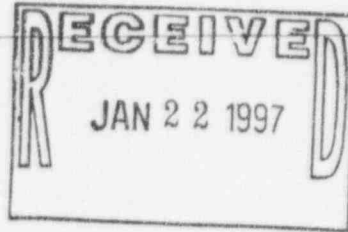


40-8084

Rio Algom Mining Corp.

P.O. Box 1269  
Moab, Utah 84532-1269



Telephone 801-686-2215  
Fax 801-686-2337

January 14, 1997

Certified Mail  
Return Receipt Requested Z 160 737 093

Mr. Ross Scarano, Director  
U. S. Nuclear Regulatory Commission  
Division of Radiation Safety and Safeguards  
611 Ryan Plaza Dr.  
Suite 400  
Arlington, TX. 76011

Re:Docket No. 40-8084  
Source Material License SUA-1119

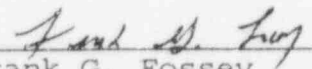
Dear Mr. Scarano:

Enclosed please find a copy of an internal RAMC report on a load of scrap steel which came from the removal of the underground mine headframe at the Lisbon site. This material came from an unrestricted area on our property.

This submittal was requested by Mr. Bob Evans of your office.

If you have any questions concerning this submittal please call me at (801) 686-2215.

Respectfully,

  
Frank G. Fossey  
Radiation Safety Officer

FGF

cc: M. Freeman w/enclosure  
L. Axtell  
C. Jones, State of Utah, Bureau of Radiation Control  
File

9701290343 970114  
PDR ADOCK 04008084  
C PDR

NL051/

290055

## INTER-OFFICE MEMORANDUM

To: Marvin Freeman

Date: 13 January 1997

From: F. Fossey *FF*

Subject: Report on events centering around the number two load of scrap steel from the underground mine headframe, owned by Valley Scrap Metal (VSM) and rejected by NUCOR Corp.

---

### Background

Rio Algom Mining Corp. (RAMC) contracted with Valley Scrap Metal (VSM) to dismantle the Lisbon underground headframe. Part of the VSM's compensation was the clean scrap metal that could be salvaged from the operation. RAMC had previously decommissioned the Lisbon mill building and all related facilities within Lisbon's restricted area using Olshan Demolition Company. All material from the mill facility demolition not transferred to another licensed facility, or otherwise cleared for unrestricted use, was buried on site in accordance with the approved decommissioning plan.

The Lisbon mine headframe was part of the mining operation located outside the NRC restricted area and therefore is not subject to NRC regulations. However in the absence of any other criteria, the NRC release guidelines were used in scanning the scrap metal to ensure that only clean material was released from the site and that any questionable material was disposed of on site.

On December 2, 1996 VSM advised RAMC that a load of scrap metal from the Lisbon headframe had been rejected by the NUCOR Corp. scrap metal facility in Plymouth, Utah. RAMC had surveyed the load before it was released from the Lisbon mine site and had documented that the limits were well within the Department of Transportation criteria for normal transport. However, after receiving VSM's call, RAMC traveled to Salt Lake City where the load was being held and resurveyed the load. That survey confirmed RAMC's earlier conclusion in that the load was well within DOT criteria for normal shipments.

NUCOR's extremely low radiation level rejection standard appears to be a direct result of a major problem NUCOR had with some contaminated metal it had accepted some years ago. A chronology of events and a discussion of the surveys conducted are provided below.

Mr. Marvin Freeman  
VSM Load Number Two

List of Events

November 15, 1996

Load number two of headframe steel scrap was released from the Lisbon Mine Site. The load was surveyed prior to release with gamma readings of 0.04 to 0.07 mR/hr. (See attached Survey #1)

November 18, 1996

The number two load was rejected by NUCOR Corp. and returned to Salt Lake City (SLC), UT.

December 02, 1996

1730 hrs.-VSM notified RAMC that the number two load of scrap steel from the Lisbon underground mine headframe had been rejected by NUCOR Corp. VSM was advised that they should have notified us as soon as the problem was encountered, as noted on the truck release form.

