

Meeting Agenda

Carlsbad Desalination Project – NPDES Permit Development Update

Date and Time

Tuesday, March 20, 2018

1:00 pm – 2:00 m

Location

California Regional Water Quality Control Board, San Diego Region

Mildred Dilucia Library – Third Floor

2375 Northside Drive, Suite 100

San Diego, CA 92108

Teleconference

Phone number: 1-888-808-6929

Access code: 2535683

Meeting participants

Entity	Staff
Poseidon, LLC	Peter MacLaggan Josie McKinley Sachin Chawla
San Diego County Water Authority	Robert Yamada Toby Roy Jeremy Crutchfield
San Diego Water Board	Dave Gibson James Smith David Barker Brandi Outwin-Beals Ben Neill
State Water Board	Catherine Hagan

Meeting Agenda

1. Introductions

2. Intake Modifications Proposal
 - a. Review of Draft Term Sheet

 - b. Project Implementation Phases

 - c. Permanent Intake Improvements (Alternative 21)

 - d. Demonstration Study Plan

 - e. Implementation Schedule

3. Status of Third Party Review

4. Schedule for Permit Development, Review, and Approval

5. Additional Discussion

DRAFT

**Carlsbad Desalination Plant Intake Modifications
Alternative 21 Term Sheet
For Discussion between the Water Authority and Poseidon Water and the San
Diego Regional Water Quality Control Board
March 20, 2018**

San Diego Water Board staff have indicated their intent to recommend Alternative 21 as a preferred alternative for the Intake Modification for the Lewis Carlsbad Desalination Facility. The Water Authority and Poseidon agree that Alternative 21 is promising and could be an acceptable choice, but we currently do not have sufficient information to confirm that the project's reliability needs can be sustained without incurring excessive maintenance cost.

Water Authority/Poseidon agree to cooperatively support moving forward with Alternative 21 as the permanent Intake Modification subject to the following conditions:

- In order to keep the plant in operation, the Regional Board Order would include a phased compliance approach
 - **Phase 1** - continue current operations using existing NRG pumps until interim facilities constructed
 - **Phase 2** - operate using new interim facilities (new flow augmentation pumps) until new permanent facilities are constructed.
 - **Phase 3** – New permanent intake meeting all Ocean Plan requirements.
- The compliance schedule in the Order would provide up to two years to conduct a pilot-scale demonstration of the Alternative 21 intake screen configuration to confirm the operational feasibility of the proposed intake configuration in a seawater lagoon environment.

As part of the conditions in the compliance schedule, all parties (Regional Board, Poseidon, and Water Authority) will agree upon specific, objective pass/fail criteria for determining feasibility including the following:

- Economic feasibility based on the lifecycle cost of the project.
 - Environmental feasibility based on protection of beneficial uses and the overall environmental impacts.
 - Social factors, based on the ability to ensure a reliable and continuous supply of safe drinking water to support the region's quality of life and protect public health.
 - Technical factors, based on the reliable and sustainable operation of the intake to support the long-term operation of the desalination facility.
- The Regional Board's Order shall include the following conditions, in line with the 3-phase approach discussed above:

- Extension of current and interim intake and discharge operations (i.e., Phases 1 and 2) until the permanent configuration is constructed and operational.
- The Regional Board agrees to move forward with the existing discharge configuration with no further consideration of a brine diffuser.
- The mitigation required for Alternative 21 is the same as the mitigation previously calculated for Alternative 1 and Alternative 15, less the mitigation required to offset the fish return impacts that are avoided through the implementation of Alternative 21.
- If the demonstration program shows that the lagoon based intake screens (i.e., Alternative 21) do not perform in accordance with agreed upon criteria, the Regional Board shall authorize the construction and operation of Alternative 15.

