

In response to questions regarding License Termination Amendment  
ICAL, Inc. NRC License No. 12-24846-01 Termination  
(Reference Control No. 575345)

1) Please provide a work history to include facilities in NRC jurisdiction where work under your NRC license was performed.

**Work history - ICAL, Inc. has operated in California, Illinois, and Tennessee (all agreement states).**

2) Were contaminated instruments ever encountered and if so, please confirm that these instruments and contamination was contained in accordance with your NRC license to include model numbers and manufacturers names.

**I am not aware of ICAL, Inc. ever receiving contaminated equipment for repair or calibration. A review of surveys for MCF-3 did not reveal any contaminated equipment.**

3) Please provide a list of all sealed sources possessed under your NRC license to include Model numbers and manufacturers names.

**The list will be on a separate email due to file size.(email sent 8/20/11)**

4) For every source possessed under your NRC license, please provide the last leak prior to disposal of the sources.

**Will be attached to separate email .(email sent 8/20/11)**

5) You submitted a survey for the facility located at 2800 N. Jaspen® not sure if it is Jaspen or Jasper, however, no city or state was provide. Please provide a complete address of this facility.

**The survey was performed at 2800 N. Jasper --- Decatur, Il. 62526**

6) Please identify the person who performed this survey os 2800 N. and provide a list of instruments used as well as their calibration information, i.e. how was MDA determined. Not sure what an MS-3, SAC-4 and RM-20 is.

**The survey was performed by David Dempster & Kristin Dempster**

**The RM-20 was used for direct frisk of trailer.**

**The MS-3 is a scaler for beta, gamma**

**The SAC-4 is a scaler for alpha.**

**cal docs attached .(email sent 8/20/11)**

**MDAs calculated and shown for each Scaler at the bottom of the survey.**

RECEIVED SEP 12 2011

Additional information request (8/31/2011)

1. In your response it is indicated on the chart with the list of nuclides purchased, that several sealed sources (denoted with an asterisk\*) Pu- 239; four sources - LGS# 393, 394, 395, 396 and Tc-99; two sources – LGS# 803 and 934, were transferred to “Manufacturing Sciences.” Please provide the License Number or a copy of the License for Manufacturing Sciences so that we can confirm that they are licensed to receive the sealed sources that were transferred.

**Sources were transferred 6/24/1996 – Tn license R-01078-L00. (Contact name was Bobby R. Adcock)**

2. Provide an address to mail all future correspondence regarding this license (i.e., license termination amendment). If you wish to have future correspondence mailed to the address on the license (2130 Gary Court, Decatur, Illinois), please confirm.

**We do wish for correspondence to continue to go through Linnea at 2130 Gary Ct. in Decatur, Il. (or via email).**



David W. Dempster

9/12/11

**Herr, Michael**

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**From:** Pelke, Patricia  
**Sent:** Monday, August 22, 2011 11:20 AM  
**To:** Herr, Michael  
**Subject:** Additional Correspondence from ICAL; FW: Seal Source Information  
**Attachments:** sealed\_source\_leak\_check\_001.jpg; sources\_page1.jpg; sources\_page\_2\_001.jpg  
**Importance:** High

Mike,  
Here is the second email from ICAL – please follow-up with them. Thanks - Patty

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**From:** Linnea Harris -Ical Inc. [<mailto:icalinc1@aol.com>]  
**Sent:** Saturday, August 20, 2011 11:33 PM  
**To:** Pelke, Patricia  
**Subject:** Seal Source Information

Please find attached the latest leak check information for sources in MCF-3 and a list of sources purchased by ICAL, Inc.

