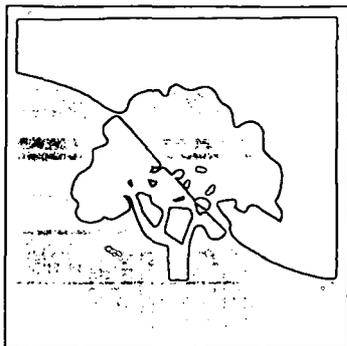


MOUND



Environmental
Restoration
Program

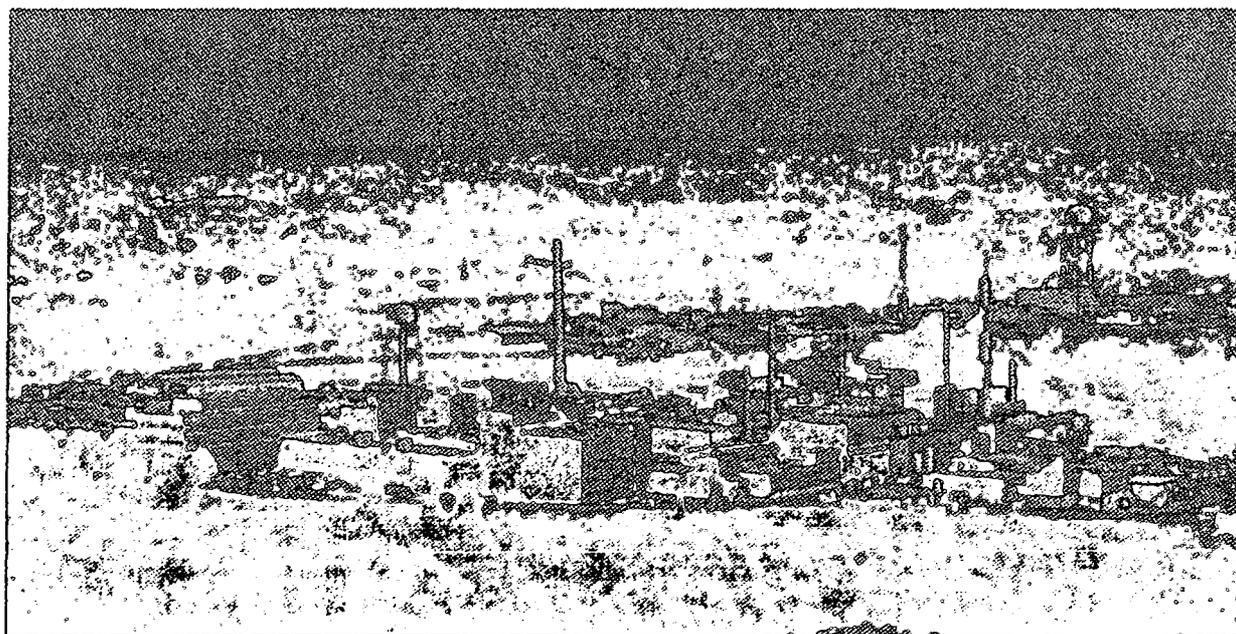


Ohio EPA

MOUND PLANT

Potential Release Site Package

PRS # 411



MOUND



Environmental
Restoration
Program

MOUND PLANT POTENTIAL RELEASE SITE PACKAGE

Notice of Public Review Period



The following Potential Release Site (PRS) package will be available for public review in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio, beginning September 15, 1997. Public comment on this package will be accepted from September 15, 1997, through October 15, 1997.

- PRS 63: Soil Contamination - Building 29**
- PRS 405: Soil Contamination - Building 23**
- PRS 410: Soil Contamination - Fuel Oil**
- PRS 411: Soil Contamination - Asphalt Roadway (Radiological)**

Written comments may be sent to Mound Community Relations, P.O. Box 3000, Miamisburg, Ohio 45343-3000 or by E-Mail to nowksl@doe-md.gov. Questions can be referred to Mound's Community Relations at (937) 865-4140.

PRS 411

REV	DESCRIPTION	DATE
0 PUBLIC RELEASE	Available for comments.	Aug. 25, 1997
1 FINAL	Comment period expired. Comments. Recommendation page annotated.	Nov 20, 1997



The Mound Core Team
P.O. Box 66
Miamisburg, Ohio 45343-0066

Miamisburg Mound Community Improvement Corporation
720 Mound Road
COS Building 4221
Miamisburg, Ohio 45342-6714

Dear Mr. Bird:

The Core Team, consisting of the U.S. Department of Energy Miamisburg Environmental Management Project (DOE-MEMP), U.S. Environmental Protection Agency (USEPA), and the Ohio Environmental Protection Agency (OEPA), appreciates the input provided by the public stakeholders of the Mound facility. The public stakeholders have significantly contributed to the forward progress that has been made on the entire release block strategy for establishing the safety of the Mound property prior to its return to public use after remediation and residual risk evaluation.

Attached please find responses to comments on PRS Packages 63, 405, 410, 411, and PRS 409.

Should the responses require additional detail, please contact Art Kleinrath at (937) 865-3597 and we will gladly arrange a meeting or telephone conference.

Sincerely,

DOE/MEMP: *Arthur W. Kleinrath*
Arthur W. Kleinrath, Remedial Project Manager

USEPA: *Timothy J. Fischer*
Timothy J. Fischer, Remedial Project Manager

OHIO EPA: *Brian K. Nickel*
Brian K. Nickel, Project Manager

Responses to October 15, 1997 Miamisburg Mound Community Improvement Corporation Comments Regarding Data Package for PRS 411

Substantive Comment 1:

PRS 411 is two small patches of radiological contamination (based on elevated FIDLER readings) that were detected on the asphalt road between the Paint Shop and the Power House, and the Core Team recommendation for this PRS is a response action. MMCIC concurs with this recommendation and recognizes that a response action is more timely and cost effective than further assessment. However, if further assessment of the extent of contamination is eliminated, DOE runs the risk of failing to remediate the full extent of contamination at this PRS location. To decrease this risk, MMCIC recommends that the work plan for the PRS 411 response action include thorough confirmation sampling of the area during and following completion of the response action, to document that the PRS location and adjoining areas are free of contamination.

Response:

The Core Team shares your concern about the extent of contaminants in this area. This topic will be addressed in the Action Memo (which will be available for public comment) and the Work Plan for the Removal Action.

