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

OXFORD INSTRUMENTS

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 20-30342-01 and 20-30342-02G. 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 or Ms. Laura Ziegler at 847-439-4404 x 227 or lziegler@msys.oxinst.com. Please send any correspondence to both Ms. Ziegler and me at the above address.

Sincerely,

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

137188 / 137189
NMSS/RGNI MATERIALS-002

NRC FORM 314 (6-2004) 10 CFR 30.36(j)(1); 40.42(j)(1); 70.38(j)(1); and 72.54(j)(1)

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF DISPOSITION OF MATERIALS

APPROVED BY OMB: NO. 3150-0028 **EXPIRES: 06/30/2007**

LICENSEE NAME AND ADDRESS	LICENSE NUMBER	DOCKET NUMBER
Oxford Instruments Analytical 250 Phillips Boulevard Ewing, NJ 08618	29-30342-01 & 29-30342-0G	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	TITLE	TELEPHONE *(Include Area Code)*	E-MAIL ADDRESS
John Patterson, Ph.D.	President, Metorex; Consultatnt to Oxford Instruments Analytics	(847) 979-7603	Jpatterson@msys.ox[redacted]

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	SIGNATURE	DATE
John I. H. Patterson	John Patterson	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

eac8@comcast.net phone 609 919-0275 fax 609 919-0277

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). Meterox 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}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 .) 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. $T_{1/2}$
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
Totals	**3317**	**1437**	**1831**	**18**	**3287**	**30**	

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

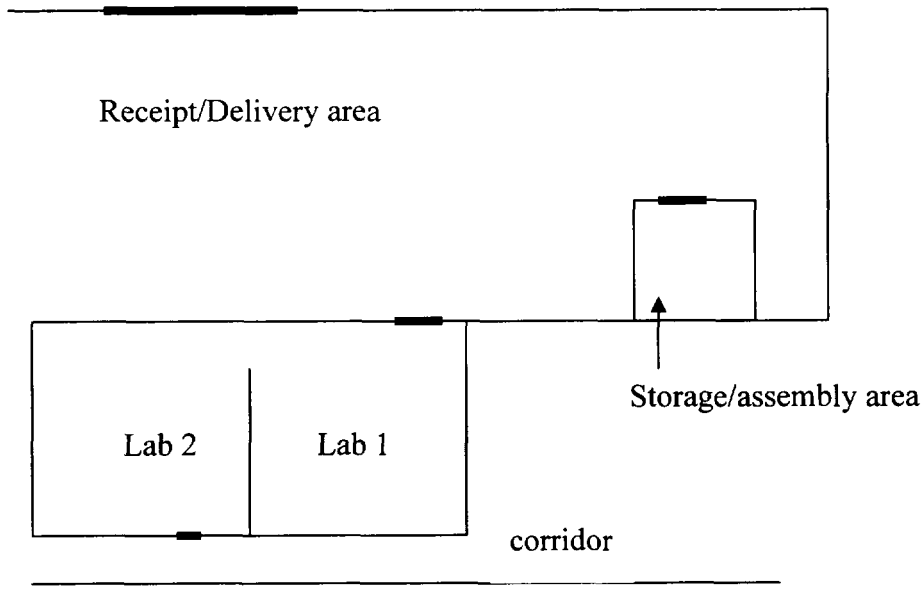
Date: June 17, 2005

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.

Layout of Survey Area (Not to Scale



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. Inovision 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

