Control #: D4-300-093

FACILITY STATUS CHANGE FORM

Date Submitted:	Area:	Control #:
May 8, 2014	300 Area	D4-300-093
Originator:	**Facility ID:**	
Chris Strand	326	
Phone:	**Action Memorandum:**	
554-2720	Action Memorandum #3	

This form documents agreement among the parties listed below on the status of the facility D&D operations and the disposition of underlying soil in accordance with the applicable regulatory decision documents.

Section 1: Facility Status

- ☐ All D4 operations required by action memo complete.
- ☒ D4 operations required by action memo partially complete, remaining operations deferred.

Description of Completed Activities and Current Conditions:
Deactivation: Utility isolations were completed on the facility prior to demolition.

Decontamination and Decommissioning: Hazardous materials were removed prior to demolition and included radioactive materials, Freon, HEPA filters, oils, grease, mercury, lead, and asbestos. Asbestos was removed by certified asbestos workers.

Demolition of the 326 above-grade structure was completed October of 2013. Below-grade demolition (excluding the basement floor and walls) was completed Februrary 2014. The debris was removed and disposed of at ERDF.

Description of Deferral (as applicable):
Removal of the 326 below-grade basement floor and walls are interfered with by adjacent and active utilities servicing the 325 Building. These structures remain in place and were backfilled in place following final surveys.

Section 2: Underlying Soil Status

- ☐ No waste site(s) present. No additional actions anticipated.
- ☒ Documented waste site(s) present. Cleanup and closeout to be addressed under Record of Decision.
- ☐ Potential waste site discovered during D4 operations. Waste site identification number <to be> assigned.

  Cleanup and closeout to be addressed under Record of Decision.

Description of Current/As-Left Conditions:
The 326 basement was cleaned of debris and backfilled in place with borrow pit material following GPERS surveys. The foundation remains posted as a radiologically controlled area.

Identification of Documented Waste Site(s) or Nature of Potential Waste Site Discovery (as applicable):
300-RRLWS, 300-RLWS, 300-214, and 300-15 waste site piping remain in place where they exit the 326 basement.

Section 3: List of Attachments

1. Facility Information (building history and characterization).
2. Project photographs.
3. GPERS surveys.
4. Basement walls radiological surveys.
5. 326 End-State Proposal
6. 326 Basement Civil Survey

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Control #: D4-300-093

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FACILITY STATUS CHANGE FORM

DOE-RL	Date 5/8/14
Lead Regulator ☒ EPA ☐ Ecology	Date 5/27/14

DISTRIBUTION:

EPA: Dennis Faulk, B1-46
Ecology: Rick Bond, HO-57
DOE: Rudy Guercia, A3-04
Document Control, H4-11
Administrative Record, H6-08 (300-FF-2 OU)

SIS Coordinator: Ben Cowin, H4-22
D4 EPL: Chris Strand, L4-45
Sample Design/Cleanup Verification:Theresa Howell, H4-23
FR Engineering: Eric Ison, L4-39
FR EPL: Chris Strand, L4-45

Attachment 1: Facility Information

Building History:

The 326 Laboratory, known early on as the Pile Technology Building, was constructed in 1953. The building was 190 by 180 by 38 feet, with a total area of 63,107 sq feet. The building was constructed of a bolted steel framework over a concrete basement; the exterior walls consist of fluted steel insulated panels. The first and second floors were steel with concrete, finished originally with asphalt or vinyl asbestos tile. The L-shaped building contained offices along the outside and laboratories along the inside on the first, second, and basement floors. An equipment room is located on the first floor in the angle of the L. The laboratories were originally designed for heavy metallurgical work, large reactor mock-ups, and exponential pile physics experiments. The building originally contained no hot cells and work with high-activity substances was performed in lead brick "caves". Two hot cells were added to the basement in later building reconfigurations. Ventilation for contamination control supplied air first to offices and corridors and then exhausted it from laboratories.

The original 326 Building was constructed to "assure continuity of operations [of production reactors], to maintain and to improve the present plants [reactors], and to develop the technical information required for the design of future plants." Work included approach-to-critical, lattice design experiments conducted in graphite piles that were directed toward finding new lattice configurations to improve reactor efficiency and safety. During the earliest years of building history, graphite cubes operated as approach-to-critical, exponential piles in basement laboratories.

In the 1970s and 1980s, several of the laboratories were converted to accommodate chemical work involving unirradiated or low-level radioactive materials. The central mission continued to be support and study of reactor components and fuel elements during this period, including development and analysis work performed for the Plutonium Recycle Test Reactor, N Reactor, the High-Temperature Lattice Test Reactor, and the Fast Flux Test Facility. These studies were enhanced by the addition of equipment including mass spectrometers, electron microprobes, quantitative image analyzers and tensile test equipment.

The 326 Building was located immediately north of the 329 Building and east of Wisconsin Street in the 300 Area.

583 0940

326 Building Characterization:

Table 1. Summary of Characterization Surveys at 326

Type	Date	Documented In	Results Summary
Asbestos	9/6/12	CCN# 167402	Asbestos was identified in numerous forms and locations. These included friable, Category I, and Category II materials present in the form of gaskets, putty, floor tile, mastic, transite, and TSI.
IH Surveys and Beryllium Characterization	2/24/2011	CCN# 154536	Building determined to be Be controlled based on historical information and sample data. Other hazardous COCs included lead, cadmium, and mercury.
	2/25/13	IHEA-326-13-001	Building remained Be controlled, other hazardous COCs included lead, cadmium, and mercury
	7/15/13	IHEA-326-13-002	Be and cadmium controls remain in place for demolition.
Radiological Surveys	5/20/11 5/16/11 6/2/11 1/3/12 1/11/12 2/15/12 8/8/12 8/13/12 2/26/13 2/26/13 3/4/13 3/19/13 4/15/13 5/9/13	RSR-300-PS-11-2235 RSR-300-PS-11-2356 RSR-300-PS-11-2539 RSR-300-PS-12-0005 RSR-300-PS-12-0119 RSR-300-PS-12-0559 RSR-300-PS-12-2893 RSR-300-PS-12-2923 RSR-300-PS-13-0836 RSR-300-PS-13-0920 RSR-300-PS-13-0882 RSR-300-PS-13-1021 RSR-300-PS-13-1437 RSR-300-PS-13-1826	Radiological survey included many in-process, results ranged from background in administrative areas to contamination areas, high contamination areas, radiation areas, and high radiation areas. Locations with elevated contamination were associated with laboratory spaces, glove boxes, and hot-cells.

Identification of Document Waste Sites:

300-RRLWS, 300-RLWS, 300-214, and 300-15 waste site piping that serviced the building remains in place where they exit the basement.

Anomalies Discovered During Demolition:

No anomalies were discovered during the demolition of the 326 Building. Because the basement remains in place, an evaluation of underlying soils could not be performed. However, the basement was cleaned of debris and determined to be free of radiological contamination prior to backfill with clean material. In addition, twelve tritium storage tubes exit the basement on the southwest corner of the building and lie below Spruce Street. All were surveyed and determined

to be free of radiological contamination with the exception of one that displayed very low levels. All twelve tubes were capped and remain in place.

Attachment 2: Project Photographs

Photograph 1: 326 Building, looking northeast on June 1, 1957.

Photograph 2: Aerial view of 26, looking southwest on July 9, 2013.

Photograph 3: Room 17A hot-cell during building operations on November 11, 2011.

Photograph 4: Room 9A tritium storage tubes in south wall (remain in place) during building operations on November 11, 2011.

