



Alaska Regional Response Team (ARRT)
Internal Dispersant Exercise After Action Report (ARR)
Date: 16 Jul 2013

General Description:

This exercise utilized the scenario from the 24 May 2012 SHELL command post exercise, which covered Day-2 of a major offshore well blowout. The two-hour table-top exercise targeted internal ARRT deliberations and decision making. Discussions focused on the ARRT's approval of a monitoring plan for a full-scale dispersant application. Participants were given an overview of ARRT actions from the SHELL's exercise; artificialities for this exercise; and scenario details for Day-3+ (e.g., actions, timelines, objectives, etc.).

In SHELL's exercise, the primary objectives were demonstrating to BSEE that they could effectively standup and manage a large incident command post and complete a joint IAP. One of the sub-objectives of the exercise was to authorize a trial aerial dispersant application as a first step to obtaining approval for a full-scale dispersant application and monitoring plan. Unfortunately, the approval for the test application occurred late into the exercise, which did not allow enough time for simulated results of the test to be presented for discussion of further approvals (i.e., a successful test result did not give automatic blanket approval for follow-on applications).

The ARRT internal report from the SHELL exercise further noted that both SHELL and many participating ARRT members were not comfortable with their roles and responsibilities related to reviewing/approving a dispersant application. The ARRT decided that a follow-on internal exercise would be beneficial for their members.

The exercise was specifically designed to establish a learning environment for the participants. The exercise focused on increasing awareness and understanding of the participants on the potential consequences associated with implementing a full-scale dispersant application plan in a remote location.

Operational Data:

One objective, with two supporting objectives, was selected to focus discussions of ARRT members. Due to the short planning timeline, no Joint Design Team (JDT) was formed and the USCG standard exercise planning process was not attainable. The venue consisted of a scenario overview; an example of SMART Protocols; and facilitated questions for participants. For the scenario, the exercise designer compiled a list of in-state response resources, logistical timeline and response capabilities. The exercise designer also acted as the facilitator / controller for the event.

Prior to the exercise the ARRT members were given read-ahead materials that included an ARRT briefing document (attached); SHELL scenario simulated test application; 2012 SHELL day two IAP; photos of simulated test application results in both test areas; map of simulated dispersant test area; map of SHELL scenario simulated resources on scene; ITOPF Tech info paper 4 – Use of dispersants to treat oil spills; available SMART Protocol Tier II monitoring equipment and photos; DWH SMART Tier II Data Quality Assessment and Review checklist; and Evaluation of DWH May 23, 2010 Fluorometry Data to include photos of Tier I results of trained observatory monitor photographic validation.

A conference room was made available for all members in Juneau with a conference phone line for members outside of Juneau. While not as ideal as getting everyone together in the same room, the call-in did mimic reality, in that most ARRT members located outside the State of Alaska may be calling in during the early stages of an actual incident.

The ARRT briefing document was vital to participants who may not have participated in the SHELL exercise (e.g., available resources on site/enroute; Day-2 IAP; simulated Day-3 test application results (Tier I); Tier II monitoring equipment logistical requirements; overview comparison of actual SMART monitoring from DWH; simulated Arctic ice conditions developed from previous year's actual observations; known challenges associated with the Wainwright staging area; mobilization timelines for PST monitoring equipment; and Unified Command simulated full scale dispersant application and monitoring plan for Day-3 and beyond).

The participants focused their discussions on perspectives regarding applicability of SMART Protocol monitoring tiers to the scenario. The ARRT approved the dispersant plan but required the unified command to seek approval every 24hrs until Tier II monitoring equipment results were available for review. A brief verbal hot wash concluded the exercise.

Support Data:

See attachments at end of document. Documents will be uploaded and available in CPS.

Location of Operations:

- Simulated scenario on-scene operations envisioned industry aerial dispersant application in the offshore region of Alaska's northern coast. The closest town being Barrow, AK.
- Simulated scenario operational support activities and command and control involved regional infrastructure stretching from Prudhoe Bay, Barrow and Wainwright in the north to Anchorage, Juneau and Seattle in the south.
- Actual shore-side venues included conference room in Juneau, with mbrs/observers calling in from Anchorage, Seattle, Valdez and Washington DC.

