Orbital Transfer Vehicles & Space Tugs in WA: Disposal & Passivation Duties

Pillar: WA Servicing & Habitats | **Basis:** FCC Part 25 / NASA ODAR / Operator Records | **Primary Source:** FCC / FAA / Portal Space Systems | **As Of:** As of Nov 2026 (Portal Bothell 50,000 sq ft)

High-delta-v orbital transfer vehicles (OTVs) and space tugs—including Bothell-based Portal Space Systems' Supernova solar-thermal tug—reduce rideshare deployment clutter by maneuvering payloads, but inherit full FCC 5-year deorbit and passivation duties.

Documented Instrument & Engineering Record

• Why OTVs matter for orbital sustainability: Instead of rideshare satellites separating into crowded sun-synchronous drop-off shells without propulsion, OTVs ferry payloads to custom altitudes and inclinations.

• WA OTV operator: Portal Space Systems (Bothell, WA — 22118 20th Ave SE, awarded $350K WA Strategic Reserve Fund in Dec 2025 for a 50,000 sq ft expansion) is developing the solar-thermal Supernova spacecraft (roadmap hardware).

• Full spacecraft obligations: Because an OTV remains an active maneuverable space station after payload deployment, it is subject to FCC § 25.283(e) 5-year LEO disposal (or graveyard disposal above LEO), full passivation, and < 1:10,000 reentry casualty limits.

• High-energy propulsion note: Solar-thermal, bipropellant, or high-pressure electric OTVs carry larger propellant tanks and pressure vessels—making ORSAT demisability and tank venting critical.

OTV Sustainability & Compliance Obligations

Lifecycle Phase	Operational Action	Governing Standard
Rideshare Separation	Verified deployment timing & COLA	FAA Part 450 / FCC ODMP
Payload Ferrying	Active collision avoidance maneuvers	FCC Part 25 / 18th SDS
End of Mission	Reserve delta-v for <5-yr LEO deorbit	47 CFR § 25.283(e)
Passivation & Reentry	Vent tanks + Ec < 1:10,000	NASA-STD-8719.14C / ODMSP

Mission Designer, Compliance Lead & Founder Takeaways

• Payload customers riding on an OTV must verify in contract who files the FCC ODMP for the host tug versus the deployed free-flyers.

• Portal Space Systems' Supernova and Starfish Space's Otter represent complementary WA OTV/servicing architectures—both in ground/early flight development rather than mature fleet operations as of November 2026.

• Always budget OTV EOL deorbit propellant before committing final delta-v to late-manifest payload plane changes.

Cross-Cluster Links & Primary Sources

• **Portal Space Systems Census Profile:** https://bcesg.org/portal-space-systems-washington-space-cluster-profile/

• **Portal Space Strategic Reserve Fund ($350K):** https://bcesg.org/wa-space-fight-strategic-reserve-fund-portal-space/

• **Passivation & Stored-Energy Guide:** https://bcesg.org/wa-space-orbital-passivation-stored-energy/

• **Portal Space Systems Official Site:** https://www.portalsystems.space/

• **eCFR: 47 CFR § 25.283:** https://www.ecfr.gov/current/title-47/chapter-I/subchapter-B/part-25/subpart-D/section-25.283

• **NASA ODPO: Orbital Debris Mitigation:** https://orbitaldebris.jsc.nasa.gov/mitigation/

Provenance Note: Portal Space Systems Bothell expansion ($350K SRF, Dec 2025) verified against Batch 8/Census records; distinguishes roadmap OTVs from operational fleets.