

CHARLES T. MORGAN CO., INC.

500 MAPLE STREET • HATHORNE (DANVERS) MASS. 01937

(617) 774-3215

(617) 865-1995

July 9, 1984

Ms. Jenny M. Johansen, M.S.
Nuclear Materials Section B - Div. of Eng'g & Tech. Prgms.
U.S. Nuclear Regulatory Commission - Region 1
631 Park Ave.
King of Prussia, PA 19406

Dear Ms. Johansen:

Ref: Docket No. 030-21011
Control No. 17149

With reference to your letter of April 19, regarding my application for renewal of license 20-13018-03, we can provide the following additional information:

1. Training - As you may know, the Texas Nuclear products fall into two groupings, "fixed" and "portable", and the training our customers receive varies accordingly.

The "fixed" group consists mainly of industrial level gauges, density gauges and weigh scales. These are permanently installed at one location for one use. Depending on the product type, these could be specific - or generally licensed.

The customer's training on these units lies in emphasis of a number of "do's and don'ts" which are included in his operations manual but which are also discussed separately at the time of installation or startup. First, the customer must appoint an individual who will be responsible for knowing the condition and location of the gauge (this is usually the radiation safety officer in the case of a specifically licensed gauge). Second, the source head location may not be changed except in the presence of a specifically-licensed individual (a few of our larger customers, such as chemical or pulp and paper plants, have their own licensed individual - the rest call on Texas Nuclear or ourselves as Texas Nuclear's representative). Third, the customer's shutdown or maintenance procedures must include instructions to have the source shutters closed and locked before working in the area of the source heads. During normal operation, there is no requirement for warning signs or restricted areas, since all Texas Nuclear source heads are well below the 5 mR limits at 1 foot from the source heads. Finally, the

8408300046 840820
NMS LIC30 PDR
20-13018-03

MEASUREMENT AND CONTROL INSTRUMENTS FOR:

TEMPERATURE • LEVEL • DENSITY • WEIGHT • PRESSURE • NONDESTRUCTIVE TESTING

ULTRASONIC TESTING SERVICE

17149 JUL 16 1984

"OFFICIAL RECORD COPY" ML10

Ms. Jenny M. Johansen, M.S.
Nuclear Material Section B
Div. of Engineering and Technical Programs
U. S. Nuclear Regulatory Commission - Region 1
631 Park Ave.
King of Prussia, PA 19406

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July 9, 1984

responsible individual for each source head should be aware of the leak-test intervals and make sure a file for same is maintained on-site for each source head.

Training for the "portable" analysis instruments is considerably different. The two most popular analyzers (Models 9266 & 9267) are generally licensed and are intended for use in various locations as required by the customer. Therefore, the responsible individual must be aware of both the leak-test requirements and the paperwork requirements for transporting the instrument by plane, etc. in the course of the customer's use of the analyzer.

It is normal practice to set up two or three training sessions (2 to 3 hours long) at a customer's plant as soon after delivery of a new analyzer as possible. The safety features covered during these training sessions include:

- the visual and audible signals given by the instrument whenever the source is about to be exposed to the sample during analysis.
- proper positioning of the probe and sample for both table-top and on-site use.
- the use of the lead probe-cover provided, in the event that the source remains in the exposed mode due to jammed parts or a severed control cable.
- the 800 "hot-line" number provided by Texas Nuclear in the event that the customer has questions or needs assistance.

I have attached literature on the three most common "fixed" gauges (level, density and weight), as well as that for the two portable analyzers for your information and records.

Ms. Jenny M. Johansen, M.S.
Nuclear Materials Section B
Division of Engineering and Technical Programs
U. S. Nuclear Regulatory Commission - Region 1
631 Park Ave.
King of Prussia, PA 19406

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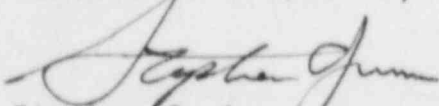
July 9, 1984

2. Typical Survey - Attached you will find a weigh scale survey provided to a customer during a routine startup and calibration.
3. Source Holder Model Nos. - A list of the various source heads in in current use by Texas Nuclear, along with a drawing for each, has been enclosed with this letter.
4. General License Installation - Since I am an independent representative (i.e. not an employee of Texas Nuclear), I do not have the authority to supervise the installation of general license gauges. My license will only cover gauges purchased under specific license and the use and transport of demonstration analysis equipment.
5. License Number - I agree that your recent letters dealing with our license have referred to Amendment -02 at the end of the license number. However, I have attached a copy of Amendment 03 to the license, which was dated September 8, 1981 and added an Americium source used in the 9266 Portable Analyzer. Somehow this Amendment was overlooked in correspondence since 1981.

If any further information is required, Ms. Johansen, I can be reached at the above address or by calling (617) 665-1995.

Yours truly,

CHARLES T. MORGAN CO, INC.


Stephen O. Lunn

SOL:lcb

Encl.

cc: Mr. Dave Robertson, Texas Nuclear Corp.
P.O. Box 9267, Austin, Texas 78766

MATERIALS LICENSE

Supplementary Sheet

License Number 20-13018-02

Docket or

Reference No. 030-02305

Amendment No. 03

Charles T. Morgan Company, Inc.
500 Maple Street
Hathorne, Massachusetts 01937

In accordance with letter dated July 21, 1981, License Number 20-13018-02 is amended as follows:

Subitems 6.J, 7.J, 8.J, and 9.J are added:

6. Byproduct, source, and/or special nuclear material

J. Americium 241

7. Chemical and/or physical form

J. Sealed source
(Texas Nuclear
Drawing No.
SNC-890803)

8. Maximum amount that licensee may possess at any one time under this license

J. 3.5 microcuries

9. Authorized use:

J. To be used in a Texas Nuclear Model 9266 alloy analyzer.

Date SEP 8 1981

For the U. S. Nuclear Regulatory Commission

Original Signed by
John E. Glenn, Ph.D.

by Material Licensing Branch

Division of Fuel Cycle
and Material Safety
Washington, D. C. 20555

BELT WEIGH SCALE RADIATION SURVEY OR LEAK TEST CERTIFICATE

NOTES:

- 1) THIS FORM MAY BE USED ON EITHER RADIATION SURVEY OR LEAK TEST. WHEN USED FOR LEAK TEST, FILL IN "AROUND SOURCE HEAD". WHEN USED FOR RADIATION SURVEY, SURVEY LETTERED POINTS AT ONE FOOT FROM SURFACE AND / OR AT SURFACE.
- 2) SOME GEIGER TUBE TYPE SURVEY METERS MAY NOT HAVE SUFFICIENT RANGE TO TAKE SURFACE READINGS ON SOME APPLICATIONS. IN SUCH CASES, USE ION CHAMBER TYPE SURVEY METER OR TAKE READINGS AT ONE FOOT.
- 3) ONCE COMPLETED, DATED AND SIGNED, THIS CERTIFICATE SHOULD BE MAINTAINED AS A PERMANENT RECORD.
- 4) CHECK OPERATION OF SHUTTER WHEN LEAK TEST IS PERFORMED.

USE Great Northern Paper Co.

GAUGE LOCATION E. Millinocket, ME.

