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MARTIN COMPANY

Baltimore, Maryland 21203

December 1, 1965

Reply Refer to: ACC-445
Internal Mail #845

U. S. Atomic Energy Commission
Division of Material Licensing
Washington, D. C. 20545

Attention: Mr. K. E. Lauterbach

Subject: Proposed Amendment to Martin-Marietta Special Nuclear Material License No. 53

Gentlemen:

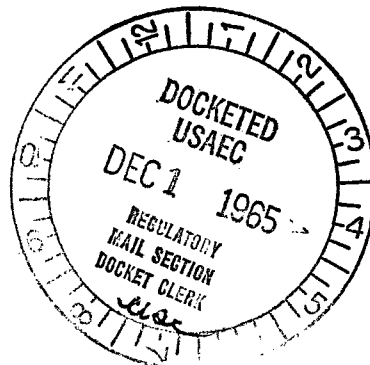
Attached is proposed Section VI Part B of SNM-53 for the purpose of obtaining license coverage for the shipment of MH-1A fuel elements between the Martin facilities at Middle River, Maryland and Fort Belvoir, Virginia.

We desire to obtain approval by December 30, 1965 and appreciate your effort in this matter.

Very truly yours,
MARTIN-MARIETTA CORPORATION
MARTIN COMPANY, Baltimore Div.

C. W. Keller
C. W. Keller, Nuclear
Accountability & Licensing
Representative

/plm



DEC 1 PM 2
RECEIVED
A/205

ACKNOWLEDGMENT

A DIVISION OF
MARTIN
MARIETTA

2 by Provided Compliance
14 CB, 14 PDR X.E.L. 12/7/65

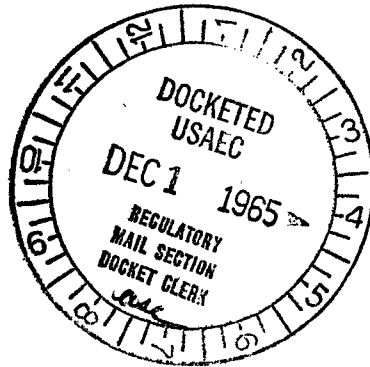
DOCKET NO. 70-58

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SECTION VI

PART B

STATEMENT OF MH-1A Fuel Assemblies



GENERAL DESCRIPTION

The Martin-Marietta Corporation hereby requests that Special Nuclear Material License No. 53 be amended to authorize shipment of the low enriched MH-1A fuel elements between the Martin facilities at Middle River, Maryland and Fort Belvoir, Virginia.

Approximately one year ago informal discussions concerning the proposed MH-1A shipping container was held in connection with AEC representatives in Bethesda, Maryland. Minor revisions were made in the hold down and closure fixtures as a result of the meeting. Fabrication and storage of the fuel elements has been completed as authorized under SNM-1a and shipment to Fort Belvoir for ultimate installation in the nuclear floating barge (MH-1A) is now scheduled for January 1966.

Shipment will be made by exclusive use of the specially equipped Tri State Motor Freight (Joplin, Missouri) van. Figure 4 details the van loading and the tie downs which will be used for these shipments. Our nuclear safety evaluation for the shipments is considered conservative since we have not taken the poison finger rods which are incorporated in most of the assemblies into consideration.

This application has been prepared for insertion into the SNM-5 license renewal. We intend, however to request cancellation of the license authorization when the shipments have been completed and we foresee no further application in our operations.

UNITED STATES DEPARTMENT OF THE INTERIOR

Various other matters have been performed for the U. S. ...

Table with 2 columns: Item Name and Quantity/Value. Includes items like 'Sawed Lumber', 'Nails', 'Shingles', etc.

Additional text at the bottom of the page, possibly a signature or date.

Account	Amount	Balance
Balance	1000	1000
Expenses	100	900
Income	100	1000
...
...
...

