

SPILL BUDDY

OWNER'S MANUAL



BY CLEAN EARTH TECHNOLOGY

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Spill Buddy Introduction

Spill Buddy is a compact, manual product skimming tool based on proven Spill Buster technology. Spill Buddy is designed to operate on site to determine product/water interface and skim small quantities of product, or water, or extract sinkers.

Spill Buddy is based on patented, state-of-the-art ALPHA-ARRAY™ sensors in the probe that detect the interface between the product and the water. The audible feedback allows the user to determine the water surface and allows product skimming.

The compact probe with enclosed pump easily fits into wells as small as 2" in diameter. The rugged, lightweight, and convenient Spill Buddy can skim up to 0.7 gallons of product per minute. Spill Buddy also has a self contained, rechargeable battery for the sensor electronics and pump. The battery is rechargeable from a 12 VDC source (car battery or cigarette lighter socket-optional) or the wall transformer provided with the unit. Spill Buddy will operate for up to one hour of continuous pumping (approx. 40 gallons) per charge.

This manual contains information about system components, operation, maintenance, and technical specifications of Spill Buddy.

Spill Buddy Components



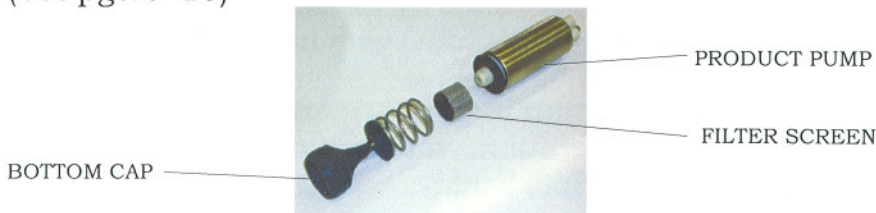
Product Probe

Spill Buddy is composed of three major assemblies: the reel, the case, and the probe. The probe body is constructed of chemical resistant epoxy, and houses a replaceable pump. The probe end contains an intake filter screen, and an ALPHA-ARRAY™ system that senses the product/water interface. (Figure 1)



Figure 1

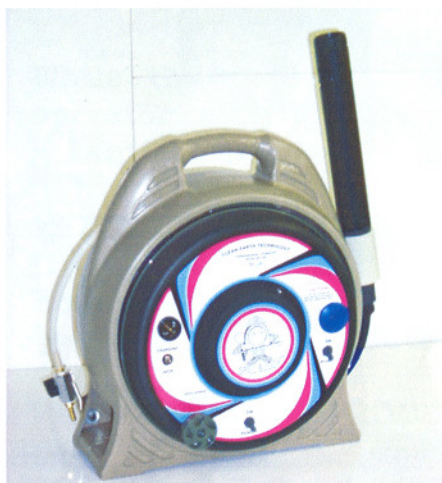
The product pump contained in the probe is a powerful unit that can pump up to 0.7 gallons/minute for approx. one hour in well depths of up to 50 feet before recharging the battery. For optimal pump life and reliability, the pump must be cleaned and serviced on a regular basis. (See pgs. 9-10)



Probe, exploded view

Spill Buddy Components (cont.)

The Front Panel of the Reel includes the System Power ON/OFF switch, the Pump ON push button switch (momentary), the pump ON toggle switch (constant) and the Battery Charging jack. (See Fig. 2 Page 4)



The center panel of the Reel contains the Battery Access Cover. The 10 ft. Product Discharge Tube is stored in an area on the backside of the reel. (See Figure 3, Page 4) A Probe holder is mounted on the side of the reel case. The user must supply a product discharge container.

The manually operated Reel holds 50 feet of polyurethane, fuel proof, tubing (a 100 foot option is available). It is connected to the 10 feet of Product Discharge Tubing, LOCATED AT THE REAR OF THE REEL. (See Figure 3, Page 4)



