

RECEIVED  
REGION I

**Measurement Systems**  
945 Busse Road  
Elk Grove Village, IL 60007  
Tel: 847 439 4404  
Fax: 847 439 4425  
Email: sales@msys.oxinst.com  
www.oxford-instruments.com



2005 SEP 30 PM 1:32

September 26, 2005

Licensing Assistant Section  
Nuclear Materials Safety Branch  
NRC  
Region I  
475 Allentown Road  
King of Prussia, PA 19406

Dear Sir/Madam:

This letter is to inform you that Oxford Instruments (the successor to Metorex Inc.) has terminated its activity in Ewing New Jersey and is now terminating the licenses 20<sup>1</sup> 30342-01 and 20<sup>1</sup> 30342-02G. Enclosed you will find NRC Form 314, a report of the activities and a survey of the facility we have vacated. The records of the activities under this license and all the remaining sources were transferred to Oxford Instruments, 945 Busse Road, Elk Grove Village, IL 60007. At that location the material and activities are covered by Illinois IL-01694-01

If you have any questions or would like additional information, please contact me at 609-510-4648 or [jpatterson@msys.oxinst.com](mailto:jpatterson@msys.oxinst.com) or Ms. Laura Ziegler at 847-439-4404 x 227 or [lziegler@msys.oxinst.com](mailto:lziegler@msys.oxinst.com). Please send any correspondence to both Ms. Ziegler and me at the above address.

Sincerely,

A handwritten signature in black ink, appearing to read "John I.H. Patterson", written over a horizontal line.

John I.H. Patterson, Ph.D.  
Radiation Safety Officer

137188 / 137189  
**NMSS/RGNI MATERIALS-002**

Oxford Instruments  
Measurements Systems, LLC  
a wholly owned subsidiary of  
Oxford Instruments, plc

(6-2004)  
10 CFR 30.35(j)(1); 40.42(j)(1);  
70.38(j)(1); and 72.54(j)(1)

Estimated burden per response to comply with this mandatory collection request: 30 minutes. This submittal is used by NRC as part of the basis for its determination that the facility is released for unrestricted use. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0028), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

### CERTIFICATE OF DISPOSITION OF MATERIALS

LICENSEE NAME AND ADDRESS

Oxford Instruments Analytical  
250 Phillips Boulevard  
Ewing, NJ 08618

LICENSE NUMBER

29-30342-01 & 29-30342-0G

DOCKET NUMBER

030-34247

LICENSE EXPIRATION DATE

10/31/2005

#### A. LICENSE STATUS (Check the appropriate box)

This license has expired.

This license has not yet expired; please terminate it.

#### B. DISPOSAL OF RADIOACTIVE MATERIAL

(Check the appropriate boxes and complete as necessary. If additional space is needed, provide attachments)

The licensee, or any individual executing this certificate on behalf of the licensee, certifies that:

1. No radioactive materials have ever been procured or possessed by the licensee under this license.

2. All activities authorized by this license have ceased, and all radioactive materials procured and/or possessed by the licensee under this license number cited above have been disposed of in the following manner.

a. Transfer of radioactive materials to the licensee listed below:

See attached report for details

b. Disposal of radioactive materials:

1. Directly by the licensee:

2. By licensed disposal site:

3. By waste contractor:

c. All radioactive materials have been removed such that any remaining residual radioactivity is within the limits of 10 CFR Part 20, Subpart E, and is ALARA.

#### C. SURVEYS PERFORMED AND REPORTED

1. A radiation survey was conducted by the licensee. The survey confirms:

a. the absence of licensed radioactive materials

b. that any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is ALARA.

2. A copy of the radiation survey results:

a. is attached; or  b. is not attached (Provide explanation); or  c. was forwarded to NRC on: \_\_\_\_\_ Date

3. A radiation survey is not required as only sealed sources were ever possessed under this license, and

a. The results of the latest leak test are attached; and/or

b. No leaking sources have ever been identified.

The person to be contacted regarding the information provided on this form:

NAME  
John Patterson, Ph.D.

TITLE  
President, Metorex; Consultatnt to Oxford Instruments Analytics

TELEPHONE (Include Area Code)  
(847) 979-7603

E-MAIL ADDRESS  
jpatterson@msys.org

Mail all future correspondence regarding this license to:  
Oxford Instruments Analytic, 945 Busse Road, Elk Grove Village, IL 60007, Attention: L Ziegler, RSO

#### C. CERTIFYING OFFICIAL

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

PRINTED NAME AND TITLE

John I. H. Patterson

SIGNATURE

DATE

Sept 26, 2005

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECT. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

Edward A Christman, Ph.D., CHP  
443 Sayre Drive Princeton, NJ 08540  
*Consultant in Radiation and Occupational Safety*

## **Final Survey Report for License Termination**

**Metorex, Inc.  
Ewing, NJ  
NRC License Nos. 29-30342-01 and 29-30342-02G**

**September 2005**

## **Introduction**

Metorex, Inc., a vendor of hand held element analyzers, was recently sold to Oxford Instruments, Inc, Chicago, IL. Subsequently the operations, including all the sealed and foil sources owned by Metorex were relocated to the Oxford Instruments facility and the Metorex Facility shut down. This report is submitted in support of a request to terminate the reference license.

## **Background**

Metorex sold handheld element analyzers containing at least one sealed source of radioactive material, typically containing a few 10's of millicuries each, used as an exciter in the analysis process. Appendix 1 contains a description of a typical unit. Although they did not manufacture the devices, they serviced them and prepared them to meet the specific demands of their customers. As a consequence, Metorex had a small inventory of sources as described in the referenced licenses (Appendix 2). Metorex has apparently held the possession license since 1990. In 1999 they received a license to distribute sources in the analyzer units.

In 1996, Metorex relocated from Langhorne, PA to the present building in Ewing, NJ. At that time a license termination survey was performed to terminate the Pennsylvania license and the existing inventory was transferred to the Ewing facility.

With the exception of a single violation, Metorex maintained their inventory of sources in compliance with the relevant regulations and license conditions. There was one report of a contamination incident in which the containment of a single source was accidentally perforated. According to the RSO, a survey report describing this incident and confirming the clean up of the contamination was generated but cannot be found. However, subsequent routine survey reports, such as those included in Appendix 3, show that no contamination is present in the areas involved.

