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SOIL RADIOLOGICAL MONITORING AND REMOVAL REPORT LAKESHORE EAST, LLC. - THE PARKHOMES EAST BENTON PLACE/NORTH WESTSHORE DRIVE CHICAGO, ILLINOIS

September 5, 2007

DAI Project Number: 7299

Prepared for:
Lakeshore East LLC
303 East Wacker, Suite 2750
Chicago, IL 60601

Prepared by:
DAI Environmental, Inc.
Polo Park Business Center
27834 N. Irma Lee Circle
Lake Forest, Illinois 60045

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1.0 INTRODUCTION AND BACKGROUND

DAI Environmental, Inc., (DAI) was engaged by Lakeshore East, LLC to supervise the monitoring and removal of radiologically impacted soils at The Parkhomes and City of Chicago Right-of-Way located at the intersection of East Benton Place and North Westshore Drive, Chicago, IL. A Site Location Map is provided as Figure 1 and an aerial photograph identifying the boundaries of the Parkhomes development site is provided as Figure 2.

In August 2001, STS conducted a radiological investigation of the entire 26-acre "Lakeshore East development which included portions of The Parkhomes Site. This survey included a walk-over survey, and borehole radiation surveys within the location of the historic boat slips. The results of this investigation were summarized in an Investigation Report dated September 19, 2001 and in an Addendum Letter Report dated October 2, 2001. These reports have been previously been provided to the USEPA. As discussed in the report, radiological impacted material was noted near the southeast corner of The Parkhomes Site. Based on these findings, STS conducted removal activities of the radiologically-impacted materials located onsite. In the course of the removal effort, the excavation extended to and beneath the City of Chicago's Right-of-Way and the excavation was subsequently halted to avoid undermining the sidewalk. Therefore, the extent of the radiological impacted soils to the east, underneath the sidewalk, was not explored by Lakeshore East as that material was located off-site. This removal activity was summarized in a Completion Report dated September 19, 2003 and completed by STS. This report has been previously provided to the USEPA.

In-order to facilitate the installation of grade-beams at the Subject Property it was determined that soil excavation would have to take place on part of the City of Chicago's Right-of-Way in the area where the radiological contamination remained. DAI has prepared this Radiological Soil Excavation and Monitoring Report to summarize the radiological monitoring and soil removal activities conducted on the City of Chicago's Right-of-Way on August 6, 2007.

1.1 ESTABLISHED RADIOLOGICAL SOIL CLEAN-UP LEVELS

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The USEPA has set the cleanup level as 5-picocuries per gram (pCi/g) total radium (combined Ra-226 and Ra-228 concentration) above the background. A level of 2.1- pCi/g total radium is currently considered background by the USEPA for the Chicago urban area. Therefore, radiologically impacted material is indicated by readings exceeding a threshold of 7.1- pCi/g total radium. To screen for potentially impacted material, field measurements were collected by Stan A. Huber Consultants, Inc. (SAHCI-radiological monitoring subcontractor hired by Lakeshore East) using Ludlum 2221 rater-scalers and 2x2 NaI detectors. These detectors were pre-calibrated using the thorium calibration blocks at the Kerr-McGee West Chicago Rare Earth Facility to determine the gamma count in cpm that was equivalent to 7.1- pCi/g total radium. Based on the calibration results, a field-survey action level of 18,186-counts/min (cpm) was established as the field survey action/removal level.

2.0 RADIOLOGICAL MONITORING ACTIVITIES

2.1 USEPA NOTIFICATION

On August 1, 2007, towards compliance with the notification provisions of Paragraph 30 of the past CERCLA agreement (Docket No. V-W-05-C-817), Lakeshore East LLC, informed the USEPA of the upcoming soil excavation at the City of Chicago's Right-of-Way located adjacent to The Parkhomes Site. Ms. Verneta Simon of the USEPA subsequently responded and acknowledged receipt of the notification. A copy of the notification e-mail is provided in Appendix A.

2.2 MONITORING DURING EXCAVATION ACTIVITIES

On August 6, 2007, DAI observed the excavation of radiologically impacted materials from the City of Chicago's Right-of-Way adjacent to The Parkhomes Site. Figure 3 identifies the location of the excavation. The excavation work was conducted by Budron Excavating Company of West Chicago, Illinois, using an excavator. Prior the start of excavation, a tail-gate safety briefing was conducted to review safety and radiological survey procedures. Ms. Verneta Simon and Mr. Eugene Jablonowski of the USEPA also arrived at the site and approved the excavation plan prior to the start of excavation. Upon approval from the USEPA, dosimeters and personal protective equipment (PPE) were issued to the applicable personnel and an exclusion, decontamination, and support zone, were established. Air monitoring equipment was also set-up in the exclusion zone.

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The excavation advanced in approximately 6-in lifts, with all soils radiological screened by SAHCI. Soils that were found to not be impacted (<18,000-cpm) were excavated and placed adjacent to the exclusion zone to be used later as backfill materials. All soils with radiological activities greater than 18,000-cpm, were placed directly into the roll-off box for off-site disposal. The excavation advanced until the excavation reached 5-ft bgs (depth needed for installation of grade beams). As indicated in Appendix B, soils located on the north, south, and west wall, as well as on the floor of the excavation, were found to be below the 18,186-cpm field survey action/removal level and excavation was deemed complete in these directions. Further, while the majority of the soils along the east wall were also found to be below the 18,186-cpm field survey action/removal level; a small section of the east wall was found to exhibit readings above the field survey action/removal level. However, since further excavation in this direction would involve removal of soils from off-site and within the City of Chicago's Right-of-Way, further excavation to the east was not conducted. Rather, plywood sheeting was placed against the excavation wall throughout the area exhibiting counts above the field survey action/removal level, so as to minimize the potential erosion of the materials back on-site, and to prevent exposure to worker while installing the grade beams. Upon excavation completion, Ms. Verneta Simon and Mr. Eugene Jablonowski of the USEPA returned to the site and approved the termination of the excavation. In total, 6.8415-tons (135-cubic feet) of radiological impacted materials were removed from the site. Photographs of the excavation activities are included in Appendix C.