Location of Personnel:

Participants responded from their locations of employment in Juneau, Valdez, Seattle, Anchorage and Washington DC.

Objectives and Major lessons Learned:

Objective 1: Continue ARRT discussions from where they left off from the SHELL exercise.
Objective partly achieved.

As follow-on to the SHELL exercise, participants were asked to review simulated test application results and to approve a simulated full-scale dispersant application and monitoring plan.

The plan envisioned using one commercial C-130 flying three sorties per-day commencing on Day-4, which would allow dispersant application to continue until after the well blowout was capped (i.e., estimated around 15 days) and/or until no dispersible oil remained (i.e., not recoverable through mechanical means). The plan also called for using SMART Tier I (visual) monitoring until SMART Tier II equipment became available (i.e., two Fluorometers and operators with estimated availability by Day-6). Dedicated on-scene support vessels for the Tier II monitoring teams would be required; one staged in dispersant test area 1 (fresh oil) and the other in dispersant test area 2 (weathered oil). The participants were given information on Tier II equipment storage/handling requirements; the logistical challenges and timelines needed to get Tier II equipment and trained personnel on-scene.

Even though simulated Tier 1 monitor results showed that dispersants would be effective, the participants focused their discussions on whether or not to delay further dispersant approval until Tier II monitoring could be effectively mobilized and deployed on-scene.

The main issue came down to whether or not a positive Tier I test result would give the ARRT enough information to authorize the use of dispersants. This was further complicated by the remote logistical challenges of getting Tier II monitoring capability deployed 60-90 nm offshore of Wainwright, AK (i.e., at least 6 days under current planning criteria). BSEE planning standards incorporate the SMART Protocols which allow for the approval of a dispersant application and monitoring plan based on a positive Tier I test result. Tier II monitor equipment is intended to verify the Dispersant-to-Oil Ratio (DOR) effectiveness in order to identify the optimal amount of dispersant to use (i.e., tweaking the standard aerial dispersant DOR of 1:20 to a more effective ratio for the situation).

Recommendations:

- If the ARRT does not support the use of Tier I SMART Protocol as valid monitoring standard for dispersants, they may want to recommend that the SMART program agencies amend the protocols to identify Tier II monitoring as the minimum standard for dispersant application (i.e., SMART Protocols were developed jointly by the U.S. Coast

Guard, NOAA, U.S. Environmental Protection Agency, Centers for Disease Control and Prevention and Bureau of Safety and Environmental Enforcement).

- The ARRT may want to develop recommendations to BSEE to amend their planning standards for off-shore Oil Spill Response Plans (OSRPs) to state that Tier I is not considered a valid monitoring technique in Alaska. In addition, BSEE would need to require that Tier II monitoring capability be pre-staged on-site for immediate deployment in the event of a spill (i.e., whenever OSRPs list dispersants as a response option during drilling and production activities).

Sub-objective 1a: NOAA/SSC to provide overview of the results of SMART protocol monitoring plan during DWH. **Sub-objective partly achieved.**

NOAA/SSC utilized a poster presentation to summarize the results of SMART Tier II and III protocols that were used during DWH for a ‘vessel’ dispersant monitoring application. This monitoring occurred one month into the response. NOAA/SSC did not present information regarding the mobilization timeframes, data collection and processing plan that resulted in the poster. It was undetermined whether this type of document could be readily produced during the early stages of a response.

No information regarding ‘aerial’ dispersant monitoring for DWH was presented.

Recommendations:

- It would be beneficial to the ARRT if NOAA/SSC could locate a SME involved in the ‘vessel’ monitoring from DWH to present information on the mobilization timeframes, data collection and processing plan.
- It would be beneficial to the ARRT if NOAA/SSC could locate a SME involved in the ‘aerial’ monitoring from DWH to present information on the mobilization timeframes, data collection and processing plan.