SOURCE HEAD MOD. NO. 5363

TAG NO. 460-020

SOURCE HEAD SER. NO. G1802

ACTIVITY 200 NI X CS137, CO60

MEASURING INSTRUMENT Texas Nuclear

LEAK TEST TYPE SWAB

TEST DATE:

SHUTTER OPERATION - X OK

X NEGATIVE, POSITIVE, CI

[Signature] 7/23/81
SIGNATURE (ONLY AFTER RESULTS RECORDED) DATE

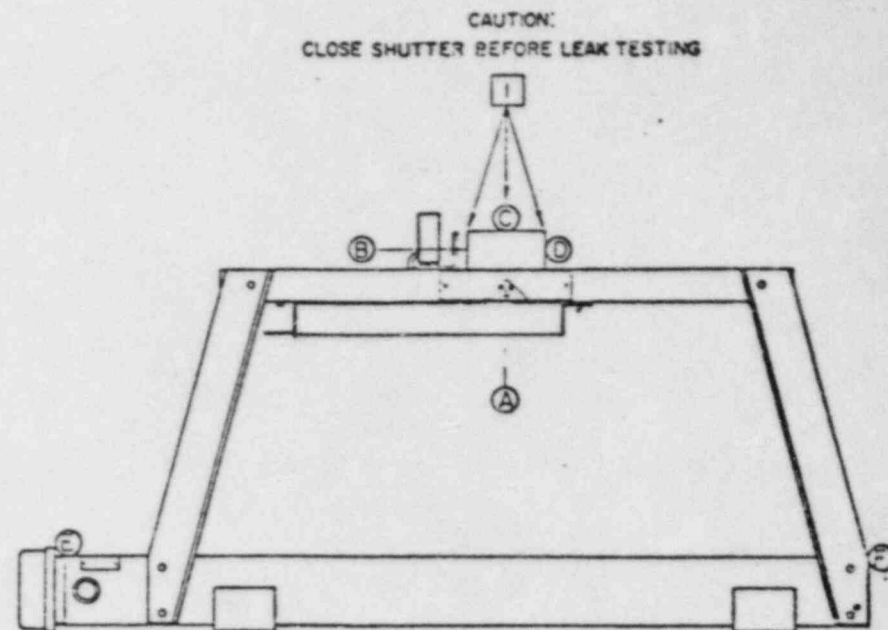
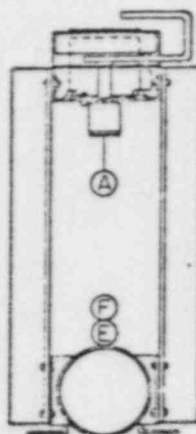
Texas Nuclear Division

9101 Research Blvd., P.O. Box 9267

CITY AND ADDRESS

WITH MAILABLE LEAK TEST KIT, MAIL TO:
TEXAS NUCLEAR
9101 RESEARCH BLVD., AUSTIN TEXAS 78766
PHONE (512) 836-2601; TELEX 77-6413

Austin, TX 78766

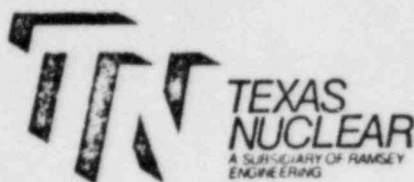


Ⓒ (BELOW RETURN BELT IF NORMALLY ACCESSIBLE TO PERSONNEL)

(NOT ACCESSIBLE)
15 FEET ABOVE
FLOOR

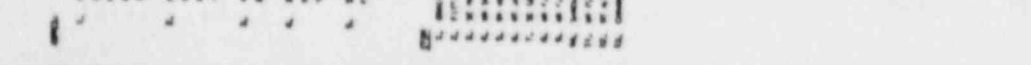
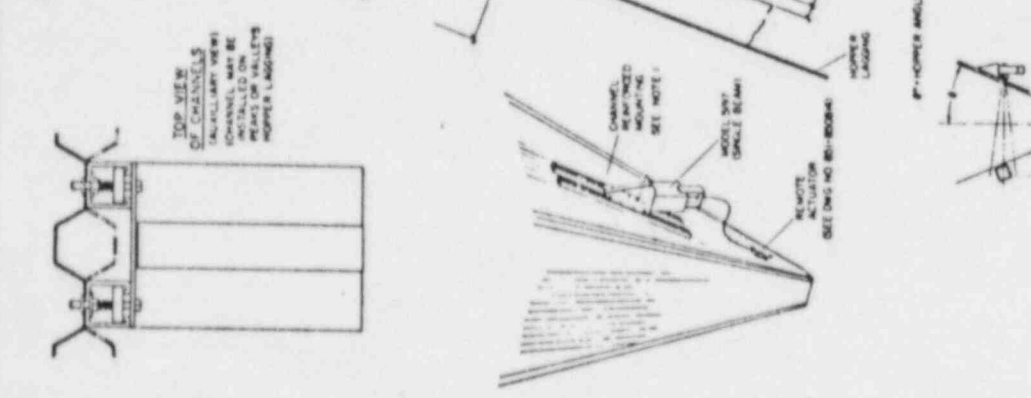
mR/h READINGS TAKEN: ☒ AT ONE FOOT; ☐ AT SURFACE

SHUTTER	A	B	C	D	E	F	G
OPEN	35	2.2	1.8	2.1	4.2	4.3	4.2
CLOSED	2.8	2.2	1.8	2.1	1.2	1.3	0.6



TN 50XX, 51XX SERIES SOURCE HEADS

Model No.	System	Cesium 137 Max. Source Size	WT (lbs)	Drawing No.
5034	WS	200 mCi		862384
5036	WS	200 mCi		862384
5038	WS	200 mCi		862384
5176	PN/SG	4 Curies	187	85727M
5178	CN	50 mCi	160	85725N
5180	CN	4 Curies	270	85724N
5190	SG	200 mCi	56	85613M
5191	SG	2 Curies	108	85614M
5192	PN	200 mCi	52	85728M
5193	PN	2 Curies	103	84729M
5195	CN	500 mCi		850473
5196	CN	500 mCi		850483
5197	PN	100 mCi		860824, 862244.
5199	PN	200 mCi		860984

