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Decision of hearing committee on the review of consent conditions of the air discharge permit held by Exide Technologies Limited to discharge contaminants into air from the operation of a lead battery recycling plant and associated activities.

Hearing Committee:

Cr Chris Turver (Chairperson)
Cr Terry McDavitt
Cr Chris Laidlaw

Decision to approve reviewed consent conditions

IN THE MATTER OF	The Resource Management Act 1991 (the Act)
AND	Review of consent conditions pursuant to Section 128 of the Act, referenced: WGN000128 [24363] Discharge permit to discharge contaminants into air from the operation of a lead battery recycling plant and associated activities, at 51-57 Waione Street, Petone at or about map reference NZMS 260:R27;688.955.
CONSENT HOLDER	Exide Technologies Limited P O Box 36026 Lower Hutt
CURRENT CONSENT	WGN000128 [22828]
NOTIFICATION DETAILS	Notice of the review pursuant to section 129 of the Act was served to 376 parties and the applicant on Monday

	23 May 2005. This notice specified conditions 1, 12, 13, 14, 18 and 19 were subject to review.
SUBMISSIONS	Seventy two submissions were received in relation to the application.
HEARING DATES	Friday 19 August 2005, Monday 22 August 2005, Tuesday 23 August 2005, Thursday 1 September 2005.
HEARING CLOSED	Wednesday 21 September 2005
PARTIES HEARD	Exide Technologies Limited (Exide) Regional Public Health (RPH) Ministry of Education Jan Windleburn Brett Cherry Neil Newman Barbara and Richard Whiteside Steve and Julie Wake Petone Community Board Vera Ellen Hutt City Council Tanja Schutz Deborah Schutz-Tala Roland Schutz Frances Cherry Paul Bruce

1. Preamble

Greater Wellington Regional Council (Greater Wellington) granted Exide a resource consent (WGN000128 [20336]) to discharge contaminants into air from the operation of a lead battery recycling plant and associated activities on 11 October 2001. This consent took effect on 2 November 2001 for a period of 10 years. Greater Wellington granted a subsequent change (WGN000128 [22828]) on 24 June 2003, allowing a change to condition 1 of this consent[1].

At the time of processing the consent application granted in 2001 there was little information about the level of fugitive emissions and extent of any actual or potential adverse effect as a result. In recognition of this uncertainty the consent granted in 2001 included review conditions. In addition, conditions to the consent included requirements for undertaking certain plant upgrades and a monitoring programme to be implemented to determine if the upgrades were effective in reducing fugitive emissions.

Greater Wellington considers that fugitive emissions from the plant were not reduced to a satisfactory level, and accordingly Exide were notified by Greater Wellington of the intention to review conditions of the existing resource consent on 11 April 2005.

[1] This change enabled a change to the method of processing slag material.

This decision relates to the matters raised during the review process and makes a determination on specific changes to be made to conditions of the current consent.

In compiling this decision, the Hearing Committee has read and considered the existing consent, the review notice and associated documents specified in the review notice, the submissions, the report of the Greater Wellington Officers, and the evidence and information presented at the hearing by the applicant and submitters. The Committee has also had regard to the relevant provisions of the Wellington Regional Policy Statement, the Regional Air Quality Management Plan for the Wellington Region and the relevant provisions of the Resource Management Act 1991 (the Act).

2. Location

The location of the discharge is at the Exide site at 51-57 Waione Street, Petone, at or about map reference NZMS 260:R27;688.955. The site on which the battery recycling plant is located is zoned General Business Activity. To the west of the site, on the other side of Kirkaldy Street the zoning is General Residential.

3. The review of conditions

3.1 Background

3.1.1 Activity

Lead recycling has been carried out at the current Waione Street site since 1965. Exide have owned the site since 2001. At the site Exide recycle lead acid batteries from around New Zealand and Australia. This process of recycling lead acid batteries is complex and a brief description of the process can be found in the Officers' Report relating to this review, and a more in-depth description of the process can be found in the 2001 Officers' Report on the original consent application.

During the review Greater Wellington engaged GHD Limited to undertake a plant audit of the Exide plant.

3.1.2 Fugitive emissions

Fugitive emissions from the Exide operation are considered at present to be those that are having the greatest adverse effect on the immediate surrounding area. Fugitive emissions are those contaminants not captured by dust filters and that can be passively discharged from the plant through doors, other entry areas, or through minor gaps in the roof or around vents. Fugitive emissions can also occur from areas in the yard outside the factory building.

Exide has been carrying out ambient air monitoring at the site boundary since prior to 2001, on both the northern and southern side of the plant, and in the community (seven sites), as required by their resource consent, to determine

the level of fugitive emissions containing lead and arsenic discharge at the site boundary.

Fugitive emissions are a concern because they contain lead and arsenic. Both are persistent environmental contaminants which can have serious health effects in ingested or inhaled in sufficient quantities. Greatest at risk are children and pregnant women. The health effects of long-term, low-level exposure to lead are well documented. The following systems are affected:

- Production of red blood cells;
- Nervous system (including cognitive impairment); and
- Blood pressure.

Effects on the nervous system occur at low levels with no definitive evidence of a threshold below which no effects are seen.

Arsenic is classified as a carcinogen (i.e. cancer causing agent). Ingestion of arsenic may cause skin, bladder and lung cancer.

The potential adverse health effects, their relationship to levels of lead and arsenic in the environment, and the risk profile is discussed in greater detail in section 13 of the Officers' Report and in the evidence of Regional Public Health.

3.1.3 Receiving environment

The Exide plant is surrounded by light industrial and commercial premises to the north and east, and heavier industry to the south in the form of Unilever, as well as a large amount of high density Housing New Zealand flats. A significant amount of residential houses lie to the west, the closest some 50 metres from the plant. In addition the commercial building on the immediate western boundary of Exide contains a (currently unoccupied) caretaker flat.

3.1.4 Air quality guidelines and standards

The Officers' Report considered the relevant guidelines and standards and determined that none were appropriate to applied in this situation.

Lead in air

Ministry for the Environment (MfE) recommends a maximum guideline value (as a 3 month average) for lead in air (PM_{10}) of 0.2 $\mu g/m^3$. This value is consistent with the UK long-term objective to be achieved by 2008, based on recommendations of their Expert Panel of Air Quality Standards (EPAQS), and is more conservative that that recommended by WHO (1999).

It is noted that these guidelines are based on the concentration in PM_{10}, that is the concentration of lead in particles 10 microns or less in diameter, and therefore are more relevant to addressing effects as a result of inhalation. The fugitive emissions of particulate containing lead from Exide's site contain larger particles which fall out faster and closer to the source, and therefore there is an elevated risk of exposure due to ingestion (especially by children)

which needs to be taken into account when determining suitable limits. As a result the guidelines referred to above do not adequately address the risks.

The Hearing Committee acknowledge that the MfE guidelines are not designed to apply to situations where there is a likelihood of ingestion of lead dust from an industrial source such as a secondary lead smelter, where the dust is of a relatively large particle size.

Deposited lead

There are no New Zealand guidelines for deposition rates of heavy metals. This has makes it considerably more difficult for the Hearing Committee to make any judgement on appropriate levels.

The World Health Guidelines, *Guidelines for Air Quality*; WHO Geneva, 2000, indicate that the ingestion route of exposure needs to be considered when undertaking any health risk assessment relating to lead. However this document does not provide any useful guideline to base fugitive emission limits on.

The German TA Luft Immission Standards for Particles (German Federal Immission Control Act 1990 – Technical Instructions on Air Pollution Control) provides a standard for deposited lead. The standard is based on point source discharges and is difficult to apply to the Exide situation, where the major concern is fugitive discharges.

Conclusion

The Hearing Committee has given consideration to the above guidelines and standards and we agree with the Reporting Officers that none provide a useful basis for deriving a suitable boundary emissions limit for the Exide site.

The lack of an applicable guideline or standard is the reason for RPH recommending a site specific guideline and undertaking a site specific health risk assessment to determine an appropriate level. This approach was supported by the Council Officers in their report. However, they acknowledge that such a health risk assessment could be open to debate.

It is noted that none of the air quality experts who appeared at the hearing put forward any other guidelines that were applicable, therefore the Hearing Committee concurs with the following statement from the Officers Report:

> *"As noted, in the absence of a robust and easily applied guideline, and in order to fully address the risks to human health, a site-specific guideline which takes into account the particular nature of emissions and exposure pathways, specifically from the operation of the Exide smelter, is required."*

3.2 Reasons for review

It is clear from the 2001 decision that although the consent was granted, the Hearing Committee at the time envisaged the possibility of on-going environmental effects. This is reflected in their decision, in particular that the use of the review provisions was considered the appropriate course of action for Greater Wellington to address adverse effects from the operation of the plant.

At the time of assessing and determining the consent application in 2001 the main issues related to the stack discharges. There were a number of reasons for it being considered inappropriate at that time to apply a limit on the fugitive emissions including:

- There was insufficient information to quantify the level of fugitive emissions, whether there was a health issue, and what an appropriate guideline may be;
- Monitoring was proposed to be undertaken to quantify the fugitive emissions and their impact on ambient air quality in the community;
- Exide had committed to undertake a number of upgrades which were expected to reduce the level of these emissions;
- No agency requested a limit be set on fugitive emissions.

Conditions were imposed on the consent in 2001 requiring certain plant upgrades be undertaken, and for monitoring to be undertaken to determine the effectiveness of these in reducing fugitive emissions. If the upgrades were not considered to be sufficiently effective, then Greater Wellington would be in a position to review the consent, at certain times within the term of the consent.

Given that Greater Wellington believes that fugitive emissions from the plan have not reduced to a satisfactory level, and pursuant to section 129 of the Act, Greater Wellington served notice of review on Exide on 11 April 2005. The notice of review outlined information that was considered when taking the decision to review the consent, and this information is detailed below:

- *Exide Technologies air monitoring and impact revie*w. Prepared for Greater Wellington Regional Council. Matthew Walker, GHD, Wellington. March 2005.

- *A review of lead in the environment in the vicinity of the Exide battery recycling plant, Petone*. Prepared for Regional Public Health. Dr Craig Stevenson, Air and Environmental Sciences Ltd (AES), Auckland. January 2005.

- Correspondence from Medical Officer of Health, Regional Public Health to Greater Wellington dated 20 January 2005 and 10 February 2005.

- Ambient air monitoring results from deposition gauges and high volume samplers provided by Exide Technologies Limited under conditions 12, 13 and 14 of WGN000128.

- Compliance assessments and inspections undertaken by Greater Wellington.

- WHO Air Quality Guidelines for Europe – second edition. Copenhagen, Denmark 2000. (WHO regional publications European series; No. 91).

3.3 Scope of review

The main purpose of the review is to ensure that adverse effects from fugitive emissions of lead and arsenic from the site are appropriately avoided, remedied or mitigated.

Pursuant to section 128 of the Act, Greater Wellington restricted the scope of the review to conditions 1, 12, 13, 14, 18, 19 of the Exide discharge to air permit WGN000128. A copy of the consent conditions prior to the review is attached as Appendix 1. In general, the conditions under review relate to:

- Condition 1 Undertaking the activity in accordance with information provided;

- Conditions 12, 13 Ambient Air monitoring programme;

- Condition 14 Supply of sampling information;

- Condition 18 Plant upgrades; and

- Condition 19 Review of consent conditions.

3.3.1 Consent holder's proposed conditions

In accordance with section 129(1)(d) of the Act Exide was given the opportunity to propose conditions within 20 working days of receiving notice of the review. Exide took up this opportunity and provided conditions to Greater Wellington on 10 May 2005. These conditions included a proposed limit on fugitive emissions coming from the plant (measured at points in the community in close proximity to the plant), and an enhanced monitoring programme to assess compliance with this limit. Also presented at this time was a schedule for a series of plant upgrades designed to reduce fugitive emissions from the site.

Following discussions since notification of the review and taking into account the issues raised in submissions and discussed at the pre-hearing meeting, Exide provided Greater Wellington with revised proposed conditions on 5 August 2005 (a copy of these proposed conditions are attached as Appendix 2). This revision included a lower fugitive emission limit (to be measured at the site boundary), shorter timeframes for completing plant upgrades and a requirement for an ambient monitoring manual to be prepared.

These revised conditions formed the basis for the conditions recommended in the Officers' Report. The most significant modification recommended by the Reporting Officers was a further reduction in the long term fugitive emission

limit of lead in air (as measured at the site boundaries) to 0.55 μg/m^3 (consistent with the submission from RPH)

As a result of evidence and submissions presented during the hearing these conditions were further revised and amendments were put forward by the Reporting Officers in their concluding statements delivered on Wednesday 1 September 2005 (a copy of these revised conditions is attached as Appendix 3).

3.4 Timeline of events

2 November 2001	Consent WGN000128 granted
1 October 2003	Change to condition 1 granted
11 April 2005	Notice of review served on Exide
10 May 2005	Exide proposes amended conditions
21 May 2005	Review of conditions publicly notified
20 June 2005	Submission period closes (72 submissions received)
13 July 2005	Pre-hearing meeting held
5 August 2005	Exide proposes further revised conditions
11 August 2005	Officers' report distributed
19 August 2005	Hearing commenced
22 August 2005	Hearing continues
23 August 2005	Hearing continues
1 September 2005	Hearing continues
9 September 2005	Exide reply to RPH new evidence received
21 September 2005	Hearing closed

4. The submissions

4.1 Notification

Notice of the review was served on the 376 parties considered to be affected by the application, and a public notice was placed in the Dominion Post. Those parties served notice were:

- Those who submitted on the original application in 2001;
- Those who reside in close proximity to the plant;
- Those who own property in 'close proximity' to the plant;
- Local iwi - Te Runanganui o Taranaki Whanui ki te Upoko o te Ika Maui and Wellington Tenths Trust;
- Ministry for the Environment;
- Regional Public Health; and
- Housing New Zealand.

Proximity to the plant was assessed through a site walkover, and was based on a conservative estimate of the likely area of effect from fugitive emissions from the Exide plant – approximately a 350 metre radius from the plant.

4.2 Submissions received and issues raised

Submissions closed at 4:30pm on Monday 20 June 2005. Seventy two submissions were received prior to close of submissions. Of the submissions received 36 submitters indicated they wished to be heard at a hearing.

A list of all submissions received and a brief summary of the content of each submission is attached as Appendix 4. In general the issues frequently raised in submissions fell into the ten issues identified below:

- Health concerns – past and present;
- More frequent, effective and on-going monitoring (real-time) of the plant itself and surrounding area;
- Reduction in emissions (in line with national or international guidelines);
- Enclosure of plant to eliminate all emissions;
- Closure of plant (until zero emissions);
- Relocation of plant to a purpose-built, enclosed building;
- Regular reporting on emission levels;
- Full site audit;
- General environmental concerns (including odour); and
- Past incidents.

A more detailed summary of these issues as raised in submissions can be found in section 10 of the Officers' Report.

4.2.1 Regional Public Health

Regional Public Health (RPH) presented a comprehensive submission. Given that the primary reasons for initiating the review is to ensure that the effects on public health are sufficiently mitigated or avoided and that RPH have significant expertise in relation to public health, it is considered appropriate to summarise their submission.

Their key reason for submitting is to ensure that the public health risks are considered and adequately mitigated. RPH consider the area surrounding the Exide plant to be a sensitive receiving environment due to its proximity to residential premises where children may reside. Lead and arsenic are persistent contaminants, which can remain and accumulate in the environment, potentially causing adverse health and environmental effects.

RPH submitted on the consent application in 2001, and have subsequently commissioned an independent expert (Dr Craig Stevenson of AES) to review the available monitoring data for the Exide plant. Dr Stevenson produced a report relating to lead in the environment in the vicinity of Exide in January 2005. The report found that the levels of lead particulate discharged from the plant posed a health risk, particularly for children, in the close vicinity of the plant. The AES report modelled estimated increases in blood lead levels in the community using the results of monitoring from the Exide plant. RPH considered the modelled increases in blood lead levels estimated in the AES report to be significant.

RPH supported the imposition of an environmental control limit at the boundary as a condition of consent to protect both current and future residents and workers from adverse effects. Further, based on the modelling by AES they recommended a boundary environmental control limit (to apply at the existing fence line monitor sites) for lead in Total Suspended Particulate of 0.55 micrograms per cubic metre as a 3 month average and that this limit should apply within six months.

5. The hearing

The Hearing Committee considered that the resolution of as many of the outstanding issues as possible during the hearing process was important. A relatively open hearing process was considered appropriate to find as much common ground as possible between the key players (Exide, Greater Wellington and RPH). To this end the Committee adjourned the hearing several times to allow sufficient time for consideration of evidence presented by the various parties and changes to be made to positions based on consideration of evidence presented by other parties.

5.1 Site visit

On Tuesday 16 August 2005, the three members of the Hearing Committee visited the consent holder's site with assisting council officers, and the consent holder explained the process and equipment.

5.2 The Officers' Report

Ms Tamsin Mitchell, Senior Resource Advisor, and Jeremy Rusbatch, Resource Advisor, Greater Wellington, prepared an Officers' Report for the hearing, which was distributed to the submitters and Hearing Committee. As this report had been distributed prior to the hearing it was taken as read and a summary only was presented. In their presentation the Reporting Officers summarised the background and scope of the review, and well as their conclusions relating to the health risks, applicability of guidelines, site-specific health risk assessment, discharge limit, monitoring regime, plant upgrades and their rationale behind their recommended changes to conditions.

They advised that there was no issue with short term or acute effects, rather that any health risks were related to the long-term exposure to lead and arsenic. It was identified that both inhalation and ingestion are potential exposure pathways, and that young children and pregnant women were particularly at risk from exposure through ingestion.

The Reporting Officers advised that both Ministry for the Environment and World Health Organisation air quality guidelines were not designed to apply to situations where there are localised high rates of deposited lead from a smelter, and they do not sufficiently protect against exposure to lead through ingestion pathways. For these reasons the Reporting Officers did not support the application of these guidelines in this situation.

They noted that due to the lack of applicable guidelines they had given the submission of Regional Public Health considerable weight, given the role and expertise of RPH in protecting public health. The Reporting Officers supported the RPH's position that a site-specific assessment should form the basis of determining an appropriate discharge limit to protect the most sensitive individuals, and agreed with RPH on the level of effect.

The Reporting Officers recommended a discharge limit based on RPH's application of US EPA models which predicted the relationship between lead in air and lead in dust to blood lead levels in the surrounding population. The Reporting Officers acknowledged that the use of models is open to debate in terms of how well the model predicts actual effects, however they believe this is still the best approach in the absence of a credible alternative.

The Reporting Officers noted that the perceived risk in some sectors of the community is high and that this needed to be balanced against evidence or predictions of actual effects. Further they advised that perceived risk or effect cannot be considered under the Act, although potential effect can be considered.

It was noted by the Reporting Officers that there was agreement between themselves, RPH and Exide that a limit should be applied at the site boundary. They identified that the numerical value of the limit was the major outstanding issue for the Committee to determine.

In terms of monitoring, the Reporting Officers recommended that the limit be measured as a 3-month moving average, and did not support the suggestion of some submitters for real time monitoring.

In relation to plant upgrades, the recommendations put forward in the Officers' Report specified timeframes for the staged completion of the upgrades. They recommended for the final upgrade to be completed by June 2006. They noted that this was in line with what Exide had suggested on 5 August 2005. They also clarified that the purpose of the GHD site audit was to provide Greater Wellington with technical expertise on the plant operations and process, how fugitive emissions could be reduced and to review the upgrade proposal put forward by Exide. It was not intended to form prescriptive consent conditions, which would be outside the area of Greater Wellington's expertise.

In relation to the recommended consent conditions, the Reporting Officers considered that there were only two outstanding issues: the recommended maximum limit on the concentration of lead in air outlined in condition 12; and the frequency of the air monitoring programme outlined in condition 13.

The Reporting Officers outlined the purpose of the recommended changes to the consent conditions as laid out below. It is noted that the Reporting Officers made changes to some of the requirements set out in these conditions, as outlined in their right of reply following the evidence presented at the hearing.

