



Clean Gulf
Associates

Alternative Dispersant

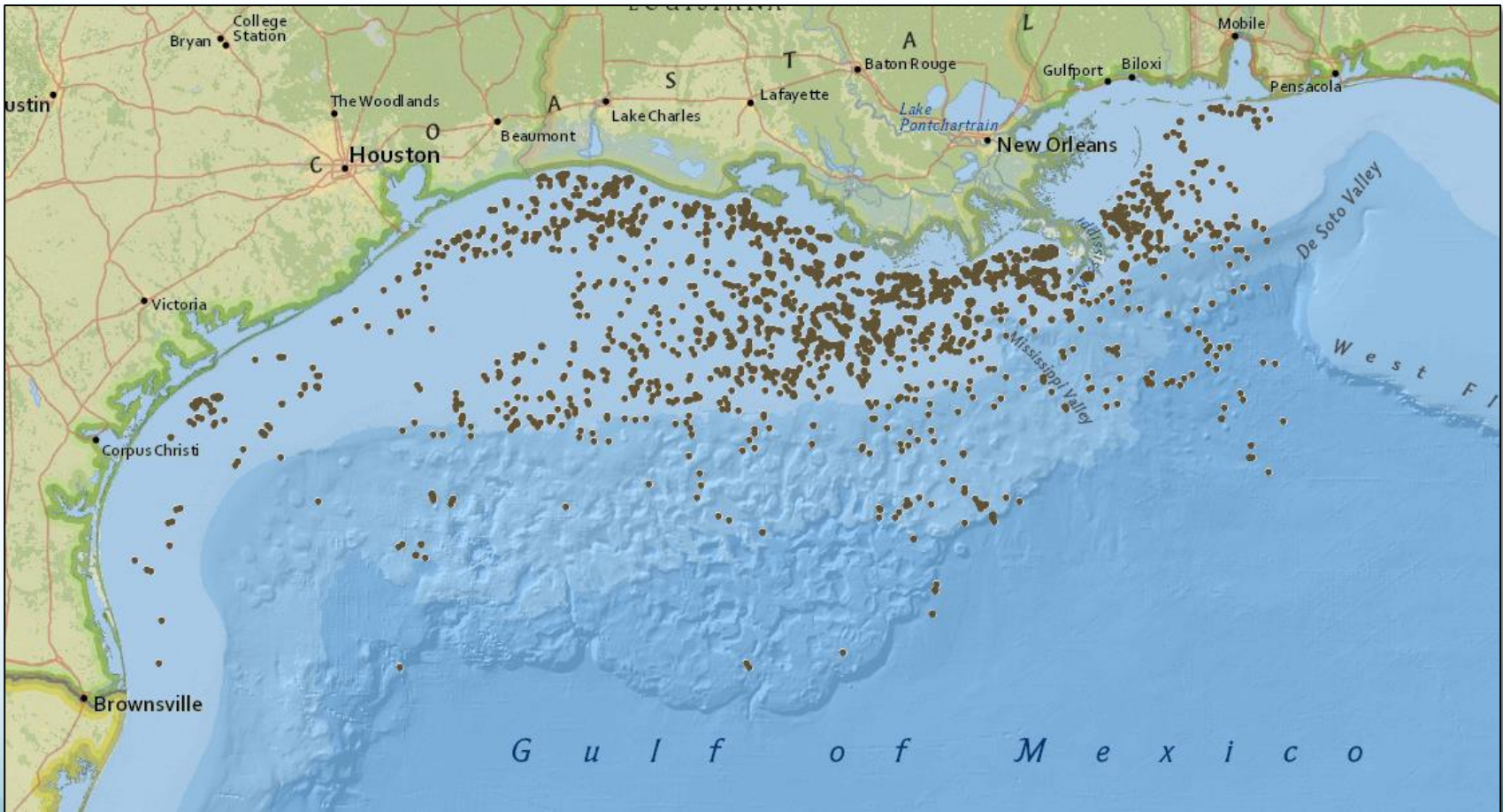
James Hanzalik

RRT IV

March 1, 2016

