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June 22, 2006

ORIGINAL

Via Hand Delivery

Ms. Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

FILED
OFFICE OF THE
SECRETARY
2006 JUN 22 12:37 PM
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**Re: Project No. 12698 - Guemes Channel Tidal Energy Project
Application of the Snohomish County PUD for Preliminary Permit**

Dear Secretary Salas:

Following a conversation with Commission staff, Snohomish PUD wishes to modify the filing of a preliminary permit application for the proposed Guemes Channel Tidal Energy Project, submitted to the Commission on June 19, 2006 (P-12698). Snohomish PUD wishes to replace Section 4 of Exhibit 1 of that document with the information contained in the attached document, to provide additional detail about the proposed resource and Snohomish PUD's estimates of the turbine installation prospects.

Should you have any questions or concerns, please contact me at (425) 783-8250.

Very truly yours,

Jeffrey R. Kallstrom
Senior Counsel

Enclosure: Modified Section 4 of Exhibit 1

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 Snohomish County PUD's
 Guemes Channel Tidal Energy Project
 June 21, 2006

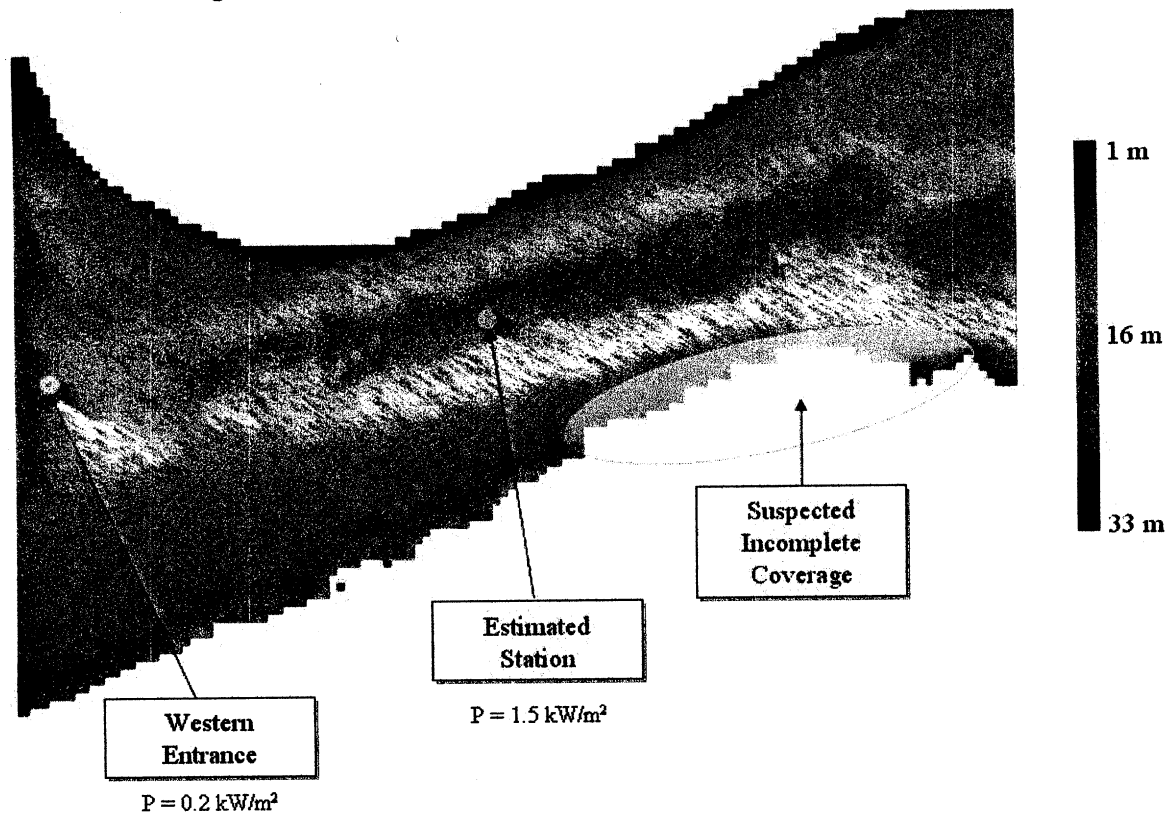
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4. Total estimated average annual energy production and installed capacity, the hydraulic head for estimating capacity and energy output, and the estimated number, rated capacity, and, where applicable, the age and condition, of any turbines and generators, whether existing or proposed, that would be part of the project works

