



Department of Energy

Washington, DC 20585

August 12, 2026

Hazardous Materials Standards and Rulemaking
U.S. Department of Transportation,
East Building
1200 New Jersey Avenue, SE
Washington D.C. 20590-0001

Ref 49 CFR 173.22(c) and 49 CFR 172.804

The U.S. Department of Energy (DOE) is requesting a DOT interpretation regarding §§ 173.22(c) and 172.804 with respect to DOE physical protection of shipments of irradiated reactor fuel.

In 1993, the DOT Associate Administrator for HM Safety concurred in writing (letter enclosed) that DOE Order 5632.11 was essentially equivalent to the NRC requirements for physical protection of unclassified irradiated fuel in transit, per § 173.22(c).

Based on the enclosed equivalency, does DOT concur that the current DOE Orders are essentially equivalent to the NRC requirements (10 CFR 73.37) per § 173.22(c)(1) or (2), and DOE Safety and Security plans based on the current DOE Orders may be used to satisfy the requirements of 49 CFR 172 Subpart I per § 172.804?

If you have any questions, please contact me or Lawrence Gelder at 803-645-3430 or lawrence.gelder@em.doe.gov.

Sincerely,

CHRISTOPHER CABLE

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Christopher P. Cable
Manager, DOE Packaging Certification Program
Office of Packaging and Transportation
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Enclosures: Letter and Equivalency

cc: Ryan Vierling, DOT, PHMSA
Erica Bickford, NE-8
Julia Shenk, EM-4.2
Docket 26-48-0000

U.S. Department
of Transportation
Research and
Special Programs
Administration

NOV 2 1993

Mr. Michael C. Maline, Manager
Regulatory Compliance Program
Transport Management Division
Office of Special Programs
Office of Technology Development
U.S. Department of Energy
Washington, DC 20585

Dear Mr. Maline:

This letter is in response to your letter regarding Department of Energy (DOE) Order 5632.11, "Physical Protection of Unclassified Irradiated Reactor Fuel In Transit". In your letter, you provided specific information on several procedures related to that Order.

After review of this information, we take no exception to your claim that DOE's requirements are essentially equivalent to those of the U.S. Nuclear Regulatory Commission.

Sincerely,



Alan I. Roberts
Associate Administrator for
Hazardous Materials Safety

Equivalency Comparison: 10 CFR 73.37 vs. DOE CRDs

DOE P 470.1B | DOE O 470.4C (CRD Attachments 1-6) | DOE O 460.2B (CRD Attachments 1-3) | DOE O 473.2A

Purpose. This report compares the NRC transit physical protection requirements in 10 CFR 73.37 against the DOE contractor and policy documents provided for review. It is designed to mirror the structure of the sample comparison while expanding the analysis to include all attached DOE CRDs.

Overview

10 CFR 73.37 establishes NRC requirements for physical protection of irradiated reactor fuel in transit. The DOE documents collectively establish the Department's safeguards and security, transportation management, and protective force framework. DOE O 460.2B (especially Attachment 2) is the primary transport-security analog to 73.37. DOE O 470.4C and DOE P 470.1B provide the security planning and governance framework, while DOE O 473.2A supplies the protective-force, weapons, and response doctrine needed to execute the transport protection mission.

Bottom line: none of the DOE documents is independently equivalent to 10 CFR 73.37. In combination, they are **substantially but not fully equivalent**. The principal differences are structural: DOE uses an integrated, risk-informed federal security model rather than the NRC's prescriptive commercial-licensee model.

Key findings

- DOE O 460.2B Attachment 2 provides the **closest direct analog** to 73.37 transport physical protection requirements.
- DOE O 473.2A fills major execution gaps by defining **protective force training, use-of-force, command and control, weapons, and performance testing**.
- DOE O 470.4C and DOE P 470.1B provide the **programmatic and planning infrastructure** needed to sustain the system.
- Remaining gaps are concentrated in **NRC-specific constructs**, including NRC route approval, specific SGI handling language, and certain escort-detail prescriptions.

Requirement-by-Requirement Comparison

The following table lays out the direct comparison requested, using all attached CRDs. "Equivalent" reflects the combined effect of the DOE documents rather than a one-for-one textual match to NRC language.

