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# Application Note #7

## Xitech, QED and Clean Environment Comparison

In June of 1999 IT Corporation performed a technology comparison pilot study for the Navy at a site in California. The purpose of this pilot study was to observe how the top skimming technologies would perform under low vacuum conditions (BIO-VEPS conditions). It is Xitech's opinion that the pilot study procedures, operations, and data collection were carried out fairly for all skimmers. Section 4.8.2.3 clearly indicates that Xitech outperformed the other two skimmers (see excerpt of study attached as page 2). Xitech skimmers were selected by IT Corporation to be installed on this site in June of 2000.

### **Type of Skimmers tested:**

Xitech Skimmer: ADJ1000

Clean Environment Skimmer: GENIE+SPG-4 Standard

QED Skimmer: HIGH CAPACITY FERRET, Model HIWSFI12

### **Report Omissions:**

The Xitech Skimmer operated on 1 bottle of compressed gas for the entire test period, while both the GENIE and the FERRET required an air compressor.

### **Xitech's Conclusions:**

We do not agree with the emphasis stated in 4.8.2.4 that maintenance requirement is the most important factor. The cost of hauling off water as hazardous material has been our customers' biggest concern. The FERRET recovered 66% water, the GENIE recovered 45% water, and the Xitech ADJ1000 recovered only 3.8% water. It seemed from the Report Summary that water was really an issue.

Another major concern our customers have is minimum product layer achievable by skimmers. The GENIE's minimum product layer was 1 inch, where as both the Xitech ADJ1000 and the FERRET's minimum product layer was a sheen.

#### ***4.8.2.2 Extraction Well Yield***

The product yields of each well during each week of the pilot test (Table 4-3) were similar (i.e. for each skimmer pump). The average daily recovery rates were 3.22, 1.40, and 7.33 gpd from extraction wells EW-2, JMM01-MW06, and JMM01-MW05, respectively. The average recovery rate for one well (from the 3 test wells) was 4 gpd. The cumulative product volumes recovered are presented graphically in Appendix E, and indicate that the yield of each well was constant during the test. However, the yield is expected to decrease over time during a long-term operation.

#### ***4.8.2.3 Skimmer Recovery Rates***

The extraction rates and total volumes of each pump are summarized in Table 4-3. The total volumes of product and water extracted using the QED pump were 66.5 and 130.5 gallons, respectively. A total of 53.5 gallons of product and 44.0 gallons of water was extracted with the CEE pump, and 67.5 gallons of product and 2.7 gallons of water with the Xitech pump. However, the product recovery volumes can not be directly compared because the CEE pump only operated for three of the five days at well JMM01-MW05, the most productive well.

Water recovery to product recovery ratios for the skimmers were calculated at 2.6 for the QED skimmer, 1.5 for the CEE skimmer, and 0.0 for the Xitech skimmer.

The pumping rates of all 3 skimmers are higher than the yield of Site 1 wells; therefore, each of the skimmers has sufficient capacity.

#### ***4.8.2.4 Skimmer Comparison***

The performance of the three skimmers was compared using the following criteria: operation and efficiency, maintenance and troubleshooting, technical advantages and disadvantages. The test included a change of an extraction well during the first week and troubleshooting of the skimmers during most of the first two weeks. The last week of operation shows each skimmer at its best performance and was used to evaluate the overall performance. The emphasis was put on the maintenance requirement as the most important factor for long-term operation. The skimmer parts and accessories are presented in Appendix:E. The comparison is summarized in Table 4-4.

#### ***Operation and Efficiency***

The CEE skimmer - The skimmer is assembled at the bottom of the bladder pump, and the controller is mounted on top of the pump for in-well control. This assembly leaves no part above

*MZ/21Aug99/ WSTDIV/PLANS/DO93/PEPSTUDY.DFT*