

### UNITED STATES NUCLEAR REGULATORY COMMISSION REGION III

799 ROOSEVELT ROAD GLEN ELLYN, ILLINOIS 60137

License No.: SMB-850

Foote Mineral Company

ATTN: Richard N. Jacobson, Ph.D. Vice President, Research

and Engineering

Route 100

Exton, PA 19341

### Gentlemen:

This will acknowledge receipt of your letter dated Marc's 2, 1987, and my telephone conversation with Dr. Jacobson on April 23, 1987 regarding Foote's intention to sell its Cambridge, Ohio plant to the Shieldalloy Corporation. Furthermore, it was indicated that slag waste materials containing residual thorium and uranium from past operations is present at your facility.

Before the NRC will authorize release of your properties for unrestricted use, it will be necessary to submit additional information regarding the following:

Submit a radiation survey report to establish the levels of residual radioactive contamination. The survey report shall contain, at a minimum, the following information.

- Report levels of radiation in units of microrads per hour beta and gamma radiation at one centimeter and gamma radiation at one meter from
- Report levels of radioactivity in units of disintegration per minute (or microcuries) per 100 square centimeters removable and fixed surfaces.
- Specify activity in water as microcuries per milliliter. 3.
- Specify contamination in solids as picocuries per gram.
- 5. Specify the survey instrument(s) used and certify that each instrument is appropriate for the type radiation measured, properly calibrated and
- Provide the name(s) and credential(s) of the individuals performing the

As discussed during our telephone conversation, a decision will be made (e.g., the need for decontamination of facilities and removal of contaminated wastes to approved burial sites, conditional or complete release from NRC license

control) after we have reviewed the survey results for your plant and adjoining properties. To assist in preparation of your survey report and to provide information on NRC policy regarding the release of facilities, we have forwarded to you under separate cover the following documents.

- Termination of Byproduct, Source and Special Nuclear Materials, NRC Policy and Guidance Directive FC83-23.
- Disposal or Onsite Storage of Residual Thorium and Uranium (Either as Natural Ores or Without Daughters Present From Past Operations), NRC Uranium Fuel Licensing Branch, technical position paper dated October 5, 1981.

In addition to the above, until the Commission has notified you in writing that your license has been terminated, it will be necessary to assure the following:

- Limit actions involving source material to those related to decontamination and other activities related to preparation for release for unrestricted use; and
- Control entry to contaminated areas until they are suitable for release for unrestricted use.

We shall look forward to receiving the above information within 3D days from the date of this letter. Should you have any questions, you may contact us at (312) 790-5625.

Sincerely,

George M. McCann

Materials Licensing Section

Lerge of Mclam

### ATTACHMENT 3

U. S. Nuclear Regulatory Commission Meeting of March 30, 1987

### Participants

Robert Swenson

Dennis Kelley

John Austin

Rich Fahey

Michael Morgenstern

George M. McCann

Bruce S. Mallett, Ph.D.

John Coffman

### Facility

Shieldalloy Corp.

O'Kelley

Arter & Hadden

Arter & Hadden

Shieldalloy Corp.

U. S. NRC

U. S. NRC

Certified Health Physicist Consultant for Shieldalloy (arrived late)

RE: Foote Mineral Company SMB-850 March 18. 1987

Michael R. Morgenstern, CHMM Shieldalloy Corporation West Boulevard Newfield, N.J. 08344

Dear Mr. Morgenstern.

Enclosed is my report of the radiological survey that Bob Kurz and myself performed at the Foote Minerals site in Cambridge. Ohio. As we discussed, I kept the report as straight forward as possible. I think we took a significant step forward in quantifying the situation at this site. I am looking forward to discussing the results of the samples that we sent to the lab.

If there is anything further that I can assist you with please do not hesitate to contact me.

Sincerely.

John H. Coffmatil

Certified Health Physicist

3615 Rio Rancho Blvd. NW Suite 203B Albuquerque, N.M. 87048 (505)897-7227

JHC: tp

### SUMMARY OF FINDINGS

The East Slag Pile appears to contain approximately 1.6 million cubic feet of slag material with relatively consistent elevated readings in excess of 25 times background. The area was covered with a one (1) to two (2) foot thick granular material that appeared to shield the underlying material. The slag material that exhibited the elevated readings was a large rock-like material. The ultimate handling or disposition of this material will depend upon the results of the samples sent to a laboratory for analysis. If this material had to be removed and transported to the Low Level Radioactive Disposal Facility at Barnwell, South Carolina, we estimate that it would cost approximately \$75 million. This option is obviously cost prohibitive and it is also unlikely that anyone could obtain authority from South Carolina for this disposal.

The pilot plant, pond area, grainolislag pile, and the large West Slag Pile were also surveyed. Each of these produced what appeared to be small localized areas of elevated readings. Once the disposition of the East Slag Pile has been determined, these smaller areas could be removed, if necessary, and placed with the larger quantity of material for a small incremental cost. It should be noted that all of the disposal areas with slag present exhibited radiological readings of two (2) to three (3) times the background for this area of Ohio.

If on site storage or disposal is determined to be the most cost effective method of handling this situation, the East Slag Pile's location in a wet area is a potential problem. For planning purposes, I recommend that relocation of this pile be considered as one of the alternatives. As there appears to be similar slag material at another plant, an additional alternative to be considered is to combine all the material at one location.

## SCOPING SURVEY OF SUSPECTED THORIUM BEARING SLAG MATERIAL AT FOOTE MINERALS

### Introduction

At the request of Michael R. Morgenstern of Shieldalioy Corporation, John Coffman aned Bob Kurz performed a radiological survey of the Foote Minerals plant site in Cambridge, Ohio. The survey was performed with two inch (2") NaI probes (Ludlum Model 44-10). The survey was intended to locate and quantify the extent of thorium and uranium containing slag on the site. There was not sufficient time to grid the area to better locate the radiological readings. There was no correlation made between counts per minute and pCi/g of material. Representative samples of material was sent to a laboratory by Shieldalloy for aralysis. All surveys are reported as a multiple of the background count rate. The background count rate was 10,400 cpm and was taken at the golf course across State Road 209.

### East Slag Pile

The East Slag Pile was identified as the area that contained most of the slag saterial with elevated thorium and uranium. The pile was paced off and is approximately  $450 \times 300 \times 12$  feet. This is approx mately 1.6 million cubic feet of material.

The survey was made primarily on the face of the perifery of the pile. The readings on the top of the pile were from four (4) to six (6) times background. This compares to readings in excess of fifty (50) times background on the face of the perifery. There was about a two foot (2')thick layer of material described as "quench siag" on top of the pile. This appeared to be shielding the underlying material. A backhoe was brought in to dig two (2) holes in this cover material. The backhoe was unable to dig more than a few feet in this material. The readings in the holes were three (3) to five (5) times greater than the readings at the surface. This would appear to confirm the shielding by the quench slag. Therefore the readings of the unshielded face should be representative of the whole pile.

The survey results are attached.

### Grainol Slag Pile

The Grainol Slag Pile was surveyed and found to have readings higher than the background levels. The readings around the Grainol Pile were also taken on the face of the perifery due to "quench slag" placed on the surface. The entire pile never exceeded more than eight (8) times background with most of the readings in the two (2) to three (3) times background range. It is not expected that this material is of a major concern. The pile is approximately  $165 \times 105 \times 12$  feet or 208,000 cubic feet.

The survey is attached.

### Pilot Plant

The area designated as the Pilot Plant was surveyed. The area north of the plant had readings from two (2) to fifteen (15) times background. A soil sample was taken at the spot of the highest reading. The total area is estimated to be  $200 \times 75 \times 1$  feet or 15,000 cubic feet.

### Pond

The area surrounding the pond on the north side of the plant was surveyed. There was some slag material that had readings of eight (8) times background. A sample was taken of that material. The rest of the Pond area did not have elevated readings.

### West Slag Pile

The entire West Slag Pile was walked over holding the probes approximately one (1) foot off the ground. Several areas were found with slag readings eight (8) times background on contact. These are not expected to be areas of concern.

There were several areas in the vicinity of the "iron buttons" that had readings from ten (10) up to ninety (90) times background. The ninety (90) times background was the highest reading found on the site. Soil sample #1 was taken at this spot. The backhoe was brought in and several holes were dug in attempt to determine the extent of these elevated readings. The backhoe could get no deeper than three (3) feet. Some holes indicated the materal was at the surface, one indicated a subsurface layer of material, and no conclusion could be drawn from others. It appears that the material in this area is localized and not very large quantities.

### Soil Samples

After conferring with Michael Morgenstern, we identified eleven (11) areas of concern from which samples were taken. Six (6) of these samples were sent to a laboratory for analysis and the other five (5) samples will be held by Mr. Morgenstern.

A map indicating where the samples were taken is attached. A summary of the samples are as follows:

- #1. A sample was taken of soil and rock at the location of the highest surface reading on the West Pile.
  - #2. A sample was taken of the slag that had elevated readings on the west side of the pond.
- #3. A sample was taken of the slag that had the highest reading on the Grainol Pile.
  - #4. A sample was taken of the granular surface cover on the Grainol Pile.
- \* #5. A sample of slag was taken on the East Pile from the middle of the western face.
- #6. A sample of slag was taken on the East Pile from the bottom of the southern face.
  - #7. A sample of slag was taken on the East Pile from the bottom of the northern face.
- \* #8. A sample of rock was taken from the bottom of a three foot (3') hole dug just west of the "iron buttons" on the West Pile
  - #9. A sample was taken of a greenish rock found near the "buttons" on the West Pile.
  - #10. A sample of slag was taken from areas with elevated readings eight (8) times background found on the walkover survey of the West Pile.
- # #11. A sample of slag was taken from the area north of the Pilot Plant that had the highest readings.
- \*Indicates samples that were sent to a laboratory for analysis.

