EXHIBIT 11

MOVE TO STRIKE HIGHLIGHTED TESTIMONY BELOW

PREFILED SWORN TESTIMONY OF SARAH STRICKLAND

Q: What is your name?

A: Sarah Strickland.

Q: Where do you reside?

A: I currently live in Minneapolis, Minnesota, and my husband and I own property and pay taxes in Robbinston, Maine.

Q. How often are you in Maine?

A. We came to Maine two to three times per year and spend anywhere between two weeks to two months per visit.

Q: Please describe your properties in Maine.

A: There are two properties. The first one is what I refer to as the "Camp". My family has owned a 15 acre camp right on the St Crois River, on the Red Beach/Robinston line with a direct view of St. Croix Island since the late 1800s.

Q. What about the other property?

A. My husband and I also personally own a 40 acres and a farmhouse directly across from the camp on Route 1, which we bought in 2000. The farmhouse had been owned by my family since the late 1800s, but was sold out

of the family in 1965. My husband and I bought the property back in 2000 and we restored it with the intention of making it our permanent residence in the near future.

Q. Have you used local carpenters and contractors in your renovation efforts?

A. Yes – it is part of our commitment to the downeast community.

Q. Would you see the terminal from either one of these properties?

A. I do not think we would see the actual terminal buildings from either property, but we may be able to see the loading dock from the Camp - it depends on how far out into the river it comes. We will likely be able to see the terminal and the loading dock from the downriver property line which is a hiking destination in our woods that we call "the Point." The way both properties are situated we will definitely see the tankers and hear the tanker/terminal noise all the time.

Q. How will the lighting from the facility impact your enjoyment of the properties?

A. I think this is one of the most devastating aspects of this plan – it will

permanently change and ruin the community's experience of the night sky in all its amazing beauty.

Q. Would you see the tankers pass by either of your properties?

A. Yes – the Camp was built in 1917 by my great grandfather on a rock 50 feet above the shoreline. When you are sitting on the water-side porch you have the experience of literally being on the river, on a boat if you will – so we have a full view of all the activity on the river and would experience the tankers in a very direct manner. The Farmhouse is across Route 1 with a direct view of the St. Croix River and New Brunswick so we would also see the tankers from our front door and porch.

Q. What are your family ties to this area of Maine?

A. My family has been in this area since the late 1800's. I have many family ties to the area. This is where my family has gathered year after year to be together because we are scattered across the rest of the country – from California, Ohio, Connecticut, and Vermont. So we do not see each other as a whole family until we come to Maine to be with each other. This is my family's "home base." Cousins have developed deep relationships over the years, sisters have become closer, brother-in-laws have developed close relationships. My

immediate family considers this place and community to be our "heart home." My husband, originally from Texas has fallen in love with this place. Because of this connection to the land and community, my whole family on my mother's side is buried in Red Beach Cemetery. From my great-great grandparents to my father. My mother will be buried here and my husband and I will be buried here too.

Q. Where is the cemetery in relation to the terminal, can you see it from the cemetery?

A.Just down Route 1 – I do not know it we will be able to see the terminal from the cemetery.

Q. How do you and your family members use Passamaquoddy Bay?

A. We try to enjoy the natural surroundings as much as possible by spending time outside hiking, fishing, walking, bird-watching, whale watching and generally enjoying the extraordinary beauty of this place. We were thrilled when Devil's Head was established up river from St. Croix Island.

We like to go boating and kayaking and love to be in the extraordinary beauty of this amazing river and bay. Historical St. Croix Island in the Red Beach section of Calais is always a destination for us for a picnic lunch, a walk and searching for sand dollars.

Then we get back on the water before the tide recedes. It is an extremely unique opportunity to witness, simultaneously, the beauty of two countries. The nature and environment of the whole St. Croix Estuary, River and Passamaquoddy Bay is why this is our future home – it is always amazing us.

Q: Are you concerned about the impact the LNG facility will have on your aesthetic enjoyment of your property?

A: Yes, I am very concerned about the potential harm the facility and the tankers will cause to one of the prettiest sections of the St. Croix River – from St. Croix Island to Mill Cove. Building the facility would seriously diminish the aesthetic value of the area.

Q. Can you provide examples of how the facility would diminish the aesthetic value of the area?

A.Yes, first it would just forever alter the character of the area, this is not an industrialized area. More specifically, the lights would impact the night sky, the facility and tankers would ruin the extraordinary views, it would be ludicrous to suggest that our hiking trips on the islands would be anywhere close to the same experience with massive LNG tankers passing by and towering over the horizon. And our use of the water on motorboat, canoe or kyak will likewise be seriously diminished and permanently changed forever.

Q. What do you observe while boating?

A. Besides the natural beauty, it is fascinating to watch the lobstermen and fishermen work the river and the bay. There are hundreds of lobster buoys that are placed in the River and the Bay, watching the lobsterman pull the traps, take their catch, re-bait the traps, while the gulls try to catch a bit of dropped bait. It makes our friends from large cities gain appreciation for where their lobster dinners come from and one of the industries that supports this community.

Another form of recreation boating is educating our guests about the "Ole Sow Whirlpool", one of the largest whirlpools in the world just off of Eastport Maine. We also point out the Historical Roosevelt Cottage at Roosevelt International Park on Campobello Island.

Nearing the tip of the Passage sits Head Harbor Light, this lighthouse is one of the most photographed and famous around. And West Quoddy Head is one of the most wonderous parts of this coastline and we always recommend Passamaquoddy Bay to all our friends who are spending time in Maine. We encourage them to come see the "real Downeast Maine."

Q. Do you observe any wildlife while boating?

A. Yes, every day. Over the years, we have watched the River regain its health and beauty – so loons, ducks of many varieties, osprey, eagles – all use

the river each day. Seals make the upriver part of St. Croix Island one of their main fishing spots every day. When we visit Head Harbor Passage we pass many islands where eagles, osprey and other birds nest. We also see seals and porpoises everywhere. We also spot whales all along the Head Harbor Passage into Eastport and north of Pleasant Point in Perry. This whole area is in the running for one of the wonders of the world.

Q. How would the proposed Calais LNG tankers impact your use of your property and the water?

A.We love to be on the river when the weather is safe for boating. We use our motorboat, kyaks and canoe as often as we can. The times we are on the water because of tides and weather are likely to be the same exact time that the LNG tanker captain will be plowing through our waters. Since the security zone is so large, our trips upriver and downriver will be interrupted and ended. So the tankers will certainly restrict our use of the river and our boating trips up and down river including St. Andrews, Canada, Eastport and other spots along the US side of the river. Also, the sheer size of the tankers and the amount of time they will be loading will permanently ruin our experience and use of our property and the river – the very things that have inspired my family to build on the property in 1917 and be here year after year in since then.

Q: Do you believe that the LNG facility would impact your recreational use of

the St. Croix River?

A: Yes, whatever happens upriver effects the entire Passamaquoddy Bay. My family has always used the river recreationally and as children (as children will) we considered St. Croix Island to be our own personal island! Our use and enjoyment of our land would be severely compromised by a LNG facility. When we are in Maine we often canoe, kayak, motorboat, hike, picnic, seal watch, and take trips to St. Croix Island. The facility and tanker transits would limit our ability to engage in these activities. Even when we would be allowed to access the river and bay, light and sound pollution from the LNG operation would be extremely disruptive.

Q: Do you think the LNG operation would have repercussions on the fishing industry?

A: Yes, I fish recreationally and pay attention to developments in the fishing industry. There are already severe restrictions on the fishing industry, and recreational, commercial, and sport fishing would all suffer from more regulation and decreased water quality.

Q: Do you have any safety concerns regarding the facility?

A: Yes, I am extremely concerned about issues surrounding safety. Our property is less than 5 miles south of the proposed site. The threat of a gas explosion or leak is very scary. There is no guarantee that what happened in the Gulf of Mexico, a catastrophic oil leak that is destroying the natural environment, would not happen on the St. Croix River and in Passamaquoddy Bay. Depending on the incident, people and communities on land, within a three mile radius of the facility would be seriously injured if not killed. This is an unacceptable level risk to my family, friends and community.

Q. Do you have any other concerns about the LNG facility?

A. The build up and impact of secondary industrialization will be seen all along Route 1. One of the reasons people choose to visit this part of the Maine coast, myself included, is because of the natural charm and beauty of the area. Property values will decline and I think the tourism industry as a whole will suffer if the area were to lose its distinct character.

Q: Is there anything else you would like to say?

