# Cryogenic & Hazardous Propellant Movement: 49 CFR Rules Across Valley Arterials

**Pillar:** Space Hardware | **Basis:** Federal Regulation (49 CFR) | **Primary Source:** U.S. DOT PHMSA / FMCSA (49 CFR) | **As Of:** 2026-11-16

Propulsion and launch facilities in Kent, Auburn, and Redmond receive liquid oxygen, methane, hydrogen, or specialty propellants governed by 49 CFR PHMSA/FMCSA hazardous-materials routing, placarding, and tunnel restrictions.

## Operational Continuity & Corridor Facts

• Liquid cryogens and hazardous propellants (LOX, LNG/methane, LH2, hydrazine/monopropellants where used) move under 49 CFR Parts 171–180 (PHMSA) and Part 397 (FMCSA).

• During SR 167 or I-5 flood closures, hazmat carriers cannot simply divert onto arbitrary residential or unrated local streets.

• Individual space companies' propellant supplier contracts and tanker frequencies are not in our data.

## 49 CFR Propellant Transit Continuity Controls

| Control | Regulatory Anchor | Valley Flood / Detour Action |
|---|---|---|
| Authorized Hazmat Routing | 49 CFR Part 397 | Pre-approve non-flooded alternate truck routes |
| Cryo Venting / Hold Time | 49 CFR Parts 173 / 178 | Account for I-5/I-90 gridlock boil-off margins |
| On-Site Storage Buffer | WAC 173-303 / IFC | Maintain safe buffer above BFE + 3ft |

## Corridor Exposure, Triggers & Facility Actions

- Verify that your gas/cryogen supplier has pre-vetted flood-detour routes that comply with 49 CFR Part 397.
- Account for boil-off hold times if a tanker is delayed for hours on a saturated I-5 or closed Snoqualmie Pass.
- Coordinate hazmat receiving windows with EHS (#2061) and local fire-marshal requirements.

## Cross-Cluster Links & Primary Sources

- **WA Space Cluster Hub (#1382):** https://bcesg.org/washington-space-cluster-census/
- **Kent WA Space Cluster Profile:** https://bcesg.org/kent-wa-space-cluster-profile/
- **Facilities / EHS Desk Brief:** https://bcesg.org/wa-space-role-facilities-ehs-desk-brief/
- **Facilities: Waste, PSCAA & Floodplain:** https://bcesg.org/wa-space-role-facilities-waste-pscaa-floodplain/
- **Propulsion Continuity Exposure:** https://bcesg.org/wa-space-propulsion-continuity-exposure/
- **49 CFR DOT / FRA / PHMSA Regulations:** https://www.ecfr.gov/current/title-49
- **WSDOT Commercial Vehicles & OSOW:** https://wsdot.wa.gov/travel/commercial-vehicles

*Provenance Note:* Federal regulatory framework per 49 CFR (eCFR); individual facility delivery schedules are not in our data.