

September 24, 2015

Land Conservation and Development Commission  
Salem, Oregon

Dear LCDC,

I live in Seaside a small town nearly 20 miles away from the proposed LNG Terminal and the terminus for all those invasive pipe lines that stretch for miles across Oregon. This LNG terminal does not belong on that sand spit in Warrenton, Oregon on the banks of the Columbia River a few seconds from the Cascadia subduction fault line.

The proposed site, as unsuitable though it may be, isn't even available for an LNG Terminal. It is leased to the Army Corp of Engineers for a dredge spoil site. And it is too dangerous, there are businesses and schools and houses and stores that will get blown to bits when there is an accident or a pipeline rupture. Deny this permit now, please.

The Oregon LNG lawyers have ignored the plea of the opponents to produce an emergency plan for the miles of pipeline. It should not really matter because Clatsop County has denied the permit for a pipeline anyway.

What are we waiting for? Why is the State of Oregon dragging its collective bureaucratic feet on this proposal?

NO LNG Terminals or pipelines belong in Oregon. Other states have had the good sense to deny them for less complicated reasons than we find in this proposal.

Please, save us all time and deny this permit.

Thank you,

Nancy A Holmes  
1520 Cooper St  
Seaside OR 97138

September 24, 2015

Oregon Land Conservation and Development Committee  
Oregon Department of Land Conservation and Development

Calpine's Skipanon Natural Gas showed up in Clatsop County, in October/November 2004 to promote their import natural gas proposal on the Skipanon Peninsula. Calpine left and the company morphed into Oregon LNG owned by Leucadia.

We the residents of this area went to meeting after meeting. We learned how to write letters to the federal, state, county, and city governments. We gave oral and written testimony. Clatsop County voted 5-0 to reject the pipeline. Oregon LNG argued that the Commission was biased. The State Court of Appeals denied their argument. Oregon LNG then argued that the decision was wrong. LUBA denied that argument and upheld the County's decision.

We held rallies in Salem, Portland, and Olympia. It has been over 10 years and from just a few people locally the movement to stop LNG export and imports has grown substantially to hundreds if not thousands of NW citizens. We know this project is wrong for Oregon and Washington. We do not need fracked gas, to be exported from our state. How many times must we ask and tell you no to LNG? We do not want the Oregon LNG terminal and pipeline. We do not want to live in the blast zone if and when there is an accident. Oregon LNG said they would leave if they were not wanted. Why are they still here?

Governor Brown can say no to this economic disaster. The State of Oregon needs to listen to the people who live here in this beautiful part of the world. There are so many reasons why a LNG project should not be allowed in Oregon (Coos Bay and Warrenton). Here are a few examples; Destruction of the fragile wetland environment, destruction of the salmon runs, pollution of the Skipanon and Columbia Rivers, air and water contaminates. The deterioration of the roads with 1200 trucks per day coming through Astoria and Warrenton for three or four years to build the terminal and pipeline.

There is not a safety plan nor a worse case scenario plan. There are no evacuation plans. We stand to lose our tourist base. Why would people want to come here to see a tightly secured industrial area? There goes the cruise

ships we welcome every spring and fall.

This is wrong, wrong, wrong. Washington State said no to LNG. California said no to LNG. Tijuana, Mexico said no to LNG. Oregon says no to LNG. You and Governor Brown can stop LNG. Now is your opportunity!

*Lori Durham*  
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September 24, 2015

To: Land Conservation and Development Commission

Re: Oregon LNG Terminal and Pipeline

Please make this communication part of the public record and keep me informed about all decisions about this project.

These projects are so wrong on so many levels, it's hard to know where to begin.

Please deny Oregon LNG's application for an import/export LNG facility and associated pipelines.

Approving the proposed LNG terminal violates state land use laws, as well as local and regional land use laws, and is a monumental insult to the Columbia River, Columbia Pacific region, surrounding environment, human and wildlife communities, and will make a massive contribution to accelerating climate change. Approving the proposed LNG export terminal is a bad idea on all levels and would demonstrate a remarkable lack of imagination.

There is no demonstrable need for the proposed Oregon LNG plant. Building a massive facility to import and/or export fossil fuel extracted at great cost to the environment provides no local, regional or national benefit. It offers tremendous risk, and serious consequences for no benefit.

I live upriver from the proposed Oregon LNG plant at Warrenton, and the decisions you make profoundly affect me and the entire Columbia Pacific region. This is a massive project that needs to consider the region, and nation as a whole. Our region has made clear through a county referendum, and votes by the Clatsop County and Astoria City Commissions that Oregon LNG is not welcome here or anywhere.

It is not clear that there is a need for an export/import LNG facility. Why are we considering infrastructure to support fossil fuels at a time when we need to be addressing climate change? The proposed LNG plant is a large step backward, not forward. We should not be encouraging the import or export of fossil fuels. Why are we considering moving Canadian and western US LNG through the US for export?

Oregon LNG has demonstrated repeatedly, and admitted to, providing misleading, inadequate and/or inaccurate information. Whether by design or incompetence, this is not an organization to be trusted. Oregon LNG has been planning this project for 11 years, and has yet to provide required basic information, or secure even one permit from any agency.

At a recent City of Warrenton hearing, Oregon LNG neglected to include two-thirds of the traffic impacts during construction; their long term traffic impact plan is vague and incomplete; they have yet to provide any sort of safety plan—though they promise there will be one. At the same recent hearing, Oregon LNG bragged about how many meetings they had conducted with local, regional, state and federal agencies. They claimed that all these organizations were working with them to approve and build the Oregon LNG facility. No agency, large or small, has issued one permit or one approval for Oregon LNG. Indeed most organizations have challenged Oregon LNG to provide more data, or have made clear that Oregon LNG plans fail to meet respective standards. For example, Oregon LNG claimed that Oregon Department of Transportation had approved their transportation plans; when in reality ODOT issued yet another letter, as recently as August 25, 2015, indicating to Oregon LNG that their plans were deficient and inadequate.

It does not appear that cumulative impacts to the environment infrastructure have been considered. The Columbia River, its estuaries and tributaries, and wetlands are already seriously compromised, and mitigation is always a net loss. Oregon LNG's and FERC's proposed mitigation plans equal a net loss for the environment in terms of air, land and water quality. For example, the proposed dredging of key salmon habitat on the Columbia (to accommodate proposed LNG tankers) cannot be replaced. Once it's gone, it's gone forever. Mitigation in a different habitat, in a different watershed cannot replace the original habitat for fish and wildlife. It is imperative that cumulative impacts be considered, not just the so-called "local effects" of the proposed mitigation. This region is already coping with large and varied insults to the land, air and water, and all these should be taken into account in the framework of reviewing the proposed Oregon LNG project.

In addition, this region does not have the infrastructure to support a massive industrial complex like the proposed Oregon LNG facility. The transportation system is overloaded already—to the point of gridlock—especially during major events and during the heavy summer tourist season (which lasts about six months). All the roads in the area are two lane, with usually only one way in or out—not a network or grid. There are no public safety or public health facilities that can cope with even a small disaster at such a facility. For example, a recent small brush fire in Warrenton, required turning out several local fire departments. Another example, in 2007, there was a large storm on the coast. Thousands of trees fell across roads, emergency communication systems were destroyed and isolated this region with no power. Only ham radios worked for communication. We were totally isolated, and emergency and repair services could not reach us for days or weeks. An emergency at the proposed Oregon LNG plant would make the 2007 storm look like a cake walk.

Oregon LNG has yet to formulate any safety and emergency plans. It is hard to imagine any adequate way to manage a major catastrophe/emergency at the plant. This region does not have the emergency responders, fire fighters, police, and hospitals to handle an LNG catastrophe. Local agencies and facilities have made clear that they cannot cope with an emergency at an LNG facility.

Oregon LNG has not addressed transportation effects during or after construction. Indeed, at a recent Warrenton city hearing, they neglected to include two-thirds of the transportation impacts during construction. In addition, their plan to upgrade a major road into their facility—King Road would be built with fill on top of existing fill, in an earthquake/tsunami/flood zone. King Road's expansion would also further compromise the wetland it crosses.

The proposed LNG facility would destroy important high quality salmon habitat and wetlands. There is no way to mitigate the loss of key estuary, riverine, wetlands, and other habitat important to fish and wildlife affected by the proposed plant and pipelines. Mitigation is not replacement of habitat and is always a net loss.

The proposed Oregon LNG plant should not be allowed to fill 35 acres of high quality wetlands designated as locally significant.

The project "unreasonably interferes with public trust rights." Public trust rights include the public's right to use the Skipanon and Columbia rivers for boating, swimming, and fishing.

The USACOE holds an easement to dump dredge spoils on the site, an easement USACOE is not willing to relinquish. Perhaps this issue should be resolved before any permits are considered. It seems appropriate that Oregon LNG should demonstrate that it has the right to use the site before any permit is considered.

Oregon LNG fails to minimize potential adverse impacts. Locating a massive industrial complex on sandy, unstable dredge spoils in a serious flood, earthquake and tsunami zone is an invitation for disaster. Installing pilings that don't reach bedrock, and building a proposed ten foot berm around the facility will not protect it from these risks. And a destroyed/disabled plant endangers the mouth of the Columbia River and all who use it or live here.

Oregon LNG's terminal will cut off public access, which violates Warrenton's land use laws. Under the Warrenton Comprehensive Plan, Section 5.323, the City must retain public access on the East Skipanon Peninsula.

Oregon LNG fails to demonstrate that the project's potential public benefits will equal or exceed expected adverse impacts.

Oregon LNG proposes destroying over 130 acres of critical, high-quality endangered salmon habitat in Youngs Bay, located in the Columbia River Estuary. This is one of the

most popular recreational and commercial fishing areas on the Columbia River. Youngs Bay is one of four Select Area Fisheries Enhancement sites, also known as “terminal fisheries” sites, in the Lower Columbia River. The Oregon Department of Fish and Wildlife out-plants hatchery fish to net pens in Youngs Bay to increase salmon fishing opportunities. Of the four terminal fisheries sites in the Columbia River Estuary, the Youngs Bay site has the highest five-year average for Chinook harvest.

Oregon LNG’s terminal threatens dozens of endangered species, including salmon, sea turtles, and humpback whales.

Oregon LNG would push commercial and recreational fishing off the river; and seriously interfere with freight and tourist vessel traffic. The U.S. Coast Guard would require LNG tankers to maintain a 500-yard exclusion zone around them when LNG tankers are in transit and moored at the LNG dock, as well as a permanent exclusion zone around the terminal. This would restrict fishing and directly interfere with recreational boating. Under federal safety regulations, the terminal requires a permanent vessel exclusion zone extending out into Youngs Bay and the Skipanon River. The permanent, fixed security zone is 50 yards even when no ship is present. OR LNG has responded that their tankers would be in transit on the river at night, when no other users are on the river. Oregon LNG is wrong; other ship traffic of all types routinely uses the river at night including freighters and fishing boats. And, the mouth of the Columbia is narrower than the total 1,000-yard safety zone (plus the width of the LNG tanker itself), so no marine traffic of any type, could pass while an LNG tanker was in transit.

Oregon LNG would extend into designated airspace for the airport, compromising safety for critical U.S. Coast Guard, and commercial and private aviation.

Oregon LNG’s project completely undermines our region’s investment in salmon restoration. The Columbia River Basin hydroelectric system and other development almost destroyed salmon populations. The USACOE, other federal, state and local agencies—along with tribes and non-profits—have invested billions of dollars in restoring the Columbia River Estuary. Scientists agree that the estuary is critical to recovering endangered and threatened salmon and steelhead species.

Oregon LNG proposes building and operating over 80 miles of pipeline which would harm water quality in dozens of streams crossed by the pipeline. The proposed pipeline would cross dozens of salmon-bearing streams and rivers—including drilling and building a pipeline under the Columbia River.

Oregon LNG pipeline would impact sensitive wetlands in Warrenton using open-cut trench construction methods in some areas.

The Columbia River is already overburdened by pollution and the proposed Oregon LNG terminal would add to that degradation. The Columbia River is already degraded by toxic pollution. Fish advisories warning people to limit how much fish they eat—or in some cases not consume any fish from certain areas— demonstrate the gravity of the problem.

Pollution from Oregon LNG's terminal conflicts with existing work to clean up the Columbia so that people can eat fish without fear of toxic pollution.

Oregon LNG would discharge large quantities of hot water into local waterways, destroying critical cool water habitat for aquatic life.

Oregon LNG could not have selected a worse location for building an LNG terminal. Oregon LNG proposes building the terminal within the tsunami inundation zone on former dredge spoils (i.e., saturated sand). Sandy soils are extremely unstable when earthquakes occur because they amplify the effects of ground shaking and liquify. The terminal is also located close to businesses, homes, and an active fishing area. During construction, hundreds of construction vehicles and heavy equipment will clog Warrenton, Astoria and Clatsop County streets and roads. Despite Oregon LNG's claims otherwise, the project will harm local transportation safety and Oregon LNG's analysis does not fully account for impacts of both pipeline and terminal construction.

Oregon LNG would take private property using eminent domain to build the gas pipeline. Oregon LNG's pipeline requires a 100-foot wide construction right-of-way and 50-foot wide permanent easements that restrict how landowners use their property indefinitely. Homes and businesses close to the proposed LNG terminal and pipeline could be difficult to sell as a result of their proximity to the project. Such proposed use of eminent domain is simply unconscionable because Oregon LNG does not represent a common good for the community, state, region or nation. Oregon LNG would only potentially benefit its far-flung investors.

Oregon LNG proposes building high-pressure, non-odorized gas pipelines through Oregon and Washington. Clatsop County citizens voted to deny the pipeline based on its impacts to landowners and the Columbia River Estuary.