Sub-objective 1b: NOAA/SSC to discuss the use of COREXIT 9500 in an Arctic (cold water) environment. **Sub-objective not achieved.**

Due to the short timeline for exercise development, NOAA/SSC was unable to provide an overview of published scientific research papers on the affects of COREXIT 9500 in cold water. Discussion on the topic was tabled until a later date.

Recommendation:

- The NOAA/SSC may want to collect published research papers and provide to the ARRT an overview at the next scheduled ARRT meeting in January 2014.

Limitations and Casualties:

The following issues added significant challenges to the planning and execution of this exercise:

- Capitalizing on a previous exercise that was for a different purpose. The lack of a detailed scenario or availability of any supporting documentation from the SHELL exercise made the development of the ARRT dispersant exercise extremely difficult. The SHELL exercise Joint Design Team (SHELL JDT) did not anticipate a scenario past Day 2 and did not develop the scenario further. The SHELL JDT focused on the primary objective of standing up a Unified Command and completing a Day 2 IAP. The SHELL scenario and Day 2 IAP lacked detailed information on Fate & Effects of the discharged oil; a detailed trajectory analysis beyond day 2; detailed description of all assets and their location; and Incident Management Team actions taken up to day 2 or beyond. As a result, no information/resources were available to extrapolate beyond an incomplete draft Day 2 IAP. Several requests to the USCG member(s) of the SHELL scenario JDT failed to obtain any detailed information or documentation used to develop the 2012 exercise.
- The reduce exercise planning timeline. The decision to conduct a table-top exercise did not occur until late in April with a May target date. Unfortunately, most of the ARRT members had already committed to field work or other exercises. Finding a date in May or June that all incident specific ARRT members could participate on proved impossible. After several failed attempts, the 16th of July 2013 was finally selected. The inability of finding consensus on an exercise date further delayed exercise development. FEMA and USCG exercise guidance recommends scheduling exercises 12-18 month in advance with the JDT given a 9-12 month timeline for exercise development.
- Conducting exercises without everyone physically present in the room. The exercise highlighted one of the challenges in conducting a telephonic exercise. Telephonic exercises rely on extensive read ahead materials and advanced reading/preparation by the participants. Understandingly with everyone's busy work-load, some participants did not read the preparation materials beforehand. Those participants were confused about the discussion topics and detracted from the exercise.

Participants:

The following participants attended the Juneau Conference room:

Mr. Cecil McNutt, Exercise Designer, Facilitator, Control Cell	Ms. Kristin Ryan, ADEC, Director SPAR	Mr. Mark Everett, USCG ARRT Co-chair
CAPT Daniel Travers, Division of Incident Management (D17 (drm))	Mr. Gary Sonnenberg, Facilities Engineer, U.S. Forrest Service	Mr. Thomas Deely, Observer

The following participants attended via teleconference:

Ms. Pamela Bergmann, DOI, Interior Office of Environmental Policy and Compliance (OEPC)	Ms. Grace Cochon (OEPC)	Ms. Catherine Berg FWS
Mr. Philip Johnson FWS	Mr. Joe Sarcone, DHHS, CDC	Mr. Doug Helton, DOC
Dr. John Whitney, NOAA, SSC	Mr. Nicholas Knowles, EPA ARRT Coordinator	Mr. Chris Field, EPA, USG ARRT Co-chair
Mr. Brian Swanson, GSA	Ms. Cindy Sacks, FAA	Mr. Steve Russell, ADEC
Mr. Mike Faulkner, EPA, NRT	Ms. Marcia Combes, EPA	Mr. Mark Swanson, PWS RCAC
CDR Ben Hawkins, FOOSC, Prince William Sound	CAPT Paul Mehler, FOOSC, Western Alaska	LT Jason, Gangel, Sector Anchorage, Response
LT Kion Evens, Sector Anchorage		

The following ARRT members did not participate:

Ms. Diane Clark, DOE	Ms. Christy Bohl, BSEE	Mr. Melvin Flynn, DOL
Mr. Justin Smith, USDOJ	Mr. Robert Forgit, FEMA	Mr. Peter Frost, USDOJ
Mr. Scott Ketchum, DOL	Mr. William Zagrocki, DOD	Mr. Richard Kauffman, DHHS, CDC
Mr. Gary Folley, ADEC		