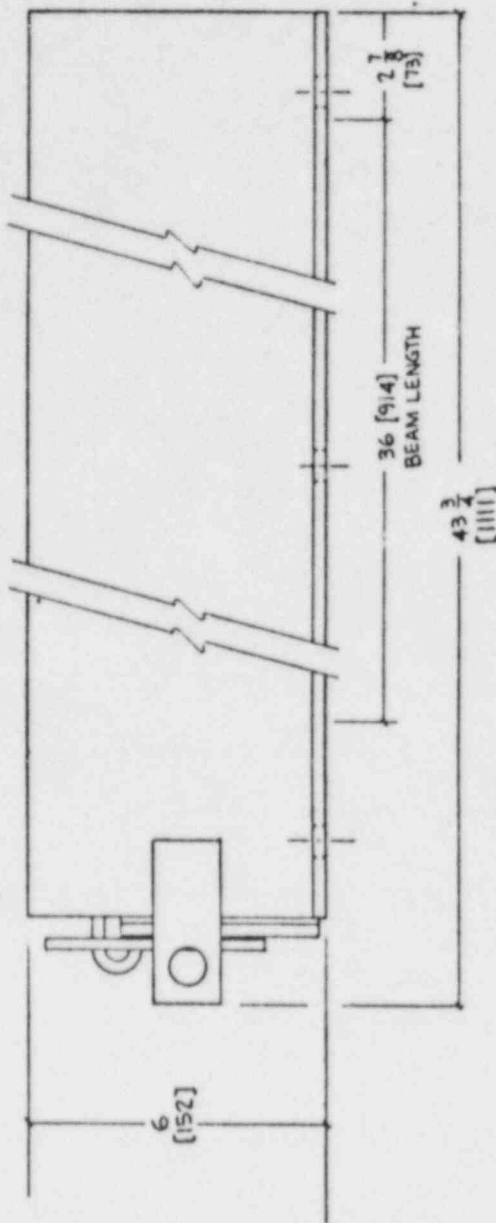
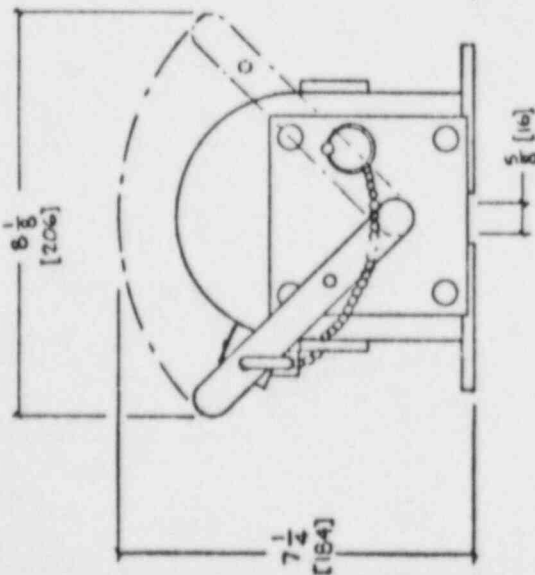
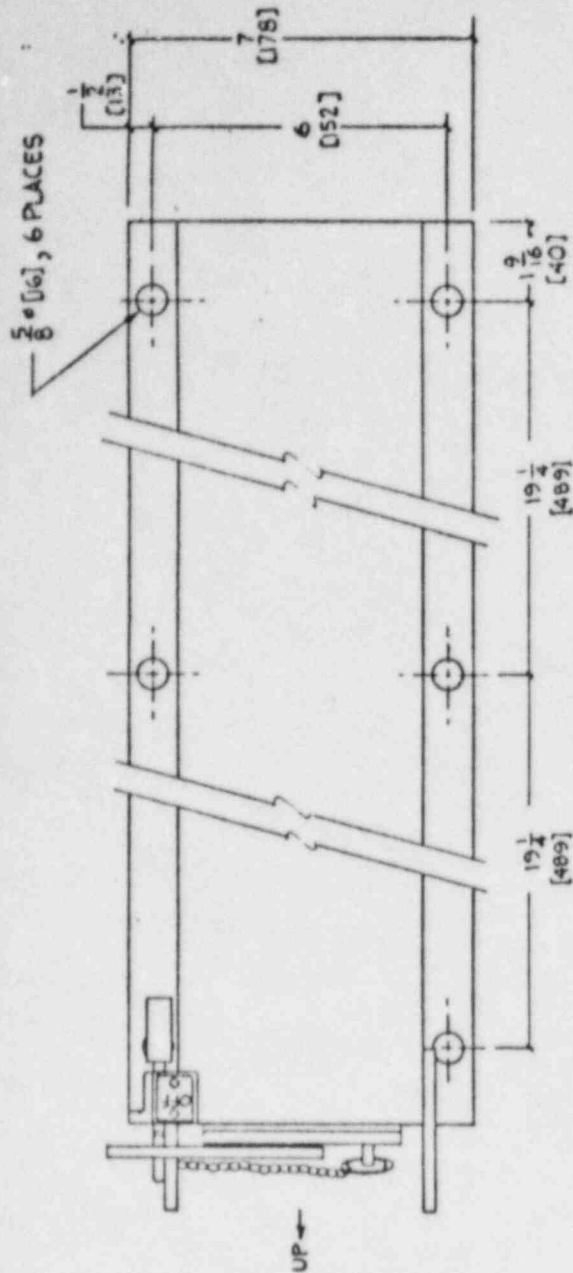


IN LINE	300-MC.	30-MC.	20-MC.
40° OFFSET	4+4'	4+4'	4+7'
	4+7'	4+5'	4+3.5'

WIND-UP SOURCE DETECTOR MEASUREMENTS
 1000' RANGE 1000' SOURCE AND 500'

1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000 13000 14000 15000 16000 17000 18000 19000 20000 21000 22000 23000 24000 25000 26000 27000 28000 29000 30000 31000 32000 33000 34000 35000 36000 37000 38000 39000 40000 41000 42000 43000 44000 45000 46000 47000 48000 49000 50000 51000 52000 53000 54000 55000 56000 57000 58000 59000 60000 61000 62000 63000 64000 65000 66000 67000 68000 69000 70000 71000 72000 73000 74000 75000 76000 77000 78000 79000 80000 81000 82000 83000 84000 85000 86000 87000 88000 89000 90000 91000 92000 93000 94000 95000 96000 97000 98000 99000 100000 101000 102000 103000 104000 105000 106000 107000 108000 109000 110000 111000 112000 113000 114000 115000 116000 117000 118000 119000 120000 121000 122000 123000 124000 125000 126000 127000 128000 129000 130000 131000 132000 133000 134000 135000 136000 137000 138000 139000 140000 141000 142000 143000 144000 145000 146000 147000 148000 149000 150000 151000 152000 153000 154000 155000 156000 157000 158000 159000 160000 161000 162000 163000 164000 165000 166000 167000 168000 169000 170000 171000 172000 173000 174000 175000 176000 177000 178000 179000 180000 181000 182000 183000 184000 185000 186000 187000 188000 189000 190000 191000 192000 193000 194000 195000 196000 197000 198000 199000 200000 201000 202000 203000 204000 205000 206000 207000 208000 209000 210000 211000 212000 213000 214000 215000 216000 217000 218000 219000 220000 221000 222000 223000 224000 225000 226000 227000 228000 229000 230000 231000 232000 233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000 249000 250000 251000 252000 253000 254000 255000 256000 257000 258000 259000 260000 261000 262000 263000 264000 265000 266000 267000 268000 269000 270000 271000 272000 273000 274000 275000 276000 277000 278000 279000 280000 281000 282000 283000 284000 285000 286000 287000 288000 289000 290000 291000 292000 293000 294000 295000 296000 297000 298000 299000 300000 301000 302000 303000 304000 305000 306000 307000 308000 309000 310000 311000 312000 313000 314000 315000 316000 317000 318000 319000 320000 321000 322000 323000 324000 325000 326000 327000 328000 329000 330000 331000 332000 333000 334000 335000 336000 337000 338000 339000 340000 341000 342000 343000 344000 345000 346000 347000 348000 349000 350000 351000 352000 353000 354000 355000 356000 357000 358000 359000 360000 361000 362000 363000 364000 365000 366000 367000 368000 369000 370000 371000 372000 373000 374000 375000 376000 377000 378000 379000 380000 381000 382000 383000 384000 385000 386000 387000 388000 389000 390000 391000 392000 393000 394000 395000 396000 397000 398000 399000 400000 401000 402000 403000 404000 405000 406000 407000 408000 409000 410000 411000 412000 413000 414000 415000 416000 417000 418000 419000 420000 421000 422000 423000 424000 425000 426000 427000 428000 429000 430000 431000 432000 433000 434000 435000 436000 437000 438000 439000 440000 441000 442000 443000 444000 445000 446000 447000 448000 449000 450000 451000 452000 453000 454000 455000 456000 457000 458000 459000 460000 461000 462000 463000 464000 465000 466000 467000 468000 469000 470000 471000 472000 473000 474000 475000 476000 477000 478000 479000 480000 481000 482000 483000 484000 485000 486000 487000 488000 489000 490000 491000 492000 493000 494000 495000 496000 497000 498000 499000 500000 501000 502000 503000 504000 505000 506000 507000 508000 509000 510000 511000 512000 513000 514000 515000 516000 517000 518000 519000 520000 521000 522000 523000 524000 525000 526000 527000 528000 529000 530000 531000 532000 533000 534000 535000 536000 537000 538000 539000 540000 541000 542000 543000 544000 545000 546000 547000 548000 549000 550000 551000 552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000 564000 565000 566000 567000 568000 569000 570000 571000 572000 573000 574000 575000 576000 577000 578000 579000 580000 581000 582000 583000 584000 585000 586000 587000 588000 589000 590000 591000 592000 593000 594000 595000 596000 597000 598000 599000 600000 6010

NOTE:
SOURCE HEAD MUST BE MOUNTED
WITH SHUTTER LEVER END UP.