Condition 1 – General condition

The purpose of reviewing this condition is to ensure that any changes made to the way in which the plant is operated or changes to equipment as a consequence of the review can be formally incorporated into the general requirement for consent holders to operate in accordance with their consent application.

Condition 12 – Air monitoring

The concentration of lead in air is stated in this condition. The Reporting Officers advocated a two tier approach with a limit of 0.55 $\mu g/m^3$ to be met at the site boundary within 12 months of this decision. This is to give sufficient time for Exide to complete the upgrades outlined in condition 18.

This condition also outlines the analytical method that will be used to determine the concentration of lead in air.

Condition 13 – Ambient air monitoring programme

This condition outlines the detail of the monitoring, as a result a number of new sections have been incorporated into this condition. It requires that the position of the three air samplers on the site boundary must be confirmed within one month of this decision and be agreed to by Greater Wellington and that the monitors shall be operated on a continuous basis with filters changes every 24 hours. It specifies that standard that shall be used to calculate the total suspended particulate, lead and arsenic concentrations, and how often the results are to be sent to Greater Wellington.

This condition outlines that the deposition monitoring programme shall continue for 24 months after this decision, but allows for the monitoring to be reduced at the discretion of the Manager, Consents Management, Greater Wellington, should there be a significant and sustained reduction in fugitive emissions.

Condition 14 – Monitoring manual

This condition requires an Ambient Air Monitoring Manual to be prepared by Exide and supplied to Greater Wellington within two months of this decision.

Condition 18 – Plant improvements

This specifies the new plant upgrades and completion timeframes.

Condition 19 – Review

The revision to this condition allows additional dates for a future review.

5.3 The consent holder

Stephen Quinn, Legal Counsel for Exide, introduced his team:

- John Hawkins (Operations Manager for Exide, based in Sydney, Australia);

- Craig Stevens (Recycling Manager for Exide, based in Petone);

- Jason Clay (Principal Environmental Consultant, Environmental Resources Management Australia Pty Ltd)

- Ron Pilgrim (Principal Consultant – Air Quality and Air Pollution Control, Sinclair Knight Merz Ltd)

Mr Quinn then presented the opening submission for Exide (attached as Appendix 5). This opening submission highlighted areas of agreement and disagreement with the Officers' recommendation and commented on some issues raised in submissions.

In particular he noted three areas where Exide does not agree with Reporting Officers' recommendations. These areas were; the limit proposed in condition 12, the requirement for 24-hour filter changes in condition 13C, and the requirement for 24-months of transitional deposition monitoring in condition 13F.

Following his opening submission the Hearing Committee asked Mr Quinn some questions relating to blood lead level testing undertaken on nearby workers by Exide. In response to questions he confirmed that no levels were above the notifiable limit, and that the average was very low.

Mr Hawkins presented his evidence (attached as Appendix 6). Mr Hawkins evidence covered the history of the site, and the importance of the recycling facility to New Zealand and Australia battery manufacturers and the importance of the plant as a local employer. His evidence outlined the procedures the plant has in place to ensure the health of their employees, including regular testing of blood lead levels of employees. He provided a brief summary of the plant upgrades proposed to be undertaken and completed by mid 2006.

He outlined the rationale behind Exide rejecting the proposal to enclose the entire yard area, and provided a summary of monitoring results, highlighting that these results showed significant improvement level of emissions in last six months when reported as either a quarterly or 3-monthly rolling average. Mr Hawkins indicated in his evidence that at the southern boundary monitoring site the emissions in winter 2005 were about 20% of that in 2002. The improvement began in autumn 2004 and has extended for five quarters. Mr Hawkins indicated that this was due to the upgrades completed and made fully operational during this period. Fugitive emissions at the northern boundary site have consistently been lower than at the southern site. The last two quarters at the northern site have been lower than earlier monitoring, also thought to be indicative of the effectiveness of improvements.

Following presenting his evidence Mr Hawkins was asked several questions relating to the monitoring results. In relation to a question about the high

results in the summer of 2005, Mr Hawkins confirmed it was difficult to trace back to a possible cause. In response to a question about the risks to workers, Mr Hawkins confirmed that workers will always have greater levels of lead in their blood due to their proximity to source and that they have an increased risk greater than the public generally. He commented that the containment in the factory and measures to keep blood lead levels of workers low is essential to continuation of the plant and by default this acts to protect community.

Mr Stevens presented his evidence (attached as Appendix 7). Mr Stevens evidence outlined the processing aspects of plant operations. He summarised the upgrades that have been undertaken as required by the 2001 consent, and provided a more detailed explanation of the upgrades proposed to be completed by June 2005. In response to a question from the Hearing Committee about the recommendation in the Officers' Report for a daily filter change and the cost of this, Mr Stevens referred to Mr Pilgrim, who advised the cost of each filter change ranged between $50-$100.

Mr Clay presented his evidence (attached as Appendix 8). Mr Clay's evidence related to the health risk assessment. In his evidence Mr Clay was critical of the premise, method and results of the health risk assessment undertaken by RPH. He was particularly critical of the modelling undertaken by the independent consultant engaged by RPH, and concluded that the assumptions made in this model resulted in RPH recommending an overly conservative limit. Mr Clay provided a summary of the results of the blood lead testing the Exide undertook on workers in the vicinity of the Exide plant. He considered that the results of this testing confirmed that the RPH model was overly conservative. Mr Clay outlined a preferred approach to setting a fugitive emission limit that achieved the WHO ambient air quality guideline at the point of 'receipt' in the community.

In response to a question from the Hearing Committee relating to whether the blood lead testing was applicable to the highest risk group (children), Mr Clay confirmed that there were no children in the sample population.

The Hearing Committee queried why the limit recommended by Exide was higher than the WHO guideline. Mr Clay's response was that the location of the monitoring point was the main reason – the limit recommended by Exide allowed for a level of dispersion between the fenceline (monitoring location), and where people will be exposed to the discharge. In response to a further question from the Hearing Committee Mr Clay advised that the fundamentals of risk assessment are conservative, and that more data is necessary to establish the validity of the RPH model. He also noted a distinction between real and perceived risks.

Mr Pilgrim presented his evidence (attached as Appendix 9). The first part of Mr Pilgrim's evidence covered historical sources of lead in the environment in the area, and outlined the contribution of lead-based paint to lead in soils and dust. Next Mr Pilgrim's evidence outlined the existing ambient air monitoring carried out by Exide; he outlined that this monitoring includes two fenceline high volume particulate monitors, two boundary deposition monitors, and seven deposition monitors in the community. He provided an analysis of

results, and highlighted some issues with the accuracy of sample analysis, particularly in relation to deposition samples.

Mr Pilgrim went into some detail on the proposed monitoring programme and proposed some changes to the conditions recommended by the Reporting Officers. He recommended numerical values for fenceline limits derived from NZ lead in air ambient air quality guideline, but did not consider that the ambient air monitoring guideline itself should be used as a boundary compliance limit. In his evidence he concurred with Mr Clay that the model used in RPH's evidence is highly theoretical. Mr Pilgrim also made comments on the proposed plant improvements and his lack of support for enclosing the entire yard.

In response to a question from the Hearing Committee Mr Pilgrim confirmed that while there were accuracy issues with results of deposition monitoring, this monitoring was still representative. He advised that high volume sampling is much more uniform and more reliable. He was questioned about the potential for deposition monitoring results to be swayed by historical lead emissions. He advised that historical lead was generally immobilised in soil, roof gutters etc.

A number of questions were asked by the Committee relating to 'fenceline' boundary monitoring versus community monitoring. In response to a question about whether he thought community anxiety has been generated by fenceline monitoring results as opposed to what is reaching communities, Mr Pilgrim advised that he believed that the deposition monitoring results had confused and worried people, and that there was a lack of understanding was deposition monitoring is and what it is for.

5.4 The submitters

5.4.1 Regional Public Health

Chris Edmonds (Health Protection Officer) introduced Dr Deborah Read (Medical Officer of Health for the Wellington Region) and Dr Craig Stevenson (Independent Air Quality Scientist with AES). Mr Edmonds evidence (attached as Appendix 10) commented on the difficulties of defining acceptable levels of impact on public health. He outlined the position of RPH in particular that:

- Existing national and international standards and guidelines for lead and arsenic in ambient air cannot be applied in relation to the Exide fugitive discharges;

- A site specific assessment of effect is required to determine a level of discharge which provides acceptable protection of public health;

- RPH had commissioned such an assessment which shows that there is an existing risk to the health of the community;

- The assessment derives an appropriate fugitive emissions standard, which provides a good level of protection of public health and is specific to the situation.

Mr Edmonds concluded that Exide had provided no new evidence to cast doubt on the validity of the standard proposed by RPH and put to the Hearing Committee that in deciding on fugitive emission limits we are faced with making a decision on the level of precaution we wish to exercise.

RPH were supportive of the recommendations made in the Officers' Report. Mr Edmonds commented on the blood lead levels test undertaken by both Exide and Hutt Valley Health. Of note he advised that blood lead test data are less reliable than the modelled health effects carried out by AES. This was further discussed in the evidence of Dr Read.

Dr Read provided evidence on the following (attached as Appendix 11):

- Known health effects from low level lead exposure and from arsenic exposure;

- Potential adverse effects on residents (in particular children) and workers (in particular pregnant women) from Exide Technologies fugitive lead emissions in the close vicinity of the plant;

- Recent blood lead tests are not sufficient evidence that there is no adverse effect in the community. Non-pregnant workers in the close vicinity of Exide are the group at lowest risk, due to lower ingestion and absorption of lead as lower average duration of exposure to outdoor lead, compared to residents;

- That a specific community study on blood levels is not needed and is not common practice. The model used by Dr Stevenson has been validated in the United States against actual blood lead measurements. (Further reasoning and issues with undertaking such a study are given in the evidence);

- The appropriate basis for a fugitive emissions limit in terms of preventing an increase in blood lead of the population of not more than 1 μg/dl;

- Additional socioeconomic risk factors exist for children living in the vicinity of Exide for having blood lead level above the background level.

In response to questions Dr Read advised that population-wide the blood lead levels have been decreasing since 1970s. She advised that there is no actual evidence of health problems in the area, however, inferred data from studies based on expected blood lead levels indicates a high potential level of effect.

Several questions were asked about the certainty of a link between blood lead levels and the Exide emissions. Dr Read advised it was difficult to correlate, however Exide is a significant contributor to involuntary exposure to environmental lead in the area.

In response to a question about the validity of the blood tests undertaken by Exide, Dr Read advised that workers were low risk and therefore the results were what would be expected. She advised that the Committee did not need actual localised data to come to any useful conclusion and it is difficult to obtain. In terms of why existing guidelines were not the applicable she advised that this was due to the particle size distribution, that the guidelines were based on vehicle emissions which are smaller particles and take longer to settle out compared to Exide fugitive emissions of larger particles which settle out faster.

Dr Stevenson presented evidence on the following (attached as Appendix 12):

- Why a site specific health impact assessment was required to determine the level of potential adverse health effects and calculate a fugitive emissions limit giving the same level of protection from adverse effects that international and national ambient air standards and guidelines give for the situations for which they are derived;

- Reasons for using this approach and why the international and national guidelines are inappropriate in this situation;

- That appropriate models have been used in this situation and that a fugitive emissions limit is the most appropriate method of controlling emissions beyond the boundary of Exide's plant;

- That this fugitive emissions limit will also provide protection from other hazardous contaminants emitted through fugitive emissions, such as arsenic;

- Provided technical support/analysis to conclusions and key points made in the evidence of Dr Read.

In response to a question from the Committee regarding why RPH chose the lowest limit from the model outputs, Dr Stevenson advised that RPH wants to be sure of protecting public health in the face of uncertainty. Dr Stevenson could not point to another instance of establishing a new guideline in this manner, but advised that there is a widely recognised procedure, the US EPA multi-pathway risk assessment model, for assessing human health risks.

In response to a question about the actual risk posed, Dr Stevenson advised that while the previous 3 months levels were not as conservative as he would like, if these levels continued he could not say that there is a significant risk. Dr Stevenson further clarified this by stating that for a lead in air limit to be set above 0.55 $\mu g/m^3$ at the site boundary, it became increasingly important to remove uncertainties in the data used for the model.

Specific uncertainties which needed to be filled include data on deposition velocity. This data would confirm whether a level of 1.5 $\mu g/m^3$ or greater is appropriate, however he commented that if a lower limit was practically achievable then he thought this lower limit should be applied.

Dr Stevenson considered 1.5 μg/m³ was the upper limit of a tolerable range and that he was most comfortable with 0.55 μg/m³ as a limit given the uncertainties. He advised that if the Committee decide a limit of 1.5 μg/m³ is appropriate, there should be conditions requiring current data gaps on deposition velocity to be filled.

A further question was asked relating to whether Dr Stevenson thought that practical measures will solve problems of fugitive emissions or whether there was an inherent problem with the location of the plant. Dr Stevenson commented that even with reductions there will still be an effect, but that it may not be significant. He considered that it was appropriate to focus on minimising persistent pollutants, and that he believed that a review in 2 years was appropriate to assess impacts of proposed improvements.

5.4.2 Ministry of Education

Cathy Swan and Orla Cullen of Opus Consultants represented the Ministry of Education. Ms Swan tabled a written submission (attached as Appendix 13). Ms Swan outlined that the Ministry's concerns related to the number of schools in the vicinity as children are a greater risk to adverse effects from lead. She expressed general support for the changes proposed in Officers' Report but considered that the fugitive emissions limit of 0.55 μg/m³ was too high and that the MfE Ambient Air Guidelines should be applied instead.

Ms Swan made a number of comments on the conditions contained in the Officers' Report; she suggested that the monitoring of deposited particulate should continue, that the number of deposition monitors should be maintained at nine and their locations reviewed, and that a limit on lead in deposited particulate should be applied as per the German TA Luft standard.

5.4.3 Jan Windleburn

Mr Windleburn tabled a written document (attached as Appendix 14) on behalf of himself and his wife, and he stated he represented other people in the area too.

Mr Windleburn had concerns about the effects of the emissions on people who live, work and travel through the area, including his own children who grew up in the area. He expressed concern at the apparently dangerous and unsatisfactory situations at the factory that were identified in the GHD report.

He considers that the Exide plant is in an inappropriate location and the solution should be to either totally enclose the factory or to shift the plant to a purpose built facility at another site.

5.4.4 Brent Cherry

Mr Cherry tabled a written document (see Attachment 15). Mr Cherry lives several kilometres from the Exide plant, however his mother lives in close proximity to the plant. Mr Cherry noted his primary concern as being the health of this mother. He believed that the neighbouring community should be able to live without the fear and constant worry of their health. He also

identified concerns with proximity to the children's playground, sports playing fields, and Hikoikoi Reserve.

He believed that Exide should make changes as recommended in the GHD report and was supportive of the recommendations made in the Officers' Report.

5.4.5 Neil Newman

Mr Newman tabled a written document (see Attachment 16). Mr Newman expressed general concerns relating to site management and practices. He expressed his view that Exide should not be allowed to continue to pollute the environment and that they should either comply with safety guidelines or move from their current site.

In response to a question about what emissions he thought were appropriate, Mr Newman stated zero emissions beyond the site boundary.

5.4.6 Barbara and Richard Whiteside

Barbara and Richard Whiteside own and manage, respectively, the commercial property at 45 Waione St, immediately to the west of the Exide plant. Their submissions were introduced by their Legal Counsel, Tom Bennion. Mr Bennion's submission (attached as Appendix 17) outlined who will be presenting evidence:

- Andrew Curtis (Air Pollution Consultant, URS Limited) who will provide expert evidence about appropriate monitoring conditions and lead emission limits;
- Barbara Whiteside (property owner); and
- Richard Whiteside (property manager).

Mr Bennion's submission covered the powers of the Council on review, management of risk, and RMA matters. He also made some comments on evidence presented by Exide, and the wording of conditions.

He outlined the Whitesides' support for requiring plant upgrades and emission limits in consent conditions, and that they would like to see the entire plant enclosed. In relation to the recommended conditions he outlined the Whitesides' support for continuous monitoring, a two year minimum monitoring period, no interim fugitive emissions limit, and inclusion of the improvements recommended by GHD. He also expressed a concern that the evidence of Exide had not addressed the proximity of the Whiteside property when suggesting appropriate discharge limits.

Barbara Whiteside tabled written submission (attached as Appendix 18). Mrs Whiteside's evidence covered the history of the site. She outlined the issues she had had in trying the lease the building since she sold her husbands' business in 1998. She considered that the difficulties in leasing the property were related to the close proximity to the Exide plant and resulting lead

contamination. She outlined some of the types of business who had been interested in leasing the property until they found out about the lead contamination. She wanted zero fugitive emissions from Exide.

In response to questions from the Hearing Committee Mrs Whiteside advised that in purchasing the property they had not given much consideration to it being located next to a battery recycling plant. In terms of what she considered to be an acceptable limit she stated that the limit in the Officers' Report should be aimed for as a safe level; i.e., 0.55 $\mu g/m^3$ at the property boundary.

Richard Whiteside tabled a written document (attached as Appendix 19) including some additional points. Mr Whiteside's evidence described the process for redeveloping the property completed in 2003 and attempts made to lease it. His evidence also outlined the testing and cleaning undertaken on the interior of the premises, and he made some comments on the evidence of Exide, including the blood lead testing undertaken by Exide. His evidence included a number of aerial and other photos.

Mr Whiteside outlined that they had engaged consultants SKM to undertake testing on lead levels at the 45 Waione St premises. SKM testing identified high levels of deposited lead in some areas of the building interior, even after cleaning. The area that showed highest levels of contamination was near a roller door, on the side of the building closest to Exide's boundary. This was later confirmed by further testing undertaken by another consultant URS. Andrew Curtis' evidence details this further. Mr Whiteside identified what he considered to be high risk areas including a caretaker flat at the site, which was not currently being used, but could be by a future tenant.

Mr Whiteside's evidence also included some comments on security and maintenance at Exide site, and he noted agreement with Brent Cherry that odour from Exide was noticeable and a serious problem inside their building.

Mr Whiteside submitted that the application of appropriate limits to avoid effects on their property, by default was sufficiently protective of other properties and residents.

In response to questions from the Committee, Mr Whiteside confirmed that he was happy with the fugitive emissions limit of 0.55 $\mu g/m^3$, as per the Officers' Report and that he would consider this to be a negligible effect.

Andrew Curtis of URS tabled written evidence (attached as Appendix 20). Mr Curtis provided expert evidence in relation to the fugitive discharges to air and testing results. The evidence of Mr Curtis related to the following areas:

- Brief summary of health issues associated with lead and the potential impact that it might have in the area around the Exide plant;

- Monitoring work he has organised in the area and his assessment of the results;

- Assessment of the Exide monitoring data and its implications for the environment;

- Best practice for lead processing the mitigation measures that have been proposed by Exide and his assessment of them; and

- Comments on the Officers' Report and recommendations.

In response to questioning from the Committee Mr Curtis stated that real-time monitoring of lead is impractical, but that he considered real time monitoring of dust to be both practical and appropriate. He advised that if current improvements continue then fugitive emissions would be acceptable, however, he noted that in the past there had been occasions where the limits had dropped for a period and then risen again. He acknowledged that the monitoring and conclusions in his evidence related to previous high fugitive emissions. He confirmed his support for lower fugitive emission limits to maintain the focus of the company on keeping the emissions low.

5.4.7 Steve and Julie Wake

Steve and Julie Wake presented a verbal submission. They live approximately 45 metres from the plant and have lived there for six years. They were primarily concerned about the potential health effects from the fugitive emissions and out of this concern had ceased eating vegetables from their garden since they had received the letter from RPH.

They wanted assurances that their health and property will be protected. They had a preference for containment of Exide's site.

5.4.8 Petone Community Board

Megan Casey and Richard Cole represented the Petone Community Board. They tabled a written submission (attached as Appendix 21). They acknowledged that the plant provided employment to people in the community however their main concern was that the Petone community should not have to bear health costs due to the plant emissions. They wanted the recommendations of the GHD report to be acted upon, and also believe that the plant should not operate until this had happened.

