

**Revolutionizing Waste Management for a Safer Tomorrow****Boney Boban\***

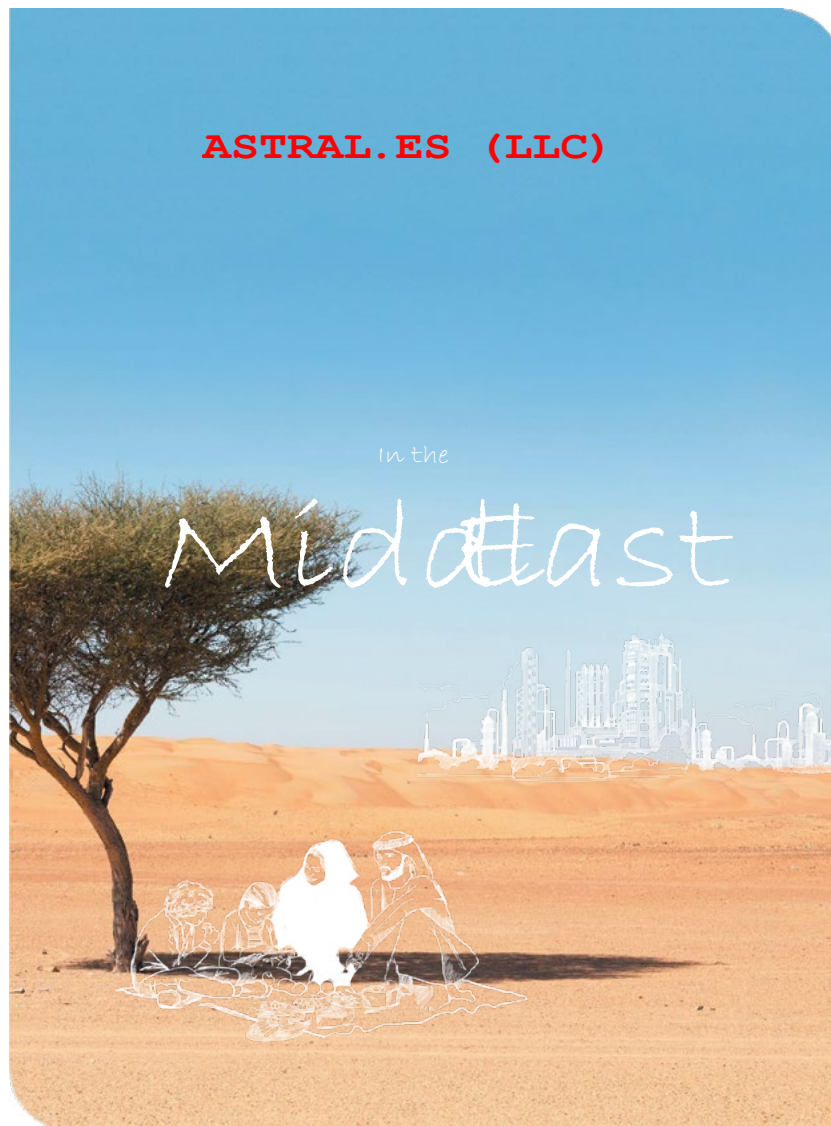
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**Submitted:** 2024, Aug 13; **Accepted:** 2024, Oct 21; **Published:** 2024, Dec 19

**Citation:** Boban, B. (2024). Revolutionizing Waste Management for a Safer Tomorrow. *Adv Envi Man Rec*, 7(3), 01-12.



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## **ECOLOGICAL TRANSFORMATION THAT IS OUR PURPOSE!**

“The ecological transformation is all about taking actions to reconcile human progress and environmental purpose.

We develop and roll out solution that decontaminate and protect our vital resources against depletions across our host regions, as well as solutions that promote net zero life style and decarbonise our production methods, and we align those solution with consequences of climate change.

We are taking concerted actions all over the region to improve health and quality of lifewithun human communities while respecting each culture.

Here at Astral, we are determined to be useful to the widest possible, audience by addressing economic, social and environmental issues as an indivisible whole”.



**ECOLOGICAL  
TRANSFORMATION**

**THAT IS OUR  
PURPOSE**



“At Astral Environmental Services LLC, we are not simply contributing to the more efficient use of resources but rather discovering new approaches towards creating a truly sustainable and self-sufficient ecosystem for communities and industries”.