Attachments:

- 1) ARRT Briefing Doc Exercise Scenario 16Jul13
- 2) SHELL 2012 Simulated Test Areas and vessel photos



16 July ARRT (1300 AK time) 2hr Internal Table-Top Dispersant Application Exercise

Background: This exercise is a continuation of the 24 May 2012 SHELL exercise (Day 3 (24 Aug 2012)). It is an internal 2-hour ARRT table-top exercise to discuss the approval process for the use of dispersants as it relates to the 24 May 2012 SHELL exercise scenario. This exercise will start on Day 3 of the incident.

Exercise Objective: Engage the ARRT in discussion on the way ahead from a one-time test application of 3250 gallons of dispersants (using SMART protocols tier I monitoring) from a commercial C-130, to approval of a full scale dispersant plan (using SMART protocols tier II monitoring) employing one commercial C-130.

Initiating event: Day One (Aug 20, 2012) at approximately 0700, a drilling rig operated by Shell suffered a well control incident shortly after drilling into an undiscovered liquid hydrocarbon bearing zone at about 2,000 feet during exploratory drilling. The drilling site is located approximately 52 miles offshore and in roughly 140 feet of water. The drilling rig operator reported that, at the time of the casualty, the well pressure was producing about 1,000 bbls an hour (25K bbls/day of NS-type crude), and an un-quantified amount of gas. The operator reports that the drilling rig did not sustain any major damage and remains operational, but was forced to evacuate the area due to the uncontrolled release of gas and crude oil. Since the operation was not supposed to intersect any hydrocarbon bearing zones, no capping device is available and the drilling platform was removed approximately 3 nautical miles east of the well control incident and is preparing to commence drilling an 18,600 foot relief well. The estimated time needed to drill the relief well is approximately 10-15 days. Once drilled, it will take approximately 1 day to kill the well.

UNIFIED COMMAND REQUEST

The Unified Command has requested the approval of a full scale dispersant plan using one commercial C-130 flying three sorties per-day commencing on Day 4. Dispersant application will continue until after the well control incident has been killed (estimated around 15 days) and until no further dispersible oil remains that cannot be recovered through mechanical means. SMART Tier I (visual) monitoring will continue until SMART Tier II equipment (2- Fluorometers) are available (estimated availability is beginning of Day 6). One Fluorometer team will be staged in the Dispersant Area 1 and the other will be stage in the Dispersant Area 2 using the two response vessels currently staged in Dispersant Area 1 and 2.

The Unified Command is concerned about a large mass of Ice 30 miles long by 12 miles wide and up to 82 feet thick approximately 105 miles away. If the winds shift slightly it has the potential to drift toward the discharge site. They want to start the dispersant plan immediately.

ARTIFICIALITIES:

Artificialities: The 24 May 2012 SHELL Chukchi TTX exercise did not anticipate a scenario past Day 2 and did not develop the scenario further. This exercise expands beyond Day 2 and artificialities were created to allow for key discussion points. Not all information needed may be available.

This exercise is based on the Day 2 IAP completed by the SHELLs Joint Design Team (JDT), SHELLS approved 2010 Oil Spill Response Plan (OSRP), SHELL's Chukchi TTX Dispersant Test Plan and Application supplement (Tier I monitoring only), and ARRT actions at the end of the Day 2.

2010 ARRT Oil Dispersant Guidelines for Alaska: The 24 May 2012 SHELL exercise used the Dispersant Guidelines approved in ANNEX F of the Unified Plan change III Jan 2010. This exercise will use the same version in its discussions to avoid any confusion.

Day 2 concluded with the ARRT approval of SHELLs Dispersant Application to conduct a test application of approximately 3250 gallons of COREXIT 9500 using a commercial C-130 operated by MSRC. SMART protocol Tier 1 (visual) monitoring was approved for the test application. Test application to occur at first light on Day 3.

EXERCISE TIMELINE

Timeline: Day 3 activities: Dispersant Test application (am). **ARRT incident specific activation occurs (pm)** to discuss results of test application and way forward.