A: I have been a part of this place and this River since I was six weeks old and my mother who is 82, since she was a child, and my grandparents and

great-grandparents before that. My ancestors loved and respected this community and this River and are in my DNA. My experiences in Maine, on the St. Croix River and the larger Passamaquoddy Bay have shaped me into the person I am today. I know I am not alone in this regard. Each of us has a physical "place" that has inspired us and offered us sustenance, connection and a place to call "home." My family is scattered all over the country and this is where we gather and cousins can meet and get to know one another. The most important place for me, my children and my larger family would be ruined forever if the LNG facility were permitted.

Personally appeared before me the above-named Sarah Strickland and made an oath that the foregoing is true and accurate to the best of her knowledge and belief.

6/1/10 — Sarah Strickland

Date — Sarah Strickland

Dated: 6/1/10

Notary: Kellee M. Vinge

Commission expires: 1/31/12

Kellee M. Vinge
Notary Public
Minnesota
My Commission Expires January 31, 2012

EXHIBIT 12

MOVE TO STRIKE HIGHLIGHTED TEXT BELOW AND EXHIBITS CLF/SC-9 AND 10, ATTACHED.

PREFILED SWORN TESTIMONY OF CLIFFORD GOUDEY

Q. What is your name?

A. Clifford A. Goudey.

Q. What is your occupation?

A. I am an engineer with over thirty years of experience in developing ocean-related technologies. I currently work as a consultant at my firm C.A. Goudey & Associates. Prior to that, I was the Director of the Offshore Aquaculture Engineering Center at the Massachusetts Institute of Technology for eleven years and Director of the MIT Center for Fisheries Engineering Research for 19 years. My graduate MIT degrees are in Naval Architecture and Marine Engineering and in Mechanical Engineering. My undergraduate degree is from the University of Maine, Orono. I was an officer in the U.S. Coast Guard and the Master of a research vessel out of Woods Hole. Much of my career has been as a Research Engineer at the Massachusetts Institute of Technology working together with industry on problems confronting the fishing and aquaculture industries.

Q. What is your educational background?

A. Please refer to my CV [CLFSC 8].

Q. Are you familiar with the Calais LNG proposal?

A. Yes, I have been following the activities of Calais LNG and its plans to site an LNG import terminal in Passamaquoddy Bay. I also have carefully reviewed the Downeast LNG Draft Environmental Impact Statement and am familiar with the concerns surrounding conducting LNG operations in Passamaquoddy Bay. [CLF-SC 9 and CLF-SC 10

Q. What are some of the safety risks posed by the properties of LNG?

A. LNG vapor is 152% heavier than air at its boil-off temperature. This means that a vapor cloud remains close to the ground until it warms and further expands, only then mixing with the surrounding atmosphere and reaching a lower flammability limit. There are several hazards associated with vapor clouds including fire and detonation risks as well as the risk of asphyxiation and cryogenic burns. LNG vapor is largely made up of methane, which has one of the broadest flammability ranges of any common hydrocarbon fuel.

Q. Do you have any concerns regarding the proposed route of the tankers?

A. Yes. Unlike other LNG ports, the Calais LNG's proposed site requires navigation along a natural rock-bound channel rather than the dredged shipping channel that typifies the conditions at other, more-prudently-sited terminals, such as the Canaport LNG facility just 50 miles away in St. John and the Distrigas LNG facility in Everett, Massachusetts, in Boston Harbor.

Q. What are the problems with the route that Calais LNG has proposed?

A. The approach channel to the proposed Calais LNG terminal is strewn with natural hazards such as ledges and submerged obstacles. Unlike many other approach routes where an error in navigation would result in grounding on un-dredged shallows outside a well-defined channel, an error in Passamaquoddy Bay is likely to result in a tanker hitting a ledge or an un-named rocky outcropping. If a tanker were to become grounded in the Bay it is extremely likely that this would result in the hull becoming pierced, which could lead to the loss of the tanker and a spill of its entire hazardous cargo.

Q. Do you have other navigational concerns besides the natural navigation hazards?

A. Yes, LNG tanker transit would also be challenging due to high-velocity currents and a high mean tidal range in Passamaquoddy Bay. Portions of the expected transit route frequently experience extreme currents in excess of 3 meters/second (5.8 knots), which would present an unacceptable risk for the transit of LNG. Given these extreme currents, transits between open sea and the Calais LNG terminal would have to occur at the narrow time window of slack high water. However, because the time of slack water varies across the bay, achieving acceptable conditions is impossible and only by maintaining an unacceptably-fast transit speed can a pilot hope to avoid these dangerous conditions. Of course, these high transit speeds introduce their own additional hazards given the extensive stopping distances of LNG tankers.

Furthermore, the Passamaquoddy-Cobscook Bay archipelago has a mean tidal range of 5.7 meters (18.7 feet), reaching up to 8 meters (26.2 feet)[2] depending on astronomical conditions. These tidal ranges have special significance from the standpoint of public safety and the possible consequences of an LNG tanker grounding in Passamaquoddy Bay.

Since the proposed transits are to occur at high tide, any grounding is likely to occur at high or a falling tide. Unlike the case where an LNG tanker can sit and wait for the next high tide to re-float, a tanker grounded in Passamaquoddy Bay would find itself in a treacherous situation. The loss of buoyancy due to such tidal drops presents hull-girder bending stresses that would result in a breaking up of the LNG tanker's main hull. Indeed, no tanker could withstand hull-bending stresses associated with such a

grounded scenario. The loss of the LNG hold in the vicinity of the hull failure would be unavoidable. Cascading failures of the other LNG holds would be essentially assured, resulting in an LNG spill of unprecedented proportions.

Q. Do you have any concerns regarding the impact of tractor tugs on commercial fishing gear?

A. Yes. The tractor tugs necessary to accompany LNG tankers will have devastating impacts on the commercial fishing industry of Passamaquoddy Bay. The LNG tankers used to transport LNG to the Calais LNG terminal will probably have beams up to 180 feet and lengths of over 1000 feet. These LNG tankers will most likely be accompanied by three or four Z-drive tugs, also known as tractor tugs, due to the enormity of the tankers, their impaired maneuverability, extended stopping distances, and the intricate and dangerous nature of the proposed route. Tractor tugs are highly maneuverable, have twin ducted propellers, and would probably be tethered to a LNG tanker both port and starboard. The enormous combined width of the LNG tanker and tractor tugs would lead to the unprecedented loss of passive fishing gear, such as lobster traps.

Most LNG vessels are single-screw, meaning that they have one large propeller and one rudder centered at their stern. When encountering the buoy and buoy line of passive fishing gear, the buoy would be deflected along either side of the vessel or pulled under and dragged along the bottom of the hull, depending on the depth and the amount of slack line used by the fisherman. Either way, the buoy and line are likely to be pulled into the propeller as the ship passes over, especially if the vessel is under its own power and pulling water into the propeller. Greatly exacerbating the problem are

the two tugs that would be located on either side of the tanker at its extreme beam. Any lobster buoy that is deflected to either side of the tanker hull would be led into the path of the tug's ducted propellers essentially ensuring the loss. Other factors exacerbating the extent of these losses include the high transit speeds needed to complete the transit at slack water, eddies and current irregularities that can pull buoys under the vessels, and additional risks to gear from security escort crafts. Even if gear was sighted, which is doubtful given the frequency of low visibility in Passamaquoddy Bay during fishing seasons, the tankers would be unable to maneuver fast enough to avoid the gear.

Q. Can you speak to the specific damage that might be caused by the use of these particular tankers and tugs?

A. Unfortunately specific data is unavailable on the equipment to be used and the details of the proposed route. A list of tankers with similar capacity is listed at the bottom of this document to convey the scale of the proposed activities.

Q. Can you be more specific as to how the tankers will impact the passive fishing industry?

A. LNG tankers and tugs will be unable to pass through passive fishing areas without destroying the line and surface buoy systems which mark the location and orientation of fishing gear. The destruction of surface buoys results in the loss of fishing gear, a significant investment for most fishermen and the loss of the catch, which may rival or exceed the value of the gear. Fisherman also incur financial loses from lost fishing opportunities, from the time spent obtaining replacement tags for lost gear from the appropriate licensing authority to the additional effort required for rigging

replacement gear. Finally, lost gear, known as ghost traps, represent a serious threat to the local productivity of a fishing area and a loss to the regional fishery as a whole. In Saint John Harbour in Newfoundland, LNG tankers and tugs cannot transit through an area with lobster gear without cutting off the surface buoy lines. While small boats can be rendered harmless by affixing a metal cage around the propeller(s) to prevent lobster lines from being cut off, the propulsion mechanism used in tractor tugs and LNG tankers can be so fitted and are therefore much more damaging to lobster gear. There is currently no known mechanism to prevent a tractor tug from cutting off lobster gear. In Passamaquoddy Bay the tankers and the associated security zone would effectively create a one mile wide area the full length of the transit route that would be highly destructive to fishing gear, effectively rending that area off-limits to lobstering or other forms of passive fishing gear.

