AECOM
303 E. Wacker Drive, Suite 1400
Chicago, Illinois 60601

312-373-7700 tel
312-373-6800 fax

April 3, 2014
Revised April 4, 2014

Mr. Daniel E. Martinez
F.H. Paschen
5515 N. East River Road
Chicago, IL 60656

RE: Radiological Surface Gamma Survey Results for Navy Pier Flyover, Chicago, Illinois
AECOM Project No. 60318016

Dear Mr. Martinez:

AECOM Technical Services, Inc. (AECOM) conducted radiological surface gamma surveying of an area north of the Ogden Slip and East of Lake Shore Drive and a portion of Jane Addams Park north of Illinois Street and east of Lake Shore Drive in Chicago, Illinois. The two surveys were completed on March 21, 26 and 27, 2014. Figure 1 provides the approximate outline of the two areas surveyed.

The radiological surface survey was performed utilizing procedures previously approved by the United States Environmental Protection Agency (USEPA) for surface surveys and remediation projects in the Streeterville area. Specifically, a 25-foot by 25-foot grid network was created within the proposed fenced portion of the Site (refer to Figure 1). The 25-foot grids were marked with paint at the edges of the survey areas. The entire surface area within each grid cell was slowly traversed so that the walk-over survey covered 100 percent of the intra-grid surface areas. The radiological surveying was conducted using a Ludlum 2221 scaler-ratemeter and an unshielded 2 x 2-inch sodium iodide (NaI) probe. Field screening data sheets were used to record the grid coordinates and associated intra-grid maximum gamma readings. Gamma counts were also recorded from the 4 corners of each grid.

The monitoring of the radiological surface survey revealed no indication of soils above the specified cleanup value established by the USEPA for the Streeterville area of Chicago. The USEPA cleanup value for Chicago's Streeterville area is 7.1 picocuries per gram (pCi/g) total radium (Ra-226 + Ra-228). For the instrumentation used, the gamma count threshold equivalent to the 7.1 pCi/g cleanup value was 18,865 counts per minute (cpm) unshielded.

Unshielded intra-grid cell maximum field gamma measurements recorded during the surface survey of Jane Addams Park ranged from 5,200 to 11,000 cpm with an average of 9,926 cpm. The intra-grid cell maximum field gamma measurements recorded during the surface survey of the area north of the Ogden Slip ranged from 3,700 to 10,900 cpm with an average of 7,844 cpm. Figures 2 and 3 present alpha numeric grid network for the two survey areas and the maximum gamma reading for each grid cell.

Based on the data collected a field instrument gamma background for the Jane Addams area was estimated at 7,800 cpm, while the background for the area north of Ogden slip was estimated at 6,750 cpm. While field instrument counts greater than the threshold (18,865 cpm) equivalent to the USEPA cleanup value are a likely indication of contamination, field gamma measurements greater than twice the field instrument background potentially represent anomalous results that require more cautious and frequent field screening during excavation activities because they could represent an indication of buried contamination. For this project, no individual gamma readings greater than the threshold equivalent to the USEPA cleanup value or greater than twice back were observed in either of the survey areas.

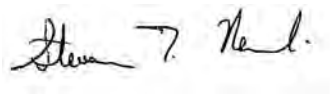
Figures 4 and 5 present histograms (frequency distributions) of the maximum intra-grid gamma readings for each of the two survey areas. Figures 4 and 5 show that the majority of the readings for the survey areas were between 7,000 and 10,000 cpm (i.e., approximately 75%). These fill soil histograms indicate a bell-shaped (unimodal) distribution without apparent outliers or higher gamma count results. When contamination is present, histograms of the gamma readings typically indicate a bimodal distribution with the second distribution, or group of results, at higher count ranges.

In summary, review of the individual readings, as well as the frequency histograms, do not suggest the presence of radiological contamination in the near surface soils. Thus, there was no indication of the presence of radiologically-contaminated fill soil and/or an exceedance of the USEPA cleanup value of 7.1 pCi/g total radium.

It should be recognized that surface gamma surveys are not able to detect subsurface radiological contamination buried at depth because soil and/or paving materials provide shielding. Thus, the deeper contamination is buried, the less likely a surface survey will be able to detect it. For soil covered areas, gamma surveys generally can detect low-activity contamination that is within 18-inches of the surface. Since the density of paving is greater than that of soil, the shielding created by thicker pavement (i.e., 4-6 inches or more) may prevent the detection of low activity contamination just below the paved surface.