RESULTS

Results of Dispersant Test application: The C-130 deployed 1625 gallons of Dispersants in **Dispersant Area 1** (fresh oil) before deploying the remainder of its cargo (1625 gal) in **Dispersant Area 2** (more weathered oil) in accordance with the approved dispersant test plan and application supplement. (See Dispersant application for location of dispersant Area 1 and 2).

Observation of Dispersant Area 1: Observers in the C-130 and the spotter plane reported that the dispersant appeared to effectively disperse the fresh oil. Observers estimated that more than 90% of the dispersant landed on a 2 mile by 6 mile slick. The observers noted that the treated oil immediately turned into a coffee au lait color dispersed oil cloud with less than 5 minutes of mixing. The remaining untreated oil appeared to have a coffee color leading edge as it mixed with the dispersed oil. Photographs of the dispersed oil attached. No wildlife was observed in Area 1. The on-scene response vessel confirmed aircraft observations.

Observation of Dispersant Area 2: Observers in the C-130 and the spotter plane reported that the dispersant appeared to effectively disperse the more weathered oil but at slower rate than the fresh oil. Observers estimated that more than 90% of the dispersant landed on a ½ mile by 3 mile stringer slick of more weathered oil. Observers noted that a coffee au lait color indicating a dispersed oil cloud formed after about 10-15 minutes of mixing. No wildlife was observed in Area 2. The on-scene response vessel confirmed aircraft observations.

Dispersed Oil: 3250 gallons of dispersant applied at a ratio of 1:20 will disperse approximately 65,000 gallons of oil. (As of 0700 on Day 3 approximately 3.5 million gallons has been discharged. Oil continues to be discharged from the well control at a rate of approximately 42,000gal/hr. If approved, one C-130 w/support planes can complete 3 sorties a day and disperse approximately 195,000 gallons of discharged oil.

Oil dispersed to date: Approximately 65,000 gallons during test application.

Daily potential oil dispersion:	195,000 gallons/day (4642 bbl)
Estimated total oil dispersion (15 days):	2,925,000 gallons (69,642 bbl)
Approximately 18% of discharged oil	
Estimated total amount of dispersant to be used:	105,750 gallons (2,517 bbl)

Oil discharge rate: Approximately 1,050,000 gal/day (25,000 bbl)
Oil Discharged to date: Approximately 3,402,000 gallons (81,000 bbl)
Estimated total discharge (15 days): Approximately 15,750,000 gallons (375,000 bbl)

The estimated remaining 12,825,000 gallons will disperse/evaporate naturally or be recovered using mechanical means.

AVAILABILITY OF TIER II MONITORING EQUIPMENT

SMART Tier II monitoring equipment availability: The decision to require Tier II monitor equipment (and support personnel) came at the end of Day 2 (1600), as a result of the ARRT activation and approval of test application. **For this exercise the timeline for procuring, transportation, and deployment of equipment commences at 1800 on Day 2.**

Timeline for setup and deployment of monitoring equipment: 72 hours from 1800 on Day 2 (23Aug 2012) = **1800 Day 5 (26Aug12).** The first dispersant flight using Tier II monitoring would be available in the (am) Day 6 (27Aug12). Direct military or commercial charters are not possible for Barrow/Wainwright due to the air field congestion supporting the relief well and current on-water operations.

Equipment available: Each kit requires two personnel to operate.

1. Environmental Response Management (ERM Alaska) formerly OASIS environment: Two (2) Fluorometer kits and 6 trained staff available in Anchorage, AK. ERM Alaska also has and maintains two (2) additional Fluorometer kits for the exclusive use of Alyeska Pipeline Service Company (APSC). However, for Alyeska to be able to provide the Fluorometer kits the Unified Command must request the Fluorometer kits from Alyeska who must seek approval through the State of Alaska as they are part of their response equipment required under their oil spill plan. The additional Fluorometer kits have not been requested by the Unified Command. **For exercise purposes, the approval process will take approximately 48 hours before approval is granted.** Once approved; the 72 hour availability/deployment requirement will start.
2. USCG PAC Strike team (PST): Two (2) Fluorometer kits and 4 trained staff available in Navarro, CA. The Unified Command has not requested that the PST provide their Fluorometers. **For exercise purposes, the approval process will take approximately 24 hours before approval is granted.** Once approved; the 72 hour availability/deployment requirement will start.