December 03, 1996

0730 hrs.-Frank Fossey (RAMC) called Bison Trucking regarding the status of the load and found out the trailer was parked at 2800 W. 900 S. in SLC.

0900 hrs.-Mr. Marvin Freeman (RAMC) was contacted and it was decided the prudent course of action would be for Mr. Fossey to travel to SLC to confirm that the material was from the Lisbon headframe and re-survey the trailer to make sure it complied with DOT regulations.

1200 hrs.-Mr. Fossey left for SLC.

1620 hrs.-Mr. Fossey arrived at the trailer. A gamma survey was conducted and there were no readings of concern, all readings were at background levels. (See attached Survey #2). Mr. Fossey tried to contact Mr. Hyatt of Bison Trucking, but couldn't get him.

2200 hrs.-Mr. Fossey contacted Mr. Hyatt. Mr. Hyatt said the load was going to David Joseph Co, in Plymouth, UT. on 12/04/96 a.m. to be re-surveyed.

December 04, 1996

0700 hrs.-Mr. Fossey arrived at the truck to accompany the load to David Joseph Co.

1030 hrs.-The truck driver arrived, hooked up truck and started for Plymouth.

Mr. Marvin Freeman  
VSM Load Number Two

1310 hrs.-The truck arrived at David Joseph Co. and a survey was performed. The highest reading found was 28 uR/hr inside the load. The David Joseph technician said it would not be practical to separate the load. (See attached survey #3). The load was rejected and a rejection report was sent to the State of Utah, Bureau of Radiation Control.

1330 hrs.-Mr. Fossey contacted Larry Axtell (RAMC) and Tom Link (VSM). Mr. Link said the load would be hauled back to the VSM yard at Kirkland New Mexico.

December 05, 1996

0900 hrs.-Mr. Fossey was contacted by Mr. Craig Jones, State of Utah, Bureau of Radiations Control. Mr. Jones requested a copy of the incident report.

1100 hrs.-Mr. Fossey was contacted by Mr. Bob Evens USNRC, Region 4. Mr. Evens requested a copy of the incident report be sent to Region 4, attention Mr. Ross Scarano, Director.

December 10, 1996

The subject load was delivered to the VSM yard in Kirkland, NM.

#### DISCUSSION:

All materials involved in this load were from the Lisbon underground mine headframe area. The headframe area, a mining area, has never been included in the Lisbon NRC restricted area and is not subject to or controlled by the USNRC regulations.

Even though there are no regulation requiring the monitoring of this type of material, all of the material was subjected to alpha and beta/gamma scans as it was removed from the headframe. The limits set forth in the "Guidelines For Decontamination Of Facilities and Equipment Prior to Release For Un-Restricted Use" (USNRC Sept. 1984) were used as the release criteria even though there was no regulatory requirement to do so.

The highest value observed for fixed contamination on the released material was 936 dpm/100cm<sup>2</sup>, well within the limit of 5000 dpm/100 cm<sup>2</sup>. The maximum observed removable contamination was 25 dpm/100cm<sup>2</sup> compared with the release limit of 1000 dpm/100cm<sup>2</sup>. The guideline allows for a Beta reading of 0.2 mR/hr at 1 cm, the highest observed reading was 0.03 mR/hr. The greatest gamma reading was 0.13 mR/hr. as compared with the limit of 1.0 mR/hr. Copies of the survey forms used (RAMC FORM D-3 RELEASE SURVEY) are attached.

Mr. Marvin Freeman  
VSM Load Number Two

The primary difficulty encountered with this load comes from the fact that the acceptance limits at NUCOR Corp. and David Joseph Co. are well below levels that are typical of background levels at mine sites. A secondary problem with the load, based on the David Joseph survey, is that there was some dirt in the floor of the trailer that could have contributed to the observed contamination, however the highest reading value was only 28 uR/hr.

