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

(HOLLAND) Zaandam 16-18 November 2016

Omgevingsdienst Noordzeekanaalgebied, Zaandam

Headquarter building Afvalzorg on landfill

Preparation of the inspection

- Draw up of the agenda of the meeting.
- Definition of the main topics to be inspected in the landfill visit.
- Finalizing the outcome documents of the project: Guidance and checklist, Landfill Directive implementation gaps, Survey.
- Collection of the technical documents and reports shared and produces during the project.
- Preparation of the presentations (PPT) containing the results of the four working groups, each of them taking care of a section of the produced documents.
- Preparation of the presentations (PPT) concerning the IMPEL network, and the previous steps of the project.
- 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

The focus of the meeting was to finalize the "Inspection guidance book for Landfill inspection" and the attached checklist, the "Landfill Directive Implementation" document and add new contributes to the Survey. Further the new project for 2017 was discussed, focusing on pre-treatment of waste before landfilling. These topics were deepened thanks to the contribute of 3 special guests:

- Madalina Caprusu (Policy Officer – Hazardous Waste and Landfill Directive DG Environment, Unit B3 European Commission);
- Allison Townley (Team Leader Expert Team Waste and TFS);
- Tony Zamparutti (Milieu Ltd - Law & Policy Consulting), project manager of a study for the European Commission's Directorate-General for Environment to assess the implementation by EU Member States of certain provisions of Directive 1999/31/EC on the landfill of waste. In particular, the study focuses on the Directive's requirement that waste must be pre-treated before it is landfilled.

It is relevant to point out that three new Member States joined the project: Turkey, Belgium and Portugal (Azores islands).

The landfill 'Nauerna' in Assendelft was selected to test the checklist.

Agenda of the joint inspection

Time	Activity	Location	Who
Wednesday 16th November 2016			
8.00 8.45	Breakfast/ collecting busses from Rental company	Hotel ZaanInn	Ronald and Stuart
8.45 9.00	Meeting at the lobby of the Hotel (8.30). (5 minutes walk to Environmental Service)	Street walk	
9.00 9.30	Welcome and presentation of Inspection organisation Environmental service and legislation basis	Inspectorate meeting room	Jan Dopheide (Team manager) and Stuart

9.30 9.45	Output of the project (Guidance, checklist, document for EU): where we are?	Inspectorate meeting room	Subgroup referent
9.45 10.15	Description of the permit to be inspected and main results of previous inspections	Inspectorate meeting room	NL Inspector
10.15 10.30	Coffee break	Inspectorate meeting room	
10.30 12.00	Preparation of the inspection: draft the final checklist starting from general checklist, permit, self monitoring report. Definition of inspection items	Inspectorate meeting room	Inspection team (divided into subgroups)
12.00 12.30	Lunch	Inspectorate meeting room	
12:30 12:45	EU Commission policy about Landfill and presentation of the study on pre-treatment of waste (Malagrotta case)	Inspectorate meeting room	Madalina Caprusu - European Commission DG Environment
12.45 13.00	IMPEL Landfill project: previous results, current situation and further development. Presentation of the main products of the project: Guidance, checklist, EU Document	Inspectorate meeting room	Romano Ruggeri
13.00 13.15	Trip to Nauerna hazardous landfill		Ronald and Stuart
13.15 13.30	Presentation Landfill Nauerna	Landfill Board Room	Representative Nauerna Landfill
13.30 13.45	Presentation about waste acceptance and pre-treatment	Landfill Board Room	Landfill owner
13.45 14.00	Presentation about biogas extraction efforts	Landfill Board Room	Landfill owner
14:00 14:15	Presentation about Water management including monitoring	Landfill Board Room	Landfill owner
14.15 14.30	Presentation about closing the landfill	Landfill Board Room	Landfill owner
14.30 16.00	Joint inspection on Nauerna landfill Use of checklist for technical inspection in situ on following items: ▪ waste acceptance and pre-treatment of waste before land filling; ▪ biogas management; ▪ meteoric water and ground water management – leachate; ▪ closing/opening cells	Landfill	Inspection team (divided into subgroups)
16.00 17.30	Administrative check: use of checklist. Fill in the blanks of the checklist with evidence of the on-site inspection	Landfill Board Room	Inspection team
17.30 17.45	Closing	Landfill Board Room	
17.45 18.00	Transport back to hotel		Ronald and Stuart
19.30	Dinner	Hotel ZaanInn	
Thursday 17th November 2016			
8.00 9.00	Breakfast	Hotel ZaanInn	
9.00 10.00	Inspection evaluation: ▪ What has been observed (results of the subgroups); ▪ Experience with checklist ▪ Experience of inspectors	Conference room Hotel	Inspection team

10.00 10.30	IMPEL activity on waste	Conference room Hotel	Allison Townley (UK), Team Leader Expert Team Waste and TFS
10.30 10.45	Coffee break	Conference room Hotel	
10.45 11.05	Guidance and checklist: results of WG1. Discussion on what we learnt in previous joint inspections	Conference room Hotel	Subgroup referent
11.05 11.25	Guidance and checklist: results of WG2. Discussion on what we learnt in previous joint inspections	Conference room Hotel	Subgroup referent
11.25 11.45	Guidance and checklist: results of WG3. Discussion on what we learnt in previous joint inspections	Conference room Hotel	Subgroup referent
11.45 12.05	Guidance and checklist: results of WG4. Discussion on what we learnt in previous joint inspections	Conference room Hotel	Subgroup referent
12.15 12.35	Explanation visit of the Pre-treatment plant next day	Inspectorate meeting room	Stuart
12.35 13.35	Lunch	Hotel ZaanInn	
13.35 14:00	Transport to Waste pre-treatment plant facility		Ronald and Stuart
14:00 16:15	Visit to the Waste pre-treatment plant facility	Landfill Nauerna	Inspection team
16:15 16:30	Transport back to hotel		Ronald and Stuart
16:30 17:00	Busses back to rental company		
Friday 18th November 2016			
8:00 9:00	Breakfast	Hotel ZaanInn	
9:00 10:00	Results and discussion Waste treatment before landfilling	Inspectorate meeting room	Inspection team
10.00 10.30	Document for feedback to EU ▪ Presentation of the document ▪ Landfill Directive Analysis: open gaps for MS. ▪ Results of the survey	Inspectorate meeting room	Inspection team
10.30 11.00	Dissemination, update, use of the products.	Inspectorate meeting room	Inspection team
11.00 12.00	IMPEL projects 2017: new proposal	Inspectorate meeting room	
12.00 13.00	Lunch		