In response to questioning they advised that they were happy with recommendations in the Officers' Report provided the recommendations made would ensure fugitive emissions are significantly reduced, however they considered the timeframe to be inadequate and that the plant should be temporarily shut if necessary.

5.4.9 Vera Ellen

Vera Ellen presented a verbal submission. She expressed concern that there had been little decrease in the emissions from the plant over the last four years until recently, and that there appeared to be a rush of good intentions now, with more upgrades planned. She also expressed concern about the existing soil

contamination which would remain even if the fugitive emissions are brought down to an acceptable level. She did not support plant enclosure.

In response to a question about what her bottom line was, she stated this was to reduce emissions to nil, if possible.

5.4.10 Hutt City Council

Steve McCarthy and Gordon George represented the Hutt City Council (HCC). They tabled a written submission (attached as Appendix 22), and expressed general support of the Reporting Officers' recommendations. They supported the inclusions of measurable performance standards and the installation of the filter press. They acknowledged the improvements made by Exide over the last few years.

They stated that they considered the enclosure of the cartridge filter area was an important upgrade which needed to occur prior to 31 March 2006. They considered that this was a significant potential source of fugitive emissions.

They also suggested better communication with the community in the form of a 3-monthly joint newsletter, put together by Exide, RPH and Greater Wellington to communicate to the progress made, monitoring results and interpretation of these. They were also happy to be part of arranging the newsletter.

In response to questions they confirmed that they were happy about the levels recommended provided the levels protected public health; and they considered RPH to be the best judge of public health protection. They stated that if the current levels being achieved were to continue they would be satisfied that their concerns about public health had been addressed.

They were also asked some questions about the impact on the Whiteside property. They considered that the proposal put forward would significantly reduce impact on this property, and that other measures could also be put into place such as double doors, and that this could reasonably be expected to be a cost of business in an industrial area.

5.4.11 Tanja Schutz

Tanja Schutz tabled a written submission (attached as Appendix 23). She has been born and raised at 35 East St, where her father still lives. She identified a number of concerns, summarised in her evidence into four main issues:

- Health implications – the risk to her whanau and the extended family, especially the children;

- Environment – the current situation does not take into consideration the Maori worldview, instead it appears to favour and regard these natural resources as economic property. Concern was expressed that the current situation is not sustainable;

- Participation in the review process – the local community is ethnically diverse and there are a number of reasons for them finding it hard to participate in the review process; and

- Communication – Agreement with the HCC suggestion of newsletter.

Her written submission set out six points of decision she wished the Committee to make. These were to cease operations until no fugitive emissions; fully enclose the site; set standards consistent with WHO; have real time monitoring; communication of results to community; and consultation with community.

In response to questions Ms Schutz highlighted the different cultural norms of each cultural community and how this has hampered involvement of these groups in the review process.

In terms of finding safe levels and providing assurance that these levels were she, she also believed that the residents trust RPH.

5.4.12 Deborah Schutz-Tala

Deborah Schutz-Tala tabled a written submission (attached as Appendix 24). In her submission she identified that her family, including two children aged 10 and 5, live on East St four houses down from the Exide plant. She had lived in the community for 31 years. She had concerns about the safety and security of the plant particularly for her children, and about the health effects resulting from the fugitive discharges.

She expressed concern that some of the recent changes in plant practices may only be temporary, and requested the WHO guidelines to be used to set emission limits. She also stated that there are many more children in the area than those represented on the map tabled by Richard Whiteside.

5.4.13 Roland Schutz

Roland Schutz tabled a written submission (attached as Appendix 25). Mr Schutz stated that he had lived at 35 East St for 39 years, and outlined his background as having been a sub-contractor to previous owners of the Exide plant. His concerns predominantly related to community health.

Mr Schutz made a number of comments about the history of the plant, and highlighted his reasoning behind wanting a rigorous monitoring system.

He highlighted the expectations of the community and that many residents could not afford to move. He requested the Committee require full enclosure of the plant, continuous monitoring of ambient air, and for results to be publicly available. He believed that closure of the plant should be considered if health effects could not be avoided.

In response to questions he advised that the blood test offered by RPH was not much good as it did not offer any solution if a high result was detected.

He considered that there had been improvement at the plant in the last 10 years.

5.4.14 Frances Cherry

Frances Cherry identified she was also representing Exide Pollution Action Group (EPAG). She tabled a written submission (attached as Appendix 26), and a petition signed by 1342 people. The petition requested closure of the factory *'until such time as a comprehensive site audit and improvements are completed and it is proven that there can be no fugitive lead emissions, or another other forms of pollution, at a level above the WHO recognised standards'*.

In her tabled submission Ms Cherry outlined the formation of EPAG and the concerns relating to the operation and maintenance of the Exide Plant. She outlined a concern about odour. She outlined some possible reasons for members of the community not having the blood test offered by RPH.

In relation to fugitive emissions she requested that low levels be set for emissions at the site boundary, and supported the Reporting Officers' recommendation for a limit of 0.55 $\mu g/m^3$. She also considered that recommendations of the GHD report should be carried out.

Ms Cherry outlined the children she knew of in the local area.

In response to questions she advised that she believed that a level of 1.5 $\mu g/m^3$ was too high, and confirmed her support of a level consistent with WHO guidelines. After listening to evidence and comments made by experts on the various levels, she had not changed her mind on this.

5.4.15 Paul Bruce

Paul Bruce tabled a written submission (attached as Appendix 27). Mr Bruce's' written submission outlined his key area of concern was the potential impacts on community health and the environment as a result of discharges from the plant.

Mr Bruce acknowledged the beneficial service provided by the factory in terms of recycling batteries. He requested "zero-risk" to the environment and real-time monitoring of discharges.

In response to questions from the Committee Mr Bruce clarified that in terms of real-time monitoring, he would be satisfied with daily tests for compliance with the 0.55 $\mu g/m^3$ limit.

5.4.16 RPH final comments

Following conclusions of submitter presentations the Committee Chairman gave RPH the opportunity to make any further comments, given the importance of their input in terms of finding appropriate fugitive emission limits.

Mr Edmonds and Dr Read on behalf of RPH confirmed that on the basis of evidence presented during the hearing they would be willing to change from their original position and were now prepared to accept an interim lead in air limit of 1.5 $\mu g/m^3$ conditionally, on the basis of further information being

provided on deposition velocities. They reiterated the importance of this information in determining appropriate limits and whether the limits set are appropriate. They did not support the lead in air limit exceeding 1.5 μg/m^3 at any time.

They confirmed their support of monitoring to be independent and communication to the community of monitoring results. They advised that the figure of 0.55 μg/m^3 suggested by RPH was a figure arrived at on the best data available at the time. They stated an expectation that Exide would provide additional data at the hearing that would have enabled RPH to adjust their recommendation. As this was not the case they were still relying on the modelling undertaken by Dr Stevenson and the flexibilities within this.

They supported total suspended particulate and deposition monitoring on the Whiteside boundary to get more certainty in relation to effects on the Whitesides' property at 45 Waione St.

5.4.17 Submitters not appearing

The Hearing Committee has read and taken into consideration all submissions, including those of submitters who were not heard at the hearing.

5.5 Hearing adjournment

Following a brief response from Exide the Committee Chairman then adjourned the hearing to provide the Reporting Officers additional time to prepare their final summary and response, given the significant amount of information provided at the hearing. The Committee also considered the adjournment may provide some time for some areas of agreement to be reached between some of the key parties.

5.6 RPH further evidence

In the adjournment period RPH contacted the Committee in relation to further information it wished to put before the Committee as an addendum to their earlier evidence. This new information related to the effects on 45 Waione St, which had not been considered in the earlier evidence tabled by RPH.

When the hearing was reconvened the Committee allowed this new evidence to be tabled. Exide agreed to this provided they were given the ability to respond to the new evidence and requested that this be allowed to be done in writing (Exide's response is summarised in section 5.8.2 of this decision).

Dr Read presented the further evidence, including a written preliminary assessment from Dr Stevenson (attached as Appendix 28).

Dr Stevenson had undertaken an assessment on appropriate limits on lead contamination in 45 Waione St. He raised concerns that the limit of 0.55 μg/m^3 put forward earlier by RPH may not be conservative enough to protect public health at 45 Waione St. Dr Stevenson supported the inclusion of a fenceline monitor on the boundary between Exide and 45 Waione St. Dr Stevenson identified a need for additional monitoring on rates of deposition both inside

the building and outside at the Exide fenceline. This is in addition to the deposition velocity information required to further quantify effects.

Dr Read concluded that the magnitude of risk is dependant on the use of the premises and control measure to reduce dust entering the premises. In her opinion it is essential the monitoring is required in the short-term to better quantify the health risk at these premises.

5.7 The Officers' right of reply

The Reporting Officers right of reply (attached as Appendix 29) focussed on those issues which appeared to be of greatest contention during the hearing, predominantly the fugitive discharge limit; but also the effects of 45 Waione St, the monitoring programme, plant upgrades, and timing of review.

In relation to the fugitive discharge limits, the Reporting Officers maintained their view that a site-specific guideline is appropriate in this situation and that they considered that WHO or MfE ambient air guidelines may not be protective enough in the close vicinity of Exide. The Reporting Officers believed that the limit should apply and be monitored at the Exide boundary. The Reporting Officers accepted that the predictions by Dr Stevenson were conservative and based on some conservative assumptions on deposition velocity. It was suggested Greater Wellington could undertake monitoring that would obtain this information within the next 12 months.

The Reporting Officers acknowledged there was a high likelihood that the Whitesides property, 45 Waione St, may be more affected by fugitive emissions than other commercial premises nearby. The Reporting Officers recommended a long-term lead in air limit at this boundary of 0.55 $\mu g/m^3$, and suggested that other measures be explored by Exide and the owners of 45 Waione St to further reduce the ability of lead emissions to enter the building.

The Reporting Officers supported the suggestion made by Hutt City Council to communicate results to the community, via a quarterly community newsletter distributed to those parties who indicated they wish to receive it.

In response to some submissions the Reporting Officers clarified the purpose of the GHD report. The Reporting Officers stated that they did not support the full enclosure of the site as they did not consider it would be effective in reducing or eliminating fugitive emissions, rather the Reporting Officers have a preference for reduction at source, such as proposed by Exide's intended upgrades. They considered that the plant upgrades outlined in the Officers' Report are sufficient given that there will now be an enforceable lead in air limit on fugitive discharge and monitoring of compliance with this limit.

In relation to the comments made by submitters about the gate and security of the site, the Reporting Officers commented that this would have a negligible effect on fugitive emissions, but noted that Exide may wish to look further at improving site security independently of this review.

The Reporting Officers also tabled revised conditions (attached as Appendix 3). The conditions reflected some of the changes suggested in presentations during the hearing, and contained revised emission limits. In summary their key changes to their original recommendation were:

- Increasing the short-term emission limit on the southern (Waione St) boundary from 1.5 $\mu g/m^3$ to 2 $\mu g/m^3$.

- Reducing the timeframe for which the short-term limits apply from 12 months to 9 months.

- Increasing the longer-term emission limit on the northern (East St) boundary from 0.55 $\mu g/m^3$ to 0.8 $\mu g/m^3$.

- Increasing the longer-term emission limit on the southern (Waione St) boundary from 0.55 $\mu g/m^3$ to 1.5 $\mu g/m^3$.

- Changing minimum frequency filter changes from once every day to once every seven days.

- Inclusion of a requirement to produce a quarterly community newsletter (in liaison with RPH, HCC and Greater Wellington) which summarises and interprets the ambient air monitoring results. This newsletter is to be distributed to Petone Public Library and any individual or organisation who wants to receive it.

- Inclusion of a requirement for a completion certificate to be provided to Greater Wellington upon completion of each of the upgrades.

- Changing the review clause to enable a review to be initiated six months prior to the anniversary of the commencement of the revised conditions, and inclusion of a specific review clause relating to the fugitive emission limit should monitoring show it is necessary.

This recommended change to the review clause would enable a new review to be initiated as early as 18 months after the release of this decision document (subject to any appeals). This is timed to provide sufficient time for the proposed upgrades to be completed and allow receipt of indicative monitoring results showing any resultant reduction in emissions, and also provides sufficient time to gather information on deposition rates, as suggested by RPH.

Several other changes were recommended relating to the wording and structure of conditions, but did not change the substance.

Reporting Officers confirmed their recommendations of the requirement for independent monitoring, and the continuation of deposition monitoring for a period of 24 months, and a lead in air limit of 0.55 $\mu g/m^3$ to apply at the western boundary.

5.8 The consent holder's right of reply

5.8.1 Reply tabled at the hearing

The closing submissions of Exide were presented by Stephen Quinn, Legal Counsel (attached as Appendix 30).

Exide indicated support for the revised conditions tabled by the Reporting Officers with the exception of the recommended long-term lead in air limit to apply at the Whitesides' boundary. They consider that a limit of 0.8 $\mu g/m^3$ is sufficiently protective at this location.

The closing submissions also provided some response to a number of issues brought up at the hearing, including the GHD report/plant improvements, fenceline and community monitors, blood lead testing, and use of the Whiteside property.

In relation to plant improvements Mr Quinn outlined the response of the company to the suggestion of some submitters that all of the plant improvements suggested by GHD should be carried out.

Mr Quinn confirmed that the building enclosing the cartridge filter will not be connected to the extraction system and provided reasons for this.

Mr Quinn noted that there was agreement between all experts that the lead in air limit should be placed on fenceline monitors. Exide did not support limits being imposed on monitors in the community.

Exide do not support the approach taken by RPH of using conservative modelling to determine an appropriate fugitive discharge limit. They consider that the model relies too heavily on assumptions and predictions. They noted that the limit recommended by RPH was at the most conservative end of the modelled outputs.

5.8.2 Written reply lodged 9 September 2005

Exide agreed to RPH tabling further information at the continuation of the hearing on 1 September 2005, provided Exide was given time to lodge a written response to this further information with the Hearing Committee. This written response was received by the Committee on 9 September 2005 (attached as Appendix 31).

In this reply Exide maintained its position that it considered 0.8 $\mu g/m^3$ to be an appropriate lead in air limit to apply on the western boundary. Exide expressed some concern that the RPH appeared to be changing its position, and considered that information on the potential uses of the Whiteside property was information that RPH was already aware of having been involved in an earlier resource consent hearing. Exide's reply made additional comments on the potential uses of 45 Waione St and reasonable limits on site use given the area it was situated.

5.9 Close of hearing

At the end of the hearing on 1 September 2005 Cr Turver thanked all parties for attending and adjourned the hearing at 2:05 pm. The hearing was adjourned rather than closed at this stage to allow Exide to prepare and supply its' written right of reply specifically in response to the further information tabled by RPH. Cr Turver indicated that one week should be sufficient time for the written response to be supplied by.

The hearing was officially closed on 21 September 2005, when the Hearing Committee met to formally receive the written right of reply lodged by Exide on 9 September 2005, and to deliberate on the evidence and information provided during the hearing process.

6. Statutory analysis

6.1 Resource Management Act 1991

6.1.1 Section 131 – Matters to be considered in review

Section 131(1) of the Resource Management Act 1991 (the Act) states that when reviewing the conditions of a resource consent the consent authority shall have regard to the matters specified in section 104 and to whether the activity allowed by the consent will continue to be viable after the change.

Viability after change

In making our decision the Committee have to consider whether the plant will still be viable with the amended conditions in place. The evidence of Mr Hawkins specifies the costs of the upgrades proposed to be undertaken. This is a relatively significant amount of expenditure. It is expected that these upgrades will result in a reduction in the fugitive emissions, and monitoring is proposed to confirm this. Provided the company can continue to achieve the low fugitive emissions achieved over the autumn and winter of 2005, then further reductions will ensure that the lead in air limits imposed will be achievable. The Committee is satisfied that a higher limit in the short-term is appropriate to ensure that the levels are reasonably achievable while upgrades are completed. This short term limit will still require careful site management to ensure it can be consistently achieved.

No evidence presented by Exide indicated that the limits imposed will adversely affect the plant viability. Indeed the limits are very close to those suggested by Exide.

Section 104

Section 104 (1) of the Act sets out the matters the Hearing Committee must have regard to in considering the application. It is significant that section 104 is subject to Part II. This specification confirms the primacy of Part II matters. We must have regard to the matters listed in section 104 and give them due weight. The Act directs us to be primarily concerned with whether or not the proposal is consistent with Part II matters.

The Hearing Committee has given regard to those matters specified in section 104, including the relevant provisions of the Regional Policy Statement and Regional Air Quality Management Plan, and the actual and potential effects on the environment of allowing the activity. Prior to discussing the effects it is important to put this into the context of definitions contained in the Act. The assessment of effects is detailed in section 7 of this document.

In summary, the effects to be considered are primarily the potential effects on human health. It was pointed out in the Officers' Report and in the legal submissions of Exide that the Act is not a 'no risk' statute – that is that a certain element of risk is unavoidable and should be seen in the context of risks faced in our daily lives. The Hearing Committee notes that the definition of 'effect' includes effects of low probability but high potential impact.

6.1.2 Interpretation – meaning of 'effect' and 'environment'

As an important starting point, we set out here the Act's definition of environment, which includes:

(a) Ecosystems and their constituent parts, including people and communities; and
(b) All natural and physical resources; and
(c) Amenity values; and
(d) The social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) of this definition or which are affected by those matters.

We are also mindful of the Act's meaning of effect, which includes:

(a) Any positive or adverse effect; and
(b) Any temporary or permanent effect; and
(c) Any past, present, or future effect; and
(d) Any cumulative effect which arises over time or in combination with other effects—regardless of the scale, intensity, duration, or frequency of the effect, and also includes—
(e) Any potential effect of high probability; and
(f) Any potential effect of low probability which has a high potential impact.

These definitions confirm that people and communities form part of the environment, and that the meaning of effect is broad. The Committee is mindful that while the definition of effect includes potential and cumulative effects, it does not include perceived effects. According the Committee has to be convinced of the level of real risk. This determination of risk has played a key factor in the Hearing Committee's decision on appropriate discharge limits.

6.1.3 Part II

In making this decision the Hearing Committee has had regard to those specifically relevant matters identified in Part II of the Act. The Committee

considers that the decision made achieves the purpose of the Act and is consistent with relevant matters identified in sections 6, 7 and 8.

The Hearing Committee considers the amended conditions will ensure that the local community and individuals who live and work in the surrounding area are able to provide for their social, economic and cultural wellbeing and for their health and safety. The Committee is satisfied that their decision safeguards the life-supporting capacity of air, and ensures that adverse effects on the environment are appropriately avoided, remedied or mitigated.

On balance of the evidence provided, the emission limits imposed are considered by the Hearing Committee to be sufficiently conservative to protect community health while further monitoring is undertaken. The Committee has included provisions to review the consent again in as little as 18 months time should monitoring indicate that this is necessary.

7. Assessment of actual and potential effects on the environment

Having read and heard all the evidence before us, we consider that the amended conditions put forward by the Reporting Officers during their right of reply on 1 September 2005 will adequately address environmental health concerns and that the emission limits recommended in their revised consent conditions are appropriate and sufficient to protect the health of nearby residents and workers. The issues considered by the Committee are detailed below.

7.1 Fugitive emissions

This review has related to fugitive emissions from the Exide plant. Fugitive emissions are those contaminants not captured by dust filters and that can be passively discharged from the plant through doors, other entry areas, or through minor gaps in the roof or around vents. Fugitive emissions can also occur from areas in the yard outside the factory building, for example, when dust collected by one of the bag filters is manually removed.

Fugitive emissions are a concern because they contain lead and arsenic. Both are persistent environmental contaminants which can have serious health effects if ingested or inhaled in sufficient quantities.

At the time of the consent being granted in 2001 there was considered to be insufficient information on the extent of emissions from fugitive sources and what an appropriate limit on these might be. Under the consent issued in 2001 Exide have carried out ambient air monitoring at the site boundary, and in the community, to determine the level of fugitive emissions containing lead and arsenic leaving the site. The Hearing Committee is satisfied that these fugitive emissions are significant enough to warrant emission limits on these being incorporated into the consent.

