



P.O. Box 515429  
Dallas, Texas 75075  
Ph: (972) 669-3390  
Fax: (469) 241-0896  
Email: oseicorp@msn.com  
Web: <http://www.osei.us>

**PROCEDURE FOR CLEANUP OF HEAVY END HYDROCARBONS**  
**- ON LAND SURFACE**

*Surface Spills on Land*

**1. To determine quantity of *Oil Spill Eater II* concentrate needed:**

A. On a Spill:

1. Use one (1) gallon of OSE II for every fifty (50) gallons of oil contamination.
2. Use one (1) barrel of OSE II for every 2,750 gallons of oil contamination.

B. If you know gallons of oil contamination:

Multiply Gallons of oil contamination (A) x .02  
= Gallons OSE II concentrate needed

C. If you know barrels of oil contamination:

Multiply Barrels of oil contamination (A) x .015  
= Barrels of OSE II concentrate needed

D. If you do not know gallons or barrels of oil contamination:

Multiply:        A ( ) Ft.   x   B ( ) Ft.   x   C ( ) Inches x (.0125)  
  
= Gallons of OSE II Concentrate Needed

*Example:*        Oil spill is 120 ft. x 60 ft. and 1" thick

*Multiply:*        120' x 60' x 1" x .0125 = 90 gal. OSE II

- E. Once the oil has seeped into the soil, then determine cubic yards of contaminated soil:

To determine Cubic Yards:

$$\underline{L \text{ (Ft.)}} \quad \times \quad \underline{W \text{ (Ft.)}} \quad \times \quad \underline{\text{Depth (Ft.)}} \quad \times \quad \underline{.037} = (B)$$

To determine Gallons of OSE II needed for cleanup:

$$\underline{\text{Yd}^3} (B) \times \underline{.44} = \text{Gallons of OSE II needed}$$

## II. Procedure:

- A. Determine logistics and equipment for the particular situation. (Sample jars, mixing tank, application method, tiller, water source etc.).
- B. Mix the required gallons of OSE II at a ratio of 50 gallons of water for every gallon of OSE II required.

Note: *If contamination area is in contact with ocean water or spray, then use ocean water; if not, then use fresh water from the area associated with the spill. Do not add ocean water to an area not associated with ocean water or vice versa with fresh water or an adverse competition may occur among indigenous bacteria.*

## III. Testing:

- A. Determine a grid formation for spill area.
- B. Take a 50 gram extraction from each grid. Mix in a plastic bag and shake to form a composite; then perform EPA 8030 or 8100 TPH test to determine the initial TPH – and note.
- C. Apply product.
- D. On day 7, day 15, day 30, and every 15 days after until an acceptable TPH level is obtained, take a 50 gram extraction from each treated grid. Mix in a plastic bag to form a composite and perform EPA 8030 or 8100 TPH test to determine the extent of bioremediation. Testing should cease once the acceptable level of TPH reduction is obtained.

## IV. Application:

- A. Mix the required OSE II at a ratio of 50 to 1.
- B. Apply the entire amount of mixed OSE II to the contamination as evenly as possible.

- C. Maintain a 30% moisture level within the contamination to ensure motility and O<sub>2</sub>.
- D. If the contamination is on soil and the soil absorbs the contamination, then disc the area once a week and maintain a moisture level of 30%.
- E. To determine the number of gallons of water to apply per application to maintain a 30% moisture level, take the number of gallons used to mix with OSE II concentrate and apply each time moisture content drops below 30%, and apply enough water to get the moisture level to 30%.

*Note: For oil with a TPH of 100,000 and is very weathered, then additional applications of OSE II may be required.*

- F. When average temperature remains below 40° F during daylight hours, keep contaminated area covered with a thin translucent plastic. Continually maintain the 30% moisture level.

*Note: Unless harsh winter weather persists, the plastic will help hold in the heat from the earth.*

***PLEASE NOTE:***

*The more OSE II used, the faster biodegradation will occur – up to a point. Oxygen needed for bioremediation is carried in the water and is helped by discing.*

*OSE II will eliminate oil spills from adding toxins to underground water systems. OSE II causes hydrocarbons to float on the surface.*

*These instructions are general to encompass as many situations as possible. Any specific situations should be referred to OSEI Corporation before application.*

*NEVER mix Oil Spill Eater II with tap water – if possible!*

- V. OSEI Corporation will help determine and write complete step-by-step instructions for a cleanup if you present OSEI Corporation with the complete parameters associated with a site.



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**PROCEDURE FOR CLEANUP OF LIGHT END HYDROCARBONS**  
**- FOR SURFACE SPILLS ON LAND**

**1. To determine quantity of *Oil Spill Eater II* concentrate needed:**

A. On a Spill:

1. Use one (1) gallon of OSE II concentrate for every one hundred (100) gallons of light end hydrocarbons or gasoline.
2. Use one (1) barrel of OSE II concentrate for every 5,500 gallons of light petroleum or gasoline light end hydrocarbons or gasoline.