Oregon LNG would permanently restrict access to the terminal site, and impact access to adjacent waterways. The United States Coast Guard has recommended a security zone around LNG tankers (500 yards while moving, 200 yards while docked), which will interfere with use of the Skipanon River water trail. And, Oregon LNG would require a security perimeter at all times. According to its application to the City of Warrenton, "Security and emergency procedures will not allow public pedestrian access to the site so no connections will occur to any adjacent trails." Yet, the Skipanon Peninsula has a long history of public use, and there are several marked trails that lead into and through the site. Prohibiting public access to the site is a violation of the City of Warrenton's comprehensive plan.

Once it leaves Warrenton and heads into Oregon's Coast Range, Oregon LNG's proposed pipeline will cross private and public forestland. Building the pipeline and maintaining a permanent easement will remove land from timber production and harm endangered species' habitat. It will also pose a constant public safety threat when pipelines break.

The National Park Service has raised a number of concerns about the terminal and associated tanker traffic's impact on the breathtaking scenery of the Columbia River Estuary. The Oregon LNG project would produce heat and glare with a large gas flare system, which will generate open flames. According to the Draft EIS for Oregon LNG, the "elevated flare height would be about 68.5 feet tall and the maximum flame length, conservatively assuming no wind, would be about 150 feet." This flare alone would be a source of light and air pollution.

The lifecycle carbon impacts of LNG are just as bad as coal. Methane is fracked, piped hundreds of miles, super-cooled to a liquid, and shipped overseas, creating a dirty and inefficient product. And the prospect of importing LNG is even worse. Such activities are not the way for our community to address climate change.

The proposed Oregon LNG terminal would increase energy rates for Pacific Northwest consumers and businesses. LNG export will increase natural gas prices for Americans by forcing us to outbid high-priced Asian and other markets.

The proposed Oregon LNG terminal will harm local businesses. Businesses that depend on tourism, recreation and fisheries will be especially impacted; as well as those near the proposed LNG facility, and traffic from the LNG terminal and pipeline construction could dramatically impact area businesses.

Oregon LNG will use natural gas feedstock from Western Canada or the western US. This type of gas is known as "shale gas." Shale gas production (as well as coal bed and tight sands production) requires the controversial practice of hydraulic fracturing, or fracking. Fracking causes air pollution, surface and groundwater pollution, habitat destruction, and contributes to climate change. This is not a legacy our region should encourage or be party to.

The state of Oregon and its citizens have committed to aggressively address climate change, and Oregon LNG runs counter to that initiative. Oregon deserves better.

Locally, the proposed plant would discharge toxic chemicals into the air, water and onto the land. Oregon LNG has no plan for neutralizing these toxins. For example, where will the mercury from processing go? Our region has been working for years to clean up the effects of previous polluters and existing polluters; we don't need a new massive source of LNG pollutants. Unless the proposed Oregon LNG plant can neutralize all its toxic outputs—from hot water to mercury, the plant should not be permitted for construction.

The Terminal would occupy 88.7-acres of a 96-acre parcel of state-owned land located on the east bank of the Skipanon Peninsula between the Skipanon River and Youngs Bay. The Terminal includes two 160,000-cubic meter LNG storage tanks, each 17- stories tall, and a gas flare system. To operate the terminal, Oregon LNG proposes withdrawing 10,100-acre feet of water per year from the Columbia River Estuary. According to Oregon LNG's water pollution discharge permit application, the terminal would discharge between 1,000 and 2,600 gallons per minute of process wastewater and up to

1,500 gallons per minute of stormwater to the Columbia River. Oregon LNG should not be allowed to use our Columbia River as a hot water, toxic sewer.

Oregon LNG proposes to build a huge power plant to run its facility—using more power than most of our communities; another net energy loss.

The proposed plant, during and after, construction would be a source of significant and chronic noise affecting humans and wildlife, including marine species.

The proposed Oregon LNG terminal would create massive light pollution, from the gas flare that would be visible for miles, to the facility lights that would be on 24/7.

The initiators of what is now the Oregon LNG project indicated that the potential loss of life from an accident at the proposed plant, built in the most densely populated part of Clatsop County, would be an “acceptable risk.” The loss of anyone’s life is not an acceptable risk for this boondoggle.

Oregon LNG originally proposed an export facility, and is now wanting an import/export facility. As an exporting facility, Oregon LNG would be transporting LNG. As an import facility, they would be processing LNG, a very different proposition. Oregon LNG should not be allowed to seek permits for an import/export facility when their initial application was for an export-only facility.

There is no benefit—no net energy gain—to the proposed Oregon LNG. There is no safe, healthy way the proposed Oregon LNG plant can be built. LCDC needs to outright reject the proposed Oregon LNG facility and pipelines.

Stop giving Oregon LNG extensions, and end this project now.



An LNG terminal would hurt our region's and country's significant investment in restoring endangered salmon runs.

### Can We Afford an LNG Terminal?

The US Department of Energy estimates that exporting LNG would probably raise US natural gas prices at least 50 percent. Companies exporting LNG gain from bigger profits created by the much higher natural gas prices overseas.

"I am already on record opposing the export of natural gas from Alaska. I have the same concerns today that exporting natural gas will benefit gas companies at the expense of the American consumer."  
-Senator Ron Wyden, *The Oregonian*, 7-16-11

The US government considers LNG tankers to be terrorist targets and requires armed gunboats to escort each tanker. The US Coast Guard will enforce federal security measures for LNG terminals and tankers. This will cause ongoing serious disruptions to commercial and recreational river traffic. Vessels will need Coast Guard authorization to pass the berthed LNG tankers.

## What About Public Safety?

**"...building an LNG terminal in the Columbia estuary, which is closely adjacent to the Cascadia subduction zone, is insane."**

-- Charles B. Miller, Professor Emeritus, Oceanography, Oregon State University

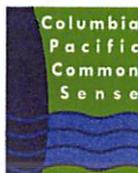
**"These factors, unfortunately, make this site the most intrinsically unsafe for an LNG terminal in the lower Columbia Valley."** -- Thomas Horning, *Horning Geosciences, report to Clatsop County Land Use Planning Division, February, 2010.*

Most of Warrenton and Hammond and much of Astoria are within the gas vapor and fog hazard zones around the proposed LNG terminal, including homes, schools, marinas, businesses, and airport air space.

Local taxpayers and officials have limited access to information about costs and liability for LNG-related safety, security, and emergency preparedness.

## LNG Doesn't Belong Here!

Be informed – Take action



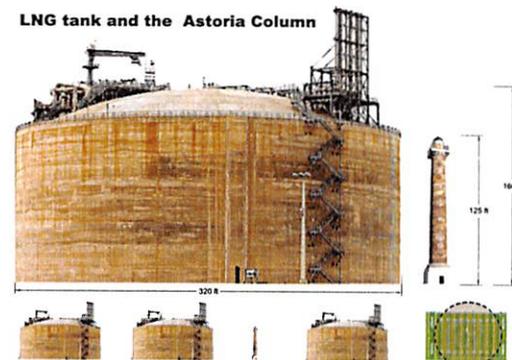
[www.columbiariverkeeper.org](http://www.columbiariverkeeper.org)  
Columbia Pacific Common Sense  
503-338-6508

EXHIBIT: 4 AGENDA ITEM: 2  
LAND CONSERVATION & DEVELOPMENT  
COMMISSION  
DATE: \_\_\_\_\_  
SUBMITTED BY: \_\_\_\_\_



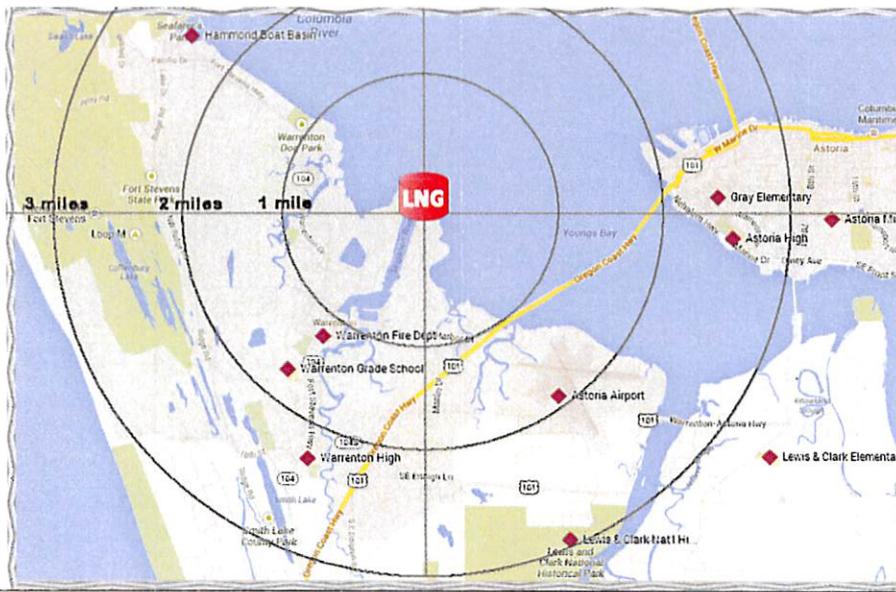
## Is LNG in Your Future?

A company called Oregon LNG wants to supercool North American natural gas, then store and export it as liquefied natural gas (LNG) from an LNG terminal on the Skipanon Peninsula, along the Columbia and Skipanon Rivers, in Warrenton, Oregon. The LNG would be exported to other countries.



The massive industrial terminal, with two tanks about 17 stories tall, would process toxic and explosive natural gas and gas by-products.

**The proposed site is sand, on top of fill, on top of bedrock not yet found at 350 feet. The site is a subduction earthquake and tsunami zone, near homes, schools, marinas, and businesses.**



The rings around the LNG tank icon show the distance in miles from the site of the proposed LNG terminal on the Skipanon and Columbia Rivers in Warrenton, Oregon.

### Do You Want to Live Near an LNG Terminal or Pipeline?

**"I'm very concerned about our ability to do anything in case of a tanker mishap .... If we put in a product that is as potentially flammable as an LNG facility, we've increased the probability to do harm to the public."** -- Fire Chief Ted Ames, Warrenton, OR

**"LNG fires burn hotter than regular gas fires – and may emit thermal radiation that could burn even people near the vicinity of the fire. There is no reason to place these facilities in any location that could expose nearby residents to such risks."** -- U.S. Representative Elijah E. Cummings, Chair, Coast Guard and Maritime Transportation Subcommittee

Oregon LNG wants to build a 3-foot diameter high-pressure gas pipeline to the terminal that would cut through about 40 miles of Clatsop County public and private forest and farmland. The designated blast zone for such a high-pressure pipeline extends 700 feet on either side of the pipeline.

A natural gas fire can't be put out. It has to burn itself out until there is no more gas to burn. Flammable gas from a leaking tanker, terminal, or pipeline is invisible and not odorized. LNG vapors are cold and invisible. They spread low to the ground and can be ignited by a lit cigarette or engine spark.

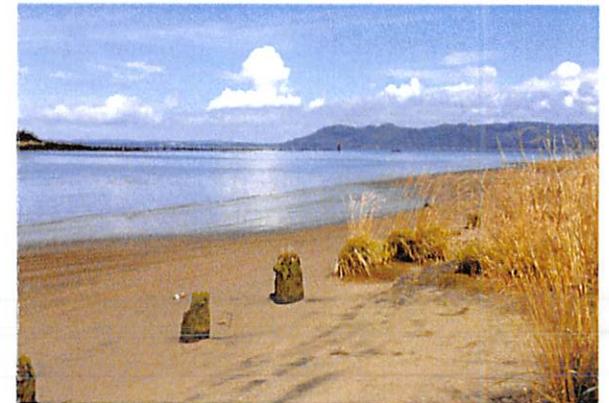
**Who will train and equip our outstanding firefighters, scattered over 1085 square miles, to fight and contain industrial fires and explosions typical of gas facilities and pipelines?**

**What Will It Be Like?**  
**Clean air? No.**  
**Clean water? No.**  
**Thriving fish, wildlife & wetlands? No.**  
**Noisy, stinky, polluted? Yes.**

LNG terminals operate around the clock, meaning 24/7 noise, lights, air and water pollution, and smells from the terminal, tankers and related river vessels.

The terminal will generate fog and emissions from backup diesel generators, gas flares and docked ships. LNG tankers and the security vessels that accompany them are required to run their engines during the entire cargo loading cycle, spewing exhaust and air pollutants.

Oregon LNG wants to use and dispose of millions of gallons of Skipanon and Columbia Rivers water each day. This would endanger fish, wildlife, water-related industries, local residents, and recreation.



The Skipanon Peninsula, Warrenton, Oregon

T LCDC Public Comment re: Oregon LNG  
Submitted by Laurie Caplan  
766 Lexington Avenue  
Astoria, OR 97103  
September 24, 2015

I'd like to share with you what I'm learning about the Society of International Gas Tanker and Terminal Operators (SIGTTO). The mission statement of SIGTTO is posted at [www.sigtto.org](http://www.sigtto.org). It says,

"The Society of International Gas Tanker and Terminal Operators (SIGTTO) was formed as an international organisation through which all industry participants might share experiences, address common problems and derive agreed criteria for best practices and acceptable standards."

Even nicer, SIGTTO has a publication called, "Site Selection and Design for LNG Ports and Jetties." The book's description says it is, "Designed as a guide for port developers to the minimum design criteria for building or altering ports to accommodate LNG carriers." (See below for details.)

I have been actively opposing the LNG terminals and pipelines proposed for the Columbia River almost since they were first proposed in 2004. The only proposal left is for Warrenton, and I also discuss it in my accompanying testimony.

I was stunned to realize that Oregon LNG's proposal meets only one and possibly two of the eight basic guidelines. The SIGTTO site selection and design guidelines are below, in bold. My comments follow each item.

**1. There is no acceptable probability for a catastrophic LNG release.**

- Oregon LNG's proposed site is in the notorious Cascadia subduction earthquake/tsunami zone on the north Oregon coast. Scientists say the coast has a 1 in 3 chance of having a 9.0 or more earthquake within 50 years. Among other things, the proposal calls for two 17-story tall gas storage tanks, each the diameter of a downtown Portland city block. There would also be a 40-foot tall gas flare burn-off facility with a footprint slightly larger than one tank.
- In addition, this site is at sea level, on a sand spit on top of dredge material, on top of bedrock no one has yet located 350 feet down.