Carlsbad Desalination Project Permit Renewal

March 20, 2018

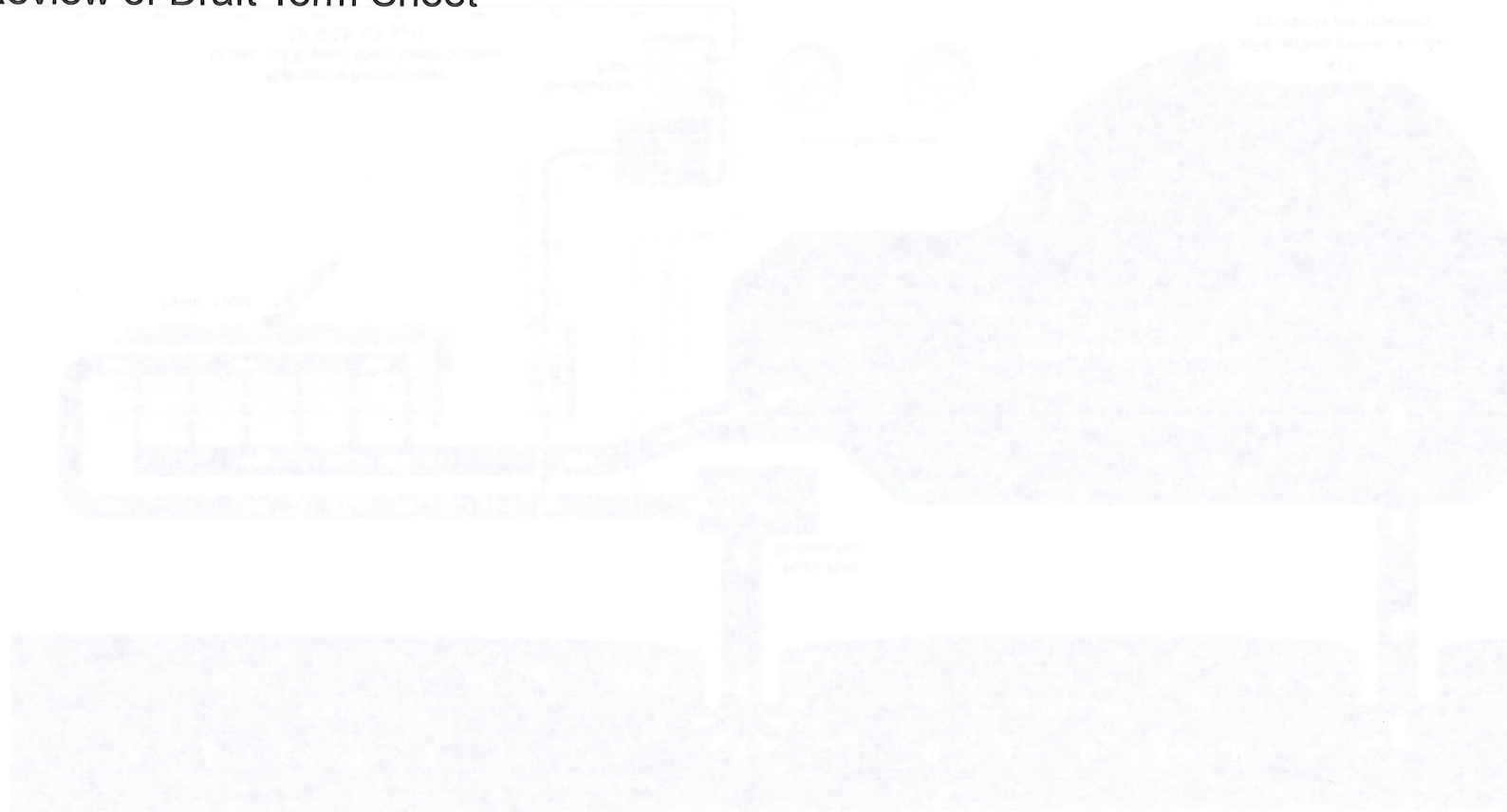


Agenda

- Poseidon/Water Authority Intake Modifications Proposal
 - Review of Draft Term Sheet
 - Project Implementation Phases
 - Permanent Intake Improvements (Alternative 21)
 - Demonstration Project Study Plan
 - Implementation Schedule
- Status of Third Party Review
- Schedule for Permit Development, Review, and Approval

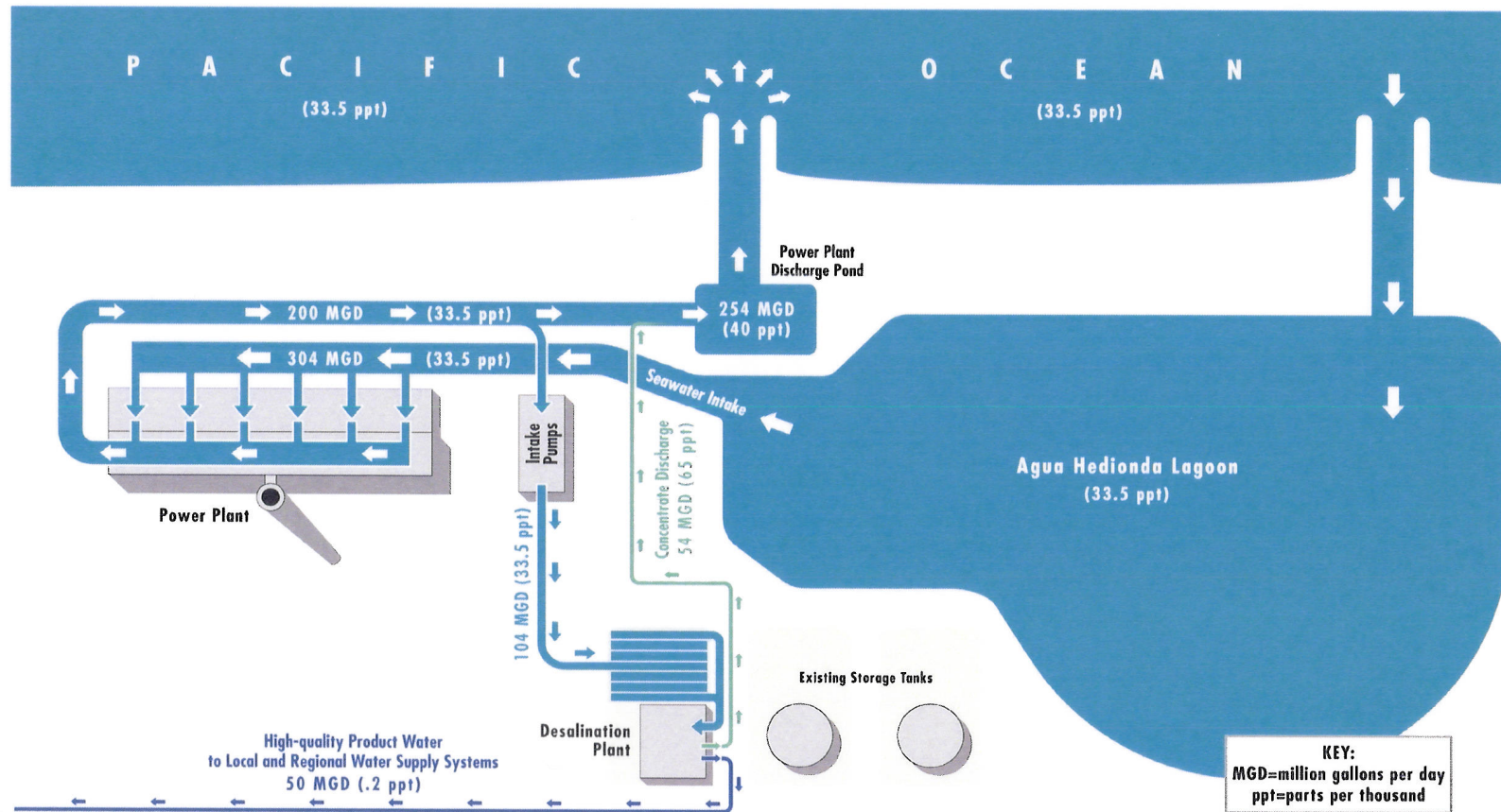
Poseidon/Water Authority Intake Modifications Proposal

