

Landfills Aftercare Management

Barton Bauzon
Auckland Council

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***“Resilience in Legacy Landfills Aftercare
Management (and it’s not just about
Climate Change!)”***

**Portfolio-wide
Climate Change Risk
Assessment (~200
sites)**



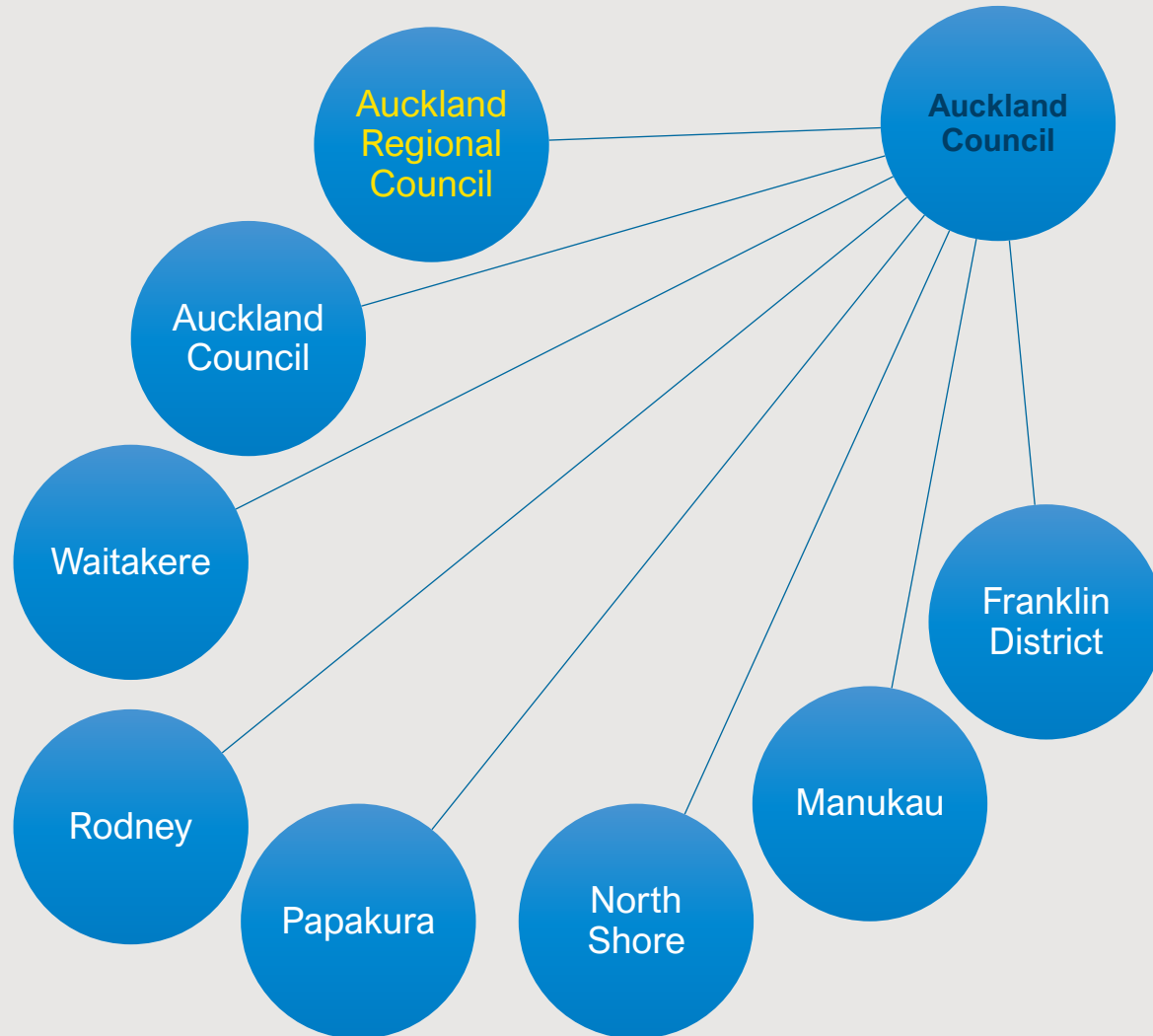
**4 site-specific
assessments,
mitigation and
adaptation planning**