### ADDENDUM TO SUMMARY OF FINDINGS SCOPING SURVEY OF FOOTE MINERALS

The soil/slag samples that were taken at different locations of the Foote Minerals site were analyzed by Teledyn Isotopes of Westwood, New Jersey (see attached data sheet). The samples were analyzed by gamma ray spectros copy utilizing a Germanium (Lithium doped) detector. As only the x or gamma ray emitting isotopes could be detected, key elements in the decay chain that could be detected were used as bench marks for Uranium-238. Thorium-232, and Radium-226. For this discussion 100% equilibrium is assumed for the decay chains. For this discussion:

Ac-228 is equivalent to Th-232, Ac-228 is equivalent to Ra-228, Th-234 is equivalent to U-238, and Pb-214 is equivalent to Ra-226.

### Discussion of Samples

Sample #1. This sample was taken at the location of the highest readings. The analysis indicates that there are several hundreds of pCi/g of U-238 and Th-232. These numbers are in the order of what was expected from the Uranium and Thorium bearing ores.

Sample #2. This sample was not analyzed.

Sample #3. This sample was taken from the "Grainol Slag" and indicates levels for U-238 of 6.32 pCi/g, for Th-232 of 6.23 pCi/g, and for Ra-226 of 10.3 pCi/g.

Sample #4. This sample was not analyzed.

Sample #5, #6 and #7. These samples are from the same slag pile and as hoped the results are almost identical. The results are, however, unusual and not expected. The samples indicate less than detectable levels of U-238 (less than 4 pCi/g) and less than detectable levels of Th-232 (less than 1.0 pCi/g) for all three samples. With less than detectable levels of Uranium and Thorium it is surprising to find approximately 80 pCi/g of Ra-226 in Sample #5, 147 pCi/g of Ra-226 in Sample #6, and 93 pCi/g of Ra-226 in Sample #7. It appears that this material is the result of a process or processes that has removed the Uranium and Thorium or a process that concentrates Radium. Ra-223 in Samples #5 and #7 appears to be unusually high at around 25 pCi/g.

Sample #8. This sample is from the west slag pile. It indicates less than 3 pCi/g of U-238 and less than 1 pCi/g of Th-232. This sample also has elevated levels of Ra-226 of the order of 80 pCi/g.

Sample #9. This sample was not analyzed.

Sample #10. This sample was not analyzed.

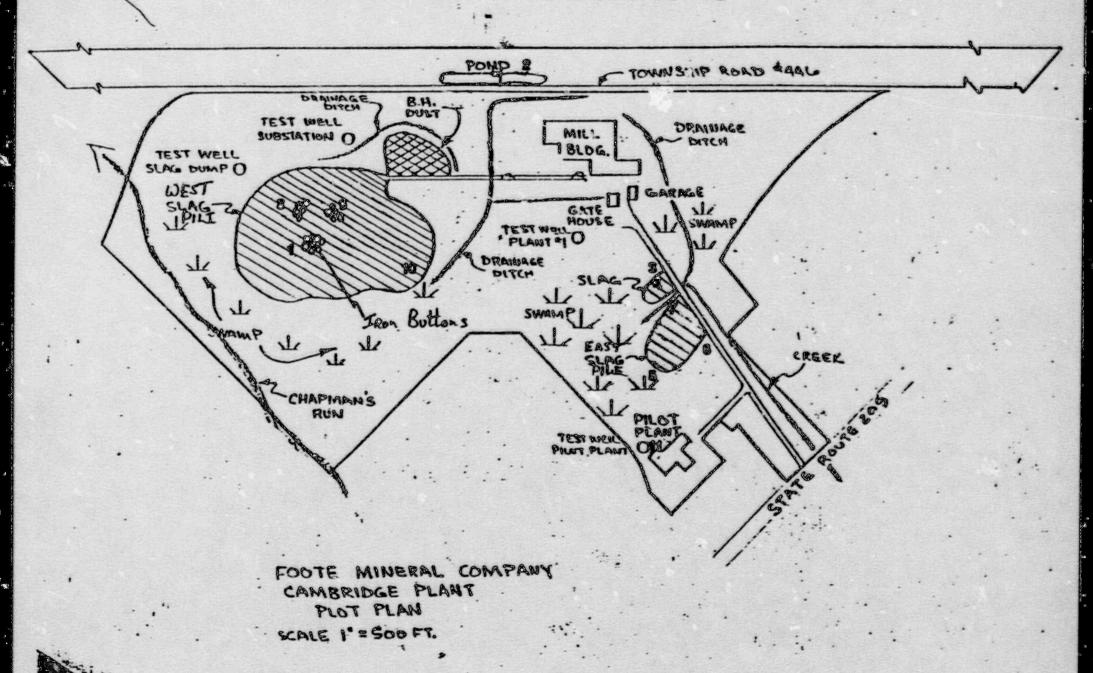
Sample #11. This sample was taken from the pilot plant area. It indicates levels for U-238 of 27.3 pCi/g, for Th-232 of 0.8 pCi/g, for Ra-226 of 16.7 pCi/g, and for Ra-233 of 33.8 pCi/g.

John H. Coffman

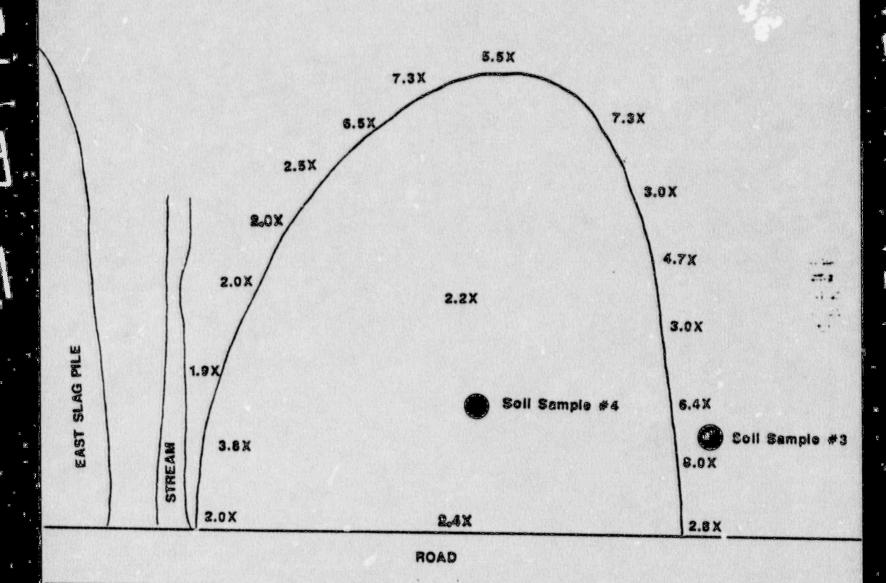
ense en

tur

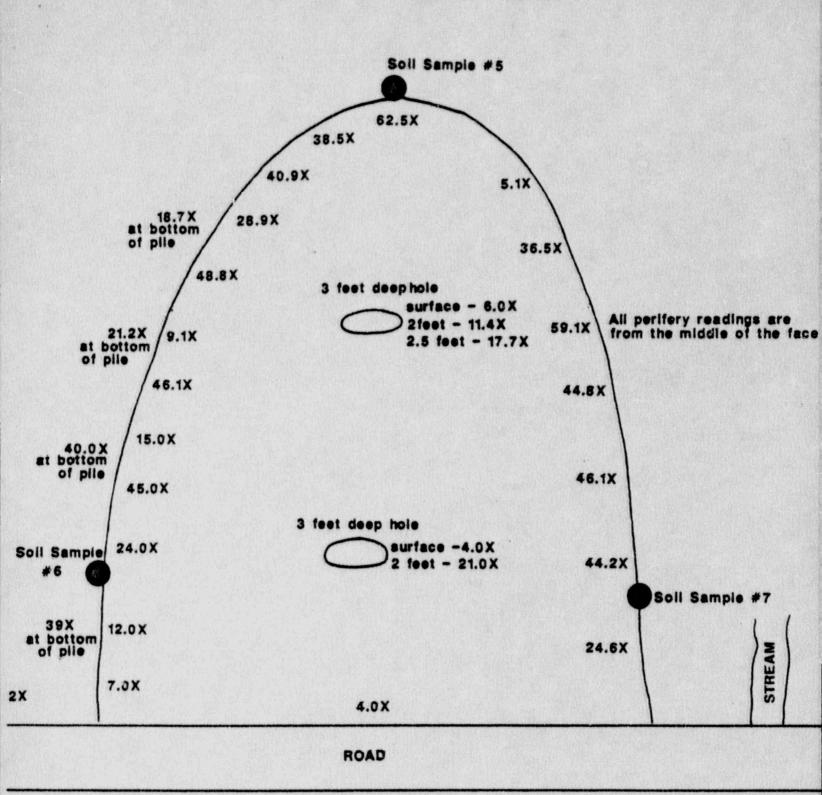
# SOIL SAMPLE LOCATIONS



### 5.5X MEANS 5.5 TIMES BACKGROUND



Radiological Survey
of Grainol Pile
taken March 16, 1987
with a 2"x2" Nal Probe



Radiological Survey of East Slag Pile taken March 16, 1987 with a 2"x2" Nal Probe

### ATTACHMENT 5

### Groundwater Characterization Survey

Burgess & Niple, Limited were retained to prepare a Ground-water Characterization Survey at the Cambridge Facility.