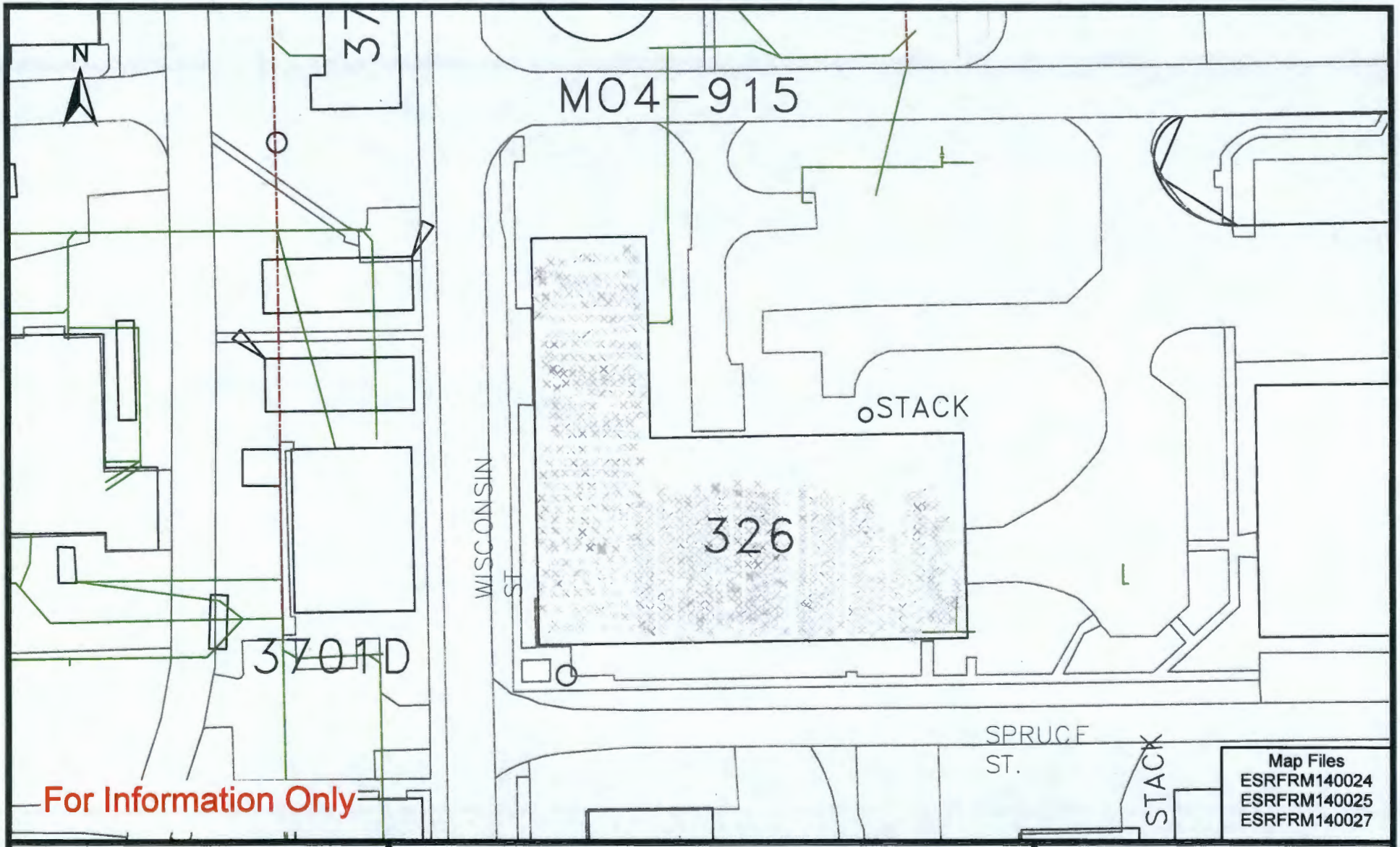
Photograph 5: Above-grade demolition, looking northeast on September 29, 2013.

Photograph 6: Above-grade demolition, looking east on October 7, 2013.

Photograph 7: 326 Basement prior to backfill, looking east on March 24, 2014.

Photograph 8: 326 Site completion following backfill, looking south on May 13, 2014.

Attachment 3: GPERS Surveys of the 326 Basement (Beta and Gamma Tracks)



Legend

NET CPM

- <1.5x bkg
- 1.5x bkg - 5000
- 5000 - 10000
- 10000 - 25000
- 25000

Summary Statistics

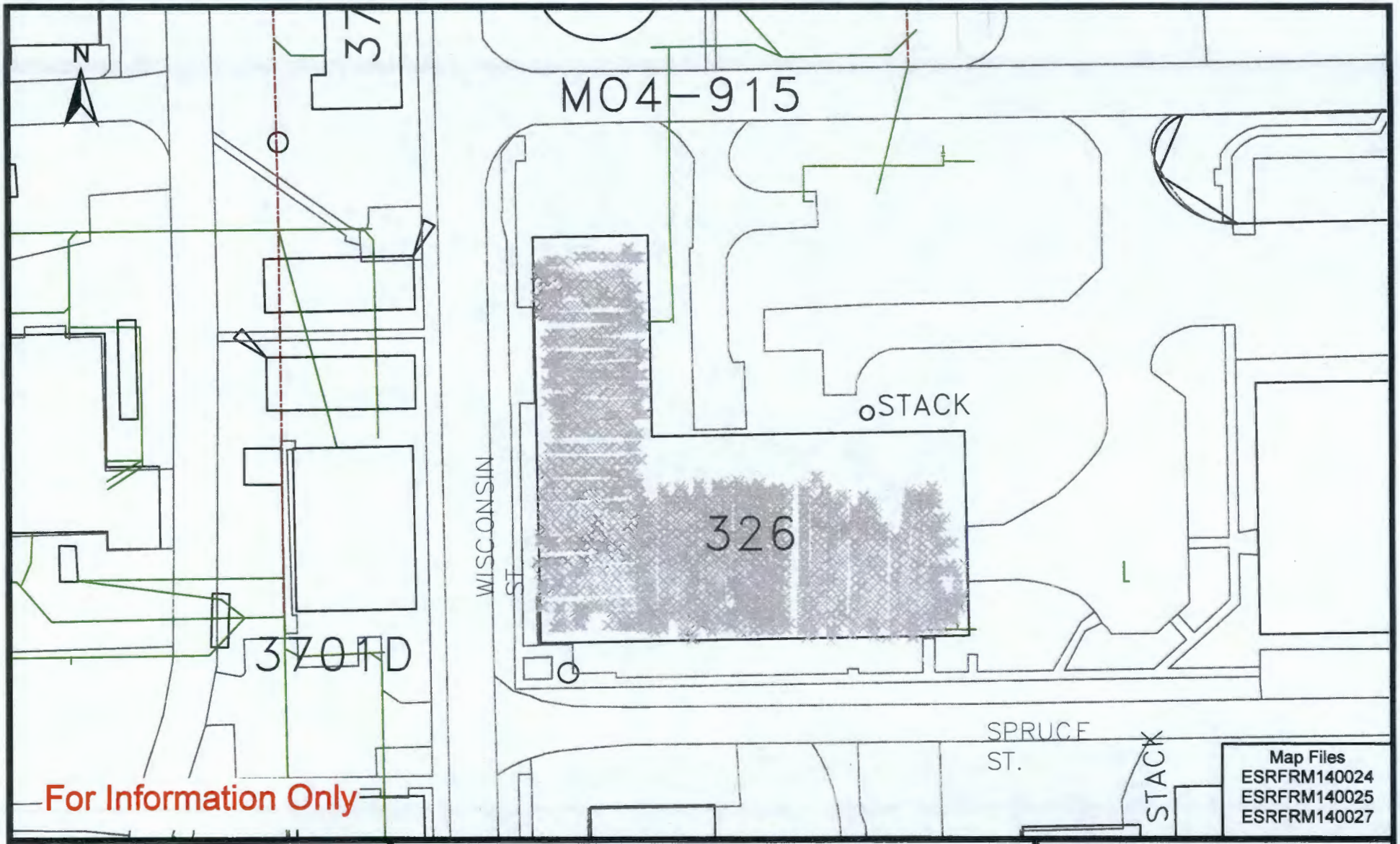
Number of Data Pnts: 1,724
Type of Survey: Beta
Max GCPM: 729
Avg Bkg CPM: 297
Area Surveyed: 1,770 m^2
Project File: Cmp_326_Bsmt
Pdf File: Cmp_326_Bsmt_B_r1

