



## SHIELDALLOY METALLURGICAL CORPORATION

WEST BOULEVARD  
P.O. BOX 768  
NEWFIELD, NJ 08344  
TELEPHONE (609) 692-4200  
TWX (510) 687-8918  
FAX (609) 692-4017  
ENVIRONMENTAL DEPARTMENT FAX  
(609) 697-9025

Certified Mail: P 284 354 431  
Return Receipt Requested

April 16, 1992

Ms. Donna L. Gaffigan  
State of New Jersey  
Department of Environmental Protection and Energy  
Bureau of Federal Case Management  
Department of Hazardous Waste Management  
401 East State Street  
CN-028  
Trenton, New Jersey 08625

RE: First Quarter 1992 Radiochemical Ground Water Sampling Report

Dear Ms. Gaffigan:

In accordance with paragraph 20(g) of Shieldalloy Metallurgical Corporation (SMC) 1988 Administrative Consent Order (ACO), please find enclosed results of the subject sampling event. Monitoring Wells A, SC12S, SC13S, SC14S, and W2 were sampled on January 16th. The locations of these monitoring wells are identified on Enclosure (1), Location of Monitoring Wells Sampled for Radiological Analysis. Well SC11S was damaged due to freezing weather during the sampling event and prevented SMC from sampling it. The repair or replacement of Well SC11S is anticipated shortly allowing for sampling to continue beginning in the third quarter 1992.

The methodology for referenced sampling and analyses was consistent with the previous subject sampling events. A one gallon sample was collected from each of the five wells while a duplicate one gallon sample was collected from Well SC14S and submitted for analysis as a quality control measure. After collection the samples were taken to the SMC laboratory to determine the total dissolved solids (TDS) level for each sample. The TDS results are presented in Enclosure (2). The samples were then submitted to Teledyne Isotopes (TI) of Westwood, New Jersey for gross alpha analysis.

Results of the gross alpha activity of the subject samples were all less than the minimum detection limit (MDL) for the analysis (see Enclosure 3). On February 24, SMC was contacted by TI with a report of the gross alpha analysis results. It reported that the target MDL of 3 pCi/l could not be obtained for four of the subject samples due to

Ms. Donna L. Gaffigan, NJDEPE-BFCM-DHWM  
April 16, 1992  
Page 2

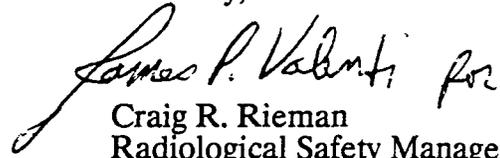
interference caused by solids contained within the samples (see Enclosure 4). It is requested that the Department consider approving Teledyne Isotopes' suggestion to modify the analytical procedures or accept a higher MDL target.

Four samples were resubmitted for isotopic analysis due to MDLs higher than the target MDL. The results of the isotopic analysis may be found in Enclosure 5. Gross alpha and isotopic analyses for this sampling event indicate radiological levels comparable to background well SC14S and past sampling events.

The chain of custody, request for analysis, and all available TI quality assurance, laboratory data sheets are found in Enclosure 6.

If you have any further questions, please do not hesitate to contact me.

Sincerely,

  
Craig R. Rieman  
Radiological Safety Manager

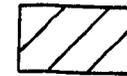
CRR:lms

Enclosures

CC: Richard D. Way  
David R. Smith  
James P. Valenti  
Charles L. Harp, Jr., Esq.  
Jay E. Silberg, Esq.  
Carol D. Berger



