Offshore Lightering & Dispersants

Regional Response Team III

Agenda

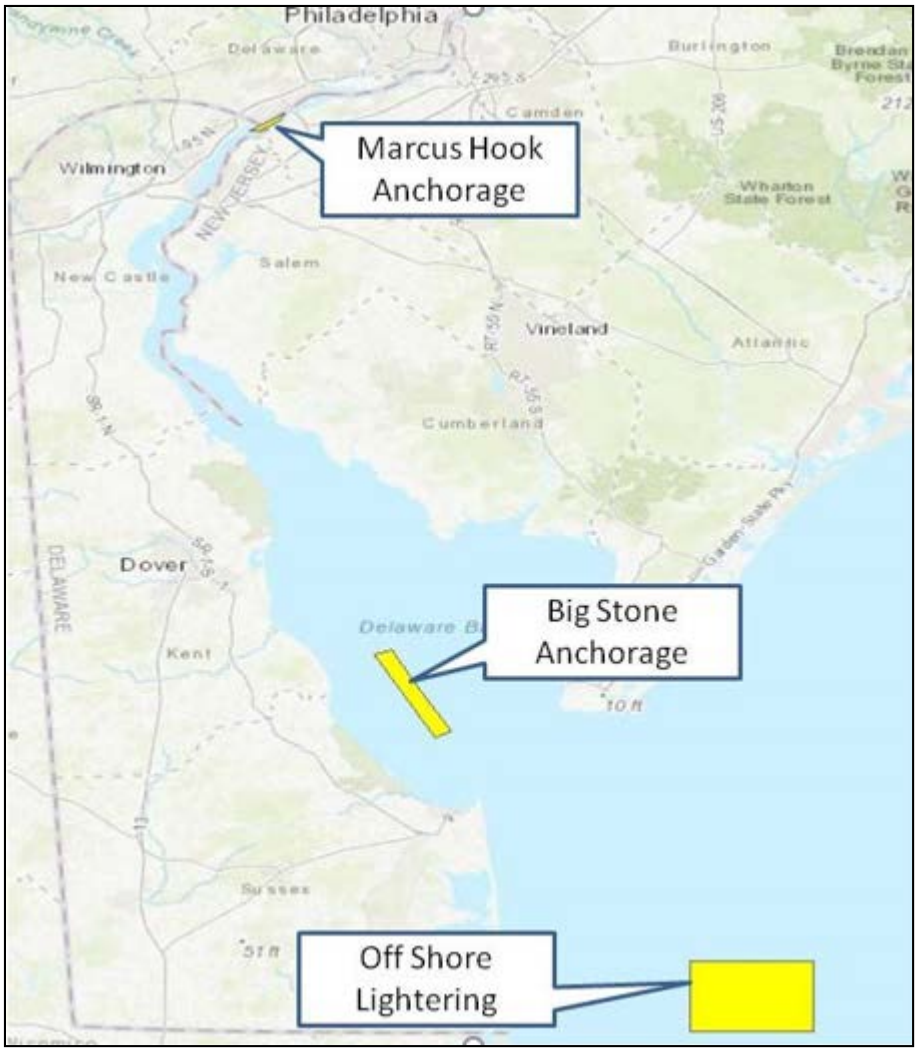
Time	Discussion Topic
1300 – 1305 (5 min)	Introduction (Dave Pugh, USCG District 5)
1305 – 1315 (10 min)	Offshore Lightering Overview (USCG Sector Delaware Bay) - *Big Stone Anchorage & Offshore Anchorage*
1315 – 1330 (15 min)	Industry Perspective (Kate Hood, American Eagle Tanker) - *Lightering Operations (why, how, duration) & Response Structure*
1330 – 1345 (15 min)	Scenario (Frank Csulak, NOAA SSC) - *Trajectory, Fate, & Dispersant Application Window*
1345 – 1355 (10 min)	Spill Management & OSRO Perspective (Gallagher Marine Systems, Marine Spill Response Corporation, Delaware Bay and River Cooperative) - *Equipment Overview, Request Process, Timelines for Staging / Application*
1355 – 1405 (10 min)	* * * BREAK * * *
1405 – 1430 (25 min)	Approval Process (Debbie Scholz, SEA Consulting) - *MOU, Pre-authorization, Trial Use Policy, Approval Process, Concerns*
1430 – 1445 (15 min)	State Perspective (Delaware, Maryland, Virginia)
1445 – 1505 (20 min)	Dispersants at National Level (RADM Austin, CAPT Loring)
1505 – 1510 (5 min)	Co-chair Observations (Dave Ormes, USCG; Kevin Boyd, EPA)
1510 – 1530 (20 min)	Discussion - Work Plans, Updates, Way Forward, etc.

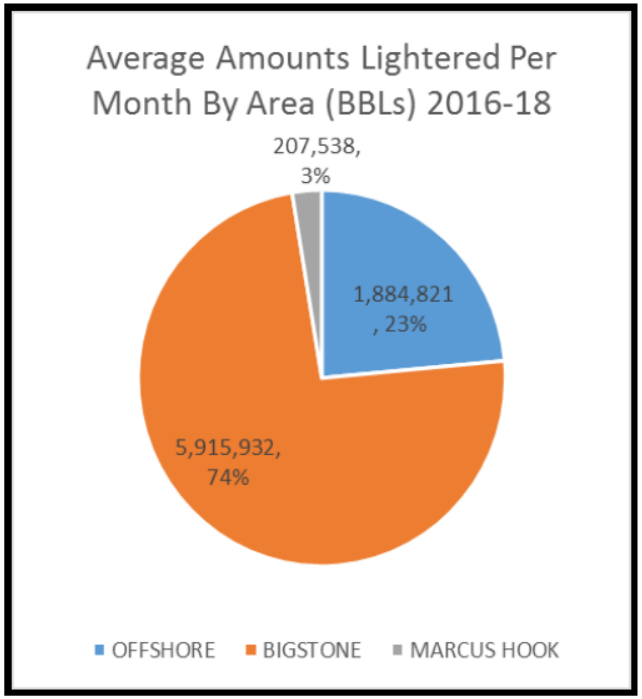
U.S. Coast Guard

Offshore Lightering Overview

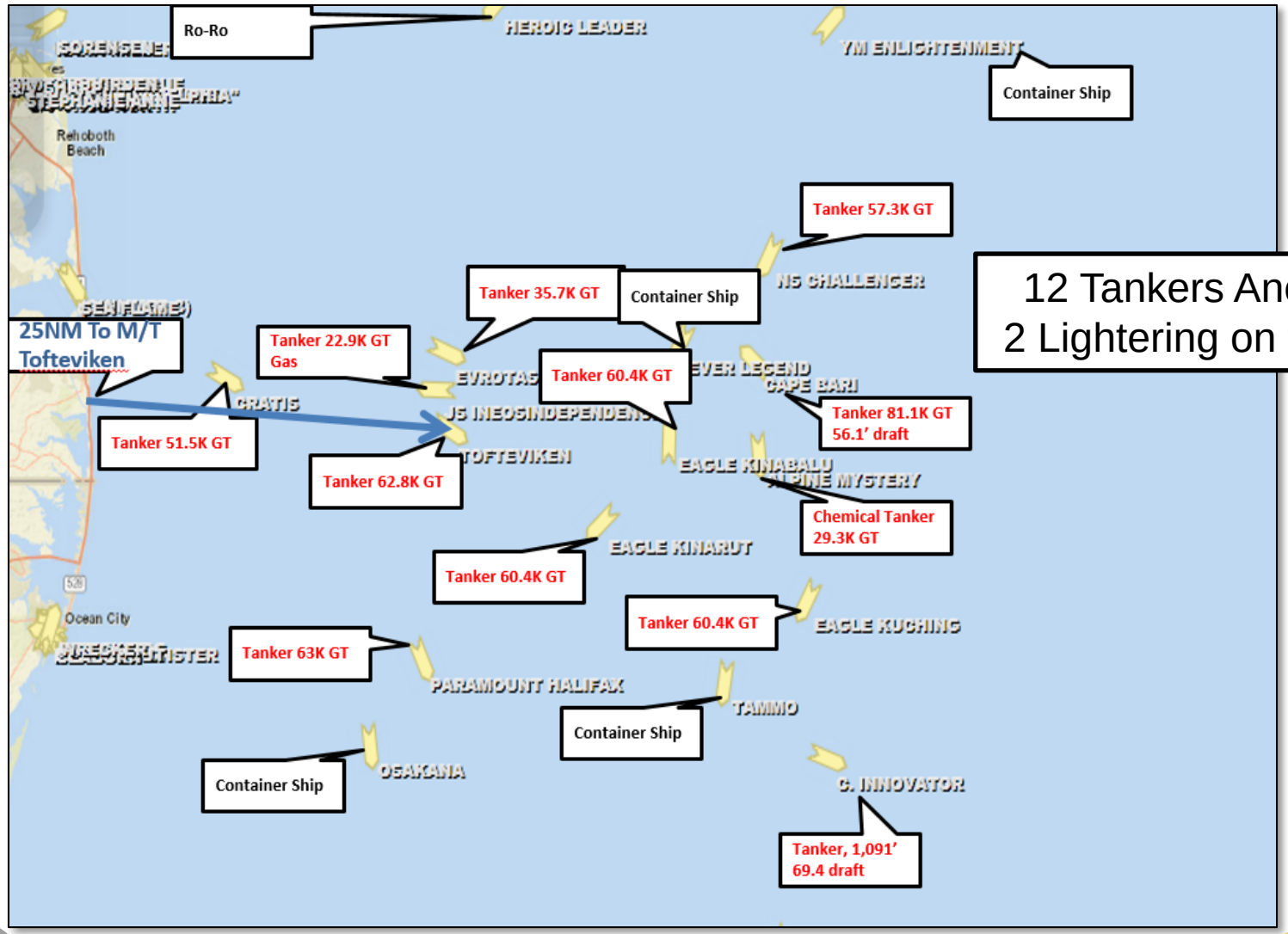
CAPT Scott Anderson
Commander, Sector Delaware Bay

