

S.J.C. DEPARTMENT OF
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COMMUNITY DEVELOPMENT

InterIsland Propane Proposal at 27 Aeroview

File # PCUP 00-12-0018

San Juan County Hearings Examiner Comments

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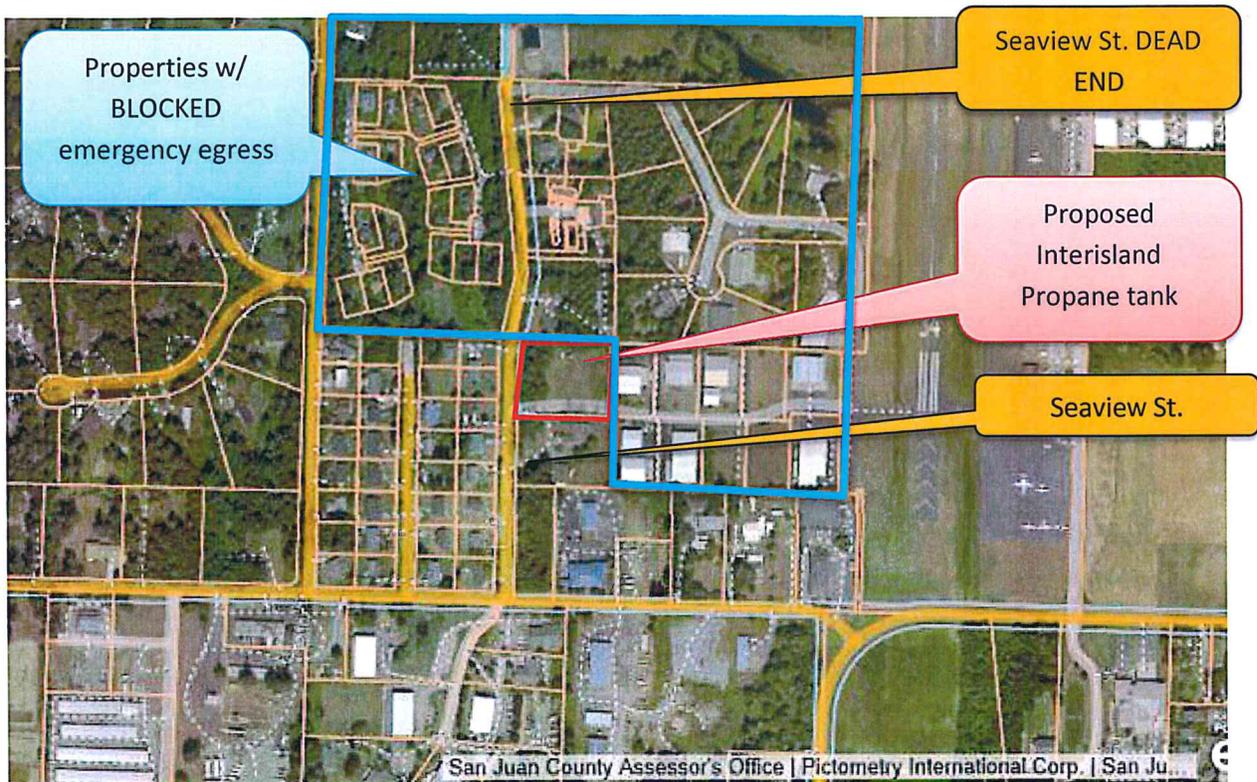
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Interisland Propane Egress Concerns

The proposed development of a 30,000 gal propane tank on the NE corner of Seaview and Aeroview (TPN 271158011000) creates a problematic egress concern.

Seaview is a dead-end street. An incident on this property would cut off Seaview Residents north of this development from their only way out of the neighborhood. A propane leak at a previous facility in this neighborhood did require evacuation.

An incident at the location of the new proposed Interisland propane tank would “cut off” residents from the only public road in the neighborhood.



The list of properties that the egress concerns impacts includes 14 single family homes, 14 apartment units, 1 Duplex, 10 airplane hangers, and 3 commercial structure. There are known mobility impaired residents living in these homes that would be dependent on a vehicle for evacuation.

CODE CITATIONS:

18.80.100 D#3 “The proposed use will not cause significant adverse impacts on the human or natural environment that can not be mitigated by conditions of approval.”