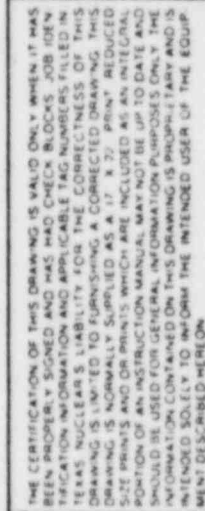


THE CERTIFICATION OF THIS DRAWING IS VALID ONLY WHEN IT HAS BEEN PROPERLY SIGNED AND HAS HAD CHECK BLOCKS. JOE DON TEXAS NUCLEAR'S LIABILITY FOR THE CORRECTNESS OF THIS DRAWING IS LIMITED TO FURNISHING A CORRECTED DRAWING THIS SIZE PRINTS AND OR PRINTS WHICH ARE INCLUDED AS AN INTEGRAL PART OF THE DRAWING. ANY CHANGES MADE TO THE DRAWING SHOULD BE USED FOR GENERAL INFORMATION ONLY. THE INFORMATION CONTAINED ON THIS DRAWING IS PROPRIETARY AND IS INTENDED SOLELY TO INFORM THE INTENDED USER OF THE EQUIPMENT DESCRIBED HEREON.

REV	DESCR	DATE	APPROV	REVISIONS
1	DEL	10/27/78		

CUSTOMER	DATE	NO	NO	NO
TEXAS NUCLEAR	10/27/78	10	10	10
CERTIFICATION STAMP				
SIGNED				
DATE				
TAG NOS				

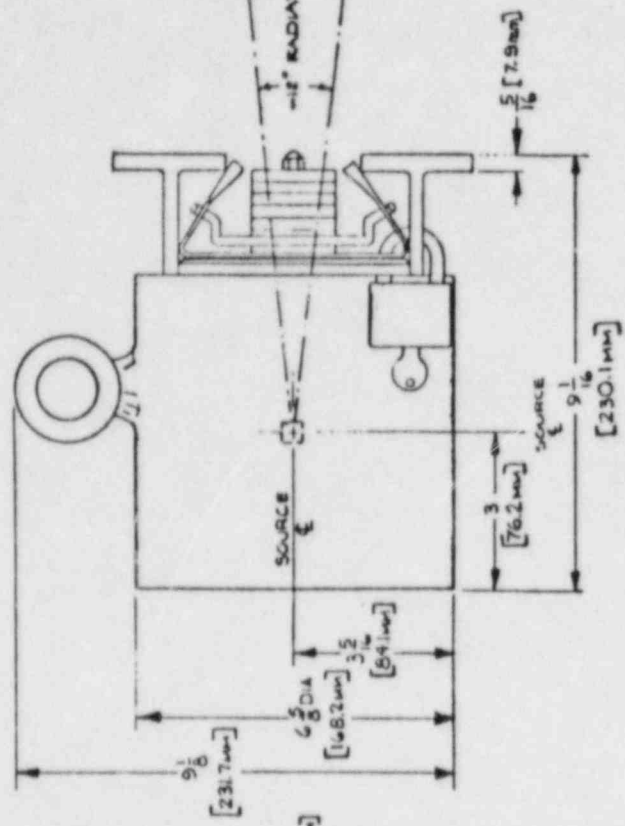
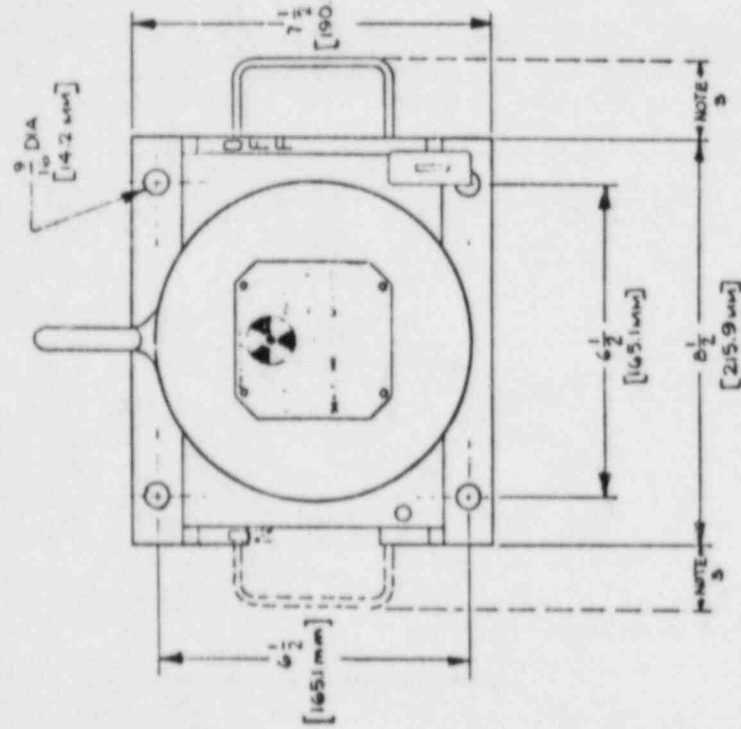
DRAWING	CHK	ENG	TEXAS NUCLEAR Division	APPN
28-92776			USER INFORMATION DRAWING	
DESCRIPTION				
UNIT WEIGHT (LBS)				
SYSTEMS (R1, R2)				
MODEL (S)				
5196				
ORDER CODE				
USE				
SIZE				
C				
851-850483				

$\frac{5}{8} \cdot [6], 6 \text{ PLACES}$ TMC 700-709.04 1/Nov. 75

4 3 2 1

NOTES:

1. SOURCE HEAD WEIGHT 103 LBS, 46.8 KILOGRAMS
2. SOURCE MAY BE MOUNTED SO SHUTTER MOVES VERTICALLY IF NECESSARY
3. CLEARANCES NECESSARY FOR SHUTTER MOVEMENT SHOULD BE MINIMUM OF 3 INCHES



CODE X12 X1 - EA

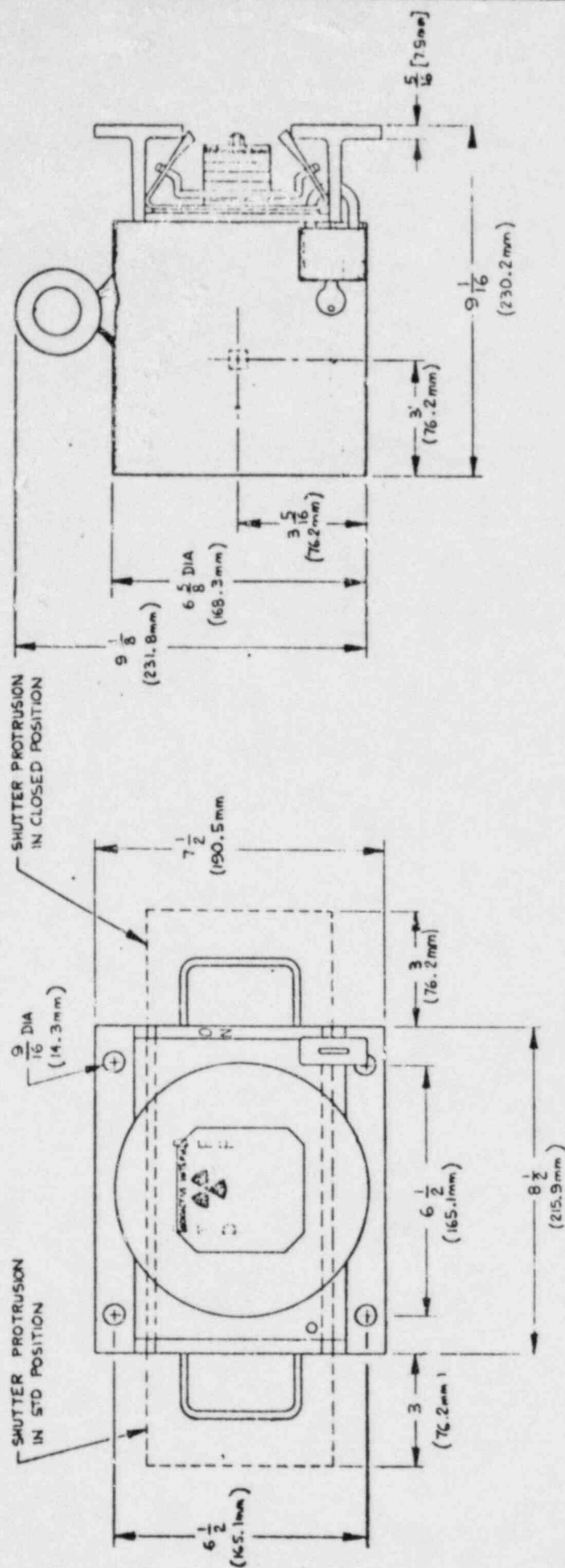
THE CERTIFICATION OF THIS DRAWING IS VALID ONLY WHEN IT HAS BEEN PROPERLY SIGNED AND DATED BY THE ENGINEER OR ARCHITECT. THE ENGINEER OR ARCHITECT IS NOT RESPONSIBLE FOR THE CORRECTNESS OF THIS DRAWING IF IT IS USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT WAS PREPARED. THE ENGINEER OR ARCHITECT IS NOT RESPONSIBLE FOR THE CORRECTNESS OF THIS DRAWING IF IT IS USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT WAS PREPARED. THE ENGINEER OR ARCHITECT IS NOT RESPONSIBLE FOR THE CORRECTNESS OF THIS DRAWING IF IT IS USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT WAS PREPARED.