There are three reports of leaking sources in the life of the license, in 1998 and 1999. All of the sources involved were  $^{55}\text{Fe}$  ring sources. These sources were disposed as radioactive waste and contamination checks were made after each incident. These reports are in Appendix 4

In 1998, the activities involving the sources were relocated within the same building to the area currently used. A radiation survey for vacated area was conducted on October 13 and November 29, 1998. A copy of the report of the results of those surveys, that indicate no sources remained in the vacated area and that the area was free of contamination, is in Appendix 5.

In accordance with 10 CFR 30.36, all the records associated with the referenced licenses have been transferred to Oxford Instruments, 945 Busse Road, Elk Grove Village, IL, 60007. They hold an Illinois License (No. IL-01694-01). The RSO is Laura Ziegler, (phone 847-439-4404; email: [lziegler@msys.oxinst.com](mailto:lziegler@msys.oxinst.com) . ) A confirmation letter is in Appendix 6.

## Final Survey Activities

A comprehensive inventory of the sources used by Metorex was compiled. A summary of the information is contained in Table 1.

Table 1. Summary of Metorex Source Inventory Records

1. Licensed Radionuclide	2. Total number acquired	3. Sold to customers	4. Shipped as waste	5. In House Oxford	6. Total accounted for	7. Total Unaccounted For	8. T <sub>1/2</sub>
Fe-55	1056	470	570	6	1046	10	2.7 y
Am-241	206	146	57	3	206	0	432.2 y
Cm-244	296	246	42	2	290	6	18.1 y
Cd-109	1759	575	1163	7	1745	14	464 d
<b>Totals</b>	<b>3317</b>	<b>1437</b>	<b>1831</b>	<b>18</b>	<b>3287</b>	<b>30</b>	

Notes: Column details

The data summary includes all existing Metorex records: 1985 to present

Column 6 contains the total from columns 2-5.

Column 7: The records for these sources are not complete. See narrative for details

30 Sources are listed as unaccounted for, that is, the complete documentation for these sources cannot be found. For 27 of these sources, the only record that exists is that of an initial leak test when the source was acquired. For three sources there are later reports of leak checks/inventory checks but no record the final disposition of the source.

According to the current RSO, who assumed the position in 1999, it is most likely that these sources were in fact shipped to customers in analytic devices and that the appropriate documentation was either not completed or was subsequently lost. This is particularly so for the years 1998-99 (17 sources) when an employee responsible for the documentation of these shipments, fired in 1999, failed to create the required documentation. This is the same time period that the former RSO, dismissed in 1999, allowed several non compliant activities (see, for example, NRC letter dated August 19, 1999 from Hubert J. Miller to John Patterson).

For 12 sources, the date of the last record is before December 1, 1996, prior to the move from Pennsylvania to New Jersey. Although, a final survey was conducted when the Pennsylvania facility was vacated confirmed that no sources remained in the old building, some sources were moved to the Ewing, NJ facility, but no transfer inventory record exists. A few sources may have been shipped as radioactive waste via a qualified waste vendor and again the appropriate documentation was either not generated or lost.

According to the RSO, it is very unlikely that any of the sources were actually misplaced or lost – it is the documentation that was either not generated at the appropriate time or subsequently misplaced. The final survey did not find any sources remaining in the Ewing facility. The results of the final survey are discussed below

**Final Survey Results**

Metorex Inc,  
250 Phillips Boulevard  
Ewing, NJ 08618

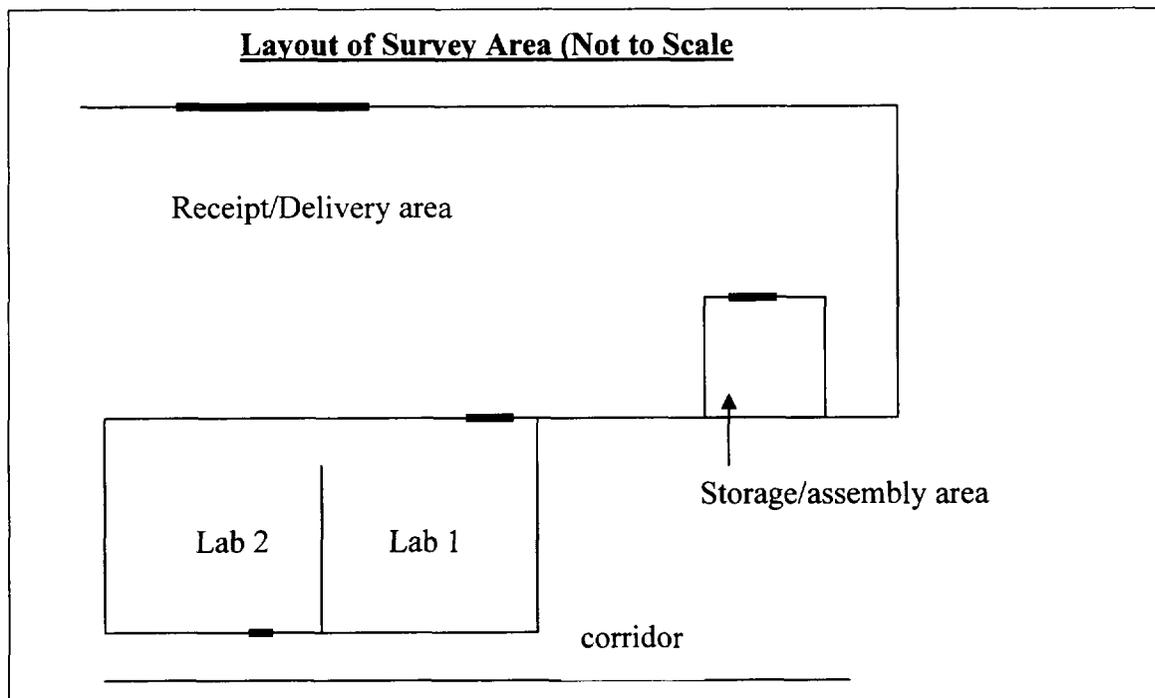
Date: June 17, 2005

A sketch of the facility is shown below. The sources were stored in two safes in the storage/assembly area. They were generally installed in the instruments in this area. Instruments, containing the sources, were occasionally taken to one of the laboratories for adjustment or repair. The sources that were found to be contaminated were confined to the storage area. The single contamination event that occurred from inadvertently puncturing the source happened in Lab 1. Photographs of the facility are shown below.