For big sources (J.L.Shepherd)  
Model 10 # 11042  
Model 28-5 # 10253  
Model 89 # 9115  
Model 89 # 9138  
Model 89 # 8245

Please send response to Linnea Harris or any additional questions. I hope this helps answer all questions to properly terminate our NRC License.  
thanks, David Dempster

ICAL, INC.  
RADIATION AND CONTAMINATION SURVEY

FORM 6-8  
REV. 1

NAME	K. Dempster / D. Dempster		TYPE	MCF UNIT #	DATE	12/27/2010
AREA	SOURCES	C	2	3	TIME	1330
LOCATION	2800 N. JASPER ST.		PURPOSE	SOURCE LEAK TEST AND INVENTORY		
TYPE	MS-3	SERIAL	1229		CAL.	02/15/2012
INST.		NUMBER			DUE	
USED	SAC-4	USED	1222		DATE	12/26/2011

ALPHA COUNTER EFF = 33.67 %      COUNTER 1/E = 2.97  
 ALPHA BKG. = 0.2 CPM  
 BETA COUNTER EFF = 18.87 %      COUNTER 1/E = 5.30  
 BETA BKG. = 27.0 CPM

SOURCE ID #	ISOTOPE	SMEAR #	GROSS CPM		DPM/SMEAR		uCi	
			ALPHA	B-G	ALPHA	B-G	ALPHA	B-G
MCF #3								
✓ 9048	Pu-239	1	1	24	2.376002376	0	0.00000	0.00000
✓ 9049	Pu-239	2	0	30	0	15.8982512	0.00000	0.00001
✓ 9050	Pu-239	3	0	23	0	0	0.00000	0.00000
✓ 9051	Pu-239	4	1	32	2.376002376	26.4970853	0.00000	0.00001
✓ 1062/89	Th-230	5	1	32	2.376002376	26.4970853	0.00000	0.00001
✓ S-1754	Am-241	6	1	32	2.376002376	26.4970853	0.00000	0.00001
✓ S-3390	Sr/Y-90	7	-	26	-	0	-	0.00000
✓ 2236/91	Sr/Y-90	8	-	27	-	0	-	0.00000
✓ S4556	Tc-99	9	-	27	-	0	-	0.00000
✓ M-148	Tc-99	10	-	23	-	0	-	0.00000
✓ M-149	Tc-99	11	-	29	-	10.5988341	-	0.00000
✓ M-150	Tc-99	12	-	23	-	0	-	0.00000
✓ DL234	Tc-99	13	-	30	-	15.8982512	-	0.00001
✓ 1065/89	Tc-99	14	-	24	-	0	-	0.00000
✓ 1066/89	Tc-99	15	-	19	-	0	-	0.00000
✓ LGS-413	Tc-99	16	-	26	-	0	-	0.00000
✓ 1623/89	Tc-99	17	-	22	-	0	-	0.00000
✓ 1624/89	Tc-99	18	-	28	-	5.29941706	-	0.00000
✓ 1625/89	Tc-99	19	-	29	-	10.5988341	-	0.00000
✓ 1626/89	Tc-99	20	-	21	-	0	-	0.00000
✓ V-137	Cs-137	21	-	29	-	10.5988341	-	0.00000

REMARKS:

SOURCE LEAKAGE MUST BE LESS THAN 0.005 uCi. (11,100 DPM).  
 IF SOURCE LEAKAGE IS 0.005 uCi. OR GREATER, TAKE SOURCE OUT OF SERVICE AND NOTIFY RSO

ICAL, INC.  
CALIBRATION DATA SHEET

FORM 47-1  
REV. 3

CUSTOMER NAME : ICAL, INC  
PLANT NAME : NONE  
ADDRESS : 2130 GARY COURT  
DECATUR, IL  
62526  
CONTACT PERSON : BOB HARRIS  
(217) 425 6244

INST. MANUFACTURER : EBERLINE INST CORP  
TYPE : X G-M CHAMBER  
SCINTILLATION  
MODEL NO. : X RM-20-1  
RM-20-5  
SERIAL NO. : 1374