The results of the radionuclide analysis are shown in Table Initially, samples from the ten wells shown on Figure 1 were analyzed by gamma ray spectroscopy to determine the presence of gamma emitting substances. The presence of both lead (Pb)-214 and bismuth (Bi)-214 was noted in nine of the well samples. The highest reported level was slightly less than 200 picoCuries per liter (pCi/1). Activity levels of potassium (K)-40 and thallium (T1)-208 were also noted in a few of the wells. The laboratory was later requested to analyze for gross alpha and beta. Gross alpha activity was below detection levels in all but one sample (MW8), while gross beta activity ranged from below the detection limit to slightly over 5 pCi/l. Drinking water standards have been established for gross alpha and beta with all these results well below the respective standard. In comparing to background levels, reference is made to the publication, "Nationwide Occurrence of Radon and Other Natural Radioactivity in Public Water Supplies," EPA 520/5-85-008, October 1985 and "Exposures from the Uranium Series with Emphasis on Radon and Its Daughters," National Council on Radiation Protection and Measurements Report No. 77, 1984. This publication indicates the activity levels shown in Table 1 are within normal background levels for the area considering that the activity levels of Pb-214 and Bi-214 approximate the level for Radon (Ra)-222.

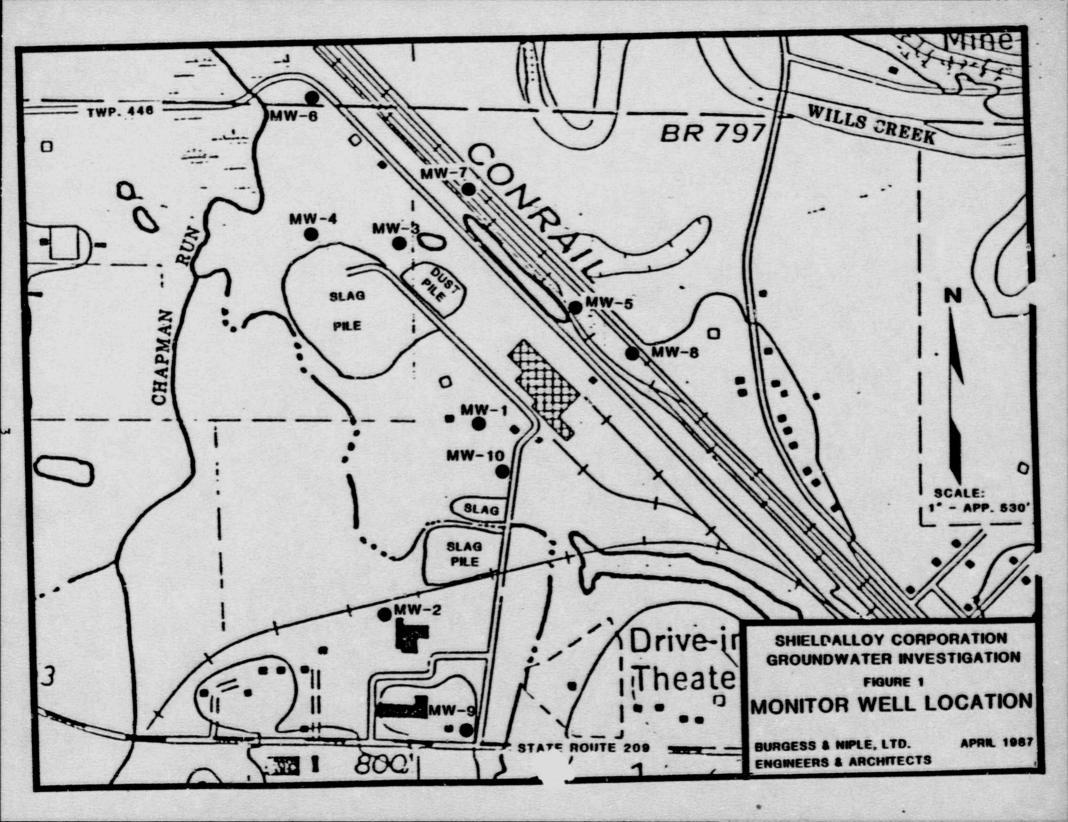


Table 1

Groundwater Quality Results
Foote Mineral Company
Cambridge, Ohio
(Results in pCi/I)

Parameter	MW1	MW2	MW3	MW4	MW5	MW6	MW7	MW8	MW9	MW10	Drinking Weter Standard
Thorium-234	<80	90	<b>(60</b>	(100	<100	<80	(90	<40	90	90	
Radium-223	(20	(30	<20	⟨30	<40	<20	<b>(30</b>	<30	<30	<b>O</b> 0	
Lead-214	146+15	49.7+9.3	<20	82.7+11.2	47.1+12.3	44.2+9.9	55.1+9.9	87.1-11.7	105+11	176+18	
Bismuth-214	129+13	47.8+8.0	<10	73.9+ 9.6	47.7+ 9.9	35.9.7.8	57.8+8.7	58.5+ 8.7	101.96	166+17	•
Actinium-228	20	<20	<20	(20	30	<20	<20	<20	<20	<20	
Lead-212	9	9	•	40	(10	9	9	9	9	(10	
Thallium-208	20	(10	20.7+ 9.7	<20	<20	<10	<20	<10	<10	<20	
Potassium-40	⟨60	<b>60</b>	58.8+29.5	103+39	90	<60	70	74.3.32.7	<60	95.2+36	
Gross Alpha	0	0	0	3	G	<4	5	3.6+ 2.7	(2	0	15
Gross Bete	a	2.7+1.2	2.7 1.2	3.8+ 1.3	(2	3.94 1.5	2.4+1.6	2.6-1.1	2.5+1.0	2.4.1.2	50

United States Environmental Protection Agency Eastern Environmental Radiation Facility 1890 Federal Drive Montgomery, AL 36109 S

EPA 520/5-85-008 October 1985

Radiation

**SEPA** 

# Nationwide Occurrence of Radon and Other Natural Radioactivity in Public Water Supplies



Table 8.23 Matural radioactivity in public groundsater systems-Ohio

251CHA U-234 251CHA U-238 251CHA ENR (PC1/1) FRE (PC1/1) ERROR			i i	1:	1	1:		1	1:	£	1	1	*	2	ž	<b>1</b>	¥	Y.	0.0 1.0	<b>5</b> :	<b>1</b>	11	1:	11	12	1	•	£	<b>E</b> i	<b>3</b> 1	11	1 2		1	£	£:	ł:	11	1:	11	1	ž	W			VIII		<b>\$</b> :	<b>\$ \$ \$</b>
SIGIR 8-234 ENR (pC1/1	•	11	1		*	W	¥	*		1:	H		*	<b>E</b> :	1			4	6.3	:			1		W	W	W.	1	<b>1</b>	:		¥	*	1	<b>1</b>	==		**	*	N.	MA	W	N.	W.	:	1		* :	2 2 2
(pC1/1)	•			W	×	H	*	W	RA			:	11	11			::		1 :	:	:		*	*	**	**	ī	1:	1:	11		W	¥	<b>1</b>	<b>:</b>		1	**	*	NA.	N.	NA NA	MA	¥	*		WW	***	11
n-226 251GH																																																	
Ra-226 (pC1/1)	ž	×	NA	NA NA	HA	*	MA	MA	*	HA	*				:		1			*		ž	KN	ž	H	1	ž :	1	1 1	1	ž	¥2	*	1	1	1	ž	NA	MA	N.	ž	ž	¥¥	W	W	1		NIA.	¥ ¥
2SIC	1.0	1.0	1.2	0.1	6.0	6.0	2.1	2.0	1.0	1.0	-		0	0.1	•	9			1	0.1	9.0		0.3	0.4	0.1	2	:	::	-	6.9	1.2	1.0	3:	::	:	2.8	1.3	0.1	:		4.2	6.0	1.1	4.5	0.1	6.1		1.	. 0.
NETA 251G (PC1/11) FINE	2.0	1.5	2.2	1.3	=	1.9	3.8	5.6	2.3	6.1	9.1	1.5			-1.2	2.0	0.1	5.5	2.3	1.5																													2.1
ZSICHA NETA ERR (pC1/1	9.6	6.0	8.0	9.0	0.7	B.0	9.1		8.0	0.3														M	9.0							0.0																	9.0
	1.0						8.0																						li.			0.0																	
ZSICHA ALPHA ERRGZ (PC1/1)	6.99																																																
22 251				-			9.59 9											19 0	9 62.	1 68	3 59.	.09	7 106.	62.	. 64	60		. 89	1 97.	. 59.	70.	7.7		. 59	88	. 88	64.	67.	.3.	.09	59.		92.	60.1	58.	.09	30		6.49
#a-2 (pCt/	0.0																		201.	180.	40.	289.	9-	:	-		130	218.	234.1	24.0	647.		267	38.0	=	685.9	45.1	35.6	87.5	31.0	36.8		0.01	9.46	110.0	33.9	295.5		9.56
COLLECT Re-222 DATE (pC1/1)	72981	62281	62281	42981	62281	42981	187 8	8 48	62381	62381	62381	72281	72181	5 581	12981		42981	42981	72181	72281	19019	81881		=	= :																								62382
LOCATION	OH: ANDONER			FUNTAINE	2										OHI: CUTAHOCA FALLS	OH:DAYTON		So		OH: FAST PALESTINE						OH CALLEDON					2	OH: HAIR LTON			OH: HUBBARES 7	III. I CHTS	**		5	**		OMO.				OH: LOUISVILLE B	OH: LOVELAND 8		E.
EFA 110	USRM1 5262	HSRN14050	USBAN 4050X	ISEN 27 39	# 10 M 10 M	SKN1 ZB11	USKNI SZBOX	3676 THE	USKRI 4031	USHNI 4046	USRN1 4049	USRN1 4917	USRNI 4849	HSRN1 2944	USKN1 5176	USRU1 5612	USRIII 2680	<b>USRN1 2680X</b>	JSKN14852	SKN14915	15RN1 5497	JSW111 5608	SENISIO	USENI 4140X	100 E 101 10 10 10 10 10 10 10 10 10 10 10 10	SEAT MASE	USKN14053	<b>ISRN15350X</b>	USENI \$350	USRN14373	SENI 4217	USKNI STOV	USKNISHO	USR1114219	SRIPS117	USRM1 5609	SR## 5504	Sent Sugar	10 10 10 10 10 10 10 10 10 10 10 10 10 1	USKNIAL /9	SERVI CAME	DOLC HARD	Menul & Lane				USRI11 5309		USRN1 4047

