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July 26, 2010

Mr. Lester A. Snow
Secretary for Natural Resources
c/o Lawerence Matthews
<lmatthews@scc.ca.gov>

Dear Mr. Snow,

I have followed the debate over the decommissioning of oil platforms located in waters off of California since the Pacific Fishery Management Council considered listing the platforms among the "Habitat Areas of Particular Concern" identified in the Council's Groundfish Management Plan, and I thank you for this opportunity to comment on *Evaluating Alternatives for Decommissioning California's Offshore Oil and Gas Platforms,*

In my remarks below I will:

1. discuss the major issue that needs to be resolved before selecting a decommissioning strategy,

2. offer comments on the arguments made for alternative strategies, and

3. identify a previously-dismissed alternative that warrants further evaluation.

Shell Mounds: The Unresolved Issue

From Page 39: "The presence of shell mounds that accumulated beneath Chevron's 4H platforms Hazel, Heidi, Hope, and Hilda is an issue associated with their decommissioning that has not been completely resolved, even 14 years after the platforms themselves were removed."

Shell mounds contain the toxic byproducts of the drilling process: PCBs, free oil, dissolved aromatic hydrocarbons, radionucleides, chromium, copper, nickel, lead, zinc, and barium. Shell mounds would not contain toxins but for the oil drilling operation that has taken place above them. The platform owners are responsible for contaminating the sea floor with chemicals that would engender fines and clean up orders if spilled on land. Before negotiating any decommissioning strategy other than the one presently specified in the leases, California must hold the platform owners responsible for any and all environmental damage done to the sea floor because of their operations.

Too often in the past, conduct that would not be acceptable if practiced on land has been allowed or ignored when it happened in unseen venues beyond the shore. I hope the Ocean Protection Council will work to protect the ocean by assuring that any new decommissioning strategy includes a resolution to the shell mound issue first and foremost.

Given a solution that removes or mitigates benthic toxins below the platforms, I can support any of the decommissioning alternatives suggested **except** use as an LNG terminal; without resolution of benthic pollution

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issues, I can accept no solution except complete removal.

Assessment of Alternative Strategies

My remarks on the arguments associated with the primary alternatives presented are subdivided into five topics:

A. Depth
B. Air Pollution
C. Biological significance
D. Cost
E. Precedent

Depth: By the time I completed the Executive Summary and first two chapters of the document, I had been informed at least half a dozen times that some of the platforms to be decommissioned are located at depths exceeding those associated with any previous platform dismantling operation. I will only say that the observation generates the same level of sympathy for the platform owners that I felt for BP Executives admonishing Congress to remember how deep the Deep Horizon well is: the depth is the same now as it was the day each platform was constructed.

But I would note that global guidelines issued by the International Maritime Organization in 1995 specify that after 1998 all oil platforms in 100 meters of water or less should be completely removed when decommissioned.

Air Pollution:

The idea that the amount of air pollution generated by the machinery used to dismantle the platforms should be a major factor in the selection of a decommissioning strategy only demonstrates how bereft platform owners are of strong argument, The fear that "concerns may arise that air emissions resulting from the [offshore] decommissioning process might have disproportionate impacts on poor communities or racial minorities[in their beach front homes?]" (page 31) is laughable.

Until society weans itself from the internal combustion engine or renewable, non-polluting fuel for same is readily available, there will be carbon emissions associated with construction and demolition activities. The industrial machinery industry and platform owners should be working to reduce the emissions from the equipment used to dismantle **and to erect** the platforms.

Biological Significance:

Arguments promoting the biological significance of the environment near oil platforms should be totally ignoring when crafting a decommissioning strategy for two reasons:

First, in *Ecological Issues Related to Decommissioning of California's Offshore Production Platforms* (November 8, 2000), the University of California's Select Scientific Advisory Committee on Decommissioning noted (pages 35-36), *The total "reef" area represented by California's 27 platforms is extremely small in relation to regional availability of hard bottom substrates, suggesting that for the majority of species any regional impacts (whether positive or negative) of a decommissioning option are likely to be small and possibly not even detectable empirically.* The Committee concludes its report (page 36), *Thus, in light of the lack of strong evidence of benefit and the relatively small contribution of platforms to reef habitat in the region, evaluation of decommissioning alternatives in our opinion should not be based on the assumption that platforms currently enhance marine resources.*

Second, the science presented is inconclusive: as an example, I refer you to OSC Study MMS 2003-053, *Consequences of Alternative Decommissioning Options to Reef Fish Assemblages and Implications for Decommissioning Policy.*

This study compares fish populations at six oil platforms and five natural reefs in Southern California from 1995

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through 1997.The data sets in this study contrast fish populations at platforms and natural reefs in great detail; but the ambiguity of the data is buried inside two paragraphs in the middle of the 105-page study (pages 58 - 59):

Fishing effort is strong on the natural reefs we studied and the influence of this mortality on the age/size structure and density of targeted populations...may be pronounced as well. In contrast, very little, if any, recreational and live-fish fishing has been allowed for many years on the platforms we studied.

