

Rocky Flats Overview

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U.S. Department of Energy (DOE)
Office of Legacy Management (LM)



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Production Era

1953 - 1994



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HY-93 1954



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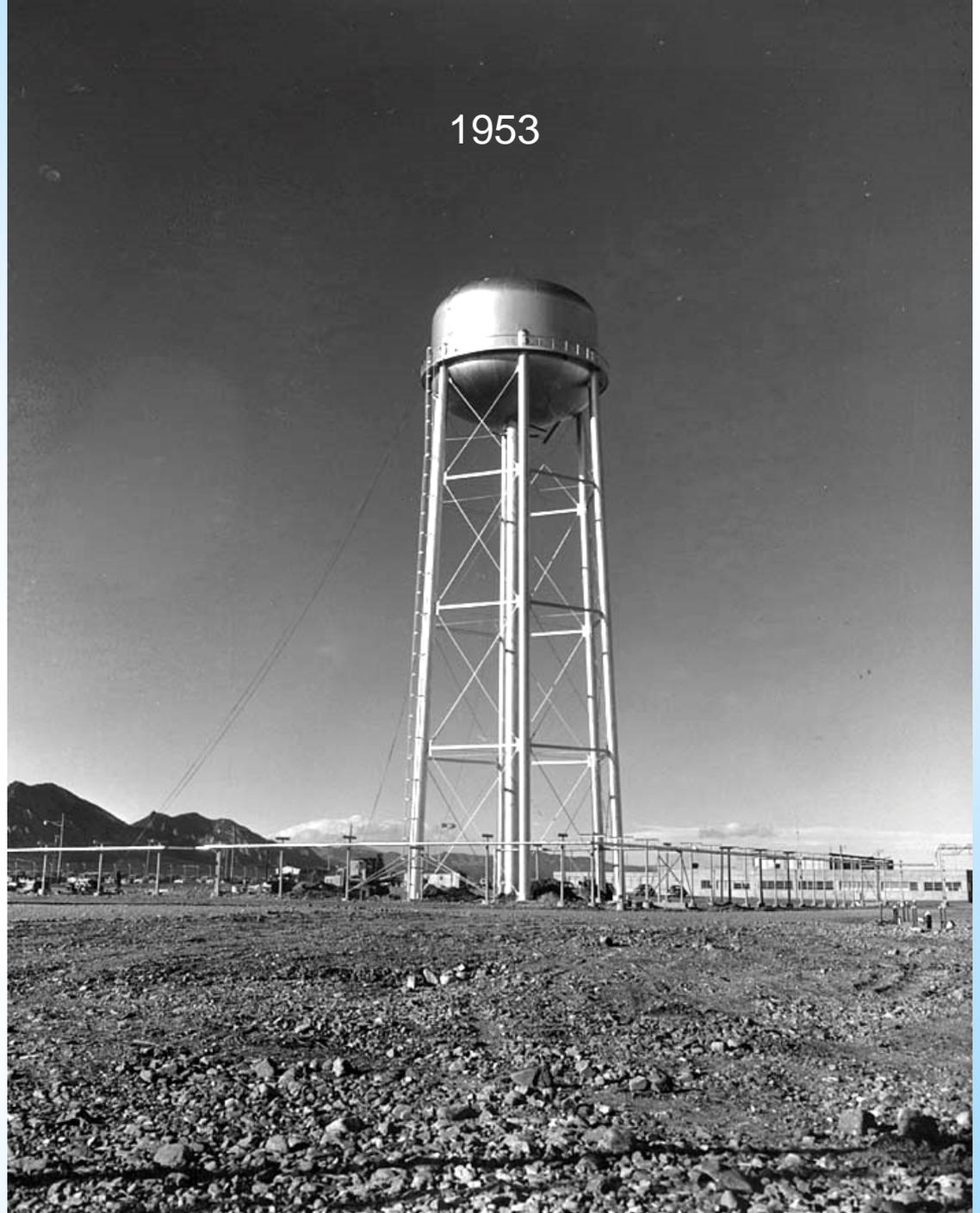
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1953



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DOW 1955



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1989 – End of the Cold War



Rocky Flats, 1995



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The Cleanup

1994 - 2005



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Rocky Flats Closure Project

- Cleanup was directed by the 1996 Rocky Flats Cleanup Agreement (RFCA)
 - DOE, CDPHE, EPA were the signatories to this tri-party agreement
 - Extensive community involvement through the Citizens' Advisory Board and the RF Coalition of Local Governments