COLLECT RE-222 2SIGNA ALPHA 2SIGNA BETA 2SIG Re-226 2SIGNA Re-228 2SIGNA U-234 2SIGNA U-238 2SIG LOCATION

Object   Columbia	19Chul Chi		187 8	\$7.5	4.19	9.3	9.6	1.4	3	1	¥	ı	1	
OHISTITUE   71381   550.0   66.6   0.4   0.6   0.1   1.2   KA   INA   INA   OHISTITUE   71381   550.0   66.6   0.4   0.6   0.1   1.2   KA   INA   INA   OHISTITUE   71381   532.9   67.3   0.5   0.7   2.5   1.10   NA   INA   INA   INA   OHISTITUE   71381   532.9   67.3   0.6   0.7   2.5   1.10   NA   INA	100000000000000000000000000000000000000		189 8	1.1.	85.9	1.5	6.0	2.1	1.0	W	N.	**	W.	
OH:HILDORD         71381         543.9         67.9         0.7         2.2         1.0         MA         MA           OH:HILLORD         71381         743.0         65.9         0.7         2.5         1.1         MA         MA           OH:HIRLO JUNCTON         7231         62.3         0.6         1.9         5.0         4.2         MA         MA           OH:HIRLO JUNCTON         7231         62.3         0.6         1.9         5.0         4.2         MA         MA           OH:HIRLO JUNCTON         71381         98.0         62.3         0.6         1.9         1.0         MA         MA         MA           OH:HIRLO JUNCTON         71381         98.0         62.3         0.2         0.4         1.1         1.0         MA         MA           OH:HIRLO JUNCTON         71381         98.0         62.3         0.2         0.4         1.1         1.0         MA         MA           OH:HIRLO JUNCTON         71381         72.3         0.5         0.6         1.2         0.1         1.1         1.0         MA         MA           OH:HIRLO JUNCTON         7.2         0.7         0.6         0.7         1.1         1.0	HEPHILEK-W		71381	\$50.0	68.6	9.0	9.0	3.1	1.2	KA	**	¥	¥¥	
OH:HILLYLLE ROOM 166.3 74.1 6.8 6.7 2.5 1.1 NA NA NA OH:HILLYLLLE ROOM 156.3 74.1 6.6 6.7 14.4 0.9 NA NA OH:HILLYLLLE ROOM 17218 414.0 77.4 6.6 6.7 14.4 0.9 NA NA OH:HILLYLLLE ROOM 17218 414.0 77.4 6.6 6.7 14.4 1.2 NA NA OH:HILLYLLLE ROOM 17218 15.8 6.2 0.4 0.4 1.1 1.0 NA NA OH:HILLYLLLE ROOM 17218 15.9 6.2 0.4 0.4 1.1 1.0 NA NA OH:HILLYLLE ROOM 17218 152.1 6.2 0.5 0.6 1.0 NA 1.1 1.0 NA NA OH:HILLYLLE ROOM 17218 152.1 6.2 0.5 0.6 1.0 NA NA OH:HILLYLLE ROOM 17218 152.1 6.2 0.5 0.6 1.0 NA NA OH:HILLYLLE ROOM 17218 152.1 6.2 0.5 0.6 1.0 NA NA OH:HILLYLLE ROOM 17218 152.1 6.2 0.5 0.6 1.0 NA NA OH:HILLYLLE ROOM 17218 152.1 6.2 0.0 NA NA OH:HILLYLLE ROOM 17218 152.1 6.2 0.0 NA NA NA OH:HILLYLLE ROOM 17218 152.1 6.2 0.0 NA NA NA OH:HILLYLLE ROOM 17218 152.1 0.0 NA NA NA NA OH:HILLYLLE ROOM 17218 152.1 0.0 NA NA NA OH:HILLYLLE ROOM 17218 152.1 0.0 NA NA NA OH:HILLYLLE ROOM 17218 152.1 0.0 NA NA NA NA OH:HILLYLLE ROOM 17218 152.1 0.0 NA	PERMIT SECTION		71381	543.9	67.9	0.7	8.0	1.1	1.0	RA	¥¥	W.	1	
OHI-HINGO JUNCTION         72201         414.0         72.4         0.6         0.7         1.4         0.9         HA         NA           OHI-HINGO JUNCTION         73391         78.0         6.2.0         0.4         1.3         1.0         HA         NA	9695 INDSH		81081	168.3	74.1	8.0	0.1	2.5	=	MA	#	*	W.	
OHI-PRINCE   STORT   20.5   0.6   1.9   5.0   4.2   NA   NA   NA   OHI-PRINCE   STORT   22.5   6.4   0.4   0.4   1.1   1.0   NA   NA   OHI-TIT. VERNON   72.5   1.6   6.4   0.4   0.4   1.1   1.0   NA   NA   OHI-TIT. VERNON   72.5   1.6   6.4   0.4   0.4   1.4   1.0   NA   NA   OHI-TIT. VERNON   72.5   1.6   6.4   0.4   0.4   1.4   1.0   NA   NA   OHI-TIT. VERNON   72.5   1.4   1.0   1.0   NA   NA   OHI-TIT. VERNON   72.5   1.4   1.0   1.4   1.0   NA   NA   OHI-TIT. VERNON   72.5   1.1   1.0   1.0   NA   NA   OHI-TIT. VERNON   72.5   1.1   1.0   1.0   1.0   NA   NA   OHI-TIT. VERNON   72.5   1.1   1.0   1.0   1.0   NA   NA   OHI-TIT. VERNON   72.5   1.1   1.0   1.0   NA   NA   OHI-TIT. VERNON   72.5   1.1   1.0   7.0   1.1   1.0   NA   NA   NA   OHI-TIT. VERNON   72.5   1.1   1.2   1.1   1.1   1.2   1.1	Henri 6979		72281	6116.0	12.4	9.0	0.7	-	6.0	NA.	*	W	R.	
OHISTORIAN   71381   99.0 62.0   0.4   0.8   2.7   1.2   NA   NA   OHISTORIAN   72181   76.4 62.3   0.2   0.4   1.4   1.0   NA   NA   OHIST. VERNOH   72181   76.4 62.3   0.5   0.6   1.1   1.0   NA   NA   OHIST. VERNOH   72181   76.6   64.0   0.5   0.6   2.0   1.0   NA   NA   OHIST. VERNOH   72181	115mm1 \$6.11		81881	283.8	62.3	9.0	1.9	9.0	1.1	MA	**	**	*	
OHI-IT. VERNOL         72.10         76.4         62.3         -0.2         0.4         1.1         1.0         NA         NA           OHI-IT. VERNOL         72.10         66.5         64.3         -0.2         0.4         1.4         1.0         NA         NA           OHI-IT. CANTUR         7.20         62.3         6.5         2.0         1.0         NA         NA           OHI-IT. CANTUR         7.5         4.2         1.5         0.9         NA         NA           OHI-IT. CANTUR         8.481         19.2         6.3         0.6         2.0         1.0         NA         NA           OHI-REW RCHEIST         8.481         19.2         6.3         0.7         2.0         1.0         NA         NA           OHI-REW RCHEIST         8.481         19.2         6.3         0.4         1.6         2.0         1.0         NA         NA         NA           OHI-REW RCHEIST         8.481         19.2         6.3         0.5         0.5         2.0         1.0         NA         NA <t< td=""><td>HEERY 46.04</td><td></td><td>11381</td><td>98.0</td><td>62.0</td><td>1.0</td><td>8.0</td><td>1.1</td><td>1.2</td><td>RA</td><td>*</td><td>£</td><td>**</td><td></td></t<>	HEERY 46.04		11381	98.0	62.0	1.0	8.0	1.1	1.2	RA	*	£	**	
OH-HE, VERHUH         721M         66.9         64.0         -0.1         0.4         1.4         1.0         NA         NA           OH-HE, VERHUH         721, 3107.4         6.3         0.6         1.5         0.9         NA         NA         NA           OH-HE, CARLISEE         49191         117.3         0.6         1.5         1.6         1.0         NA         NA           OH-HE, CARLISEE         4918         117.3         0.7         1.6         1.6         1.0         NA         NA           OH-REW PHILAMETER         8.481         119.0         63.3         0.4         0.6         2.4         1.0         NA         NA           OH-REW PHILAMETER         8.481         119.0         63.3         0.4         0.6         2.4         1.0         NA         NA           OH-REW PRIA         7.866         1.0         0.4         0.6         2.4         1.0         NA         NA           OH-REW PRIA         7.866         1.0         0.4         0.6         2.4         1.0         NA         NA           OH-REW PRIA         7.864         0.5         0.7         1.0         1.0         NA         NA         NA	HERBITSRSOX		72181	76.4	62.3	-0.2	1.0	=	1.0	**	W	*	WW	
OH:HI. CANTUR         N 4RI 129.3 62.3 0.5 0.6 2.0 1.0 NA         NA         NA           OH:NEW CARLISLE         490RI 117.3 107.4 0.8 0.8 1.5 0.9 NA         NA         NA           OH:NEW CARLISLE         490RI 117.3 107.4 0.8 0.8 1.5 0.9 NA         NA         NA           OH:REW PITAMELEIT 2281 1351 6.2.3 0.7 0.7 2.0 1.0 NA         NA         NA           OH:REW PITAMELEIT 2281 1351 6.4 0.5 0.7 0.4 0.6 2.4 1.0 NA         NA         NA           OH:ONEVILLE         8 581 153.7 66.4 0.5 0.7 0.6 1.2 NA         NA         NA           OH:ONEVILLE         8 581 153.7 66.4 0.5 0.7 0.6 1.2 NA         NA         NA           OH:ONEVILLE         8 581 153.7 66.4 0.5 0.7 0.6 1.2 NA         NA         NA           OH:ONEVILLE         8 581 153.7 66.4 0.5 0.7 0.6 1.2 NA         NA         NA           OH:RETERBACKER AF 6781 19.2 6.4 0.5 0.6 1.1 1.1 0.7 NA         NA         NA           OH:RETERBACKER AF 6781 19.2 6.4 0.1 0.2 0.6 1.1 1.1 0.7 NA         NA         NA           OH:STRINGFIELD         47081 13.0 0.9 0.4 1.2 0.7 NA         NA         NA           OH:STRINGFIELD         47081 13.0 0.9 0.4 1.1 1.5 0.7 NA         NA         NA           OH:STRINGFIELD         47081 13.0 0.9 0.4 1.1 1.5 0.9 NA         NA         NA           OH:STRINGFIELD         47081 13.0 0.9 0.4 0.0 0.0 0.0 0.0 0.0 0	115KH1 5850		72181	8.99	64.8	-0.1	4.0	1.1	1.0	1	NA	W	W	