Thus, some of the differences we detected in population size structure, density and assemblage structure may simply reflect the effects of both recreational and commercial live-fish fishery, rather than differences between habitat types.

Indeed, if one adds a "fished" vs "unfished" element to the data sets presented in OSC Study MMS 2003-053, the resulting data categorizations would be identical to the "reef" vs "platform" categorizations published in the study. Thus, the data used to demonstrate population differences between natural reefs and oil platforms can be interpreted with the same scientific level of confidence to show the results of fishing restrictions.

The pure and simple fact is that any object placed in the ocean will attract life: Stationary, benthic objects will attract reef fish, floating/moving objects will attract pelagic fish, and both will attract invertebrates.

Cost:

Estimates presented in the document show the cost of total removal to be $1.09 billion and the cost of partial removal to be $478 million, meaning the platform owners can avoid $616 million by leaving the lower portion of the platforms in place and ignoring the shell mound cleanup. This, indeed, seems to be the platform owners' primary motivation in seeking a way out of fulfilling the contractual obligations they agreed to when they signed the leases.

Curiously, the document states, "While platforms' predicted decommissioning could be compared to revenues they have produced, this information is not readily available and obtaining it would have been beyond the scope of this project." (Page 32). It seems to me well within the scope of the report to assess whether the cost of fulfilling the original contract obligations presents an undue hardship for the platform owners. It would be instructive to know how the cost of decommissioning compares to:

* The total combined worldwide revenue of the platform owners
* The total combined worldwide operating budgets of the platform owners
* The total combined worldwide advertising, public relations, and government lobbying budgets of the platform owners
* The total combined worldwide CEO salaries and annual bonuses of the platform owners

I believe that such a comparison would show the decommissioning costs in this study to be so small compared to any of the four figures suggested for comparison that one will feel insulted that the platform owners would go to such great lengths to avoid doing what they originally contracted to do.

Precedent

As noted in the document, offshore aquaculture and wave energy will soon be competing for offshore leases. Will the State impose more stringent decommissioning requirements for those activities than it imposes on oil platform owners? Partial dismantling of the platforms without addressing removal of shell mounds essentially condones toxic pollution of the sea floor without penalty. If this privilege is given to platform owners, on what basis can it be withheld from future offshore lessees?

Ocean MotionCombined Energy System: Design for a Viable Alternative Decommissioning Strategy?

The wave energy concept published by Ocean Motion International <http://www.oceanmotion.ws/index.asp> is designed to operate on a large offshore platform, which is essentially a modified version of a standard modular offshore drilling unit. The system uses no external fuel resources to operate. The output of the system is potable

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water, electricity and hydrogen. With the exception of the wave-powered sea water pumps, all major system operations are performed above water, using tested technology available today.

While the partial removal alternative will result in a statistically insignificant increase in Pacific Coast waters available to the fishing community, Ocean Motion's Combined Energy System (CES) promises salable electricity, water, and hydrogen for all Californians. Before pursuing an alternative whose main benefit to the State is a slight increase in fishing opportunities, it seems to me only prudent to perform a detailed evaluation of an alternative that reuses more of the existing platform structure to produce renewable electricity, potable water, and clean-burning hydrogen.

If a preliminary evaluation of the CES concept proved promising, California could pursue DOE funding to test it on the next platform scheduled for decommissioning….after the shell mound is removed or mitigated.

Sincerely,

Rob Cozens

Rob Cozens, Director

Attachment: CES Design Concept

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Ocean Motion International - LLC

System Description

The Combined Energy System (CES) developed by Ocean Motion International (OMI) consists of four sub-system components; a seawater wave-pump, a hydro-turbine electric generator, a reverse-osmosis filtration unit, and an electrolysis-hydrogen generation unit. The OMI CES is designed to operate on a large offshore platform, which is essentially a modified version of a standard modular offshore drilling unit. The system uses no external fuel resources to operate. The output of the system is potable water, electricity and hydrogen, which is delivered to shore through service piping and cabling. The four sub-system component details are provided in the following descriptions.

OMI WavePump

The OMI WavePump is technically described as a 'mass displacement wave energy conversion device'. The patented [Ref a] seawater pump and heart of the CES, is an innovative design which uses very few simple moving components for minimal maintenance and wear. The WavePump sets the CES system apart from other energy production approaches by being completely self-sufficient since it does not depend on any external energy resources and operates in a natural reliable environment of ocean waves.