300 D4
Composite 326 Basement
GPERS Radiological Survey
Beta Track Map

0 5 10 15 20 25 Meters

EBERLINE SERVICES

Survey Map Prepared By Bruce Coomer, ESI



Map Files
ESRFRM140024
ESRFRM140025
ESRFRM140027

Legend

NET CPM

- × <1.5x bkg
- 1.5x bkg - 5000
- 5000 - 10000
- 10000 - 25000
- 25000

Summary Statistics

Number of Data Pnts: 23,304
Type of Survey: Gamma
Max GCPM: 2,450
Avg Bkg CPM: 1,316
Area Surveyed: 1,770 m^2
Project File: Cmp_326_Bsmt
Pdf File: Cmp_326_Bsmt_G_r1

300 D4
Composite 326 Basement
GPERS Radiological Survey
Gamma Track Map

0 5 10 15 20 25
Meters

EBERLINE SERVICES

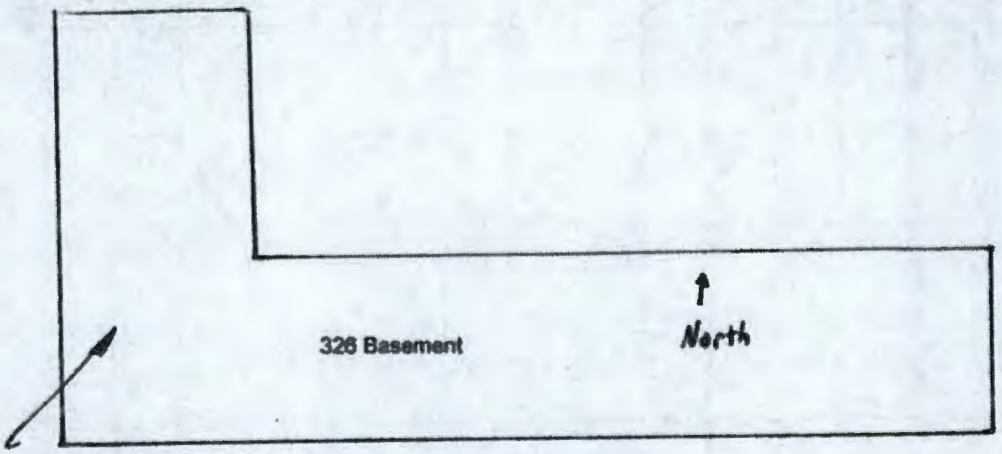
Survey Map Prepared By Bruce Coomer, ESI

Attachment 4: 326 Basement Radiological Surveys

Acrobat 8.0

WCH ENVIRONMENTAL RADIOLOGICAL SURVEY RECORD

Survey Number:	Project:	Date/Time:
ESR-300PS-14-0002	300PS	03/06/14 1400
Sampling Document Number(s):	**Project Location:**	**RWP Number:**
DOE/RL-2001-48 Rev. 3	326 Basement	N/A



Surveyed at the ten foot level on all interior sides that were present.

Environmental Survey Instrument Data Sheet (ESIDS) Number:	ERSTI/Procedure Number:
ESID-300PS-14-0001, ESID-300PS-14-0002	ERSTI-13-0001/Rev. 0

LEGEND

CA Contamination Area	URMA Underground Radioactivity Area	RA Radiation Area	RMA Radioactive Material Area	SCA Soil Contamination Area	RMSA Radioactive Material Storage Area	
⊙ CPM	# Direct	Contact 30 cm	General Area Dose Rate Rates = Uncorrected Meter Reading (mR/hr)	Radiological Boundary x—x—x	Δ Micro Rem (μ rem/hr)	RBA Radiological Buffer Area

INSTRUMENT(S)

Instrument			Probe				Efficiency	
Model No.	Serial No.	Calibration Due Date	Model No.	Serial No.	Calibration Due Date	Bkgd	α	βγ
Electra	CMNE1-0077	01/15/15	44-11(NaI)	DTLL3-0013	01/15/15	1400	N/A	7.3
Electra	CMNE3-0002	01/16/15	44-11(NaI)	DTLL3-0029	01/16/15	1760	N/A	7.7
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Remarks:
Attached attachment one form to indicate survey results. Attachment 1 figure 1.2 also attached to indicate areas greater than 1.5x background. Work area background 2100 cpm.

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
Shawn A. Homi / 03/06/14	RANDY GRIEDER 3/10/14

WCH-EE-198 (02/05/2007)

WCH ENVIRONMENTAL RADIOLOGICAL SURVEY RECORD

RADIOLOGICAL SURVEY DATA

			Survey Type			Corrected Dose Rates				Contamination Measurement Information				
Location	Surface Type	Scan Speed	Static	Scanning	Sample	β (WO-WC)	Units	γ (WC)	Units	α	Units	βγ	Units	Sample ID
Basement ten foot level	concrete	1"/sec.	5 sec.	Grid	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1.5	cpm	N/A
N/A														N/A
N/A														N/A

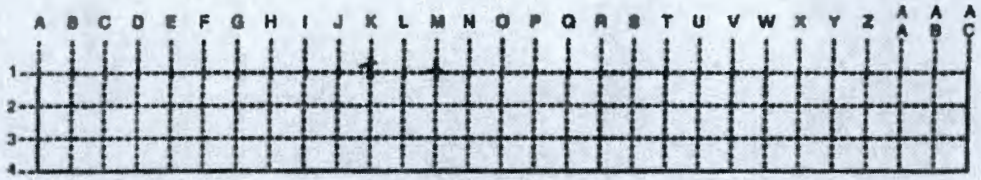
Attachment 1
Figure 1.2. Grid Pattern for 326 Wall Surveys

It is recommended that the vertical wall surfaces be divided into 5' by 5' squares and the survey performed on a grid. The static counts should be performed along either the vertical or horizontal lines identified by letters. The intersect of vertical and horizontal lines should be where static counts are taken.

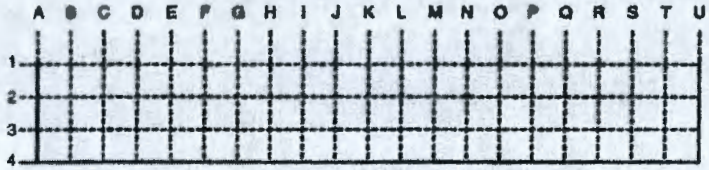
Scan survey results > 1.5 times background should have the locations marked on this attachment.

