



DECONTAMINATION

WASTE WATER TREATMENT WORK INSTRUCTION & CHECKLIST



Ministry for Primary Industries
Manatū Ahu Matua



Contents

1. Purpose	3
2. Actions	3
2.1 Materials and personnel	4
2.2 Health and safety actions	4
2.3 Decontamination procedures	5
3. Appendices	6
Appendix A: Key information	6
Appendix B: Examples of specific wastewater treatment facilities	7
Appendix C: Step-by-step instructions	8
Appendix D: Audit checklist	10
Appendix E: Example SOP: Wastewater procedure (farmer/operator use only)	13
Appendix F: Fictional illustrative scenario (farmer/operator use only)	15

Disclaimer

This publication is for the purpose of supporting the New Zealand poultry industry in responding to disease outbreaks, including Highly Pathogenic Avian Influenza (HPAI), Newcastle Disease (ND), Infectious Bursal Disease (IBD), and Salmonella Enteritidis (SE). While every effort has been made to ensure the accuracy of the information presented, the Poultry Industry Association of New Zealand (PIANZ) and the Egg Producers Federation (EPF), and MPI accept no responsibility or liability for errors, omission, or opinion contained herein, nor for any consequences arising from decisions made based on this information.

1. Purpose

This work instruction and checklist outline the processes for treating wastewater during a disease outbreak, with the goal of safely eliminating disease risk from affected areas. This helps prevent persistence or spread and supports the safe resumption of operations.

Why this matters:

Effective wastewater treatment is critical to stopping the spread of disease and protecting your property, staff, and neighbouring operations.

🔗 Please read this document in conjunction with the **Standard, Decontamination Guidelines** and the **Disease Response Biosecurity Plan Guidebook** to ensure all procedures are followed correctly. Where a site already has a Standard Operating Procedure (SOP) for wastewater treatment which meets the requirements in the Standard, use the SOP.

In this document, “you” can refer to either an MPI person or a farmer/operator, depending on who is leading the response activities.

2. Actions

Before you start - know the workload challenge

Start by identifying every source of wastewater on the farm. This includes cleaning areas, processing zones, and bird housing. Keep the site map up to date and clearly mark all wastewater points.

🔗 For farmers/operators, you can use **Section B3** of the Disease Response Biosecurity Plan Guidebook and Template, or the online Disease Response Biosecurity Plan Builder to help record this information, as well as **Section A.2.1.** of the Farm Production Area Map to check and clearly define property boundaries, drainage systems and containment areas.

Knowing where wastewater is generated helps you:

- Choose the right treatment method for each source;
- Line up the correct materials, equipment and trained personnel;
- Build a health and safety plan that meets biosecurity requirements.

🔗 **See Appendix A** for the key information for the wastewater treatment plan.

🔗 **See Appendix B** for wastewater treatment examples, to help plan your detailed approach.

🔗 **See Appendix C** for step-by-step instructions on how to carry out wastewater treatment.

2.1 Materials and personnel

These are the core elements that support good practice. You may need to scale up depending on the size of the job.

Category	Item
 Personal Protective Equipment (PPE)	• Personal Protective Equipment as outlined in the Health New Zealand guidance (incl. hearing protection). • Antiseptic wipes. • Disinfectant and spray bottle. • First aid kit. • Paper towels.
 Equipment	• Application tools: sprayers, measuring equipment, mixing containers. • Monitoring tools: test kits for disinfectant efficacy, pH meters. • Record keeping: logbooks, digital tracking system.
 Transport & containment gear	• Containment: barriers, covers, fencing to prevent wildlife access. • Spill response: spill kits, absorbent materials, disposal bags. • Solid management: slurry tanks, settling containers, sludge disposal bags. • Drainage control: pumps, hoses, containment mats, redirect piping. • Disinfectant: MPI-approved disinfectants (e.g. chlorine, peracetic acid), pH adjustment tools.

