

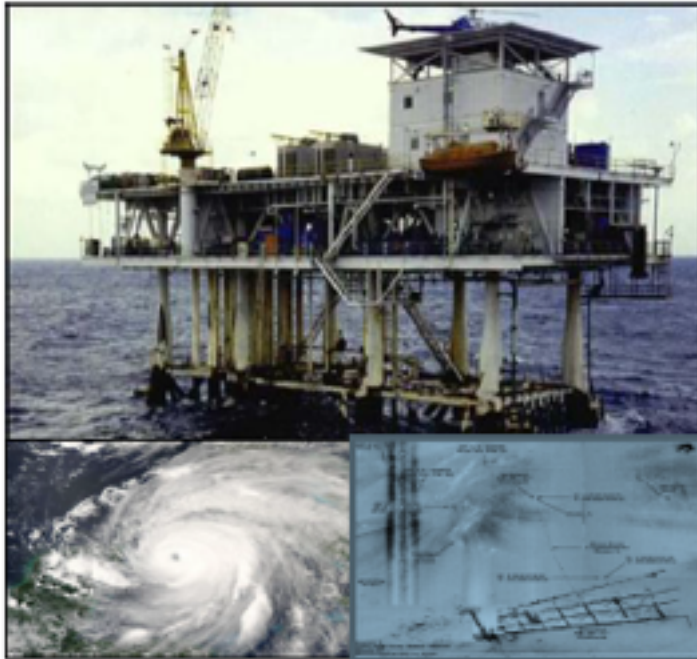
# Ecological Risk Assessment: Consensus Workshop

An Examination of the Potential Ecological Impacts  
of Response Alternatives Being Considered  
for Sheen Abatement for the Remnants  
of the Taylor Energy Company, LLC

## MC-20A Platform – Gulf of Mexico



BOEM  
Bureau of Ocean Energy Management



Background

Wade Bryant CK Associates

Consensus Ecological Risk  
Assessment

MC20A - CERA

Objectives - Unified Command

Participants

CERA Process / Adaptation for MC20

Results

5 years - US Fish and Wildlife Service  
Environmental Contaminants / Refuges

22 years - US Geological Survey - Ecosystem health streams

4 years - US Coast Guard / NOAA  
Deepwater Horizon  
Operational Science Advisory Teams

Department of Interior  
Office of Environmental Policy and Compliance  
All Hazards Resource Advisor Training

USCG / BSEE / NOAA  
Ecological Risk - MC20

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CK Associates - Baton Rouge - July 2014

Environmental Unit Leader - Refugio Spill - Santa Barbara California

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# Developing Consensus Ecological Risk Assessments:

Environmental Protection  
In Oil Spill Response Planning

## A Guidebook

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Report 00-01

Consensus building approach

Focused on achieving a consensus  
on interpretation of the available  
technical information

Evaluate potential risks and  
benefits associated with selected  
response options across multiple  
resource groups

# Objectives - Unified Command

To evaluate the ecological trade-offs and environmental effects, both beneficial and adverse, of potential response options on the environmental resources at risk.

2 Categories of response options

Well Intervention

Site Remediation - Contaminated Sediment

# Participants

Attendees of the workshop fell into the following categories:

Steering committee members - USCG, BSEE, NOAA and TEC

Participants

Technical resources

Presenters

Observers

Only Participants were involved in ranking potential remedies considered

# CERA Process / Adaptation for MC20

MC20A CERA differed from those typically encountered in oil spill planning:

Contrast ecological impacts of different response, remediation, and mitigation strategies, as opposed to specific response technologies (i.e., in-situ burning and chemical dispersants)

MC20A - Situational information was provided through technical presentations

Spill scenario is known and ongoing

The release rate, characteristics, and behavior of remnant oil is understood

# CERA Process - Resources Considered

Resources at Risk Table		
REGION	HABITAT	RESOURCE CATEGORY
Intertidal	Coastal Marsh	Macrovegetation
		Invertebrates
		Fish
		Birds
Open Marine Environment	Benthic	Infauna
		Epifauna
	Water Column	Birds
		Mammals
		Sea Turtles
		Fish
		Adult shellfish/other invertebrates
		Zooplankton (incl. larval fish or invertebrates)
	Water Surface	Birds
		Mammals
		Sea Turtles
		Fish
		Zooplankton (incl. larval fish) or invertebrates)