No sources were found in the facility and no contamination above the MDLs was found.

**Conclusion**

The facility may be released for unrestricted use in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E.



The surfaces in the storage area, the receiving area and the two laboratory areas were surveyed with two instruments a low energy gamma probe and a pressurized ion chamber. Wipes were taken in each area and analyzed by LS counting. Approximately 100 sq.cm. of surface was wiped with a filter paper disk which was then analyzed by liquid scintillation analyzer in the open channel. No contamination was found by either method.

**Instruments:**

1. Invision Model 451P ion chamber, S/N 3 calibrated 2/14/05 MDL = 0.001 mR/hr. Background measurement 0.001 – 0.010 mR/hr.

2. Ludlum Model 2 meter with Ludlum with Model 44-9 Low energy (thin NaI(Tl) probe S/N 73709 meter; S/N PR165803 probe. Calibrated 11/19/04 against various gamma reference sources. Background count rate = 2.2 Kcpm (0.13 mR/hr)
3. LS analyzer, Perkin Elmer (Packard Instruments) Model 2900. MDL = 50 cpm/sample ( ~ 100 dpm/10 sq.cm.).

Figure 1. Storage/Assembly area; including the source storage safes

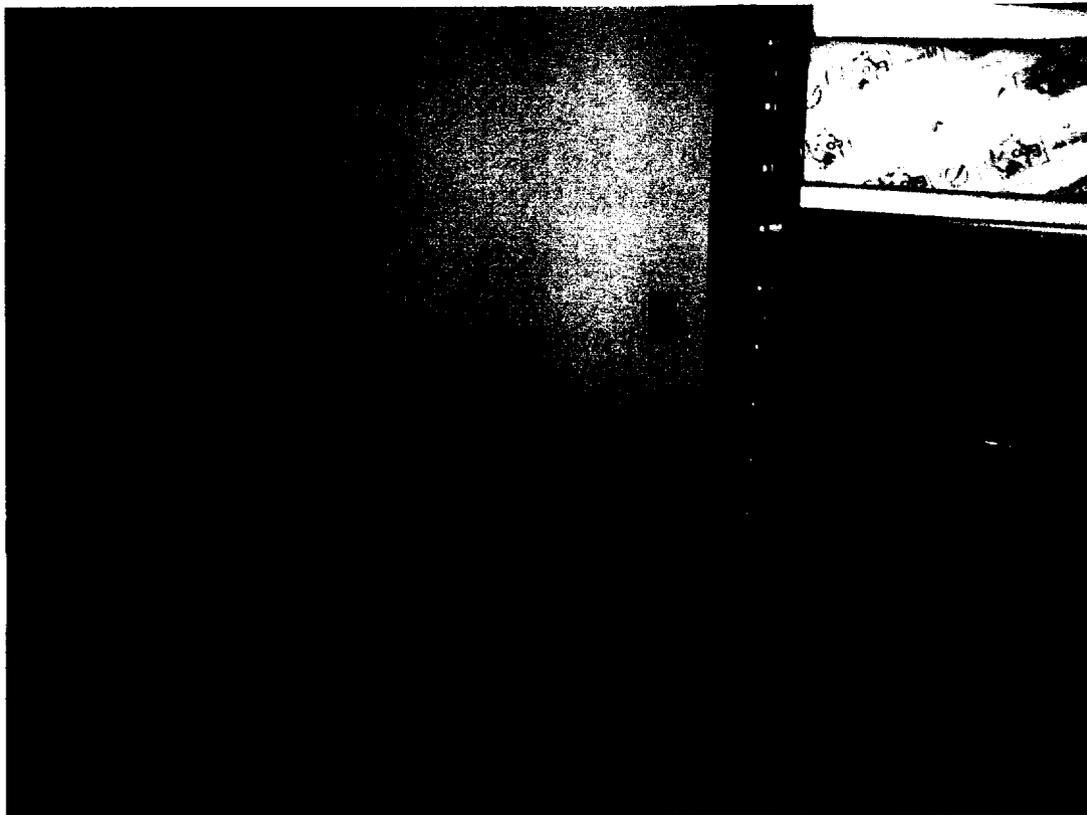


Figure 2. Storage/Assembly area showing the workbench



Figure 3. Laboratory 1 showing the area of the inadvertent contamination incident.

