



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

May 7, 2020

Jason Streber
FabTech Services, LP
2008 Industrial Boulevard
Rockwall, TX 75087

Reference No. 18-0153

Dear Mr. Streber:

This letter is in response to your November 14, 2018 email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the transportation of jet perforating guns. Specifically, you seek clarification on the packaging requirements of packing method US 1 from the Table of Packing Methods in § 173.62 for jet perforating guns.

We have paraphrased and answered your questions as follows:

- Q1. You ask whether US 1 (1)(c) permits the use of end caps that incorporate a metal disk to provide complete metal-to-metal contact, but which are secured with plastic fittings.
- A1. The answer is yes. Packing method US 1 (1)(c) requires that, “each shaped charge if not completely enclosed in glass or metal, must be fully protected by a metal cover after installation in the gun.” The cover you describe would give complete metal coverage around the shaped charges and therefore would meet the requirements, provided that the plastic fittings are sufficiently robust to prevent loosening of the cover during normal transport conditions. Moreover, the requirement for a metal cover on the gun (e.g., use of “metal end caps”) is unnecessary where shaped charges within the jet perforating gun system configuration are fully enclosed by metal or glass after installation in the gun. For example, a shaped charge or “perforator” in a metal case and liner, installed in a metal carrier tube, and then installed in a gun (i.e., steel tube), would not necessitate protection by metal covers provided that the design ensures the shaped charges are fully enclosed in metal (or glass) without the use of such a cap. In this latter example, plastic covers or “end caps” may be suitable for purposes of preventing dust, moisture, or foreign objects from entering the gun body and to protect the ends of the gun body. Also, note that this response supersedes previous clarification provided in Letter of Interpretation Nos. 16-0186 and 17-0043.
- Q2. You provide images of an all-metal cover design and ask whether it meets the requirements of US 1 (1)(c).

A2. The answer is yes. Packing method US 1 (1)(c) requires that, “each shaped charge if not completely enclosed in the glass or metal, must be fully protected by a metal cover after installation in the gun.” Based on the images provided, it is the opinion of this Office that the all-metal cover design meets the requirements of US 1 (1)(c).

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Dirk Der Kinderen".

Dirk Der Kinderen
Chief, Standards Development Branch
Standards and Rulemaking Division

Ciccarone
§ 173.62
18-0153

Dodd, Alice (PHMSA)

From: Foster, Glenn (PHMSA)
Sent: Monday, December 03, 2018 7:09 AM
To: Jason Streber
Cc: Dodd, Alice (PHMSA); January, Ikeya CTR (PHMSA)
Subject: 173.62 - US 1 (1)(c) Guidance

Good morning, Jason.

Thank you for following up and for your questions. I will have this logged in as a formal request for a letter of Interpretation and have it assigned to a Specialist.

Thanks,
Glenn

From: Jason Streber [mailto:jstreber@fabtechservices.com]
Sent: Friday, November 30, 2018 3:37 PM
To: Foster, Glenn (PHMSA) <Glenn.Foster@dot.gov>
Subject: RE: 173.62 - US 1 (1)(c) Guidance

Good afternoon Glenn.

I'm following up to see if you received my email below and if you had a chance to take a look at it? Thanks.

Regards,

Jason Streber
FabTech Services, LP | 972.495.2026 main | 972.961.3106 direct | 2008 Industrial Blvd. Rockwall, TX 75087



This message (including any attachments) is intended only for the use of the individual or entity to which it is addressed and may contain information that is non-public, proprietary, privileged, confidential, and exempt from disclosure under applicable law or may constitute as attorney work product. If you are not the intended recipient, you are hereby notified that any use, dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, notify us immediately by telephone and (i) destroy this message if a facsimile or (ii) delete this message immediately if this is an electronic communication. Thank you.

From: Jason Streber
Sent: Friday, November 16, 2018 9:40 AM
To: 'glenn.foster@dot.gov' <glenn.foster@dot.gov>
Subject: RE: 173.62 - US 1 (1)(c) Guidance

Good morning Glenn.