CUSTOMER		TERRA Nuclear Division		AUSTIN, TEXAS	
P.O. NO.		5000		SOURCE HEAD, POINT LEVEL	
CERTIFICATION STAMP		UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES UNLESS NOTED OTHERWISE.		6" LEAD 12000-MCI MAX C5137	
TAG NOS.		MATERIAL		SCALE	
FINISH		USED ON		SCALE	
MODEL NO.		5195		SCALE	
DATE		1/1/50		SCALE	
DRAWN BY		C		SCALE	
CHECKED BY		L		SCALE	
APPROVED BY		D		SCALE	

DRAWING FORMAT C

NOTES:

1. SHUTTER MAY BE LOCKED IN THE OPEN, CLOSED AND STANDARD POSITIONS.
2. SOURCE HEAD WEIGHT 108 LBS (49 KILOGRAMS).



CODE K12 X13 - EA

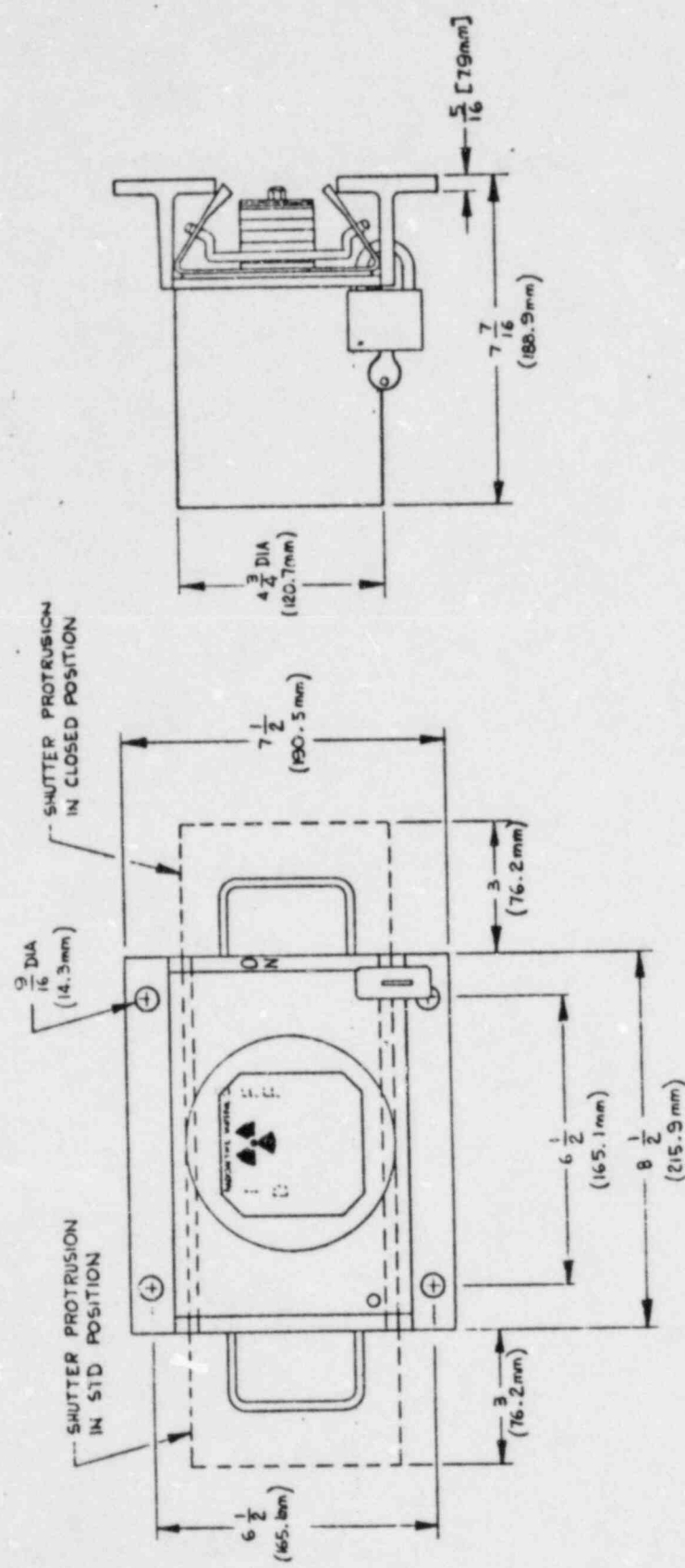
THE CERTIFICATION OF THIS DRAWING IS VALID ONLY WHEN IT HAS BEEN PROPERLY SIGNED AND HAS CHECK BLOCKS FOR IDENTIFICATION INFORMATION AND APPLICABLE TAG NUMBERS FILLED IN. TEXAS NUCLEAR'S LIABILITY FOR THE CORRECTNESS OF THIS DRAWING IS LIMITED TO FURNISHING A CORRECTED DRAWING. SIZE PRINTS ARE NOT SUPPLIED AS A 17 X 22 INCH PRINT. REDUCED SIZE PRINTS ARE NOT SUPPLIED. THIS DRAWING IS THE PROPERTY OF TEXAS NUCLEAR AND IS NOT TO BE REPRODUCED OR USED FOR GENERAL INFORMATION PURPOSES ONLY. THE INFORMATION CONTAINED ON THIS DRAWING IS PROPRIETARY AND IS INTENDED SOLELY TO INFORM THE INTENDED USER OF THE EQUIPMENT DESCRIBED HEREON.

CUSTOMER		DRAWN BY		CHECKED BY		DESIGNED BY		DATE		SCALE		SHEET NO.		SHEET TOTAL	
NO.		NO.		NO.		NO.		DATE		SCALE		SHEET NO.		SHEET TOTAL	
CERTIFICATION STAMP		SIGNED		DATE		TAG NOS.		MATERIAL		FINISH		USED ON		MODEL NO.	
Texas Nuclear Division		UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED		UNLESS OTHERWISE SPECIFIED	
SOURCE HEAD, DENSITY		6 IN LEAD		6 IN LEAD		6 IN LEAD		6 IN LEAD		6 IN LEAD		6 IN LEAD		6 IN LEAD	
K12 X13 - EA		K12 X13 - EA		K12 X13 - EA		K12 X13 - EA		K12 X13 - EA		K12 X13 - EA		K12 X13 - EA		K12 X13 - EA	
C		DX		850-85614M		850-85614M		850-85614M		850-85614M		850-85614M		850-85614M	

E	808	9911	458
D	836	760	300
C	814	110	100
B	802	110	100
A	800	110	100

NOTES:

1. SHUTTER MAY BE LOCKED IN THE OPEN, CLOSED, AND STANDARD POSITIONS.
2. MAXIMUM SOURCE LOADING 200 mCi Cs¹³⁷.
3. SOURCE HEAD WEIGHT 15.56 LBS 25.4 KILOGRAMS.