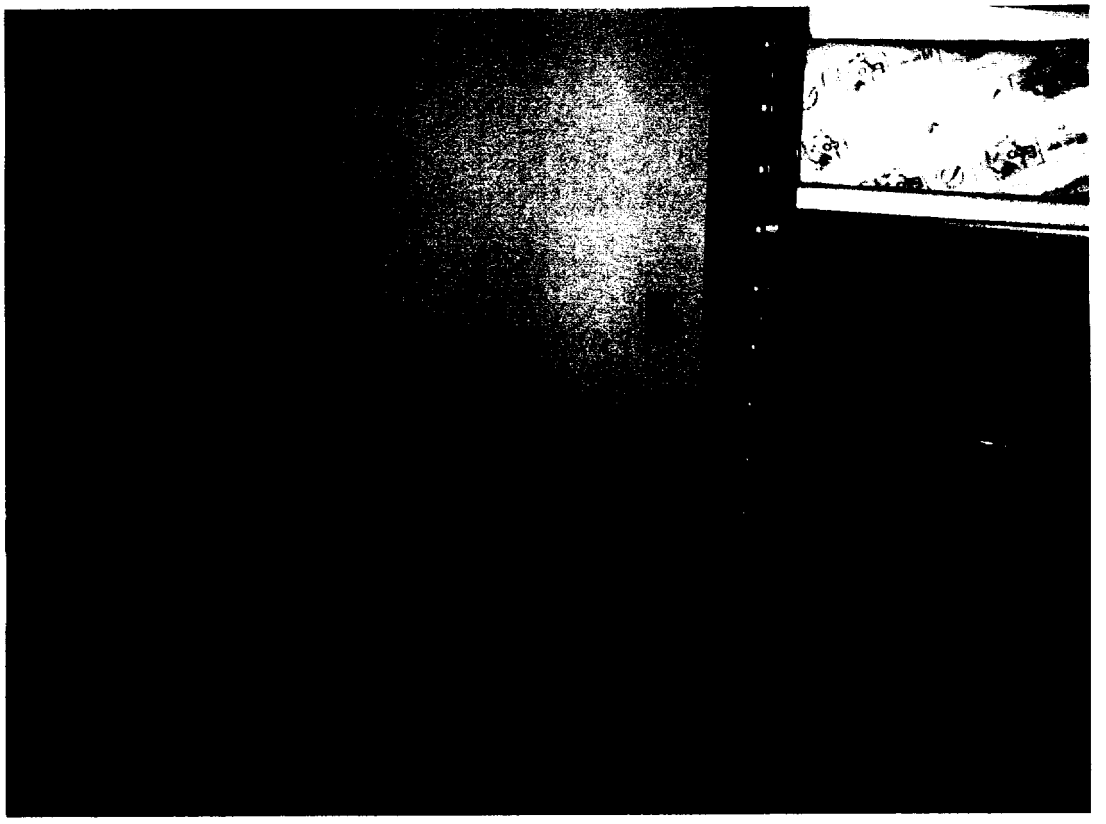


Figure 2. Storage/Assembly area showing the workbench

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

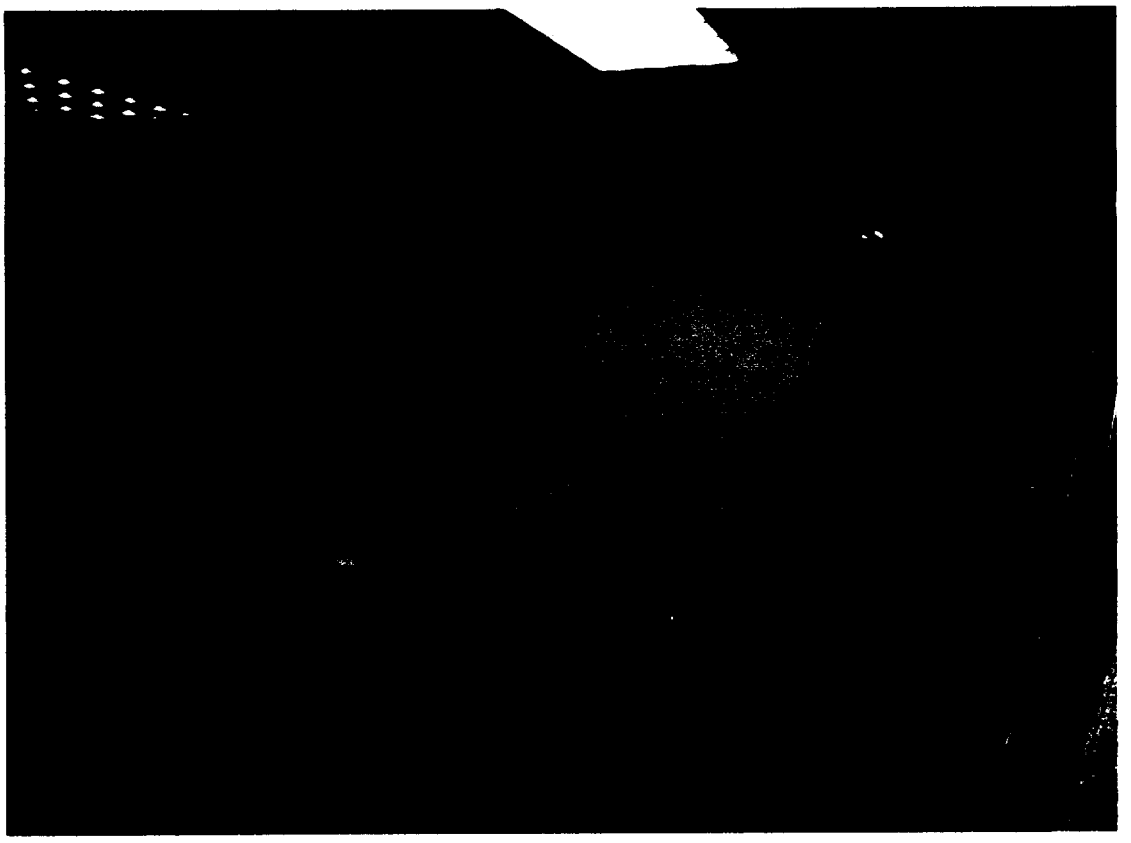