AS FOUND AS LEFT

HIGH VOLTAGE : 893.8 893.8 VOLTS  
INPUT SENSITIVITY : 10.0 10.0 MILLIVOLTS

CALIBRATION DATA

MINIPULSER SERIAL NUMBER : 474  
CALIBRATION DUE DATE : 02/16/2011

SCALE	MINIPULSER INPUT		INSTRUMENT READING		PER CENT ERROR	
	CPM	(CPS)	AS FOUND	AS LEFT	AS FOUND	AS LEFT
X1	100	(1.67)	100	100	0.00	0.00
	400	(6.67)	400	400	0.00	0.00
X10	1000	(16.7)	1000	1000	0.00	0.00
	4000	(66.7)	4100	4100	2.50	2.50
X100	10000	(167)	10500	10500	5.00	5.00
	40000	(667)	42000	42000	5.00	5.00
X1K	100000	(1667)	100000	100000	0.00	0.00
	400000	(6667)	400000	400000	0.00	0.00

ALARM CHECK

SCALE	MINIPULSER INPUT		INSTRUMENT READING		PER CENT ERROR	
	CPM	(CPS)	AS FOUND	AS LEFT	AS FOUND	AS LEFT
X10	2000	33.35	2000	2000	0.00	0.00
X100	4000	66.7	4000	4000	0.00	0.00

COMMENTS/REMARKS:

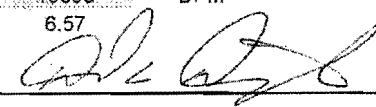
ALL CALIBRATION DONE WITH CALIBRATED TEST EQUIPMENT.  
CALIBRATION POINTS ACCEPTANCE CRITERIA +/-10% OF ACTUAL INPUT RATE.  
OUT OF TOLERANCE VALUES ARE CIRCLED AND CUSTOMER CONTACT NOTIFIED VERBALLY OF CONDITION.  
CALIBRATION PERFORMED PER ICAL PROCEDURE NUMBER 47.

Tc-99 EFFICIENCY : 3000 CPM / 19699 DPM  
% EFF = 15.23 1/E = 6.57

CALIBRATED BY :

DATE CALIBRATED :

CALIBRATION DUE DATE :

  
12/26/2010  
12/26/2011

ICAL, INC.  
CHI-SQUARE DETERMINATION RECORD

FORM 16-1  
REV. 0

DATE 12/26/2010 TIME 1700  
 INST. MODEL SAC-4 INST. SERIAL NO. 1222  
 CAL. DUE DATE 12/26/2011 INSTRUMENT LOCATION MCF2  MCF3  
 SOURCE NO. S-1754 ISOTOPE Am-241 ORIG. ACT. DATE 04/21/1978  
 t 1/2 (YEARS) 433 (Sr-90 = 28.2 YRS, Tc-99 = 212000 YRS, Th-230 = 80000 YRS)  
 ORIG. ACT. (DPM) 48800 DECAYED ACT. TO DATE (DPM) 46313  
 SOURCE COUNT TIME (MIN.) 2 BKG. COUNT TIME (MIN.) 20  
 BKG. TOTAL COUNTS 4 0.2 CPM

	COUNTS			COUNTS			
	X	(X - $\bar{X}$ )	(X - $\bar{X}$ ) <sup>2</sup>	X	(X - $\bar{X}$ )	(X - $\bar{X}$ ) <sup>2</sup>	
1	31074	-292	85439	11	31383	17	279
2	31372	6	32	12	31423	57	3215
3	31271	-95	9082	13	31625	259	66926
4	31184	-182	33233	14	31434	68	4583
5	31458	92	8409	15	31403	37	1347
6	31391	25	610	16	31162	-204	41738
7	31165	-201	40522	17	31758	390	151866
8	31455	89	7868	18	31390	24	562
9	31300	-66	4396	19	31520	154	23624
10	31162	-204	41738	20	31398	32	1005
TOTALS				627326	0	526474.2	

1. SAMPLE AVERAGE,  $\bar{X} = \frac{\text{SUM X}}{20} = 31366.30$

2. SAMPLE VARIATION =  $\frac{1}{19} \text{SUM } (X - \bar{X})^2 = 27709.17$

3. SAMPLE DEVIATION =  $\sqrt{\frac{1}{19} \text{SUM } (X - \bar{X})^2} = 166.46$

4. CHI-SQUARE =  $\frac{1}{X} \text{SUM } (X - \bar{X})^2 = 16.78$

\*\* CHI-SQUARE MUST BE LESS THAN OR EQUAL TO 30.14

PERFORMED BY:



LGS #	Purchase Date	Nuclide	uCi	Cal Date	MFG	Comments	MFG# S/N
✓ 389	08/21/84	Pu-239	<sup>0.0008847</sup> <del>0.001</del>	08/02/84	Eber	Alpha cal source *	9048 ✓
✓ 390	08/21/84	Pu-239	<sup>0.002739</sup> <del>0.009</del>	08/02/84	Eber	Alpha cal source *	9049 ✓
✓ 391	08/21/84	Pu-239	<sup>0.103604</sup> <del>0.102</del>	08/02/84	Eber	Alpha cal source *	9050 ✓
✓ 392	08/21/84	Pu-239	<sup>1.09009</sup> <del>1.07</del>	08/02/84	Eber	Alpha cal source *	9051 ✓
✓ 393 *	08/21/84	Pu-239	0.000254	08/02/84	Eber	Alpha cal source *	9044 -NLT
✓ 394 *	08/21/84	Pu-239	0.0030	08/02/84	Eber	Alpha cal source *	9045 -NLT
✓ 395 *	08/21/84	Pu-239	0.0329	08/02/84	Eber	Alpha cal source *	9046 -NLT
✓ 396 *	08/21/84	Pu-239	<sup>0.3162</sup> <del>0.311</del>	08/02/84	Eber	Alpha cal source *	9047 -NLT
✓ 413	08/21/84	Tc-99	0.005	08/21/84	Eber	Electroplated 1" disc *	C-1469
✓ 695	04/07/87	Tc-99	<sup>0.00235</sup> <del>0.003</del>	03/11/87	Eber	Sping cal source *	S-4550
✓ 699	04/07/87	Tc-99	0.262	03/11/87	Eber	Electroplated SS disc *	S-4556
✓ 776	01/14/89	Tc-99	0.382	06/15/89	Eber	ss disc *	1066/89
✓ 777	07/14/89	Tc-99	0.009	06/15/89	Eber	SS disc *	1065/89
✓ 779	07/14/89	Th-230	0.004	06/12/89	Eber	SS disc *	1062/89 ✓
✓ 800	01/17/90	Tc-99	0.013	12/14/89	Eber	Electroplated SS disc *	1625/89
✓ 801	01/17/90	Tc-99	0.0033	12/15/89	Eber	Electroplated SS disc *	1623/89
✓ 802	01/17/90	Tc-99	<sup>0.035</sup> <del>0.005</del>	12/21/89	Eber	Electroplated SS Plate *	1628/89
✓ 803 *	01/17/90	Tc-99	0.043	12/20/89	Eber	Electroplated SS Plate *	1627/89
✓ 804	01/17/90	Tc-99	0.0104	12/14/89	Eber	Electroplated SS Plate *	1626/89
✓ 805	01/17/90	Tc-99	0.006	12/15/89	Eber	Electroplated SS Plate *	1624/89
✓ 845	05/22/90	Tc-99	<sup>0.00229</sup> <del>5.4</del>	04/15/90	IPL	Mylar covered plate *	m-148

\* TRANSFER TO MANUFACTURING SCIENCES

✓ 846	04/22/90	Tc-99	0.0023	04/15/90	IPL	Mylar covered plate *	M-149
✓ 847	04/22/90	Tc-99	0.0023	04/15/90	IPL	Mylar covered plate *	M-150
✓ 890	11/15/92	Cs-137	<del>0.209</del> 0.00565	11/15/90	IPL	Mylar covered plate *	V-137
✓ 934 *	06/03/93	Tc-99	0.003	05/07/93	Amer	4 x 4 electroplated source *	DL 232
✓ 936	06/03/93	Tc-99	0.003	05/07/93	Amer	4 x 4 electroplated source *	DL 234

\* Suggested disposal method is to transfer source to vendor license.

\* TRANSFER TO MANUFACTURING SCIENCES