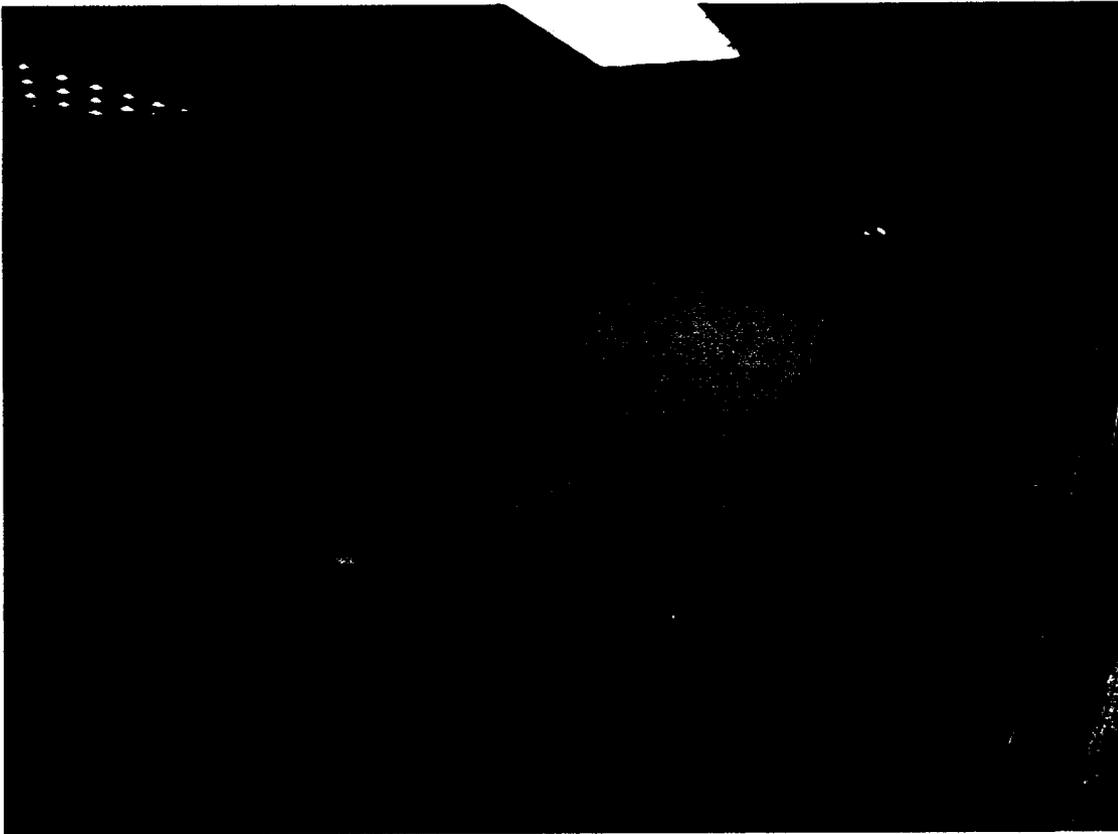


Figure 4. Laboratory 1.



Figure 5. Laboratory 2.



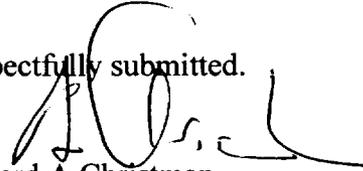
Figure 6. Laboratory 2; the bench on which most repair activities were performed.



Figure 7. The Receipt/Delivery area.



Respectfully submitted.

  
Edward A Christman

- Appendix 1      Description of typical analytic device***
- Appendix 2      Copy of referenced NRC license***
- Appendix 3      Survey Reports***
- Appendix 4      Contaminated source reports***
- Appendix 5      Final Survey Report***
- Appendix 6      Letter confirming the transfer of license records  
to Oxford Instruments Analytical.***

3/15/04

Ludlum mod 2 / Probe 44-3  
S/N 73709 S/W 165803  
Calibrated 9/27/03

Source Room OK

Warehouse OK

JACK/JACK Lab - found SUPS - labeled OK

Brian Lab 1-HEPS/Am - OK

Survey OK

*[Signature]*  
3/15/04  
4:35 pm

2/14/04

Ludlum mod 2 / Probe 44-3  
S/N 73709 S/W 165803  
Calibrated 9/27/03

Source Room OK

~~the~~ Warehouse OK

JACK/JACK Lab - OK

Brian Lab 1-HEPS - cm  
2-SIPS - Cd/Te - OK

Survey OK

*[Signature]*  
2/14/04  
2:55 pm

9/15/04

LUDLUM Mod 2 / Probe 44-3  
S/N 73709 S/N 16583  
CALIBRATION 9/27/03

Source Room OK

Warehouse OK

JACK/SHAL LABS OK

Brain Lab 1 HOPS cm } OK  
3 SIPS ed/fe }

9/15/04

5:45 pm



NOTE: never Calibrated

---

# **Radiation Survey Report**

**For**

**Metorex, Inc.  
Princeton Crossroads Corporate Center  
250 Phillips Boulevard  
Ewing, NJ 08618**

**November 29, 1998**

Survey Team

Glenn M. Sturchio, CHP  
Kimberly Newell

Report Team

Glenn M. Sturchio, CHP

REHT, Inc.  
P.O. Box 394  
Plainsboro, NJ 08536  
(609) 897-1080

## INTRODUCTION

Metorex has moved the probe maintenance, probe test and sealed source storage rooms from one end of their facility at 250 Phillips Boulevard to the other end of the facility. Metorex management requested that Radiological & Environmental Health Technologies, Inc. (REHT) perform a radiation survey to ensure that no radiation hazard exists in the vacated rooms. That survey was performed on October 13, 1998.

On November 29, 1998, REHT performed a radiation survey of the office and common areas that were formerly utilized by Metorex.

## OPERATING HISTORY

Metorex is licensed (License No. 29-30342-01) by the US Nuclear Regulatory Commission (NRC) to use and possess radioactive sealed sources in the manufacture, testing, repair and servicing of Metorex X-ray fluorescence probes. The radionuclides involved are: Iron-55 (Fe-55), Cadmium-109 (Cd-109), Americium-241 (Am-241), and Curium-244 (Cm-244). These probes are then distributed under another NRC license (License No. 29-30342-02G) to persons generally licensed pursuant to 10 CFR 31.5.

Metorex moved operations to the Ewing, NJ facility from a Langhorne, PA facility in late 1996. Since moving to this location, two positive leak test results have been reported to the NRC. In both cases, the leaking Fe-55 sources had been removed for disposal from instruments that had been returned by customers. In both cases the leaking source was returned to the manufacturer.

Neither incident resulted in the spread of contamination within the facility. This can be attributed to Metorex's standard practice of leak testing all sources received from the field and segregating them in a lead container until the results of the leak test are received.

## SURVEY PROCEDURE

The survey was designed to examine each office or common area for elevated radiation levels. The survey focused on Fe-55 since that was the radionuclide contained in the two leaking sources; however, the instrumentation used is capable of detecting all of the radionuclides on Metorex's NRC licenses.

## PROCEDURES AND EQUIPMENT

The radiation survey can be broken into two main components – the removable contamination survey and the fixed contamination survey. The removable contamination survey evaluates the amount of radioactivity that can be removed from 100 cm<sup>2</sup> of a surface using cotton swabs. The cotton swabs are counted in a liquid scintillation counter (LSC) to quantify the result. The fixed contamination survey identifies the areas of elevated radioactivity through a direct surface measurement with a radiation detector. A floor monitor, with a 425 cm<sup>2</sup> active open area, was used to make floor measurements.

