monitoring during the excavation for installation of ComEd utility ducts and manholes at 550 E. Illinois St. in Chicago, Illinois. The project took place at two locations. The first location was in the park area between Illinois Street and the Ogden Slip. The second location was in DuSable Park and extended west under Lake Shore Drive. Attached is a figure with the excavation locations highlighted.

The monitoring was performed by Brian Schmidt and Arthur Lichorobiec, SAHCI Health Physics Technicians from April 4, 2018 through April 30, 2018. All activities were conducted under the guidance of document *SET General Procedure for Thorium Monitoring*.

Instrumentation

Surface gamma scans were performed using Ludlum Model 2221 Scaler / Ratemeters (serial no. 126496 and 132844) with attached Ludlum Model 44-10 2"x2" NaI detectors (w/ 6" collimated lead shields).

Serial number 126496 was calibrated on October 11, 2017. The US Environmental Protection Agency (USEPA) action level of 7.1 picocuries per gram (pCi/g) total thorium for this meter is 7,366 counts per minute (cpm).

Serial number 132844 was calibrated on August 9, 2017. The USEPA action level of 7.1 picocuries per gram (pCi/g) total thorium for this meter is 7,652 counts per minute (cpm).

The average background count rate for this location was determined to range from 2,071 cpm to 2,550 cpm.

Soil Gamma Scans

Gamma surface scans were performed using the Ludlum Model 2221 Scaler / Ratemeters described above. Survey data was collected by entering the excavation and recording the highest count rate for the floors and walls to an excavation depth of 3 feet. Soil excavated from 3 feet to 11 feet below ground surface was surveyed as it was brought to the surface and stockpiled.

The maximum gamma count rate for each lift was recorded on the attached Radiation Survey Forms. The count rates in the excavation ranged from 1,250 cpm to 4,880 cpm. No count rates were found at any time that exceeded the instrument specific threshold limits of 7,366 cpm and 7,652 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: SONOMA - ILLINOIS ST. & LAKE SHORE DR. - CHICAGO, IL - ELECTRICAL UTILITY

Date: 4/4-30/2018

Technician: BRIAN SCHMIDT

INSTALLATION - ROW ROAD SURVEY

Inst Model: LUDLUM-2221

Serial No.: 126496

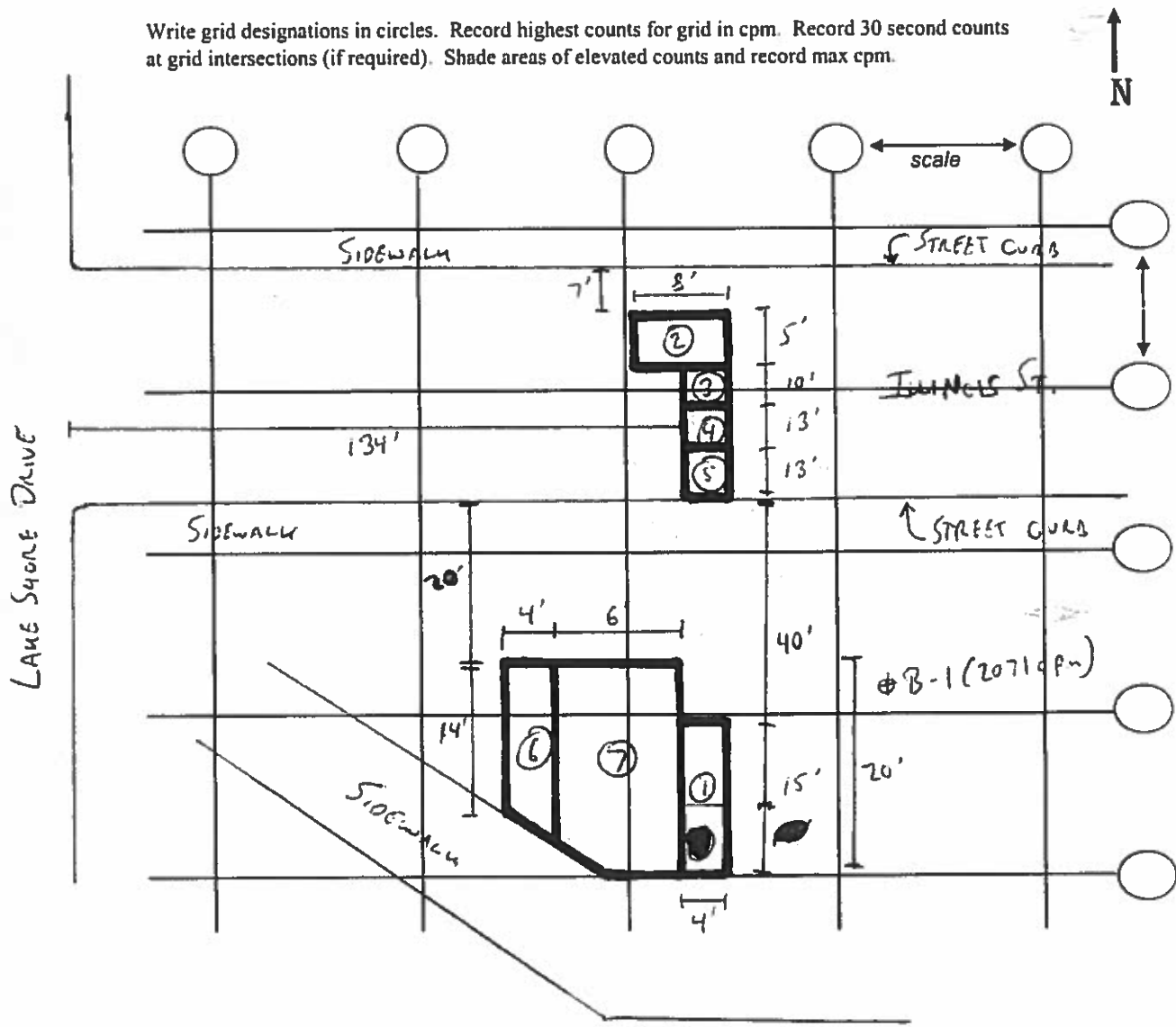
Probe Type: 1"x1" NaI / 2"x2" NaI
Shielded / Not Shielded

