APPLICATION NOTE #2

API OIL SKIMMER INTERFACE CONTROL

INTRODUCTION

The AGAR SYSTEM 2 provides automatic monitoring and indication of accumulated hydrocarbon in API skimmer systems. When used in conjunction with mechanical or pneumatic actuators, the system provides complete automatic control of the oil recovery process. When utilized in manually controlled systems, it provides visual feedback for skimmer operation.

ECONOMIC BENEFITS

The use of any control system can be evaluated by the improvement in the operation of the process controlled and the economic benefits derived. The benefits derived from the AGAR SYSTEM 2 in Oil Skimmer Applications can best be summarized as follows:

1. **Elimination of Wastewater Recycling**
   Recovered hydrocarbon is generally routed to recovered oil or "slop" tankage. There the hydrocarbon is allowed residence time for further separation (dehydration) before reprocessing. The free water from this separation is commonly returned to intermediate storage via slop tank dewatering. When free water is recovered at the floating skimmer, a cycle is established with the same water incrementally recovered and processed over and over again. This increases the load on the wastewater system, requiring more work to manage the recovered oil tankage. The System 2 breaks this cycle by stopping free water recovery at the oil skimmer.

2. **Higher Quality Recovered Hydrocarbon**
   Adjustable relay control points allow control of the water content of the recovered fluid and can significantly reduce the potential for free water recovery at the skimmer. The recovery of free water drastically reduces the total oil volume recoverable, (manually operated systems commonly recover more than fifty times more water than oil). This controlled free water volume recovery allows for a longer retention time in slop oil tankage producing a much "drier" hydrocarbon for reprocessing.

3. **Decreased Chemical Usage**
   Where chemical demulsifiers are fed to enhance slop oil dehydration, they are fed based on the volume of fluid transferred to the slop tanks. Reducing the total fluid recovered (by eliminating free water) will proportionally decrease consumed chemicals.

4. **Improved Wastewater Quality**
   The System 2 insures that free phase hydrocarbon cannot escape with the water phase. This reduces the oil load on downstream "polishing" systems (e.g., IAF and DAF). The result is a higher quality effluent with lower operating cost.

DESCRIPTION OF COMPONENTS

The System 2 consists of two vertically mounted AGAR ID-201 Interface Detectors. The AGAR ID-201s measure the volume percent water over the complete range from 0-100%. The output signals from each instrument are processed through a simple logic circuit that, in turn, provides relay outputs for the operation of the oil skimmer (manual or automatic). Local indicating lights provide instruction for skimmer operation in manual systems and skimmer position status in automatic systems.

SYSTEM ADJUSTMENT

The AGAR System 2 offers complete control flexibility in two ways:

1. The position of the sensing element (point of measurement) of each ID-201 can be adjusted to read at any level below the skimmer.

2. The relay set point of each ID-201 can be adjusted to trip at any point in the 0-100% range. This allows flexibility in determining the amount of water and oil that will activate the relay.