- Review of Draft Term Sheet



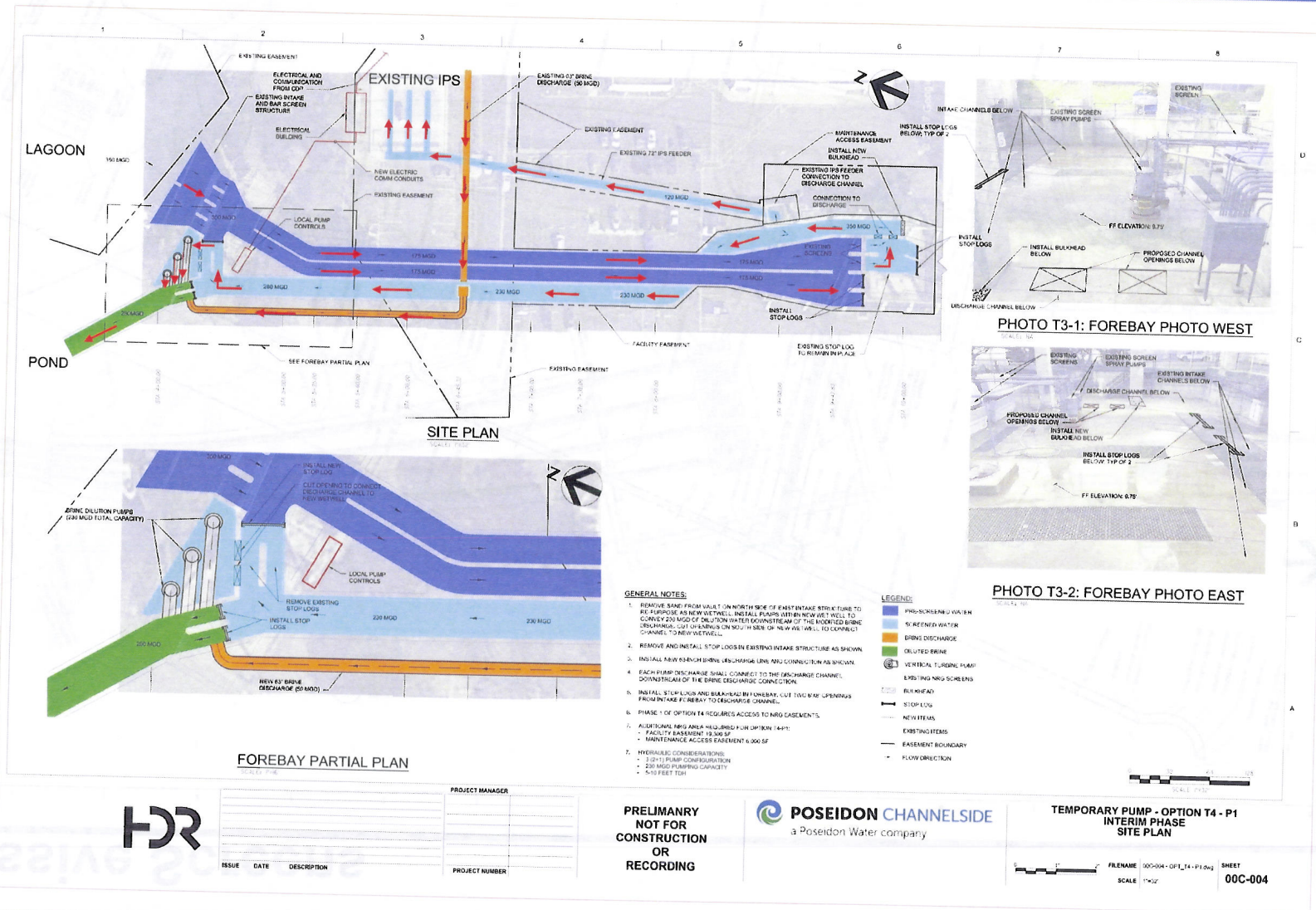
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Phase 1 – Continuation of Temporary Stand-Alone Operation



Review of Original Study Report
 Modifications Proposal

Phase 2 - Interim Stand-Alone Operation



GENERAL NOTES:

1. REMOVE SAND FROM VAULT ON NORTH SIDE OF FIRST INTAKE STRUCTURE TO BE RE-PURPOSE AS NEW WELL. INSTALL PUMP IN NEW WELL TO CONVEY 230 MGD OF DILUTION WATER DOWNSTREAM OF THE MODIFIED BRINE DISCHARGE. CUT OPENING ON NORTH SIDE OF NEW WELL TO CONNECT CHANNEL TO NEW WELL.
2. REMOVE AND INSTALL STOP LOGS IN EXISTING INTAKE STRUCTURE AS SHOWN.
3. INSTALL NEW BRINE DISCHARGE LINE AND CONNECTION AS SHOWN.
4. EACH PUMP DISCHARGE SHALL BE CONNECTED TO THE DISCHARGE CHANNEL DOWNSTREAM OF THE BRINE DISCHARGE CONNECTION.
5. INSTALL STOP LOGS AND BULKHEAD BY UNDESIGNED CUT TWO NEW OPENINGS FROM INTAKE FOREBAY TO DISCHARGE CHANNEL.
6. PHASE 1 OF OPTION T4 REQUIRES ACCESS TO NRG CASEMENTS.
7. ALBERTA NRG AREA HOLDING PERMITS (H-44):
 - FACILITY EASEMENT 19,340 SF
 - MAINTENANCE ACCESS EASEMENT 6,300 SF
8. HYDRAULIC CONSIDERATIONS:
 - 120 MGD PUMP CONTRIBUTION
 - 230 MGD PUMPING CAPACITY
 - 540 FEET TDH

