



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

111 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

DEC 23 1992

Docket: 40-7580
License: SMB-911

Fansteel, Inc.
ATTN: John J. Hunter, Manager
Process Engineering and
Facilities Construction
Number Ten Tantalum Place
Muskogee, Oklahoma 74401

Gentlemen:

SUBJECT: RESPONSE TO NRC INSPECTION REPORT NO. 40-7580/92-01
(NOTICE OF VIOLATION)

Thank you for your letter of December 3, 1992, in response to our letter and attached Notice of Violation both dated October 15, 1992. We have reviewed your reply and find it responsive to the concerns raised in our Notice of Violation. We will review the implementation of your corrective actions during a future inspection to determine whether full compliance has been achieved and will be maintained.

Sincerely,

William L. Fisher, Chief
Nuclear Materials Licensing Section

CC:
Oklahoma Radiation Control Program Director

9212300028 921223
PDR ADOCK 04007580
C PDR

IFD 7
11

bcc w/copy of licensee letter:

DMB - Original (IE-07)

JLMilhoan

LJCallan

JPJaudon

MRodriguez, OC/LFDCB (4503)

WLFisher

CLCain

WLHolley

NMIS

MIS System

RIV Files (2)

REHall, URFO

RIV:NMLS	C:NMLS			
WLHolley <i>[Signature]</i>	WLFisher <i>[Signature]</i>			
12/23/92	12/23/92			

290008

Fansteel, Inc.

-2-

bcc w/copy of licensee letter:

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REHall, URFO

RIV:NMLS	C:NMLS			
WLHolley <i>[Signature]</i>	WLFisher <i>[Signature]</i>			
12/23/92	12/23/92			

Fansteel
Metals

number ten tantalum place muskogee, oklahoma 74401

December 3, 1992

Mr. L. J. Callan, Director
Div. of Radiation & Safeguards
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-3064

RE: Docket #40-7580
License No. SMB-911

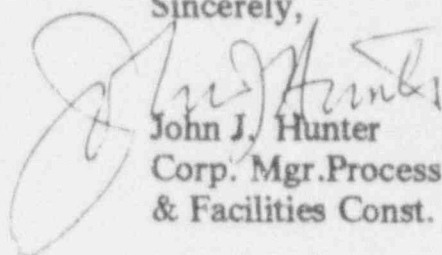
Dear Mr. Callan:

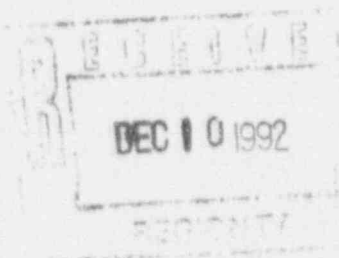
I am in receipt of your letter of November 23, 1992 wherein you request explanation of level IV & V violations set forth in an inspection by your Wesley L. Holley in September & October 1992.

Enclosed you will find each violation addressed and a final tabulation of measures taken to ensure compliance.

Should you have any questions, please feel free to contact me at any time.

Sincerely,


John J. Hunter
Corp. Mgr. Process Eng.
& Facilities Const.



9212210186

8pp

44-0400

NRC RESPONSES - WES HOLLEY , INSPECTOR

- A. Violation: The licensee failed to calibrate 3 survey instruments in the required 3-month intervals. Eberline ESP-1 (SN 1205) was calibrated on Dec. 20, 1991 and April 30, 1992. Ludlum 2000 (SN 83831) was calibrated on March 24, 1992 and Sept. 17, 1992. Ludlum 2221 (SN 89651) was calibrated on Dec. 10, 1991 and June 11, 1992.

1. Reason for violation:
Several of our portable survey meters are no longer used, but are kept out as extras if needed. They are calibrated only when full-scale surveying is in progress.
2. Corrective steps that have been taken & the results achieved:
The survey instruments that are not being used will be stored in an area separate from in-use instruments. This will keep calibration practices more accurate.
3. Corrective steps that will be taken to avoid further violations:
In addition to separate storage of extra instruments, a calibration chart will be reviewed by the PRSO and Alternate PRSO on a quarterly basis.
4. Date full compliance will be achieved:
Full compliance will be achieved by December 31, 1992.