Resourcing the world means not only providing highly efficient and competitive utilities and services, but also constant innovation to develop more sustainable and inclusive solution to community challenges, turning challenges in opportunity is our motto.

We believe in a circular economy, where nothing, ultimately, will be wasted, and where “waste” itself can often become valuable resources. The circular economy is already a reality. Industrial companies and local authorities are starting to produce alternative resources from existing processes and local supply loops are emerging.

Astral values are what drive our constant improvement. Five values guide each and every action undertaken: Responsibility, Solidarity, Respect, Innovation And Customer Focus.

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## ASTRAL MIDDLE EAST AT GLANCE!

### Our activities

## Water

Management of the global water cycle, from production and distribution of drinking and process water to the collection, treatment and recycling of wastewater

## Waste

**Liquid and solid non-hazardous and hazardous waste management.** Our expertise covers the entire waste life cycle from collection to recycling, leading to the final recovery of waste as materials or energy

## Energy

**Energy efficiency, efficient management of cooling networks,** and renewable energy production.

## OUR CORE BUSINESS!

## A. Hazardous Waste Water Collection (Main Business)

Enhanced by our qualified experts by implementing most advanced techniques and methods, treatments of waste oil are carried out adhering to international standards of eco preserving concepts and notions. Oil processed in the methodical treatment is almost neutral in character thereby causing no harms to the environment surroundings leaving zero waste and no pollutants however, Treatment and disposal oil wastes from marine shipping and oil/ petrochemical industries.

• **Engine Bilge/ Oily Water:** Bilge water is not exactly water but a mixture of variety of substances. It's a mixture of fresh water, sea water, oil, sludge, chemicals and various other fluids. These fluids can be found the lowest space of the ship. It is the area where two sides of the ship meet. The corners of the lowest compartment of the ship constitute a bilge. If the engine bilge is not removed it will overflow and make the ship electrical system failure and also leading to corrosion, rots etc. one of the main thing is it leads to environmental pollution and regulatory issues.

The ships/vessel removes the bilge water at the port they are layer over during their voyage.

The port which Astral Environmental services LLC has access is Jebel Ali port, Dubai. (Astral licensed only to take Oily Waste Category).

**Table - 1: MARPOL Regulation on Waste Reception Facilities**

Sr. No.	Category of Waste	MARPOL Annex Applicable	Types of Waste for Reception
I	Oil	1	Covers all types of wastes from the carriage of oil, as fuel, engine room slops, cargo or dirty ballast water
II	Noxious Liquid	2	Chemical Wastes derived from bulk chemical transportation including residues and mixtures containing noxious substances
III	Harmful substances carried by sea in packaged form	3	Substances highly toxic to marine life and listed in Composite List of Hazard Profiles prepared by the IMO/FAO/UNESCO/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts and also described in IMDG Code – 2004
IV	Sewage	4	Raw sewage should be retained in holding tanks for disposal in port or outside 12nm. Partially treated sewage retained in holding tanks for disposal in port or outside 4nm.
V	Garbage	5	Garbage includes domestic (food and packaging) and operational wastes (Maintenance, cargo and miscellaneous)
VI	Air Pollution from ships	6	Not covered in this plan

## Waste Management Services at Jebel Ali Port, Dubai

- All vessels calling Jabel Ali Ports must notify their waste for each call: -
- At least 48 hours before arrival unless the port of call is known less than 24 hours before arrival.
- Not later than at departure from the previous port, if the voyage takes less than 24 hours.
- The master of vessel/shipping agent shall truly and accurately complete the waste advance notification form available on Jabel Ali website (port user, documentation, Advance notification form – Waste Delivery).
- The shipping agents / vessels calling to the terminals operated other than by Jabel Ports are required to contact the respective terminal operators for the waste management services.