### Liquid Scintillation Counter.

Packard Instruments  
Model 2700TR Tri-Carb  
Serial Number 416578  
Calibrated February 1998

### Floor Monitor.

Ludlum Measurements, Inc.  
Model 239-1F Floor Monitor  
Calibrated October 1998

- Model 12 Ratemeter  
Serial Number 134478
- Model 44-37 Gas Proportional Probe  
Serial Number 136923

## INSTRUMENTATION SENSITIVITY

The instrumentation selected for a radiation survey must be capable of detecting the radionuclide of interest. Additionally, the instrumentation must be able to detect the radionuclide down to the required release level. The release level is that level below which the residual contamination does not present a hazard to members of the public; therefore, the area can be released for uncontrolled access. The acceptable Fe-55 surface contamination levels for this survey are taken from *NRC Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use* and are presented below:

Removable Contamination:	1,000 dpm per 100 cm <sup>2</sup>
Average Contamination:	5,000 dpm per 100 cm <sup>2</sup>
Maximum Contamination:	15,000 dpm per 100 cm <sup>2</sup>

**Detection Efficiency.** For this survey, the Fe-55 detection efficiency for the liquid scintillation counter is taken to be 0.05 (5 %). This value is similar to the efficiency determined for Chromium-51 which is also an Auger electron emitter.

The Fe-55 detection efficiency for the floor monitor was determined to be 0.30 (30%) during the October 13, 1998 radiation survey.

**Sensitivity.** The sensitivity of the instrumentation can be evaluated by calculating the critical level ( $L_c$ ). For a measurement to be evaluated as a positive indication of radioactivity, the result must equal or exceed the critical level. The critical level is set at a level that limits false positives to a 5% frequency. The critical level for an instrument can be calculated using the formula:

$$L_c = 2.33 \times \text{SQRT}(B_r/T)$$

- Where,  $L_c$  = critical level in cpm  
 $B_r$  = background count rate in cpm  
 $T$  = count time in minutes (LSC)  
 $T$  = 2 x meter time constant in minutes (Floor)

The critical level can be converted into units of radioactivity by dividing by the efficiency. A summary of the  $L_c$  values is presented below:

Monitor	Bkgd cpm	Time minutes	$L_c$ cpm	Efficiency	$L_c$ dpm
LSC	15	1	9	0.05	180
Floor	400	0.333	81	0.30	269

## SURVEY RESULTS

The fixed and removable measurement locations documented on the attached pages (Figures 1-4) were selected by the surveyors to be representative of the areas under examination. The measurement results are also attached (Tables 1 - 4).

## REDUCING AND EVALUATING RESULTS

**Net cpm.** The first step in evaluating the measurement results is calculating the net counts per minute (cpm) by subtracting the background measurement (in cpm) from the raw measurement data.

**Critical Level.** The net cpm value is then compared to the  $L_c$  value. If the net cpm is less than the  $L_c$  value, it is not considered statistically significant from background. However, if the net cpm value is equal to or greater than the  $L_c$  value, it is considered statistically significant and would be indicative of the presence of Fe-55.

**Comparison to Guidelines.** All net cpm values greater than the  $L_c$  are converted to appropriate dpm values for evaluation against the *Acceptable Surface Contamination*

*Levels* presented earlier. Since the wipe tests were for 100 cm<sup>2</sup> of surface, it is only necessary to divide the net cpm value by the detection efficiency to determine the dpm per 100 cm<sup>2</sup> value for comparison to the guidelines. Conversion of the floor monitor results to dpm per 100 cm<sup>2</sup> is performed by dividing the net cpm value by the detection efficiency and 4.25 (to normalize the 425 cm<sup>2</sup> detector area to 100 cm<sup>2</sup>).

#### **WIPE TEST RESULTS**

In this survey, only one LSC result exceeded the L<sub>c</sub> - that wipe was immediately recounted and the result was below the L<sub>c</sub>. The initial result may have been due to counting interferences (e.g., chemiluminescence) and was not indicative of the presence of elevated radioactivity. However, even the initial result of 11 net cpm is only 37 dpm per 100 cm<sup>2</sup> which is well below the allowable *Removable Contamination Level* of 1000 dpm per 100 cm<sup>2</sup>.

#### **FLOOR MONITOR RESULTS**

None of the floor monitor results exceeded the L<sub>c</sub>. Two floor areas were found with backgrounds higher than the carpeted or vinyl covered floors - the tile floor and the bare concrete floor. It is not unusual to find different background radiation levels from different building materials. The measurement results in these areas were uniform and appear to be typical background levels - there was no indication that residual contamination was present.

#### **SUMMARY**

A radiation survey was conducted on November 29, 1998, in areas formerly utilized for offices and common areas (e.g., restrooms) at Metorex's 250 Phillips Boulevard facility. All survey results met the release criteria established in *NRC Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use*. Therefore, the areas present to radiological hazard and can be used for any purpose.

