APPLICATION FOR AN INTEGRATED POLLUTION PREVENTION AND CONTROL PERMIT

TA' ZWEJRA NON-HAZARDOUS WASTE FACILITY

COMMENTS BY MEPA AND REPLIES BY WASTESERV MALTA LTD.

General comment

Please provide explanations wherever N/A is given as an answer.

Justifications for several cases where N/A is given as an answer and which are considered to be of relevance

Question Number	Question or Requirement where N/A/ was entered	Justification by WasteServ	Comments to Justification by MEPA 10/05/05	Replies by WasteServ 13/05/05
1.1.15	Elements of site security	Site security will be provided through a combination of measures which are difficult to depict on a drawing.	OK	
1.1.28	Location of any discharge points to surface water	There will be no direct discharge points to surface water. All details will be provided within 1 month of issue of permit as in 1.1.26.	OK	

1.2.12	Waste Slope	Will not be used as a subgrade	OK	
	Hard rock slope	Will not be used as a subgrade	OK	
1.2.17	All questions related to mineral-only barriers	Barrier not mineral-only	OK	
1.2.21	All question related to mineral-only barrier in capping system	Capping system will not be composed of a mineral-only barrier	OK	
2.3.3	Details of sub-grade – other relevant/critical design parameters	None apart from those given	OK	
2.3.22/23/24/25	Performance parameters for leachate treatment off-site	Not yet determined	To be provided within 1 month of issue of permit	
2.3.33	Leachate quality monitoring	All details (including assessment criteria, compliance limit, frequency of monitoring, etc.) are given in Annex 2 to this document	Table 3. Sampling procedure and equipment needs to be provide within 1 month of the issue of the permit.	
2.3.39	Surface water monitoring points	Details of monitoring frequency, assessment criteria, compliance limits, etc. are given in Annex 2 to this document. Any missing relevant information will be provided within 1 month of issue of permit.	Accepted to be provided within 1 month of issue of permit since rainy season starts in September.	
2.3.53	Perimeter landfill gas	Details provided in Annex 2 to	Is it Table 4?	YES

	monitoring details	this document.		
2.3.75	Odour monitoring	All details will be specified within 1 month of issue of permit.	OK	
2.3.88	Details of noise and vibration monitoring points: determinands, frequency, etc.	Noise monitoring plan to be provided within 1 month of issue of permit.	OK	
2.4.1	Raw and auxiliary materials	Only the materials detailed in Section 22.0 of SMS document are used.	OK	
2.3.4*			Reference not given	Reference HRA 2.0 pg. 5
2.3.6*			Range of consistency limits and GCL data	Material is crushed and screened soft limestone fines: **non-plastic** GCL Minimum Thickness = 6mm; GCL Kd = 6000 ml/g ***GCL with a peel strength of 60 N/10cm achieves at confining stress of 80 kN/m^2 an internal shear strength of approx. 70 kN/m^2***
2.3.11*			Type and design of foundation	Leachate extraction well was built on solid sulfur resistant concrete base
2.3.58*			Perimeter aerial emission monitoring	ZW 014/04 – Location 11

2.3.68*			Bunds	The only storage tanks will be those for the storage of leachate and runoff. Relevant bunding details will be provided with the relevant plans.
2.3.69*			Type of tanks	The only storage tanks will be those for the storage of leachate and runoff. Relevant tank details will be provided with the relevant plans.
2.3.72*			Details of particulate matter monitoring points	Particulate monitoring will be conducted in the same locations as those for aerial emissions monitoring.

* N/A is written in these questions but no justification was given. Kindly provide justification!

Specific comments

Question Number	Question / Comment by MEPA	Request Date	Final Answer by WasteServ	Date of Acceptance by MEPA
1.1.10	Diagram is not clear.	18/04/05	Provided additional drawing with piezometric contours together with document since the original diagram had low resolution Attached drawing Figure No 005c/04 27/04/2005. (Annex 1 to this document)	10/05/05
1.1.11	No diagram present. The document should be complete. Therefore, the reference document mentioned in pg 7 of Addendum should be attached to the document.	18/04/05	Provided with additional information submitted in March 2005.	
	Scale drawings showing the features mentioned is still necessary.	26/04/05	All findings are detailed in the documentation provided. Drawing will be provided within 1 month of issue of permit.	10/05/05
1.1.13	Not answered. Accepted because this item does	18/04/05	No further action.	18/04/05