Figure 2: Spill Buddy - Front Panel

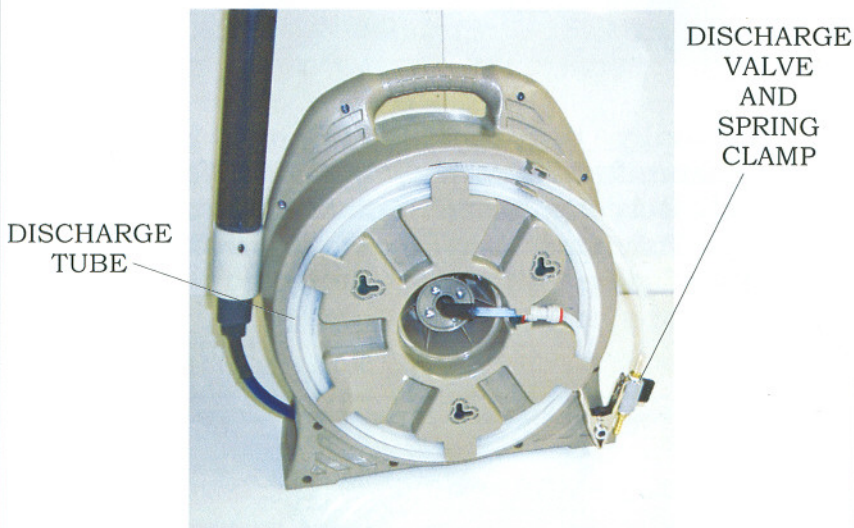


Figure 3: Spill Buddy - Back Side

Spill Buddy: System Operation

NOTE: Personal Protective Equipment, level C or D, as defined in OSHA 29 CFR 1910.120, shall be worn as a minimum while operating or cleaning the Spill Buddy unit. A suitable container should be used to contain product.

FOR YOUR SAFETY DURING USE:



While the Spill Buddy is intrinsically safe, the operator with the Reel unit should not enter potentially explosive atmospheres.



THE SPILL BUDDY MUST BE USED ON THE GROUND. In order to discharge static electricity, the Spill Buddy must be on the ground before the discharge is hooked up or the probe lowered in the well.



FILL PORTABLE PRODUCT CONTAINERS ON THE GROUND. Never fill product containers on a vehicle. Static electricity can build up on a container when electrically isolated from the ground, such as when placed on a vehicle. Ignition could occur in such a case.

Suggested list of items needed for Operation: Spill Buddy, protective gear as determined by product (Level D minimum), five gallon bucket, clean rags, large adsorbent pads, misc. Tools to open well covers, pen and paper to record notes.

For Floaters (LNAPLS)

1) Turn the unit on using the SYSTEM POWER switch on the Front Panel (Fig. 1). Spill Buddy will respond with one beep every three (3) seconds, which indicates that the unit is ON, and the battery is charged and functional. Note: Lower Product Probe into well before connecting the product discharge tube to discharge container.



2) Remove the probe from its receptacle and lower by unreeling it into the well. (NOTE: Use caution to avoid scraping the tubing on sharp edges)



Continue to lower the probe slowly into the well. When the Probe ALPHA-ARRAY™ sensor contacts water, Spill Buddy will respond with a continuous beep.



3) To recover product, clip discharge tube end to the product discharge container and open the petcock. Product can be pumped out of the well by the following procedure: raise the depth of the probe to a point just above the product/water interface. (The continuous tone changes to two beeps/second.)





4) Press the push button (momentary) PUMP ON switch or flip the PUMP ON toggle switch (constant) located on the Front Panel. Use “fishing” motion. Once the tone changes from one beep/three seconds to continuous, release the pump switch so that the water will not be pumped into the discharge, or raise the probe.

As water recharges the well, the interface level may change. To avoid pumping water, it is recommended that the operator continue the “fishing” motion to reestablish the interface level, then find product and restart the pump. Repeat this process several times to pump off the maximum amount of product.

NOTES: a) The pump will operate as long as the constant PUMP toggle switch is in the ON position. Spill Buddy will pump water or product depending upon the elevation of the probe in the well relative to the product/water interface. The operator selects the fluid to be pumped by listening to the tones. **The pump will not automatically turn itself off when it senses water.**

b) If, during the course of the day, the pumping rate slows down, check the filter screen first. Use large adsorbent pad to wrap probe between wells to prevent spillage.

For Sinkers (DNAPLS)

1) Remove the Probe from its receptacle and lower by unreeling it into the well. Spill Buddy will beep once every 3 seconds. When the Probe ALPHA ARRAY sensor contacts the water in the well, Spill Buddy will respond with a continuous tone.



NOTE: Scum on surface of liquid may foul sensors and yield false tones. Raise and lower the probe by hand a few times ("fishing") to ensure an accurate repeatable reading.

2) Continue to lower the probe into the well. When the probe sensor contacts a sinker product, Spill Buddy will respond with one beep every three seconds.



3) To recover product, clip Discharge Tube end to product discharge container. Product can be pumped out of the well by lowering the Probe past the water to the product level. (1 beep/3 seconds). Then push the (momentary) push button PUMP ON switch, or flip the (constant) PUMP ON toggle switch for continuous operation. Both switches are located on the Front Panel. The exact level of the ground water/sinker interface may change



as product is being pumped off, requiring the Probe to be lowered slightly. Keep Probe off bottom of the well to avoid pumping silt-laden product.

Caution: If the well contains both floating product and DNAPLS, the Probe will respond with one beep/three seconds for the DNAPLS level. Pump off products as previously discussed, but into separate containers.