**2. LNG ports must be located where LNG vapors from a spill or release cannot affect civilians.**

- The three Hazard Zones, or Zones of Concern, are concentric rings with a radius of one mile each from the terminal and encompass much of the towns of Warrenton and Hammond and a large portion of Astoria. Thousands of people live, work, attend school, and visit state and national parks within those rings.
- Homes, businesses, schools, a major highway, and key arterial streets are within one mile

of the proposed terminal and port.

- More homes, more businesses, an elementary school, Warrenton's fire department, and the Astoria Airport are within two miles.
- More homes, more businesses, another elementary school, two high schools (grades 9-12), the Port of Astoria, a major state park and other campgrounds, and a major national historic park are within three miles.

**3. LNG ship berths must be far from the ship transit fairway.**

**4. LNG ports must be located where they do not conflict with other waterway uses [4] — now and into the future. [This requires long-range planning for the entire port area prior to committing to a terminal location];**

- LNG tankers would be docked in a turning basin adjacent to the shipping channel of the Columbia River.
- Additionally, berthed tankers would partially or totally block access to the adjacent Skipanon River and be adjacent to commercial and recreational fishing and other vessels using the Skipanon and Columbia Rivers, as well as several marinas serving those waterways.
- Access to the terminal dock site is achieved by crossing the Columbia River bar, known worldwide as the Graveyard of the Pacific.
- The Columbia River shipping channel is narrow enough that other vessels on the water would not be able to pass an LNG tanker because of the 500-yard security and safety exclusion zone around each tanker, mandated by the United States Coast Guard.

**5. Long, narrow inland waterways are to be avoided, due to greater navigation risk.**

- Acceptable.

**6. Waterways containing navigation hazards are to be avoided as LNG ports.**

- Access to the terminal dock site is achieved by crossing the Columbia River bar, known worldwide as the Graveyard of the Pacific.
- The Columbia River shipping channel is narrow enough that other vessels on the water would not be able to pass an LNG tanker because of the 500-yard security and safety zone around each tanker, mandated by the United States Coast Guard.
- The tanker dock area and turning basin is so shallow that the company would have to dredge 1.2 million cubic feet of river bottom material every two or three years.

**7. LNG ports must not be located on the outside curve in the waterway, since other transiting vessels would at some time during their transits be headed directly at the berthed LNG ship.**

- Possibly acceptable. I believe the United States Coast Guard's mandated 500-yard security and safety exclusion zone around each tanker would allow a tanker to dock without endangering the tanker or other transiting vessels. But I could be wrong.

**8. Human error potential always exists, so it must be taken into consideration when selecting and designing an LNG port.**

- DLCD and other state agencies have received extensive testimony documenting the potential for human error that is built into this proposal.

There is a shocking gap – or rather, canyon - between the Oregon LNG proposal and industry standards Which leads me to ask why DLCD and other state agencies are even considering this reckless proposal.

Does it concern DLCD and other state agencies that Oregon LNG's proposal ignores at least three-quarters of the SIGTTO guidelines?

Does it matter to DLCD and other state agencies if an LNG terminal and Warrenton is not sited and designed according to industry guidelines?

This proposal was designed with little regard for the safety and well-being of area residents and surrounding towns and communities. In fact, the company has ignored the siting and design guidelines of its own industry. It does not have the LUCS its required to have from Clatsop County in order to build its pipeline. The US Army Corps of Engineers has an easement on the terminal site that's been upheld by two federal judges. Looking at this project rationally, anyone would think that no pipeline and no site means no terminal.

I hope that LCDC and DLCD will bring some sense to the craziness of state agencies continuing to process Oregon LNG's permit applications. Let's restore common sense in Salem. Don't try to approve these incomplete, inaccurate, and misleading permit applications for a project that can't be built. Instead, deny the company's application. LNG does not belong in Oregon.

Laurie Caplan

**NOTES:**

1. "Site Selection and Design for LNG Ports and Jetties" is published by Witherby Seamanship International and can be purchased at <http://www.witherbyseamanship.com/site-selection-design-ip-no-14-for-lng-ports-jetties.html>.
2. It can be viewed at <http://reallnghearings.org/wp-content/uploads/2015/05/sigtto-standards.pdf>.
3. The abbreviated summary of the site selection and design standards is at <http://www.quoddyloop.com/lngtss/standards.html>.

**ATTACHED**

1. Gas Vapor Hazard Map showing the three one-mile radius concentric rings of the Zones of Concern around the proposed LNG terminal

LCDC Public Comment – Astoria - September 24, 2015

Thank you for serving on LCDC and for coming here today. It's a big responsibility to serve the whole state on this important commission. You have many important issues facing DLCD, but Oregon LNG doesn't need to be one of them. That is because Governor Brown has the authority, evidence, and responsibility to shut down Oregon LNG today. It is a waste of state funds and staff, including DLCD's, to continue to process Oregon LNG's permits and applications. Here's why:

Oregon LNG has demonstrably failed to meet the standards of the State's review under the CZMA (Coastal Zone Management Act):

- a) Clatsop County Commissioners unanimously denied a required permit for the pipeline;
- b) The US Army Corps of Engineers has valid property right on terminal site;
- c) The company has failed to obtain any other significant state permits.

In sum, the company can't build a pipeline here, and it has no legal access to its proposed terminal site. State agencies are considering permits for a project that cannot be built here.

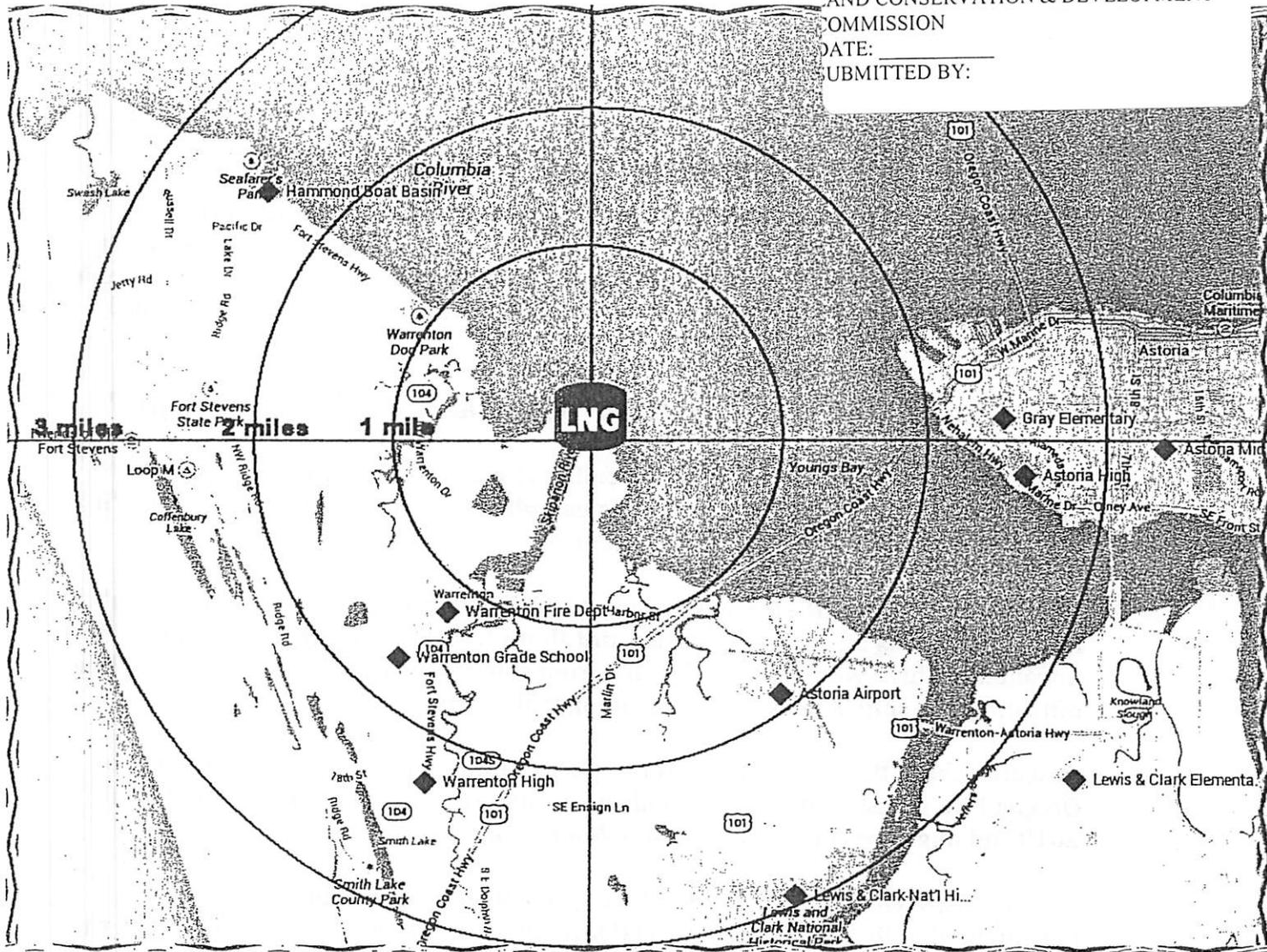
More reasons Governor Brown should stop the process are:

1. Siting this terminal and pipeline in the Cascadia subduction earthquake and tsunami zone violates industry and scientific guidelines;
2. The company is on record saying it will bypass state and county laws to get federal approval;
3. State agencies continue to grant the company repeated extensions despite inaccurate and incomplete applications;
4. Governor Brown needs to uphold Clatsop County's 5-0 decision denying the LUCS (land use compatibility statement) that is required by the CZMA for the pipeline;
5. The recent Warrenton and FERC hearings provided ample evidence that the Oregon LNG proposal does not comply with state and county land use laws and rules. Governor Brown needs to uphold those regulations.

I'm not even considering the cost to the state of responding to the fire, explosions, and other destruction at the terminal and pipeline after an earthquake and tsunami. Or the state's cost to rebuild Highway 30/101 after the 1300 heavy truck and vehicle trips per day the company plans between Tongue Point and Warrenton and beyond during 3-5 years of construction.

LCDC and DLCD need to focus on the many issues confronting the agency and our state. Please urge Governor Brown to protect our state and say NO to Oregon LNG.

Laurie Caplan  
766 Lexington Avenue  
Astoria, OR 97103  
503-338-6508



The rings around the LNG tank icon show the distance in miles from the site of the proposed Oregon LNG terminal on the Skipanon and Columbia Rivers in Warrenton, Oregon. Most of Warrenton and Hammond and much of Astoria are within the gas vapor and fog hazard zones around the proposed LNG terminal. The hazard zones include homes, schools, marinas, businesses and airport air space.

## LNG Threatens Our Health and Safety and Does Not Belong Here

"If about 3 million gallons of LNG\* spills onto the water from an LNG tanker ship, flammable vapors from the spill could travel up to 3 miles." \*3 million gallons is only 10% of a typical LNG cargo. -- Jerry Havens, Director, Chemical Hazards Research Center, University of Arkansas

**A natural gas fire can't be put out. It has to burn itself out until there is no more gas to burn.** Flammable gas from a leaking tanker, terminal, or pipeline is invisible and not odorized. LNG vapors are cold and invisible. They spread low to the ground and can be ignited by even a lit cigarette or engine spark.

"LNG spilled on water is theoretically capable of re-gasifying almost instantly - creating a vapor cloud that may also explode if it finds a source of ignition. **There is no reason to place these facilities in any location that could expose nearby residents to such risks.**" -- U.S. Congressman Elijah E. Cummings (D-MD), Chairman, Coast Guard and Maritime Transportation Subcommittee

# You and the Three-Mile Gas Vapor Hazard Zone

Highlights of the presentation by Dr. Jerry Havens in Astoria on May 21, 2009

Dr. Havens is a major consultant to the LNG industry and government. He is Distinguished Professor of Chemical Engineering at the University of Arkansas. Dr. Havens is an internationally known expert about biological warfare, nuclear weapons and the behavior of chemical fires. His work has long been a central component of federal LNG regulations. He is not for or against liquefied natural gas.

## The Big Question for LNG safety: "How far away is far enough?"

- **Some scientists believe a terminal needs to be 2-3 miles away from people.** Concerning all LNG terminals proposed near where people are, Dr. Havens said, "If you have an alternative, put (the terminal) someplace else."
- **Virtually all but one LNG fire has been in a contained structure, so scientists don't know is how big and how hot an uncontained LNG fire would be.** Examples of uncontained fires would be LNG leaking from ships transiting the Columbia or while offloading the ship at dock, or from leaking tanks or pipelines.
- **Research about the safe distance from a QMax tanker, the kind that could come to Oregon LNG in Warrenton, is still underway and probably won't be reported until 2010 and might be considered classified information.**
- **Natural gas, such as what we typically use, is lighter than air and so when it's uncontained in the air, it rises up and dissipates high off the ground. In contrast, the supercooled liquefied natural gas is cold and heavier than air. When it leaks from a tank, the vapors spread out horizontally close to the ground instead of going up and away. Gas vapor clouds done experimentally look very much like the low-lying marine layer level with the river that we often see in the morning.**
- **Escaping LNG vapors are invisible unless they are in condensed water vapor.** As one audience member asked, how could anyone see an LNG vapor cloud if it was mingling with the marine layer or fog?
- **It is unlikely LNG could spill without igniting.** If it ignites, the burning vapor would ignite everything within it - such as trees, people, buildings, boats, etc.
- **A lit cigarette can ignite an LNG vapor cloud - and so can a spark from friction with clothing, shoes, etc.**
- **Putting out an LNG fire with water is the wrong thing to do - any gas vapor that isn't ignited would be further disbursed by the water.**
- **An LNG fire is so hot that it doesn't have smoke.**

9/24/15

EXHIBIT: 8 AGENDA ITEM: 2  
LAND CONSERVATION & DEVELOPMENT  
COMMISSION  
DATE: \_\_\_\_\_  
SUBMITTED BY: \_\_\_\_\_

To the Land Conservation and Development Committee,

For seven years I worked as a Merchant Mariner on a tugboat hauling petroleum products for Crowley Maritime. I saw incidents and items, which would put the fear of death by explosion in anyone's heart.