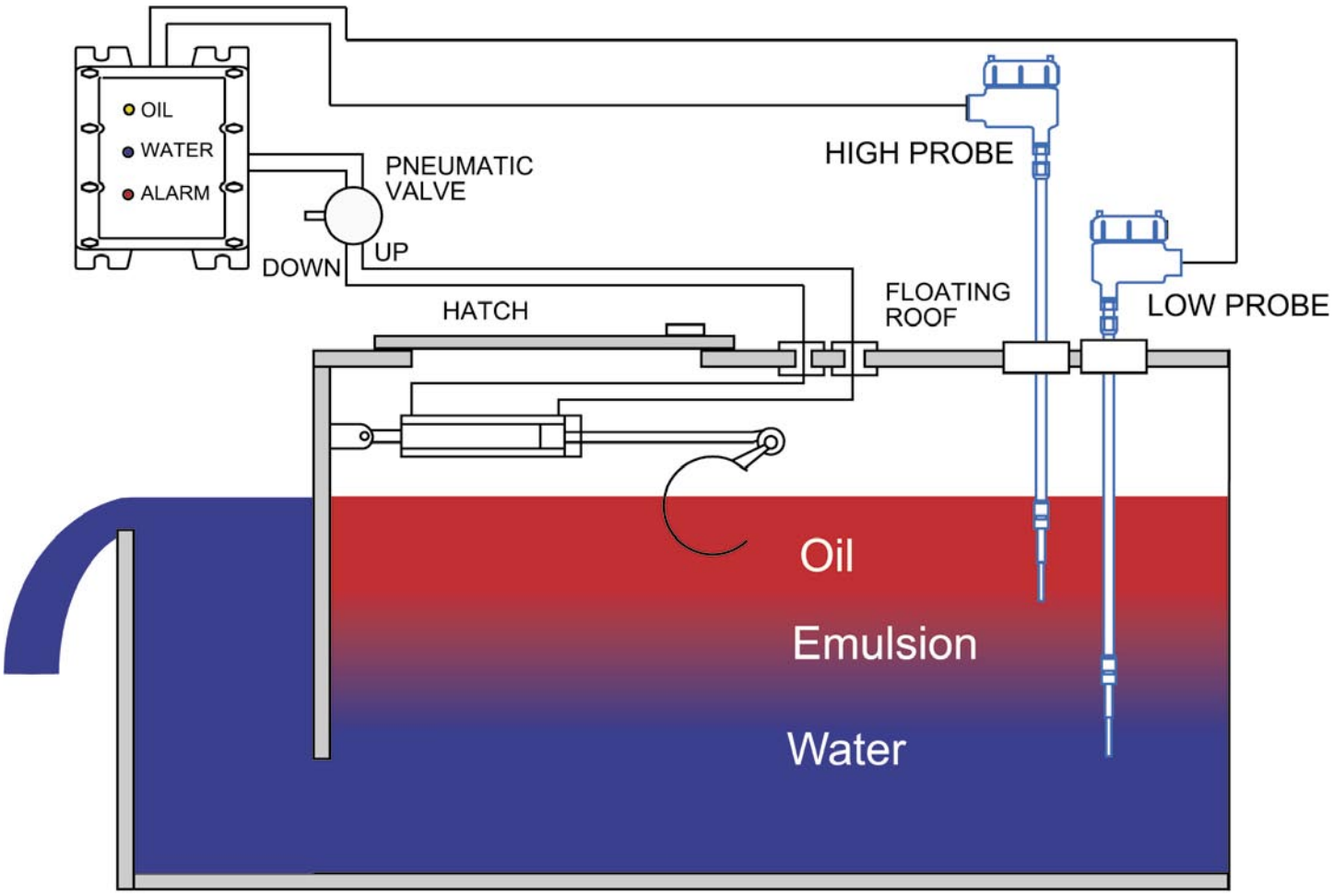
In manual mode (indicating lights only), the use of the AGAR System 2 allows the operator to properly determine the control of the skimmer. The operator can then prevent the recovery of free water and control the water content of the recovered hydrocarbon.

At the same time, the system controls the amount (depth) of hydrocarbon allowed to accumulate so that the effluent water is not contaminated. In automatic operation, the same control benefits are realized without operator activities.

SUMMARY

The AGAR System 2 is a simple and extremely cost-effective means to improve the efficiency of hydrocarbon recovery from floating oil skimming systems. By providing the means to monitor water content of fluid below the surface of the liquid, it allows for control of the timing of the skimming process. The benefits of this more sophisticated control are economically significant.

SYSTEM #2 LOGIC TABLE					
ID-201 PROBES		PIPE ACTION	LIGHTS		
HIGH	LOW		OIL YELLOW	WATER BLUE	ALARM RED
WATER	WATER	UP	OFF	ON	OFF
OIL	WATER	UP	OFF	ON	OFF
OIL	OIL	DOWN	ON	OFF	OFF
OIL	WATER	DOWN	ON	OFF	OFF
WATER	OIL		ON	OFF	ON



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