PARAGON
SPACE DEVELOPMENT CORPORATION

Paragon Dive System™

Paragon Dive System™ converts a commercially available helmet and suit into a fully encapsulated protection system to isolate the diver from the hazards found in grossly contaminated water

System Benefits

- **Highest Level of Safety**:
  - Isolates diver from environment
  - Eliminates permeation of contaminants
  - Backup exhaust circuit as a fail over in case of malfunction
- **Lower Operating Costs**:
  - Reduce time between dives without having to replace seals
  - Increase dive times to six hours without risk of exposure

Designed to support the US Navy's need to protect divers from acute and chronic exposure to Category 1 (grossly) contaminated water, the Paragon Dive System™ addresses two main issues of exposure for divers:

- Leakage through helmet seals due to degradation from chemicals in the water
- Ingress of water through the helmet exhaust and suit dump valves

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Suit

Commercial dry suit made of chemically resistant NITECS for protection against permeation and abrasion is outfitted with a unique Paragon dump valve that discharges into the helmet exhaust line..

Helmet

Commercially available dive helmet modified with Paragon Return Surface Exhaust (RSE) System assembly and emergency dump valve. All seals and O-rings replaced eliminate harsh chemical permeability and degradation.

Modifications made without impact to original structural integrity of the helmet.*

All connections welded to US Navy specifications.

Breathing apparatus will have a resultant resistive efforts at all depths to 200 FSW and 25 BPM for the following conditions:

RMV at 62.5 L/min: 1.76 J/L

RMV at 90.0 L/min: 3.00 J/L

**All modifications are reversible.*

Exhaust Surface Panel

Exhaust Surface Panel

Mobile unit handles all exhaust functionality

Two modes of operation for up to three concurrent divers:

- **NEAR SURFACE** (0-33 FSW): integrated Venturi vacuum pumps to reduce exhaust back pressure
- **NOMINAL DIVING** (33-200 FSW)*
  Backup circuit allowance for any one diver failover in either mode

Compatible for use with pure O_2

Easy transport in a waterproof Pelican™ case (43"L x 27.3"W x 20.2"H)

Easily calibrated instrumentation

Communications and air supply provided separately

Breathing Umbilical: 300 ft length and ¾" dia Goodyear Gorilla hose

Water Contamination

US Navy defines four category levels for contaminated water*. The most hazardous categories being:

CAT 1: Grossly contaminated, extreme risk of injury (or even death), fully encapsulated diver (including surface exhaust)

CAT 2: Heavily contaminated, high risk of injury, fully encapsulated diver (in water exhaust)

The three main groups of contaminants:

- Biological: Pathogens (bacteria, viruses and parasites), blood borne pathogens and toxins.
- Chemical: Hydrocarbons (jet fuel, fuel oil, diesel fuel, solvents, PCBs, heavy metals, oxidizing agents (halogens and acids)
- Warfare Agents: Biological and chemical (GB-sarin, GD-suman, HD-mustard and VX).

*Reference: SS521-AJ-PRO-010 "Guidance For Diving in Contaminated Waters", Naval Sea Systems Command, March 15, 2008

HEADQUARTERS

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