Lightering Zones in Sector Delaware Bay's Zone

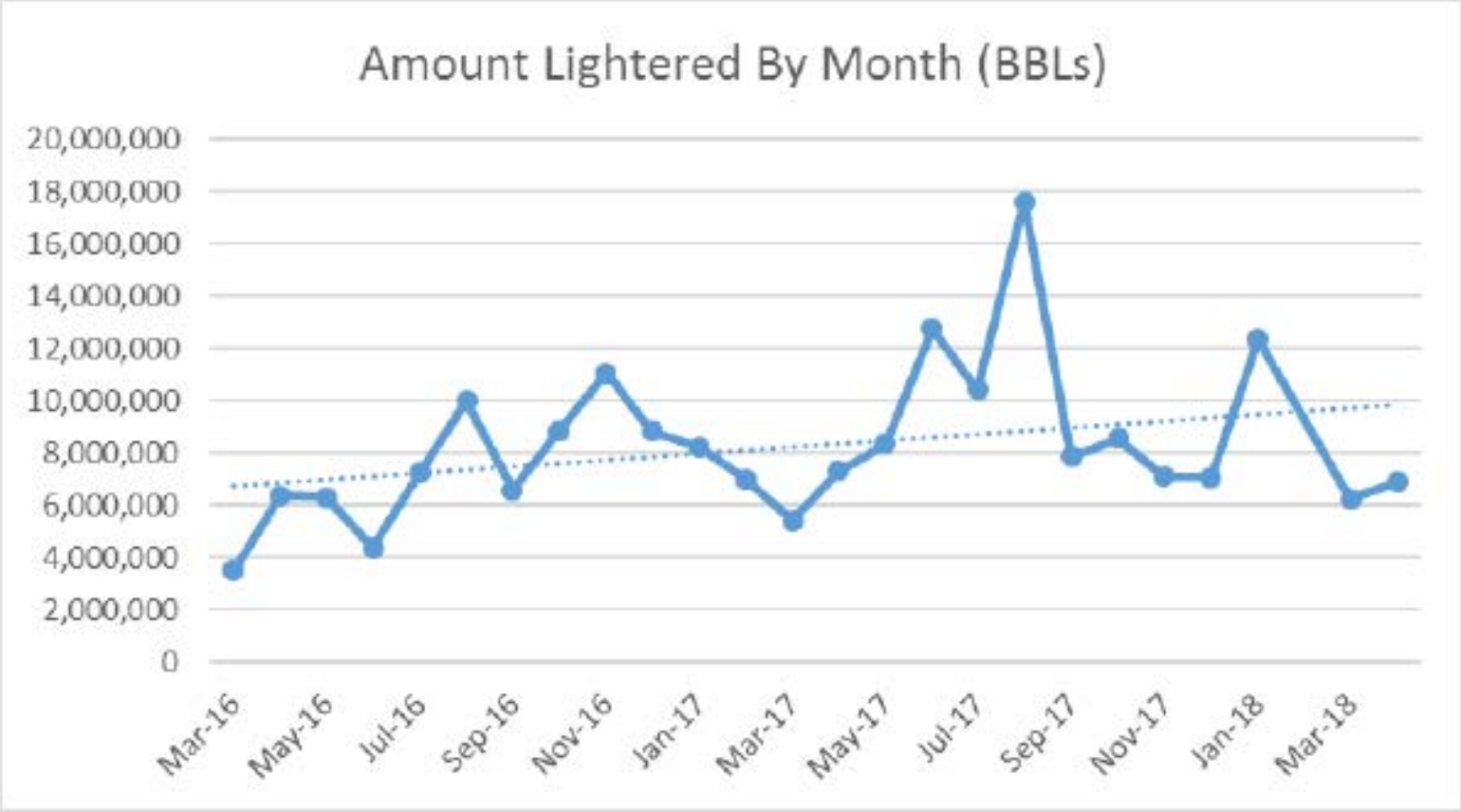


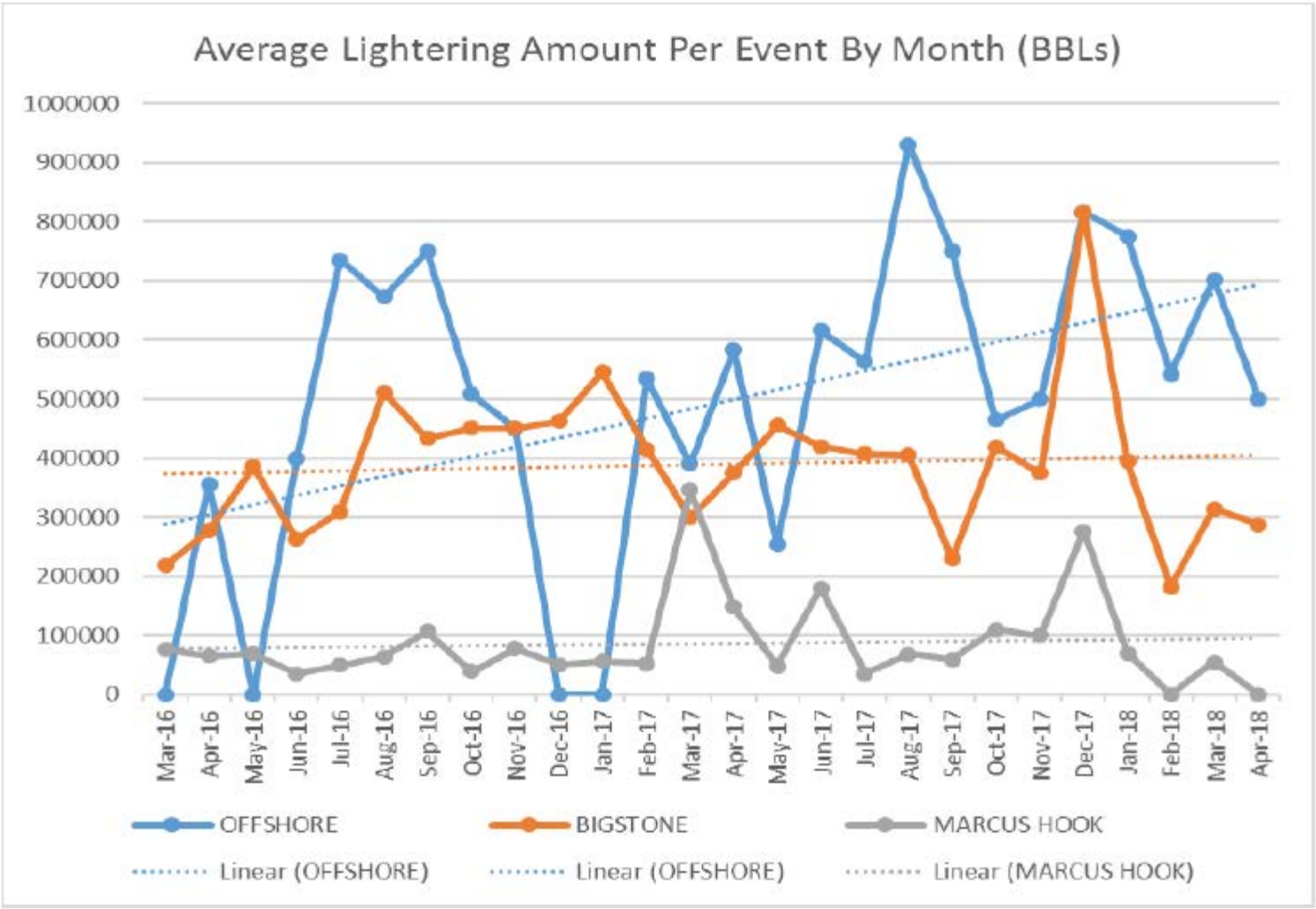


Residual Impacts of 2017 Hurricane Season (Offshore Anchoring/Lightering)



12 Tankers Anchored
2 Lightering on this day


Amount Lightered By Month (BBLs)
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
Mar-16
May-16
Jul-16
Sep-16
Nov-16
Jan-17
Mar-17
May-17
Jul-17
Sep-17
Nov-17
Jan-18
Mar-18


Average Lightering Amount Per Event By Month (BBLs)
1000000
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
Mar-16
Apr-16
May-16
Jun-16
Jul-16
Aug-16
Sep-16
Oct-16
Nov-16
Dec-16
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18
Feb-18
Mar-18
Apr-18
OFFSHORE
BIGSTONE
MARCUS HOOK
Linear (OFFSHORE)
Linear (OFFSHORE)
Linear (MARCUS HOOK)

Factors Impacting Lightering Decisions

- Refinery demand.
- River draft & facility pier depth.
- Financial.
- Indirect impacts of un-related shipping regulations.

QUESTIONS?

Industry Perspective

Kate Hood, American Eagle Tanker

Questions?

Regional Response Team III

Scenario

Frank Csulak, NOAA SSC

Scenario

- On 9 April 2018, the **M/T INTEGRITY** and **M/T STENA VISION** arrived at the offshore lightering position of N 38.70 and 74.50. There are two grades of crude oil on board the **M/T STENA VISION:**
  - Palanca – 1,034,000 bbls (API 37.7)
  - Qualboe – 1,050,000 bbls (API 36.5)

  = Total Cargo of 2,084,000 bbls

- **M/T INTEGRITY** was in position on the starboard side of **M/T STENA VISION** to begin ship-to-ship lightering operations. Lines were all fast and hoses connected. The **M/T STENA VISION** commenced discharging Palanca crude from cargo tanks 2 Port & Starboard, 4 Port & Starboard to **M/T INTEGRITY**.

- The vessels are experiencing a very normal transfer operation, however an early season tropical storm, (nor'easter) has developed and it's arrival is imminent. NOAA's National Weather Service forecasts 40-50 mph winds with gusts exceeding 70 mph. Waves heights are mostly expected to be 20-25 feet with occasional 30-35 foot waves.

Scenario

- By 0600 the **M/T STENA VISION** has transferred **87,000 barrels** of Palanca crude to the **M/T INTEGRITY**. The deck officer on the bridge of the **M/T STENA VISION** has noticed that the weather and sea state conditions are drastically worsening. He immediately calls the **M/T INTEGRITY** and both vessels begin shutting down transfer operations and clear all personnel from the deck.