Inspection team

The inspection group has been composed by:

- Inspector Italy: Romano Ruggeri (team captain)
- Inspector Austria: Franz Waldner
- Inspector Netherlands: Stuart Gunput
- Inspector Netherlands: Ronald Smallenburg
- Inspector Netherlands: Ronald van Tunen
- Inspector Netherlands: Wilfred Pieters
- Inspector Malta: Alvin Spiteri De Bono

- Inspector Sweden: Nina Hansson
- Inspector Croatia: Ivan Pusic
- Inspector Spain: Maria Diéguez Gòmez
- Inspector Inspector Portugal: Elisabete Vieira
- Inspector Slovenia: Jana Miklavcic
- Inspector Poland: Anna Popławska
- Inspector Turkey: Senay Aslan
- Inspector Latvia: Evita Muizniece-Treija
- Inspector Belgium: Freddy Noels
- EU Policy Officer: Madalina Caprusu (Hazardous Waste and Landfill Directive)
- Team Leader Expert Team Waste and TFS: Allison Townley (UK)
- Milieu Ltd – Project Manager EU study: Tony Zamparutti

Fig.1: Inspection group

Omgevingsdienst Noordzeekanaalgebied (Enviromental Service North Sea Canal Area)

The meeting was hosted by the Environmental Service North Sea Canal Area. The Environmental service provides on behalf of the competent authority in the North Sea Canal area the authorisation, supervision and enforcement for soil, environment and construction. More information could be found on the website www.odnzkg.nl.

Inspected landfill

Name of the installation: 'Afvalzorg, location Nauerna' Landfill and Waste treatment plant.

Location: Nauerna 1, 1566 PB Assendelft

Province: Noord Holland

Operator: Afvalzorg

- Landfill management (~400,000 tonnes/year).
- Soil & dredging sludge treatment & reuse (~1,000,000 tonnes/year).
- Soil washing plant (soil recovery)
- Development of bottom ash treatment & reuse.
- Water treatment plant.
- Landfill gas extraction and utilization (hot water production - boiler).
- Developing public park in three phases.
- Nauerna is 1 of 7 landfills and 1 of 6 storage and treatment sites of Afvalzorg.
- Turnover (2015) 27 million euro.
- 96 employees.
- In company R&D and civil engineering departments.

Fig.2: Nauerna Landfill

Fig.3: Landfill location

Wednesday 16th November 2016

The meeting was welcomed by the Team Manager of the Enviromental Service North Sea Canal Area, who illustrated the tasks of the Environmental Service, that is one of the 29 existing in Holland.

A. Inspection preparation

In preparation of the inspection to the landfill Afvalzorg Nauerna, Stuart Gunput presented the applicable parts of the permit of the landfill.

Landfill Afvalzorg Nauerna is a landfill for non-hazardous wastes; mainly the accepted waste is contaminated soil; no municipal waste is landfilled. Afvalzorg Nauerna also includes a soil washing plant dedicated to the recovery treatment of polluted soils. Wet treatment is performed to separate the smallest particles which contain the pollution; granular waste is treated to immobilize the contaminations. This part of the waste is landfilled. Furthermore the leachate and wastewaters are cleaned in the wastewater treatment facility of the landfill, while biogas is extracted and thermal used in a boiler to produce hot water.

Also it was presented how the landfill is inspected and how the status of compliance of the landfill owner. Usually, the inspection is not fully integrated, but it focus on the most critical topics. Soil inspectors also check the cover layer. A final report on the main outcomes of the desk analysis is drafted to prepare the inspection.

For the testing of the checklist during the site-visit, the inspectors participating to the meeting were divided into 4 working groups. The working groups composition was:

Working group 1 (Waste acceptance):

- Nina Hanson
- Franz Waldener
- Alvin Spliteri De Bono
- Elisabete Vieira

- Senay Aslan

Working group 2 (Biogas control):

- Romano Ruggeri
- Stuart Gunput

Working group 3 (Watermanagement):

- Ronald Smallenburg
- Jana Miklavcic
- Evita Muižniece-Treija
- Ronald van Tunen

Working group 4 (Top and Bottomlayers):

- Maria Dieguez Gomez
- Ivan Pusic
- Freddy Noels
- Anna Popławska

The part of the permit applicable on the different subjects was presented to each working group.

As fa as the waste acceptance topic is concerned, the environmental service has checked if the financial record of the company matched with the registration of waste. Afvalzorg Nauerna has a gas extraction-plan and monitoring-reports of the gas-composition are available. The landfill re-uses rainwater on the site for wheel-washing and spraying of the roads for dust-control. The geological situation of the landfill is different than usual because it is under the level of the sea and welling groundwater pushes up under the landfill. The groundwater is therefore controlled by a pumping system.