CALIBRATION CERTIFICATIONS

1. Eberline ESP-1 (SN 1205)
Calibrated Dec 20, 1991
April 30, 1992
*Aug 14, 1992
Nov. 30, 1992 - sent for calibration
2. Ludlum 2000 (SN 83831)
Calibrated March 24, 1992
*June 11, 1992
Sept 17, 1992
Dec 17, 1992 - will be sent for calibration
3. Ludlum 2221 (SN 89651)
Calibrated Dec 10, 1991
March, 1992 - using a rental unit
June 11, 1992
*Sept 3, 1992
Dec 1, 1992 - sent for calibration

*Certificates of calibration supplied with this correspondence as Exhibit I.

Exhibit I

Eberline A subsidiary of
Thermo Instrument
Systems Inc.

CERTIFICATION OF CALIBRATION

Instrument ESP-1 /AC-3-7 Probe
Serial No. 1205 712526
PU-239 S/N 2014, 614, 1837, 1829
Type of Source _____
Calibration Constant 1.00 ± 0.02 Dead Time 1.51-0.5 Over Range N/A Cnt/min
Range Calibration Point Reading % Eff. *

Cnt/min	368,000 cpm 2 π	142,000	38.5%
	39,000 cpm 2 π	300	39%
	3690 cpm 2 π	1430	38.7%
	750 cpm 2 π	148	42%

* When the calibration constant is 1.00, the 2 π counting efficiency is: % Eff. = (100) (Reading/Calibration point cpm 2 π)

H.V. 50V 0 550 VDC

Calibration sources used have calibration traceable to the National Institute Of Standards And Technology.

Date AUG 14 1992 Signature R. C. [Signature]
P.O.# 92-5059

EXHIBIT L



CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.

POST OFFICE BOX 810

PH. 915-235-5484

501 OAK STREET

FAX NO. (915) 235-4872

SWEETWATER, TEXAS 79556, U. S. A.

CUSTOMER Fanstrel Metals ORDER NO. 158634
 Mfg. Ludlum Meas. Model 2000 Serial No. 83831
 Mfg. Ludlum Meas. Det. Model 43-68 Serial No. 88677789
 Cal. Date 6-11-92 Cal. Due Date 6-11-93 Cal. Interval 1yr METERFACE 202-013
 Check mark (✓) applies to applicable instr. and/or detector IAW mfg. spec. T 75 °F RH 65 % Alt 204.8 mm Hg
☐ F/S Resp. ck ☐ Reset ck. ☐ Audio ck. ☒ Meter Zeroed ☐ Window Operation ☐ Background subtract
☐ Alarm Setting ck. ☒ Mechanical ck. ☒ Bat. ck. (Min. Volt) 4.4 VDC Det. Oper. V See comments at 2 MV
 Instrument Volt Set See comments V Threshold Dial _____ Input Sens 2 mV. ☐ Input Sens Linearity
☐ New Instrument ☒ Repair Instrument Received: ☐ Within Toler. + -10% ☐ 10-20% ☐ Out Toler. ☐ Requiring Repair
☒ HV Readout (2 points) Ref./Inst. 493 / .5K V Ref./Inst. 2000 / 2.0K V

COMMENTS:

α operating voltage - 1200V
β " " " - 1650V

Gamma Calibration: GM detectors positioned perpendicular to source except for M. 44-9 in which the front of probe faces source.