OH:INEU CARLISE         43081         117.3         107.4         0.0         0.1         1.5         0.9         MA         MA           OH:INEU CARLISE         43081         121.3         16.3         -0.5         2.7         2.0         1.0         MA         MA           OH:INEU RILLAMELMI 22181         231.5         16.3         -0.5         2.7         2.0         1.0         MA         MA           OH:ORTHOU         81881         259.4         73.6         1.4         1.8         7.6         4.3         MA         MA           OH:ORTHOU         81881         259.4         73.6         1.4         1.8         7.6         4.3         MA         MA           OH:ORTHOU         81881         259.4         73.6         1.2         1.2         MA         MA           OH:ORTHOU         8181         189.3         24.4         1.3         2.4         1.0         MA         MA           OH:SPHACKELA         7281         19.5         6.4         1.3         2.4         1.0         MA         MA           OH:SPHACKELA         47081         19.5         6.4         1.3         1.4         1.4         1.4         1.4	HSRN1 \$261		. 481	129.3	62.3	0.5	9.0	2.0	1.0	*	¥	*	*	
OH:REW PUTAMELPHI 72181 135.1 42.3 -0.5 2.2 7.4 4.7 MA         OH. REW PUTAMELPHI 72181 135.1 42.3 -0.5 2.2 7.4 4.7 MA         MA         MA           OH:REW PUTAMELPHI 72181 135.1 6.4 MO HOR OH:REW PUTAMELPHI B         8.51 119.0 6.3 0.4 0.6 2.4 1.0 MA	11CBH12738		43081	111.3	107.4	0.8	8.0	1.5	6.0	*	¥	¥	¥	
OHI-REV RECURDED  OHI-REV RECURDED  OHI-REVERTOR  OHI-REVE	115 E 11 5 8 5 1	H	72181	155.1	62.3	-0.5	1.1	1.4	4.1	1	ž	¥	¥	
OH-ORCHGOD         61861         259-4         73-6         1-4         1-6         4-3         INA         NA           OH-ORCHGOD         61861         159-6         63-4         0-5         2-4         1-0         NA         NA           OH-ORCHGLE         6 461         118-0         65-3         0-5         2-3         1-1         NA         NA           OH-RAVERIA         72961         55-3         65-4         0-5         0-6         2-3         1-1         NA         NA           OH-RAVERIA         72961         19-3         52-4         1-3         2-1         11-2         NA         NA         NA           OH-RAVERIA         72961         19-3         52-4         1-3         2-1         11-2         4-8         NA         NA           OH-RAVERIA         72961         19-3         52-4         1-3         2-1         1-0         NA         NA           OH-SPRINGFIELD         43061         19-5         6-3         1-5         1-0         2-4         1-0         NA         NA           OH-SPRINGFIELD         43061         19-5         6-3         1-3         1-1         1-0         NA         NA	HERNI 6697		71381	233.9	8.101	0.8	0.7	2.0	0.1	*	ž	**	¥	
OH:ORVILLE         8 481         119.0         63.3         0.4         0.6         2.4         1.0         NA         NA           OH:ORYGINE         8 591         153.7         66.4         0.5         0.7         3.0         1.2         NA         NA           OH:RATCHMACKER AF 62681         19.3         26.4         0.5         0.7         3.0         1.2         4.8         NA         NA           OH:RATCHMACKER AF 62681         19.3         2.4         1.3         2.1         1.2         4.8         NA         NA           OH:RATCHMACKER AF 62681         19.3         2.4         1.3         0.1         0.7         0.7         NA         NA         NA           OH:RATCHMACKER AF 62681         19.2         92.0         0.4         1.8         6.1         4.7         NA         NA           OH:SPRINGETELD         43081         132.9         95.1         1.2         0.4         2.4         1.0         NA         NA           OH:SPRINGETELD         43081         135.0         95.1         1.1         0.7         2.4         1.0         NA         NA           OH:SPRINGETELD         43081         135.0         95.1         1.1	115HW1 5622		18818	289.4	13.6	-	1.9	1.6	1.3	NA NA	**	¥	¥	
OH:ROXFORD         8 581         153.7         66.4         0.5         0.7         3.0         1.2         NA         NB           OH:RAVENIA         7291         54.8         67.4         0.5         0.6         2.3         1.1         4.8         NA         NA           OH:RITTHAN         7291         25.4         1.3         0.1         1.1         0.7         NA         NA           OH:SPRINGFIELD         43081         32.0         92.0         0.4         1.0         6.1         4.7         NA         NA           OH:SPRINGFIELD         43081         32.0         92.0         0.4         1.0         6.1         4.7         NA         NA           OH:SPRINGFIELD         43081         195.8         66.3         1.5         0.7         2.4         1.0         NA         NA           OH:SPRINGFIELD         43081         195.6         96.1         1.5         0.7         2.4         1.0         NA         NA           OH:SPRINGFIELD         43081         195.6         96.1         1.1         1.5         0.7         1.0         1.0         0.1         1.0         NA         NA         NA         NA         NA	USKNI \$265		187 8	118.0	63.3	4.0	9.0	2.4	1.0	*	£	¥N.	ž	
OH: RAVENIA         72981         54.8         67.4         0.5         0.6         2.3         1.1         HA         RA           OH: RICKDHACKER AF 62681         19.3         52.4         1.3         2.1         11.2         4.8         NA         NA           OH: SIRADYSIDE         73081         27.9         92.0         0.4         1.8         6.1         4.7         NA         NA           OH: STR INCETELD         43081         32.9         92.0         0.4         1.8         6.1         4.7         NA         NA           OH: STR INCETELD         43081         195.8         66.3         1.5         1.0         2.5         1.1         NA         NA           OH: STR INCETELD         43081         195.9         65.1         1.5         1.0         2.5         1.1         NA         NA           OH: STR INCETELD         43081         195.9         65.1         1.1         0.7         2.0         1.1         NA         NA           OH: STR INCETELD         43081         195.9         65.1         1.1         0.7         2.0         1.1         NA         NA           OH: TREATOR         6 3011         1.2         1.1	USRM15306		8 581	153.7	4. 99	0.5	6.7	3.0	1.2	*	W	¥	¥	
OHISTEKENBACKER AF 62681 19.3 52.4 1.3 2.1 11.2 4.8 MA MA OHISTEKINETISMA 73081 27.9 92.0 0.4 1.6 6.1 4.7 MA OHISSERIANT 73081 32.0 97.3 0.4 1.6 6.1 4.7 MA OHISSERIANTELEL  43081 32.0 97.3 0.4 1.6 5.1 4.7 MA OHISSERIANTELEL  43081 192.9 65.1 0.2 0.7 3.0 1.1 MA MA OHISTERIANT  43081 195.8 66.3 1.1 0.7 2.3 1.1 MA MA OHISTERIAN  43081 42.6 95.1 1.1 0.7 2.1 0.9 MA MA OHISTERIAN  43081 42.6 95.4 1.0 0.0 0.0 2.8 1.0 MA MA OHISTERIAN  43081 16.2 107.1 0.0 0.0 2.8 1.0 MA MA OHISTERIAN  43081 18.2 107.1 0.0 0.0 2.8 1.0 MA MA OHISTERIAN  43081 18.2 107.1 0.0 0.0 2.8 1.0 MA MA OHISTERIAN  43081 257.1 74.0 0.0 0.0 2.8 1.0 MA MA OHISTERIAN  43081 257.1 74.0 0.0 0.0 2.8 1.0 MA MA OHISTERIAN  42081 257.1 74.0 0.0 0.0 0.0 0.0 0.0 0.0 MA MA OHISTERIALE  5381 12.2 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.5 0.8 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.5 0.8 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.5 0.8 1.0 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.5 2.1 1.0 1.4 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.5 2.1 1.0 1.0 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.0 0.0 1.7 2.1 0.9 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.5 2.1 1.0 0.9 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.1 0.5 2.1 1.0 0.9 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.1 0.5 2.1 1.0 0.9 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.1 0.5 2.1 1.0 0.9 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.1 0.5 2.1 1.0 0.9 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.1 0.5 2.1 1.0 0.9 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.1 0.5 2.1 1.0 0.9 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.1 0.5 2.1 1.0 0.9 MA MA OHISTERIALE  5381 12.2 6.8 0.1 0.1 0.5 2.1 1.0 0.9 MA MA OHISTERIALE  5381 12.2 6.3 0.1 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	USRNI 5096		72981	54.8	4.19	0.5	9.0	2.3	=	**	KY	*	¥	
OHI-STRINGTELLS OHI-STRINGTELL	HSRN16136	ACKER AP	62681	19.3	\$2.4	1.3	1.2	11.2		*	×	YM	*	