Q. What sort of impact do you think the proposed operations would have on the aquaculture industry?

A. The aquaculture industry is a diverse combination of facilities and services that depend on open access to the Bay. Based on environmental factors, such as currents and tides, the industry has developed practices that depend on slack high water to accomplish the wide range of tasks associated with floating pen aquaculture. Those tasks are not all restricted to the boundaries of specific aquaculture sites and rely on unrestricted navigation through the Bay. Certain aquaculture activities would not be merely delayed by the arrivals and departures of LNG vessels and their associated safety and security zones, but would be prevented entirely. The Bay would be unavailable for local industry, marine aquaculture and passive fishing, because of

potential conflicts and the practice of not announcing LNG tanker arrivals or departures due to security risks. Local industry can not function with that degree of interruption. The towing of pens from one location to another is an obvious example of an operation that would be impacted by LNG traffic. Given the variability of weather and visibility, the opportunities for conducting these essential aquaculture operations can be fleeting.

Q. Are you concerned at all about how changes in water quality due to the LNG operation might impact the aquaculture industry?

A. Yes, marine aquaculture is dependent on good water quality, and the nearly pristine waters in and around Passamaquoddy Bay offer conditions ideal for the culture of salmon and other species. These conditions are compromised by marine construction activities and propeller wash associated with maritime operations. For instance there would be significant degradation to water quality during the construction phase of the LNG terminal that is likely to have a negative impact on the health and productivity of salmon farms in the region. Passamaquoddy Bay has never experienced the proposed level of vessel operations and the associated propeller wash impacts. The likely result will be an unprecedented level of sediment suspension, especially the suspension of fine particulate matter, which will impact lobster and salmon populations. The continuous passage of tankers would cause continuous degradation to the water quality.

Q. What other damage to the marine ecosystems do you foresee?

A. Because of the time constraint associated with the brief period of slack water, the pilots would be under extreme pressure to berth as quickly as possible. This means fast transit speeds and the frequent and forceful use of tugs to maintain control. This

would be especially a problem at the terminal itself where the ebb would already be strong by the time the tanker arrives.

Q. Can you speak to the impracticability of any possible mitigation measures?

A. It would be very difficult for Calais LNG to mitigate damage to the environment. The tankers could promise not to use full power, but this is probably not a feasible or safe option given the short daytime slack-high-water period in which the transit must be accomplished. Likewise, the tanker operators could promise not to direct propeller wash into shallow waters, but compliance would be difficult to monitor. There are also two ways to prevent the destruction of benthic environments in areas of shallow water, however both options are expensive and have environmental repercussions. Calais LNG could dredge shallow areas to create deeper transit routes or could cover the bottom of the Bay with riprap. Both of these options would have extreme impacts on benthic ecosystems in Passamaquoddy Bay.

Q. Do you have anything else you would like to add?

Like the LNG terminals proposed before and that I analyzed in 2 documents, [CLF-SC 9 and CLF-SC 10], the proposal by Calais LNG is flawed due to poor site selection. Because of this, the risks to Passamaquoddy Bay are too great both from environmental and from economic perspectives.

Appended LNG tanker information

The exact type of tanker and tugs proposed to be used by Calais LNG are unknown, but based on current industry practices they might have capacities from 127,000 cubic meters to 170,000 cubic meters.

Here are some tankers of that capacity:

Arctic Voyager
Capacity: 140,000 cubic meters
Length Overall: 289.50 meters
Beam: 48.4 meters
Maximum Draft: 11.9 meters
Engine Power: 27,000kW at 81 rpm
Serivice Speed: 19.3 knots
Maximum Speed: 20.7 knots

Trinity Arrow
Capacity: 154,900 cubic meters
Length Overall: 289.93 meters
Beam: 44.7 meters
Maximum Draft: 12.07 meters
Engine Power: 29,420 kW
Service Speed: 20.15 knots
Maximum Speed: 21.2 knots

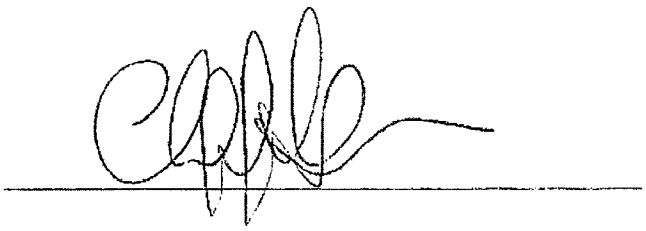
Celestine River
Capacity: 145,394 cubic meters
Length Overall: 289.7 meters
Beam: 49 meters
Maximum Draft: 11.49 meters
Engine Power: 26,900 kW at 80 rpm
Service Speed: 17.9 knots
Maximum Speed: 19.5 knots
Source for above three: http://www.ships-info.info/label-gas-carriers.htm

Seri Bakti
Capacity: 152,944 cubic meters
Length Overall: approx. 289.8 meters
Beam: 46.5 meters
Maximum Draft: 11.25 meters
Engine Power: 24,5000 kW
Service Speed: 19.0 knots

Source for the following: http://www.jsea.or.jp/VariableE/Sea324.pdf

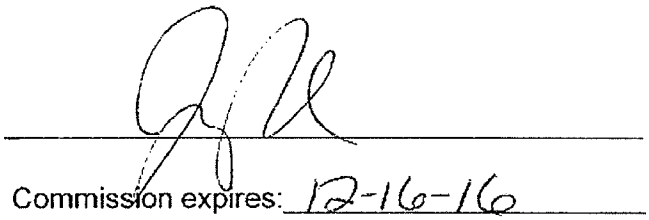
Personally appeared before me the above-named Clifford Goudey and made an oath that the foregoing is true and accurate to the best of his knowledge and belief.

Dated: June 2, 2010



Clifford Goudey

Notary:



Commission expires: 12-16-16

EXHIBIT

CLF/SC - 9

Clifford A. Goudey
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30 June 2009

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First St. N.E. Room 1A
Washington DC USA 20426

Project Docket Numbers: CP07-52-000, CP07-53-000, and CP07-53-001

Response to Downeast LNG FERC Draft Environmental Impact Statement

Impact of LNG on Commercial Fishing and Aquaculture in Passamaquoddy Bay

I am writing to respond to serious deficiencies in the subject DEIS. I am submitting these comments on behalf of *Nulankeyutomonen Nkihtahkomikumon* (We Take Care of Our Land), Save Passamaquoddy Bay-Canada, Inc., and Save Passamaquoddy Bay-U.S., as well as individual members/intervenors of those groups – together, "Three-Nation Alliance".

I have been following the activities of Downeast LNG and its plans to site an LNG import terminal in Passamaquoddy Bay. My assumption has been that a thorough assessment of the site, the navigation challenges unique to the bay, and the multitude of competing uses would reveal the weakness of the plan. Unfortunately, the DEIS fails to consider some of the more important factors and misrepresents others. I will attempt here to bring these issues to light in hopes that these particular aspects of this project can be appreciated.

I am a research engineer at the Massachusetts Institute of Technology where I have worked in maritime and ocean-related areas for over thirty years. My primary fields of research have been in commercial fisheries and offshore aquaculture, with a more recent emphasis on ocean-based renewable energy. My graduate MIT degrees are in Naval Architecture and Marine Engineering and in Mechanical Engineering. My career has focused on solving a wide range of practical, marine-related problems.

I have reviewed the DEIS and find it deficient in several areas on which I am competent to comment. I will discuss these deficiencies, which can be categorized as follows:

1. Conflicts between LNG transit and commercial fishing gear.
2. The significance of the proposed tractor tugs on lobster gear losses.
3. Impacts on the aquaculture industry.

1. Conflicts between LNG transit and commercial fishing gear.

The significant impacts on the commercial fishing industry of Passamaquoddy Bay from the maritime operations proposed by Downeast LNG are insufficiently considered in the DEIS.

The specific conflict between lobster gear and LNG shipping is briefly mentioned in section 4.8.2.4.1 Waterway for LNG Marine Traffic. Here we read, "it is likely that LNG tankers could interact with fishing gear along these routes, causing lobster or crab traps and lines to become entangled and damaged by passing vessels." (DEIS 4-261).

This statement fails to portray the significance of the problem due to the massive size of the proposed LNG tankers and the flotilla of escort vessels and tugs that will accompany any tanker movements. It fails to consider altogether the serious and devastating impacts of the tractor tugs that will accompany the tankers. As described below in Section 2, these escort tugs will be a massive destructive presence to any lobster gear that comes within the entire diameter of the tanker escorted by tugs. The DEIS also fails to consider the movements of the other tugs (recommended 3-4 total) and the other vessels accompanying the LNG tanker transit, and the resulting impact on lobster gear.

