



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 377TH AIR BASE WING (AFGSC)

 ENTERED

Colonel Eric H. Froehlich  
377 ABW/CC  
2000 Wyoming Blvd SE  
Kirtland AFB, NM 87117-5600

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NOV 3 2015

NMED  
Hazardous Waste Bureau

Mr. John Kieling, Manager  
RCRA Permits Management Program  
Hazardous Waste Bureau (HWB)  
New Mexico Environment Department (NMED)  
2905 Rodeo Park Road  
Santa Fe, New Mexico 87505

Dear Mr. Kieling,

Please find attached, "Groundwater Disposition Letter Work Plan Addendum #1, Bulk Fuels Facility, Kirtland Air Force Base, New Mexico". This addendum summarizes the variances to the work performed under the Groundwater Disposition Letter Work Plan.

If you have any questions or concerns, please contact Mr. L. Wayne Bitner at (505) 853-3484 or at [ludie.bitner@us.af.mil](mailto:ludie.bitner@us.af.mil) or Ms. Victoria Branson at (505) 846-6362 or at [victoria.branson@us.af.mil](mailto:victoria.branson@us.af.mil).

  
ERIC H. FROEHLICH, Colonel, USAF  
Commander

cc:  
NMED-EHD (Roberts, McQuillan, Agnew)  
NMED-HWB (Cobrain, McDonald)  
NMED-GWQB (Huddleson, Pullen, Hunter)  
NMED-PSTB (Reuter)  
NMED-OGC (Kendall)  
SAF-IEE (Lynnes)  
U.S.EPA Region 6 (King, Ellinger)  
AFCEC-CZRX (Bodour)  
USACE-ABQ District Office (Simpler, Phaneuf)  
Public Info Repository (Central New Mexico Community College), Administrative Record/Information Repository (AR/IR), and File

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OCT 30 2015

Albuquerque Field Office

KAFB4340



**Prepared by CB&I Federal Services LLC**

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October 29, 2015

**Subject: Groundwater Disposition Letter Work Plan Addendum #1, Bulk Fuels Facility,  
Kirtland Air Force Base, New Mexico**

This Kirtland Air Force Base (KAFB) Bulk Fuel Facility (BFF) Groundwater Disposition Letter Work Plan Addendum #1 proposes different percolation test locations in Tijeras Arroyo and describes the use of a non-hazardous flocculant to well KAFB-7 to enhance visualization of the downhole camera evaluation. Variations to the procedures will be discussed in this letter Work Plan.

**Percolation Location Variation**

The Groundwater Disposition Letter Work Plan proposed two percolation locations in Tijeras Arroyo on KAFB property (U.S. Army Corps of Engineers [USACE], 2015). As shown in Figure 1, these proposed locations will need to be moved to facilitate the percolation tests. The westernmost location of percolation tests will need to be moved approximately 1,100 feet east so that it is closer to the access road. This relocation is due to concerns about personnel safety as further west the Tijeras Arroyo walls become steep cliffs and provide no safe way to evacuate in case of flash flooding. Additionally, the soft sandy soils further west in the Tijeras Arroyo will likely not support the weight of a drilling rig; however, the rig should be able to access the proposed new locations.

The easternmost location of percolation tests will need to be moved approximately 200 feet to the west due to limited accessibility to the bottom of the Tijeras Arroyo as shown on Figure 1. Furthermore, the gravel surface should be able to support the drilling rig at the test borehole locations.

**KAFB-7 Evaluation Variation**

Per the Groundwater Disposition Letter Work Plan, after the removal of the downhole equipment from well KAFB-7 a downhole camera would be used to collect video footage of the condition of the well (USACE, 2015). To help facilitate the visualization, a non-hazardous flocculant (i.e., BARAFLOC<sup>®</sup>) was introduced into the KAFB-7 well on October 22-23, 2015 to ensure that solids settled out and turbidity was minimized prior to sending a downhole video camera to assess the well's condition. A total of twenty (20) teaspoons of flocculant was added to the KAFB-7 well. Two teaspoons of flocculant was added to a five gallon bucket of potable water and poured into the well. This process was repeated a total of ten times and the concentration level in each bucket was approximately 378 mg/L. The 50 gallons of flocculant water would have been mixed with approximately 2,500 gallons of standing water in the well for an in-well concentration of approximately 7.56 mg/L. A Material Safety Data Sheet (MSDS) for the flocculant is provided as an Attachment. No further materials or variances will be performed on the KAFB-7 well without discussion and/or submittal of an addendum to New Mexico Environment Department.

In order to remove the flocculant, three well casing volumes of groundwater (8,100 gallons) will be purged from well KAFB-7. Purged water will be stored in a tank on site. During purging activities, field parameters will be collected for temperature, electrical conductivity, pH, dissolved oxygen, and oxygen redox potential. The well will then be sampled for primary drinking water standards such as metals (EPA Method 200.8 for 10 metals including barium), nitrate/nitrite (EPA Method 300.0), total nitrogen (by calculation), total Kjeldahl nitrogen (TKN) (EPA Method 351.2), volatile organic compounds (EPA

Method 524.2), and ethylene dibromide (EDB) (EPA Method 504.1). Following receipt of sampling results, the purged water will be transported and discharged to the BFF temporary treatment system.

## References

USACE. 2015. *Rapid Response Action to Notice of Violation Groundwater Disposition Work Plan, Bulk Fuels Facility, Kirtland Air Force Base, New Mexico*. Prepared by CB&I Federal Services, Inc. for the USACE Omaha District, under Contract No. W9128F-12-D-0003. Task Order 0025. September.

