1. **GRANTEE:** Visuray LLC
   Houston, TX

2. **PURPOSE AND LIMITATION:**
   
   a. This special permit authorizes the manufacture, mark, sale and use of a non-DOT specification packaging conforming in part with the DOT Specification 3A, except as specified herein, for the transportation in commerce of the materials authorized by this special permit. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.

   b. The safety analyses performed in the development of this special permit only considered the hazards and risks associated with the transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.

   c. In accordance with 49 CFR 107.107(a) party status may not be granted to a manufacturing permit. These packagings may be used in accordance with 49 CFR 173.22a.

3. **REGULATORY SYSTEM AFFECTED:** 49 CFR Parts 106, 107 and 171-180.

4. **REGULATIONS FROM WHICH EXEMPTED:** 49 CFR §§ 173.27, 173.201(c), 173.302(a) and 173.304(a), 178.35 and 178.36 in that non-DOT specification cylinders are not authorized, except as specified herein.
5. **BASIS**: This special permit is based on the application of Visuray, LLC dated March 7, 2023, submitted in accordance with § 107.109.

6. **HAZARDOUS MATERIALS (49 CFR 172.101):**

<table>
<thead>
<tr>
<th>Hazardous Materials Description</th>
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<tbody>
<tr>
<td><strong>Proper Shipping Name</strong></td>
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<tr>
<td>Nitrogen, compressed</td>
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<tr>
<td>Sulfur hexafluoride</td>
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7. **SAFETY CONTROL MEASURES:**

   a. **PACKAGING**: Packaging prescribed is an oil well X-ray imaging tool, which consists of 3 non-DOT specification pressure vessels that are joined together to form a single device. The tool is constructed of Inconel 718 (UNS N07718), 6-2-4-6 Titanium Alloy (R56260) and Spinodally Hardened Copper Alloy (C72900) and is charged to a pressure of 10 bar (145 psig) with a maximum quantity of 30 Liters of Sulfur Hexafluoride and 3 Liters of Nitrogen gas. The device complies with the design calculations, drawings, material specifications and engineering specifications submitted with Visuray’s application on file with the Office of Hazardous Materials Safety (OHMS) and conforming with DOT-3A specification (§§ 178.35 and 178.36) except as follows:

   § 178.35 (e) *Safety devices*

   The installation of a safety relief device is not required. However, when subjected to a pool fire the elastomeric seals used in the assembly must fail and provide adequate venting with a start-to-discharge pressure not exceeding that of the hydrostatic test pressure.

   § 178.35 (f) *Marking*

   The marking requirements are applicable except that each section of the X-ray tool must be marked “DOT-SP 21080” in place of “DOT-3A” and that the size of the marking must be at least 3/16 inches high and clearly visible.
§ 178.36 (b) *Steel*

The authorized materials of construction, in accordance with specifications provided in the Visuray application on file with OHMS, are Inconel 718 (UNS N07718), 6-2-4-6 Titanium Alloy (R56260) and Spinodally Hardened Copper Alloy (C72900). All materials must meet the requirements of the National Association of Corrosion Engineers (NACE) specification MR0175/ISO 15156 for suitability in hydrogen sulfide (H₂S) service.

§ 178.36 (d) *Manufacture*

The pressure vessel must be manufactured using equipment and processes adequate to ensure that each pressure vessel produced conforms to the requirements of this special permit. The material stock must be inspected to assure cleanliness and that it is free of defects that are likely to weaken the finished pressure vessel. The final dimensions of the finished pressure vessel must conform to the Weatherford International drawings on file with OHMS.

§ 178.36 (f) *Wall Thickness*

Minimum wall thickness for the pressure vessel is in accordance with the drawings on file with OHMS.

§ 178.36 (g) *Heat treatment*

Heat treatment of the completed pressure vessel is not required. However, the heat treatment of the purchased stock material must conform to NACE MR0175/ISO 15156.

§ 178.36 (h)(3) *Openings in cylinders and connections (valves, fuse plugs, etc.)*

Both ends of the pressure vessel and all connections to pressure must be threaded with either stub acme or v-threads. Pressure bearing threads must have a minimum of 6 engaged threads or must be of sufficient number that the shear strength of the threads is 10 times that required by the pressure load at test pressure.

§ 178.36 (j) *Flattening test*

No flattening test is required.
§ 178.36 (l) **Acceptable results for physical tests**

The mechanical properties of tensile specimens must meet the minimum criteria established in the NACE MR0175 Specification.

b. **TESTING:**

(1) Each X-ray tool must be reinspected and hydrostatically retested in accordance with §§ 180.205 and 180.209 as prescribed for DOT-3A specification cylinders.

(2) Reheat treatment or repair of rejected cylinders is not authorized.

(3) When a hydrostatic retest of a tool is performed due to equipment failure as authorized by § 180.209(g)(5), only two such retests are permitted.

**OPERATIONAL CONTROLS:**

(1) Each component of the X-ray imaging tool must be packed in a strong outer packaging.

(2) Visuray must provide emergency response information with the shipment and make it available via an emergency response telephone number. It must indicate that the pressure vessels are not fitted with pressure relief devices and provide appropriate guidance in case the pressure vessels are exposed to fire.

8. **SPECIAL PROVISIONS:**

a. A person who is not a holder of this special permit who receives a package covered by this special permit may reoffer it for transportation provided no modification or change is made to the package or its contents and it is reoffered for transportation in conformance with this special permit and the HMR.

b. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

9. **MODES OF TRANSPORTATION AUTHORIZED:** Motor vehicle, cargo vessel, rail freight, cargo-only aircraft, passenger-carrying aircraft.

10. **MODAL REQUIREMENTS:** A current copy of this special permit must be carried aboard each cargo vessel, aircraft, or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.
11. **COMPLIANCE:** Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.

- Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.

- Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—"The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. **REPORTING REQUIREMENTS:** Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:

[Signature]

for William Schoonover

Associate Administrator for Hazardous Materials Safety

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at https://www.phmsa.dot.gov/approvals-and-permits/hazmat/special-permits-search. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: Jephthah Nti