	not add any useful information			
1.1.16	Diagrams mentioned do not show the leachate monitoring points. Revise drawing to include key, and amend pg 6 of the IPPC application, and confirm ZW10/04 as against ZW009/04!	18/04/05 26/04/05	Leachate monitoring points are 4 blue circles in DWG ZW10/04 showing three waste cells. We confirm that the drawing is ZW009/04. Drawing amended and submitted as ZW009am/04. Application will be amended accordingly.	 10/05/05 10/05/05
1.1.26	Drawing not showing what requested	18/04/05	Amended drawing including position of surface water collection point will be provided within 1 month of issue of permit.	10/05/05
1.1.30	Not answered	18/04/05	Monitoring points are all pre-established boreholes.	26/04/05
1.1.34/35	Reference is not understood	18/04/05	Section 22.0 HGA Page 31. Sections 1.0, 2.0, 3.0, 4.0, 5.0, 6.0 and 7.0 SRA pages 2, 2, 6, 7, 17 and 20 respectively. Section 6.0 GRA Pages 35-38.	10/05/05
1.2.1	Page numbers still not given No reference was submitted	18/04/05	There are 5 sub-questions. References in consecutive order are as follows: (1) Section 6.0 HGA Page 8 (2) Section 22.0 HGA Pages 31-32	 10/05/05 10/05/05

			(3) Section 22.0 HGA Pages 31-32 (4) Addendum Section 8 Page 12 (5) Section 22.0 HGA Page 33-34; Addendum Section 7.0 Page 8 Reference: Annex 1 to comments submitted on 26/04/05. (Annex 2 to this document)	10/05/05 10/05/05 10/05/05
1.2.3	There is no grid referencing Drawings do not have proper referencing	18/04/05	Provided with additional information submitted on 14th April 2005. (Note no. 11) (Reference: Comments by Waste Management Team) Grid reference is not correct – this was highlighted in the second set of comments by the Waste Management Team. Correct grid reference is the following: between Northings (m) 78000 – 77670; Eastings (m) 49570 – 49800 Drawings: ZW002/04; ZW005/04; ZW005b/04; ZW005c/04;	26/04/05 10/05/05 10/05/05
1.2.4	Topography and Climate are not answered		Information is given throughout sections 3 to 13 of the Hydrological Risk Assessment. Replies to questions by MRA submitted on 09/05/05.	
1.2.6	No justification is given	18/04/05	Section 13 HGA Page 17	26/04/05
1.2.7	An answer was given but it didn't explain the reason for choosing one model over the others. Was it because there	18/04/05	Computer model using simulation by Monte Carlo method was recommended by our UK Consultants SLR Ltd. and successfully used for other waste management sites in Malta.	26/04/05

	was no others? This was already pointed out in the meeting after my first review of the application, but nothing on this subject was added to the addendum. Reference HRA4C/585/001 is not understood		HRA4C/585/001 means Annex 1 of the HRA Electronic copies of the actual model are not available but the results are provided in Annex 1 of the hydrogeological risk assessment.	10/05/05
	Reference is made to both HRA and HGA - Do these both stand for Hydrogeological Risk Assessment?	18/04/05	Yes	26/04/05
1.2.9	Reference to Addendum Section 8 was missing	18/04/05	Application will be amended accordingly	10/05/05
1.2.19	There is no reference to '*confined conditions'* as indicated in application on Pg 22 Section 6	18/04/05	Confined conditions of lining system integrity are considered within Stability Risk Assessment Section 8 page 24.	26/04/05
1.2.20	No justifications were given. These are to be provided because of existing public concerns. Provide	18/04/05	NO – SRA Section 8.0 page 20 NO - SRA Section 8.0 page 20	10/05/05

	justification even where indicated N/A		NO - SRA Section 8.0 page 20	
	Is the waste mass at pre-settlement contours likely to become unstable? What is the steepest profile? Is the waste mass at post-settlement contours likely to become unstable? Is the settlement within the waste likely to impact on the effectiveness of the leachate and landfill gas collection system?		Page 20 for all questions.	10/05/05
1.2.23	'*Construction plant'* is just considered in Risk Assessment but not tackled. Please specify	18/04/05	Stability analysis were considered as induced loads on the liners from usage of CAT D6 Low Ground Pressure Dozer demonstrating satisfactory Factor of Safety 1.33.	26/04/05

	'how' and the 'outcome'. '*Gas Pressure*' is not tackled		 An active vertical gas collection system shall compensate for gas pressure.	
1.2.24	The answer refers to UK's emission factors. Is this still relevant since Malta has a hotter climate and the waste is dryer? Pg9 GRA '*Uncertainty estimates'* are missing	18/04/05	All input data are very conservative so in this case the UK emission factors are Malta's worst-case scenario. The methodology concludes that all input parameters are well known and uncertainty estimates are dominated by waste quality and Gas recovery efficiency. This could be estimated as a mean relative error of 5% in modeling calculations.	26/04/05 10/05/05
1.2.26	More specific reference is needed.	18/04/05	This chapter refers to monitoring of emissions from gas treatment plant which is actually part of EU funded Maghtab Aerial emission control Project. Gases from Zwejra will be treated within the same plant. Three sites relate to Maghtab, Wied Fulija and Qortin, but for this instant the "Maghtab/Zwejra Gas Treatment Plant" shall apply. Refer to map ZW014/04 in amended drawings section.	10/05/05

