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In partnership with:
ENGINEX
ENVIRONMENTAL ENGINEERING

SOIL EXCAVATION AND MONITORING REPORT
COMED UTILITY TEST PITS
550 NORTH ST. CLAIR STREET
CHICAGO, ILLINOIS

March 6, 2007

Enginex Project Number: 8039

Prepared For:
ComEd-ESD
Three Lincoln Center
Oakbrook Terrace, IL 60181

Prepared By:
Enginex Environmental Engineering
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Lake Forest, IL 60045

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

Enginex Environmental Engineering (Enginex) was retained to oversee the completion of test pits and monitor radiation levels during soil excavation activities performed at 550 North St. Clair Street. The purpose of the test pits was to observe existing subsurface utilities, and determine the feasibility of installing additional electrical conduit within the identified right-of-way to allow Commonwealth Edison (ComEd) to run power service to new construction ongoing at that location.

The work site is in the Streeterville area previously identified by the United States Environmental Protection Agency (USEPA) and the Chicago Department of Environment (CDE) as potentially contaminated with thorium from historical operations at the former Lindsey Light and Chemical Company. The issuance of a City of Chicago right-of-way permit for excavation in this area requires that radiation monitoring be conducted. The USEPA and CDE has provided guidance for conducting radiation monitoring and implementing appropriate health and safety procedures for working in areas where higher levels of radiation may be present.

The following activities were performed prior to beginning the site work:

- ComEd obtained a right-of-way permit from the City of Chicago to perform the trenching activities.
- Enginex prepared the "550 North St. Clair Street - General Procedures for Thorium Monitoring" document (refer to Appendix A), which was forwarded to the USEPA prior to beginning the work. This document describes the radiation monitoring and soil disposal protocol that was followed during the site work.
- The USEPA health and safety plan for excavation work in the Streeterville area (refer to Appendix B) was incorporated into the overall safety procedures for the site work.
- A pre-site work kick-off meeting was held on February 20, 2007 between the various interested parties. Representatives from the following interested parties were present for the kick-off meeting: Enginex, Linn Mathis (site developer), Stan A. Huber Consultants, Inc. ([SAHCI]; radiation monitoring contractor), SET Environmental, Inc. ([SET]; soil disposal contractor), and Meade Electric ([Meade]; ComEd's electrical conduit installation

contractor). SAHCI also took background radiation counts above the pavement, and Enginex took baseline photographs of the work area.

2.0 DAILY FIELD ACTIVITIES

The work scope consisted of excavating five test pits to locate and observe existing subsurface utilities along a right-of-way area where ComEd intends to route electrical conduit for power service to new construction ongoing at that location. The five test pits were excavated between February 21 and 23, 2007. The City of Chicago right-of-way permit allowed work to be performed between 9:30 AM and 3:30 PM each day. The test pits were spaced along the right-of-way on St. Clair Street between the ComEd utility vault located at the intersection with Ohio Street and an alley immediately south of the 550 North St. Claire building. One test pit was located at the intersection of Ohio Street, two test pits were located along St. Claire Street, and two test pits were located within the alley south of the building. Each test pit was approximately 8 1/2 feet long by 4 1/2 feet wide, with a depth ranging between 5 and 6 feet.

Traffic control, consisting of a combination of barricades (including lane closures), cones, and signs, was set up prior to the beginning of work each day. Steel plates and asphalt patch were laid across open test pit sections at the end of work each day. A safety meeting, STAR meeting, and job analysis were conducted by SET and (Meade) personnel prior to beginning work each day. Site photographs depicting the starting and ending site conditions and other activities are included in Appendix C.

The following presents a brief summary of work performed each day:

<u>February 21, 2007</u>

The Meade work crew arrived on-site at approximately 9:00 and began unloading equipment. SAHCI performed a shortened 30 minute training session on radiation safety, since members of the Meade work crew had received the training at previous job sites. Refer to SAHCI's report in Appendix D for an outline of topics covered during the radiation safety training session and an attendee sign-in sheet. Meade began setting up traffic control at approximately 9:30 AM. Saw-cutting of the pavement began at 10:00. A backhoe was used to perform the test pits, except

where hand digging was necessary in the vicinity of identified utilities. The excavated pavement debris and soil was placed directly into a roll-off box delivered earlier by SET.