	Oily Wastes					
	Oily Bilge Water	Dirty Ballast Water	Tank Washings (slops)	Oily Mixtures Containing Chemicals	Scale & Sludge from Tank Cleaning Operations	Sludge from Purification of Fuel Oil
<b>Type of facility</b>	Collection by road tanker	Collection by road tanker	Collection by road tanker	Collection by road tanker	Collection by road tanker	Collection by road tanker
<b>Capacity of Facility</b>	8-20m <sup>3</sup>	8-20m <sup>3</sup>	8-20m <sup>3</sup>	8-20m <sup>3</sup>	8-20m <sup>3</sup>	8-20m <sup>3</sup>
<b>Method of use</b>	On request from ship or agent. Port arranges for waste contractor to provide service	On request from ship or agent. Port arranges for waste contractor to provide service	On request from ship or agent. Port arranges for waste contractor to provide service	On request from ship or agent. Port arranges for waste contractor to provide service	On request from ship or agent. Port arranges for waste contractor to provide service	On request from ship or agent. Port arranges for waste contractor to provide service
<b>Is notice required?</b>	24 Hrs.	24 Hrs.	24 Hrs.	24 Hrs.	24 Hrs.	24 Hrs.
<b>Frequency of emptying</b>	As required	As required	As required	As required	As required	As required
<b>Total annual capacity</b>	As demand requires	As demand requires	As demand requires	As demand requires	As demand requires	As demand requires

### Engine Bilge Collection and Disposal

The waste oil collection tanker is being sent with the port documents and NOC along with the collection certificate in the name of the company. After the bilge water is being collected from the vessel, the certificate is given to the ship captain that contains the collected Quantity. The collected quantity is being disposed at the authorized premises by the Dubai municipality.

**Note:** Apart from ships/Mother Vessels etc. we have the authority to dispose wastewater from the industries tank (which will be called as tank cleaning) these tank cleaning is mainly done in sectors like

- Oil and gas
- Petrochemicals
- Chemicals
- Food and beverage
- Pharmaceuticals
- Marine and shipping
- Environmental remediation

### Invoice Submission and Payment Collection

For the Quantity collected, the astral prepare an invoice and submit it the shipping company directly or through the agency the vessel has contacted.

Dubai Municipality and processing fees.

For the Quantity collected from the port the Astral has to pay a fixed amount to the Dubai municipality every 6 months.

### Used Engine Oil

The scope of used waste oil in the UAE is significant, driven by the country's large industrial sector, vehicle population, and construction activities. The UAE generates a substantial amount of used oil from various sources, including

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- Vehicle servicing and maintenance
  - Industrial processes (e.g., manufacturing, construction)
  - Marine vessels (e.g., ships, boats)
  - Generators and power plants

The estimates suggest that the UAE generates around 100,000 to 150,000 tons of used oil annually.

### Common Types of Used Oil in the Uae Include

- Lubricating oil (e.g., engine oil, transmission fluid)
- Hydraulic oil
- Cutting oil
- Transformer oil
- Grease

### Collection and Disposal of used oil

The UAE has implemented regulations and established facilities for the collection and disposal of used oil.

The used oil collection requires certain license, as Astral consist of these licenses which leads Astral to be a key player in used oil collection.

As for now Astral have only a plan of collecting this used oil and sell them in the whole market, as a five year plan Astral will be taking a 20,000 sq.ft yard along with all plants and machinery in order to process the end products like

Re-refined lubricants

- Fuel oil
- Base oil
- Other petroleum products.

### Engine Room Sludge

Engine room sludge refers to the accumulation of waste materials in the engine room of a ship or vessel, including

- **Oily waste:** Fuel oil, lubricating oil, and other petroleum products.
- **Slops:** Mixtures of oil, water, and other contaminants.
- **Bilge water:** Water that collects in the lowest part of the hull, often contaminated with oil, grease, and other pollutants.
- **Sludge:** Thick, semi-solid residues from oil and fuel tanks, separators, and other equipment.
- **Grime and dirt:** Accumulated dirt, grime, and rust from engine components and surfaces.

### Collection and Disposal of engine sludge

The Engine Sludge is collected the same way the oily water or engine bilge is collected.

All the documents are same as Engine bilge.

Engine oil sludge, when properly treated and processed, can be reused or repurposed in various ways

- Re-refined lubricants: Engine oil sludge can be re-refined into new lubricating oils, reducing the need for virgin materials.
- Fuel oil: Sludge can be converted into fuel oil for industrial applications, such as power generation or heating.
- Base oil: Treated sludge can be used as base oil for producing new lubricants.
- Petroleum products: Sludge can be used to produce other petroleum products, like diesel fuel, gasoline, or jet fuel.
- Construction materials: In some cases, treated sludge can be used as an additive in construction materials, like asphalt or concrete.
- Energy recovery: Sludge can be burned as fuel to generate energy, reducing waste and supporting energy efficiency.
- Recycled additives: Some sludge components can be recovered and reused as additives in new lubricants or fuels.
- Carbon black production: Sludge can be used to produce carbon black, a material used in tires, rubber products, and pigments.
- Research and development: Sludge can be used as a feedstock for developing new technologies, like biofuels or advanced materials.

