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September 23, 2015

Mr. Daniel Cooper  
Environmental Engineer  
Chicago Park District  
541 N Fairbanks  
Chicago IL 60611

RE: Radiological Survey Results - Peanut Park, Chicago, IL  
AECOM Project No. 60287451

Dear Mr. Cooper,

Pursuant to conditions specified in permits issued by the City of Chicago, radiation monitoring was required for the above referenced project. AECOM Technical Services, Inc. (AECOM) provided the required radiation surveillance. This letter provides a summary of the radiological surveying performed between July 29 and August 10, 2015, for excavations that extended into previously unscreened fill materials.

Gamma radiation measurements were made using Ludlum Model 2221 survey meters and unshielded 2 x 2 inch NaI probes (Model 44-10). The U.S. Environmental Protection Agency (USEPA) cleanup value for Chicago's Streeterville area is 7.1 picocuries per gram (pCi/g) total radium (Ra-226 + Ra-228). The field instrument's (S/Ns 172039 and 176944) gamma count equivalents to 7.1 pCi/g were 19,598 counts per minute (cpm) unshielded and 18,279 cpm unshielded, respectively.

Monitoring between July 29 and August 10, 2015 revealed no gamma readings indicative of contaminated fill soil above the clean-up value established by the USEPA for the Streeterville area of Chicago. During screening for the storm surge basin a granite paver was encountered with naturally occurring radioactivity that measured 150,000 cpm unshielded (S/N 176944). While unusually high, granite materials can contain inclusions that contain significantly elevated concentrations of radioactive elements. However, these pavers are considered natural occurring radioactive material (NORM) and are not related to thorium contamination from Lindsay Light Company. As such, there are no remedial requirements for pavers. The USEPA was contacted following the discovery of the paver and asked AECOM to deliver the paver to the USEPA staff for use as an example of potential NORM materials that occur in Chicago's Streeterville area.

### **Background Readings**

The field background measurements are important because field gamma measurements greater than twice the background count may be considered anomalous results that potentially indicate contaminated fill soil is in close proximity to the excavation. When results greater than twice background are observed, they require more cautious and frequent field screening, but are not necessarily an indication of the presence of thorium contaminated fill soil. Specifically, there are naturally materials such as granite, clay and brick that may be above twice background. Background readings in the area were taken each day. Background soil ranged from 10,000 to 11,000 cpm for Ludlum S/N 172039 and 8,000 to 10,000 cpm for Ludlum S/N 176944. Readings for debris, such as the common granite pavers, varied between 10,000cpm and 16,000 cpm for both devices.

### Drainage line and Catch Basins

From July 29 to 31, 2015, the excavation was conducted for the installation of 6 catch basins and approximately 500-600 feet of piping (see annotated drawing). Piping trenches were approximately 12 foot wide because of benching and the excavation depths varied between 5.5 feet to 9 feet below ground surface (bgs). Gravel along with black urban fill soil containing granite pavers, brick, cinders, ash and demolition debris were excavated within these locations. Material removed from the trench was used as backfill once the pipe and gravel bed were installed. The field gamma background for the area is approximately 7,571 cpm unshielded. The field gamma measurements within the excavations and for the spoil materials generated during the excavation process did not exceed the instrument threshold previously stated. A maximum count of 13,450 cpm unshielded was recorded during these excavations. 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.

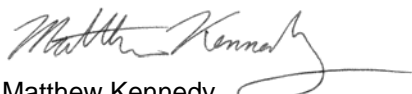
### Storm Surge Basin

On August 3 to 10, 2015, a storm surge basin in the northeast corner of Peanut Park was excavated (see annotated drawing). The dimensions were roughly 50 foot by 75 foot. However, during the course of work the location was moved roughly 20 feet to the south to avoid existing utilities. Depth of the excavation was roughly 15 feet bgs. Urban fill containing granite pavers, bricks and concrete debris along with sandy soil and some clay were removed during excavation. In one section of the excavation, a concrete-like mass was discovered which required the use of a hydraulic concrete breaker to remove. The mass, which contained chains, cables, wire, wood railroad ties, and granite pavers was roughly 9 foot bgs and took up approximately a quarter of the floor of the excavation.

With the exception of the elevated gamma readings previously discussed for a single granite paver, the field gamma measurements within the surge basin excavation and the spoil materials generated during the excavation process did not exceed the instrument threshold previously stated. A maximum count of 14,000 cpm unshielded was recorded during the surge basin excavation. 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.

