



**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

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 raters-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.

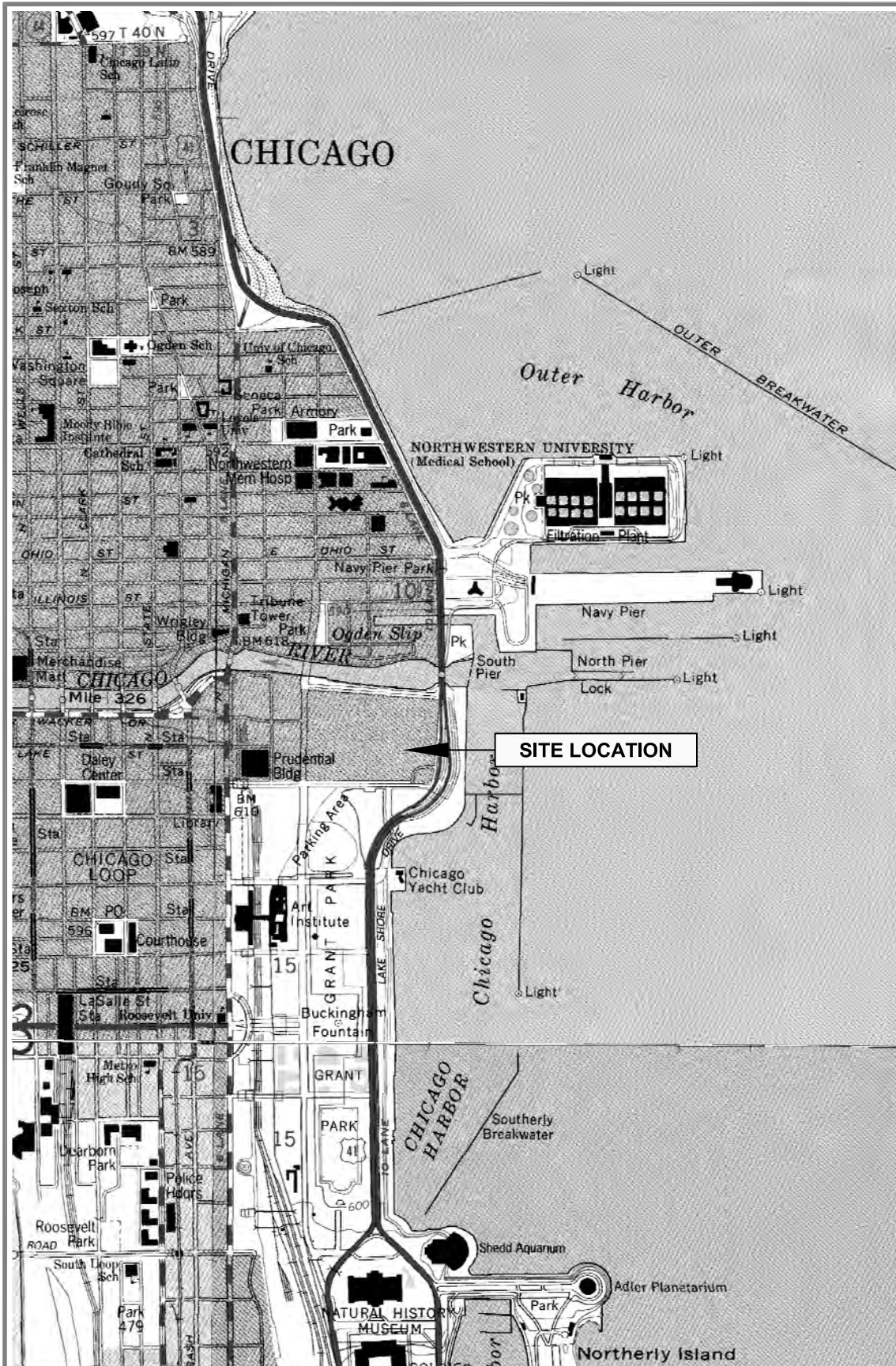
The excavation advanced in approximately 6-in lifts, with all soils radiological screened by SAHCI. Soils that were found to not be impacted ($<18,000$ -cpm) were excavated and placed adjacent to the exclusion zone to be used later as backfill materials. All soils with radiological activities greater 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.

