



The background image shows a waste management facility. In the foreground, there are large, cylindrical metal drums or containers. In the middle ground, there is a paved area with several parked cars and a fence. In the background, there is a large, grassy hill under a blue sky with some clouds. A white outline of a triangle is visible in the upper left portion of the image.

# Confidential: Land Transformation

A waste management opportunity.

Presented by Waste to Energy Solutions, LLC



# Recover the land for economic benefits



College Road  
Landfill

Wasted land recovered

College Road  
Community  
Ctr. concept



## How fast; how much?

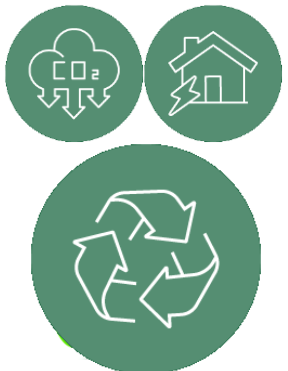
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|                                  |                        |
|----------------------------------|------------------------|
| Remove / Recycle landfill waste: | 2 years (125 tons/day) |
|----------------------------------|------------------------|

|  |          |
|--|----------|
| Time to build landfill mining and waste recycling plant: | 6 months |
|--|----------|

|                                |                |
|--------------------------------|----------------|
| Metal recycled would be about: | 3.5 tons a day |
|--------------------------------|----------------|

|                                 |                  |
|---------------------------------|------------------|
| New waste recycling / recovery: | 50 tons everyday |
|---------------------------------|------------------|





# Removal Basis



|         |            |            |
|---------|------------|------------|
| Level 1 |            |            |
| Area    | 58,579.23  | sq.yrd.    |
| Height  | 2.50       | yrds.      |
| Total   | 146,448.08 | cubic yrd. |

|         |           |            |
|---------|-----------|------------|
| Level 2 |           |            |
| Area    | 38,236.96 | sq.yrd.    |
| Height  | 2.50      | yrds.      |
| Total   | 95,592.40 | cubic yrd. |



|         |           |            |
|---------|-----------|------------|
| Level 3 |           |            |
| Area    | 15,286.63 | sq.yrd.    |
| Height  | 2.50      | yrds.      |
| Total   | 38,216.58 | cubic yrd. |



# Best Practices

- Design to 70 % overall efficiency
- Use Best Available Control Technology
- Recover and recycle metal that would otherwise be lost in the dump forever, and get the metals that are now buried
- Use everything, waste nothing
- Use emerging technology to capture the CO<sub>2</sub> formed during energy release.