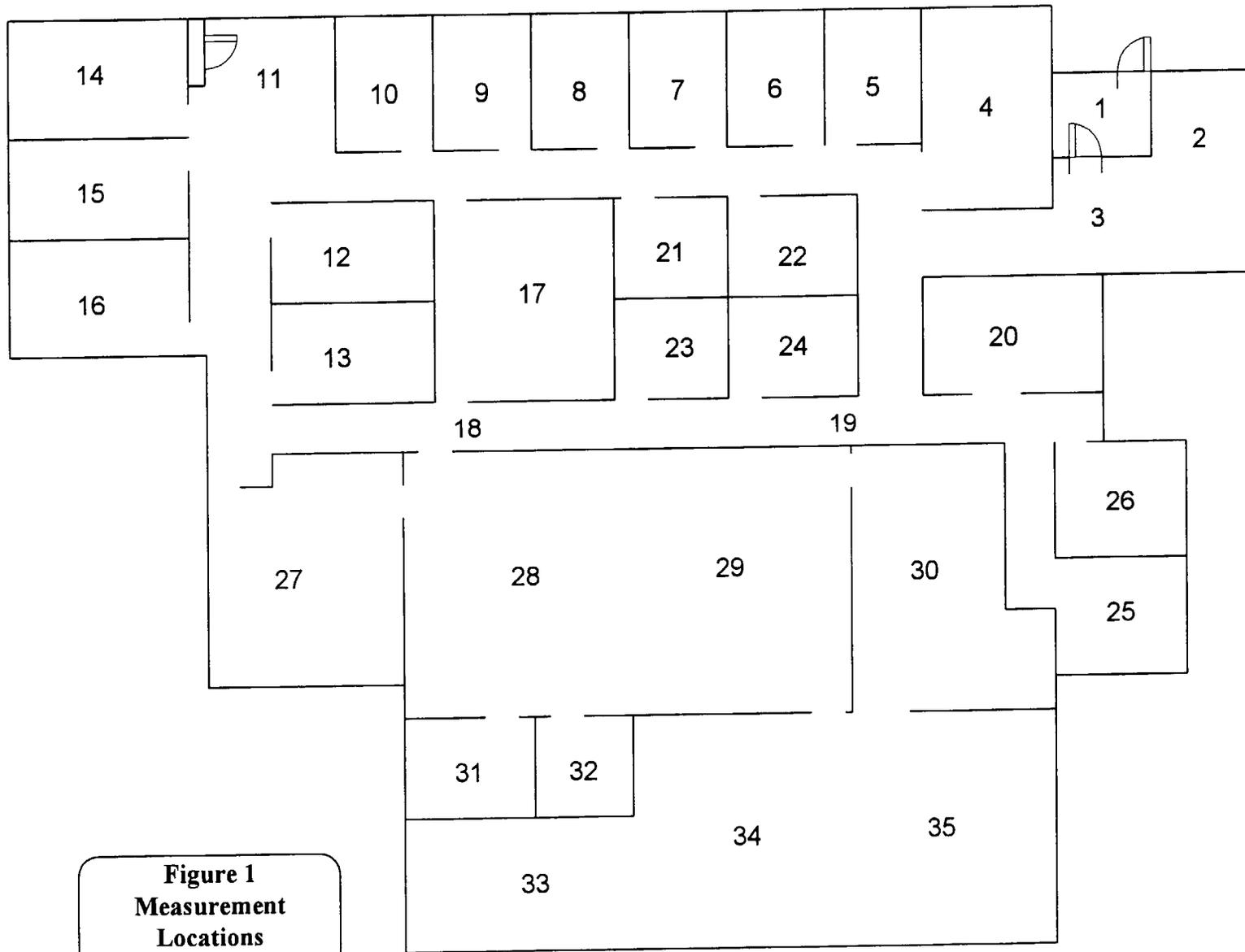
---

## ATTACHMENTS

**Figure 1. Measurement Locations**

**Table 1. Fixed Measurement Location Results**

**Table 2. Wipe Test Location Results**



**Figure 1**  
**Measurement**  
**Locations**

**TABLE 1**  
**FIXED MEASUREMENT LOCATION**  
**RESULTS**

BACKGROUND = 400 CPM  
CRITICAL LEVEL = 81 CPM

MEASUREMENT #	MEASUREMENT (GROSS CPM)	RESULT (NET CPM)	RESULT > L <sub>c</sub>
1	420	20	No
2	420	20	No
3	420	20	No
4	380	-20	No
5	380	-20	No
6	360	-40	No
7	380	-20	No
8	380	-20	No
9	380	-20	No
10	440	40	No
11	380	-20	No
12	400	0	No
13	440	40	No
14	400	0	No
15	400	0	No
16	400	0	No
17	420	20	No
18	400	0	No
19	420	20	No
20	400	0	No
21	420	20	No
22	400	0	No
23	360	-40	No
24	400	0	No
25(tile)	800	See note A	No
25	420	20	No
26	380	-20	No
27	400	0	No
28	380	-20	No
29	420	20	No
30	400	0	No
31	420	20	No
32	420	20	No
33	600	See note B	No
34	600	See note B	No
35	600	See note B	No

Notes:

- A. This measurement was made over the tile floor in the bathroom. It is not unusual to get different readings from different building materials; therefore, this reading appears to be the "background" level for this tile floor and isn't indicative of residual contamination.
- B. This measurement was made over the bare concrete floor in the storeroom. It is not unusual to get different readings from different building materials; therefore, this reading appears to be the "background" level for this bare concrete floor and isn't indicative of residual contamination.

**TABLE 2**  
**WIPE TEST LOCATION**  
**RESULTS**

BACKGROUND = 15 CPM  
CRITICAL LEVEL = 9 CPM

MEASUREMENT #	MEASUREMENT (GROSS CPM)	RESULT (NET CPM)	RESULT > L <sub>c</sub>
1	23	8	No
2	14	-1	No
3	11	-4	No
4	14	-1	No
5	9	-6	No
6	17	2	No
7	12	-5	No
8	16	1	No
9	11	-4	No
10	13	-2	No
11	12	-3	No
12	13	-2	No
13	16	1	No
14	14	-1	No
15	14	-1	No
16	16	1	No
17	11	-4	No
18	13	-2	No
19	11	-4	No
20	10	-5	No
21	16	1	No
22	10	-5	No
23	26	11	Yes
23(recount)	20	5	No
24	17	2	No
25	16	1	No
26	17	2	No
27	8	-7	No
28	16	1	No
29	9	-6	No
30	16	1	No
31	12	-3	No
32	11	-4	No
33	7	-8	No
34	11	-4	No
35	13	-2	No

**Measurement Systems**

945 Busse Road  
Elk Grove Village, IL 60007  
Tel: 847 439 4404  
Fax: 847 439 4425  
Email: sales@msys.oxinst.com  
www.oxford-instruments.com



September 23, 2005

U.S. Nuclear Regulatory Commission  
Materials Safety and Inspection Branch  
Division of Industrial and Medical Nuclear Safety  
Two White Flint North  
11545 Rockville Pike  
North Bethesda, MD 20852-2738

Re: Record transfer from Metorex licenses 29-30342-01 and 29-30342-02G.

To Licensing personnel:

Metorex Incorporated was purchased by our company, Oxford Instruments, in October of 2004. All operations and isotopes were transferred to our facility the beginning of this year. A termination request is being filed along with this letter for the Metorex licenses 29-30342-01 and 29-30342-02G.

I would like to declare that all license related records from Metorex have been transferred over to Oxford and will be kept here for the duration that our license requires or that the records require.

If there is any information that is needed, please contact me at 847-439-4404 x 227 or John Patterson (previous RSO of the old Metorex company at the NJ facility) at 847-979-7603.

Sincerely,

A handwritten signature in black ink, appearing to read "Laura Ziegler".