But, As Astral Doesn't have the facility to process the engine sludge, as its comes in the 5 year plan.

Astral will be disposing to the third party company who doesn't have the permission to collect this engine sludge from the port. But, have the facility to process it to the end products.

These two are the main business activity that Astral environmental services constitute, all others are subsidiaries.

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## OUR PRIORITIES!

Every day, our ambition is “Resourcing the World” to address the major environmental issues: conserving natural resources, combating climate changes and protection biodiversity.



We deliver on this ambition every day by being committed to our people, supporting local communities and creating an innovative and collaborative mindset, making safety a priority for each of our employees, in every territory we serve.

## OUR CSR PATHWAYS!

In this constantly changing world, people’s interaction with the environment represents a major challenge that requires the mobilization of the effort and commitment of all stakeholders at the local and national levels.





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### As Resources, We Focus our Effort on Three Main Pillars.

- Be closer to communities
- Engage employees
- **Raise Awareness on Environment Protection And Biodiversity**

Across the Middle East, Astral works towards these goals on a daily basis by consistently monitoring our CSR impact and defining strict ambitions with all our stakeholders, which most importantly includes our customers, our employees, and our investors. Astral CSR includes.

### Resourcing the Planet, Astral Peoples, Resourcing the Regions

- Sustainably manage natural resources by encouraging the circular economy.
- Conserve and restore biodiversity.
- Contribute to combating climate change.
- Build new models for relation and value creation with our stakeholders.
- Contribute to local development.
- Supply and maintain services crucial to health and human development.
- Guarantee a safe and healthy work environment.
- Guarantee that diversity and fundamental human and social rights are respected within the company.
- Encourage each employee's professional development and commitment.

## OUR QHSE COMMITMENTS!

### OUR PRIORITIES

Keeping Astral's workforce safe and healthy is paramount for Astral. Our unconditional commitment to a culture of occupation hazard prevention is part of our DNA, and the first priority of the group.

Health and safety is a priority and a constant concern for Astral in all its activities. Everywhere, we are committed to guaranteeing the physical and psychological well-being of our employees.



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Improving prevention, accident analysis, social dialogue on health and safety are included in all our approaches. To ensure that all employees are trained in safe work practices, regular toolbox talks are organized.

### **OUR APPROACH OF INNOVATION!**



Be creative and innovative in all project aspects is part of Astral Middle East mindset. We have developed a “seeds” Approach to investigate emerging topic and encourage the development of startup in an approach of open-innovation to pave the way for more sustainable future in terms of resources and environmental footprints.

### **OUR DIGITAL JOURNEY!**

OUR PRIORITIES

Astral Middle East relies on a strong digital back-bone to improve efficiency, transparency, competitiveness and customer experience.

### **OUR VISION OF CIRCULAR ECONOMY!**

Our world is changing; natural resources are under pressure and the way the people are consuming today cannot be sustained in the long term. At Astral, what some other consider as waste we consider as resources, raw materials, energy, this is what we call Circular economy.

Astral Middle East is a unique position to address those challenges, as we able to create synergies between our core activities; water, waste and energy. We enable the development and enhancement of local loop of materials by developing a circular economy, based on the 3R approach: Reduce, Reuse, and Recycle



- We have developed innovative systems to implement waste segregation at the sources.
- Astral Environmental Services LLC develops awareness campaign to reduce the use of resources and improve their recycling.
- Create a new ecosystem to contribute to governmental strategies of food security.
- Astral has developed the concept of industrial utilities island, where waste become the energy supply of a full industrial park.

### **ENVIRONMENTAL SOLUTIONS AND OTHER FUTURE PLANS!**

We aim to change the common misconception of waste and redefine it as a valuable resource (Others see Waste, We see Opportunity). That's why we bring to region that latest technologies and expertise to leverage this untapped resources; and by doing so contribute to our nations vision.

#### **Five Year Plan Consist of Bringing All the Activities under a One Group**

##### **Astral Middle East**

Astral Environmental Services LLC

Astral Scrap Trading LLC

Astral Technical Solutions LLC



# WASTE CAN BE BEAUTIFUL



**Note:** By leveraging our daily experiences, we gathered valuable information and created this content that resonates with other, all other related photos are downloaded from Google chrome. (Images are only for office use purpose only)

**Resourcing the world**

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