RANGE MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT METER READING *	INSTRUMENT REC'D "AS FOUND READING"
X			
X			
X			
X			
X			
X			
X			
X			
X			
X			
X			

*Uncertainty within + -10%

C. F. within + -20%

Range(s) Calibrated Electronically

Digital Readout	Reference Cal. Point	Instrument Meter Reading	"As Found Reading"
400cpm	40	400400	400400
40	40	39970	39970
40	40	4000	4000
40	40	400	400
40	40	40	40

Log Scale / / / / /

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of MIL-STD-45663A and ANSI N133-1976

☐ Cs137 Gamma s/n 1162, G112, M585,5105, 5804 ☐ Neutron Am-241 Be s/n T-304 State of Texas Calibration License No. LO-1943

☐ Alpha s/n _____ ☐ Beta s/n _____ ☐ Other _____

☒ M-500 s/n 38116 ☐ Oscilloscope s/n _____ ☒ Multimeter s/n A35411D

Calibrated By: [Signature] Date 6-11-92

Reviewed By: [Signature] Date 6-15-92

Exhibit L



CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.

POST OFFICE BOX 810

PH. 915-235-5494

501 OAK STREET

FAX NO. (915) 235-4672

SWEETWATER, TEXAS 79556, U. S. A.

CUSTOMER

Fansteel Metal

ORDER NO. *159613*

M. *Ludlum*

Model *2221*

Serial No. *89651*

M. *Ludlum*

Det. Model *44-10*

Serial No. *PRO84991*

Cal. Date *9-3-92*

Cal. Due Date *9-3-93*

Cal. Interval *1yr*

METERFACE *202-598*

Check mark (✓) applies to applicable instr. and/or detector IAW mfg. spec. T. *71* °F RH *65* % Alt *705.8* mm Hg

☒ F/S Resp. ck ☒ Resat ck. ☒ Audio ck. ☒ Meter Zeroed ☒ Window Operation ☐ Background subtract

☐ Alarm Setting ck. ☒ Mechanical ck. ☒ Bat. ck. (Min. Volt) *4.4* VDC Det. Oper. V *1052* V at *10* MV

Instrument Volt Set *1052* V Threshold Dial *100* mV. Input Sens *10* mV. ☒ Input Sens Linearity

☐ New Instrument ☒ Repair Instrument Received: ☒ Within Toler. + -10% ☐ 10-20% ☐ Out Toler. ☐ Requiring Repair

☒ HV Readout (2 points) Ref./Inst. *500* / *500* V Ref./Inst. *1996* / *2000* V

COMMENTS:

44-10 Detector @ 400 pR/hr reads ~ .345 pR/hr.

" " @ 200 " reads ~ .175 "

" " @ 100 " " ~ .9 "

Model 2221 and 44-10 calibrated using 6'ft "C" cable.

Gamma Calibration: GM detectors positioned perpendicular to source except for M. 44-9 in which the front of probe faces source.

RANGE MULTIPLIER

REFERENCE CAL. POINT

INSTRUMENT METER READING *

INSTRUMENT REC'D "AS FOUND READING"

X *1K*
X *"*
X *100*
X *"*
X *10*
X *"*
X *1*
X *"*
X
X
X

400Kcpm
100K"
40K"
10K"
4K"
1K"
400cpm
100"

400
100
400
100
400
100
400
100

400
100
400
100
400
100
400
100

*Uncertainty within + -10%

C. F. within + -20%

ALL

Range(s) Calibrated Electronically

Digital Readout	Reference Cal. Point	Instrument Meter Reading	"As Found Reading"
<i>400Kcpm</i>	<i>400Kcpm</i>	<i>40002(0)</i>	<i>40002(0)</i>
<i>40Kcpm</i>	<i>40Kcpm</i>	<i>4000(0)</i>	<i>4000(0)</i>
<i>4Kcpm</i>	<i>4Kcpm</i>	<i>400(0)</i>	<i>400(0)</i>
<i>400cpm</i>	<i>400cpm</i>	<i>40(0)</i>	<i>40(0)</i>
<i>40cpm</i>	<i>40cpm</i>	<i>4(0)</i>	<i>4(0)</i>
Log Scale	Reference Cal. Point	Instrument Meter Reading	"As Found Reading"
<i>50Kcpm</i>	<i>50Kcpm</i>	<i>450K</i>	<i>450K</i>
<i>50Kcpm</i>	<i>50Kcpm</i>	<i>47.5K</i>	<i>47.5K</i>
<i>5Kcpm</i>	<i>5Kcpm</i>	<i>5K</i>	<i>5K</i>
<i>500cpm</i>	<i>500cpm</i>	<i>500</i>	<i>500</i>
<i>50cpm</i>	<i>50cpm</i>	<i>50</i>	<i>50</i>