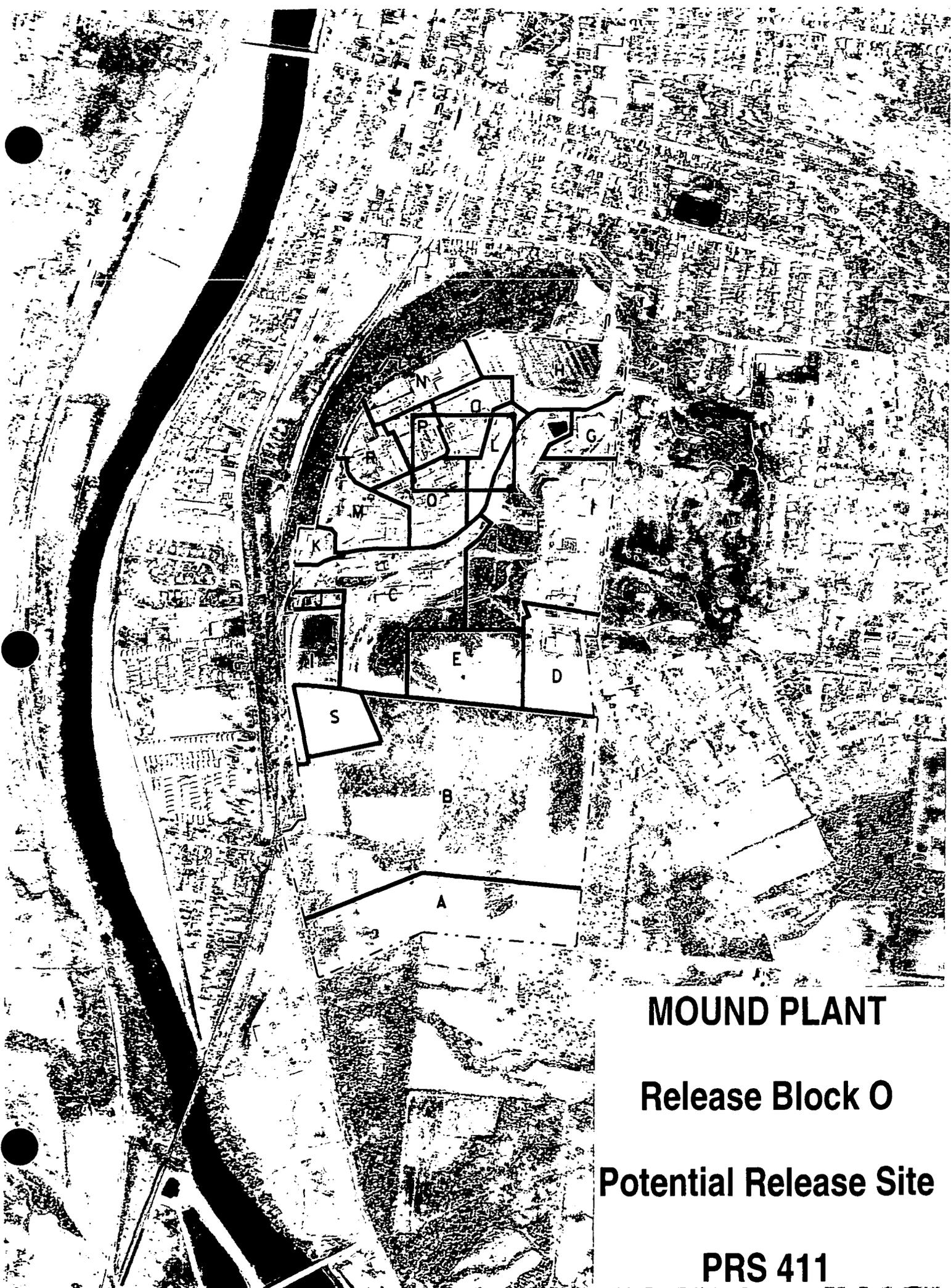
Substantive Comment 2:

The recent, unexpected, and unpredictable discovery of small patches of radiological contamination during a routine Health Physics survey underscores the problem of knowing "how clean is clean" at the Mound facility. While it is unreasonable to expect DOE to analyze every square foot of the facility for potential contamination, the necessity of monitoring every construction or renovation activity at the site for potential contamination (once the property is transferred) is also undesirable to MMCIC, as it would present a deterrent to effective economic development at the Mound plant. MMCIC wishes to continue to work with DOE to resolve this dilemma. One recommendation is that when a Release Block is ready to undergo a Residual Risk Evaluation and existing analytical data is gathered for geographic points within the Release Block, that the data be evaluated for geographic coverage gaps. If significant gaps do exist that could compromise the existing data from being representative of the whole Release Block, we recommend that a reasonable sampling and analytical grid be implemented to cover the data gaps. Where reliable, screening analytical techniques could be employed (i.e. surveys FIDLER).

Responses to October 15, 1997 Miamisburg Mound Community Improvement Corporation Comments Regarding Data Package for PRS 411

Response:

We expect that additional data will be collected as part of facility demolition, facility clean-up, and in addressing both building and non-building PRSs. The Residual Risk Evaluation Methodology identifies in Section 2.1.5 "Summary of contaminants to be evaluated in RRE" and Section 2.2.2 "Estimating release block exposure concentrations" the analysis that will be done to ensure that the data are representative of the exposure area. The RRE will indicate the data used in the risk evaluation. In addition, the RRE will be available for public review and comment.