Rocky Flats Closure Project

- Ten years and \$7 billion
 - 1996 – 2005
 - Physical completion in October 2005
 - 385-acre industrial area containing 800 buildings and other structures
 - 21 tons of weapons-grade material shipped to other sites
 - 100 metric tons of plutonium residues dispositioned



Rocky Flats Closure Project

Decontamination and Decommissioning

- Extensive decontamination of facilities prior to demolition
- Tanks drained of liquids
- Equipment rip out
- Layers of concrete floor removed
- Property donated, auctioned or disposed





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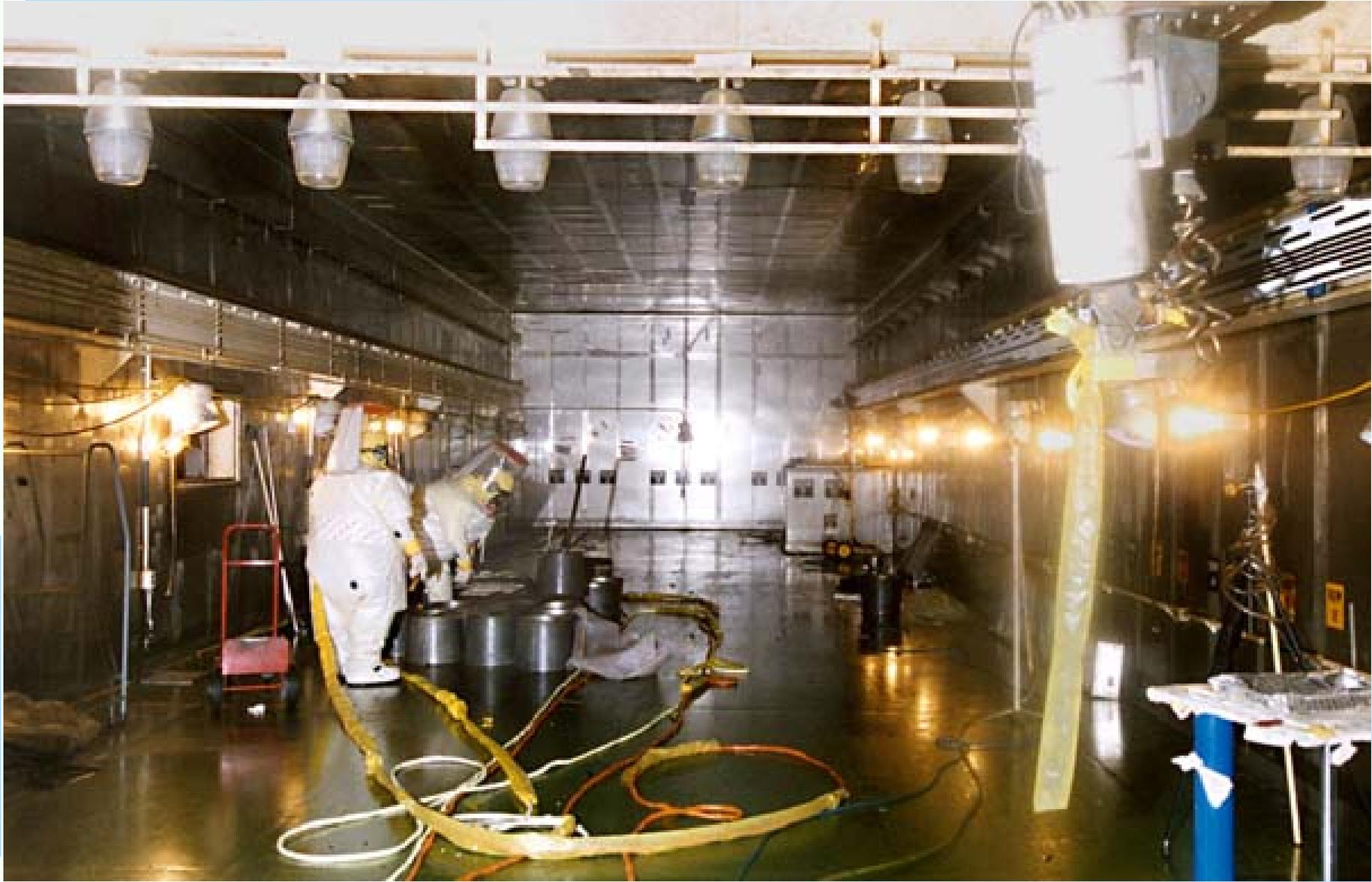
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Building 707 X-Y Retriever