The excavation equipment and personnel were then surveyed using a Ludlum 3, HP-270 survey instrument and found to be at or below background levels. Air samples collected were also found to be below background levels. Copies of the air monitoring and equipment survey results are provided in Appendix B. Prior to being transported from the site, the shipping container was also surveyed by SAHCI to determine exposure rate, and wipe samples were collected from the exterior of the container. A copy of the radioactive survey report is also included in Appendix B. As indicated in Appendix B, all samples were found to be around background levels. The container was then transported by truck from the site by John Boehm Trucking, Inc. of Standard, Illinois, for ultimate disposal at the Energy Solutions (formerly Envirocare) facility in Clive, Utah, under manifest number 0659-02-0685. A copy of the manifest is included in Appendix D.

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3.0 USEPA COMPLETION LETTER REQUEST

On the basis of the radiological monitoring being complete in accordance with the approved *Work Plan for Investigation and Removal of Radiological Impacted Soil-Lakeshore East Development*, and the fact that Ms. Verneta Simon and Mr. Eugene Jablonowski of the USEPA approved the termination of the excavation, DAI Environmental, on behalf of Lake Shore East LLC, requests that the USEPA issue a Notice of Completion for the Site. This Notice of Completion confirms that (a) no further monitoring is required, and (b) construction and development work on the Site may proceed without further regulatory requirements relating to radiological impacts.

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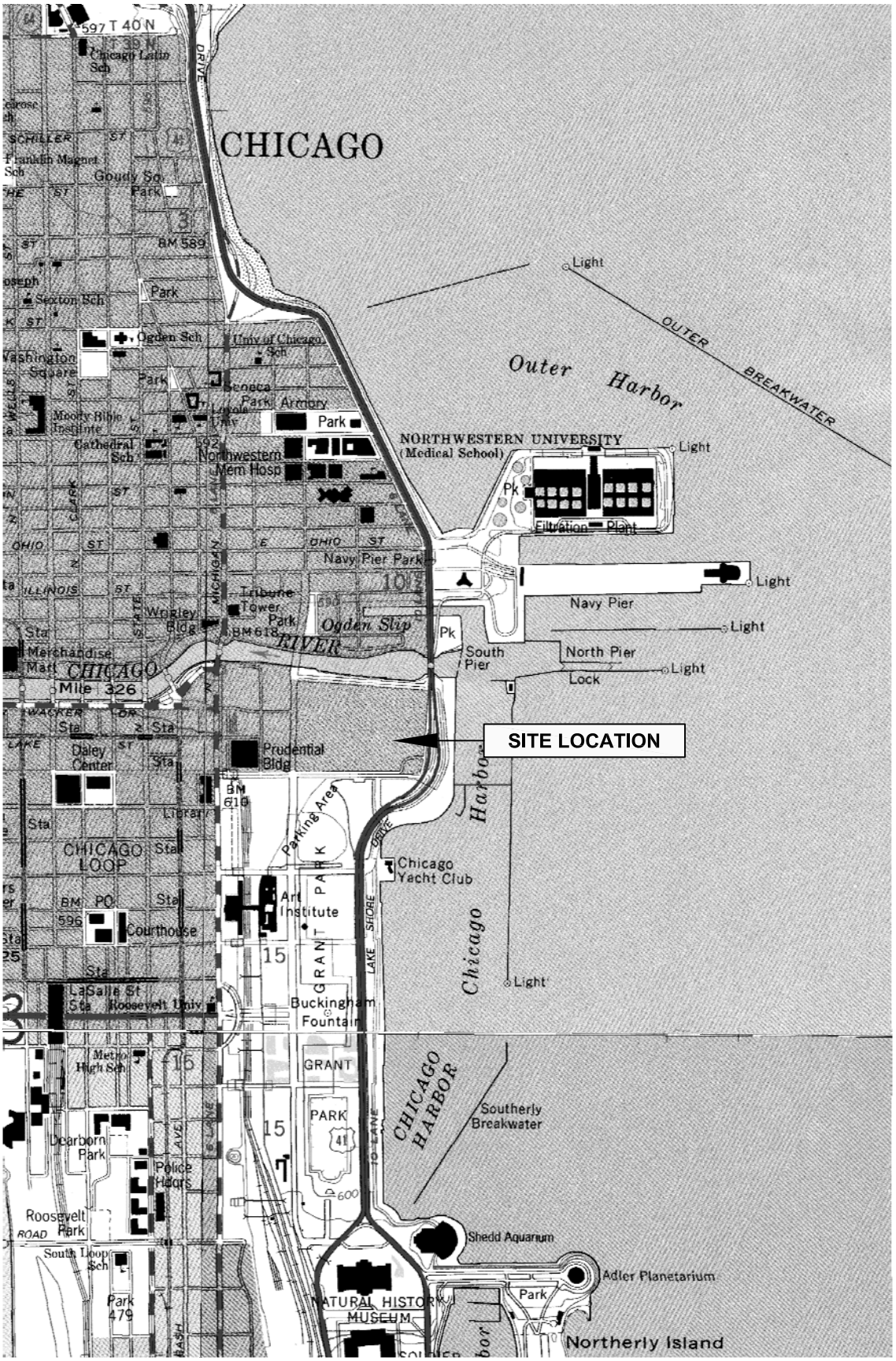
FIGURES

©2007, DAI Environmental, Inc.