The LNG tankers the DEIS suggests would be used to transport LNG to the Downeast LNG terminal would have beams up to 180 feet, an unprecedented size for Passamaquoddy Bay. Because of the size of these vessels, their impaired maneuverability, their extended stopping distances, and the intricate and dangerous nature of the proposed route, the tankers would be accompanied by three or four Z-drive tugs. These tugs are typically used for the demanding needs of LNG tankers and their twin ducted propellers are pictured in Figure 1.

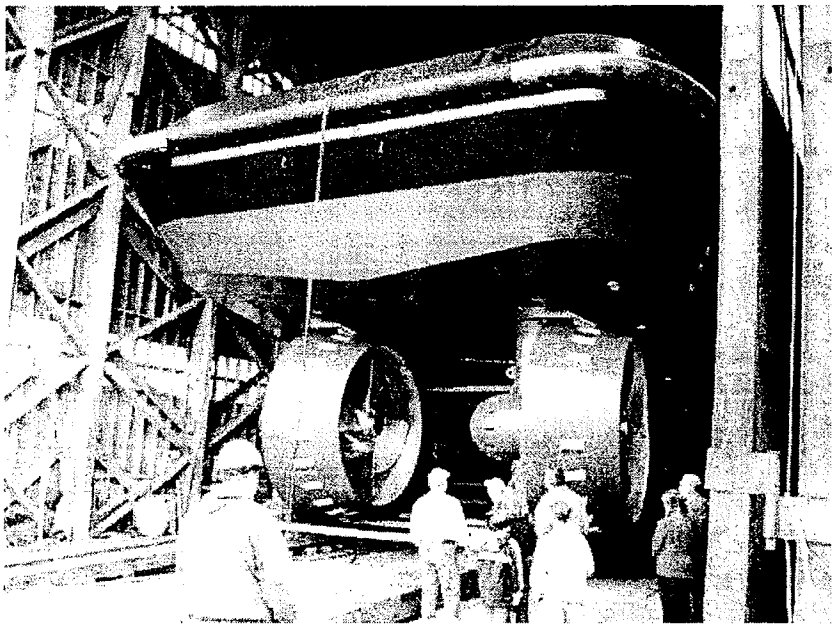


Figure 1. A view of the tug Bulldog prior to launch at Washburn & Doughty, in Boothbay ME[1]

[1] http://www.washburndoughty.com/wd/node/12

In order to negotiate the approach channel and be as prepared as possible for emergencies, the LNG tanker would likely have a tug tethered at both port and starboard. As such, the combined width of the tanker and the two attached tugs presents a swath of destruction that would be disruptive to normal lobstering or other passive fishing operations using fixed gear.

Passive fishing gear is set by fishermen for a period of time and then retrieved. In order to accomplish the retrieval, a line and a buoy are provided that leads from the seabed to the surface. The details of the gear can vary depending on the nature of the fishery. For example, a single lobster trap or crab pot can have a single buoy. More typically, lobstermen fish a trawl of multiple traps and they include a buoy at either end of that string of multiple traps. By marking both ends, the location and orientation of the gear is apparent to other fishermen, minimizing gear conflicts. Also, by having more than one buoy, there is a redundant means of gear retrieval should one of the buoys be lost.

The loss of the surface buoy can mean the loss of the trap or pot, and that gear represents a significant investment for most fishermen. However, beyond the value of the gear, the loss is even more significant for the following reasons:

- Lost catch – depending on the fishing productivity at the time of the loss, the value of the catch in the trap can rival or exceed the value of the gear itself.
- Lost fishing opportunity – With the loss of gear, the fisherman must replace it – including obtaining replacement tags from the appropriate licensing authority – and that can take time, resulting in an enduring loss of income.
- Added effort – Rigging replacement gear takes time, as the replacement trap(s), line, and buoy(s) must be assembled in a configuration appropriate to the fishing location. This effort is not income-generating and takes time away from productive fishing.
- Ghost traps – Lost gear continues to fish and can represent a serious threat to the local productivity of a fishing area and a loss to the regional fishery as a whole. Over time (years) fishing gear is designed to break down and no longer present this risk. However, until that occurs, the economic and ecologic cost of ghost traps is significant.

As a result of these factors, the loss of fishing gear due to the proposed actions of Downeast LNG will present far more negative impacts to the fishing industry and the Passamaquoddy Bay economy than is portrayed in the DEIS.

2. <u>The significance of the proposed tractor tugs on lobster gear losses.</u>

The lobster gear losses likely under Downeast LNG's plan would be of unprecedented proportions because of the proposed scale of the operations. Figure 2 is a simple drawing that portrays these impacts based on the enormous width of the LNG tanker and Z-drive tugs as they venture into Passamaquoddy Bay and the areas used by local fishermen.

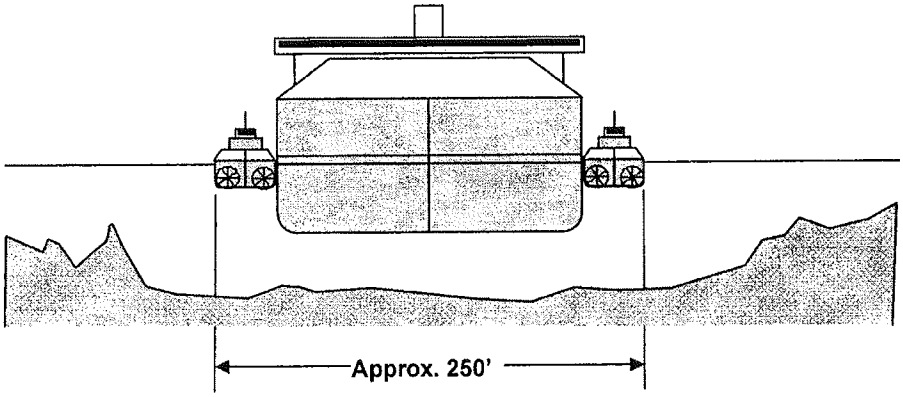


Figure 2. The estimated swath of an approaching LNG tanker and tethered tugs.

Most LNG existing vessels are single-screw, meaning they have one large propeller and one rudder centered at their stern. When encountering the buoy and buoy line of passive fishing gear, the buoy would be deflected along either side of the vessel or pulled under and dragged along the bottom of the hull, depending on the depth and the amount of slack line used by the fisherman. Either way, the buoy and line are likely to be pulled into the propeller as the ship passes over, especially if the vessel is under its own power and pulling water into the propeller.

However, greatly exacerbating the problem are the two tugs that would be located on either side of the tanker at its extreme beam. Any lobster buoy that is deflected to either side of the tanker hull would be led into the path of the tug's ducted propellers, essentially ensuring the loss.

Beyond the physical scale of the tanker/tug combination, there are other factors that will exacerbate the extent of these losses:

- high transit speeds needed to complete the approach at slack water,
- eddies and current irregularities that can pull buoys under,
- the inability of the tanker to maneuver to avoid sighted gear,
- the frequency of low visibility in Passamaquoddy Bay during fishing seasons, and
- additional risks to gear from security escort craft.

The DEIS mentions a "comprehensive compensation plan" intended to address any potential loss of fishing equipment or income as a result of unavoidable impacts by Downeast LNG vessels. However, no details of this plan are presented and its adequacy to cover the likely losses is suspect given the clear failure of the DEIS in recognizing the impacts of LNG transit on gear.

3. <u>Impacts on the aquaculture industry.</u>

In the DEIS we read, "There are no salmon aquaculture pens directly within the LNG marine traffic route and thus no impact is expected as a result of the Downeast operations." (DEIS 4-262).

This is an absurd statement and reveals a clear misunderstanding of the nature of aquaculture operations, their significance to the economy of Passamaquoddy Bay, and the conflicts that the Downeast LNG proposed operations would present. As such, the DEIS is based on inaccurate assumptions and fails to adequately consider the impacts to aquaculture.

The aquaculture industry is a diverse combination of facilities and services that depend on open access to the Bay. Based on the realities and currents and tides, the industry has developed practices that depend on slack high water to accomplish the myriad of tasks associated with floating pen aquaculture. Those tasks are not all restricted to the boundaries of specific aquaculture sites – they rely on unrestricted navigation through the Bay. The arrivals and departures of LNG vessels and their associated safety/security zones would not merely delay certain aquaculture activities, it would prevent them.[2] The towing of pens from one location to another is an obvious example of an operation that would be impacted by LNG traffic. Given the variability of weather and visibility, the opportunities for conducting these essential aquaculture operations can be fleeting.

Marine aquaculture is dependent on good water quality, and the waters in and around Passamaquoddy Bay offer conditions ideal for the culture of salmon and other species. These conditions are compromised by marine construction activities and propeller wash associated with maritime operations.