- A large rogue wave, in excess of 35 feet slams into the port side of the **M/T STENA VISION** causing loss of power and forces the **M/T STENA VISION** to collide with the **M/T INTEGRITY.**

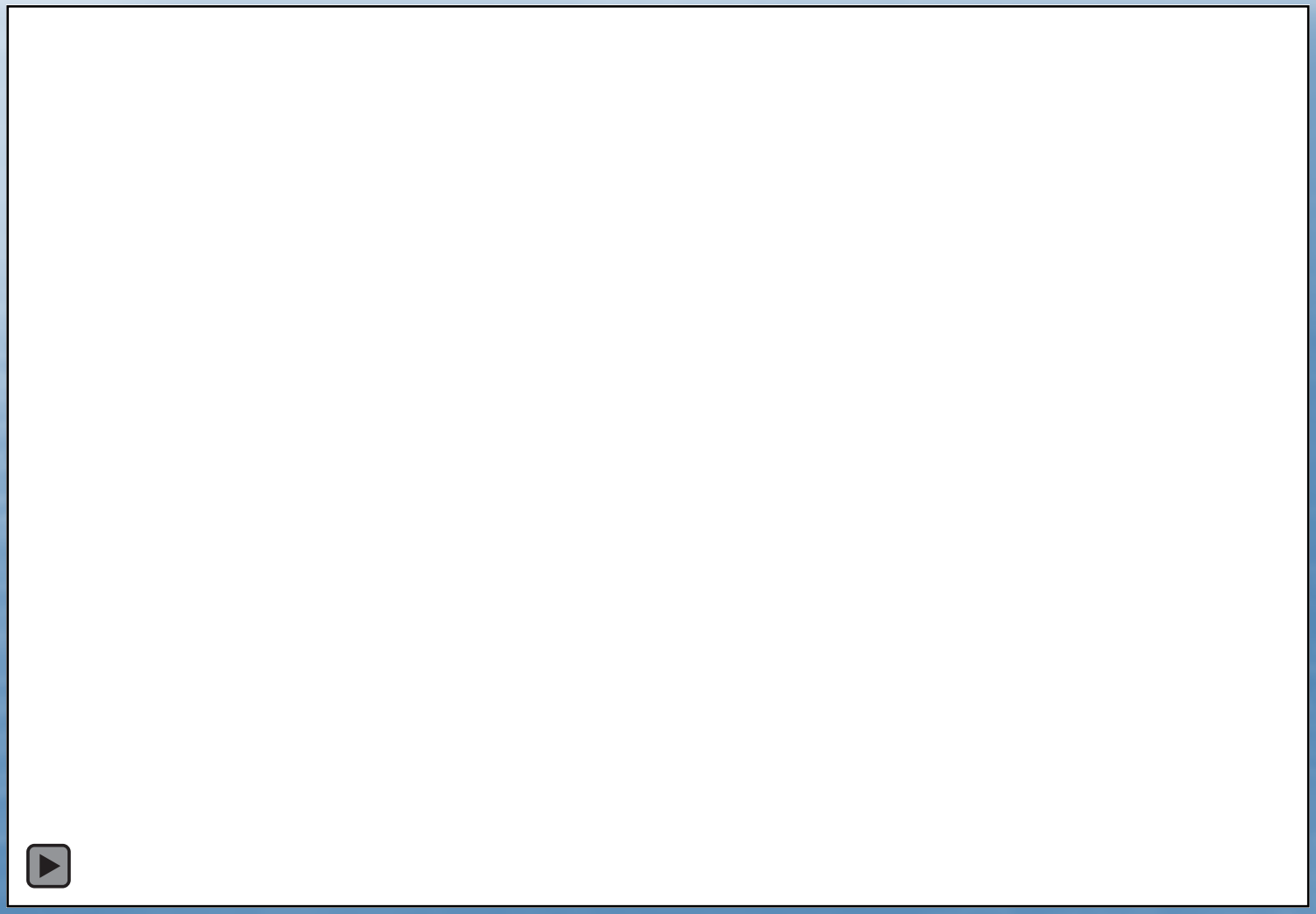
- **M/T STENA VISION** and **M/T INTEGRITY** are on fire as is the cargo escaping from 3 Starboard and 3 Center cargo tanks of **M/T STENA VISION.** There is an explosion which causes the **M/V INTEGRITY** to be partially separated from the **M/T STENA VISION**.

- Notifications are made per the Vessel Response Plan including notification to USCG Sector Delaware Bay. Emergency response procedures are initiated.

Note: Photo taken after passage of Nor'easter.

Scenario

- Approximately 1 million gallons of crude oil spilled 30 miles offshore.
  - *Trajectory (8-day period), Fate, Dispersant Application Window*



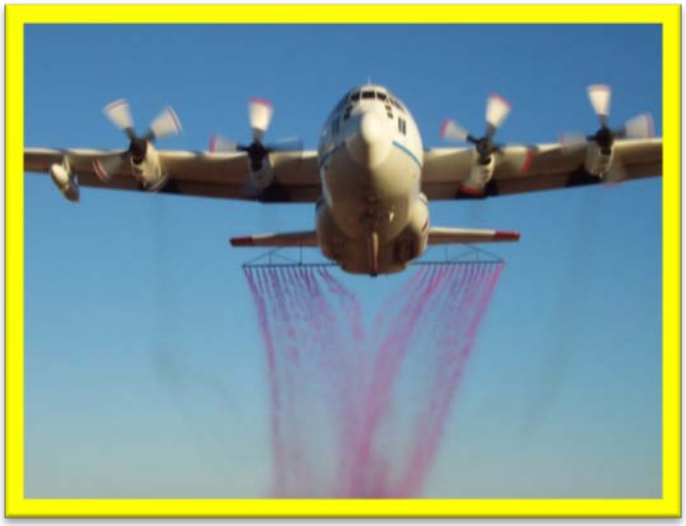
Questions?

Regional Response Team III

Spill Management & Oil Spill Removal Organization (OSRO) Perspective

Gallagher Marine Systems, Marine Spill Response Corporation, Delaware Bay and River Cooperative

MSRC DISPERSANT PROGRAM



Presented by MSRC

May 23, 2018

MSRC Dispersant Program

- Aircraft Fleet
- Type of Aircraft
- Types of Dispersants

- MSRC Capabilities
- Dispersant Deployment Management Tools

MSRC DISPERSANT PROGRAM

MSRC Aerial Dispersant Fleet

MSRC Spray Planes

- Why they are where they are:

  -Meet Regulatory Requirements (CAPS)

  -33 CFR Parts 154 & 155

  -Capability to respond with dispersants to all COTP zones within prescribed time lines.

Dispersant Plane Locations

Dynamic Aviation, Inc.

- 2 x King Air BE-90
  - Home base: Kiln, MS and Concord, CA
  - Twin engine turboprop
  - FAA certified
  - Operated with pilot and co-pilot
- Serves as a spray/spotter aircraft
  - Payload: ~425 gallons max.
- Can serve as an observer aircraft
- Planning Assumptions
  - Transit speed: 185 knots

International Air Response, Inc.

- 2 x C-130
  - FAA certified
  - 4 engine turboprop
- Home based
  - Mesa, AZ
  - Stennis, MS
- Payload
  - ~4,125 gallons
- Planning Assumptions
  - Transit speed: 298 knots

GOM Base of Operations

Stennis International Airport (KHSA) Kiln, MS

- **Proximate to GOM “oil Patch”**
- **Low volume, non-TSA facility**
- **Can safely accommodate C-130 & cargo jet aircraft**
- **C-130 repair facility on site**

MSRC

MSRC Dispersant Logistics

- **Stockpiles Containerized**

Dispersant Inventory:

COREXIT 9527:	**10,673 gals**
COREXIT 9500:	**118,663 gals**
TOTAL:	**129,336 gals**

Regulatory Driver

Effective Daily Application Capacity (EDAC)

- The estimated amount of dispersant that can be applied to a discharge by an application system given the availability of supporting dispersant stockpiles, when operated in accordance with approved standards and within acceptable environmental conditions.

TIERS FOR EFFECTIVE DAILY APPLICATION CAPABILITY

			Gulf of Mexico	-	All *Other US*
•Tier 1	(first 12 hours)	=	8,250	-	4,125
•Tier 2	(first 36 hours)	=	23,375	-	23,375
•Tier 3	(first 60 hours)	=	23,375	-	23,375
•Total	Gallons	=	55,000	-	50,875

Dispersant Locations

• Portland, ME	990 Gallons
• Chesapeake City, MD	13,365 Gallons
• Milford, DE	330 Gallons
• Savannah, GA	6,930 Gallons
• Miami, FL	990 Gallons
• San Juan, PR	3,300 Gallons*
• Tampa, FL	5,280 Gallons

Dispersant Location
(Continued)

- Kiln, MS 16,009 Gallons
- Galveston, TX 10,470 Gallons*
- Ingleside, TX 3,300 Gallons
- Mesa, AZ 3,330 Gallons
- Long Beach, CA 13,120 Gallons
- Carpinteria, CA 18,407 Gallons*
- Richmond, CA 9,735 Gallons
- Concord, CA 330 Gallons
- Eureka, CA 660 Gallons

Dispersant Location (Continued)

- Everett, WA 14,190 Gallons
- Honolulu, HI 8,600 Gallons*

- Total Dispersant *129,336 Gallons*

COREXIT 9527 Locations:

- Galveson, TX 900 gallons
- Carpinteria, CA 9,173 gallons
- Honolulu 600 gallons

Satloc System

Dispersant Deployment Management

- **Satloc M3 System**
  - Location of aircraft
  - Spray start/stop time and location
  - Amount sprayed and area sprayed
  - Application speed
  - Moving map can show
    - Pre-approved spray areas & exclusion zones
    - State &CG boundaries
  - Records and can prepare application report

