European Union Network for the Implementation and Enforcement of Environmental Law

Reinforcement Programme on inspection skills according to Landfill sites in IMPEL Member Countries; Joint inspections

Malta 5-6 May 2016

Environment and Resources Authority (Malta)

Preparation of the inspection

- Draw up of the agenda of the meeting and update of the checklist.
- Definition of the main topics to be inspected in the landfill visit.
- Collect the contributes of the Working Groups
- Sharing the website of ERA in order to retrieve information about Authority and Landfill.
- Preparation of the starting presentation (PPT) containing presentation of IMPEL network, and of the previous steps of the project. Defining the content of PPT to be presented by ERA.
- Stimulating the discussion and preparation of the group on Basecamp; sharing of checklist, landfill permit, survey results and useful documents in Basecamp.

Definition of the topics of the inspection

Four working groups have been created in order to amend the Guidance and checklist documents; each of them is focused on one of the following topics:

WG 1. Waste acceptance and sampling plan
WG 2. Biogas management
WG 3. Ground water management – leachate
WG 4. Requirements on top and bottom layers

Along the in situ visit of the landfill, all the management and technical aspects related to the above mentioned topics have been checked. Further discussion has been driven to the pre-treatment of the waste before landfilling, as the creation of a new working group is foreseen.

Agenda of the joint inspection

Time	Activity	Location	Apparatus	Who
Thursday 5 May 2016				
8.00 8.30	Breakfast	HotelGolden Tulip		
8.30 9.00	Meeting at the lobby of the Hotel (8.30). (Transport Provided by ERA)			
9.00 9.15	Welcome and presentation of Malta Inspectorate. Inspection organisation in Malta and legislation basis	Inspectorate meeting room	Laptop and beamer	Pauline Marie Agius Farrugia
9.15 9.30	IMPEL project in 2016: goals and current situation	Inspectorate meeting room	Laptop and beamer	Romano Ruggeri
9.30 9.45	Round table: Working Groups – critical points, state of the document. New WG: Pretreament of waste. EU Project	Inspectorate meeting room		Referents of the subgroups
9.45 10.15	Going through the Guidance and checklist: what we still need to amend it and make it consistent	Inspectorate meeting room	Laptop and beamer	Romano Ruggeri
10.15 10.30	Coffee break	Inspectorate meeting room		
10.30 12.45	Working on the Guidance: each WG separately	Inspectorate meeting room		Subgroups separately
12.45 13.00	Organization of the landfill inspection visit	Inspectorate meeting room		Inspection team
13.00 14.30	Lunch			
14.30 15.00	Trip to Ghallis non-hazardous landfill		Transport Provided by ERA	
15.00 15.15	Presentation about WasteServ	Landfill Board Room	Laptop and beamer	Chief Officer Strategy Implementation
15.15 15.30	Presentation about SAWTP and Malta North as our pretreatment and biogas extraction efforts	Landfill Board Room	Laptop and beamer	Chief Operations Officer
15.30 15.45	Presentation about Waste Acceptance	Landfill Board Room	Laptop and beamer	Daniela Psaila
15.45 16.00	Presentation about the Zwejra and Ghallis landfill including environmental monitoring	Landfill Board Room	Laptop and beamer	Robert Micallef and Paula Farrugia
16.00 17.15	Joint inspection on Ghallis landfill Use of checklist for technical inspection in situ on following items: ▪ waste acceptance and pre-treatment	Landfill		Derick Vella Inspection team