OHISTRIADYSIDE 72381 327-9 92.0 0.4 1.8 6.1 4.7 MA MA OHISTRIADYSIDE 72381 327-9 92.0 0.4 1.8 6.1 4.7 MA MA OHISTRIMCFIELD 43081 32.0 89.3 0.1 0.4 2.4 1.0 PM MA OHISTRIMCFIELD 43081 195-8 66.3 1.5 1.0 2.5 1.1 MA MA OHISTRIAN 43081 295-6 96.1 1.1 0.7 2.1 0.9 MA MA OHISTRIAN 43081 295-6 96.1 1.1 1.2 2.0 3.4 MA MA OHISTRIAN 43081 242-6 96.1 1.1 1.2 2.0 2.3 3.4 MA MA OHISTRIAN 43081 18.2 107.1 0.0 0.0 2.8 1.0 MA MA OHISTRIAN 43081 18.2 107.1 0.0 0.0 2.8 1.0 MA MA OHISTRIAN 43081 257-1 14.0 0.0 0.0 2.8 1.2 MA MA OHISTRIAN 43081 257-1 14.0 0.0 0.0 2.8 1.2 MA MA OHISTRIAN 528-1 14.7 68-6 0.1 0.7 0.0 0.9 MA MA OHISTRIAN 528-1 14.7 68-6 0.1 0.7 0.8 0.8 0.9 MA MA OHISTRIAN 528-1 14.7 68-6 0.1 0.7 2.1 0.9 MA MA OHISTRIAN 528-1 14.7 68-6 0.1 0.7 2.1 0.9 MA MA OHISTRIAN 558-1 16.7 2.1 0.9 MA MA OHISTRIAN 62381 66-8 62-3 1.1 0.7 2.1 0.9 MA MA OHISTRIAN 62381 66-8 62-3 1.1 0.7 2.1 0.9 MA MA OHISTRIAN 62481 122-1 62-9 1.5 1.0 0.9 MA MA OHISTRIAN 62481 122-1 62-9 1.5 1.0 0.9 MA MA OHISTRIAN 62481 122-1 62-9 1.5 1.0 0.9 MA MA OHISTRIAN 62481 122-1 62-9 1.5 1.0 1.0 MA MA OHISTRIAN 62481 122-1 63-9 1.5 1.0 1.0 1.0 MA MA OHISTRIAN 62481 122-1 63-9 1.5 1.0 1.0 1.0 MA MA OHISTRIAN 62481 122-1 63-9 1.5 1.0 1.0 1.0 MA MA OHISTRIAN 62481 122-1 63-9 1.5 1.0 2.0 1.0 MA MA OHISTRIAN 62481 122-1 63-9 1.5 1.0 2.0 1.0 MA MA OHISTRIAN 62481 132-1 63-9 1.5 1.0 2.0 1.0 MA MA OHISTRIAN 62481 132-1 63-9 1.5 1.0 2.0 1.0 1.0 MA MA OHISTRIAN 62481 132-1 63-9 0.5 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.5 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.5 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.5 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.5 0.7 2.9 1.2 MA MA MA MA OHISTRIAN 62481 133-7 83-0 0.5 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.5 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.5 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.5 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.5 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.5 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.7 2.9 1.2 MA MA OHISTRIAN 62481 133-7 83-0 0.7 2.9 1.2 M	#SRNI \$116		13081	28.8	17.4	1.5	0.8	=	0.7	í	ž	•	£	
OHI-SPRINGFIELD         41081         32.0         R9.3         0.1         0.4         2.4         1.0         PM         NA           OHI-SPRINGFIELD         43081         195.8         66.3         1.5         1.0         2.5         1.1         NA         NA           OHI-STA, MARY S         42981         139.9         65.1         0.2         0.7         3.1         0.9         NA         NA           OHI-STA, MARY S         43081         139.0         69.7         1.1         1.5         -0.2         3.4         NA         NA           OHI-STAY S         43081         142.6         69.7         1.1         1.5         -0.2         3.4         NA         NA           OHI-STAY S         43081         142.2         10.1         0.7         0.0         0.2         2.8         1.0         NA         NA           OHI-STAY S         43081         18.2         10.1         0.7         0.0         0.2         3.8         1.0         NA         NA           OHI-WARMA         43081         18.2         10.1         1.0         2.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0 </td <td>USRR16957</td> <td></td> <td>72381</td> <td>327.9</td> <td>92.0</td> <td>4.0</td> <td>1.8</td> <td>6.1</td> <td>4.7</td> <td>*</td> <td>¥</td> <td>¥¥</td> <td>ž</td> <td></td>	USRR16957		72381	327.9	92.0	4.0	1.8	6.1	4.7	*	¥	¥¥	ž	
OH: SPRINGFIELD         43081         195.8         66.3         1.5         1.0         2.5         1.1         NA         NA           OH: ST. NARY S         42961         139.9         65.1         0.2         0.7         3.0         1.1         NA         NA           OH: TIPP CITY         43081         295.6         96.1         1.1         0.7         2.1         0.9         NA         NA           OH: TREATOR         6 581         310.0         69.7         1.1         1.5         -0.2         3.4         NA         NA           OH: TROY         43081         -42.6         89.6         -0.1         0.5         3.1         1.1         NA         NA           OH: UNDARA         43081         16.2         107.1         0.0         0.0         2.8         1.2         NA         NA           OH: UNDARA         43081         257.1         74.0         0.2         1.4         4.1         NA         NA           OH: U. CARROLTOR         81881         257.1         74.0         0.2         1.4         4.1         NA         NA           OH: U. CARROLTOR         81881         257.1         74.0         0.2         1.4	USEN12742	91	43081	32.0	89.3	1.0	1.0	7.4	0.1	1	VI.	¥	1	
OH:ST. MARY'S 42981 139.9 65.1 0.2 0.7 3.0 1.1 MA MA OH:TIPP CITY 43081 295.6 96.1 1.1 0.7 2.1 0.9 MA MA OH:TIPP CITY 43081 295.6 96.1 1.1 1.5 -0.2 3.4 MA MA OH:TROY 43081 18.2 107.1 0.0 0.0 2.8 1.0 MA MA OH:TROY 43081 18.2 107.1 0.0 0.0 2.8 1.2 MA MA OH:URBANA 43081 60.5 113.6 0.0 0.0 2.8 1.2 MA MA OH:URBANA 43081 257.1 74.0 0.2 1.4 4.1 MA MA OH:URBANA 43081 257.1 74.0 0.2 1.4 4.1 MA MA OH:URBANA 42981 257.1 74.0 0.2 1.4 4.1 MA MA OH:URBANA 42981 27.6 73.1 1.0 2.0 5.8 6.9 MA MA OH:URBANA 42981 21.3 63.6 0.1 0.5 0.8 0.9 MA MA OH:URBANA 42981 21.3 63.6 0.1 0.5 2.6 1.2 MA MA OH:URBANA 42981 14.7 66.8 62.3 1.1 0.7 2.1 0.9 MA MA OH:URBANA 42981 14.7 63.8 12.4 65.8 1.7 MA MA OH:URBANA 42981 120.4 65.8 1.7 1.0 0.9 2.6 1.2 MA MA OH:URBANA 42981 120.4 66.9 0.1 0.5 2.0 1.0 MA MA OH:URBANA 42981 120.4 66.9 0.1 0.5 2.0 1.0 MA MA OH:URBANA 42981 120.4 66.9 0.1 0.5 2.0 1.0 MA MA OH:URBANA 42981 120.4 66.9 0.1 0.5 2.0 1.0 MA MA OH:URBANA 42981 130.1 63.9 1.5 1.0 2.0 1.0 MA MA OH:URBANA 42981 120.4 66.9 0.1 0.5 2.0 1.0 MA MA OH:URBANA 5 5381 139.1 83.0 0.5 0.7 2.9 1.2 MA MA	USR411 27 37		43081	195.8	66.3	1.5	1.0	2.5	=	<b>W</b>	¥	¥	ž	
OH:TIPP CITY         43081         295.6         96.1         1.1         0.7         2.1         0.9         NA         MA           OH:TREWTOR         6 581         310.0         69.7         1.1         1.5         -0.2         3.4         NA         NA           OH:TROY         43081         -42.6         89.6         -0.1         0.5         3.1         1.1         NA         NA           OH:TROY         43081         18.2         107.1         0.0         0.0         2.8         1.0         NA         NA           OH:TROY         43081         18.2         107.1         0.0         0.0         2.8         1.0         NA         NA           OH:URANA         43081         60.5         113.6         0.0         0.0         2.8         1.0         NA         NA           OH:UADAGUETH         43081         60.5         11.1         1.0         2.0         2.8         6.9         NA         NA           OH:UADAGUETH         72981         14.7         68.6         0.1         0.5         0.8         0.9         NA         NA           OH:UADAGUETH         42981         14.7         68.6         0.1 <t< td=""><td>USRN12678</td><td></td><td>42981</td><td>139.9</td><td>65.1</td><td>0.7</td><td>0.7</td><td>3.0</td><td>=</td><td>*</td><td>YM.</td><td>*</td><td>ź</td><td></td></t<>	USRN12678		42981	139.9	65.1	0.7	0.7	3.0	=	*	YM.	*	ź	
OH: TRENTOR         6 561         310.0         69.7         1.1         1.5         -0.2         3.4         HA         MA           CH: TROY         43061         -42.6         69.6         -0.1         0.5         3.1         1.1         NA         HA           OH: TROY         43061         -42.6         69.6         -0.1         0.5         3.1         1.1         NA         HA           OH: UPPERS PLAINS         62281         306.4         79.3         0.1         0.7         0.0         0.3         3.4         HA         HA         HA           OH: UPPERS PLAINS         62281         306.4         79.3         0.1         0.7         0.0         0.3         3.4         4.1         HA         HA           OH: UPPERS PLAINS         62281         560.5         114.0         0.0         0.0         0.2         1.4         1.4         HA         HA           OH: UPPERS PLAINS         62281         142.1         14.0         0.2         0.6         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0	USRN12763		43081	295.6	1.96	1.1	0.7	1.1	6.0	ž	ž	£	ž	