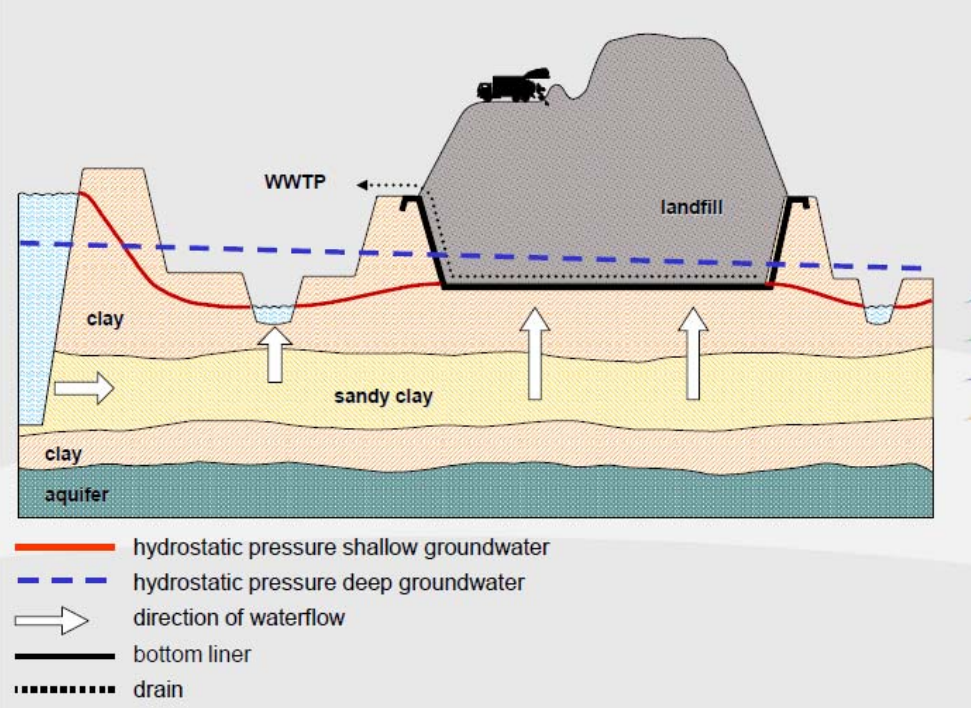


Fig. 4: Hydrogeological situation Nauerna landfill

The importance of a desk study to prepare the inspection was pointed out; during this preliminary step, it can be decided which aspect of the permit should be included in the checklist. Usually, specialists look at the different technical documents and give feedback to the inspector within agreed terms.

A risk-assessment is used, both in permitting and inspection phases, to determine risks of the site to water, environment, etc.

B. Presentation of Mrs. Madalina Caprusu on the Malagrotta case

Mrs Caprusu gave a presentation on how the Malagrotta case has led to a proposition in the landfill rulings. The start is the case of the Italian Malagrotta landfill in which waste was landfilled without the proper biomechanical pre-treatment.

In the EU are big differences between different Member States in how much waste is landfilled and in pre-treatment of waste before landfilling.

In the Circular Economy Package the following changes in the Landfill Directive are proposed:

- No Landfill of separately collected waste;
- Obligation to separately collect biological waste:
- Reduce landfilling of municipal waste to 10% in 2030.

These changes will ensure waste to have a less negative effects on the environment, climate, human health and will be better for the economy because of more re-use of waste.

The conclusion of the Malagrotta-ruling is:

- All waste has to be pre-treated;
- Most appropriate pre-treatment option is applied;
- Adequate selection of waste streams;
- Stabilization of the organic fraction.

Mrs Caprusu gave also information about a project that was launched by EU Commission to investigate the application of pre-treatment of municipal waste before landfilling in the Member States. The final draft of the study is going to be issued and the state of the document was further presented by the project manager Tony Zamparutti.

Fig. 5: Presentation Madalina Caprusu

C. Visit to the landfill Afvalzorg Nauerna

On the landfill we were welcomed by employees of the landfill:

- Mr Heijo Scharf
- Mrs Cindy Kleijn
- Mr Willem Warmerdam
- Mr Arie de Wit

Working group 1 went to the weighbridge and acceptance office to collect information on waste acceptance procedures. All the others went on a tour to the different parts of the landfill and waste treatment facilities.

The following parts were visited:

1. Wastewater treatment and leachate basin
2. Gas extraction facility
3. Covered part of the landfill which is actually a public park

During the inspection of the landfill some best practices where seen on different aspects

<u>Wastewater treatment plant and leachate basin:</u>

The leachate is extracted by both horizontal and vertical tubes. The pumps are located at the bottom of the cell in order to prevent weak points in the liner. The leachate basin was covered with a floating cap to prevent odour emissions.

Fig.6: Covered leachate-basin

Fig. 7: Piping and well of the leachate-system

The leachate, as well as the meteoric water were treated in an in-situ plant; the main pollutant to be removed is the ammonia, that is widely present in the contaminated soil disposed in the landfill.

Fig. 8: Wastewater treatment-facility, aerobic treatment

The operator has to monitor the quality of the discharged water by means of a sampling machine that can be programmed to take samples proportional to the flux of the water.

Fig.9: Wastewater sampling

Gas extraction facility

Even if municipal waste is not landfilled, a certain amount of organic matter is still present in the landfilled soils and waste; therefore a certain amount of biogas is still produced. The quantity of biogas to be expected, is estimated by means of a model that was internally developed and later internationally recognized; it differs from the other commercially available models (Gassym for example) as it better fits with the kind of waste present in the landfill.

The model can be downloaded by the website of the company: http://afvalzorg.nl/EN/Landfill-gas.aspx

The extracted biogas is used in a boiler to produce hot water that is both used internally and sent outside. A torch is present to flare the exceedance. All the process parameters are continuously monitored (flux, temperature, gas composition, pressure),

Fig.10: Biogas extraction unit and flare

Fig. 11: Boilers fired on biogas

Recovered part of the landfill

Part of the landfill was already recovered with a temporary closure. The closing phase starts as soon as the leachate quality complies with standard values set in an initial risk analysis. Since that moment, the after-care is not an operator responsibility anymore.

