



EPA Region 5 Records Ctr.



296263

IntegrYS Energy Group, Inc.

130 East Randolph Drive  
Chicago, IL 60601

[www.integrysgroup.com](http://www.integrysgroup.com)

April 4, 2008

Ms. Rhamat Begum  
City of Chicago Department of Environment  
30 North LaSalle St.  
25th Floor  
Chicago, Illinois 60602

Subject: 355 East Ohio

Dear Rhamat,

Enclosed is one (1) copy of the radiation monitoring report prepared by Burns & McDonnell and TN&A Associates for the Peoples Gas Light and Coke project at 355 East Ohio. This report is consistent with the requirements of City of Chicago Department of Environment Form No. DOE.ROW.01.

If you have any questions, please feel free to contact me at (312) 240-4569.

Sincerely,

A handwritten signature in black ink that reads "Naren Prasad". The signature is fluid and cursive.

Naren M. Prasad, P.E., MPH, LEED AP  
Senior Environmental Engineer

Enclosure

cc: Verneta Simon, USEPA



April 4, 2008

Peoples Gas – Streeterville  
File C3

Naren Prasad  
The Peoples Gas Light and Coke Company  
130 East Randolph Drive, 22nd Floor  
Chicago, Illinois 60601

Re: Gas Main Installation at 355 East Ohio Street

Dear Mr. Prasad:

Pursuant to conditions specified in the excavation permit with the City of Chicago, radiation monitoring was performed at the above referenced site. Burns & McDonnell contracted with TN & Associates, Inc. (TN&A) to conduct the radiation monitoring during the excavation activities for a new gas main installation. These activities occurred March 4 to 7, 2008.

The instrument used by TN&A to conduct the radiological survey was a Ludlum 2221 scaler/ratemeter with a Ludlum 44-10 probe. The 44-10 probe is a 2"x 2" Sodium Iodide (NaI) probe which is recommended by US Environmental Protection Agency (US EPA) to measure the total gamma and beta radiation contamination or radioactivity. The instrument used during the survey was calibrated on August 22, 2007 by Durateck Instrument Services with a known source and had a calibrated conversion factor of 1 micro Roentgen per hour ( $\mu\text{R/hr}$ ) for every 921 cpm.

Before activities began, TN&A conducted a background survey along East Ohio Street and McClurg Court on March 4, 2008. This survey produced readings between 8.2 and 11.9  $\mu\text{R/hr}$ . To be most conservative, TN&A selected an area background value of 8.2  $\mu\text{R/hr}$ . Excavation activities occurred over four days. Readings taken from excavated material ranged from 5.3 to 11.7  $\mu\text{R/hr}$ . After excavation, the open trench was scanned with readings ranging from 7.6 to 12.7  $\mu\text{R/hr}$ . Further details on the excavation activities are presented in the attached report.

All of the survey readings collected during the excavation activities were below two times the maximum background reading of 16.4  $\mu\text{R/hr}$ . Further details are presented in the TN&A report which is attached to this letter.

We appreciate the opportunity to continue to be of service to you. If you have any questions regarding this report, please call me at (630) 724-3282.

Sincerely,

Margaret Kelley, P.E.  
Senior Project Manager

Attachment

Cc: L. Milner, BMCD  
R. Bourn, BMCD

March 14, 2008

Ms Margaret Kelley  
Burns and McDonnell  
1431 Opus Place Suite 400  
Downers Grove, IL 60515

Re: Peoples Energy Excavation on 355 East Ohio Street

Dear Ms Kelley

T N & Associates, Inc. (TN&A) was subcontracted by Burns and McDonnell, Inc. to conduct environmental health and safety monitoring of the excavation conducted by Peoples Energy contractor Contracting and Materials Corporation (C&MC) at the construction site located on 355 East Ohio Street in the Streeterville neighborhood of Chicago, Illinois. The area was excavated near the 500 block of McClurg Court. The proposed work by Peoples Energy or their contractor was to excavate along McClurg Court to allow for gas line installation from the building to the main gas line on the east side of McClurg Court. The estimated excavation volume was approximately 1000 cubic feet.

The instrument used by TN&A to conduct the radiological survey was a Ludlum 2221 scaler/ratemeter with a Ludlum 44-10 probe. The 44-10 probe is a 2"x 2" Sodium Iodide (NaI) probe which is recommended by US Environmental Protection Agency (US EPA) to measure the total alpha, beta, and gamma radiation contamination or radioactivity. The instrument reads in counts per minute (cpm) which can be converted into units of disintegrations per minute (dpm). Natural and man-made radiation contamination is based on unstable atoms continuously going through decaying processes to become stable. The amount of decay or disintegration released can be measured in counts per minute from the instrument and the simple conversion is 1 cpm = 10 dpm.

The instrument has an open window that reads all the measurable alpha, beta, and gamma radiation. The manufacturers recommended conversion standard for exposure from cpm to micro Roentgen per hour ( $\mu\text{R/hr}$ ) 1  $\mu\text{R/hr}$  for every 900 cpm. The instrument used during the survey, Ludlum 2221 and Ludlum 44-10; serial number 084458 was calibrated on August 22, 2007 by Durateck Instrument Services with a known source and had a calibrated conversion factor of 1  $\mu\text{R/hr}$  for every 921 cpm.