Excavation of the test pit #1 began at approximately 10:45 and was completed at approximately 12:30. A 24-inch gas main was observed in test pit #1, which required hand digging beneath it to the final trench depth of approximately 5 1/2 feet. Excavation of test pit #2 began at approximately 13:00 and was completed at approximately 14:30. No utilities were identified in test pit #2, so excavation was terminated at a depth of approximately 5 feet. Steel plates were placed over test pits #1 and #2 after their completion.

Trench excavation work ended at approximately 14:30. A single roll-of box of soil was generated. SAHCI collected three composite soil samples from the roll-off box at approximately 13:45. SAHCI also took radiation readings at the surface of the three remaining test pits, and measured elevated count rates above the location of test pit #3. Preparations were made for the possibility of encountering thorium-contaminated soil the next day. SET removed the roll-off box after the site work was completed for the day. Site work ended at 14:45, and personnel demobilized from the site.

February 22, 2007

The Meade work crew arrived on-site at approximately 9:00 and began unloading equipment. Meade began setting up traffic control at approximately 9:30 AM. SET delivered an empty roll-off box prior to beginning soil excavation for the day.

The asphalt pavement was first removed above the location of test pit #3 to observe what was beneath the surface, and also take radiation readings of the soil to determine if thorium-contaminated soil was present. A layer of brick pavers from a past street surface was observed immediately below the asphalt, which was determined to be the source of the elevated radiation survey readings the previous day. Brick pavers are considered a natural source of radiation and did not require special handling and disposal. The radiation count rates for the soil screened beneath the brick pavers did not approach the action level.

Excavation of the test pit #3 began at approximately 11:00 and was completed at approximately 12:15. Jack-hammering and hand digging were required to remove the brick pavers, which slowed down the test pit excavations. No utilities were identified in test pit #3, so excavation was terminated at a depth of approximately 6 feet. Excavation of test pit #4 began at approximately 12:30. No brick pavers or elevated radiation count rates were observed at this location. Four to five separate utility lines were encountered in this test pit, which required most of it to be excavated by hand digging. Excavation activities for test pit #4 were discontinued at approximately 14:00. Steel plates were placed over test pits #3 and #4 at the end of the day.

Trench excavation work ended at approximately 14:00. A single roll-of box of soil was generated. SAHCI collected three composite soil samples from the roll-off box at approximately 14:30. SET removed the roll-off box after the site work was completed for the day. Site work ended at 15:00, and personnel demobilized from the site.

February 23, 2007

The Meade work crew arrived on-site at approximately 9:00 and began unloading equipment. Meade began setting up traffic control at approximately 9:30 AM. SET delivered an empty roll-off box prior to beginning soil excavation for the day.

Hand digging at test pit #4 was completed to a depth of approximately 6 feet. Excavation of test pit #5 began at approximately 11:15 AM. Test pit #5 was located in close proximity to test pit #4 and had the same utilities and required hand digging. Excavation activities for test pit #5 were discontinued at approximately 14:00. The depth of test pit #5 was approximately 6 feet. Steel plates were placed over test pits #4 and #5 at the end of the day.

Trench excavation work ended at approximately 14:00. A single roll-of box of soil was generated. SAHCI collected three composite soil samples from the roll-off box at approximately 14:30. SET removed the roll-off box after the site work was completed for the day. Site work ended at 15:00, and personnel demobilized from the site.

3.0 RADIATION FIELD SCREENING RESULTS

The field screening of radiation levels in the soil was performed by SAHCI using a Ludlum Model 2221 Scaler/Ratemeter with attached 2-inch by 2-inch NAI probe. The instrument was calibrated on October 24, 2006. The USEPA soil action level of 7.1 picocuries per gram (piC/g) total thorium for this instrument corresponds to 18,186 counts per minute (cpm).

Prior to beginning the trench excavation, background radiation levels were measured immediately above the pavement surface. Five random locations were selected for background readings in the area of the 550 North St. Clair Street site. The background readings were measured by collecting one-minute integrated counts at each of the selected locations. The background radiation levels ranged between 6,180 cpm and 11,476 cpm, and yielded an average level of 8,265 cpm. It should be noted that the background locations being above pavement likely yielded levels much lower than what would have been expected for urban soil and fill.

Soil gamma surface scans were performed after each 18-inch lift was removed from the trench. For the first five feet of the trench excavation, count rates were measured for the exposed soils along the trench floor and walls by entering the trench. Shoring had to be installed to support the trench walls after a depth of five feet, so entry into the trench to measure count rates was discontinued for safety reasons. At that point, count rates were measured for every 18-inch lift using the “Bucket Survey Method” prior to placement into a roll-off box. The highest measured count rates were recorded for the walls and floor of each section of the trench for each respective depth.