	of waste before land filling; ▪ biogas management; ▪ meteoric water and ground water management – leachate; ▪ closing/opening cells			
17.15 17.45	Administrative check: use of checklist. Fill in the checklist with evidence of the in situ inspection	Landfill Board Room		Inspection team
17.45 18.00	Final discussion	Landfill Board Room		
18.00 18.15	Transport back to hotel	Transport Provided by ERA		
20.30	Dinner	Ta Viktor Restaurant in Marsaxlokk (Fishermen's village). Transport to and back provided by ERA		
Friday 6 May 2016				
8.00 9.00	Breakfast	HotelGolden Tulip		
8.30 9.00	Meeting at the lobby of the Hotel (8.30). Transport from Hotel to HH **only** provided by ERA	HotelGolden Tulip		
9.00 10.30	Inspection evaluation: ▪ What has been observed; ▪ Experience with checklist ▪ Experience of inspectors Further work to close the documents. Deadline	Inspectorate meeting room	Guidance and checklist	Inspection team
10.30 10.45	Coffee break	Inspectorate meeting room		
10.45 13.00	Document for feedback to EU ▪ Index ▪ Landfill Directive analysis: open gaps for MS ▪ Survey ▪ Deadlines and working group	Inspectorate meeting room	Laptop and beamer; Survey	Inspection team Ondrej Skoba
13.00 14.30	Lunch			
14.30 15.45	Second meeting: inspection + workshop: Agenda			
15.45 16.45	IMPEL projects 2017: new proposals			

Inspection team

The inspection group has been composed by:

- Inspector Italy: Romano Ruggeri (teamcaptain)
- Inspector Sweden: Nina Hansson
- Inspector Spain: Maria Dieguez Gomez
- Inspector Czech Republic: Ondrej Skoba
- Inspector Austria: Franz Waldner
- Inspector Croatia: Ivan Pusic
- Inspector Netherlands: Stuart Gunput

- Inspector Netherlands: Ronald Van Tunen
- Inspector Turkey: Nanciye
- Inspector Slovenia: Jana Miklavcic
- Inspector Poland: Anna Popławska
- Inspectors Malta: Alvin Spiteri De Bono, Pauline Farrugia, Claudio Toscano, Daniella Sammut, Stefan Azzopardi.

Fig.1: Inspection group

Environment and Resources Authority (ERA)

The meeting has been hosted by the Environment and Resources Authority which has the following mission:

- To mainstream environmental targets and objectives across Government and society.
- To take the leading role in advising Government on environmental policy-making at the national level, as well as in the context of international environmental negotiations.
- To develop evidence-based policy; backed by a robust data gathering structure.
- To draw up plans, provide a licensing regime and monitor activities having an environmental impact and to integrate environmental considerations within the development control process.

Inspected landfill

Ghallies Landfill; Operator: WasteServ - Treatment and disposal of wastes

Ghallis Landfill is located in the north east of Malta, close to the Tul Il-Kosta Coast Road, east of the town of Bugibba. The Permit of the landfill, number IP 0001/06/B, is issued pursuant to Regulations 9-11 of the Waste Management (Landfill) Regulations, 2002 (LN168 of 2002 as amended) and Regulation 7 of the Industrial Emissions (Framework) Regulations, 2013 (LN 9 of 2013) ("the Industrial Emissions (Framework) Regulations"), to operate an installation carrying out activities covered by the description in Section 5.4 in Schedule 1 of the Industrial Emissions (Integrated Pollution Prevention and Control) Regulations.

Fig.2: Ghallies landfill view

Fig.3: Ghallies landfill location

The facility is dedicated to the disposal of non-hazardous wastes generated on the Maltese Islands. The estimated landfill void is 3.02 million cubic meters to be filled at a rate of around 250,000 tonnes per annum. The facility is being developed in phases consisting of hydraulically independent cells. Each cell has its own leachate collection / extraction system, and are physically connected to form an integral common base of the landfill. The facility has a surface water collection system and a gas extraction system with possible utilisation. The gas extraction system is permitted in the IPPC permit.

The site has been engineered into nine separate cells. The basal and side wall liner of each cell comprises the following sequential layers (from bottom upwards): 0.5m thick foundation layer, geosynthetic clay liner, 2 mm thick high density polyethylene liner (HDPE), geotextile protection layer, 0.5 m thick granular leachate drainage layer. Cells have been tipped with non-hazardous waste and traversed by wheeled compactor to form progressive layers of fill.

Leachate is extracted from the base of cells and recirculated through parts of the fill via additional leachate wells or sumps located towards the periphery of a cell and within the engineered liner system. There is no leachate treatment on site or discharge to sewer or removal off-site to an authorised treatment facility.