Any tidal energy turbines and generators installed as part of Snohomish PUD's proposed Guemes Channel Tidal Energy Project will be new units. Total annual energy production cannot be estimated prior to completion of the evaluation since device ratings are driven by economic considerations.

NOAA (National Oceanic and Atmospheric Administration) has a single current reference station at the western end of Guemes Channel (Western Entrance, Figure 1). Currents at this station are quite weak and the corresponding power flux is anemic. Bathymetric data and the location of the current station are given in Figure 1 on the following page. The channel has a region of potentially incomplete bathymetric data noted by the large shaded region on the southeastern shoreline.

Figure 1 – Bathymetry and Current Stations in Guemes Channel



Since the cross-sectional area of the channel decreases substantially from the current station at the western entrance to the nominal channel width, an estimate of the power density within the channel has been made by applying conservation of mass. The

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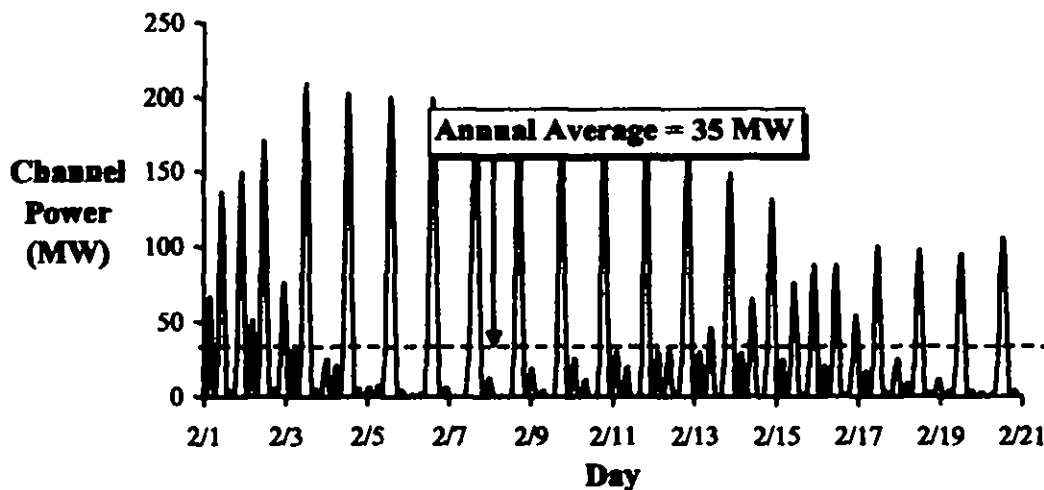
cross-sectional area decreases by nearly a factor of two – yielding a comparable increase in current strength. Summary data for the two stations is given in Table 1.

Table 1 – Guemes Channel Characteristics

Site	Western Entrance	Estimated Station
Channel Width (m)	2340	1140
Average Depth (MLLW reference)	12	14
Deepest Point (m)	18	24
Average Cross-sectional Area (m ²)	30,800	17,800
Maximum Surface Current (m/s)	2.0	3.5
Tidal Energy Statistics		
Depth Averaged Power Density (kW/m ²)	0.2	1.5
Average Power Available (MW)		34.9
Average Power Extractable (MW)		5.2
# Homes equivalent (1.3 kW/home)		3600

A representative plot of channel power over a tidal cycle is given in Figure 2.

