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Workgroup Recommendations and Other Potential Control Measures
VOC Workgroup

VOC005 – Expanding Refinery Controls to Other Similar Facilities

Expansion of leak detection and repair programs to additional sources within refineries, target potential emission sources outside of refineries, and use new technology of infrared camera to identify VOC leaks from major and minor sources.

DESCRIPTION

Within the workgroup process, various discussions of Leak Detection and Repair were held.
The concepts are: 1) Expand leak detection and repair to previously unidentified sources at existing Leak Detection and Repair (LDAR) affected facilities, such as heat exchangers, etc. 2) Expand leak Detection and repair to facilities that are currently not regulated by LDAR, that is to incorporate certain facilities and operations where fugitive emissions are potentially large emission sources. 3) Another concept is to take a holistic approach to a facility by reviewing the entire site with infrared camera technology. 4) Furthermore, possibly using the same infrared camera technology to an entire geographical area or specific sources of concern as an enforcement tool or as a public educational program.

As an example of the Fugitive Emission situation, in October 1999, the USEPA issued an "Enforcement Alert" concerning Leak Detection and Repair and asserting that existing LDAR may be missing more leaks than anticipated, resulting in as much as 80 million pounds of emissions nationally per year.[2]

IMPLEMENTATION

1) Expansion of LDAR to previously unidentified sources as existing LDAR facilities will require those facilities to expand their leak Detection program. This will require minor regulatory changes.
2) Expansion of LDAR to facilities currently unregulated by LDAR will also require regulatory changes. Furthermore, NJDEP will need to identify exactly which sources should be included.
3) Reviewing an entire facility with an infrared camera technology would require the approval of this new technology. Upon approval, it would then need a regulatory change to substitute this in lieu of the current Leak Detection and Repair program. These infrared cameras would then need to be purchased by facilities or be available through consultants.
4) Expansion of the use of Infrared technology for enforcement and/or educational purposes would require the DEP to purchase this technology or procure this technology through a SEP agreement. Use as an enforcement tool would require certification of the technology.

COST

1) The cost of an expanded LDAR at existing facilities would be in the term of man-hours expended by the facility. This is highly variable based on the degree of LDAR expansion, the proficiency of the LDAR testers and even the location of any newly expanded testing. It would not require additional capital expense to monitor. Some of the costs would be offset by product recovery.
2) The cost of expansion of LDAR to currently unregulated facilities would involve cost to the newly regulated facilities. Leak Detection equipment, employee training, monitoring, recordkeeping and reporting are additional costs to the newly regulated facility.

Disclaimer – The recommendations contained within this white paper do not constitute official state decisions nor reflect any pending regulatory or nonregulatory actions. The NJDEP welcomes public feedback on this (or any other) white paper.

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3) The cost of reviewing an entire facility by Infrared technology would be the cost of this equipment, currently estimated at $ 30,000. However, if facilities subcontracted this testing, the costs could be much lower and in lieu of capital investment, could instead be a periodic fee.
4) The cost of using infrared technology as an enforcement tool or for educational outreach would be the initial cost of the equipment and costs of recalibration. This cost, at $ 30,000 each, could be borne by an environmental violator through a SEP. Additionally, some costs would then be recovered by penalties assessed against the newly discovered violations.

EFFECTIVENESS

The effectiveness of expanding leak detection and repair is not necessarily in reducing known existing emissions as much as identify unknown emissions and reducing them. Therefore, this would not reduce the existing inventory, but instead identify fugitive air emissions, which are currently difficult to quantify and are estimated in most Emission Statements and inventories, and contribute to poor air quality. Furthermore, in identifying gaseous VOCs, many of these are Hazardous Air Pollutants, which further adversely impact human health. The effectiveness of this proposal is not necessarily directly quantifiable.

COST EFFECTIVENESS

As effectiveness is not quantifiable in specific tons per year, therefore cost effectiveness is not directly quantifiable either.

SOURCES

1. VOC Workgroup Report
   http://www.state.nj.us/dep/airworkgroups/docs/final_voc_workgroup_report.pdf
2. USEPA Enforcement Alert on LDAR:
   http://www.epa.gov/compliance/resources/newsletters/civil/enfalert/emissions.pdf
3. http://www.leaksurveysinc.com/hawks_work.htm

NOTE: The NJDEP does not endorse any specific product, this is for informational purposes only

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