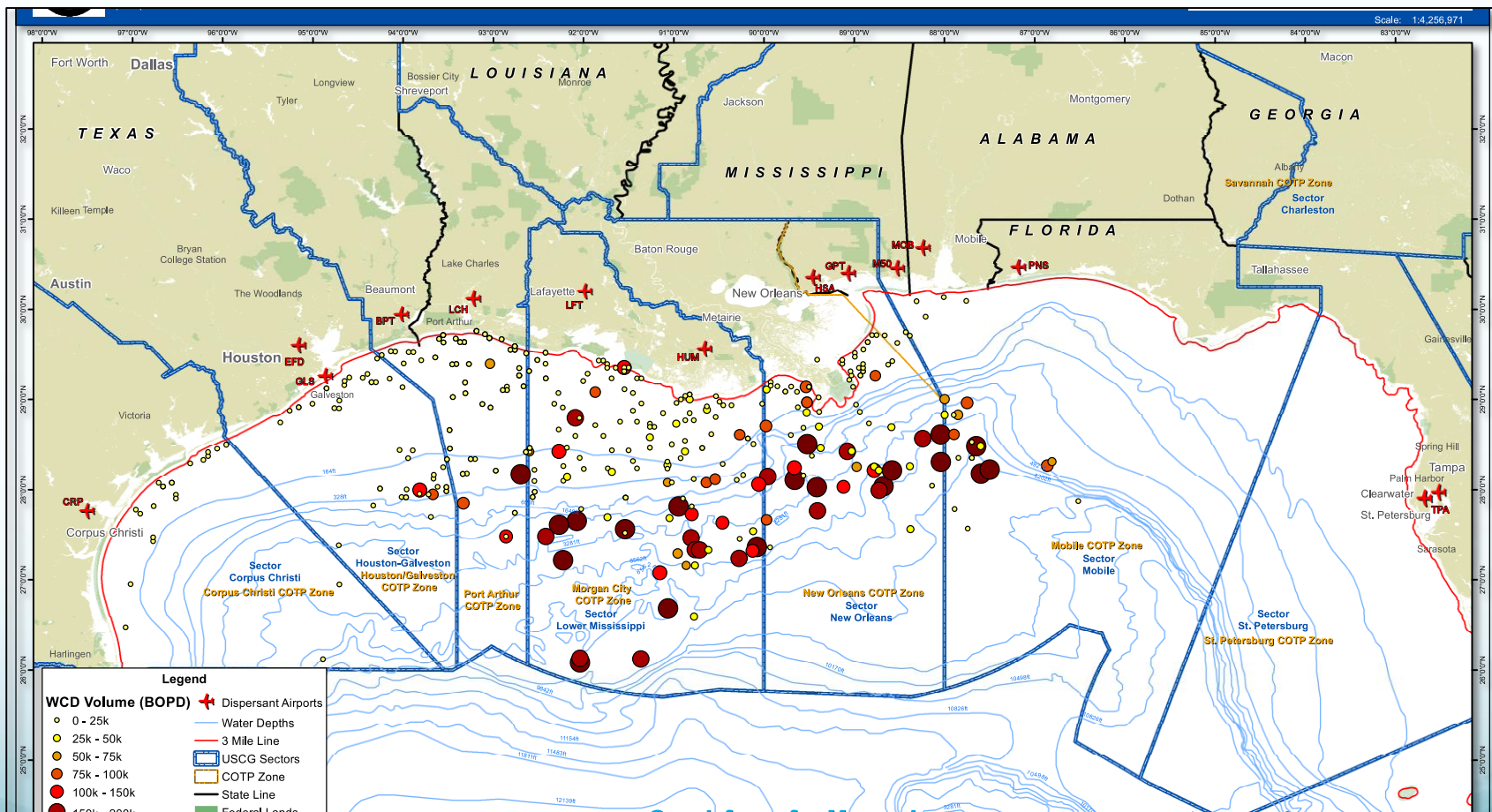


Current E&P Threats By Location





Current E&P Threats By Location and Volume





Net Trade-off Analysis (NTA)