The County has failed to consider emergency egress of residents in this area in the case of a propane leak at this site. There needs to be an alternative roadway that could be used to support the safe evacuation of ALL SEAVIEW RESIDENTS in case of an emergency.

Interisland Propane Fire Flow Concerns

For a commercial development San Juan County code requires 500 gal per minute for flow for a period of 60 minutes. Eastsound Water, the area water purveyor, has received no request from either the Fire Marshal or Island Petroleum to verify if the water system can meet this standard.

Further the Fire Marshall's requirement for 500 gpm at this location does not consider the higher industry standards associated with bulk fuel storage. This higher standard is VITAL to preventing a tank explosion due the BELVE. (boiling liquid expanding vapor explosion)

This chart is from Orcas Fire Chief Scott Williams. It documents the firefighting capacity required for Propane tanks in order to prevent BLEVE. The fire flow requirement is 935 gal/mo.

WARNING: The data given are approximate and should only be used with extreme caution. These times can vary from situation to situation. LPG tanks have been known to BLEVE within minutes. Therefore, never risk life based on these times.													
BLEVE (USE WITH CAUTION)													
Capacity	Diameter	Length	Propane Mass	Minimum time to failure for severe torch	Approximate time to empty for engulfing fire	Fireball radius	Emergency response distance	Minimum evacuation distance	Preferred evacuation distance	Cooling water flow rate			
Litres (Gallons)	Meters (Feet)	Meters (Feet)	Kilograms (Pounds)	Minutes	Minutes	Meters (Feet)	Meters (Feet)	Meters (Feet)	Meters (Feet)	Litres/min	USgal/min		
100 (25.4)	0.3 (1)	1.5 (4.9)	40 (88)	4	8	10 (33)	90 (295)	154 (505)	307 (1007)	94.6	25		
400 (105)	0.61 (2)	1.5 (4.9)	160 (353)	4	12	16 (53)	90 (295)	244 (801)	488 (1601)	189.3	50		
2000 (528)	0.96 (3.2)	3 (9.8)	800 (1764)	5	18	28 (92)	111 (364)	417 (1368)	834 (2736)	424	112		
4000 (1057)	1 (3.3)	4.9 (16.1)	1600 (3527)	5	20	35 (115)	140 (459)	525 (1722)	1050 (3445)	598	158		
8000 (2113)	1.25 (4.1)	6.5 (21.3)	3200 (7055)	6	22	44 (144)	176 (577)	661 (2169)	1323 (4341)	848	224		
22000 (5812)	2.1 (6.9)	6.7 (22)	8800 (19400)	7	28	62 (203)	247 (810)	926 (3038)	1852 (6076)	1404	371		
42000 (11095)	2.1 (6.9)	11.8 (38.7)	16800 (37037)	7	32	77 (253)	306 (1004)	1149 (3770)	2200 (7216)	1938	512		
82000 (21662)	2.75 (9)	13.7 (45)	32800 (72310)	8	40	96 (315)	353 (1257)	1435 (4708)	2200 (7216)	2710	716		
140000 (36984)	3.3 (10.8)	17.2 (56.4)	56000 (123457)	9	45	114 (374)	457 (1499)	1715 (5627)	2200 (7216)	3539	935		

Eastsound Water closest fire hydrant hydraulically modelled to be capable of 500 gpm. Withdrawal of more than 500 gpm will create a health risk in the water system due to substandard water pressure in the water main. The Fire Marshal is recommending a new fire hydrant be installed for this property. The location of this new hydrant has not been studied for its flow capacity, and because the proposed location is 50" higher in elevation from the nearest existing hydrant and more dependent on a 4" water main vs. a 6" water main it is unlikely that EWUA can provide 500 gpm at this location without upsizing water mains.

The fire marshall has also requested a “fire suppression system” (Staff report page 16) would place an additional load on the water system that is unspecified and beyond the capacity the existing water system infrastructure.

The Orcas Fire Chief (Scott Williams) and Batallion Chief Chad Kimple recently asked Eastsound Water it upgrade the water system serving an existing propane facility in the area to be able to provide 1000 gal per minute. Why is there a lower standard being sought for in InterIsland Propane Facility vs. the existing San Juan Propane facility?