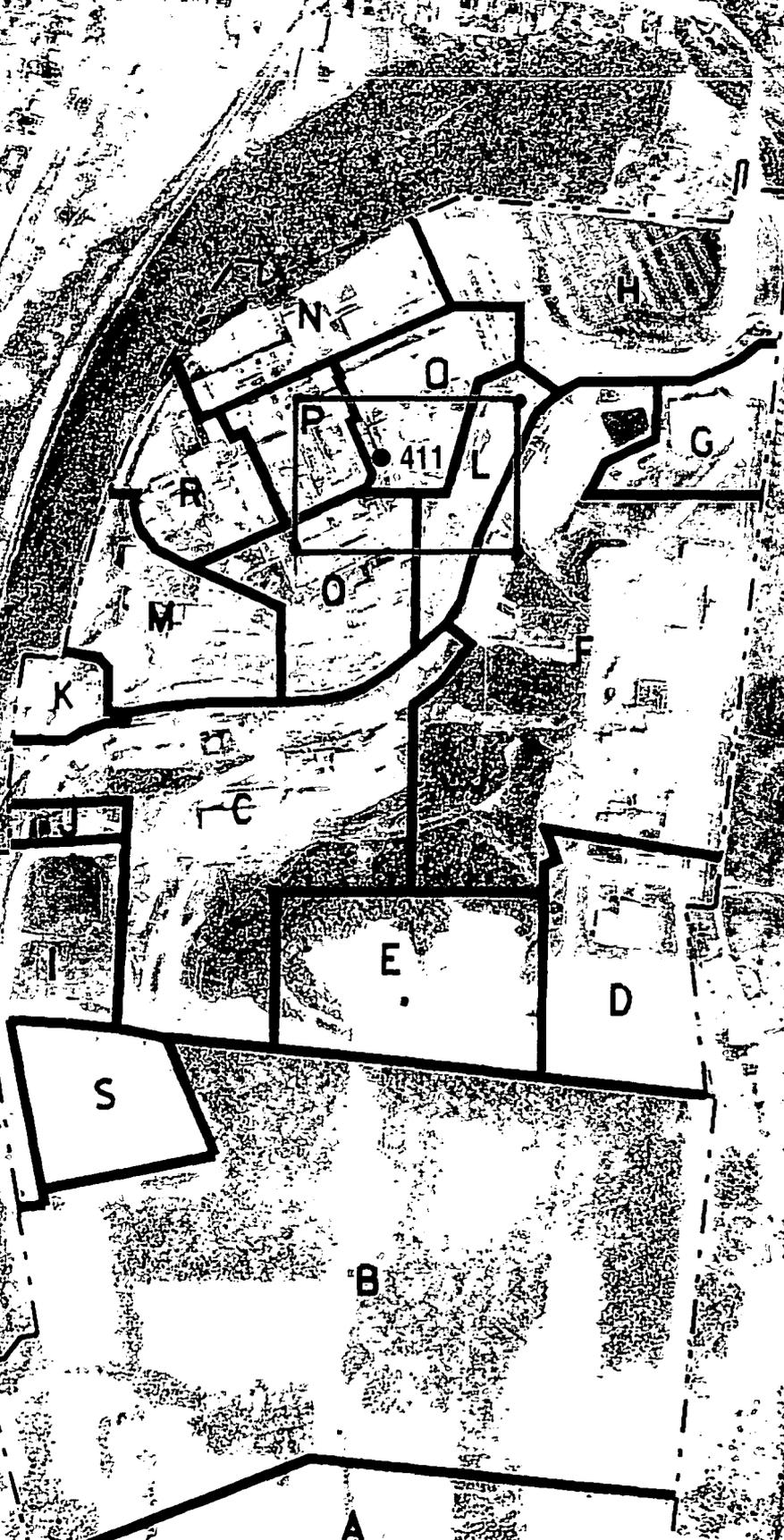


MOUND PLANT

Release Block O

Potential Release Site

PRS 411



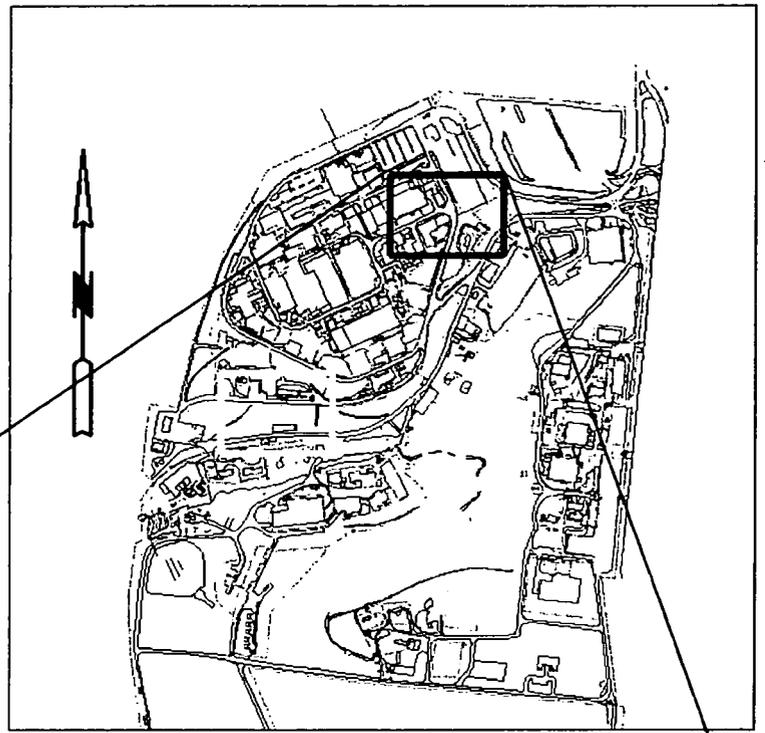
A
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411

Mound Plant

Release Block O

Potential Release Site

PRS 411





PRS 411

PRS HISTORY:

Potential Release Site 411 are the two small patches (approximately 1.0 ft² each) of radiological contamination on the asphalt road located between the Paint Shop and the Powerhouse. This area was identified as a potential release site due to the elevated FIDLER readings that were discovered on October 14, 1996 by Phil Ryan during a Health Physics survey². This contamination area is posted as a Health Physics Control Area. The contamination patches are positioned at the edge of the roadway, adjacent to the Paint Shop's concrete sidewalk.

Prior to the discovery of PRS 411, the Environmental Restoration Program has addressed the Paint Shop area in the PRS 112/368 data package¹. The paint shop began operation in 1963 and was used for both maintenance and production parts painting. No radioactive processes are known to have occurred in the Paint Shop location¹.

CONTAMINATION:

PRS 112/368 DATA¹

OU3, Limited Field Investigation

During the OU3 Limited Field Investigation conducted in 1992/93 sampling was performed around the Paint Shop. This sampling included surface and subsurface soils analyzed for VOCs, Semi-Volatile Organic Compounds SVOCs, Pesticides/PCBs, inorganics, and tritium.

No samples exceeded guideline values. Magnesium, sodium and lead exceeded background values however, lead is below the USEPA residential soil guidance value of 400 mg/kg. Magnesium and sodium are necessary in our daily diet and do not have guideline values. Tritium was not detected above laboratory reporting limits. Plutonium -238 and Thorium-232 were below Mound ALARA guideline values of 25 pCi/g for Pu-238 and 5 pCi/g for Th-232.

OU2, Soil Vapor Reconnaissance

With the exception of Freon and 1,2-Cis-Dichloroethene, all detected VOC's were below the calculated soil screening levels.

<u>Parameter</u>	<u>Soil Gas Reading</u>	<u>Calculated Acceptable Soil Gas Concentrations</u>
1,2-cis-Dichloroethene	5,808 ppb	5,000 ppb
Freon 11	15,892 ppb	NA

PRS 112/368 DATA¹ (continued)

OU9, Site Scoping Report: Volume 3 - Radiological Site Survey

As part of the Site Survey Project, soil samples were collected in the area of the Paint Shop in the mid-1980s. Values for plutonium-238 ranged from 0.11 to 1.19 pCi/g which are below the Mound Plant ALARA of 25 pCi/g for Pu-238; values for thorium-232 were below the 5 pCi/g regulatory limit for surface thorium.

