SEP 1 1 1959

Mr. A. A. Michaud, Vice President
Western Operations
Isotopes Specialties Company
P. O. Box 688
Burbank, California

Dear Mr. Michaud:

Your letter of August 13, 1959 to Mr. Mason in the Division of Licensing and Regulation, concerning possible facilities for burying radioactive wastes on land, has been referred to our office for reply. Our group has been concerned with technical aspects of operating Commission-owned land burial sites and with possibilities for establishing similar facilities for use by licensees.

We agree with much of the philosophy expressed in your letter regarding the need for long-term control and surveillance and that a land burial site would simplify some of the packaging and handling problems now involved in sea disposal.

At the present time the Stanford Research Institute is undertaking, on our behalf, a study of the feasibility of establishing land burial facilities in the western United States for use by licensees as well as AEC contractors. This study will resolve many of the technical questions related to site selection and operation. Certain administrative questions related to long-term responsibility for the radioactive materials after they are disposed remain to be resolved, however. It is the general feeling at the present time that such long-term responsibility will have to be assumed by the Government, particularly as it relates to the protection of the public health and safety.

Subj
RD rdg
RT rdg
Lieberman rdg

One scheme which is now receiving consideration is to establish burial grounds, operated by private contractors, to service regions of the country. However, they would be Government-owned with the health and safety responsibility vested in the Government. The use of such facilities would be available to all customers.

A/61

At the present time, however, the Commission has not made any specific decisions in this regard. The whole question of land burial facilities is now being examined within the AEC and it is hoped that some definite conclusions will be reached in the near future.

Sincerely yours,

Joseph A. Lieberman, Chief
Environmental & Sanitary Engineering Branch
Division of Reactor Development

cc: J. R. Mason, DL&R

cc: Hedrick Plaine, OGC

RD:NT:ESE
ARJoseph/ldr
J. A. Lieberman
9/10/59

Walt Cook
Isotopes Br.

DOCKET NO. 27-7

October 1, 1959

Courtesy of Mr. Fred G. Baur

Mr. J. F. Mason
Division of Licensing & Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.

Dear Mr. Mason:

Supplemental information is herein submitted pertinent to Byproduct and Source Material License No. 4-580-6 (H60) - Waste Disposal. Request for amendment of this license was filed under date of September 10, 1959.

1. The attached sketches indicate the types of waste containers that may be used as packaging for radioactive material for sea disposal. Odd shaped packages may be required by the shape of contaminated equipment or by the toxicity of the radiation or metal. For example, the nose cone of a large missile that is contaminated with radioactive material and is made of beryllium -- considerable risk would be involved in cutting this cone to fit into regular barrels. It may be poured full of concrete and placed inside a reinforced concrete form to facilitate handling, aid sinking and resist breakup on impact, as well as to furnish adequate attenuating material.

Another example: Steel girders, irradiated or contaminated, that have been clad with Boral alloy. These girders are very difficult to cut up, and the risk of personnel and area to contamination is great. It is safer and more economical to package them in their existing form. One of the container shapes, a spheroid, is being planned for commercial production for land storage or sea disposal.

2. Sketches No. D0045, D0042, D0049 indicate types of high level waste containers.

3. Crimped copper or aluminum tubes are used to allow air inavoidably trapped in solid radioactive waste to escape, thus preventing the implosion of waste containers from high external water pressures. These tubes are crimped only to ease insertion amid the solid waste, and to prevent packing of the tube by solid waste and concrete while still allowing air to escape. This crimping is also to prevent the passage of material through the tube.

These tubes are 1/4 inch I.D., and 3 inches of the end inserted in the waste is crimped flat with pliers.

A/62

8012030269 10PP

4. Low level and high level radioactive wastes are defined in our "Administrative Procedure for the Disposal of Radioactive Waste" dated September 9, 1959. We refer you to paragraph II, Collection of Radioactive Waste, sections A-1 and A-2:

> ".....low level waste hereby defined as that quantity of radioactive waste emitting alpha, beta and gamma radiation of such intensity that the radiation measurement through 18 gauge steel will not exceed 200 milliroentgens per hour at the surface of the container."
>
> ".....high level waste, defined as that quantity of radioactive waste containing alpha, beta and gamma radiation of such intensity that it will penetrate 18 gauge mild steel in excess of 200 milliroentgens per hour ....."

These definitions are practical working definitions. They are of great value in promoting understanding among customers and technicians who must handle radioactive waste and package waste for shipment to us or for our pickup. It has been our experience that the actual activity of waste generated by licensees is often unknown as far as the number of millicuries are concerned. Thus, it is expedient that they can use meter readings to determine whether the waste can be placed in regular unlined barrels or whether shielded barrels are required.

5. The density of each waste disposal container will be 10 pounds per gallon of its total capacity, or not less than 75 pounds per cubic foot.

6. The total activity of waste that will be disposed of at any one time will be 100 curies.

We hope the above information is adequate for your needs.

