Integrated Management System

Contractor Management Guidance Document

Atmospheric Monitoring (Gas Testing)

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1. INTRODUCTION

Contractor Guidance Documents (CGD) are designed ensure that Contractors, Subcontractors and Service Providers working at the Company's Petrol Filling Stations are aware of the hazards associated to working at these locations and the Company's basic requirements for specific types of work that have been identified as involving significant risk (**Major Work**).

The Company requires Contractors, Subcontractors and Service Providers to ensure that the Safe Methods of Working and Risk Assessment and Method Statements (RAMS) produced for an assigned scope of work include relevant aspects from the guidance provided to ensure that:

- Work site and task specific risks are identified risks
- Suitable and sufficient risk reduction measures (i.e., controls) are identified and detailed in the work control documents; and
- Assigned work activities are:
    - Effectively described; and
    - Performed safely

Note 1.1: For the purpose of this Contractor Guidance Document, Contractors, Subcontractors and Service Providers will be referred to collectively as **Contractors**.

Contractor Guidance Documents are considered a useful guide to Contractors regarding Company expectations for the safe performance of work, as they take account of the potential hazards present at a Petrol Filling Station and set minimum standards for the performance of work tasks that the Company is not sufficiently knowledgeable of, or experienced in, to allow the development of suitable and sufficient risk assessments and method Statements (RAMS).

The responsibility for ensuring work tasks are performed safely remains with the Contractor who must ensure that working practices are critically assessed, with due consideration given to the information provided in the Contractor Guidance Documents.

Note 1.2: Contractor Guidance Documents **DO NOT** override or relieve Contractors of their statutory obligations under applicable legislation.

2. PURPOSE

This Contractor Guidance Document details MFG's minimum expectations regarding Atmospheric Monitoring (i.e., Gas Testing) at Company Petrol Filling Stations to ensure that Contractors are aware of the expectation place on them both by the Client (i.e., MFG) and applicable legal obligations and are able to safely perform assigned work tasks.

Note 2.1: If clarification or further understanding of the content of this Contractor Guidance Document is required, Contractors must contact the HSE Manager (MFG) via HSE_Team@Motorfuelgroup.com.

3. GENERAL GUIDANCE

3.1 INTENT

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to provide trained and competent individuals to perform atmospheric gas testing and periodic gas monitoring for work involving significant risk (**Major Works**).

3.2 WORK CONTROL

Work tasks assigned to Contractors will be assessed to identify potential hazards and the associated risk. Work identified as involving significant risk will be categorised as **Major Works**, requiring a **Work Control Permit** (**WCP**) to be prepared, authorised and issued.

Contractors will conduct a work site inspection to identify if risks of exposure to a potentially hazardous atmosphere exist and if present the risk reduction measures (i.e., controls) required to reduce risk to an acceptable level, these will include atmospheric gas testing and subsequent monitoring.

3.3 Atmospheric Monitoring (Gas Testing)

Gas testing and periodic gas monitoring at Company Petrol Stations will be performed by a Contractor's designated representative, who will be referred to as the **Authorised Person**. The Authorised Person will be trained and competent to perform the range of gas tests and periodic gas monitoring activities required, including gas detection equipment inspection, maintenance, certification and use.

3.4 Gas Detection Equipment

Portable gas detector equipment will be used to test and monitor atmospheric conditions at a work site, and include use of the following types of gas detection equipment:

- Battery operated handheld pump type gas detectors; or
- Personal monitors worn by workers to protect against identified vapours of concern, for example:
    - Flammable vapour
    - Hydrogen Sulphide; and
    - Carbon Monoxide

Note 3.4.1: Typically, handheld pump type gas detectors are used to test for potentially hazardous atmosphere in the workplace prior to starting work, while a personal monitor is worn during specific tasks jobs or in specific work environments to alert the wearer to a potentially hazardous condition.

The Authorised Person will ensure that portable gas detection equipment is inspected, maintained, tested, and used in accordance with the manufacturer's recommendations. Depending on the type of gas detection equipment selected for use, the inspection and test requirements may include but are not limited to:

Visual Inspection:

Immediately prior to use to ensure that the instrument is complete in all aspects, undamaged and functions correctly.