This shipment was at no time in violation of any DOT regulation nor, would it have been in violation of any USNRC regulations if the USNRC requirements were applicable. At no time was any member of the general public exposed to a dose rate above regulatory concern.

# Rio Algom Mining Corp.

P.O. Box 1269  
Moab, Utah 84532-1269

Telephone 801-686-2215  
Fax 801-686-2337

## TRANSPORTATION SURVEY FOR EQUIPMENT FOR VALLEY SCRAP METAL

DATE 11/15/96 TECH. Frank Fossey

TRUCK NUMBER 72 TRAILER NUMBER 14

EBERLINE LUDLUM 12 SR17030 EFF. 0.30 cpm/dpm

TOTAL CORRECTION FACTOR 6.7 dpm/cpm

LUDLUM MOD. 19 GAMMA METER SR# 51862 CALB. DATE  
05/30/96

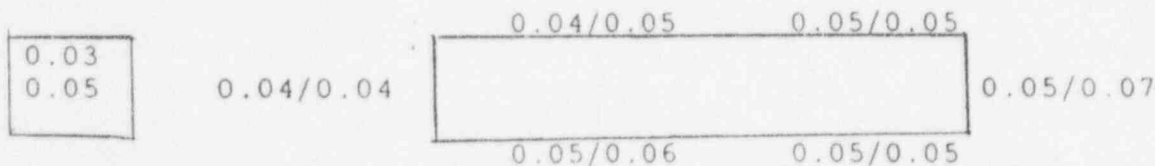
### Description

Misc. Scrap Metal:

All Removable Alpha less than 100 dpm/100 cm<sup>2</sup>

All fixed alpha less than 1000 dpm/100 cm<sup>2</sup>

GAMMA READING FOR TRANSPORT INDEX mR/hr (Contact/ 1 meters)



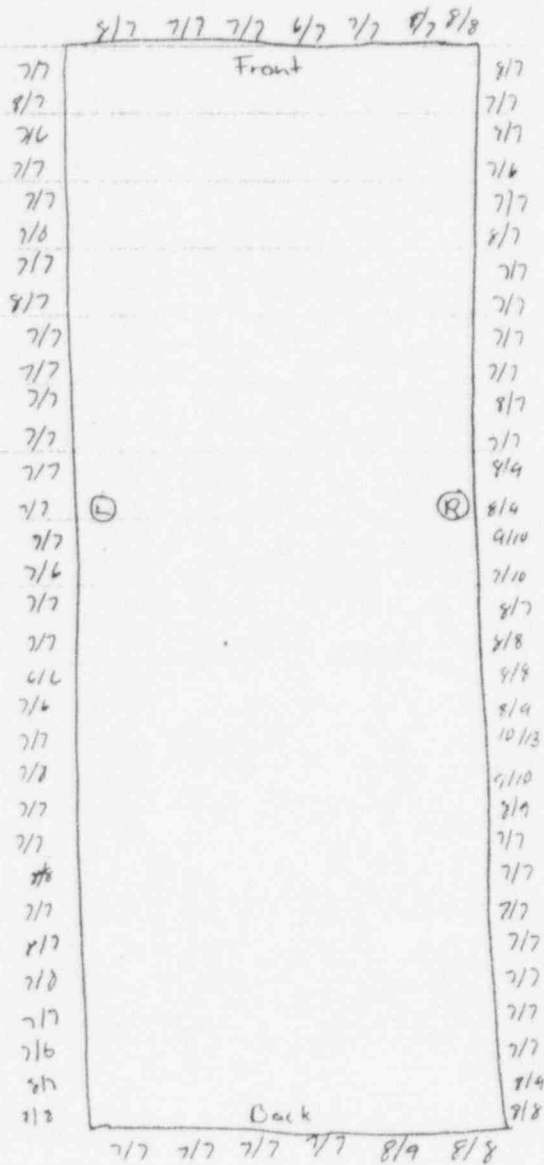
Notes: Skipped via Bison Industry, John Handley driver.  
Questions/problems contact Frank Fossey (801) 686-2217 Eve. (801)  
259-8636

Survey #1

12-3-96 Bison trailer # 14 Time 1645 hrs 2600W. 900 S.