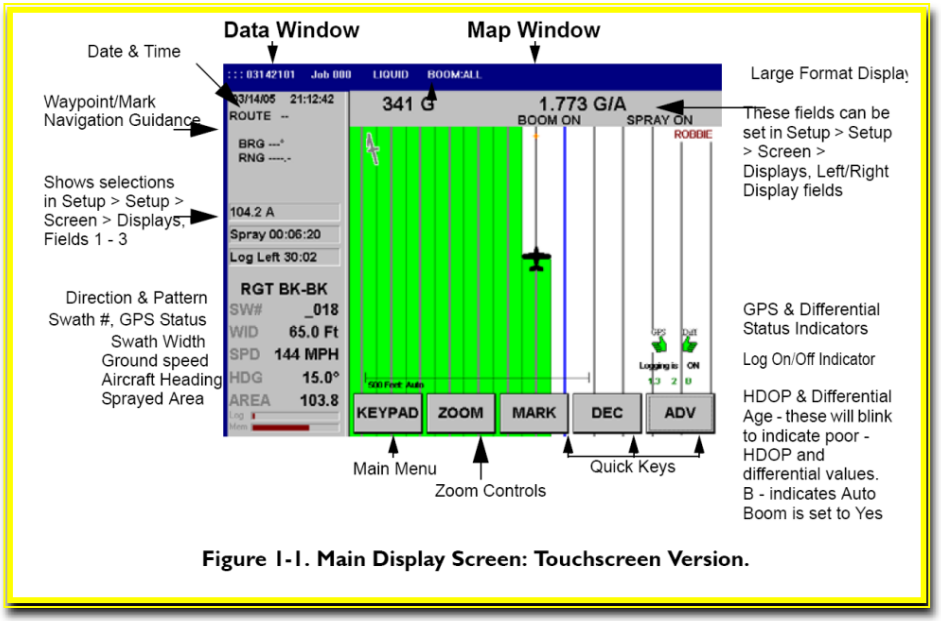
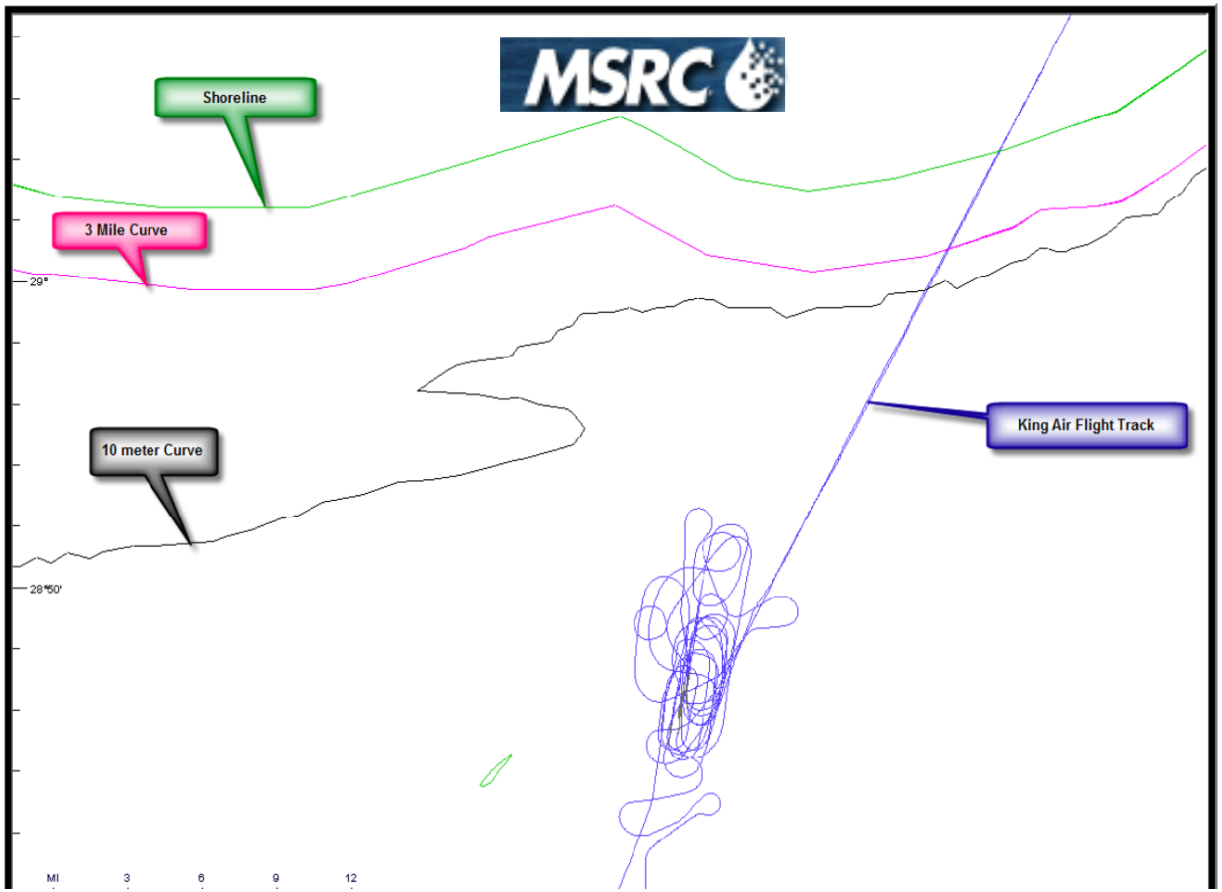


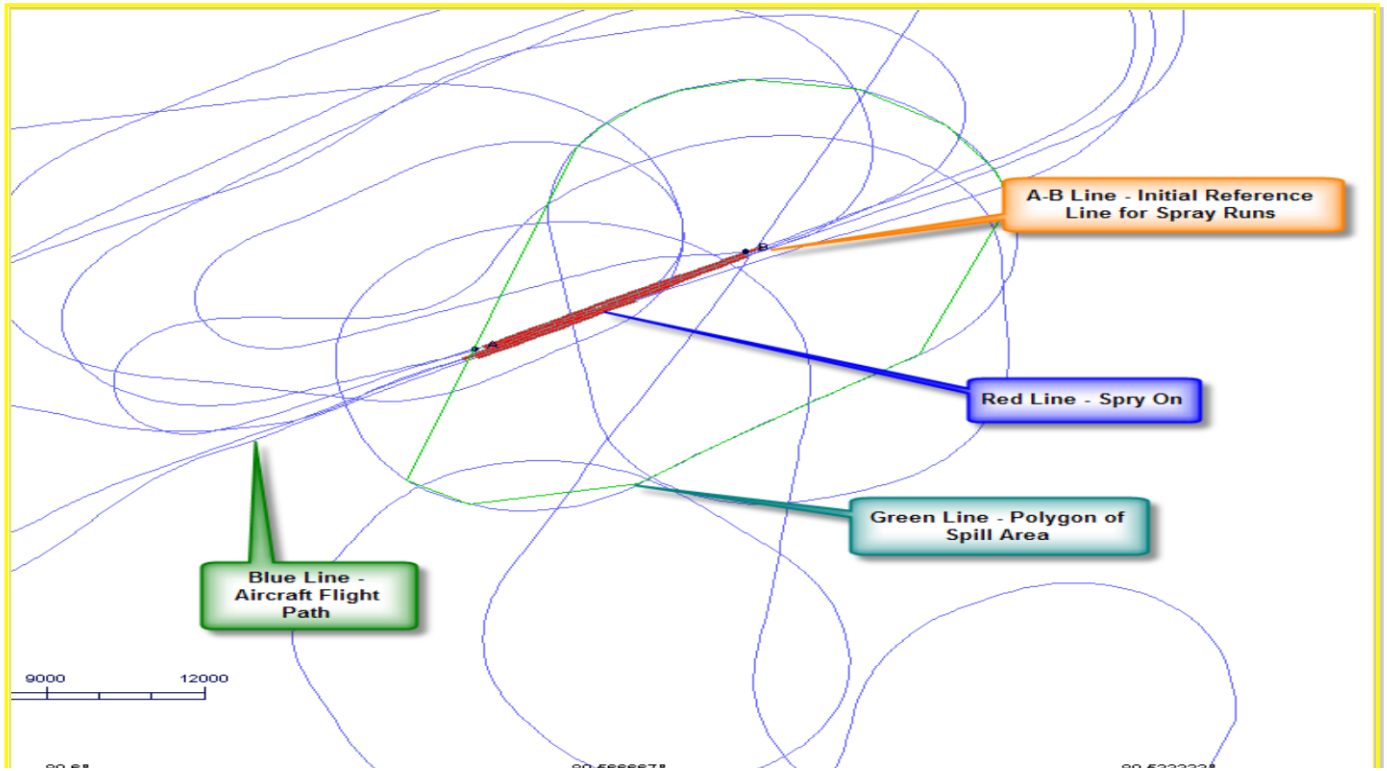
Figure 1-1. Main Display Screen: Touchscreen Version.

Dispersant Deployment Management
Satloc System – Actual Flight Recording



Satloc System

Dispersant Deployment Management
Satloc System – Actual Flight Recording



9-6-2018 Offshore TTX

Upon notification of an incident from an MSRC Customer and the request for Dispersants, MSRC would activate their Dispersant Strike Team.

Once the team has been activated they would mobilize the necessary aircraft, identify a staging airport and develop a dispersant cascade schedule and operations plan to be submitted for FOSC signature.

Activation and Staging

With a scenario of a 25,000 BBL spill of crude oil with an API of 36.5 to 37.7 approximately 27 miles offshore from Rehoboth Beach the following dispersant response may be developed:

•Aircraft – C130 out of Stennis MS for spray operations with a cascade time of 7.2 hrs. transiting with full load (4125gal) of Corexit 9500.(Second C130 out of Mesa AZ available with a cascade time of 11 hrs.)

•Aircraft – Beechcraft King Air out of Bridgewater VA for spotter operations with a cascade time of 6 hrs.

Activation and Staging

- Staging Airport – Two airports have been identified in the area that could support dispersant operations, New Castle County Airport located in New Castle DE and Salisbury – Ocean City Wicomico Regional Airport.

- Preferred Staging Airport - New Castle County Airport, 78 miles from spill site. Airport has 2 runways over 7,000 feet in length with weight capacities of 250,000 lbs. capable of handling large cargo aircraft if dispersants are needed to be flown in. The area around the airport has the infrastructure to handle large operations and is close to major highways allowing easier delivery of dispersants by road.

- Dispersant Cascade – A logistic plan will be developed for the transportation of MSRC's Corexit stockpiles to the staging airport using truck and aircraft as necessary.

Dispersant Operations Plan

- A daily dispersant operations plan will be developed to be submitted by the RP to FOSC for a signature prior to the commencement of spray operations. This plan will be updated daily and submitted, requiring the FOSC's signature each day.
- The daily operations plan contains;
  - FOSC approval letter
  - General dispersant plan information
  - Flight schedule for spray operations
  - Staging airport & spill site diagrams or images
  - Available dispersant inventory (MSRC)
  - Logistic plan for delivery of dispersant stockpiles to staging airport
  - MSRC's dispersant spray parameters

- A sample Dispersant Operations plan for day 1 of this scenario has been developed.

Dispersant Operations Plan

FOSC Approval Letter

Name of Incident: _____

Date: _____

As the Federal On-Scene Coordinator (FOSC), I hearby confirm that all the requirements for the use of dispersants have been met. This includes any requirements set forth in the National Contingency Plan, Regional Contingency Plan, and/or the Area Contingency Plan. I also confirm that the United States Environmental Protection Agency ("EPA") and all other necessary federal and/or state agencies have approved the use of dispersants in response to this incident. I therefore authorize and direct that the responsible party or parties and their contractors apply Corexit dispersants in response to this oil spill incident. Such dispersant application shall occur under my direction, control, and supervision, as summarized in the attached Aerial Dispersant Operations Plan.

