

Guideline

Environmental Protection Regulation 2008

Sewage pumping stations ERA 63 (3)

This guideline provides details of the development approval requirements for sewage pumping stations in accordance with the provisions of the Environmental Protection Regulation 2008 (EP Reg).

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Background

A sewage pumping station (or lift station) is a facility in the sewerage system that mechanically lifts sewage to a higher level to assist flow of the sewage from its origin to the sewage treatment plant. A large sewage pumping station poses a significant risk to the environment where a system failure results in sewage being released. A sewage release from a sewage pumping station can be due to mechanical failure, power failure, blockages, or stormwater infiltration.

The Environmental Protection Regulation 2008 (EP Reg 2008) considers the operation of a sewage treatment works and the operation of a sewage pumping station with a design capacity of 40 kilolitres (kL) per hour separately with both falling within the scope of the environmentally relevant activity (ERA) of sewage treatment (ERA 63). It should be noted that under the Environmental Protection Regulation 1998, sewage pumping stations and other ancillary works had been included within the scope of the environmentally relevant activity for sewage treatment works (previously ERA 15).

A review of environmental risks during the preparation of the EP Reg 2008 determined that while small sewage pumping stations and associated infrastructure would be managed using the general environmental duty, sewage pumping stations with a pumping capacity in excess of 40kL per hour would continue to require a development permit and associated conditions.

Where a sewage pumping station was approved through a development permit for ERA 15 under the EP Reg 1998, the permit continues to have effect as permit for ERA 63 under the EP Reg 2008.

ERA 63 Threshold 3

Sewage pumping stations are included as a category of sewage treatment under the EP Reg 2008 and are defined as an ERA when the activity consists of:

“operating a sewage pumping station with a total design capacity of more than 40kL in an hour, if the operation of the pumping station is not an essential part of the operation of sewage treatment works.”

A development permit and a registration certificate for ERA 63(3) are both required for the lawful operation of the ERA.

Sewage pumping stations

This ERA category covers activities consisting of operating a sewage pumping station as defined above. Sewage is defined in the *Plumbing and Drainage Act 2002* as “household and commercial wastewater that contains, or may contain, faecal, urinary or other human waste”. Pumping stations that are used for treated water and liquids other than sewage are not covered by this ERA category.

Total design capacity

This ERA category covers activities consisting of operating a sewage pumping station with a total design capacity of more than 40kL in an hour. The total design capacity is the total capacity of the operating pumps in the pumping station unless otherwise restricted by the system design. For example, a system with 2 pumps with a design capacity of 20kL each per hour would have a total design capacity of 40kL per hour. Stand-by pumps that are used only as a back-up when the duty pumps are not operating would not be considered part of the total operating capacity.

Essential part of the operation of sewage treatment works

This ERA category does not include sewage pumping stations that are an essential part of the operation of the sewage treatment works. This means that sewage pumping stations located on the same site as the sewage treatment plant that are used to transfer sewage around the site for treatment do not need a separate

development permit and registration certificate. Sewage pumping stations that are an essential part of the operation of the sewage treatment works are covered by the development permit and associated conditions for the sewage treatment works.

Existing sewage pumping stations

Sewage pumping stations that existed prior to 1 January 2009 should generally be included in the development permit for the sewage treatment works to which they were connected. The determination of whether an existing development permit includes an approval for an existing sewage pumping station must be dealt with on a case by case basis.

Where there is doubt regarding whether a particular sewage pumping station is included in a development permit, the original development permit and application should be reviewed to establish what was approved:

- If the sewage pumping stations were part of the sewage treatment infrastructure approved by the original development permit, then they will continue to be authorised under that permit.
- If the sewage pumping stations were put in place after the development permit was issued then the permit conditions need to be reviewed:
 - If the development permit conditions provide for additional infrastructure or expansion of the sewage treatment works, then the new sewage pumping station would continue to be authorised under that permit (for example a condition that covers existing and future sewage infrastructure).
 - If the development permit conditions are specific to the infrastructure in place at the time of the approval, any new sewage pumping stations that meet the threshold of 40kL per hour will require a new development permit and registration certificate (for example a condition that specifically lists all of the sewage pumping stations covered by the permit).

Single registration certificate for multiple sites

Every sewage pumping station >40kL/hr in the sewage system infrastructure is required to be authorised under a development permit. However, a single registration certificate can be granted for the entire sewage network including sewage pumping stations and treatment plants, under specific circumstances.

Under section 73F of the *Environmental Protection Act 1994* (EP Act), a single registration certificate may be granted for activities carried out at different places if:

- a) the administering authority is satisfied the activities will be carried out as a single integrated operation; or
- b) all the following apply—
 - i) the applicant is a local government;
 - ii) the applicant asks the administering authority to grant a single registration certificate for the activities;
 - iii) the administering authority is satisfied the activities are non-commercial and it would be appropriate, having regard to the level of integration of the activities, to grant a single registration certificate for them.

Activities are considered to be carried out as a single integrated operation if—

- a) the activities are carried out under the day to day management of a single responsible person, for example, a site or operations manager; and
- b) the activities are operationally interrelated; and
- c) the integrated operation of the activities leads to a lower risk of environmental harm being caused by the activities; and

- d) the activities are, or will be, carried out at 2 or more places at or about the same time, and the places where they are carried out are separated by distances short enough to make feasible the integrated day to day management of the activities.

Assessment of applications

In assessing the application, the administering authority must comply with any relevant regulatory requirement and consider the standard criteria and any additional information given in relation to the application. For example if the applicant proposes to allow overflows from the sewage pumping station to land, the regulatory requirement in section 55 of the EP Reg 2008 would apply.