73.37 Requirement	DOE P 470.1B	DOE O 470.4C	DOE O 460.2B	DOE O 473.2A	Equivalent?
Performance objectives (minimize theft/diversion/sabotage; facilitate recovery)	Addressed at policy level; protection and transportation security needs must be identified and implemented through line management.	Security plans must safeguard against loss, theft, diversion, unauthorized access, misuse, or sabotage.	Attachment 2 establishes a physical protection system for SNF, HLW, and related shipments during transport.	Tactical doctrine and PF mission emphasize interruption, interdiction, neutralization, denial, and recovery operations.	Yes (combined)
Pre-planning and coordination with consignee; written custody transfer	Not specifically addressed.	Not transport-specific.	Requires pre-planned departure/arrival coordination with consignee and transportation planning for shipment operations.	Supports response planning, but not shipment logistics.	Yes
State/Tribal advance notification (timing and content)	Not addressed.	Not addressed.	Attachment 3 requires preliminary communication, advance notifications, and revision/cancellation notices to States and Tribes.	Not addressed.	Substantially
NRC route pre-approval	Not addressed.	Not addressed.	Route analysis required using TRAGIS/START or equivalent; DOE uses internal routing and consultation process rather than NRC approval.	Not addressed.	No
Movement control center (24/7 staffing, authority, written logs)	Not addressed.	Security planning framework supports command and control and contingency integration.	Requires continuous monitoring via TRANSCOM or similar capability and 24/7 operations center support if contractor/site lacks it.	Extensive command/control doctrine and PF communications structure, but not a transport-specific MCC log requirement.	Partial
Armed escort requirements (training, deadly force, weapons)	Not addressed.	Training and awareness framework only.	Requires escorts for certain shipments; road shipments generally rely on armed LLEA escort for SNF >100g.	Provides detailed PF training, ROE, firearms, tactics, and qualifications.	Partial
Redundant two-way communications	Not addressed.	Not transport-specific.	Requires at least two communication forms not subject to same failure mode.	CPF communications design, testing, and issue requirements support this capability.	Yes
Vehicle immobilization (NRC-approved)	Not addressed.	Not addressed.	Requires tractor/cargo immobilization for at least 30 minutes, or alternative position-enhancing method such as panic button linked to TRANSCOM.	Not transport-specific.	Partial
Road escort configuration (two in transport plus LLEA, or lead/trail option)	Not addressed.	Not addressed.	Requires two individuals in transport vehicle and LLEA escort; does not provide the alternative NRC lead/trail escort option.	PF doctrine may supplement response capability, but not the exact transport configuration.	Partial
Rail shipments: two armed escorts, one able to observe shipment car	Not addressed.	Not addressed.	Attachment 2 requires two armed escorts, at least one positioned to observe the shipment car while in motion.	Supports escort qualifications and tactics.	Yes
U.S. waters: armed escorts at dock; territorial waters oversight	Not addressed.	Not addressed.	Requires early coordination with Office of Packaging and Transportation for water physical protection; less prescriptive than 73.37.	May support if PF assets used, but no direct shipment-specific match.	Partial

73.37 Requirement	DOE P 470.1B	DOE O 470.4C	DOE O 460.2B	DOE O 473.2A	Equivalent?
Telemetric/position monitoring system	Not addressed.	Not addressed.	TRANSCOM is required for truck shipments; rail and water use TRANSCOM if possible, otherwise similar tracking with 24/7 carrier operations center support.	Not transport-specific.	Yes
Written contingency and response procedures	Policy expectation only.	Requires security contingency planning, integration, and communication for security and non-security events.	Requires written normal, contingency, emergency, and response procedures, retained for 3 years.	Provides detailed contingency planning, ROE, tactical doctrine, PF performance testing, and pursuit/recovery procedures.	Yes (combined)
Safeguards Information protection	General policy for safeguarding sensitive information and assets.	Classified/CUI planning, awareness, and records handling requirements.	Requires restricted access to sensitive shipment information and security plans.	Supports controlled handling through protective force and security frameworks, but does not use NRC SGI designation.	Partial
Investigation of lost/unaccounted shipments	Not addressed.	Not addressed.	Immediate investigation required in coordination with consignee for covered shipments.	Not addressed.	Yes
Firearms background checks (73.17)	Not addressed.	Not addressed.	Not specifically addressed.	Personnel reliability, access authorization, and qualification standards exist, but not an NRC 73.17 equivalent requirement in the reviewed documents.	No
Records retention (3 years)	Not addressed.	NARA-based record retention framework for S&S; programs.	Three-year retention explicitly required for transportation physical protection procedures and contingency procedures.	Recordkeeping for PF functions is established, but not the primary source for transport retention.	Yes (combined)
Performance assurance / security plan review	Policy requires oversight and continuous improvement.	Formal performance assurance, surveys, self-assessments, and annual/triggered security plan review requirements.	Compliance evaluations required at least once every three years.	Force-on-force, alarm response, and other performance testing required at set intervals.	Yes (combined)

Summary Conclusion

Individually, none of the reviewed DOE documents is equivalent to 10 CFR 73.37. In combination, the documents create a transport security framework that is **functionally comparable** for most core requirements: planning, notifications, tracking, escorting, communications, contingency response, recordkeeping, and performance assurance.