Static survey results should be entered in the appropriate block for the grid on Table 1.1

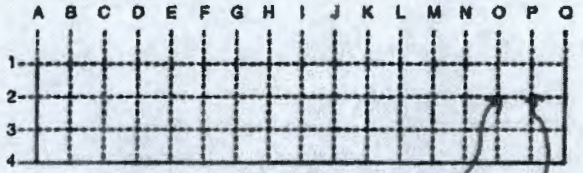
North - 1 Wall



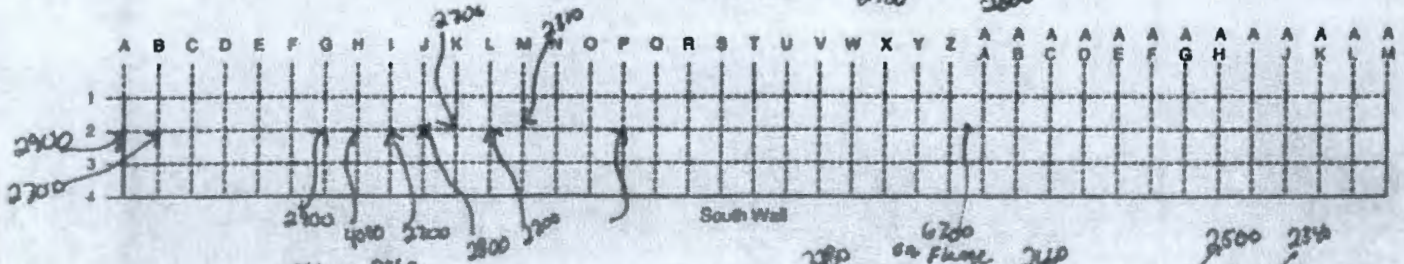
North - 2 Wall



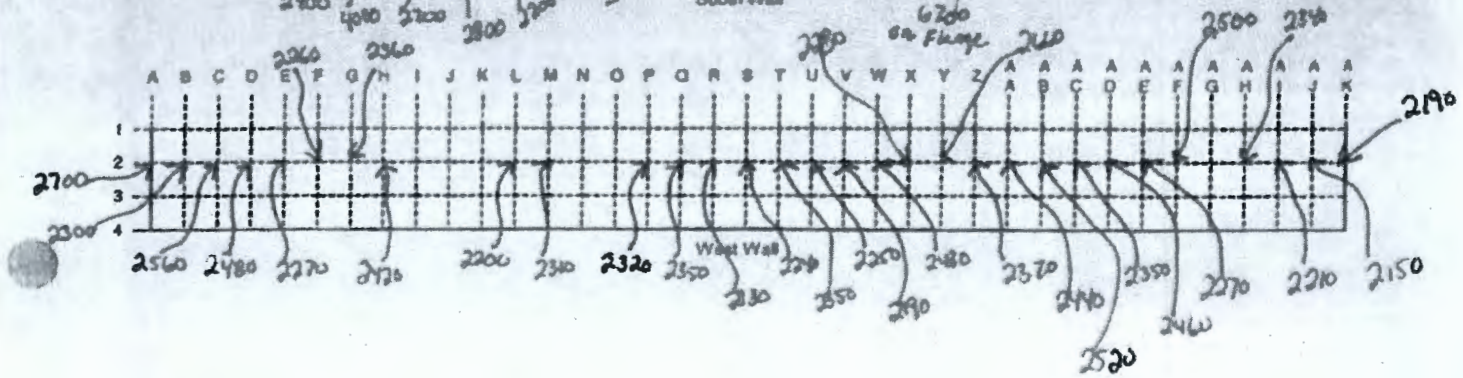
East - 1 Wall



East - 2 Wall

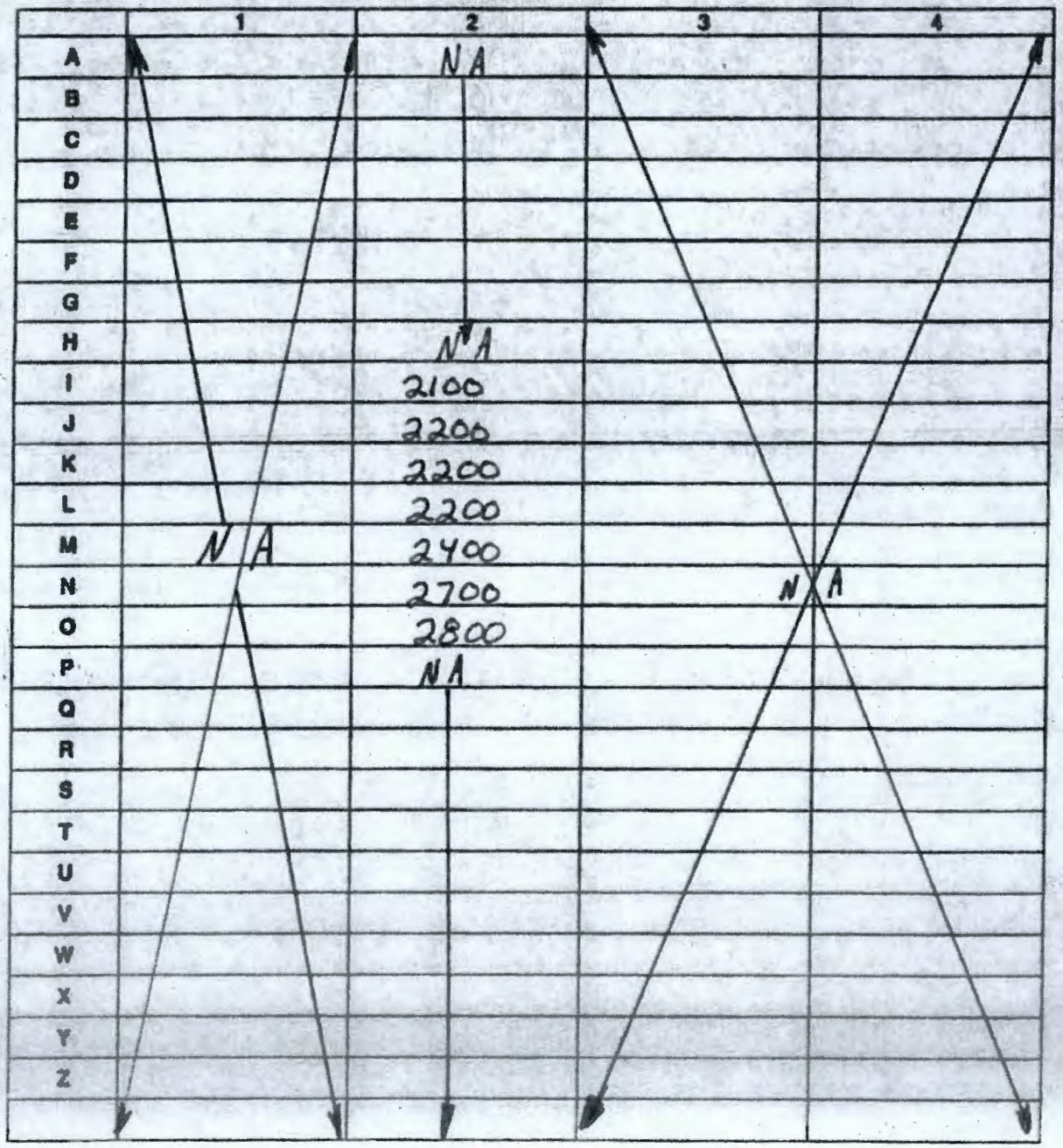


South Wall



Attachment 1
Table 1 – Data Sheet for Wall Survey

Wall Designation: East Wall 2 * recorded in CPM



Instrument Used ESID-300PS-14-0002 1.5 x bkg 2640 cpm

Attachment 1
Table 1 – Data Sheet for Wall Survey

Wall Designation: South Wall * recorded in CPM

	1	2	3	4
A	NA	2900	NA	NA
B		2700		
C		2500		
D		2500		
E		2400		
F		2600		
G		2900		
H		4000		
I		2700		
J		2800		
K		2700		
L		2500		
M		2300		
N		2400		
O		2400		
P		2500		
Q		2400		
R		2400		
S		2300		
T		2400		
U		2400		
V		2500		
W		2400		
X		2500		
Y		2600		
Z	NA	2400	↓	↓
NA	*	6700		

* Note
On 1' per sec scan, reading was found on flange

Instrument Used ESID-300PS-14-0002 1.5x6kg 2640cpm

Attachment 1
Table 1 – Data Sheet for Wall Survey
(continued)