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Rocky Flats Closure Project

Facility Demolition

- Facilities demolished using heavy equipment
- Final walkthroughs and extensive sampling prior to demolition
- Rubble shipped to sanitary, hazardous and radioactive waste landfills as appropriate
- B881 explosively demolished in place





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Building 850



Building 850 GONE









Guard Tower 901





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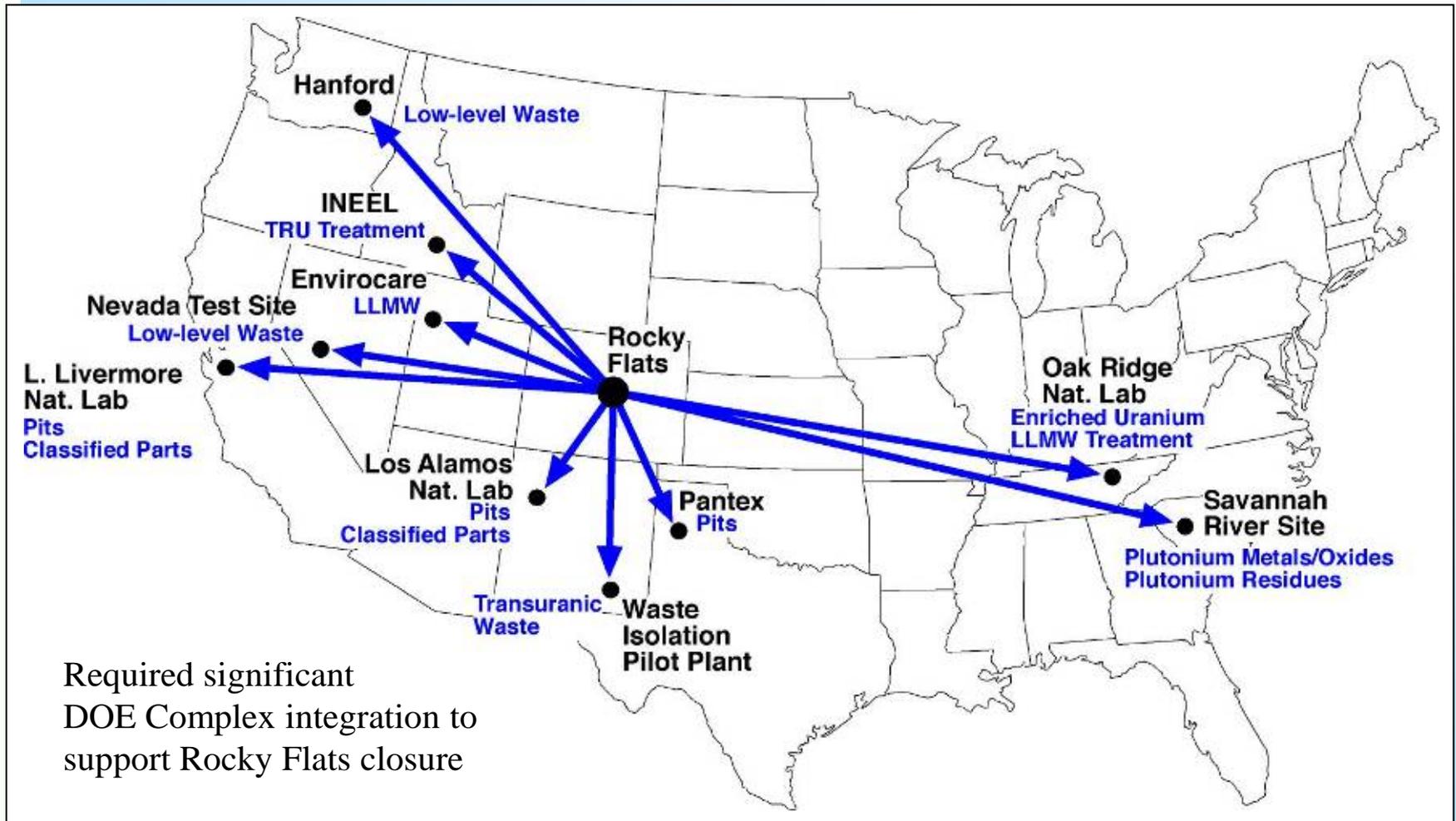
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Material Disposition