Gas is extracted from the cells and drawn to a Combined Heat and Power (CHP) Plant for combustion and electricity generation. The electricity is used parasitically, with surplus exported to the National Grid. A back up flare is installed to burn landfill gas when the CHP Plant is off line for maintenance or repair or in the event that gas production rates exceed the capacity of the CHP Plant. A Regenerative Thermal Oxidiser is also installed for the combustion of any low quality gas, which predominantly arises from the adjacent Maghtab Landfill.

Vehicles delivering wastes for disposal at the site enter via the site access road and are weighed on the site weighbridge. Documentation checks are undertaken by the weighbridge operator, before the

vehicles proceeds up the site access road to the tipping area. CCTV is installed which views the top of the vehicle, including any non enclosed containers or skips[1].

Day 1

The First day had commenced by the introduction of participants especially the new ones that had joined for the first time during this meeting.

Following the introduction of participants the day kicked off by the presentation by Romano about the agenda of which the latter had followed by another presentation about the landfill to be visited by Ms Pauline Agius Farrugia Manager Compliance. Also, a survey if the guidance of waste classifications there is in MS was briefly touched during the discussions.

Further on, the group analysed the results of the working groups on the Guidance and Checklist, defining deadlines and contents. The group has decided on the following:

- Chapters 3, 4 and 5 are to be merged in one and called Inspections Organisation.
- Chapter 3.1 Inspection Preparation
- On site Inspection
- Reporting after Inspection

The idea to explore the pre-treatment prior landfilling has also been briefly discussed.

Later on the day, the trip to visit the landfill had commenced and on the arrival, the operator WasteServ had given two (2) presentations about the following:

1. Presentation about WasteServ as a company.

Sant Antnin Treatment Plant (MBT) – MRF material recovery facility. Plastic and paper coming from separate collection are separated both mechanically and manually. The presentation also continued by the overview of the MBT North receives organic waste and the latter produces energy via anaerobic digestion. Malta has 6 civic amenity sites which are operated by the same operator. Furthermore, a bio gas treatment Plant in the old closed landfill has been explored as well as the thermal treatment facility in Marsa was also explained. A new project which is in the pipeline that of processing animal by products waste was also presented.

The pre-treatment of waste: Biodegradable Fraction of (MSW) – mechanical treatment and anaerobic digestion. The Bio gas to energy production is of low quality and goes to the landfill. Biogas is flared as H2S content is low. Biogas – CH4 66%, PCi 33.6%. The Biogas from Old Landfill (Maghtab is not flared since its methane concentration is very low of 1%). The Biogas that is produced in the new landfill is captured and used for energy production within the same plant. The Katter has 55% of CH4. A model quantified the amount of expected gas. The wells are present and have a temporary enclosure. New wells are under construction and new machinery will be installed. The landfill takes also the following waste streams; bulky waste, green waste, sludge from waste water plant. Only non hazardous waste are permitted and accepted. In Malta there are no hazardous landfills.

[1] This descriptive part has been taken out by he document “Malta Environment and Planning Authority - IPPC Compliance Audit Report of: Ghallis Landfill (IPPC Permit Number IP 0001/06/B); Summary Report for Ghallis Landfill January 2014”

2. The second presentation explored and discussed the waste acceptance criteria.

At the landfill, the following installations have been observed:

- Leachate wells
- Biogas plant
- Surface water drainage system
- MBT Plant
- Top and bottom layers

Fig.4: New cell construction

Fig.5: Overview of the cells

Fig.6: Mechanical Treatment plant

Fig. 7: Biogas plant

Fig.8: Rainwater ditch

Fig. 9: Leachate sampling

Day 2

The Second day meeting kicked off by discussing the observations of the previous day landfill visit at Ghallies. The waste acceptance topic was discussed again and it was mentioned that operator (WasteServ) acts as consultants for waste producers at times, as they guide clients and help them in classification and characterisation prior landfilling. It was also noted that characterisation and compliance testing are both performed by the waste producer. Operator can also perform checks on wastes coming in and wastes that do not have the accompanying documents (e.g. hazardous wastes). The gate controller at the weighbridge will inspect during the tipping and check whether declared material tally. The weighbridge operator fills in an inspection form which the latter is passed to the waste acceptance officer.

