Monthly Report

August, 1997

TOSCO Refinery at Rodeo
Fenceline Monitor System

FTIR System

Operation:

The North FTIR on stream efficiency was 85.0 percent with no weather related down time. Down time resulted primarily from component failure. The detector optics were cleaned. Significant obstruction of the timing laser was noted. The system performed well after cleaning.

The South FTIR on stream efficiency was 30.9 percent with no weather related down time. Most of the down time was due to component failure. Maintaining operation of the north FTIR was a higher priority due to the direction of prevailing winds at this time of year. After failure of the north FTIR detector cooler, the FTIR from the south fence line was relocated to the north. When the repaired unit was returned, it was installed on the south fence line. The detector module on the repaired FTIR was scheduled for service, but the spare detector module was already in use due to premature failure of another. The detector was tested several times and performed satisfactorily before it was returned to service on the south fence line. However, performance of the detector degraded, and it eventually failed before the replacement was serviced and returned. A loaner was acquired from ETG to replace the warranted detector. It was installed and the unit brought back on line.

One of the detector cryogenic cooling units failed twice before scheduled maintenance. This unit is being replaced under warranty.

Data:

The ambient gas QA compound results for the North Sensor show the mean Nitrous Oxide concentration was 0.26 ppm with a 0.026 ppm or 10.0 percent standard deviation, and the mean Methane concentration was 1.66 ppm with a 0.23 ppm or 13.7 percent standard deviation.

The ambient gas QA compound results for the South Sensor show the mean Nitrous Oxide concentration was 0.48 ppm with a 0.074 ppm or 15.3 percent standard deviation, and the mean Methane concentration was 1.22 ppm with a 0.10 ppm or 8.1 percent standard deviation. Higher than normal Nitrous Oxide results were associated with the equipment difficulties on the south FTIR. As long as equipment will collect data that is useful for the primary objective of early warning of releases, it is allowed to run even though it is not running optimally. This results in the observed variances from normal QA values.

Data summary reports are attached. Methane concentrations are below the expected minimum, but are consistent. There are a number of false positives and elevated detection limits associated with the North FTIR malfunction. Diethanolamine and some Ethyl Benzene results are post-processed results. Difficulties in incorporating the Diethanolamine into the script file have been resolved. Both compounds are now being monitored in real time.

TDLS System

OPERATION:

The south Ammonia and H_2S TDL systems malfunctioned due to a brief power outage at the shelter. The result was erroneous values reported for several days until the cause of the problem could be determined and corrective action taken. The instruments are not yet equipped to compensate for differences in start-up temperatures resulting from sudden power cycles. The hardware and software upgrades to provide this compensation are scheduled for the next release. They are currently being tested by Boreal and are expected to be installed at the TOSCO refinery in October or November. Most of the reported downtime was due to data logging difficulties early in the reporting period. These have been resolved.

DATA:

A few low level concentration alarm values were exceeded during the malfunction on the south fence line. These data points and most of the other points associated with the intrument malfunction were shown to be false positives during data screening. Most of them were documented as false positive by improved data screening using recorded instrument validation data. Data summary reports are attached.

UV System

OPERATION:

Start-up problems with the UV data system software have not been fully resolved. A possible cause with the remote control software is being investigated.

Previously reported difficulties with the UV data system logging are apparently related to automatic system alignment checks. This is reflected in the reported down time. The system occasionally fails to create a new file and initiate data logging after the alignment checks are completed. However, for most of the reported downtime, the system was reporting data to the monitoring computer. Sci-Tec is investigating the problem. In the interim, a manual check has been added to our scheduled system check to verify that the files are being updated. Approximately five percent of the reported downtime was due to data logging difficulties early in the reporting period that have since been resolved.

DATA:

Data summaries are attached.

VOC System

OPERATION:

One of the Combustible gas detectors was taken off line and parts returned to Sensor Electronics for evaluation of the baseline drift problem. The cause was determined to be a design problem in the signal amplifiers. It was largely eliminated by a minor hardware modification performed on site. A slight drift remains. It is still being monitored and evaluated.

Detector error conditions were being reported as high concentration values. The signal from the radio communications system is apparently not what was expected during sensor error conditions. The company responsible for the radio system has been contacted.

Most of the reported downtime was due to data logging difficulties early in the reporting period. These have been resolved.

DATA:

Data summaries are attached.