LEGEND

CHICAGO LOOP, ENGLEWOOD, AND JACKSON PARK QUADRANGLE ILLINOIS 7.5 MINUTE SERIES (TOPOGRAPHIC)

N

0' 2,000'

S C A L E

CAD FILE: 7299–71

REVISED: 08–30–07

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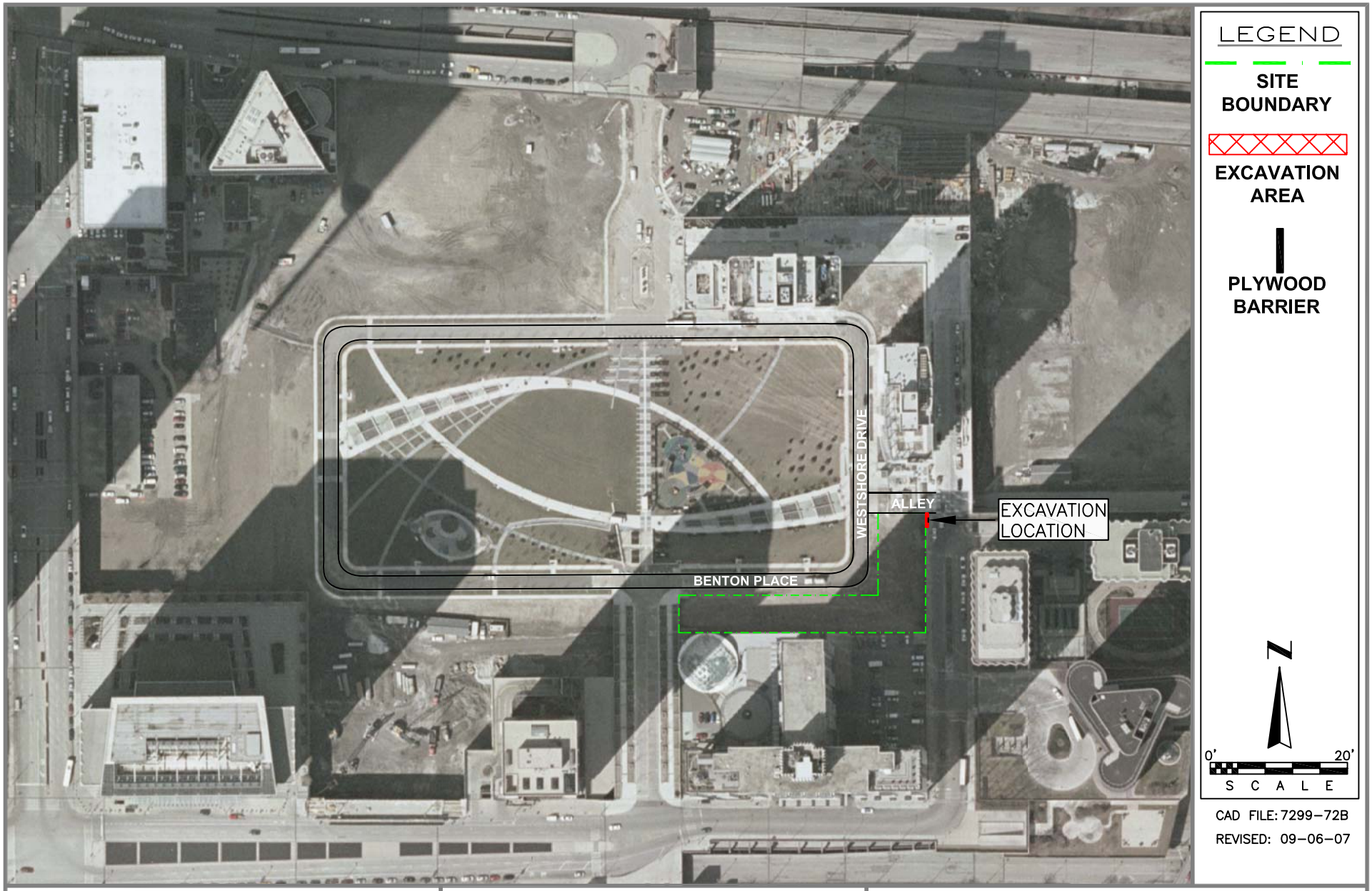
LAKESHORE EAST PARK HOMES
245 EAST BENTON PLACE
CHICAGO, ILLINOIS