There are times that the operator does issue warning and penalties to waste producers who had made false declarations. The Operator is obliged to communicate to the Authority if waste is rejected.

The operator requires and demands basic characterisation for waste water sludge every six months in order to verify whether the analysis has remained as previously.

Taking of samples from waste entering the landfill is not mandatory. It is up to the operator to whether take samples or not and should it happens the latter must be saved. The operator has a database linked to the weighbridge. Also only certified labs are allowed to take samples and perform analysis. It was mentioned by ERA inspector that results may highly differ as this is linked to the type of sampling performed.

Moreover the following topics were also discussed:

- Biogas - Oxydizer for biogas of poor quality (<1% of CH4) coming from the old landfill (Maghtab). It is a solution in order to reduce or also eliminate any odours. At the new landfill Ghallies the biogas is pumped from the first temporary closed cell (vertical system) and is used for energy recovery of 0.2 MW. Two torches are present in the eventuality that gas requires flaring. The extraction holes are connected horizontally. Before the biogas is used for energy it goes into a carbon filter for purification. Also the methane and O2 percentages are continuously monitored. Air limits for biogas use are present and also boreholes for the monitoring of ground water and biogas migration are also present on site.
- Pre Treatment of Waste – A new plant had just been commissioned and will be pre treating MSW and bulky waste. Any RDF produced and is sent to be stored in a cell (temporary). Since the facility is new amounts of non pre treated waste could be observed.
- Ground water and leachate – Ground water is found ten (10) metres below surface. The collected leachate is noty treated but it is recalculated by means of lagoons digged in temporary capping. The leachate is collected by pumped in trucks and it is not sprayed over the surface. Leachate is collected in each cell that has a depression and a wheel growing with the cell, there is not a piping network system in the bottom. The landfill has boreholes all around it in order to monitor ground water. Rainwater is prevented from entering within the landfill by having ditches all around the perimeter. Rainfall on the rehabilitated area is collected in a lagoon and reused. However, rain in Malta is very seldom and amounts of rain water are very low.
- Top and Bottom layers – The use of the local stone limestone is used instead of bentonite layer. Gravel layer is not used since no collection system of leachate is in place. If windy there can be a

problem of dispersion of waste. Also the hazardous waste cell which is used solely for the temporary storage of RDF complies with the directive.

Conclusions and Way Forward

Guidance and checklist need to be updated accordingly to the amount of new information and experiences collected in the last meeting as well it must be finalised for the last meeting. It was agreed to invite IMPEL board and TFS at the final workshop.

It was also suggested that external contribution to the guidance and checklist can proof valuable.

Next meeting should be held in Netherlands in order to finalise the last touch up of the documents of which the first day of the meeting will be dedicated to the latter task. The second day will be dedicated to the inspection and the third to the workshop.

The content of the document containing the gaps in the Landfill Directive implementation across MS has been defined. The main source of information is the already delivered survey, that has to be filled in by missing Countries. Survey has to be filled in by all participants, and the main results can be contained in a note for the Commission or in the final Report.

Future projects were also discussed and the following topics were highlighted:

- Landfill mining
- Performing real inspections
- Pre treatment: Situation in MS – output of MBT: focus on aerobic/anaerobic treatment
- Storage of waste

A practice experience in sampling plan is considered to be a priority in the next meetings. How to take samples of groundwater and calculation to give evidence of the hazardous/non hazardous properties of mirror code wastes are also commonly perceived as topics to be deepened.

Attachments:

- Environmental Monitoring - Paula Farrugia, Laboratory Technician; 5th May 2016
- SAWTP and Malta North as pre-treatment facilities prior to landfill and biogas producing facilities; Denise Grima Connell
- The role of WASTESERV in the waste management sector
- Waste acceptance and inspections at the Ghallis non-hazardous waste landfill; 5th may 2016