Functional Check:

Self-calibration check that is performed in a clean atmosphere, immediately prior to use.

Bump Test:

Where recommended by the manufacturer, a qualitative functional check will be carried out prior to daily use, during which a challenge gas is passed over the sensors, at a concentration and exposure time sufficient to activate all alarm settings.

- **Periodic Calibration (Manufacturer's Recommendations):**
- Performed by an authorised service provider to verify that the sensors and alarms respond within the manufacturer's acceptable limits though exposing the instrument to test gases.

3.5 Gas Detection Equipment: Alarm Settings

Gas detection equipment will be set to alarm at a specified gas concentration, or when a set point is exceeded. Alarms will:

- Be audible and visible
- Not stop or reset unless deliberate action is taken by the user
- Set to alarm at a level designed to ensure the health and safety of personnel

Table 3.5.1 provides guidance for portable gas detector alarm settings.

Table 3.5.1: Alarm Settings

Recommended Alarm Settings for Portable Gas Detection Equipment			
Oxygen	**Flammable Vapour**	**Hydrogen Sulfide**	**Carbon Monoxide**
<19.5 and > 23.0%	10% Lower Explosive Limit	10 ppm	30 ppm

3.6 Personal Monitors

Personal gas monitors will be worn by workers while performing potentially hazardous work at a work site. The types of personal monitor available include, but may not be limited to:

- **Single Gas Monitor:**
  Used to continuously monitor, and detect the presence of a single hazardous vapour, typically Hydrogen Sulfide (H_2S).
- **Four (4) Head Gas Monitor:**
  Used to continuously monitor, and detect the presence of, four (4) different hazardous vapours/gases, for example:
  - Oxygen (O_2)
  - Low Explosive Limit (LEL), for flammable vapours
  - Hydrogen Sulfide (H_2S)
  - Carbon Monoxide (CO)

If specified as a risk reduction measure (i.e., control) **wearers** will ensure that personal monitors are:

- Maintained fit for purpose
- Inspected immediately prior to and after use for signs of damage and/or defect
  Note 3.6.1: Damaged or defective monitors will not be returned to service until they have been repaired by Competent Personnel and recertified as fit for purpose.
- Routinely bump tested in accordance with the manufacturer's recommendations, if designed to be bump tested
- Worn in front of the upper body (i.e., upper chest area) to provide protection against vapours entering the wearer's breathing zone
  Note 3.6.2: Personal monitors must not be attached to hard hats, placed in pockets not designed to carry a monitor and/or carried in a manner that prevents effective operation of the instrument.

When use of a personal monitor is identified as a risk reduction measure (i.e., control) **Contractors** will:

- Provide their employees with the:
  - Appropriate type of monitor for the job and work environment; and
  - Information and training required, to safely use and properly maintain the monitor
- Maintain appropriate records of inspection and test; and
- Provide the MFG Representative with records of monitor inspection and test on request

4. Atmospheric Monitoring (Gas Testing)

4.1 Authorised Person

The Authorised Person will:

- Be properly trained and competent to:
  - Perform gas testing and periodic gas monitoring
  - Inspect and maintain the gas detection equipment

  - Use the gas detection equipment safely and effectively in the workplace
- Use gas detection equipment that is fit for purpose and correctly calibrated
- Identify the potential and actual hazards and related risks associated with the:
  - Work site; and
  - Those created by the work to be performed
- Use proper procedures and precautions for gas testing and periodic gas monitoring
- Perform all required gas tests; and
- Confirm that the atmosphere at the work site is safe to allow the proposed work to proceed

The following are considered safe levels to allow work to proceed:

- **Oxygen:** 19.5 to 23.0%
- **Flammable Vapour:** ≤5% LEL
- **Hydrogen Sulphide:** <10 ppm
- **Carbon Monoxide:** <30 ppm; and
- **Benzene:** <1 ppm

Note 4.1.1: As a minimum gas testing and periodic gas monitoring will include oxygen and flammable vapour. The Authorised Person is responsible for ensuring that all vapours of concern are identified prior to performing gas testing activities, and that relevant and proper testing for each hazardous vapour identified is performed.