Significant propeller wash would occur in Mill Cove during the construction phase of the Project that would exacerbate what would be caused by pile-driving and jetting and any dredging. Disturbing the fine sediments that are found in Mill Cove would generate turbid plumes that would be transported by tidal currents to other areas of Passamaquoddy Bay. This degradation to water quality is likely to have a negative impact on the health and productivity of salmon farms in the region, yet the DEIS does not address the matter.

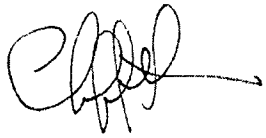
Lacking any mention or discussion of these obvious conflicts and how they would be mitigated, the DEIS must be viewed as incomplete and any approval of the proposed Project should not be granted absent a thorough analysis.

Conclusions

The DEIS fails to adequately present the conflicts Downeast's proposed LNG terminal would have with the fishing and aquaculture industries. As a result it fails to adequately portray the economic impacts their project and their tanker operations would have on the economy of Passamaquoddy Bay.

I have attempted to demonstrate these deficiencies by pointing out the specific oversights and by explaining some of the unprecedented impacts the proposed project would have on the natural resource-based economy of Passamaquoddy Bay. Lacking the needed level of analysis of these impacts, I find the DEIS lacking, and it should not be used to justify proceeding with the Project. Instead, FERC should withdraw this DEIS and republish a new DEIS to resolve these issues.

Respectfully submitted,



Clifford A. Goudey

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[2] The Coast Guard recommends a moving safety/security zone for Passamaquoddy Bay of 2.0 nautical miles ahead, 1.0 nautical mile astern, and 0.25 nautical mile abeam of the vessel. DEIS Page 4-217.

EXHIBIT

CLF/SC - 10

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29 June 2009

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First St. N.E. Room 1A
Washington DC USA 20426

Project Docket Numbers: CP07-52-000, CP07-53-000, and CP07-53-001

Response to Downeast LNG FERC Environmental Impact Statement

Impact of LNG on Safety in Passamaquoddy Bay

I am writing to respond to serious deficiencies in the subject EIS. I have been following the activities of Downeast LNG and their plans to site an LNG import terminal in Passamaquoddy Bay. My assumption has been that a thorough assessment of the site, the navigation challenges unique to the bay, and the multitude of competing uses would reveal the weakness of the plan. Unfortunately, the EIS fails to consider some of the more important factors and misrepresents others. I will attempt here to bring these issues to light in hopes that these particular aspects of this project can be appreciated.

I am a research engineer at the Massachusetts Institute of Technology where I have worked in maritime and ocean-related areas for over thirty year. My primary areas of research have been in commercial fisheries and offshore aquaculture, with a more recent emphasis on ocean-based renewable energy. My graduate MIT degrees are in Naval Architecture and Marine Engineering and in Mechanical Engineering. My career has focused on the solution of practical problems facing a wide range of marine-related problems.

I have reviewed Downeast LNG's EIS and find it deficient in several areas on which I am competent to comment. I will discuss these deficiencies that can be categorized as follows:

1. Properties of LNG.
2. Risks posed by thermal radiation and flammable vapor clouds.
3. Public safety risks of the proposed terminal.
4. Public safety risks of proposed tanker route.
5. Navigation hazards and grounding survivability.

Properties of LNG

There is a great deal of misinformation circulating about the properties of LNG. While some of it may be unintentional and simply due to imprecise terminology, the effect is to distort the public's understanding of the true risks associated with an LNG import terminal.

A common misconception is the behavior of LNG vapor and the often quoted claim that it "rises

harmlessly into the atmosphere." This is not true since LNG vapor is 152% heavier that air at its boil-off temperature. As a result, it hugs the ground and not until it warms and further expands does it begin to leave the ground, mix with air, and eventually reach its lower flammability limit. Figure 1 is an image of a small LNG pool test.

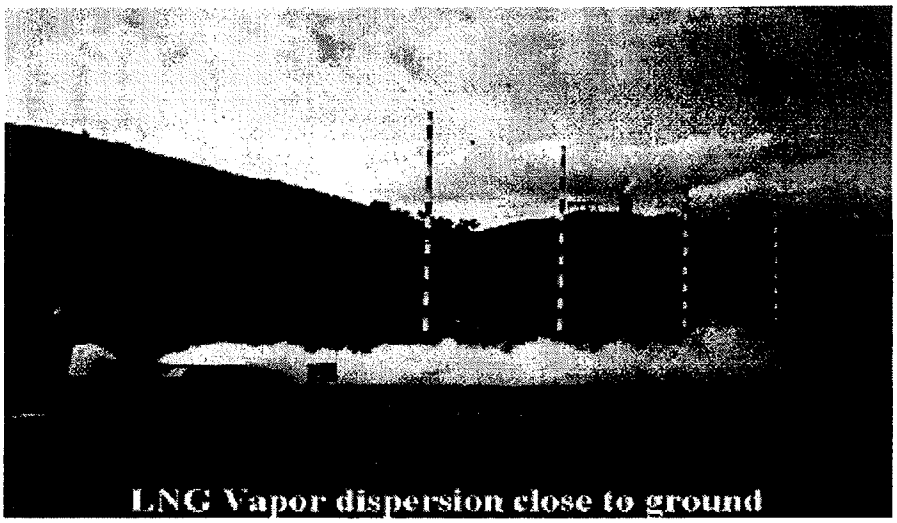

Figure 1. Visual results of a small LNG pool test. [Ref]

As a result of this property, the hazards of an LNG vapor cloud include far more than fire and detonation risks. The other risks include asphyxiation and cryogenic burns. Because the vapor is clear and odorless, only because of entrained water vapor does vapor cloud become visible. The combined properties of an LNG vapor cloud can cause dispersion models to give unreliable results and this is the basis for considerable scientific disagreement on the extent of hazard zones.

Proponents of LNG facility siting in proximity to populations often refer to LNG vapor (mostly methane) as having a narrow flammability range. In fact, as shown in Table 1, its flammability range is the broadest of any common hydrocarbon fuel. In addition, common LNG contaminants can further broaden this range and can resulting mixtures that can detonate, even in unconfined situations. It is also important to note that other explosions can trigger the detonation of unconfined LNG vapor.

Gas	Flammability Limits (%)
Hydrogen	4.0 - 75.0
Acetone	2.6 - 13
Methane	5.0 - 15.0
Ethane	3.0 - 12.5
Propane	2.1 - 9.5
Butane	1.9 - 8.5
Jet fuel (JP-4)	1.3 - 8.0
Gasoline	1.4 - 7.6

Table 1. Flammability Limits of various fuels

Proponents of LNG facility siting in proximity to populations also tend to refer to LNG as having a lower energy density in comparison with other liquid fuels. While this may be true based on volume, it is not true based on the more important criterion, weight. Table 2 reveals that LNG has more energy per kilogram than any other fossil fuel cargo.

Fuel	Energy Density (MJ/kg)
Methane	55.5
Propane	50.3
Kerosene	46.3
Gasoline, automotive	45.8
Diesel	45.3
Gasoline, aviation	43.1
Oil, crude (petroleum)	41.9
Ethanol	29.7

Risks posed by thermal radiation and flammable vapor clouds

The term Thermal Radiation Hazard relates to the radiation danger to life and property from a burning pool of LNG. Flammable Vapor Cloud relates to the distance unignited LNG vapors can travel and remain a fire or explosion hazard. Currently, these hazards are assessed using computer models that have spill size (rate and duration) as an input. The output of these models is typically in terms of danger radii that depend on acceptable thermal radiation criteria or lower flammability limits and these values are very dependent on model input and various assumptions.

The Downeast LNG analysis of these hazards examines the spill from transfer piping and the failure of the primary storage tank enclosure. In their analysis, the thermal exposure limits are set at 5 kilowatts per square meter.

Not all experts agree on these spill and exposure criteria. Professor James Fay of MIT has analyzed the hazards of various proposed LNG import terminals using credible yet more conservative spill scenarios and thermal exposure limit criteria[1]. The resulting hazard zones are different than the more liberal prescription allowed under FERC. The Downeast LNG EIS fails to consider a breach of secondary containment of the LNG storage tank nor does it examine the failure of a tanker hold. In addition, Prof. Fay uses a lower thermal radiation criterion that better portrays the hazards to civilians not typically wearing the protective clothing appropriate to an industrial location. Table 3 compares these differences.

Criterion	FERC	Prof. Fay
Transfer piping spill	840 t	840 t
Storage tank (primary failure)	74,000 t	74,000 t
Storage tank (secondary failure)	N.A.	74,000 t
Tanker hold	N.A.	5,250 t
Thermal radiation criteria	5 kW/m^2	1.6 kW/m^2

Table 3. A comparison of model criteria[1].

[1] Fay, J.A. 2004. Public Safety Issues at the Proposed Pleasant Point LNG Terminal. MIT Cambridge, August 5.