- **Compares various response techniques, e.g., mechanical recovery, insitu burning, dispersant use or no actions**
- **Determines best option to reduce the impact of spill oil**
- **Ensures maximum environmental protection**
- **Promotes quickest overall ecosystem recovery***
- **Used by FOSCs, RRT VI on many occasions and around the world to yield the greatest benefit with the least impact**



Impacts





Dispersant Use

- **Dispersants remain a primary tool to avoid these types of impacts**
- **Dispersants are an authorized* countermeasure that can be used by the FOSC**
- **In some instances, mechanical countermeasures or insitu burning is not a viable response measure**
 - **Due to time/urgency**
 - **Amount of product released**
 - **Natural resource trade off**
 - **Potential Harm**



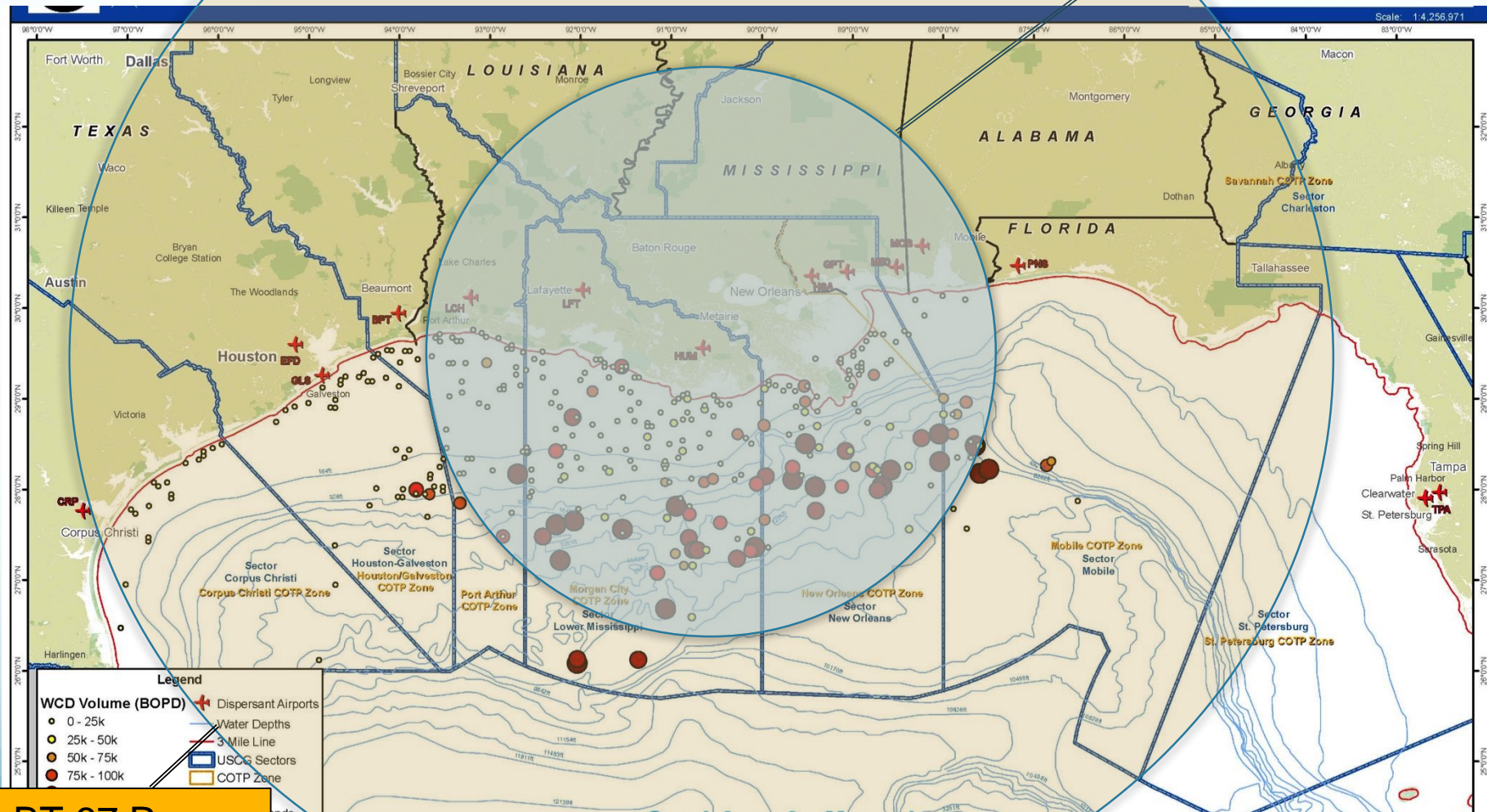
Airborne Support, Inc.