EXPLANATION



APPROXIMATE LOCATION OF LAGOONS



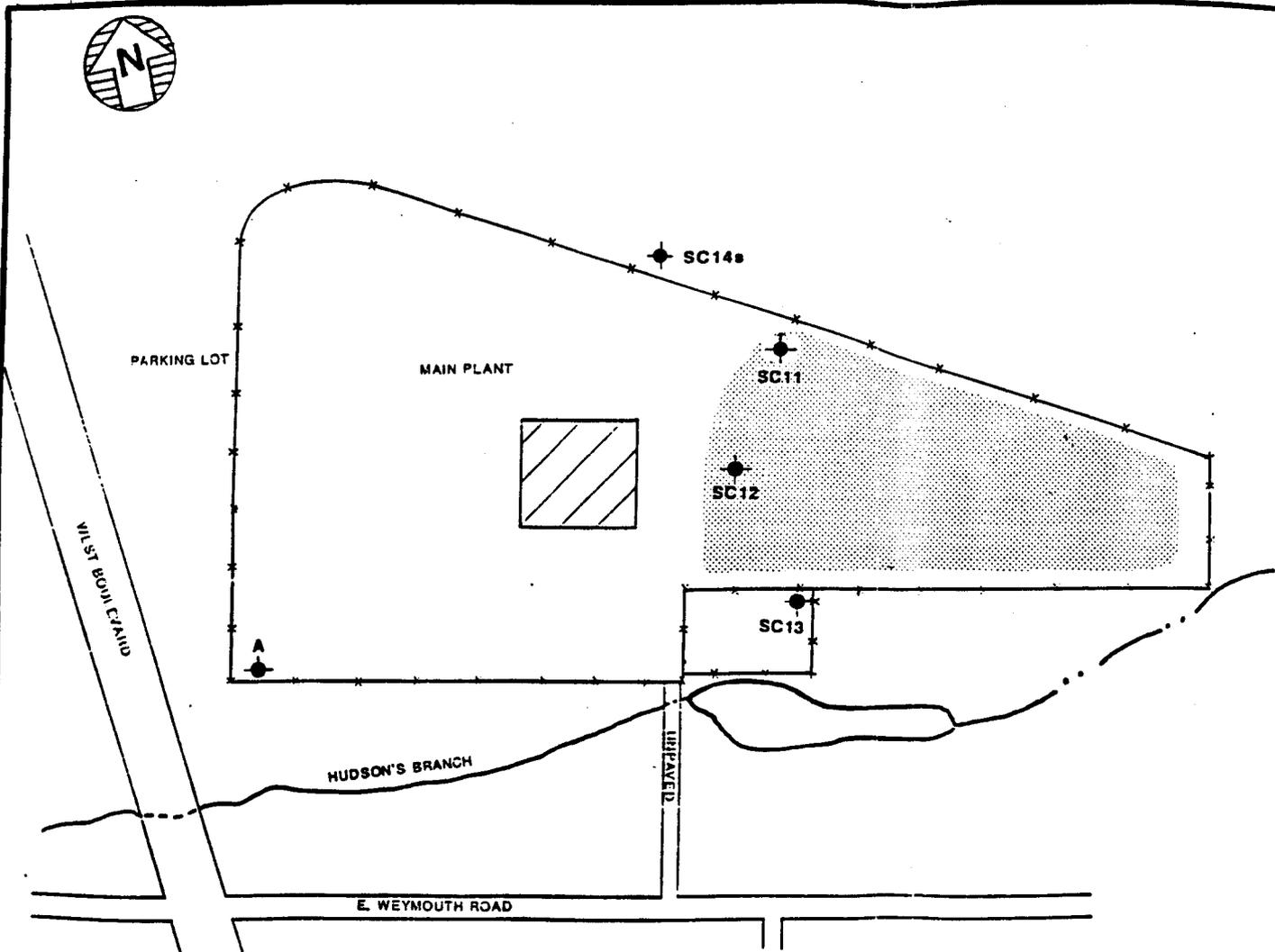
LOCATION OF FENCE LINE



MONITORING WELL LOCATION AND DESIGNATION



APPROXIMATE LOCATION OF GENERAL SLAG STORAGE AREA



 **Dan Raviv Associates, Inc.**  
57 E. Willow Street Millburn, NJ 07041

LOCATION OF MONITORING WELLS  
SAMPLED FOR RADIOLOGICAL ANALYSIS

SHIELDALLOY CORP. - NEWFIELD, NJ

PREPARED BY: KRG/ODL      DATE: OCTOBER 1991

JOB NO.: 83C152      FIGURE: 1



50 VAN BUREN AVENUE  
WESTWOOD, NEW JERSEY 07675  
(201) 664-7070

RECEIVED  
FEB 19 1992  
DEPT. ENV. SERV.

February 19, 1992

Mr. Craig Rieman  
Shieldalloy Metallurgical Corp.  
12 West Boulevard  
Newfield, NJ 08344

Dear Mr. Rieman:

Groundwater samples collected by you from your Newfield, New Jersey facility on January 16, 1992 were submitted for analysis as drinking water per New Jersey analytical procedures. Although the requested MDL for gross alpha was 3 pCi/l, some of the results were reported with a substantially higher MDL. Discussions with Teledyne's laboratory manager revealed the problem encountered. The New Jersey procedures limit the amount of solids from the sample aliquot to no more than 100 mg. Because the samples submitted were heavily loaded with sediment, a very small aliquot was necessary to remain below the 100 mg limit. The small aliquot size necessarily increased the MDL.