Signature : _____ Date: _____

Printed Name: _____

Federal On-Scene Coordinator (FOSC)
United States Coast Guard

Dispersant Operations Plan

General Information

AERIAL DISPERSANT OPERATIONS PLAN

DATE: 9-6-2018	**TIME:** 0730	**STAGING AIRPORT:** New Castle County	**AIRPORT ID:** KILG

DISPERSANT STAGING AIRPORT SUPERVISOR Jay Wilkinson 410-808-5799

SPILL SITE INFORMATION:

SPILL LOCATION:	Latitude:	38.7	N	Longitude:	74.5	W	Size: 25,000 BBL
GEOGRAPHICAL REFERENCE:	Approx. 27 NM East of Rehoboth Beach DE						

SPILL SITE WX:	WIND:	CLG:	VIS:	SUNRISE: 0634	SUNSET: 1925

(Attach Wilken's Weather Report for weather at the spill site and the staging airport)

DOSAGE (GPA): 5 gpa **ADD'L INST:**

COMMS

PRIMARY VHF COM: 122.925 MHz	SECONDARY VHF COM: 122.90 MHz	EMERGENCY VHF COM: 121.5 MHz
SATELLITE PHONE: **All aircraft contact shall be through the Dispersant Staging Airport Supervisor.**		
MARINE RADIO: Channel 16 then switch to Channel 9 | Air-to-Ship (MSRC Responders 122.85 MHz		

AIRCRAFT INFORMATION:

Type:	Tail #:	Call Sign:	Airport ETA:	Purpose & Altitude:	PIC/Crew:	Passengers:
BE-90	TBD	TBD	1330 9-6-18	Spotter: 1000'-1500'	PIC:	None
C-130	N117TG	117TG	1430 9-6-18	Spray: 75'	PIC:	None
					PIC:	None
					PIC:	None
					PIC:	None
					PIC:	None
					PIC:	None
					PIC:	None
					PIC:	None
					PIC:	None

Master Aerial Dispersant Operations Plan Page 2 Rev. 8/10/2017

Dispersant Operations Plan

Day 1 Flight Schedule

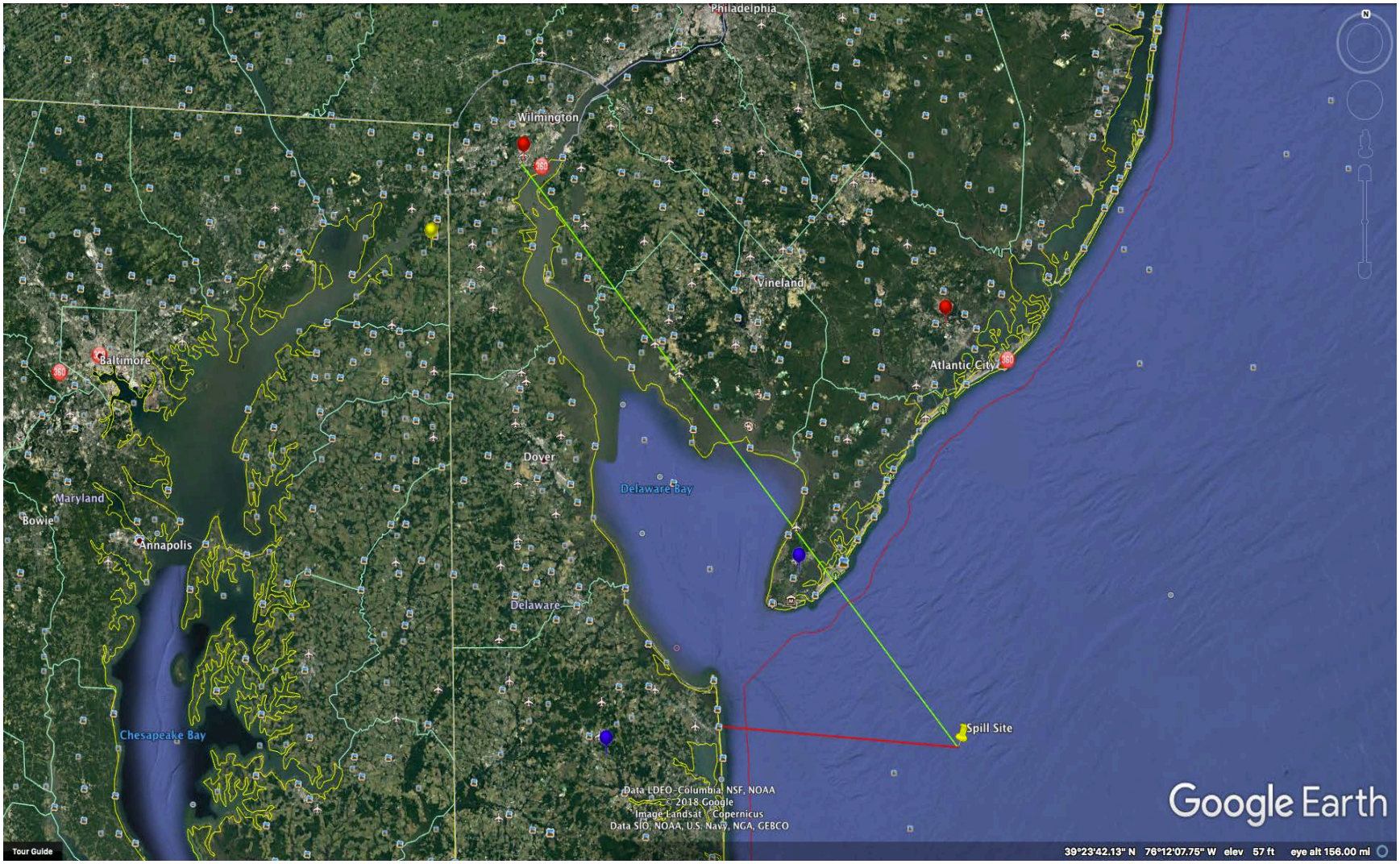
DATE: 9-6-18

FLT #	TAIL #	PURPOSE	DISPERSANT Type	DISPERSANT GAL	FUEL LOAD (HRS:MIN)	FLT TIME EST/ACT	DPT TIME EST/ACT	ENTRY ETA EST/ACT	EXIT ETA EST/ACT	RTRN ETA EST/ACT
1	TBD	Spotter	N/A	N/A	4.5	3.2 hr est	14:30	15:00	17:10	17:40
2	117TG	Spray	9500	4125	4.5	2.5 hr est	15:00	15:30	17:00	17:30
3	TBD	Spotter	N/A	N/A	4.5	3.2 hr est	17:55	18:30	21:25	21:55
4	117TG	Spray	9500	4125	4.5	2.5 hr est	18:00	18:30	21:00	21:30
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

For Day 1 only the initial flight plan is shown as the actual time of the initial flight and subsequent flights will depend upon the time the FOSC or RRT approves the use dispersants. Subsequent days will have a full flight plan.

Dispersant Operations Plan

Spill Site & Flight Path



Dispersant Operations Plan

Staging Airport

Dispersant Operations Plan

Sample Dispersant list from Operations Plan

DISPERSANT INVENTORY

Location of Dispersant	Method of Storage	# of Containers	Amount (Gallons) 9500	Amount (Gallons) 9527	TOTAL AMOUNTs (Gallons)
Atlantic Region					
MSRC Site 14 Union Wharf Portland, Maine 04101 Phone (207) 780-1821 Latitude N 43.6545044 Longitude W 70.2538761	330 Gallon Totes	3	990		**990**
MSRC Site 220 Boat Yard Road Chesapeake City, MD 21915 Phone (410) 885-3503 Latitude N 39.533144 Longitude W 75.822068	330 Gallon Totes	28	9,240		**13,365**
	4,560 Gallon ISO Tank	1	4,125		
Delaware Bay River Co-Op 100 Passwaters Drive Milford, Delaware 19963 (Slaughter Beach) Phone (302) 422-7604 Latitude N 38.939332 Longitude W 75.317755	330 Gallon Tote	1	330		**330**
MSRC Site 2602 Causton Bluff Road Savannah, GA 31404 Phone (912)210-9582 Latitude N 32.066244 Longitude W 81.0481916	330 Gallon Totes	21	6,930		**6,930**
Gulf Region					
MSRC Site	330 Gallon Totes	3	990		**990**

Dispersant Operations Plan

Logistic Plan to meet the requirements of this scenario

25,410 gal dispersant delivered to staging within 24hrs by truck,
Additional 34,320 gal dispersant delivered to staging by cargo aircraft within 30 hrs.

MSRC Dispersant Mobilization Schedule	Dispersant Quantity gallons Corexit 9500A		Distance to Staging Airport		Travel time at 35 MPH		# of hours to arrive at staging airport via road	# of hours to arrive at staging airport via air cargo
Atlantic Region								
MSRC Site 14 Union Wharf Portland, Maine 04101 Phone (207) 780-1821	990	Totes	439				15.04285714	6.89
MSRC Site 220 Boat Yard Road Chesapeake City, MD 21915 Phone (410) 885-3503	9240 4125	Totes ISO	17				2.985714286 2.985714286	2.67
MSRC Site 2602 Causton Bluff Road Savannah, GA 31404 Phone-(912)232-3224	6930	Totes	692				22.27142857	9.42
Gulf Region								
Stennis International Airport 7110 Roscoe Turner Road Kiln, MS 39556 Phone (800)-259-6772	11880	Totes ISO	1151				35.38571429 35.38571429	14.01
MSRC Site 8400 Old Causeway Road Galveston, TX 77554 Phone (409) 740-9188 Latitude 29.286944 Longitude 94.864625	9570	Totes Totes (9527)	1505				45.5	17.55
California Region								
Tesoro Marine Terminal 820 Carrack Avenue Long Beach, CA 90813 Phone (562)981-7600	12870	Totes	2727				80.41428571	29.77
Grand Total (in gallons)	55605							

** All times in column "K" and "N" include a 2.5 hr mobilization time as per USCG OSRO Guidelines*
** Road travel times are estimated at 35 mph as per USCG OSRO Guidelines*
** Air travel times are estimated at 100 mph as per USCG OSRO Guidelines*

Estimated Dispersant System Potential Calculator

The EDSP is used to estimate the amount of dispersant that maybe sprayed during a set operational period and calculates the amount oil treated.

Using a notification time for dispersants of 0730 the following EDSPs were created for days 1,2,& 3.

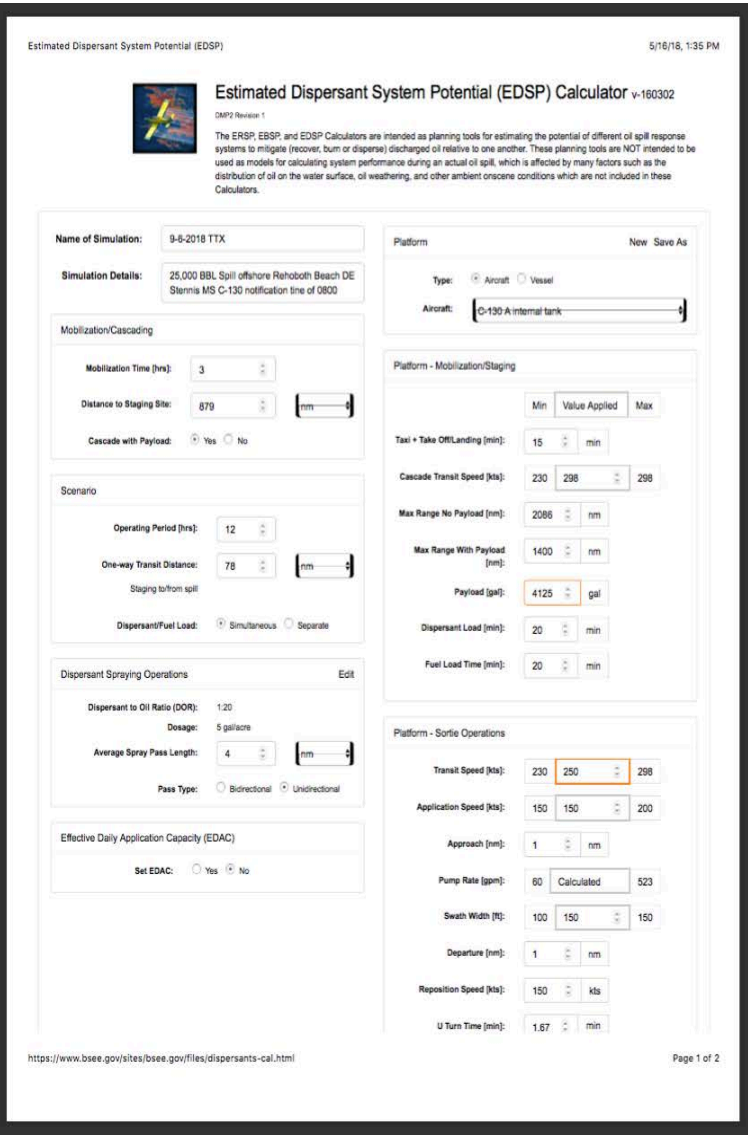
On day 1, 2 sorties could fly delivering 8,077 gals of dispersant treating 3,846 bbls of oil. On day 2 & 3, 5 sorties could be flown each day delivering 20,625 gals of dispersant a day treating 9,821 bbls, respectively.