Laura Ziegler  
Radiation Safety Officer  
Oxford Instruments Measurement Systems

cc: John Patterson



Feed Feed 7/27/00

July 27, 2000

U.S. Nuclear Regulatory Commission, Region I  
ATTN: Chief Nuclear Materials Safety Branch  
475 Allendale Road  
King of Prussia, PA 19406

Dear Sir:

On June 28, 2000, Metorex received a damaged SLPS probe and immediately performed a wipe test on the outside of the unit. This wipe test was negative (that is below the 0.005 microcurie threshold). At this time, the probe was opened in a controlled area and a wipe test was performed on the internal portion of the probe. This wipe test indicated that material had escaped from the source and was on several parts within the probe (all testing indicated that no material had escaped the probe itself). This wipe test indicated a contamination within the probe and the wipe test indicated a level of 1.37 microcuries were removed from the device. The source involved was an Amersham Model IEC.A1, Fe-55 ring source, serial number 6674LG. This incident was reported to the NRC by telephone on June 29, 2000. In addition, the user of the probe was contacted and informed of the leakage. The RSO at the customer facility performed a radiation survey of the tools and the area where the probe had been used and determined that no contamination had occurred at the facility.

The probe, gloves, source and wipe test pad have been removed from service and placed in the source storage room here at Metorex for disposal in our next regularly scheduled source disposal. It has been contained within a "zip lock" bag to prevent any possible spread of the contamination.

If you have any further questions, please feel free to contact me at (609) 406-9000 x 122.

Sincerely,



John I.H. Patterson, Ph.D.  
President

JHP/jlr



for copy 9/1/99

September 1, 1999

U.S. Nuclear Regulatory Commission, Region I  
ATTN: Chief Nuclear Materials Safety Branch  
475 Allendale Road  
King of Prussia, Pennsylvania 19406

Dear Sir:

On August 30, 1999, Metorex was informed that a wipe test of an Fe-55 source exceeded the 0.005 microcurie limit for such tests. The source was an Amersham Fe-55 ring source, serial number 7147LG. The Amersham source model number is IEC.A1. The reported level was 0.0075 microcurie. This source came from a Metorex LEPS probe S/N 160734. The source has been removed and placed in a disposal pig that has been sealed and will be disposed of with our next regular disposal.

Prior to receiving this result, the instrument from which the source was removed was returned to the customer, with no source, for storage. We have informed the customer and requested that he return the unit for testing and decontamination if necessary.

If you have any further questions, please feel free to contact me at (609) 406-9000 x122.

Sincerely,

John I.H. Patterson, Ph.D.  
President

JHP/jlr

MONITORING SERVICES

P O BOX 560648

HOUSTON, TEXAS 77258-0648

LEAK TEST REPORT

1991  
METOREX  
250 PHILLIPS BLVD.  
EWING NJ 08618  
ATTN: BRIAN MCCANN  
LOCATION 1496

ASSAYED BY CTG

609 406-9000  
Rose Hulse  
8/30/99

ATTN:  
LOCATION

WIPED BY \_\_\_\_\_

BKG CPM= 22

LEAK TEST RESULTS 08-27-19.99

ASSAY	FILE CODE	PROJECT NUMBER	SERIAL	DATE OF WIPE	ISOTOPE	GROSS CPM	NET CPM	EFF CPM	DPM	MICROCURIES
0827991	382		NM919	08-18-99	CD-109	56	34	0.700	49	2.19E-05
0827992	383		6961LG	08-12-99	FE-55	32	10	0.652	15	6.91E-06
0827993	384		7268LE	08-20-99	FE-55	32	10	0.652	15	6.91E-06
0827994	385		KK649	08-20-99	CD-109	38	16	0.700	23	1.03E-05
0827995	386		7273LE	08-20-99	FE-55	26	4	0.652	6	2.76E-06
0827996	387		KK252	08-12-99	CD-109	50	28	0.700	40	1.80E-05
0827997	388		KK254	08-12-99	FE-55	66	44	0.652	67	3.04E-05
0827998	389		1839LM	08-13-99	CM-244	30	8	1.210	7	2.98E-06
0827999	390		7147LG	08-18-99	FE-55	10844	10822	0.652	16598	7.48E-03
08279910	391		EE517	08-20-99	CD-109	30	8	0.700	11	5.15E-06
08279911	392		NM581	08-18-99	FE-55	40	18	0.652	28	1.24E-05
08279912	393		MM589	08-20-99	CD-109	48	26	0.700	37	1.67E-05
08279913	396		JJ194	08-20-99	CD-109	48	26	0.700	37	1.67E-05
08279914	397		4284LG	08-18-99	FE-55	36	14	0.652	21	9.67E-06
08279915	399		FF532	08-19-99	AM-241	36	14	1.320	11	4.78E-06
08279916	402		FF069	08-20-99	CD-109	52	30	0.700	43	1.93E-05
08279917	404		EE880	08-20-99	AM-241	40	18	1.320	14	6.14E-06
08279918	405		Z821	08-20-99	AM-241	34	12	1.320	9	4.10E-06
08279919	406		6234LX	08-20-99	AM-241	34	12	1.320	9	4.10E-06
08279920	409		7938LX	08-19-99	AM-241	50	28	1.320	21	9.56E-06



January 7, 1998

United States Nuclear Regulatory Commission  
Region I  
Licensing Assistance Section  
475 Allendale Road  
King of Prussia, PA 19406

**Re: Report of positive leak test obtained on the source destined for disposal.  
Our Licenses are 37-28461-01, 37-28461-02G.**

On December 29, 1997, we wipe tested the Fe-55 source taken out from instrument for disposal. The wipe test was sent for analysis to Monitoring Services, Houston, Texas. They have informed us that the wipe read  $2.92 \times 10^{-2}$   $\mu$ Ci, which exceeds the limit. This is a source made by Amersham, NRC Model IEC.A1, Serial No. 6629LG, original activity 40 mCi (in December of 1994). The source was placed after the wipe test in an individual lead pig, which was promptly sealed, to wait for the results of the wipe test.

We have notified Amersham about the source, and currently are waiting for their instructions and shipping container to return the source to them.

The incident was reported to NRC Region I, on January 7, 1998. The report was filed with Ms. Joustra.

The incident did not result in spread of contamination. Each source taken for disposal is always placed in an individual lead container, pending the results of the wipe. Only after the wipe is confirmed negative the source is transferred to a collection pig. This way potential contamination is limited to the leaking source and a pig it is in. This is in accordance with our internal procedures related to handling sources received for disposal.