Total running balance 1000
 From 1000 has been taken 100

$$\bar{E}_1 = \frac{\gamma E_2}{\ln\left(\frac{E_1}{E_2}\right)} = \frac{1.58}{\ln\left(\frac{E_1}{E_2}\right)}$$

$$\bar{E}_2 = \frac{H_0(a + b \frac{S}{2H_0})}{\ln\left(\frac{E_1}{E_2}\right)} = \frac{.0220(11.0 + 2.45 \times .397)}{\ln\left(\frac{E_1}{E_2}\right)}$$

$$\bar{E}_3 = \frac{.45\%}{\ln\left(\frac{E_1}{E_2}\right)}$$

$$\frac{v}{c} = 1.360$$

$$\frac{1}{\bar{E}} = 1 + (1.360)(3.026)(1.000) + (1.042 - 1)$$

$$\bar{E} = 0.91$$

$$p = e^{-\left(\frac{0.121}{1 - 0.121}\right)} = 0.79$$

$$G = 1 + \frac{0.121}{1 - 0.121} = 1.136$$

$$G = 1.136$$

$$H_0 = \gamma a p f = (6.0)(1.04)(0.79)(0.83)$$

$$H_0 = 4.32$$

$\frac{1}{2} \times 10^{-10} \text{ m}$ $\frac{1}{2} \times 10^{-10} \text{ m}$
 $\frac{1}{2} \times 10^{-10} \text{ m}$ $\frac{1}{2} \times 10^{-10} \text{ m}$

$\frac{1}{2} \times 10^{-10} \text{ m}$

100

$$D^2 = \left(\frac{2.400}{2.0000} \right)^2 + \left(\frac{2.000}{2.0000} \right)^2 = 1.0000$$

$$D^2 = \frac{1}{2} (100) = 50 \text{ (10000)} = 10000$$

$$D^2 = 10000 \text{ cm}^2$$

$$D^2 = 20000 \text{ cm}^2$$

$$D^2 = 20000 \text{ cm}^2$$

$$k_{app} = \frac{k_{cat}}{(1 + K_1 P^2)} = \frac{10000}{(1 + 10000)}$$

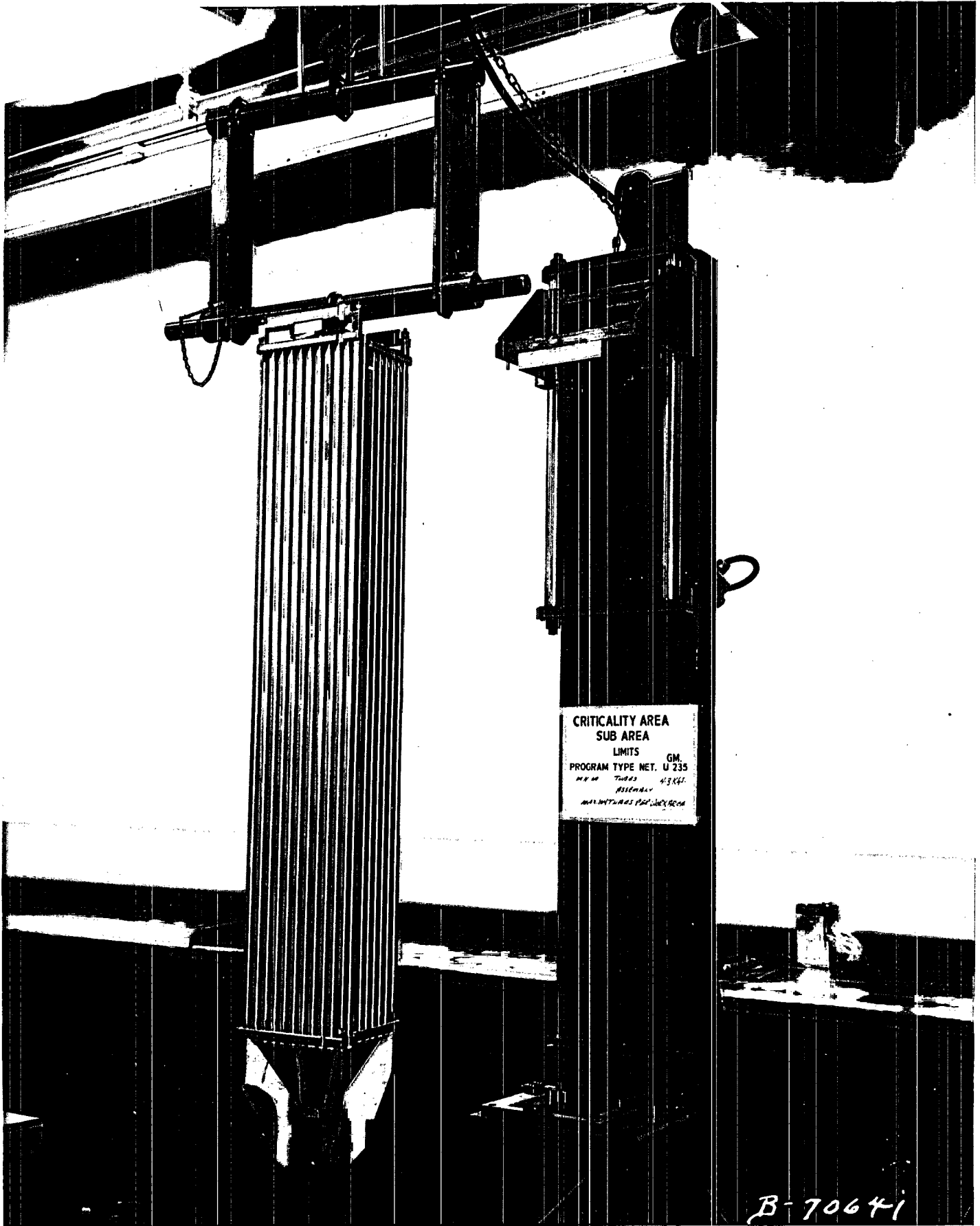
$$k_{app} = \frac{10000}{10001} = 0.9999$$

