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MEMORANDUM

16452

From: LCDR C. J. Graham
Executive Director, Interagency Coordinating
Committee on Oil Pollution Research

To: Members, Interagency Coordinating Committee on Oil Pollution Research (ICCOPR)

Subj: FY 2021 FIRST QUARTER ICCOPR MEETING MINUTES DAY ONE

General: ICCOPR members, member agency representatives, and invited guests met via Microsoft Teams on December 09, 2020. LCDR Cliff Graham (USCG) called the meeting to order at 09:00 am and it continued until 11:30 am. LCDR Graham (USCG) reviewed the agenda (Enclosure 1). Representatives of ICCOPR agencies that were in attendance via phone and/or video were:

CAPT Ricardo Alonso, ICCOPR Chair, USCG
Mr. Bill Vocke, Acting ICCOPR Vice Chair, BSEE
LCDR Cliff Graham, Acting ICCOPR Executive Director, USCG
Mr. William Carter, USCG
CDR JoAnne Hanson, USCG
Mr. Alex Balsley, USCG
Mr. Marion Lewandowski, USCG
Dr. Benedette Adewale, USCG
CDR Wes James, USCG
Mr. John Tarpley, NOAA
Dr. Lisa DiPinto, NOAA
Dr. Robyn Conmy, EPA
Ms. Kiara Leach, EPA
Ms. Vanessa Principe, EPA
Ms. Jennifer Barre, EPA
Mr. Joseph Mullin, BSEE
Ms. Kristi McKinney, BSEE
Ms. Karen Stone, BSEE
Mr. Eric Miller, BSEE
Mr. Carlos Cedeno, USN SUPSALV
Dr. Walter Johnson, BOEM
Dr. Zhen Li, BOEM
Mr. Barry Forsythe, USFWS

Ms. Elena Melchert, DOE
Mr. Robert Smith, PHMSA
Ms. Jo Ellen Hinck, USGS

Guests:
Mr. Steve Buschang, Texas General Land Office (TGLO)
Mr. Nathan Goad, BSEE
Mr. Bipin Patel, BSEE
Mr. Young Wheeler, OSHA
Mr. Rune Bergstrom Norwegian Coastal Administration (NCA)
Ms. Hanne Solem Holt, NCA
Ms. Hilda Dolva, NCA
Mr. Ove Njoten, NCA
Dr. Chris D'Elia Louisiana State University (LSU)
Dr. Ed Overton, LSU
Ms. Katherine Falls, LSU
Dr. John Pardue, LSU
Dr. John White, LSU
Ms. Lucy Romeo, DOE
Ms. Kelly Rose, DOE
Mr. Roy Long, DOE

1. Welcome and ICCOPR Opening Remarks

a. CAPT Ricardo Alonso (USCG) and Bill Vocke (BSEE) opened the meeting and welcomed both ICCOPR members and guests. They expressed their gratitude and appreciation for the guest speaker's support to ICCOPR.

2. General Updates/Announcements

a. LCDR Graham (USCG) provided general updates to ICCOPR on the following topics:
   - Meeting format for the Dec 9th and 10th meetings are both virtual via Microsoft Teams. The meeting today, December 9th is an open format featuring guest presenters from Norwegian Coastal Administration (NCA), and Louisiana State University (LSU), and Dept. of Energy (DOE). Tomorrow's meeting will serve as the closed, business meeting for ICCOPR members.

3. Norwegian Coastal Administration (NCA):

a. Mr. Rune Bergstrom (NCA): Provided an overview of NCA. NCA is responsible for oil spill preparedness and response in Norway and Norwegian waters. NCA's ongoing R&D initiatives currently have significant focus on cold weather and arctic environment. There has been an increase in marine transportation in the arctic, and Norway's arctic border. Other topics covered include;
   - 72 R&D programs – 28 of which involve oil spill response.
   - Overview of the NCA Action Plan for R&D 2018-2023
   - A significant amount of low sulphur fuels are present in Norway and is a focus for NCA.