LEGEND:

- PRO-SCREENED VAULT
- SCREENED WATER
- BRINE DISCHARGE
- DILUTED BRINE
- VERTICAL TURBINE PUMP
- EXISTING NRG SCREENS
- BULKHEAD
- STOP LOG
- NEW ITEMS
- EXISTING ITEMS
- EASEMENT BOUNDARY
- FLOW OBSTRUCTION



PROJECT MANAGER			PROJECT NUMBER		
ISSUE	DATE	DESCRIPTION	ISSUE	DATE	DESCRIPTION

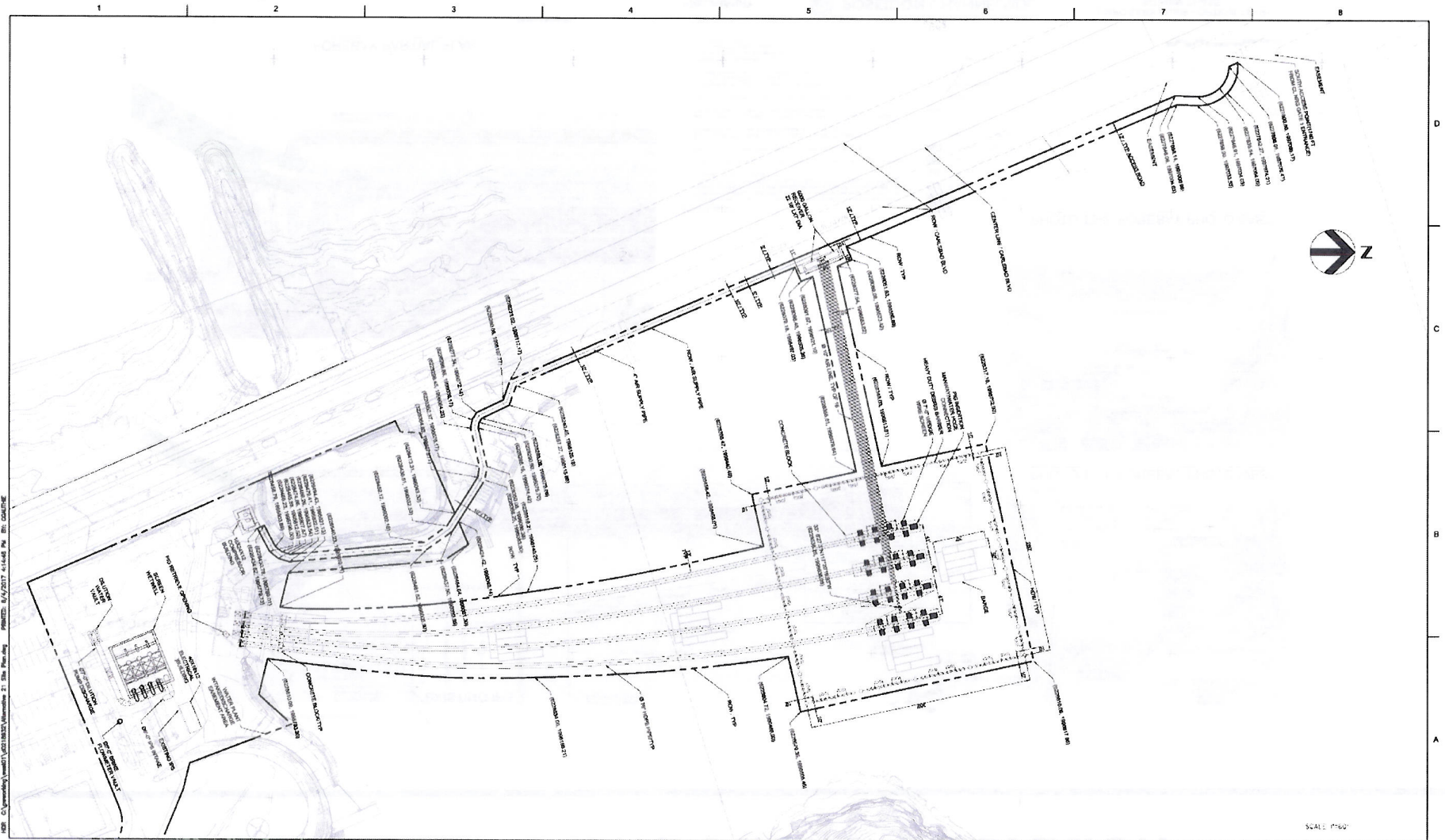
PRELIMINARY
NOT FOR CONSTRUCTION
OR
RECORDING