Figure 4. Laboratory 1.

Figure 5. Laboratory 2.

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

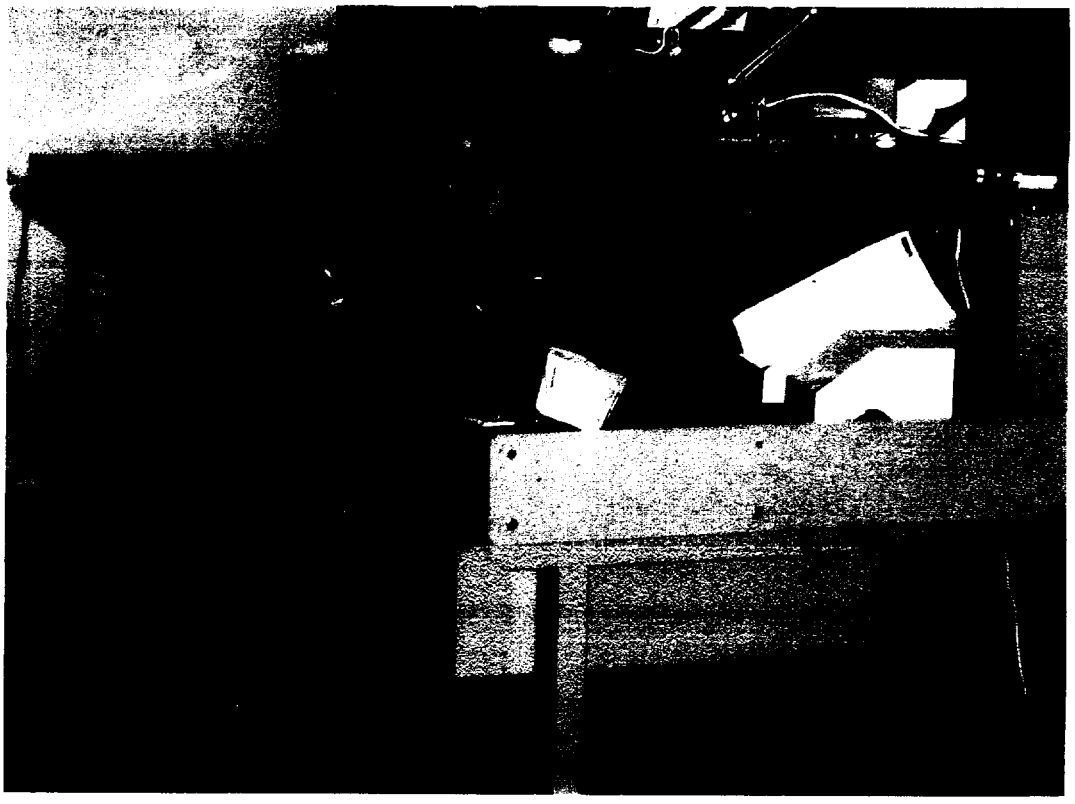


Figure 7. The Receipt/Delivery area.