B. If you know gallons of light end hydrocarbons or gasoline spilled:

Multiply Gallons of contaminate (A) x .01 = Gallons of OSE II needed

C. Once light end hydrocarbons or gasoline has seeped into the soil, then determine cubic yards of contaminated soil.

To determine cubic yards:

$$\underline{L \text{ (Ft.)}} \quad \times \quad \underline{W \text{ (Ft.)}} \quad \times \quad \underline{\text{Depth (Ft.)}} \quad \times \quad \underline{.037} \quad = \quad \underline{A \text{ (Yd}^3\text{)}}$$

To determine gallons of OSE II needed for cleanup

$$\text{Yd}^3 \quad \times \quad .22 \quad = \quad \text{Gallons of OSE II needed}$$

*Note: Once OSE II has been applied to the soil, the fire hazard will start diminishing.*

**II. Procedure:**

- A. Determine logistics and equipment for the particular situation. (Sample jars, mixing tank, application method, tiller, water source etc.).

- B. Mix the required gallons of OSE II at a rate of 100 gallons of water for every gallon of OSE II required.

*Note: If contamination area is in contact with ocean water or spray, then use ocean water from the area associated with the spill. Do not add ocean water to an area not associated with ocean water or vice versa with fresh water or an adverse competition may occur among indigenous bacteria.*

### **III. Testing:**

- A. Determine a grid formation for spill area.
- B. Take a 50 gram extraction from each grid. Mix in a plastic bag to form a composite. Then have a laboratory perform an EPA 8015 or 8020 TPH test to determine the initial TPH.
- C. Apply product.
- D. On day 7, day 15, day 30, and every 15 days thereafter until the TPH reaches an acceptable level, take a 50 gram extraction from each treated grid. Mix in a plastic bag to form a composite and have a laboratory perform an EPA 8015 or 8020 TPH test to determine the extent of bioremediation. Testing should cease once the acceptable level of TPH reduction is obtained.

### **IV. Application:**

- A. Mix the required OSE II at a ratio of 100 to 1.
- B. Apply the entire amount of mixed OSE II as evenly as possible to the contamination.
- C. Maintain a 30% moisture level within the contamination to ensure motility and O<sub>2</sub>.
- D. If the contamination is on soil and the soil absorbs the contamination, then disc the area once a week and maintain a moisture level of 30%.
- E. To determine the number of gallons to apply per application to maintain a 30% moisture level, take the number of gallons used to mix the OSE II concentrate and apply each time moisture level drops below 30%. Apply enough of the water to get the moisture level to 30% or above.

*Note: If light end hydrocarbon is weathered and aged, then additional applications of OSE II may be needed, or additional time for mitigation may be required.*

- F. When average temperature remains below 40° F during mitigation time, keep contaminated area covered with a thin translucent plastic and maintain the 30% moisture level with water.

*Note: Unless harsh winter weather persists, the plastic will help hold in the heat from the earth.*

*PLEASE NOTE:*

*The more OSE II used, the faster the bioremediation will occur – up to a point. Oxygen needed for bioremediation is carried in the water and is helped by discing. OSE II will eliminate light end hydrocarbons spills from adding toxins to underground water systems.*

*These instructions are general to encompass as many situations as possible. Any special situations should be referred to OSEI Corporation before application.*

*NEVER mix Oil Spill Eater II with tap water, if possible!*

- V. **OSEI Corporation** will help determine and write complete step-by-step instructions for a cleanup if you present OSEI Corporation with the complete parameters associated with a site.



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**PROCEDURE FOR CLEANUP OF HEAVY END HYDROCARBONS**  
**- FROM AN EXCAVATED SITE**

**1. To determine quantity of *Oil Spill Eater II* concentrate needed:**

- A. If you know the number of contaminated yards:

Multiply: Number of Yd<sup>3</sup> (A) x (.44)  
= Total Gallons of OSE II needed for oil cleanup

- B. If you do not know yards of contaminated soil:

Multiply:  $\frac{L \text{ in Ft.}}{\text{Length in Feet}} \times \frac{W \text{ in Ft.}}{\text{Width in Feet}} \times \frac{D \text{ in Ft.}}{\text{Depth in Feet}} \times .037 = A \text{ (Yd}^3\text{)}$

Use formula in A above to determine number of gallons of "Oil Spill Eater II" concentrate required.

**II. Procedure:**

- A. Determine logistics, equipment and site to spread contaminated soil for the particular situation.
- B. If the particular governmental regulating body requires, lay a plastic barrier in place.
- C. Place contaminated soil in 24" lifts or less on the plastic barrier.