Actually, the operator is testing the so called “aerobic landfill”, where a temporary permeable cover is used instead of a sealing final capping, to allow water and air to flow in the body of the landfill, thus increasing the stabilization of the mass of the waste.

This pilot started to try to make the landfill completely non-reactive. To establish this situation parts are not covered to let rainwater in, leachate is put back in the landfill and aeration will also be applied. The intention is to stabilize the landfill in a shorter time, so no gas or leachate will leave the landfill.

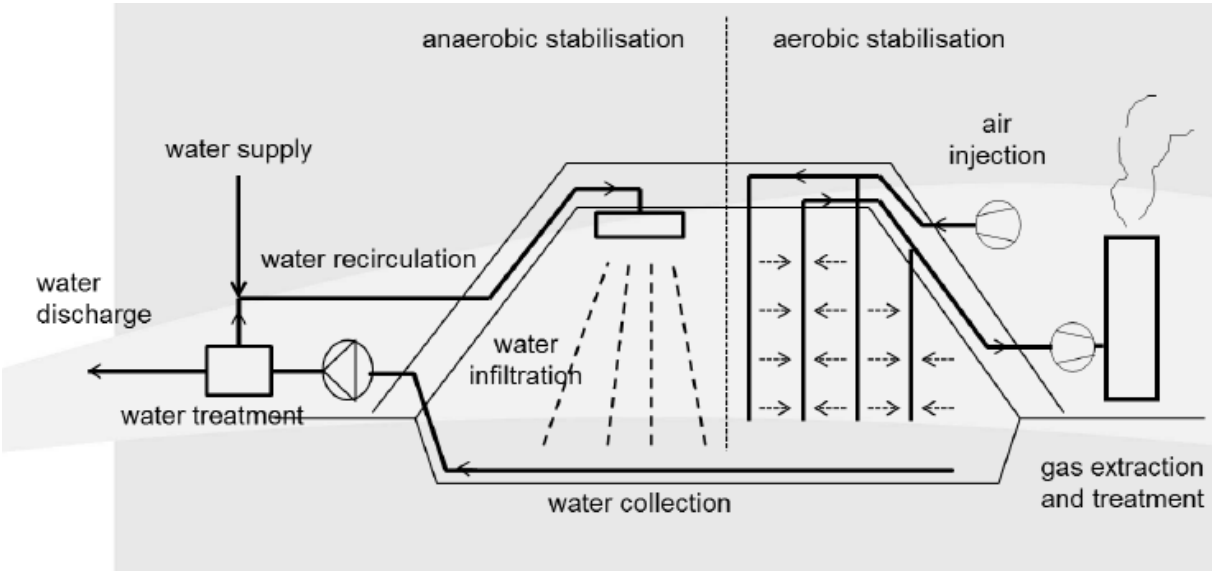


Fig. 12: Principles of pilot

The recovered part of the landfill is actually a public park; biogas diffuse emissions are continuously monitored by portable surveys. Biogas migration outside the landfill is not likely to happen, because of the pressure of the groundwater.

D. Presentation at Afvalzorg Nauerna-site

After the site visit, the operator gave a presentation about the landfill site Afvalzorg Nauerna and the adopted procedures in the management of the plant.

The site is in use since 1977 and has two shareholders: the provinces of North Holland and Flevoland.

The Nauerna landfill started in 1985. The landfill never accepted biodegradable waste. From 1985 until 1995 the landfill accepted contaminated soil, construction and demolition waste and commercial waste. From 1996, nearly 61 categories were banned from landfilling in the Netherlands. Currently only inorganic wastes are landfilled which originate from recycling and recovery operations. Afvalzorg develops also treatment for bottom ash because it is actually forbidden to be landfilled in the Netherlands.

Fig.13: Presentation by Afvalzorg Nauerna

The site is partly covered and open to the public. The rest of the site will be covered within the next decades and turned into a public park.

The headquarters of Afvalzorg is built on the landfill of Nauerna. This is possible because the landfill is stable.

On the site of the landfill Afvalzorg Nauerna different treatments are carried out. Contaminated soil is treated to make re-use of the largest particles possible. The smallest particles who hold the contaminants are landfilled. Other treatments are dehydration of dredged sludge's and development of bottom-ash treatment for re-use.

Thursday 17th November 2016

A. What did we learn during the site-visit?

Acceptance of waste and pretreatment/recovery of the waste:

- Bottom-ash is banned from landfilling; treatment for re-use in roads without extra precautions. Separation of ferrous and non-ferrous materials. Make the material inert.
- Compliance test is performed by the operator on less than 10% of the waste in; frequency is set depending on risk based criteria; the analyses of critical parameters in Compliance Testing is anyway performed at least once a year.
- Recovery treatment of contaminated soil to reduce the landfilled residual part.
- Criteria for re-use of inerts recovered by the soil treatment.

Biogas:

- Biogas: it is not used for energy production as the methane percentage is low (40%); it is used for hot water production in a boiler, to be used in greenhouse and in headquarters. The production rate of biogas is small but the total amount is enough to require an extraction system because of the size of the landfill.
- Continuous measuring of parameters in biogas (methane, carbon dioxide and oxygen) is performed and alarms are set if levels are high for oxygen. Monitoring of flow and pressure of biogas.
- Production rate of biogas is predicted by own model for industrial landfill, that is downloadable on website.

Water management:

- Piping of leachate collection and for unclogging is constructed above the bottom layer.
- Run-off water runs off into bottom layer because of the construction of slopes. The slopes of the upper part of the landfill end in the edge the bottom liner.
- The leachate-basin is covered by a floating liner to prevent smell.
- Leachate treatment to remove ammonium before discharging into the surface water.