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/N 165803

Calibrated 9/27/03

Source Room OK

Warehouse OK

JAKE / JACK Lab - found SUPS - labeled OK

Brian Lab 1-HEPS/Am - OK

Survey OK

3/15/04
4:35pm

6/14/04

Ludlum Mod 2 / Probe 44-3

S/N 73709 S/N 165803

Calibration 9/27/03

Source Room OK

~~[illegible]~~ Warehouse OK

JAKE / JACK Lab - OK

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

Survey OK

6/14/04
2:55pm

9/15/04 Ludlum Mod 2 / Probe 44-3
S/N 73709 S/N 16583
Calibration 9/27/03

Source Room OK
Warehouse OK
Jake/Shell LAB OK
Brian Lab 1 HCPS Cm } OK
3 SCPS Cd/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^2 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^2 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^2
Average Contamination:	5,000 dpm per 100 cm^2
Maximum Contamination:	15,000 dpm per 100 cm^2

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:

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

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 than 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^2 of surface, it is only necessary to divide the net cpm value by the detection efficiency to determine the dpm per 100 cm^2 value for comparison to the guidelines. Conversion of the floor monitor results to dpm per 100 cm^2 is performed by dividing the net cpm value by the detection efficiency and 4.25 (to normalize the 425 cm^2 detector area to 100 cm^2).

WIPE TEST RESULTS

In this survey, only one LSC result exceeded the L_c - that wipe was immediately recounted and the result was below the L_c. 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^2 which is well below the allowable ***Removable Contamination Level*** of 1000 dpm per 100 cm^2.

FLOOR MONITOR RESULTS

None of the floor monitor results exceeded the L_c. 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