3.0 USEPA COMPLETION LETTER REQUEST

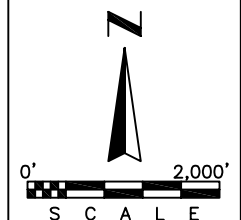
On the basis of the radiological monitoring being complete in accordance with the approved *Work Plan for Investigation and Removal of Radiological Impacted Soil-Lakeshore East Development*, and the fact that Ms. Verneta Simon and Mr. Eugene Jablonowski of the USEPA approved the termination of the excavation, 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.

FIGURES



LEGEND

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



CAD FILE: 7299-71
REVISED: 08-30-07

DAI
ENVIRONMENTAL

LAKEHORE EAST
PARK HOMES
245 EAST BENTON PLACE
CHICAGO, ILLINOIS

FIGURE 1
SITE LOCATION MAP /
TOPOGRAPHIC MAP



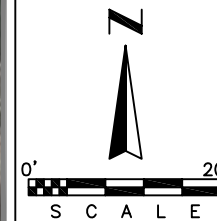
LEGEND

SITE
BOUNDARY



EXCAVATION
AREA

PLYWOOD
BARRIER

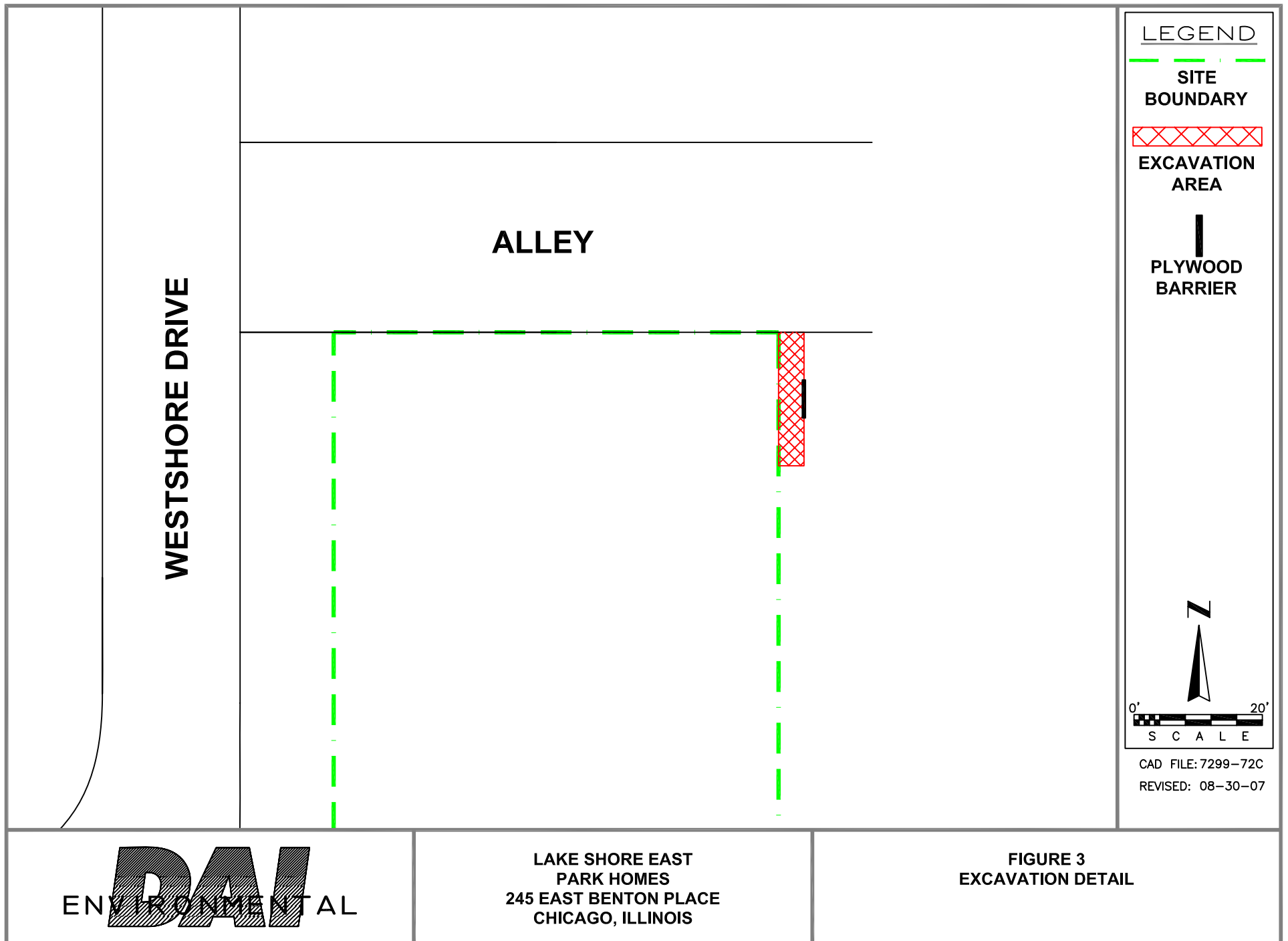


CAD FILE: 7299-72B
REVISED: 09-06-07

DAI
ENVIRONMENTAL

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

FIGURE 2
AERIAL PHOTOGRAPH /
SITE BOUNDARIES



APPENDIX A
USEPA NOTIFICATION

From: Kara Pellaton [mailto:kpellaton@magellanddevelopment.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

Radiation Survey Form - Post Cleanup

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

Date: 8/6/07

Technician: Glen Huber

Inst Model: Lucas-2221

Serial No.: 134542

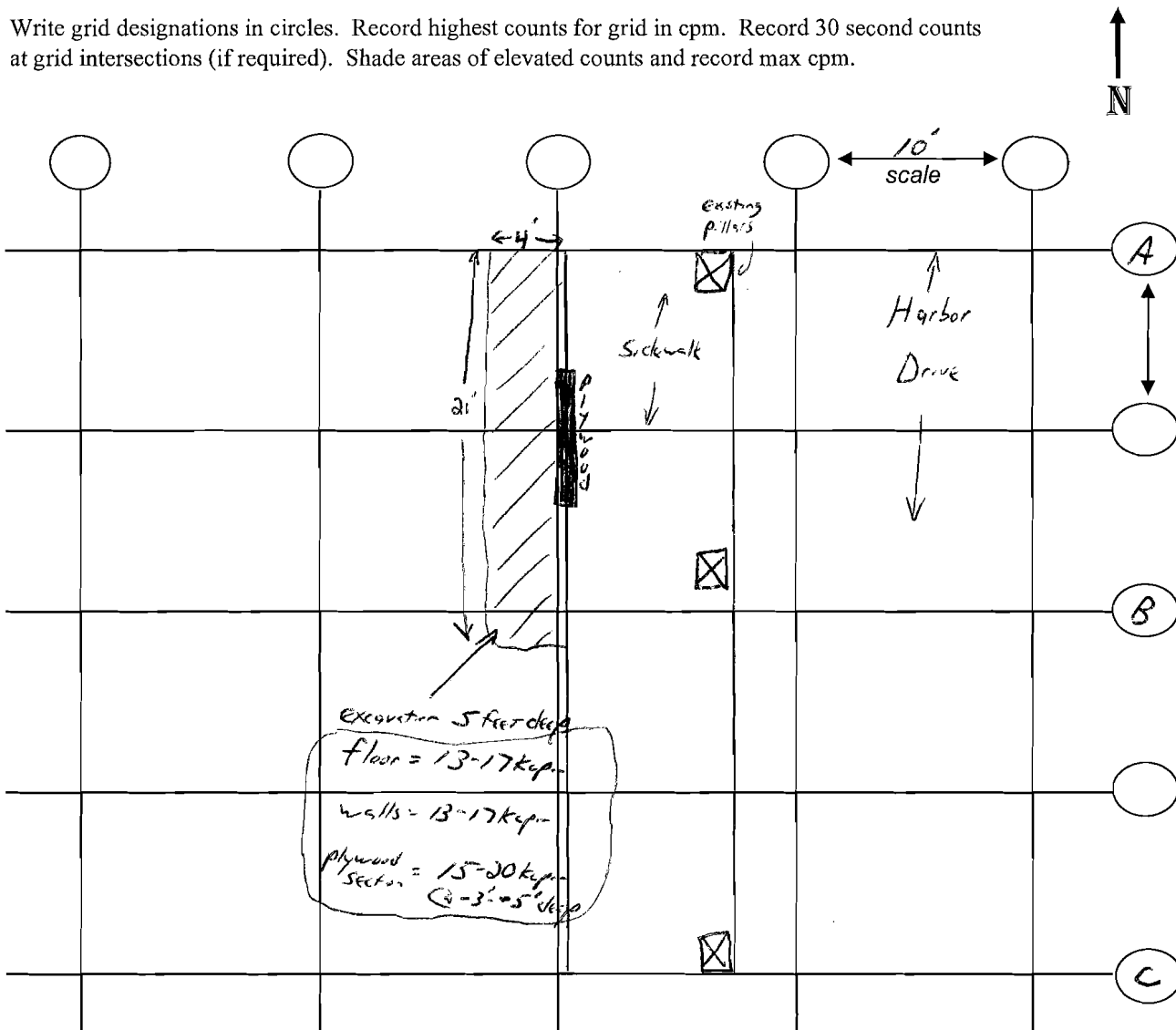
Probe Type: 1"x1" NaI / 2"x2" NaI
Shielded / Not Shielded