The referenced report relates to the project that was proposed nearby to the Downeast LNG project and Prof. Fay's conclusions can be applied reliably to the current project. They are:

1. The federal safety requirements for the proposed Pleasant Point LNG terminal will not prevent harm to humans outside the site boundary for the spill scenarios that FERC considers.
2. For all credible spills, including terrorist attacks on the storage tank and LNG tanker, the danger zone for humans extends almost 4 miles from the terminal site, encompassing 20 square miles of land in the Pleasant Point area.
3. For a tanker spill anywhere along the route leading to the LNG terminal, the thermal radiation danger zone for humans extends 1.5 miles from the tanker route, encompassing up to 4 square miles of land along U.S. and Canada shores in Eastport, Campobello Island and Deer Island, depending upon the spill location along the tanker track.

Public safety risks of proposed terminals

The implications of these conclusions can best be understood by examining Figure 2 and 3 where first the Pleasant Point results are portrayed, followed by those same results applied to the Downeast LNG project site in Robbinston.

In these figures the red circles are distances to radiation intensities of 1.6 kW/m2 for a spill with fire. In both cased the larger diameter circle represents the consequences of the loss of secondary containment of land storage tank while the smaller circle is for a spill from one hold of the LNG tanker. The blue circle is flammable vapor distance for a tanker spill.

The implications of these results on the surrounding communities in both the U.S. and Canada is profound and these hazards are not portrayed or discussed in Downeast LNG's DEIS.

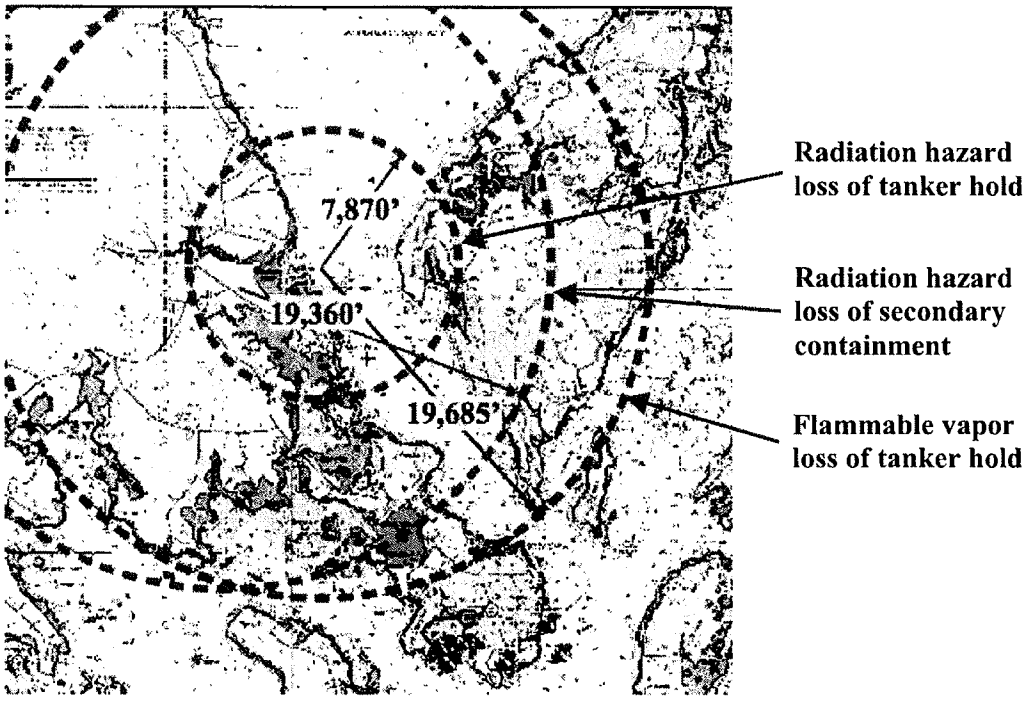

Figure 2. The thermal radiation and flammable vapor danger zones for Quoddy LNG [1].

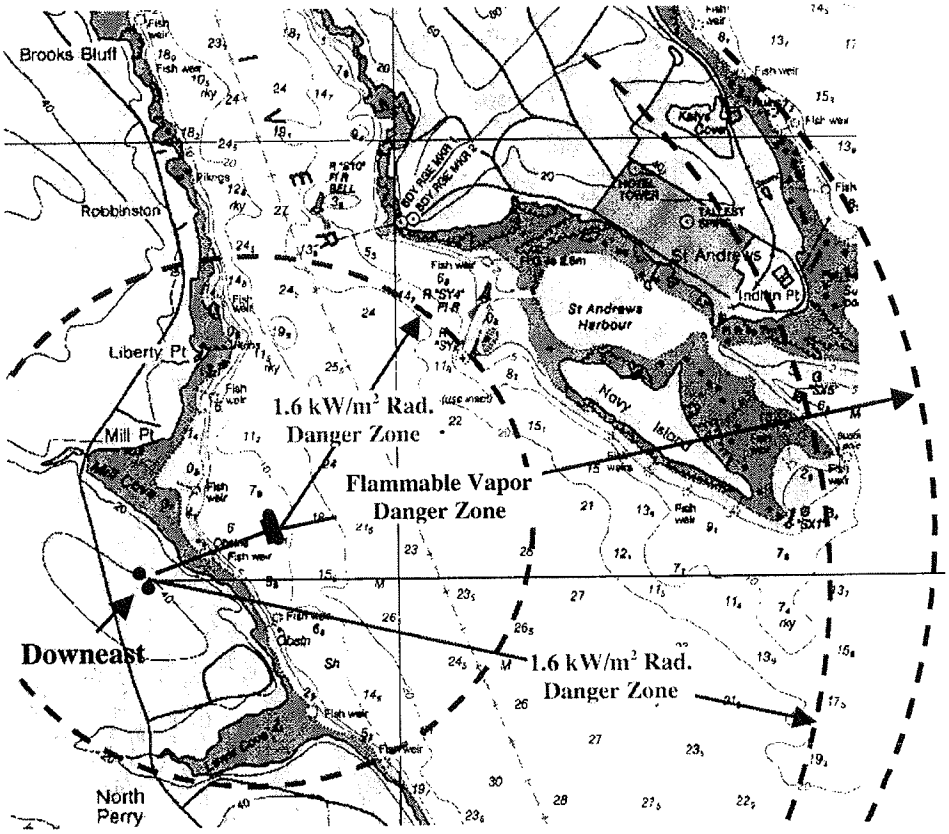

Figure 3. The thermal radiation and flammable vapor danger zones for Downeast LNG. Adapted from Fay, 2004

Public safety risks of proposed tanker routes

The profound radiation hazards from the loss of one cargo hold of an LNG tanker is not confined to the location of its terminal berth. Instead, that risk occurs along its entire route. Therefore the danger zone can be mapped as has been done in Figure 4. In this portrayal, we can see the safety implications of LNG tanker traffic along its proposed route, presenting risks to the entire western shore of Passamaquoddy Bay, including Perry, Pleasant Point, the City of Eastport, and communities on the Deer Island and Campobello Island.

Similarly, the flammable vapor danger zones can be mapped along the proposed Downeast LNG tanker route. Figure 5 shows the even-broader danger zone compared to the thermal radiation hazard zone of Figure 4, involving St. Andrews, New Brunswick, far greater portions of the western shore, portions of Cobscook Bay, and most of Deer and Campobello Islands.

Navigation hazards and grounding survivability.

In EIS section 4.12.5.3 Hazards we read, "Historically, the event most likely to cause a significant release of LNG was a vessel casualty such as: a grounding sufficiently severe to puncture an LNG cargo tank." Yet the Downeast LNG EIS fails to portray the unique risks associated with the proposed route, rather they speak of the experiences of LNG tanker activities at existing LNG terminals with more conventional (and benign) navigation hazards.