CODE X¹¹X¹³-CA

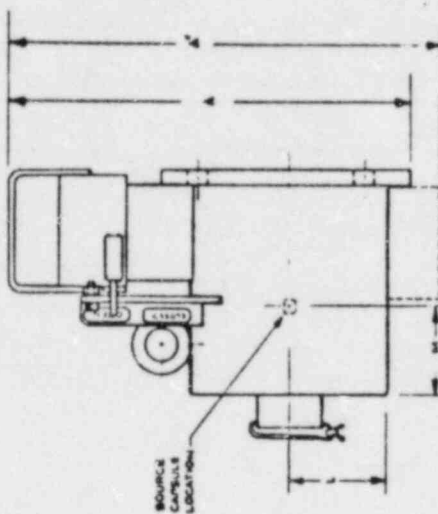
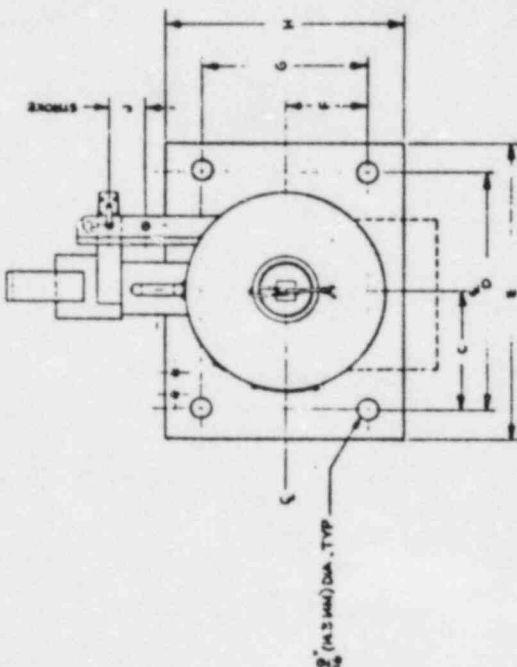
[illegible][illegible]

DRAWING BOARD

4. DOTTED LINES INDICATE ADDITIONAL SWITCHELINGS.
USED ON 579 & 580 HEADS.

2. SEE DRAWING NO. 83C-84-10 FOR DETAIL OF PNEUMATIC SHUTTER (CODE 8³C-84-10) 1.
1. SEE DRAWING NO. 83C-84-99 FOR DETAIL OF SHUTTER POSITION SWITCH (SHUT CODE 8³C-84-99).

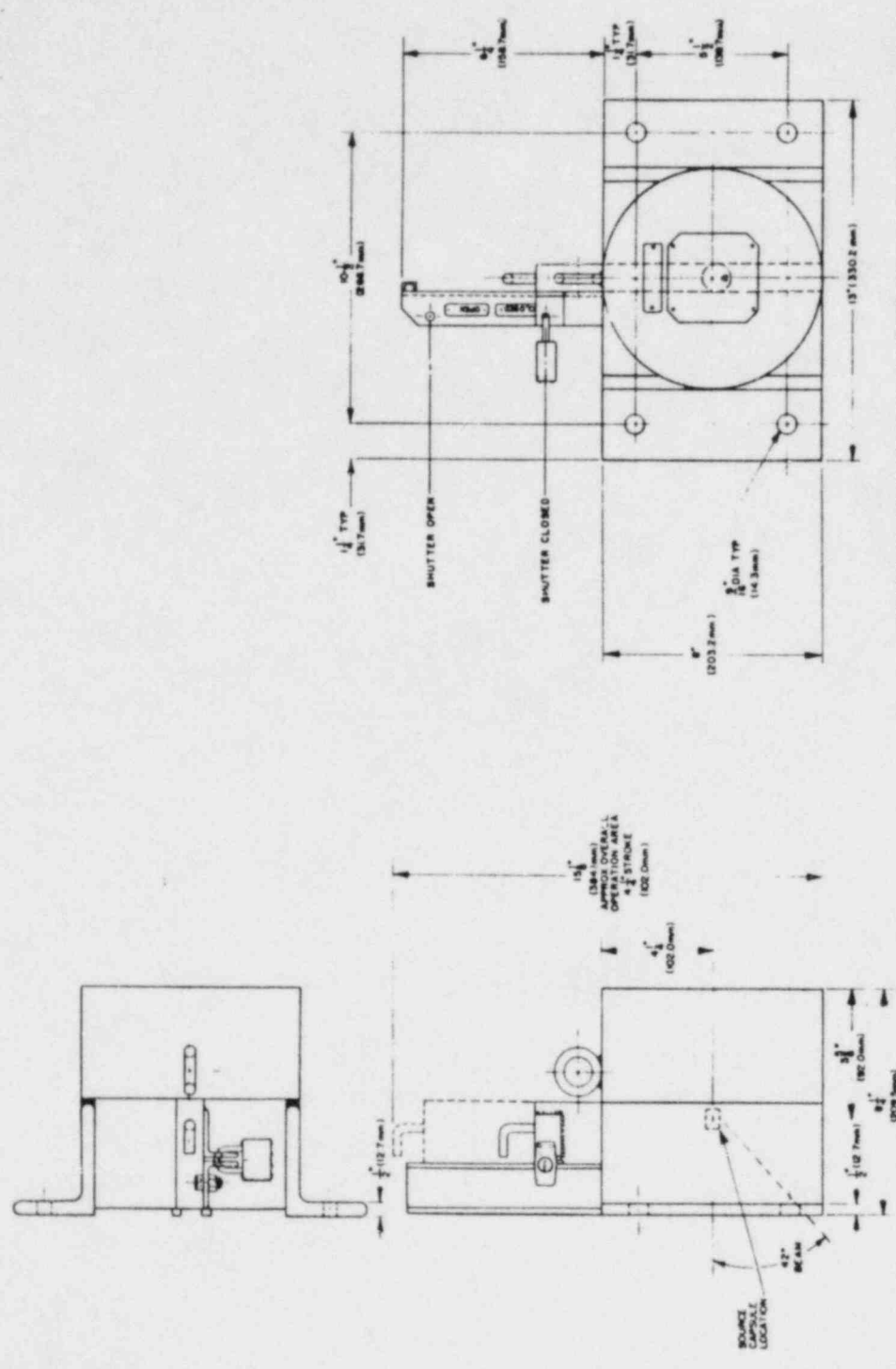
HEAT NO	722	9227	9228	9229	9230	9231	9232	9233	9234	9235	9236	9237	9238	9239	9240
5179	0	2032	2	923	0	1003	3	04.1	3	76.2	160.0	0.4	30°		
5180	9	2108	2	923	0	21.9	4	09.5	5	101.6	270.1	12.5	30°		
5181	0	2032	1	25.0	0	1003	3	04.1	3	76.2	160.0	0.4	WATER		
5183	9	2118	1	25.0	0	21.9	4	109.5	5	101.6	270.1	12.5	WATER		



© 2000 Blackwell Science Ltd

1 2 3 4 5 6 7 8

NOTE:
1. ALL WELDED CONSTRUCTION
2. WEIGHT - 40 LBS (17.845)