Closed landfill

- Most of the landfill Afvalzorg Nauerna is still in use. One part is covered and in use as a public park.
- Offices are built on the closed landfill. Stability is not an issue.
- Emission biogas in covered part is monitored. Performing mapping with infrared devices on emission of biogas.
- Open landfill with permeable (not final) top-cover; it's a pilot experience, to increase waste stabilization time and repairing legislation on everlasting paying for aftercare;

B. IMPEL presentation about "Waste and TFS" Expert Team, Allison Townley

Allison Townley, team leader of the IMPEL "Waste and TFS" Expert Team, presented us the projects and the organization of the "Waste and TFS" Expert Team, running in 2016.

C. Landfill Project outcomes dissemination

The project group discussed what actions should be adopted to disseminate the products of the project. The members agreed to finalize a collection of the meeting reports and technical documents shared during the length of the project.

It was agreed that each participant should take contact with the IMPEL National Coordinator, to spread the results of the activities of the Landfill project.

Furthermore it was considered necessary to circulate the final drafts of the Guidance and checklist internally in own Environmental Agencies, in order to make inspectors use the documents and send a feedback about the received added value and further amendments.

It was also decided to draft an English version of the abstract of the project “at a Glance” using the template available in the IMPEL website. The abstract will be translated in the Member States language and used as dissemination material.

It was asked to the new members of the project (Latvia, Turkey and Belgium) to fill in the survey that can be updated in 2017.

D. Afvalzorg Nauerna site visit; waste recovery treatment facilities

In the afternoon second visit to the landfill site was performed: the topic was the different treatment-facilities for soil, dredged sludge and bottom-ash.

Soil washing treatment

Soli is treated in a wet treatment-facility. By sifting and adding water the contaminated soil is separated in different grain-sizes. The big parts are used as road building material, additive in concrete, according to criteria set in the laws. The smallest fractions contain the contaminants and this material is landfilled. The process water is recirculated and integrated.

Fig. 14: Soil treatment facility

Dredged sludge treatment

Dredged sludge is put in basins to de-hydrate. By dehydration usually most of the contaminants are drained from the sludge. After sampling and testing it is determined what re-use is possible. In most cases it can be used as clean soil and the water can be reused in the soil washing process.

Fig. 15: Inspection at dredged sludge-basin

Bottom-ash treatment

Bottom-ash is treated to remove above all ferrous and non-ferrous metals. Iron is recovered by means of strong magnets. Non ferrous materials are separated in different grain sizes (roughly 40% stone, 40% aluminium, 15% copper) that are sent externally to a treatment plant to recover copper and aluminium. The stone part can be used as road construction material. A pilot plant is present in the installation to have a more efficient cleaning of the bottom ash and reuse it, according to a new recent law, as a construction road material without the necessity to be insulated in the lower layers.

Fig. 16: Bottom-ash treatment

Fig. 17: Non-ferrous materials in different grain sizes

Friday 18th November 2016

A. EU Study on pretreatment of municipal waste; Mr Tony Zamparutti (project manager Milieu Ltd - Law & Policy Consulting).

The meeting hosted Mr Zamparutti, project Leader of Milieu Ltd - Law & Policy Consulting, that is leading a study for the European Commission, which aim is to assess the situation in the Member States on the pre-treatment of the waste before landfilling. The study was launched following the "Malagrotta" judgement. Mr Zamparutti presented the study, that is in its final phase.

According to the Landfill Directive, waste has always to be pretreated before putting in a landfill. When pretreated the most appropriate method/ option for pretreatment should be used; biological waste should be stabilized, even if it's small percentage.

The investigation in response to the Malagrotta-case has led to site-visits in Member States with highest rates of waste landfilled in the EU.

The situation across Europe is widely different; some Member States largely use incineration plants as final destination of the residual MSW, other Member States suffer a lack of facilities for waste pre-treatment.

Mr Tony Zamparutti was interested in the inspection activities performed to the pre-treatment plants across Europe; the project members were interested in Milieu project because pre-treatment of waste is the topic of the ToR advanced for 2017.

The inspectors were asked about what they know about this subject in their country:

Italy

Separate collection of MSW takes place in Sardinia. The residual part is partially sent to incineration plants and landfills where the waste is pre-treated to separate the organic matter. This organic waste is further stabilized with aerobic treatment and used as daily cover material in landfills. The organic matter can be sent to an anaerobic treatment as well.

Croatia

Croatia mainly suffers a lack of facilities for pretreament of waste.

The Netherlands

In The Netherlands no biological waste is landfilled. It's collected separately and used in different treatment-plants like fermentation-plants etc. or is incinerated.

Spain

In Galicia good quality compost is made from biological waste in one location. In other locations the compost is of poor quality. Insufficient capacity for all municipal waste in the region. Part which is not treated is landfilled.

Malta

A new pretreatment plant is in construction in Malta. The existing one is not enough to pre-treat all the received waste.

Poland

Poland has less landfilling every year, plenty treatment plants and an increasing incineration plants to process combustible waste.

Turkey

Turkey has not enough legal landfill-sites. Four incinerators are active. There are also composting sites in use to treat biological waste.

Sweden

In Sweden no biological matter is landfilled.

Portugal/ Azores

The Azores consist of 9 Islands. Pretreatment takes place on the smallest island. Most waste is ladfilled in illegal landfills. On the Azores waste separation is well organized. 90 % of the waste is not landfilled. On the Azores incineration plants are build. Landfills are increasingly closed. Goal is 100% separation of waste. All combustible waste will eventually be incinerated. Only ashes will be landfilled. Compost after treatment is of poor quality.

Slovenia

Municipal waste is increasingly collected door to door. Biological waste treatment is increasing. Incineration-capacity is not enough. Much of the collected waste is exported.

Latvia

Large part of waste is landfilled. Treatment-plants are built and will make difference in landfilling.

Belgium

Belgium, low rate of waste landfilled; no biological waste.

Austria

Austria, similar to Sweden and the Netherlands..