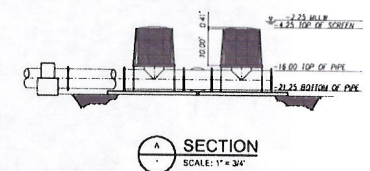
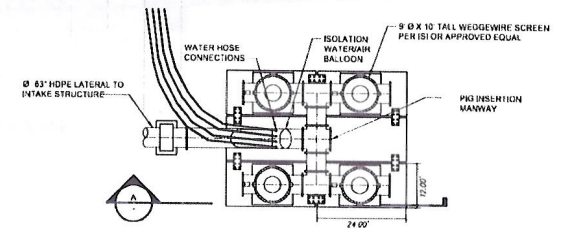
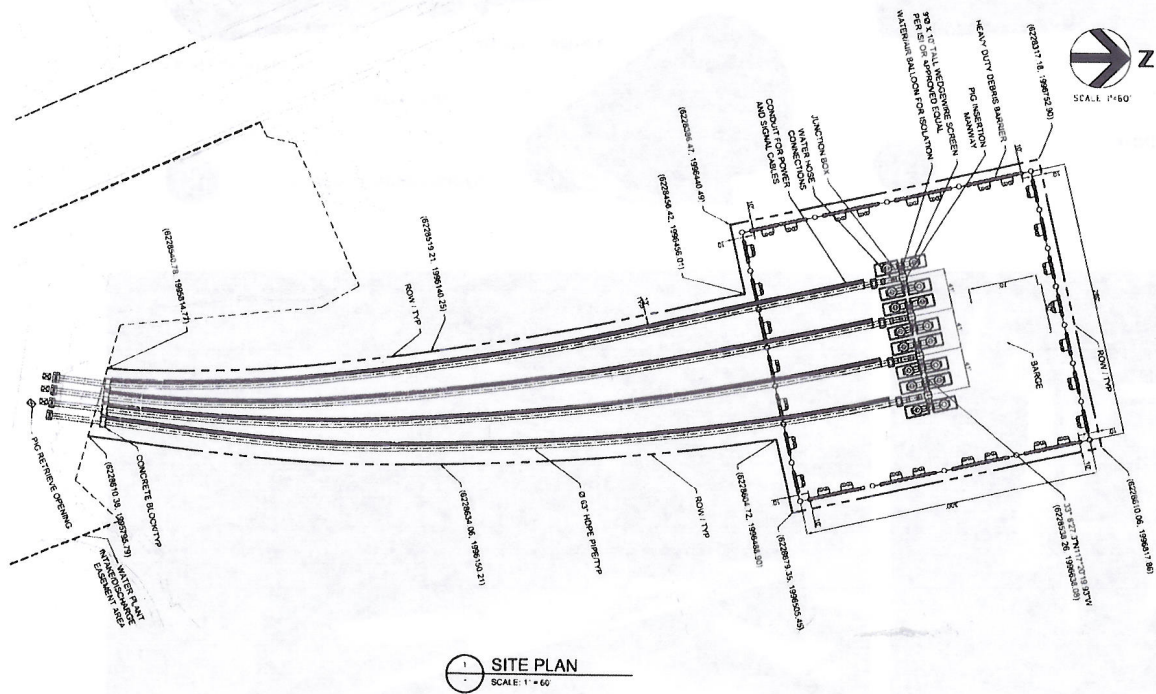
TEMPORARY PUMP - OPTION T4 - P1
INTERIM PHASE
SITE PLAN

FILENAME	000-004-0PT_T4-P1.dwg	SHEET	00C-004
SCALE	1"=30'		

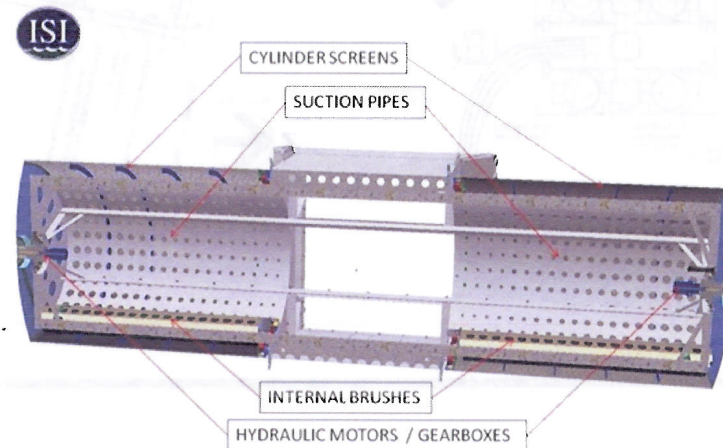
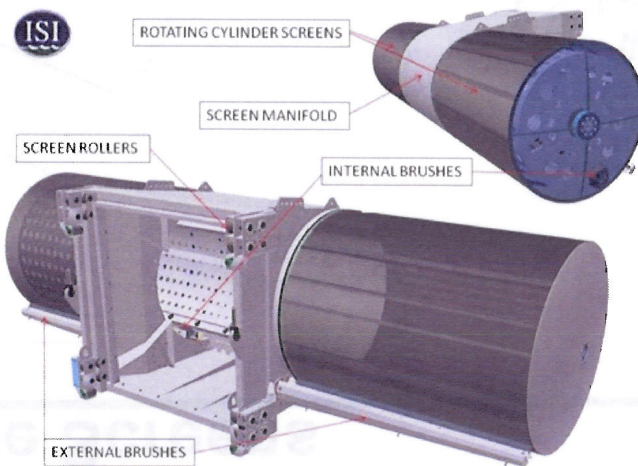
Phase 3 - Permanent Stand-Alone Operation with Passive Screens