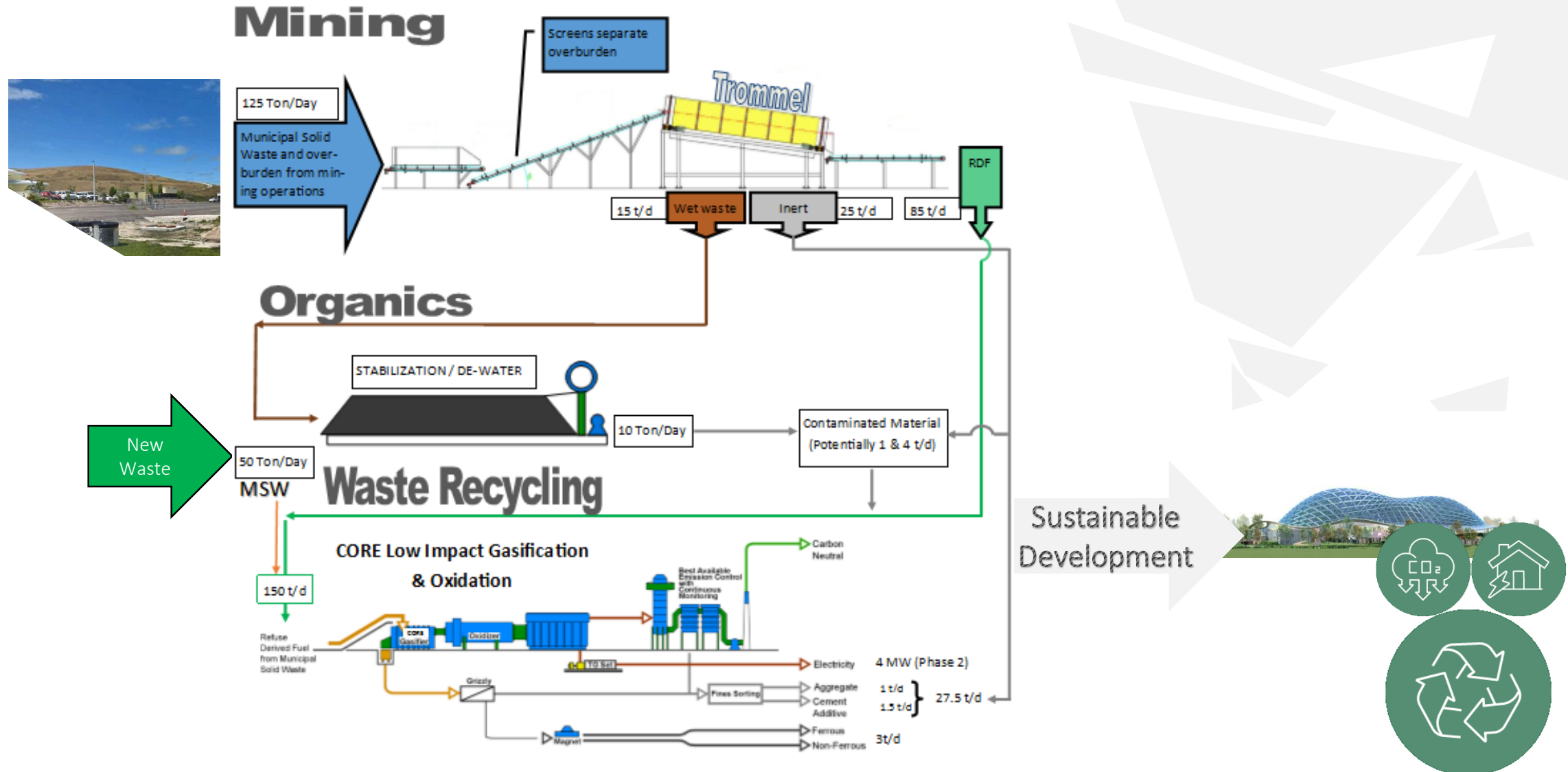
Wasted  
land  
recovered



## Process Description:

- Mine 125 tons per day of MSW and separate overburden materials in a sorting system;
- Aerobically stabilize sorted organics for use as Compost or RDF, with expected RDF fraction equaling 85 ton/day;
- Gasify RDF from mining/sorting operations together with 50 tons per day of newly delivered MSW using CORE to generate renewable energy for use on site;
- Recover metal without melting or slagging it, separate it into categories and sell it; and
- Make concrete on-site with ash and recovered gravel and sand and use it at the property for construction.

# The Process



# The Waste Processor



## **EnEco Group.**

### **Waste Transformation Plant**

- waste recycling/reduction plant using proven technology (CORE M series)
- modular design
- fully enclosed, no dust, no odor
- renewable waste-fueled
- net-negative-zero carbon emissions
- reduced capital costs / operational costs





# Major Process Features:

Accepts unsorted waste, does not melt or destroy metal and glass. Ash is carbon free and made into useful products. Zero waste. Option to recover and utilize CO<sub>2</sub>.



## Resource Recovery and Carbon Reformation

- Recovering only electrical and thermal energy is NOT enough
- Valuable resources are lost with current waste management methods. Waste containing embedded metals, like wire in tires and copper inside insulation may be recovered without any damage or melting as occurs in high temperature blast furnace, plasma, or mass burn conditions.
- High quality concrete products for construction made from carbon free ash
- Future retrofits will be available to capture all CO<sub>2</sub> and use it for valuable agricultural uses





# Best Practice means:

- metal is saved without melting



Nickle



Aluminum



Copper

EnEco's proprietary grate design allows for complete control of combustion air, allowing low gasification temperatures to preserve metals AND static grate significantly reduces fly ash.



# Best Practice means:

- less ash and no carbon

Very low turbulence gasification zone



CORE uses a unique grate. No new waste is pushed on top of partially decomposing waste. This stops the formation of fly ash from solid matter displacement.

Bottom ash is white at the ash discharge point,

AND

Carbon free ash = 2% of original volume.

Ash is removed dry: easily separated from metal, rare earth and glass that may then be recycled. Dry ash is an excellent concrete additive.