Field Shutdown Procedures

Field cleaning: **a)** Spill Buddy should be cleaned after each use. Reel in Probe while wiping off tubing with rag. Roll tubing evenly onto reel, guiding tubing from side to side. Wipe off Probe with absorbent pad. Make sure product inlet slot is free of debris. While ensuring that the discharge tube is still clipped to the discharge container, and petcock is still open, hit the PUMP ON switch repeatedly until most of the product is purged from the tubing, then turn off petcock. It may be helpful to hold the unit on its side and turn on the PUMP switch a few times to try to purge more product. **b)** In clean, dirt free area, remove Pump and screen from Probe and clean filter by wiping with cloth and blow off. (See Page 10)

Further cleaning or purging of Spill Buddy may be desired. This can be accomplished by pumping a cleaning product (**compatible with the product being skimmed**) through Spill Buddy. Using the Probe, pump a quantity of cleaning product through the Pump and the tubing. After pumping, lubricate with WD40 or similar product. Repeat field cleaning (above). The Probe should be wrapped with a large adsorbent pad between sites to avoid spillage. Put Probe back into receptacle. Put discharge tube back into storage area and attach clip to its post.

NOTE: After use in each well, product should be purged from Spill Buddy unit. Verify that the product inlet slot is clean and free of debris. To clean, wipe off with clean cloth. Wrap Probe in a large adsorbent pad between sites to avoid spillage.

REMOVING THE PUMP

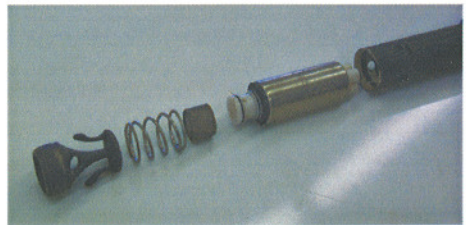
The Probe and product Pump should be cleaned and lubricated regularly, The Product Pump is easily accessible by pushing the end cap in to ease pressure on the first button. Pop the first button in. Then repeat the process for the second button on the opposite side and pulling the End Cap out. (See below) Now use the pump tool to engage and withdraw the Pump.



NOTE: To reassemble begin by putting the pump tool on the pump, then align the product discharge tube with the product discharge seal down inside the probe tube. Insert the pump into the probe so that the Pump contacts are seated firmly against the Probe contacts. Remove the pump tool. If a firm contact is not made the Pump may not function. Insert the filter adapter and screen into the probe using the other end of the pump tool. Finally, insert the spring and end cap such that both lock buttons on the end cap lock in place.



Using the Pump Tool



Probe 'exploded' view

SHOP CLEANING

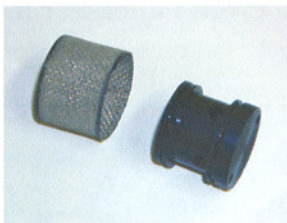
Wipe off Probe, including product inlet slot. Clean Probe product inlet slot.

PRODUCT TUBING: Cleaning: To purge the product tubing, open petcock and apply pressurized air to the petcock end of the discharge tubing. Use LOW pressure (less than 20lb psi) to blow out excess product. **Make sure that the Probe is in a discharge container and petcock is open and pump assembly is removed..** Again, you may want to turn unit on its side to help void product.

FILTER SCREEN: Remove filter adaptor and screen from Pump. Clean debris from screen with cloth or soft-bristled brush, then blow off with pressurized air.

PUMP CLEANING: Pumps are a maintenance item and will need frequent cleaning, especially when pumping silt-laden product. The Pump and tube should be wiped off and sprayed with a lubricant (WD40 or similar). The optical sensor in the bottom cap should be frequently wiped with a clean, soft cloth.

REASSEMBLY: When reassembling the pump into probe, begin putting the pump tool on the pump, then align the pump discharge tube with the product discharge seal down inside the probe tube. Next, insert the pump into the probe and thread the pump gently but firmly into place, making sure that it is fully seated. To verify if Pump is seated in place, hold Probe right-side-up over opposite hand to see if Pump falls out. Using the other end of the pump tool place the filter adaptor and screen into the tube. Finally, insert the spring and end cap sliding the cap in such that both lock buttons snap in place.



*Filter Adaptor
and Screen*



Pump Tool

Battery Access



BATTERY ACCESS: To access the battery remove the Battery Cover located on the center of the front reel, disconnect Connector Jack and pull the battery out.

CHANGING the BATTERY: Spill Buddy's battery should only be charged with the AC adaptor supplied with the unit or the optional cigarette lighter, if purchased. The battery is a lead/acid type, and all precautions should be used as with any lead/acid battery. The charge on the battery can be "topped off" at any time between uses without damage to the battery. When charging the battery, always plug the jack into Spill Buddy first, then plug into the power source. When disconnecting charger from source, always disconnect the power source first, then the Jack.