For the excavated soil, the radiation count rates ranged from 6,700 to 9,900 cpm for the five text pits. Count rates generally increased between a depth of 18 inches to 4.5 feet. The count rates for each of the depths from the five test pits were relatively consistent, and no obvious anomalies were observed. The count rates for test pit #4 were slightly higher than for the other four test pits. The count rates with depth were as follows: ranged between approximately 6,700 and 9,800 for the first 18 inches; ranged between approximately 7,700 and 9,900 from 18 inches and 3 feet; ranged between approximately 8,100 and 9,800 cpm from 3 feet to 4.5 feet; ranged between

8,100 and 9,800 from 4.5 feet to 6 feet for test pit #s 3, 4 and 5; and ranged between 8,100 and 9,800 cpm for the trench walls. The increase in count rates below a depth of 18 inches is likely due to the encountering of native soils and urban fill and the narrow geometry of the trench excavation. None of the measured count rates throughout the entire trench excavation approached the action level of 18,108 cpm. Consequently, the entire volume of the excavated soil was placed directly into roll-off boxes for off-site disposal.

For test pit #3, elevated count rates were measured above the pavement surface during screening prior to beginning the excavation. The asphalt surface was carefully pulled back to screen the surface soil prior digging. An intact layer of granite pavers (i.e., brick material used for past street surfaces) was found immediately below the asphalt surface. The radiation count rate on contact with the pavers was as high as 20,300 cpm. The elevated count rate for the granite pavers is due to Naturally Occurring Radioactive Material (NORM) found in granite. The removed brick pavers were not handled as thorium-contaminated material, which is routine protocol for this material that is found throughout the Chicago area and is known to contain NORM. Once the section of granite pavers was removed, the count rates for the soil beneath it did not approach the 18,186 cpm action level.

Refer to SAHCI's report in Appendix D for further details regarding the soil screening, as well as a drawing identifying the respective trench sections.

4.0 LABORATORY ANALYSIS AND SOIL DISPOSAL

Since the field screening readings did not exceed the 7.1 piC/g action level, soil excavated from the test pits was transferred directly into a roll-off box for off-site disposal. Three roll-off boxes of soil were generated during the test pit activities. Approximately seven cubic yards of soil were placed inside of the roll-off box. The roll-off boxes were transported to SET's facility in Wheeling, IL for storage until receipt of the analytical results and final disposition.

To verify the field screening results, composite soil samples were collected from the roll-off box for laboratory analysis of radiation levels. Three 20-milliliter (ml) composite soil samples were

collected by SAHCI from the single roll-off box for laboratory analysis. The three composite samples represented approximately a third of the area of the respective roll-off box. Each composite sample was created by using a small manual auger to collect discrete samples from a minimum of four locations. The discrete samples were screened to remove solids greater than ¼-in and then mixed within a collection tray to homogenize. A 20-ml sample vial was then filled from the homogenized composite soil sample in the collection tray.

Each composite soil sample collected from the roll-off box was analyzed for radiation levels by SAHCI at its laboratory in New Lenox, IL after using a Canberra Genie 2000 NaI Gamma Spectroscopy System with NUTRANL software. The "total radium activity (TRA)" value from each laboratory analysis was used for comparison purposes against the 7.1 piC/g action level. The TRA values for composite soil samples from the three roll-off boxes ranged between 0.26 and 2.31 piC/g. None of the TRA values approached the action level of 7.1 piC/g action level, which was consistent with the field screening results (refer to SAHCI report in Appendix D). Consequently, the three roll-off boxes containing the trench excavation soils and pavement debris were disposed of as non-regulated material at the Onyx Landfill in Zion, IL. The analytical results were sent electronically to the USEPA for review upon receipt.

Worker exposure to radiation was also measured during the trench excavation activities using both personal air samplers and dosimeter badges. Two workers per day that worked closest to the trench excavation activities (i.e., theoretically had the highest exposure risk) were selected to wear personal air sampling devices throughout the duration of each work day. In addition, a total of five radiation dosimeter badges were assigned to individuals that worked in the closest vicinity of the trench excavation to be worn over the duration of the site work.