Lift Elevation: 0-96"

Background 2071 cpm

Action Level: 7366 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

Location/ Project ID: SONOMA - ILLINOIS ST & LAURE STONE DRIVE - CHICAGO, IL - ELECTRICAL UTILITY
INSTALLATION - ROW RADIOLOGICAL SURVEY

Date: 4/4-30/2018 Technician: BRIAN SCHMIDT

Inst Model: LUOLVM-2221 Serial No.: 126496

Probe Type: 1"x1" NaI / 2"x2" NaI Lift Elevation: 0-96"
Shielded / Not Shielded

Background 2071 cpm Action Level: 7366 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.



| LOCATION ID | DEPTH | CPM | LOCATION ID | DEPTH | CPM | EXCAVATED & SHELVED |
|-------------|--------|------|-------------|---------|---------|---------------------|
| ① | 0-18" | 2700 | ⑥ | 0-4' | ALREADY | EXCAVATED & SHELVED |
| | 18-36" | 3200 | | 48"-66" | 2900 | |
| | 36-54" | 4000 | | 66-84" | 3200 | |
| | 54-72" | 4600 | | | | |
| ② | 60-78" | 3800 | ⑦ | 84-102" | 3000 | |
| | 0-12" | 2100 | | 96-114" | 3000 | |
| | 12-30" | 2400 | | 0-18" | 2400 | |
| | 30-48" | 3500 | | 18-36" | 3700 | |
| ③ | 48-66" | 4300 | | 36-54" | 4300 | |
| | 0-12" | 1900 | | 54-72" | 4100 | |
| | 12-30" | 2300 | | 72-90" | 3200 | |
| | 30-48" | 2900 | | 90-108" | 2600 | |
| ④ | 48-66" | 4500 | | 96-114" | 2800 | |
| | 0-12" | 2200 | | | | |
| | 12-30" | 3000 | | | | |
| | 30-48" | 2800 | | | | |
| ⑤ | 48-66" | 4700 | | | | |
| | 0-12" | 1900 | | | | |
| | 12-30" | 2200 | | | | |
| | 30-48" | 3600 | | | | |
| | 48-66" | 4300 | | | | |

