Industry Days 2018
Remotely Operated Vehicles Capabilities

NAVAL UNDERSEA WARFARE CENTER
DIVISION, KEYPORT

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## Recovery Vehicles

<table>
<thead>
<tr>
<th>Depth (feet)</th>
<th>Capacity of Lift (pounds)</th>
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<tbody>
<tr>
<td>1000</td>
<td>Not Rated</td>
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<tr>
<td>2000</td>
<td>Not Rated</td>
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<tr>
<td>3000</td>
<td>Not Rated</td>
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<tr>
<td>4000</td>
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<td>5000</td>
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- **PHANTOM**: 5000 pounds
- **TRIUMPH**: 5000 pounds
- **TROV**: 5000 pounds
- **CURV**: 5000 pounds
- **SORD**: Convertible
Triumph Special Purpose Vehicle (SPV)

SPV Specs
- Fly-away capable
- Crew – 5
- 3250 foot depth
- Wash-out capable
- 75 HP hydraulics

On Board Systems
- Dual manipulators
  - 7 function spatially correspondent
  - 5 function Kodiak Rate Arm
- SONAR
  - Long range continuous transmission frequency modulated (CTFM) with pinger locating capability from 20k-50kHz.
  - DIDSON and Tritech high resolution imaging sonars
- Cameras – lights
- Vehicle tracking system
- QINSy navigation and processing
- Customer-defined systems
Cable-Controlled Underwater Recovery Vehicle (CURV)/Tethered Remotely Operated Vehicle (TROV) Characteristics

**Specs**
- Crew - 3 People
- Depth 4100 - 4400 feet
- 40 HP hydraulics
- Washout capable

**On Board Systems**
- Manipulators
- SONAR
  - Long range CTFM with pinger locating capability from 20k-50kHz
  - Tritech high resolution imaging
- Cameras – lights
- Vehicle tracking system
- Customer-defined systems

CURV/TROV deployed from YTTs
Submerged Object Recovery Device (SORD)

**SORD IV Specs**
- Burial depths to 35 feet
- Depth 4,400 feet
- Weight 8,300 lbs.
- 5,000 lbs. direct lift
- Deployed from YTT, stabilized via kedge wires to mooring buoys

**On Board Systems**
- Wash-out pump
- Manipulators (2)
- SONAR (for finding units in mud)
- Long range sensors with pinger locating capability
- Cameras - lights
Operational Capabilities

- Search and recovery of lost ordnance
  - 21”, 13”, and 6” claws and ability to snare any diameter vehicle
  - Direct or indirect lift of mines or UUVs
- Perform aircraft and vessel salvage
- Subsea video surveys of objects and points of interest.
- Ability to cut cables: hydraulic cutter, up to 1.5”; hydraulic circular saw, 10” abrasive blade
- Deployment of undersea sensors and equipment
- Bottom sampling
- Can integrate customer supplied sensors or work / tooling packages
Recovery Team Capabilities

- Torpedo recoveries throughout world
- Recovered downed airplanes, helicopters
- Criminal investigation, video evidence gathering
- Intricate bottom mounted equipment repair
- Ordnance trained crew
- Ordnance certified equipment
- Government crew with secret clearance
SORD Upgrade
All Customers who use the range at Dabob Bay or Nanoose are potential customers of SORD.
SORD IV was developed in 1984 and last overhauled in the mid-90s. Many of its systems are obsolete and becoming unreliable.
SORD Upgrade

The SORD Upgrade shall:

• Address telemetry, the washout system, the drive system, and ship based control, including software.

• Utilize current technology where available; addressing obsolescence issues and single point failures of degrading items that are costly to manufacture... thus increasing overall reliability and maintainability.

• Encompass a new ordnance handling framework to accommodate new system components, with a coating applied to ensure proper protection from undersea environment.
Acquisition Strategy

• SORD Upgrade Contract with two phases to limit SORD down time:
  Phase 1: Design and build new frame per ordnance handling specifications. Update telemetry and power systems. Develop software for topside control.
  Phase 2: SORD IV manipulator provided to vendor. Integrate original equipment with new frame and components. Acceptance testing at contractor facility.

• Documentation and range craft system integration.
• Government personnel with contractor support will install and test SORD on YTT-10 and YTT-11.

For any follow on questions please contact Cindy Carlson at cynthia.carlson@navy.mil