Please contact us with any questions you have regarding this letter or the reported results.

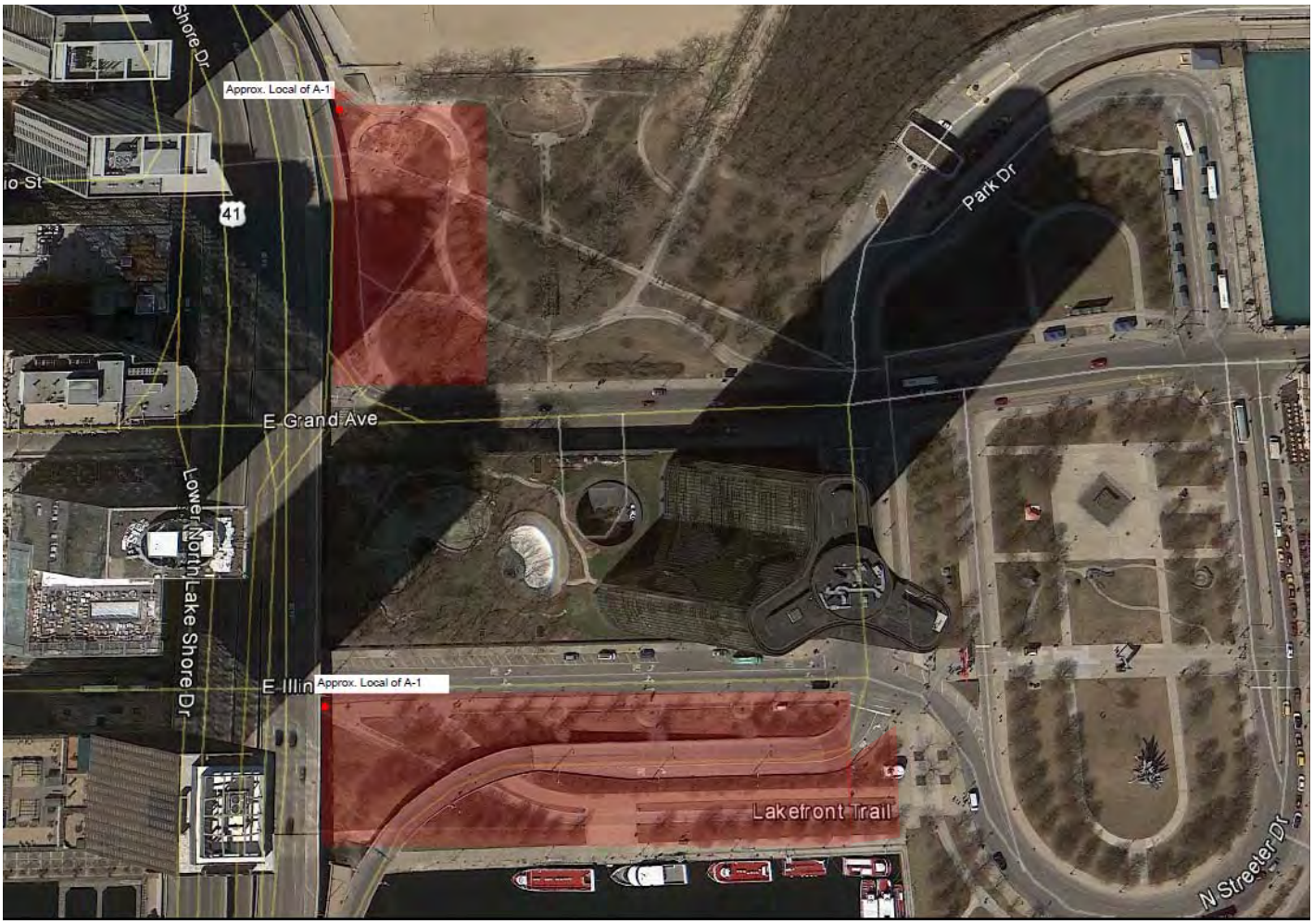
Regards,



Steven T. Newlin
Senior Project Geologist

Steven C. Kornder, Ph.D.
Senior Project Geoscientist

Attachment: Surface Survey Boundary Drawing
Surface Survey Grid and Maximum Gamma Readings
Maximum Gamma Readings Histogram