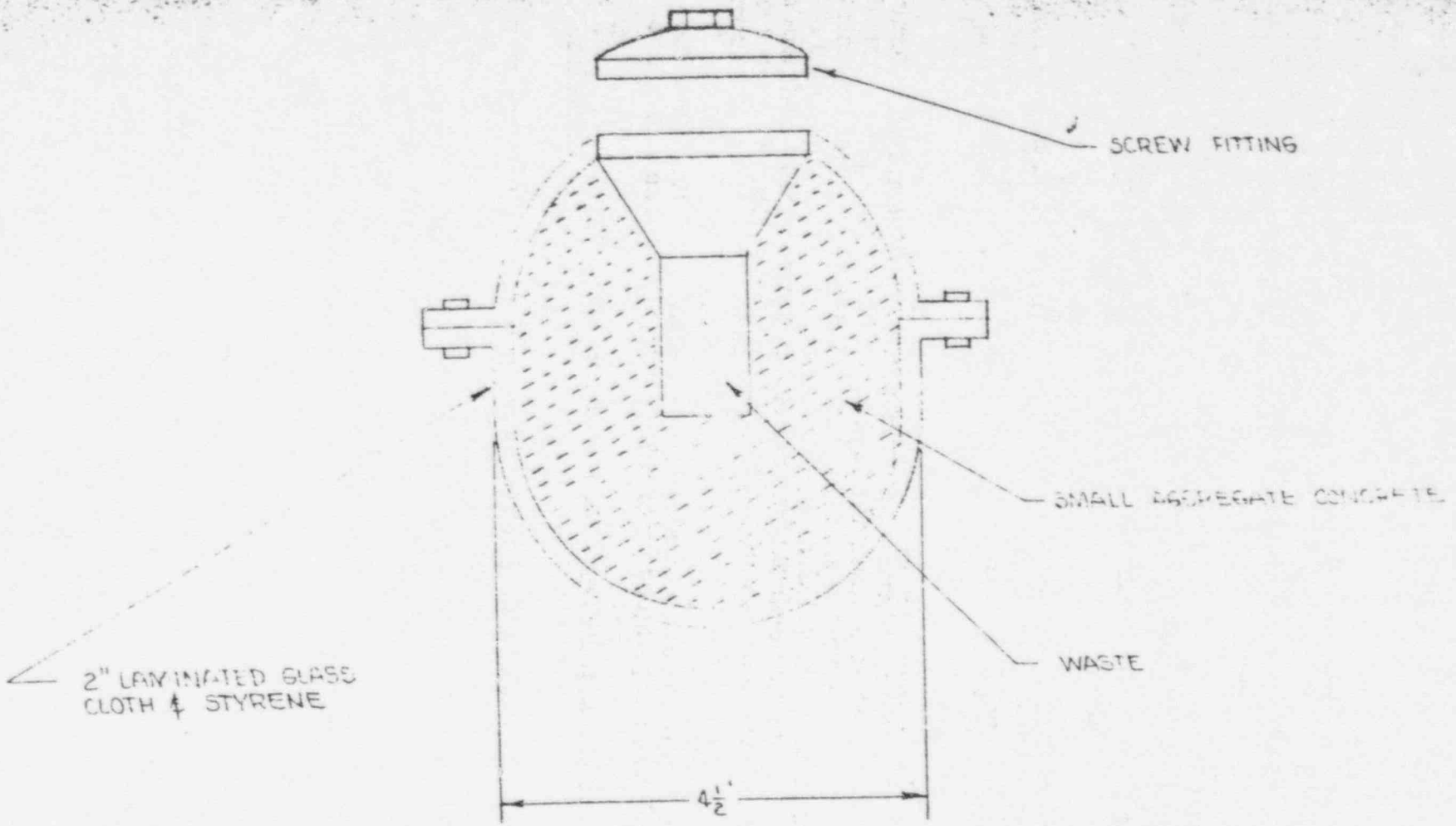
Very truly yours,

ISOTOPES SPECIALTIES COMPANY

A. A. Michaud, Vice President
Nuclear Corporation of America, Inc.

AAM/bj

Encl: D-0045
D-0042
D-0049
D-0046, D-0047, D-0048 (refer to typical odd shape contaminated materials.)
D-0043 is a typical high level waste package.
D-0044 (is a typical low level waste package)