Radiation Survey Form

Location/ Project ID: SONOMA - D. SABLE PARK - CHICAGO, IL - ELECTRICAL UTILITY INSTALLATION - ROW
RADIOLOGICAL SURVEY

Date: 4/4-30/2018

Technician: BRIAN SCHMIDT

Inst Model: LUDLUM-2221

Serial No.: 126496

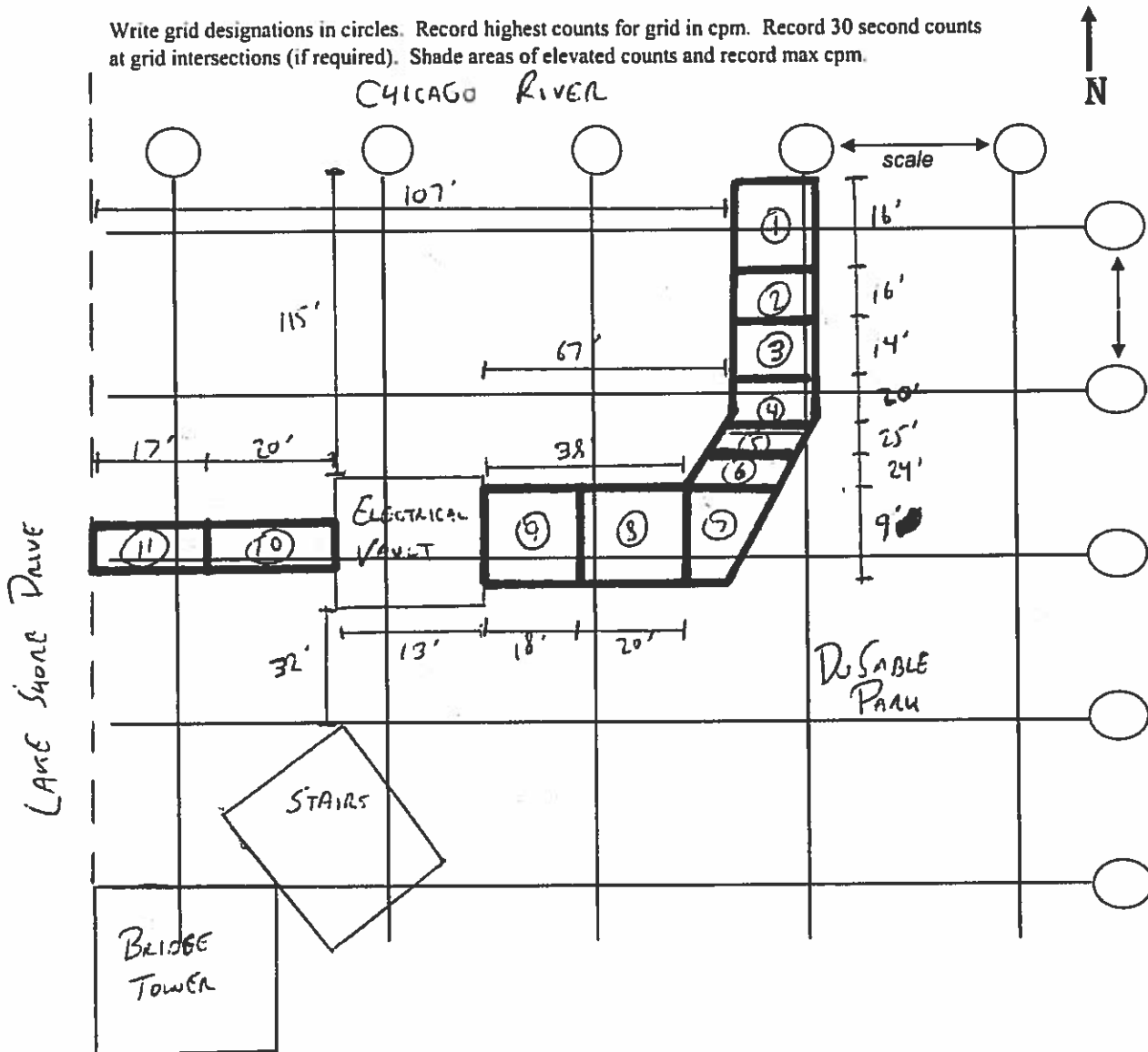
Probe Type: 1"x1" NaI / 2"x2" NaI
Shielded / Not Shielded

Lift Elevation: 0-72"

Background 2071 cpm

Action Level: 7366 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

Location/ Project ID: SONOMA - LOWER LAKE SHORE DRIVE - CHICAGO, IL - ELECTRICAL UTILITY INSTALLATION - ROW RADIOLOGICAL SURVEY