Wall Designation: South Wall

* recorded in CPM

AA	NA	2206	NA	NA
AB		2300		
AC		2400		
AD		2206		
AE		2300		
AF		2200		
AG		2300		
AH		2300		
AI		2400		
AJ		2400		
AK		2306		
AL		2500		
AM		2400		
NA		NA		

Used ESID-300PS-14-0002 1.5x bkg 2640cpm

Attachment 1
Table 1 – Data Sheet for Wall Survey

Wall Designation: West Wall

* recorded in CPM

	1	2	3	4
A	NA	2700	NA	NA
B		2300		
C		2560		
D		2480		
E		2270		
F		2266		
G		2360		
H		2420		
I		2100		
J		2000		
K		1870		
L		2200		
M		2310		
N		1940		
O		1630		
P		2326		
Q		2350		
R		2130		
S		2240		
T		2350		
U		2250		
V		2190		
W		2430		
X		2280		
Y		2660		
Z		2370		
NA		NA		

Instrument Used ESID·300PS·14·0001

1.5 x bkg. 2100 cpm

Attachment 1
Table 1 – Data Sheet for Wall Survey
(continued)

Wall Designation: West Wall

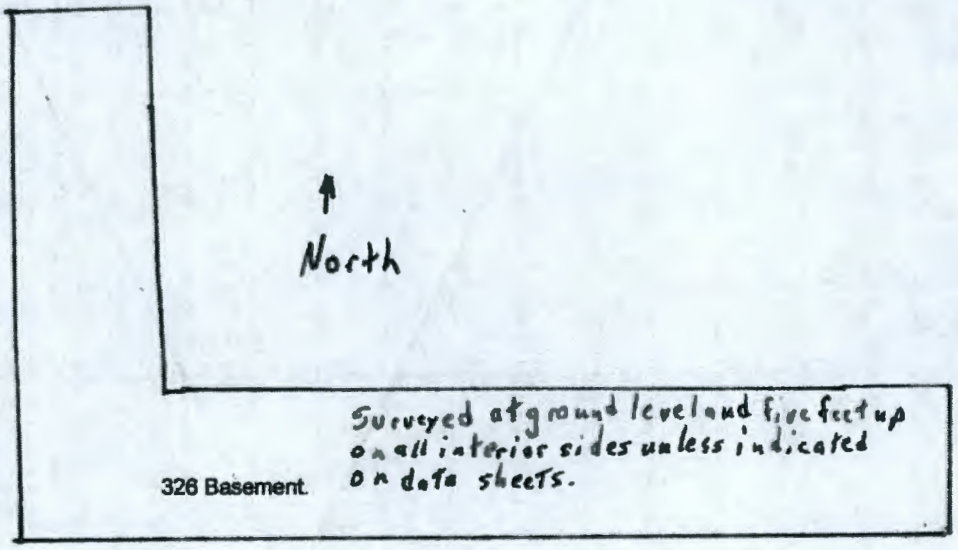
* recorded in CPM

AA	NA	2440	NA	NA
AB		2520		
AC		2350		
AD		2460		
AE		2270		
AF		2500		
AG		2066		
AH		2340		
AI		2210		
AJ		2150		
AK		2190		
AL		NA		
AM				
NA				

Instrument used ESID-300PS-14.0001
1.5x bkg 2100 cpm

WCH ENVIRONMENTAL RADIOLOGICAL SURVEY RECORD

Survey Number:	Project:	Date/Time:
ESR-300PS-14-0001	300PS	03/05/14 1430
Sampling Document Number(s):	**Project Location:**	**RWP Number:**
DOE/RL-2001-48 Rev.3	326 Basement	N/A



Environmental Survey Instrument Data Sheet (ESIDS) Number:	ERSTI/Procedure Number:
ESID-300PS-14-0001, ESID-300PS-14-0002	ERSTI-13-0001/ Rev.0

LEGEND

CA Contamination Area	URMA Underground Radioactivity Area	RA Radiation Area	RMA Radioactive Material Area	SCA Soil Contamination Area	RMSA Radioactive Material Storage Area
© CPM	# Direct	Contact 30 cm	General Area Dose Rate Rates = Uncorrected Meter Reading (mR/hr)	Radiological Boundary x—x—x	Δ Micro Rem (μ rem/hr)	RBA Radiological Buffer Area

INSTRUMENT(S)

Instrument			Probe				Efficiency	
Model No.	Serial No.	Calibration Due Date	Model No.	Serial No.	Calibration Due Date	Bkgd	α	βγ
Electra	CMNE1-0077	01/15/15	44-11(Nal)	DTLL3-0013	01/15/15	1700 SA ~~2050~~ 1700 N/A		7.3
Electra	CMNE3-0002	01/16/15	44-11(Nal)	DTLL3-0029	01/16/15	1870 SA ~~1990~~ 1870 N/A		7.7
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Remarks:
Attached attachment one form to indicate survey results. Attachment 1 Figure 1.2 also attached to indicate areas greater than 1.5x background. Work area background 2000 cpm.

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
Shawn A. Homi / 03/05/14 S. REBEV 3/5/14	RANDY GRIEDER 3/6/14

WCH ENVIRONMENTAL RADIOLOGICAL SURVEY RECORD

RADIOLOGICAL SURVEY DATA

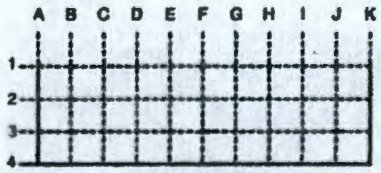
			Survey Type			Corrected Dose Rates				Contamination Measurement Information				
Location	Surface Type	Scan Speed	Static	Scanning	Sample	β (WO-WC)	Units	γ (WC)	Units	α	Units	βγ	Units	Sample ID
Basement ground level	Concrete	1'/sec.	5 sec.	Grid	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1.5	cpm	N/A
Basement five foot level	Concrete	1'/sec.	5 sec.	Grid	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1.5	cpm	N/A
N/A														N/A
N/A														N/A

Attachment 1
Figure 1.2. Grid Pattern for 326 Wall Surveys

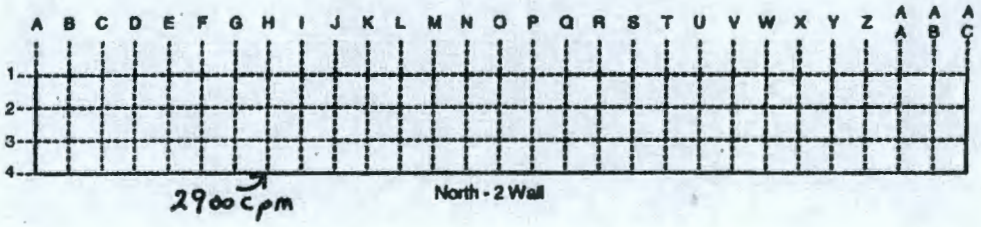
It is recommended that the vertical wall surfaces be divided into 5' by 5' squares and the survey performed on a grid. The static counts should be performed along either the vertical or horizontal lines identified by letters. The intersect of vertical and horizontal lines should be where static counts are taken.

Scan survey results > 1.5 times background should have the locations marked on this attachment.