Salt Lake City Ut. Y Ludlum model 19 SR# 51826 Bat ok Function ✓ ok

Back ground 8-12 uR/hr.



Note: all readings in uR/hr all ⊖ contact trailer walls

x 1/3 down from top / within 6" of bottom

Surveyed by Frank Fossey, RSO 22

Survey # 2





## RADIOACTIVE MATERIAL WARNING

### NOTICE TO TRANSPORTER

The load of scrap material which you have just delivered to The David J. Joseph Company contains some material which has caused our radiation detection system's alarm to go off. The alarm does not indicate the type of radioactivity, but warns of the presence of a radioactive source.

Because of the presence of the radioactive source, The Joseph Company has no choice but to reject this load. It is important you understand it is against D.O.T. regulations (173.401 - 173.478) to transport radioactive materials without prior approval and that the radioactive materials may be harmful to your health.

Below is a list of names and phone numbers which you can call to help resolve this problem:

#### FEDERAL

Kevin C. Toth  
400 7th Street SW Room #3419  
Washington, DC 20590  
Routing code HSA10  
Phone: (202) 366-8577

#### STATE

PHONE: (801) 536-4250 FAX: (801) 533-4098  
ADDRESS: Division of Radiation Control  
State Department of Health  
168 North 1950 West  
Post Office Box 144850  
Salt Lake City, Utah 84114-4850

The Joseph Company advises you to call and advise the D.O.T. of your situation. In the meantime, we have designated a location within our facility where you can park your vehicle pending the resolution of your situation. The scalemaster/plant manager will direct you to that area.

### DRIVER SIGNATURE OF UNDERSTANDING

Through my signature below, I indicate that I have read and understand the above information given to me by The David J. Joseph Company. I understand that it may be against D.O.T. regulations to move my vehicle without first obtaining a permit and/or an exemption from the D.O.T. Further, I agree to hold The David J. Joseph Company harmless because of any action I may take regarding this matter.

JOHN HANDLEY

Print Your Name Here

*J. H.*

Signature of Driver

Survey #3



THE DAVID J. JOSEPH COMPANY  
RADIATION DETECTION INCIDENT REPORT

Date of Incident: 12/4/96 Time: 12:15 AM/PM PM

Location: 7400 West 21200 North, Plymouth, Utah 84330

Type of Truck: ☐ Flatbed ☐ Aluminum Sided  
☐ Steel Sided ☒ Other Flatbed w/ sides

Type of Purchase:  
☒ Retail ☐ FOB Destination ☐ FOB Shipping Point

Truck Ownership:  
☐ Customer ☐ Shipper ☐ Other (DJJ Arranged)  
☒ Other (Customer Arranged)

Shipper Name: Valley Scrap Transporter Name: Bison Trucking

Address: 4346 US Highway 64 Address: Salt Lake City, UT  
Farmington, NM  
87417

Truck ID and/or License: 029284 Utah

Grade of Scrap: Prep. PbS

Gross Vehicle Weight: Not weighed LBS

Describe Results of Handheld Detector Survey: Various hot spots in load  
up to 28 uR/hr suspect dirt on floor of trailer is  
source

Handheld Readings (uRem/hr): 5 @10' 28 2" 5 In Truck Cab

Regulator(s) contacted: State of Utah

Disposition of Load: Rejected for Radioactivity

Was any official notification to regulator(s) provided? ☒ Yes ☐ No

Attach SM-1 Printout

Survey #3 (cont.)

