

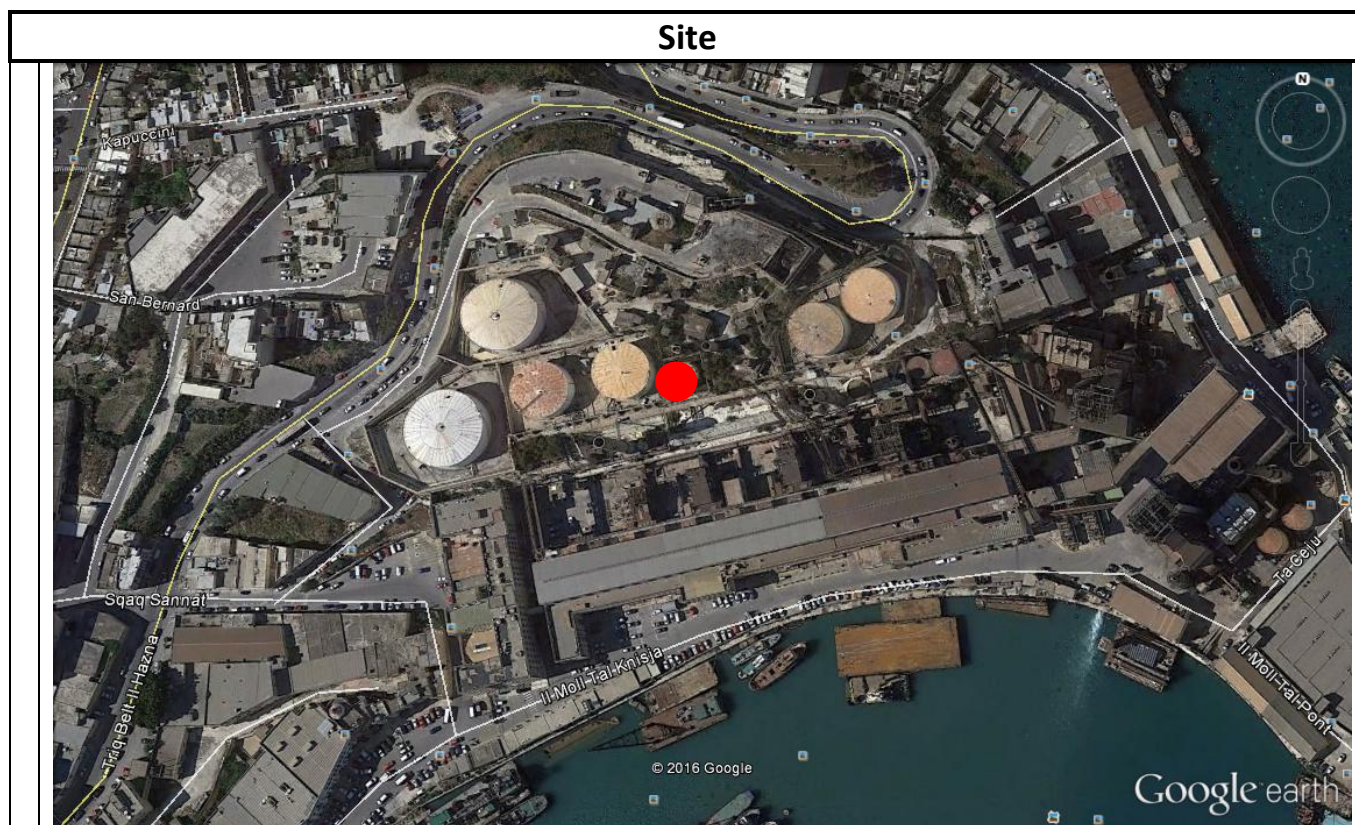
Employer: **Enemalta Plc**Date: **07 / 06 /2017**

Time:

Venue:

Job ref: **MPS-MS-09-Sludge
Tank**Issue date: **08/06/2017**

| | | | | | |
|------------------------|--|------|---------|--|--|
| Works Method Statement | 2 | Area | Zone 09 | | |
| Description of Works | To clean, decontaminate and dismantle in a safe procedure Sludge tank in Zone 9 and export the cut metal sections for export to an authorized company. | | | | |



The report should be read in conjunction with preliminary reports already submitted where all relevant information on Health and Safety and established legal notices are supplied.