Furthermore, due to the BLEVE risk associated with a propane facility fire flow requirements should consider both the cooling needs of the propane facility AND the simultaneous needs of a fighting a fire at an adjacent property that could be creating the heat source that could overheat the tank.

CODE CITATION: San Juan County Code 18.80.100 D5 The proposal will be served by adequate facilities including FIRE PROTECTION, WATER These capacities have not been verified and may not be available. The applicant or County should provide evidence that the required firefighting capacity is available prior to permit approval.

The American Propane Institutes Standard API 2510 requires that fire protection be based on a safety analysis. (requirement quoted from standards manual). No such safety analysis has been done.

10 Fire Protection

10.1 GENERAL

Fire protection provisions shall be based on a safety analysis of local conditions, exposure from or to other sites, availability of a water supply, and effectiveness of fire brigades and fire departments. The analysis shall include possible but realistic accident scenarios that may occur, including scenarios of vapor release, ignition, and fire. For additional information, background, and guidance, see API Publ 25 IOA.

InterIsland Propane Evacuation Plan

The previous table provided by Fire Chief Williams lists the minimum evacuation distance as being 5627 feet. This would cover the entire Eastsound Urban Growth Area as shown in the below map



Fire Chief Williams was asked in a public meeting hosted by InterIsland Petroleum on Wed July 5 if his department could manage an evacuation of this scale. He said the Department's duty roster included 2 full time fire-fighters on duty, and then a team of volunteers. He specifically said that with existing resources he could not manage this scale of evacuation. Where would the population of the town be evacuated to?

Furthermore Chief Williams stated that his department had not training in responding to a propane facility fire. He said they would be dependent on off island assistance.

When the VanderYacht propane tank experienced a leak in 2015, one of the first responses was closure of the airport. How would off island assistance arrive on Orcas in a timely fashion if the airport is closed?

RECOMMENDATION: Delay development of this facility until a viable evacuation plan has been developed and adopted by Orcas Fire and Rescue.

Eastsound Planning and Review Committee Application Review

The County's staff report includes comments from the Eastsound Planning and Review Committee. However the County did not complete due diligence in seeking EPRC review of this application. The EPRC did discuss the InterIsland Propane tank proposal at its June meeting. The topic was raised by a citizen. The County did not request EPRC consideration, and did not provide EPRC any information about the proposed development. The standard practice is to provide EPRC copies of the permitting materials.

At the July meeting of EPRC the topic was again not on the agenda, and the topic was only brought up by citizens.

EPRC should have been provided both the permit application and the staff report prior to these meetings in order to properly vet the project.

Airport Incompatibility

Code Citation - San Juan County Code 18.80.100 Conditional Use Permits D#9 states "The proposal does not include any use or activity that would result in the siting of incompatible use adjacent to an airport"

The San Juan County staff report referenced a prior propane tank leak (VanderYacht Propane, 2015) that resulted in the closure of the Orcas Airport.

The adjacent airport hangars also represent an incompatible use. Each has the potential to be an ignition source for any propane leak.

Key Concerns –

- The site of the proposed development does not provide emergency egress for over 40 parcels.
- The local water system does not have adequate fire flow capacity to serve the demand required to prevent from exploding due to overheating.
- No safety analysis was completed to comply with American Petroleum Institute Design Standards 2510
- To scope of a potential evacuation plan is beyond the capacity of local resources.
- Eastsound Planning and Review Committee was not provided adequate materials to properly review the application.
- The proposed development is incompatible with the functions of the adjacent Orcas Airport.
- The proposed development is incompatible with International Zoning Code definition of Conditional Use.
- The proposed development does not adequately consider American Petroleum Institute API 2510 Design and Construction of LPG Standards for siting such facilities.
- Seaview Street is inadequate to accommodate the truck sized associated with this development.

Each of these concerns is detailed on a separate page, with specific code citations where possible.

American Petroleum Institute API 2510 Design and Construction of LPG (liquid Propane Gas) Installations.