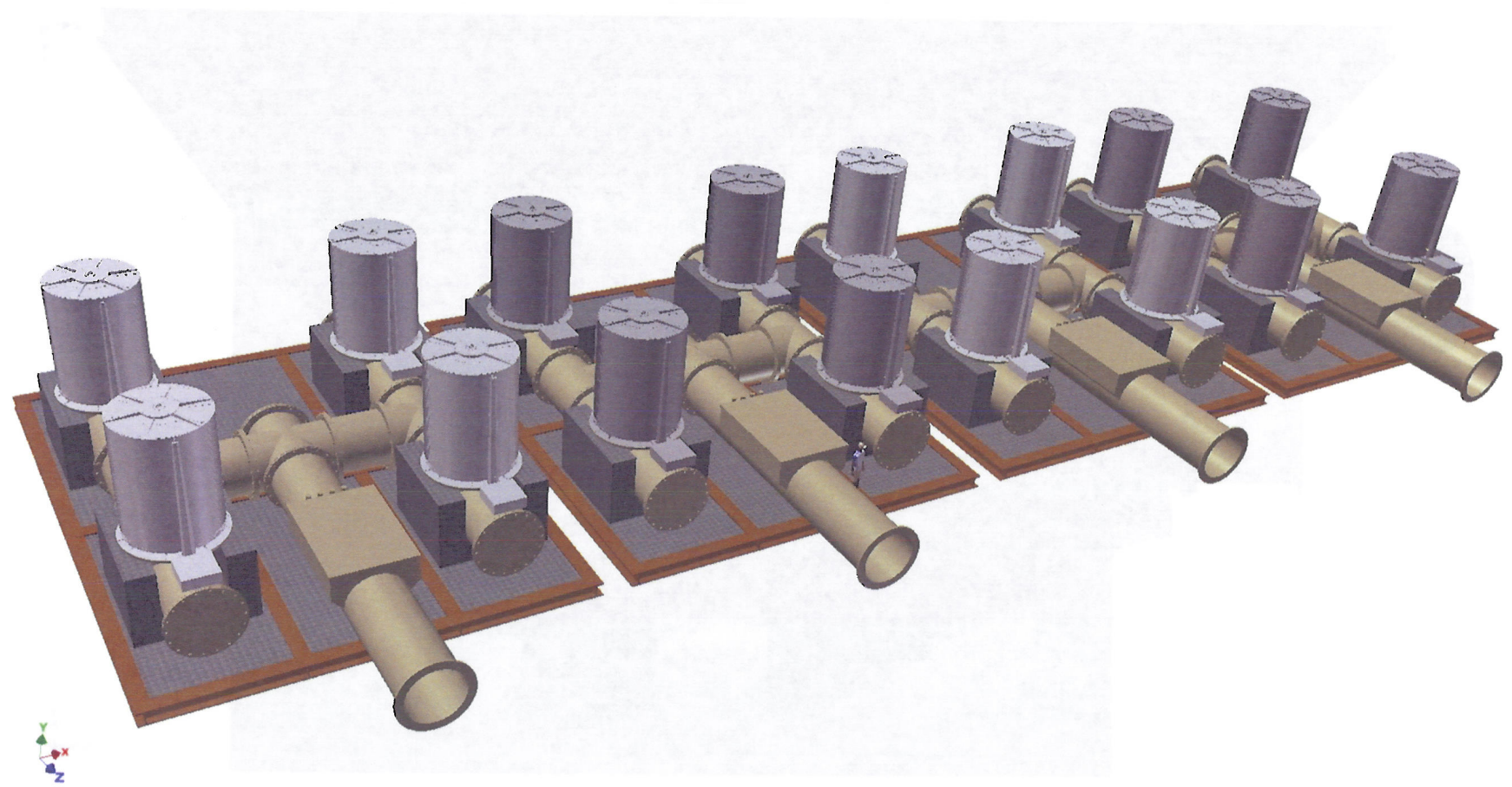
Phase 3 - Permanent Stand-Alone Operation with Active Screens



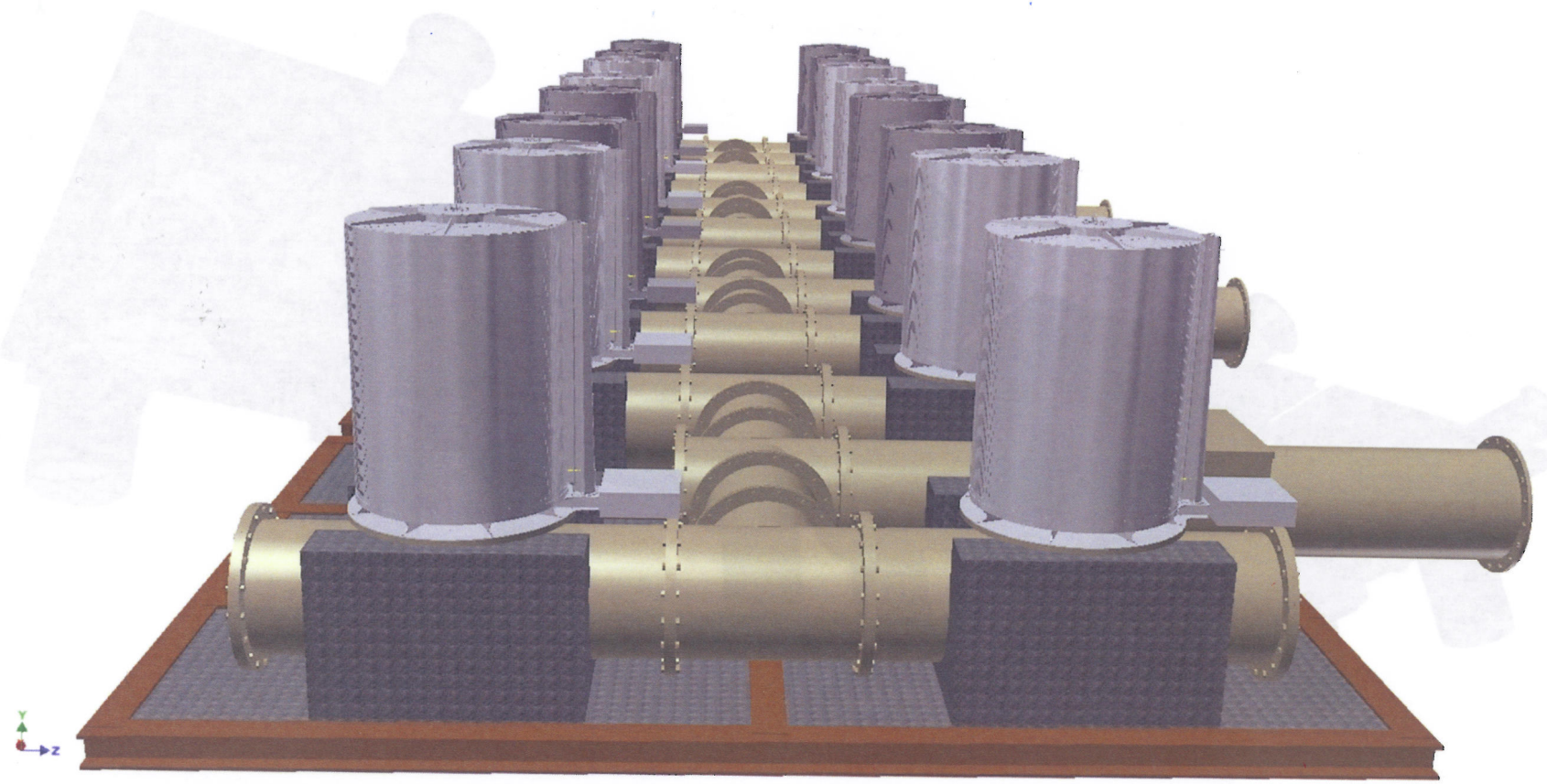
Self Cleaning Intake Screens Configurations



