NET[™] Systems





THE INNOVATION

Based on extensive research and field experience with petroleum and chemical spills, EIC has developed a simple yet practical solution to remediate both light and dense non aqueous phase liquids (LNAPL and DNAPL), also known as free phase product. The solution led to the development of a unique tool which recovers primarily the NAPL thus eliminating the need to pump groundwater typically produced by conventional remedial techniques.

The tool, known as NET[™], utilizes an oleophilic/hydrophobic fabric capable of adsorbing the product with a 99% recovery efficiency. The fabric is conveyed in a continuous loop into the well to intercept the oil-water interface. As the fabric travels through the interface, NAPL is adsorbed. The adsorbed NAPL is removed in a specially designed desorption unit and gravity drained into a storage drum or tank. The recovered NAPL can be periodically transported to a recycle facility for reuse. The tool can also be used to conduct recovery potential tests to determine if long-term recovery is sustainable. If sustainable, the tool is capable of matching recovery to recharge in an infinite range of water table fluctuations.

The NET[™] approach, therefore, eliminates perpetual liabilities. As an added value, the NET systems utilize a fraction of the energy typically consumed by competing systems and produce minimial green house gases. The recovered product is typically recycled - thus eliminating disposal costs. The end result is the elimination of perpetual remedial programs at substantial reduced lifecycle costs.

L-NAPL and D-NAPL Remediation

- Evaluate Technical Impracticability with empirical data
- Operates perfectly in infinite range of WT fluctuations
- Match Recovery to Recharge to Optimize NAPL recovery
- Increase recovery efficiency to 99% NAPL-water ratio
- Reduce lifecycle costs by nearly 70%
- Recycle to eliminate disposal costs

Unique Benefits

- Dual Roles Both an assessment and remedial tool
- Deploys in wells as small as 2 inches in diameter and to depths up to 400 feet below grade.
- Can be integrated with a groundwater depression pump.
- Installs flush-to-grade in traffic areas.
- Explosion-proof options available.
- O & M costs are minimal.
- Adapts to an infinite range of water-table fluctuations.
- Telemetry packages are available for remote operation and maintenance.
- Variable recovery rates range from less than 1 gallon per hour (gph) to greater than 100 gph.
- Eliminates the need for groundwater or air permits compared to conventional recovery techniques.
- Powered by electric, solar, hydraulic, wind , or hybrid energy.

How NET[™] Systems Work





Squeeze-rollers in NET^M unit desorb the oil from the NET^M fabric. The oil gravity drains into a container.

Oleophilic-hydrophobic NET[™] bristles looped around the squeeze rollers (shown above) and the weighted pulley (shown below) continuously adsorbs the NAPL present on the oil-water interface.



Weighted tail-pulley keeps the NET[™] fabric taut and aligned in the well

Installations



ABOVE-GRADE EXPLOSION PROOF NET™ ASSEMBLY



Below-grade Installation



Horizontal Installation for surface spills





TIME TO REACH MILESTONE



POWER NEEDS & GREEN HOUSE GAS EMISSIONS



Specifications:

| Oil Recovery Rate: | 1 to 240 gallons (900liters) /day | | | |
|----------------------|---|--|--|--|
| LNAPL Recovery: | Solvents, gasoline, aviation gas, kerosene, diesel, fuel oils, fractionated No. 6 oil, vegetable oils, & weathered products. | | | |
| DNAPL Recovery: | Creosote & other immiscibles | | | |
| Well Diameter: | 2-inch (50 mm) or greater | | | |
| Well Depth: grade | up to 400 feet (120 m) below | | | |
| Footprint: | 4 x 6 feet (1.2 x 1.8 meters) | | | |
| NET Bristles: | Unique extruded polymer | | | |
| NET Weight: | 35 lbs (16 kilograms) | | | |
| NET Size: | 23 x 18 x 10 inch (L x W x H) 59 x 46 x 26 cms | | | |
| Motor: | 1/8 HP (12 or 90 VDC) TENV or 1/4 HP (90 VDC) Exp. proof 6 amp max | | | |
| Power Options: | 120/240 VAC Power Solar Panel (72 watt) Wind Turbine (72 watt) Hybrids (100 watt) | | | |
| Accessories: | Well Riser Extension Kit Stand Mounting Kit High-level Shutoff Switch Oil/Water Decanters Control Panel | | | |
| | | | | |

Other Options:

- Automated Transfer of recovered NAPL
- Telemetry/SCADA for remote operation
- Flush-to-grade (below grade) options
- Horizontal installation for trenches
- Trailer mount for mobility

NET[™] compared to conventional technologies

| FEATURES | NET [™] SYSTEM | PUMP AND TREAT | SOLID BELT SYSTEM | PNEUMATIC SYSTEMS |
|---|-------------------------|-----------------------|----------------------|----------------------|
| LPH ADSORPTION CAPACITY | High | N/A | Low | N/A |
| APPLICATION IN FLUCTUATING WATER TABLE CONDITIONS | Unlimited Range | Not Effective | Unlimited Range | 2 to 3 feet |
| VARIABLE RECOVERY RATE | Yes | No | No | No |
| ADAPT TO VARYING BELT WIDTHS | Yes | Yes | No | N/A |
| HOUSING DURABILITY | Stainless Steel | Stainless Steel | Painted Carbon | Stainless Steel |
| REQUIRE ANCILLARY EQUIPMENT (air hoses, compressor, etc.) | No | Yes | No | Yes |
| BELOW GRADE INSTALLATION | Yes | Yes | Yes | Yes |
| INTEGRATE WITH GW DEPRESSION PUMPS (dual-extraction) | Yes | Yes | Yes | Yes |
| INTEGRATE WITH VACUUM EXTRACTION PROCESSES | Yes | Yes | Yes | Yes |
| TOTALLY ENCLOSED HOUSING (closed loop) | Yes | Yes | Yes | N/A |
| OIL SEEPS FROM HOUSING | No | N/A | Yes | N/A |
| APPLICATION IN 2-INCH WELLS | Yes | Yes | Yes | Yes |
| FIELD AJUSTMENT OF BELT FABRIC | Yes | N/A | No | N/A |
| RECOVER PRODUCTS-LIGHT FRACTION TO DISTILLATES | Yes | Maintenance Intensive | Moderate | Moderate |
| GAUGING PROVISION DURING EQUIPMENT OPERATION | Yes | No | No | No |
| EASY WELL HEAD MOUNTING | Yes | No | No | N/A |
| EMERGENCY OVERFLOW PROTECTION | Yes | No | No | N/A |
| OPERATE ON SOLAR AS A SOLE POWER SOURCE | Yes | Yes | Yes | No |
| EXPLOSION-PROOF MOTOR OPTION AVAILABLE | Yes | No | Yes (only option) | N/A |
| USED IN RECOVERY/RECHARGE TESTS | Yes | Not Effective | No | No |
| BIOFOULING/ENCRUSTRATION | No | Yes | No | Yes |
| LIGHT-WEIGHT AND EASY TO INSTALL | Yes | Yes | No | No |
| OPERATION AND MAINTENANCE COST | Low | High | High | High |
| VAPOR TIGHT SEAL OPTION | Yes | Yes | Yes | Yes |

INSTALLATIONS WORLDWIDE



OTHER COUNTRIES

Bahamas Bermuda Barbados Cayman Islands Dominica Germany Grenada India UAE United Kingdom

EIC

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Our Contribution to the Environment !