I called to follow up and spoke to Ikeya January who said you are on vacation until the 27th. She asked if I needed immediate assistance however I said I would just wait for you to return. Hope you have a great vacation.

Regards,

Jason Streber



This message (including any attachments) is intended only for the use of the individual or entity to which it is addressed and may contain information that is non-public, proprietary, privileged, confidential, and exempt from disclosure under applicable law or may constitute as attorney work product. If you are not the intended recipient, you are hereby notified that any use, dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, notify us immediately by telephone and (i) destroy this message if a facsimile or (ii) delete this message immediately if this is an electronic communication. Thank you.

From: Jason Streber
Sent: Wednesday, November 14, 2018 2:56 PM
To: 'glenn.foster@dot.gov' <glenn.foster@dot.gov>
Subject: 173.62 - US 1 (1)(c) Guidance

Good afternoon Glenn.

I'm hoping you might be able to assist with several questions I have regarding Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to packing methods US 1 from the Table of Packing Methods in 173.62 for jet perforating guns.

There have been multiple letters of interpretation issued by you to over the years to clarify the following requirement of 173.62 US1 1 (c): **"Each shaped charge if not completely enclosed in glass or metal, must be fully protected by a metal cover after installation in the gun."**

Letter of Interpretation Ref. No. 16-0186

Q2. Question: whether US 1 (1)(c) permits the use of plastic "end caps" or "bull plugs" in the specially constructed carrying cases for jet perforating guns, or whether metal must be used.

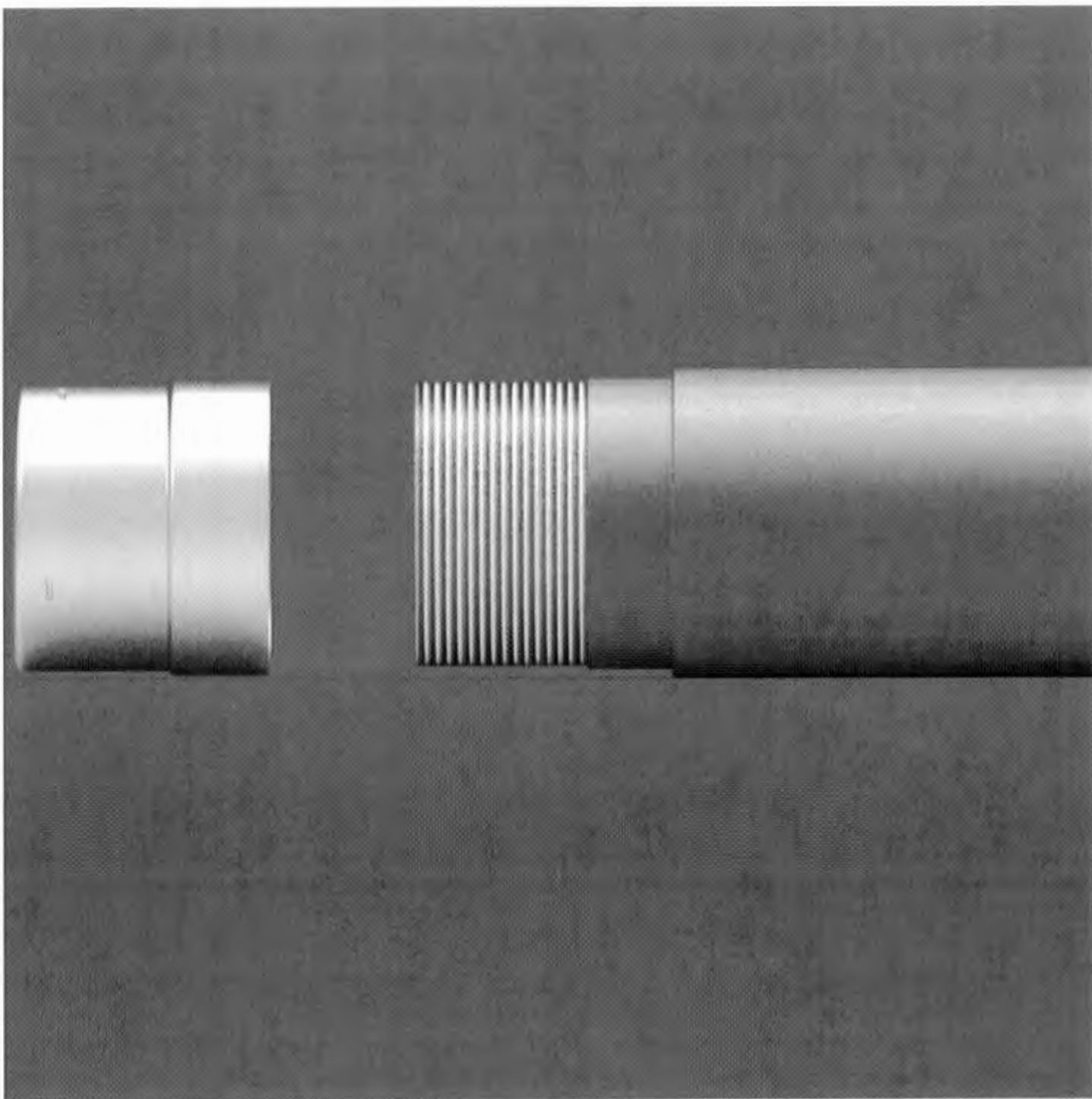
A2. Your response: Packing method US 1 (1)(c) requires that, "each shaped charge if not completely enclosed in the glass or metal, must be fully protected by a metal cover after installation in the gun." The shape charges do not appear to be enclosed in metal or glass. Therefore, metal covers must be used.