This revolutionary, positive displacement pump is designed to produce very high water volumes and pressures by being driven by an integral buoyancy vessel, which lifts and falls with natural wave action. The ballast-mass / buoyancy vessel is assembled around a sleeve pump which is installed and slides midpoint to wave action on a vertical shaft. The vertical shaft is mounted between an anchored footing on the ocean floor and a platform positioned above the ocean waves. The vertical shaft also functions as the WavePump suction & discharge piping, allowing multiple pump discharges to be manifold together. Each WavePump operates individually to produce its output independently and in an operating system to produce a constant pressure and flow. The WavePump size and stroke is tailored to suit the location in order to optimize pump performance in an expected average wave environment. Design features also allow for placing the WavePump in a safe configuration to prevent damage during storms.

The OMI WavePump has been developed beyond an idea and concept. The pump design has been engineered and a working scale model has been assembled and tested. Performance parameters have been calculated and verified [Ref b] by independent reviews. Wave tank tests [Ref d] of the scale model have been completed, validating design and performance parameters. The WavePump used in the CES has been verified feasible in four independent academic reviews [Ref c] covering system concept, structures, risk and environment.

CES Hydro-Turbine Electric Generator

The hydro-turbine electric generator is driven by the output of multiple WavePumps, which provide a constant flow of high volume and pressure seawater feed. The CES design incorporates the latest technology in hydro-turbine efficiency. Hydro-turbines have been used in industrial and utility systems for a long time and pose no performance uncertainties to the CES concept. The generated electricity is used to power the CES platform operations in addition to delivering a significant utility product on-shore to the electricity market. The CES design also allows for the most efficient and cost-effective use of its output products. Depending on electricity demands and product unit pricing, the portion of electricity used to drive the electrolysis-hydrogen generation unit can be varied. This means that when electric demand is high, most output can be sent to shore and when demand is low, the CES can be operated to produce the most cost-effective hydrogen for storage.

CES Desalinator

The OMI CES also desalinates seawater through Reverse Osmosis (RO) filtration units. High-pressure seawater from the WavePumps is filtered to produce potable water. This utility product is delivered to shore through service piping on the ocean floor. Desalinization has been known to be costly due to its dependency on electrical power and other fuels. RO filter systems use high pressure feed pumps, which typically are electrically driven. This dependency on electrical power alone has driven costs of production out of reach of the consumer, shutting down previous desalting operating units. The OMI CES avoids these cost issues with the OMI WavePump driving most of the system components.

Ocean Motion International - LLC

CES Hydrogen Generator

The hydrogen generator is a utility production component incorporated into the CES in anticipation of the large demand for low-cost hydrogen fuel. The CES design incorporates the electrolysis process, which produces the highest purity hydrogen. Electrolysis generation is known to be costly due to the need for purchasing electrical power. However, the CES uses it's own electrical power at the lowest generation cost possible with virtually no overhead cost burdens. The hydrogen production costs can be further reduced to ensure lowest cost by using electricity during off-peak demand periods. An integration feature of the OMI CES is the filter bypass / discharge of the RO desalination unit supplying feed to the hydrogen generation unit. This concentrated electrolyte feed, with its increased conductivity, increases the efficiency of the hydrogen generation process.

Recently, hydrogen production, usage and infrastructure development has received the attention of the federal government in order to establish a hydrogen based energy system in the United States. Hydrogen based energy is an inevitable objective and will grow rapidly worldwide. OMI is optimistic about government funding support to assist in establishing the OMI CES concept in federal and state hydrogen production programs.

OMI CES Performance / Output Summary

The table below lists the estimated performance specifications for each of the products that the combined energy system is designed to produce. These values are based on the following conservative assumptions used in the OMI Business Plan (page 63):

1. *WavePump size – 26 inch diameter*
2. *Wave action – 9 foot swell with 10 second intervals*
3. *WavePump output 1,900 GPM ea. & 11,000,000 GPD for 4 pump pilot system*
4. *RO Filtration 40% efficiency*

Products	*Specifications*
Water (RO)	4 pump pilot system – 4.4 million gallons per day or 13 acre ft per day 35 pump production system – 29 million gallons per day or 90 acre ft per day
Electricity	Based on a production sized system output ranges from 5 to 50 megawatt
Hydrogen	Based on a production sized system output approximately 573 gallons / hour liquid hydrogen

References

a. Patent # 5,411,377, dated 2 May 1995
b. OMI WavePump Engineering Performance Calculations
c. Academic Reviews (4)
d. Scale model test results in wave tank