A Gillian Model BDX II Low Volume Person Air Sampler was used to perform the worker exposure air sampling. Each air sample was analyzed on a daily basis by SAHCI at its laboratory in New Lenox, IL. The air samples were analyzed the day after collection for gross alpha concentrations and again after four days if background was exceeded. The "day after" count serves as a comparison to identify high counts from the previous day. Thorium 232 has the lowest allowable air exposure level and was used as the basis of comparison. Thorium 232

was not found after analysis of the four-day count in any of the air samples (refer to SAHCI report in Appendix D for a summary of the air sampling protocol and the results of the laboratory analyses).

Landauer OSL (Optically Stimulated Luminescence) dosimeter badges were used for longer-term worker exposure analyses. The five assigned dosimeter badges were worn by workers throughout the duration of the trench excavation. The badges were submitted to Landauer for analysis on February 24, 2007.

5.0 FINAL SUMMARY

Five test pits were performed between February 21 and 23, 2007. The purpose of the test pits was to observe existing subsurface utilities, and determine the feasibility of installing additional electrical conduit within the identified right-of-way to allow Commonwealth Edison (ComEd) to run power service to new construction ongoing at that location. The work site is in the Streeterville area previously identified by the USEPA and the CDE as potentially contaminated with thorium, and thus required soil radiation levels to be monitored over the duration of the trench excavation for purposes of worker exposure and proper soil disposal. Procedures approved by the USEPA for soil radiation monitoring and soil disposal were followed.

The field screening of radiation levels in the soil was performed by SAHCI. Soil gamma surface scans were performed after each 18-inch lift was removed from the test pits. None of the measured count rates throughout the excavation of the five test pits approached the action level of 18,108 cpm. Consequently, the entire volume of the excavated soil was placed directly into three roll-off boxes for off-site disposal.

To verify the field screening results, composite soil samples were collected from the three roll-offes box for laboratory analysis of radiation levels. Each composite soil sample collected from the roll-off box was analyzed for radiation levels by SAHCI at its laboratory in New Lenox, IL. None of the TRA values approached the action level of 7.1 piC/g action level, which was consistent with the field screening results. Consequently, the three roll-off boxes containing the

test pit excavation soils and pavement debris were disposed of as non-regulated material at the Onyx Landfill in Zion, IL.

Worker exposure radiation levels were also measured during the trench excavation activities using both personal air samplers and dosimeter badges. Results from the worker exposure monitoring showed minimal radiation exposure over the duration of the trench excavation activities.

APPENDIX A
GENERAL PROCEDURES FOR THORIUM MONITORING

APPENDIX B
USEPA HASP

APPENDIX C
SITE PHOTOGRAPHS

APPENDIX D
SAHCI THORIUM MONITORING REPORT

SET Environmental, Inc.
450 Sumac Road
Wheeling, IL 60090
Phone: 847/537-9221 Fax: 847/537-9265

550 North St. Clair, Chicago, IL
General Procedure for Thorium Monitoring

PRIOR TO WORK COMMENCING

- A permit and health & safety plan (HASP) will be obtained from IL DOE. - ComEd
- The "General Procedure" will be forwarded to the EPA for approval prior to commencing work. - Enginex
- USEPA will be contacted 48 hours prior to performing a walkover survey so that they may be present. - Enginex
- Permission will be obtained prior to beginning site work from the corresponding property owner(s) for which the electrical tie-in is being performed for the temporary storage of secured roll-off box(es) of thorium-contaminated soil that may be generated and require alternative disposal arrangements. - SET
- Site work and initial site conditions will be documented. - Enginex
  - Photographs of entire site before breaking ground will be taken.
  - For purposes of generating a site figure, an aerial photograph is not necessary. A map with measurements from a fixed feature (e.g., a curb) would suffice.
  - A walk-over survey will be conducted in the work location (site) and background gamma readings recorded. Background is considered to be 2.1 picoCuries per gram (pCi/g) as established for the Lindsay Light II sites.
- Sanitary facilities will be provided. - SET
  - Portable chemical toilets will be supplied.
  - Adequate washing areas will be provided.
- SET will review USEPA HASP and General Procedure.
- Enginex will review USEPA HASP and General Procedure.
- Meade will review USEPA HASP and General Procedure.