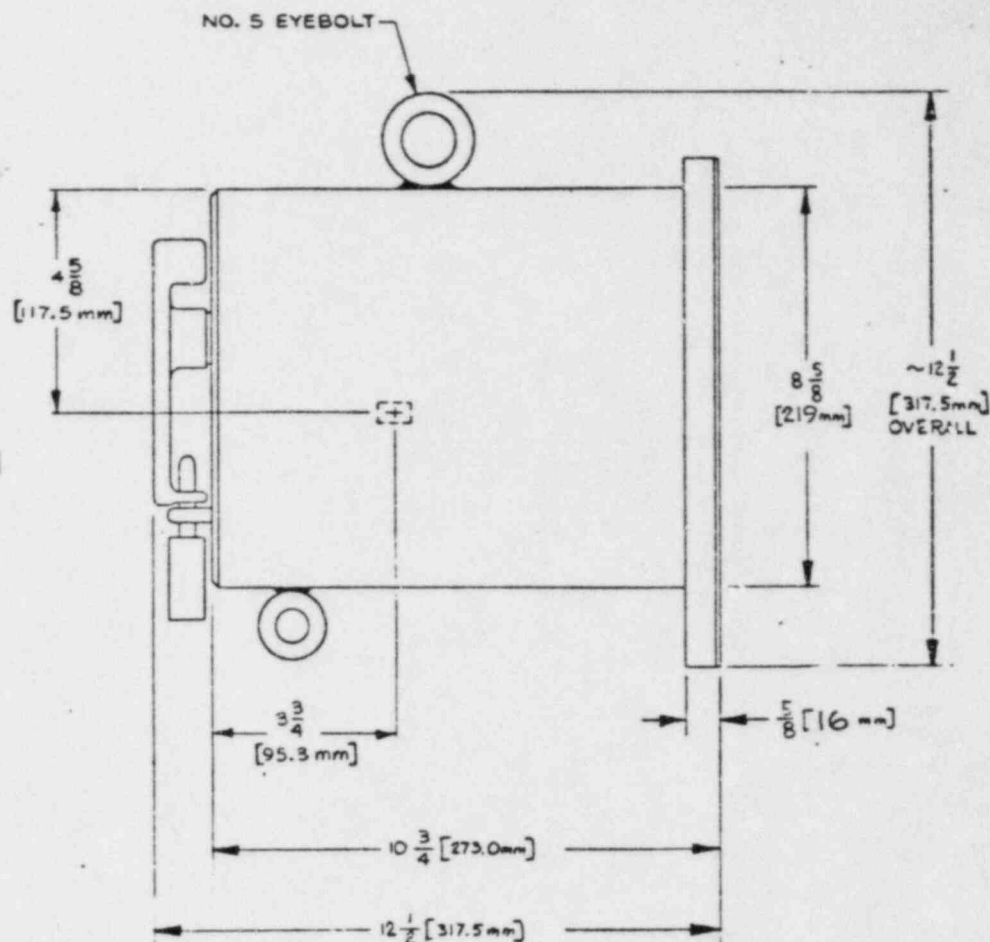
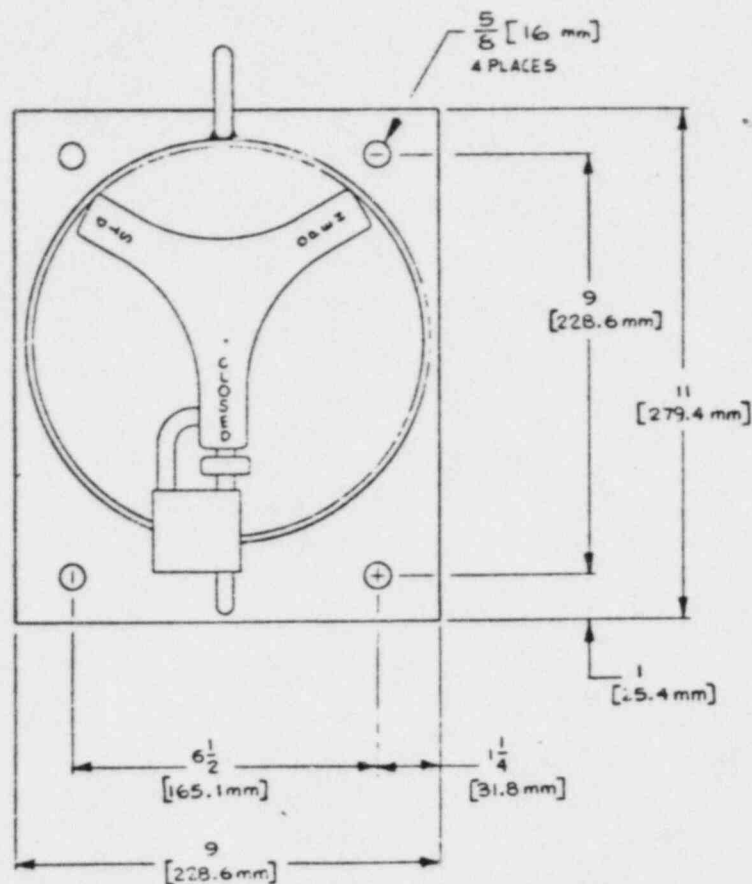
THE INFORMATION ON THIS DRAWING IS FOR INFORMATION ONLY AND IS NOT TO BE USED FOR CONSTRUCTION OR FOR ANY OTHER PURPOSE. THE INFORMATION ON THIS DRAWING IS FOR INFORMATION ONLY AND IS NOT TO BE USED FOR CONSTRUCTION OR FOR ANY OTHER PURPOSE. THE INFORMATION ON THIS DRAWING IS FOR INFORMATION ONLY AND IS NOT TO BE USED FOR CONSTRUCTION OR FOR ANY OTHER PURPOSE.

CODE: K ¹ -0	
TRUSS Machine Division	TRUSS Machine Division
SOURCE HEAD - LEVEL GAUGE	SOURCE HEAD - LEVEL GAUGE
8" STEEL (50 MC) 1000 G-137	8" STEEL (50 MC) 1000 G-137
SCALE: 1" = 1'-0"	SCALE: 1" = 1'-0"
DATE: 10/1/54	DATE: 10/1/54
BY: J. H. B. 1000	BY: J. H. B. 1000
CHECKED: J. H. B. 1000	CHECKED: J. H. B. 1000
APPROVED: J. H. B. 1000	APPROVED: J. H. B. 1000

NOTES:

1. SOURCE HEAD WEIGHT 187 LBS [84.9 KILOGRAMS].

DATE	APP'D	UNC	REV
10/15/73	REL		
11/16/73	REV	A	
12/1/73	REV	B	



CODE X-2 X-3-7M

THE CERTIFICATION OF THIS DRAWING IS VALID ONLY WHEN IT HAS BEEN PROPERLY SIGNED AND HAS HAD THE BLOCKS, JOB IDENTIFICATION INFORMATION AND APPLICABLE TAG NUMBERS FILLED IN. TEXAS NUCLEAR'S LIABILITY FOR THE CORRECTNESS OF THIS DRAWING IS LIMITED TO FURNISHING A CORRECTED DRAWING. THIS DRAWING IS NORMALLY SUPPLIED AS A 17" X 21" PRINT. REDUCED SIZE PRINTS AND OR PRINTS WHICH ARE INCLUDED AS AN INTEGRAL PORTION OF AN INSTRUCTION MANUAL MAY NOT BE UP TO DATE AND SHOULD BE USED FOR GENERAL INFORMATION PURPOSES ONLY. THE INFORMATION CONTAINED ON THIS DRAWING IS PROPRIETARY AND IS INTENDED SOLELY TO INFORM THE INTENDED USER OF THE EQUIPMENT DESCRIBED HEREON.