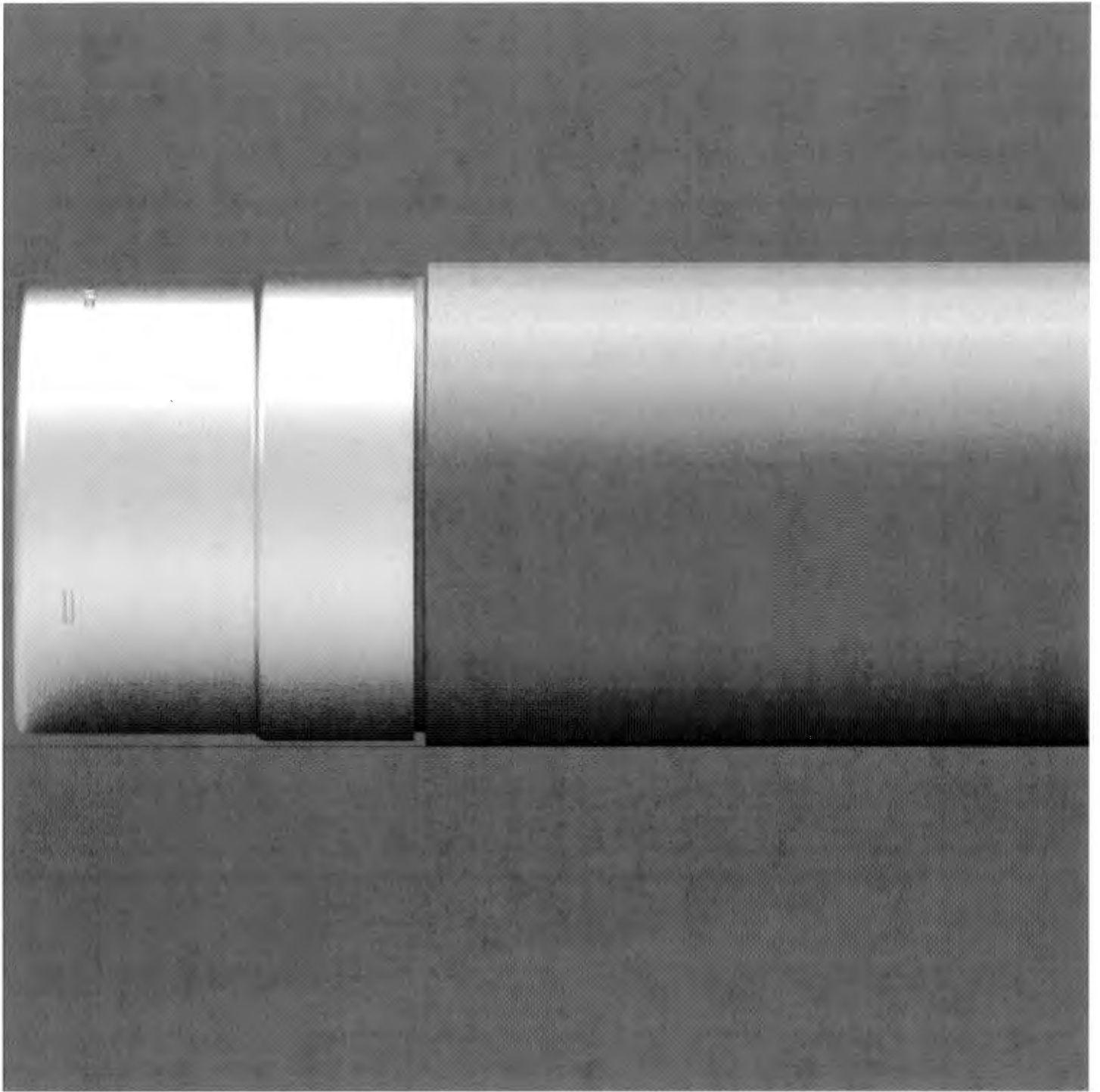
Letter of Interpretation Ref. No. 17-0043