True examples supported by accompanying photographs:

The tugboat's engineer, smoking a cigarette on deck, as we passed the docking area in Vancouver B.C. for petroleum, liquefied natural gas, and chemical piles.

Crewmembers barbecuing on the back deck of the tugboat with a barge 500 feet away loaded with 80 million gallons of gasoline, every Friday night in calm weather.

An electric "Lil Smoker" going for hours smoking the salmon the crew caught over the bulwark 500 feet from a barge holding 100,000 barrels of jet fuel.

Arriving in Valdez Alaska, January 2009, our tug and barge berthed across from the refinery at the end of the Alyeska Pipeline. It had caught on fire that December and was encased in a spectacular palace of ice from the water the fireboats had sprayed upon it. A large, floating spill dam surrounded the facility on Prince William Sound. Refineries are not immune from accident. Unless the LNG Company can buy fireboats (Valdez has four), beef up the fire departments and pay for hazardous materials training they aren't being serious as to the potential difficulties possible with their installation. The town of Valdez found out about this in 1989 during the Exxon oil spill. The oil companies pay for their fireboats, crew salaries and maintenance.

Working with the dangers of petroleum products develops gallows humor. It's thick and accompanied by lazy attitudes.

I know the close calls in the dangerous job of hauling gas and petroleum. They are occasional and not reported. Often, near misses are only shared between the parties involved to avoid it being put on the seaman's company record.

This LNG plant is inappropriate for the geology of the Skipanon Peninsula. Safety is not guaranteed in delivery or off loading of product.



Pamela Mattson McDonald  
1561 Exchange Astoria, OR 97103  
[matmcd2002@gmail.com](mailto:matmcd2002@gmail.com)

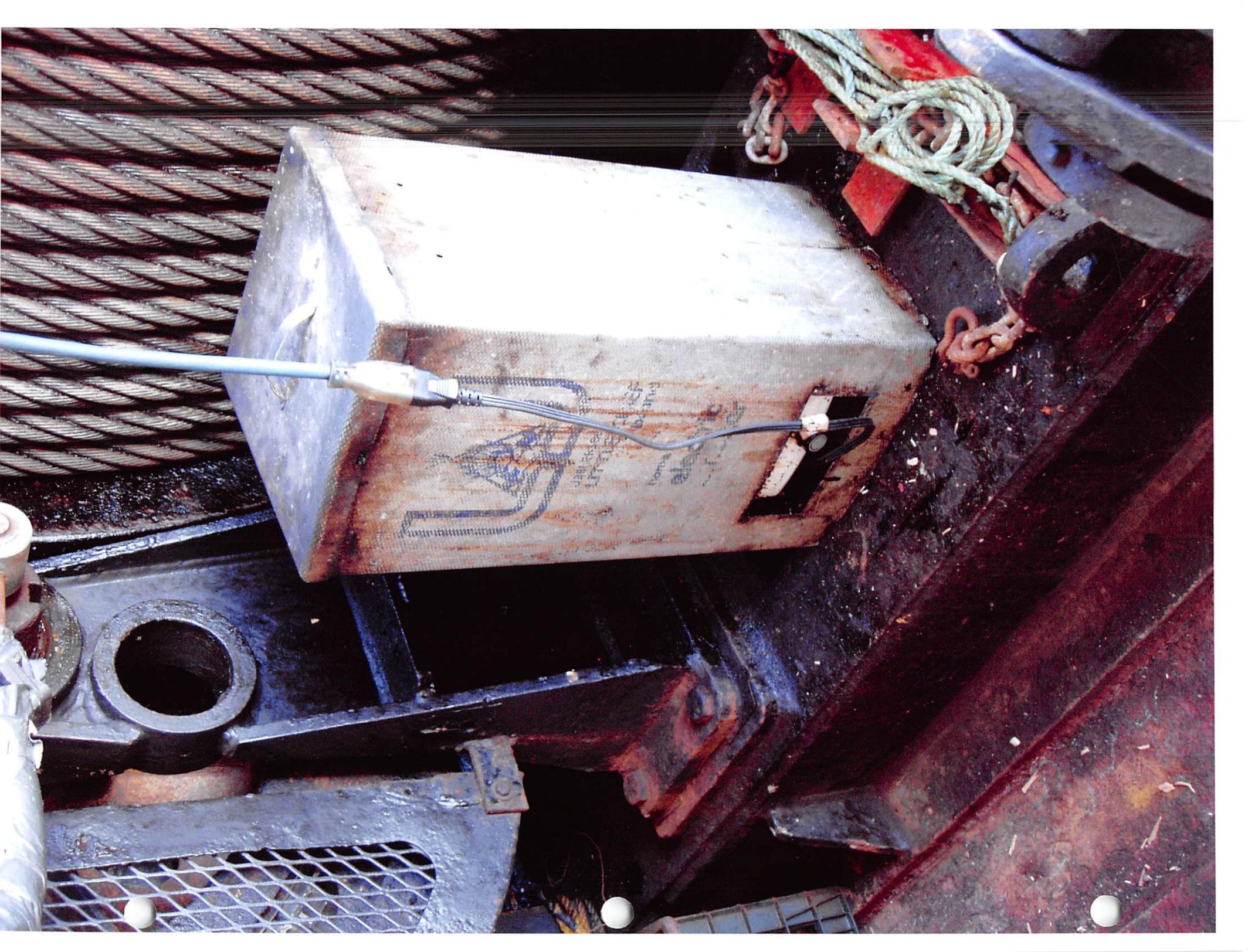
**WARNING**  
DANGEROUS CARGO  
NO OPEN LIGHTS  
NO SMOKING  
NO VISITORS













## Clatsop County Land Use Permit for ORLNG Pipeline

- December 2004 Calpine signs lease with Port of Astoria for LNG IMPORT terminal and pipeline
- September 2008 Clatsop Co. Referendum on NO Pipelines in Parks  
57% turn-out for ballot w single issue, passed by 62% of voters
- October 2008 OR LNG files application w FERC to construct EXPORT terminal  
OR Pipeline files application w FERC to construct 212 mi. pipeline
- October 2009 ORLNG submits application to Clatsop County for pipeline**
- June 2010 Clatsop Co Planning Dept recommends denial of pipeline permits
- August 2010 Hearings officer recommends authorization of ORLNG pipeline permits
- November 2010 Clatsop Co Commissioners vote to authorize ORLNG 41 miles of pipeline in CC
- January 2011 Newly elected CC Commissioners withdraw pipeline authorization for re-consideration**
- February 9, 2011 CC Commissioners hold hearing on reconsideration of pipeline application
- February 17, 2011 ORLNG challenges CC reconsideration - LUBA grants CC request**
- February 20, 2011 CC Commissioners hold hearing on ORLNG pipeline - public testimony
- March 2011 ORLNG files Petition for Writ of Mandamus
- March 2011 CC Commissioners issue preliminary decision of denial for pipeline application
- May 2011 Circuit Ct Judge Nelson rules in favor of CC - denies writ of Mandamus
- October 2012 OR Court of Appeals - unanimous decision to uphold Circuit Ct decision
- March 2013 OR Supreme Ct denies OR LNG appeal - upholds Circuit Ct
- May 2013 ORLNG submits 27p letter to NOAA: ignore CZMA**
- July 2013 Consistency Certification submitted to DLCD by ORLNG
- September 2013 CCC hearing - Reconsideration of ORLNG application for pipeline
- October 2013 CCC hearing - Board votes unanimously to deny ORLNG application for pipeline**
- June 2014 ORLNG appeals CC decision - LUBA rules bias by one commissioner
- December 2014 OR Ct of Appeals rules CC Commissioners NOT biased
- April 2015 LUBA affirms CC decision denying the pipeline permits**

EXHIBIT: 11 AGENDA ITEM: 2  
LAND CONSERVATION & DEVELOPMENT  
COMMISSION  
DATE: 9-24-15  
SUBMITTED BY: Josie Peper

**To LCDC - Land Conservation and Development Commission**

635 Capitol St. NE, Suite 150  
Salem 97301-2540

Jim Rue, Director

Commissioners: Sherman Lamb, Barton Eberwein, Catherine Morrow, Robin McArthur, Greg Macpherson, Jerry Lidz, Melissa Cribbins

September 24, 2015

Dear Jim Rue and Commissioners:

I am a citizen of Clatsop County and I was born and raised in Oregon.

Oregon LNG is not a very good name for this company; it should more appropriately be called Canada LNG, or China LNG. I resent that they use the name Oregon in their company name. This project has nothing to do with Oregon!

I am an engaged member of my community and tend to lend a hand and volunteer where I can, and I am angry – angry that I have lost significant portions of my life for the past 11 years fighting for my safety and the safety of hundreds of other Oregonians who live in this region; and just because my elected officials have not stepped up to the plate. I could have been using my time to help CASA, or VOCA camp, or the Food Bank, or the Animal Shelter, or Loaves and Fishes, etc. etc.

The City of Astoria has issued a proclamation against this proposal, as has the City of Vernonia. Clatsop County has denied permits for their pipeline on several counts, and the Army Corps of Engineers has an easement to dump dredge spoils on the site OLNG intends to build; yet the project plows forward, without regard for anyone or anything.

We need YOU! This project has taken up too much of too many of our lives. It needs to stop. The people of Clatsop County have been held hostage far too long . . . it's time to put this Trojan Horse to rest once and for all . . . YOU have the opportunity to speak for the safety of people who live in your state, and I understand that you have the authority to put an end to this madness by supporting local rules and regulations through the Coastal Zone Management Act.! I implore you to do so . . . I want my life back! We want our lives back.

Sincerely,  
Josie Peper



5276 Ash Street  
Astoria, Oregon 97103

[Peper.jo@gmail.com](mailto:Peper.jo@gmail.com)

503-791-0305

To: LCDC / FYI

To the Federal Energy Regulatory Commission  
Kimberly D. Bose, Secretary  
Nathaniel J. Davis, Sr., Deputy Secretary  
September 21, 2015

**REGARDING OREGON LNG'S PROPOSED LNG TERMINAL ON THE SKIPANON PENINSULA IN WARRENTON OREGON**  
Oregon LNG - CP09-6  
Oregon Pipeline - CP09-7  
Washington Expansion Project - CP13-507

To Whom it May Concern:

Oregon LNG's proposal is a bad and poorly conceived idea.

We know that the gillnet fleet is being phased out from the main stem of the Columbia River, and the Young's Bay Select Area fishery will be the last, best refuge of the lower Columbia gillnet fleet; this, only to be exacerbated by the fact that salmon smolts migrating through the area would be imperiled by the overheated water which OLNNG plans to discharge into the Columbia River.

We know that OLNNG has disregarded reliable reports regarding the structural geology of the lower Columbia River and the inherent dangers associated with not one, but several recently active (geologically speaking), faults in the area.

We know that SIGTTO, the Society of International Gas Tanker and Terminal Operators, has stated in their "LNG Terminals Siting Standards" (abbreviated summary attached), which bring to light a few glaring omissions of the OLNNG proposal, that "there is no acceptable probability for a catastrophic LNG release"; that "LNG ports must be located where LNG vapors from a spill or release cannot affect civilians (any risk of catastrophic LNG release is unacceptable)"; that "LNG ports must be located where they do not conflict with other waterway uses — now and into the future" (eg commercial, and sport fisheries, as well as pleasure crafts); and that "human error potential always exists, so it must be taken into consideration when selecting and designing an LNG port". The SIGTTO standards cite the government sponsored Sandia Labs Report on potential risks of LNG transport and terminals: it "defines three Hazard Zones surrounding LNG carriers. The largest Zone is 2.2 miles or 3,500 meters around the vessel, indicating that LNG ports must be located at least that distance from civilians. Some world-recognized LNG hazard experts, such as Dr. Jerry Havens (have indicated) that three miles or more is a more realistic Hazard Zone distance". We know that the largest hazard zone for OLNNG's proposal takes in most of the city of Warrenton, including three schools, as well as a good part of the west side of Astoria, including 2 schools, and the Young's Bay Bridge, and the Astoria-Megler Bridge to Washington.

Further, it's an insult that FERC hasn't required OLNNG to supply a detailed and full Emergency Response plan; is it because there are so many potential risks that cannot be "mitigated". How do you "mitigate" public safety?

We know that the DEIS chronically understates the hazards and potential impacts of Oregon LNG's terminal, and glosses over the public safety, environmental, and economic risks to our communities, not only locally, but all along the proposed pipeline route (through Oregon, and on into Washington State, all the way to Canada, slurping up private properties along the way . . . what part of "for the public good" is this (?).

Also, we have recently learned that OLNNG expects to stage the pipeline project at Tongue Point on the eastern boundary of Astoria, and that there will be approximately 1298 heavy duty and light duty trucks traveling all the way through downtown Astoria DAILY FOR 18 MONTHS. Astoria's infrastructure cannot support this added traffic — it's nothing less than unacceptable!

We know that Clatsop County has denied permits for OLNNG's pipeline, so they have no way to get the gas to the site; and we know that OLNNG has insolently said that they do not need Clatsop County's permits.

We know that the Army Corps of Engineers has an easement to dump dredge spoils on the proposed site, and we know that the Corps has twice prevailed in court to maintain that easement, so we know that OLNNG does not have a site upon which to build.

And we know that this project is NOT sustainable!

Please do not rubberstamp this proposal; we need better from you.

Josie Peper

  
5276 Ash Street  
Astoria, Oregon 97103  
Peper.jo@gmail.com  
503-791-0305

# LNG Terminal Siting Standards Organization

Leadership in advocating for government adoption of SIGTTO standards

<http://www.quoddyloop.com/Ingtss/standards.html>

## Society of International Gas Tanker and Terminal Operators

*The de facto world authority on LNG terminal siting standards.*

*Virtually the entire world LNG industry holds membership in SIGTTO.*

The standards are published in, "*Site Selection and Design for LNG Ports and Jetties*," (ISBN 13: 9781856091299) available for purchase from Witherbys Seamanship International, of Livingston, Scotland.