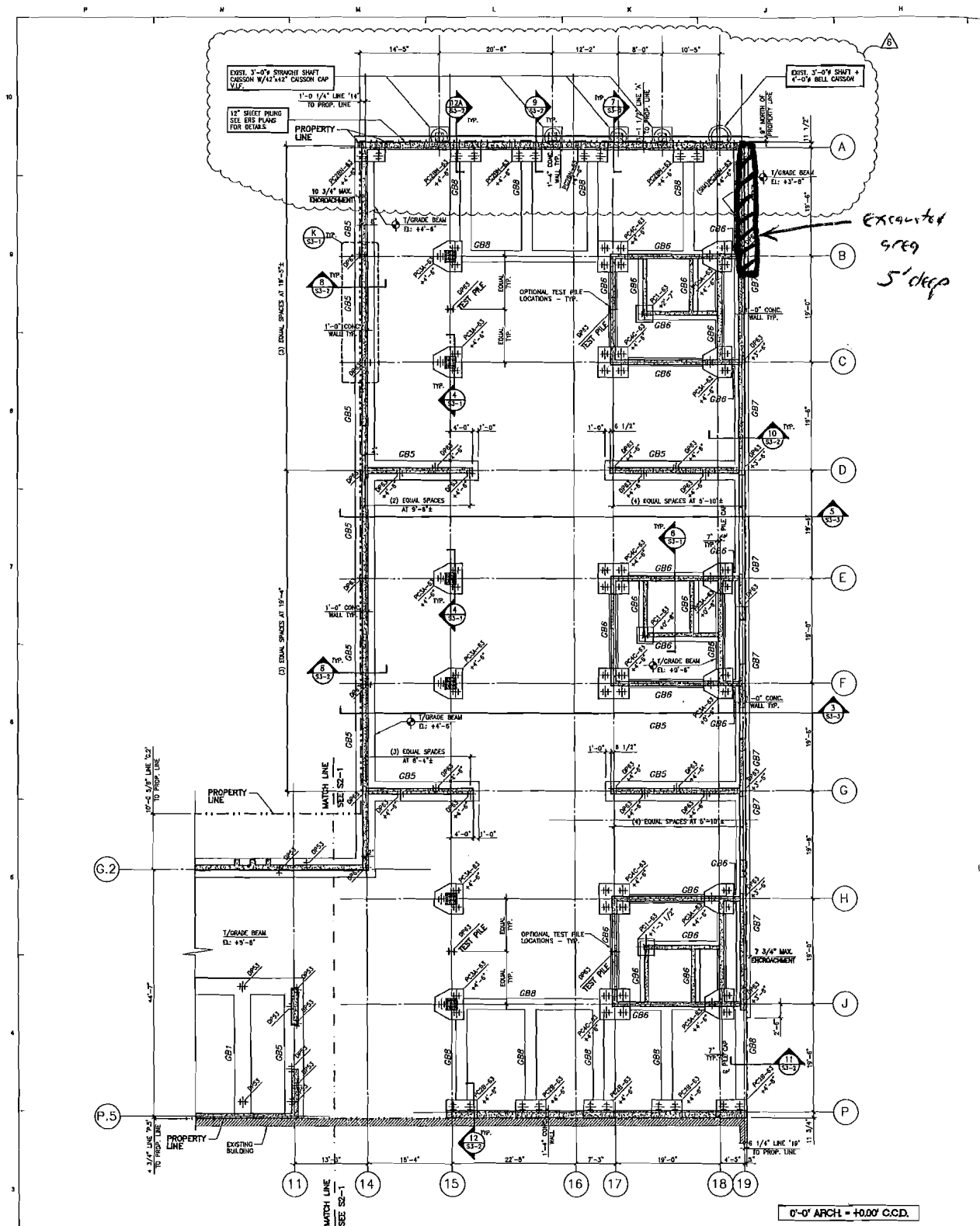
Lift Elevation: surface → -5'

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.