WORK SCOPE

- Health and safety meeting (e.g., tail-gate meeting) will be conducted before starting site work each day.
  - Potential exposure to thorium-impacted soil and what types of testing will be performed will be reviewed. - Enginex, page ii & 3, 6
  - Contents of the USEPA HASP will be discussed and general health and safety concerns covered (i.e. PPE, traffic, heavy equipment). – SET & Meade, pages 1-47
  - Clean/support, decontamination, and exclusion zones will be established if needed in the event the field screening readings are above the action level of 7.1 piC/g. - SET, page 4
  - A first-aid station will be set up. - SET, page 11

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- The location of phone numbers and procedures for contacting ambulance services, fire dept, police and medical facilities will be identified. - SET, page 11
- The location of maps and routes to the closest medical facilities will be identified. - SET, page 11
- The location of sanitary facilities will be identified. - SET, page 34
- Personal and ambient air monitoring equipment will be administered for use. - Enginex, page 24

➢ Document readings and samples:

- Personal Monitoring: Records of all radiation exposures incurred by field personnel will be maintained. - Enginex, page 10, 24-28
- Surface Soil Scan Procedure: The excavation shall be screened for radiation count rates using a Ludlum Model 2221 Scaler / Ratemeter with attached 2"x 2" NaI probe. The instrument shall be calibrated for thorium with an established count rate threshold that correlates to the USEPA action level of 7.1 piC/g. The trench shall be excavated in lifts not to exceed 18 inches in depth.
  - After each lift, the trench shall be surveyed for total radiation count rate and the maximum level recorded. Down to an excavation depth of 4 1/2 feet below ground surface (i.e., before OSHA regulations require use of trench shoring or benching), the trench shall be entered to survey both the walls and floor. Beyond an excavation depth of 4 1/2 feet below ground surface, the trench floor shall be surveyed using the "Excavator Bucket Survey" procedure described below for each 18-inch lift upon removal from the trench. At this point, it will no longer be feasible to survey the trench walls, since they will be mostly covered by the shoring. A six-inch detector shield may be utilized if deemed necessary to obtain accurate survey results. - Enginex
- Excavator Bucket Survey Procedure: After excavated soil is removed from the trench, the surface of the soil shall be surveyed for total radiation count rate within the excavator bucket before it is emptied. If the radiation count rates are at background levels at the soil surface in the excavator bucket, the soil spoils can be loaded directly into the clean soil roll-off box. If any count rates are noted above background levels but below the action level of 7.1 pCi/g, the bucket spoils shall be emptied on a known surface or plastic sheeting and resurveyed. If the follow-up survey shows no count rates greater than the action level of 7.1 pCi/g, the soil spoils can be then be loaded into the clean soil roll-off box. - Enginex
- Thorium-Contaminated Soils Procedure: If any excavated soils are found during either surface scanning or bucket surveys with a count rate greater than the 7.1 pCi/g action level, then those soils shall be isolated, placed in supersacks, and stored in a locked roll-off box pending further sampling for laboratory analysis and disposal evaluation. The area of thorium-contaminated soils above the action level shall then be roped off and isolated as an exclusion zone. A sample of the material with the highest radiation count rate (whether excavated or in the trench) will be collected as a discrete sample and sent for laboratory analysis for confirmation purposes (if requested, this sample will also be provided to the USEPA). The trench location from which any material exceeding the action level is identified will be documented. Proper PPE, including Tyvek suits, rubber boots, and latex gloves will be worn by any personnel entering an exclusion

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zone. Additionally, high volume air sampling will be implemented prior to moving or loading thorium-contaminated soil. All personnel and equipment leaving an exclusion zone shall be monitored for removable contamination. - Enginex

- Soil removal and sampling:
  - Soil removed from the excavation shall be stored in covered roll-off boxes off-site pending results of laboratory analysis. Three 20-milliliter (ml) composite samples shall be collected from each roll-off box. Each composite sample shall consist of soil gathered from a minimum of four separate sampling locations. The composite soil sample shall be screened to remove solids greater than ¼-inch, homogenized, and placed into the sample vial. Soil samples shall be sent for laboratory analysis after each work day. The analytical results will be submitted to the USEPA in electronic format for review prior to final soil disposition. - Enginex
  - ComEd will adhere to the following soil disposal protocol unless the USEPA requests a variation to the protocol either prior to the beginning of the trench excavation or within one week of receipt of the analytical results for review (e.g., USEPA requests roll-off boxes be held pending receipt of confirmatory analytical results for samples sent to USEPA laboratory). If the laboratory analytical results show a result less than the 7.1 pCi/g action level for each of the three composite samples collected from the individual roll-off boxes, the corresponding roll-off boxes will be disposed of as clean fill. If the laboratory analytical results are at or above the action level of 7.1 pCi/g for at least one of the three composite samples collected from the individual roll-off boxes, the corresponding roll-off boxes will be held pending the results of further evaluation and feedback from the USEPA, which may include further sampling and testing of the roll-off box(es) in question or receipt of results from the USEPA confirmation soil samples. Alternative soil disposal methods or additional sampling, subject to USEPA approval, will be implemented for any soils with a concentration exceeding the 7.1 pCi/g action level. - Enginex
  - ComEd must provide information on final material disposition locations for soil disposed of as clean fill. - SET
  - The USEPA should contact Enginex to make arrangements for the analysis of confirmation soil samples before or immediately following the completion of site work. The USEPA should provide a written request or Email identifying the specific samples it has selected for confirmatory analysis and the laboratory to where they should be forwarded. - USEPA
- Minimize potential public contact:
  - Public access to excavated soil will be restricted using barricades, temporary fencing, and jersey barriers. - Meade & SET, page ii
  - Excavated soil piles will be covered if needed to minimize fugitive dust. - Meade & SET, page ii
  - Off-site tracking by vehicles and potentially contaminated boots or clothing by workers will be controlled. - Meade & SET, page ii
- Photographs of area once work is completed will be taken. - Enginex
- A final report that contains the results of the radiation monitoring and/or surveying will be completed. - Enginex