PRS 411 Data^{2,3}

Direct survey readings for gamma emissions were measured with a planar hyperpure germanium detector. This instrument measured Plutonium-238 contamination and possible Am-241 contamination (ingrowth from Pu-241) that appears to be subsurface at a depth of 1-2 cm².

Additional field measurements with FIDLER instrumentation detected elevated gamma readings³:

Site	Channel 1 (Counts Per Minute)	Channel 2 (Counts Per Minute)
PRS 411 Spot #1	150,000	70,000
PRS 411 Spot #2	35,000	22,000
Background	~100	~5,000

NOTE: FIDLER Channel 1 denotes observed counts in a narrow window of low energy gamma emissions, typical of plutonium x-rays
FIDLER Channel 2 denotes observed counts in a broad window of higher energy gamma emissions, typical of many radionuclides including thorium.

Liquid scintillation analysis of six smear samples detected 1.89 DPM of alpha activity in one sample. This level is below the alpha activity Action Level of 20 DPM.

READING ROOM REFERENCES:

- 1) PRS 112/368 Data Package (pages 5-7) low energy

OTHER REFERENCES:

- 2) EG&G interoffice correspondence (pages 8-17)
- 3) Radiological Survey Data (pages 18-22)

PREPARED BY:

W. David Gloekler, Member of EG&G Technical Staff
Kenneth R. Hacker, Member of EG&G Technical Staff
Gary L. Coons, Member of EG&G Technical Staff (PRS 112/368)

MOUND PLANT
PRS 411
Soil Contamination – Asphalt Roadway (Radiological)

RECOMMENDATION:

Potential Release Site 411 was identified as a potential release site due to elevated FIDLER readings that were discovered during a Health Physics survey. FIDLER readings indicated two small areas of contamination in excess of 500,000 pCi of Plutonium-238. Fixed Plutonium-238 readings of 1,000,000 disintegrations per minute (dpm) per 100 square centimeters exceed the regulatory standard (10 CFR 835) of 500 dpm per 100 square centimeters.

Therefore, a RESPONSE ACTION is recommended for PRS 411.

CONCURRENCE:

DOE/MEMP:

Arthur W. Kleinrath 8/6/97
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA:

Timothy J. Fischer 8/6/97
Timothy J. Fischer, Remedial Project Manager (date)

OEPA:

Brian K. Nickel 8/6/97
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 9/15/97 to 10/15/97

- No comments were received during the comment period.
- Comment responses can be found on page 1-2a of this package.

REFERENCE #1

PRS 112/368

PRS HISTORY:

PRS 112 was identified as a potential release site due to results associated with elevated lead in the soil as part of the OU3 Limited Field Investigation around the Paint Shop.² PRS 368 was identified as a potential release site due to results of Volatile Organic Compounds (VOC's) detected during the OU2 Soil Vapor Reconnaissance effort around the Paint Shop.⁶ Suspected leaks, spills, or dumping of paints and paint wastes, around the Paint shop, as obtained during a RCRA Facility visual inspection and assessment in 1988 also contributed to identifying this area as a potential release site.⁴

PROCESS DESCRIPTION:

The Paint shop, which began operation in 1963, was used for both maintenance and production parts painting. All painting was done inside using spray booths. Waste materials generated at the paint shop included unused paint, solvents, thinner, and solid trash. A waste drum containing waste material was stored outside on the north side of the building. Approximately one drum of waste was generated every three months. No radioactive processes are known to have occurred in or around the Paint Shop location.²

CONTAMINATION:

OU3, Limited Field Investigation²

During the OU3 Limited Field Investigation conducted in 1992/93 sampling was performed around the Paint Shop. This sampling included surface and subsurface soils analyzed for VOCs, Semi-Volatile Organic Compounds SVOCs, Pesticides/PCBs, inorganics, and tritium.

No samples exceeded guideline values. Magnesium, sodium and lead exceeded background values however, lead is below the USEPA residential soil guidance value of 400 mg/kg. Magnesium and sodium are necessary in our daily diet and do not have guideline values. Tritium was not detected above laboratory reporting limits. Plutonium -238 and Thorium-232 were below Mound ALARA guideline values of 25 pCi/g for Pu-238 and 5 pCi/g for Th-232.

OU2, Soil Vapor Reconnaissance⁶

With the exception of Freon and 1,2-Cis-Dichloroethene, all detected VOC's are above calculated soil screening levels.⁷

<u>Parameter</u>	<u>Soil Gas Reading</u>	<u>Calculated Acceptable Soil Gas Concentrations</u>
1,2-trans-Dichloroethene	6,818 ppb	35,700 ppb
1,2-cis-Dichloroethene	5,808 ppb	5,000 ppb
1,1-Dichloroethane	12,098 ppb	398,000 ppb
Freon 11	15,892 ppb	NA

OU9, Site Scoping Report: Volume 3 - Radiological Site Survey⁸

As part of the Site Survey Project, soil samples were collected in the area of the Paint Shop in the mid 1980s. Values for plutonium-238 ranged from 0.11 to 1.19 pCi/g which are below the Mound Plant ALARA of 25 pCi/g for Pu-238; values for thorium-232 were below the 5 pCi/g regulatory limit of 2 pCi/g.⁸

READING ROOM REFERENCES:

- 1) Operable Unit 9, Site Scoping Report, Volume 12 Final, (rev 0), December 1994. (pages 6-13)
- 2) Operable Unit 3, Miscellaneous Sites, Limited Field Investigation, Volume I, sections 1-6, Final (rev 0), July 1993 (pages 14-24)
- 3) Operable Unit 9, Site Scoping Report, Volume 7, Waste Management, Final (rev 0), February 1993. (pages 25-28)
- 4) Preliminary Review/Visual Site Inspection for RCRA Facility of Mound Plant, July 1988. (pages 29-31)
- 5) Comprehensive Environmental Assessment and Response Program (CEARP), Phase I, Draft, April 1986. (pages 32-33)
- 6) Operable Unit 2, Soil Vapor Reconnaissance, Main Hill, Phase I, Final (rev 0), February 1995. (pages 34-50)
- 8) OU9, Site Scoping Report: Volume 3 - Radiological Site Survey, Final, June 1993. (pages 54-58)

OTHER REFERENCES:

- 7) Soil Gas and Soil Screening level calculations. (pages 51-53)

PREPARED BY:

Gary L. Coons, Member of EG&G Technical Staff

REFERENCE #2

From: George Liebson
To: DOE_OH.MOUND.Kleinrath Arthur, GENEJC, DOE_OH.MOUN...
Date: Monday, November 11, 1996 10:03 am
Subject: PRS 411?