X         OH:TROY         43081         -42.6         89.6         -0.1         0.5         3.1         1.1         NA         RA           OH:TROY         43081         18.2         107.1         0.0         0.0         2.8         1.0         NA         NA           OH:URBANA         43081         18.2         107.1         0.0         0.0         2.8         1.2         NA         NA           OH:URBANA         43081         680.5         113.6         0.0         0.0         2.8         1.2         NA         NA           OH:URBANA         43081         257.1         74.0         0.2         1.4         3.4         4.1         NA         NA           OH:U. CARROLTOR         81881         257.1         74.0         0.2         1.4         3.4         4.1         NA         NA           OH:UAPAKONETA         42981         257.1         14.7         68.6         0.1         0.5         0.8         0.9         NA         NA           OH:WAPEKILY         42981         21.3         63.6         0.1         0.7         2.1         0.9         NA         NA           OH:WAPEKILY         62381         66.8	USRN1 5307		8 581	310.0	69.7		1:3	-0.7	3.4	£	**	*	ž	
OHITHOY OHITHO	USRIII 2740X		43081	-42.6	9.68	-0.1	0.5	3.1	=	*	ž	ž	<b>E</b>	
OH: TUPPEERS PLAINS         62281         300.4         79.3         0.1         0.7         0.0         0.3         NA         MA           OH: URBANA         43081         680.5         113.6         0.0         0.0         2.8         1.2         MA         MA           OH: U. CARROLTOH         81881         257.1         74.0         0.2         1.4         3.4         4.1         MA         MA           OH: U. CARROLTOH         81881         257.1         74.0         0.2         1.4         3.4         4.1         MA         MA           OH: U. CARROLTOH         81881         27.6         73.1         1.0         2.0         5.8         0.3         MA         MA         MA           OH: U. CARROLTOH         81881         27.6         73.1         1.0         2.0         5.8         0.3         MA         MA         MA           OH: WADERLY         62381         66.8         62.3         1.1         0.7         2.1         0.9         MA         MA         MA           OH: WADERLY         62381         66.8         62.3         1.1         1.0         7.2         1.1         MA         MA         MA <td< td=""><td>115HH112740</td><td></td><td>43061</td><td>18.2</td><td>107.1</td><td>0.0</td><td>0.0</td><td>2.8</td><td>1.0</td><td>*</td><td>**</td><td>£</td><td>*</td><td></td></td<>	115HH112740		43061	18.2	107.1	0.0	0.0	2.8	1.0	*	**	£	*	
OHEURBANA 43081 680.5 113.6 0.0 0.0 2.8 1.2 NA HA OHEU, CARROLTOH 81881 257.1 74.0 0.2 1.4 3.4 4.1 NA HA OHEU, CARROLTOH 81881 257.1 74.0 0.2 1.4 3.4 4.1 NA HA OHEUADSMONTH 72981 14.7 68.6 0.1 0.5 0.8 0.9 NA HA OHEUADSMONTH 72981 14.7 68.6 0.1 0.5 0.8 0.9 NA HA OHEUADSMONTH 72981 14.7 68.6 0.1 0.5 0.9 NA HA OHEUADSMONTH 72981 14.7 68.6 0.1 0.7 2.1 0.9 NA HA OHEUADSTEWNILLE 5581 51.8 72.6 1.0 0.9 2.6 1.2 NA HA OHEUADSTEWNILLE 62681 10.5 72.1 1.0 1.7 2.4 4.1 NA HA OHEUADSTEWNILLE 62681 10.1 63.9 1.5 1.0 1.0 NA HA OHEXPENIA 62481 102.1 63.9 1.5 1.0 2.0 1.0 NA HA OHEXPENIA 62481 102.1 63.9 1.5 1.0 2.0 1.0 NA HA OHEXPENIA	USEN14138	MS	62283	300.4	79.3	0.1	0.7	0.0	0.3	NA.	*	<b>M</b>	¥	
OH: U. CARROLTON 81881 257.1 74.0 0.2 1.4 3.4 4.1 MA NA NA OH: U. CARROLTON 81881 257.1 74.0 0.2 1.4 3.4 4.1 MA NA NA OH: U. CARROLTON 81881 292.6 73.1 1.0 2.0 5.8 6.9 MA NA NA OH: UAPAKONETA 42981 21.3 63.6 0.1 0.5 0.8 0.9 MA NA OH: WAPKRIY 62381 66.8 62.3 1.1 0.7 2.1 0.9 MA MA OH: WESTEWHILE 5 581 51.8 72.6 1.0 0.9 2.6 1.2 MA MA OH: WESTEWHILE 62681 -10.5 72.1 1.0 0.9 2.6 1.2 MA MA OH: WORTH 8 4.81 142.3 63.7 0.2 0.5 1.5 0.9 MA MA OH: YORNING 8 581 129.4 66.9 0.1 0.5 2.0 1.0 MA MA OH: XFRIA 62481 102.1 63.9 1.5 1.0 2.0 1.0 MA MA OH: ZANESVILLE 72381 138.7 83.0 0.5 0.7 2.9 1.2 KA MA	USRN12741		43081	680.5	113.6	0.0	0.0	2.8	1.2	ž	*	ž	£	
OH:U. CARROLTOR         F18E1         292.6         73.1         1.0         2.0         5.8         6.9         NA         NA           OH:UADSHORTH         72981         14.7         68.6         0.1         0.5         0.8         0.9         NA         NA           OH:UADSHORTH         42981         21.3         63.6         0.1         0.5         0.8         0.9         NA         NA           OH:UADSHORTH         42981         21.3         63.6         0.1         0.7         2.1         0.9         NA         NA           OH:UADSHORTH         62381         66.8         62.3         1.1         0.7         2.1         0.9         NA         NA           OH:UADSTERVILLE         62681         -10.5         72.1         1.0         0.9         2.6         1.2         NA         NA           OH:UTOSTER         8 ARI         142.3         63.7         0.2         0.5         1.5         0.9         NA         NA           OH:ZANESVILLE         72381         126.2         63.9         1.5         1.0         1.0         1.0         1.2         1.2         NA         NA	USRN1 5610		81881	257.1	14.0	0.2	*	1.1	;	ź	W	•	¥	
OH:UADSWORTH         72981         14.7         68.6         0.1         0.5         0.8         0.9         NA         RA           OH:UAPAKOHETA         42981         21.3         63.6         0.3         0.4         -0.1         1.4         NA         NA           OH:USAPAKOHETA         62381         66.8         62.3         1.1         0.7         2.1         0.9         NA         NA           OH:USAPAKOHETE         62381         66.8         62.3         1.1         0.7         2.1         0.9         NA         NA           OH:USAPAKULE         62681         -10.5         72.1         1.0         0.9         2.6         1.2         NA         NA           OH:USAPAKULE         62681         -10.5         72.1         1.0         0.9         2.6         1.2         NA         NA           OH:USAPAKULE         62681         -10.5         72.1         1.0         0.9         2.6         1.1         NA         NA           OH:USAPAKULE         62681         102.1         63.9         1.5         1.0         0.9         2.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0 </td <td>IISKNI S610X</td> <td></td> <td>818E1</td> <td>292.6</td> <td>13.1</td> <td>1.0</td> <td>5.0</td> <td>5.8</td> <td>6.9</td> <td>**</td> <td>**</td> <td>1</td> <td>*</td> <td></td>	IISKNI S610X		818E1	292.6	13.1	1.0	5.0	5.8	6.9	**	**	1	*	
OH: WAPERLY 62361 66.8 62.3 1.1 0.7 2.1 0.9 NA HA OH: WAPERLY 62361 66.8 62.3 1.1 0.7 2.1 0.9 NA HA OH: WAPERLY 62361 66.8 62.3 1.1 0.7 2.1 0.9 NA HA OH: WAPERLY 62361 -10.5 72.1 1.0 0.9 2.6 1.2 NA HA OH: WAPERLY 84 61.0 1.7 2.4 4.1 NA HA OH: WAPERLY 8 4 1 142.3 63.7 0.2 0.5 1.5 0.9 NA HA OH: WAPERLY 62481 102.1 63.9 1.5 1.0 1.0 NA HA OH: XFRID 62481 102.1 63.9 1.5 1.0 2.0 1.0 NA NA OH: ZANESVILLE 72381 136.7 83.0 0.5 0.7 2.9 1.2 KA NA	HSRNI 5175		12981	14.7	9.89	0.1	0.5	8.0	6.0	*	K.	*	ž	
ON: WAVERLY ON: WESTERVILLE 5 581 51.8 72.6 1.0 0.9 2.6 1.2 NA NA ON: WESTERVILLE 6 5681 -10.5 72.1 1.0 1.7 2.4 6.1 NA NA ON: WESTERVILLE 6 6 6 6 10.5 72.1 1.0 1.7 2.4 6.1 NA ON: WYONING ON: WYONING ON: XFNIA ON: XFNIA ON: XFNIA ON: ZANESVILLE 7 7 2 3 1 1 1.0 NA ON: XFNIA ON: ZANESVILLE 7 7 2 3 1 1 3 6.7 NA ON: XFNIA ON: XFN	HSRN1 2679		42981	21.3	9.69	0.3	1.0	-0.1	:	NA.	¥	ī	£	
ON: UESTERVILLE 5 581 51.8 72.6 1.0 0.9 2.6 1.2 NA NA ON: UESTERVILLE 62681 -10.5 72.1 1.0 1.7 2.4 6.1 NA NA ON: UNIVERSITE 8 481 142.3 63.7 0.2 0.5 1.5 0.9 NA NA NA ON: VIOLITA 8 581 129.4 66.9 0.1 0.5 2.1 1.0 NA NA ON: XFNIA 62481 102.1 63.9 1.5 1.0 2.0 1.0 NA NA ON: ZANESVILLE 72381 138.7 83.0 0.5 0.7 2.9 1.2 KA NA	BSRNI 4052		62381	8.99	62.3	=	0.7	1.1	6.0	W.	RA	£	ź	
OHI-WESTERVILLE 62681 -10.5 72.1 1.0 1.7 2.4 6.1 NA HA OHI-WOSTER 8 481 142.3 63.7 0.2 0.5 1.5 0.9 NA HA OHI-WYONING 8 581 129.4 66.9 0.1 0.5 2.1 1.0 NA NA OHI-WYONING 8 581 129.4 66.9 0.1 0.5 2.1 1.0 NA NA OHI-WYONING 8 581 129.4 66.9 0.1 0.5 2.0 1.0 NA NA OHI-WYONING 72381 138.7 83.0 0.5 0.7 2.9 1.2 NA NA	IISRNI 2841		5 581	51.8	12.6	1.0	6.9	2.6	1.2	**	N.	1	ž	
OHI-UPOSTER R 481 142.3 63.7 6.2 6.5 1.5 0.9 NA HA OHI-WYDHING R 581 129.4 66.9 0.1 0.5 2.1 1.0 NA HA OHI-WYDHING 62481 102.1 63.9 1.5 1.0 2.0 1.0 NA HA OHI-WYDHINE 72381 138.7 83.0 6.5 0.7 2.9 1.2 KA NA	HSR#114137		62681	-10.5	17.1	1.0	-	1.4		W	£	£	ž	
OH: STRING 8 581 129.4 66.9 0.1 0.5 2.1 1.0 NA NA OH: STRINA 62481 102.1 63.9 1.5 1.0 2.0 1.0 NA NA OH: ZANESVILLE 72381 138.7 83.0 0.5 0.7 2.9 1.2 KA NA	USRU1 5259		184 8	142.3	63.7	0.2	0.5	1.5	6.0	*	ž	¥	•	
ON:XFNIA 62481 102.1 63.9 1.5 1.0 2.0 1.0 11A NA ON:ZANESVILLE 72381 138.7 83.0 0.5 0.7 2.9 1.2 KA NA	HSER! 5311		8 581	1.29.4	6.99	0.1	0.5	7.1	1.0	NA NA	*	YM	ī	
OH:ZANESVILLE 72381 138.7 83.0 0.5 0.7 2.9 1.2 KA NA	HSR014139		62481	102.1	63.9	1.5	1.0	2.0	1.0	114	W.	í	1	
	115m21 495R	HUE	72381	138.7	83.0	0.5	0.7	1.9	1.2	KA	W	W.	*	