## SIGTTO LNG Terminal Siting Standards Abbreviated Summary

**The LNG industry has a good safety record. Any LNG catastrophe could destroy public confidence in the industry, ending the import of LNG.**

**Observing the industry's best practices and standards helps to preserve safety, public confidence, the industry, energy security, and the economy.**

1. There is no acceptable probability for a catastrophic LNG release [<sup>1</sup>];
2. LNG ports must be located where LNG vapors from a spill or release cannot affect civilians [<sup>2</sup>];
3. LNG ship berths must be far from the ship transit fairway;
  - a. To prevent collision or allision [<sup>3</sup>] from other vessels;
  - b. To prevent surging and ranging along the LNG pier and jetty that may cause the berthed ship to break its moorings and/or LNG connection;
  - c. Since all other vessels must be considered an ignition source;
4. LNG ports must be located where they do not conflict with other waterway uses [<sup>4</sup>] — now and into the future. [This requires long-range planning for the entire port area prior to committing to a terminal location];
5. Long, narrow inland waterways are to be avoided, due to greater navigation risk;
6. Waterways containing navigation hazards are to be avoided as LNG ports;
7. LNG ports must not be located on the outside curve in the waterway, since other transiting vessels would at some time during their transits be headed directly at the berthed LNG ship;
8. Human error potential always exists, so it must be taken into consideration when selecting and designing an LNG port.

>> Additional items exist in the standard than are summarized here. Please refer to "*Site Selection and Design for LNG Ports and Jetties*." <http://reallnghearings.org/wp-content/uploads/2015/05/sigtto-standards.pdf>

<sup>1</sup> While risk of small LNG spills is acceptable, any risk of catastrophic LNG release is unacceptable.

<sup>2</sup> Sandia National Laboratories defines for the US Department of Energy three Hazard Zones (also called, "Zones of Concern") surrounding LNG carriers. The largest Zone is 2.2 miles/3,500 meters around the vessel, indicating that LNG ports must be located at least that distance from civilians. Some world-recognized LNG hazard experts, such as Dr. Jerry Havens (University of Arkansas; former Coast Guard LNG vapor hazard researcher), indicate that three miles or more is a more realistic Hazard Zone distance.

<sup>3</sup> Allision — (nautical term) Collision between a moving vessel and a stationary vessel or object.

<sup>4</sup> Conflicting waterway uses include fishing and recreational boating.

To: LCDC / FYI

## National Fisherman Magazine

<http://www.nationalfisherman.com/news-events/top-news/4620-oregon-lng-project-could-disrupt-fishing>

### 2/24/15 Oregon LNG project could disrupt fishing

Written by Leslie Taylor

WARRENTON — Warning of a potentially substantial disruption, the state Department of Fish and Wildlife has recommended that Oregon LNG perform a thorough analysis of the impact of its proposed terminal on commercial and recreational fishing in the Columbia River.

The department, in comments on the project in January to the U.S. Army Corps of Engineers, found that Oregon LNG has not sufficiently characterized the local importance of fishing and the possible disruption during the construction and operation of a liquefied natural gas export terminal on 96 acres along the Skipanon Peninsula.

The project could interfere with access to the Skipanon Marina, popular recreational chinook and coho salmon fishing at the mouth of the Skipanon River known as Buoy 10 and recreational crabbing in the estuary near the proposed terminal's berthing dock and outside the mouth of Youngs Bay.

Read the full story at the [Daily Astorian](#)>>  
Published: February 11, 2015 9:14AM

#### State warns that Oregon LNG terminal could have significant disruption on fishing

WARRENTON — Warning of a potentially substantial disruption, the state Department of Fish and Wildlife has recommended that Oregon LNG perform a thorough analysis of the impact of its proposed terminal on commercial and recreational fishing in the Columbia River.

The department, in comments on the project in January to the U.S. Army Corps of Engineers, found that Oregon LNG has not sufficiently characterized the local importance of fishing and the possible disruption during the construction and operation of a liquefied natural gas export terminal on 96 acres along the Skipanon Peninsula.

The project could interfere with access to the Skipanon Marina, popular recreational chinook and coho salmon fishing at the mouth of the Skipanon River known as Buoy 10 and recreational crabbing in the estuary near the proposed terminal's berthing dock and outside the mouth of Youngs Bay.

The department suggests that Oregon LNG "avoid unreasonably interfering, now or in the future, with recreational angling, commercial fishing and shellfishing activities in the Columbia River or any of the other waterways associated with the project."

The department recommended that Oregon LNG complete a thorough analysis of the potential impact of the terminal, including how safety and security zones around LNG tankers might hinder access. Oregon LNG, the department maintains, "should then identify the steps and actions that will be taken to account for the loss of these recreational and commercial opportunities."

Oregon LNG did not respond to telephone and email messages seeking comment on the state's concerns about fishing.

The firm wants to build the export terminal to link the plentiful natural gas of Western Canada and the Rockies with eager energy markets in Asia. A new 87-mile pipeline would run from the Northwest Pipeline, the natural gas artery for the Pacific Northwest, through Cowlitz County in Washington state and Tillamook, Columbia and Clatsop counties in Oregon to reach the terminal.

Oregon LNG is seeking federal, state and local approvals and has encountered significant opposition from environmentalists, property owners, fishermen and residents who have fought the \$6 billion project for the past decade.

"Our livelihood survives by our ability to transit and have free passage on the bar, and if you're shutting down that whole river for periods of time, you're going to have a negative impact," said Martin McMaster, an owner of the Lady Laura, a crabber and longliner.

Dan Serres, the conservation director of Columbia Riverkeeper, a Hood River-based environmental group that opposes the LNG terminal, described the conflict between the project and fishing as a "fundamentally unanswered, unresolved problem that has the potential to be enormously destructive to the local economy, to people who fish in the area."

The Department of Fish and Wildlife's comments, in a Jan. 16 letter to the Army Corps of Engineers, raised concerns about a dozen topics related to the LNG project, including dredging, fish passage, water use and discharge, wetlands and habitat restoration.

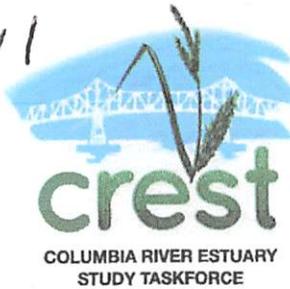
The department "has identified several issues that may result in substantial impacts to fish, shellfish, wildlife, their habitats, as well as potential reductions in opportunities for recreational harvest of fish and shellfish associated with construction and operation of the marine terminal in the marine waters of the lower Columbia River estuary."

Oregon LNG has acknowledged the extremely popular salmon fishing at Buoy 10, but the department found that the firm has not adequately characterized the potential for substantial disruption of the socially and economically important fishery. Last year, for example, there were 107,700 angler trips with a catch of nearly 84,500 salmon.

Similarly, the department argues, Oregon LNG has not documented the potential impact of the project on recreational crabbing. Crabbers make about 1,500 to 2,200 trips into the estuary a month during the peak fall season, according to the department, taking between 12,000 and 28,000 Dungeness crab a month.

While much of the crabbing occurs outside the Hammond Marina, the department found, some crabbing also happens in the estuary near the proposed berthing dock and outside the mouth of Youngs Bay.

TO LCDC / FYI



January 16, 2015

U.S. Army Corps of Engineers  
Richard Chong (CENWP-OD-G)  
PO Box 2946  
Portland, OR 97208-2946

Via Email: OregonLNG@usace.army.mil

**RE: NWP-2005-748 – Public Comment**

Dear Mr. Chong:

The Columbia River Estuary Study Taskforce is a council of governments located in Astoria, Oregon. We specialize in assisting local member jurisdictions with land use planning focused on natural resource issues and we implement large scale watershed restoration projects in the Columbia River Estuary. The comments below regarding the application for the Department of the Army permit for the Oregon LNG terminal and pipeline are based on our professional, local expertise in estuary restoration and Oregon land use.

**Columbia River Estuary Habitat Considerations for Threatened and Endangered Salmon**  
Wild stocks in the watershed Lower Columbia River Estuary, Youngs Bay, and the Lewis & Clark River are severely depressed due to past land management practices that restrict fish rearing and refuge opportunities (e.g. floodplain diking), as well as consistent water quality issues related to high temperatures and pollution. CREST, the National Park Service, Clatsop County Soil and Water Conservation District and other groups have been systematically improving riparian conditions and off-channel wetland habitat access to recover salmon stocks throughout the Lower Columbia River Estuary and its tributaries. Several million dollars in public funds have been invested in restoring these habitats. The proposed project will impact limited and fragmented habitats and ongoing salmon recovery efforts.

In the Applicant – Prepared Draft Biological Assessment and Essential Fish Habitat Assessment for the Oregon LNG Terminal and Oregon Pipeline Project, 2013, the applicant asserts “existing

habitat conditions on the Skipanon Peninsula are degraded. Their present value to federally listed species is primarily their annual contribution of organic detritus produced in the low and high marsh regions of the site. This detritus contributes ultimately to the food web of juvenile salmonids, green sturgeon, and eulachon." While current conditions may be degraded, there is a significant, ongoing efforts to improve high and low marsh conditions in the Columbia River Estuary. The location of the Skipanon Peninsula is a high priority for restoration efforts. CREST believes that the site already provides essential salmon habitat and that it can be improved to provide additional benefits.

There is ongoing watershed restoration work occurring on the Skipanon River. CREST will be removing the 8<sup>th</sup> Street Dam in Warrenton in partnership with the Skipanon Water Control District and the City of Warrenton. The District is working on two additional projects at the Middle Control Structure and the Cullaby Lake Fish Ladder to provide fish passage throughout the watershed. This large scale investment in restoration on the Skipanon could be extended with additional restoration work on the Skipanon Peninsula, providing valuable habitat benefits to ESA species from throughout the Columbia River Basin.

We disagree with the assertions in the Habitat Prioritization Table 1. taken from the *Oregon LNG Report APPENDIX 3B Biological Survey Reports – Aquatic Species and Habitat*, 2013.

CREST would assert that the low and high marsh habitat on Skipanon Peninsula is essential habitat for fish and wildlife with a high potential for restoration. We believe a habitat category 2 is appropriate for this habitat. The entire peninsula has a high potential for restoration, is close to the mouth of the Columbia River, and is hydrologically connected to ongoing restoration work in the Skipanon River, Youngs Bay, and Youngs Bay tributaries. The development of the Oregon LNG terminal and loss of wetlands should be viewed within the historical context of low and high marsh habitat loss in the Columbia River Estuary, and ongoing restoration efforts.

The proposed pipeline will cross the Lewis and Clark River in two locations. Long-term monitoring performed by CREST has found five species of federally listed juvenile salmon species using restored wetlands in the Lewis & Clark River watershed, including the Lower Columbia River Evolutionary Significant Unit (ESU) of coho (*Onchorhynchus kisutch*), Lower Columbia River ESU of Chinook (*Oncorhynchus tshawytscha*), chum (*Oncorhynchus keta*) and coastal cutthroat (*Oncorhynchus clarki*). In addition, genetic testing of juvenile Chinook salmon sampled at two locations along the Lewis and Clark River between pipeline milepost 3.1 and pipeline milepost 5.7 found that Upper Willamette River Chinook, another federally listed Chinook ESU, also uses the Lewis and Clark River for rearing.

The review process should address cumulative terminal and pipeline impacts on federally listed salmon using the Columbia River Estuary, the Skipanon River, Youngs Bay, and Lewis and Clark River and impacts on publically funded habitat restoration sites built specifically to implement salmon recovery plans.

### Land Use and Public Access

The City of Warrenton's Comprehensive Plan, Section 5.323 (Public Access) sub-section 5.323(1) states "Existing public ownership, right-of-ways, and similar public easements in estuary shorelands which provide access to or along the estuary shall be retained or replaced if sold, exchanged or transferred." This sub-section further states "Right-of-ways may be vacated to permit redevelopment of shoreland areas provided public access across the affected site is retained." In sub-section 5.323(3) it states "Proposed major shoreline developments shall not, individually or cumulatively, exclude the public from shoreline access to areas traditionally used for fishing, hunting or other shoreline activities." And finally, sub-section 5.323(7) states "The City will consider the recreational and public access value of any public lands proposed to be leased or sold to private interests, or used for public purpose which would reduce needed public access. The City will hold a public hearing to dispose of or lease public property, and will consider public input."

Oregon's Goal 17 covers "Public Access" of which the subject tax lot 810140000380 has a platted 100 foot right-of-way shown as "Road 300" as well as City of Warrenton Roads "NE Kings Ave and Bay Front Rd." Public access is one of the "Key" elements of the CZMP, which is "Providing public access for recreation." Oregon's Goal 17 (C) Open Space, Natural Areas and Aesthetic Resources, and Recreation also has public access as an important aspect to the states planning goals. All 29 of the coastal programs under the federal act emphasize the importance of safeguarding existing public access to coastal shorelands. The Public Trust Doctrine also plays an important role in maintaining and providing public access to tidal and navigable waters, the land beneath, in addition to the living resources held in trust by the state (Hildreth, 1989; Slade, 1990). The City of Warrenton Comp Plan, Section 5.323 (Goal 17) seems to back this up by protecting public access and stating that it "shall" not be eliminated and that if it is that "access across the affected site is retained."

The proposed LNG Terminal site is shown to have a designated trail under Warrenton's Trails Master Plan and Parks Plan, where the trail within the project site follows Bay Front Rd along the east bank of the Skipanon. In 2004, the Trails Association applied for and received a technical assistance grant from the National Park Service's Rivers and Trails program. Part of this grant funding was used to help inventory and map the Skipanon Trail section at the proposed LNG site. If the LNG project receives both state and local permits to construct and operate the facility, it will effectively eliminate public access and

use of the trail, which is both designated as a public trail and is protected under Section 5.323 of Warrenton's Comp Plan.