Should any additional information be necessary, please contact me at 609-406-9000, x 105..

Sincerely yours,

Stanislaw Piorek, Ph.D.  
Radiation Safety Officer

---

METOREX INC.

**Mailing:** Princeton Crossroads Corporate Center  
P.O. Box 3540  
Princeton, New Jersey 08543-3540

**Shipping:** Princeton Crossroads Corporate Center  
250 Phillips Boulevard  
Ewing, New Jersey 08618

**Telephone**      **Telefax**  
1-609-406-9000    1-609-530-9055



PURCHASE ORDER

PURCHASE ORDER # 7843  
ORDER DATE 01/08/98

VENDOR ID# 2

SHIP TO

0

ISOTOPE PRODUCTS LAB.  
1800 NORTH KEYSTONE STREET  
BURBANK  
CA 91504  
ATTN: KEITH HO / RA# R5788  
PHONE ( 818 ) 843-7000  
FAX ( 818 ) 843-6168

METOREX INC.  
250 PHILLIPS BLVD.  
EWING, NJ 08618  
ATTENTION: STAN PIOREK  
PHONE (609) 406-9000  
FAX (609) 530-9055

DATE REQUIRED ASAP	SHIP VIA BESTWAY - PP&A	DATE RECEIVED	OK TO PAY INVOICE
-----------------------	----------------------------	---------------	-------------------

ITEM	QTY	DESCRIPTION	\$ UNIT	\$ TOTAL
1	1	"LEAKING" FE-55 SOURCE SN# V804, 40MCI PELLET (1993) RETURNED FOR INSPECTION. RA# R5788  This package conforms to the conditions and limitations specified in 49 CFR 173.421 for radioactive material, excepted package-limited quantity of material, UN2910.  <b>PERSONAL INFORMATION WAS REMOVED BY NRC. NO COPY OF THIS INFORMATION WAS RETAINED BY THE NRC.</b>		

NOTES NO C.O.D.'S ACCEPTED. PLEASE CONFIRM ORDER. PARTIAL SHIPMENTS ACCEPTABLE. NO SUBSTITUTES ALLOWED W/OUT AUTHORIZATION.	SUBT'L %TAX TOTAL
---	-------------------------

DEPARTMENT # 23 - NDT	REQUISITIONER/CONTACT STAN PIOREK	CHARGE ACCOUNT# 	SPLIT CHARGE ACCOUNT#
--------------------------	--------------------------------------	---------------------	-----------------------

AUTHORIZED SIGNATURE

INVOICE: METOREX INC.  
P.O. 3540  
PRINCETON, NJ 08543-3540

METOREX INC.

Mailing: Princeton Crossroads Corporate Center  
P.O. Box 3540  
Princeton, New Jersey 08543-3540

Shipping: Princeton Crossroads Corporate Center  
250 Phillips Boulevard  
Ewing, New Jersey 08618

Telephone 1-609-406-9000  
Telefax 1-609-530-9055



PURCHASE ORDER

PURCHASE ORDER # 8073  
ORDER DATE ~~05/15/98~~ **PAID**

0

VENDOR ID# 10

SHIP TO

AMERSHAM CORPORATION  
2636 SOUTH CLEARBROOK DRIVE  
ARLINGTON HEIGHTS, IL 60005  
RA# CFF-98069  
ATTN: DONNA TRAVIS  
PHONE ( 800 ) 323-6695 X458  
FAX ( 847 ) 593-8091

METOREX INC.  
\*\* RETURN SOURCES FOR  
INSPECTION  
ATTENTION:  
PHONE (609) 406-9000  
FAX (609) 530-9055

DATE REQUIRED ASAP	SHIP VIA BESTWAY - PP&A	DATE RECEIVED	OK TO PAY INVOICE
-----------------------	----------------------------	---------------	-------------------

ITEM	QTY	DESCRIPTION	\$ UNIT	\$ TOTAL
1	2	<p>RETURN "LEAKING" SOURCES FOR INSPECTION FE-55 SN# 6629LG &amp; 6677LG</p> <p>RETURN AUTHORIZATION# CFF-98069</p> <p>This package conforms to the conditions and limitations specified in 49 CFR 173.421 for radioactive material, excepted package-limited quantity of material, UN2910.</p> <p><b>PERSONAL INFORMATION WAS REMOVED BY NRC. NO COPY OF THIS INFORMATION WAS RETAINED BY THE NRC.</b></p>		

<p>NOTES NO C.O.D.'S ACCEPTED. PLEASE CONFIRM ORDER. PARTIAL SHIPMENTS ACCEPTABLE. NO SUBSTITUTES ALLOWED W/OUT AUTHORIZATION.</p>	<p>SUBT'L %TAX TOTAL</p>
--	----------------------------------

DEPARTMENT # 23 - AIP	REQUISITIONER/CONTACT STAN PIOREK/SS	CHARGE ACCOUNT# 	SPLIT CHARGE ACCOUNT#
--------------------------	---	---------------------	-----------------------

AUTHORIZED SIGNATURE

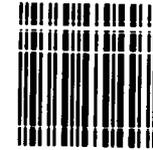
INVOICE: METOREX INC.  
P.O. 3540  
PRINCETON, NJ 08543-3540

METOREX INC.

Mailing: Princeton Crossroads Corporate Center  
P.O. Box 3540  
Princeton, New Jersey 08543-3540

Shipping: Princeton Crossroads Corporate Center  
250 Phillips Boulevard  
Ewing, New Jersey 08618

Telephone 1-609-406-9000  
Telefax 1-609-530-9055



9264

19406

U.S. POST  
TRENTON, NJ  
SEP 26, 1988  
AMOUNT

\$6.25  
0008497

Oxford Instruments  
945 Busse Road  
Elk Grove Village, IL 60007

RETURN RECEIPT  
REQUESTED

SEP 26 1988  
TRENTON, NJ 08619

1377 88  
157789

This is to acknowledge the receipt of your letter/application dated

09/26/2005, and to inform you that the initial processing which includes an administrative review has been performed.

Termination 29-30342-01/29-30342-026  
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

Please provide to this office within 30 days of your receipt of this card

---

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 137788/137789  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.