Q2. Question: whether US 1 (1)(c) permits the use of plastic "end caps" or "bull plugs" in the specially constructed carrying cases for jet perforating guns, or whether metal must be used.

A2. Your response: Packing methods US 1 (1)(c) requires that, "each shaped charge if not completely enclosed in glass or metal, must be fully protected by a metal cover after installation in the gun." The pictures you provide show fully enclosed charges. However, if the material of the caps is plastic, then they must be additionally protected by a metal or glass cover.

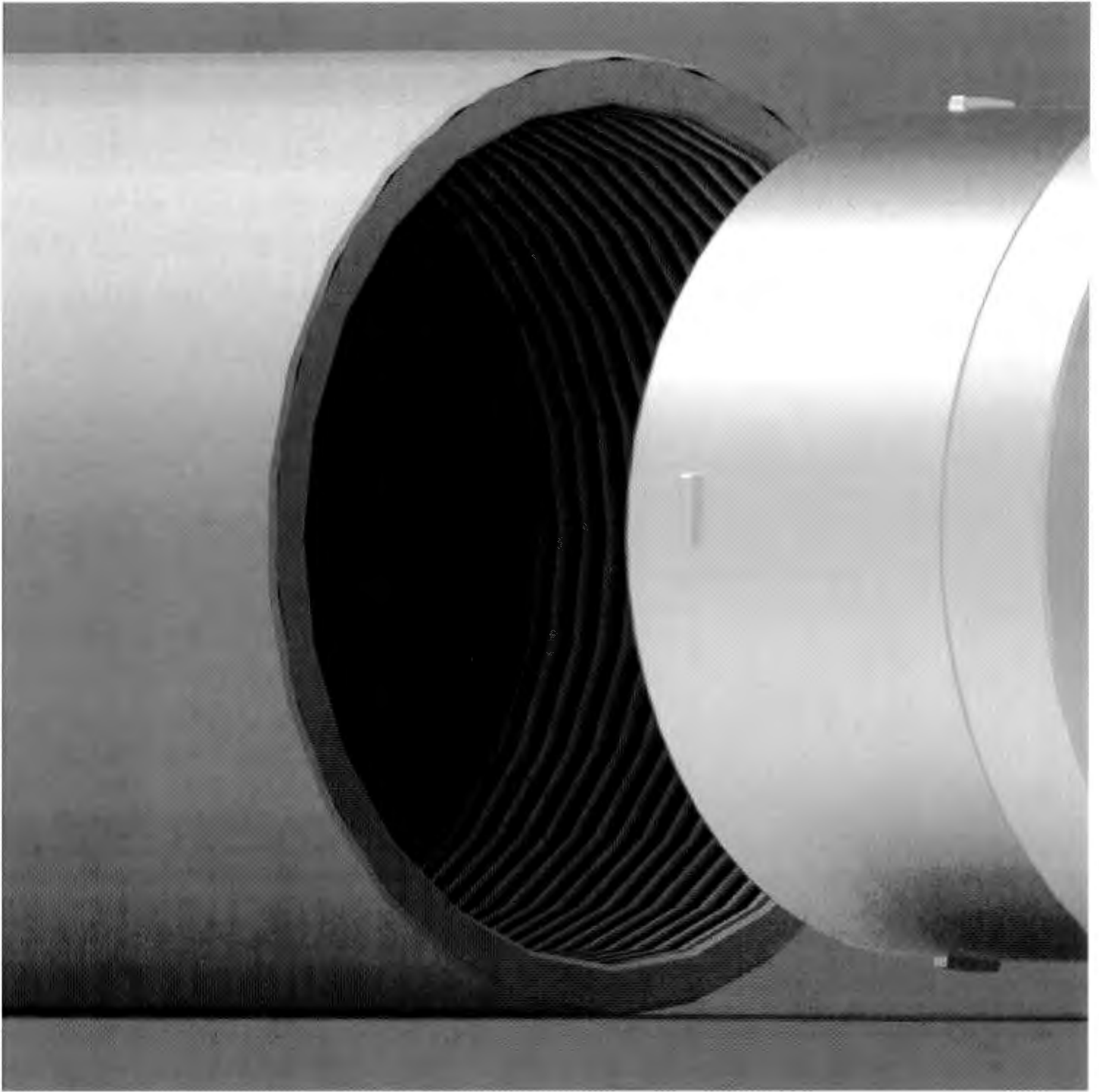
1. Some believe a plastic cap with a metal disc pressed into the plastic is a compliant cover because the face-to-face contact with the end of the tube creates a complete metal body. While this type of cover may be an economical solution, there are two primary concerns: 1. The plastic cap doesn't offer full metal protection. 2. The material is plastic however its **body** is not additionally protected by a metal or glass cover. If the plastic body is damaged or fails, the face-to-face contact of the metal disc with the end of the jet perforating gun may fail thus compromising the only metal protection provided. I believe I understand your letter of interpretation and its intent however I ask that you confirm. Is a non-metallic (plastic/rubber/composite) cap or cover with an integrated metal disc to create face-to-face metal contact with the gun considered to be compliant?
2. Our understanding of 173.62 US1 1(c) and your letters of interpretation as stated above led us to develop a patent pending cover offering full metal protection for a loaded jet perforating gun. After the shaped charge has been installed in the gun, these all-metal covers screw tightly to the loaded gun's thread interface. This creates a positive metal-to-metal seal offering full metal protection for both ends of the gun. Please confirm the metal covers pictured below appear to meet the requirements of 173.62 US1 1 (c) and letters of interpretation.

