



# EnvTech, Inc

300 Edison Way  
Reno, NV. 89502  
tel. 1-877-841-9690  
(775) 856-2200  
fax (775) 856-3303

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## Refinery Case History

### Crude Upgraders - Venezuela

EnvTech has developed a variety of products to adapt to the most challenging refinery conditions. EnvTech's broad range of cleaning & decontamination formulations offers the unique ability to develop the precise blend of chemistries for each specific decontamination project. As a leader and innovator in the field of process equipment decontamination EnvTech became the first chemical cleaning company to perform successful chemical cleanings on Venezuela's crude upgraders. Due to the nature of the heavy crude from the Orinoco belt the decontamination of these systems pose numerous complex challenges from some of the worlds heaviest oil deposits to the presence of hazardous gases such as Hydrogen Sulfide.

By developing specific procedures and chemistries for each individual project including coker fractionators, atmospheric columns, vacuum columns, and desalters EnvTech was able to provide cleaning and decontamination of each circuit in under 24 hours. The results exceeded plant expectations to the point that much of the planned hydro-blasting work was eliminated . Furthermore, ZERO pyrophoric material was left behind. This includes several packed column sections.

As with all EnvTech projects, exceptional results were achieved while complying with health, safety, and environmental requirements. The amount of effluent was procedurally minimized, and the waste effluent that created was easily managed by the waste water plant or treated on-site for immediate disposal. In addition, the majority of the oil was recovered from the waste effluent.

As a result of these positive results , EnvTech was awarded chemical cleaning projects in multiple units at the "Jose Complex" where four Crude Upgraders are established today. All of these chemical cleaning projects were completed with similar success.

The following services were provided during the project:

- Comprehensive communication between EnvTech Project Managers and all refinery personnel including planners, operators, engineers.
  - Detailed project planning including: identification project requirements, development of detailed procedures & drawings, blinding requirements, and waste effluent handling strategy
  - State of the art equipment to create the required temporary circuits
  - 24 hour on-site consultation throughout the decontamination process
  - Post project review with the client to identify areas of potential improvement.
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# Refinery Case History Continued

## Decontamination of HF Alkylation Units

### The EnvTech Difference

#### The Benefits of ETI Cleaning & Gas Freeing Solution

- EnvTech's proprietary "Clean & Gas-Free" process utilizes a strong 8.8 pH buffer. As a result, neutralization is effected immediately upon contact during the initial phase of the cleaning. In addition, "dead legs" filled with acid are avoided since the solution that fills them is buffered. **Unnecessary corrosion is eliminated because the water that is introduced to the system is buffered. Personnel are not exposed to the risks associated with circulation of hot acid solutions containing levels of HF.**
- EnvTech's proprietary chelant is utilized to create a "single phase" removal of Iron Fluoride deposits in combination with the neutralization chemistry. This mixture has proven excellent for polymer removal and can be heated to as much as 225 degrees F without adverse effects.
- The EnvTech chemistry can, in most locations, be drained directly to the refinery's waste water system. Where fluoride levels present a concern, EnvTech has also developed a procedure for reducing the concentration below 5 ppm.
- This single phase method reduces the cleaning and neutralization of an entire Alkylation unit to **below 48 hours** and in some cases to 24 hours. This single benefit often encourages many turnaround management teams to utilize the EnvTech Difference.
- EnvTech has demonstrated the effectiveness and reliability of this process throughout the world. Due to the number of HF projects performed, the skill level and experience of ETI personnel is unmatched.
- EnvTech Engineers work closely with the refinery's HF Alky team to develop a detailed procedure that ensures all aspects of the system are neutralized in order to avoid leaving any pockets of HF for mechanical teams to discover. In addition, EnvTech is able to offer many cost cutting suggestions. Good planning and detailed discussions involving the EnvTech engineering team early on, create an excellent synergy and worthwhile results.

**References available upon request.**