Date: 4/4-30/2018

Technician: BRUNA SCHMIDT

Inst Model: LOWOM - 2221

Serial No.: 126496

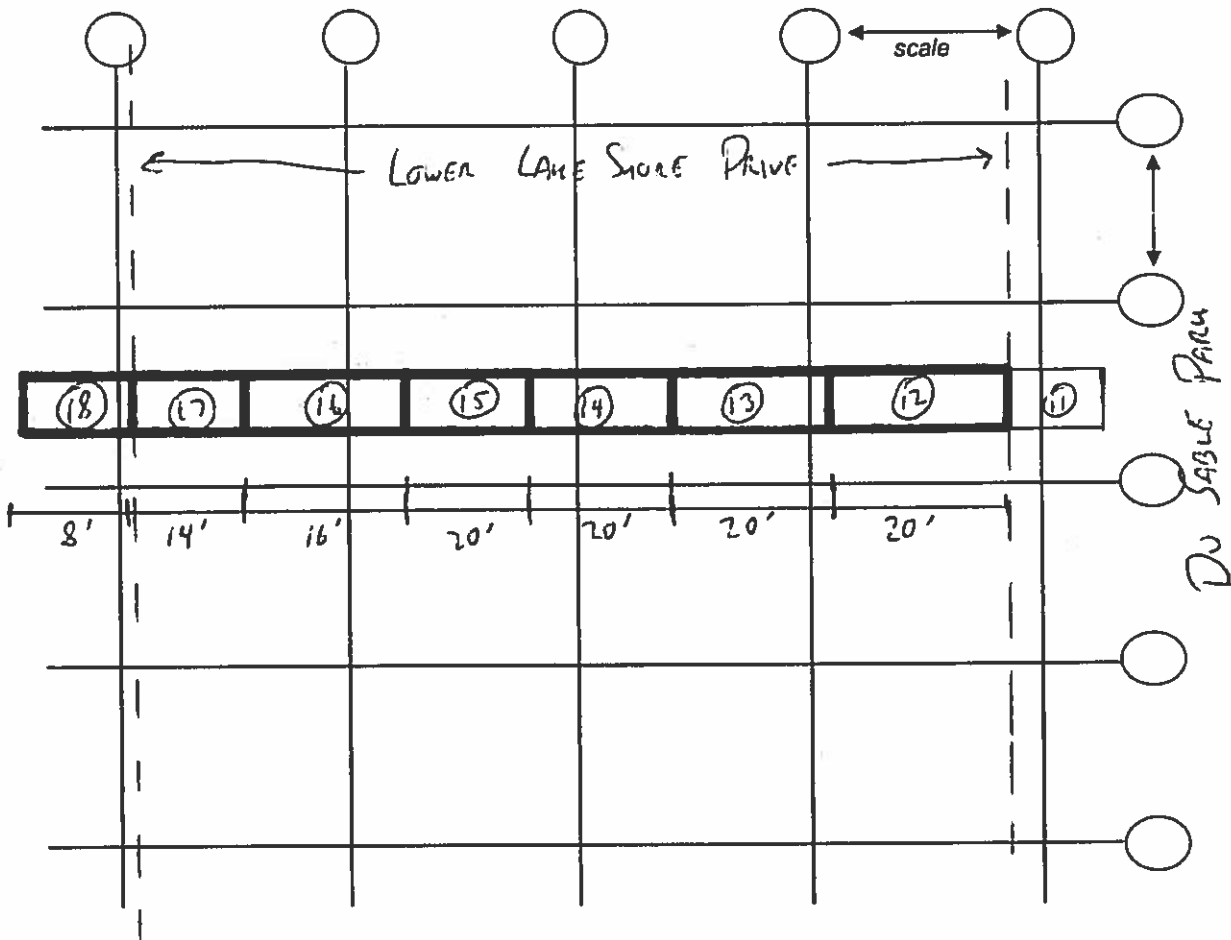
Probe Type: 1"x1" NaI / 2"x2" NaI
Shielded / Not Shielded

Lift Elevation: 0-72"

Background 7071 cpm

Action Level: 7366 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

Location/ Project ID: SONOMA - ROSALE PARK - CUBACAO, FL - ELECTRICAL UTILITY INSTALLATION - ROW
RADIOLOGICAL SURVEY

Date: 4/4-30/2018

Technician: BRIAN SCHMIDT

Inst Model: LUOVIA-2221

Serial No.: 126496

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

Lift Elevation: 0-72"