$$k_{app} = 0.9999$$

The value of k_{app} is 0.9999. This value is very close to 1.0. This indicates that the reaction is first order with respect to the substrate. The value of k_{app} is independent of the substrate concentration. This is because the substrate concentration is very low compared to the dissociation constant K_1 . In this case, the reaction is not saturated and the rate is directly proportional to the substrate concentration.

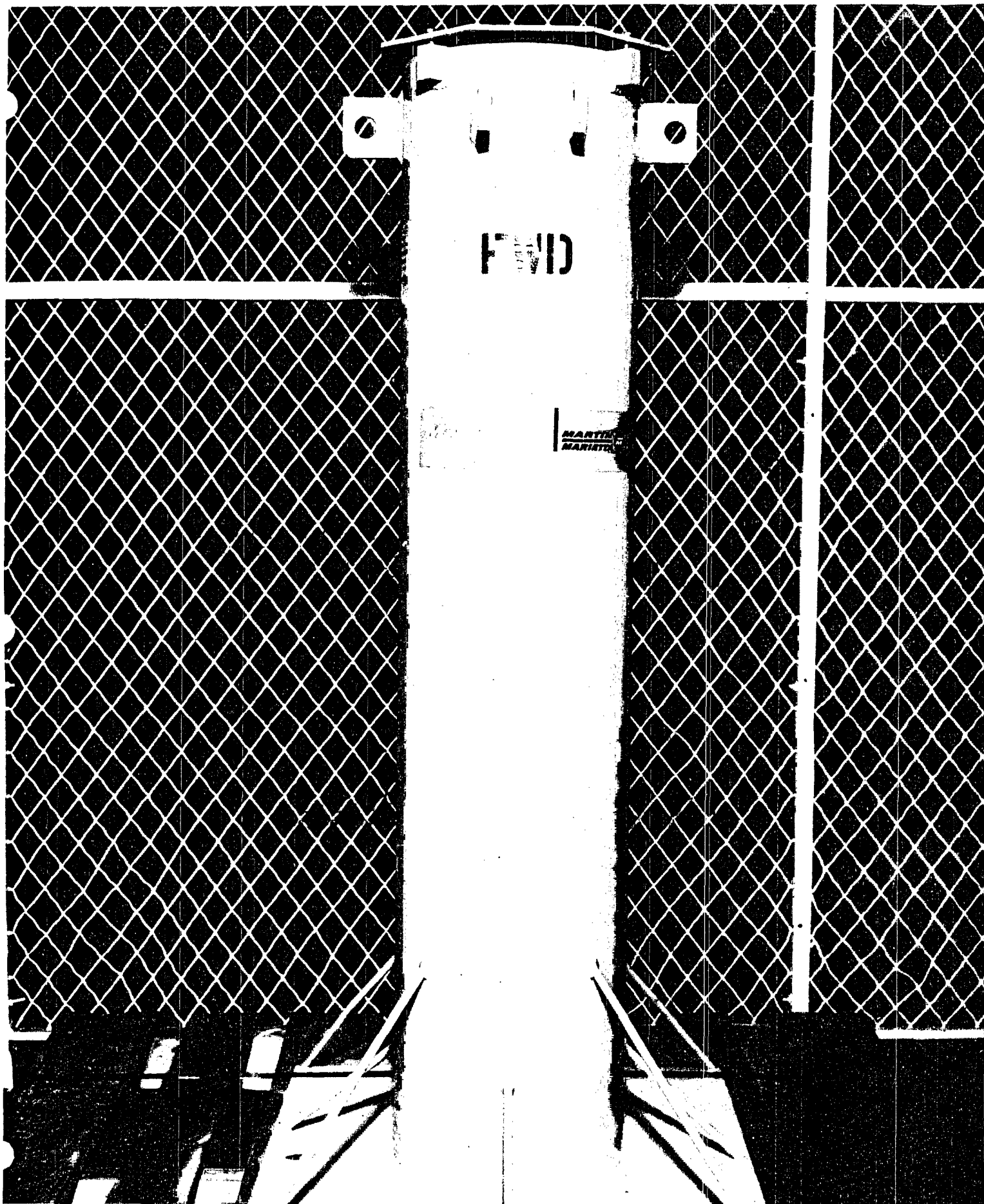
1. The following information was obtained from the file of the
Bureau of the State of California, Department of Public Safety, dated 1/24/54.