**Shortlisting the next
set of sites**

Pike’s Point





- T+T, 1993 (Auckland City)
- Woodward-Clyde, 1994 (Rodney)
- Worley, 1995 (Waitakere)
- MCC, 1997 (Manukau)
- URS, 2003 (North Shore)



Legacy aftercare management



The good

- Key sites identified and consented
- Service delivery contracts in place
- Aftercare management fixed into the council psyche

Where things could be better

- Consistency in approach
- Economies of scale
- Asset management



What plan?

Management Plan

3. That the Consent Holder shall complete and comply with a "Management Plan" approved in writing by the Director, Environmental Management Department, Auckland Regional Council.

The plan shall describe in detail the practices for ground water level and chemistry monitoring, shall contain guidelines for trigger and intervention levels to indicate whether contamination is occurring, the procedure for reviewing and revising trigger

Monitoring and Contingency Plan

3. That the Consent Holder shall either prepare or update and comply with the Monitoring and Contingency Plan (the Plan), to the satisfaction of the Group Manager, Environmental Management, Auckland Regional Council, within six (6) months of the granting of this permit or within three (3) months of any changes being made to the conditions of this permit. The Plan shall describe in detail;
 - i. practices for ground water and leachate chemistry monitoring,
 - ii shall contain guidelines for the determination of whether

SITE MANAGEMENT PLAN

15. That the Consent Holder shall prepare a Site Management Plan and submit it to the ARC for the written approval from the Manager within three (3) months from the commencement of the consent. This plan shall be in accordance with the conditions of this permit and should include, but not be limited to the following:

- i. A plan of the site showing the location and extent of existing areas of stained marine sediment adjacent to the base of the landfill bund wall and the locations

15. The Consent Holder shall submit a Contingency Plan to the approval of the Manager, ARC, no later than three (3) months after the date of commencement of this consent. The plan shall include, but not be limited to:

- i. Trigger levels for condition 13(ii), (iv);
- ii. Trigger levels for condition 13(vi), groundwater monitoring. The trigger levels shall be based on the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)* guidelines for protection of aquatic ecosystems

3. That the Grantee shall complete and comply with a Monitoring and Contingency Plan (prepared as part of the Landfill Management Plan required under Special Condition 1) to the satisfaction of the Manager, Environmental Management Department, Auckland Regional Council.

13. The Consent Holder shall prepare and submit a Landfill Monitoring Plan to the approval of the Manager, ARC within three (3) months of the granting of this consent detailing the following:

- i. The regular maintenance and inspection of the culverts beneath the landfill, as well as the inlets and outlets;
- ii. The monitoring method and frequency of monitoring for the inlet and outlet

!! Consents with no plans !!



Conditions!

Monitoring Schedule

15. That the Consent Holder shall, in accordance with the following schedule, undertake monitoring in regard to the scheduled conditions at the indicated frequencies or by the indicated date.

Special Condition	Monitoring Frequency	
	<i>Until 31 December 2004</i>	<i>After 31 December 2004 (unless otherwise by review)</i>
10 and 11	Twice annually being between December and February and between May and July	At five (5) yearly intervals and being between November and February

MONITORING CONDITIONS:

10. The Consent Holder shall undertake groundwater quality monitoring of the landfill monitoring wells (SKM112 to SKM 117) at six (6) monthly intervals, at winter high groundwater levels and summer low groundwater levels, commencing in September 2004.
11. The Consent Holder shall measure and analyse the groundwater samples collected from the wells specified in Condition 10 as a minimum for the following:
- Depth to groundwater;
 - Field measurements of: pH, temperature, electrical conductivity, dissolved oxygen and oxidation reduction potential;
 - IANZ certified analytical laboratory analyses for total nitrogen, total phosphorus and the following dissolved metals: boron, iron, manganese,

11. The Consent Holder shall take groundwater samples from GWW1 and GWW2 in annually in June-August and February 2008. Metal analyses for the first 3 rounds of sampling shall be for total *and* dissolved metals, and then dissolved only thereafter. All water samples shall be obtained by suitably qualified personnel experienced in water quality monitoring.