7.2 Health effects

In the close vicinity of the Exide plant there is a significant amount of residential dwellings to the immediate west of the plant, the closest some 50 metres away. There are also industrial and commercial premises and a large amount of high density Housing New Zealand flats.

RPH identified that residents, particularly children and pregnant women were at greatest risk from contaminants in fugitive emissions. The main contaminants of concern are lead and arsenic, as these contaminants are those most likely to be in sufficient concentration to result in adverse effects.

The potential health effects resulting from the inhalation and/or ingestion of lead and arsenic in the environment are discussed in some detail in section 13 of the Officers Report and in the evidence of Dr Read.

In summary, arsenic is classified as a carcinogen (i.e., cancer causing agent). Ingestion of arsenic may cause skin, bladder and lung cancer.

The health effects of long-term, low-level exposure to lead are well documented. The following systems are affected:

- Production of red blood cells;
- Nervous system (including cognitive impairment); and
- Blood pressure.

Effects on the nervous system occur at low levels with no definitive evidence of a threshold below which no effects are seen.

Modelling undertaken by RPH has indicated that up until the recent reductions in fugitive emissions recorded at the boundary, emissions are likely to have been high enough to have resulted in elevated blood lead levels in members of the community.

It is noted by the Committee that the modelling and assessment of potential effects outlined in evidence at the hearing was undertaken using deposition velocities from monitoring undertaken by Greater Wellington in 1999.

It is also noted that during the hearing in response to questions all air quality experts, including experts representing submitters, agreed that if current levels at the boundary continued there would not be any significant effects in the community arising from the discharge. It is acknowledged that the RPH expert, Dr Stevenson qualified this comment by advising that additional information, such as on deposition velocity, was necessary to provide further assurance to the long-term safety of these current levels.

The limits included in consent conditions will require these recently achieved levels to be maintained and further improved.

7.3 Plant upgrades

Further to upgrades already undertaken at the plant since consent was granted in 2001, during the review process Exide has proposed additional upgrades. Two of these upgrades in particular will reduce fugitive emissions. These are the installation of a filter press and the enclosure of the cartridge filter in a building.

The Committee notes that the timeframes recommended in the Officers' Report for completion of the upgrades are shorter than the timeframes originally put forward by Exide. The Committee considers that the shorter timeframes are appropriate and notes the agreement of Exide to the new timeframes. The Committee considers the requirement for Exide to provide certification to Greater Wellington upon completion of each upgrade is appropriate.

The Committee acknowledges considerable expenditure in the vicinity of $500,000 has been committed by Exide to complete these upgrades.

7.4 Standards and guidelines; emissions limits

The key issue throughout the hearing and indeed throughout this review is been the application of a suitable emissions limit, to be covered in condition 12 of the consent. Substantial evidence was presented in relation to appropriate limits to impose on these at the boundary of the Exide plant and the Committee has given much consideration to this evidence.

The Committee considers that fugitive emission limits must ensure that the discharge does not pose an unacceptable health risk to the most sensitive populations who may be exposed to lead and arsenic in the surrounding environment. It is acknowledged that the Act is not a 'no risk' statute – that is it is not possible to eliminate all risk from all activities, and that there is an element of risk associated with daily life, and therefore it is not reasonable nor practical to have 'zero-emissions' from the plant. However, the Committee considers it appropriate to ensure that there is no significant health risk to the most sensitive members of the community.

7.4.1 Standards and guidelines

A summary of national and international air quality guidelines and standards considered, and the assessment of their relevance to the present situation is outlined in section 3.1.4 of this document. The Committee concurs with the Reporting Officers that there are issues with the application of any of these guidelines and standard as emissions limits on the site boundary, and accordingly considers that a site specific limit is most appropriate.

7.4.2 Fugitive emission limits

Initially at the hearing RPH indicated a general agreement with recommendation in the Officers' Report for a long-term boundary lead in air limit of 0.55 $\mu g/m^3$.

The recent emission results tabled by Exide at the hearing indicate reduced emissions to near 1.5 μg/m^3 at the Waione St (southern) boundary monitor. In response to questions RPH acknowledged that a lead in air limit of 1.5 μg/m^3 could be appropriate. Fugitive emissions at this level were considered generally acceptable by all air quality experts present at the hearing.

Following consideration of the Whitesides evidence, RPH tabled further information that 0.55 μg/m^3 may not be stringent enough to avoid adverse effects on occupants of 45 Waione St.

After considering all of the evidence presented at the hearing, the Reporting Officers amended their recommendation to allow a short term lead in air limit of 2 μg/m^3 at the Waione St (southern) boundary, but reduced the timeframe for which this limit applies to 9 months. The Reporting Officers also recommended the long term limit to apply at the Waione St boundary be increased to 1.5 μg/m^3 and the lead in air limit at the East St (northern) boundary be increased to 0.8 μg/m^3. They recommended the lead in air limit to apply at the western boundary remain at 0.55 μg/m^3.

The limits recommended by the Reporting Officers are considered appropriate by the Hearing Committee and have been adopted in this decision. While these limits on the concentration of lead in air are not as conservative as RPH had a preference for, the Committee considers that the limits are within the realm of what RPH indicated acceptable, given that additional monitoring information will be collected.

The Committee is satisfied that the monitoring programme proposed is more stringent than the previous one, as it requires monitoring on three boundaries compared with two, and requires continuous monitoring rather than one day in six, as required previously. To ensure continuity with existing records, tandem monitoring with both deposition and high volume monitors is required for a two year period. This monitoring programme will aid in further confirming the appropriateness of the limits.

The Committee notes that the Reporting Officers also recommended strengthening the review clause to enable another review to be initiated in as little as 18 months should monitoring results show that the limits need to be further revised.

7.4.3 Location of limits

The Committee heard evidence on both the suitability of limits at community monitors and at fenceline monitors. The Committee considers that while it is important to monitoring ambient air quality within the community it is not appropriate to apply limits at community sites, due to difficulties in determining the relationship between site emissions and levels in the community, and the ability for community monitors to be affected by other activities (e.g. house renovations).

In terms of setting limits that can be used by Greater Wellington to ensure that the effects of fugitive emissions from the Exide plant are appropriately avoided or mitigated the Committee is satisfied that limits that apply at the boundary of the site are most appropriate. This ensures that monitoring is specifically related to what is leaving the Exide site and will not be heavily influenced by other activities in the community.

The Committee considers it appropriate that there is a requirement for Exide to undertake monitoring in the community, although no limits will be applied at these sites. This is included in the consent as transitional deposition monitoring for a period of 24 months.

7.5 Modelling approach vs community testing

The approach taken by RPH in determining what they considered to be an appropriate limit to protect public health in the population was to use modelling to estimate hypothetical increases in blood lead levels arising from exposure to lead in air and dust from fugitive emissions from Exide's site. Exide was in disagreement with RPH that this was an appropriate way of determining suitable fugitive emission limits.

7.5.1 Conservativeness of modelling

Due to the unavailability of some information, there were some assumptions made by RPH, in determining an appropriate limit. As a result there were additional factors of conservatism in the modelling undertaken by Dr Stevenson in an already conservative model.

The Committee notes that the evidence of Dr Stevenson summarised the range of estimates of limits for the Waione St fenceline monitor based on limiting child exposures in Kirkaldy St (as the most sensitive receptor). Modelling using the WHO 2000 Exposure Level gave the highest estimates for limits; with an upper limit of 6.7 $\mu g/m^3$ (using the least conservative assumptions on deposition rates and velocity) and lower limit of 1.34 $\mu g/m^3$ (using the most conservative assumptions). Modelling based on limiting the population mean IQ point decrement to one point gave the lowest estimates for limits, with an upper limit of 2.7 $\mu g/m^3$ (using the least conservative assumptions) and lower limit of 0.55 $\mu g/m^3$ (using the most conservative assumptions).

This lower limit of the most conservative model is what RPH based their proposed limit on. This is what they consider would provide sufficient surety that public health would be protected.

The Hearing Committee notes that the limits imposed in the consent conditions are within the lower end of the estimated limits outlined above and in the evidence of Dr Stevenson. However, we acknowledge that these limits may not be as conservative as RPH has a preference for.

There was some disagreement amongst the experts representing RPH and Exide about the appropriateness of the use of modelling to estimate increases in blood lead levels and therefore determine appropriate limits for lead in air to

ensure increases in blood lead levels are minimised. At the hearing Exide presented evidence on the flaws contained in the approach taken by RPH. This centred on the conservatism of the modelling, and that such a site-specific approach was unusual given the available guidelines. It is notable that Exide didn't present any data that would reduce the conservatism in the RPH modelling, or any robust alternative to the approach used by RPH.

7.5.2 Testing

At the hearing Exide was critical of RPH in that they hadn't undertaken any substantial testing of blood lead levels of residents in the community to validate the model they used.

RPH had offered voluntary blood tests to residents, however there was little uptake of this offer. As a result the information gained was not statistically valid.

The Committee notes from the evidence of Dr Read that this testing was offered to reassure residents, and was not necessary to validate the model. Her evidence goes on to outline the complexities involved in undertaking a community study of blood lead levels, and the reasons for such a study not being necessary in this situation, particularly that the primary model used (IEUBK) has been previously validated in the United States.

Exide arranged for blood lead tests to be carried out on a number of workers in the surrounding area. These results did not identify a pattern of elevated blood lead levels. It was acknowledged by Dr Read (RPH) that the results were not unexpected, given that the population group (non-resident, non-pregnant workers) was at lowest risk. The Committee notes that these results could not be considered to be representative of the community, and do not necessarily provide surety or proof of no effect to other more sensitive population groups.

The appropriateness of a site-specific health risk assessment has been discussed earlier in this document. The Committee is satisfied that in the face of no suitable alternative, the general approach taken by RPH is reasonable as a means to determine suitable limits. However, the Committee acknowledges that this approach is not without flaws. In particular there is additional information on the deposition velocity (i.e. the rate at which the lead particles settle out of the air) that would eliminate some of the uncertainties, and reduce the conservatism of the estimates from the model.

7.6 Agreed conditions

The Hearing Committee were keen to ensure that the three key parties (Exide, RPH and Greater Wellington Staff) had every practical opportunity during the hearing to find common ground. There was general agreement reached between the key parties on the content and revised wording of the consent conditions. All three parties were generally agreeable to revised conditions put forward by the Reporting Officers.

The singular issue to which it appeared there was not agreement was the numerical values of the emission limits to apply at the boundary. This aspect has been discussed in some detail in section 7.4 of this document.

The Committee is comfortable accepting the revised conditions presented by the Reporting Officers on 1 September 2005.

7.7 Monitoring

7.7.1 Monitoring to be undertaken by Exide

In accordance with the revised consent conditions Exide will undertake the following monitoring:

Boundary monitoring

- Three high volume (total suspended particulate) monitors, one each on the northern, southern and western fencelines. These monitors will be continuously operated with a filter change at least once every seven days. Samples will be independently analysed for lead, arsenic and total suspended particulate;

- Three deposition monitors, one at each location of the above high volume monitors. This monitoring will be undertaken monthly for a continuous period of 24 months after commencement of the changes made by this review. Samples will be independently analysed for deposited particulate, lead and arsenic.

Community monitoring

- Three deposition monitors will be located in the community at locations where existing monitoring has been undertaken, likely to be Waione St (outside Norsewear), Kirkaldy Street, and outside Unilever, near Schofield St. This monitoring will be undertaken monthly for a continuous period of 24 months after commencement of the changes made by this review. Samples will be independently analysed for deposited particulate, lead and arsenic.

7.7.2 Monitoring to be undertaken by Greater Wellington

In order to gather further information on actual lead levels in ambient air in the community, Greater Wellington intends to undertake the following monitoring:

Community monitoring

Several high volume monitors at locations yet to be confirmed. Sites are likely to be consistent with sites used by Greater Wellington for monitoring purposes in 1999, to enable comparison. These monitors will be continuously operated with a filter change at least once every seven days. Samples will be independently analysed for lead, arsenic and total suspended particulate Duration of this sampling will be determined by Greater Wellington's Air Quality Scientist.

7.8 Odour

While several submitters commented on odour at the hearing, this was not raised as an issue at the consent application hearing in 2001. As odour is not one of the matters subject to review, the Committee considers that this matter should be given appropriate consideration at the time of processing any application for a new consent lodged at or before the expiry of the current consent.

7.9 Past practices

It is noted that several submitters commented on past practices at the site and likelihood of general site contamination. The Committee acknowledge that there is likely to be some existing contamination of the site due to historical operations. However, as site contamination is not one of the matters subject to review, the Committee is unable to consider this matter at this time. This matter is something that should be given appropriate consideration and site rehabilitation should the company decide to close their Petone factory.

8. Issues considered by the Committee

We largely concur with the Officers' Report that addresses the actual and potential effects of these discharges on the environment. We consider that the revised conditions tabled by the Reporting Officers, including the revised lead in air limits, are appropriate. In making our decision there are some matters that require further explanation, in particular the Hearing Committee are very concerned about the level of community concern.

8.1 Addressing community concerns

8.1.1 Health issues

Through this process Greater Wellington have dealt with RPH as a key player in terms of public health. While they were one of a number of submitters, it is acknowledged that they have significant expertise in relation to the protection of public health and assessment of public health risks.

The Committee acknowledged that a number of submitters have expressed that they will be happy with limits that RPH are happy with, indicating a level of public support and trust of RPH. However, it is noted, that the changing position of RPH has complicated the matter of determining appropriate fugitive emission limits.

All experts confirmed that continuation of current emission levels – let alone the tighter limits proposed – would not result in significant adverse effects.

The limits adopted by the Committee are considered to be appropriate considering all the evidence and information presented. The Committee is satisfied that the proposed limits adequately address public health concerns, particularly given the additional monitoring requirements, and the ability for the consent to be reviewed again in as short a timeframe as 18 months, should the need arise.

All experts confirmed that the continuation of the current emission levels would not result in significant adverse health impacts. The Committee is satisfied that the limits to be imposed by this decision will require further reductions from the current fugitive emission levels.

8.1.2 Perception of risk

Following written correspondence from RPH at earlier stages of the review process, there was a high perception of risk among some parts of the community. Considering the evidence presented at the hearing, the Committee considers that the actual level of risk is lower that this perceived risk. In particular, the Committee notes that the health effects of concern result from long term exposure, rather that short peaks in fugitive emissions.

The Committee considers that the actual risk is adequately addressed by the revised conditions, specifically the fugitive emission limits, monitoring requirements, and proposed upgrades. In addition they note there remains the ability for the consent to be reviewed again should monitoring indicated that it is necessary.

A number of submitters indicated a desire to see the enclosure of the entire yard. The Reporting Officers indicated that this would not totally eliminate fugitive emissions. Evidence presented at the hearing confirmed that this would not be an appropriate response. Committee considers the total enclosure of the yard area would not be effective in eliminating fugitive emissions.

8.1.3 Safety of limits

A number of submitters requested real-time monitoring with alarms in the event of exceedences of limits. There has been considerable evidence presented to the Committee in terms of the health effects as a result of lead and arsenic exposure. The Committee is satisfied that the health effects relate to long term exposure, and accordingly consider that the community would have little to gain from this approach to monitoring. In addition there are issues with the practicalities of this type of monitoring, such as the time required for sample analysis.

The Committee is satisfied with the approach taken in the revised conditions of averaging the monitoring results over a rolling three month period, and considers this the most appropriate reporting method to determine compliance with the limits set in conditions. This approach is satisfactory in terms of assessing the long term levels of fugitive emissions from the site.

Several submitters requested that the plant be closed until ‘safe limits’ could be met. This approach is not considered necessary by the Hearing Committee as we consider that the short-term lead in air limits are sufficiently conservative to avoid adverse effects over the nine month period they are in place. Further it is expected that the actual level of fugitive emissions from the plant will reduce during this nine month period as upgrades are commissioned.

8.1.4 Communication

The Hearing Committee commends the willingness of key parties to produce a community newsletter and hold a series of community meetings. With the agreement of Exide, the requirement for a quarterly community newsletter is included in the consent conditions. This newsletter should present information on monitoring results and progress with the upgrades. The Committee understands that Greater Wellington Officers will be compiling a list of parties who indicate they wish to be included on the mailing list for such a newsletter.

The Committee are of the opinion that community meetings to relay the outcome of this review are also very important and strongly recommend that these are carried out.

8.1.5 Security

Several submitters brought up the lack of site security. In terms of fugitive emissions, which are the subject of this review, the closure of the gate during working hours will make minimal, if any difference. In terms of the security and safety aspect, the Committee supports the Reporting Officers' suggestion that the Consent Holder investigates this further.

8.1.6 45 Waione St

The decision made to modify the exterior of the 45 Waione St was a commercial decision that has resulted in the potential for 'reverse sensitivity' effects, as the modifications have opened up the premise to a wider potential range of uses. Surrounding land uses, and the restriction these may pose to certain uses of 45 Waione St, should have been considered prior to making modifications to the building.

However, the Committee considers that this property is likely to be more subject to an increased level of effect from the fugitive emissions than the bulk of the community, due to its immediate proximity to the plant. For this reason the Committee has confirmed a lower fugitive emission limit shall apply to this boundary, and considers that this limit will significantly reduce the effects on this property. The Committee is also supportive of other measures being taken to further reduce the effects on this property, and recommends such option be investigated by the owners of 45 Waione St and Exide.

8.1.7 Leaching/Site history

A number of submitters identified concerns with past practices at the site. In terms of the scope of this review, there is little the Committee can recommend. However, this is something that would be given appropriate consideration and site rehabilitation should the company decide to close their Petone factory, although the Committee notes that there is no indication from the Company that this is likely to occur in the near future.

8.1.8 Odour issues

Several submitters identified concerns with odour from the site. In terms of the scope of this review, there is little the Committee can recommend. However the Committee notes that no such concerns were expressed at the resource consent application hearing in 2001

8.2 Key findings

- This is a limited review of consent conditions, and matters considered must be restricted to those conditions under review.

- There is an absence of suitable national or international guidelines or standards that could be applied to this situation due to particle size differences in this situation compared to situations for which guidelines/standards have been derived. Given this clear gap the Committee recommends that the research be undertaken by the Ministries of Health and/or Environment on the development of national guidance on this.

- No scientifically valid study of actual effect or blood lead levels has been undertaken on the local community at risk. This would be a significant undertaking, and may not provide statistically valid results given the size of the community at risk. Such a study is not considered necessary by the Committee.

- The conditions being reviewed are predominantly of a technical nature and a significant amount of technical information and expert opinion was put before the Committee.

- At the conclusion of the hearing the only matters where there was some disagreement between the three key parties (Greater Wellington, RPH and Exide) was the long term fugitive emission limit to apply on the western boundary, and the short term limit on the southern boundary.

- Agreement was reached on long-term limits of 0.8 $\mu g/m^3$ and 1.5 $\mu g/m^3$ to apply on the northern and southern boundaries, respectively. It is noted that the agreement of RPH on these limits was conditional on additional information on being gathered on deposition velocities and this information supporting the limits set. The Committee is satisfied that this information will be provided through the revised monitoring programme, and that the review condition will enable these limits to be further modified in the future should it be necessary.

- RPH preferred a more conservative long-term limit than 0.55 $\mu g/m^3$ as is proposed to apply at the western boundary, due to the potential range of land uses of the property immediately adjacent to the western boundary and the lack of information on deposition velocities.

- RPH was not in agreement of the short term limit of 2 μg/m^3 on the southern boundary; however, given the temporary period for which this would apply, and that the health effects of concern result from long term exposure the Committee considers this limit appropriate.

- The Committee notes that the fugitive emission limits set can be reviewed at a later stage if new information, such as that on deposition velocities, indicates that the limits are not sufficiently conservative.

- Monitoring results from the one in six day monitoring (expressed as a 3-month average) have shown a significant improvement in the level of fugitive emissions, as monitored on the north and south fencelines, in the last six months. These improvements could be a result of good site management, or previous upgrades, seasonal variations or a combination of these.

- The results of recent blood lead tests on nearby workers undertaken by Exide are not considered to be reflective of any actual effect or absence of effect on the whole community. The sector of the community tested is the group at lowest risk due to lower ingestion and absorption of lead and lower average duration of exposure to outdoor lead, compared to residents, particularly children.