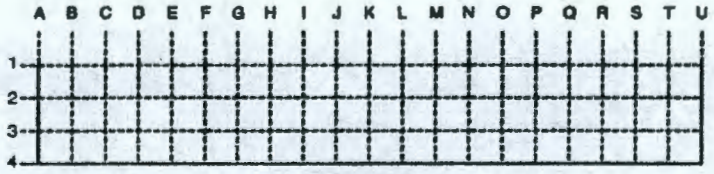
Static survey results should be entered in the appropriate block for the grid on Table 1.1



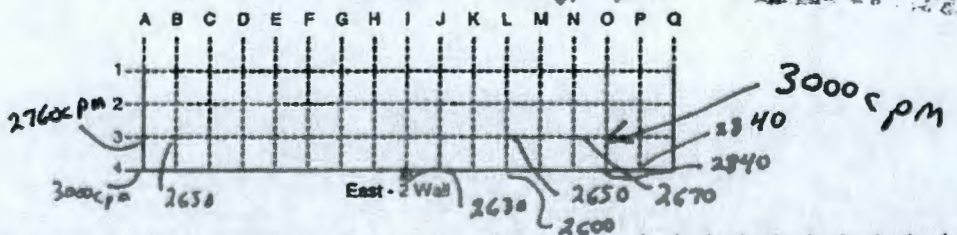
North - 1 Wall



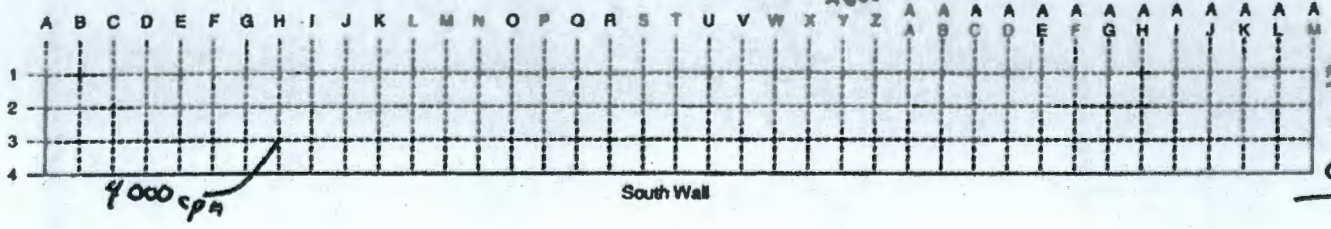
North - 2 Wall



East - 1 Wall

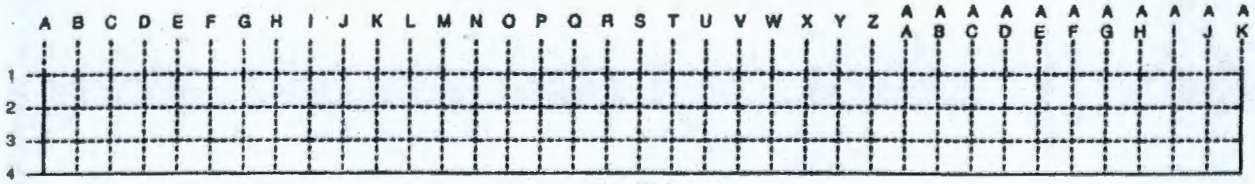


East - 2 Wall



South Wall

See page 8 of 11



West Wall

Attachment 1
Table 1 – Data Sheet for Wall Survey

Wall Designation: North Wall 1

All readings in Kcpm

	1	2	3	4
A	NA	NA	2.0	2.5
B			*	2.6
C			2.0	2.5
D			1.9	2.4
E			2.1	2.6
F			2.2	2.6
G			2.1	2.6
H			2.2	2.6
I			2.2	2.7
J			NA	NA
K				
L				
M				
N				
O				
P				
Q				
R				
S				
T				
U				
V				
W				
X				
Y				
Z				
NA				

* Note
No wall at 5' only rubble
Data obtained on this sheet was obtained using
ESID. 300 PS. 14. 0002
1.5x background 2775 cpm

Attachment 1
Table 1 – Data Sheet for Wall Survey

Wall Designation: North Wall 2

All readings in KCPM

	1	2	3	4
A	NA	NA	+	2.4
B			+	2.4
C			+	2.3
D			+	2.3
E			+	2.1
F			+	2.2
G			+	2.4
H			+	2.9
I			+	2.5
J			+	2.4
K			+	2.6
L			+	2.5
M			+	2.7
N			+	2.5
O			+	2.4
P			+	2.6
Q			+	2.36
R			+	2.4
S			+	2.3
T			+	2.4
U			+	2.4
V			2.3	2.2
W			2.3	2.4
X			2.3	2.3
Y			NA	NA
Z				
NA				

* Note
5' of Wall taken up from Corner Ramp
10' of Wall taken up from Center Ramp between R an S
Data obtained on this sheet was obtained using ESID-14-0002

+ Note
Wall only 1' high
1.5x background 2775cpm

Attachment 1
Table 1 – Data Sheet for Wall Survey

Wall Designation: East Wall 1

All readings in Kcpm

	1	2	3	4
A	NA	NA	2.2	2.3
B			2.2	2.5
C			1.9	2.5
D			2.0	2.2
E			2.1	2.5
F			*	2.2
G			NA	2.3
H				2.2
I				2.0
J				2.3
K				2.3
L				2.0
M				2.4
N				2.2
O				2.2
P				2.2
Q				2.4
R				2.1
S				2.0
T				+
U				NA
V				
W				
X				
Y				
Z				
NA				

* Note
Wall starts < 5' high 1.5x background 2775cpm

\+ Note
Corner Ramp covers end of wall

Data obtained on this page was obtained using ESID-300PS-14-0002

Attachment 1
Table 1 – Data Sheet for Wall Survey

Wall Designation: EAST 2 WALL

	1	2	3	4
A	NA	NA	2760	3000
B			2650	2400
C			2340	2410
D			2460	2400
E			2350	2180
F			2300	2460
G			2400	2410
H			2400	2130
I			2390	2630
J			2510	2450
K			2530	2450
L			2650	2600
M			2470	2500
N			2670	2840
O			3000	2840
P			NA	NA
Q				
R				
S				
T				
U				
V				
W				
X				
Y				
Z				
NA				

Data obtained on this sheet was obtained using ESID.300PS.14.0001

SH 3.6.14

1.5x background ~~2715~~ 2550 cpm

Attachment 1
Table 1 – Data Sheet for Wall Survey

Wall Designation: SOUTH WALL 1

	1	2	3	4
A	NA	NA	2750	2840
B			2480	2610
C			2560	2840
D			2640	2700
E			2800	2680
F			2500	2700
G			2700	3000
H			4000	2790
I			2700	2800
J			2600	2600
K			2500	2600
L			2580	2590
M			2700	2600
N			2500	2700
O			2700	2600
P			2650	2800
Q			2300	2600
R			2480	2460
S			2400	2460
T			2500	2300
U			2300	2300
V			2450	2300
W			2400	2200
X			2500	2440
Y			2400	2350
Z			2400	2360
NA			NA	~~2430~~ CH 3.5.14

Data obtained on this sheet using ESID.300PS.14.0002

2550 cpm is 1.5x background

Attachment 1
Table 1 – Data Sheet for Wall Survey
(continued)

Wall Designation: SOUTH WALL 1

	1	2	3	4
AA	NA	NA	2520	2430
AB			2420	2360
AC			2460	2510
AD			2620	2520
AE			2460	2580
AF			2430	2540
AG			2540	2400
AH			2380	2490
AI			2330	2410
AJ			2460	2760
AK			2630	2580
AL			2520	2430
AM			NA	NA
NA	NA	NA		
Elevation Pit 1	2130	Elevation Pit 2	2280	
Elevation FLOOR	2840		NA	
NA	NA			

NA
~~4000~~
SH
3.6.14

Data obtained using ESID.300PS.14.0001

1.5 x background 2550 cpm

Attachment 1
Table 1 – Data Sheet for Wall Survey

Wall Designation: West Wall

All readings in KCpm

	1	2	3	4
A	NA	NA	2.3	2.3
B			2.45	2.6
C			2.25	2.45
D			2.3	2.2
E			2.3	2.4
F			2.3	2.3
G			2.3	2.45
H			2.6	2.2
I			2.15	2.3
J			2.15	2.3
K			2.25	2.35
L			2.4	2.2
M			2.25	2.2
N			2.2	2.3
O			2.1	2.15
P			2.1	2.5
Q			2.2	2.3
R			2.0	2.3
S			2.15	2.4
* T			2.2	2.5
U			2.2	2.5
V			2.2	2.4
* W			2.2	2.6
X			2.2	2.3
Y			2.4	2.5
Z			2.1	2.4
NA			NA	NA