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

Regards,



Matthew Kennedy  
Environmental Engineer



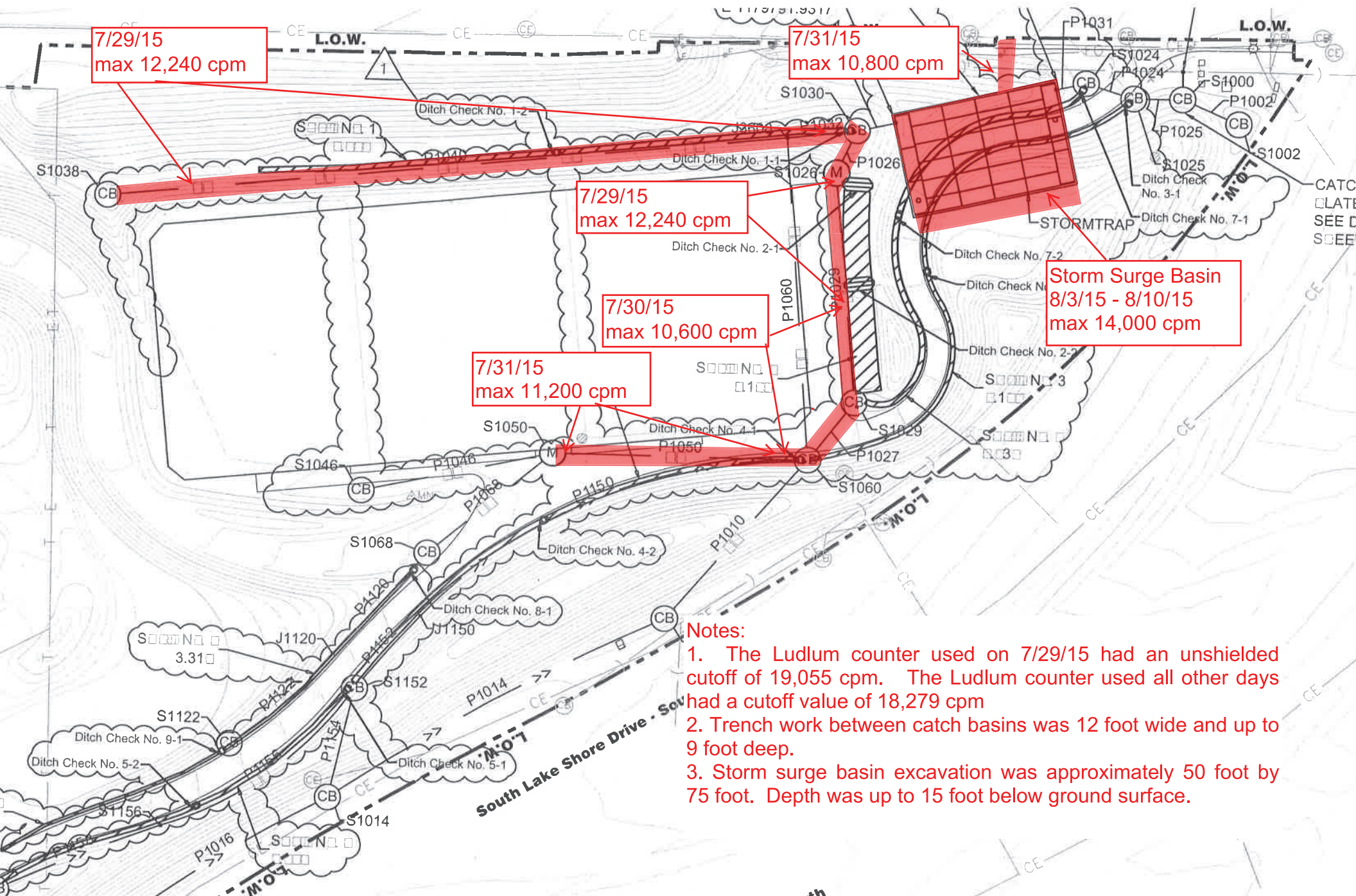
Steven C. Kornder, Ph.D.  
Senior Project Geoscientist

cc: Rahmat Begum, Chicago Department of Public Health  
Verneta Simon, USEPA

Attachments: Annotated Drawing

**ANNOTATED DRAWING**

Peanut Park Radiological Screening for Excavation Work Performed  
July 29, 2015 through August 10, 2015



Notes:

1. The Ludlum counter used on 7/29/15 had an unshielded cutoff of 19,055 cpm. The Ludlum counter used all other days had a cutoff value of 18,279 cpm
2. Trench work between catch basins was 12 foot wide and up to 9 foot deep.
3. Storm surge basin excavation was approximately 50 foot by 75 foot. Depth was up to 15 foot below ground surface.