FIGURE 1
SITE LOCATION MAP / TOPOGRAPHIC MAP



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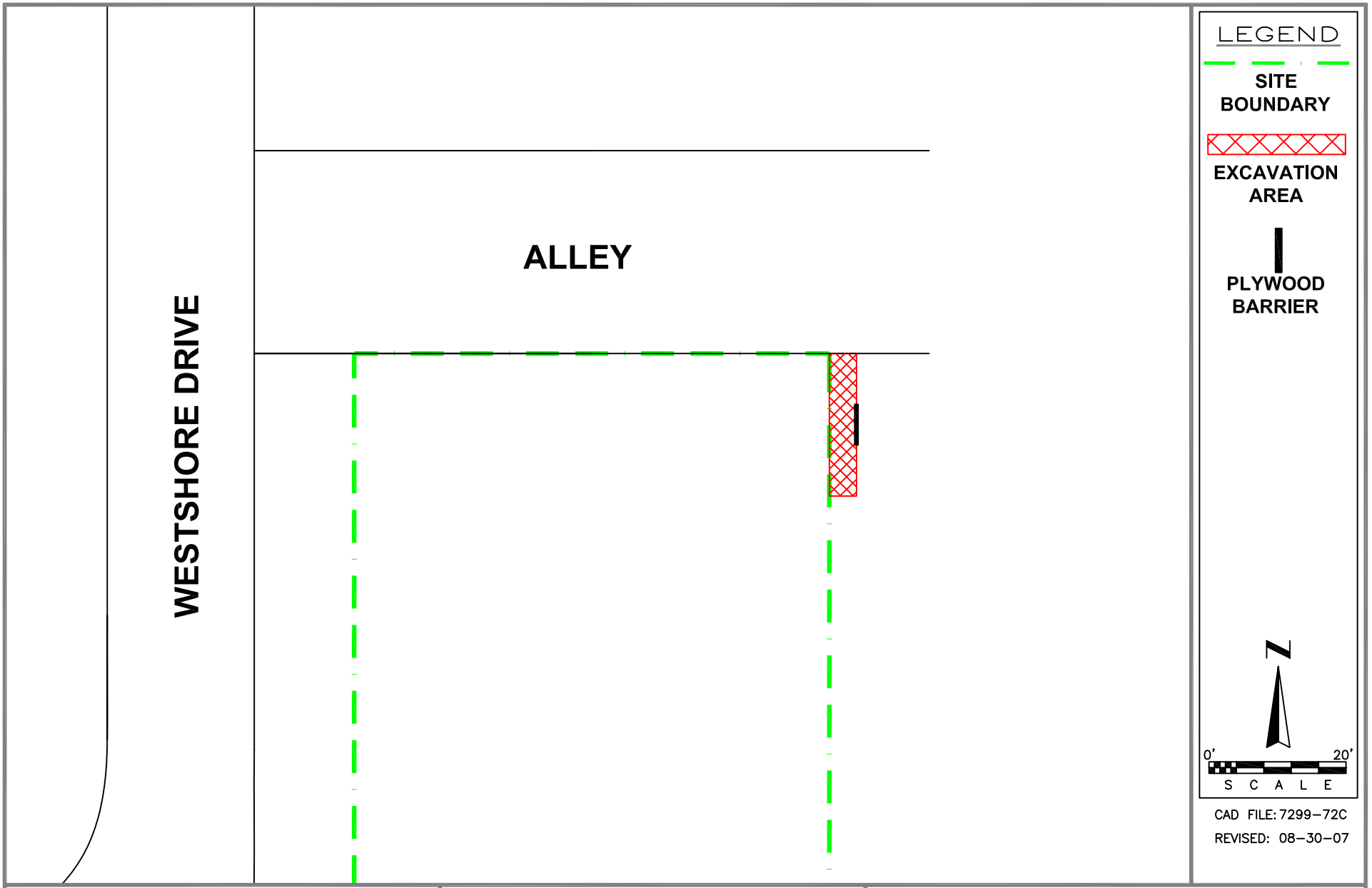
LAKE SHORE EAST
PARK HOMES
245 EAST BENTON PLACE
CHICAGO, ILLINOIS

FIGURE 2
AERIAL PHOTOGRAPH /
SITE BOUNDARIES



DAI ENVIRONMENTAL

LAKE SHORE EAST
PARK HOMES
245 EAST BENTON PLACE
CHICAGO, ILLINOIS

FIGURE 3
EXCAVATION DETAIL

APPENDIX A
USEPA NOTIFICATION

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From: Kara Pellaton [mailto:kpellaton@magellandevelopment.com]
Sent: Thursday, August 02, 2007 2:56 PM
To: Simon.Verneta@epamail.epa.gov; Jablonowski.Eugene@epamail.epa.gov; martwick.cathleen@epamail.epa.gov
Cc: Barbara Magel; Sean Linnane; David Carlins; Richard Vamos; Glenn Huber; eamon.reilly@cityofchicago.org; Kimberly Worthington
Subject: thorium remediation in Lower Harbor Drive

Verneta,

Thanks again for speaking with me yesterday regarding the upcoming remediation project we have scheduled for Monday, August 6th. The Benton Place Parkhomes construction project will be disrupting the known contamination that is located in the City of Chicago ROW at Lower Harbor Drive. We noted this contamination in our original remediation completion report prepared by STS Consultants dated Sept. 19, 2003.

The schedule of construction/remediation activity for Monday, August 6th is as follows:

Excavation/Monitoring/Logistics to meet at 8:00 a.m.
Container will arrive between 9:00 – 10:00 a.m.
Begin excavation around 10:00 a.m.

We anticipate that this will be only a one day project given the small area we need to expose and excavate.

The exact location of the work is Lower Harbor Drive, located north of E. Randolph Street. To get to this site you will need to go east on Lower Randolph Street and then take a left or go north on Lower Harbor Drive.

Please feel free to contact me with any questions or concerns. It is best to use my cell, #312-404-4984, as I'm currently on partial maternity leave and only working part-time. I will be on-site on Monday for this work.

Thanks,

Kara
Kara Pellaton
Project Manager
Lakeshore East LLC
(312) 642-8869 x334
(312) 642-9861 fax
(312) 404-4984 cell

APPENDIX B
RADIOLOGICAL SURVEY RESULTS

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sahci
Stan A. Huber Counsultants, Inc.