THE DAVID J. JOSEPH COMPANY  
RADIATION DETECTION INCIDENT REPORT

Date of Incident: 12/4/96 Time: 12:15 AM/PM PM

Location: 7400 West 21200 North, Plymouth, Utah 84330

Type of Truck: ☐ Flatbed ☐ Aluminum Sided  
☐ Steel Sided ☒ Other Flatbed w/ sides

Type of Purchase:  
☒ Retail ☐ FOB Destination ☐ FOB Shipping Point

Truck Ownership:  
☐ Customer ☐ Shipper ☐ Other (DJJ Arranged)  
☒ Other (Customer Arranged)

Shipper Name: Valley Scrap Transporter Name: Bison Trucking

Address: 7346 US Highway 64 Address: Salt Lake City, UT  
Farmington, NM  
87417

Truck ID and/or License: 029284 Utah

Grade of Scrap: Prep. P+S

Gross Vehicle Weight: Not weighed LBS

Describe Results of Handheld Detector Survey: Various hot spots in load  
up to 28 uR/hr suspect dirt on floor of trailer is  
source

Handheld Readings (uRem/hr): 5 @ 10' 28 2" 5 In Truck Cab

Regulator(s) contacted: State of Utah

Disposition of Load: Rejected for Radioactivity

Was any official notification to regulator(s) provided? ☒ Yes ☐ No

Attach SM-1 Printout

Survey #3 (cont.)



## RADIOACTIVE MATERIAL WARNING

### NOTICE TO TRANSPORTER

The load of scrap material which you have just delivered to The David J. Joseph Company contains some material which has caused our radiation detection system's alarm to go off. The alarm does not indicate the type of radioactivity, but warns of the presence of a radioactive source.

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#### FEDERAL

Kevin C. Toth  
400 7th Street SW Room #3419  
Washington, DC 20590  
Routing code HSA10  
Phone: (202) 366-8577

#### STATE

PHONE: (801) 536-4250 FAX: (801) 533-4098  
ADDRESS: Division of Radiation Control  
State Department of Health  
168 North 1950 West  
Post Office Box 144850  
Salt Lake City, Utah 84114-4850

The Joseph Company advises you to call and advise the D.O.T. of your situation. In the meantime, we have designated a location within our facility where you can park your vehicle pending the resolution of your situation. The scalemaster/plant manager will direct you to that area.

### DRIVER SIGNATURE OF UNDERSTANDING

Through my signature below, I indicate that I have read and understand the above information given to me by The David J. Joseph Company. I understand that it maybe against D.O.T. regulations to move my vehicle without first obtaining a permit and/or an exemption from the D.O.T. Further, I agree to hold The David J. Joseph Company harmless because of any action I may take regarding this matter.

JOHN HANDLEY

Print Your Name Here

*J. H.*

Signature of Driver

Survey #3



The David J. Joseph Company

**NOTIFICATION OF RADIOACTIVE MATERIAL**

DATE: 12/4/96

Division of Radiation Control  
State Department of Health  
168 North 1950 West  
Post Office Box 144850  
Salt Lake City, Utah 84114-4850

Attention: To Whom It May Concern:

Please be advised that our radiation detection equipment at Plymouth, Utah detected radioactive material. We are rejecting the load and returning it to the shipper for his disposition.

**I. FACILITY DETECTING CONTAMINATED MATERIAL**

The David J. Joseph Company/Plymouth, Utah Plant

Date Detected: 12-4-96 Time Detected: 12:15 AM PM

Facility Address: The David J. Joseph Company  
7400 West 21200 North  
West Cemetery Road  
Plymouth, Utah 84330

Contact Name/Title: Tom Stanek, General Manager

Phone #: (801) 458-3851 Fax #: (801) 458-3601

Probable Contaminant: ☐ Norm ☐ Man-made Source ☒ Unknown

**II. RADIATION/MEASUREMENT/LEVELS**

INITIAL DETECTION: A pair of national Nuclear Corp. Model SD-975 (Plastic Scintillation Detector: 975 cu. in. of PVT)

RADIATION LEVEL: 20-30 uRem/hr measured with an Eberline ESP-1 (2" x 2" NaI crystal detector).

