



**G-force Plant  
Model MKIII**

How to tackle an Oily Waste Problem, New & Old

## Become a "Non-polluter"

A Generator of oily waste needs to start from a forward position.

1. The first rule of Environmental Management is, "Stop Polluting". Simple to state, but how? Easy, in our evaluation. To stop polluting one must first STOP DUMPING. This means take immediate steps to forget the waste that has already been dumped, literally everywhere, and look directly at the "fresh waste generated daily" which ends up in the a new dump place DAILY - somewhere!



2. How to STOP. Simply install a stop sign in front of where the trucks today deliver and dump their waste into the pit.
3. Somewhere near the stop sign install a MKIII Plant

[http://www.g-forcebv.com/Mk\\_III\\_OWTP.htm](http://www.g-forcebv.com/Mk_III_OWTP.htm)

4. This means nothing changes with the way you carry out your present operations for collecting and delivering waste for disposal. EXCEPT now instead of the trucks being allowed to dump into an open pit, they are required to unload into a dedicated tank receiving system designed to take any form of waste. This includes oily waste from vacuum trucks and tankers. The oily waste material can contain any size of rocks or other debris that vacuum trucks are able to suck up. All oily waste is received at the MKIII Plant self-cleaning tank that is heated, agitated and fitted with conveyors to remove any large particles that settle to the bottom where they are conveyed out of the tank into a solids waste skip. The balance of liquid waste, containing a mixture of oil-water-solids, is then immediately pumped into the MKIII process to be treated without delay - DAILY.
5. The MKIII process cleans the oil phase to specification set by you so that it can be recycled to your feed or to market, remember this is FRESH WASTE. The separated water will meet your water treatment facility specification and if you do not have such a facility, the MKIII is available with a water treatment package. The treated water will meet worldwide environmental standards for return to nature. This leaves only the solids separated from the oil-water. Solids are separated and conveyed from various process outlets along the MKIII treatment line and deposited into waste skips to meet environmental decommissioning standards according to USA and European regulations.
6. You have now reached the status of a "**Non-polluter**" and this can be certified through your local Environmental Authority. This is because you have stopped polluting by dumping your daily produced waste and have replaced dumping with a viable recycling program.
7. Receiving Environmental Certification as a "**Non-polluter**" is a highly commendable position to attain. Now that you have it what is NEXT ?

## Begin your "Clean-up" Program

1. Never start CLEAN-UP unless you have 1<sup>st</sup> STOPPED POLLUTING
2. Oddly enough the mistake made by most generators of oily waste is they think clean-up begins before becoming a "**Non-polluter**". They always look at the mess they have made and ask to have it cleaned before they have solved the problem of treating their fresh daily waste which is the reason the oily waste backlog of pits, lakes and lagoons exist in the first place. Therefore the STOP sign prevents future pollution by eliminating the fresh daily waste being dumped into the environment so that the backlog of oily waste can be properly attended to under a clean-up program. If you try to start by first cleaning your backlog of waste you remain a POLLUTER and your backlog waste will remain static because the fresh waste will offset the backlog of waste you are attempting to clean. Clearly put a STOP to this vicious circle by treating FIRST your volumes of fresh daily waste. Then look back to the old waste that has already been generated and embark on a clean-up program for this waste. This is how.
3. Economics is always the key factor to starting an environmental program. Attempting to start with the backlog of oily pit waste is the most costly approach and the one most difficult to get started because of these uncertainties: How to excavate, what to set up as a pre-process, what volume of waste exist, what size process is required for the volume, how long should I plan for the clean-up, what recovered oil specification can I expect, what is the value of the recovered oil, can I put the treated oil back into my process or should I sell it to a broker, what is its value, and how much will all this cost, etc, etc, etc? This series of questions always raised doubts as to who to employ for assistance and do they really know what they are talking about when it comes to a clean-up program for your backlog of oily waste volumes? Then this is compounded by site-closure and what is involved? More importantly, what is the overall cost? Another series of questions to raise more doubts. This is why we propose to start "economically" with the fresh daily waste for which our MKIII is designed.
4. What we are saying is that once a company gains the status of a Non-polluter they can then look to the second rule of Environmental Management: Begin a "**clean-up**" program for all existing dumpsites. How, this too is simple. From our experience our single MKIII Plant is capable of handling the "fresh daily" volumes of waste in a single 8-hour work shift (or less). This leaves the balance of the 2 other 8-hour work shifts (making up a 24 hour day) available to begin treatment of the "Back-log waste held in tanks, pits or other dump sites" during these other 2 shifts. Depending on the total volume of backlog waste determines how long the clean-up program will be in effect which will last until no past dump sites exist - finally they will have all been cleaned !
5. This then affords you the environmental title of "Clean Operator". At this level your company will have reach its highest environmental status !