2.2 Health and safety Actions

The on-site, **written health and safety plan** for all wastewater treatment activities at the infected site needs to cover risks associated with wastewater treatment during a disease incursion. If you're working with **contractors**, make sure you're familiar with and coordinate with their health and safety plans too. This ensures everyone is working safely, understands the risks, and follows the right procedures to prevent disease spread.

The plan should include:

- **Safe use of equipment and chemicals** (e.g., pumps, applicators, disinfectants)
 - Use chemicals strictly according to manufacturers' recommendations. Do not mix chemicals as some mixtures will cause toxic gases such as chlorine to be produced;
- **Entry and exit protocols** to prevent cross-contamination, including disinfection steps before leaving or entering different zones and when moving on/off the property;
- **Risk management for handling infected wastewater and solids;**
- **Movement controls** for vehicles, equipment, and personnel through high-risk zones (e.g., near sheds, water sources, or red line boundaries);
- **PPE requirements** for all staff involved in wastewater handling.

Follow these rules:

- ☒ Conduct a site-specific health and safety briefing before work begins.
- ☒ Keep accessways clear and safe for vehicles and machinery.
- ☒ Always move from dirty to clean zones, never the reverse.
- ☒ Ensure adequate lighting for all work areas, including night operations.
- ☒ Wear correct PPE at all times (gloves, boots, masks, coveralls).
- ☒ Follow all biosecurity procedures, including recording and reporting new risks.
- ☒ Handle wastewater and solids carefully to prevent disease spread.

 Refer to: [Avian influenza health and safety guidance for workplaces – Health New Zealand | Te Whatu Ora](#)

2.3 Decontamination procedures

Where there is one, use the site's SOP for wastewater management and/or be familiar with the contractor's SOP. Before starting, check the SOP against the Decontamination Guideline and Standard to ensure it supports good practice and meets requirements. If it doesn't, update it or arrange an alternative method. If no SOP exists, create one using the Depopulation Guideline and Standard.

Auditors will use the **Wastewater Treatment Audit Checklist** to confirm all required steps have been covered.

 **See Appendix D** for the audit checklist that helps to assess if all the required steps have been covered.

For farmers/operators:

-  **See Appendices C and E** for help with writing your wastewater treatment SOP.
-  **See Appendix F** for case studies that show what to expect in real-world scenarios.

3. Appendices

Appendix A: Key information

Why wastewater management matters

Wastewater is a biosecurity risk: It can carry high loads of pathogens like H5N1, especially from faeces, feathers, and carcass fluids.

Disease organisms survive in water Avian influenza viruses can survive in untreated water for up to 30 days at 4°C, making cold, stagnant water a major concern.

Cross-contamination risk: Improper drainage can spread disease to nearby farms via stormwater runoff, shared equipment, or wildlife contact.

Interesting facts

Feather fallout: Feathers in wastewater can trap pathogens and act as long-term reservoirs. They should be filtered out early in the treatment process.

Biofilms in pipes: Wastewater pipes can develop biofilms that protect pathogens and bacteria from disinfectants. Regular pipe flushing is essential.

Wild bird attraction: Open wastewater ponds attract wild birds, increasing the risk of disease spread. Covered or enclosed systems are strongly recommended.

pH matters: For example, avian influenza viruses are sensitive to pH. Maintaining wastewater at pH < 5 or > 9 can help inactivate the pathogen. For other pathogens check which pH is effective.

Disinfectant decay: Chlorine and other disinfectants degrade quickly in organic-rich wastewater. Pre-filtration improves effectiveness.

Sludge is high risk: Sludge from poultry wastewater contains concentrated pathogens. It must be treated as hazardous waste, and not land-applied without proper treatment.

Practical tips

Use color-coded zones: Mark wastewater zones clearly to prevent accidental cross-traffic.

Monitor turbidity: High turbidity reduces disinfectant effectiveness. Use settling tanks or flocculants to improve clarity.