AECOM

303 E. Wacker Drive
Chicago, IL 60601
312--373--7700
www.aecom.com

Surface Gamma Survey Areas
Navy Pier Flyover Project
Chicago, Illinois

Drawn:	STN 4/2/2014
Checked:	STN 4/2/2014
Approved:	SCK 4/3/2014
PROJECT NUMBER	60318016
FIGURE NUMBER	1

Figure 2
Surface Gamma Grid
Maximum Gamma Readings
Ogden Slip North Area - March 2014

E. Illinois Street

Grid	A-B	B-C	C-D	D-E	E-F	F-G	G-H	H-I	I-J	J-K	K-L	L-M	M-N	N-O	O-P	P-Q	Q-R	R-S	S-T	T-U	U-V	V-W	W-X	X-Y	Y-Z	Z + 16'
1-2	8,400	7,500	7,900	9,400	9,100	8,200	8,900	8,500	9,600	8,100	8,000	9,100	9,500	9,100	7,100	8,000	7,100	8,000	6,600	7,800	7,400	7,400	6,800	7,300		
2-3	8,900	9,200	9,300	9,800	9,800	10,900	9,800	9,300	9,300	7,200	9,200	9,700	9,700	10,200	8,900	8,200	8,600	8,700	8,100	8,600	8,000	8,200	7,800	7,500		
3-4	9,800	9,100	9,500	10,400	10,200	9,900	9,200	8,900	9,500	8,200	Ramp															8100
4-5	8,200	8,900	9,400	9,800	10,300	10,200	8,700	8,700	8,900	7,800	7,400	8,100	7,800	8,100	7,300	6,900	7,200	7,000	7,300	7,200	7,300	6,700	7,400	7,500	7400	8000
5-6	10,000	8,500	9,400	9,500	9,200	9,300	9,200	8,500	8,000	9,100	6,800	6,600	5,300	6,700	8,100	7,500	7,700	6,800	7,000	7,300	6,900	7,100	6,800	7,800	7400	8200
6-7	8,800	8,100	8,900	8,100	8,500	8,300	8,800	7,500	8,300	9,300	7,800	7,200	5,600	5,500	6,900	6,800	6,900	6,600	6,800	6,300	6,500	6,600	6,900	6,600	8200	6200
7-8	8,600	8,900	7,900	8,100	7,600	8,100	7,600	7,800	7,400	7,800	7,400	6,300	4,500	4,600	5,300	5,100	4,100	4,100	4,400	4,200	4,200	4,700	4,300	3,700	7200	6000

Ogden Slip

Surveyed 3/21/14 and 3/26/14
Gamma Readings:
Average = 7,844 cpm
Maximum = 10,900 cpm

Approximate Survey Area

Grid Cell Dimensions 25 X 25 feet

Measured with Ludlum 2221 Serial # 172039
18,865 cpm (unshielded) Equivalent to USEPA Cleanup Criteria of 7.1 pCi/g Total Radium.

North

Figure 3
Surface Gamma Grid
Maximum Gamma Readings
Jane Addams Park Area - March 2014

	A-B	B-C	C-D	D-E	E-F	F-G	G-H	H + 16'
1-2	7,400	6,300	7,300	6,300	8,800	7,900	8,000	9,200
2-3	7,300	6,800	6,500	7,700	8,400	8,000	8,200	9,300
3-4	8,000	5,200	6,500	9,000	8,200	8,300	8,000	8,400
4-5	9,100	9,300	9,600	9,200	8,700	7,900	8,400	8,600
5-6	9,200	7,300	9,800	9,300	8,600	8,400	9,100	9,300
6-7	9,500	9,200	9,700	8,900	9,000	9,100	9,600	9,200
7-8	8,600	9,100	10,000	9,700	8,500	9,400	9,200	9,100
8-9	8,800	9,500	10,200	8,900	8,300	9,600	10,000	9,900
9-10	8,400	8,100	7,100	8,900	8,600	10,200	9,700	10,000
10-11	8,500	5,600	9,100	10,000	8,500	8,000	9,500	9,200
11-12	9,300	9,900	10,300	10,500	10,800	9,500	9,600	8,700
12-13	8,700	9,400	9,800	9,800	10,400	10,000	10,300	9,900
13-14	8,600	8,700	9,200	10,200	10,000	10,300	10,200	10,000
14 +12'	9300	8,300	9,100	8,400	11,000	10,200	10,300	9,800