Based on the security requirements required for the Oregon LNG terminal site at the Skipanon River and that fact there is a platted city road through the proposed Terminal Site Plan, CREST would assert that the project proposes to effectively eliminate an existing "Public Access" point to coastal shorelands. This would be in direct conflict with the City of Warrenton's Comp Plan, Goal 17 Policies, and the Coastal Zone Management Act. Oregon LNG has failed to show how they have complied with Section 5.323, by retaining public access across the effected site. In addition, Oregon LNG has proposed to build within a public right of way, which they do not have the right to do as they have yet to secure a Public Hearing to Vacate the public right-of-way. The platted road belongs to the public as explicitly stated in state law.

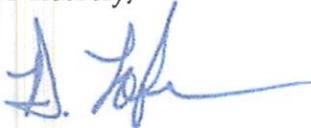
### Environmental Compliance

CREST completes environmental compliance and permitting with federal and state agencies for multiple projects occurring on the Columbia River and its estuaries each year. We have implemented two projects that required USACOE Section 408 permits and believe the proposed Oregon LNG terminal may be required to go through the Section 408 permitting process for impacts to federal levees.

CREST has concerns regarding this Section 404 public comment process. It is difficult for the public to have a full understanding of the cumulative impacts of the terminal and pipeline project without a complete NEPA process and local jurisdictional permitting. We question the ability to undertake a 404 review and make an informed decision without a final project EA and/or EIS and without local jurisdictional approval.

Thank you for the opportunity to provide comments.

Sincerely,



Denise Lofman  
Director

To LCDC / FYI

**RESOLUTION OF THE ASTORIA CITY COUNCIL EXPRESSING  
OPPOSITION TO THE PROPOSED OREGON LNG LIQUEFIED  
NATURAL GAS TERMINAL AND THE OREGON LNG AND  
WASHINGTON EXPANSION PROJECT PIPELINES**

**WHEREAS:** construction of the Oregon LNG terminal and Oregon Pipeline will involve staging materials in the City of Astoria's Tongue Point, and construction activities will dramatically impact traffic and transportation in the City of Astoria; and

- the heavy industrial nature of the Oregon LNG project will alter the shoreline of Youngs Bay with gas processing equipment, open flares, and massive dredging in the River, in close proximity to Astoria and clearly visible from Astoria, in a manner that is profoundly inconsistent with Astoria's robust, growing tourist and arts economy; and

**WHEREAS:** the storage, processing, and transport of natural gas and LNG to and from the proposed Oregon LNG terminal pose a direct health and safety risk to Astoria's residents, businesses, and visitors to our community; and

- the Oregon LNG terminal on the Skipanon Peninsula places a significant number of Astorians at risk of catastrophic accidents resulting from an LNG or natural gas release, fire, and explosion, as portions of the City of Astoria are within hazard zones identified for the project; and
- the storage, processing, and transport of natural gas and LNG to and from the terminal will place an enormous and unrealistic burden on Astoria's firefighting and other first-responder resources; and

**WHEREAS,** building the Oregon LNG terminal and dredging the Columbia River for LNG tanker access would harm salmon, salmon habitat, and the ecological balance of the Columbia River Estuary, and be disruptive to fishing and crabbing; and

- Astoria's economy relies on healthy fish runs and vibrant commercial and sportsfishing industries, and any threat to these industries undermines the economic viability of our region; and

- LNG tankers and the proposed LNG terminal will harm local tourism by creating air and water pollution and diminishing the aesthetic, environmental and economic resources of Astoria; and

**WHEREAS**, construction and maintenance of the pipeline and easement will permanently impact natural resources along the pipeline route, including streams, wetlands, water supplies, plants and animals native to the region, and fish resources, the re-establishment of which has been a major goal of fish and wildlife agencies;

**NOW, THEREFORE, BE IT RESOLVED BY THE ASTORIA CITY COUNCIL AS FOLLOWS:**

Section 1. That the Astoria City Council opposes the construction of the Oregon LNG terminal and its related Oregon Pipeline and Washington Expansion Project pipelines.

Section 2. That the Astoria City Council urges all local, state, and federal decision-makers to use their authority to deny the Oregon LNG terminal and its related Oregon Pipeline and Washington Expansion Project pipelines.

Section 3. This resolution is effective immediately upon its enactment by the City Council.

**PRESENTED AND PASSED** this 8th day of September, 2015.

FYI

In addition to the OLNNG proposal for Warrenton, OLNNG plans to stage the building of the pipeline at Tongue Point, located on the eastern boundary of Astoria. **About 486 heavy trucks and 812 personnel vehicle/light duty truck trips per day** would be needed to construct this segment. The pipeline construction is projected to last at least 18 months. Traffic (which has been changing a lot in the past year due to Astoria being newly discovered as a destination) already backs up regularly from the east end of town. These vehicles will be transiting the full length of Astoria, and crossing the New Youngs Bay Bridge as well as some of them splitting off and traveling through the south edge of Astoria along HWY 202. This is a "HUGE" (!) issue, and is unacceptable to the City of Astoria! Astoria does not have the infrastructure to support this kind of traffic.

TO LCDC / FYI

## Horning Geosciences

808 26th Avenue, Seaside, OR 97138

Ph./FAX: (503)738-3738

Email: horning@pacifier.com



September 16, 2015

Janice Weese  
City of Warrenton  
225 S. Main Avenue  
Warrenton, OR 97146

RE: Testimony on Geologic Hazards Pertaining to LNG Development (Oregon LNG), City of Warrenton, Clatsop County, Oregon

To whom it concerns:

An undisclosed major fault (Columbia River Fault) cuts bedrock directly beneath the proposed LNG terminal, but has not been recognized in the Site Specific Seismic Hazard Evaluation for the Oregon LNG Import Terminal (Appendix I.1 to Resource Report 13). Maps showing the fault are provided in the accompanying Figures 1 through 4.

The fault has been identified for at least several years and has been published in a peer-reviewed geologic field trip guide of the lower Columbia River by the Geological Society of America for its national meeting in Portland (Wells and others, 2009). Existence of the fault has also been disclosed by Horning Geosciences (2010) in a peer review of the geologic report for the LNG pipeline project.

The Columbia River Fault is not shown on the USGS Quaternary Fault and Fold Database of the United States, which is presently incomplete and still being improved. Many other well-known local faults need to be included. The absence of the Columbia River Fault from the database should not be grounds to ignore it when evaluating hazards.

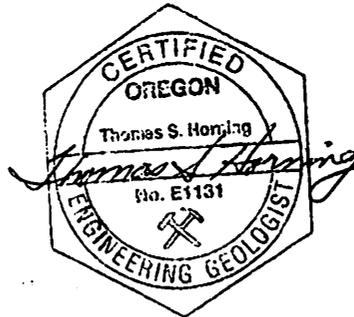
According to Appendix B (Seismic Ground Motion hazard Study) of the Draft Seismic Design Guidelines for LNG Facilities (Federal Energy Regulatory Commission, January 23, 2007), "Identified faults, any part of which is within 5 miles of the site, should be investigated in sufficient detail... that demonstrate the age of the most recent movement on each." In addition, "if it is determined that there is a potential for fault rupture and the [facility] structure is to be located either within 500 ft of a known fault..., the seismic fault rupture analysis should be performed." The fault has not been identified and the analysis has not been done.

The Columbia River Fault is shown having left-lateral strike-slip displacement (Wells and others, 2009). Similar faults on the southeast side of Astoria exhibit up to 2500 ft of possible strike-slip displacement, or perhaps several hundred feet of dip-slip displacement (Niem and Niem, 1985). The Columbia River Fault is most likely the geologic structure that has allowed rocks on the north side of the Columbia River to have been lifted up by nearly 3000 ft, as compared to the south side of the Columbia. Given that the fault appears to have also folded relatively youthful Miocene-age Astoria Formation strata back to the east, the structure can be identified as a tear fault with perhaps 1 to 2 miles of strike-slip displacement. The rotational systematic of Coast Range deformation suggests that this fault is still active and most likely presently dominated by left-lateral strike-slip movement. The fault has been identified by gravity and magnetic anomalies (Alan Niem, PhD; personal communication), and it is entirely obscured by young valley and estuary alluvium. Young sediments in Cathlamet Bay exhibit convolute ball & pillow structures that may indicate fault activity on the faults southeast of Astoria (Ryan and Stevenson, 1995).

As presented, the geologic hazard assessment and FERC application for the LNG facility should be regarded as incomplete. Proper evaluation of the fault needs to be done to address the nature of the seismic hazard. It should include a ship-board seismic survey from Warrenton to Altoona, WA, to delineate the location of the fault, whether or not it displaces Quaternary sediments of the lower valley, and whether bedrock in the 18,000-year-old bottom of the Columbia River canyon has been offset by fault movement. Specific procedures and goals are spelled out by FERC instructions.

Please feel free to call if you have questions.

Thomas S. Horning, CEG #1131  
Horning Geosciences



Expires: 6/30/16

References Cited:

FERC (2007), Draft Seismic Design Guidelines and Date Submittal Requirements for LNG Facilities; Federal Energy Regulatory Commission, Office of Energy Projects, Washington, DC; January 23, 2007

Horning Geosciences, 2010, Update of: Accuracy and Completeness Peer Review of Geologic Hazard/Geotechnical Report- Geologic Hazards Along the Proposed Route of the Oregon Pipeline in Clatsop County; dated October 2009, by CH2M Hill, Inc., for Oregon Pipeline Company

Niem, A. R., and Niem, W. A., 1985, Oil and Gas Investigation of the Astoria Basin, Clatsop and Northernmost Tillamook Counties, Northwest Oregon: OGI-14, State of Oregon, Department of Geology and Mineral Industries.

Ryan, H.F., and Stevenson, A.J., 1995, Cruise Report for C1-94-OW: Reconnaissance High Resolution Geopulse Data Acquired for Seismic Hazard Studies along the Columbia River from July 18-22, 1994; U.S Department of the Interior, USGS Open-File Report 95-668.

United States Geological Survey (USGS). 2006. Quaternary Fault and Fold Database for the United States; USGS Web site:

Wells, R.E., Niem, A.R., Evarts, R.C., and Hagstrum, J.T., 2009, The Columbia River Basalt Group- From the gorge to the sea; in O'Connor, J.E., Dorsey, R.J., and Madin, I.P., eds., Volcanoes to Vineyards: Geologic Field Trips through the Dynamic Landscape of the Pacific Northwest: Geological Society of America Field Guide 15, p. 753-790.

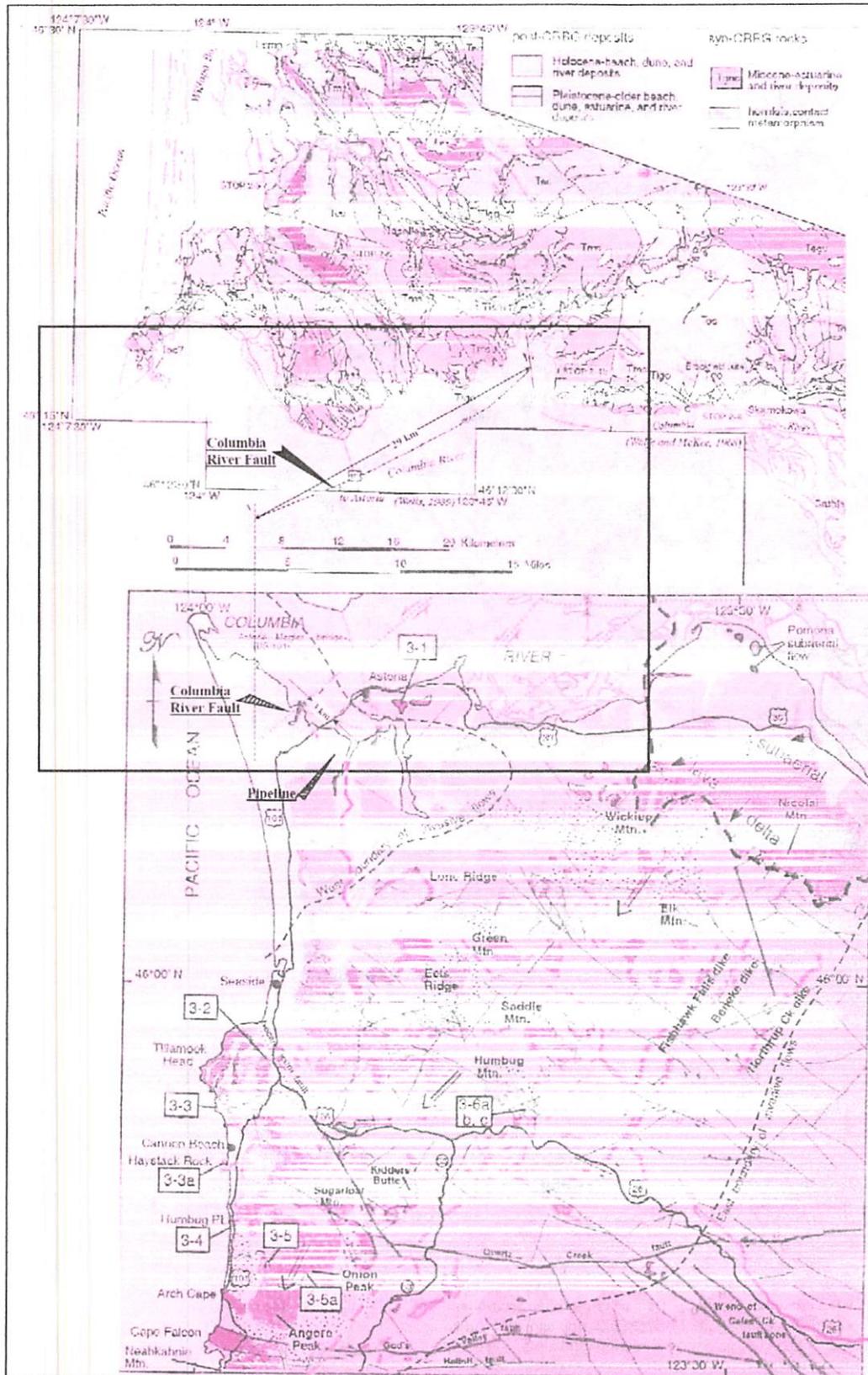


Figure 1: Regional geologic maps for the Washington and Oregon sides of the Columbia River; after Wells and others (2009, pages 766 and 775). The Columbia River Fault is shown on both maps, passing directly under the mouth of the Skipanon River and to the northeast.