4.2 Performing Gas Tests

The Authorised Person will:

- Perform a work site hazard assessment to identify the:
  - Potential hazardous vapour exposure hazards
  - Hazardous vapours to be tested; and
  - Types of testing required for each of the identified hazardous vapours
- Review planned scope of work and supporting Risk Assessment and Method Statement (RAMS)
- Select and use the necessary Personal Protective Equipment (PPE), including respiratory protection if required
- Ensure the gas detection equipment is suitable for intended use:
  - Correct type and range of gas detectors
  - Visually inspected for signs of damage
  - Calibrated, and within test; and
  - Bump tested, if applicable
- Only use the manufacturer's recommended accessories
- Allow sufficient time for the instrument to stabilise if stored at a temperature significantly different **(+/-10ºC**), to the area in which gas testing is to be carried out
- Switch on the gas detector in a clean atmosphere, and allow the instrument to self-test
- Take readings from the:
  - Perimeter of the work site to the actual work site, entering the work location from an up-wind direction; and
  - Work site and surrounding area (e.g., within a 25-feet radius)

    Note 4.2.1: This distance may vary depending on the nature and complexity of the job and hazards created.
- Take vapour reading, as applicable, at:

  - Ground level
  - Breathing zone (consider position of worker when performing the job)
  - Drain covers
  - Pipeline openings and/or flanges
  - Equipment connections and/or disconnections
  - Vent facilities (e.g., pressure relief valve / thermal relief valve)
  - Sumps, pits, gullies, or drainage channels
  - Within a confined space (**Do Not Enter**, use an extension wand)
- Allow sufficient time for a representative sample to be drawn through the gas detector equipment
- Avoid drawing water and/or other chemicals into gas detector or exposing the instrument to chemicals or substances that may poison the instrument's sensors
- Continually monitor the gas detector and record the highest readings obtained

  Note 4.2.2: Immediately exit the work location on detecting any reading of flammable or toxic vapours that is outside the permitted limits.
- Record the gas test results (e.g., Work Control Permit (WCP) or designated report form)
- Only authorise work to commence if the gas test results provide a positive indication that the work site is free of hazardous vapours
- Ensure the gas detection equipment is stored in a dry, clean, and dust-free environment and away from chemical vapours

4.3 Periodic Gas Monitoring

The Authorised Person will identify and advise the affected personnel (e.g., Job Supervisor, Job Crew and others impacted by the proposed work) any requirement for periodic gas monitoring. Requirements for periodic gas monitoring include:

- Gas testing to be performed and the test results recorded at intervals not exceeding two (2) hours

  Note 4.3.1: The Authorised will identify acceptable intervals for periodic gas monitoring based on work site conditions, the work being performed and the potential for unplanned releases of hazardous vapours.
- If periodic gas monitoring test results differ significantly (e.g., ≥10% LEL or +/- 2% oxygen) from the previous test results:
  - All works will be suspended
  - The work site evacuated
  - An investigation carried out to identify the source of the change; and
  - Corrective actions are implemented to return the work site to a safe condition.

  Note 4.3.2: Work will not restart until the work site is confirmed via gas testing, to be safe.

4.4 Continuous Monitoring

Continuous monitoring refers to the placement of gas detection equipment at a work site (including within a confined space during entry) while the identified work is performed to allow the continuous monitoring of the atmosphere for hazardous vapours. Continuous monitoring is required, at a minimum, when:

- Personnel are required to wear supplied air respiratory protection in a confined space
- Specific types of hot work are taking place in a classified area place; and
- Identified in the RAMS and/or Work Control Permit (WCP) as a control measure

If continuous monitoring is required, the following minimum requirements will be met:

- The gas detection equipment will be positioned by the Authorised Person
- The Job Crew and other affected personnel at the work site will be advised of the actions to be taken if the gas detector goes into alarm mode
- Periodic readings will be recorded (e.g., Work Control Permit or designated report form)
- The Authorised Person will attend the work site periodically (based on scope and duration of job), throughout the work to confirm the correct functioning of the gas detector and that conditions have not changed

Note 4.4.1: Continuous monitoring of a work site will not be used during work activities that involve high pressure water jetting, grit blasting or steam cleaning as these activities may affect the accuracy of the gas detector. Under such circumstances periodic follow-up testing will be carried at intervals, appropriate to the potential hazards created by the work, but not greater than hourly.