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of the International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of MIL-STD-4562A and ANSI N33-1976

☒ Cs137 Gamma s/n 1162, 1112, M585, 5105, 5804 ☐ Neutron Am-241 Be s/n T-304

State of Texas Calibration License No. LD-1948

☐ Alpha s/n

☐ Beta s/n

☒ Other *Am-241-1.59pCi*

☒ M-500 s/n *1995C*

☐ Oscilloscope s/n

☒ Multimeter s/n *H61065*

Calibrated By: *Chris Craven*

Date *9-3-92*

Reviewed By: *John Dambrosio*

Date *9-3-92*

B. Violation: The licensee did not maintain exposure records containing the required information. Specifically, the licensee did not have exposure records for the last quarter of 1991 & the second quarter of 1992.

1. Reason for violation:

The vendor providing radiation exposure data was holding results due to a problem with billing.

2. Corrective steps that have been taken and the results achieved.

We no longer use this vendor. We now receive TLD results on a timely basis from a new vendor.

3. Corrective steps that will be taken to avoid further violation:

We will request a faxed copy of the test results upon completion of testing from the new vendor

4. Date full compliance will be achieved:

Full compliance was achieved November, 1992.

5. A copy of the exposure record is supplied with this correspondence as Exhibit II.

[illegible]

TYPE SERVICE - CODES		FREQUENCY - CODES		NOTE - CODES	
-	WHOLE BODY BADGE BOYS	5	WEEKLY	C	BADGE DAMAGED
-	WING BADGE	8	BI-MONTHLY	E	REPORTED BY TELEPHONE - B IN RE
-	WING BADGE	9	MONTHLY	F	BADGE NOT USED
-	WING BADGE	10	BI-MONTHLY	G	ABNORMAL READING
-	WING BADGE	11	QUARTERLY	X	CONTAMINATED
-	NEUTRON BADGE	12	BI-MONTHLY	Z	CALCULATED CONTROL
					*BETA FACILITIES NOT APPLICABLE TO NG-9 BAY

FANSTEEL PROJECTS
TRISHA BULLETT
#10 TANTALUM PLACE
MUSKOGEE

CK 74609

The dosimetry processor is accredited by NVLAP of the U.S. Department of Commerce as having the competence to perform specified tests in accordance with prescribed test methods and accreditation criteria.