In the future, you have two choices for analysis of this type of sample. Either, allow us to analyze for gross alpha without strict adherence to the New Jersey drinking water analytical procedures, or accept a higher MDL. It should be kept in mind that the Safe Drinking Water Act contaminant levels and associated procedures are intended for samples taken at the tap. As such, they may not be appropriate for the groundwater sampling program being conducted by SMC.

If you have any questions or require further clarification, please feel free to contact me

Sincerely,

TELEDYNE ISOTOPES

SWD:jk

Scott W. Dennerlein, Health Physicist  
Radiological Services Department

Enclosure 4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 04/07/92

MR CRAIG RIEMAN  
INTELOALLOY CORP  
PO BOX 760  
NEWFIELD NJ

WORK ORDER NUMBER

3-0340

CUSTOMER P.O. NUMBER

DATE RECEIVED

03/12/92

DELIVERY DATE

04/14/92

PAGE 1

00340

WATER DRINKING - NEW JERSEY

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE		NUCLIDE	ACTIVITY (PCI/LITER)	NUCL-UNIT-S U/M *	MED-COUNT TIME		VOLUME - UNITS ASH-MCNT-X *	LAB.
			START DATE	STOP DATE				DATE	TIME		
64665 A	MONITORING OF WC		01/16	1630	RA-226	L.T. 2. E 00		04/06		2	
					TH-228	L.T. 0. E-01		03/30		6	
					TH-230	3.4 +-0.6 E 00		03/30		6	
					TH-232	L.T. 0. E-02		03/30		6	
					U-234	3.4 +-2.3 E-01		03/25		4	
					U-235	L.T. 9. E-02		03/25		6	
					U-238	2.6 +-2.3 E-01		03/25		6	
64666 W2	MONITORING OF WC		01/16	1540	RA-226	L.T. 1. E 00		04/06		2	
					TH-228	L.T. 7. E-01		03/31		6	
					TH-230	L.T. 2. E-01		03/31		6	
					TH-232	L.T. 1. E-01		03/31		6	
					U-234	L.T. 3. E-01		03/25		6	
					U-235	L.T. 1. E-01		03/25		6	
					U-238	L.T. 2. E-01		03/25		6	
64667 125	MONITORING OF WC		01/16	1355	RA-226	L.T. 2. E 00		04/06		2	
					TH-228	L.T. 7. E-01		03/26		6	
					TH-230	L.T. 1. E-01		03/26		6	
					TH-232	L.T. 0. E-02		03/26		6	
					U-234	L.T. 1. E 00		03/27		6	
					U-235	L.T. 0. E-01		03/27		6	
					U-238	L.T. 1. E 00		03/27		6	
64668 135	MONITORING OF WC		01/16	1505	RA-226	L.T. 2. E 00		04/06		2	
					TH-228	L.T. 1. E 00		03/31		6	
					TH-230	L.T. 1. E-01		03/31		6	
					TH-232	L.T. 1. E-01		03/31		6	
					U-234	1.7 +-0.9 E 00		03/27		6	
					U-235	L.T. 4. E-01		03/27		6	
					U-238	3.7 +-5.6 E-01		03/27		6	

LAST PAGE OF REPORT

*J. Guentner*  
APPROVED BY J. GUENTNER 04/07/92

SEND 1 COPIES TO SH3005 MR CRAIG RIEMAN

2 - GAS LAB.

3 - RADIO CHEMISTRY LAB.

4 - CELL) GAMMA SPEC LAB.

5 - TRITIUM GAS/L.S. LAB.

6 - ALPHA SPEC LAB.

# ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD



**SHIELDALLOY METALLURGICAL CORPORATION**

P.O. BOX 768, 12 WEST BOULEVARD  
NEWFIELD, N.J. 08344 (609)692-4200

**ANALYSES**

Project No. **RAD G.W. MONITORING 7/4 '92**

Purchase Order

Sampler: (Print Name) **CRAIG RIEMAN**

Chain of Custody Tape No.