Background 2071 cpm

Action Level: 7366 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.



| Location ID | DEPTH | CPM | Location ID | DEPTH | CPM | Location ID | DEPTH | CPM |
|-------------|--------|------|-------------|--------|------|-------------|--------|------|
| ① | 0-18" | 2600 | ⑦ | 0-18" | 2000 | ⑬ | 0-18" | 2600 |
| | 18-36" | 2800 | | 18-36" | 2200 | | 18-36" | 2600 |
| | 36-54" | 3100 | | 36-54" | 2800 | | 36-54" | 2800 |
| | 54-72" | 2700 | | 54-72" | 2300 | | 54-72" | 2700 |
| | 72-90" | 2400 | | 72-90" | 2700 | | 72-90" | 2800 |
| ② | 0-18" | 2600 | ⑧ | 0-18" | 2500 | ⑭ | 0-18" | 1900 |
| | 18-36" | 2700 | | 18-36" | 2900 | | 18-36" | 2700 |
| | 36-54" | 2800 | | 36-54" | 2800 | | 36-54" | 3200 |
| | 54-72" | 2800 | | 54-72" | 2300 | | 54-72" | 3400 |
| | 72-90" | 2100 | | 72-90" | 1900 | | 72-90" | 2800 |
| ③ | 0-18" | 2900 | ⑨ | 0-18" | 1900 | ⑮ | 0-18" | 2700 |
| | 18-36" | 3400 | | 18-36" | 2700 | | 18-36" | 3300 |
| | 36-54" | 3000 | | 36-54" | 2400 | | 36-54" | 3900 |
| | 54-72" | 2400 | | 54-72" | 2800 | | 54-72" | 3400 |
| | 72-90" | 2600 | | 72-90" | 2400 | | 72-90" | 2800 |
| ④ | 0-18" | 2900 | ⑩ | 0-18" | 2400 | ⑯ | 0-18" | 1800 |
| | 18-36" | 2400 | | 18-36" | 2200 | | 18-36" | 2100 |
| | 36-54" | 3000 | | 36-54" | 2700 | | 36-54" | 2600 |
| | 54-72" | 3200 | | 54-72" | 2800 | | 54-72" | 3300 |
| | 72-90" | 2800 | | 72-90" | 2500 | | 72-90" | 2900 |
| ⑤ | 0-18" | 2200 | ⑪ | 0-18" | 1800 | ⑰ | 0-18" | 2800 |
| | 18-36" | 2300 | | 18-36" | 2500 | | 18-36" | 3700 |
| | 36-54" | 2900 | | 36-54" | 3400 | | 36-54" | 2100 |
| | 54-72" | 2900 | | 54-72" | 3700 | | 54-72" | 2400 |
| | 72-90" | 2600 | | 72-90" | 2800 | | 72-90" | 2600 |
| ⑥ | 0-18" | 2500 | ⑫ | 0-18" | 2700 | ⑱ | 0-18" | 2200 |
| | 18-36" | 3100 | | 18-36" | 2900 | | 18-36" | 2700 |
| | 36-54" | 3400 | | 36-54" | 2800 | | 36-54" | 4100 |
| | 54-72" | 2900 | | 54-72" | 3100 | | 54-72" | 3100 |
| | 72-90" | 2600 | | 72-90" | 3600 | | 72-90" | 2300 |