**40 CFR 270.11  
DOCUMENT CERTIFICATION  
OCTOBER 2015**

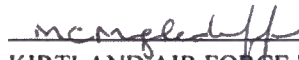
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.



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ERIC H. FROEHLICH, Colonel, USAF  
Commander, 377th Air Base Wing

This document has been approved for public release.



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KIRTLAND AIR FORCE BASE  
377th Air Base Wing Public Affairs

**FIGURE**



**Legend**

- Original Proposed Percolation Test Borehole Location
- New Proposed Percolation Test Borehole Location
- ★ Access Point
- Access Route
- Ephemeral Stream
- Original Percolation Testing Locations
- New Percolation Testing Locations

Testing locations shown are estimated and may be adjusted in the field based on observed site conditions and geology. Each location represents a soil boring to 50 feet bgs with percolation tests at the surface and a second depth to be determined based on lithology.

bgs = below ground surface

Revision Date 10/28/15

0 400 800 1 600  
Feet  
1 inch = 800 feet

Project No.: R14263 State Change Remedial Action Central (175) 30711 Rev

**RAPID RESPONSE GROUNDWATER DISPOSAL WORK PLAN**  
**BULK FUELS FACILITY**  
**WRIGHT AIR FORCE BASE, NEW MEXICO**

**FIGURE 1**

**PERCOLATION TESTING LOCATIONS**

H:\Work\AFBC\GIS Documents\Project Maps\R14263\15\_048\_perc\_test\_locs2.mxd 10/29/15

## ATTACHMENT

# HALLIBURTON

## MATERIAL SAFETY DATA SHEET

Product Trade Name: **BARAFLOC®**

Revision Date: 16-Jan-2014

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: BARAFLOC®  
Synonyms: None  
Chemical Family: Polymer  
Application: Additive

Manufacturer/Supplier: Baroid Fluid Services  
Product Service Line of Halliburton  
P.O. Box 1675  
Houston, TX 77251  
Telephone: (281) 871-4000  
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance  
Telephone: 1-580-251-4335  
e-mail: fdunexchem@halliburton.com

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
Contains no hazardous substances	Mixture	60 - 100%	Not applicable	Not applicable

### 3. HAZARDS IDENTIFICATION

Hazard Overview: May cause eye irritation.

### 4. FIRST AID MEASURES

**Inhalation**: If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

**Skin**: Wash with soap and water. Get medical attention if irritation persists.

**Eyes**: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

**Ingestion**: Under normal conditions, first aid procedures are not required.

**Notes to Physician**: Not Applicable



## 5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

**Fire Extinguishing Media** Water fog, carbon dioxide, foam, dry chemical.

**Special Exposure Hazards** Decomposition in fire may produce toxic gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

**Special Protective Equipment for Fire-Fighters** Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

**NFPA Ratings:** Health 0, Flammability 0, Reactivity 0  
**HMIS Ratings:** Health 0, Flammability 0, Reactivity 0

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures** Use appropriate protective equipment. Avoid creating and breathing dust.

**Environmental Precautionary Measures** Prevent from entering sewers, waterways, or low areas.

**Procedure for Cleaning / Absorption** Scoop up and remove.

## 7. HANDLING AND STORAGE

**Handling Precautions** Avoid creating or inhaling dust.

**Storage Information** Store away from oxidizers. Store in a dry location.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls** A well ventilated area to control dust levels.

**Respiratory Protection** Not normally needed. But if significant exposures are possible then the following respirator is recommended:  
Dust/mist respirator. (N95, P2/P3)

**Hand Protection** Normal work gloves.

**Skin Protection** Normal work coveralls.

**Eye Protection** Wear safety glasses or goggles to protect against exposure.

**Other Precautions** None known.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	White
Odor:	Mild
pH:	7-8
Specific Gravity @ 20 C (Water=1):	Not Determined
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	45
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

## 10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Oxides of nitrogen. Ammonia. Hydrocarbons. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

### Symptoms related to exposure

#### Acute Toxicity

Inhalation	May cause mild respiratory irritation.
Eye Contact	May cause mild eye irritation.
Skin Contact	None known.
Ingestion	None known

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.

### Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances	Mixture	No data available	No data available	No data available

## 12. ECOLOGICAL INFORMATION

### Ecotoxicological Information

#### Ecotoxicity Product

Acute Fish Toxicity: Not determined  
Acute Crustaceans Toxicity: Not determined  
Acute Algae Toxicity: Not determined

#### Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Contains no hazardous substances	Mixture	No information available	No information available	No information available	No information available

#### 12.2 Persistence and degradability

No information available

#### 12.3 Bioaccumulative potential

No information available

#### 12.4 Mobility in soil

No information available

#### 12.5 Results of PBT and vPvB assessment

No information available.

#### 12.6 Other adverse effects

## 13. DISPOSAL CONSIDERATIONS

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

## 14. TRANSPORT INFORMATION

### Land Transportation

#### DOT

Not restricted

#### Canadian TDG

Not restricted

#### ADR

Not restricted

### Air Transportation

#### ICAO/IATA

Not restricted

### Sea Transportation

IMDG  
Not restricted

### Other Transportation Information

Labels: None

## 15. REGULATORY INFORMATION

### US Regulations

US TSCA Inventory	All components listed on inventory or are exempt.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	None
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
EPA CERCLA/Superfund Reportable Spill Quantity	Not applicable.
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 65	All components listed do not apply to the California Proposition 65 Regulation.
MA Right-to-Know Law	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.

### Canadian Regulations

Canadian DSL Inventory	All components listed on inventory or are exempt.
WHMIS Hazard Class	Un-Controlled

## 16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS  
Not applicable

**Additional Information** For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

**Disclaimer Statement**

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

**\*\*\*END OF MSDS\*\*\***