1. Classified as a "C" type of offender.
2. FBI-1953. No other information available concerning this case.
3. No other information available concerning this case.
4. FBI-1954. No other information available concerning this case.
5. No other information available concerning this case.



CRITICALITY AREA
SUB AREA
 LIMITS GM.
 PROGRAM TYPE NET. U 235
 MAX Wt TUBES 43844
 ASSEMBLY
 MAXIMUMS FOR JURY ROOM

B-70641



FIND

MARTIN
MARITTA

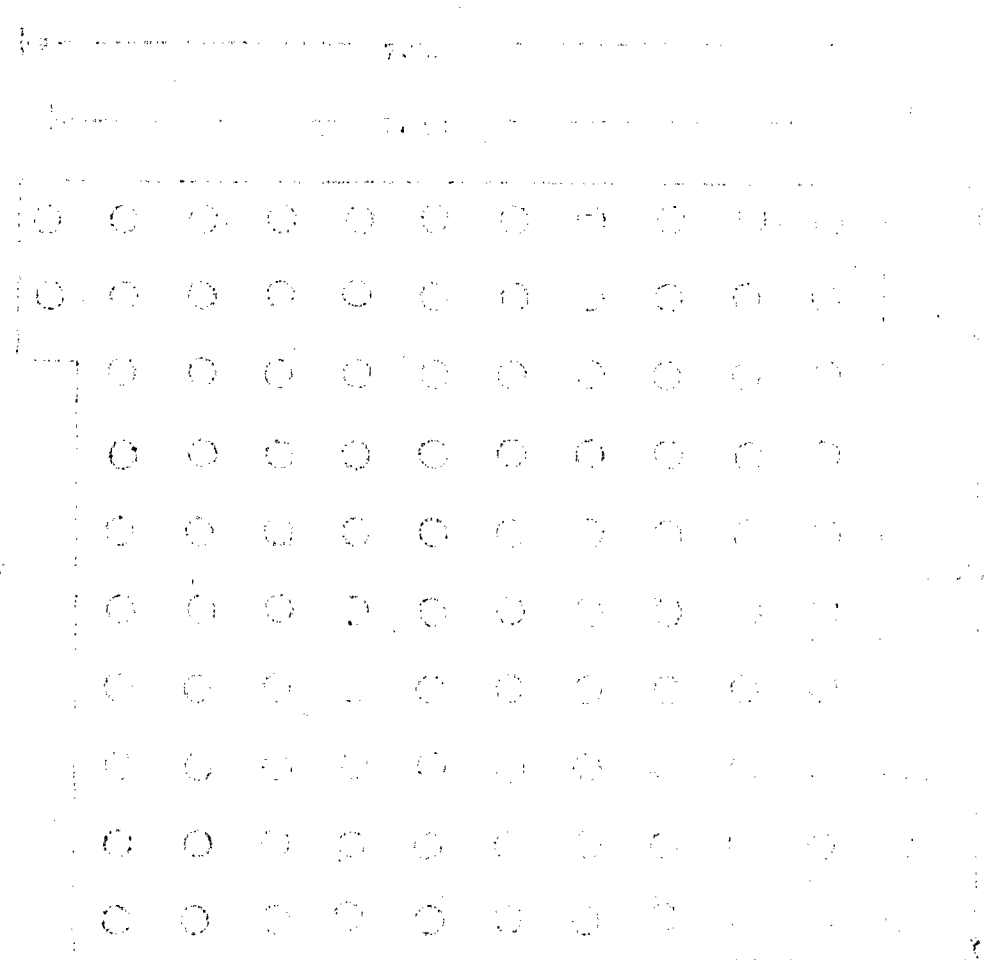
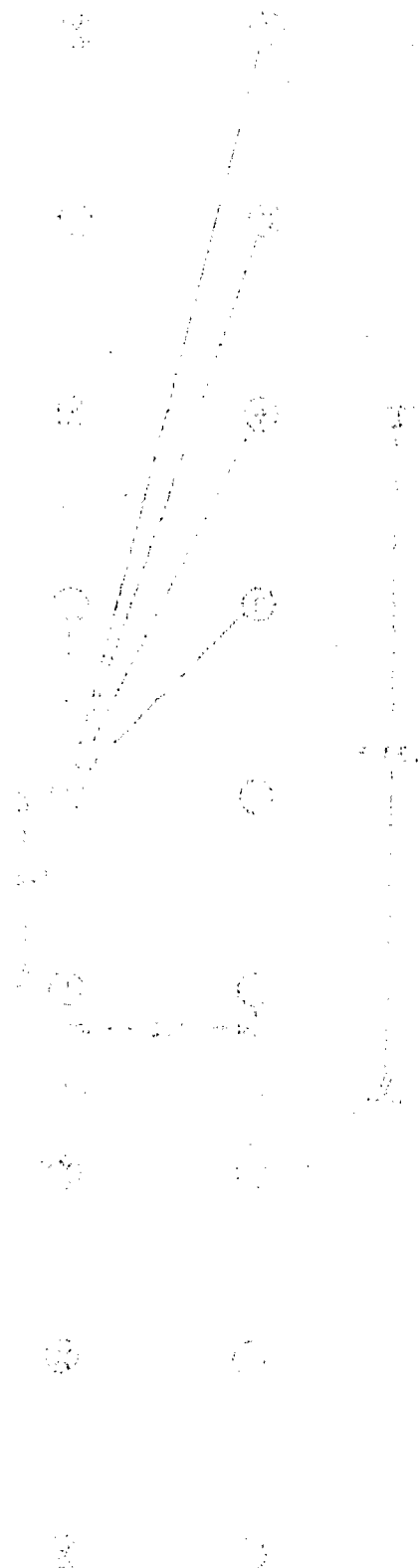
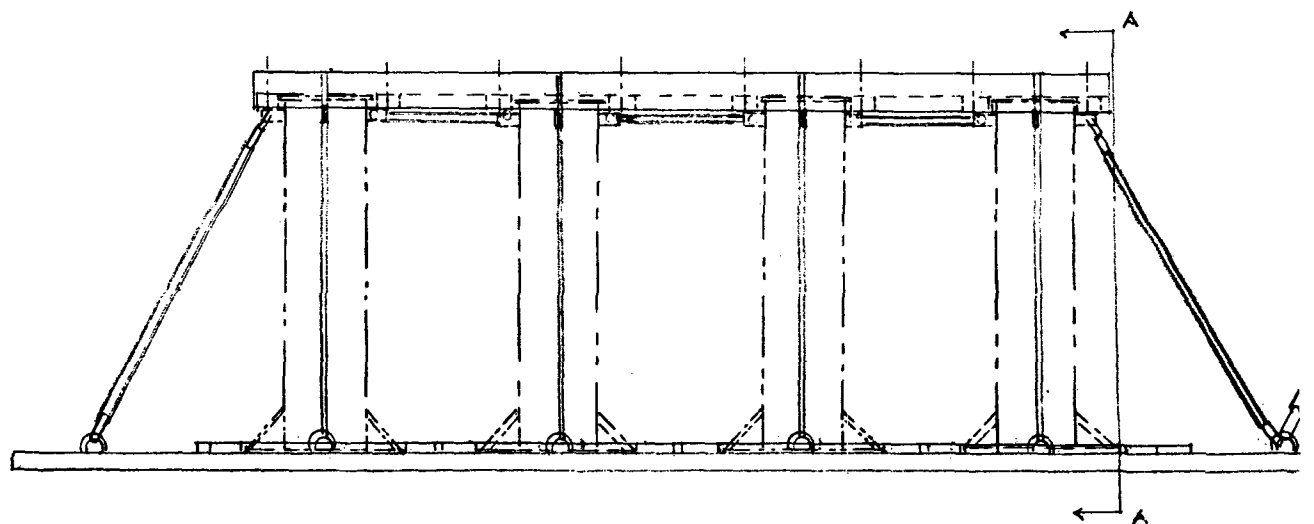
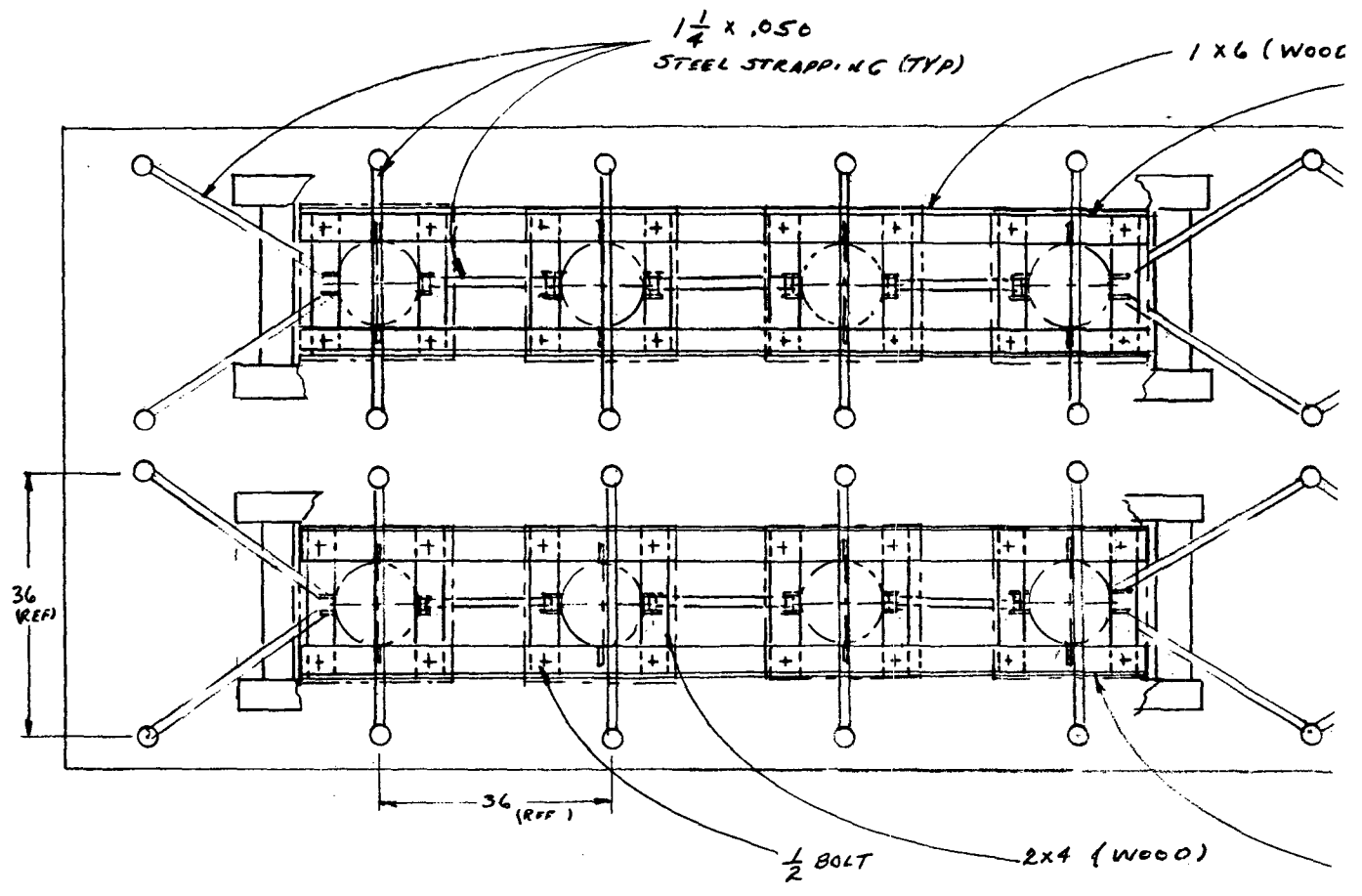