Size of Bounded Area : c. 260sq.m

Size of Tank : (Dia. 11m.) c. 35sq.m

Volume of Oil sludge present: c. 300cu.m

| Works Method Statement | | | |
|------------------------|---|--------|-------------|
| Item | Description | Action | Target Date |
| 1.0 | DESCRIPTION OF WORKS / SCOPE OF WORKS | | |
| | <p>The dismantling of the existing sludge tank at the Enemalta Power Station, Marsa (MPS), entail the removal of all residual fuel oils as well as certifying the acceptable levels of Volatile Organic Compounds (VOC's) as well as Particulate Matter smaller than 10 micrometres diameter (PM10'S)during and at the end of the dismantling programme.</p> <p>The tank measures circa 6.1m in height and around 10.7m in dia with a maximum capacity of circa 550cu.m. having inspected the tank it seems to be around 80% full thus estimated amount of waste is circa 440cu.m.</p> | | |
| | <p>The site map above shows the location of the Sludge tank at the MPS which is shaded in red. The fuel and settled sludge shall be emptied into appropriate containers using negative pressure pumps. Accessibility of the hoses shall be from the existing manholes, at the lower levels of the tanks. If these manholes are non usable, a pump would be lowered inside the sludge from above.</p> <p>The residual sludge shall be removed by personnel using manual tools. This will be carried out through first opening holes in the side areas of the tank. The sludge will be picked up using hand tools and placed manually in IBCs placed close to the tank. If the area is high, an external scaffolding will be erected for easier access.</p> <p>Once the main volume of the sludge is removed, cleaning of residual oil stains along the walls will be carried out through the scraping off of the matter and finally through washing using water and soap.</p> <p>The generated waters will be placed in IBCs and carried off site and treated as hazardous oily waters using relative EWC codes as outlined in the Hazmat.</p> <p>Fresh air shall be blown from the top of the tank in order to provide fresh air for the safety of the workers. The workers shall wear protective clothing. Continuous monitoring shall be effected prior and during the cleaning of the tank bottoms.</p> <p>The monitored parameters shall be PM10's and VOC's.</p> | | |

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| | <p>Continuous monitoring of the VOC for safe occupational and explosion working levels shall be carried out especially during the hot flame cutting procedure.</p> <p>Once all the sludge has been emptied into appropriate IBCs and carted off site using waste codes outlined in the Hazmat, the tank will be checked for any gasses and left to ventilate in order to expel any eventual gasses.</p> <p>Following safety checks, the tank will be hot cut from the external side whilst at the same time a crane will be used to hoist the upper area of the tanks. Once cut, that tank elements will be placed on site and either hot cut into smaller pieces or rendered pronto forno using heavy machinery.</p> | | |
| 2.0 | SAFET ISSUES AND PRECAUTIONS | | |
| | Noise. If persons employed at work have to shout or have to raise their voice to be heard when standing about two metres apart from each other a noise problem exists. | | |
| | Vibrations. In the early stages, vibrations cause slight tingling and numbness in the fingers. Often this stops at breaks and lunch times. Individuals take little or no notice and therefore it not noticed and the condition can go un-checked | | |
| | Dust & Fuel Vapours. Controls required form the basis –of assessments under the Control of Substances Hazardous to Health Regulations. It is expected that dust and potentially vapours will be created. Bearing in mind that the working area is a domestic environment there is limited action that can be taken. | | |
| 3.0 | WORKS METHODOLOGY | | |
| | Dates work to start: circa 14 th September | | |
| | Dates work to complete: To be advised. | | |
| | Duration of works (how long): c. 4 weeks | | |
| | Hours of work: To be advised | | |
| | No intervention to bounded structure is being considered since all material will be hauled over the existing bounded structure using a crane. | | |
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| 4.0 | TIMEFRAMES | | |
| | Preparation works – 1 to 2days | | |
| | Emptying works – 10 days | | |
| | Cutting, Demolition and carting away – 5 days | | |
| | Site cleaning – 1 day | | |
| | | | |
| | | | |

RISK ASSESSMENT:-

A FULL RISK ASSESSMENT FOR THE TANK CLEANING AND DISMANTLING IS ATTACHED.

Noise - a risk assessment has been recorded under a separate report.

Dust - a risk assessment is being attached.

VOC's - a risk assessment is being attached.

Vibration - a risk assessment has been recorded under a separate report.

| CONSIDERATIONS | CONTROLS |
|---|---|
| Access and egress to the tanks | The entry manholes are at accessible height from ground level. The manhole diameters are wide enough for easy entry and emergency exits. |
| Use of scaffold towers | Shall be required to scrape the congealed fuel oil deposits on the inside of the tanks. Shall be required to cut the tanks using hot flames, in order to render easier handling of the cut plates. |
| Access keys or arranged access | Accessibility to the sites shall be managed by SBS., in agreement with Enemalta. |
| Other risks: Occupants, drug use, social groups, understanding English Language | The manual workers and advisors that shall be allowed access to the site shall be registered with full details to the. Enemalta authorities through SBS All personnel have several years experience in the field and shall receive briefings prior to commissioning the tank cleaning and dismantling. |
| Noise Activity: | The works shall not create any undue noises. No noise 'monitoring shall be carried out on the ambient and personnel. |
| Dusts and Volatile Solvents | Shall be present and generated. VOC and PM monitoring And evaluation of the results shall be carried out on a continuous basis as required .: NO WORK WHATSOEVER SHALL BE ATTEMPTED IF THE LEVELS OF VOC's INSIDE THE TANK EXCEED THIS 400mg/m ³ CONCENTRATION. Fuel vapour levels, as Volatile Organic Compounds (VOC's), inside and immediately outside the tank, shall be attempted to be lower than 100mg/me |