Vessel requirements: Vessel large enough to house 2 personnel, capable of continuous speed of 2-3 knots without having to clutch in or out during deployment of Fluorometer, must have DC connection for operation and recharging of batteries, internet (broad band data transfer capability) for transmitting data to ICP. Two response vessels currently on-scene and skimming oil will be used to stage the Tier II monitoring teams. Any additional vessels will need to be identified and deployed to the site.

Agenda;

1. Roll call: Document attendees
2. Recap of 24 May 12 exercise: Dispersant approval was not primary objective:
 - a. Command Post set up Anchorage was primary objective
 - b. Dispersant application approval was late add on supporting objective:
 - c. Review Disp application: Tier I monitoring
3. Recap of 24 May 12 exercise outcomes:
 - a. Day 2 ended with ARRT incident specific activation to review dispersant application
 - b. ARRT approved a test application only to commence at beginning of day three. Approved 3250 gal C-130 COREXIT 9500 MSCR over test area 1 and 2.
4. Exercise Artificialities:
 - a. Shell ex did not have day three scripted out. **No completed application for Day 3 forward. Current application process lacks editable check-off sheets.**
 - b. 2010 Dispersant Guidelines (in effect in 2012 and today)
 - c. Review test app results based on actual outcomes to DWH 2010.
 - d. **Timeline for monitor equipment arrival and availability: 72 hrs. Day 6**
 - i. Based on U.C. action in 2012:
 - ii. Interview of EPA, PST, OSROs and industry contractor.
 - iii. Review of available comm. Flights to from equipment location to staging area (wainwright/barrow) 616.5 nm from anc 74.1 nm from barrow. Gravel runway.
 - iv. Travel to/from spill site via helicopter.
 - e. Two vessels are available in test zone 1 (Kalamath) and 2 (Aiviq). (IAP)
 - f. For this exercise no wildlife observed or assumed not alive.
5. Day 3 over view:
 - a. **Objective 1: AM Trial application of dispersants with C-130. (completed)**
 - b. **Objective 2: PM Incident specific activation to review outcome of test application- results.**
 - c. **Objective 3: ARRT to discuss any requirements for way forward for approved full scale dispersant plan**
 - d. **Unified Command Request**
 - e. Wx: Same as test app with addition of ice mass.



Discoverer Chukchi Incident Situation Status Map 8/23/2012 1000 hrs.

The Response Group
Emergency Response, Incident Management & Support
201-990-0000

Scale: 1:400,000

THIS IS A DRILL!