AREA OF DETECTION: Rear 1/3 of trailer near bed of trailer

Executive and  
General Offices

300 Pike Street  
Cincinnati, Ohio 45202-4214  
513/621-8770

Mail Address

P.O. Box 1078  
Cincinnati, Ohio 45201-1078

District Offices

Birmingham  
Charlotte  
Chicago  
Cincinnati

Houston  
Omaha  
Philadelphia  
Pittsburgh

Salt Lake City  
St. Louis  
Tampa

*Survey #3 (cont.)*

III. TYPE OF MATERIAL: Prep P+S  
OWNER OF CONTAMINATED SCRAP MATERIAL

Owner: Valley Scrap  
Phone #: \_\_\_\_\_ Fax #: \_\_\_\_\_  
Address: 4346 US Highway 364  
Farmington, NM  
87417 4

Shipper: \_\_\_\_\_  
Phone #: \_\_\_\_\_  
Fax #: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

Transportation Co: Bison J. L. HIATT  
Phone #: (580-3334 CELL) (355-5643 HOME)  
Fax #: \_\_\_\_\_  
Address: SALT LAKE  
\_\_\_\_\_  
\_\_\_\_\_

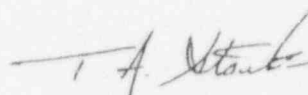
Distance & routing to rework location: TRUCK returning to Moab, UT  
\_\_\_\_\_

Shipped Via: Bison trucking  
\_\_\_\_\_

Based on the above information, please provide your concurrence with the recommended disposition.

Sincerely,

THE DAVID J. JOSEPH COMPANY



Tom Stanek  
General Manager

Survey #3 (cont)

Page 1 of 2

Tech 22 12 W

Source number 10787

$$TCF = 7.2$$

Function test 0.7 mK/hr

[illegible][illegible]

Removable ms. 2 sp. 0.16 eff. for 2.01 consisted as gross chert all  
field of & removable part.

## RAMC FORM D-3 RELEASE SURVEY

Date 9-26-96

Tech 22/24

Alpha meter serial number 17030

Source number 14787

Efficiency 0.28 TEF = 72

Beta/Gamma meter serial number 123406

Function test 6.2 with film

Alpha

Item Description	On/Off Site	Fixed Alpha cpm	Fixed Alpha dpm/100 cm <sup>2</sup>	Removable Alpha cpm	Removable Alpha dpm/100 cm <sup>2</sup>
Sample mstr	✓	20 40 20 20 60 20 80 20 20 60 110 40 20 40 20 20 40 20 20 20 20 21 20 20 20 40 20 20 21 20 20 20 20 20 20 20 20 20 40 20 40 20 20 60 20 40 20 20 20 40 20 20 40 20 60 20 20 20 40 20 20 20 40 40 20 20 20 40 40 20 20 40 40 20 60 40 20 20 20 60 20 40 20 20 40 20 20 100 40 20 20 40 40 20 20 20 40 40 20 20 40 60 20 40 20 40 40 20 20 20 20 60	Rad = 720  dpm/100 cm <sup>2</sup>	5114017 1324767 030112 013303 149253 18100  <del>Fixed ALPHA cpm</del> 20 40 20 20 20 60 20 20 40 40 70 20 20 20 20 20 20 20 20 20 40 20 20 20 20 20 20 40 20 20 20 20 20 40 40 40 20 20 20 20 20 40 20 20 20 20 40 20 40 40 40 40 40 20 20 20 40 60 40 40 40 20 40 20 20 40 20 20 20 40 40 20 20 60 40 20 60 40 20 40	ad L 20 dpm/

## Beta/Gamma

[illegible]

Removal mass spec off = .44 eff factor 3.04 calculation mass check off listed  
reading  $\leq$  limit for removal