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¶
If the NUTRANL gamma spectroscopy analysis indicates a result of less than 7.1 pCi/g, the soils in the roll-off boxes can be disposed of as clean fill. ¶
Soils with NUTRANL gamma spectroscopy results above 7.1 pCi/gm will remain in the roll-off boxes pending additional sampling. Alternative soil disposal meth... [25]

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- The final written report will be submitted to the following agencies: (page ii). - SET
  - USEPA
  - IL Department of Energy
  - Illinois Department of Nuclear Safety: Phone No. 217-785-0600
  - Chicago Department of the Environment: Phone No. 312-744-7672
  - IEMA (Illinois Emergency Management Agency): Phone No. 217-782-7860

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c

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(Health and Safety Plan).

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Cover

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Established

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Established

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with a first-aid kit for onsite emergency first aid

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Maintain

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monitored

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thorium

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contamination

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indicates

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regulatory

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picoCuries per gram (

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m) total thorium

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by the Health Physicist

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observed count rate

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Both the walls and floor of the trench shall be monitored.

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the Health Physicist

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s

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it

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If the trench is greater than four feet deep or the Health Physicist can no longer safely enter, then excavator bucket surveys shall be utilized.

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the

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the Health Physicist shall survey

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each bucket before

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of

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it

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regulatory

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will

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regulatory

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analyzed using the NUTRANL Gamma Spectroscopy System.

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Soil removed from the trench excavation with a count rate less than the 7.1 pCi/g level will be stored in covered roll-off boxes off-site pending results of composite sample analysis. Three 20 ml composite samples shall be taken from each roll-off box. Each composite sample shall consist of soil gathered from four separate sampling locations. The sample shall be screened to remove solids greater than ¼-in, homogenized, and placed into the sample vial. Samples will be analyzed after each work day using the NUTRANL Gamma Spectroscopy System – Enginex

If the NUTRANL gamma spectroscopy analysis indicates a result of less than 7.1 pCi/g, the soils in the roll-off boxes can be disposed of as clean fill.

Soils with NUTRANL gamma spectroscopy results above 7.1 pCi/gm will remain in the roll-off boxes pending additional sampling. Alternative soil disposal methods will be used for any soils with a concentration exceeding 7.1 pCi/gm.

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Document the readings of the walls and floor of trench after the excavation to verify clean after the excavation is completed. -Enginex

Take

Photo 1: Taken south to north. Shows locations of planned test pits along St. Clair near alley and looking north towards Ohio prior to beginning work.

Photo 2: Taken east to west. Shows south end and alley locations of planned test pits prior to beginning work.

Photo 3: Taken south to north. Shows radiation walkover survey above location of test pit #1 prior to beginning excavation.

Photo 4: Taken south to north. Shows excavation of test pit #1, with backhoe loading clean soil into roll-off box.

Photo 5: Taken south to north. Shows 24-inch gas main crossing test pit #1 location.

Photo 6: Taken east to west. Shows placement of steel plate over test pit #1 after its completion.

Photo 7: Taken west to east. Shows radiation screening of soil in test pit #2.

Photo 8: Taken south to north. Shows completion of test pit #2 with no utilities present.

Photo 9: Taken east to west. Shows brick pavers (i.e., old pavement surface) beneath the asphalt surface at test pit #3 location that created elevated radiation surface screening count levels.

Photo 10: Taken south to north. Shows multiple utilities crossing test pit #4 location.