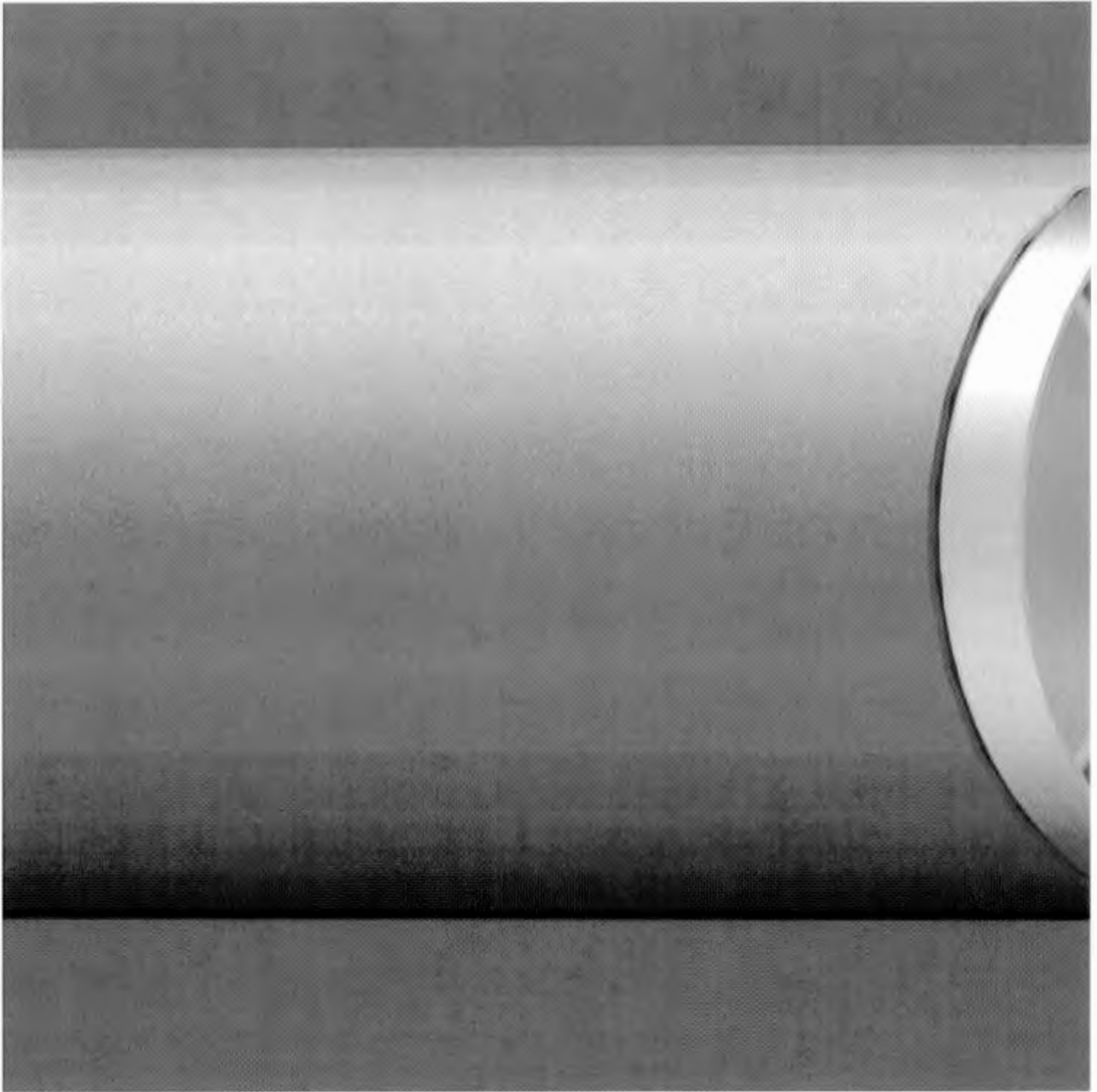












Thank you for your assistance Glenn and have a good day.

Regards,

Jason Streber

FabTech Services, LP | 972.495.2026 main | 972.961.3106 direct | 2008 Industrial Blvd. Rockwall, TX 75087

FabTech!

This message (including any attachments) is intended only for the use of the individual or entity to which it is addressed and may contain information that is non-public, proprietary, privileged, confidential, and exempt from disclosure under applicable law or may constitute as attorney work product. If you are not the intended recipient, you are hereby notified that any use, dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, notify us immediately by telephone and (i) destroy this message if a facsimile or (ii) delete this message immediately if this is an electronic communication. Thank you.