- **Airborne Delivery Capabilities via Contract with Airborne Support, Inc. (ASI)**
- **(1) Spotter & (3) Spray Aircraft**
- **16K gallons/day application capacity**
- **64K gallons of Corexit 9500A co-located at facility**





1-Hour BT-67
Range w/full
load



BT-67 Range
w/full load

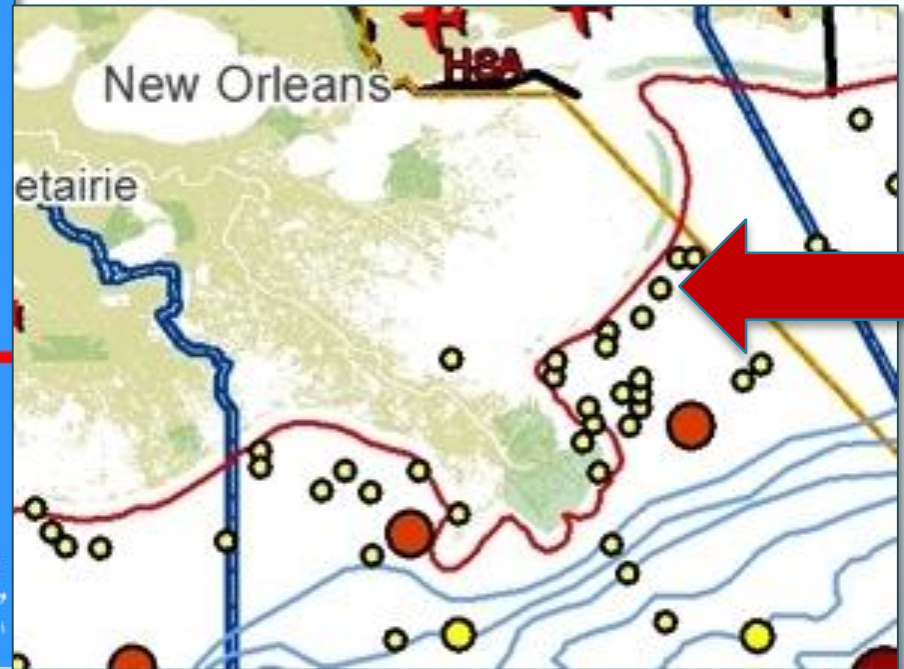
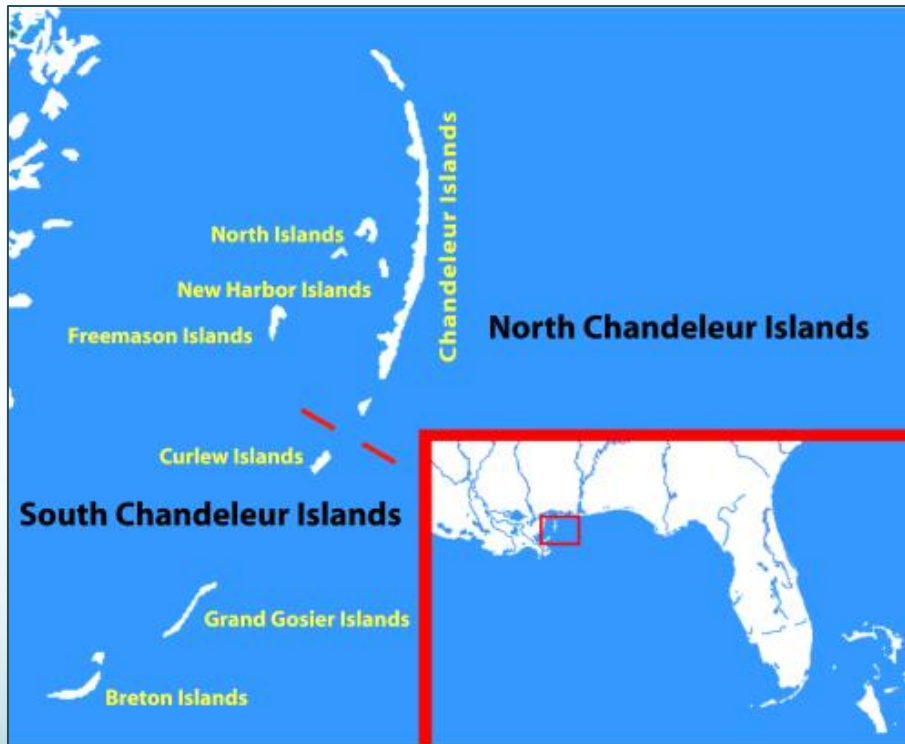