A FOUNDATION PLAN - BUILDING 2
SCALE: 1/8"=1'-0"

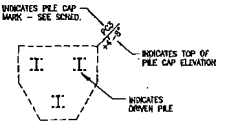
SEE SHEET 53-1 FOR GRADE BEAM SCHEDULE



TYPE MARK	NO. OF PILES	SIZE	PILE	DEPTH	EMBEDMENT	SHORT BARS	LONG BARS	REMARKS
GPB	1		HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	SINGLE PILE, SEE PLAN
PC1-63	2	30" x 30"	HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	
PC2-63	2	SEE A/53-1	HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	
PC3-63	2	SEE B/53-1	HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	NOTE 5
PC4-63	2	SEE C/53-1	HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	THREE WAYS
PC5-63	3	SEE D/53-1	HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	THREE WAYS
PC6-63	3	SEE E/53-1	HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	
PC7-63	3	SEE F/53-1	HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	
PC8-63	4	SEE G/53-1	HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	
PC9-63	4	SEE H/53-1	HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	
PC10-63	4	SEE I/53-1	HP12x43	4'-0"	0'-6"	(10) #8	(8) #8	

NOTES:
1. BOTTOM OF PILE = -90.00' (A) C.C.D.
2. SEE 53-1 FOR PILE CAP DETAILS
3. PILE CAP # LOCATED AT S OF COLUMN TYP. UNCL.
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 11/53-2 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

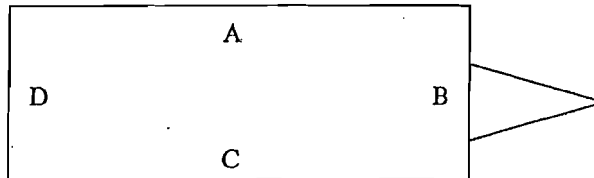
August 6, 2007

Sample ID	date sampled	start time	stop time	total time sampled	cubic ft/ min (CFM)	sample volume analyzed	day after analysis					four day analysis					% of Limit 4.00E-15 uCi/ml
							date analyzed	gross counts	bkg counts	net cpm	Concentration in uCi/ml	date analyzed	gross counts	bkg counts	net cpm	Concentration in 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 <u>8/6/07</u>	SURVEY # <u>255</u>		TECHNICIAN NAME <u>Glenn Huber</u>	
CONTAINER NUMBER <u>BK24</u> <u>025418</u>	ALPHA INST <u>N/A</u>	BKGD <u>N/A</u> cpm	BETA/GAMMA INST <u>N/A</u>	BKGD <u>N/A</u> cpm
	ALPHA INST #102770 <u>LM 2200/43-10 #113195</u>	BKGD <u>0.3</u> cpm	BETA/GAMMA INST <u>LM 3/44-38 #110805</u>	BKGD <u>0.02</u> mR/hr

SHIPPING CONTAINER



GAMMA READINGS

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

SURFACE CONTAMINATION

SMEAR #	LOCATION	dpm/100cm ²
		ALPHA
<u>1</u>	TOP	<u>0</u>
<u>2</u>	BOTTOM	<u>0</u>
<u>3</u>	SIDE A	<u>< 7.5</u>
<u>4</u>	SIDE B	<u>< 7.5</u>
<u>5</u>	SIDE C	<u>0</u>
<u>6</u>	SIDE D	<u>< 7.5</u>

LARGE AREA WIPES OF THE EXTERNAL SURFACE = < BKGD By anda

Highest 1 meter dose rate <u>BK2</u> mrem/hr
Highest contact dose rate <u>0.03</u> mrem/hr
Highest smear result <u>< 7.5</u> dpm/100cm ²
Approved for shipment <u>Glenn Huber</u> Date <u>8/6/07</u> HP Technician

COMMENTS _____

REVIEWED BY _____ DATE _____

RADIATION SURVEY FORM

SURVEY REFERENCE #: *Benton Plue Perkhores*

DATE OF SURVEY: 8/6/07

NAME OF SURVEYOR: *Glen Hunter*

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

[illegible]