Contacts

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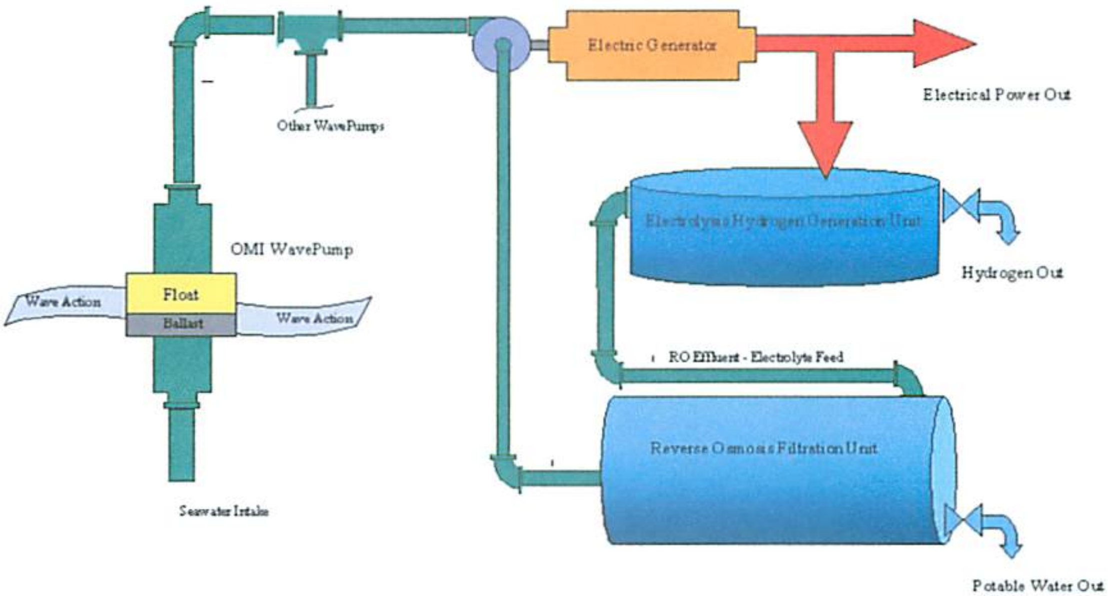
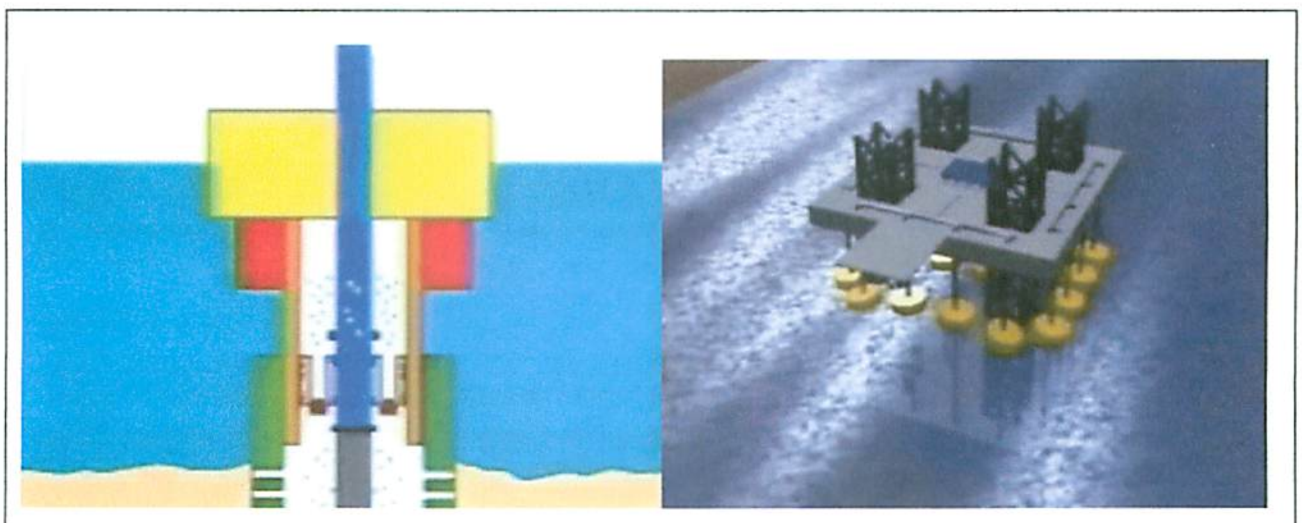
System Diagram

OMI Combined Energy System





Graphic of WavePump cross-section - and a Pump Farm with 20 pumps operating in an Off-shore Unit

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