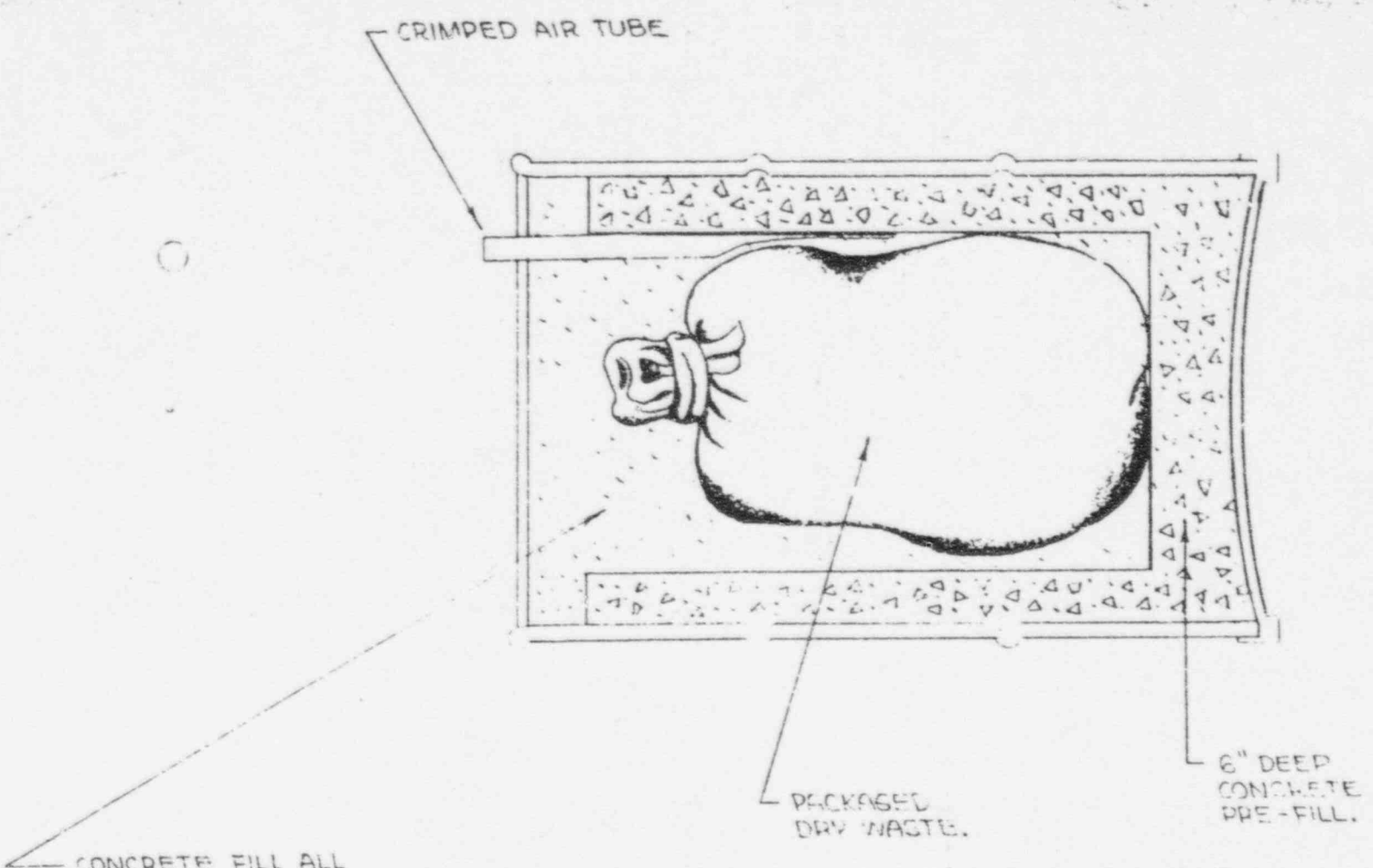


ISOTOPES SPECIALTIES CO

SCALE: NONE	APPROVED BY:	DRAWN BY HASLETT
DATE: 9-30-59		REVISED

HI LEVEL WASTE CONTAINER

DRAWING NUMBER D-0042

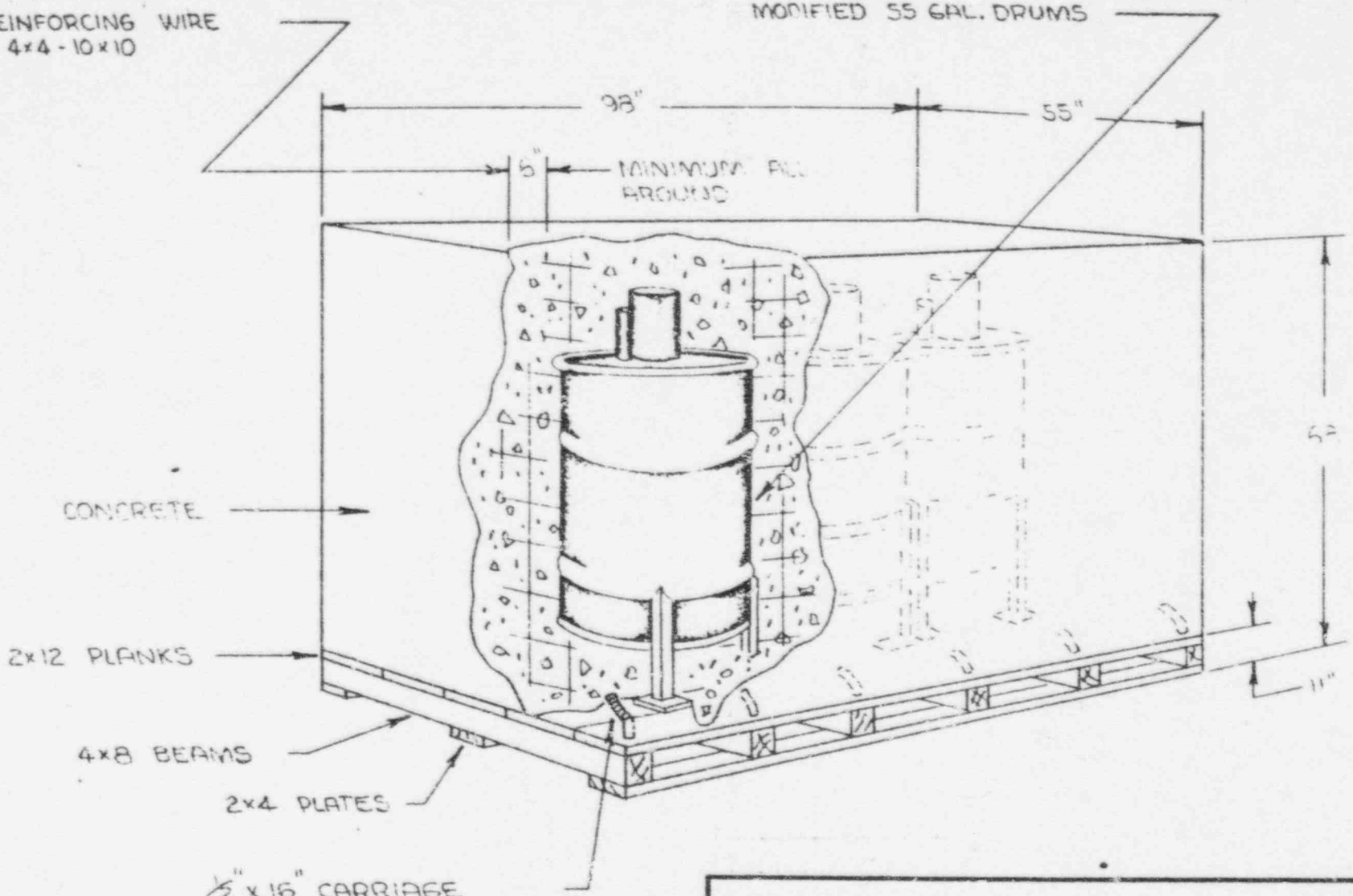