The attached document from Doug Draper describes two new Potential Release Sites:

- 1). The two sites are located just outside the Paint Shop.
- 2). The contamination probably resides in cracks in the asphalt.
- 3). The estimated contamination concentration is in the range of 3-5 microcuries per gram.
- 4). The estimated total volume of contamination could probably be dug out with a spoon.
- 5) Contaminant is Pu-238 and Am-241

For more information contact Doug Draper x4501

This is the first of what may be a number of typical contamination findings at Mound were a very small quantity of a significant concentration of contamination resides in a hole or crack (drainage/runoff area).

In talking with Doug Draper, Doug and I felt that this finding may prove to be a good exercise in the process of:

- 1). How a PRS found by Health Physics is reported and placed (or not placed) into the baseline and PRS system.
- 2). Establishing what the Health Physics' role and responsibilities are when contamination is discovered (i.e. is health physics role only to detect contamination or are they to detect, quantify, post and report?)

CC: BRADDC, WILLMA, DRAPDG, FERGCR, RYANPE, STAPJS, MO...

From: Douglas Draper
To: liebgn
Date: Monday, November 11, 1996 8:22 am
Subject: Contamination, PS Vicinity

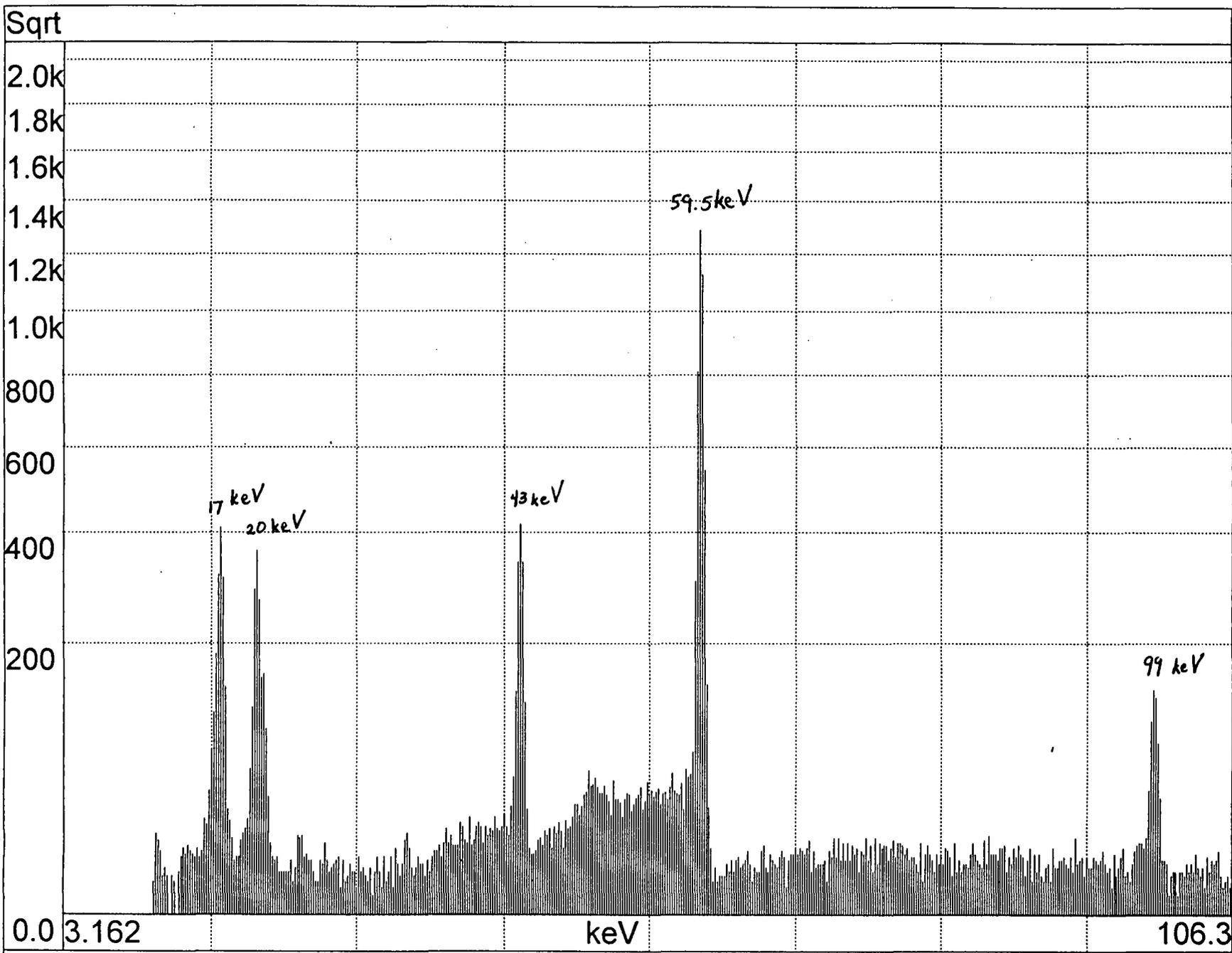
George,

Phil Ryan showed me two elevated FIDLER readings outside the Paint Shop on October 14, 1996. These locations were marked with yellow spray paint. Jeff Stapleton used the planar hyperpure germanium detector on October 16, 1996 to determine that both spots, each approximately 15 cm in diameter, were Pu-238 with some Am-241 (probably ingrowth). These spots were both within small cracks in the asphalt. Based on the ratio of the peaks from the Pu-238 and Am-241 it appears that the contamination is approximately 1- 2 cm subsurface.

If you would like to discuss this further, please contact me at x-4501.