b. Project overview of low sulphur fuel oils by Hanne Solem Holt
    - Collaboration project with MPRI Canada and SINTEF. Studied three "Low sulphur marine residual fuel oils". 2 are VLSFO (Sulphur <0.5%) and 1 ULSFO (sulphur <0.1 %).
        - Tested emulsification properties, dispersibility, WAF and toxicity, and ignitibility/in-situ burning.
        - Conclusions of tests: dispersants may be limited because of high viscosities or high pour point. ISB can be limited due to low contents of volatiles, and small amount of water uptake. Total WAF concentrations were in lower range compared to previously tested marine distillate fuels. The oils with high pour points may be difficult to recover with mechanical skimmers.

c. The imaros project by Hanne Solem Holt: Improving response capacities and understanding environmental impacts of new generation low sulphur marine fuel oil spills (imaros).
    - Started in 2020 co-funded by EU. Focus is to develop recommendations for oil spill response to the new generation of fuel oils. Identify best methods for response at sea and shore lines. Six countries participate (Norway, Sweden, Belgium, Denmark, France, Malta).
    - 4 Workshops/workgroups: 1) project management, 2) compilation of knowledge, 3) chemical characterization, 4) response options. Workshops will be held throughout 2021 and spring of 2022.

d. Helicopter dispersants by Hanne Solem Holt:
    - The Super Puma helicopter is used and operates in a cold climate test on Svalbard. It has heated spray arms and tank, tank volume is 1500 liters. Produced by Darcy Group.

e. Dispersant on Oil Response (OR) Vessel by Hanne Solem Holt
    - Description: 10 meter spray arms, demountable storage, high and low dosage capabilities, remotely operated from bridge and tablet, prepared for cold climate by electrical heat, dispersants agents in integrated tank on vessel and depots. Contract is with Dasic NS.

f. Digital risk tools overview by Vivian Jakobsen:
    - AISy Risk: Combined calculations of AIS vessel traffic data, accident frequency, and acute pollution/loss of lives calculations result in dynamic risk management related to marine traffic.
    - EnviRisk: AISyRisk combined with Envirisk (vulnerability assessment, oil spill modeling) calculations result in a report of environmental preparedness strategies and distribution of resources.

g. GIS based COP via dedicated local maritime broadband radio (MBR) network by Ove Njoten.
    - Equipment overview of system: Remote sensing (RS) equipment is on 18 vessels including infrared (IR) cameras and oil spill radars. 2 aircraft with RS capabilities,

and 5 drones onboard 5 vessels. All in use for building operational picture for each capacity. The MBR Communications system is a point to point system using 16 megabits, used to send data from aircraft to each vessel, also in use for collecting data and controlling drones. Utilized for multi-function radio system and has 3 main objectives. Each vessel to have single window COP and RS capabilities. Make full use of radio link system to establish local radio network for sharing all data between ships, aircraft, and drones. Coverage is typical 20 km from ship to drone, 50 kms ship to ship, 200 kms from aircraft to ship.

- Future development: Implement STANAG 4609/MISB standard for geo referencing video in COP system (all data will be shared across platforms if within radio reach). Also, to establish gateway from MBR to internet in land based network (Svalbard). Mainly for sharing data/COP and to work as a redundant extension communication possibility in remote areas.

h. In Situ Burning (ISB) by Hilde Dolva

- Looking at ISB for method in combatting arctic spills. Studies performed in laboratory, semi scale, and in field tests. Utilize drones to ignite and measure smoke gasses and particle sizes, and to collect residue.
- Offshore ISB Testing performed with oil on water in 2018 and 2019. Special net used to collect residue, released about 6 tons of oil, ignited with drone and burned the oil. Collecting residue proved challenging. Collaboration project between NCA and NOFO. Publication results in progress due spring of 2021 – 90% of particles were smaller than PM 2.5, low concentration of SO2 and NOx, drone ignition was successful. Toxicity for ISB residues were lower than fresh oils. MGO had highest and IFO 180 lowest toxicity of the residues.

i. Viability study from a planning tool to an operational tool by Rune Bergstrom

- Can be tested with weather forecast for 6 days. Operational limits for different spill equipment can be set into model. Local adaptations can be made and manipulated to suit operations.