Radiation Survey Form - Post Cleanup

Location/ Project ID: Lakeshore East - Benton Place Park Homes

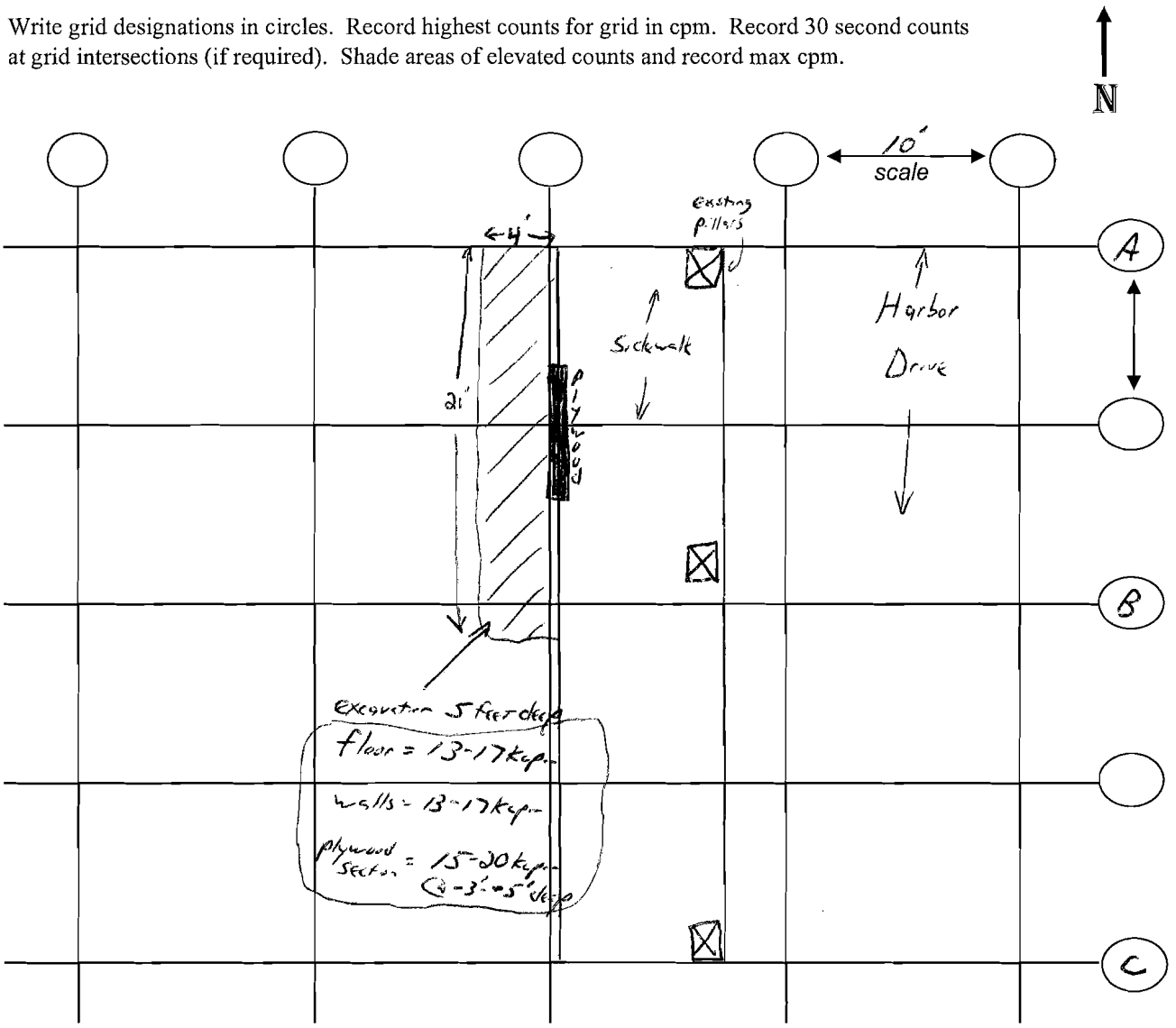
Date: 8/6/07 **Technician:** Glen Huber

Inst Model: Ludlum 2221 **Serial No. :** 134542

Probe Type: 1"x1" NaI / 2"x2" NaI (circled) Shielded / Not Shielded (circled) **Lift Elevation:** surface → -5'

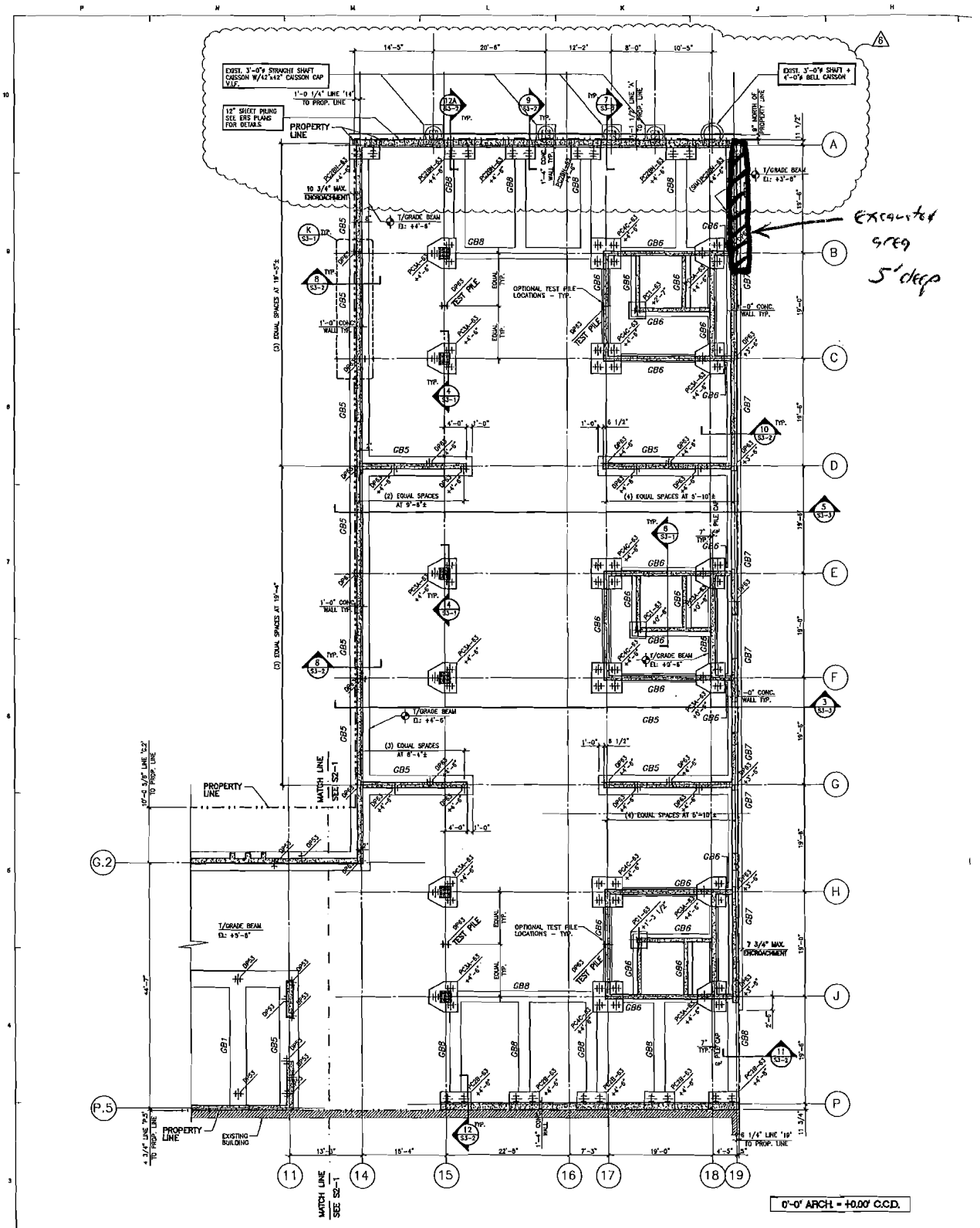
Background 7k - 9k **cpm** **Action Level:** 18-186 **cpm**