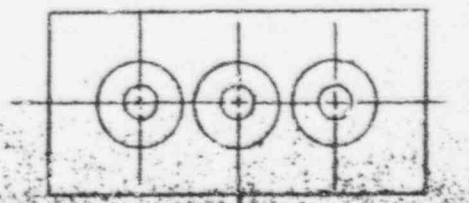
ISOTOPES SPECIALTIES CO

SCALE: NONE	APPROVED BY:	DRAWN BY: HP-CLETT
DATE: 9-29-53		REVISED

TYPICAL PACKAGING IN 55 GAL. STEEL DRUMS

DRAWING NUMBER
D-0043





TOP VIEW

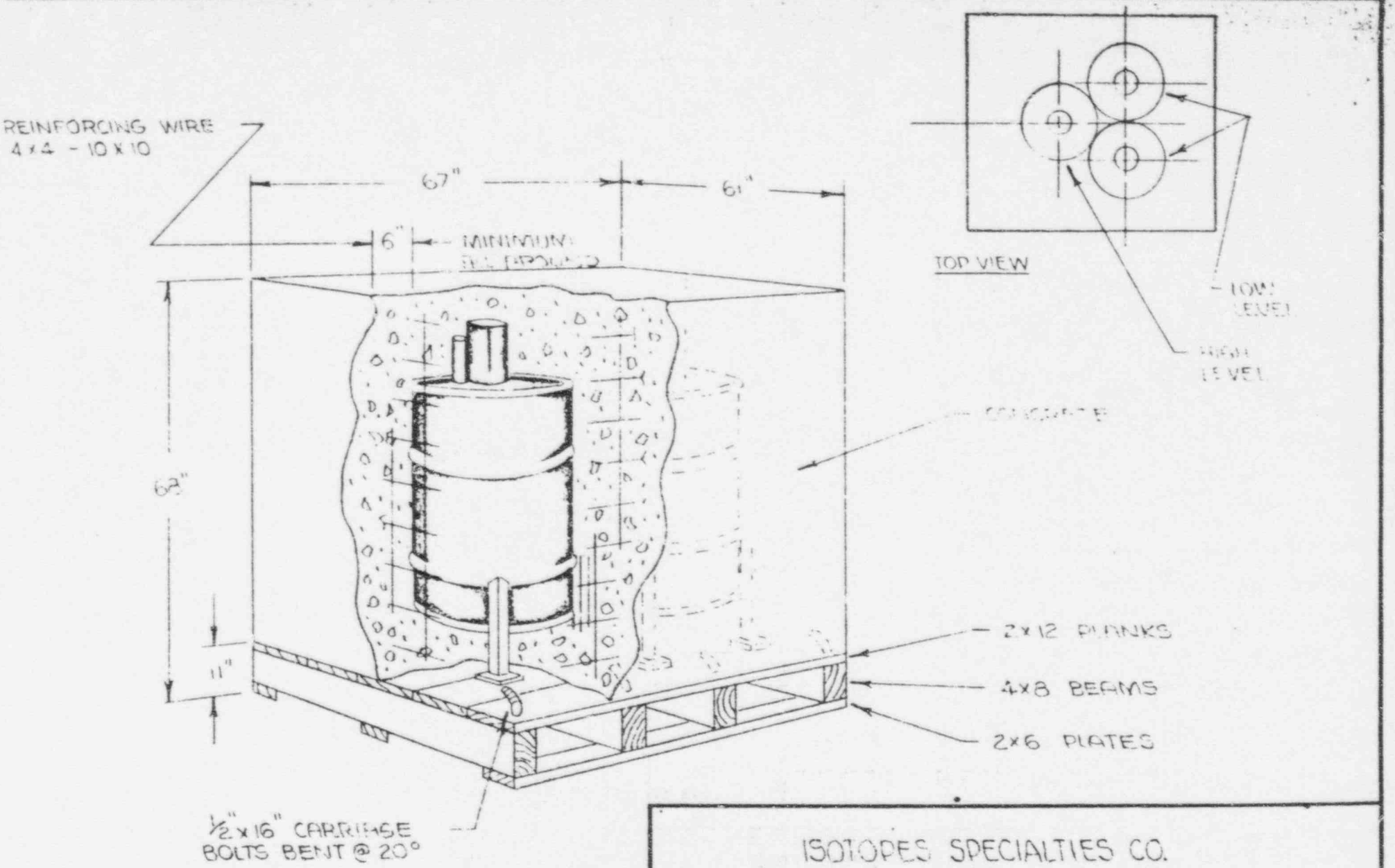