Automate where possible: Automated pH and disinfectant dosing systems reduce human error and improve consistency.

Keep records for audits: MPI and local councils may require detailed logs during outbreaks so track volumes, treatment steps, and disposal actions.

Appendix B: Examples of specific wastewater treatment facilities



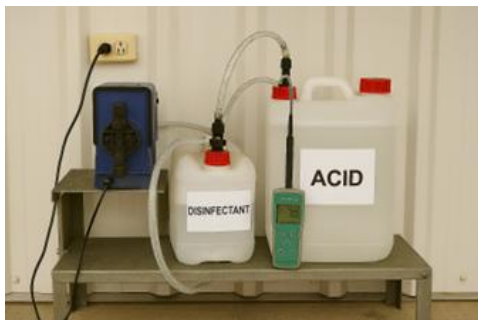
Containment and wildlife exclusion

- **What to do:** install physical barriers and covers over wastewater ponds or tanks.
- **Why it matters:** prevents wild birds, rodents, and other animals from accessing contaminated water.
- *Photo example: a lined containment pond with mesh netting and perimeter fencing.*



Slurry and solid separation

- **What to do:** use slurring to settle solids from wastewater. Collect sludge for safe disposal.
- **Why it matters:** reduces organic load and improves disinfectant effectiveness.
- *Photo example: a concrete settling tank with visible layers of solids and liquid separation.*



Chemical disinfection

- **What to do:** treat liquid with MPI-approved disinfectants (chlorine or peracetic acid). Adjust pH for pathogen inactivation.
- **Why it matters:** neutralizes pathogens before water is released or reused.
- *Photo example: a dosing system with chemical containers and pH monitoring equipment.*



Drainage control

- **What to do:** redirect wastewater away from stormwater drains and natural water bodies using pumps and containment mats.
- **Why it matters:** prevents contamination of waterways and reduces disease spread.
- *Photo example: a pump system with hoses leading to a secure containment area.*



Spill response

- **What to do:** keep spill kits ready and train staff in their use.
- **Why it matters:** quick response prevents uncontrolled contamination.
- *Photo example: a spill kit station with absorbent pads, PPE, and disposal bags.*

Appendix C: Step-by-step instructions

☒ Pre-Start Checklist

Action	Complete (Yes / No)
Electrical equipment made safe (if applicable)	
Bulk soil and organic matter removed from all surfaces	
Sensitive wastewater monitoring equipment cleaned (MPI-approved)	
Sensitive equipment protected from splashes (e.g., plastic covers)	
Vehicle wash/spray station set up at wastewater zone entry/exit	
Cleaning team briefed and PPE issued	
Waste disposal plan confirmed	
Water source and quality for cleaning checked	
Detergents and disinfectants on hand (MPI-approved)	

Plan your approach

- Map all wastewater sources: sheds, processing areas, bird housing.
- Update your site map and mark containment zones.
- Identify drainage risks: stormwater drains, natural waterways.

1. Containment

- Secure wastewater areas with barriers and covers.
- Prevent access by wild birds, rodents, and other animals.

2. Solid management

- Use slurring to separate solids and liquids.
- Treat liquid with approved disinfectants and adjust pH.
- Dispose of sludge as hazardous waste.

3. Disinfection

- Use MPI-approved disinfectants (e.g., chlorine, peracetic acid).
- Record chemical use and test results for audit purposes.
- Ensure correct contact time during application.

4. Drainage control

- Inspect and redirect outlets to prevent contamination of natural water bodies.
- Maintain containment mats and pumps.

5. Safety & PPE

- Gloves, boots, masks, coveralls.
- Train staff on the correct use of PPE and maintain a checklist.

6. Equipment hygiene

- Clean and disinfect all wastewater handling tools.
- Log cleaning activities and review regularly.

7. Spill response

- Keep spill kits ready and train staff in their use.
- Check kits frequently.

8. Record keeping

- Track wastewater volumes, treatment methods, and disposal actions.
- Update logs daily and store securely.