			The 3 sites are Maghtab, Wied Fulija and Qortin. Kindly consider as one site i.e. Ta' Zwejra for the purpose of this application.	
	Re: '*boundary of installation'* pg 29 – Which are the three sites mentioned in pg5 of GRA? Reference to map is needed. On map there are 4 points but not all are labeled.		Please refer to the legend on the relevant drawing.	
	No trigger levels and monitoring program were submitted. No derivation of trigger levels is seen in referenced pages.		Monitoring programme was submitted in Addendum Document to Additional Information of March 2005 (Tables 4 and 5 on pages 10 and 11 respectively). Amended programme included in Annex 2 to this document. Only a trigger level for methane concentration in air has been derived to date. Trigger levels for dioxins, PAHs and heavy metals will be provided within 1 month of issue of permit. Note also comment in Note 41 in replies to first set of comments by the Waste Management Team which was accepted.	
	Re: Note 41 – Contingency plans which will be put into effect when the trigger level is reached are to be submitted within 6	10/05/05	Noted	

	months. No derivation of trigger levels is seen in referenced pages.	26/04/05	Trigger and control levels for methane are provided in Annex 2 to this document. Note also comment above.	10/05/05
1.2.27	No justification was given **Still did not provide:** **Appropriate stack height** **Are concentrations in Table 11 at ground level?**	18/04/05 10/05/05	Section 6.0 of GRA considers dispersion predictions within a 200m distance from site. The predicted emission's concentrations are presented in Section 6 and model conclusion: For all contaminants considered, the assessment of atmospheric dispersion of contaminants on off-site receptors indicates that the proposed landfill would have negligible impact on human health. GRA 7.2 pg44, H=3-5m YES	
1.2.28/29	Proper referencing is needed	18/04/05	No standard template was used to determine risks. Risk assessments provided in SMS Sections 19.2 (Page 107), 15.2 (Page 87), 14.1 (Page 84), 17.2 (Page 97), 16.2 (Page 94), 18.2 Page (102).	10/05/05
2.3.4	Answer given appears	18/04/05	The geological barrier is the geological formation	26/04/05

	to be wrong and misleading, otherwise, it needs to be explained.		between the underside of the artificial sealing liner and the compliance point at which the requirements of the Groundwater Regulations should be met. This will be a site-specific location based upon the geological/hydrogeological conditions at the site. For List I substances the compliance point will be the top of the saturated zone below the site (i.e. the water table) which in case of Ta' Zwejra is 20m thick Lower Coralline Limestone formation reinforced with artificially placed low permeable mineral lining system.	
2.3.6	The answer given is not complete. '*Relevant design documents'* are not clear GCL part is not complete	18/04/05	GCL Minimum Thickness = 6mm; GCL Kd = 6000 ml/g For material specifications CQA Report is to be used as reference. GCL with a peel strength of 60 N/10cm achieves at confining stress of 80 kN/m^2 an internal shear strength of approx. 70 kN/m^2	10/05/05
2.3.11	The answer given is not complete	18/04/05	Provided with information submitted in Construction Specification Document Leachate extraction riser is made of sulphate resistant concrete with strength of 40 MPa.	10/05/05
2.3.14	There seems to be an interchange between the terms 'leakage detection	18/04/05	A leakage detection system is not an absolute pre-requisite for a non-hazardous waste landfill. This has been accepted by the Waste Management Team.	10/05/05

	system' and the 'groundwater monitoring system'. These terminologies are different. The answer seems to be misleading/ misinterpretation of the landfill directive. Please explain.			
2.3.15	More specific reference is needed. The specifications are technically incorrect.	18/04/05	SMS Document Pages 36 - 37 The 500 litre storage capacity emerged from Water Balance Calculations. 500 litre storage capacity was identified to be inappropriate. Capacity will depend on volume of leachate generated if and when discovered but will not be less than 5000 litres	10/05/05
2.3.18	'*Closure and aftercare'* phases are missing. *Operation, appropriate inspection and maintenance procedures'* are not present in the pages referenced. (pg 36 ?) '*Dissolved gas content control'* is just mentioned. Further details required.	18/04/05	No information may be provided at this stage. As specified in previous comments submitted on other occasions, leachate is not as yet of concern. Relevant plans will be submitted in due course. Same as above. Leachate is not as yet of concern. Relevant plans relevant to the control of dissolved gas content will be submitted in due course. Noted	26/04/05 10/05/05

	They need to be provided within 1 month after which leachate is detected.	10/05/05		
2.3.19	No justification was given	18/04/05	Leachate will be re-circulated until the closure and capping	
2.3.27	Was not answered	18/04/05	Leachate treatment will be conducted offsite.	10/05/05
2.3.32	A compliance limit should be entered as well as frequency of monitoring.	18/04/05	Compliance limit – 1 metre Frequency of monitoring - monthly	26/04/05
2.3.33	Next to '*determinants'* was written N/A but then the frequency of the monitoring is answered monthly. What is the significance of this? The determinants and compliance limits should be set out as part of Section 7.5 of SMS.	18/04/05	Error. All information is given in Section 7.0 page 9 Table 3 of Addendum Document submitted with additional information in March 2005.	26/04/05
	What are the compliance limits and accuracy?	26/04/05	Amended version of monitoring plan submitted with Addendum to Additional Information of 16 March 2005 including compliance limts and accuracy is included in Annex 2 to the present document.	10/05/05