SOTOPES SPECIALTIES CO.

SCALE: NONE	APPROVED BY:	DRAWN BY HASLETT
DATE: 9-30-59		REVISED

SOLIDIFIED LIQUID DRUM BLOCK

LOW LEVEL 3 IN LINE CONFIGURATION

DRAWING NUMBER D-0044



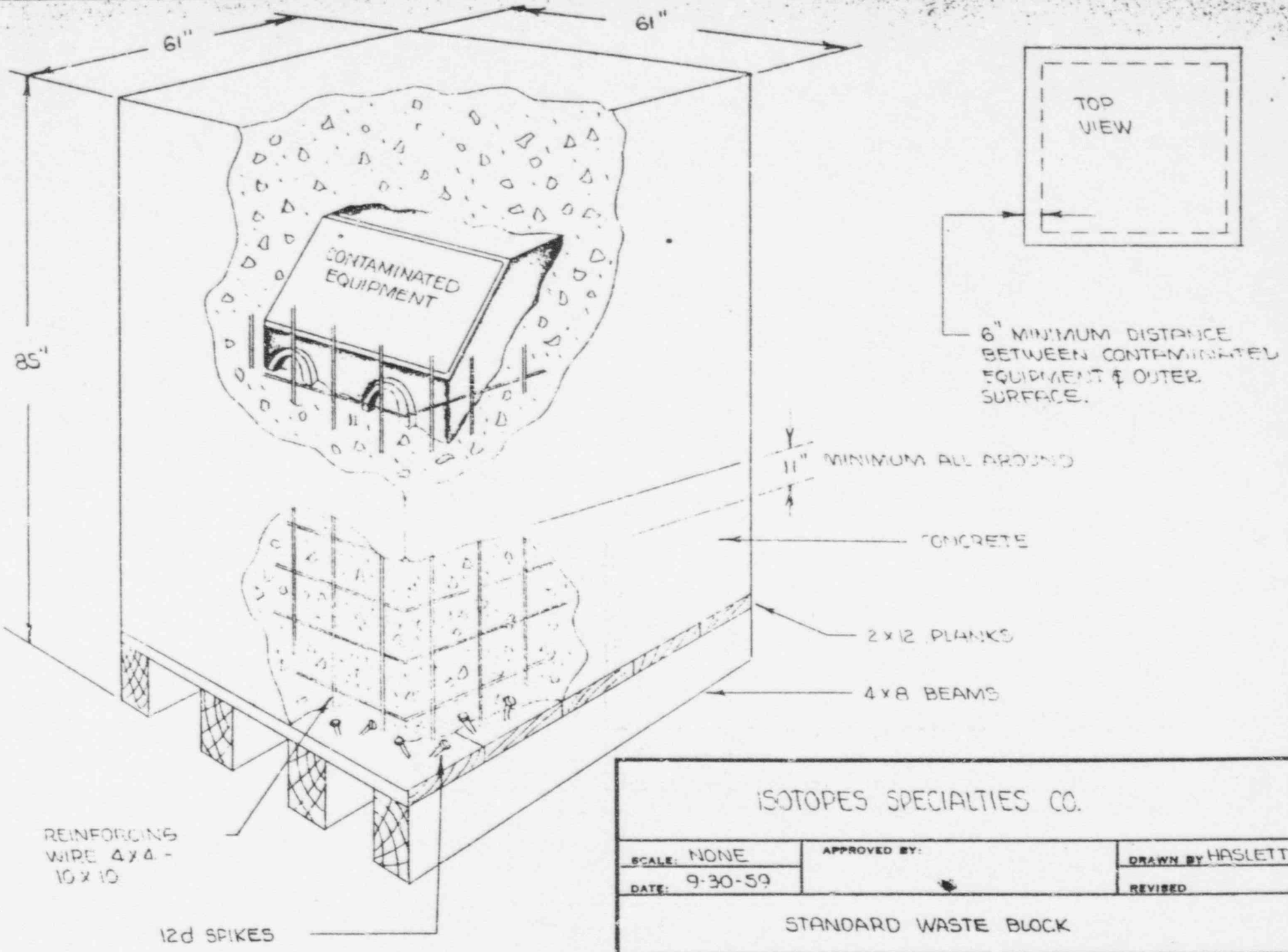
ISOTOPES SPECIALTIES CO.