FIGURE 1

SHIPPING UNIT

SHIPPING UNIT

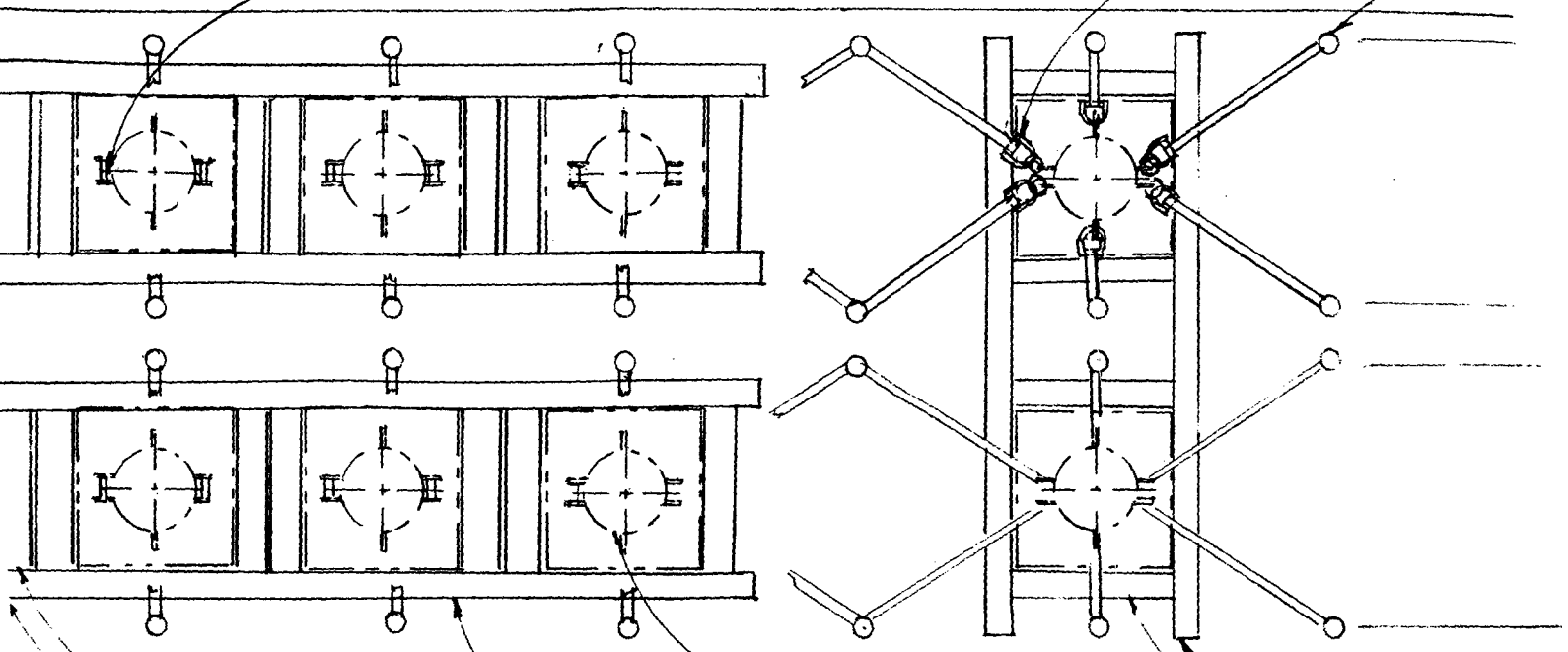
FIGURE 1



000)