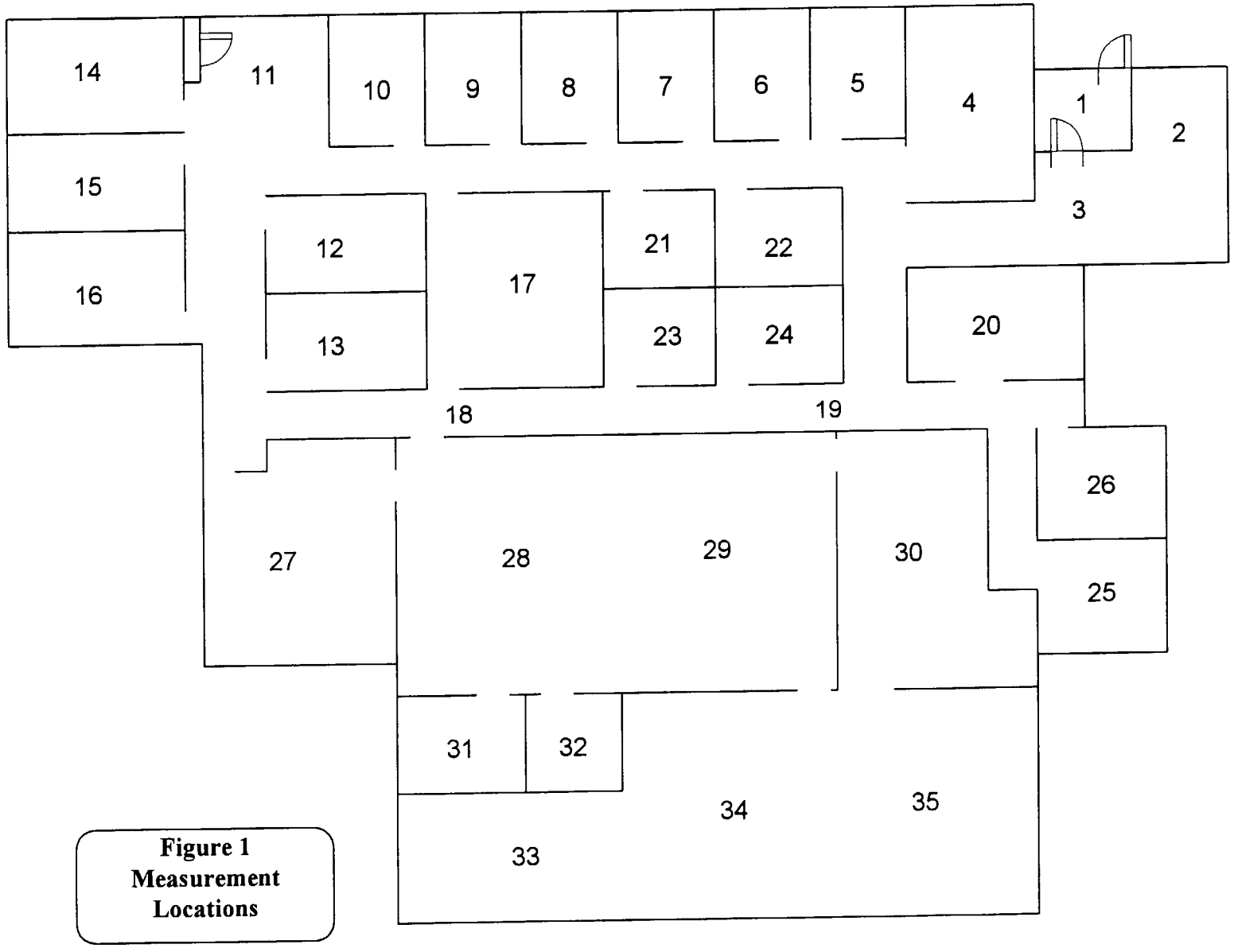


Figure 1
Measurement Locations

TABLE 1
FIXED MEASUREMENT LOCATION
RESULTS

BACKGROUND = 400 CPM
CRITICAL LEVEL = 81 CPM

MEASUREMENT #	MEASUREMENT (GROSS CPM)	RESULT (NET CPM)	RESULT > L_C
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_c
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

OXFORD INSTRUMENTS

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,

Laura Ziegler
Radiation Safety Officer
Oxford Instruments Measurement Systems

cc: John Patterson

Fed Exp 7/28/00

Metorex

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

JIHP/jlr

METOREX INC.
Princeton Crossroads Corporate Center • 250 Phillips Boulevard • Ewing, New Jersey 08618 • 1-609-406-9000 • Fax 1-609-530-9055

9/1/99

Metorex

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

JIHP/jlr

METOREX INC.
Princeton Crossroads Corporate Center • 250 Phillips Boulevard • Ewing, New Jersey 08618 • 1-609-406-9000 • Fax 1-609-530-9055

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

609 406-9000
Rose Hulse

8/30/99

ATTN:
LOCATION

ASSAYED BY____CTG_____

WIPED BY_____

LEAK TEST RESULTS08-27-19.99

BKG CPM= 22

ASSAY	FILE CODE	PROJECT NUMBER	SERIAL	DATE OF WIPE	ISOTOPE	GROSS CPM	NET CPM	EFF CPM	DPM	MICROCURIES
0827991	382		NN919	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		NN581	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		EEBB0	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

Metorex

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 $2.92*10^{-2}$ μCi, 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 1-609-406-9000
Telefax 1-609-530-9055

Metorex

PURCHASE ORDER

PURCHASE ORDER # 7843

ORDER DATE 01/08/98

0

VENDOR ID# 2

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

SHIP TO

METOREX INC.
250 PHILLIPS BLVD.
EWING, NJ 08618

ATTENTION: STAN PIOREK
PHONE (609) 406-9000
FAX (609) 530-9055

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

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. PERSONAL INFORMATION WAS REMOVED BY NRC. NO COPY OF THIS INFORMATION WAS RETAINED BY THE NRC.		

NOTES NO C.O.D.'S ACCEPTED. PLEASE CONFIRM ORDER.
PARTIAL SHIPMENTS ACCEPTABLE.
NO SUBSTITUTES ALLOWED W/OUT AUTHORIZATION.

SUBT'L
%TAX
TOTAL

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

AUTHORIZED SIGNATURE

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

Metorex

PURCHASE ORDER

PURCHASE ORDER # 8073

ORDER DATE 05/13/98

FAXED

0

VENDOR ID# 10

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

SHIP TO

METOREX INC.
** RETURN SOURCES FOR INSPECTION

ATTENTION:
PHONE (609) 406-9000
FAX (609) 530-9055

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

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

NOTES NO C.O.D.'S ACCEPTED. PLEASE CONFIRM ORDER.
PARTIAL SHIPMENTS ACCEPTABLE.
NO SUBSTITUTES ALLOWED W/OUT AUTHORIZATION.

SUBT'L
%TAX
TOTAL

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

AUTHORIZED SIGNATURE

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

CERTIFIED MAIL™

7005 1160 0002 6192 4260

UNITED STATES POSTAL SERVICE

9264

19406

U.S. POSTAGE
TRENTON, NJ
08619
SEP 26, 1
AMOUNT
$6.2
0008497

Oxford Instruments
945 Busse Road
Elk Grove Village, IL 60007

RETURN RECEIPT REQUESTED

[redacted]

137789
137789

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

[X] 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.

NRC FORM 532 (RI)
(6-96)

Sincerely,
Licensing Assistance Team Leader