RAMC FORM D-3 RELEASE SURVEY

Date 5-24-63

Tech 13/LA

Alpha meter serial number 17020

Source number 10787

Efficiency 0.31 TCF = 6.5

Beta/Gamma meter serial number 123456

Function test 0.8 mR/A

Alpha

Item Description	On/Off Site	Fixed Alpha cpm	Fixed Alpha dpm/100 cm <sup>2</sup>	Removable Alpha cpm	Removable Alpha dpm/100 cm <sup>2</sup>
Scrape metal	off	20 20 20	130 130 130	5417984	10821418168
		20 20 20	130 145 120	5358122	1061016244
		20 20 20	130 130 130		
		20 20 120	130 130 280		
		20 20 20	130 130 130		
		20 20 90150	130 130 200075		
		20 20 30	130 130 325		
		20 20 20	130 130 130		
		20 20 6020	130 130 30080		
		20 20 5020	130 130 325120		
		20 20 20	130 130 130		
		20 20 6020	130 130 30080		

Beta/Gamma

Item Description	On/Off Site	B+G mR/hr	Gamma mR/hr	Net Beta	Bkg. B+G
Scrape metal	off	100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100
		100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100

Removal floor as cross & only SR = 10610 13850/6425 MS2-SRA-1  
 off = .47 off factor 8.5

RAMC FORM D-3 RELEASE SURVEY

Date 9-23-96 Tech 27

Alpha meter serial number 17020 Source number 10787  
Efficiency 0.25 TCF 5.71

Beta/Gamma meter serial number 12406 Function test 0.9 mS/h

Alpha

[illegible]

## Beta/Gamma

Notes on paper required all cleared w/white OK

[illegible]

Remove MS-2 SPA-1  $\sigma_{\text{eff}} = 1.18 \text{ MPa}$  10610 13850 / 6925  
 $\sigma_{\text{eff}} = 2.07$

Remember don't only, for cross check all fixed & variable assets

Figure 1. The study area.

Tech 22

Source number 10787

Beta/Gamma meter serial number 123406.

Function test Q. Said R/h

Item Description	On/Off Site	Fixed Alpha cpm	Fixed Alpha dpm/100 cm <sup>2</sup>	Removable Alpha cpm	Removable Alpha dpm/100 cm <sup>2</sup>
Scrape material		120 60 20 20 20 40 20 20 40 40 60 20	all < 533	1, 1, 1, 2, 3 8, 4, 2, 8, 3	2, 2, 2, 4, 6 4, 8, 4, 16, 6
		20 40 40 60 60 40 40 20 60 20 20 40		2, 5, 1, 4, 5 5, 5, 1, 3, 1	4, 10, 2, 8, 10 10, 10, 2, 6, 2
		70 80 40 20 60 80 40 20 20 40 40 60			
		60 60 40 80 40 20 20 80 40 20 40 60			
		60 60 20 20 40 60 60 40 40 60 20 20			
		80 40 40 40 60 40 40 40 80 20 60 20			
		20 40 40 60 60 60 40 20 20 40 60 60			

Item Description	On/Off Site	B+G mR/hr	Gamma mR/hr	Net Beta	Bkg. B+G
Surgery metal		05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969			

ms2 SRA-1 SUMMER 10787  $A_2 = 2.51$   $A_2$  rock 1.8

## RAMC FORM D-3 RELEASE SURVEY

Date 10-30-76

Tech 17

Alpha meter serial number 17030

Source number 10787

Efficiency 1295 TCR=68

Beta/Gamma meter serial number 123406

Function test 0.7 u4/M

## Alpha

[illegible]

## Beta/Gamma

[illegible]

