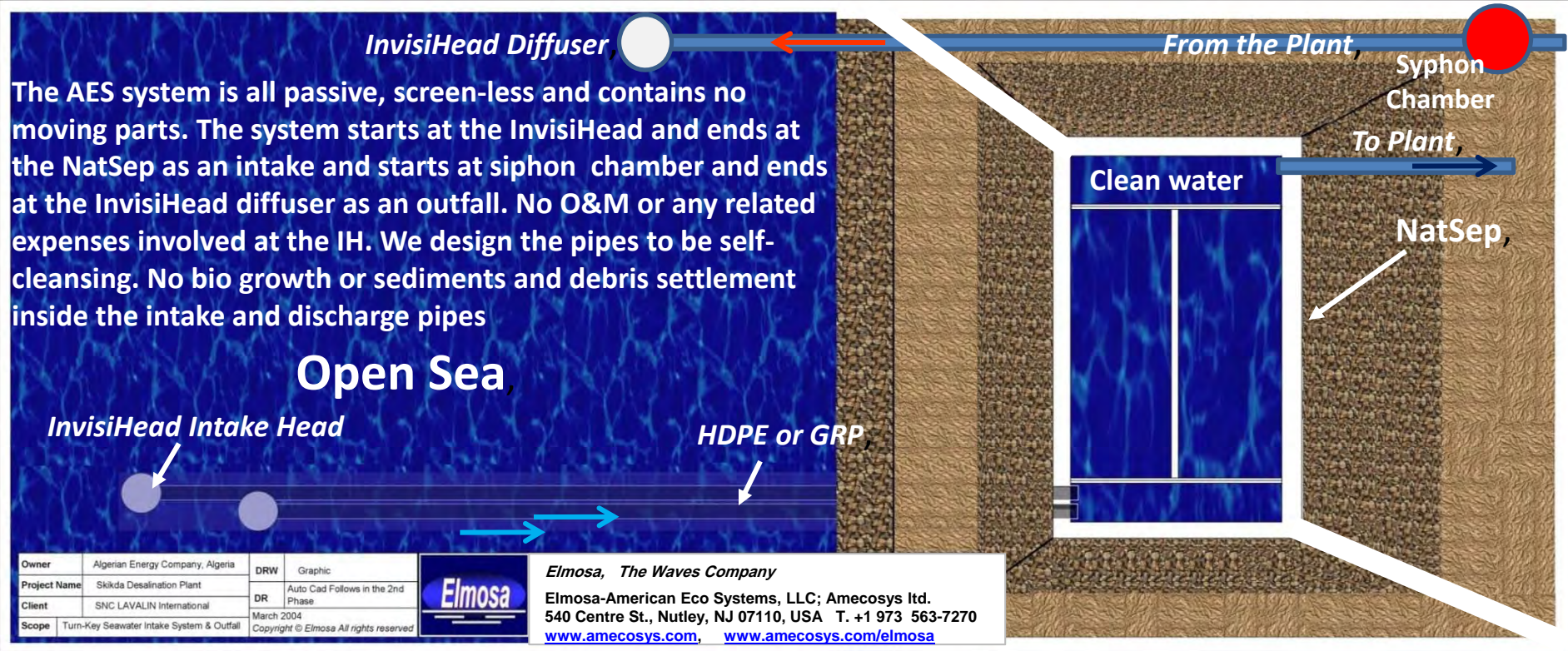


# 3. The NatSep Simple and Natural

Dual Purpose: flow control , sediment and debris separation



We at American Eco Systems design seawater intakes and outfalls to be maintenance – free, to provide full flow capacity under all operation and weather conditions non-stop for over 50 years. The system is environmental-friendly and supports biodiversity; the 4-compartment NatSep delivers clean water to the pumps; uninterrupted operation during the one-day cleanup every 5 years or so.

## Further flow polishing is done in case of stormy and turbulent conditions



The NatSep is designed to separate any sediment that may flow through into the basin as part of the water flowing into and through the IH. By the time the flow reaches the seawater pump bay it is free of sand and weeds. The NatSep design upgrading is included in the intake system performance improvement.

As soon as the seawater pumps at the pump house are turned on the water level at the NatSep drops creating a level difference between the mean sea level and water level at the NatSep. That level drop is what drives the water into the InvisiHead offshore and through the intake pipe to the NatSep onshore. No pumps are needed at the offshore upstream location.

The NatSep separation basin is the place where whatever sand and debris that may flow into the IH during stormy weather if the whole water column goes into full mixing under the extraordinary turbulent conditions, any sediment becomes associated with the flow as a result of the abnormal conditions gets naturally separated and settled at the NatSep intake basin long before it reaches the seawater pump intake bay.

Cleaning of the NatSep basin is done once or twice a year. The NatSep is subdivided into two-100% capacity bays so as to perform cleaning without the need for a plant shutdown. Uninterrupted operation is secured.

Elmosa has discontinued the use of all mechanical screening systems including stationary and traveling long ago. They are no longer needed when the InvisiHead -NatSep intake basin technologies are combined.



# The Elmosa 3-component complete seawater intake system

**THE NATURAL SEAWATER INTAKE SYSTEM**  
 Self-operating, Self-maintaining, Gravity-flow Passive Seawater Intake System  
 No pumps. We let nature do the work

Do you have problems in your intake with:

- The 2013 InvisiHead is hurricane and 8-meter wave proof  
It is streamlined and built to last for over 50 years
- The **NEW InvisiHead<sup>®</sup>**
- Zebra Mussels?
- Fish, Fish larvae, Sand, Trash and debris?
- Seagrass? or Potential for oil spills?
- The NatSep<sup>®</sup> Settling Basin
- The Natural Pump

**Our Design Philosophy is based on:**

- \* Pro action rather than Reaction
- \* Prevention rather than Curing
- \* Preservation & Exclusion rather than Eradication

**Users:** Electric Power Plants, Seawater Desalination Plants, Oil Refineries, Mining, Fish Farms, Aquaculture, District Cooling, Municipalities and Others

**We have the permanent and the natural solution**

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**Elmosa**

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1

## The O&M-Free InvisiHead

The upstream offshore deep-water component

Only clean water is let in. All marine life is excluded and prevented from getting in including fish, jellyfish and seaweed.  
 Only high quality flow is let in

2

## The O&M-Free water delivery system

The mid section connecting offshore with onshore

The EVE Principle is applied during the design of the intake pipe to prevent any astray marine life to grow or sediments to settle inside the pipe, all flushed out into the NatSep

3

## The NatSep

The downstream onshore flow-control final component

Here the flow is gravity-controlled while astray sediment is trapped and separated from the flow to deliver high quality water to the seawater pump mouth.

**It is like a 'Plug 'N Play' system; just flip on the seawater pump switch and forget all about it for the next few decades**