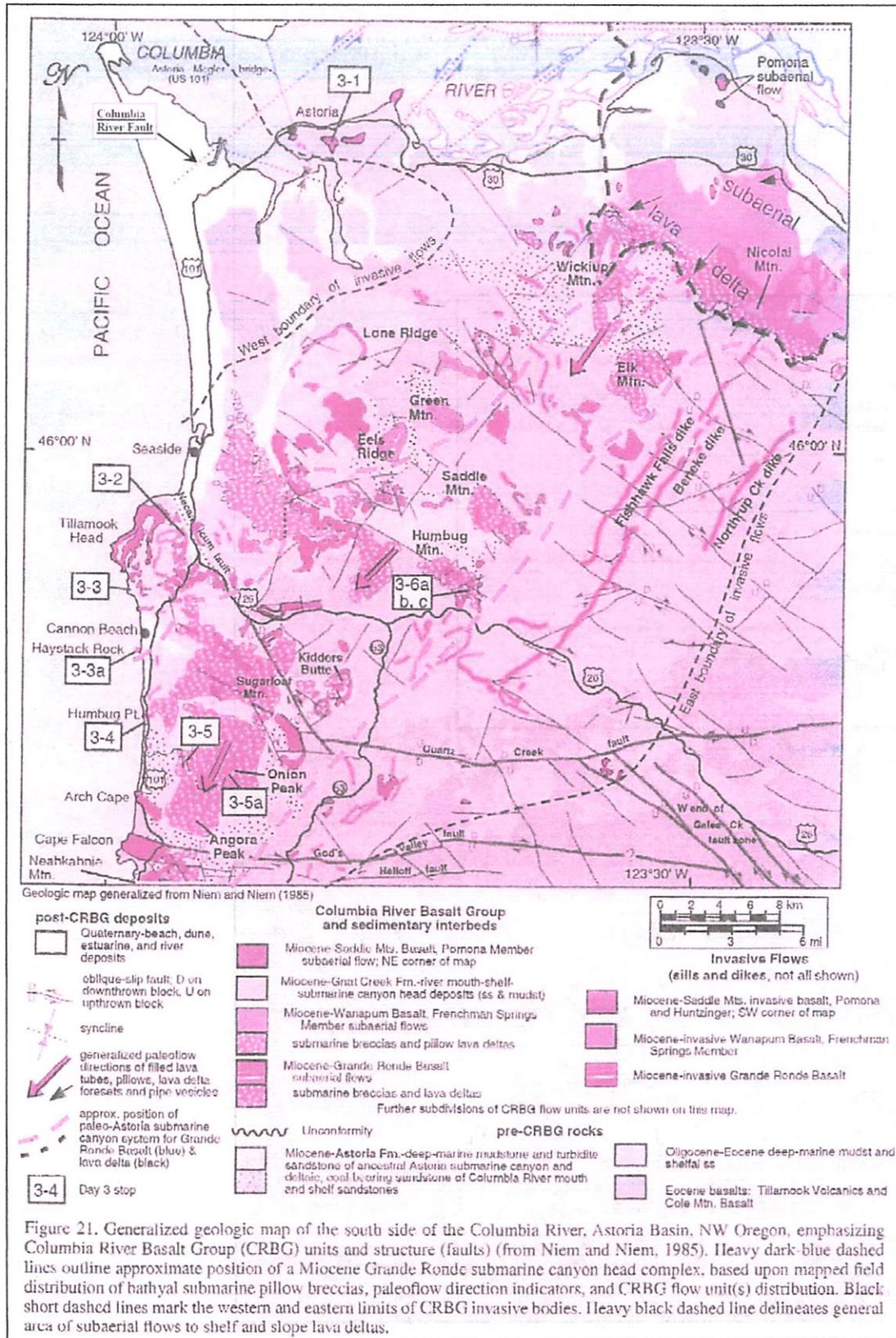


Figure 21. Generalized geologic map of the south side of the Columbia River, Astoria Basin, NW Oregon, emphasizing Columbia River Basalt Group (CRBG) units and structure (faults) (from Niemi and Niemi, 1985). Heavy dark blue dashed lines outline approximate position of a Miocene Grande Ronde submarine canyon head complex, based upon mapped field distribution of bathyal submarine pillow breccias, paleoflow direction indicators, and CRBG flow unit(s) distribution. Black short dashed lines mark the western and eastern limits of CRBG invasive bodies. Heavy black dashed line delineates general area of subaerial flows to shelf and slope lava deltas.

Figure 2: Regional geologic maps for the Washington and Oregon sides of the Columbia River; after Wells and others (2009, page 775). The Columbia River Fault is identified at Warrenton.

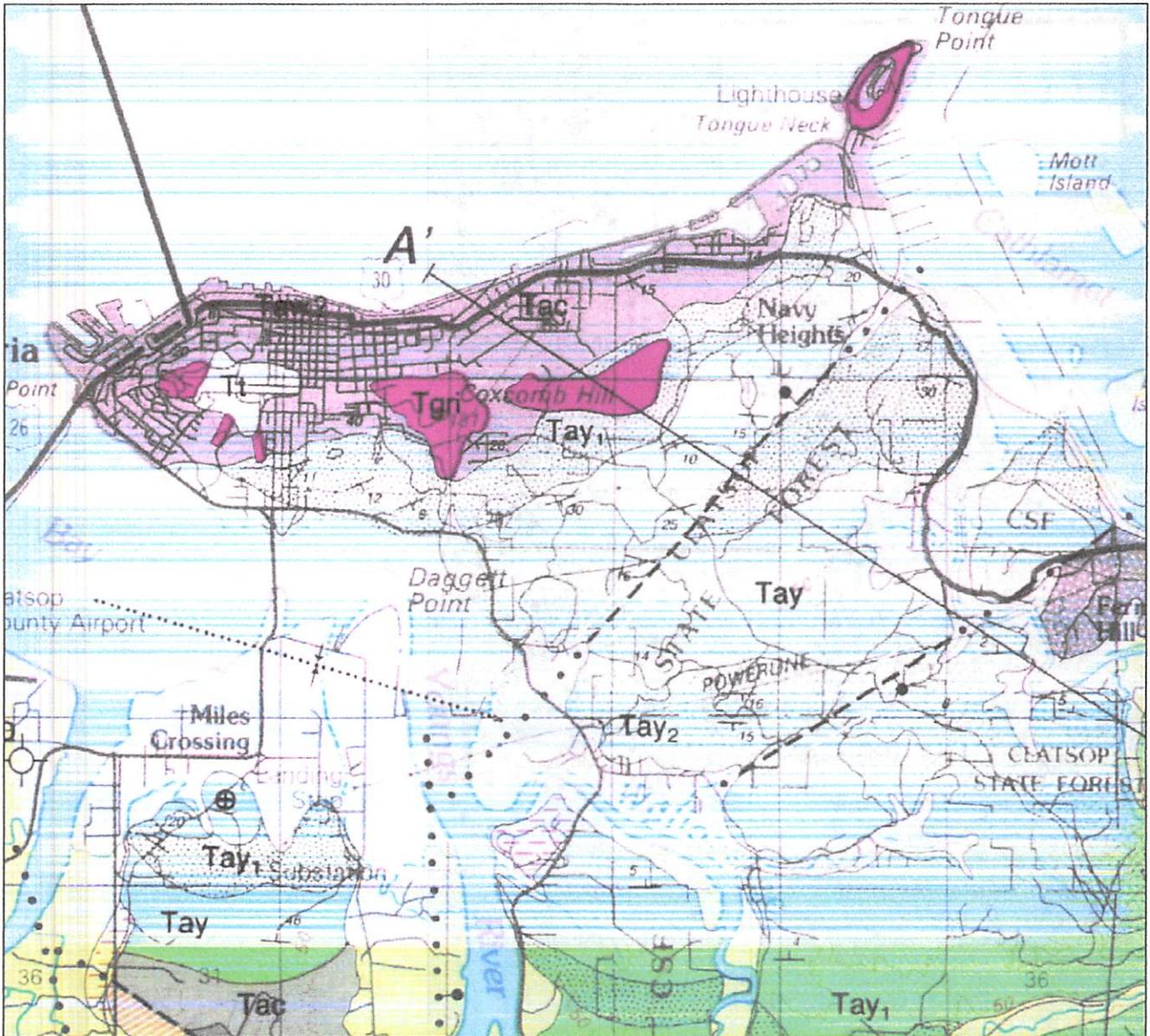


Figure 3: Geologic map for the Astoria area; extracted from Niem and Niem (1985). Yellow arrows annotate strike-slip displacement, as indicated by offset of sandstone units (Tay2). Dark dashed lines indicate inferred faults, dotted indicates that the faults are obscured by valley fill and young alluvium in the Youngs River drainage.

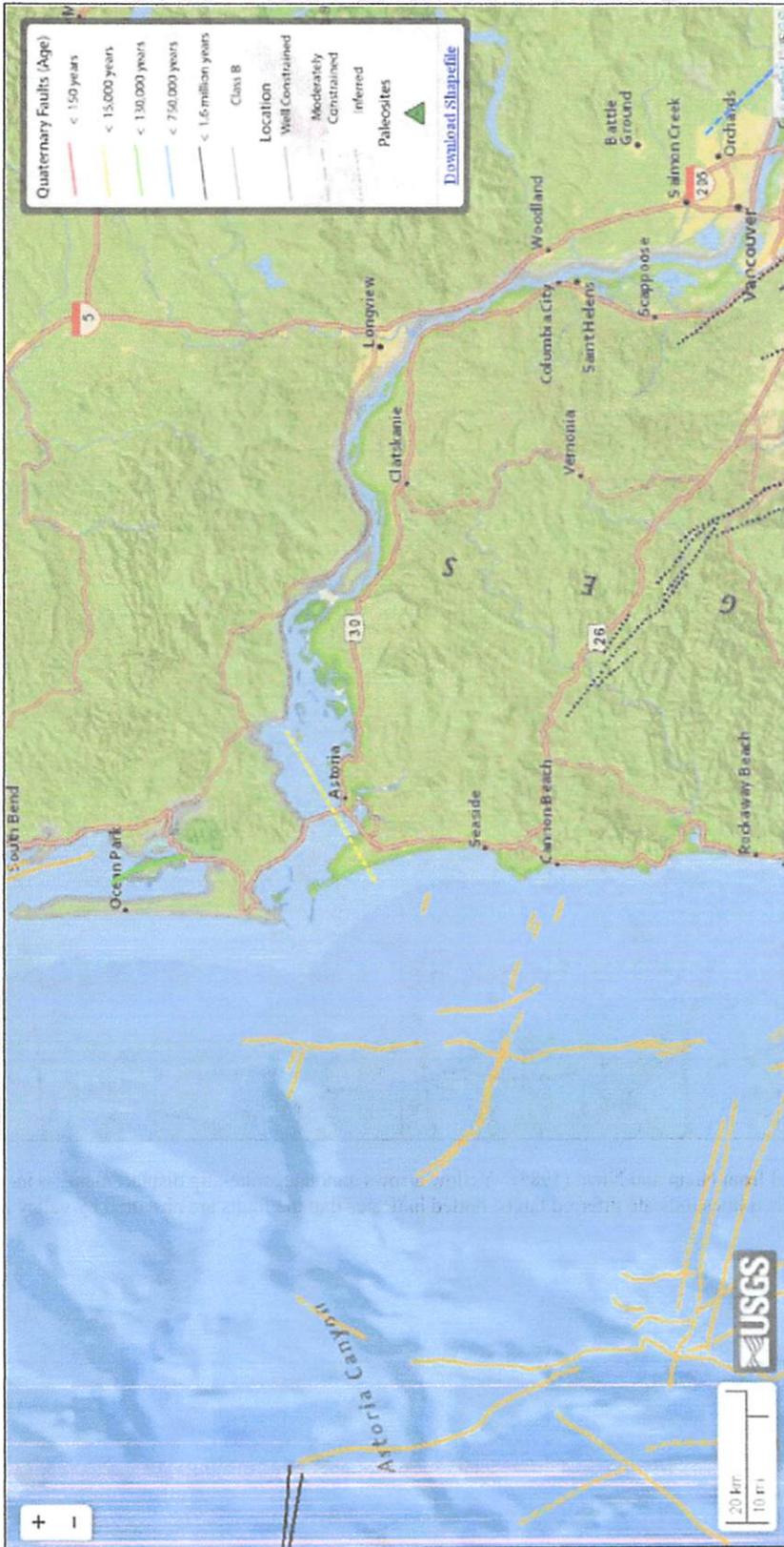


Figure 4: Screen grab from the USGS Quaternary Fault and Fold Database web map, annotated by heavy dotted yellow line to show where the Columbia River Fault should have been located. Note that the faults southeast of Astoria are not shown. The database is still being built.

TO LCDC  
FYI

We know that SIGTTO, the Society of International Gas Tanker and Terminal Operators, has stated in their "LNG Terminals Siting Standards",

- that "there is no acceptable probability for a catastrophic LNG release";
- that "LNG ports must be located where LNG vapors from a spill or release cannot affect civilians (any risk of catastrophic LNG release is unacceptable)";
- that "LNG ports must be located where they do not conflict with other waterway uses — now and into the future" (eg commercial, and sport fisheries, as well as pleasure crafts);
- and that "human error potential always exists, so it must be taken into consideration when selecting and designing an LNG port".