Ramp

Grand Avenue

Surveyed 3/26/14 and 3/27/14

Approximate Survey Area

Gamma Readings:
Average = 8,926 cpm
Maximum = 11,000 cpm

Grid Cell Dimensions 25 X 25 feet

North

Figure 4
Surface Gamma Maximum Grid Cell Reading Histogram
Ogden Slip North Area, Chicago, Illinois
March 2014

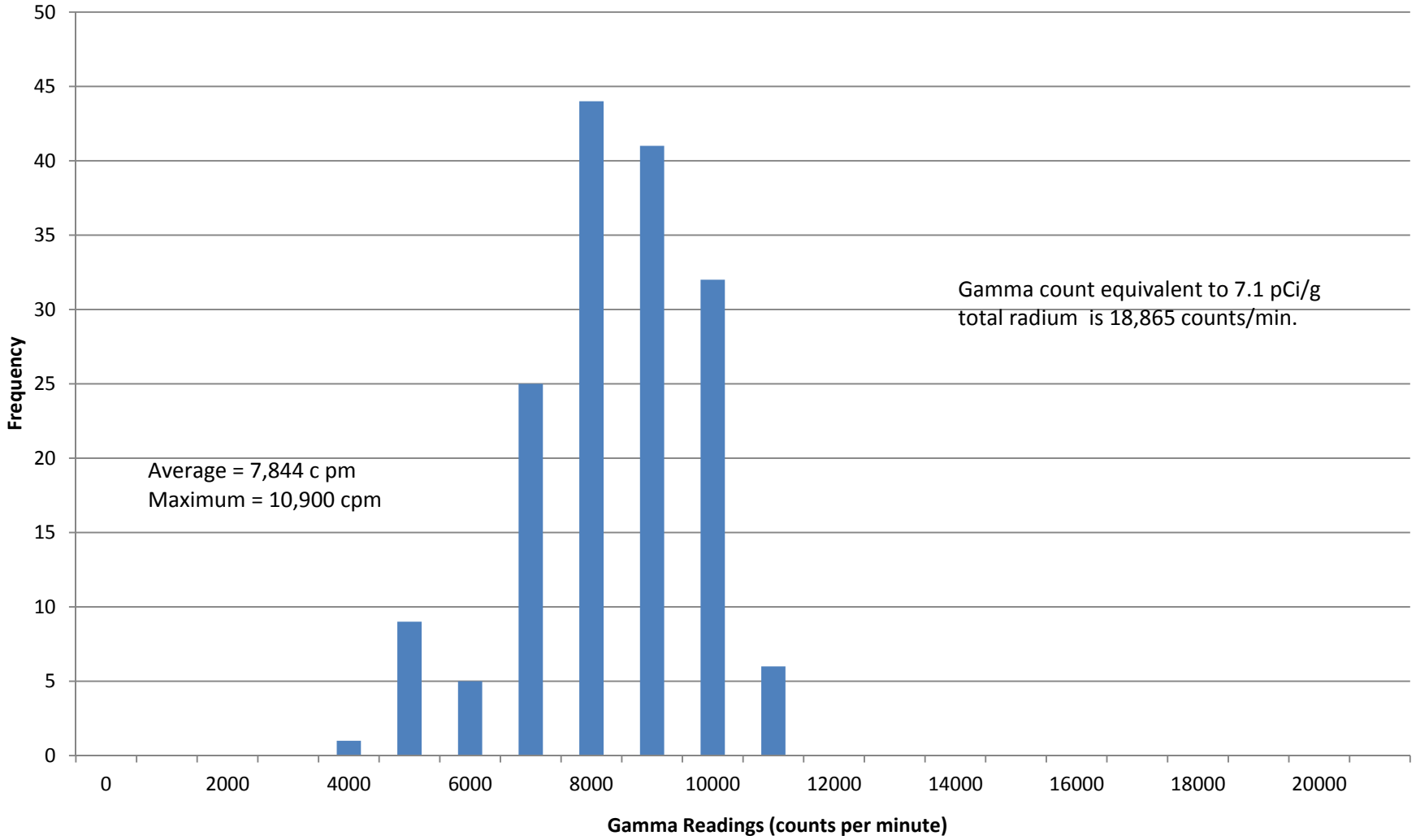


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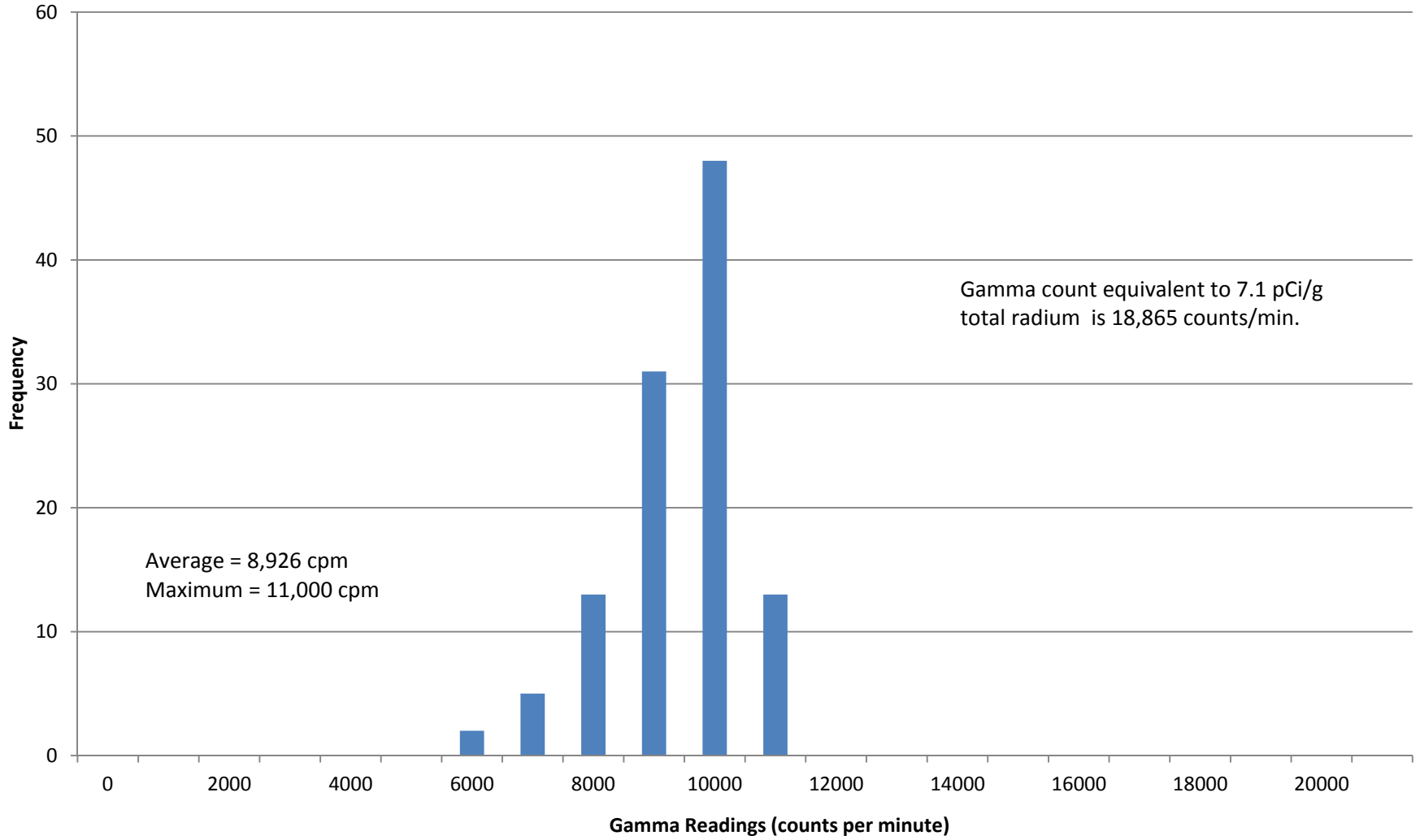
Figure 5
Surface Gamma Maximum Grid Cell Reading Histogram
Jane Adams Park Area, Chicago, Illinois
March 2014



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