APPENDIX C
SITE PHOTOGRAPHS

PHOTO #1



Area of Excavation

PHOTO #2



Monitoring of Excavation Lifts

PHOTO #3



Monitoring of Excavated Soils

PHOTO #4



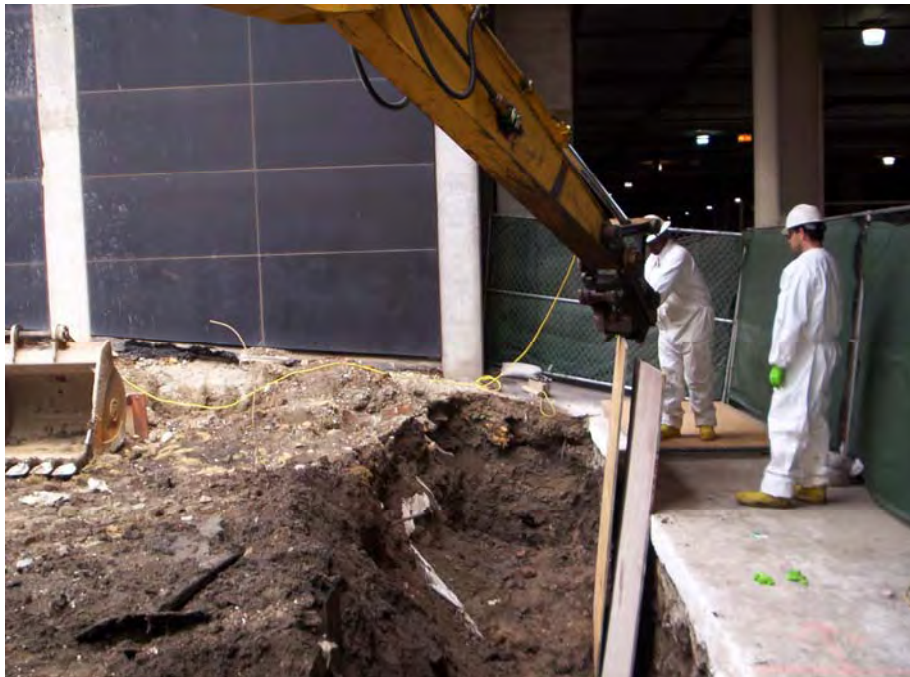
Monitoring of Non-Impacted Soils Pile

PHOTO #5



Loading of Impacted Soils

PHOTO #6



Placement of Plywood Barrier

APPENDIX D
DISPOSAL DOCUMENTATION

L103175

ARRIVED: 8/24/2007

CUFEET: 135

RECORD: 0659-02-0685

Waste Type: LLRW

HAZ_MANIFEST:

VEHICLE_ID: 129

Conveyance Release Survey: _____



FORM 541
(3-98)

ENVIROCORE 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

U-233

U-235

PU

TOTAL

1

(m3)
(ft3)

3.8
135

(kg)
(tons)

6206
6.84

0.00E+00

0.00E+00

0.00E+00

0.00E+00

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

5

6

7

8

9

10

11

12

13

14

15

16

CONTAINER
IDENTIFICATION
NUMBER/
GENERATOR
ID NUMBERS

CONTAINER
DESCRIPTION
(See Notes 1)

VOLUME
(m3)
(ft3)

WASTE
AND
CONTAINER
WEIGHT
(kg)
(tons)

SURFACE
RADIATION
LEVEL
(mSv/hr)
(mR/hr)

SURFACE
CONTAMINATION
MBq/100cm2
dpm/100cm2

WASTE
DESCRIPTOR
(See Note 2)

APPROXIMATE
WASTE
VOLUMES(S) IN
CONTAINER
(m3)
(ft3)

SORBENT
SOLIDIFICATION
STABILIZATION
MEDIA
(See Note 3)

CHEMICAL FORM/
CHELATING AGENT

WEIGHT
%
CHELATING
AGENT
IF > 0.1%

RADIOLOGICAL DESCRIPTION

INDIVIDUAL RADIONUCLIDES, ACTIVITY (MBq),
CONCENTRATION, AND CONTAINER TOTAL ACTIVITY

CLASSIFI-
CATION
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. End-dump
D. Roll-off
E. Seavain

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 carcasses)
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. Combustible
J. Non-combustible
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

Input Data Below

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