CURRENT TLD OCCUPATIONAL RADIATION EXPOSURE REPORT

APPROVED FOR USE IN LIEU OF NRC FORM 5

CUSTOMER NO 7566

PAGE 1 OF 3

PAGES

DOSIMETRY SERVICES

DATE 05/03/92

NAME	SOCIAL SECURITY NO	BIRTH DATE	AGE (YRS)	TYPE SERVICE	DATE OF BADGE ISSUE	LOCATION	NEUTRON READING	TOTAL TLD NET COUNTS	DOSE FOR PERIOD (mrem)				ACCUMULATED DOSE (mrem) FOR CAL. DTR				PERMISSIBLE IN R DOSE (mrem)	
									TOTAL DOSE FOR PERIOD (mrem)		EXTREMITY	DOSE	WHOLE BODY		EXTREMITY	DOSE	CALCULATED	OCCUPATIONAL DOSE (mrem)
									WHOLE BODY	SKIN		DOSE	WHOLE BODY	SKIN		DOSE		
CONTROL (CALCULATED)				T	07/01/91	Z		104	0	0		0	0	0		0	1.25	5.0
CONTROL				T	06/04/92			104	0	0		0	0	0		0	0.000	190
HUNTER	J	207-26-8223	56	T	10/01/91			59	0	0		0	0	0		0	1.25	5.0
C VAUGHN	C	441-60-9241	35	T	06/04/92			39	0	0		0	0	0		0	0.000	85
ROGERS	D	02/03/57	35	T	10/01/91			0	0	0		0	0	0		0	1.25	5.0
DZINGELEWSKI	T	445-80-1377	25	T	10/01/91			0	0	0		0	0	0		0	0.000	35
		10/15/66	25	T	06/04/92			0	0	0		0	0	0		0	1.25	5.0
		291-30-7302	45	T	10/01/91			13	0	0		0	0	0		0	0.000	135
BULLETT	T	11/15/46	45	T	06/04/92			9	0	0		0	0	0		0	1.25	5.0
MIGIS	B	447-70-9063	28	T	10/01/91			6	0	0		0	0	0		0	1.25	5.0
GURGESS	J	02/05/64	28	T	06/04/92			6	0	0		0	0	0		0	0.000	50
KELLEY	AJ	51J-54-0148	43	T	10/01/91			0	0	0		0	0	0		0	1.25	5.0
PANTLE	T	11/07/48	43	T	06/04/92			0	0	0		0	0	0		0	0.000	125
DOTSON	B	443-62-1370	35	T	10/01/91			1	0	0		0	0	0		0	1.25	5.0
WOODS	G	10/17/56	35	T	06/04/92			1	0	0		0	0	0		0	0.000	85
STRETCH	K	560-46-0180	54	T	10/01/91			1	0	0		0	0	0		0	1.25	5.0
MURHISON	R	08/31/37	54	T	06/04/92			1	0	0		0	0	0		0	0.000	180
CARTER	W	446-20-9541	61	T	10/01/91			1	0	0		0	0	0		0	1.25	5.0
		12/30/30	61	T	06/04/92			1	0	0		0	0	0		0	0.000	215
		443-40-4207	52	T	10/01/91			1	0	0		0	0	0		0	1.25	5.0
		12/15/39	52	T	06/04/92			13	0	0		0	0	0		0	0.000	170
		480-38-8665	56	T	10/01/91			3	0	0		0	0	0		0	1.25	5.0
		10/08/32	59	T	06/04/92			0	0	0		0	0	0		0	0.000	205
		442-32-3856	56	T	10/01/91			0	0	0		0	0	0		0	1.25	5.0
		09/03/35	56	T	06/04/92			0	0	0		0	0	0		0	0.000	190
		447-36-5585	52	T	10/01/91			5	0	0		0	0	0		0	1.25	5.0
		05/15/40	52	T	06/04/92			5	0	0		0	0	0		0	0.012	170
		444-32-6450	59	T	10/01/91			0	0	0		0	0	0		0	1.25	5.0
		92/12/33	59	T	06/04/92			0	0	0		0	0	0		0	0.000	205

TYPE SERVICE CODES
 T - WHOLE BODY DOSE (mrem)
 W - WHOLE BODY DOSE (mrem)
 M - MONTHLY
 Q - QUARTERLY
 Y - YEARLY

FREQUENCY CODES
 W - WEEKLY
 M - MONTHLY
 Q - QUARTERLY
 Y - YEARLY

NOTE CODES
 C - BADGE DAMAGED
 E - REPORTED BY TELEPHONE OR VIBR
 F - BADGE NOT USED
 G - ABNORMAL READING
 X - CONTAMINATED
 Z - CALCULATED CONTROL
 *BETA INCLUDES NONPENETRATING RAYS

CUSTOMER
 ATTENTION
 ADDRESS
 CITY

FANSTEEL PROJECTS
 TRISHA BULLETT
 #10 TANTALUM PLACE
 MUSKOGEE

OK 74401