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.



1 container filled w/ contaminated soil 18-34kcpm

BKRU 025418



A FOUNDATION PLAN – BUILDING 2

SCALE: 1/8"=1'-0"

SEE SHEET S3-1 FOR GRADE BEAM SCHEDULE

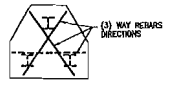
N

PILE CAP SCHEDULE – BUILDING 2

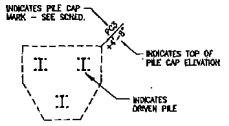
F'c = 5000 PSI
Fy = 60 KSI

TYPE MARK	NO. OF PILES	SIZE	PILE	DEPTH	EMBEDMENT "E"	SHORT BARS	LONG BARS	REMARKS
DP63	1		HP12x63					SINGLE PILE, SEE PLAN
PC1-63	2	30" x 30"	HP12x63	4'-0"	0'-6"	(10) #8	(8) #8	
PC2-63	2	SEE A/S3-1	HP12x63	4'-0"	0'-6"	(10) #8	(8) #8	
PC2B-63	2	SEE B/S3-1	HP12x63	4'-0"	0'-6"	(10) #8	(8) #8	NOTE 5
PC3A-63	3	SEE C/S3-1	HP12x63	4'-0"	0'-6"	(10) #8	–	THREE WAYS
PC3B-63	3	SEE D/S3-1	HP12x63	4'-0"	0'-6"	(10) #8	–	THREE WAYS
			HP12x63					
PC3C-63	3	SEE E/S3-1	HP12x63	4'-0"	0'-6"	(10) #8	–	
PC3D-63	3	SEE F/S3-1	HP12x63	4'-0"	0'-6"	(10) #8	–	
PC4A-63	4	SEE G/S3-1	HP12x63	4'-0"	0'-6"	(10) #8	(8) #8	
PC4B-63	4	SEE H/S3-1	HP12x63	4'-0"	0'-6"	(10) #8	(8) #8	
PC4C-63	4	SEE J/S3-1	HP12x63	4'-0"	0'-6"	(10) #8	(8) #8	

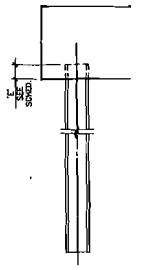
NOTES:
1. BOTTOM OF PILE = -90.00' (±) C.C.D.
2. SEE S3-1 FOR PILE CAP DETAILS
3. PILE CAP ℄ LOCATED AT ℄ OF COLUMN TYP. U.N.O.
4. STD. 90° A.C.I. HOOK AT EA. END OF REINFORCING – TYP.
5. SHORT BARS ARE AT TOP AND BOTTOM OF PILE CAP SEE DETAIL 11/S3-2 FOR ADDITIONAL PILE CAP REINFORCING



PC3A-63 AND PC3B REINF. DIRECTIONS



PILE CAP LEGEND



1 TYPICAL I

Personal Air Monitoring Summary Sheet (PAM's -Daily Analysis)

Report No. 36 August 6, 2007

Lakeshore East Project - 221 North Columbus Drive, Chicago, IL

*** All PAM's with elevated counts on day after analysis are recounted after 4 days (see attached)

Date Collected	Name	Sample ID	PAM #	Flow Rate (lpm)	Total Time Sampled	Total Sample Volume (ml)	Analysis Date	Gross Counts (30 min)	Bkg Counts (30 min)	Net CPM	Sample Concentration (uCi/ml)
8/6/2007	Glenn Huber	PAM2271	002-675	2.5	164	410000	8/7/2007	8	10	0.00	0.00E+00
8/6/2007	Andre Gore	PAM2272	002-766	2.5	190	475000	8/7/2007	10	10	0.00	0.00E+00

No 4 day Analysis Required - Background

Note: Official airborne Th-232 concentrations are obtained from 4 Day Analysis.
See attached 4 Day Analysis Form for Occupational Dose Limit Information.

Area Air Monitoring Summary Sheet - Staplex High Volume Pumps (Daily Analysis)

Lakeshore East Project - 221 North Columbus Drive, Chicago, IL

Report No. 36 **August 6, 2007**

							day after analysis					four day analysis					% of Limit
Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	4.00E-15 uCi/ml
N2068	8/6/2007	10:47am	12:31pm	104	48	4.95E+06	8/7/2006	17	10	0.23333	1.82E-14	8/10/2007	8	12	0	0.00E+00	0.00%
S2068	8/6/2007	10:44am	12:33pm	109	49	5.29E+06	8/7/2006	16	10	0.2	1.46E-14	8/10/2007	12	12	0	0.00E+00	0.00%
E2068	8/6/2007	10:46am	12:30pm	104	51	5.26E+06	8/7/2006	21	10	0.36667	2.69E-14	8/10/2007	9	12	0	0.00E+00	0.00%