S

Figure E.11. Rn-222 concentrations in public groundwater Region V 1981-1982

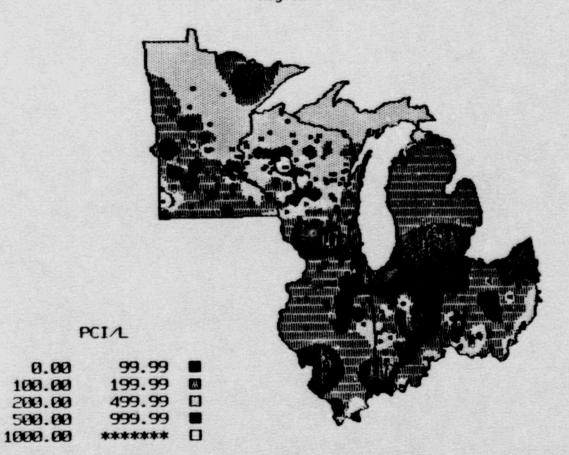


Figure E.12. Gross alpha concentrations in public groundwater Region V 1981-1982

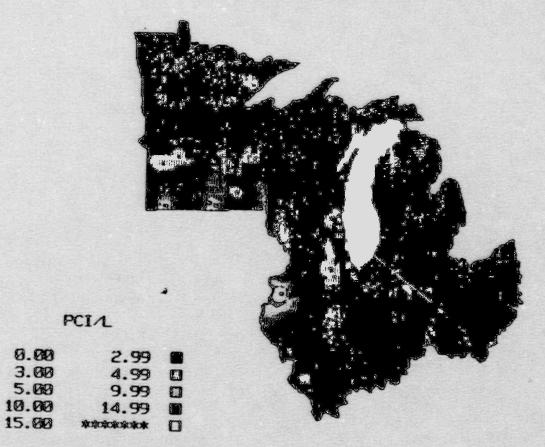
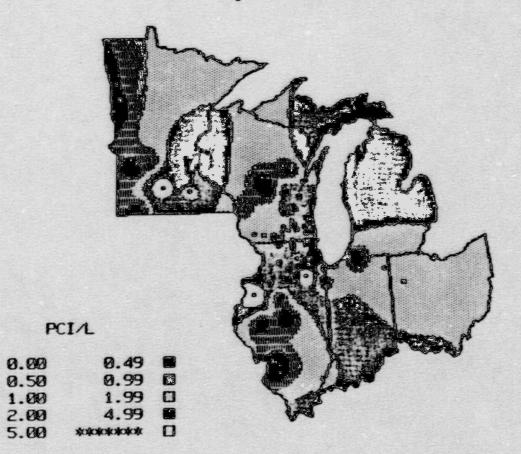


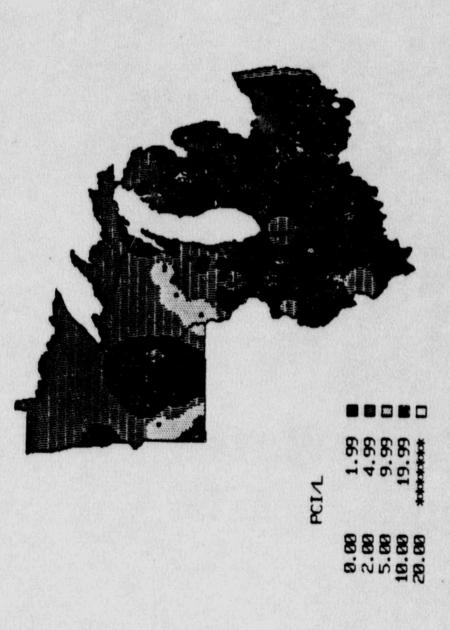
Figure E.13. Ra-226 concentrations in public groundwater Region V 1981-1982



X)

184

Figure E.14. Total uranium concentrations in public groundwater Region V 1981-1982



5.

### ATTACHMENT 7

### Name and Address

Shieldalloy Corporation West Boulevard Newfield, New Jersey 08344

(609) 692-4200

### Name and Address Where Licensed Material Will Be Used or Possessed

Shieldalloy Corporation Route 209 South Cambridge, Ohio 43725

### Key Personnel

Michael R. Morgenstern

Holds a B.S. degree in Chemical Engineering from Drexel University. Currently is a Certified Hazardous Material Manager by the Institute of Hazardous Material Managers. Currently overseeing the Shieldalloy Radiation Safety Program in New Jersey. Will have similar responsibility for Cambridge Alloys and Chemicals Incorporated.

Harold P. Hart

Graduated with a B.S. degree in Biological Sciences from Glassboro State College. Responsible for compliance of total plant with OSHA standards and administration of Shieldalloy safety programming.