* On a partial interior wall

Data obtained using ESID.300PS.14.0002

1.5x background 2770cpm

Attachment 1
Table 1 – Data Sheet for Wall Survey
(continued)

Wall Designation: West Wall

All readings in KCPM

AA	NA	NA	2.2	2.4
AB			2.2	2.5
AC			2.4	2.6
AD			2.4	2.4
AE			2.5	2.5
AF			2.1	2.7
AG			2.0	2.3
AH			2.2	2.4
AI			2.5	2.5
AJ			2.3	2.5
AK			2.6	2.6
AL			NA	NA
AM				
NA				

Data obtained using ESID · 300 PS. 14. 0002

1.5 x background 2770 cpm

Attachment 5: 326 End-State Proposal

Strand, Christopher P

From: Gadbois.Larry@epamail.epa.gov
Sent: Tuesday, December 18, 2012 7:46 AM
To: Strand, Christopher P; Guercia, Rudolph F
Subject: RE: 326 Building End-State Proposal

The 326 Building end state proposal is acceptable to EPA.

"Strand, Christopher P" ---12/18/2012 07:10:10 AM---Thanks for the comment Larry, I have removed the quotes. Let me know if this is acceptable to EPA.

From: "Strand, Christopher P" <cpstrand@wch-rcc.com>
To: Larry Gadbois/R10/USEPA/US@EPA, "Guercia, Rudolph F" <rudolph.guercia@rl.doe.gov>
Date: 12/18/2012 07:10 AM
Subject: RE: 326 Building End-State Proposal

Thanks for the comment Larry, I have removed the quotes. Let me know if this is acceptable to EPA.

Thanks,

Chris
554-2720

From: Gadbois.Larry@epamail.epa.gov [mailto:Gadbois.Larry@epamail.epa.gov]
Sent: Monday, December 17, 2012 7:41 AM
To: Guercia, Rudolph F
Cc: Strand, Christopher P
Subject: RE: 326 Building End-State Proposal

Just one comment from me. The 3rd-5th line under "326 building history" contains a quote "assure continuity of operations..." but the source of the quote is not provided. I would suggest removing the quotes. I guess most of this history section is plagiarized from other documents, and to cite all of them wouldn't be helpful to the point of this document -- to propose an interim end state for D4.
--Larry--

"Guercia, Rudolph F (Rudy)" ---12/13/2012 10:39:34 AM---My only comments are bizarrely minor-mostly make more things in the past tense. See attached file R

From: "Guercia, Rudolph F (Rudy)" <rudolph.guercia@rl.doe.gov>
To: "Strand, Christopher P" <cpstrand@wch-rcc.com>, Larry Gadbois/R10/USEPA/US@EPA
Date: 12/13/2012 10:39 AM
Subject: RE: 326 Building End-State Proposal

My only comments are bizarrely minor—mostly make more things in the past tense. See attached file

R. F. Guercia, Field Engineering
U.S. Dept. of Energy, Richland Operations Office
PH: (509) 376-5494
Fax: (509) 373-0726

From: Strand, Christopher P [mailto:cpstrand@wch-rcc.com]
Sent: Wednesday, December 12, 2012 3:31 PM
To: Gadbois.Larry@epamail.epa.gov; Guercia, Rudolph F (Rudy)
Subject: 326 Building End-State Proposal

Larry, Rudy,

Provided for DOE and EPA comment and/or approval, is an end-state proposal for the 326 Building. As with the 329 Building, removal of 326 below-grade structures is interfered with by long-term retained utilities supporting continued 325 Building operations. To that end, the proposal establishes the above-grade portion of building and the basement interior will be demolished and removed. This includes removal of all hazardous materials, decontamination of the shop area trench, isolation of contaminated piping leaving the building, and removal of regulated equipment that includes both hot-cells.

Final configuration will consist of leaving the basement walls and floor, trench, contaminated piping external to the basement, and the twelve tritium storage tubes. Comments and questions are welcome as always.

Thanks,

Chris
554-2720

<< File: 326 End State.doc >> << File: 326 Bldg Basement Areas_2.jpg >>

[attachment "SPDQ0746412121311350.pdf" deleted by Larry Gadbois/R10/USEPA/US]

END-STATE PROPOSAL FOR THE 326 BUILDING

INTRODUCTION

This proposal has been developed to document the end-state of the 326 building following demolition. The proposal also serves as basis to gain concurrence from the U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operation for "as left" conditions to be documented on a Facility Status Change Form (FSCF) in accordance with the Removal *Action Work Plan for 300 Area Facilities*, DOE/RL-2004-77, Rev. 2.

As established in WCH- 487, *"Hanford 300 Area Retained facilities waste Sites Evaluation Study"*, removal of at-grade and below-grade 326 Building structures are interfered with by long-term retention of the 325 Laboratory and associated utilities.

326 BUILDING DESCRIPTION

The 326 building is located in the central portion of the 300 Area and is bounded by Wisconsin St. on the west, Spruce St. on the south, and Pecan St. on the north.

The structure is 190 by 180 by 38 ft, with a total area of 63,107 sq ft. The building has a bolted steel framework over a concrete basement; the exterior walls consist of fluted steel insulated panels. The first and second floors are steel with concrete, finished originally with asphalt or vinyl asbestos tile. Initial partitions on the first and second floor are moveable metal, while the basement partitions are plastered gypsum block. A special counting room has high-density concrete walls, and the parapeted roof is a slightly sloped steel deck topped with tar and gravel finish. The L-shaped building contains offices along the outside and laboratories along the inside on the first and second floors. An equipment room is located on the first floor in the angle of the L. The basement contains large laboratories with 15 ft ceilings. These laboratories were originally designated for heavy metallurgical work, large reactor mock-ups, and exponential pile physics experiments. One of these laboratories has an exterior door that was serviced by a 8000 lb lift and a 2-ton monorail. The first and second floor standard laboratories were 20 by 25 ft. The building contains two hot cells associated with work for high-activity substances. One cell is constructed from lead bricks, the other is a traditional concrete structure. Both are serviced via manipulators aided by shielded windows. Ventilation for contamination control supplied air first to offices and corridors and then exhausted it from laboratories. The building also has a 45 ft high, 6 ft diameter stack. A 3000 lb hydraulic elevator serves all floors. Major equipment upgrades were added in 1962, fire protection sprinklers and new instrumentation were added in 1977, and additional modifications and upgrades occurred throughout 1981 and 1984. A high-energy electron microscope was installed in the basement in 1971 to perform materials studies. The building transferred to PNL operations in 1987 and subsequently transferred to WCH in 2010 for demolition.

326 BUILDING HISTORY

The 326 Building, known early on as the Pile Technology Building, opened in 1953 with two primary missions, both associated with the support of production pile (reactor) operations. The original 326 Building was constructed to assure continuity of operations [of production reactors], to maintain and to improve the present plants [reactors], and to develop the technical information required for the design of future plants. The primary physics mission was to conduct the exponential pile physics development work that had been done first in the P-11 Project and later in the 189-D Building. This work consisted of approach-to-critical, lattice design experiments conducted in graphite piles directed toward finding new lattice configurations to improve reactor efficiency and safety. During the earliest years of building history, 4 ft, by 8 ft, by 12 ft graphite cubes operated as approach-to-critical, exponential piles in basement laboratories.