		RECOVERY			
		>5 years (1)	1 to 5 years (2)	1 month to 1 year (3)	<1 month (4)
% of RESOURCE AFFECTED	> 50 % (A)	1A	2A	3A	4A
	20 to 50% (B)	1B	2B	3B	4B
	1 to 20% (C)	1C	2C	3C	4C
	< 1% (D)	1D	2D	3D	4D

Legend: Dark Red cells represent a "high" level of concern, bright red cells represent a moderately high level of concern, orange cells represent a "moderate" level of concern, yellow cells represent a moderately low level of concern, and green cells represent a low level of concern.



# CERA Process - Risk Ranking Matrix

Current Sedimentation (Status Quo)

Region		Intertidal				Open Marine Environment												Evaluation Factors		
Habitats		Coastal Marsh				Benthic		Water Column					Water Surface							
Potential Options		Macrovegetation	Invertebrates	Fish	Birds	Infauna	Epifauna	Birds	Mammals	Sea Turtles	Fish	Adult shellfish/other invertebrates	Zooplankton (incl. larval fish or invertebrates)	Birds	Mammals	Sea Turtles	Fish	Zooplankton (incl. larval fish or invertebrates)	Consensus Level of Concern Score	Additional Adverse Event Likelihood Score
Group	Group 1	R	R	R	R	L	L	L	L	L	L	L	L	L	R	R	R	L	4C	
		4D	4D	4D	4D	3D	3D	4D	4D	4D	4D	4D	4D	3D	4C	4C	4D	4C		
	Group 2	R	R	R	R	L	L	NA	R	R	R	R	R	R	R	R	R	R		
4D		4D	4D	4D	1D	4D		4D	4D	4D	4D	3D	2D	4D	4D	4D	3D			
Group 3	Group 3	L	L	L	L	L	L	G	G	G	G		L	G	G	G	G	L		
		4D	4D	4D	4D	4D	4D	4D	4D	4D	4D		4D	4D	4D	4D	4D	4D		

# Consensus on available technical information

Current response actions reaching a point of diminishing returns

Sedimentation processes provide a natural mechanism for attenuation

Under current conditions, the existing sheens are expected to be persistent

Sheens from the downed platform have never been observed to impact the shoreline, or affect fish and wildlife

Low risk to resources in the general vicinity of the lease block and no exposure risk to resources outside the local area

The cumulative impact to baseline conditions in the Gulf of Mexico or (CPA) is negligible

# CERA Process - Risk Ranking Scale

The baseline condition of natural attenuation / sedimentation was assigned a value of 5.

Alternatives were ranked as either 1 to 4 levels of concern above or below current conditions.

Values at the extreme ends of the scale required additional rational and

Worst	9	Document
	8	Document
	7	
	6	
Baseline	5	
	4	
	3	
	2	Document
Best	1	Document