- At the commencement of the hearing there were only three areas where Exide did not agree with Reporting Officers' recommendations. These areas were; the boundary fugitive emission limit for lead in air proposed in condition 12, requirement for 24-hour filter changes in condition 13C, and the requirement for 24-months of transitional depositional monitoring in condition 13F.

- The Committee acknowledges that there is no threshold for known health effects. The long-term limits set in condition 12 are determined to be appropriate to minimise the risk of adverse health effects on the community.

- The Committee is satisfied that the limits recommended to protect against health effects of lead exposure will be sufficient to also protect against arsenic.

- The Hearing Committee concurs with the Reporting Officers that a site specific assessment is appropriate to determine fugitive emission limits in the absence of any directly applicable national or international guidelines that take into account both ingestion and inhalation pathways from an industrial source.

- Technical experts representing RPH, Exide and the Whitesides' agreed at the hearing that the continuation of the current levels – let alone the final levels recommended by the Committee - would not result in a significant effect on the community.

- The short-term limits set in condition 12 are considered appropriate as interim limits to apply until the consent holder has completed the plant upgrades. These are sufficiently restrictive to protect public health in the short-term and are considered by the Committee to be achievable considering the recent low fugitive emission levels achieved by the consent holder.

- The Committee is satisfied that the proposed limits are all within the range of values outputted from the modelling undertaken by Dr Stevenson, and that further information to be obtained on the deposition rates will provide additional surety of the suitability of these values.

- The Hearing Committee considers that the boundary emission limits apply an appropriate level of precaution; that is, balancing the need to protect the health of the community and while ensuring that the consent holder's activity remains viable.

- It is acknowledged that there is a caretaker flat within the building at 45 Waione St, and that this property (and therefore tenants and workers) may be exposed to adverse effects from Exide. The Hearing Committee is satisfied that the lower limit to be applied on Exide's western boundary (i.e., adjoining 45 Waione St) is conservative enough to be sufficiently protective for this property as well as residences in Kirkaldy Street and beyond, given the current level of uncertainty.

- As the effects of concern are primarily long-term effects the Committee considers that the 7-day filter changes are acceptable, provided that the filter changes and sample analysis are undertaken by independent, qualified personnel.

- It is appropriate that the revised monitoring programme to be undertaken by Exide is more stringent than that previously. The use of high volume sampling equipment has increased to incorporate an additional site, and these will now sample continuously rather than one day in six.

- The Hearing Committee supports the continuation of deposition monitoring, both at the boundary and at three sites in the community as a further quantification of the level of fugitive emissions. Monitoring for 24 months will allow comparison with past data collected.

- The Committee considers that the proposed timeframes that enable initiation of a future review are appropriate to enable completion of upgrades, and collection of monitoring data.

- The Hearing Committee considers that there is a high level of perceived risk among some members of the community. They consider this perception to be out of balance with the actual risk posed by the activity, particularly given the recent reductions in emissions, the proposed upgrades and emission limits to be imposed.

- The Committee believes that the communication of the outcome of this review and the reasoning behind the revised conditions, to the community is very important, as is the ongoing communication of monitoring results and interpretation of these. The Committee considers the production of a community newsletter to be an important element of this.

- The Committee notes that the idea of a community newsletter was proposed and was agreed to by the applicant. Accordingly a condition requiring this has been incorporated into the consent. The Committee also advocate for appropriate community meetings to be held to relay the outcome of the review process.

9. Conclusion

Based on our consideration of the information provided to the Hearing Committee, including evidence presented at the hearing, the submissions, the Officers' Report and the relevant provisions of the Act and statutory instruments, we have concluded that it is appropriate that a number of changes are made to the conditions of consent WGN000128 [24363] as set out as attached in Schedule One. This includes the imposition of boundary emission limits.

At the conclusion of the hearing the only issues outstanding revolved around the fugitive emission limits of the three boundaries. The Committee gave significant consideration to this aspect and the technical evidence presented.

The changes made are consistent with Part II of the Act and the matters for consideration under section 104 of the Act.

10. Decision and reasons

10.1 Decision

Pursuant to the powers delegated to us by the Wellington Regional Council and under section 34 of the Act, we the appointed hearing committee hereby amend the conditions of discharge permit WGN000128 [22828] by substituting conditions 1, 12, 13, 14, 18 and 19 with conditions as set out in Schedule One, attached:

- WGN000128 [24363] – Discharge permit to discharge contaminants into air from the operation of a lead battery recycling plant and associated activities, at or about map reference NZMS 260:R27;688.955.

10.2 Reasons for decision

We consider that the amended conditions are appropriate to avoid, after mitigation via the conditions imposed, adverse effects which were appropriate to deal with at a later stage, and:

- is consistent with the purpose of sustainable management under the Act;

- is consistent with the provisions of the applicable planning instruments; and

- will not give rise to actual or potential effects on the environment that are more than minor.

Moreover, the revised conditions include a monitoring regime to ensure these outcomes are maintained.

Cr Chris Turver (chairperson)

30-9-05

Date

Schedule one:

WGN000128 [24363] – Discharge permit to discharge contaminants into the air from the operation of a lead battery recycling plant and associated activities, at 51-57 Waione Street, at or about map reference NZMS 260:R27;688.955 subject to the following conditions:

General Conditions

1.[1] The location, design and implementation of the operation shall be carried out in accordance with the application and associated documents received by the Wellington Regional Council on 1 March 2000 and in accordance with the information submitted in evidence at the resource consent hearing on 24 September 2001, further information received by the Wellington Regional Council on 17 June 2003, and subject to any amendments to the operation undertaken as a result of the notice of review of consent conditions served on 11 April 2005.

Note: Any change from the location, design concepts and parameters, implementation and/or operation may require a new resource consent or a change of consent conditions pursuant to section 127 of the Resource Management Act 1991.

2. There shall be no discharges to air that are noxious, dangerous, offensive or objectionable at or beyond the legal boundary of the property from which the permit holder operates. These discharges include, but are not limited to, smoke and odour.

Note: For the purposes of this consent, the permit holder's boundary is the outer perimeter of land at 51 – 57 Waione Street whose legal description is Lots 50-57 DP 384)

3. The permit holder shall minimise the emission and effects of contaminant discharges to air from the property by:

(a) Selection of the most appropriate processes, equipment and methods; and

(b) Effectively operating, supervising and maintaining all processes, equipment and methods,

at all times to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

Complaints and Incidents Reports

4. The permit holder shall keep a record of any complaints that are received. The complaints record shall contain the following where practicable:

[1] Condition changed under section 127, RMA 1991, granted 24 June 2003

- the name and address of the complainant, if supplied
- identification of the nature of the complaint
- date and time of the complaint and alleged event
- weather conditions at the time of the alleged event
- any mitigation measures adopted

The complaints record shall be made available to the Wellington Regional Council on request.

The permit holder shall notify the Manager, Consents Management, Wellington Regional Council in writing of any complaints relating to the exercise of this permit within 24 hours of being received by the permit holder or the next working day.

5. The permit holder shall keep a record of any incident that results, or could result, in a condition of this permit being contravened.

The incident record shall be made available to the Wellington Regional Council on request.

The permit holder shall notify the Manager, Consents Management, Wellington Regional Council of any such incident within 24 hours of the incident being brought to the attention of the permit holder or the next working day.

The permit holder shall forward an incident report to the Manager, Consents Management, Wellington Regional Council within 7 working days of the incident occurring. This report shall describe reasons for the incident, measures taken to mitigate the incident and measures to prevent recurrence.

Note: For the purposes of this permit, incidents include (but are not limited to) events such as power or mechanical failure, monitoring equipment failure or unusual discharges.

Emission Limits

6. Notwithstanding conditions 2 and 3, discharges to air relating to the exercise of this permit from the Furnace Bag Filter Stack, shall not exceed the following mass emission rates:

Contaminant	**Mass Emission not to Exceed**
Total particulate matter	200 grams.hour^{-1}
Lead and its compounds	10 grams.hour^{-1}
Heavy metals (total of, antimony, arsenic and its compounds, copper and its compounds, selenium and cadmium; calculated as the sum of the individual concentrations of each compound)	2 grams.hour^{-1}
Acid gases (total of sulphur dioxide,	35 kg.hour^{-1}

expressed as SO_2, and sulphuric acid and sulphur trioxide, expressed as H_2SO_4)

7. Notwithstanding conditions 2 and 3, discharges to air relating to the exercise of this permit from the Cartridge (Hygiene) Filter Vent, shall not exceed the following mass emission rates:

Contaminant	Mass Emission not to Exceed
Total particulate matter	800 grams.hour^{-1}
Lead and its compounds	30 grams.hour^{-1}
Total of, antimony, arsenic, copper, selenium and cadmium (calculated as the sum of the individual concentrations of each compound)	10 grams.hour^{-1}
Acid gases (total of sulphur dioxide, expressed as SO_2, and sulphuric acid and sulphur trioxide, expressed as H_2SO_4)	2.5 kg.hour^{-1}

Stack Emission Monitoring

8. The permit holder shall prepare and perform an annual testing programme to determine compliance with conditions 6 and 7 above. Testing shall be performed for the following contaminants:

Contaminant

Furnace Bag Filter Stack:
Total particulate matter
Lead and its compounds
Heavy metals (total of, antimony, arsenic and its compounds, copper and its compounds, selenium and cadmium; calculated as the sum of the individual concentrations of each compound)
Acid gases (total of sulphur dioxide, expressed as SO_2, and sulphuric acid and sulphur trioxide, expressed as H_2SO_4)
Carbon monoxide
Volatile organic compounds (measured as total carbon excluding particulate matter)
Polychlorinated dibenzo-*p*-dioxins and polychlorinated dibenzofurans (dioxins)

Cartridge (Hygiene) Filter Vent:
Total particulate matter
Lead and its compounds
Heavy metals (total of, antimony, arsenic and its compounds, copper and its compounds, selenium and cadmium; calculated as the sum of the individual concentrations of each compound)
Acid gases (total of sulphur dioxide, expressed as SO_2, and sulphuric acid and sulphur trioxide, expressed as H_2SO_4)

9. The testing programme shall be prepared and performed using appropriate sampling and analytical methods to the satisfaction of the Manager, Consents Management, Wellington Regional Council. The testing programme proposal shall be submitted to the Manager, Consents Management, Wellington Regional Council by 21 December 2001.

10. The testing programme shall be performed by 22 March 2002 and annually thereafter (with the exception of testing for polychlorinated dibenzo-*p*-dioxins and polychlorinated dibenzofurans (dioxins) which shall be conducted every two years).

Testing shall be performed during normal plant operation and shall encompass all parts of the typical 8 hour lead smelting batch process. All testing shall contain at least three separate samples and for each sample, both the mass emission rate and concentrations of each contaminant shall be reported. All results shall be corrected to 0°C, and 1 atm, on a dry gas basis.

11. The results of the testing programme including all relevant plant operating parameters and conditions and all calculations and assumptions shall be submitted within 6 weeks of the completion of the testing and shall be to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

The results of the testing programme including all relevant plant operating parameters and conditions and all calculations and assumptions shall be also be submitted to the Wellington Tenths Trust within 6 weeks of the completion of the testing.

Ambient Air Monitoring

Lead concentration in air limit

12. Notwithstanding conditions 2 and 3 of this permit, discharges into air resulting from the exercise of this permit shall not cause the concentration of lead in air measured as a 3-month moving average to exceed:

- 1.5 $\mu g/m^3$ at monitoring sites specified in condition 13(i) and 13(iii); and
- 2.0 $\mu g/m^3$ at the monitoring site specified in condition 13(ii).

Within 9 months, discharges into air resulting from the exercise of this permit shall not cause the concentration of lead in air measured as a 3-month moving average to exceed:

- 1.5 $\mu g/m^3$ at monitoring site specified in condition 13(ii);
- 0.8 $\mu g/m^3$ at monitoring site specified in condition 13(i); and
- 0.55 $\mu g/m^3$ at monitoring site specified in condition 13(iii)

This condition commences once the requirements of condition 13A and 14 are met by the permit holder to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

For the purposes of this condition the concentration of lead in air shall be measured by total suspended particulate (TSP) monitors as determined using Method AS 2800-1985 (Ambient Air – Determination of Particulate Lead – High Volume Sampler Gravimetric Collection – Flame Atomic Absorption Spectrometric Method)

Ambient air monitoring programme

13. The permit holder shall carry out an ambient air monitoring programme that monitors the concentration of lead, the concentration of arsenic and the concentration of total suspended particulate (TSP) in air at the following locations:

(i) A position on the northern site boundary.

(ii) A position on the southern site boundary.

(iii) A position on the western site boundary.

The ambient air monitoring programme shall be carried out in accordance with the 'Ambient Air Monitoring Manual' required by condition 14 of this permit.

13A The exact locations of the three TSP monitors required by condition 13 shall be finalised by the permit holder within 1 month of the commencement date of this condition as amended by the review, and shall be to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

Once the exact locations of the three TSP monitors are confirmed as satisfactory by the Manager, Consents Management, Wellington Regional Council, the ambient air monitoring programme shall commence on the next working day.

13B Notwithstanding condition 13A, the siting of the TSP monitors shall, as far as practicable, follow the site selection guidance set out in Sections 8 and 9 of AS 2922-1987 (Ambient Air – Guide for the Siting of Sampling Units).

If, for any reason, one or more of the TSP monitor(s) need to be moved to a more representative site, the re-location of the TSP monitor(s) shall be approved by the Manager, Consents Management, Wellington Regional Council before it is relocated.

13C The TSP monitors shall be operated on a continuous basis (24 hours per day and seven days per week) with filters changed at least every seven days consistent with operating the monitors in accordance with AS/NZS 3580.9.3:2003 (Methods for sampling and analysis of ambient air – Method 9.3: Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method).

The permit holder shall have available one spare TSP monitor, and hold essential spares, to enable the operation of any defective monitor to be reinstated as soon as practicable.

13D The method of analysis of the TSP monitor filters, for TSP and lead content, shall be consistent with that specified in AS/NZS 3580.9.3:2003 (Methods for sampling and analysis of ambient air – Method 9.3: Determination of

suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method) and AS 2800-1985 (Ambient Air – Determination of Particulate Lead – High Volume Sampler Gravimetric Collection – Flame Atomic Absorption Spectrometric method) respectively, except that the analysis of the lead content may be by ICP-MS or ICP-OES. The method of analysis of arsenic shall be by ICP-MS or ICP-OES.

13E Upon commencement of the ambient air monitoring programme, the permit holder shall report the results as follows:

(i) Monitoring results shall be provided to the Manager, Consents Management, Wellington Regional Council on a nominal monthly basis, i.e., four consecutive sets of results for each seven day sampling period shall be provided, as soon as practicable following receipt of analytical results for the last seven day sampling period;

(ii) For each filter sample, the concentration of lead, the concentration of arsenic and the concentration of TSP shall be expressed as $\mu g/m^3$ for the averaging time specified in condition 13C; and

(iii) Monitoring results (and any interpretation of results) must be accompanied by relevant supporting information, including appropriate recycling facility operating conditions, appropriate raw data, details of any monitor malfunction (including reasons) and monitor down-time. Supporting information should also include detail on any damaged or interfered filters.

Deposition monitoring programme

13F The permit holder shall monitor ambient air for deposited particulate, lead and arsenic by way of six deposition monitors at the following locations:

- in close proximity to the three TSP monitors required by condition 13; and
- at Waione Street, Kirkcaldy Street and near the western boundary of Unilever as agreed with the Wellington Regional Council.

The deposition monitoring programme shall be undertaken on a monthly basis, for a continuous period of 24 months and shall be undertaken as far as practicable in accordance with the Draft International Standard ISO/DIS 4222.2 Air Quality – Measurement of atmospheric dustfall – Horizontal deposit gauge method.

If, for any reason, one or more the deposition monitor(s) needs to be moved to a more representative site, the re-location of the monitoring site shall be approved by the Manager, Consents Management, Wellington Regional Council, before it is relocated.

The deposition monitoring programme shall be undertaken under the supervision of an appropriately qualified person engaged by the permit holder

and shall be carried out in accordance with the 'Ambient Air Monitoring Manual' as required by condition 14.

This condition commences once the requirements of condition 13A and 14 are met by the permit holder to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

13G Results of the deposition monitoring programme shall be provided to the Manager, Consents Management, Wellington Regional Council on a monthly basis as soon as practicable following the receipt of any analytical results for the preceding month, or on request.

13H The results (and any interpretation of results) must be accompanied by relevant supporting information, including appropriate raw data, details of any deposition gauge malfunction (including reasons) and deposition gauge down-time.

Modifications to the monitoring programme

13I Subject to the satisfaction of the Manager, Consents Management, Wellington Regional Council, the number of TSP monitors and/or deposition monitors and/or the frequency of the deposition or ambient air monitoring programme may be reduced if the concentration of lead in air is consistently lower than the limits imposed by condition 12. The Manager, Consents Management, Wellington Regional Council, may also require the permit holder to re-instate the monitoring programme, in full or in part, if at any time the concentration of lead in air exceeds the limits imposed by condition 12.

Community newsletter

13J The permit holder shall liaise with Regional Public Health, Hutt City Council and Wellington Regional Council in order to produce a quarterly newsletter which summaries and interprets the ambient air monitoring results. This newsletter shall be distributed to the Petone Public Library and any individual or organisation who indicates that they wish to receive the newsletter.

Ambient air monitoring manual

14 An 'Ambient Air Monitoring Manual' shall be prepared by the permit holder, within one month of the commencement date of this condition as amended by the review, for approval by the Manager, Consent Management, Wellington Regional Council.

The manual shall include, but not be limited to:

- The logistical and operational details concerning the monitoring requirements imposed by conditions of this permit;
- The requirement for samples to be analysed by an appropriately qualified independent laboratory;

- The requirement for the ambient air monitoring programme to be undertaken by an independent, appropriately qualified individual or organisation; and
- Contingency plans in the event of equipment failure or disruption to the monitoring programme due to other causes.

The 'Ambient Air Monitoring Manual' shall be reviewed annually and updated as appropriate. Any changes to the 'Ambient Air Monitoring Manual' shall be subject to the approval by the Manager, Consents Management, Wellington Regional Council.

14A The ambient air monitoring programme shall be undertaken by appropriately qualified persons in accordance with the process outlined by the 'Ambient Air Monitoring Manual'. Monitoring samples are to be analysed by an appropriately qualified independent laboratory.

Operations and Maintenance Manual

15. The permit holder shall continue to retain an appropriately experienced person to prepare, to the satisfaction of the Manager, Consents Management, Wellington Regional Council, an Operations and Maintenance Manual for the site. The manual shall at least address the following matters:

(a) Operation, inspection and maintenance of all emission control equipment and emission control equipment monitors, including dust suppression systems and bag filters, and triboelectric bag leakage detectors.

(b) Procedures adopted to ensure that the fugitive emissions from the site are minimised.

(c) Procedures adopted to ensure that the battery recycling activity complies with the conditions of this permit at all times.

(d) Contingency plans in the case of accidents and emergencies, such as spillages, fires, air pollution control equipment failure and the like, how the potential for increased discharge of contaminants will be minimised, and how the potential effects of any discharges will be mitigated.

(e) Provision for annual calibration of temperature monitors, differential pressure gauges and alarm and interlock systems.

The permit holder shall continue to operate in accordance with the Operations and Maintenance Manual.

16. Following compliance with condition 15, the Operations and Maintenance Manual shall be reviewed and updated, as appropriate, to accommodate the operation and maintenance of the new equipment, including contingency measures for equipment malfunction.

Risk Management and Communication Plan

17. The permit holder shall retain an appropriately experienced person to prepare, to the satisfaction of the Manager, Consents Management, Wellington Regional Council, a Risk Management and Communication plan for the site. The plan shall at least address the following matters:

    (a) How commercial and residential neighbours in the vicinity of the Exide Technologies plant will be notified in case of accidents and emergencies, such as spillages, fires, air pollution control equipment failure and the like.