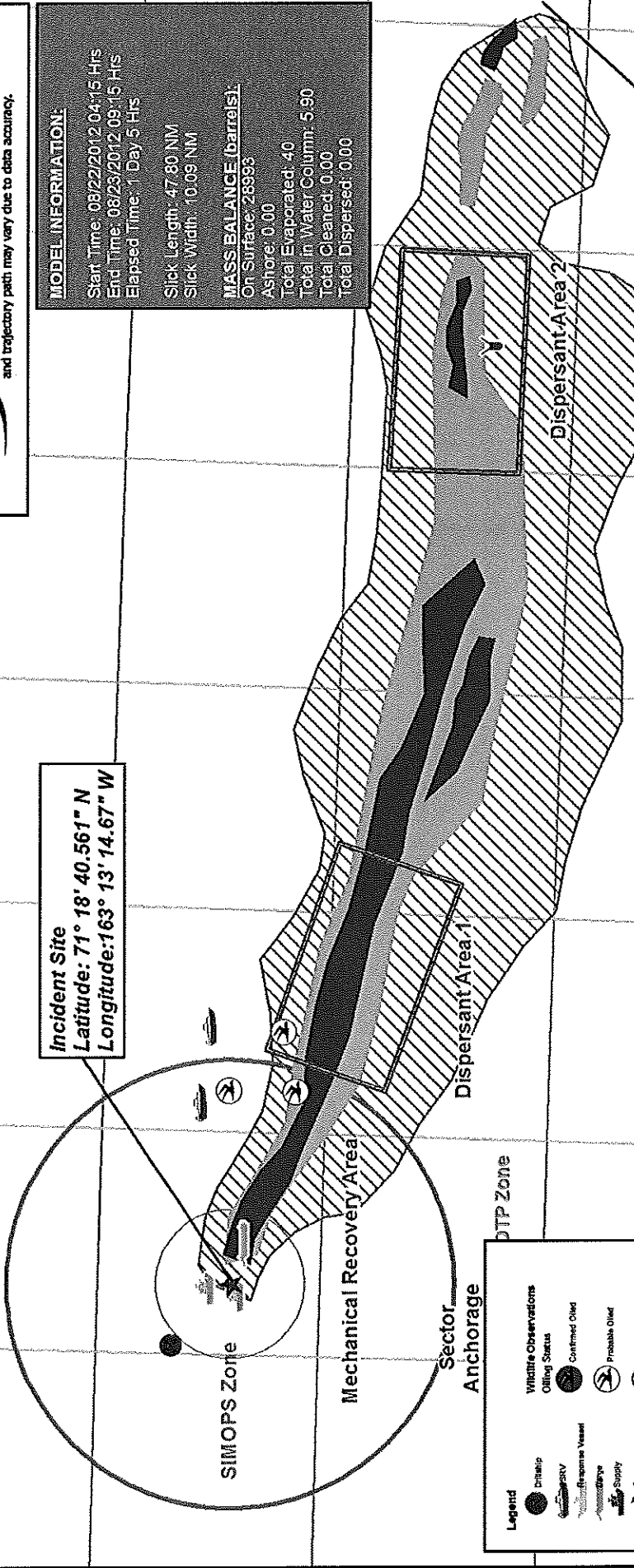
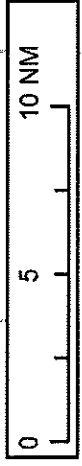


The output from this model shows estimated oil concentrations and predicted shoreline impact. This trajectory prediction is based on the latest available information. Actual product location and trajectory path may vary due to data accuracy.

Incident Site
Latitude: 71° 18' 40.561" N
Longitude: 163° 13' 14.67" W

MODEL INFORMATION:
Start Time: 08/22/2012 04:15 Hrs
End Time: 08/23/2012 09:15 Hrs
Elapsed Time: 1 Day 5 Hrs
Slick Length: 47.80 NM
Slick Width: 10.09 NM
MASS BALANCE (barrels):
On Surface: 28993
Ashore: 0.00
Total Evaporated: 40
Total in Water Column: 5.90
Total Cleaned: 0.00
Total Dispersed: 0.00

Leading Edge:
Latitude: 71° 14' 36.483" N
Longitude: 162° 27' 3.229" W



Legend

Ship	Oiling Status	Confirmed Oil	Probable Oil	No Oil	Oil App	Overnight 090 Hrs	Dark	Dut	Brightly Colored	Slightly Colored	Slowy	Barely Visible	Spot Dispersant Zone	Pickup	300 ft Hot Zone	500 ft Work Zone	500 ft Safety Zone 1 Hr	SIMOPS Zone	JACO Section	COTP Zone	Federal Lands	County/Parish	AT-Case Blocks
Response Vessel	Supply	Floating Craft	MH	SS	RT	Water Barge	Tug Boat	Barge Skimmer	Offshore Skimmer	Shallow Water Skimmer	Harbor Buoys												

SPILL INFORMATION:
Spill Volume: 1000 BBL/SHR
Product: North Slope Crude
WEATHER:
Wind: 8 Knots From WNW
Current: 0.25-0.5 Knots To SE



Simulated Dispersant Test Area 1
(Photo taken during 2010 DWH Dispersant application)



Simulated Dispersant Test Area 2
(Photo taken during the 2010 DWH dispersant application)