In the 1970s and 1980s, several of the laboratories were converted to accommodate chemical work involving unirradiated or low-level radioactive materials. The central mission continued to be support and study of reactor components and fuel elements during this period, including development and analysis work performed for the PRTR, N Reactor, the High-Temperature Lattice Test Reactor (HTLTR), and the FFTF. These studies were enhanced by the addition of equipment including mass spectrometers, electron microprobes, quantitative image analyzers, and tensile test equipment.

326 BUILDING INTERIM END-STATE

The above grade portion of the building will be demolished using standard industry techniques. Prior to demolition, all the below grade utilities and piping systems that exit the basement will be isolated. The sanitary sewer, processes sewer, retention process sewer, RRLWS, and RLWS piping will be isolated and plugged where they exit the basement. All ancillary buildings, the stack, and miscellaneous peripheral equipment, etc. are to be removed from around the building as part of above-grade demolition. Prior to demolition, all hazardous materials (excepting the two hot-cells) will be removed from the entire building including the basement.

The building basement walls and foundation are proposed to be left in place. Features unique to the basement consist of two hot-cells, 12 "tritium storage" tubes, and a shop area trench. The basement also contains several glove boxes, an electron microscope, support shops containing tools and equipment, and numerous shielded source storage containers. All items containing, or constructed of, hazardous materials (e.g., lead shielding, oils, etc.) will be removed from the basement.

Following demolition of the above-grade structure, to include the first floor slab, an excavator will enter the basement from the north east corner and remove any remaining equipment and debris. Both hot-cells were determined to contain low levels of radiological contamination and will be removed from the basement. All remaining contaminated materials and debris will be removed from the basement as well.

The 12 tritium storage tubes were characterized and 11 displayed no contamination, with one displaying very low-levels of contamination. All twelve tubes will remain capped and left in place as they extend under Spruce Street and active utilities to the south. The shop trench was found to contain elevated concentrations of heavy metals and will be decontaminated prior to demolition.

Final configuration of the building will consist of (reference first floor and basement plan):

- Remaining basement walls, slab, and trench.
- Remaining tritium storage tubes.
- Isolated process sewer, retention process sewer, RLWS and RRLWS segments exiting from basement walls.

Final radiological surveys of basement surfaces will be performed to ensure no gross removable contamination remains. The basement will then be filled with barrow pit material to grade to match existing area contours, prevent accumulations of storm water, and eliminate fall hazards.

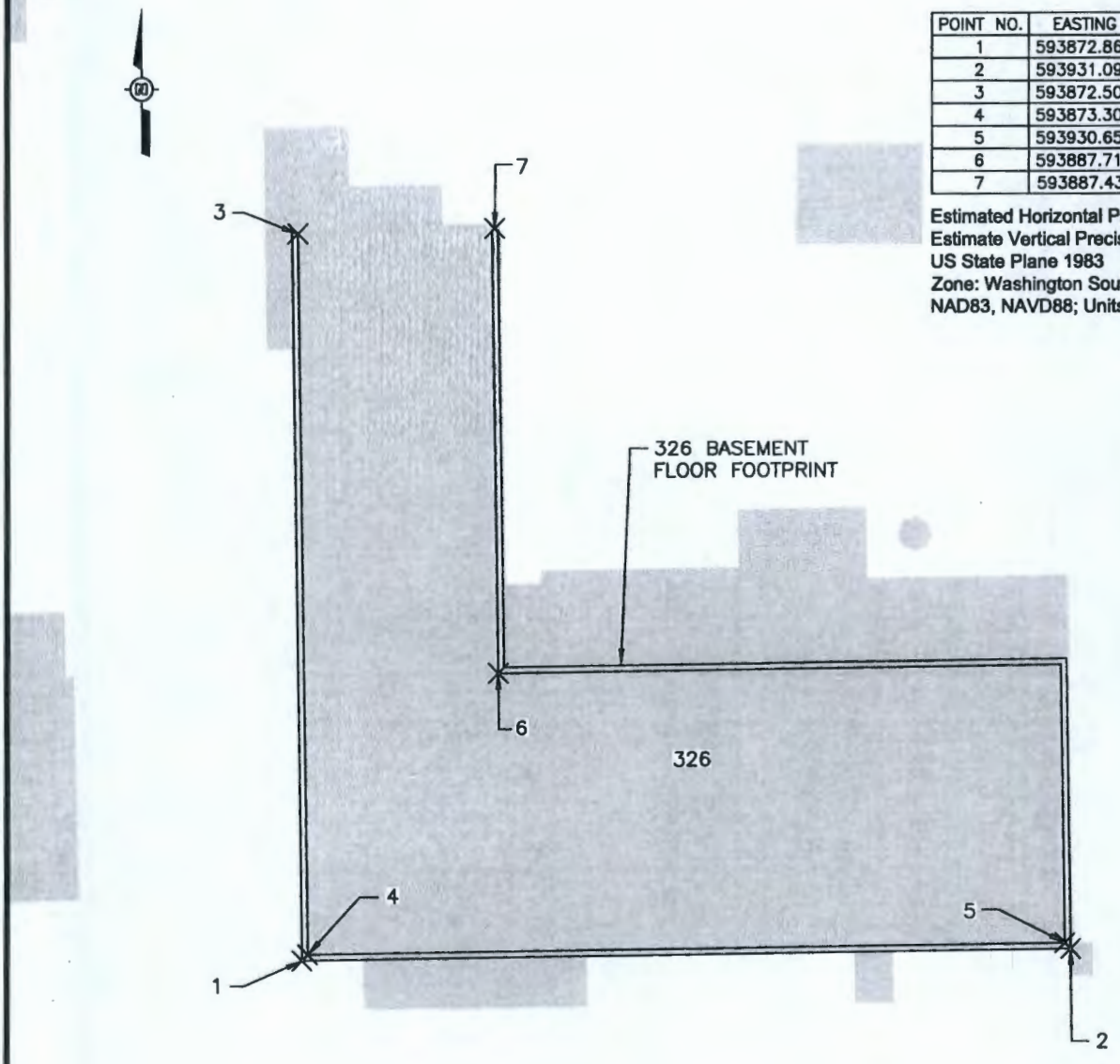
Any changes to the approach outlined above will be discussed with DOE and EPA prior to submitting closure documentation contained the 326 Building FSCF.

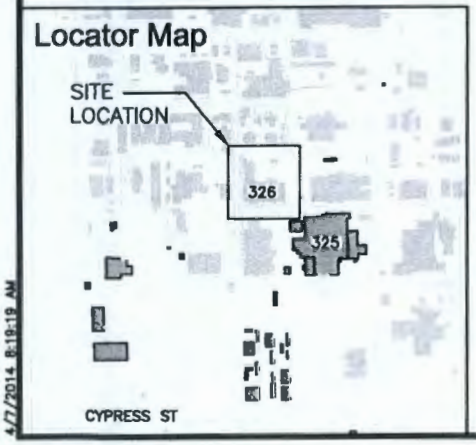
Attachment 6: 326 Basement Civil Survey

\\autocad01\cad_database\data\300_area\300_field_data-gps\326_basement\326_basement_fig01.dwg

POINT NO.	EASTING	NORTHING	ELEV.
1	593872.867	115848.541	122.049
2	593931.099	115849.397	122.119
3	593872.503	115903.442	121.787
4	593873.302	115848.990	118.633
5	593930.650	115849.832	118.630
6	593887.713	115870.100	118.638
7	593887.431	115903.804	120.720

Estimated Horizontal Precision: 0.020m
Estimate Vertical Precision: 0.050m
US State Plane 1983
Zone: Washington South 4602;
NAD83, NAVD88; Units are in Meters





300 Area GPS Survey for 326 Building Basement

GPS Survey Points 4/03/14

1 See Coordinate Table (Above)

Paved Roads

Dirt Roads

Existing Facility/Building

Demolished Facility/Building Footprint

SCALE 1:500

5 0 5 10 20 meters

4/7/2014 8:19:19 AM