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| | which is the limit proposed by the US OSHA as an 8hr TWA for fuel vapours. |
| | |
| Vibration (Hand arm vibration syndrome): | The works shall not create any undue noises, No noise monitoring shall be carried out on the ambient and personnel. |
| | |
| Manual handling: | Personnel shall be supervised, directed and trained on the best practice for the following tank dismantling phases: a) Entry into the tanks for the removal of the fuel oil and settled sand. b) Emptying of the sludge residues. c) Scrapings of the congealed oil deposits on the tank sides. d) The use of hot flames to cut the tanks. e) The handling of the cut tank panels |
| | |
| Security | All personnel on site shall have an identification tag with name and delegated work. |
| | |
| Debris of dust and fragments: | All sludges, dusts and scraped fragments originate from mineral fuel contamination. They shall therefore be considered to be hazardous. All air exits to the atmosphere shall be filtered to prevent dust emissions to the ambient atmosphere. All workers working inside the tanks shall wear appropriate breathing masks. All collected dusts and fragments shall be collected in appropriate containers for disposal according to their EWC as well compliance to Directive 2003/33/EC. |
| | |

| Precautions Required | Y / N |
|----------------------------|-------|
| Coverall | Y |
| Dust masks | Y |
| Eye Protection | Y |
| Face Protection | Y |
| Gloves and Hand protection | Y |
| Hard Hats / Bump Caps | Y |
| Harness | Y |
| Hearing Protection | Y |

| | |
|--------------------------------|--------------|
| High Visibility Vests | Y |
| Safety Shoes and Boots | Y |
| | |
| Training | Y / N |
| Safety Awareness | Y |
| Barriers | Y |
| Competence | Y |
| Site Induction | Y |
| Permits to works | Y |
| Warning Signs | Y |
| Method Statement Clarification | Y |
| | |

Specific Method Statement

Given the fact that the intent is to monitor the air for emissions of volatile organic compounds originating from heavy fuel oil (HFO), it is important to measure both the light compounds (referred to as the volatiles, VOCs) and the heavier ones too (referred to as the semi-volatiles, SVOCs).

Sampling for VOCs and SVOCs.

While passive and active sampling methods exist for VOCs, no passive diffusion method exists for sampling of SVOCs. It is being proposed to carry out the monitoring for VOCs and SVOCs in tandem for the duration of one normal working day involving the HFO processing. This would then serve as a reflection of the typical emissions per working day.

Procedure: Monitoring for VOCs

Sampling shall be carried out via passive diffusion using a Drager ORSA Badge. Reference: ISO 16200-2:2000 / USEPA 8260B.

Procedure: Monitoring for SVOCs

Sampling shall be carried out using a low-volume sampler (SKC Universal sample pump 224-44MTX) at an operating flow rate of 200 ml/min. The sample shall be collected on an SKC 226-30-06 XAD tube. The sampler shall be calibrated to low flow mode in situ using a Rotameter (SKC 393-0334), while the operating flow rate shall then be set and calibrated on the sample tube using a Field Rotameter (SKC 320-2A05). Reference: USEPA 8270C:1996.

Both samples shall then be sent to an ISO 17025 Accredited laboratory for analysis. The instrumental limit of detection of both tubes is 10ug. Analysis by GC-MS. A scan shall be performed on the elute, and the 10 compounds with the highest concentration determined shall be identified. A

total VOC / SVOC shall also be calculated.

The determined concentrations of the identified compounds shall be compared to exposure limit values, where available.

| AREA Photographic survey | | | |
|--------------------------|-------|-------------|--------|
| Ref | Photo | Area / Zone | Status |
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| | | | |
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| Other Works related | | | | | |
|---------------------|-------------|--|-----------------|--------------|--------|
| Ref | Area / Zone | Description | Completion date | Notification | Status |
| | | Cleaning, cutting and removal of any surrounding | | | |

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|--|--|------------------|--|--|--|
| | | pipeworks | | | |
| | | | | | |
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Further information required from entities

| Ref | Area / Zone | Description | Notification | Status |
|-----|-------------|-------------|--------------|--------|
| | | | | |
| | | | | |
| | | | | |

Personnel / machinery earmarked for use

| Zone | Area | Description | Number | |
|------|------|------------------------------------|----------|--|
| | | scissors and driver | 1 | |
| | | Hi mac and driver | 1 | |
| | | Dumping truck and driver | 1 | |
| | | Helpers / hotcut workers (burners) | 5 | |
| | | TOTAL | 8 | |

Attachments:

- ☐ Drawings (specify)
☐ Other (specify)

Report prepared by:

George Farrugia

Approved:

Y / N