Sample No./ Identification	Collection		Preserv.	Lab Sample Number	Sample Matrix (Liquid, Sludge, etc.)	ANALYSES						Number of Containers/ REMARKS		
	Date	Time				ALPHA	BETA	U-234	U-235	TH-232	GMMA		Pa-226	
A	1/16/92	1630	NONE		LIQUID	✓								MDL FOR GROSS
W2	↓	1540	↓		↓	✓								ALPHA ≤ 3 pCi/l
12S	↓	1355	↓		↓	✓								MDL FOR GROSS
13S	↓	1505	↓		↓	✓								BETA ≤ 4 pCi/l
14SA	↓	1115	↓		↓	✓								MDL FOR U, TH & Pa ≤ 1 pCi/l
14SB	↓	1115	↓		↓	✓								CALL C. RIEMAN WITH GROSS α, β RESULTS BEFORE 1500

GROSS ALPHA BETA  
 ALPHA ≤ 5 pCi/l  
 U-234 U-235 U-238  
 ALPHA SPEC  
 TH-232  
 GAMMA  
 Pa-226

Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time
1. <i>Craig R. Riemann</i>		1/16/92	1830	<i>A. Johnson</i>		1-2392	1200
2.							
3.							
4.							
5.							

Sample Disposal Method **AS REQUIRED BY T.I.**

Disposed of by: (Signature) \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

SAMPLE COLLECTOR/WITNESS (Signature) *Craig R. Riemann*

ANALYTICAL LABOARATORY AND CONTACT  
**TELETYPE ISOTOPES / SCOTT DENNERLEIN**

00028

**TELEDYNE ISOTOPES**

Th-230 \_\_\_\_\_ ml  
 Am-243 \_\_\_\_\_ ml  
 Pu-238 \_\_\_\_\_ ml

TI NO. 64665

**ALPHA SPECTROSCOPY DATA**

U-232 \_\_\_\_\_ ml  
 Cm-243 \_\_\_\_\_ ml  
 Pu-242 \_\_\_\_\_ ml

SAMPLE TYPE WJ

CUSTOMER Shield Alloy Corp

ANALYST RTI

PREP DATE 3/18/92

ALIQOUT 150 ml

Det.	Nuclide	Mid Count MM/DD/THMM	Counts	#. sec	Spike Counts	Spike Activity Pct	Bkg Counts	Bkg #. sec	Results
	Pu-242								
	Pu-239								
	Pu-238								
13	U-238	3/25 2300	9	60 000	696	3.87	7	200 000	2.6 ± 2.3 E-01
	U-235		1				1		L.T. 9. E-02
	U-234		11				4		3.6 ± 2.5 E-01
	U-230								
	Am-243								
	Cm-246								
	Am-241								
	Cm-244								
	Cm-242								
1	Th-232	3/30 0320	2	56 537	1081	3.91	2	200 000	L.T. 8. E-02
	Th-230		154				7		3.4 ± 0.6 E-00
	Th-229		Spike				-		-
	Th-228		39				116		L.T. 6. E-01

Result Unit cp/L

Code A

NWL-44 Revised 5/7/91

Ash  
Fraction \_\_\_\_\_

Calc. by [Signature]

Checked by \_\_\_\_\_

Date 3/31/92

Date \_\_\_\_\_

2 MICHELMEN 2 SMC NEWFIELD: 2 2010060000

61

400-421

138-155

Date	1 Check Source Co-137			2 Check Source Am-241			Comm.	
	Blank	Blank	N	ΔI	CPM	N		ΔI
1								
2								
3	1.16	2.05 <sup>02</sup>	20538	50	410.70	7444	50	148.88
4	1.12	.16	20889	50	417.78	7543	50	150.86
5	1.00	.02	20689	50	413.98	7401	50	148.02
6	1.00	.06	20509	50	410.18	7430	50	148.60
7	1.06	.04	20769	50	415.38	7583	50	151.66
8								
9								
10	1.08	.06	20608	50	412.16	7420	50	148.40
11	.88	.02	20721	50	414.42	7257	50	145.14
12								
13					411.5RS			
14	1.20	.04	21087	50	421.74	7463	50	149.26
15	.98	.02	20409	50	408.88	7212	50	146.58
16								
17								
18	1.16	.02	20787	50	415.74	7372	50	147.44
19								
20								
21								
22								
23								
24					405.552			
25	1.30	.02	19607	50	392.14	6981	50	138.62
26								
27	1.00	.06	20084	50	401.68	7040	50	140.80
28								
29								
30								
31								

long count

long count

50

KEY

- = Outside Control Limits
- RS = Restart
- CG = Change Gas