

# Napalm Project Information Sheet

## PROJECT OVERVIEW & BACKGROUND INFORMATION

### "Safety First"

#### Project Background

Beginning in 1973 the Department of the Navy (DoN) began placing Vietnam era napalm canisters in storage at the Weapons Support Facility, Fallbrook Detachment. The Detachment is located approximately 60 miles north of San Diego, CA. By 1978 all such canisters had been consolidated and placed at the Detachment for storage and maintenance. The stockpile consists of approximately 34,122 individually crated napalm canisters. The canisters are not fused nor do they contain ignition devices.

Over time, some of the aluminum canisters have degraded which has resulted in leaks. On-going maintenance of the stockpile includes the identification and repair of leaking canisters, grounds maintenance, and air monitoring.

During the 1980s the DoN attempted to dispose of the stockpile through sales contracts which were based on the premise that the value of salvageable materials would exceed overall disposal costs. However, none of these removal efforts proved to be successful.

#### Project Objective

The primary project objective is to *safely, permanently, and responsibly* remove and dispose of the napalm stockpile located at the Fallbrook Detachment. The secondary objective is to *recycle or reuse* the waste derived materials to the maximum extent practicable.

#### Who is Performing the Work

As the owner of the stockpile the DoN is directly responsible to insure its removal objectives are met.

Within the DoN, several military commands share various responsibilities including on-going maintenance pending the start of removal operations, overall program management, funding, and day-to-day project management. Project management of the removal action is being performed by the Southwest Division, Naval Facilities Engineering Command located in San Diego, CA.

The prime contractor, Battelle Memorial Institute, is providing technical design and development, on-site equipment installation and operations, transportation services, material treatment and disposal services, and is performing procurement and contracting functions. Battelle has subcontracted for various project tasks, such as material transportation, treatment, and disposal.

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### Description of Canisters and Materials

Canisters are of two sizes (750 and 500 pounds), are approximately 10 feet long, and are individually crated. The canisters are made of aluminum. Again, none of the canisters were ever fitted with the fuses or ignition devices necessary for use as a munition.

The napalm formulation itself has a honey-like consistency and is *flammable* but not *explosive*. This means that, upon ignition, it will burn but not explode. Napalm's chemical composition is 46% polystyrene, 33% gasoline, and 21% benzene. Gasoline is the primary flammable agent, polystyrene (a material commonly used in the manufacture of household items such as toys and plastic furniture) is contained as a thickening agent, and benzene (which is a normally found in gasoline and gives it its characteristic odor), is contained to keep the formulation in a homogeneous gel state.

### Removal Action Overview

The removal action is being conducted pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as *Superfund*. Federal agencies are authorized to conduct removal actions just as the US Environmental Protection Agency (EPA) is authorized to conduct removal actions in the private sector. The action is being taken to remove the threat or potential for release of hazardous substances to the environment. CERCLA's implementing regulations, known as the Oil and Hazardous Substances Pollution Contingency Plan (NCP), require that removal activities be conducted in a manner protective of human health, worker safety, and the environment.

Protectiveness is assured by a requirement for removal activities to comply with applicable federal and state laws and regulations, such as, Resource Conservation and Recovery Act (RCRA) and Occupational Safety and Health Administration (OSHA) regulations.

Unlike previous removal attempts, the success of this removal action is not contingent upon the salvage value of the separated materials.

Instead, the DoN is paying the full cost to dispose of the separated materials as hazardous wastes.

### The Navy's Selected Removal Action

Selection of the removal alternative was made through a process known as an Engineering Evaluation and Cost Analysis which identifies various removal alternatives and evaluates each alternative against criteria such as effectiveness, time to complete, and cost. The Navy's selected alternative involves four basic steps:

#### 1. On-site Separation of Canisters Into Three Waste Streams

This step will accomplish two tasks, *demilitarization* and *material separation* prior to shipment and treatment.

After removal of the wood crating, the napalm canisters will be *demilitarized*. Specifically, this means that the canister components will be taken apart and physically separated so that the canisters are no longer intact or capable of functioning as a munition. In comparison, this is similar to separating a bullet into its component parts of lead slug, brass casing, powder, and firing pin.

Overall, crated canisters will be separated into three waste streams - liquid napalm, shredded aluminum with residual napalm, and shredded wood. At this point, the canisters will cease being managed as a munition and the individual materials will begin being managed as hazardous wastes.

#### 2. Containerizing, Labeling, and Manifesting the Waste Streams

Once separated, the waste materials will be containerized for transportation. The napalm will be containerized in 6,000 gallon tankers known as Isocontainers which are specially designed, approved, and commonly used for transporting various types of flammable liquids. The shredded aluminum canisters will be transported in sealed 55 gallon steel drums. The shredded wood will be transported in 40 cubic yard steel box containers.