3/4" DIA. BOLT & NUT

STEEL SHACKLES (TYP)

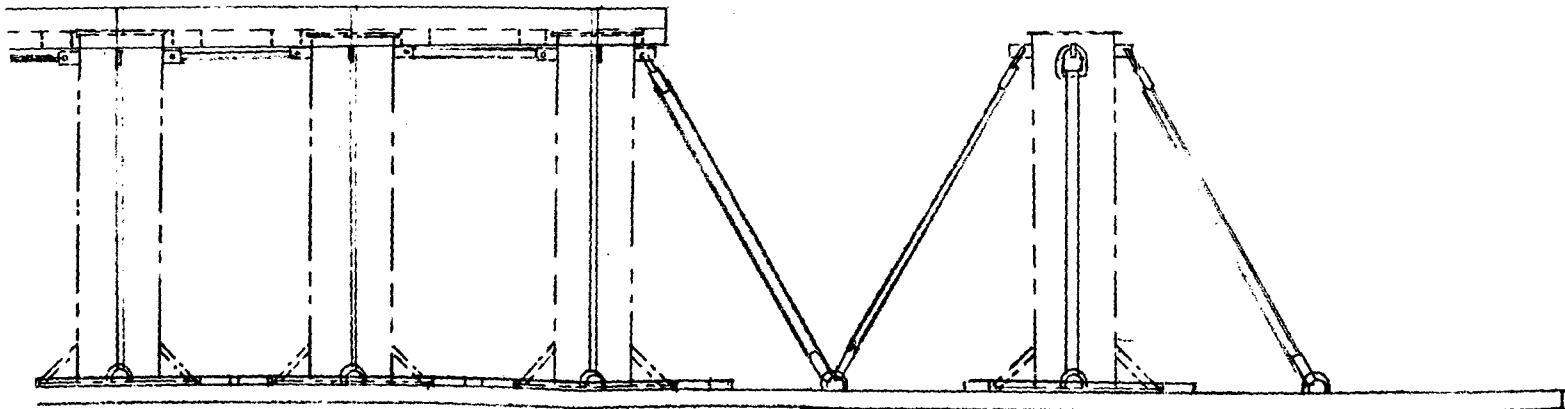


1 X 4 (WOOD)

FLOOR BLOCKING (4 PLS)

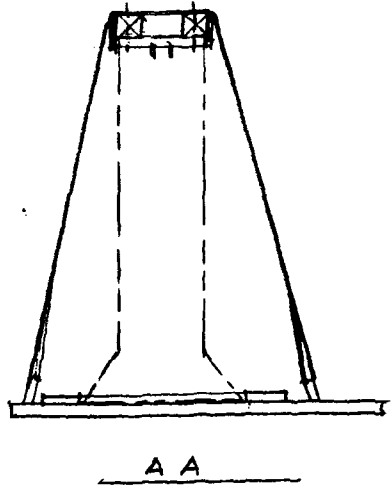
FUEL ELEMENT CONTAINER (REF)

FLOOR BLOCK 1 X 4 (WOOD)



FORWARD





Mfg: C. Weaver.

		LIMITS—UNLESS OTHERWISE SPECIFIED— ANGULAR ± 1/2° FRACTIONAL ± 1/16 DECIMAL NOTED		STAMP ON TOOL— PART NO. _____ TOOL NO. _____ MARTIN	
SCALE $\frac{1}{20}$		SHIPPING PLAN NEW FUEL ELEMENT SHIPPING CONTAINER			
DESIGNER	RIFFLE 10/15				
DRAFTSMAN	RIFFLE 10/15				
CHECKED	<i>Green</i> 10/10	MODEL	MH 1A	PART NO.	393A040002
APPROVED	<i>[Signature]</i> 10/10	THE MARTIN COMPANY U. S. A.		SKETCH NO.	PSK 303
APPROVED					SHEET 1/1

Figure 4