Appendix D: Audit checklist

GENERAL

Site name:	
Site address:	
Site contact name:	
Movement Control Permit/s number/s (as required) (for off-site):	

DOCUMENTATION

Document	Comment	Acceptable Y/N
Procedures (SOP)		
Contract related Statement of Work (where appropriate)		
Site health and safety procedures		
Movement control permits, if required		

RECORDS

Records	Comment	Acceptable Y/N
List of locations that need wastewater to be contained (ideally recorded on a site map)		
Monitoring the wastewater treatment		
Monitoring disposal of sludge		
Maintain logs of wastewater volumes, treatment, and disposal		
Ensure daily logbook is updated		
Training records complete		

REALITY (Confirm that what is observed is consistent with the procedures and records viewed)

Source Identification

Items checklist	Comment	Date and time
Confirm all wastewater sources (e.g. cleaning, processing, bird housing)		
Check site map and conduct inspection		

Containment measures

Items checklist	Comment	Date and time
Ensure wastewater is contained and not exposed to wild birds or rodents after collection		
Conduct visual inspection of containment areas		

Treatment protocols

Items checklist	Comment	Date and time
Check wastewater has been separated from sludge and/ sludge has been disposed of		
Check the use of approved disinfectants (e.g. chlorine, peracetic acid) or pH adjusted		
Maintain chemical logs and test results		

Disinfection contact time

Items checklist	Comment	Date and time
Ensure disinfectants or pH adjustment are applied with correct contact time		
Record and monitor contact time		

Discharge control

Items checklist	Comment	Date and time
Confirm wastewater is not discharged into natural water bodies		
Conduct drainage system audit		

PPE

Items checklist	Comment	Date and time
Check that staff wear gloves, boots, masks, and coveralls		
Check PPE checklist and training records		

Equipment

Items checklist	Comment	Date and time
Clean and disinfect all wastewater-related		

Items checklist	Comment	Date and time
equipment after use		
Maintain cleaning logs		

Spill response plan

Items checklist	Comment	Date and time
Ensure spill kits are available		
Check staff training in containment procedures		

Audit outcome

Items checklist	Comment	Date and time
Internal audits		
External audit reports		

Appendix E: Example SOP: Wastewater procedure (farmer/operator use only)

Purpose

To ensure the safe handling, containment, and controlled treatment or disposal of potentially contaminated wastewater during a biosecurity response, minimising the risk of pathogen spread and maintaining regulatory compliance.

Scope

This SOP applies to all wastewater generated, stored, or managed on-site during a biosecurity response, including wastewater from sheds, equipment wash-down, stormwater potentially exposed to contamination, and any liquid waste requiring controlled handling.

Responsibilities

Site supervisor:

- Identify and designate wastewater containment and treatment zones.
- Ensure all infrastructure (e.g., bunding, tanks, diversion systems) and signage are installed and maintained.
- Approve wastewater disposal or treatment methods in line with biosecurity authority guidance.

Wastewater monitoring team:

- Conduct routine inspections of containment systems.
- Carry out sampling, testing, and record-keeping as required.
- Report non-compliance, leaks, or system failures immediately.

Materials and equipment

- Containment infrastructure (e.g., sealed tanks, lined ponds, temporary holding bladders).
- Diversion barriers or bunding.
- Signage indicating restricted access and biosecurity risk.
- PPE for wastewater handling personnel (gloves, boots, coveralls, respiratory protection as required).
- Wastewater sampling kits.
- Spill response materials (absorbent pads, disinfectant).

Procedure

1. Containment setup:

- Identify all points where wastewater may be generated or discharged (e.g., shed effluent outlets, wash-down pads).
- Map and designate all wastewater containment zones.
- Install sealed tanks, lined ponds, or diversion systems to prevent uncontrolled discharge.
- Ensure all wastewater pathways are isolated from clean stormwater systems.
- Place clear signage indicating restricted access and biohazard risk.