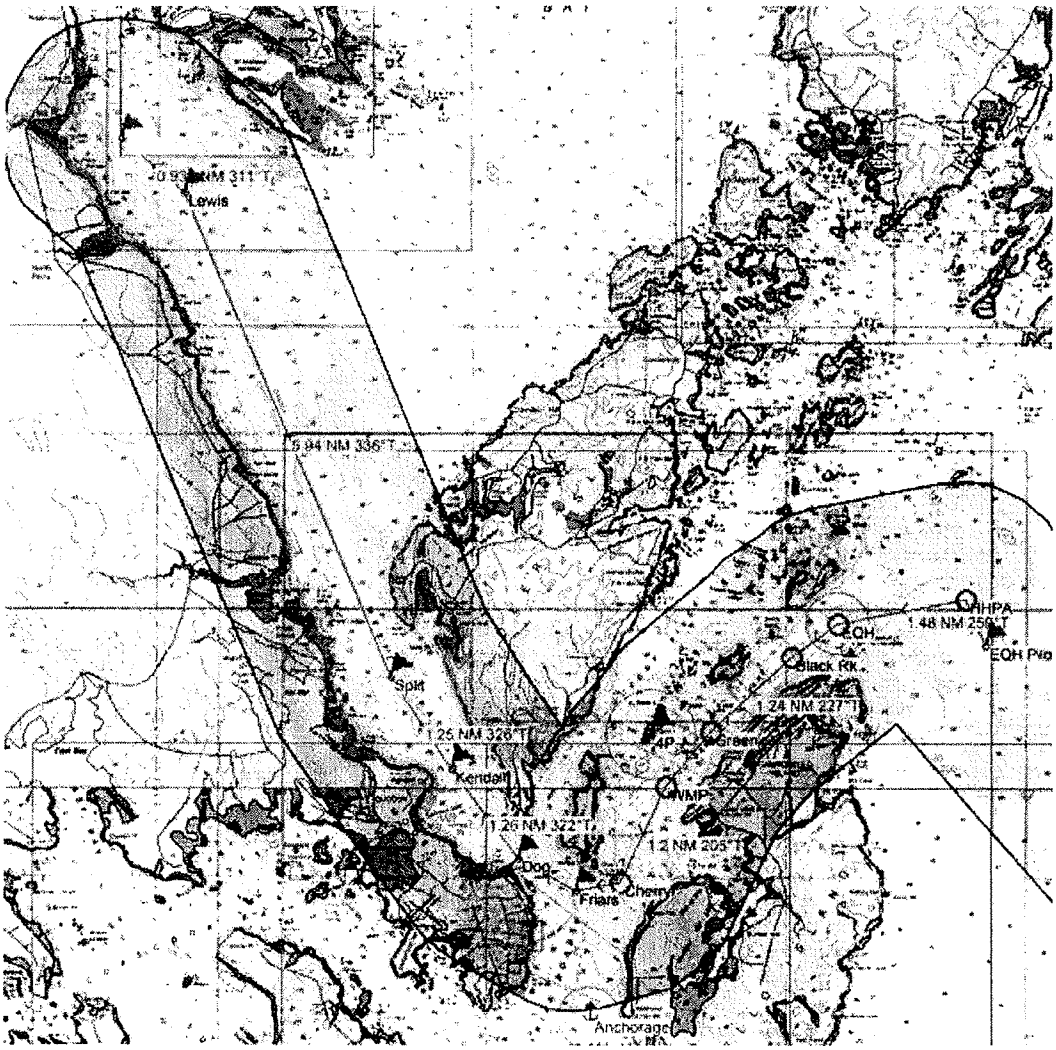

Figure 4. The thermal radiation hazard associated with the LNG tanker route leading to Downeast LNG. Adapted from Fay, 2004.

Passamaquoddy Bay presents navigation hazards that simply do not exist at current LNG terminals. Therefore, it is misleading to extrapolate from such historical experience to the risks that would materialize should such vessels venture into Passamaquoddy Bay.

Unlike other LNG ports, the Downeast LNG's proposed site requires navigation along a natural, rock-bound channel rather than the dredged shipping channel that typifies the conditions at other, more-prudently sited terminals. As shown in Figure 6, the approach channel to the proposed Downeast LNG terminal is strewn with natural hazards. Unlike many other approach routes where an error in navigation would result in grounding on un-dredged shallows outside a well-defined channel, an error in Passamaquoddy Bay is likely to result in a tanker hitting a ledge or an un-named rocky outcropping.

In this setting, an otherwise benign grounding will result in a hull-piercing event with the real potential of the loss of the tanker and a spill of its entire hazardous cargo.

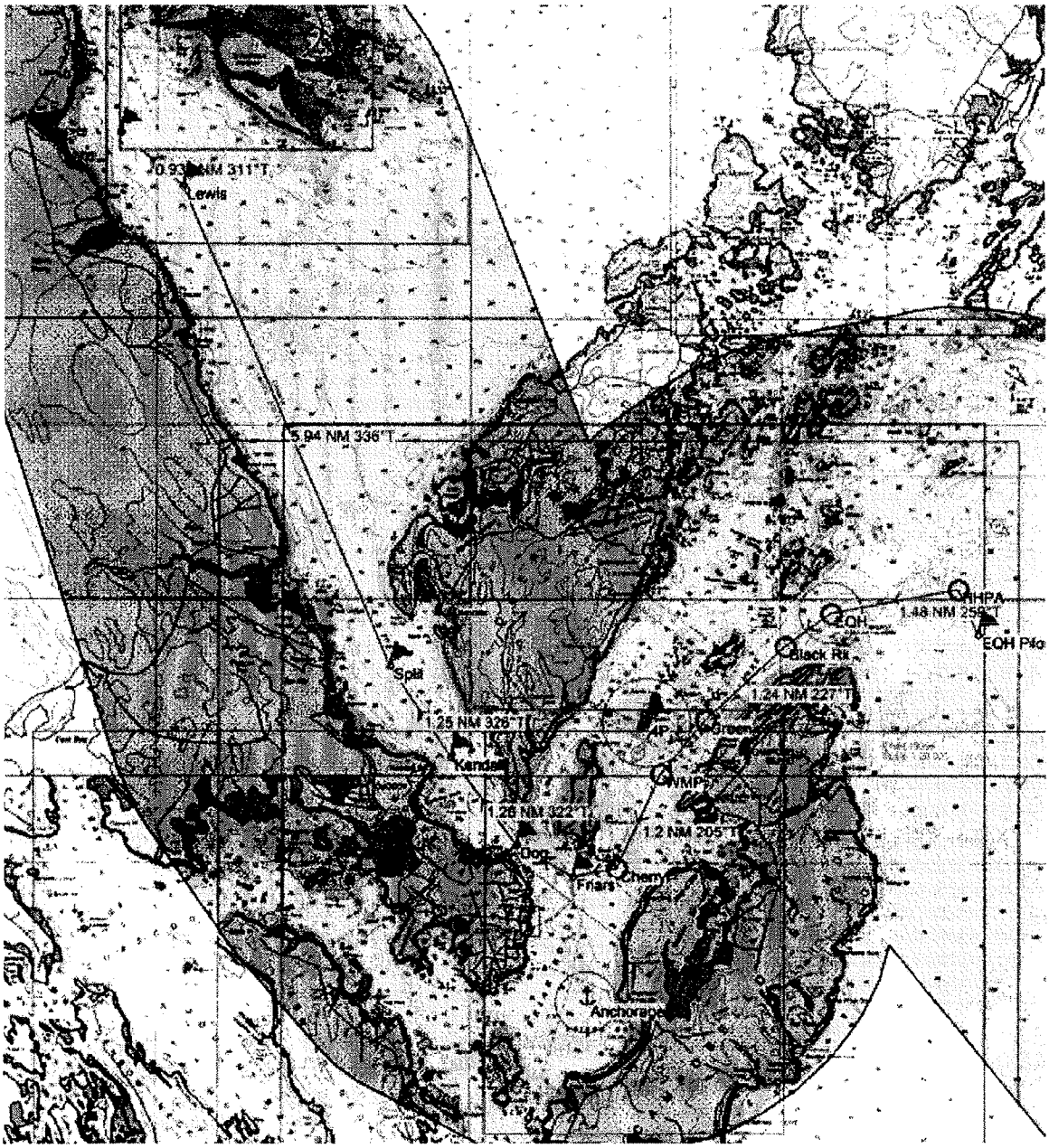

Figure 5. The flammable vapor hazard associated with the LNG tanker route leading to Downeast LNG. Adapted from Fay, 2004.

Equally important as this abundance of natural navigation hazards is the challenges associated with the high-velocity currents of Passamaquoddy Bay. These tidal driven flows are without equal in the U.S. and present an unprecedented situation for an LNG tanker to venture.