SCALE: NONE	APPROVED BY:	DRAWN BY HASLETT
DATE: 9-30-59		REVISED

SOLIDIFIED LIQUID DRUM BLOCK

HIGH LEVEL CONFIGURATION

DRAWING NUMBER D-0045



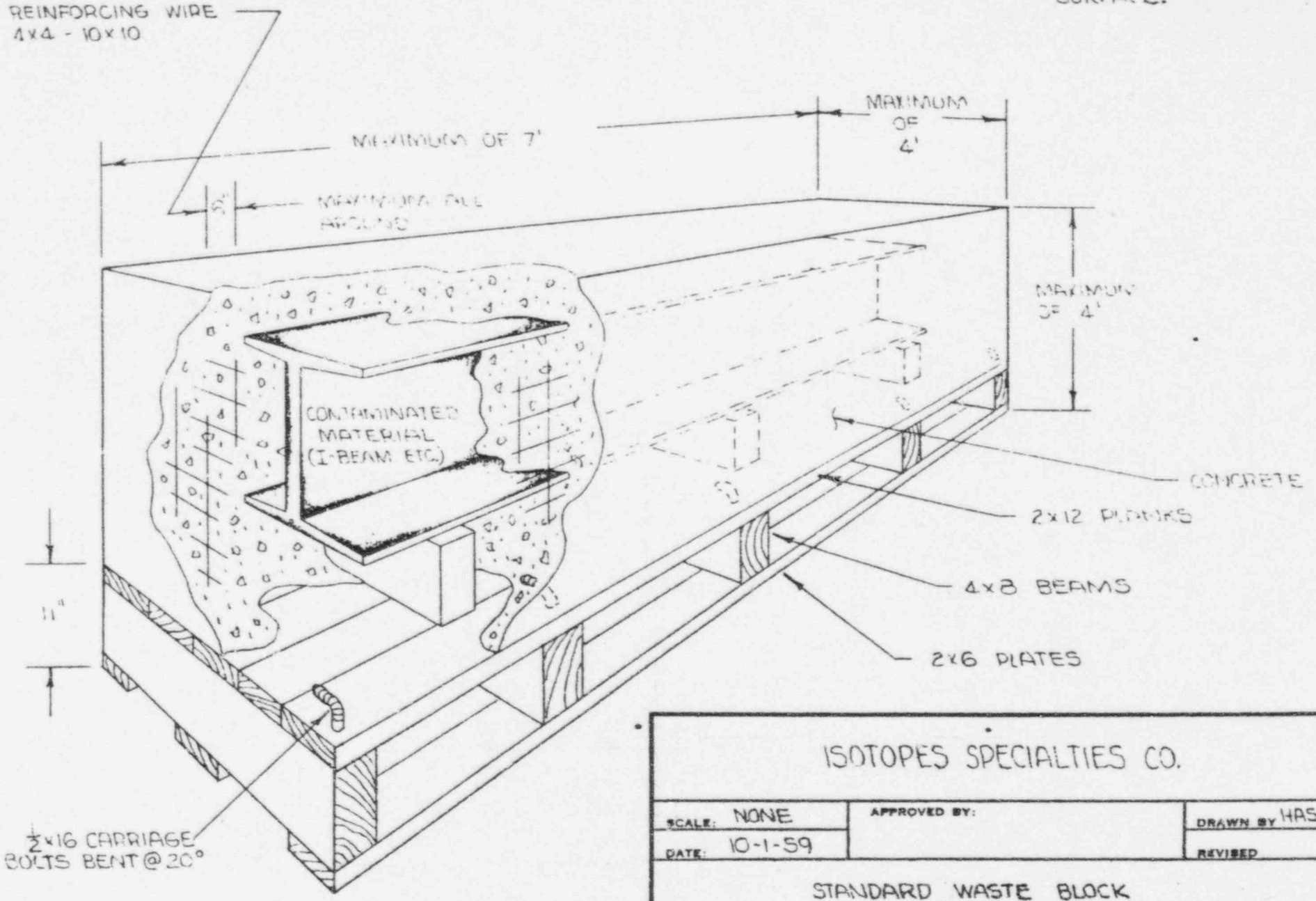
ISOTOPES SPECIALTIES CO.