Containers will then be labeled and manifested in accordance with hazardous waste labeling and manifest regulations to insure that handlers, shippers, and personnel at the treatment and disposal facilities know the quantity, chemical and physical characteristics, and associated hazards of the materials being shipped.

### 3. Transportation of Waste Materials

Transportation will occur primarily by rail. Rail transportation services for shipment to Deer Park, Texas will be provided by Burlington Northern/Santa Fe Railroad (BNSF) which routinely transports similar hazardous wastes such as used motor oils, cleaning solvents, and flammable substances. Battelle has performed extensive reviews and checks to insure all aspects of transportation comply with applicable transportation regulations.

Transportation routes will follow those routes BNSF routinely uses in transporting other hazardous wastes. Materials proceed from the point of origin via a nationwide network of tracks to the final destination. Routes may vary based on overall rail traffic demands, weather conditions, rail maintenance, and other factors. Rerouting is not uncommon and dependent upon circumstances at the time.

### 4. Treatment and Final Disposal of Waste Materials

*Treatment* of the napalm and shredded aluminum will occur at a Resource Conservation and Recovery Act (RCRA) permitted Hazardous Waste Treatment, Storage, or Disposal Facility (TSDF). Treatment of napalm will be accomplished by blending it with wastes received at the facility from other hazardous waste generators to produce a "specification fuel" in accordance with the RCRA Boiler and Industrial Furnace (BIF) regulations. Treatment of the shredded aluminum will be accomplished by solvent washing residual napalm from the aluminum to render it clean and non-hazardous.

*Final disposal* of the blended "specification fuel" will occur by burning it at various incinerators and cement kilns.

It is the Navy's preference that the blended specification fuel be sent to cement manufacturing facilities (kilns) operating under BIF regulations where it will be burned (disposed of) as substitute fuel in lieu of burning other fossil fuels. How much specification fuel, and at which facilities the fuel is burned, is a function of normal commerce among various fuel blenders, incinerators and cement kilns. Final disposal of the clean aluminum will occur at commercial aluminum smelter where it will be smelted into ingots for cost recovery and recycling.

The wood waste, which will be regularly sampled and analyzed to verify it is not a RCRA hazardous waste, will be sent to Philip Environmental and then sent to a facility for use as fuel. The facility burns municipal and solid wastes to produce steam and electricity.

## Subcontractor Selection

All acquisitions and subcontracting are accomplished by the Navy prime contractor, Battelle Memorial Institute. Key subcontracts provide equipment for on-site canister separation, on-site operations, transportation services, and waste treatment and disposal services. Battelle's acquisition and subcontracting followed its own contracting procedures and the Federal Acquisition Regulations. Solicitations for proposals of goods and services were published in the Commerce Business Daily, which attracts nation-wide competition from interested firms. Firms were first judged on technical merits such as: proper permits, experience, capacity, then on cost competitiveness.

In July 1998, Battelle awarded a subcontract to GNI Group, Inc. of Deer Park, Texas, to provide treatment and disposal services for the napalm and shredded aluminum. A second subcontract for similar services is under negotiation.

CERCLA guidelines require that hazardous waste generators check to insure that facilities selected to treat its waste materials are properly permitted and are otherwise acceptable.

All on-site (Fallbrook Detachment) canister separation equipment design, acquisition, and manufacturing work is complete and field assembly is complete.

An initial shipment of napalm was sent to GNI in July 1998. The napalm was then treated to form a blended specification fuel and is being used in a commercial incinerator, in a manner that is protective of human health and the environment. In addition, GNI is going to be negotiating with cement kilns to use the blended specification fuel, in lieu of fossil fuels, in the cement manufacturing process.

The Navy resumed the canister separation process at the Fallbrook facility, on October 21<sup>st</sup>, 1998. Shipments of napalm and shredded aluminum to GNI Group, Inc. resumed in mid-November and are expected to be completed by Fall/Winter 2000.

### Project Status

#### Requests for Additional Information

Within the DoN, requests for additional information regarding this removal and disposal project may be addressed to the Navy Napalm Media Task Force point of contact: **Ms. Jeanne Light, 619-532-2484**. The above may be used 24 hours a day for information requests.

Also within the DoN, requests for additional information may be addressed to **Ms. Elaine McNeil, 202-685-9126**.

Visit our web site at:

<http://www.efdswest.navfac.navy.mil/DEP/ENV/pages/napalm1.htm> for the latest information.