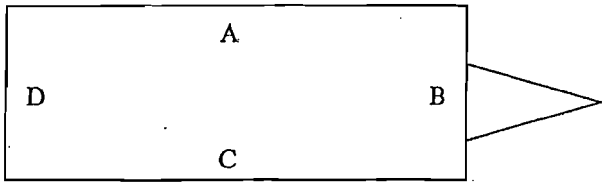
No West Sample Collected

Air monitoring for 1-day cleanup of Benton Place Park Homes
Exclusion Zone adjacent to Harbor Drive

LAKE SHORE EAST CONTAINER SHIPPING SURVEY

DATE 8/6/07	SURVEY # 255		TECHNICIAN NAME Glen Huber	
CONTAINER NUMBER	ALPHA INST N/A	BKGD N/A cpm	BETA/GAMMA INST N/A	BKGD N/A cpm
BKR4 Ø25418	ALPHA INST #102770 Lm 2200/43-70 #113195	BKGD 0.3 cpm	BETA/GAMMA INST Lm 3/44-38 #110805	BKGD ~~cpm~~ 0.02 mR/hr

SHIPPING CONTAINER



GAMMA READINGS

HIGHEST CONTACT READING ON EACH SIDE		
SIDE A	0.03	mrem/hr
SIDE B	0.03	mrem/hr
SIDE C	0.03	mrem/hr
SIDE D	0.03	mrem/hr
AVERAGE	0.03	mrem/hr

SURFACE CONTAMINATION

SMEAR #	LOCATION	dpm/100cm² ALPHA
1	TOP	0
2	BOTTOM	0
3	SIDE A	<>5
4	SIDE B	<>5
5	SIDE C	0
6	SIDE D	<>5

LARGE AREA WIPES OF THE EXTERNAL SURFACE = <BKGD βγandα

Highest 1 meter dose rate Bkg mrem/hr
Highest contact dose rate 0.03 mrem/hr
Highest smear result <>5 dpm/ 100cm²
Approved for shipment [signature] Date 8/6/07 HP Technician

COMMENTS

REVIEWED BY DATE

RADIATION SURVEY FORM

SURVEY REFERENCE #: Benton Plug Parkhouse

DATE OF SURVEY: 8/6/07

NAME OF SURVEYOR: Glen Huber

SURVEY METER IDENTIFICATION: **Mfg: Ludlum**

Background Reading: 0.02 **mR/hr** **Model:** 14C

Serial: 104792

INSTRUMENT ID: **Mfg: Ludlum**

Background Reading: 0.3 **cpm** **Model: 2200 (scaler) / 43-10 (alpha)**

Efficiency: 0.334 **%** **Serial:** 102770

MDA: **dpm**

Description (attached sketch if needed) (Area, equipment, vehicle, materials, etc.)	Item #	Gross mR/hr	Gross cpm	dpm per 100 sq. cm
Rubber Backhoe Bucket Inside	1	0.02	1	2
(Post Excavation) outside	2	0.02	0	0

APPENDIX C
SITE PHOTOGRAPHS

©2007, DAI Environmental, Inc.

PHOTO #1

Area of Excavation

PHOTO #2

Monitoring of Excavation Lifts

©2007, DAI Environmental, Inc.

PHOTO #3

Monitoring of Excavated Soils

PHOTO #4

Monitoring of Non-Impacted Soils Pile

©2007, DAI Environmental, Inc.

PHOTO #5

Loading of Impacted Soils

PHOTO #6

Placement of Plywood Barrier

©2007, DAI Environmental, Inc.

APPENDIX D
DISPOSAL DOCUMENTATION

©2007, DAI Environmental, Inc.

L103175

ARRIVED: 8/24/2007

RECORD: 0659-02-0685

HAZ_MANIFEST:

VEHICLE_ID: 129

CUFEET: 135

Waste Type: LLRW

Conveyance Release Survey: _____

(3-98)

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

5. SHIPPER - NAME AND FACILITY
Kerr-McGee Chemical LLC
P.O. Box 548
800 Weyrauch Street
West Chicago, IL 60185

SHIPPER I.D. NUMBER: 0659

7. NRC FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
NRC FORM 541 AND 541A — PAGE 1 OF 1 PAGE(S)
NRC FORM 542 AND 542A — Not Used
ADDITIONAL INFORMATION — Not Used

8. MANIFEST NUMBER (Use this number on all continuation pages): 0659-02- 0685

COLLECTOR
PROCESSOR
GENERATOR TYPE: X Industrial

UTAH PERMIT NUMBER: 0110 000 013
SHIPMENT NUMBER: 0685

9. CONSIGNEE - Name and Facility Address
Energy Solutions
Clive Disposal Site
Interstate 80, Exit 49
Clive, UT 84029

CONTACT: Shipping and Receiving

1. EMERGENCY TELEPHONE NUMBER (Include Area Code)
In Case of Emergency Call CHEMTREC 1-800-424-9300

CONTACT: Mark Krippel

TELEPHONE NUMBER (Include Area Code): 630-293-6330

TELEPHONE NUMBER: (435) 884-0155

ORGANIZATION: Kerr-McGee Chemical LLC

6. CARRIER - Name and Address
John Boehm Trucking, Inc.
PO Box 138
Standard, IL 61363

EPA I.D. NUMBER: N.A.

SIGNATURE - Authorized consignee acknowledging waste receipt: 403175

DATE: 8-24-07

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST =====> 1

SHIPPING DATE: 8/6/2007

10. CERTIFICATION
This is to certify that the herein-named materials are properly classified, discribed, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number =====>

EPA MANIFEST NUMBER: N.A.