Self Cleaning Intake Screen Layout

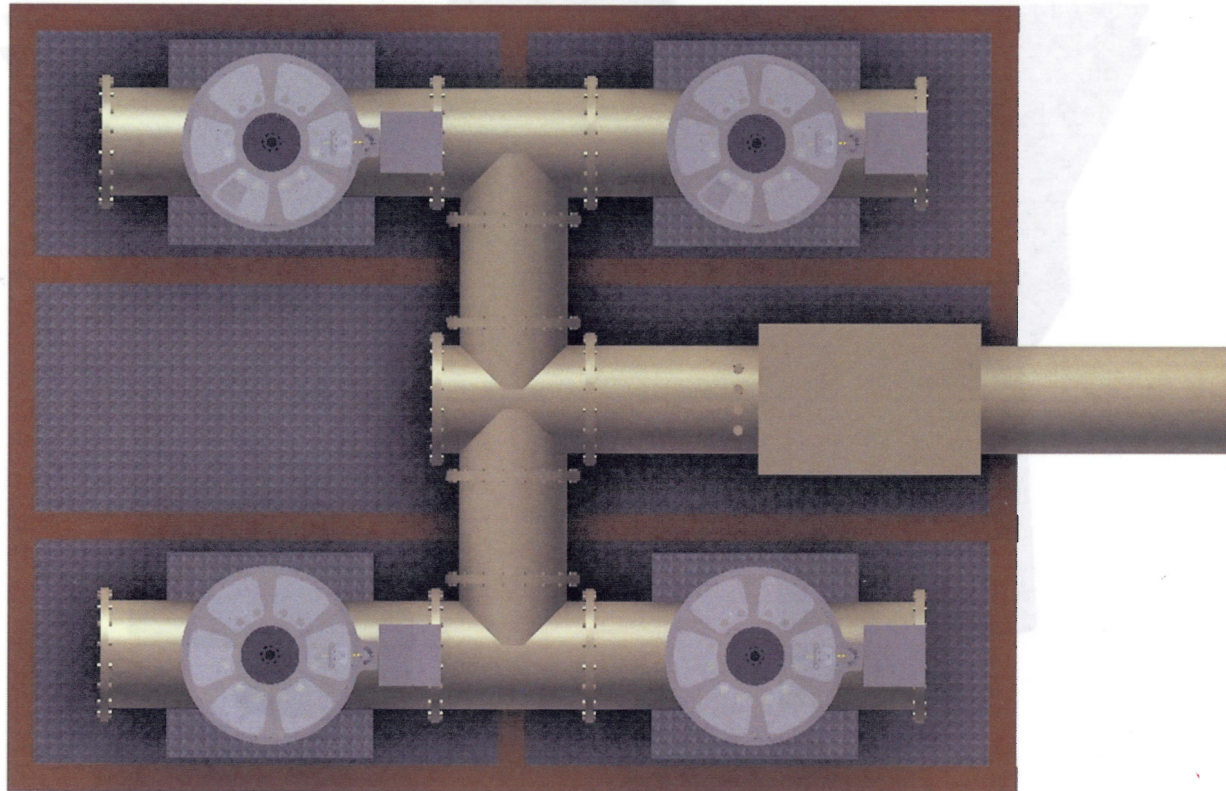


Self Cleaning Intake Screen Layout



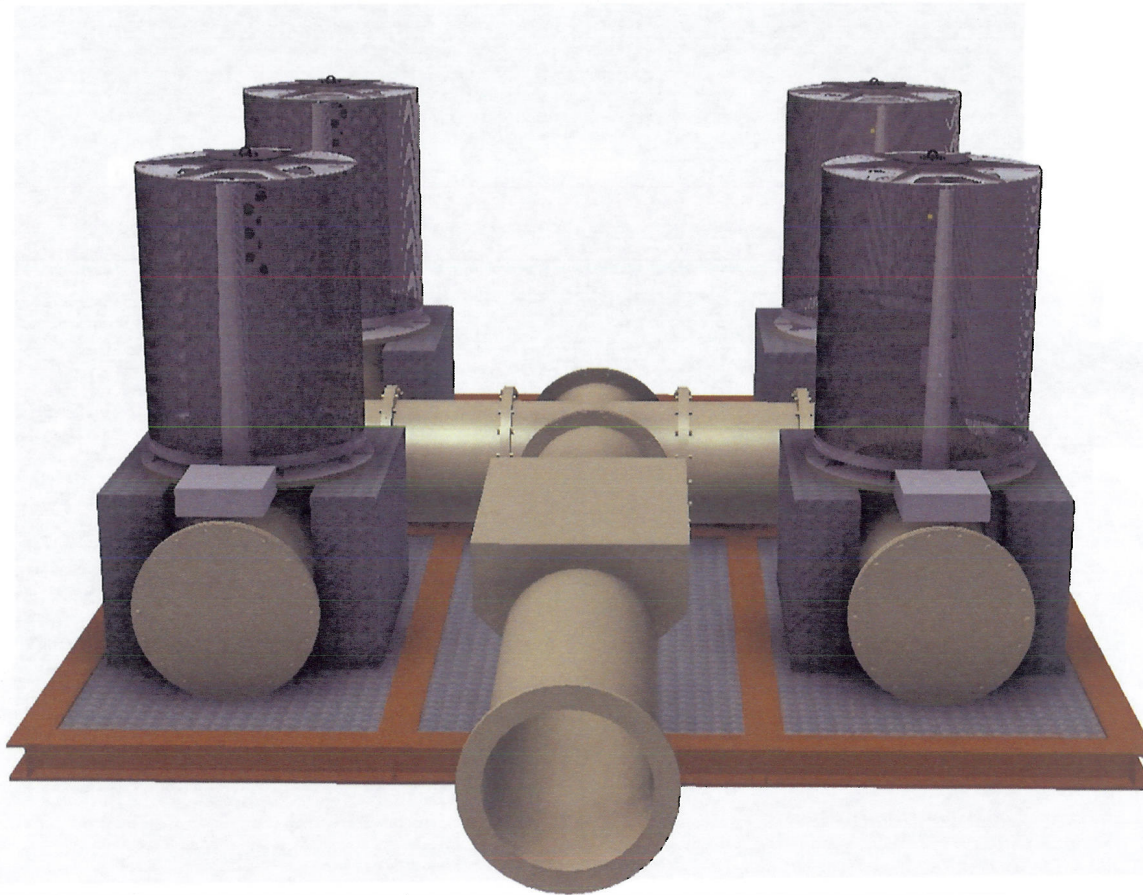
Self Cleaning Intake Screen Layout

Self Cleaning Intake Screen Layout



Self Cleaning Intake Screen Layout

Self Cleaning Intake Screen Layout



Demonstration Project Purpose and Objectives

- Currently there is no operational data available to assess the performance and reliability of wedge wire screens (WWS) in an estuarine environment similar to Agua Hedionda Lagoon
- Poseidon and the Water Authority are proposing to conduct a demonstration project to generate site-specific performance data for WWS in the lagoon
- The objectives of the demonstration project are to:
 - Determine the feasibility of using the WWS in an estuarine environment
 - Refine the design and operation and maintenance (O&M) requirements for the WWS and validate the construction and O&M cost assumptions
- The demonstration project would be conducted over a two year period to ensure that the WWS performance is evaluated under both seasonal and inter-annual variations in lagoon conditions
- The demonstration project would consist of a side-by-side evaluation of passive and active rotating screens operating as intended for the full-scale intake

Demonstration Project Feasibility Criteria

- Regional Board, Poseidon, and the Water Authority to agree upon specific, objective pass/fail criteria for determining the feasibility of the demonstration project, including the following:
 - Economic feasibility based on the lifecycle cost of the project
 - Environmental feasibility based on protection of beneficial uses and the overall environmental impacts