Radiation Survey Form

Location/ Project ID: Illinois St and Lower Lake Shore Dr

Date: 04/09/2018 - 04/18/2018

Technician: Arthur Licharabiec

Inst Model: Ludlum 2221

Serial No.: 132844

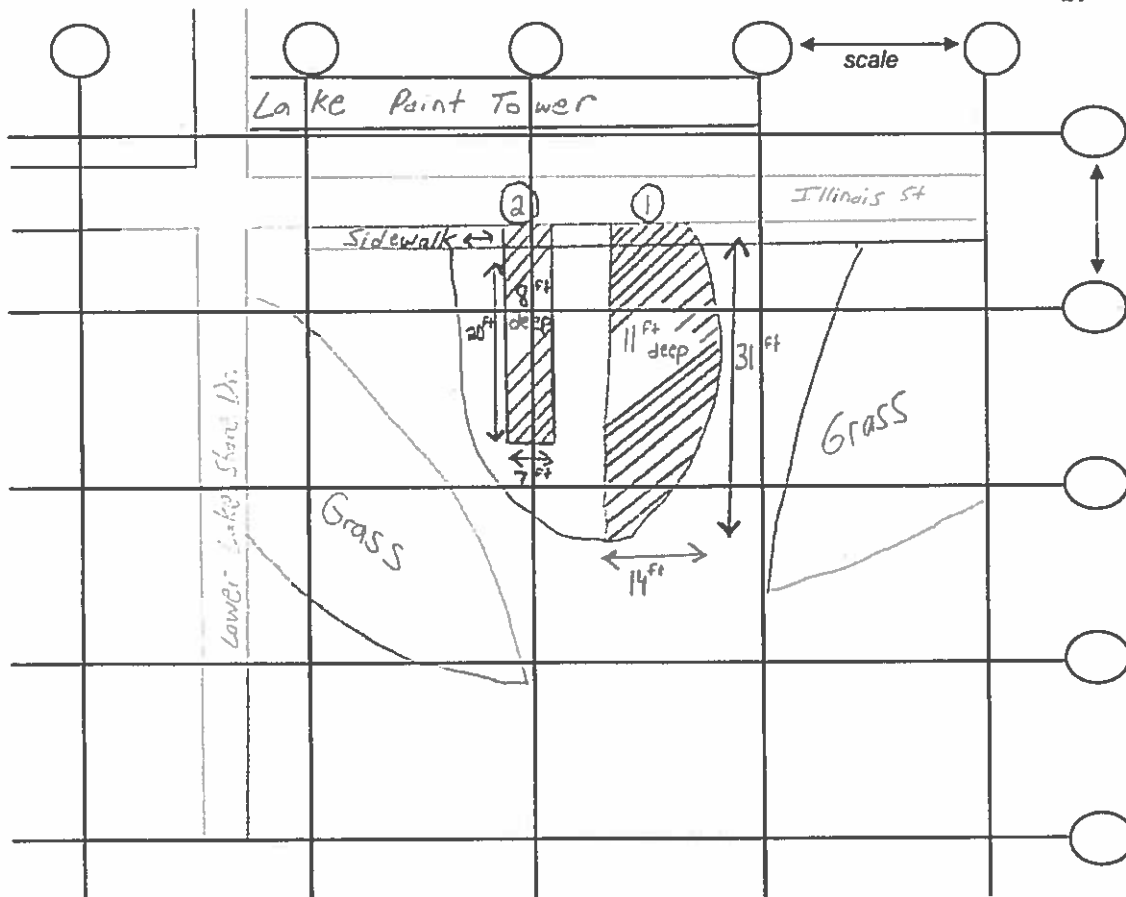
Probe Type: 1"x1" NaI / 2"x2" NaI
 Shielded / Not Shielded

Lift Elevation: Surface to 11 ft

Background 2350 cpm

Action Level: 7652 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.



04/09/2018

Surface: 1800

-1: 1250

1480

2230

2200

-2: 1450

1620

2000

1850

-3: 1300

1350

1500

1900

-4: 1900

1980

2400

2900

04/10/2018

-5: 3000

4400

4800

3800

-6: 3200

3300

3000

3150

-7: 3120

3420

2810

3140

-8: 1800

1920

2850

3120

-9: 3600

3230

3220

3400

-10: 3420

3410

3440

3510

-11: 3810

3800

4110

3970

Location 1

Illinois St
and
Lower Lake Shore Dr

04/16/2018

Surface: 2400

-1: 2200
2230

2400
2310

-2 2800
2900
2600
2680

-3 3200
3200
3280
3310

-4 3200
3850
3780
3950

04/17/2018

-5 4800
4600
4680
4440

-6 4410
4600

4050
3980

-7 4880
4460
4560
4300

-8 4450
4850
4200
4200

Location 2
Illinois St and Lower Lake
Shore Dr.

