

### **Life-Cycle Costing for Technical Initiative**

#### **3.12 EVALUATE REPLACING CLAY ABSORBENT WITH PLANT CELLULOSE ABSORBENT**

##### **Discussion:**

Most Work Centers at the station utilize absorbent pads to contain drips and spills. Some Work Centers also use clay absorbent material to clean up spills. Several brands of absorbents are available that are composed of recycled plant cellulose. These absorbents are sustainable and provide a BTU value when burned for energy recovery. The plant cellulose absorbents also tend to absorb larger volumes of oil per pound of absorbent; so they are cost effective. It is recommended clay absorbent material be replaced with plant cellulose absorbent material.

One vendor for cellulose based absorbent is:

Natures Broom

1147 Highway 436

Hollandale, Mississippi 38748

Telephone Number (662) 839.6927

Web Site: <http://www.natures-broom.com/contact.html>

##### **Why use cellulose absorbent material**

- Minimize the amount of absorbent material required to absorb equivalent volumes of oil. Cellulose is more absorbent than clay.
- Energy recovery. Cellulose has a recoverable BTU value and clay does not. Cellulose also produces far less ash (waste) than clay when used as a fuel supplement.
- Cellulose is a sustainable raw material.

##### **Costs associated with use of cellulose absorbent material**

- New material costs more than clay material.
- Increased cost of new material is off-set by the savings in hazardous waste management and disposal costs.
- Administrative overhead for P2 Program Manager to monitor initiative.

### Value of Life Cycle Cost Analysis

Cost avoidance can be obtained by using lighter weight, more effective absorbent to contain oil spills. These factors translate to lower cost for absorbent materials per gallon of oil picked up, more oil absorbed per pound of absorbent material, and lower disposal cost per gallon of oil absorbed.

#### **Economic Analysis**

The information provided below was generated via interviews with a potential vendor. This analysis was performed for Natures Broom.

#### **Assumptions:**

3.4 pounds of cellulose to absorb one gallon of oil  
16.5 pounds of clay to absorb one gallon of oil

|  | <u>Clay</u> | <u>Cellulose</u> |
|--|-------------|------------------|
| Material cost per 100 lbs.                       | \$15.00     | \$45.00          |
| Cost to absorb one gallon of oil                 | \$2.48      | \$1.53           |
| Pounds to absorb one gallon of oil.              | 16.5lb.     | 3.4lb.           |
| NAS New Orleans disposal cost per pound = \$0.17 |             |                  |
| Disposal cost per gallon of oil absorbed         | \$2.81      | \$0.58           |

Cost to absorb and dispose of one gallon of oil using clay:  
 $\$2.48 + \$2.81 = \$5.29$

Cost to absorb and dispose of one gallon of oil using cellulose:  
 $\$1.53 + \$0.58 = \$2.11$

Cost avoidance by using cellulose is \$3.18/gallon of oil, a 60% reduction.