    (b) What mitigation measures will be undertaken to minimise the impact on commercial and residential neighbours in the vicinity of the Exide Technologies plant which may result from any accidents and emergencies, such as spillages, fires, air pollution control equipment failure and the like.

    (c) Information which will be provided to commercial and residential neighbours in the vicinity of the Exide plant informing them of measures to minimise exposure to particulate and basic cleaning measures to ensure that interior deposition and accumulation of particulate is minimised.

    The Risk Management and Communication Plan shall be developed in consultation with Regional Public Health and submitters within the immediate vicinity of the Exide Technologies plant (including but not limited to submitters located on Waione Street, East Street and Kirkcaldy Street).

    The permit holder shall submit a final copy of the Risk Management and Communication Plan to the Manager, Consents Management, Wellington Regional Council within 6 months of the granting of this permit.

    The permit holder shall operate in accordance with the Risk Management and Communication Plan once submitted to the Wellington Regional Council.

Plant Improvements

18. In addition to routine maintenance and upgrading, the permit holder shall carry out improvements to minimise fugitive dust emissions the time frames specified below, these improvements shall include, but not be limited to:

    (a) By 30 November 2005, install a filter press to dry and cake paste sludge.

    (b) By 28 February 2006, upgrade the plant to prevent spark carry-over in the Torit Cartridge Filter inlet air duct.

(c) By 31 March 2006, relocate hygiene air hood and slot extraction systems to maximise extraction of fugitive emissions from the following processes:

i. furnace burner end

ii. furnace launder and pouring areas

iii. furnace transition dust clearing area

iv. slag crushing and transfer areas

(d) By 30 June 2006, enclose within a building the Torit Cartridge Filter and associated activities.

Within one month of the completion of each of the plant upgrades, the permit holder shall provided to the Manager, Consents Management, Wellington Regional Council, a certificate of completion certified by an independent appropriately qualified person or organisation.

Review condition

19 The Wellington Regional Council may review any or all conditions of this permit by giving notice of its intention to do so pursuant to section 128 of the Resource Management Act 1991, before or after six months of the second and fourth anniversary of the of the commencement date of this condition as amended by the review, for any of the following purposes:

(a) To deal with any adverse effects on the environment which may arise from the exercise of this permit, and which are appropriate to deal with at a later stage.

(b) To review the adequacy of any plans and/or monitoring requirements prepared for this consent so as to incorporate into the permit any modification which may become necessary to deal with any adverse effects on the environment arising from the exercise of this permit.

(c) To alter the monitoring requirements in light of the results obtained from any previous monitoring.

(d) To review condition 12 where further information on actual or likely adverse effects is obtained as a result of monitoring undertaken by Wellington Regional Council or the permit holder.

20. The permit holder may apply at any time, pursuant to section 127 of the Resource Management Act 1991, for the change or cancellation of any consent condition other than that relating to the term of the consent.

Term of Permit

21. In terms of section 123 (c) of the Resource Management Act 1991, the period for which this permit is granted is limited to 10 years from the date of granting of this permit.

Appendix 1

WGN000128 [22828] Consent conditions prior to review

General Conditions

1.[1] The location, design and implementation of the operation shall be carried out in accordance with the application and associated documents received by the Wellington Regional Council on 1 March 2000 and in accordance with information submitted in evidence at the resource consent hearing on 24 September 2001, and further information received by the Wellington Regional Council on 17 June 2003.

Note: Any change from the location, design concepts and parameters, implementation and/or operation may require a new resource consent or a change in consent conditions pursuant to section 127 of the Resource Management Act 1991.

2. There shall be no discharges to air that are noxious, dangerous, offensive or objectionable at or beyond the legal boundary of the property from which the permit holder operates. These discharges include, but are not limited to, smoke and odour.

Note: For the purposes of this consent, the permit holder's boundary is the outer perimeter of land at 51-57 Waione Street whose legal description is Lots 50-57 DP 384.

3. The permit holder shall minimise the emission and effects of contaminant discharges to air from the property by:

(a) Selection of the most appropriate processes, equipment and methods; and
(b) Effectively operating, supervising and maintaining all processes, equipment and methods,

at all times to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

Complaints and Incidents Reports

4. The permit holder shall keep a record of any complaints that are received. The complaints record shall contain the following where practicable:

- the name and address of the complainant, if supplied
- identification of the nature of the complaint
- date and time of the complaint and alleged event
- weather conditions at the time of the alleged event
- any mitigation measures adopted.

The complaints record shall be made available to the Wellington Regional Council on request.

The permit holder shall notify the Manager, Consents Management, Wellington Regional Council in writing of any complaints relating to th exercise of this permit within 24 hours of being received by the permit holder or the next working day.

5. The permit holder shall keep a record of any incident that results, or could result, in a condition of this permit being contravened.

The incident record shall be made available to the Wellington Regional Council on request.

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[1] Condition changed under section 127, RMA 1991, granted 24 June 2003

The permit holder shall notify the Manager, Consents Management, Wellington Regional Council of any such incident within 24 hours of the incident being brought to the attention of the permit holder or the next working day.

The permit holder shall forward an incident report to the Manager, Consents Management, Wellington Regional Council within seven working days of the incident occurring. This report shall describe reasons for the incident, measures taken to mitigate the incident and measures to prevent recurrence.

Note: For the purposes of this permit, incidents include (but are not limited to) events such as power or mechanical failure, monitoring equipment failure or unusual discharges.

Emission Limits

6. Notwithstanding conditions 2 and 3, discharges to air relating to the exercise of this permit from the Furnace Bag Filter Stack, shall not exceed the following mass emission rates:

Contaminant	**Mass Emission not to Exceed**
Total particulate matter	200 grams.hour^{-1}
Lead and its compounds	10 grams.hour^{-1}
Heavy metals (total of, antimony, arsenic and its compounds, copper and its compounds, selenium and cadmium; calculated as the sum of the individual concentrations of each compound)	2 grams.hour^{-1}
Acid gases (total of sulphur dioxide, expressed as SO_2, and sulphuric acid and sulphur trioxide, expressed as H_2SO_4	35 kg.hour^{-1}

7. Notwithstanding conditions 2 and 3, discharges to air relating to the exercise of this permit from the Cartridge (Hygiene) Filter Vent, shall not exceed the following mass emission rates:

Contaminant	**Mass Emission not to Exceed**
Total particulate matter	800 grams.hour^{-1}
Lead and its compounds	30 grams.hour^{-1}
Total of, antimony, arsenic, copper, selenium and cadmium (calculated as the sum of the individual concentrations of each compound)	10 grams.hour^{-1}
Acid gases (total of sulphur dioxide, expressed as SO_2, and sulphuric acid and sulphur trioxide, expressed as H_2SO_4)	2.5kg.hour^{-1}

Stack Emission Monitoring

8. The permit holder shall prepare and perform an annual testing programme to determine compliance with conditions 6 and 7 above. Testing shall be performed for the following contaminants:

Contaminant
Furnace Bag Filter Stack:
Total particulate matter
Lead and its compounds

Heavy metals (total of, antimony, arsenic and its compounds, copper and its compounds, selenium and cadmium; calculated as the sum of the individual concentrations of each compound)
Acid gases (total of sulphur dioxide, expressed as SO_2, and sulphuric acid and sulphur trioxide, expressed as H_2SO_4)
Carbon monoxide
Volatile organic compounds (measured as total carbon excluding particulate matter)
Polychlorinated dibenzo-*p*-dioxins and polychlorinated dibenzofurans (dioxins)

Cartridge (Hygiene) Filter Vent:

Total particulate matter
Lead and its compounds
Heavy metals (total of, antimony, arsenic and its compounds, copper and its compounds, selenium and cadmium; calculated as the sum of the individual concentrations of each compound)
Acid gases (total of sulphur dioxide, expressed as SO_2, and sulphuric acid and sulphur trioxide, expressed as H_2SO_4)

9. The testing programme shall be prepared and performed using appropriate sampling and analytical methods to the satisfaction of the Manager, Consents Management, Wellington Regional Council. The testing programme shall be submitted to the Manager, Consents Management, Wellington Regional Council by 21 December 2001.

10. The testing programme shall be performed by 22 March 2002 and annually thereafter (with the exception of testing for polychlorinated dibenzo-*p*-dioxins and polychlorinated dibenzofurans (dioxins) which shall be conducted every two years).

    Testing shall be performed during normal plant operation and shall encompass all parts of the typical 8 hour lead smelting batch process. All testing shall contain at least three separate samples and for each sample, both the mass emission rate and concentrations of each contaminant shall be reported. All results shall be corrected to 0°C, and 1 atm, on a dry gas basis.

11. The results of the testing programme including all relevant plant operating parameters and conditions and all calculations and assumptions shall be submitted within six weeks of the completion of the testing and shall be to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

    The results of the testing programme including all relevant plant operating parameters and conditions and all calculations and assumptions shall also be submitted to the Wellington Tenths Trust within six weeks of the completion of the testing.

Ambient Air Monitoring

12. The permit holder shall prepare and implement an ambient air monitoring programme that:

    (a) Monitors ambient air for Total Suspended Particulate (TSP), lead and arsenic by way of two high volume air samplers. The exact locations of these high volume air samplers shall be finalised by the permit holder within two months of the granting of this permit and shall be to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

        The monitoring programme associated with the high volume samplers shall be consistent with the United States EPA guideline 40 CFR Part 50, which specifies monitoring for one day out of six on a continuous basis, from midnight to midnight, but

does not exclude more frequent monitoring required by specific programmes as agreed between the permit holder and the Wellington Regional Council.

(b) Monitors ambient air for deposited particulate, lead and arsenic by way of nine deposition monitors located in the vicinity of Exide Technologies. The exact locations of these deposition monitors shall be finalised by the permit holder within two months of the granting of this permit and shall be to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

The deposition monitoring programme will be carried out for a period of at least three months in every year.

13. Details of the ambient air monitoring programme for both the high volume air sampling and deposition monitoring, including sampling and analytical methods, shall be agreed to with the Manager, Consents Management, Wellington Regional Council prior to implementation.

Implementation of both the high volume air sampling and deposition monitoring shall be within three months of the granting of this permit.

14. The sampling details and results for both the high volume air sampling and deposition monitors, and details of the plant operating conditions, shall be forwarded to the Manager, Consents Management, Wellington Regional Council, on a six monthly basis (from the commencement of sampling), or on request.

The sampling details and results for both the high volume air sampling and deposition monitors, and details of the plant operating conditions, shall also be forwarded to the Wellington Tenths Trust on a six monthly basis (from the commencement of sampling).

Operations and Maintenance Manual

15. The permit holder shall continue to retain an appropriately experienced person to prepare, to the satisfaction of the Manager, Consents Management, Wellington Regional Council, an Operations and Maintenance Manual for the site. The manual shall at least address the following matters:

(a) Operation, inspection and maintenance of all emission control equipment and emission control equipment monitors, including dust suppression systems and bag filters, and triboelectric bag leakage detectors.

(b) Procedures adopted to ensure that the fugitive emissions from the site are minimised.

(c) Procedures adopted to ensure that the battery recycling activity complies with the conditions of this permit at all times.

(d) Contingency plans in the case of accidents and emergencies, such as spillages, fires, air pollution control equipment failure and the like, how the potential for increased discharge of contaminants will be minimised, and how the potential effects of any discharges will be mitigated.

(e) Provision for annual calibration of temperature monitors, differential pressure gauges and alarm and interlock systems.

The permit holder shall continue to operate in accordance with the Operations and Maintenance Manual.

16. Following compliance with condition 15, the Operations and Maintenance Manual shall be reviewed and updated, as appropriate, to accommodate the operation and maintenance of the new equipment, including contingency measures for equipment malfunction.

Risk Management and Communication Plan

17. The permit holder shall retain an appropriately experienced person to prepare, to the satisfaction of the Manager, Consents Management, Wellington Regional Council, a Risk Management and Communication plan for the site. The plan shall at least address the following matters:

    (a) How commercial and residential neighbours in the vicinity of the Exide Technologies plant will be notified in case of accidents and emergencies, such as spillages, fires, air pollution control equipment failure and the like.

    (b) What mitigation measures will be undertaken to minimise the impact on commercial and residential neighbours in the vicinity of the Exide Technologies plant which may result from any accidents and emergencies, such as spillages, fires, air pollution control equipment failure and the like.

    (c) Information which will be provided to commercial and residential neighbours in the vicinity of the Exide plant informing them of measures to minimise exposure to particulate and basic cleaning measures to ensure that interior deposition and accumulation of particulate is minimised.

    The Risk Management and Communication Plan shall be developed in consultation with Regional Public Health and submitters within the immediate vicinity of the Exide Technologies plant (including but not limited to submitters located on Waione Street, East Street and Kirkcaldy Street).

    The permit holder shall submit a final copy of the Risk Management and Communication Plan to the Manager, Consents Management, Wellington Regional Council within six months of the granting of this permit.

    The permit holder shall operate in accordance with the Risk Management and Communication Plan once submitted to the Wellington Regional Council.

Plant Improvements

18. The permit holder shall improve the containment of the factory building and current operational processes to reduce the potential for fugitive dust emissions. Actions that shall be undertaken by the permit holder include, but are not limited to the following:

    (a) Within six months of the granting of this permit, the following doorways shall be covered or permanently sealed to isolate each area and to maximise the air extraction system of each:

        (i) the doorway between the furnace waste processing area and the main building;

        (ii) the entrance way to the battery saw area;

        (iii) the entrance way near the plastics container; and

        (iv) the entrance doorway to the refinery area, where fast-acting automatic doors shall be fitted.

(b) Within nine months of the granting of this consent, the current furnace bag filter leakage dectection system shall be upgraded by installing a triboelectric system of greater sensitivity and traceability than the current system. The triboelectric system shall be interlocked with the furnace system and shall shut down the furnace process in the event of a bag filter failure.

(c) Within six months of the granting of this permit, point source extraction systems shall be installed to reduce fugitive dust emissions from the changing of dust collection bags servicing the furnace bag filter and cartridge (hygiene) filter.

(d) Within six months of the granting of this permit, a Torit dust collector shall be installed to capture fugitive dust emissions from the furnace waste (slag) processing area.

Review Conditions

19. The Wellington Regional Council may review any or all conditions of this permit by giving notice of its intention to do so pursuant to section 128 of the Resource Management Act 1991, at any time within six months of the first, third, fifth, seventh and ninth anniversary of the date of the granting of this permit for any of the following purposes:

(a) To deal with any adverse effects on the environment which may arise from the exercise of this permit, and which are appropriate to deal with at a later stage.

(b) To review the adequacy of any plans and/or monitoring requirements prepared for this consent so as to incorporate into the permit any modification which may become necessary to deal with any adverse effects on the environment arising from the exercise of this permit.

(c) To alter the monitoring requirements in light of the results obtained from any previous monitoring.

20. The permit holder may apply at any time, pursuant to section 127 of the Resource Management Act 1991, for the change or cancellation of any consent condition other than that relating to the term of consent.

Term of Permit

21. In terms of section 123(c) of the Resource Management Act 1991, the period for which this permit is granted is limited to 10 years from the date of granting of this permit.

Appendix 2

Revised conditions proposed by Exide – 5 August 2005

General conditions

1. The location, design and implementation of the operation shall be carried out in accordance with the application and associated documents received by the Wellington Regional Council on 1 March 2000 and in accordance with the information submitted in evidence at the resource consent hearing on 24 September 2001, subject to any amendments to the operation submitted in evidence through the resource consent condition review following the notice of review dated 11 April 2005.

   Note: Any change from the location, design concepts and parameters, implementation and/or operation may require a new resource consent or a change of consent conditions pursuant to s127 of the Resource Management Act 1991.

Ambient Air Monitoring

12. Notwithstanding conditions 2 and 3, discharges into air relating to the exercise of this consent shall not cause the concentration of lead in total suspended particulate in the atmosphere as determined using Method AS 2800-1985 to exceed 1.5 $\mu g/m^3$. as a 3-month average at monitoring sites specified in condition 13(a)(i) and (ii) of this consent and 2.0 $\mu g/m^3$ as a 3-month average at the monitoring site specified in condition 13(a)(iii). These limits are to reduce to 0.8 $\mu g/m^3$ and 1.5 $\mu g/m^3$ respectively 1 year after these consent conditions are imposed.

13. The permit holder shall carry out an ambient air monitoring programme that:

    (a) Monitors ambient air for total suspended particulate (TSP), and the lead and arsenic fraction of TSP, using Method AS 2800-1985 (Ambient Air – Determination of Particulate Lead – High Volume Sampler Gravimetric Collection – Flame Atomic Absorption Spectrometric method), at the following locations on the site boundary:

        (i) A position on the northern boundary;

        (ii) A position on the western boundary; and

        (iii) A position on the southern boundary.

        The exact locations of the three high volume air samplers shall be finalised by the permit holder within 1 month of the granting of this permit and shall be to the satisfaction of the Manager, Consents Management, Greater Wellington Regional Council. The siting of the ambient air monitors shall also follow the site selection guidance set out in Sections 8 and 9 of AS 2922-1987 (Ambient Air – Guide for the Siting of Sampling Units) as far as practicable. If, for any reason, one or more high volume sampler needs to be moved to a more representative site or for other reasons, re-location of the monitoring site shall be approved by the Manager, Consents Management, Greater Wellington Regional Council.

        This monitoring programme shall be operated on a continuous basis (24 hours per day and 7 days per week) as far as practicable, with

filters changed on a weekly basis (more or less) consistent with operating the monitors in accordance with Section 4.1 of AS 2724.3-1984 (Ambient Air – Particulate Matter Part 3 – Determination of Total Suspended Particulates (TSP) - High Volume Sampler Gravimetric method). The Consent Holder shall have available one spare TSP monitor, or hold essential spares, to enable the operation of any defective monitor to be reinstated as soon as practicable.

Subject to the satisfaction of the Manager, Consents Management, Greater Wellington Regional Council, the number of monitors and/or the frequency of monitoring may be reduced if lead in air concentrations determined by the monitors are consistently lower than condition 12. The Manager, Consents Management, Greater Wellington Regional Council, may also require the Consent Holder to re-instate the monitoring programme, in full or in part, if at any time the concentrations of lead-in-air exceeds condition 12.

(b) Continues to monitor ambient air for deposited particulate, lead and arsenic by way of deposition monitors located in close proximity to the 3 high volume monitors in condition 13(a) and in the vicinity of Exide Technologies at Waione Street, Kirkcaldy Street and the Unilever western site, for a period of 1 year following commencing operation of the TSP monitors as required in condition 13(a). Results of this monitoring is to be provided to the Council on a monthly basis. The frequency of monitoring, or the length of the monitoring period, may be reduced by the Council if the results are consistent with the results from the monitoring under condition 13(a) above.

14. The method of analysis of the high volume TSP monitoring filters for TSP and for lead content shall be consistent with that specified in AS/NZS 3580.9.3:2003 and AS 2800-1985, except that the analysis of the lead content of TSP may be by ICP-MS or ICP-OES. The method of analysis of arsenic in TSP shall be by ICP-MS or ICP-OES.

14A. Results of the monitoring programme shall be sent to the Manager, Consents Management, Greater Wellington Regional Council, on a quarterly basis as soon as practicable following receipt of analytical results for the preceding month. Results (and any interpretation of results) must be accompanied by relevant supporting information, including appropriate recycling facility operating conditions, appropriate raw data, and details of any monitor malfunction including damaged or interfered filters and monitor down-time.

14B A monitoring manual shall be prepared by Exide for Council approval within 2 months of this condition being imposed. The manual will cover the logistical details and process regarding the monitoring requirements imposed through these conditions, including contingency plans in the event of equipment failure or disruption.

14C The monitoring will be undertaken under the supervision of an appropriately qualified consultant engaged by Exide, in accordance with the process outlined by the monitoring manual. Monitoring results are to be analysed by an appropriately qualified independent laboratory.

Plant Improvements

18. In addition to routine maintenance and upgrading, the permit holder shall carry out the following improvements to minimise fugitive discharges of dust to atmosphere within the time frame specified:

(a) By 30 November 2005, install a filter press to dry and cake paste sludge to allow the paste to be contained to minimise tracking of material by forklifts and by foot to areas where it may dry out and become dusty.