Radiation Survey Form

Location/ Project ID: Dusable Park

Date: 04/14/2018

Technician: Arthur Licharabiec

Inst Model: Ludlum 2221

Serial No. : 132844

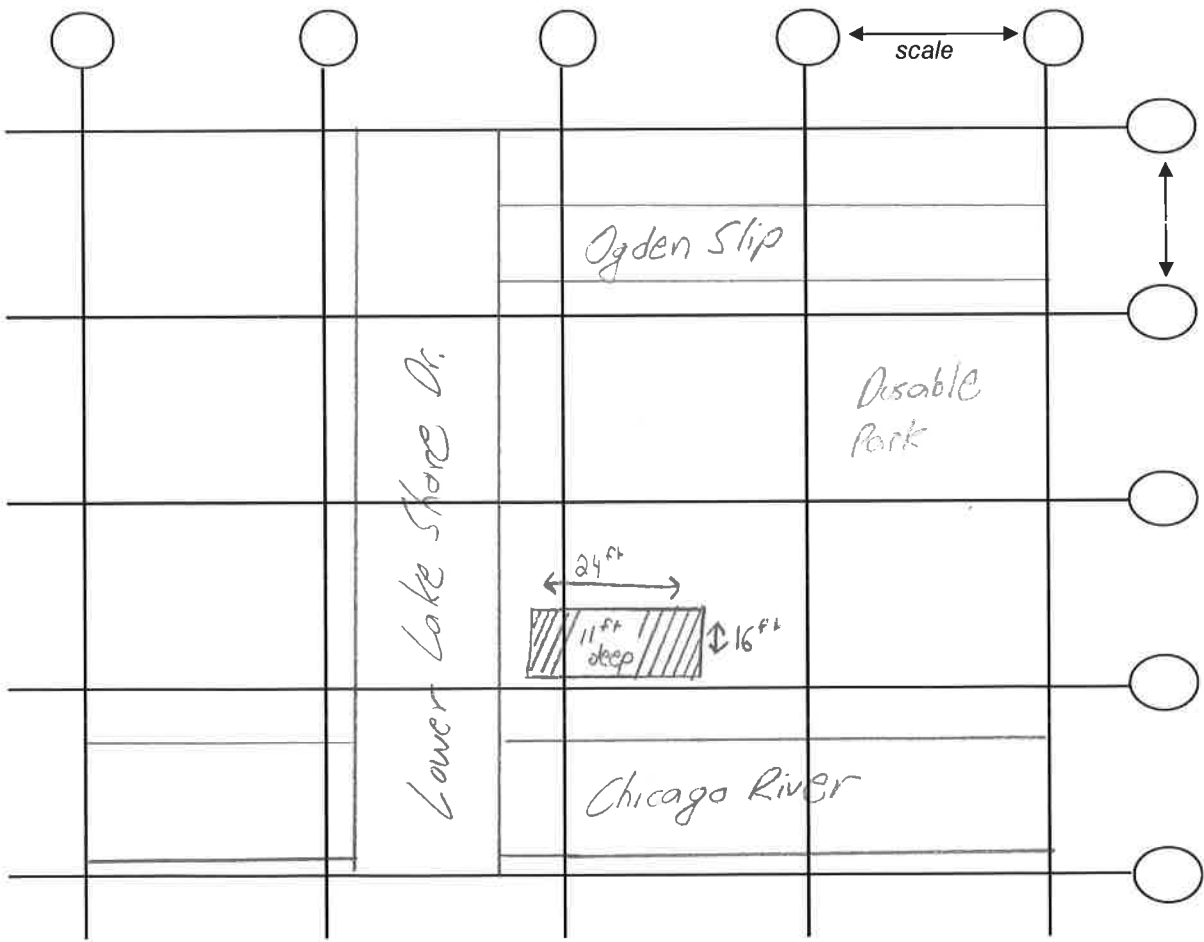
Probe Type: 1"x1" NaI / 2"x2" NaI
Shielded / Not Shielded

Lift Elevation: Surface - 11 ft

Background 2550 cpm

Action Level: 7652 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.



04/11/2018

Surface: 2520

-1: 2410
2480
3100
2920

-7: 3920
4100
4000
4120

-2: 1800
1870
1900
1850

-8: 3400
3430
3470
3220

-3: 2660
2580
2550
2500

-9: 3600
4100
4070
4000

-4: 3800
3950
4150
4100

-10: 4200
4250
4260
4010

-4: 3800
3910
4850
4230

-11: 4030
4100
3850
3850

-5: 3740
3810
3880
4000

-6: 3850
3600
3650
4100

Under Lower Lake shore Dr
near Chicago river,
Ousable Park