To charge Spill Buddy, insert jack into Front Panel. For initial use, charge the battery overnight. Following the initial charge, battery charging times will vary depending upon how much Spill Buddy Pro's pump is used. However, charging the battery overnight to "top off" the charge will not harm the battery.



NOTE: Do not charge battery in CIGARETTE LIGHTER overnight!

Trouble Shooting

- 1) If no BEEP sounds after flipping the POWER ON switch, check the battery first. It may need to be recharged.
- 2) If the Pump is running but not pumping, check the following:
 - a) the discharge tube petcock may be closed; open it.
 - b) the probe inlets may be plugged; clean out.
 - c) the filter screen maybe plugged; clean it.
- 3) If Pump is not pumping or running, check battery. If battery is charged, test the pump, it may need to be replaced. To test the pump, it can be connected across an auxiliary 12 volt battery to determine if pump needs replacing.
- 4) If Pump still fails to run, replace it with a new Pump. Replacement parts may be ordered from the factory.

Product thickness measurement: 0.01 ft.

Pumping rate: 0.7 gpm

Pumping head: 100 ft

Pumping time: 1 hour continuous pumping per battery charge (approx. 40 gallon of Product)

Battery: 12VDC, 5Ah sealed lead acid (included)
(We recommend a second battery for a backup on site)

Fluids: Water and most hydrocarbons, floaters (LNAPLS) or sinkers (DNAPLS) Viscosities from 0 - 10 Cp

Battery charger: Wall transformer. A cigarette-lighter jack is available as an option for charging between sites.

Operating temperature: 0^o to 130^oF ambient temperature

Size: 18 1/2"H x 15"W x 8 1/2"D

Clean Earth Technology, Inc. Environmental Equipment Return Policy

This policy refers to **ANY EQUIPMENT OR PARTS** being returned to Clean Earth Technology, Inc., Whether:
Customer owned, leased, or rented
In warranty or out of warranty

NO equipment or parts should be shipped to CET without first contacting our service department for a **Return Materials Authorization (RMA)** number.

CET reserves the right to refuse delivery of any equipment without a CET RMA number clearly displayed on the exterior of the package(s).

CET reserves the right to refuse delivery of any equipment improperly decontaminated.

CET reserves the right to add a fee to the repair invoice of any equipment not decontaminated to the satisfaction of CET.

CET will NOT accept any equipment or parts that has been contaminated with PCB's.

Environmental Equipment Return Guidelines

All equipment must be thoroughly cleaned, purged of product and decontaminated prior to shipment to CET. Note: CET recommends the use of Personal Protective Equipment , level C or D, as defined in OSHA 29 CFR 1910.120.

All packages & paperwork must be clearly marked on the outside with the RMA number

Any equipment or parts shipped to CET must include the following documentation:

CET RMA/Repair Order form completed by customer.

Description/name of product pumped

Reason for return

The CET RMA number clearly marked on the outside of ALL packages and paperwork.

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CLEAN EARTH TECHNOLOGY **Limited Warranty for Spill Buddy Pro**

All reference to the Customer herein shall mean the Purchaser or the Lessee as applicable. CLEAN EARTH TECHNOLOGY, INC. (Clean Earth) warrants the Spill Buddy Pro to be free of substantial defects in material and workmanship for one year from date of shipment, with the exception of specified maintenance items which will be warranted for 90 days. Clean Earth's sole responsibility under this warranty shall be to either repair or replace, at its option, any component which fails during the applicable warranty period because of defect in workmanship or material. No other liabilities shall be assumed by the manufacturer or its agents, nor are they expressed or implied.

Clean Earth will, upon receipt of warranty item shipped freight prepaid, repair and return the item freight prepaid, within 1 to 2 weeks.

This warranty is contingent upon proper use of the Spill Buddy Pro by the Customer in accordance with Clean Earth's published specifications. This warranty shall not be valid if the alleged defect is the result of abuse, misuse, accident, alteration, neglect, or unauthorized repair. Any repair shall be deemed unauthorized unless it is made by Clean Earth, or with the written consent of Clean Earth. This warranty is the sole warranty made by Clean Earth to the Customer and is in lieu of all other warranties or obligations, express or implied.

System upgrades will be made available to customers as they are completed. Clean Earth Technology is not obligated to provide those upgrades without cost.

WARNING: In the event that equipment is returned to the factory for any reason a complete decontamination must be done before shipment. Shipping hazardous material improperly may be a federal offense.



For a full line of ground water remediation products

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