API Standards manual has specific Siting Requirements and Spill Containment (Copy below)

5 Siting Requirements and Spill Containment

5.1 SITING

5.1.1 General

5.1.1.1 Site selection is meant to minimize the potential risk to adjacent property presented by the storage facility and the risk presented to the storage facility by a fire or explosion on adjacent property. The following factors shall be considered in site selection:

- a. Proximity to populated areas.
- b. Proximity to public ways.
- c. Risk from adjacent facilities.
- d. Storage quantities.
- e. Present and predicted development of adjacent properties.
- f. Topography of the site, including elevation and slope.
- g. Access for emergency response.
- h. Availability of needed utilities.
- i. Requirements for the receipt and shipment of products.

This Seaview Site proposed for the Interisland Petroleum facility is inappropriate for the following reasons.

A and E The site is surrounded on 3 sides by dense residential development. There are XX living units within the 374' fireball radius associated with a tank of this size.

C The existing airplane hangers immediately east of the Interisland Petroleum site contain potential risks, include airplane fuel storage and welding materials. The hanger home at 71 Aeroview is used for a commercial welding business, and is a potential ignition source for

any propane fumes migrating downhill from the propane tank.

F. The topography of the site is problematic. Leaking propane gas will travel downhill onto the Port of Orcas Property. A previous propane spill on Seaview St. led to the closure of the Port of Orcas airport.

H. The existing water system cannot currently provide more than 500 gal per minute of fire flow capacity. This is inadequate for preventing BLEVE. The fire flow demand required to safeguard the neighborhood has not yet been determined by the Fire Chief.

San Juan County Staff Report Concerns

“ SJCC 18.40.420 Tank farm facilities.

The following standards apply to all tank farm facilities:

A. Water supplies and sewage disposal facilities adequate to serve the proposed use shall be provided. Occupancy shall not be permitted before water supplies and sewage disposal facilities are approved and installed.

Since the applicant does not plan for any buildings, water and sewage disposal are not proposed.”

This staff assessment is in conflict with fire marshal recommendations that the facility have a fire suppression system. A fire suppression system is WATER DEPENDENT.

*The Values
are closed
after transfer*

Conditional Use Definition

The International Zoning Code defines a conditional use as follows.

COMPREHENSIVE PLAN. The declaration of purposes, policies and programs for the development of the jurisdiction.

CONDITIONAL USE. A use that would become harmonious or compatible with neighboring uses through the application and maintenance of qualifying conditions.

CONDOMINIUM. A single-dwelling unit in a multiunit dwelling or structure, that is separately owned and may be combined with an undivided interest in the common areas and facilities of the property.

The Interisland Propane permit application should be denied on the basis that the County has not established adequate qualifying conditions to insure that the facility would be "*harmonious or compatible with neighboring uses*"

In what way is a facility with the potential to create a fireball with a radius of over 300' "compatible with an adjacent residential neighborhood?"

The American Petroleum Institute 2510 Design Standards and Construction of LPG Installations API Standards manual states that there is a risk associated with these facilities

"A more likely LPG incident, and in the context of this publication a more relevant one, is leakage from piping or other Components attached to or near the vessel followed by ignition, a flash fire or vapor cloud explosion, and a continuing pool fire and pressure (torch) fire."

Adequacy of Seaview St for Propane Truck Traffic

Seaview St. was developed to serve a historically residential neighborhood. The paved surface is only 18' wide. This road width is inadequate to facilitate safe travel of both pedestrian and local cars and the truck traffic associated with moving large volumes of propane.

A propane delivery truck used to deliver propane to residential customers is 8' wide outside wheel to wheel. They are over 8' wide mirror to mirror.

Trucks this wide do not fit well on an 18' wide roadway. Mt. Baker Rd, which is the "feeder road" onto Seaview is 22' wide.

The San Juan County permit examination did not contain a review of the adequacy of Seaview St. to accommodate the size of vehicles that are associated with this development.

Seaview St. has no accommodation for pedestrians besides the road surface. There are no sidewalks or pedestrian paths. Local children walk Seaview to access the school bus pick-up on the corner of Seaview and Mt. Baker Rd.

San Juan County should be required to have Public Works assess the adequacy of Seaview Street for the proposed vehicle size and loads.

The Staff Report also did not stipulate the "streetscape" requirements for new development in the Eastsound Urban Growth Area. The Eastsound streetscape requirements include curb, gutter, and sidewalks on the perimeter of all new commercial development.

If the function of Seaview Street is to be expanded to handle service light industrial truck traffic, accommodations for pedestrian paths/sidewalks should be required.