2. Access restriction:

- Limit access to wastewater containment areas to authorised, trained personnel only.
- Prevent entry of vehicles, equipment, or livestock unless essential and approved.
- Maintain physical barriers or fencing to prevent accidental entry.
- Follow all handling procedures set by biosecurity authorities or environmental regulators.

3. Wastewater handling and storage:

- Ensure all wastewater remains contained for the required inactivation period or until approved treatment/disposal is completed.
- Avoid agitation, pumping, or transfer unless necessary and authorised.
- If wastewater is moved, use sealed transport lines or equipment dedicated to contaminated zones.
- Record all wastewater volumes, movements, and treatment actions.

4. Monitoring and inspection:

- Conduct daily inspections of containment systems for leaks, overflow risks, or structural damage.
- Check bunding, tank integrity, and signage visibility.
- Confirm that diversion systems are functioning and unobstructed.
- Document all findings and immediately report any issues to the Site Supervisor.

5. Wastewater sampling and testing:

- Collect samples at intervals specified by biosecurity authorities or regulatory standards.
- Use approved sampling methods and PPE.
- Submit samples to accredited laboratories for pathogen testing where required.
- Maintain chain-of-custody records.
- Record and report results to the site supervisor.

6. Final treatment or disposal:

- Follow biosecurity authority guidance regarding approved treatment methods (e.g., disinfection, holding for pathogen die-off, irrigation under controlled conditions).
- Only release or dispose of wastewater once testing or holding time requirements have been met.
- Document disposal method, location, timing, and authorisation.

Records

- Wastewater containment zone map and designation records.
- Daily inspection logs.
- Wastewater sampling and laboratory test results.
- Wastewater movement and disposal records.
- Incident reports and corrective actions.
- Compliance reports for biosecurity and environmental authorities.

Appendix F: Fictional illustrative scenario (farmer/operator use only)

A wastewater worry turned around

I'll be honest, when the bird flu outbreak hit, I thought we were stuffed.

We've got 60,000 layers in colony cages. Not a massive operation, but big enough that when MPI rolled out the biosecurity protocols, the sheer volume of wastewater from cleaning boots, vehicles, sheds, and gear had me staring down a problem I didn't know how to solve.

We didn't have a fancy wastewater system. Just a few old drains and a sump that handled the usual wash-downs. But with daily disinfecting, footbaths, and vehicle sprays, we were suddenly generating thousands of litres of contaminated water. And it couldn't go anywhere near the paddocks or the creek that runs past the back of the property.

The quotes we got for a proper containment and treatment setup were eye-watering, over \$100,000. That's not money we had lying around, especially with feed to pay for and egg sales stopped.

So, I did what any good Kiwi farmer does when the going gets tough, I called a few mates.

One of the old boys down the road had a couple of disused silage bunkers. Concrete walls, still solid. We cleaned them out, lined them with heavy-duty plastic, and turned them into temporary holding tanks. Not pretty, but they worked.

Then we got creative. My son, who's a bit of a tinkerer, rigged up a DIY filtration system using IBC tanks, gravel, sand, and charcoal. We ran the wastewater through it before treating it with MPI-approved disinfectants. It wasn't high-tech, but it got the job done. We tested the water ourselves with a basic kit and kept logs like MPI asked.

The real gamechanger came when the dairy farm next door offered us access to their slurry separator. We traded some surplus grain for the favour. That helped us manage the solids without clogging up our system.

We also started harvesting rainwater off the shed roofs to use for cleaning, which eased the pressure on our bore and kept the wastewater volumes down.

All up, we spent about \$12,000. That's still a chunk of change, but it kept us compliant, kept us safe, and kept the farm running.

The best part? Our team pulled together. Everyone mucked in. The local community backed us. And now, we've got a system that works and we're sharing it with other farms in the region.

We didn't break the bank. We didn't break the rules. We just used a bit of Kiwi know-how and got on with it.