



# EIC Global Solutions

***Innovative Solutions***

## ***NET™ Systems***



### **L-NAPL & D-NAPL Recovery**

- Light/Dense Non Aqueous Phase Liquids (NAPL) recovery
- Deploy in wells as small as 2-inches in diameter
- Recovery efficiency with 99% product-water ratio
- Reduce O & M costs by nearly 70%
- Minimize or eliminate disposal costs

## Developed by Remediation Experts

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### The Challenge

Leaks and spills from both aboveground and underground storage tanks are an inevitable consequence of operating a petroleum or a chemical facility. Often



these releases contaminate the subsurface environment. In the past decade, billions of dollars have been spent remediating subsurface releases but only with partial success. These remedial technologies are not only ineffective in efficiently recovering the released product, but often lead to costly and time consuming cleanup processes. In addition, most of the technologies produce vast quantities of water, air, or emulsified product which is expensive to dispose.

### A Clear Answer!

Based on extensive experience addressing petroleum and chemical spills, EIC has developed a simple but practical solution to recover both light and dense non aqueous phase liquids (L-NAPL and D-NAPL), also known as free-phase product.

The solution led to the development of a process which recovers primarily the product thus eliminating the need to pump groundwater associated with conventional remedial techniques.

The process, known as Non-aqueous Extraction Technique (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, product is adsorbed. The adsorbed product is removed in a specially designed desorption unit and the recovered product is gravity drained into a storage drum or tank. The recovered product can be periodically transported to a recycle facility for reuse.

The system can also be used to conduct recovery/recharge tests to identify the true product recharge potential. Based on the results of the test, EIC can adjust the recovery rates to match the recharge rate. If hydraulic control is necessary, the NET™ system can replace the product recovery pump in a dual-pump scenario.

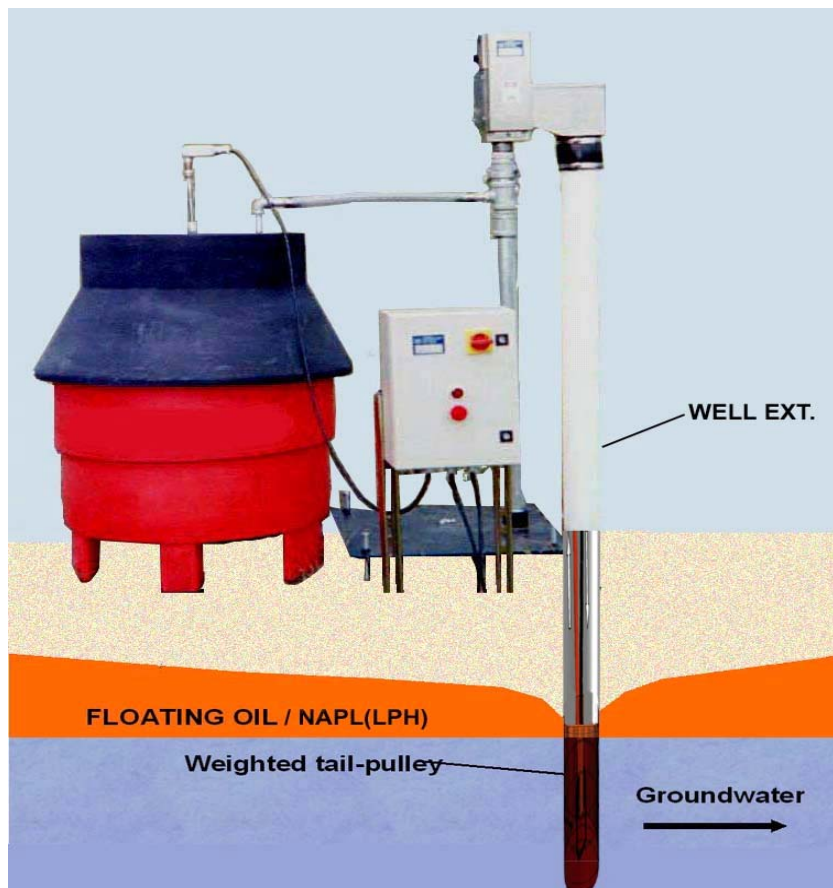
The NET™ systems were designed by remediation professionals who have extensive field experience remediating NAPLs.