Downeast LNG EIS Section 4.12.5.4, LNG Vessel Transit to the Downeast LNG Terminal, makes no mention of the unique hazards associated with their chosen route. Portions of the transit route frequently see currents in excess of 3 m/sec (5.8 knots) and as such, present an

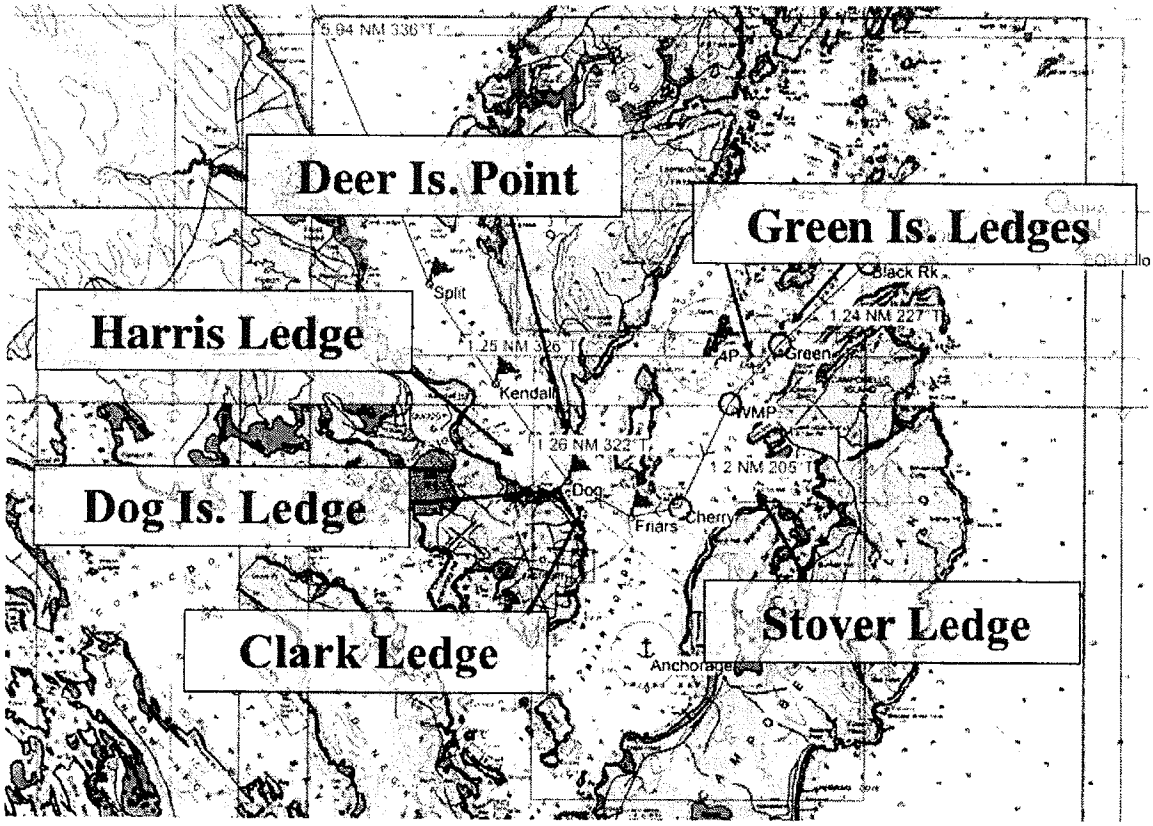

Figure 6. Some of the notable navigation hazards along Downeast LNG's proposed route.

unacceptable risk for the transit of LNG[2]. Because of these extreme currents, transits between open sea and the Downeast LNG terminal would have to occur at the narrow time window of slack high water. However, because the time of slack water varies across the bay, achieving acceptable conditions is impossible and only by maintaining an unacceptably-fast transit speed can a pilot hope to avoid these dangerous conditions. Of course, these high transit speeds introduce their own additional hazards given the extensive stopping distances of LNG tankers the size being proposed.

Combined with this uniquely hazardous collection of ledges and submerged hazards and unprecedented currents, there is another risk that is not even mentioned in the Downeast LNG EIS – the tidal range.

The Passamaquoddy - Cobscook Bay archipelago has a mean tidal range of 5.7 m (18.7 feet) and depending on astronomical conditions they can reach 8 m (26.2 feet)[2]. This is, of course, what drives the exceptional currents already mentioned. But from the standpoint of public safety and the possible consequences of an LNG tanker grounding in Passamaquoddy Bay, these tidal ranges have special significance.

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[2] Brooks, D.A. 2005. The Tidal-Stream Energy Resource in Passamaquoddy-Cobscook Bays: A Fresh Look at an Old Story. Department of Oceanography, Texas A&M University, College Station, TX

Since the proposed transits are to occur at high tide, any grounding is likely to occur at high or a falling tide. Unlike the case where an LNG tanker can sit and wait for the next high tide to re-float, a tanker grounded in Passamaquoddy Bay would find itself in a treacherous situation. This hazard is portrayed in Figures 7a to 7c and Figures 8a to 8c.

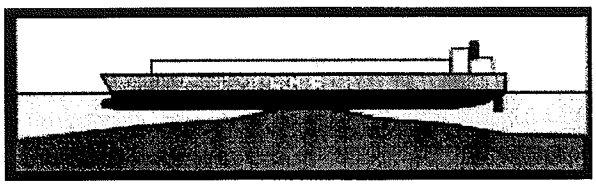

Figure 7a. Tanker grounded amidships, high tide.

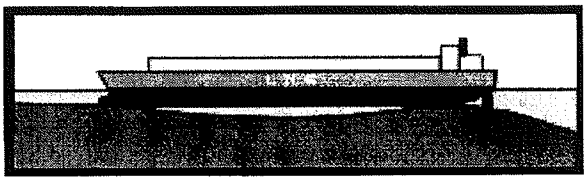

Figure 8a. Grounded, high tide, bow & stern.

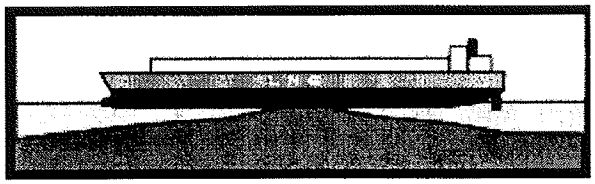

Figure 7b. Tide drops.

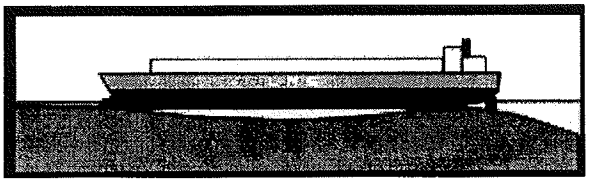

Figure 8b. Tide drops.

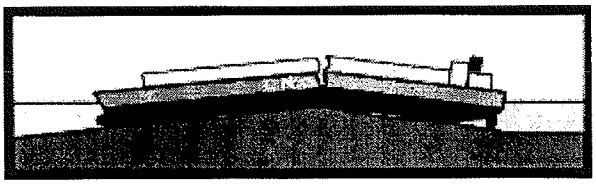

Figure 7c. Hull failure due to hogging.

Figure 8c. Hull failure due to sagging.

The loss of buoyancy due to such tidal drops presents hull girder bending stresses that would result in a breaking up of the LNG tanker's main hull. Indeed, no tanker could withstand hull-bending stresses associated with such a grounding scenario. The loss the LNG hold in the vicinity of the hull failure would be unavoidable. Cascading failures of the other LNG holds would be essentially assured, resulting in an LNG spill of unprecedented proportions. The Downeast LNG EIS fails to mention these risks. It fails to present any evidence that the vessels they propose to use would be especially designed for such risks.

The proposed tanker route presents unprecedented hazards compared to the conditions found at other existing and most other proposed LNG terminals. These hazards can be summarized as follows:

- A long entrance route surrounded by ledge and rock hazards
- Currents that present a unique challenge to safe piloting
- A brief slack-high-water period for transits
- A necessity for high transit speeds in order to avoid flood or ebb tides
- A tidal range likely to cause the break-up of a grounded vessel

These conditions combine to present an unacceptable risk for LNG transit in Passamaquoddy Bay. The Downeast LNG EIS fails to present any mitigation steps to counter these unique risks. Instead, it cites examples of LNG tanker incidents under far more benign circumstances, lacking the unique Passamaquoddy Bay tidal drop in particular.

Conclusions

The Downeast LNG EIS fails to adequately present the hazards associated with their proposed LNG terminal. It fails to portray the public safety hazards that are associated with the unique properties of LNG. In addition, the analysis found in the EIS does not consider credible worst-case scenarios for LNG spills, therefore they grossly underestimate the thermal radiation and flammable vapor hazards. Furthermore, the EIS does not adequately consider these public safety hazards along the tanker route both from thermal radiation and flammable vapor cloud standpoint. Most serious of all, the Downeast LNG EIS fails to portray the unique navigation hazards that are present in Passamaquoddy Bay or the risk inherent in their proposed plan to transit these waters.

I have attempted to demonstrate these deficiencies by pointing out the specific oversights and by explaining in a non-technical way, the extreme hazards associated with high-tide groundings of LNG tankers in Passamaquoddy Bay from the extreme rise and fall of the tide. What is needed is a thorough structural analysis of the typical LNG tanker hull to adequately understand the consequences of being grounded on the high-relief hydrography that surrounds the proposed tanker route. Lacking this level of analysis, I find the EIS lacking and it should not be used to justify proceeding with the project.

Respectfully submitted,

Clifford A. Goudey