In a three day period from time of notification 49,327 gals of dispersant could be sprayed treating 23,488 bbls of oil.

To get these calculations there is required information to be inputted into the EDSP.

- Mobilization times
- Distance to staging airport
- Operational period
- Distance to spill area from staging airport
- Average spray pass length
- Spray pass type (Bidirectional or Unidirectional)
- Type of spray aircraft used
- Dispersant payload

EDSP Day 1 pg. 1



Estimated Dispersant System Potential (EDSP) 5/16/18, 1:35 PM

Estimated Dispersant System Potential (EDSP) Calculator v-160302

DMP2 Revision 1

The ERSP, EBSP, and EDSP Calculators are intended as planning tools for estimating the potential of different oil spill response systems to mitigate (recover, burn or disperse) discharged oil relative to one another. These planning tools are NOT intended to be used as models for calculating system performance during an actual oil spill, which is affected by many factors such as the distribution of oil on the water surface, oil weathering, and other ambient onscene conditions which are not included in these Calculators.

Name of Simulation: 9-6-2018 TTX

Simulation Details: 25,000 BBL Spill offshore Rehoboth Beach DE Stennis MS C-130 notification tine of 0800

Mobilization/Cascading

Mobilization Time [hrs]:	3	
Distance to Staging Site:	879	nm
Cascade with Payload:	Yes / No	

Scenario

Operating Period [hrs]:	12	
One-way Transit Distance:	78	nm
Staging to/from spill		
Dispersant/Fuel Load:	Simultaneous / Separate	

Dispersant Spraying Operations Edit

Dispersant to Oil Ratio (DOR):	1:20	
Dosage:	5 gal/acre	
Average Spray Pass Length:	4	nm
Pass Type:	Bidirectional / Unidirectional	

Effective Daily Application Capacity (EDAC)

Set EDAC: Yes / No

Platform New Save As

Type: Aircraft / Vessel

Aircraft: C-130 A internal tank

Platform - Mobilization/Staging

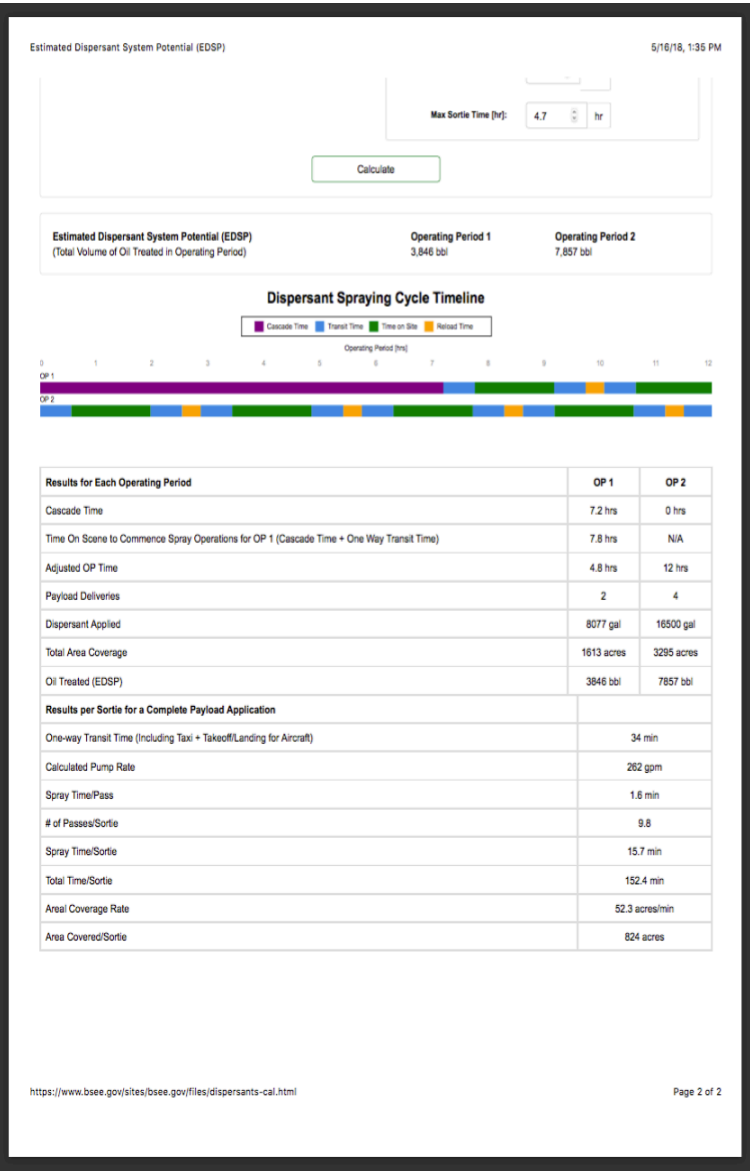
	Min	Value Applied	Max
Taxi + Take Off/Landing [min]:	15	min	
Cascade Transit Speed [kts]:	230	298	298
Max Range No Payload [nm]:	2086	nm	
Max Range With Payload [nm]:	1400	nm	
Payload [gal]:	4125	gal	
Dispersant Load [min]:	20	min	
Fuel Load Time [min]:	20	min	

Platform - Sortie Operations

Transit Speed [kts]:	230	250	298
Application Speed [kts]:	150	150	200
Approach [nm]:	1	nm	
Pump Rate [gpm]:	60	Calculated	523
Swath Width [ft]:	100	150	150
Departure [nm]:	1	nm	
Reposition Speed [kts]:	150	kts	
U Turn Time [min]:	1.67	min	

https://www.bsee.gov/sites/bsee.gov/files/dispersants-cal.html Page 1 of 2

EDSP Day 1 pg. 2



Estimated Dispersant System Potential (EDSP) 5/16/18, 1:35 PM

Max Sortie Time [hr]: 4.7 hr

Calculate

Estimated Dispersant System Potential (EDSP) (Total Volume of Oil Treated in Operating Period)	Operating Period 1	Operating Period 2
	3,846 bbl	7,857 bbl

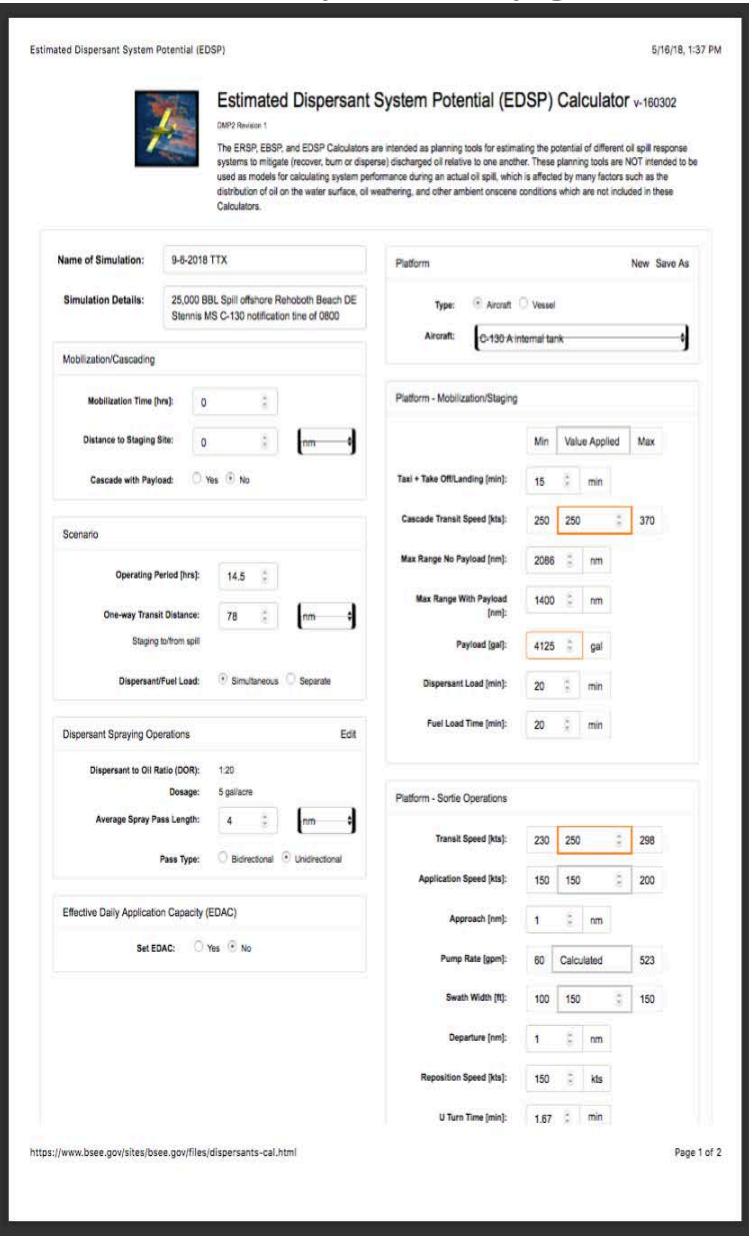
Dispersant Spraying Cycle Timeline

Results for Each Operating Period	OP 1	OP 2
Cascade Time	7.2 hrs	0 hrs
Time On Scene to Commence Spray Operations for OP 1 (Cascade Time + One Way Transit Time)	7.8 hrs	N/A
Adjusted OP Time	4.8 hrs	12 hrs
Payload Deliveries	2	4
Dispersant Applied	8077 gal	16500 gal
Total Area Coverage	1613 acres	3295 acres
Oil Treated (EDSP)	3846 bbl	7857 bbl

Results per Sortie for a Complete Payload Application	
One-way Transit Time (Including Taxi + Takeoff/Landing for Aircraft)	34 min
Calculated Pump Rate	262 gpm
Spray Time/Pass	1.6 min
# of Passes/Sortie	9.8
Spray Time/Sortie	15.7 min
Total Time/Sortie	152.4 min
Areal Coverage Rate	52.3 acres/min
Area Covered/Sortie	824 acres

https://www.bsee.gov/sites/bsee.gov/files/dispersants-cal.html Page 2 of 2

EDSP Day 2 & 3 pg. 1



Estimated Dispersant System Potential (EDSP) 5/16/18, 1:37 PM

Estimated Dispersant System Potential (EDSP) Calculator v-160302

DMP2 Revision 1

The ERSP, EBSP, and EDSP Calculators are intended as planning tools for estimating the potential of different oil spill response systems to mitigate (recover, burn or disperse) discharged oil relative to one another. These planning tools are NOT intended to be used as models for calculating system performance during an actual oil spill, which is affected by many factors such as the distribution of oil on the water surface, oil weathering, and other ambient onscene conditions which are not included in these Calculators.