Dispersant Use “Indemnification” Issue

- **NALCO, the major dispersant manufacturer of Corexit 9500, requires an indemnification prior to product use by responsible party**
- **Spill Cooperatives (CGA, HWCG, MWCC, etc.) are required to sign an indemnification with Nalco to restock dispersant stockpiles**
- **Federal Government does NOT sign indemnification agreements**



Breton Island Spill Scenario 2015





Scenario Script 2015

- Dispersant use is asked about by the FOSC and consults the NOAA SSC – SSC recommends use
- FOSC initiates RRT VI call for “authorization” for dispersant use...RRT Concurs
- Spill is of unknown origin and suspected RP unwilling to sign Nalco Indemnification
- USCG contracts ASI to use aerial dispersants
- ASI with CGA requests that the USCG sign NALCO indemnification agreement
- USCG is unable to sign and no dispersant(s) is/are available for use – CGA unable to release dispersant
- Shoreline Impact results



Goals

- **Use of an alternative dispersant to Nalco Corexit products**
- **Have an inventory of equally effective dispersant**
- **Alternative(s) selected and stocked in limited quantities available for aerial and subsea use**
- **Educate RRT VI & IV and FOSCs alternative dispersant solutions**
- **FOSC is free to use dispersants without an indemnification from the manufacturer or cooperatives**



Product Selection Criteria

- **EPA Subpart J Product Schedule**
- **Effective on Louisiana light sweet crude**
- **Additional Testing (e.g., EXDET, OHMSET, others)**
- **Manufacturing capacity and product turnaround**
- **No Indemnification requirement for product use**



Dispersant Testing Status

Dispersant	Toxicity (C50 values in ppm) W/No 2 Fuel oil		Effectiveness (%)		
	Menidia (96-hr)	Mysidopsis (48-hr)	Prudhoe Bay Crude Oil	South Louisiana Crude Oil	Average of Crude Oils
BIODISPERS	5.95	2.66	51.00	63.00	57.00
COREXIT® EC9500A	2.61	3.40	45.30	54.70	50.00
FINASOL OSR 52	5.40	2.37	32.50	71.60	52.10
Accell Clean ® DWD	8.05	1.32	58.70	96.03	77.36
JD-2000™	3.59	2.19	60.40	77.80	69.10
Marine D-Blue Clean	32.00	18.00	45.00	55.59	50.30
SUPERSPERSE™ WAO2500	3.70	2.53	77.84	87.56	82.70