CUSTOMER		DRAWN BY: []		Texas Nuclear Division		AUSTIN, TEXAS	
P.O. NO.		S.O. NO.		TO: []		SOURCE HEAD, GAUGING	
CERTIFICATION STAMP		UNLESS OTHERWISE SPECIFIED		3 PLACE DECIMALS ± .001		8" LEAD, 4 Ci MAX ¹³⁷ Cs	
SIGNED		DATE		MATERIAL		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
TAG NOS.				FINISH		SCALE: []	
				USED ON		SIZE: []	
				MODEL NO.		USE CODE: []	
				SG, PN		850-85727M	
				SITE		REV: []	

DRAWING FORMAT C

1. SOURCE HEAD WEIGHT 187 LBS [84.9 KILOGRAMS].



THE CERTIFICATION OF THIS MANUAL IS NOT ONLY WHEN IT IS USED FOR PROPELLANT SCIENCE AND HAS A CHECK BLOCKS, IT IS ALSO USED FOR INFORMATION, AND APPLICABLE TAG NUMBERS FILLED IN TEXAS. THE USER'S LIABILITY FOR THE CIRCUMSTANCES OF THIS DRAWING IS LIMITED TO SUPPORT AS A GUIDE TO THE USER'S REQUIRED SCIENCE PRINTS AND TAG PRINTS. IT IS A REQUIRED AN INTEGRAL PORTION OF AN INSTRUCTION MANUAL MAY NOT BE USED, AND SHOULD BE USED FOR GENERAL INFORMATION PURPOSES ONLY. THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF THE U.S. GOVERNMENT AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM THE U.S. GOVERNMENT. THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF THE U.S. GOVERNMENT AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM THE U.S. GOVERNMENT.

CUSTOMER # 0 NO	5 0 NO	DATE	SIGNATURE	TO EXAMINER 1. DATE RECEIVED 2. DATE RECEIVED 3. DATE RECEIVED 4. DATE RECEIVED 5. DATE RECEIVED 6. DATE RECEIVED 7. DATE RECEIVED 8. DATE RECEIVED 9. DATE RECEIVED 10. DATE RECEIVED 11. DATE RECEIVED 12. DATE RECEIVED 13. DATE RECEIVED 14. DATE RECEIVED 15. DATE RECEIVED 16. DATE RECEIVED 17. DATE RECEIVED 18. DATE RECEIVED 19. DATE RECEIVED 20. DATE RECEIVED 21. DATE RECEIVED 22. DATE RECEIVED 23. DATE RECEIVED 24. DATE RECEIVED 25. DATE RECEIVED 26. DATE RECEIVED 27. DATE RECEIVED 28. DATE RECEIVED 29. DATE RECEIVED 30. DATE RECEIVED 31. DATE RECEIVED 32. DATE RECEIVED 33. DATE RECEIVED 34. DATE RECEIVED 35. DATE RECEIVED 36. DATE RECEIVED 37. DATE RECEIVED 38. DATE RECEIVED 39. DATE RECEIVED 40. DATE RECEIVED 41. DATE RECEIVED 42. DATE RECEIVED 43. DATE RECEIVED 44. DATE RECEIVED 45. DATE RECEIVED 46. DATE RECEIVED 47. DATE RECEIVED 48. DATE RECEIVED 49. DATE RECEIVED 50. DATE RECEIVED 51. DATE RECEIVED 52. DATE RECEIVED 53. DATE RECEIVED 54. 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BOX 1000 AUSTIN, TEXAS	SCALE: 1" = 1" DIA. 1/2" DIA. 1/4" DIA. 1/8" DIA. 1/16" DIA. 1/32" DIA. 1/64" DIA. 1/128" DIA. 1/256" DIA. 1/512" DIA. 1/1024" DIA. 1/2048" DIA. 1/4096" DIA. 1/8192" DIA. 1/16384" DIA. 1/32768" DIA. 1/65536" DIA. 1/131072" DIA. 1/262144" DIA. 1/524288" DIA. 1/1048576" DIA. 1/2097152" DIA. 1/4194304" DIA. 1/8388608" DIA. 1/16777216" DIA. 1/33554432" DIA. 1/67108864" DIA. 1/134217728" DIA. 1/268435456" DIA. 1/536870912" DIA. 1/1073741824" DIA. 1/2147483648" DIA. 1/4294967296" DIA. 1/8589934592" DIA. 1/17179869184" DIA. 1/34359738368" DIA. 1/68719476736" DIA. 1/137438953472" DIA. 1/274877906944" DIA. 1/549755813888" DIA. 1/1099511627776" DIA. 1/2199023255552" DIA. 1/4398046511104" DIA. 1/8796093022208" DIA. 1/17592186044416" DIA. 1/35184372088832" DIA. 1/70368744177664" DIA. 1/140737488355328" DIA. 1/281474976710656" DIA. 1/562949953421312" DIA. 1/1125899906842624" DIA. 1/2251799813685248" DIA. 1/4503599627370496" DIA. 1/9007199254740992" DIA. 1/18014398509481984" DIA. 1/36028797018963968" DIA. 1/72057594037927936" DIA. 1/144115188075855872" DIA. 1/288230376151711744" DIA. 1/576460752303423488" DIA. 1/1152921504606846976" DIA. 1/2305843009213693952" DIA. 1/4611686018427387904" DIA. 1/9223372036854775808" DIA. 1/18446744073709551616" DIA. 1/36893488147419103232" DIA. 1/73786976294838206464" DIA. 1/147573952589676412928" DIA. 1/295147905179352825856" DIA. 1/590295810358705651712" DIA. 1/1180591620717411303424" DIA. 1/2361183241434822606848" DIA. 1/4722366482869645213696" DIA. 1/9444732965739290427392" DIA. 1/18889465931478580854784" DIA. 1/37778931862957161709568" DIA. 1/75557863725914323419136" DIA. 1/151115727451828646838272" DIA. 1/302231454903657293676544" DIA. 1/604462909807314587353088" DIA. 1/1208925819614629174706176" DIA. 1/2417851639229258349412352" DIA. 1/4835703278458516698824704" DIA. 1/9671406556917033397649408" DIA. 1/19342813113834066795298816" DIA. 1/38685626227668133590597632" DIA. 1/77371252455336267181195264" DIA. 1/154742504910672534362390528" DIA. 1/309485009821345068724781056" DIA. 1/618970019642690137449562112" DIA. 1/1237940039285380274899124224" DIA. 1/2475880078570760549798248448" DIA. 1/4951760157141521099596496896" DIA. 1/9903520314283042199192993792" DIA. 1/19807040628566084398385987584" DIA. 1/39614081257132168796771975168" DIA. 1/79228162514264337593543950336" DIA. 1/158456325028528675187087900672" DIA. 1/316912650057057350374175801344" DIA. 1/633825300114114700748351602688" DIA. 1/1267650600228229401496703205376" DIA. 1/2535301200456458802993406410752" DIA. 1/5070602400912917605986812821504" DIA. 1/10141204801825835211973625643008" DIA. 1/20282409603651670423947251286016" DIA. 1/40564819207303340847894502572032" DIA. 1/81129638414606681695789005144064" DIA. 1/162259276829213363391578010288128" DIA. 1/324518553658426726783156020576256" DIA. 1/649037107316853453566312041152512" DIA. 1/1298074214633706907132624082305024" DIA. 1/2596148429267413814265248164610048" DIA. 1/5192296858534827628530496329220096" DIA. 1/10384593717069655257060992658440192" DIA. 1/20769187434139310514121985316880384" DIA. 1/41538374868278621028243970633760768" DIA. 1/83076749736557242056487941267521536" DIA. 1/166153499473114484112975882535043072" DIA. 1/332306998946228968225951765070086144" DIA. 1/664613997892457936451903530140172288" DIA. 1/1329227995784915872903807060280344576" DIA. 1/2658455991569831745807614120560689152" DIA. 1/5316911983139663491615228241121378304" DIA. 1/10633823966279326983230456482242756608" DIA. 1/21267647932558653966460912964485513216" DIA. 1/42535295865117307932921825928971026432" DIA. 1/8507059173023461
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DRAWING FORMAT C