Name of Simulation: 9-6-2018 TTX

Simulation Details: 25,000 BBL Spill offshore Rehoboth Beach DE Stennis MS C-130 notification tine of 0800

Mobilization/Cascading

Mobilization Time [hrs]:	0	
Distance to Staging Site:	0	nm
Cascade with Payload:	○ Yes ◉ No	

Scenario

Operating Period [hrs]:	14.5	
One-way Transit Distance:	78	nm
Staging to/from spill		
Dispersant/Fuel Load:	◉ Simultaneous ○ Separate	

Dispersant Spraying Operations Edit

Dispersant to Oil Ratio (DOR):	1:20	
Dosage:	5 gal/acre	
Average Spray Pass Length:	4	nm
Pass Type:	○ Bidirectional ◉ Unidirectional	

Effective Daily Application Capacity (EDAC)

Set EDAC: ○ Yes ◉ No

Platform New Save As

Type: ◉ Aircraft ○ Vessel

Aircraft: C-130 A internal tank

Platform - Mobilization/Staging

	Min	Value Applied	Max	
Taxi + Take Off/Landing [min]:		15		min
Cascade Transit Speed [kts]:	250	250	370	
Max Range No Payload [nm]:		2086		nm
Max Range With Payload [nm]:		1400		nm
Payload [gal]:		4125		gal
Dispersant Load [min]:		20		min
Fuel Load Time [min]:		20		min

Platform - Sortie Operations

Transit Speed [kts]:	230	250	298	
Application Speed [kts]:	150	150	200	
Approach [nm]:		1		nm
Pump Rate [gpm]:	60	Calculated	523	
Swath Width [ft]:	100	150	150	
Departure [nm]:		1		nm
Reposition Speed [kts]:		150		kts
U Turn Time [min]:		1.67		min

https://www.bsee.gov/sites/bsee.gov/files/dispersants-cal.html Page 1 of 2

EDSP Day 2 & 3 pg. 2

Max Sortie Time [hr]: 4.7 hr

Calculate

Estimated Dispersant System Potential (EDSP) (Total Volume of Oil Treated in Operating Period)	Operating Period 1	Operating Period 2
	9,821 bbl	9,821 bbl

Dispersant Spraying Cycle Timeline

Results for Each Operating Period	OP 1	OP 2
Cascade Time	0.75 hrs	0 hrs
Time On Scene to Commence Spray Operations for OP 1 (Cascade Time + One Way Transit Time)	1.3 hrs	N/A
Adjusted OP Time	13.75 hrs	14.5 hrs
Payload Deliveries	5	5
Dispersant Applied	20625 gal	20625 gal
Total Area Coverage	4119 acres	4119 acres
Oil Treated (EDSP)	9821 bbl	9821 bbl
Results per Sortie for a Complete Payload Application		
One-way Transit Time (Including Taxi + Takeoff/Landing for Aircraft)	34 min	
Calculated Pump Rate	262 gpm	
Spray Time/Pass	1.6 min	
# of Passes/Sortie	9.8	
Spray Time/Sortie	15.7 min	
Total Time/Sortie	152.4 min	
Areal Coverage Rate	52.3 acres/min	
Area Covered/Sortie	824 acres	

The End

Questions?

Questions?

Regional Response Team III

Dispersant Approval Process and Authorization

Debbie Scholz, EPA START Contractor

Subpart J Approval Process

- 1997 Region 3 Memorandum of Understanding (MOU) on Chemical Countermeasures as described in Subpart J of the National Contingency Plan identifies procedures to be followed for:
  - obtaining an expedited decision regarding the use of dispersants in responding to oil discharges
  - obtaining expedited decision on the use of surface collecting agents and biological additives
  - Copy of 1997 MOU available from: https://nrt.org/site/doc_list.aspx?site_id=72

MOU Table of Contents

- Purpose
- Authority
- Scope
  - Protocols
  - Amendments
  - Cancellation
  - Signatures (1997)
  - List of Annexes and Figures*
  - Items for Future Consideration by Committee Members

* *Details on next slide*

TOC, Continued

- List of Annexes and Figures:
  - Annex I – Preauthorization Zones and Zone-specific Conditions
    - Figure I – Chemical Countermeasure Preauthorization Zones
  - Annex II – Critical Decision Making Data
  - Annex III – Trial Use Policy
  - Annex IV – Dispersant Monitoring Policy
  - Annex V – Products with Completed Section 7 Consultations
  - Annex VI – Biological Monitoring / Region 5 Bioassay Protocol

MOU Purpose

- Provides preauthorization for the use of chemical countermeasures by the FOSC in Federal Region III designated zones
- Preauthorization is subject to conditions set forth in the MOU:
  - General conditions
  - Zone specific conditions defined in Annex I
  - Conditions for Trial Use as defined in Annex III

MOU Authority

- Subpart J of NCP:
  - FOSC may authorize the use of chemical countermeasures on oil discharges; *provided* that such chemical countermeasures are listed on the NCP Product Schedule (40 CFR 300.900), with concurrence of:
    - the EPA Representative to RRT3, *and*
    - the States / Commonwealths with jurisdiction over navigable waters threatened by oil discharge, *and in consultation with*
    - the U.S. DOC natural resource trustee, and
    - the U.S. DOI natural resource trustee,
  - This MOU constitutes preconsultation & preconcurrence by all signatories for the approval for use of chemical countermeasures within the preapproval areas subject to conditions of this MOU and its Annexes

Authority, Continued

- Commander, Fifth Coast Guard District pre-designated COTPs as FOSCs
  - COTP zones as defined in 33 CFR Part 3[A]
  - Subject to joint response boundary agreements with EPA

- Governors have designated the authority and responsibility for providing approval for the use of chemical countermeasures for control of oil spills in or affecting state waters:
  - Delaware – Secretary, Department of Natural Resources & Environmental Control (DE DNREC)
  - Maryland – Secretary, Maryland Department of the Environment (MDE)
  - Virginia – Secretary of Natural Resources (VASNR)

Authority, Continued

- MOU subject to compliance with Consultation requirements of Section 7 of ESA
  - Consultation for products not listed in Annex V would be accomplished on an incident-specific basis prior to use

- Dispersant Employment Evaluation Plan (DEEP) C D
  - concurrence is required from the affected State(s), DOI, DOC, and EPA
  - Where hazards to human life exist, the regulations in Subpart J of the NCP and the FOSC may authorize dispersant use without regional concurrence network approval

MOU SCOPE

- MOU signatories agree that physical removal of oil from environment is primary method for controlling discharged oil
- Physical removal may not be possible for incident-specific circumstances
  - Chemical Countermeasures, alone or in conjunction with mechanical removal
  - No biological agents will be used as a primary response measure
- 4 distinct Zones identified in this MOU, each with zone specific conditions

MOU Protocols

- MOU requires FOSC to:
  - Satisfy Protocols Section
  - Satisfy Zone specific conditions (Annex I)
  - Satisfy Critical Decision Making Data information requirements (Annex II)
  - Satisfy conditions for Trial Use (Annex III)

  - In **Zone 1,** approved chemical countermeasures may be used without further concurrence or consultation

Protocols, Continued

- Requestor (RP or FOSC) must submit a Chemical Countermeasures Implementation Plan that includes:
  - Period of Use
  - Quantity
  - Application Rate
  - Application Equipment and Personnel
  - Size of Area to be Treated
  - Health and Safety Precautions
  - Monitoring Arrangements (current MOU refers to Annex IV) E

Protocols, Continued

- Monitoring Plans:
  - updated as new information becomes available
  - RP to provide written Preliminary Report within 48 hours:
    - Effects and effectiveness for any use, or
    - Trial Use (Annex III)

- USCG / States/Commonwealths shall jointly develop training program for:
  - observers who shall be responsible for assessing application effectiveness and
  - documenting compliance with Countermeasures Implementation Plan

Protocols, Continued

- FOSC will present evidence on application status, compliance, effectiveness to Unified Command
  - FOSC to recommend if further applications warranted
  - RP to submit Status Report within 45 days after initial application. This report will include:
    - o Preliminary data on environmental effects and effectiveness
  - RP to submit to FOSC / RRT a Final Written Report on these effects within 6 months following the date of first countermeasure use

MOU Annex 1

Preauthorization Zones & Zone Specific Conditions (Annex I)

- Zones:
  - **Zone 1** – Federal Waters, 3 nm offshore within the EEZ
    - o approved chemical countermeasures may be used without further concurrence or consultation
  - **Zone 2** – coastal waters between 0.5 nm from shore and water depth greater than 40 feet out to 3 nm from shore
  - **Zone 3** – nearshore waters of less than 0.5 nm from shore or water depth less than 40 feet, in the USCG Zone
  - **Zone A** – Big Stone Beach Anchorage in Delaware Bay, with specified restrictions

Zone 1
Chemical Countermeasures Advance Approval Zone:

Seaward 3 nautical miles from baseline within Federal Region III to the outermost extent of the EEZ

Zone 2
Chemical Countermeasures Trial Application Zone:

Waters 40 feet deep, 0.5 to 3.0 nautical miles seaward from the baseline, excluding all bays and coves. FOSC allowed trial application of countermeasure; RRT 3 approval needed prior to operational application

Zone 3
No Pre-Approval Zone:

Waters 40 feet deep within 0.5 nautical miles from baseline, including all bays and coves.