SCALE: NONE	APPROVED BY:	DRAWN BY HASLETT
DATE: 9-30-59		REVISED

STANDARD WASTE BLOCK

DRAWING NUMBER D-0045

NOTE: 6" MINIMUM DISTANCE BETWEEN CONTAMINATED EQUIPMENT & OUTER SURFACE.



ISOTOPES SPECIALTIES CO.

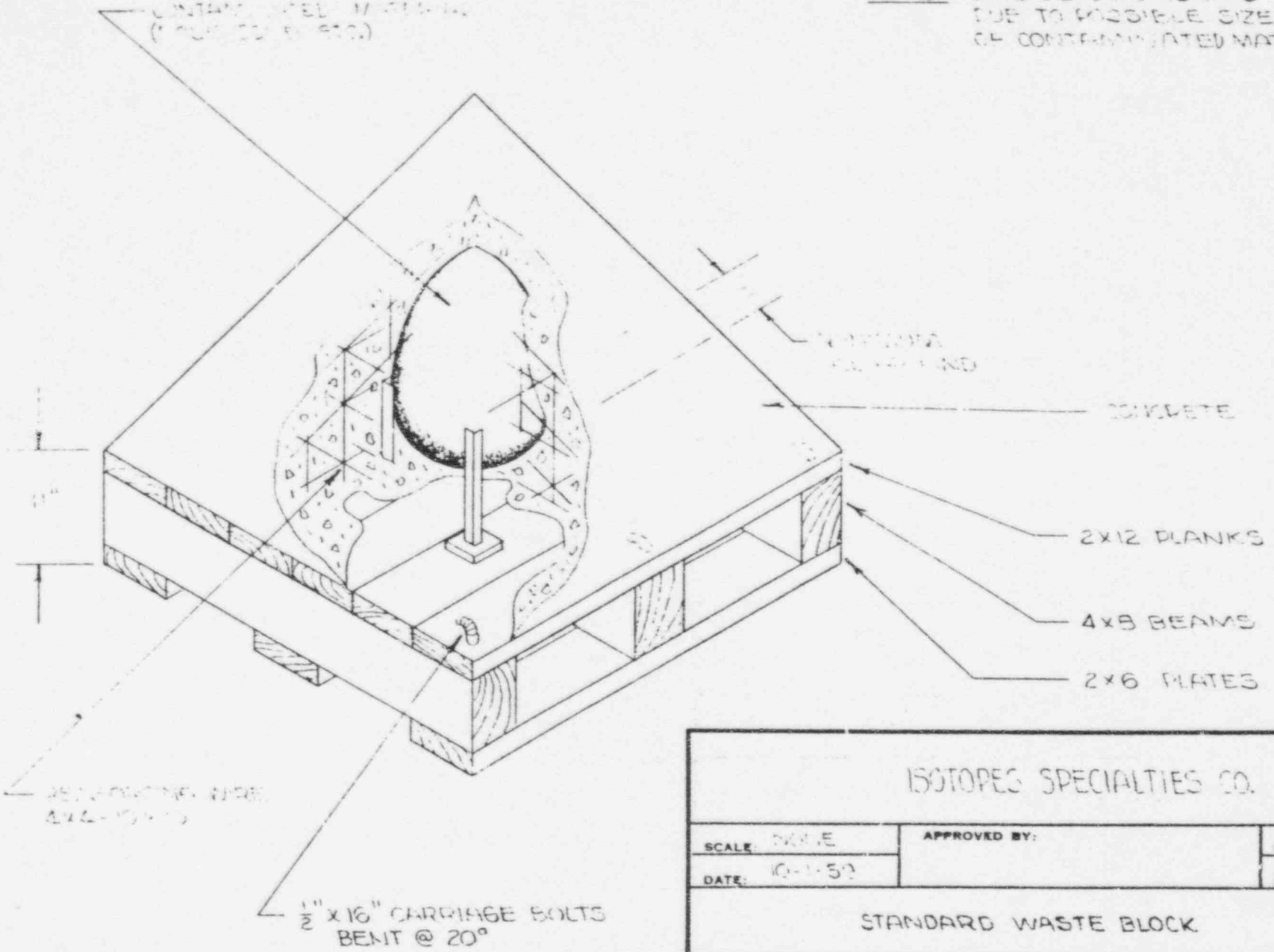
SCALE: NONE	APPROVED BY:	DRAWN BY HASLETT
DATE: 10-1-59		REVISED

STANDARD WASTE BLOCK

DRAWING NUMBER
D-0047

NOTE: 6" MINIMUM DISTANCE BETWEEN CONTAMINATED EQUIPMENT & OUTER SURFACE.