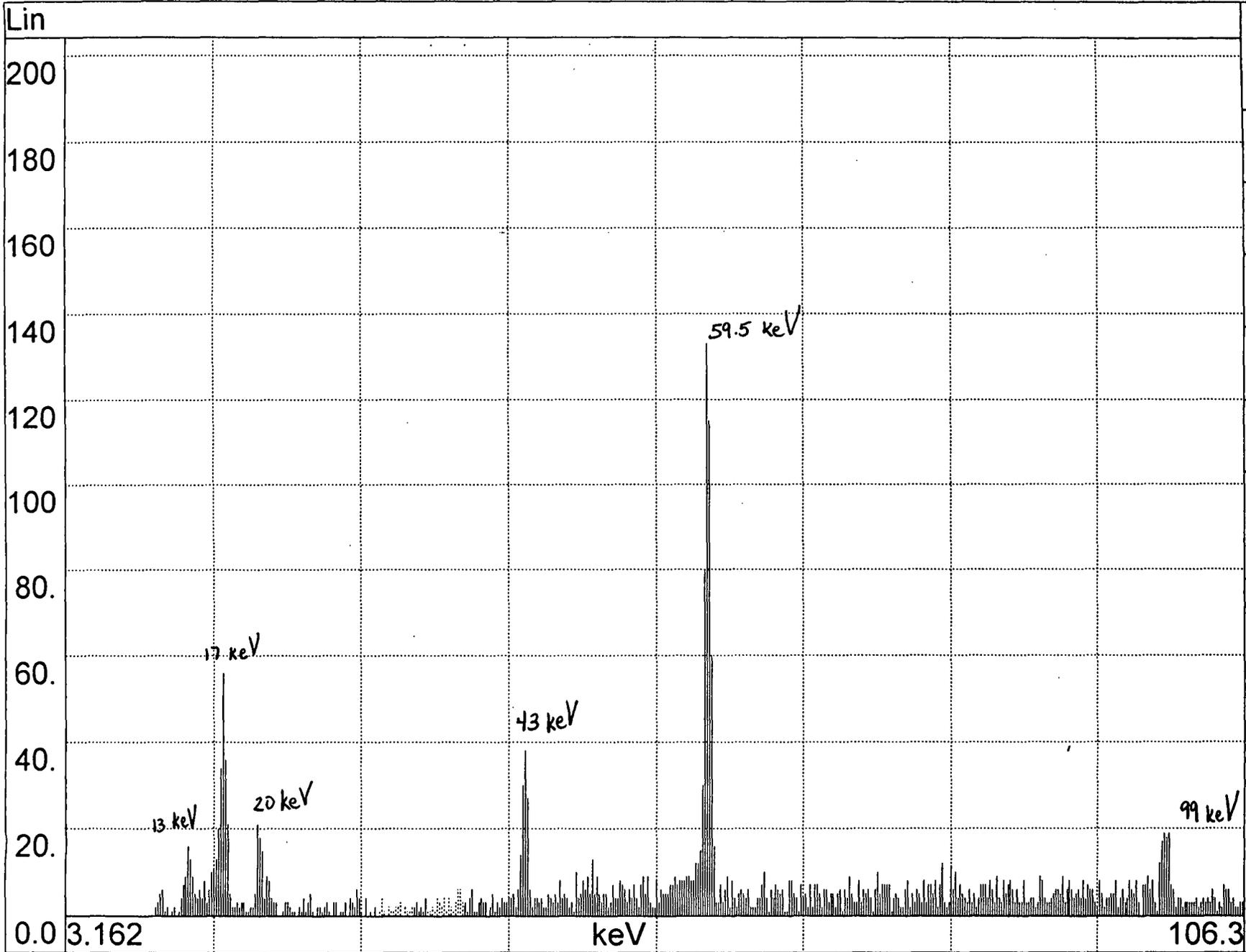
Doug
d:\es&h\soils\961111-5.asc

CC: ryanpe, mowerl, qualstj, siroke, ogurag, tlv

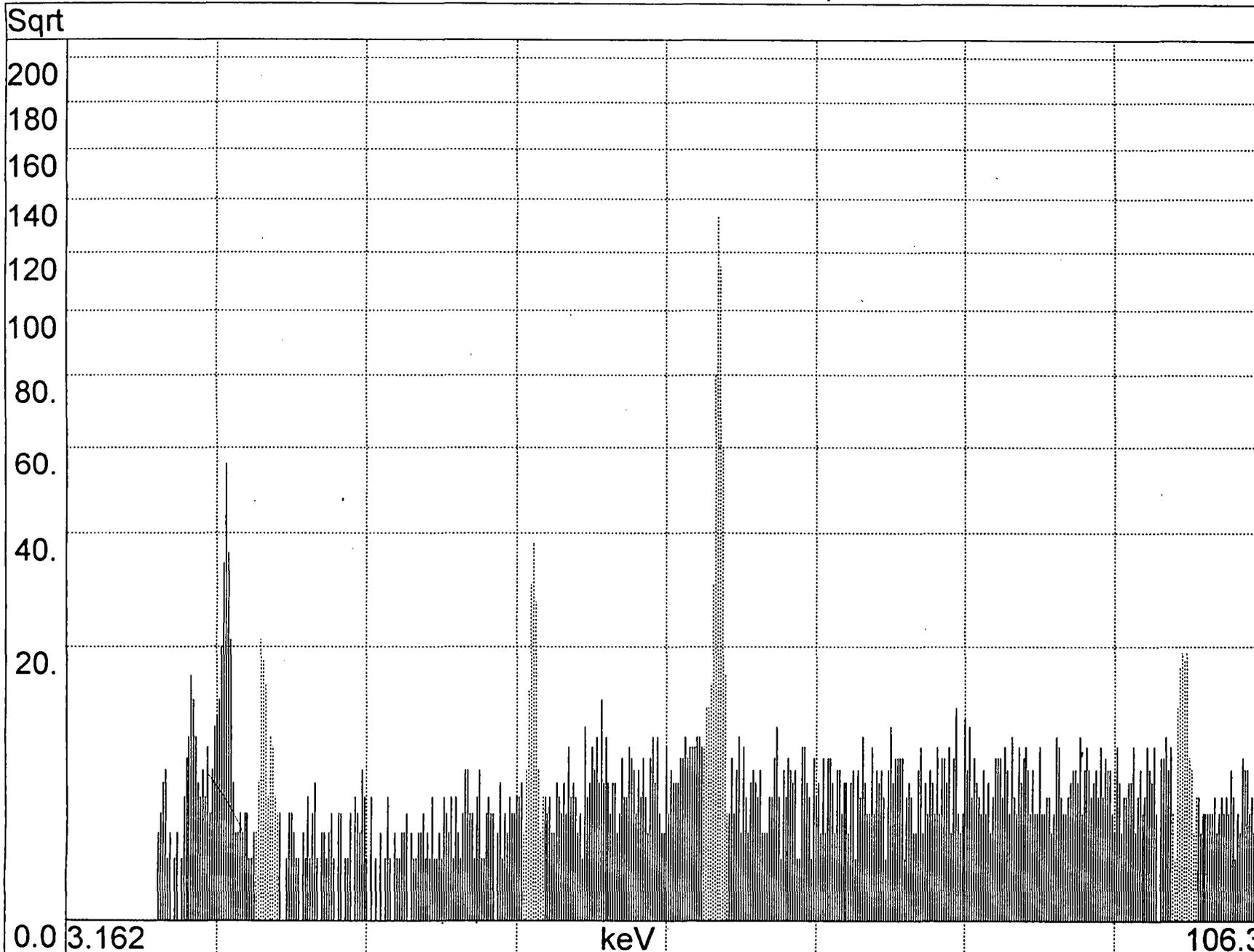


Preset-L
600.000
Stopped
True Time
236.490
Live Time
236.180
% Dead
0.13
Gross Count
17359
Counts/sec
73.499
Start Time
Oct/16/1996
3:19:29PM
Stop Time
Oct/16/1996
3:23:25PM
User ID