Zone A
Limited Pre-Approval Zone:

Waters within Big Stone Anchorage

MOU Annex II

Critical Decision Making Data (Annex II)

- To be completed by the FOSC and submitted to the Incident-specific RRT / Resource Trustees
- Includes (*responsibility*):
  - Spill Data (*FOSC*)
  - Weather and water conditions / forecasts (*FOSC & SSC*)
  - Oil Trajectory information (*SSC*)
  - Characteristics of chemical countermeasures and application methodology (*FOSC*)
  - Habitat and Resources at Risk (*States*)
  - Critical Questions (*States / Trustees*)
  - Recommendations to the FOSC (*States / Trustees*)

MOU Annex III

Trial Use Policy (Annex III) – Added in 1999

- FOSC authorized to apply chemical countermeasures as specified and not otherwise prohibited
- Application requirements:
  - 50 bbl or less slick size – to determine effect and effectiveness
  - May be used prior to initial request for operational use in **Zones A**, **2**, and **3** [F]
  - Monitoring waved for trial use applications;
    - Requires trained observer
    - Pass/fail visual observation
  - Results reported to RRT as soon as they are available; positive result does not mean operational use

MOU Annex IV

Dispersant Monitoring Protocol (Annex IV)

- February 24, 1994; revised, May 18, 1995
- Replaced with SMART Monitoring Protocols

MOU Annex V

Products with Completed ESA Section 7 Consultation (Annex V)[H]

- Corexit 9500 [I]
- Corexit 9527 [I]
- Corexit 9550 [J]
- Products not listed in Annex V must complete required consultation prior to their use

MOU Annex VI

- Biological Monitoring / Bioassay Protocol (Annex VI)
  - Originally developed by Region 5

MOU Transparency

A 33 CFR Part 3 has been changed since the designation of the COTP boundaries

~~B Virginia Secretary of Natural Resources did not sign the 1997 MOU~~

C The DEEP still exists in the RCP; but has been recommended for removal

D Dispersant planning is currently addressed by various documents

E Annex IV has been replaced with the NOAA Specialized Monitoring for Applied Response Technologies (SMART) guidance for Dispersant and In-situ Burning operations

F Trial use in Zone 3 is subject to Concurrence steps outlined for operational use in Annex I

~~G SMART protocols replaced Annex VI in RCP~~

H Consultation not current for ESA; no EFH Consultation conducted

I ESA Consultation in Annex V was conducted for previous formulations of Corexit 9500 and Corexit 9527

J Corexit 9550 formulation for no longer on NCP Product Schedule

MOU Update

- RRT3 Executive Committee determined that we would not reopen MOU; will amend existing document
- Issues for RCP Re-write Workgroup to address for 1997 MOU:
  - Preauthorization Zones includes:
    - COTP Hampton Roads AOR
    - COTP Philadelphia AOR (now COTP Sector Delaware Bay)
    - COTP Maryland–National Capitol Region did not exist
  - ~~Virginia did not sign 1997 MOU~~
  - Changes made to MOU:
    - DEEP recommended for removal; update Dispersant Operational Planning requirements
    - SMART monitoring protocols replaced Annex IV

Updates, Continued

- Continued:
  - Products listed in Annex V – (Spill Response Countermeasures & Consultation, Natural Resources and Damage Assessment Workgroups to evaluate)
    - o Initial product formulations changed for Corexit products
    - o Products no longer available to be removed
    - o ESA Section 7 Consultations outdated; needs to be updated
    - o EFH Consultations to be conducted
    - o Other product formulations to be considered?

- RRT3 to provide Observer Training program of State/Commonwealth and Federal Officials

ORRT Update

Hawaii WCD at Barbers Point, Oahu at single point mooring, 1.5 miles offshore (10-fathom/60-foot water depth required)

- 3M bbl transport vessels
- ANS + Indonesian crudes – amenable to dispersing
- Tourism, Cultural and Natural Resources primary drivers in decision making
- Operational use within 3.5 to 4.0 hours (pre-staged):
  - USCG C-130 with Hawaii-owned ADDS pack (5,000 gallons)
  - Helicopter bucket spray (2)
  - Crucial boat spray
  - MSRC – 30K gallons Corexit EC9500A on site
  - NRC – dispersant program still being evaluated:
    - Spray plane (3,300 gallon DC-6)
    - 27K gallons Finasol

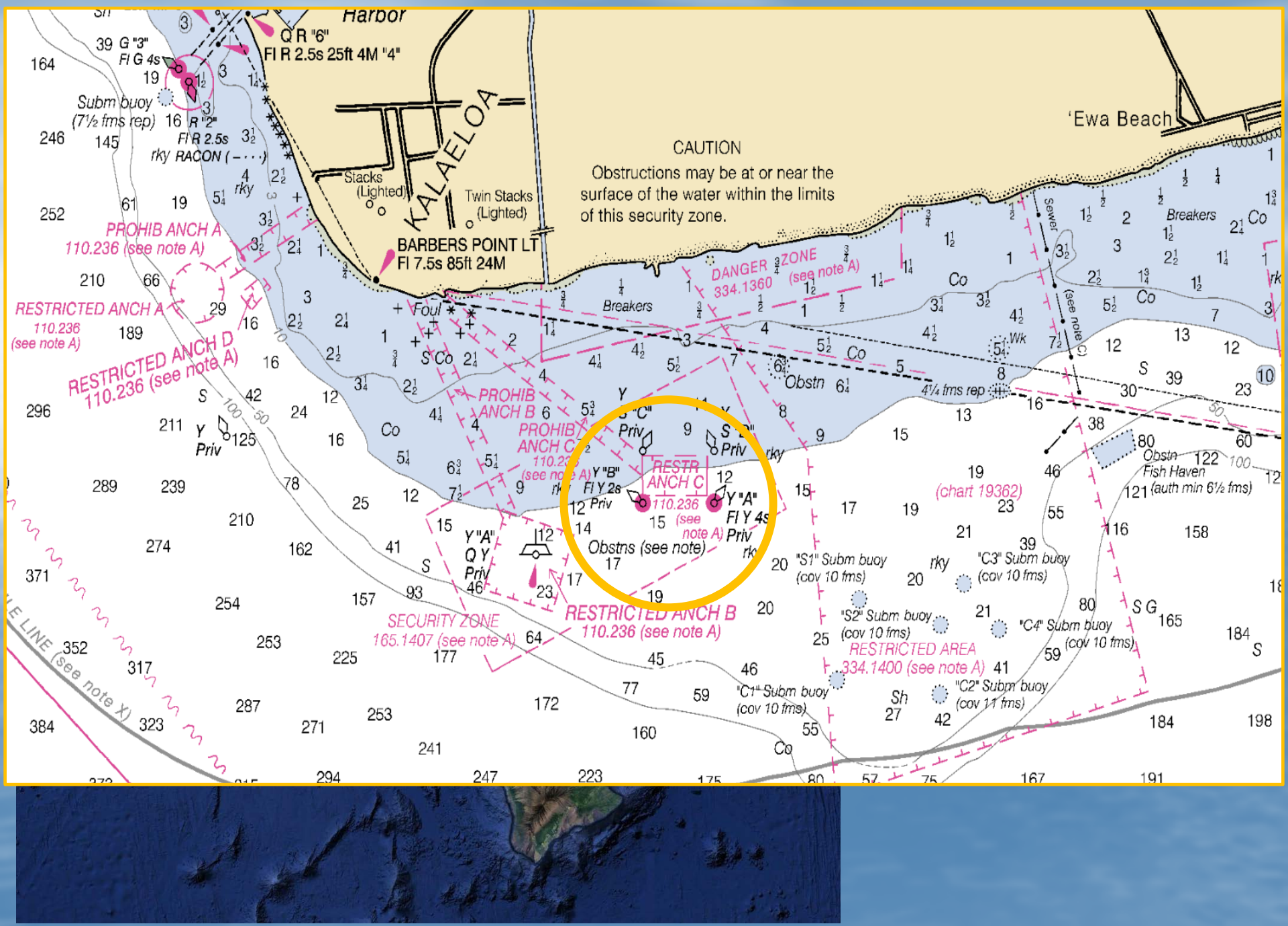

Harbor
Q R "6"
Fl R 2.5s 25ft 4M "4"
39 G "3"
Fl G 4s
Subm buoy
(7½ fms rep)
16 R "2"
Fl R 2.5s
rky RACON (– · · ·)
KALAELOA
Stacks
(Lighted)
Twin Stacks
(Lighted)
BARBERS POINT LT
Fl 7.5s 85ft 24M
'Ewa Beach
CAUTION
Obstructions may be at or near the surface of the water within the limits of this security zone.
PROHIB ANCH A
110.236 (see note A)
RESTRICTED ANCH A
110.236
(see note A)
RESTRICTED ANCH D
110.236 (see note A)
PROHIB ANCH B
PROHIB ANCH C
110.236
(see note A)
DANGER ZONE
334.1360 (see note A)
Breakers
Foul
Obstn
4¼ fms rep
Sewer
(see note C)
Wk
RESTR ANCH C
110.236 (see note A)
Y "B" Fl Y 2s
Y "A" Fl Y 4s
Priv
rky
Obstns (see note)
Y "A" Q Y
SECURITY ZONE
165.1407 (see note A)
RESTRICTED ANCH B
110.236 (see note A)
"S1" Subm buoy
(cov 10 fms)
"C3" Subm buoy
(cov 10 fms)
"S2" Subm buoy
(cov 10 fms)
"C4" Subm buoy
(cov 10 fms)
RESTRICTED AREA
334.1400 (see note A)
"C1" Subm buoy
(cov 10 fms)
"C2" Subm buoy
(cov 11 fms)
(chart 19362)
Obstn
Fish Haven
(auth min 6½ fms)
LE LINE (see note X)

Photo credit: Yender, NOAA ORR

ORRT Update

- Current 1997 MOU considered ***NULL***
- Draft Preauthorization Plan for Hawaii Islands for the use of Dispersants
  - Preauthorization is granted for all waters deeper than 10 fathoms (60 feet – can be adjacent to shore in some locations)
    - Products on NCP Product Schedule
    - SMART monitoring required for full-scale operational use
    - Night-time ops limited to area in close proximity to mooring site; no more than 350 gallons Corexit 9500 for vessel application only
    - Pre-authorization is limited to first 96-hours from time of first application (per the NRT Atypical Dispersant Operations guidance document)
    - Establishes wildlife protections and setbacks (500 meters)
  - Case-by-Case Approval
  - No Spray Zones identified

ORRT Update

- Developing Bridging Plan for dispersant use for interim period

- ORRT Path Forward:
  - Net Environmental Benefits Analysis (NEBA) being conducted for all response options (including dispersants) and for Consultation efforts
  - Cooperative Consultation for ESA / EFH with Services underway
    - Counsels involved
    - Regular meeting schedule between ORRT and Services
    - Biological Opinion TBD

Questions?
Items for Further Discussion?

Regional Response Team III

State Perspective

Delaware, Maryland, Virginia

State Perspective

- Ben Anderson, Delaware Department of Natural Resources and Environmental Control (DNREC)
- Geoff Donahue, Maryland Department of the Environment (MDE)
- John Giese, Virginia Department of Environmental Quality (VDEQ)

Dispersants at the National Level

RADM Meredith Austin, USCG District 5

CAPT Joseph Loring, USCG Sector MD-NCR

RRT III Co-Chair Observations

Dave Ormes (USCG) & Kevin Boyd (EPA)

Discussion / Way Forward / Questions?

Regional Response Team III