The samples will be analysed for the following parameters, recording analysis results in the units shown:

Parameter	Units
Temperature	Degrees C
pH	pH units
Electrical conductivity	mS/m
Alkalinity	mg/L CaCO ₃
Total hardness	mg/L CaCO ₃
Nitrate	mg/L
Sulphate	mg/L
Total Ammoniacal Nitrogen	mg/L
Chloride	mg/L
Arsenic	mg/L
Cadmium	mg/L
Chromium	mg/L
Copper	mg/L
Nickel	mg/L
Lead	mg/L



Consent renewals as an opportunity

- Manage each site the same way
- Simplify and be more efficient
- Across all aspect of the operations

**~ 200 sites
(40 consented)**

**17 leachate systems
(9 pumped)
2 active gas systems**



What do new consents look like?

5. The consent holder must undertake site inspections in accordance with the OSMP referenced in Condition (1) of this consent.
6. All seeps which are either new or have not been assessed must be addressed in accordance with the procedures set out in the OSMP referenced in Condition (1) of this consent.
7. Sampling and analysis of surface water and/or groundwater, and a visual inspection, must be carried out in accordance with the OSMP referenced in Condition (1) of this consent.
8. The surface water and/or groundwater samples collected as detailed in Condition (7) of this consent must be analysed for the parameters outlined in the OSMP, referenced in Condition (1) of this consent, and the analytical results compared against the site-specific trigger levels set out in the OSMP.

- Fewer and similar conditions
- Ongoing Site Management Plan (OSMP)
- Ability to review and update the OSMP



- One portfolio : one language: one way
- Flexibility into the future
- ~~s127 consent variations~~
- Efficiency and cost reductions



Ongoing Site Management Plan

Rustybrook Road Closed Landfill

Ongoing Site Management
Plan

BE THE HOW.
WHAKAMAUA KIA TINA!



Table of Contents

Foreword.....

1 Site details.....

2 Roles and responsibilities.....

3 Health and safety

4 Monitoring requirements.....

5 Maintenance programme

6 References.....

Appendices



OSMP Standard Appendices

Plans & site info

- Site location
- Monitoring locations
- Well logs and construction

Monitoring Specs

- Auckland Council supplementary specs
- Data collection and reporting requirements
- Contingency actions

Permits

- Resource consents
- Tradewaste Agreements

Other Docs

- Pumpstation operations manual
- Tradewaste management plan
- Gas system operations manual
- Telemetry settings



Next

- OSMPs for all sites
- Update operation and maintenance manuals for gas and leachate systems
- Review procedures and specifications
- Update OSMP template

A9: Ongoing site management plan table of contents

Content	Required	Required if relied on ²⁷
1. Introduction <ul style="list-style-type: none"> description of the client, site identification details, report purpose, regulatory context (including any relevant resource consents which exist for the site). 	<input type="checkbox"/>	
2. Responsibilities and document control information	<input type="checkbox"/>	
3. Summary of contaminant conditions <ul style="list-style-type: none"> description of the contaminants of concern, location and extent and potential risks (as described in the CSM). 	<input type="checkbox"/>	
4. Management structure and procedures <ul style="list-style-type: none"> summary of management strategy description of site management structure(s) summary of site control procedures health and safety protection measures environmental management procedures. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
5. Monitoring requirements <ul style="list-style-type: none"> summary of proposed monitoring methodology and/or plan contingency requirements reporting requirements schedule to update and/or review the monitoring requirements. 		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6. Report limitations	<input type="checkbox"/>	

Supporting information	Required	Required if relied on ²⁸
Figures, plans, drawings	<input type="checkbox"/>	
Site photographs		<input type="checkbox"/>
Detailed monitoring or inspection requirements		<input type="checkbox"/>
Previous reports		<input type="checkbox"/>
Consents or permits		<input type="checkbox"/>
Statement(s) of qualification as an SQEP		<input type="checkbox"/>



Pātai?

Muriwai Beach