0.0 3.162 keV 106.3



Preset-L 600.000 Stopped
True Time 174.656
Live Time 174.568
% Dead 0.05
Gross Count 4538
Counts/sec 25.9956
Start Time Oct/16/1996 3:15:35PM
Stop Time Oct/16/1996 3:18:29PM
User ID



Preset-L	600.000
Stopped	
True Time	174.656
Live Time	174.568
% Dead	0.05
Gross Count	4538
Counts/sec	25.9956
Start Time	Oct/16/1996 3:15:35PM
Stop Time	Oct/16/1996 3:18:29PM
User ID	

ROI # 1 Centroid=16.87 Gross =214 Activity= 0.973833±18.90%cps
 Pu-238 FWHM = 0.54 Net =170 MDA = 0.192297 cps
 err=18.90% FWTM = 1.54 Bkgnd= 44

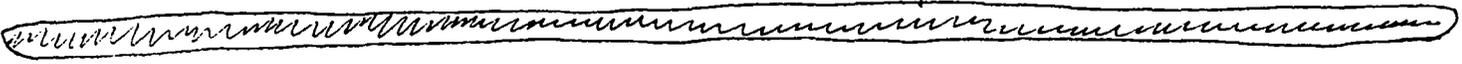
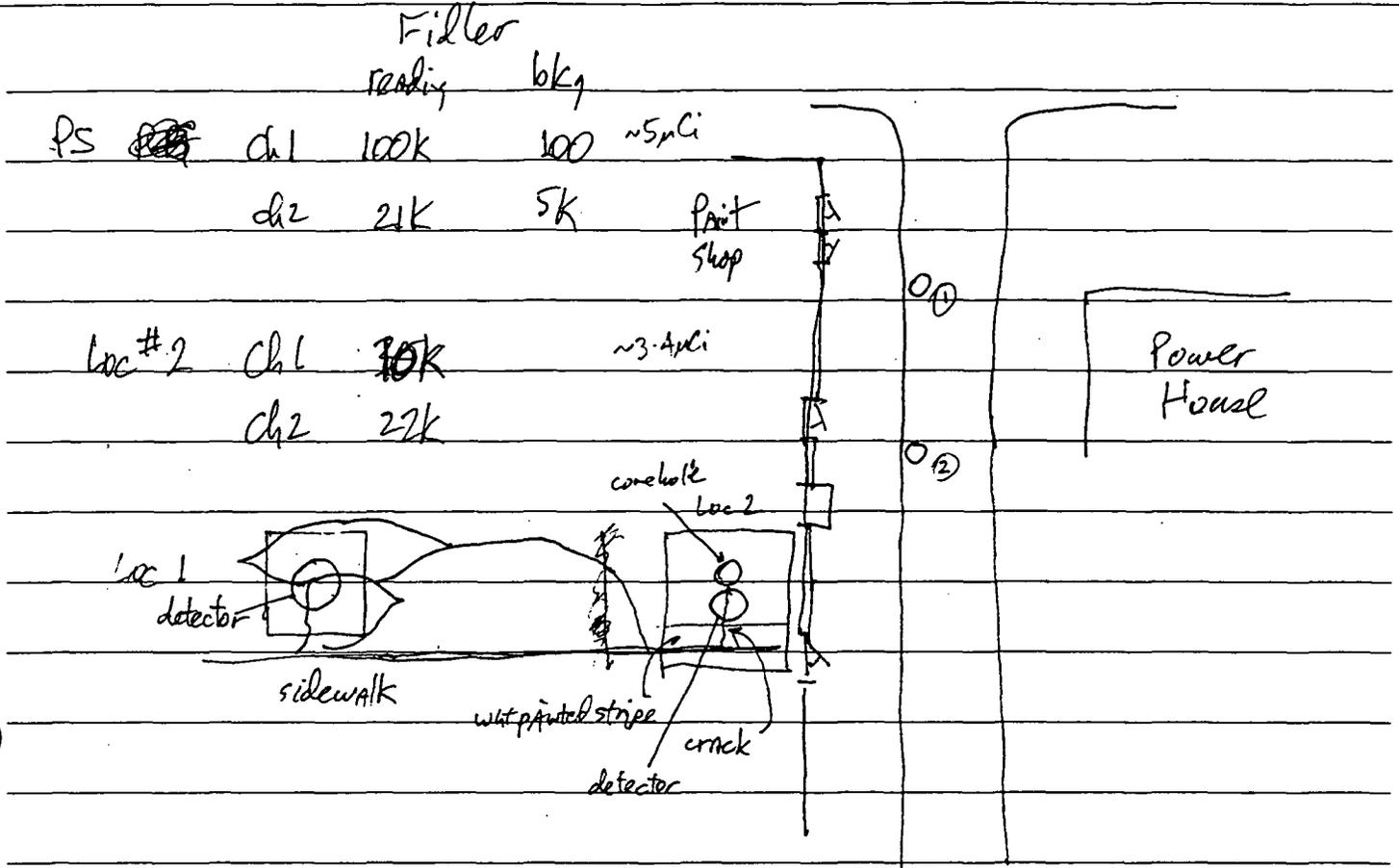
TO: _____

SUBJECT: _____

Hot spots outside Paint Shop

FROM: Phil Ryan

DATE: 9/6/14



Jeff Stapleton, REGE/Olyssa 961016

~~BA~~ BA 133 STD, G60, G137

Loc 1

YSCAN - Pu238, Am241 Low 17Kev/43Kev ratio indicates subsurface
 Also 99Kev; Nothing really higher erg

Loc 2

YSCAN - Pu238, Am241 Low 17Kev/43Kev ratio. Also 99Kev
 Nothing higher erg

PLEASE REPLY BY _____

NO REPLY NECESSARY

From: George Liebson
To: HACKKR
Date: 2/25/97 2:09pm
Subject: PRS 411? -Forwarded

Here is all the info I have (and maybe all the info available at this time) for PRS 411.

CC: GAULDJ

Phil

I need someone assigned to do PRS 411.

Ken Hacke

From: George Liebson
To: DOE_OH.MOUND.Kleinrath Arthur, GENEJC, DOE_OH.MOUN...
Date: 11/11/96 10:03am
Subject: PRS 411?