According to the Nuclear Regulatory Commission (NRC), personal radiation exposure should not exceed the non radiation worker limit of 100 milli roentgen equivalent man (mrem). Rem is the unit of human exposure and is a dose rate equivalent to roentgens with a correction factor. For beta and gamma/x-ray, the correction factor is one and for alpha emitters inside the body, the

correction factor is 20. Based on personnel exposure for non-radiation workers for an 8-hr day, the level is approximately 35  $\mu\text{rem/hr}$  or for naturally occurring for 365 day/24 hours per day the level is estimated at 0.85 mrem/day which is 35  $\mu\text{R/hr}$  to 50  $\mu\text{R/hr}$  based on exposure ranging from 250 to 350 mR per year should not be exceeded. Based on the previous activities and background information, Burns and McDonnell request that the proper notification to the US EPA be conducted if at anytime there is an unknown ascendance of twice background during the survey. TN&A follow the requested survey procedure generated by US EPA fact sheet called "Before you Dig – Radioactive Thorium and Construction Activities in the Streeterville Area". The US EPA, Region V Representative, Verneta Simon requested notification of any unknown ascendances during the survey.

Site activities were scheduled for March 3, 2008 but were rescheduled for the following day due to rainy conditions. The schedule requested for two days of excavation but due to the additional trenching and depth of the excavation near the main gas line, the excavation took 4 days.

### Background Survey

On March 4, 2008, TN&A conducted radiation background survey of the surrounding area prior to excavation. The initial weather conditions during the survey windy and partially cloudy conditions with temperatures in the mid-20°F. TN&A surveyed the sidewalk and street around the area to collect the background readings at contact and at three feet above the ground. The background readings ranged from 7,617 cpm to 10,800 cpm (8.2  $\mu\text{R/hr}$  to 11.9  $\mu\text{R/hr}$ ) at contact with the sidewalk near the area to be excavated. The background readings were more consistent in the 7,500 cpm to 8,000 cpm range. TN&A will use 7,617 as the background. The reading levels of the area to be excavated ranged from highest reading within the planned excavation was 7,000 cpm (7.6  $\mu\text{R/hr}$ ) at contact. The survey levels were similar 3 feet above the initial contact survey.

### Excavation

On March 4, 2008, Peoples Energy contractor C&MC initially broke up the marked asphalt and concrete area along the west side of McClurg Court using a backhoe, with a jackhammer attachment. TN&A conducted a survey at contact of the broken concrete and asphalt. The levels at contact 7,233 cpm (7.9  $\mu\text{R/hr}$ ). The debris was then placed in the dump truck for disposal. Once the material was removed, TN&A conducted another radiological survey of the area where the asphalt and concrete was removed. The highest reading was 7,264 cpm (7.9  $\mu\text{R/hr}$ ). Once the survey was completed, C&MC placed steel plates over the area.

On March 5, 2008, C&MC removed the steel plates and continued the excavation using two backhoes, one with a 0.25 cubic yard bucket to excavate the material and the other with a jackhammer attachment, TN&A surveyed the inside the excavation where the road debris was removed. The levels ranged from 7,501 cpm to 10,912 cpm (8.1  $\mu\text{R/hr}$  to 11.8  $\mu\text{R/hr}$ ). C&MC began excavating below the asphalt area on the west side of the street. C&MC removed 36 buckets of material. The material was surveyed and the levels ranged from 4,920 cpm to 8,761 cpm (5.3  $\mu\text{R/hr}$  to 9.5  $\mu\text{R/hr}$ ).

C&MC began excavating inside the property area. The area of excavation was from the curb on the west side of McClurg Court heading west to the building. The material was surveyed and placed on the side the levels ranged from 6,483 cpm to 10340 cpm (7.0  $\mu$ R/hr to 11.7  $\mu$ R/hr). TN&A surveyed the excavation along the walls and floor and the levels ranged from 6,700 cpm to 7,072 cpm (7.7  $\mu$ R/hr).

On March 6, 2008, C&MC began preparing the east side of McClurg Court. The area was cut and the backhoe with the jackhammer attachment broke up the asphalt and concrete. TN&A surveyed the debris area. And the highest level was 10,593 cpm (11.5  $\mu$ R/hr). C&MC began excavating on the east side of McClurg Court.

TN&A surveyed the material being removed from the excavation on the east side of McClurg Court, excluding the initial asphalt material. Once the material was surveyed, it was placed into dump trucks. a total of 24 buckets were removed. The highest reading from the survey was 9,336 cpm (10.1  $\mu$ R/hr).

TN&A also surveyed the walls and bottom of the excavated area which was approximately 4 to 6 feet in depth. The readings were also based on highest levels detected during the survey, which was 11,721 cpm (12.7  $\mu$ R/hr) at contact. Additional excavation was required. C&MC placed cribbing inside the excavation near the main gas line. C&MC removed over 36 buckets of excavated material. TN&A surveyed the material with the highest level being 7,203 cpm. The bottom of the excavation was surveyed and the highest reading was 9,747 cpm (10.6  $\mu$ R/hr).

March 7, 2008, C&MC completed the excavation and removed 46 buckets of material from the east side near the gas main. TN&A surveyed the material and the highest reading was 8,005 cpm (8.7  $\mu$ R/hr)

All the survey readings collected during Peoples Energy's excavation were below the two times background results. The background in the area of the excavation was 7,617 cpm or 8.2  $\mu$ R/hr which the action level was set at 15,234 cpm or 16.4  $\mu$ R/hr (twice background) using the Ludlum 2221 scaler/ratemeter and the Ludlum 44-10 probe.

If there are any questions, please contact Ron Bugg by phone at (312) 220-7000 or through an e-mail at [rbugg@tnainc.com](mailto:rbugg@tnainc.com).

Sincerely,



Ronald W. Bugg  
Senior Industrial Hygienist

CC: Naren Prasad, Peoples Energy  
Margaret Kelley, Burns & McDonnell  
Rebecca Bourn, Burns and McDonnell.