			Application will be amended accordingly.	
	No. of points, Sampling procedure and equipment to be provided within 1 month of issue of permit	10/05/05	Noted	
2.3.34	Wrong reference was given to '*details of system monitoring'* on pg 59 of IPPC application.	18/04/05	Error. Correct reference: SMS Section 9.2 page 47 and Section 7.0 page 8 Table 1 of Addendum Document submitted with additional information in March 2005.	26/04/05
	Table 1 of Addendum refers to ground water. How will you ensure discharges to sea (runoff) are controlled?	26/04/05	Surface water from the landfill will be directed into the drainage network that will be constructed. This will lead to a central collection point and then subsequently discharged into the normal channels for drainage of rainwater i.e. the discharge into the marine environment. The central collection point will serve to conduct the required surface water monitoring prior to discharge.	10/05/05
	Detailed drawings are to be submitted to MEPA as an amendment to the planning application.	10/05/05	Noted	
	What are the correct	26/04/05	SMS Section 8.5.9 Page45-46. Surface water	10/05/05

	references to: 1. '*details of control strategies'* and 2. '*operation, inspection and maintenance procedures'* **Are the drainage network and the collection point the control strategies?**	 10/05/05	management system will be constructed by September 2005. Yes	
2.3.35	A detailed emergency flood plan is mentioned in the reference, but was not found in the documentation. The flood action plan in Section22.2.2 is not detailed. The reference to this question, i.e. Section 8.2, refers to a 'detailed emergency flood plan'. Kindly attach this detailed emergency flood plan. Otherwise to be	18/04/05 26/04/05	Flood action plan found at the following reference: SMS Section 22.2.2 page 116 Noted – will be supplied within 1 month of issue of permit.	 10/05/05

	supplied within 1 month of issue of permits.			
2.3.37	The 'frequency' mentioned in Table 9.1 of SMS, needs to be proposed by WasteServ and commented upon by MEPA. The analytical methods or standards to be used for monitoring needs to be mentioned. [check addendum pg 9]	18/04/05	Amended monitoring programme included in Table 2 of Annex 2 to this document.	10/05/05
	A separate monitoring regime should be carried out, which is in fact found in Section 7 page 9 (not 8) Table 2 (not 1) of the Addendum.	26/04/05	Correct. Amended version in Annex 2 to this document.	10/05/05
	The 'other accepted standard procedures' to be used should be provided in the Addendum.	26/04/05	All standard procedures will be communicated to MEPA within 1 month of issue of permit.	10/05/05
2.3.38	The following points were left unspecified in the surface water	18/04/05	All monitoring parameters will be specified within 1 month of issue of permit.	

	monitoring: 1. *locations* 2. *surface water flows to be measured* 3. *units, accuracy and detection limits* 4. *quality controlled procedures* OK MEPA expects monitoring parameters within 1 month.	 26/04/05	 Will be provided	 10/05/05
	The Site management system report - page 43 (Section 8.2)- states that "a network of drainage trenches and channels lined with low permeable material and where appropriate with geo-textile filtration liner will be constructed". Where will the run off collected in this manner be discharged? What will happen to the	18/04/05 26/04/05	A drainage network will be constructed to direct the run off water from entering the landfill. It is not intended to collect the run off but discharged into the storm water system. Surface water from the landfill will be directed into	 10/05/05

	surface runoff from the landfill itself?		the drainage network which will be constructed. This will lead to a central collection point and then subsequently discharged into the normal channels for drainage of rainwater i.e. discharge into the marine environment. The central collection point will serve to conduct the required surface water monitoring prior to discharge.	
	At present the sewerage system collects strom water as well. What storm water system?	26/04/05	The normal channels for drainage of rainwater – the marine environment.	10/05/05
	When will the drainage network be constructed!	26/05/05	The drainage network will be constructed prior to the start of the next rainy season i.e. prior to September 2005.	10/05/05
	Site management system report Section 9.: Monitoring locations of surface water are not given in ZW008/04.	18/04/05	Reference is made to ground water monitoring locations as indicated on dwg ZW08/04	
	Ground water monitoring has nothing to do with surface water monitoring. In fact a separate monitoring regime was provided in Tables 1 and 2 of	26/04/05	Monitoring programme included in Table 2 of Annex 2 to this document.	10/05/05