B. Landfill Project ToR for 2017

The proposal for the new project will be inspection on pretreatment of waste; the group agreed that the two main streams to be focused are municipal waste and demolition and building waste. Focus will be put to Member States with the highest rate of landfilling in the EU.

Beside the topic of pre-treatment, further joint inspections are foreseen, aiming to attend real inspection planned by the hosting Member State. Countries who have our interest are Latvia, Turkey, Slovenia, United Kingdom and Ireland.

The proposal for this project will be to inspect in smaller inspection teams of at most 4 inspectors so it will be less of a burden for the inspected company.

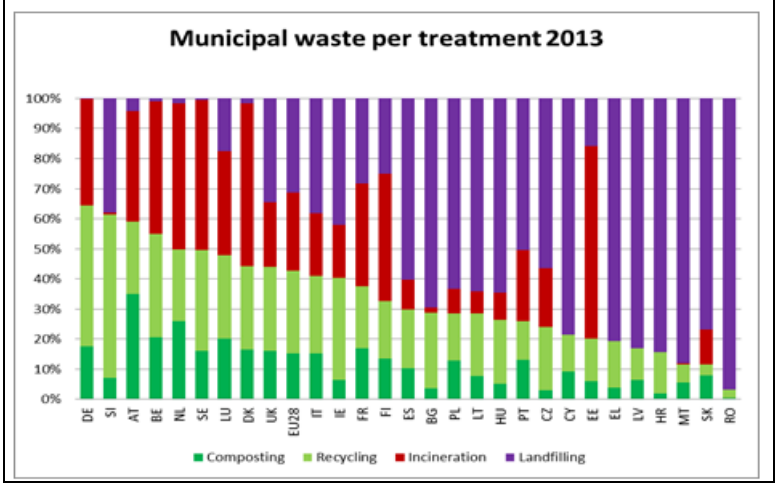
MADALINA CAPRUSU PRESENTATION

Implementation-Circular Economy

Action Plan Communication + List of Follow-up Initiatives (Annex) + 4 Legislative proposals on waste

1/3 of the actions are being implemented

Under debate at the Council and at the European Parliament



Adverse effects from waste treatment methods

- impacts on the **environment** (in particular biodiversity and ecosystems): landfills may contaminate, depending on the way they are built, soil and water with chemicals contained in waste; littering can have severe consequences for wild animals, especially through ingestion of microplastics; more generally, if waste is not recycled or recovered, the raw materials extracted and transformed to produce a product are lost;
- impacts on the **climate**, as landfills release methane, a powerful greenhouse gas;
- impacts on **human health**, primarily associated with landfilling, due to the release of air pollutants in the atmosphere and to the possible contamination of freshwater sources and agricultural soils;
- impacts on the **economy**, as valuable materials are lost.

Ambitions about reducing landfilling

most Important driver for circular economy from the waste side

LANDFILL PROPOSAL

- New Art. 5, 3f Landfill Directive
  - No Landfill of separately collected waste, Art. 11(1) und Art. 22 WFD
    - Plastic, Glass, Metal, Paper (and Biowaste)

(New Art. 22 WFD
- Obligation to separately collect biowaste)

New binding target to reduce landfill to 10% of municipal waste by 2030

Malagrotta ruling

- All waste is pre-treated
- Most appropriate pre-treatment option is applied
- Adequate selection of waste streams
- Stabilisation of the organic fraction

➔ Recital 8 of the CE Landfill proposal

9

MALAGROTTA FOLLOW-UP STUDY

- Identify the legal and operational implications of Malagrotta ruling
- Investigate if the legal frameworks of the Member States ensured compliance with Malagrotta ruling;
- Visits to up to five landfill sites in the 18 Member States with the highest landfilling rates :
- Recommendations to improve the implementation of pre-treatment requirements.

10

MALAGROTTA FOLLOW-UP STUDY – PRELIMINARY CONCLUSIONS

- Most Member States have correctly transposed the pre-treatment provisions of the Landfill Directive;
- Substantive amounts of waste are landfilled without pre-treatment: lack of waste management infrastructure in place to ensure compliance with pre-treatment requirements;
- Visits to 82 landfill sites across the 18 Member States : ~ 60% of waste landfilled has not undergone pre-treatment as required.

2017 – Meeting with Member States

11

MALAGROTTA FOLLOW-UP STUDY

MALAGROTTA FOLLOW-UP STUDY

Thank you for your attention !

Additional sources of information:

DG ENV "waste" website: http://ec.europa.eu/environment/waste/index.htm

Eurostat Databases:
http://epp.eurostat.ec.europa.eu/portal/page/portal/waste/introduction

EEA: http://www.eea.europa.eu/themes/waste

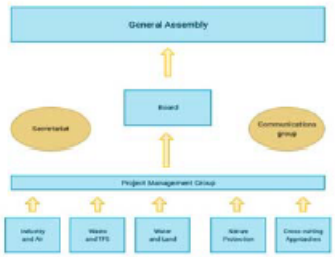
ALLISON TOWNLEY PRESENTATION

Waste and TFS Expert Team

Allison Townley
Landfill Project
17 November 2016 Zaandam

Network of practitioners in the field of permitting and enforcing environmental law

Organisation of IMPEL



What does IMPEL do?

- Supports the development of good practices with guidelines and tools;
- Promotes the exchange of information and experience;
- Supports and facilitates capacity building and training of regulators;
- Carries out joint actions including inspections;.
- Provides feedback and advice on new and existing EU environmental law.
- Executes 20-25 projects each year.