(b) By 28 February 2006, upgrade the plant to prevent spark carry-over in the Torit Cartridge Filter inlet air duct to reduce to a practicable minimum cartridge filter fires and spark suppressing and fire extinguishing water spray clogging cartridge filters;

(c) By 31 March 2006, relocate hygiene air hood and slot extraction systems to maximise extraction of fugitive emissions from the following processes; furnace burner end, furnace launder and pouring areas, furnace transition dust clearing area and slag crushing and transfer areas;

(d) By 30 June 2006, enclose within a building the Torit Cartridge Filter and associated activities to substantially prevent fugitive dust emissions to atmosphere, especially during filter maintenance and when removing/replacing the collected dust drum.

Review conditions

19 The Wellington Regional Council may review any or all conditions of this permit by giving notice of its intention to do so pursuant to section 128 of the Resource Management Act 1991, at any time within the second and forth anniversary of the date of the granting of the revised conditions for this permit in 2005 for any of the following purposes:

(a) To deal with any adverse effects on the environment which may arise from the exercise of this permit, and which are appropriate to deal with at a later stage.

(b) To review the adequacy of any plans and/or monitoring requirements prepared for this consent so as to incorporate into the permit any modification which may become necessary to deal with any adverse effects on the environment arising from the exercise of this permit.

(c) To alter the monitoring requirements in light of the results obtained from any previous monitoring.

Appendix 3

Reporting Officers' revised conditions – 1 September 2005

1 September 2005
File: WGN000128 [24363]
WGN_DOCS-#268766-v1

Draft Revised Consent Conditions: Exide Technologies Limited

General conditions

1. The location, design and implementation of the operation shall be carried out in accordance with the application and associated documents received by the Wellington Regional Council on 1 March 2000 and in accordance with the information submitted in evidence at the resource consent hearing on 24 September 2001, further information received by the Wellington Regional Council on 17 June 2003, and subject to any amendments to the operation undertaken as a result of the notice of review of consent conditions served on 11 April 2005.

   Note: Any change from the location, design concepts and parameters, implementation and/or operation may require a new resource consent or a change of consent conditions pursuant to section 127 of the Resource Management Act 1991.

Ambient Air Monitoring

Lead concentration in air limit

12. Notwithstanding conditions 2 and 3 of this permit, discharges into air resulting from the exercise of this permit shall not cause the concentration of lead in air measured as a 3-month moving average to exceed:

    - 1.5 $\mu g/m^3$ at monitoring sites specified in condition 13(i) and 13(iii); and
    - 2.0 $\mu g/m^3$ at the monitoring site specified in condition 13(ii).

    Within 9 months, discharges into air resulting from the exercise of this permit shall not cause the concentration of lead in air measured as a 3-month moving average to exceed:

    - 1.5 $\mu g/m^3$ at monitoring site specified in condition 13(ii);
    - 0.8 $\mu g/m^3$ at monitoring site specified in condition 13(i); and
    - 0.55 $\mu g/m^3$ at monitoring site specified in condition 13(iii)

This condition commences once the requirements of condition 13A and 14 are met by the permit holder to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

For the purposes of this condition the concentration of lead in air shall be measured by total suspended particulate (TSP) monitors as determined using Method AS 2800-1985 (Ambient Air – Determination of Particulate Lead – High Volume Sampler Gravimetric Collection – Flame Atomic Absorption Spectrometric Method)

Ambient air monitoring programme

13. The permit holder shall carry out an ambient air monitoring programme that monitors the concentration of lead, the concentration of arsenic and the concentration of total suspended particulate (TSP) in air at the following locations:

(i) A position on the northern site boundary.

(ii) A position on the southern site boundary.

(iii) A position on the western site boundary.

The ambient air monitoring programme shall be carried out in accordance with the 'Ambient Air Monitoring Manual' required by condition 14 of this permit.

13A The exact locations of the three TSP monitors required by condition 13 shall be finalised by the permit holder within 1 month of the commencement date of this condition as amended by the review, and shall be to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

Once the exact locations of the three TSP monitors are confirmed as satisfactory by the Manager, Consents Management, Wellington Regional Council, the ambient air monitoring programme shall commence on the next working day.

13B Notwithstanding condition 13A, the siting of the TSP monitors shall, as far as practicable, follow the site selection guidance set out in Sections 8 and 9 of AS 2922-1987 (Ambient Air – Guide for the Siting of Sampling Units).

If, for any reason, one or more of the TSP monitor(s) need to be moved to a more representative site, the re-location of the TSP monitor(s) shall be approved by the Manager, Consents Management, Wellington Regional Council before it is relocated.

13C The TSP monitors shall be operated on a continuous basis (24 hours per day and seven days per week) with filters changed at least every seven days consistent with operating the monitors in accordance with AS/NZS 3580.9.3:2003 (Methods for sampling and analysis of ambient air – Method 9.3: Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method).

The permit holder shall have available one spare TSP monitor, and hold essential spares, to enable the operation of any defective monitor to be reinstated as soon as practicable.

13D The method of analysis of the TSP monitor filters, for TSP and lead content, shall be consistent with that specified in AS/NZS 3580.9.3:2003 (Methods for sampling and analysis of ambient air – Method 9.3: Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method) and AS 2800-1985 (Ambient Air – Determination of Particulate Lead – High Volume Sampler Gravimetric Collection – Flame Atomic Absorption Spectrometric method) respectively, except that the analysis of the lead content may be by ICP-MS or ICP-OES. The method of analysis of arsenic shall be by ICP-MS or ICP-OES.

13E Upon commencement of the ambient air monitoring programme, the permit holder shall report the results as follows:

(i) Monitoring results shall be provided to the Manager, Consents Management, Wellington Regional Council on a nominal monthly basis, i.e., four consecutive sets of results for each seven day sampling period shall be provided, as soon as practicable following receipt of analytical results for the last seven day sampling period;

(ii) For each filter sample, the concentration of lead, the concentration of arsenic and the concentration of TSP shall be expressed as $\mu g/m^3$ for the averaging time specified in condition 13C; and

(iii) Monitoring results (and any interpretation of results) must be accompanied by relevant supporting information, including appropriate recycling facility operating conditions, appropriate raw data, details of any monitor malfunction (including reasons) and monitor down-time. Supporting information should also include detail on any damaged or interfered filters.

Deposition monitoring programme

13F The permit holder shall monitor ambient air for deposited particulate, lead and arsenic by way of six deposition monitors at the following locations:

- in close proximity to the three TSP monitors required by condition 13; and
- at Waione Street, Kirkcaldy Street and the Unilever as agreed with the Wellington Regional Council before this condition was amended by the review.

The deposition monitoring programme shall be undertaken on a monthly basis, for a continuous period of 24 months and shall be undertaken as far as practicable in accordance with the Draft International Standard ISO/DIS 4222.2 Air Quality – Measurement of atmospheric dustfall – Horizontal deposit gauge method.

If, for any reason, one or more the deposition monitor(s) needs to be moved to a more representative site, the re-location of the monitoring site shall be

approved by the Manager, Consents Management, Wellington Regional Council, before it is relocated.

The deposition monitoring programme shall be undertaken under the supervision of an appropriately qualified person engaged by the permit holder and shall be carried out in accordance with the 'Ambient Air Monitoring Manual' as required by condition 14.

This condition commences once the requirements of condition 13A and 14 are met by the permit holder to the satisfaction of the Manager, Consents Management, Wellington Regional Council.

13G Results of the deposition monitoring programme shall be provided to the Manager, Consents Management, Wellington Regional Council on a monthly basis as soon as practicable following the receipt of any analytical results for the preceding month, or on request.

13H The results (and any interpretation of results) must be accompanied by relevant supporting information, including appropriate raw data, details of any deposition gauge malfunction (including reasons) and deposition gauge down-time.

Modifications to the monitoring programme

13I Subject to the satisfaction of the Manager, Consents Management, Wellington Regional Council, the number of TSP monitors and/or deposition monitors and/or the frequency of the deposition or ambient air monitoring programme may be reduced if the concentration of lead in air is consistently lower than the limits imposed by condition 12. The Manager, Consents Management, Wellington Regional Council, may also require the permit holder to re-instate the monitoring programme, in full or in part, if at any time the concentration of lead in air exceeds the limits imposed by condition 12.

Community newsletter

13J The permit holder shall liaise with Regional Public Health, Hutt City Council and Wellington Regional Council in order to produce a quarterly newsletter which summaries and interprets the ambient air monitoring results. This newsletter shall be distributed to the Petone Public Library and any individual or organisation who indicates that they wish to receive the newsletter.

Ambient air monitoring manual

14 An 'Ambient Air Monitoring Manual' shall be prepared by the permit holder, within one month of the commencement date of this condition as amended by the review, for approval by the Manager, Consent Management, Wellington Regional Council.

The manual shall include, but not be limited to:

- The logistical and operational details concerning the monitoring requirements imposed by conditions of this permit;
- The requirement for samples to be analysed by an appropriately qualified independent laboratory;

- The requirement for the ambient air monitoring programme to be undertaken by an independent, appropriately qualified individual or organisation; and
- Contingency plans in the event of equipment failure or disruption to the monitoring programme due to other causes.

The 'Ambient Air Monitoring Manual' shall be reviewed annually and updated as appropriate. Any changes to the 'Ambient Air Monitoring Manual' shall be subject to the approval by the Manager, Consents Management, Wellington Regional Council.

14A The ambient air monitoring programme shall be undertaken by appropriately qualified persons in accordance with the process outlined by the 'Ambient Air Monitoring Manual'. Monitoring samples are to be analysed by an appropriately qualified independent laboratory.

Plant improvements

18. In addition to routine maintenance and upgrading, the permit holder shall carry out improvements to minimise fugitive dust emissions the time frames specified below, these improvements shall include, but not be limited to:

(a) By 30 November 2005, install a filter press to dry and cake paste sludge.

(b) By 28 February 2006, upgrade the plant to prevent spark carry-over in the Torit Cartridge Filter inlet air duct.

(c) By 31 March 2006, relocate hygiene air hood and slot extraction systems to maximise extraction of fugitive emissions from the following processes:

i. furnace burner end

ii. furnace launder and pouring areas

iii. furnace transition dust clearing area

iv. slag crushing and transfer areas

(d) By 30 June 2006, enclose within a building the Torit Cartridge Filter and associated activities.

Within one month of the completion of each of the plant upgrades, the permit holder shall provided to the Manager, Consents Management, Wellington Regional Council, a certificate of completion certified by an independent appropriately qualified person or organisation.

Review condition

19 The Wellington Regional Council may review any or all conditions of this permit by giving notice of its intention to do so pursuant to section 128 of the Resource Management Act 1991, before or after six months of the second and

fourth anniversary of the of the commencement date of this condition as amended by the review, for any of the following purposes:

(a) To deal with any adverse effects on the environment which may arise from the exercise of this permit, and which are appropriate to deal with at a later stage.

(b) To review the adequacy of any plans and/or monitoring requirements prepared for this consent so as to incorporate into the permit any modification which may become necessary to deal with any adverse effects on the environment arising from the exercise of this permit.

(c) To alter the monitoring requirements in light of the results obtained from any previous monitoring.

(d) To review condition 12 where further information on actual or likely adverse effects is obtained as a result of monitoring undertaken by Wellington Regional Council or the permit holder.

Appendix 4

Summary of Submissions Received

Review of Exide Technologies Limited – summary of submissions

No.	Name	Address	Summary Submission	Support/Oppose review	Wish to be heard?
1	Kristin Lindberg & Richard Greenfield	21 Beach Street Petone Lower Hutt	Further attention is required as to how fugitive emissions from the plant can be effectively reduced and monitored so as to protect health of residents. Plant improvements have not reduced fugitive discharges. Lead deposition appears to exceed WHO guidelines. Modelling estimates that fugitive emissions from the site have the potential to increase blood lead levels. A lot of children and pregnant women in the area, this section of the population is more vulnerable to lead and arsenic. Seeks introduction of programme of plant improvements that will actually reduce fugitive and this be indicated in monitoring results. Introduce a new condition to impose limit on discharges of lead. More frequent monitoring.	Support	N
2	Vida Heersping	1197 Tatia Drive Taita Lower Hutt	Concerned that and well being of those who live work and play in the areas surrounding the plant is being compromised. Past residents concerned that they and their three children exposed to low level lead poisoning from the Exide plant while growing up. Two of the children have learning difficulties and suspicion is that this was linked to lead exposure. Seeks full site audit to identify the source of fugitive emissions so they can be eliminated and for plant upgrades to the plant be carried out in a much shorter timeframe. Wants real-time monitoring for airborne and deposited lead with zero emission levels for fugitives. Seeks local people being advised immediately	Support	N

			if abnormal discharges occur so they can take steps to protect themselves.		
3	Kathleen Henderson	46B Lees Grove Wainuiomata Lower Hutt	Lead emissions may have been acceptable in the past but are not longer acceptable due to awareness of health issues. Owns a building next to Exide and the tenants complain about risk to health from 'explosive' type noises and vibration. Wishes that Exide close the factory for health and safety reasons and also due to the fact that residents and children live and play in close proximity	Support	N
4	Plaster Coat Limited	Jim Henderson P O Box 33265 Petone	Nearby tenant concerned about health and safety of themselves and employees. Dust covers the building that is leased. Concerned about explosions that can be heard from Exide. Objects to Exide being in a light commercial and residential area. Wishes GWRC to close the Exide plant for health and safety reasons.	Support	N
5	Warren & Eunice Thessman	38 Cheviot Road Lowry Bay Eastbourne	Believes that the review has been enacted due to non compliance with the original consent. Was a participant in the original proceedings. Seems that there has been a reversal in the facts as presented originally	Support	Y
6	Susanna Kent	28 Totara Crescent Lower Hutt 6009	Concerned about the levels of lead found in the RPH report in the vicinity of the Exide plant. The health effects of lead poisoning are well documented, particularly affecting children and their developing brains. Wishes Exide plant close until improvements are made and it can be shown that there are no lead emissions from the site.	Support	Not stated
7	Ministry of Education	C/- Cathy Swan Opus P O Box 12 003 Wellington	Concerned about the levels of lead being discharged from the Exide plant. There are 5 schools in the vicinity of Exide that may be impacted by this discharge. Children ingest and absorb more lead relative to their size; have more hand to mouth contact so they are more at risk. MoE would like PM10 be measured so that lead levels from the Exide plant can be compared to the MfE guideline; deposition monitoring programme to be maintained for at least for 12 months after the plants improvements have been carried out to ensure that the improvements are effective in reducing fugitive emissions;	Support	Y

			and locations of monitors to be reviewed as recommended in the GHD report to GWRC		
8	Regional Public Health	Deborah Read Hutt Valley District Heath Board Private Bag 31 907 Lower Hutt	RPH support the review as it will enable an environmental control limit to be imposed as a condition of consent, thus reducing lead and arsenic dust emission from beyond the boundary of the Exide battery recycling plant. The key reason for submitting is to ensure that the public health risks associated with this review are considered and adequately mitigated. RPH consider the area surrounding the Exide plant to be a sensitive receiving environment due to its proximity to residential premises. Lead and arsenic are persistent contaminants, which can remain and accumulate in the environment, potentially causing adverse health and environmental effects. RPH submitted on the original consent application in 2001, and have subsequently commissioned AES to review the available monitoring data for the Exide plant. The report found that levels of lead particulate currently discharged from the plant pose an ongoing health risk, particularly for children, in close vicinity to the plant. The AES report modelled increases in blood lead levels using the results of the monitoring from the Exide plant. Given the results of this modelling, RPH considers increases in blood lead levels as estimated by the AES report to be significant and associated with adverse health effects, such as children's neurodevelopment and the effects on pregnant women. The imposition of an environmental control limit at the boundary will protect both current and future residents and workers from adverse effects, as land use and premises change.	Support	Y
9	Ana Edwards	439/52 Remo Flats Jackson Street Petone	Joint submission including a signed petition from approximately 80 residents in the area immediately surrounding Exide. Exide presents and obvious health risk that affects children and families in the vicinity of the Exide plant. Some people who signed the submission were concerned about future employment at the Exide plant. This submission outlined that RPH reports had shown adverse effects to children's health from prolonged	Support	N

			exposure to lead. They are also concerned about incidents that have happened in the past at the plant, such as a fire in the cartridge house. Also concerned that there has not been a significant reduction in fugitive emissions from the plant. Would like GWRC to ensure there is strict enforcement of any conditions in future.		
10	Paul Bruce	272 Ohiro Road Wellington	Exide has not upgraded the plant and changed its operation to reduce fugitive emissions as required by its consent. Therefore the local residents and businesses continue to suffer the consequences of these hazardous discharges. Exide must be made to clean up the site and the local area and not be allowed to continue to operate, until they can ensure that the site is totally contained with zero emissions, fugitive or otherwise.	Support	Y 21/705 Telecon now wants to be heard
11	Petone Community Board	C/- Megan Casey 47 Queen Street Petone	Concerned about the health and safety of the residents of the community living in close proximity to the plant. Wishes GWRC to impose conditions of consent that will ensure that risks to public health are eliminated; an effective monitoring programme system is implemented to best national international practice; and conduct a site audit to determine the bet actions to reduce emissions to zero.	Support	Y
12	Hutt City Council	Steve McCarthy Hutt City Council Private Bag 31912 Lower Hutt	HCC has a vision as a 'great place to live, work and play'. As such HCC has been pleased to see over the years since the air discharge permit was granted that there have been a number of plant improvements implemented on the Exide site. However, further plant improvements need to be implemented on site. HCC do see that further plant improvements should be made a priority and would like the works to enclose the cartridge house moved forward in the timeframe that was outlined in Exide's proposed new conditions. Air monitoring should also continue and HCC support RPH in seeking a measurable 'performance standard' by including environmental control limits on Exide's air discharge consent.	Support	Y