CONTACT: John Boehm

TELEPHONE NUMBER (Include Area Code): 875-579-9501

SIGNATURE - Authorized carrier acknowledging waste receipt

Date: 8/6/2007

AUTHORIZED SIGNATURE: Steve Hawks (signature on Shippers file copy)

TITLE: Site Manager

DATE: 8/6/2007

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12 DOT LABEL "RADIOACTIVE"	13 TRANSPORT INDEX	14 PHYSICAL AND CHEMICAL FORM	15 INDIVIDUAL RADIONUCLIDES	16 TOTAL PACKAGE ACTIVITY MBq	16 TOTAL PACKAGE ACTIVITY mCi	17 LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Ore tailings and soils and debris containing	NA	NA	Solid / Thorium Oxide	Th-232, Ra-226, Th-230, U-nat	1.21E+01	3.28E-01	NA	6.8415 tons	BKRU025418
small amounts of radioactive material with								135 cubic feet	
low radiological hazards.									
ROUTE: Rockwell									

FOR CONSIGNEE USE ONLY

- Record Waste Description Inadequate
- Contamination or Leakage Detected
- Unexpected Exposure Rates Detected
- Labels, Markings, etc. Inadequate
- ____ Container Integrity Inadequate
- ____ Other
- No Violations Detected on this Shipment

20. TERMS AND CONDITION

A: HAZARDOUS MATERIALS: Generator represents & warrents that Waste Material ___ is (or) _X_ is not a hazardous waste as defined in 40 CFR 261. Where the material is a hazardous waste, this shipment is also accompanied by a separate and complete hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or certification as required by 40 CFR 268.1

B: TITLE: Upon acceptance at the disposal site by Envirocare of Utah, Inc., and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's representation herein shall thereupon transfer from the Generator and be vested in Envirocare of Utah, Inc

C: WASTE MATERIAL: Generator represents and warrents that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Envirocare of Utah, Inc.'s facility license.

D: INDEMNIFICATION: Generator agrees to indemnify Envirocare of Utah, Inc., its officers, its employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) or if this shipment fails to meet the standards presented by the Department of Transportation or any governmental agency having jurisdiction over such matters.

FORM 540 (3-98)

FORM 541
(3-98)

ENVIROCARE OF UTAH, INC.

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT
1	(m3) 3.8 (ft3) 135	(kg) 6206 (tons) 6.84

SPECIAL NUCLEAR MATERIAL (grams)

U-233	U-235	PU	TOTAL
0.00E+00	0.00E+00	0.00E+00	0.00E+00

ACTIVITY (MBq)

	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129
MBq	1.21E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
mCi	3.28E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00

SOURCE (kgs) 1.35E+00 (tons) 1.48E-03

2. MANIFEST NUMBER 0659-02- 0685

3. PAGE 1 of 1 PAGES(S)

4. SHIPPER NAME Kerr-McGee Chemical LLC
800 Weyrauch Street
West Chicago, IL 60185

SHIPMENT ID NUMBER 0685

WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

DISPOSAL CONTAINER DESCRIPTION: 5 CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBERS	6 CONTAINER DESCRIPTION (See Notes 1)	7 VOLUME (m3) (ft3)	8 WASTE AND CONTAINER WEIGHT (kg) (tons)	9 SURFACE RADIATION LEVEL (mSv/hr) (mR/hr)	10 SURFACE CONTAMINATION MBq/100cm2 dpm/100cm2 ALPHA	BETA-GAMMA	PHYSICAL DESCRIPTION: 11 WASTE DESCRIPTOR (See Note 2)	12 APPROXIMATE WASTE VOLUMES(S) IN CONTAINER (m3) (ft3)	13 SORBENT SOLIDIFICATION STABILIZATION MEDIA (See Note 3)	14 CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF>0.1%	15 RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES, ACTIVITY (MBq), CONCENTRATION, AND CONTAINER TOTAL ACTIVITY: RADIONUCLIDES	pCi/gm	MBq	mCi	16. WASTE CLASSIFICATION AS-Class A Stable N/A 11(e)2 B-Class B C-Class C
BKRU025418	11B LINED	3.8 135	9706 10.70	0.0003 0.03	3.3E-06 <200	3.3E-05 <2000	22, 29	3.8 135	100	Thorium Oxide / NP	NP	Th-232	2.09E+01	4.80E+00	1.30E-01	Class A Unstable
												Ra-226	9.44E+00	2.17E+00	5.86E-02	
												Th-230	< 3.13E+00	< 7.19E-01	< 1.94E-02	
												U-nat	< 1.93E+01	< 4.44E+00	< 1.20E-01	
												Total		1.21E+01	3.28E-01	

NOTE 1: Containers Description Codes. For containers/ waste requiring disposal in approved structural overpacks the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethylene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 8 or additional page

Note 1A Bulk Packaging Description Codes (Choose one code as may be applicable.)

A Gondola
B Intermodal
C Eno-dump
D Roll-off
E Seavan

NOTE 2. Waste Descriptor Codes (Choose up to three which predominate by volume.)

20 Charcoal
21. Incinerator Ash
22. Soil
23 Gas
24 Oil
25 Aqueous Liquid
26 Filter Media
27. Mechanical Filter
28 EPA or Safe Hazardous
29 Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-Exchange Media
33 Contaminated Equipment
34 Organic Liquid (except animal carcass)
35 Glassware or Labware
36 Sealed Source/Device
37. Paint or Plating
38 Evaporator Bottoms/Sludges/Concentrations
39 Compactable Trash
40. Noncompactable Trash
41. Animal Carcass
42. Biological Material (Except Animal Carcass)
43 Activated Material
59 Other. Describe in item 11. or additional page

NOTE 2A Specific Waste Descriptions (Choose all applicable)

G Dewatered
H Solid
I Combustable
J Non-combustable
K Air Filtration Filters
L Asbestos

NOTE 3 Solidification, Stabilization Media Codes (Choose up to three which predominate by volume.) For solidification media meeting disposal structural stability requirements the numerical code must be followed by "-S". For all solidification media

Solidification
90 Cement
91. Concrete (encapsulation)
92 Bitumen
93. Vinyl Chloride
94 Vinyl Ester Styrene
99 Other. Describe in item 13. or additional page
100. None Required

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Input Data Below

BOL #	Container #	Surface mR/hr	Date	Total Net
0685	BKRU025418	0.03	8/6/2007	13683