## How the MKIII Plant elevates to Clean Operator Status

At this point it requires us to define our MKIII Plant Capacity and Recovered Oil Value.

**CAPACITY**, by experience we find that typical oily waste will process in our MKIII at:

- $5 \text{ m}^3/\text{hr} \times 8 \text{ hrs} \times 360 \text{ days/yr} = 14,400 \text{ m}^3/\text{year}$ , 1 shift 8 hr work day
- $5 \text{ m}^3/\text{hr} \times 16 \text{ hrs} \times 360 \text{ days/yr} = 28,800 \text{ m}^3/\text{year}$ , 2 shifts 16 hr work day
- $5 \text{ m}^3/\text{hr} \times 24 \text{ hrs} \times 360 \text{ days/yr} = 43,200 \text{ m}^3/\text{year}$ , 3 shifts 24 hr work day

The World Bank uses the following formula to calculate the generation of oily waste:

**“Each  $\text{m}^3$  of crude oil produced-refined generates from 1 kg to 3 kg of oily waste”**

Using the World Bank formula and the average of  $2 \text{ kg waste}/\text{m}^3$  of crude oil produced and refined applies to the following examples:

- $100,000 \text{ bbls/day} = \sim 16,000 \text{ m}^3/\text{day} \times 2\text{kg}/\text{m}^3 \text{ waste} = \sim 32 \text{ m}^3/\text{oilywaste}/\text{day}$   
 $= \sim 32 \text{ m}^3/\text{oilywaste}/\text{day} \times 30 \text{ days} = \sim 960 \text{ m}^3/\text{oilywaste}/\text{mo}$   
 $= \sim 960 \text{ m}^3/\text{oilywaste}/\text{mo} \times 12 \text{ mos} = \sim 11,520 \text{ m}^3/\text{oilywaste}/\text{yr}$
- MKIII Plant Capacity to clean the  $\sim 11,520 \text{ m}^3/\text{oilywaste}/\text{yr}$  from 100,000 bbls/day
  - **$14,400 \text{ m}^3/\text{yr}$** , 1 shift 8 hr work day to treat the  **$\sim 11,520 \text{ m}^3/\text{yr}$  Fresh Waste**
  - **$28,800 \text{ m}^3/\text{yr}$** , 2 shift 16 hr work day to treat the **BACKLOG WASTE**

**RECOVERED OIL VALUE**, of MKIII treated oil we use the Bunker Fuel Oil prices:

- IFO 380 ave price  $\$452/\text{m}^3$  on 15 Feb 10 at <http://www.bunkerworld.com/prices/>
- The fresh and backlog oily waste is a mixture of oil-water-solids. These ratios change according to their actual classification of waste however from experience fresh waste is generally 65% oil, 25% water and 10% solids. While backlog waste can have a greater oil-water-solids variation our excavation methods generally result in a higher ratio of recovered oil. For this report we will use the same fresh oil waste ratio of 65:25:10 for backlog waste and this applied to our above example of 100,000 bbls/day fresh + backlog waste will yield the following:
  - Fresh waste:  $11,520 \text{ m}^3/\text{yr} \times 65\% \text{ oil} = \sim 7,490 \text{ m}^3$  of recovered oil
  - Backlog waste:  $28,800 \text{ m}^3/\text{yr} \times 65\% \text{ oil} = \sim 18,720 \text{ m}^3$  of recovered oil
  - Total recovered oil:  $26,210 \text{ m}^3$  oil per year
- Total Value of Recovered Oil (15 Feb 10 at <http://www.bunkerworld.com/prices/>)
  - Fresh + backlog waste =  $26,210 \text{ m}^3 \text{ oil} \times \$452/\text{m}^3 = \$11,846,920/\text{year}$