**III. Application:**

- A. Mix the required OSE II at a ratio of 50 gallons to 1 for the oil.
- B. Apply the entire amount of mixed OSE II as evenly as possible to the contaminated soil.

- C. Maintain a 30% moisture level within the contaminated soil to ensure motility and O<sub>2</sub>.
- D. To determine the number of gallons of water to apply per application to maintain a 30% moisture level, take the number of gallons used to mix with the OSE II concentrate and apply each time the moisture level drops below 30%.
- E. Disc soil once a week.

*Note: If contaminated soil is weather and aged, then additional application of OSE II may be needed, or additional time for mitigation may be required.*

- F. When temperature remains below 40° F during the cleanup, keep contaminated soil covered with a thin translucent plastic and maintain a 30% moisture level.

***PLEASE NOTE:***

*The more OSE II used, the faster the bioremediation will occur – up to a point. Oxygen needed for bioremediation is carried in the water and is helped by discing. OSE II will eliminate contaminated soil from adding toxins to underground water systems. These instructions are general to encompass as many situations as possible. Any special situations should be referred to OSEI Corporation before application.*

***NEVER mix OSE II with tap water - if possible!***

**IV. Testing:**

- A. Determine a grid formation for contaminated soil once in place to be treated.
- B. Take a 50 gram extraction from each grid and mix in a plastic bag to form a composite. Then have a laboratory perform an EPA 8030 or 8100 TPH test to determine the initial TPH.
- C. Apply OSE II.
- D. On day 7, day 15, day 30 and every 15 days thereafter until the acceptable TPH level is obtained, take a 50 gram extraction from each treated grid. Mix in a plastic bag to form a composite and EPA 8030 or 8100 TPH test to determine the extent of bioremediation. Testing should cease once the acceptable level of TPH reduction is obtained.

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PROCEDURE FOR CLEANUP OF LIGHT END HYDROCARBONS  
- FROM AN EXCAVATED SITE

**1. To determine quantity of *Oil Spill Eater II* needed:**

- A. If you know the number of contaminated yards:

Multiply: Number of Yd<sup>3</sup> (A) x (.22)  
= Total Gallons of OSE II needed

- B. If you do not know the yards of contaminated soil:

Multiply:  $\frac{L \text{ in Ft.}}{\text{Length in Feet}} \times \frac{W \text{ in Ft.}}{\text{Width in Feet}} \times \frac{D \text{ in Ft.}}{\text{Depth in Feet}} \times .037 = A \text{ (Yd}^3\text{)}$

Use formula in A above to determine number of gallons of “*Oil Spill Eater II*” concentrate required.

**II. Procedure:**

- A. Determine logistics, equipment and site to spread contaminated soil for the particular situation.
- B. If the particular governmental regulating body requires, lay a plastic barrier in place.
- C. Place contaminated soil in 24” lifts or less on the plastic barrier.

**III. Application:**

- A. Mix the required OSE II at a ratio of 100 to 1 for light end hydrocarbons.
- B. Apply the entire amount of mixed OSE II as evenly as possible to the contaminated soil.

- C. Maintain a 30% moisture level within the contaminated soil to ensure motility and O<sub>2</sub>.
- D. To determine the number of gallons of water possible to apply per application to maintain a 30% moisture level, take the number of gallons used to mix with the OSE II concentrate and apply each time the moisture level drops below 30%.
- E. Disc soil once a week.

*Note: If contaminated soil is weather and aged, then additional application of OSE II may be needed, or additional time for mitigation may be required.*

- F. When temperature remains below 40° F during the cleanup, keep contaminated soil covered with a thin translucent plastic, and maintain a 30% moisture level.

#### IV. Testing:

- A. Determine a grid formation for contaminated soil once in place to be treated.
- B. Take a 50 gram extraction from each grid. Mix in a plastic bag to form a composite; then perform EPA 8015 or 8020 method TPH test to determine the initial TPH – and note.
- C. Apply product.
- D. On day 7, day 15, day 30 and every 15 days thereafter until the acceptable TPH level is obtained, take a 50 gram extraction from each grid and place in a plastic bag. Mix it to form a composite. Perform EPA 8015 or 8020 method test to determine TPH level. Testing should cease once the acceptable level of TPH reduction is obtained.

*Note: The more OSE II used, the faster bioremediation will occur – up to a point. Oxygen needed for bioremediation is carried in the water and is helped by discing. OSE II will eliminate contaminated soil from adding toxins to underground water systems. These instructions are general to encompass as many situations as possible. Any special situations should be referred to OSEI Corporation before application.*

***NEVER mix OSE II with tap water (if possible)!***

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