	Section 7 pages 8 and 9 in the Addendum. Thus separate locations in a separate diagram need to be provided.	26/04/05	These will be provided within 1 month of issue of permit as for 2.3.38.	10/05/05
	Site management system report Section 9.2: What is the difference between "monitoring location" as given in section 9.1 and "sampling point" as given in section 9.2?	18/04/05	No difference	26/04/05
	The Hydrogeological risk assessment (pg14) states that "there are no permanent surface water features within the site or adjacent surrounding area if not considering the marine environment". In the site management system report, it is stated that "Risks to surface water was accessed through water balance calculations and is enclosed as Appendix 1	18/04/05	The only surface water feature is marine environment and it will not be directly effected by landfill. Surface run off water will not be in contact with contaminated waste. Ground water flow is not toward the sea but in the opposite direction.	

	of the Hydrogeological Risk Assessment."(Page 43 (Section 8.2).It would therefore be expected that the risks to surface water (ie the marine environment) would be covered in Appendix 1 of the Hydrogeological risk assessment. However this was not found. Kindly clarify. This needs to be better explained before it can be accepted. Eg: How can it be stated that the marine environment will not be affected by the landfill a priori, without it having been included in the hydrogeological risk assessment. What risks to surface water are being referred to in Appendix 1 of the hydrogeological risk assessment?	26/04/05	This was purely a case of an erroneous reference. Appendix 1 of the HRA contains water balance calculations. Only uncontrolled discharge of rainwater run off may have a negative influence on the marine environment. As stipulated in previous comments, surface run off water will not be in contact with contaminated waste. Any run off will be directed into the surface water management system described earlier and into a collection reservoir. The quality of the water collected in the reservoir will be monitored prior to any discharge into the normal channels for drainage of rainwater i.e. discharge into the marine environment. No discharge will occur if contaminant levels exceed acceptable limits. Noted. All relevant calculations and information will	

			be submitted together with the plans that will be provided within 1 month of issue of permit regarding the management of surface water.	
	What is the contingency plan for this especially in the flooding period? The catchment area needs to be related to the intensity and frequency of the precipitation. You must calculate the number of times per year when exceptional storms will exceed the capacity of the designed water management system, when it will be insufficient to deal with the expected flows and contaminated water would be discharged to the marine environment. An estimate of the impact on the marine environment is	10/05/05	Contaminated run off will be treated off site in the same manner as with any leachate generated from the installation.	

	required.			
2.3.39	The answer is not complete. (Same as 2.3.33)	18/04/05	Section 7.0 of Addendum Document submitted with additional information in March 2005.	
	What are the compliance limits, detection limits and accuracy?	26/04/05	Annex 2 to this document.	10/05/05
2.3.42	*Monitoring schedules* does not specify what is being requested, e.g. control and trigger levels.	18/04/05	Section 7.0 of Addendum Document submitted with additional information in March 2005.	
	Control and trigger levels not found in section 7.0 of Addendum Document. Kindly provide	26/04/05	These are provided in Table 6 on Page 16 of Addendum Document submitted in March 2005	10/04/05
	Borehole logs are not mentioned in the reference given. The part related to *borehole logs* is accepted because we assume that boreholes were pre-existing. Please confirm.	18/04/05	Yes, monitoring boreholes were pre-existing.	26/04/05

	Reference to *contingency action plan* is not correct. (SMS 10.4.2 pg 53?)	18/04/05	SMS 10.4.2 pg 53 Table 10.2 Application will be updated accordingly.	10/05/05
2.3.43	Control trigger levels mentioned in Addendum are related to Leachate and not ground water. So please clarify. Waiting for MRA's feedback	18/04/05 26/04/05	Control and trigger levels for groundwater and leachate are related. Levels for groundwater are always determined based on estimated concentrations for leachate determined as part of the hydrogeological risk assessment. Replies to questions by MRA submitted on 09/05/05. (Annex 3 to this document)	
2.3.45	In the application both *Gas flaring* and *landfill gas utilization* were chosen, however, in pg 44 of the Gas Risk Assessment reference was only made to Gas flaring. Please clarify.	18/04/05	Gas will be thermally destroyed / flared. The benefit for utilization will depend of methane content and quality of gas.	26/04/05
2.3.46	A management plan dealing with all the items in this question, is to be provided within 6 months of the issuing of the permit for examination and approval by MEPA.	18/04/05	Noted	26/04/05