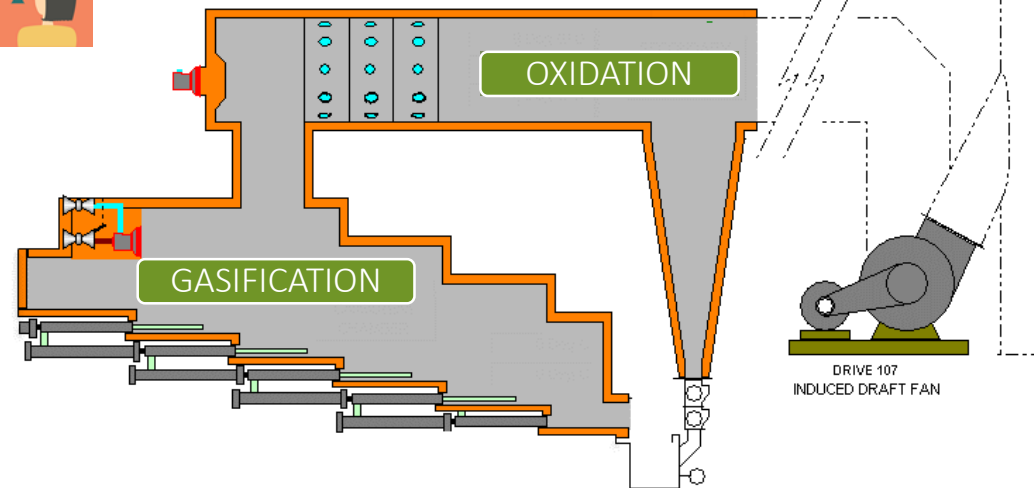
= Zero waste!



# The Technology – CORE M50 (Click Hyper-link to watch video of working plant)

- 2–stage thermal decomposition (by starved air gasification \ oxidation)
- 95% waste volume reduction, zero waste (No ash to landfill)
- meets the highest emission standards
- unsorted municipal, commercial, medical and oil contaminated wastes completely decontaminated and transformed
- no need to shred, mix, or sort waste
- long operational life of equipment
- Meets EPA standards

Reviewed by:



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# US Navy Project:

## - Demonstration of small scale system



SENT BY: ROICC SHIPYARD 17-20-90 3-31 ROICC SHIPYARD 37210032013217



DEPARTMENT OF THE NAVY  
ROICC MEDPAC  
PACNAVFACENSGCOM  
BOX 104  
PEARL HARBOR HI 96860-0421

N62742-91-C-1304  
Ser R4:SEL/1380  
January 28, 1998

MONTEREY MECHANICAL  
8275 SAN LEANDRO ST.  
OAKLAND, CA 94621

Gentlemen:


CONTRACT N62742-91-C-1304; FY93 MCON F008 ENECO TOPS  
GARBAGE AND REFUSE GASIFIER AT JOHNSTON ATOLL

A final inspection on April 19, 1997 of the work performed under the subject contract revealed that the work had been substantially completed. Attendance at this final inspection is shown in enclosure (1). Construction discrepancies noted at this final inspection were completed on April 30, 1997. Installation of a waste oil burner had not been complete at this time.

The contract provides for a one-year warranty against non-conformance with contract requirements and any defect of equipment, material or design furnished, or workmanship performed by the contractor. Under this warranty the Contractor is required to remedy, at his own expense, any such defect or failure, and to conform within a reasonable time after written notice to the Contractor. This warranty does not apply to Government-furnished equipment, material or design, except for work performed thereon by the Contractor. The one-year warranty period commences on the date of the final acceptance of the contract work, or the date the Government takes possession after "usable completion" but prior to final acceptance. A new one-year period, only for work repaired or completed under the warranty, commences on the date such repairs or replacements are completed. This warranty is exclusive of other remedies available for correction of latent defects or those resulting from fraud and gross mistakes amounting to fraud.

Government possession of the contract work identified above, with the exception of the waste oil burner, was taken on 30 April 1997. Consequently, the one-year warranty period initially commenced on 30 April 1997 for all items except the waste oil burner and items under contract modification A00003.

Sincerely,

  
S.E. Lantz  
LT. CEC, USN



# EnEco Engineering Team

- RAMBOLL

- Permitting
  - Site
  - Air
  - Modeling
- Greenhouse gas modeling / reporting
- Public Hearings



- SONNICHSEN LLC

- Thermal / Combustion Engineering
- Boiler design / efficiency
- Emission Controls
- Best Available Design Overviews



- MEGATECH

- EPC Contractor
- Equipment Engineering (Mechanical)
- Procurement
- Pre- assembly / testing



- MACROTECH

- Emission Controls Design
- Emission Control System Supplier
- Reagent formulation
- Chemical Engineers



- P2P TECHNOLOGIES

- Algae Reactor Design
- Algae applications specialist
- Algae harvesting
- Algae products design / formulation





# Thank You

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Waste to Energy Solutions, LLC 🌐