MIS. 2 SAN 1 SEMOR # 10767

$$M_b = 1.54 \text{ lb/ft} = 1.9$$

RAMC FORM D-3 RELEASE SURVEY

Date 10-22-66

Tech LF

Alpha meter serial number 17030  
Efficiency 0.39 TCF 5.7

Source number 10787

Beta/Gamma meter serial number 123466

Function test 107 mR/h

Alpha

Item Description	On/Off Site	Fixed Alpha cpm	Fixed Alpha dpm/100 cm <sup>2</sup>	Removable Alpha cpm	Removable Alpha dpm/100cm <sup>2</sup>
Scrap metal		20 20 40 20		8 4 2 0 7	6 8 4 0 1 5
		20 20 30 20	408	3 6 5 6 2	6 13 6 13 4
		40 20 20 20		10 3 3 4 2	2 1 6 6 8 4
		20 20 20 20	306	8 8 5 6 2	17 17 10 13 4
		20 40 20 20			
		40 40 30 20	459	1, 5, 3, 11, 4/3	2 2
		20 20 40 20			
		20 20 40 20			
		40 20 40 20	510		
		40 20 100 40			
		20 90 20 40	459		

Beta/Gamma

Item Description	On/Off Site	B+G mR/hr	Gamma mR/hr	Net Beta	Bkg. B+G
Scrap metal		.08 .13 .09 .09	.08 .14 .09 .09	0 0 0 0	
		.10 .10 .10 .14	.10 .10 .10 .10	0 0 0 .02	.15
		.11 .14 .10 .10	.12 .10 .10 .10	0 .05 0 .01	
		.18 .15 .12 .14	.18 .14 .12 .15	0 .01 0 0	
		.13 .09 .10 .10	.10 .10 .10 .09	.03 0 0 .01	
		.13 .17 .13 .12	.16 .10 .13 .10	0 0 0 0	
		.07 .09 .12 .12	.09 .09 .12 .13	0 0 0 0	
		.15 .15 .15 .09	.14 .14 .14 .10	.01 .01 .01 0	
		.12 .15 .07 .09	.13 .15 .07 .09	0 0 0 0	
		.09 .09 .13 .11	.09 .07 .09 .11	0 .01 .01 0	
		.09 .13 .11 .09	.09 .12 .09 .09	0 .01 .02 0	
		.09 .10 .06 .05	.09 .08 .06 .09	0 .02 0 0	
		.07 .09 .05 .05	.07 .09 .05 .07	0 0 0 0	
		.10 .07 .10 .06	.07 .06 .06 .05	0 .01 0 .01	
		.07 .08 .07 .07	.07 .07 .09 .07	0 .01 0 0	
		.08 .08 .09 .09	.06 .08 .09 .09	0 .01 0 0	
		.08 .09 .08 .06	.09 .09 .08 .07	0 0 0 0	
		.04 .06 .06 .06	.04 .06 .05 .05	0 0 .01 .01	
		.05 .07 .07 .04	.05 .07 .07 .04	0 0 0 0	

M52 SPA-1 Source 10610 LF 0.48

RAMC FORM D-3 RELEASE SURVEY

Date 9-20-96

Tech JA

Alpha meter serial number 17030  
Efficiency 0.33

Source number 10787

Beta/Gamma meter serial number 123406

Function test 0.2 mR/h

Alpha

Item Description	On/Off Site	Fixed Alpha cpm	Fixed Alpha dpm/100 cm <sup>2</sup>	Removable Alpha cpm	Removable Alpha dpm/100 cm <sup>2</sup>
<u>Shoe room</u>	<u>off</u>	<u>230, 20, 220, 20, 220, 20, 220</u>		<u>1, 0, 1, 2, 1</u>	<u>20, 24, 2</u>

Beta/Gamma

Item Description	On/Off Site	B+G mR/hr	Gamma mR/hr	Net Beta	Bkg. B+G
<u>Shoe room</u>	<u>off</u>	<u>0.03, 0.03</u>	<u>0.03, 0.03, 0.04, 0.03</u>		<u>0.04</u>
		<u>0.03, 0.03, 0.04</u>	<u>0.04, 0.03, 0.03</u>		
		<u>0.04, 0.03, 0.03</u>	<u>0.02, 0.03</u>		

msd stat off 0.50 off foot 1.9