 - Social factors, based on the ability to ensure a reliable and continuous supply of safe drinking water to support the region's quality of life and protect public health
 - Technical factors, based on the reliable and sustainable operation of the intake to support the long-term operation of the desalination facility
- If the demonstration project shows that the lagoon based intake screens do not perform in accordance with the agreed upon criteria, the Regional Board shall authorize the construction and operation of Alternative 15

Alternative 21 Implementation Schedule

Project Implementation Requirements		Expected Completion Date		
		Temporary Stand-Alone	Interim Improvements	Permanent Improvements
Local Permits and Approvals	CEQA compliance	Complete	Complete	2018
	City of Carlsbad Permit Amendment	2019	2019	2019
State Permits and Approvals	Regional Board Permit Renewal	2018	2018	2018
	California Coastal Permit Amendment	2019	2019	2019
	State Lands Commission Lease Amendment	2019	2019	2019
Federal Permits and Approvals	NEPA review	NR	NR	2020
	Army Corps of Engineers 401 Permit	NR	NR	2020
	NMFS/NOAA Biological Opinion	NR	NR	2020
Demonstration Study	Conduct a pilot-scale demonstration of the Alternative 21 intake screen configuration to confirm the operational feasibility of the proposed intake configuration in lagoon	NR	NR	2021
Pre-Construction	Final design, contractor selection, amendment of Water Purchase and O&M agreements, and financing	NR	2019	2021
Construction	Construction, commissioning, and startup of intake and discharge system modifications	NR	2019	2023
Operation	Commercial operation	2019	2020	2023