NOTE: OUTSIDE DIMENSIONS NOT SPECIFIED DUE TO POSSIBLE SIZE VARIANCE OF CONTAMINATED MATERIAL.

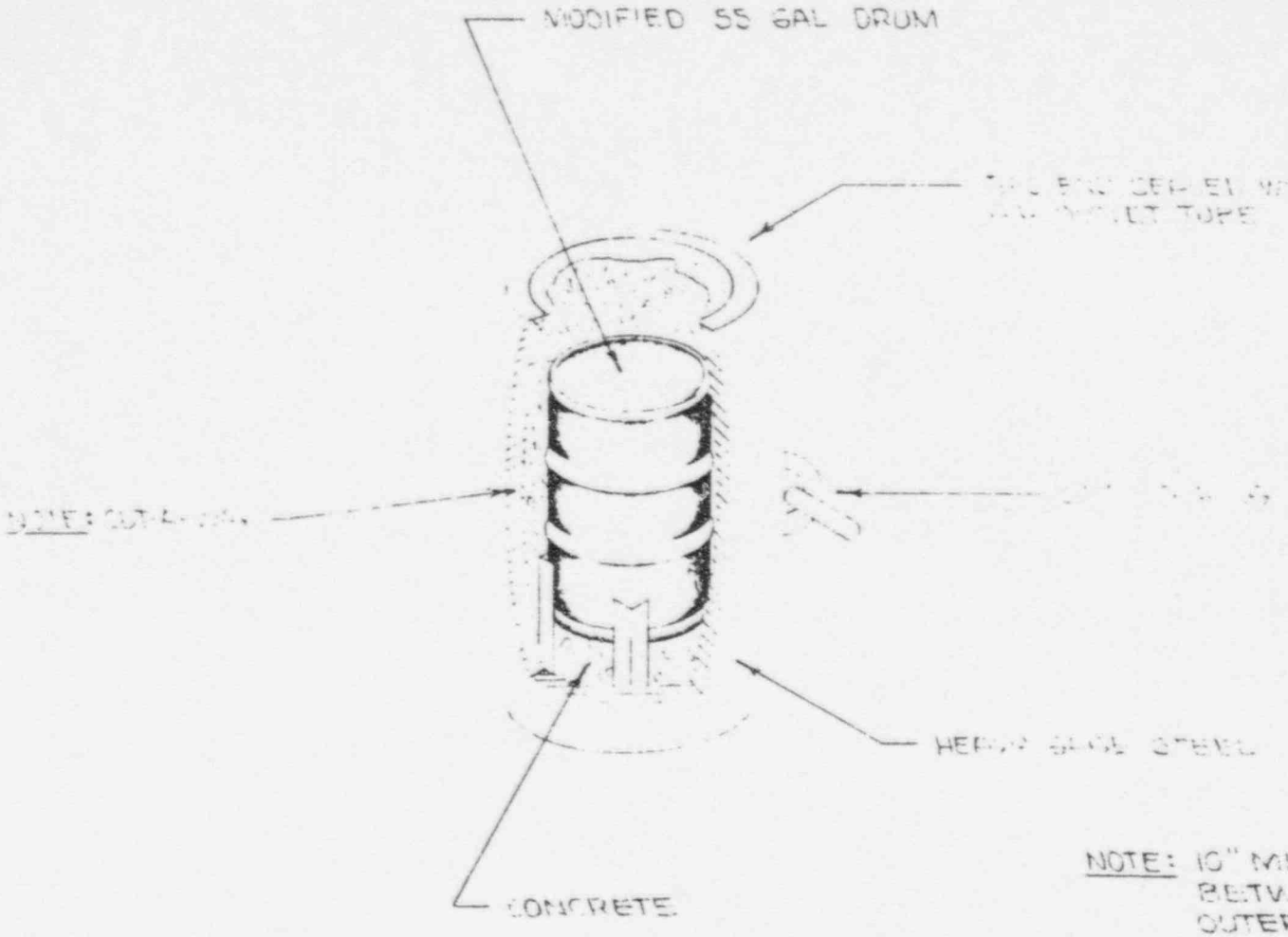


ISOTOPES SPECIALTIES CO.

SCALE: NONE	APPROVED BY:	DRAWN BY HASLETT
DATE: 10-1-59		REVISED

STANDARD WASTE BLOCK

DRAWING NUMBER
D-0048



NOTE: 10" MINIMUM DISTANCE BETWEEN BARREL & OUTER SURFACE.

ISOTOPES SPECIALTIES CO		
SCALE: NONE	APPROVED BY:	DRAWN BY: HINCLETT
DATE: 10-1-69		REVISED
SOLIDIFIED LIQUID DRUM BLOCK		
HI LEVEL CONFIGURATION		DRAWING NUMBER D-0049