2.3.47	Flare is yet not purchased and no specifications from the flare were written. This matter is to be a 'reserved' matter to be decided by MEPA at a later stage.	18/04/05		26/04/05
2.3.48	A monitoring plan dealing with landfill gas monitoring and tackling all the items in 2.3.48 is to be provided within 6 months of the issuing of the permit for examination and approval by MEPA.	18/04/05	Noted	26/04/05
	Monitoring techniques (mentioned in SMS section 12.5) should be part of Section 12.3 when mentioning the individual systems i.e. monitoring methods/ standard. What kind of equipment will be used to sample and monitor other gases like CO, NOx, dioxins, VOCs (as mentioned in gas	18/04/05	We are already using a portable multi-gas monitor GA-94 and planning to procure more equipment. Monitoring of surface emissions will be conducted weekly by means of a hand held GA-94 Infra-Red Gas Analyser. This instrument measures concentrations of methane, carbon dioxide, carbon monoxide, hydrogen sulphide and oxygen, barometric pressure and temperature. The gas analyzer warns the operator if a particular gas sample contains concentrations of CH4, CO2, CO, H2S above preset levels or O2 below preset levels. At present a preset level for methane only is set. Trigger level: 2.5% methane; Control level: 5%	10/05/05

	risk assessment section 1.3)? **Acceptable but define when to add the sensors and monitoring of VOCs is going to start. Give**	 10/05/05	methane Lower Explosive Limit (LEL). The Higher Explosive Limit (HEL) for methane is 15%. Sensors to enable the continuous monitoring of methane, carbon monoxide and hydrogen sulphide will be installed in the short-term. (by the end of June) The control panel of the system is such that the additional sensors for the continuous monitoring of other components of landfill gas may be installed in series if and when required. A photoionisation detector capable of continuous monitoring of total volatile organic compounds will be installed in the short-term. (during the fourth quarter 2005) Dioxin concentrations will be measured monthly through the operation of high volume sampling equipment equipped with polyurethane foam (PUF) plugs and glass microfibre filters. The equipment will be operated for continuous sampling periods between 24 hours and 7 days. The PUF plugs will be analysed for dioxins and polyaromatic hydrocarbons (PAHs); the glass microfibre filters will be used for the determination of total suspended particles, PAHs and heavy metals. 4 instruments: (1) GA-94 Analyser for methane, carbon dioxide, carbon monoxide, oxygen, hydrogen sulphide, temperature and pressure.	

	specific time frames. Kindly clarify the number of different instruments to be used and for which each instrument is going to be used.		(2) Sensors for the continuous monitoring of methane, hydrogen sulphide and carbon monoxide. (3) A photoionisation detector capable of continuous monitoring of total volatile organic compounds. (4) High volume sampling equipment equipped with polyurethane foam (PUF) plugs and glass microfibre filters for the measurement of dioxins, heavy metals and particulate matter in ambient air.	
	Gas Flare emissions monitoring and utilization plant monitoring cannot be carried out on an annual basis, but continuously.	18/04/05	Noted. Our understanding is that this will be covered by a separate permit from MEPA as discussed with Mr Louis Vella in December 2004.	10/05/05
	Kindly confirm that the gas flare emissions monitoring for Ta Zwejra will be carried out continuously. If so kindly amend application. This is to be reflected in the monitoring plan.	26/04/05	Monitoring of exhaust emissions from the gas flare shall be carried out continuously. Off-site monitoring points are included in the weekly monitoring programme conducted weekly by means	10/05/05

	Which standard reference methods are used?		of the hand held GA-94 Infra-Red Gas Analyser as above. The high volume sampling equipment to be employed for sampling of ambient air for the determination of dioxins, PAHs and heavy metals may be transported to an off-site monitoring point should the need arise.	
	Off site monitoring should not be undertaken only in the case of complaints, but more frequently, say on a monthly basis.		Noted.	
2.3.53	No answer was given Reference ZW014/04 could not be understood.	18/04/05	This refers to drawing ZW014/04 (Amended Drawings) showing monitoring locations. Further details in Table 4 Section 7.0 page 10 of Addendum Document submitted with additional information in March 2005.	26/04/05
	Frequency of monitoring should be carried out continuously, however, include control levels, detection limits and trigger levels for each gas monitored as indicated in this question.		Monitoring of landfill gas surface emissions shall be conducted weekly. Control, levels and trigger levels for methane are provided in Annex 2 to this document.	10/05/05

2.3.54	Reference could not be understood.	18/04/05	Drawing ZW014/04 (Amended Drawings)	26/04/05
2.3.56	Wrong reference was given. Should be SMS 12.3.3 pg 69	18/04/05	Error. To be reflected in application	10/05/05
2.3.57	No distinction was made between aerial emissions and perimeter aerial emissions.	18/04/05	We do not make any distinction between aerial emissions and perimeter emissions. Monitoring points include both on-site, perimeter and off-site points.	26/04/05
2.3.59	Not properly referenced	18/04/05	Question has 4 sub-questions. References in consecutive order as follows: (1) SMS Section 12.3.8 Page 72 (2) SMS Section 12.3.8 Page 72 (3) GRA Page 39-40 SMS Section 12.3.8 Page 72 (4) GRA Section 6.0 Pages 35-42; SMS Section 12.3.8 Page 72	10/05/05
2.3.60	Answer cannot be understood	18/04/05	Text did not print when printing the document. Should read: NO SIGNIFICANT HAZARDS / EMISSIONS TO BE KEPT UNDER SURVEILLANCE (SOURCE: SCOTT WILSON STUDY)	26/04/05
2.3.62	No information and justification was given	18/04/05	Information on control and trigger levels given in replies to question by the Waste Management Team submitted on 14 April 2005. Note No. 41.	26/04/05
2.3.63	The *contingency plan* submitted is not as	18/04/05	Noted	26/04/05