The SIGTTO standard cites the government sponsored Sandia Labs Report on potential risks of LNG transport and terminals: it

- "defines three Hazard Zones surrounding LNG carriers. The largest Zone is 2.2 miles or 3,500 meters around the vessel, indicating that LNG ports must be located at least that distance from civilians.
- Some world-recognized LNG hazard experts, such as Dr. Jerry Havens (have indicated) that **three miles or more** is a more realistic Hazard Zone distance".

**We** know that the largest hazard zone for O LNG's proposal takes in most of the city of Warrenton, including three schools, as well as a good part of the west side of Astoria, including 2 schools, the Young's Bay Bridge, and the Astoria-Megler Bridge to Washington.

## LCDC Meeting testimony

Wednesday, September 23, 2015

### Why DLCD should not delay and wait for further permit decisions before denying Oregon LNG:

1. The Army Corps of Engineers has a valid property right to use the proposed terminal site for dredged material disposal. OLNG has no right to use the property or to make this proposal, yet they continue to push for local, state, and federal permits.
2. Clatsop County denied the pipeline for Oregon LNG by a 5-0 vote - a decision that was recently upheld by LUBA, with no further appeals outstanding. Clatsop County correctly applied enforceable policies of the State's Coastal Zone program. No further permitting decisions by other agencies - local, state or federal - will change the fact that DLCD should respect Clatsop County's 5-0 vote on the project and deny Oregon LNG.
3. The presence of an LNG liquefaction plant in the airshed and viewshed of the historic town of Astoria will destroy the local tourist industry. Astoria is the oldest town west of the Rockies. It is an historic treasure. There are 847 properties including the Downtown Historic District on the National Registry of Historic Places. The historic character of the town, the awesome scenery, the fisheries and other natural resources are the lifeblood of our burgeoning tourist economy. The tourist economy of the north coast will be devastated by despoiling the natural resources and scenic beauty of area. This conflicts with Oregon's Statewide Planning Goal 5: To protect natural resources and conserve scenic and historic areas and open spaces.
4. Oregon LNG (OLNG) plans to build an extremely hazardous facility in very close proximity to a population center on unconsolidated dredge tailings in the subduction earthquake and tsunami zone when geologists are warning us of the high probability of a severe subduction earthquake in the next 30 yrs. This is the most foolhardy of OLNG's presumptions and conflicts with Oregon's Statewide Planning Goal 7: To protect people and property from natural hazards.
5. The OLNG estimated production of over 2.6 million metric tons of green house gases (GHG) per year will not only make it one of the biggest sources in the state but will clearly reduce Oregon's ability to achieve its efforts to meet carbon reduction goals established by the Legislature in 2007. Natural gas is not a clean energy source. Recent studies have clearly shown that the cradle to grave green house gas emissions from the extraction, transport, processing and consumption of natural gas are at least as high as coal. With the evidence of global climate change becoming more and more certain and obvious Oregon, already known for its protection of natural resources should be focusing on alternative energy development and not supporting the extraction of and export of the last drop of our fossil fuels that will only benefit global corporations and investors to the detriment of our local communities and the global environment alike.
6. The FERC Draft EIS identifies many of the risks to our natural resources and community posed by the construction of the OLNG pipeline and export terminal. It fails, however, to respond to those risks effectively. It claims over and over that OLNG will mitigate the drastic impacts of the construction and operation of the terminal and pipeline, but it provides no science or explanation of how the proposed actions will mitigate the impacts. FERC's assurances that the proposed poorly described mitigation measures are adequate are empty promises with no basis in fact or science.

FERC has also omitted essential information from the Draft EIS that must be present in

the document to allow for public review as required by NEPA. Public participation is a requirement and fundamental component of the environmental review process. A draft

For example: "  
Threatened and Endangered Species

We have identified 45 federally listed threatened, endangered, or candidate species occurring or potentially occurring on lands and in waterbodies affected by the Oregon LNG Project and the WEP (11 species overlap both projects). Based on agency input and our analysis of the project, we preliminarily conclude that the Oregon LNG Project would not likely adversely affect 15 species and would likely adversely affect 21 species. The WEP would not likely adversely affect 13 species, likely adversely affect 6 species, and have no effect on 1 species. Many of these species have designated critical habitat (habitats that are considered to be essential for the recovery of the species) that are crossed by the project and one species has proposed critical habitat. ***We are in the process of completing our Biological Assessment, our consultation with FWS and National Marine Fisheries Service (NMFS) is in progress, and our final determination regarding the effects on species is pending.*** Therefore, we are recommending that no ground disturbance occur until we have completed our Section 7 Endangered Species Act consultation with the FWS and NMFS before Oregon LNG and Northwest proceed with construction."

7. SIGTTO, the Society of International Gas Tanker and Terminal Operators, has stated in their "LNG Terminals Siting Standards", that terminals should be sited where:
  - o "there is no acceptable probability for a catastrophic LNG release";
  - o "LNG vapors from a spill or release cannot affect civilians (any risk of catastrophic LNG release is unacceptable)";
  - o " they do not conflict with other waterway uses — now and into the future" (eg commercial, and sport fisheries, as well as pleasure crafts);

LCDC Public Comment, Astoria; Sept. 24, 2015  
Submitted by Laurie Caplan  
766 Lexington Avenue  
Astoria, OR 97103

According to the article shown below, Oregon "...has issued an updated playbook that outlines how state and local officials will react during the first 14 days after a magnitude 9.0 Cascadia subduction zone earthquake." I put some parts of the article in bold.

I am stunned that the playbook apparently makes no mention of the LNG export terminals and pipelines proposed for Warrenton and Coos Bay. This despite the fact that Coos and Clatsop Counties will be among the worst hit. Does anyone seriously believe that a quake, its aftershocks, a tsunami and subsequent waves will leave the terminals and pipelines intact? That there won't be fires and explosions ignited by gas leaking from the broken terminals and broken pipelines in at least three-to-five counties? Even though new "essential structures" aren't allowed in the tsunami zone, it's OK to build 17-story tall natural gas tanks and pipelines there?

Didn't anyone tell the Oregon Office of Emergency Management to include the two terminal proposals in the new playbook? Of course, the reality is no playbook could help the state cope with the damage, destruction, and death caused by siting either of these projects on Oregon's coast.

Yet the state, apparently including Governor Brown and DLCD, seem determined to let both LNG proposals proceed. Hundreds and thousands of Oregonians know these projects are bad, even aside from quake and tsunami predictions. We are baffled by the apparent acceptance of these proposals shown by state agencies and officials. Is there no state agency or official willing to stand up for our safety, our communities, our quality of life, our air and water, our natural world?

What will LCDC and DLCD do to protect our state?

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### **Playbook outlines first 14 days after major quake**

By Hillary Borrud, Capital Bureau

Published: September 23, 2015 7:58AM

[http://www.dailyastorian.com/Local\\_News/20150923/playbook-outlines-first-14-days-after-major-quake](http://www.dailyastorian.com/Local_News/20150923/playbook-outlines-first-14-days-after-major-quake)

The state has issued an updated playbook that outlines how state and local officials will react during the first 14 days after a magnitude 9.0 Cascadia subduction zone earthquake.

SALEM — Oregon is sending updated checklists for the aftermath of a catastrophic earthquake and tsunami to state and local emergency response agencies across the state.

The document, called the Cascadia Playbook, details how state officials should respond in the first 14 days following a magnitude 9.0 Cascadia Subduction Zone earthquake and tsunami off

the West Coast. Actions listed in the plan range from the steps necessary to initiate a federal disaster declaration, to collecting bodies and transporting supplies to survivors in areas where roads were destroyed or clogged with debris.

The playbook provides a single checklist for state officials based on numerous federal, state and local emergency response plans, which will also be carried out during the earthquake and tsunami.

“During an emergency or disaster, you have a lot of different things coming from a lot of different directions and it’s easy to be overcome by the scope,” said Andrew Phelps, director of the Oregon Office of Emergency Management and Oregon Military Department. “So this really helps the policymakers or decisionmakers at state government to remain focused on what they need to.”

Gov. Kate Brown and other state officials held an event to publicize the latest version of the playbook last week, and Grogan said the state is sending the document to public agencies across Oregon.

The Cascadia Subduction Zone runs off the West Coast, from Vancouver, British Columbia, down to northern California.

Researchers at Oregon State University have found the Pacific Northwest is overdue for a catastrophic earthquake and tsunami. In 2012, those researchers published a study that found there were 19 earthquakes from 8.7 to 9.2 along the zone over the last 10,000 years. During the same time frame, there were 22 earthquakes that might have been closer to magnitude 8.0.

The state began working on the playbook in 2013, and published the first version in 2014, said Cory Grogan, a public information officer for the Oregon Office of Emergency Management. The latest version is the product of workshops with a range of emergency responders which concluded this spring, and the state plans to continue refining the plan in future years.

The 100-page document contains 27 pages of emergency contact numbers for employees at state and local governments, plus utility companies and other private organizations. The state will issue updated versions on an annual basis.

Although Oregon developed the playbook for a Cascadia Subduction Zone earthquake, the state could also use it to guide responses to other disasters such as smaller inland crustal fault earthquakes or oil spills, Grogan said. **For planning purposes, the Oregon Military Department and Office of Emergency Management based the Cascadia Playbook on a magnitude 9.0 earthquake that could cause up to five minutes of severe ground shaking, a tsunami, landslides and soil liquefaction. The earthquake and ensuing events could kill as many as 25,000 people, destroy tens of thousands of structures and leave tens of thousands of people without shelter, according to the document.**

**The situation will be worst in Oregon’s coastal counties: Clatsop, Tillamook, Lincoln, Douglas, Curry and Coos. People who live on the coast will have as little as 15 minutes warning before a tsunami.**

Within minutes of the earthquake, the playbook calls for emergency management staff to notify

Oregon's adjutant general, who oversees the Oregon National Guard and Office of Emergency Management. After the adjutant general informs the governor, the governor will notify the president or secretary of the Department of Homeland Security. Other state officials will get in touch with federal agencies, and Oregon will begin the process to declare a statewide disaster to begin the process of mobilizing health care and other emergency services.

Ideally within two hours, the governor — or secretary of state or state treasurer, if the governor is not available — is supposed to decide whether the damage is severe enough to ask the president to declare a major disaster and mobilize help from the federal government.

“We know that if a Cascadia earthquake and tsunami happens, it's going to be an automatic federal disaster declaration,” Grogan said.

The playbook calls for the mobilization of first responders starting within minutes of the earthquake to evacuate people from the worst hit areas. The state will coordinate an aerial assessment of shelters and supply staging areas, identify “lifeline roadways, bridges and tunnels and facilitate debris removal” and work on getting supplies and emergency personnel to earthquake and tsunami-damaged areas.

State officials will also work to set up communications systems so that emergency responders can talk to cities, counties, tribal governments and utility companies. The state and local public works employees will try to restore public services — such as potable water and sewer — where possible to serve survivors.

The playbook checklist also includes a topic state emergency officials wish they did not have to plan for, but which they know from experience they must include in the response: handling bodies of people who died in the earthquake or tsunami, landslide or other events that followed.

“It's hard for us to think about,” Grogan said. “But it's extremely important to deal with it ... We know with Cascadia that's going to be an issue, so it's important to deal with it in advance.”

Grogan said emergency officials saw what could go wrong during the aftermath of Hurricane Katrina. Bodies laid in the streets for a week, as state and federal agencies disagreed over who was responsible for recovering the victims.

The playbook also lists actions the state will take to set up facilities to care for livestock and pets following the disaster, and reunite the animals with the owners.

It could take 24 hours to a week for Oregon to begin receiving help from outside the state, including from agencies such as the Federal Emergency Management Agency, U.S. Department of Transportation and U.S. Army Corps of Engineers, according to the playbook. The Department of State will even get involved, to manage offers of assistance from foreign countries and international humanitarian organizations.

State officials hope they will be able to begin recovery work — initial steps to restore basic community services such as law enforcement, health care and schools — within eight days, although part of the work consists of identifying long-term recovery needs such as rebuilding systems to provide potable water and telecommunications.

Although the playbook focuses on how the state will respond to a Cascadia Subduction Zone earthquake, state officials said there are also actions that individuals, communities and the state can take to increase their chances of surviving the major quake.

“It’s still really important for individuals to have a plan and be prepared, as well, to empower themselves during a disaster,” Grogan said.

Individuals and families should build earthquake kits with enough food, water and other supplies to last two weeks. Grogan said Cannon Beach took an innovative approach by creating a cache on high ground outside the tsunami zone where people can store their emergency kits.

The state is also holding The Great Oregon ShakeOut at 10:15 a.m. on Oct. 15, to raise awareness and encourage people to plan for earthquakes. During the drill, people are supposed to drop to the ground, take cover under a sturdy desk or table, and hold onto it.

**Other state agencies are working on projects that could change make earthquake and tsunami planning a larger factor in the way coastal communities plan for future development.**

Ali Ryan Hansen, earth science information officer for the Oregon Department of Geology and Mineral Industries, said the agency is in the process of updating its tsunami inundation line to more accurately reflect areas that will likely be submerged under a giant wave.

**Oregon does not allow construction of new “essential structures” such as schools, hospitals and police stations on the seaward side of the tsunami line, and Ryan Hansen said the agency plans to hold public meetings on the new proposed line in March. A state board could vote to adopt the new line in summer 2016.**

**The redrawn line would mean an additional 30 to 40 percent of land in coastal cities would be off-limits for new “essential structures.”**

Officials at the geology agency and Oregon Department of Land Conservation and Development are also waiting to hear whether the National Oceanic and Atmospheric Administration will award Oregon a \$600,000 grant to improve mapping and time estimates for tsunami evacuation routes. The state would also provide the tools for cities and counties along the coast to use in land use planning decisions.

“The focus really is on more comprehensive planning and development of code at those local levels to increase resilience and reduce risk,” Ryan Hansen said. “It’s really about bringing these tools to the communities, and then providing the support they need to make these decisions.”