Source: EPA Product Schedule



Dispersant Effectiveness (EXDET)

Dispersant	Replicate	1	2	3	4	Average
Accel-DWG	Fresh	69.6	76.9	77.9	75.7	75.0
	21.4%	79.9	86.8	81.5	83.1	82.8
	28.2%	72.7	52.1	72.8	81.7	69.8
Corexit 9500	28.2%	84.5	76.8			80.7

S.L Ross, 2015



Dispersant Effectiveness (MESO Scale Wave Tank)



S.L Ross, 2015



Dispersant Effectiveness (MESO Scale Wave Tank)

Dispersant	Fresh	21.4%	28.1%
Accel-DWG	98.8	87.7	38.6
Corexit 9500	99.1	98.2	97.6
Control	19.1		

S.L Ross, 2015



Dispersant Toxicity (NCP Tests)

Material Tested	Species	LC50 (ppm)
ACCELL CLEAN® DWD	Menidia beryllina Mysidopsis bahia	6.58 96-hr 1.55 48-hr
No. 2 Fuel Oil	Menidia beryllina Mysidopsis bahia	38.0 96-hr 3.61 48-hr
ACCELL CLEAN® DWD & No. 2 Fuel Oil (1:10)	Menidia beryllina Mysidopsis bahia	4.21 96-hr 2.21 48-hr
Reference Toxicant (Sodium Dodecyl Sulfate – SDS)	Menidia beryllina Mysidopsis bahia	2.43 96-hr 5.95 48-hr

Environmental Enterprises USA (EE USA) Toxicity Data for Accell Clean® DWD (2015)



Dispersant Toxicity (NCP Tests)

Material Tested	Species	LC50 (ppm)
ACCELL CLEAN® DWD	Menidia beryllina Mysidopsis bahia	5.66 96-hr 2.07 48-hr
No. 2 Fuel Oil	Menidia beryllina Mysidopsis bahia	11.10 96-hr 1.68 48-hr
ACCELL CLEAN® DWD & No. 2 Fuel Oil (1:10)	Menidia beryllina Mysidopsis bahia	8.05 96-hr 1.32 48-hr
Reference Toxicant (DDS)	Menidia beryllina Mysidopsis bahia	6.60 96-hr 30.80 48-hr



Retrieved from <http://www2.epa.gov/emergency-response/accell-cleanr-dwd>



Accell Clean ® DWD

- **Changes the “Script” for 2016**
- **Listed on EPA Subpart J Product Schedule (2011)**
- **Very effective on Louisiana light sweet crude (E&P GOM crude)**
- **Similar toxicity with no. 2 fuel oil to Corexit***
- **Positive efficacy test results, e.g., EXDET, S.L. Ross Meso-scale, BSEE 2013 test, 2015 BSEE test results pends**
- **30K gallons/day manufacturing capacity**
- **No Indemnification for product use**
- **Protein-based dispersant**

* When mixed with no. 2 fuel oil



CGA Actions

- **Agreement finalized between Advanced BioCatalytics, Corp. (ABC) and CGA for up to 30K gallons/day**
- **CGA to renegotiate for up to 60K/day**
 - **Manufacturer to identify additional blending facilities (Houston)**
- **CGA has stocked 5,000 gallons at Airborne Support in Houma, LA.**



Scenario Script 2016

- **Spill is of unknown origin or RP does not take responsibility**
- **Dispersant use is asked about by the FOSC and consults the NOAA SSC – SSC recommends use**
- **FOSC initiates RRT VI call for “authorization” for dispersant (Accell Clean ® DWD) use...RRT concurs**
- **USCG contracts ASI to use aerial dispersants**
- **ASI executes the FOSC’s request**



Environmental Impact to Sensitive Areas is Averted





Questions?