	detailed as requested by the question thus cannot be accepted as complete. A completed version is to be provided within 6 months of the issue of the permit.			
2.3.64	Same as above but no design and operation standards were mentioned. What does this mean? **Further details are required and are to be submitted within 1 month of issue of permit.**	18/04/05 26/04/05 10/05/05	No comments to add. No information about design and operation standards may be provided. If further details are required, these may be provided within 1 month of issue of permit. Noted	
2.3.66	The type of Pressure and leak tests to be undergone were not described. Test certificates are to be provided. A monthly report on status should be	18/04/05 26/04/05	Gas management system will be installed at a later stage. It has not yet been selected. No further details are available. All information will be provided in due course. Noted	26/04/05 10/05/05

	provided.			
2.3.67	The answer supplied in SMS is just a copy of the question without giving any information on how frequent and by whom the inspection and maintenance program is going to be performed. Inspection and maintenance contract is to be concluded and approved by MEPA within 6 months.	18/04/05 26/04/05	No further information can be provided at this stage. Noted	26/04/05 10/05/05
2.3.68	Drawings of all tanks, bunding and piping are to be supplied. Kindly provide drawings as requested. **Bunds, tanks and piping not seen in drawing**	18/04/05 26/04/05 10/05/05	Bunds are of low-permeable/high-attenuation lined material like crushed and screened limestone fines lined with GCL or geo-membrane depending of type of tanks and liquid contained. Please refer to Drawing ZW009am/04 The only storage tanks will be those for the storage of leachate and runoff. Relevant bunding details will be provided with the relevant plans.	26/04/05
2.3.71	Dust is a generic descriptor. We want to	18/04/05	Dust that can be collected on a glass microfibre filter installed on high volume sampling equipment.	26/04/05

	know the type of dust. It is stated that measures are in place to monitor particulate matter that escapes the installation boundary but it is not described. Dust monitoring methodology should be supplied. The above is the same for the rest of the question.	 18/04/05	 Total suspended particles will be monitored together with monitoring for dioxins, PAHs and heavy metals. The same frequency and monitoring points apply. Ref: Addendum Document Section 7.0 submitted with additional information in March 2005. In essence a stipulated volume of air will be sampled by means of a high volume sampler. The quantity of total suspended particles will be taken as a measure of the total dust concentration in the ambient air. Monitoring for total suspended particles will be conducted on a monthly basis together with monitoring for dioxins, PAHs and heavy metals.	 10/05/05
2.3.72	No description was given. Which are the monitoring points?	18/04/05 26/04/05	As above Monitoring points are the same as those for monitoring of gaseous emissions.	 10/05/05
2.3.75	These need to be described with full justification. Points need to be specified. Odour measurement	18/04/05 26/04/05	Measurement of odours is a very subjective issue. At present an investigation into different methods is being conducted in order to identify the best monitoring methodology and remedial measures. Noted. Monitoring points will be specified within one month of issue of permit.	 10/05/05

	methodology to be submitted and approved by MEPA within 6 months of issue of permit.			
2.3.76	*Criteria for closing installation to **waste acceptance*** are not clearly identified *Meteorological conditions* are not mentioned in risk assessment. Is it assumed that the site will not be closed for waste acceptance.	18/04/05	Presence of mud on roads is solely as a result of wet weather. All efforts will be exerted to keep occurrence of mud on roads to a minimum.	10/05/05
2.3.84	No reference is made to how the noise is going to be shielded in the reference quoted. 19.3.12?	18/04/05	Screening will be in the form of bunds and barriers around operational areas and acoustic screening around fixed plant.	10/05/05
2.3.87	No suggestion on monitoring frequency was given We require a noise monitoring plan.	18/04/05	A noise monitoring plan will be provided within 1 month of issuing of permit.	26/04/05
2.4.4	*Landslides* are not mentioned in SMS Section 22.5	18/04/05	Not directly. Reference is made to the instability of the waste mass.	26/04/05

