

$\textbf{ZEQUANOX}^{\text{\tiny{TM}}}$

A NATURAL CONTROL FOR ZEBRA AND QUAGGA MUSSELS SITE VALIDATION FORM - DESIGN CRITERIA

Company:	US Army Corps of Engineers		Date:	6/23/2011	
Contact Name:	Paul S. Keller		e-mail address:	kellerpaul@usace.army.mil	
Phone Number:	541.298.7509				
Project / Site Name:			The Dalles Lo	ock and Dam	
Site Location:			The Dalles, Oregon 97058 C/O Fisheries		
Name of Water Body (Lake or River):			The Columbia River		
Plant / Facility Information					
Market:	Power / Energy		select		
Facility Type:	Power-Hydro-	electric	select		
Water System Operations					
System Type:	Cooling water		Current Treatment	None select	
# of intake lines:	select	Tr	eated Flow or volume:	700 gpm or gal	
Treated Flow rate / intake point: 700 gpm Depth of intake: el. 56 ft. ft. or M					
Type of Treatment desired: All S		Stages	select	Hydraulics: flowing select	
Any regulatory restrictions:			None.		
Current Discharge Scenario: Cooling wa			ater turbines goes dire	ectly into the tailrace.	
Treatment Dilution: ?					
Note: There are 22 main turbine units, 2 station service units, 2 fish turbines, and one small PUD turbine.					
Note:	Note: The main units cooling water ranges from 600 to 1200 gpm, station service 90 gpm.				
Water Quality Analysis (average value)					
Temperature Range	4 - 24 C °F or °C	pH Range:	8.07	Hardness: ? PPM as CaCO₃	
Alkalinity:	1.56 mg/L PPM	Turbidity:	2' to > 6.0' NTU	Calcium: 17.0 mg/L PPM as CaCO ₃	
Dissolved Solids:	50 mg/L PPM TDS	TOC range:	? PPM	Magnesium: 1.7mg/L PPM as CaCO ₃	
Note: This Site Validation Form serves as the basis for design and quotation of a Zequanox™ Program. It should					
be completed and validated by the client or client's engineer for accuracy. Note: If available, please attach supporting documentation i.e. water analysis, GA's or flow diagrams					
E-mail completed form to: <u>dbitter@marronebio.com</u> version: 2/2011 Questions: (614) 899 - 7106					
Marrone Bio Innovations Inc.					