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99%  
O/W  
Ratio

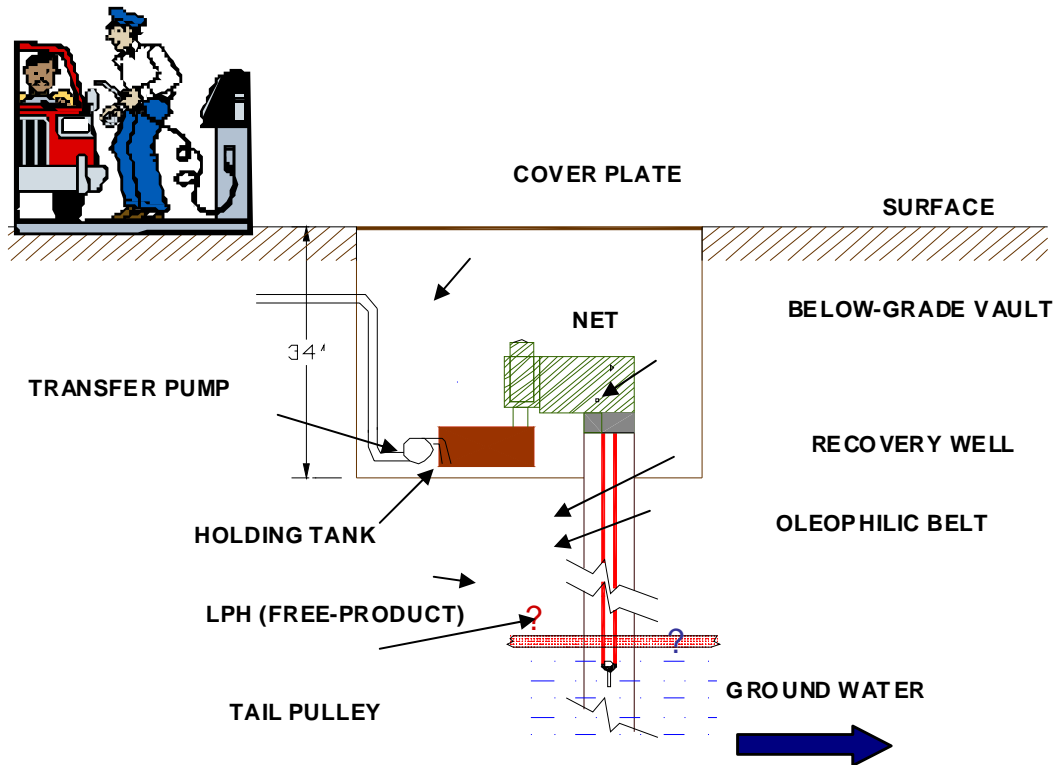


RECYCLE THE  
RECOVERED  
PRODUCT



- ◆ Deploys in wells as small as 2 inches in diameter and to depths up to 200 feet below grade.
- ◆ NET™ can be easily adapted to varying well diameters.
- ◆ The NET™ fabric lengths can be adjusted in the field.
- ◆ LPH recovery down to sheen in hours.
- ◆ Can be integrated with a GW depression pump or VES.
- ◆ Can adapt to wide water-table fluctuations (over 20 feet).
- ◆ Variable recovery rates range from less than 1 gallon per hour (gph) to greater than 100 gph.
- ◆ No groundwater or air permits required.
- ◆ O & M costs are minimal.
- ◆ Recovered product can be recycled.
- ◆ Powered by electric, solar, hydraulic, or wind energy.
- ◆ Telemetry packages for remote operation and maintenance.
- ◆ What-you-see-is-what-you-get (WYSIWIG) because you can measure the actual product unlike other systems that require calculations from emulsified oils or vapor concentrations discharged to air.

## Below-Grade Installation



The explosion/flame proof unit featured here is ideal for installations at service stations, driveways, or other areas that do not permit surface obstructions. The system was designed for installation in a 3-ft below-grade vault. The unit has a 20-gallon sump equipped with an automatic level-controlled transfer pump for remote conveyance of recovered products.



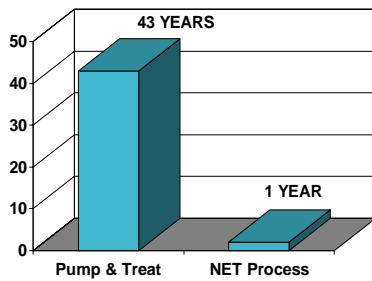
## Other Applications

Because the oleophilic fabric can be aligned in a horizontal position as well as in a vertical position, the NET™ systems can be deployed in a variety of other applications with minor modifications. This versatility provides an opportunity to recover product from sumps, catch-basins, lagoons, holding ponds, API separators, and even on rescue boats. The triple roller units recover product at rates in excess of 450 barrels per hour from larger oil spills on land and water.