Figure 2 – Tidal Cycle Channel Power Variation in Guemes Channel (2006)

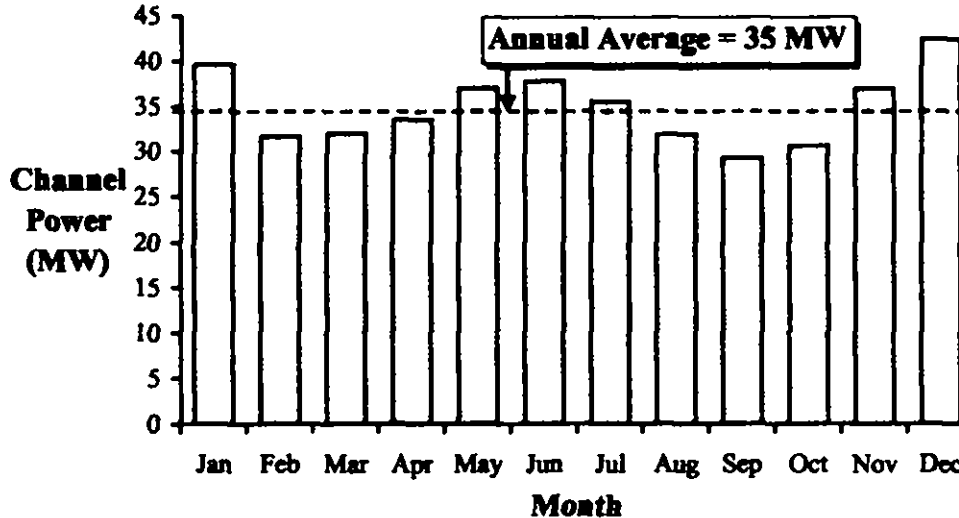


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Monthly averaged channel power is shown in Figure 3.

Figure 3 – Monthly Average Channel Power in Guemes Channel (2006)



Turbine Installation Prospects

Guemes Channel is used by oil tanker traffic accessing refineries at March Point. Since the channel is relatively shallow, if tanker draft is taken into account there would be no space left to accommodate even a small tidal turbine. However, assuming that tanker traffic would be restricted to the deepest center channel, turbines might be able to be installed in shallower waters on either side.

For the purposes of a preliminary assessment, the following turbine parameters have been assumed:

- Horizontal axis turbine with 10m diameter rotor;
- One radius (5m) lateral spacing between units to prevent flow blockage;
- Ten diameters (100m) downstream spacing to allow turbine wake to dissipate;
- Seabed clearance of 3m to keep turbine rotors outside the less energetic boundary layer;
- Overhead clearance of 4m at LAT (lowest astronomical tide) to allow clearance for pleasure craft and fishing vessels; and
- Central channel width of 240m restricted to oil tanker traffic (largest tanker in the world is 70m wide).

Note that these specifications are preliminary and are subject to change due to device selection and detailed engineering design. Particularly, the channel restriction for tanker traffic could be wider or narrower than suggested here.

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With these specifications, approximately one hundred and sixty-six (166) turbines could be sited at the edges of Guemes Channel. Preliminary turbine performance is summarized in Table 2.

Table 2 – Guemes Channel Turbine Performance

Infrastructure	
Number of turbines	166
Number of transects (rows)	10
Turbines per row	14-18
Average installation depth	29 m
Turbine Performance	
Capacity Factor	30%
Average Extracted Power	21 kW
Average Electric Power ¹	20 kW
Rated Electric Power	66 kW
Array Performance	
Average Extracted Power	3.5 MW
Average Electric Power	3.3 MW
Rated Electric Power	10.9 MW
Annual Energy Generated ²	28,500 MWh

¹Electric power further reduced by power take-off efficiency (e.g. generator, gearbox, power conditioning)
²Assuming 2% transmission losses and 95% array availability

Given the restrictions posed by tanker traffic, it may not be possible to install a sufficient number of turbines to reach environmental extraction limits. Regardless of the type, size, and number of turbines installed, the environmentally extractable limit of 5.2 MW can not be exceeded. Depending on the results of a detailed site survey it may be possible to site additional turbine transects further upstream and downstream in the channel than has been considered in this preliminary analysis.

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing filing in accordance with Rule 2010 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission.

Dated at Everett, Washington, this 22nd day of June, 2006.

/s/ Ray Finnen
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