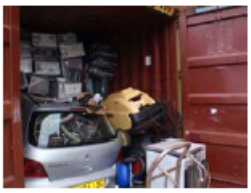
Waste and TFS Steering Committee

Allison Townley, UK	Team Leader
Kevin Mercieca, Malta	Deputy Team Leader
Marina de Gier, Netherlands	next Team Leader
Bojan Počkar, Slovenia	
Thomas Ormond, Germany	
Simonne Rufener, Switzerland	
Jon Engstrom, Sweden	

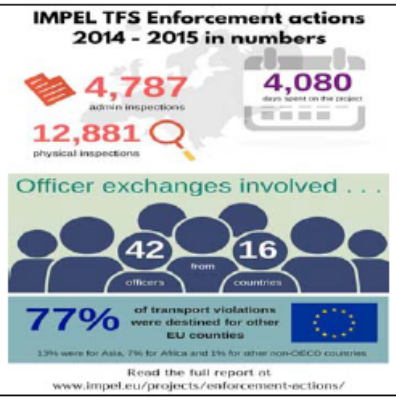
2016 Waste and TFS Projects

- 2016/08Landfill Project
- 2016/04 Enforcement Actions
- 2016/05 Waste Shipment Inspection Planning
- 2016/06 NCP Best Practice meeting
- 2016/07Waste and TFS Conference

Enforcement Actions Project



- To promote & improve inspections and enforcement of waste shipments through & out of the EU
- 31 participating countries
- 26 submitting results



Spotfire Online Visualisation Tool

- Latest development in Enforcement Actions project work
- Makes possible live data feed (GPS/tablets)
- Waste flows approach (assists inspection planning)
- By end of 2016 we plan to provide secure website access to system;
- Great tool to gather intelligence

Spotfire Online Visualisation Tool

Waste Types Remaining in EU

The Waste Shipment Inspection Planning (WSIP) project

Objectives

- Implementation of revised Article 50 of the Waste Shipment Regulations
- Exchange of best practices and experiences regarding inspection plans
- Development of a guideline for an Inspection Plan.

Participants:

- 26 MS have contributed
- 17 MC (23 Competent Authorities) replied to questionnaire: Project team + AT, BG, CH, CY, DK, EE, LUX, LV, PL, PT.
- Strong Project team: DE (lead), BE, NL, NO, SI, UK

NCP Best Practice meeting

This project focuses on the IMPEL-TFS National Contact Points (NCPs) and the main goals of the best practice meeting are:

- To improve the collaboration and alignment of enforcement and strengthen the network of NCP's Frequent contact between the enforcers in different countries is necessary.
- Strengthen the network of NCPs involved in the enforcement of the WSR
- Exchange information, working methods, best practices and experiences
- Inform participants on new developments

All this is to improve enforcement activities of the Waste Shipment Regulation and to stimulate consistent application of its provisions.

- 25 Member States represented with 30 participants in Luxembourg in October 2016

Waste and TFS Conference

- Exchanges of best practices and experiences
- Updates on IMPEL projects
- Updates from Commission/Basel Secretariat
- Platform for proposals
- Workshop sessions on various topics
- Collaboration between the involved law enforcement agencies e.g. regulators/Customs/Police/Prosecutors
- Improve links and joint actions with Asian and African countries

Waste and TFS Conference 2016

- Held in Germany in conjunction with GIZ (assist German Government in sustainable development)
- 94 delegates from 23 Member States/ Norway/ Switzerland/Kosovo/Nigeria/Ghana/China/USA
- Environmental Inspectorates/Environmental Ministries/EU Commission/Basel Secretariat/Customs/Police

2017 Waste and TFS Project Proposals

- 2017/06 Landfill Project
- 2017/04 NCP Best Practice Meeting
- 2017/05 Enforcement Actions
- 2017/07 WEEE / Plastics project
- 2017/08 RDF Project

Plan B

- TFS Conference
- Improving the implementation and enforcement of waste from means of transport

ROMANO RUGGERI PRESENTATION

Reinforcement Programme on inspection skills according to Landfill sites in IMPEL Member countries

Zaandam
16-18 November 2016
Final meeting

Romano Ruggeri – rruggeri@arpa.sardegna.it
ARPA Sardegna

Objectives of the Landfill project

- **Identification** of good inspection practices, developing guidance and checklist.
- **Cooperation** (and helping each other) between IMPEL Member Countries to work towards a consistent regulatory and enforcement regime.
- **Feedback** to policy makers on the effectiveness of the various approaches and practices in the field of permitting and inspection of landfill sites in IMPEL Member countries.

How to achieve goals

- Use of **basecamp** under IMPEL website as exchange platform for information and specific questions, discussions etc.
- Carry out **joint inspections** to exchange information and experiences, to make decision on guidance document and to discuss the further need of training measures
- Work further together on the **guidance document** for inspection of landfill sites,
- Make the guidance document available by **Internet** (IMPEL website) for all inspectors in the landfill-sector,
- Drafting of **project report** containing findings, conclusions and recommendations.

Project team

16 Member States
Almost 30 Inspectors
In 2016:

- Turkey
- Belgium
- Azores (Portugal)

Project team: from Cagliari to Malta

1-12-2016 5

6

Joint inspections: together on the field

1-12-2016 7

Birmingham 2014

Training at the Environment Agency England (EA) - Birmingham

Environment Agency

1-12-2016 8

Wien 2015

Sampling of waste and leachate

1-12-2016 9

Santiago 2015

Sampling of groundwater

1-12-2016 10

Malta 2016

Landfill and pretreatment

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ToR: 2016 objectives

3.1 Describe the activities of the proposal (what are you going to do and how?)

1) Project Team: project team leader and 5 experts from 5 IMPEL member countries (project leader, two experts previous joint inspections, three countries of upcoming joint inspections)
2) I: Joint inspection country Malta (joint inspection MS + three other MS who can offer knowledge),
3) II: Joint inspection country + workshop PM (joint inspection MS + 15 participants)

To be decided: Proposed countries for hosting joint inspection and workshop:
Malta already confirmed; preferred MS for 2016 are France, Germany, Norway or Ireland)

The Landfill-issues are placed under the TFS Waste cluster in new IMPEL-structure. In 2016 we will work on a stronger link with this cluster.