# Intervention Options Evaluated

Intervention on All Remaining Wells

No Adverse Outcome

Adverse Outcome - Flow

Intervention on Remaining Wells with de minimus Flow Potential

No Adverse Outcome

Adverse Outcome - Flow

No Further Intervention Wells

No Further Intervention Wells - Expanded Response Capability

No Further Intervention Wells - Expanded Preparedness Capability

# Results - Additional Intervention Wells

Group 3		Recorder: G. Masson												Leader: K. Jellison						
Region		Intertidal				Open Marine Environment												Evaluation Factors		
Habitats		Coastal Marsh				Benthic		Water Column					Water Surface							
Potential Options		Macrovegetation	Invertebrates	Fish	Birds	Infauna	Epifauna	Birds	Mammals	Sea Turtles	Fish	Adult shellfish/other invertebrates	Zooplankton (incl. larval fish or invertebrates)	Birds	Mammals	Sea Turtles	Fish	Zooplankton (incl. larval fish or invertebrates)	Consensus Level of Concern Score	Additional Adverse Event Likelihood Score
Intervention and Containment Options	IW: All Wells	5	5	5	5	7	7	5	5	5	5	5	5	7	7	7	5	7	6	NA
	Adverse Outcome Case	5				7		5					7					8	5	
		8	7	7	8	8	8	7	7	7	7	8	8	9	9	9	9	9	8	5
		8				8		7					9					8	3	
	IW: Potential Flow	5	5	5	5	6	6	5	5	5	5	5	5	6	6	7	5	6	6	NA
	Adverse Outcome Case	5				6		5					6					6	NA	
	8	7	7	8	8	8	7	7	7	7	8	8	9	9	9	9	9	8	3	
	8				8		7					9					8	3		
ERC: Expanded Response	5	5	5	5	5	5	4	4	4	4	5	4	4	4	4	4	4	5	NA	
	5				5		4					4					5	NA		
EPC: Expanded Preparedness	6	6	6	6	7	7	6	6	6	6	7	6	7	7	7	7	7	7	7	2
	6				7		6					7					7	2		

# Consensus - Recommendations

## Well Intervention

Have a low probability of success for drilling and plugging operations

Will create a hazard to navigation because of shipping fairway

May cause a slight adverse negative impact because of site disturbance

May create an unacceptable level of ecological risk

Will not isolate for cross-flow

***Drilling intervention wells for all remaining wells or just potential flow wells does not provide sufficient ecological benefits when considered in the context of the risks and impacts associated with the drilling and plugging operations (probability of success, seafloor disturbance, operational discharges, risk of adverse outcome)***

# Site Remediation Options Evaluated

No excavation of contaminated MC-20 sediments, utilize ongoing/  
current sedimentation process to cover contaminated MC-20 sediments

Excavation of contaminated sediments; onshore disposal

Using non-contaminated Outer Continental Shelf sediments transported  
from another site and deposited over contaminated MC-20 sediments

# Site Remediation Options Results

Group 3		Recorder: G. Masson											Leader: K. Jellison							
Region		Intertidal				Open Marine Environment											Evaluation Factors			
Habitats		Coastal Marsh				Benthic		Water Column					Water Surface							
Potential Options		Macrovegetation	Invertebrates	Fish	Birds	Infauna	Epifauna	Birds	Mammals	Sea Turtles	Fish	Adult shellfish/other invertebrates	Zooplankton (incl. larval fish or invertebrates)	Birds	Mammals	Sea Turtles	Fish	Zooplankton (incl. larval fish or invertebrates)	Consensus Level of Concern Score	Additional Adverse Event Likelihood Score
		Site Remediation Options	Current Sedimentation	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	5				5		5					5				5	NA			
Dredge/Dispose	5		5	5	5	7	7	5	5	5	5	6	6	7	7	8	5	7	6	NA
	5				7		5					7				6	NA			
Dredge/Capping	5	5	5	5	7	7	5	5	5	5	6	6	6	6	7	5	6	6	NA	
	5				7		5					6				6	NA			



# Site Remediation - Recommendation

Safety

Not technically feasible to excavate

Transport and disposal of contaminated sediments

Disturbance and expansion of contamination footprint

Dredge and cap is less ecologically damaging than dredge and dispose

Impact to the benthic communities at the dredge collection site and cap site

***Dredging options, disposal or capping are not considered practical due to seafloor sediment characteristics and could have unintended adverse consequences from increased releases and resuspension of sediments and contaminants.***

# Consensus Recommendations

Expanded response capability could be a sound option;

Utilization of the site for research and training purposes should be considered;

Develop contingency preparedness capability to respond to a potential worst-case discharge scenario.

Do not pursue additional well intervention because the ecological risks outweigh the possible benefits;

Do not pursue dredge/dispose or dredge/cap options because the ecological risks outweigh the possible benefits.