	Fire – '*Likelihood of it occurring'* was not answered. Please describe 'internal combustion.'	18/04/05	Likelihood of occurring is high. Section 2.4.4 of the completed application template and section 22.3 of the site management system document does not make any reference to internal combustion. The term internal combustion is generally used to describe an engine in which combustion of the fuel takes place in a confined space, producing expanding gases that are used directly to provide mechanical power. Underground fires: SMS Page 120 Section 22.3.12	26/04/05
	The submitted document should contain an action plan for the repair of the liner should this be needed.	18/04/05	Repair of liner will be done by conventional techniques. Example: removal of waste and patching damaged liner.	26/04/05
	The document should contain the employee's or the contractor's health and safety policy. A risk assessment of all health and safety matters is to be presented as well. The identity of the health and safety representatives and of	18/04/05	Health and safety policy attached as Appendix 1. Risk assessment attached as Appendix 2. (Annexes 4 and 5 to this document) WasteServ's competent person (registered with the Occupational Health and Safety Authority) to assist in the occupational health and safety measures is Marco Putzulu Caruana who occupies position of Health and Safety Officer within the company. The appointment of health and safety representative/s will be implemented in the short term.	10/05/05

	the competent person/s to assist in the occupational health and safety measures required in conformity with all health and safety legislation, codes of practice or guidance notes needs to be submitted, within one week of the issuing of the permit. **OHSA replied and an e-mail in this regard was sent to WSM on 11-05-05. Kindly reply to e-mail's request.**	10/05/05	Email requests treated under separate cover on 17/05/05. (Annex 6 to this document)	
2.4.6	*Evaporation* is not one of the determinants listed in SMS.	18/04/05	Answer in completed application template to be changed to NO. The reason for this is that the equipment to be purchased for meteorological monitoring does not incorporate the measurement of this parameter.	26/04/05
2.4.7	'averaging period' were not referenced to in Section 23. This is to be expanded with special reference to wind direction.	18/04/05	It will determined once the meteorological stations are installed.	26/04/05
2.4.8	Not yet established.	18/04/05	Noted	26/04/05

	This is to be provided within 6 months of the issue of the permit for examination and approval by MEPA.			
2.4.9	Not answered	18/04/05	Improvement Plan – Appendix 4 (Annex 7 to this document)	26/04/05
2.5.1	Not answered	18/04/05	Waste levels will be surveyed minimum quarterly (every three months)	26/04/05
2.5.4	The reference document 'Project design for the closure of Ta' Zwejra Landfil' does not refer to all the questions asked in 2.5.4 and should be submitted in detail within 6 months of issue of the permit.	18/04/05	Noted	26/04/05
2.5.5	Is answer to this question acceptable?	18/04/05	Closure plan was designed by WasteServ and is now being reviewed by Messers Scott Wilson Ltd. of UK. Final version will be submitted at a later date. Answer: "Refer to Article 9(g) of the Landfill Regulations" was not provided by WasteServ. Proper answer should be: Achievement of pre-determined volume/capacity. The final version of the closure plan will be submitted within 1 month of issue of permit.	10/05/05
3.0	All section 3 is to be	18/04/05	Appendix 3 – Emissions Benchmarks (Annex 8 to this	Sewers –

	provided for in full **asap**. **This absence makes us unable to issue a permit.** Gas engine – 'No engine will be installed'. Please confirm this. A separate application will be needed in due course.	 26/04/05	document) Confirmed Noted .	accepted 26/04/05 Surface waters – accepted 26/04/05 10/05/05 10/05/05 Gas flares – accepted26/04/05
4.1.2 – 4.1.21	Not answered. This is related to EMS. An EMS is to be provided and approved by MEPA within one month of issue of the permit.	18/04/05	Noted but this requirement will be rather impossible to achieve within 1 month of issue of permit. An environment management system generally takes years to develop and implement. A deadline of 6 months is requested.	26/04/05
4.4.7	Not answered	18/04/05	WasteServ has applied for EU Funding through Transitional Facility funds to provide technical assistance and training to selected Wastserv employees on waste management and operations, both locally and overseas. This will include delivering detailed training in generic a 'training the trainers' approach as well as delivering specific technical training in a number of key waste management areas,	26/04/05

			namely: - General principles of waste management - Waste Acceptance Criteria - Engineered Landfill Management/Operation WasteServ is planning to have at least four employees working within WasteServ who can be trained specifically to train other employees. WasteServ will be sending 2 Engineers and 2 Technical Officers to an Engineered Facility in Germany, through a Twinning Project, to work for 3-4 weeks on site from which they will gain the required training for managing the site in Malta. Following this, WasteServ will be seeking to apply for the Certificate Of Technical Competence (COTC) so that the employees managing the sites will have the required certification to carry out their duties.	
Drawing ZW014/04	Two on site points for monitoring are not enough. Two further points were added, and are marked in yellow and green. Is it the amended ZW0014/04?	18/04/05 26/04/05	Noted. Monitoring programme will be modified accordingly. Yes	26/04/05 10/05/05
SMS Pg	Street sweeper should	18/04/05	Noted	26/04/05

84: 14.1.3	be properly equipped with dust filters.			
	Off site monitoring should identify sensitive receptors in the immediate vicinity (hotels, residences, tourist resorts). The air quality at these sites cannot be inferior to the limits laid out in Air Quality Framework Directive.		Noted - The equipment for sampling of ambient air for the measurement of dioxins, PAHs and heavy metals was selected purposely so that it could be relocated to whichever site is identified for monitoring of ambient air quality.	26/04/05