1-12-2016 12

ToR: 2016 objectives

3.2 Describe the products of the proposal (what are you going to produce in terms of output / outcome?)
-1 joint inspections and 1 joint inspection in combination with workshop -Project report , -Guidance document for inspection of landfill sites, this includes also the checklist (revised) -a document including the points of the EU Landfill Directive with a different implementation and interpretation in MS, or whose application is critical in MS. Based on this document there will be feed back to EU Commission on gaps of implementation. -put together a list on Basecamp of useful guidelines (examples of good practise) from various Member States.
3.3 Describe the milestones of this proposal (how will you know if you are on track to complete the work on time?)
1. January 2016: Project team meeting telecon, preparation 3 joint inspections and workshop 2. March/April 2016: 1 Joint inspections 3. April/May 2016; revising guidance document 4. May/June 2016: 1 joint inspection and workshop 5. Oct/Nov 2016: final Project Report + document with recommendation to EU commission according to implementation gaps.

Main output

Survey

Survey: open questions

1. Who and how perform characterization of waste before landfilling? Sampling plan.
2. Sampling criteria (how and when) of not regularly produced wastes? How to assess hazardous properties in case of mirror code waste? Lab bulletin?
3. How to manage the leachate ?
4. Which pre-treatment are necessary before landfilling the waste?
5. When may the waste be considered as stable and non-reactive?
6. How to define trigger levels for groundwater?
7. How can top and bottom layers be inspected?
8. Monitoring and management of raining and surface water

Waste characterization

Who perform characterization of waste before landfilling?

Different approach in Member States have been identified.

Sampling plan

Is the sampling plan compiled by producer / operator?
Is it attached to the lab bulletin together with the BC/CT?

Sampling plan should be attached to the BC and CT and becomes part of the BC/CT evaluation certificate (Sweden and Austria).

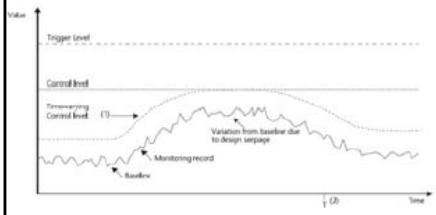
Hazardous properties

How to assess hazardous properties in case of mirror code waste? Lab bulletin?

In MS usually we do not have analytical evidence of the hazardous properties calculation.
The choice between HW or NHW code is often a declaration of the producer or of the external lab.

Groundwater trigger levels

How to define trigger and control levels for groundwater?



Different interpretations of trigger levels, no common understanding.

Waste pre-treatment

Which treatments are necessary before landfilling the waste?

MSW: different approach in member states.
NL uses to burn the residual part of the waste selection stream.

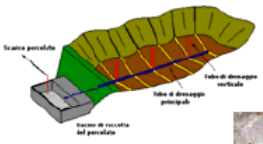
Stable non reactive waste

When may the waste be considered as stable and non-reactive?

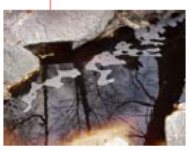
Different approaches in member states.
No specification of the needed treatment is given; waste has to comply with the waste acceptance criteria in the landfill.

Leachate management

How is leachate managed and monitored?

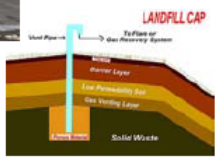


Collection and treatment system: treatment at landfill site or transport to water purification facility.



Top and bottom

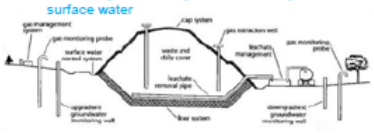
How can top and bottom layers be inspected?



Minimum criteria set for top and bottom layer.

Meteoric water

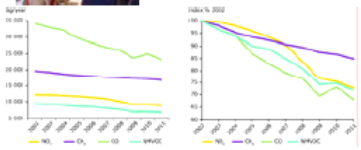
Monitoring and management of raining and surface water



Surface water – runoff water: differences? Which water has to be monitored and which not?

Monitoring report

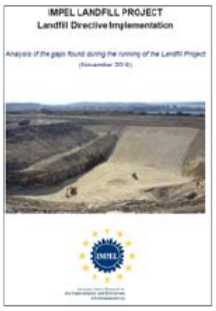
Is the monitoring report compulsorily sent to Inspection Authority?



Check for trends

Check of the report = inspection

Implementation gaps of Landfill Directive



FIRST DRAFT IN ZAANDAM

- Share final contents
- Amend the grammar

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Landfill inspection Guidance Book

REVISION 2016

- WG1: Waste acceptance criteria (sampling plan, waste characterization)
- WG2: Biogas management
- WG3: Groundwater protection and rainwater management
- WG4: Landfill in the building and closing phase

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Landfill inspection Checklist

1-12-2016

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Collection of technical documents: database

1-12-2016 29

Sharpening 2016 results

Guidance document + LD Implementation document

- English grammar
- Share contents
- Format of excel survey to publication

Dissemination

- Final Report of the workshop
- Impel at a glance
- Publication of the Guidance and Checklist
- Internal circulation

1-12-2016 30

New ToR 2017

1-12-2016 31

New ToR 2017

- Pretreatment of waste: survey + visit
- Real joint inspections
- Preparation-execution-reporting
- Use of Guidance and checklist

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WORKING GROUPS PRESENTATIONS

IMPEL Landfill ZAANDAM Presentation WG1

IMPEL Landfill ZAANDAM Presentation WG2

IMPEL Landfill ZAANDAM Presentation WG3

IMPEL Landfill ZAANDAM Presentation WG4

OPERATOR PRESENTATION

PRESENTATION OF THE ENVIROMENTAL SERVICE NORTH SEA CANAL AREA