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Doug
d:\es&h\soils\961111-5.asc

CC: ryanpe, mowerl, qualstj, siroke, ogurag, tlv

REFERENCE #3

K-187

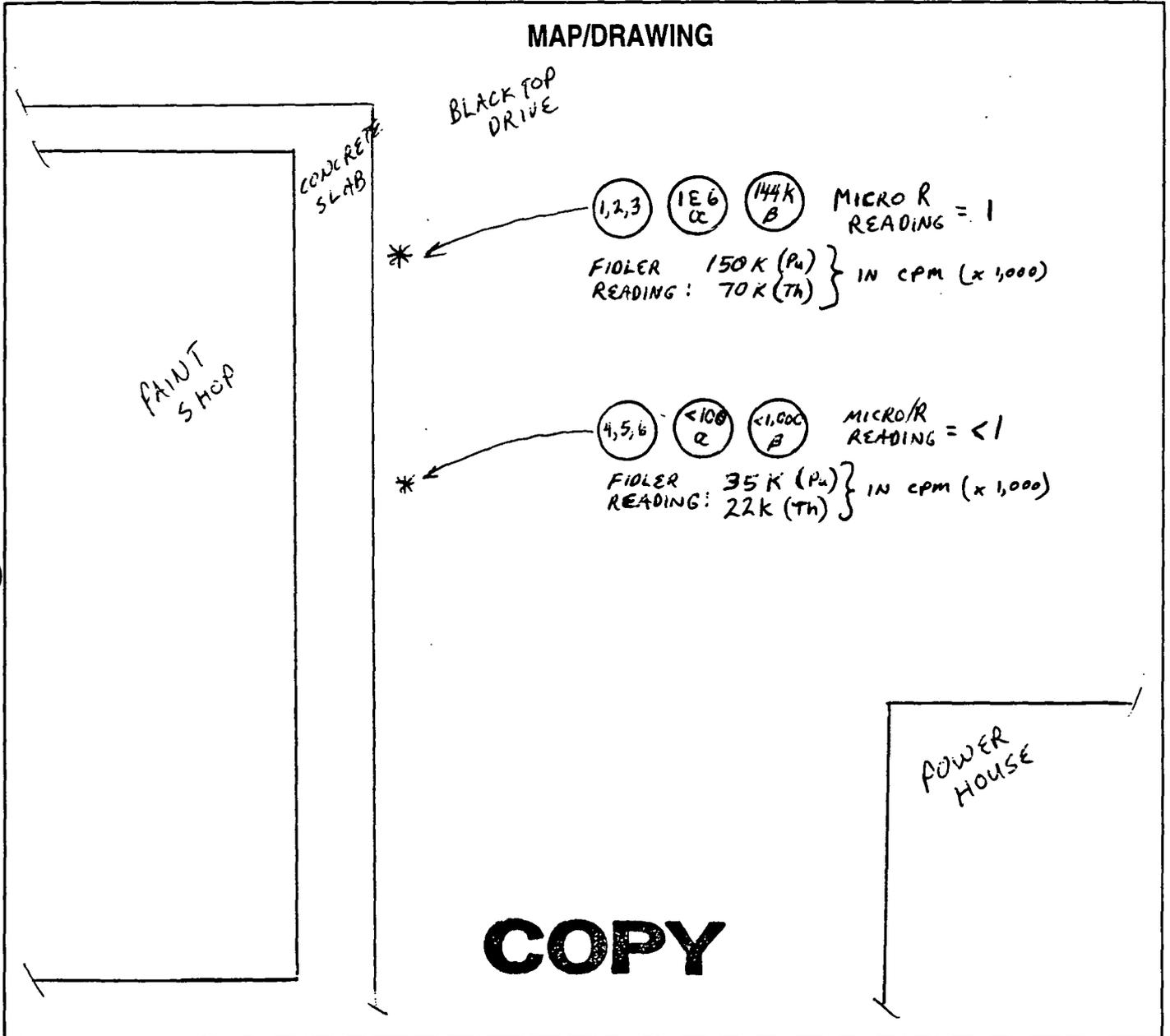
K-1

P1

RADIOLOGICAL SURVEY DATA SHEET

R-6

LOCATION: (BLDG./AREA/ROOM) N. SIDE OF PAINT SHOP (ON BLACK TOP NEAR EDGE OF SLAB)	SURVEY NO. 97-0A-0006
PURPOSE: <u>E</u> EVALUATION OF POTENTIAL RELEASE SITE	RWP NO. R-022-96
	DATE: 040297
	TIME: PM 1300



LEGEND:

- # = mrem/hr (γ) whole body
- # E = mrem/hr ($\beta + \eta + \gamma$) extremity on contact
- * = POTENTIAL RELEASE SITE
- Δ # = mrem/hr neutron
- # = air sample number
- # = swipe number
- #/ α or β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED			Completed by: (Signature/HP#)	Date:
Instrument	Serial Number	Cal. Due Date	[Redacted]	4992 040297
ELECTRA	5268/5284	070997		5379 04-02-97
MICRO/R METER				7874 4/8/97
FIDLER	3881/3870	070997		

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR000
Batch Ended: 4/2/97 13:52

Alpha activity action level (DPM): 20
Beta activity action level (DPM): 200

Certainty level for MDA and flags: 95%

Crosstalk correction performed.

Batch ID: T 97-0A-0006 RYAN [6] 04-02-97 TAS

Recalibration Date: 7/19/97
Serial number: 26966-2

Detector ID	Sample ID
A2	A2-01
A3	A3-01
A4	A4-01
B2	B2-01
B3	B3-01
B1	0

Alpha Activity		
DPM	σ	flags
0.00	2.03	<MDA
1.89	2.06	<AL
0.00	1.90	<MDA
0.00	2.10	<MDA
0.00	1.90	<MDA
0.00	1.96	<MDA

Beta Activity		
DPM	σ	flags
0.00	1.18	<MDA
0.00	1.30	<MDA
0.07	1.69	<MDA
1.93	2.29	<MDA
0.00	1.23	<MDA
0.00	1.25	<MDA

COPY

1762 5 01-4

#: 1 Name: Pw H3 #401393 02-Apr-97 14:37
 A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 C: LL-UL=20.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 = 2.00 QIP = tSIE/AEC ES Terminator = Count
 7-OA-0006 [R1-R6] RYAN 4-2-97 RLH
 Conventional DPM
 Slide 1 = 800
 Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	9	B	6.70	6.30	26.00	644.		0.00
0	2.00	0		455.30	429.20	0.00	659.	946.58	95.33
1	2.00	6		2.30	2.70	0.00	667.	4.74	9.82
2	2.00	0		0.00	0.00	0.00	662.	0.00	0.00
3	2.00	0		2.80	2.20	0.00	640.	5.89	9.81
4	2.00	25		1.80	0.70	0.00	618.	3.82	11.57
5	2.00	13		0.80	1.20	0.00	644.	1.68	9.79
6	2.00	26		1.30	2.70	0.00	619.	2.76	11.36

COPY