4. Louisiana State University (LSU) :

a. Thank you and opening remarks from Dean Chris D'Elia

b. Introduction and Snapshot of Louisiana's Energy Industry by Katherine Falls

- Overview of LSU; it's location in proximity to the MS River and mere miles from the largest amount of coastal land loss in the coastal U.S. LSU is a land grant, sea grant, and space grant university.
- 9th largest producer of crude oil and 4th largest producer of natural gas in the US in 2018. 17 Refineries in LA account for 18% of the total US capacity. 93,000 miles of pipeline in operation supporting LA oil and gas industry.
- Due to amount of energy activities, accidents and unplanned release occur. An example is LA Oil Spill Coordinator's Office (LOSCO) received an average of 1,485 reports of oil spills between 2016-2019.

c. Response and Chemical Hazard Assessment: Drs. John White & Ed Overton
- Overview of environmental carbon cycle, typical molecular structures that make up all crude oils. A review of tests and background research surrounding mechanisms that cause environmental impacts from oil spills, biomarker data analyses of oil spill samples, SARA, and ultra high resolution mass spectrometry.
- Discussion on comparison studies and forensic biomarker matching between Delaware Beach Oil and Magnolia State Barge Oil.

d. Hazardous Substance Research Center: Drs John White and John Pardue
- Provided a review of research conducted on coupled chemical oxidation and aerobic biodegradation of buried MC252 oil across a headlands beach profile.
- Analysis discussed on beach profile on LA coast from MC252 impacts within subtidal, intertidal, and supratidal locations. Provided a close look at locating oil in the zones impacted, and treatment techniques analyzed using waterloo emitters and oxidation methods. Results presented on chemical and pure oxidation for treatment to specific impact site locations. Funded by GOMRI and Wisner Foundations.

e. DWH Oil spill: Short and Long Term Impacts on Wetland Microbial Processes: Dr. John White
- Research concluded that fresh crude oil is more harmful than weathered oil due to light, more toxic compounds.
- Surfactant at environmentally relevant concentrations was more harmful than oil, lysis of cell wall.
- Older buried oil still had a negative impact to microbes in contact with it. Small impact if it stays buried.
- Buried Oil Study Marsh site in 2016 – island has been completely eroded away releasing all of the buried oil into the environment. Damage assessments should include this type of post impact.

6. <u>Department of Energy (DOE) National Energy Technology Laboratory</u>

a. Ms. Melchert provided introductions and an overview of DOE, DOE R&D, the offshore portfolio and the National Energy Technology Laboratory (NETL). Additionally, she provided the research surrounding the project "Forecasting Offshore Platform Integrity and Lifespan."

b. Dr. Kelly Rose and Lucy Romeo provided accomplishments on the Forecasting Offshore Platform Integrity and Lifespan project. They also discussed how artificial intelligence, machine learning, big data, and big data computing were leveraged for the project.
- Topics of the presentation included:
    - The need surrounding the project such as rigs and platforms are designed for single use, more demands on infrastructure, operations in offshore environments introduce hazards that can impact infrastructure integrity, the methods and models needed to assess existing infrastructure for future use.

- Approach and benefits: Build comprehensive dataset, preform data-driven analytics evaluation on integrity of remaining lifespan and likelihood of future risk. Identify potential for extending infrastructure life of EOR.
- Preliminary results provided on leveraging machine learning and advanced algorithms to predict lifespan and risk likelihood. Using geographically weighted regression results from a model concluded age of removal has spatial nonstationary.
- Benefit of multiple models: Running multiple models allows to better understand and internally validate results. Accuracy will increase by giving the model more accurate information to learn from.
- Key Takeaways: Understanding existing infrastructure integrity, identify potential for extending infrastructure life for energy security, and minimize cost and maximize safety.

7. Closing Comments and Meeting Adjournment

a. CAPT Alonso (USCG) and Mr. Bill Vocke thanked ICCOPR guests and representatives for participating in the last ICCOPR meeting of the year, and are continually impressed by the wide variety of research being conducted.

b. The next quarterly ICCOPR meeting is scheduled for March 17, 2021. The currently planned format will be virtual due to the COVID-19 pandemic. LCDR adjourned the meeting at 1130 am.

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Enclosures: (1) Meeting Agenda
(2) Master Presentation Slide Deck