DOE O 460.2B Attachment 2 should be treated as the **primary transport physical protection document**; DOE O 470.4C and DOE P 470.1B should be treated as the **governance and security planning backbone**; and DOE O 473.2A should be treated as the **protective-force execution document** that closes many of the practical response and escort-capability questions that 460.2B does not fully detail on its own.

Key gaps versus 10 CFR 73.37 not fully addressed by the reviewed DOE documents

- NRC advance **route approval** is not mirrored; DOE uses internal routing tools and consultation processes instead.
- The NRC's specific **movement control center** detail is not replicated exactly, especially the written-log and stopped-shipment reporting details.
- Certain **armed escort detail requirements** differ, including the two-weapon minimum and the optional NRC lead/trail road escort configuration.
- **NRC-approved vehicle immobilization** is not matched exactly because DOE allows an alternative position-enhancing method such as a panic button linked to TRANSCOM.
- The reviewed DOE documents do not contain a direct equivalent to the NRC's **firearms background check** requirement in 73.17/73.37(b)(3)(viii).
- DOE protects sensitive shipment and security information, but the reviewed set does not use the NRC's formal **Safeguards Information (SGI)** construct.

Appendix A - Traceability Matrix

This appendix provides a compact mapping from the major 73.37 elements to the DOE sources that most directly support or substitute for each requirement.

CFR element / topic	73.37 anchor	DOE mapping	Assessment / note
Performance objectives	73.37(a)(1)-(2)	470.1B policy objectives; 470.4C Att. 2; 460.2B Att. 2; 473.2A tactical doctrine	Combined DOE framework is functionally aligned.
Transportation plan and route design	73.37(b)(1)	460.2B Att. 1 section 3.a-b	DOE matches planning intent, but route approval is internal rather than NRC-based.
State/Tribal notifications	73.37(b)(2)	460.2B Att. 3 sections 1-7	Substantially equivalent timing/content structure, with TRANSCOM-centered process.
Movement control and continuous monitoring	73.37(b)(3)(i)-(iv)	460.2B Att. 2 section 1.a(3); 473.2A command/control	Continuous monitoring exists, but the NRC's movement control center detail is not mirrored exactly.
Written transportation protection procedures	73.37(b)(3)(v)-(vi)	460.2B Att. 2 section 1.a(5)-(6)	Directly comparable requirement.
Escort communication intervals	73.37(b)(3)(vii)(B)-(C)	460.2B Att. 2 section 1.a(7)	DOE keeps 2-hour status interval, but does not mirror the 30-minute stopped-vehicle reporting requirement.
Contingency and response procedures	73.37(b)(4)	460.2B Att. 2 section 1.a(8); 470.4C contingency planning; 473.2A	Strong combined match.
Road shipments	73.37(c)	460.2B Att. 2 section 1.b	Substantially aligned; escort configuration and immobilization standard differ in detail.
Rail shipments	73.37(d)	460.2B Att. 2 section 1.c	Direct match on two armed escorts and observation position.
U.S. waters	73.37(e)	460.2B Att. 2 section 1.d	DOE is less prescriptive and requires separate coordination.
Lost or unaccounted shipments	73.37(f)	460.2B Att. 2 section 4; Att. 1 section 3.f(2)	Directly addressed.
Safeguards information	73.37(g)	470.1B; 470.4C; 460.2B restrictions on sensitive shipment information	Partial match; DOE protects sensitive information but does not use NRC SGI construct in the reviewed set.
Protective force training, weapons, ROE	Implicit support for 73.37 armed escort execution	473.2A Chapters I-VI and Annexes	This is the principal DOE source that supplements 460.2B physical protection implementation.
Firearms background checks	73.37(b)(3)(viii)	No direct mapping in reviewed docs	Gap in the reviewed document set.

Hyperlinks to DOE Directives referenced in this document

Order O460.2B - <https://www.energy.gov/documents/departmental-materials-transportation-management>

Policy P470.1B - <https://www.energy.gov/documents/safeguards-and-security-program>

Order O470.4C - <https://www.energy.gov/documents/safeguards-and-security-planning>

Order O473.2A - <https://www.energy.gov/documents/protective-force-operations>