- Special Nuclear Material
- Sanitary Waste
- Transuranic (TRU) Waste
- Low Level Waste
- Hazardous Waste
- Classified Parts



Special Nuclear Material and Waste Shipping



Required significant DOE Complex integration to support Rocky Flats closure





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Nearly 15,000 m³ of Transuranic Waste Was Safely Shipped to Waste Isolation Pilot Plant



Rocky Flats Closure Project

Environmental Remediation

- Some soils thermally treated
- Some soils excavated and shipped
- Groundwater treatment (ongoing)
- Landfill covers
- Building Foundations removed
- Historical Disposal Sites investigated and remediated





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Erosion Control on the 991 Hillside



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Characterizing the 903 Pad



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Rocky Flats Closure Project (continued)

- 421 potentially contaminated environmental sites investigated
 - 88 of these sites required remediation
 - Surface soils were cleaned up to a depth of 3 feet below the surface in the industrial area
 - Soils cleaned up to below the 50 picocuries per gram (pCi/g) soil action level for plutonium
- Majority of the site is below 7 pCi/g plutonium.
 - Some plutonium/americium contamination fixed and left in place in two building foundations and some process piping filled with grout (all below 6 feet)
- 275,000 cubic meters of radioactive wastes disposed



Extensive Stakeholder Involvement



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Physical Completion

- All buildings removed with the exception of two vehicle inspection sheds
- All Individual Hazardous Substance Sites were dispositioned per Rocky Flats Cleanup Agreement
- Soil removal where needed - remaining soils below the soil action level
- Two landfills closed with covers meeting landfill regulatory closure criteria and monitoring wells
- Four groundwater treatment systems operating to remove contaminant loading to surface water
- Continued evaluation of groundwater and surface water through RFCA sampling network
- Ongoing DOE presence through LM



Regulatory Completion

■ Central Operable Unit (COU)

- consolidated all areas requiring institutional controls and ongoing monitoring and maintenance to implement the CERCLA remedy
- 1,309 acres managed by LM

■ Peripheral Operable Unit (POU)

- No Further Action
- Essentially uncontaminated former buffer area
- EPA determined the POU met unrestricted use/unlimited exposure conditions and delisted from National Priorities List
- Approximately 4,000 acres transferred to USFWS as Rocky Flats National Wildlife refuge
- DOE has responsibility for an additional 945 acres of POU land



Rocky Flats, October 2005



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Long-Term Surveillance and Maintenance

2006 -



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Legacy Management

- Post-closure operations, maintenance and monitoring of the remedy
 - Two closed landfills
 - Four groundwater treatment systems
 - 97 groundwater, 18 surface water monitoring locations
 - Institutional Controls
 - ICs prohibit/control groundwater and surface water use, soil disturbance, damage to any remedy components, no trespassing signs/no public access
 - Best land management practices
- Community and public interaction
 - Periodic reporting and reviews
 - Periodic public meetings
 - Public website

Rocky Flats, June 2011



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Central Operable Unit

Residual Contamination

- DOE Managed Area
- Original Landfill
- Present Landfill
- Groundwater plumes – VOCs, nitrates, uranium
- Some infrastructure and building remnants
 - Fixed contamination > 6 feet below ground surface
- Some historical disposal trenches and pits –
 - Contents remediated > 3 feet bgs
- Residual soil contamination





Central Operable Unit

Residual Risk

- Soil remediated to a level of 1 in 1,000,000 risk or lower of increased incidence of cancer to a Wildlife Refuge Worker (WRW) scenario
- Meets DOE/NRC decommissioning criteria
 - \ll 25 mrem/yr for WRW scenario
 - \ll 100 mrem/yr for unrestricted (rural resident) scenario
- Surface water meets drinking water standards



Rocky Flats, June 2014



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ETPTS Air Stripper and Structure



ETPTS Solar Power



Wildlife





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