13	Ian Shearer	Energy Information Services P O Box 576 Wellington	Concerned about the ongoing discharges of heavy metals such as lead into the environment and effects on local residents and commercial operators in the area. Wants the site closed, and if this is the case, then the community should not be left with a contaminated site to clean up, and a bond should be lodged with the council. If the plant is to continue operate, strict environmental control limits and monitoring requirements should be imposed. No level of lead leaving the boundary of Exide is acceptable.	Support	N
14	Fosroc Limited	Craig Pelham P O Box 38 079 Wellington	Exide proposed new conditions will mean that the plant upgrades will not be in place for another 16 months. Consent should be annually reviewed until the levels of fugitive emissions have been reduced to agreed limits. The data capture has been poor in the past and it should be improved by way of physical process and timeliness of analysis. This data should them be compared against a standard that is acceptable to RPH	Support	N
15	Wool Felts Ltd	Sharon Masseurs P O Box 38 061 Wellington Mail Centre	There is potential for risk to the public from Exide, and that public safety must be a paramount concern for GWRC. That there is no clear standard in NZ is not a reason for inaction. It is not okay for people who work in industrial areas to have their health more at risk than those working in other areas. Strict guidelines need to be put in place and neutral experts should be used to make an investigation of the site and that all monitoring should be carried out by qualified independent experts. Cost should not be a consideration. There should be zero risk to the neighbouring workers' families and the general environment. The future activities on the Exide site should be fully self-contained and monitored by neutral parties. There should be zero tolerance on toxic emissions and this should be given priority over anything else.	Support	Y
16	Nicole Smith	C/- Norsewear of NZ Ltd 34 Waione Street Petone	Workplace is close to Exide plant and lead dust enters the window and rollers doors. Concerned about the known and unknown health effects of lead. Carry out a site audit and implement solutions within 3 months. Set the level of lead discharged from the plant at the lowest levels recommended by	Support	N

			leading world authorities		
17	Norsewear of NZ Ltd	Mike McKee 34 Waione Street Petone	Concerns about health effects associated with lead poisoning. Lead in air well above WHO guidelines. Concern over environmental pollutants from the plant. Difficulty in attaining and retaining staff. Seeks immediate full site audit of Exide with all recommendations implemented within 3 months. Prosecute or close down Exide if there is non-compliance after this timeframe. Wishes GWRC to set acceptable limits recommended by world authorities on lead levels in air. Seeks real-time monitoring so corrective action can be taken immediately.	Support	Y
18	Waione Property Limited	Les Stone P O Box 1048 Wellington	Concerned about emission for the Exide plant and wishes to ensure that all lean and other emissions from the plant are at the minimum and within standard health guidelines for this type of activity.	Support	N
19	Edward Newman	295 Jackson Street Petone	Discharges are hazardous to health and plant owners have not been proactive in maximising public safety. Seeks imposition of strict conditions for real time monitoring and no lead emissions beyond site boundary. Best outcome would be relocation, preferably to a purpose-built and enclosed building.	Support	Y
20	Diane Morgan	127 Grafton Rd Roseneath	Lead is a hazard to health. Current emission level is too high. There should be zero emissions. Wishes to see the plant closed.	Support	Y
21	Forman Commercial Interiors Ltd	Michael Teare P O Box 12643 Penrose Auckland	Wish to protect health and safety of staff who are located close to the plant. Seeks more stringent testing (airborne and particle) with greater frequency.	Support	N
22	Ngaire Vanderhoof	25 Waione Street Petone	Very concerned about health risks to family and community. Wishes the Exide factory to be closed until improvements are made so that it can consistently demonstrate that there are zero fugitive lead emissions. Seeks real-time monitoring of emissions (stack and ambient air); 3-monthly reporting of results; standard of zero emissions to be enforced; ongoing	Support	Y

			monitoring programme to ensure zero standard is adhered to.		
23	Roger Cooper	7 Huia Road Days Bay Eastbourne	Concerned that emissions could continue at unsafe levels and there should be zero tolerance to lead pollution. Seeks Exide to cease operations until upgrades completed; complete enclosure of site; adopt real-time monitoring of flue and fugitive emissions for 12 months; plant to stop operating if safe emission levels are not achieved; stricter approach to Exide and other companies in terms of meeting safe emission limits.	Support	Y
24	Roger Thackery	12 Adelaide Road Petone	Concerned about high level of emissions. Level of emissions should not be higher than control site 2 km away. Seeks real time continuous monitoring on property boundary.	Support	Y
25	Michelle Partridge	54 Totara Street Wainuiomata	Works across the road from the plant and is concerned about effects of emissions on health. Worried about children's health when spending time at Hikoikoi park. Seeks continuous real-time monitoring with emissions at boundary not exceeding WHO guidelines. Monitoring results to be available on internet. Annual review of consent required.	Support	N
26	Karen Pointon	31 East Street Petone	Concerned about children's health. Asthmatic family members are at greater risk from lead emissions. Seeks full audit of plant; health and safety checks by Regional Public Health or OSH; inform nearby residents and business community regularly about Exide's activities and monitoring; Exide's premises to be completely sealed so no lead emissions possible.	Support	Y
27	Carlena Sneesby	25 Nelson Street Petone	Plant improvements required under existing resource consent have not significantly reduced emissions and there are no ambient air limits. Concerned about wellbeing of residents and workers near Exide. Would like to see standards for ambient air in line with WHO guidelines; real-time continuous monitoring; provide reports on emission levels twice a year to all those living within a 200m radius of the plant.	Support	N

28	Petone Planning Action Group	Roger Thackery 27 Bay Street Petone	Plant improvements required under existing resource consent have not significantly reduced emissions and there are no ambient air limits only limits for stack emissions. Would like to see standards for ambient air in line with international standards; continuous monitoring; provide reports on emission levels to all properties within 200m radius of the plant.	Support	Y
29	Laura Skilton	27 Bay Street Petone	Plant improvements required under existing resource consent have not reduced emissions which are significantly higher than the 250 ug/m2/d guideline. Would like to see emissions at the boundary not exceed WHO guidelines; continuous 24 hr/d monitoring; monitoring results to be available on internet; annual review of consent conditions.	Support	Y
30	Ronda Bungay	P O Box 33241 Petone	Deeply concerned about lead emissions being 30 times over the WHO guidelines. Children play close by and there are food premises. There should be no fugitive emissions at all and the factory must be completely sealed. Independent audit to monitor safety levels within the factory and the surrounding environment.	Support	Y
31	John & Cheri Pinner	P O Box 133 Greytown Wairarapa 5953	Seeking suspension of Exide's operation until emissions are within WHO guidelines and effective monitoring system in place. Seeking review of appropriateness of pollution levels; imposition of more thorough monitoring programme; site audit to determine sources of fugitive emissions and improvements required; review of Exide's proposal to ensure they can meet their goal of zero emissions; coverage of the entire site may be necessary.	Support	N
32	Pravin Ranchhod	162 Cuba Street Petone	A review is not needed. Exide pay taxes and contribute to the economy through wages. Exide have been operating at the site for 40 years. Residents who object to Exide should move away.	Oppose	N
33	Rose Tala	1190 Taita Drive Lower Hutt	Concerned for safety and wellbeing of family. Seeks imposition of standards for ambient air that are in line with WHO guidelines. Wants real-time or continuous monitoring and a report on emissions levels sent to all those who	Support	N

			live within 200 m radius of Exide.		
34	Deborah Schutz-Tala & Michael Tala	37 East Street Petone	Concerned about health and well being of family, friends and neighbours. Angry about exposure to pollution and lack of communication. Would like Exide to relocate to an industrial site and be totally enclosed.	Support	Y
35	Ruth Young	10 Byron Street Petone	Concerned about friends who live close to Exide as well as schools, kindergartens, bakehouse and workers. Should be no lead emissions until plant is relocated in an isolated area away from people. The whole area must be monitored inside and out and residents kept informed.	Support	Y
36	Barbara & Richard Whiteside	P O Box 30026 Lower Hutt	Fugitive emissions from plant have prevented property next door being used for commercial purposes. Concerned about own health and safety and that of children in the neighbourhood. Would like to see real-time constant monitoring of ambient air available to neighbouring properties, posted in the library and on the internet. A full audit of the site is required before decisions made about plant improvements required to prevent fugitive emissions. Plant needs to be fully enclosed in a purpose-built building.	Support	Y
37	Sene & Pat Tala	3 Glenbrook Grove Naenae Lower Hutt	Concern for health and well being of family members living near Exide. Children more at risk from effects of lead. Would like to see the plant moved away from the residential area. Exide should cease operating until it can prove that there are no more fugitive lead emissions. Site should be fully enclosed with appropriate ventilation system. Standards for emissions in line with WHO guidelines. Real-time or continuous monitoring with results provided to those that live within a 200m radius.	Support	N
38	Kuini Reedy	38 Riverlea Ave Pakuranga Manukau AUCKLAND	A former resident who lived near Exide has had long term concerns about the impact of the plant on health and lifestyle. The pollutant lead emissions adversely affect whanau, hapu and iwi of different tribes as well as visitors. The environmental impact destroys waterways, flora and fauna. There is an impact on property values, work opportunities, local economy and food services. Exide should cease operating until it can prove that there are no	Support	N

			more fugitive lead emissions. Site should be fully enclosed with appropriate ventilation system. Standards for emissions in line with WHO guidelines. Real-time or continuous monitoring with results provided to those that live within a 200m radius.		
39	Jim & Api Tala	35 Biddle Cres Taita Lower Hutt	Concerned about the risk to children's growth and learning potential from lead emissions. The plant should have been closed down a long time ago and should not be operating so close to a residential area.	Support	N
40	Petone Maori Womens Welfare League	Hine Amoamo 88 William Street Petone	There are a number of Maori whanau living near Exide who are affected by the lead emissions. Wants Exide to cease operations until it can prove that there are no more fugitive emissions. Seeks imposition of a condition requiring the plant be fully enclosed and appropriately ventilated. Set standards for ambient air in line with WHO guidelines. Ensure real time or continuous monitoring with results provided to people within a 200m radius.	Support	N
41	Tanja Schutz	35 East Street Petone	Primary concern for children, residents and workers health and well being in the area. Improved public consultation and liaison to overcome difficulty for participation in review process. Lack of communication from Exide and Greater Wellington about health concerns. Seeks imposition of a condition requiring the plant be fully enclosed and appropriately ventilated. Set standards for ambient air in line with WHO guidelines. Ensure real time or continuous monitoring with results provided to people within a 200m radius.	Support	Y
42	Roland Schutz	35 East Street Petone	Concerned about children's health and well being, and that of families and others living in the area. Exide can minimise emissions by paying for the right technology to be installed. Seeking a condition (for further operation of the plant) requiring the plant to be fully enclosed with appropriate ventilation. Continuous monitoring for emissions all around the plant with	Support	Y

			results displayed at the library and internet. Plant should be closed down and only reopened if monitoring shows that proposed improvements have been effective.		
43	Judith Exley	20 High Street Petone	Extremely concerned about effect of lead pollution on nearby recreation facilities. Horrified about food outlets nearby and many families with children living and playing in the area. Seeks closure of children's playground with warning sign put up. Close factory immediately. Neutralise contaminants in air and soil. Provide continual monitoring of the area and make the information publicly available.	Support	Y
44	David & Jan Kerr	425 Jackson Street Petone	Improvements needed now to ensure contaminants not leaked into the surrounding area. Concerned about smell from the plant and lead poisoning. Worried about effects on children. Would like to see the plant closed down and moved to an area where it will not affect quality of life.	Support	Not stated
45	Frances Cherry	33 East Street Petone	Concerned about own health and health of neighbours and wider community. Wishes Exide to be relocated to an isolated place where there is no risk to other people or the environment. If plant not relocated then a complete site audit should be carried out and the site enclosed so that there are no fugitive emissions. Seeks real time ambient air and stack monitoring so there is instant feedback. Monitors should be placed outside Exide and on fences of houses and by the river and stream. Soil in residents' gardens be tested free of charge. The children's play area should be closed immediately and a warning sign put up.	Support	Y
46	Stephen Williams	5 Beaumont Ave Alicetown Lower Hutt	Concerned that levels of emissions exceed WHO guidelines. Factory needs to be improved to meet high standards for an urban area as for any other country in the OECD. Would like to see real-time monitoring of emissions (stack and ambient) with the plant upgraded so there are zero emissions of lead through enclosure of the site. Possibly relocate the plant to a non-residential site. Close down children's play area and check this area and	Support	Y

			residents' gardens for levels of lead in soil.		
47	Rien Faber & Jayn Verkerk	1A Kensington Ave Petone	Concerned about effects of lead emissions on people, animals and plants in and around Petone. Feel that Exide should either be closed or moved to another site. Stop contamination of neighbourhood and monitor plant to the strictest standards and with latest technologies.	Support	N
48	Brent Cherry	46 Penrose Street Woburn Lower Hutt	Exide should act immediately to make improvements to eliminate fugitive lead emissions. Monitors should be placed in people's houses, shops, factories etc so that if emissions exceeding WHO guidelines are detected, Exide should immediate close down or fix the problem. These monitors should be alarmed. Seeks an independent audit of the plant and to require Exide to implement all improvements before it resumes operations. The local community should make the decisions regarding monitoring. Due to extremely windy location of Exide, the risk of lead contamination extends up the valley towards Lower Hutt. Exide should close down until it can prove it is not putting children's health at risk. The local stream and stormwater system also needs monitoring. Investigation of lead contamination of soil in local properties is needed.	Support	Y
49	Exide Pollution Action Group	C/- Frances Cherry 33 East Street Petone	Joint submission from group of residents concerned about health and safety, particularly of children and neighbouring properties and businesses in the area. Ideally the plant should be closed but in the meantime we want a full site audit; the plant to be sealed in a modern building; real-time monitoring (ambient and stack); results available to residents; monitoring of some residential houses; soil testing; monitoring of fugitive emissions to meet the highest national and international standards.	Support	Y
50	Andrew Campbell	302A Adelaide Road Newtown Wellington	Plant improvements needed to stop all lead emissions from plant. Consistent, regular monitoring of emissions with penalties (egg fines, removal of resource consent) if there are still lead emissions. Ultimately the plant should be relocated into an industrial area, but still meet health and safety	Support	Not stated

			standards and have no lead emissions.		
51	Gregory Anderson	18 Ropata Cres Lower Hutt	Seeks to ensure that the operation of the plant meet world standards or the plant be moved to an area of Wellington that people won't be affected.	Support	N
52	Catherine Hammond	15 Jessie Street Petone	Concerned about health of community, children and pregnant women and air and soil quality. Seeking immediate closure of the plant until a complete upgrade of the plant and pollutant monitoring according to best standards is proven to the satisfaction of concerned residents. The plant should be enclosed with nil emissions. Seeking immediate free treatment for those with lead in blood, soil and air. Seeking closure of nearby beach, park, food shops and warning signs put up.	Support	Not stated
53	Stephen Spencer	25 Waione Street Petone	Concerned about health risks to family and community. Wishes the Exide factory to be closed until improvements are made so that it can consistently demonstrate that there are zero fugitive lead emissions. Seeks real-time monitoring of emissions (stack and ambient air); 3-monthly reporting of results; standard of zero emissions to be enforced; ongoing monitoring programme to ensure zero standard is adhered to.	Support	N
54	Jan & Val Windleburn	269 Kimberley Road RD1 Levin	Exide should be given a short time to relocate to a purpose built building with the entire operation under one roof where they would be responsible for measuring their own environment for safety. Existing property should be completely decontaminated.	Support	Y
55	Debbie & Rick Anderson	9 Waione Street Petone	Wishes to achieve elimination of lead emissions from Exide plant and ensure that Exide always demonstrates a commitment to its community, environment and consent conditions. There is no acceptable lead concentration standard. Site specific controls for Exide which are reviewed annually are needed. Amend ambient air monitoring to 24/7 frequency and re-siting of monitors. Results to be publicly available. Plant to be closed while a full site audit is carried out. Favour long term solution such as enclosing facility. Because people's health is at risk, compliance should be	Support	Y

			achieved immediately not in 18 months time. Concerned about negative effects on property values due to Exide's operation.		
56	Beverley & Gary Shand	3 Compass Way Whitby	For a safe environment, Exide's factory needs to be closed. Our clean, green image is being tarnished by lead.	Support	N
57	Alexander Kent	161 Richmond Street Petone	Exide's proposed upgrades are insufficient. There may be other uncontrolled discharges from the site that GW is unaware of. Seeks enclosure of plant so that there are no dust particles discharged, either airborne or on cars, or in liquid discharged from the site. Real-time monitoring of plant be implemented and available on the internet and library notice board.	Support	N
58	Dominic Hammond	15 Jessie Street Petone	Concerned about potential harm to child. Risks of lead emissions are well known and Exide does not have the right to continue polluting. Wishes GW to immediately rescind consent until a review of work necessary to reduce lead emissions to nil is carried out. Factory should be closed until it is fully enclosed.	Support	Not stated
59	Edwina Hughes	P O Box 39-059 Lower Hutt	Concerned about risks to human health. Seeking withdrawal of discharge to air consent pending full site audit. Wants consent to be renewed only after Exide submits plans to reduce fugitive emissions to a level below safest international standards. Plans to include short time line for enclosing building or whatever necessary to stop fugitive emissions. Seeks 24/7 monitoring of site, fugitive emissions, stack and lead in waste water. Seeks review of discharge to waste water.	Support	Y
60	Hutt Union & Community Health Service	Dr Jeannie Knapp P O Box 35 041 Naenae Lower Hutt	Greatly concerned about lead emissions from the plant, especially how these may affect young children in the area.	Support	Not stated
61	Toops Fresh Ltd	Paul Berkahn	Oppose Exide’s proposal to monitor using high volume samplers and not dust deposition. Deposited dust must be measured, monitored and reported	Support	N

		P O Box 30989 Lower Hutt	to GWRC. Emission standards to be adopted. All emissions to be monitored to ensure health and safety of residents and workers who are in the potentially affected areas. Consider compounding effects of emissions.		
62	Keith Lorimer	63-65 Waione Street Petone Lower Hutt	Concerned about long term effect on own health and that of employees. This type of operation should be located away from area and if possible achieve nil emissions.	Support	N
63	Universal Trucks & Equipment	Kerry Partridge 42-44 Waione Street Petone Lower Hutt	Lead impregnated fumes, dust and smoke must be reduced to acceptable health levels or stopped altogether plus the elimination of acid dust. Business often receives fumes from exhaust vent and cars have been damaged by acid rust chips before they chimney collapsed in 2004.	Support	N
64	Lorraine Williams	22 Kensington Ave Petone Lower Hutt	Wants the plant closed down because of contamination to residents. Wishes the plant and concrete to be decontaminated for health and safety reasons.	Support	N
65	Vera Ellen	7 Riddlers Crescent Petone Lower Hutt	Concerned about alarm expressed by residents near the plant; the proximity of a children's play area; and Exide's apparent reluctance to comply with consent conditions. Wants GW to provide analysis of the discharges to air at irregular intervals over a set period with notification of results to residents. Seeks monitoring of effectiveness of process used to produce the emissions; analysis of soil around the plant with results to residents; and involving residents in recording of frequency of emissions to air, changes in weather conditions etc.	Support	Y
66	Stephen Wake	39 East Street Petone Lower Hutt	Concerned about air quality and effect of family health and disregard for effects on environment through skip bins of battery waste left open on the street. Wants fugitive emissions to be controlled and monitored in real time. Seeks safest national and international standards to be met for monitoring all emissions from Exide. There should be no recordable fugitive emissions of lead dust from Exide's property.	Support	Y

67	Julie Wake	39 East Street Petone Lower Hutt	Distressed about level of emissions exceeded acceptable limits for lead. Wishes to know what penalty Exide has received. Would like penalty imposed on Exide if none has been imposed. Concerned about health effects and long term effects. Would like to see Exide relocated to an isolated place where there is no risk to people or the environment; penalties for exceeding resource consent standards; future monitoring to highest standards and in real time. If not relocated then plant improvements should be immediate and should involve enclosing plant so that there are no recordable fugitive emissions. Seeking information on measured lead levels in lay terms and assurance from Exide of emergency contingency plant should a situation arise.	Support	Y
68	Claire Miles	1/2 Kirkcaldy Street Petone Lower Hutt	Concerned about proximity to plant; affect on family health; leaching of lead into soil; and noise levels from plant. Seeks the plant to be closed until the discharge has reached the required standard.	Support	Y
69	Rockgas Limited	Kevin Daly P O Box 38721 Petone Lower Hutt	Lead levels are unacceptable and could pose a health threat to people located near the Exide site. Exide's proposed conditions do not include recommendations from GW's independent review report/ Seeks reduction of lead emissions in line with NZ guidelines; monitoring of PM10 rather than suspended particulate; improve sampling location for monitoring furnace stack emissions; reporting of exceedences for stack emissions to GW with an evaluation of health risks; at least weekly ambient air monitoring.	Support	Y
70	Kevin Clark	56 Steyne Ave Plimmerton	Owns property close to Exide. Concerned about environment and ongoing vibration from plant which adversely affects tenants.	Support	N
71	BBR Contech	Jeff Marchant P O Box 30 853 Lower Hutt	Concerned about risk of harm to personnel from lead emissions. Concerned about near collapse of chimney due to corrosion; occasional dirty-looking and foul-smelling discharges at night; high levels of lead found in dust inside workshop; and frequent hosing down of Waione St footpath by Exide personnel. Seeks total enclosure of plant to reduce opportunity for accidental discharge; real-time independent monitoring with results on internet;	Support	Y

			thorough audit of plant processes to identify causes of emissions and provide basis for corrective action; and maximum 3 month average emission limit not to exceed 0.2 ug/m3.		
72	Mary Byrne	12 Aurora Street Petone Lower Hutt	Surprised that RPH have not instigated blood testing of all residents surrounding Exide in order to determine how serious the situation is. Definition of lead poisoning should include blood lead levels over and above general background population due to effects of lead now known to occur at low levels. Seeks GW to ask RPH to collect information on blood lead levels in order to determine whether or not people are being adversely affected by lead emissions from Exide.	Support	Not stated

Appendix 5 to Appendix 31

The evidence and submissions tabled during the hearing

Due to the large volume of information contained in these appendices, they are available from the Greater Wellington offices.