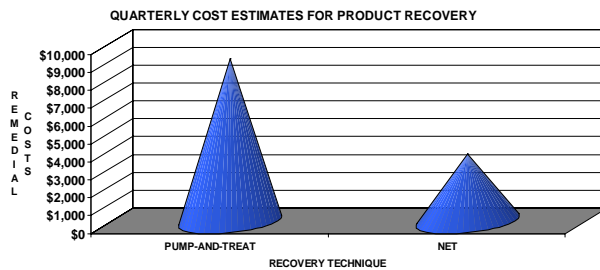
At a site in the Caribbean, the NTST series NET™ system was adapted to recover a surface spill of petroleum products within an above ground storage tank farm.

### CLEANUP TIME



The amount of LPH recovered in one year with NET™ systems would take 43 years with other methods.

### COST SAVINGS



NET systems typically save over 70% in overall operation and maintenance costs.

### NET™ System



The standard NET™ units can be installed in a variety of settings. Variable speed drives and timer controls are optional. Product recovery rates range from less than 1 gph to 100 gph.

**Order #: NTST Series**  
**Type: SS Housing**



### Explosion/Flame Proof System

These units are equipped with explosion-proof motors for application in areas that pose a potential fire hazard. Variable speed drives are optional. Recovery rates range

**Order #: NTEP Series**  
**Type: SS Housing**



### Solar Powered System

At remote sites, solar powered units are ideal. Since, these systems depend on sunlight for power, timer controls are not necessary. Recovery rates range from less than 1 gph

**Order #: NTSP Series**  
**Type: SS Housing**



### Hydraulic System

For larger surface and subsurface cleanups, hydraulic-powered systems can be installed in a variety of settings. Variable speed drives are optional. Recovery rates range from 50 gph to 1800 gph.

**Order #: NOHS, NOST, NOEP**  
**Type: Mild steel sandblasted with two coats of paint**

**Oleophilic Fabric**

These fabrics are made of patented polypropylene materials extruded with a special texture to enhance the oleophilic properties. Belt sizes range from 1-inch to 36-

**Order #: OF Series**  
**Type: Flat and round**

**Oil/Water Decanters**

In slow product recharge environments, EIC recommends a mini- oil/water decanter to separate small quantities of water recovered.

**Order #: OWD Series**  
**Type: Stainless Steel**

**Weighted Tail-Pulley**

Properly designed and calibrated weights are key to successful installation of the NET™ systems.

**Order #: WP Series**  
**Type: Stainless Steel**

**Telemetry System**

Remote sites can be operated and/or monitored using a telemetry system. Options include secure web-enabled applications for world-wide access.

**Order #: TS Series**  
**Type: TouchSreen or SCADA**

**Riser Assembly/Weather-Proof Housing**

In an above-grade installation, a riser assembly is required to facilitate gravity drainage and to prevent wind-blown spills. Weather-proof enclosures are available.

**Order #: RA and WP Series**  
**Type: PVC or variable**

**Installation O & M Service**

EIC technicians are experienced in properly installing the NET™ systems based on prevailing site conditions. The technicians can also operate and maintain the system to

**Order #: IS/OMS**  
**Type: Specify**

**Below-Grade Assembly**

The NET™ systems can also be installed flush-to-grade if above-grade installations are undesirable. Transfer pumps are available to convey product to a remote location.

**Order #: BG Series**  
**Type: Standard or Explosion-proof**

**Recovery/Recharge Tests**

EIC routinely conducts recovery/recharge tests prior to permanent installations to verify if recovery rates can be sustained over the life of the project. Based on the test data, recovery rates can be optimized.

**Order #: RRT Series**  
**Type: Single or Multiple Sets**

## **EIC PRODUCTS & SERVICES**

- Environmental Assessments
- Environmental Remediation
- Environmental Audits
- Hazardous Waste Management
- ISO 14000 Audit Compliance
- Risk & Hazard Assessments
- Safety Products & Services
- Spill Prevention & Control
- Waste Minimization
- Water & Wastewater Treatment

## **NET™ INSTALLATIONS**

- Atlantic Wood Industries (D-NAPL recovery), Georgia
- BP-Amoco, Sharjah, UAE
- ChevronTexaco-Bahamas, California, Georgia, New Jersey, & NY
- Caribbean Utility Company, Grand Cayman
- Colonial Oil Terminal, Georgia
- Dubai Municipality, UAE
- Emirates Petroleum Products Company (EPPCO), Dubai, UAE
- Equiva Enterprises Inc., Multiple Locations
- Former British Petroleum Oil Company Refinery, Pennsylvania
- Former Conoco Refinery, Wyoming
- Former Gulf Oil Terminal, Rhode Island
- Former Gulf Service Station, Erie, Pennsylvania
- Lockheed-Martin, USEPA Superfund Site, New Jersey
- Metropolitan Atlanta Rapid Transit Authority (MARTA), Georgia
- Mobil Oil Corporation, Providence, Rhode Island
- Oil Field Supply Center, Jebel Ali, UAE



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