## Applying our page 5 example to your operations

1. You might declare you produce LESS or MORE than the 100,000 bbl/day example. However using the 100,000 bbls/day you can apply the math from our example to your actual volumes to determine your plant capacity requirements and value of recoverable oil. Or we will work this out according to the data you provide us by completing [http://www.g-forcebv.com/Stop\\_Oil\\_Questionnaire.htm](http://www.g-forcebv.com/Stop_Oil_Questionnaire.htm).
2. The example utilizes the capacity of our “single line” MKIII Plant. If your capacities are greater it does not mean you required 2 or 3 or 4, etc., single line MKIII’s. Instead we expand capacity by adding certain individual modules to the MKIII. The important thing is not to look at the example and think we are limited by the capacity given on this example.
3. Remember we are proposing that you first consider only treating your fresh daily waste so as to become a “non-polluter”. To start do not look to the MKIII for doing both. Start with your fresh daily waste volumes and once you have a handle on this then look to applying the reserve capacity for clean-up of your old existing waste. In other words focus to become a non-polluter - first. This could mean you set up the 1<sup>st</sup> MKIII plant dedicated only to treat your fresh daily waste and afterwards (if your fresh daily waste consumes the capacity single line MKIII Plant) you can set up a 2<sup>nd</sup> MKIII (with expanded capacity if necessary) to clean-up your backlog waste. This decision is dependent on the volumes of backlog waste there is to treat and the time you decide to allow for the clean-up.
4. We have included the BunkerWorld WEB site so you have a direct reference to the oil values we have used in this example. These prices as you know fluctuate daily. However if you take only the 100,000 bbl/day example and the World Bank waste formula estimate of 11,520 m<sup>3</sup>/yr x 65% oil = ~7,490 m<sup>3</sup> of fresh daily waste recovered oil x \$452/m<sup>3</sup> this returns a recovered oil value of \$3,385,480 in the first year. Unless you plan to quit your oil production business this \$3,385,480/year return MUST be taken times the life span of your planned years of operations to truly illustrate the importance of immediately setting up as a “non-polluter” by treating your fresh annual waste. If this has raised the question of the investment, utility and manpower cost to purchase an MKIII plant allow us to say that the \$3,385,480 return in the first year will cover the full cost of the MKIII, including our turnkey delivery to your site, installation, commissioning, start-up operations and training of your locally assigned engineers.
5. Finally, because we hear this often, we reject the argument that this recovered oil is not suitable for return to your process line. *Remember we are proposing to start with your fresh daily-generated waste.* This represents the same oil that is already in your process. The waste recovered from your backlog (pits, lakes, lagoons & other dump sites) you might be able to argue its re-injection quality, but you still cannot argue its value as a fuel oil if sold independently to oil jobbers. So this we too reject. These points we consider excuses not to STOP.

## This Summarizes Our Challenge

G-force has as its core business turnkey solutions to oily waste management involving plant design, fabrication, installation, commissioning, start-up operations, training of local assigned engineers for competent handover of operations involving supplies and/or services for one or all of the following: waste excavation, treatment, recovery for recycling of oil, treatment of water for return to nature and decommissioning of oily solids and soils for return to nature all under compliance with the local or governmental environmental authority in the territory for which we operate.

Order our MKIII Plant today and it can be up and running at your site in 7 months.

Our experience has so far involved the supply of 24 Plants as under our employment with our OEM Partner and more recently over the past 10 years since establishing G-force involving the supply of 22 Plants. This supply period covers from 1990 to 2010 and the delivery of 46 plants to a variety of international customers over a broad base of worldwide installations.

G-force has the experience and qualifications to carry out what we propose under this “Become a Non-polluter” presentation. We encourage you to please contact us if you have the desire to begin this under your Waste Management Program.

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# Why Wait ?



Your solution is only an order away !