The administering authority may also set conditions on the development approval it considers necessary and desirable and must include any condition the authority is required to impose under a regulatory requirement. In assessing the application and setting conditions on the approval, a risk assessment should be undertaken to determine whether the site is an appropriate location for the proposed development and to set appropriate conditions to mitigate the risk to the environment.

Site selection

The applicant should provide documentation on the analysis of the rationale for the proposed site for the pumping station. The analysis should incorporate consideration of the alternative site considered, the sensitivity of the receiving environment and the capacity of the pump station to manage increased flow without risk of sewage release.

Risk assessment

Applicants should have undertaken a risk assessment of the proposed development to set design parameters for the pump station. A risk assessment would also help to determine the appropriate conditions to mitigate environmental risk. Such conditions could set requirements for pump capacity, stand-by pumps, back-up generators, on-site storage capacity, alarm systems and telemetry.

Water Services Association of Australia (WSAA) Sewage Pumping Station Code of Australia

The WSAA code provides national standards for sewage pumping stations and should be reviewed by applicants for specific guidance. The pumping philosophy outlined in the WSAA code states that “where pumping cannot be avoided, pumping stations shall be designed and constructed to minimise the risk of adverse environmental impacts and support a totally integrated sewerage system that can be operated and maintained at the lowest life-cycle cost.”

The code is an excellent reference for specific guidance on:

- site selection;
- staged development to avoid hydraulic overload and excessive sewage detention;
- structural design;
- associated services and infrastructure (power, communications, lighting etc);
- access considerations and security;
- health and safety;
- odour, septic and noise control;
- inlet specifications;
- wet-well and pipe work design;
- pumping system design;
- control and telemetry system; and
- pressure-main design.

Model conditions

Applications for sewage pumping stations will be assessed by DERM officers on a case by case basis in accordance with the legislative requirements. The following model conditions are considered typical of those that may be required for the effective regulation of sewage pumping stations. Additional or different conditions may be required based on a site specific risk assessment. It is expected that new pumping stations in Queensland should meet the requirements set out in these model conditions as an absolute minimum.

Interest: General

G1 Limitations of approval

This development permit authorises the operation of a XXkL (*this limit should be determined by the maximum volume for which the operation is being assessed*) per hour sewage pumping station located at XX.

G2 The owner and operator must ensure that the pumping station is constructed so that openings to the well (such as maintenance holes) are not lower than a 1 in 100 year flood level.

G3 Prevent of environmental harm

The operator must ensure that environmental harm is not caused by this ERA except where specifically permitted by a condition of this development approval.

G4 Maintenance of measures, plant and equipment

The operator must:

- (a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this development approval; and
- (b) maintain such measures, plant and equipment in a an effective condition and keep records of the maintenance and
- (c) operate such measures, plant and equipment in an effective manner.

G5 Integrated environmental management system (IEMS)

The operator must implement an integrated environmental management system (IEMS) from (*the commencement of this ERA or specified date*). The IEMS must identify all causes of environmental harm, including but not limited to the actual and potential release of any contaminants, the nature of the environmental harm and the actions that will be taken to prevent environmental harm being caused. The IEMS (including contingency plans and emergency response plans) must be made available to the administering authority when requested.

The IEMS must achieve the following outcomes :

- (a) environmental aspects and potential impacts are identified;
- (b) a contingency plan and emergency response plan is in place;
- (c) a network plan of the sewage collection system including connected sewage pumping stations and likely overflow points is maintained;
- (d) control measures that minimise the potential for environmental harm are in place;
- (e) organisational structures, accountability and responsibility is recorded;
- (f) effective communication arrangements are documented and practical;
- (g) all contaminant releases are monitored;
- (h) staff are trained and aware of the requirements of this permit;
- (i) appropriate records are kept; and
- (j) reviews of environmental performance and continual improvement are undertaken periodically.

G6 The IEMS must not be implemented or amended in a way that contravenes any condition of this development approval.

G7 Contingency plans

The contingency plan in the IEMS must include provisions for the following:

- (a) standard connections for emergency by-pass pumping;
- (b) standard connections for mobile generators, or a back-up power source that automatically starts in the event of power failure and stops when power is restored (with manual override facility);
- (c) stand-by pumping equipment and associated controls;
- (d) identified critical components and a system to ensure adequate and timely access to spare parts; and
- (e) easy all weather access for maintenance and emergency activities.

G8 Emergency response plan

The emergency response plan in the IEMS must include the following provisions:

- (a) an implementation manual;
- (b) staff training;
- (c) identification of the part of the environment to which a sewage release may occur (e.g. for water bodies, a description of where contaminants may enter the particular water body).
- (d) a remediation and clean-up plan to be implemented in areas affected by sewage releases;
- (e) a receiving environment (surface waters/land) monitoring program, to be implemented in the event of a sewage release to waters/land to examine/assess environmental impacts (for waters this must include upstream and downstream monitoring); and
- (f) an investigation and improvement plan to establish the cause of sewage releases, initiate preventative measures, and report on the effectiveness of such preventative measures.

G9 Records

The operator must record, compile and keep all maintenance and monitoring results required by this development approval and present this information to the administering authority when requested.

G10 All records required by this development approval must be kept for 5 years.

G11 Notification

The operator must notify the administering authority via the 24 hour hotline (1300 130 372) as soon as practicable and no later than 4 hours after becoming aware of sewage releases described below.

1. Any sewage release (any volume) that:
 - (a) poses a threat to public health (e.g. contamination of waterways with primary recreation values);
 - (b) results in any observable environmental impact (e.g. fish kill, distress to wildlife, marine plants or other aquatic life);
 - (c) discharges to, or is likely to impact, a sensitive environment (e.g. Ramsar wetland, marine park, or area designated as a conservation zone under a relevant planning scheme).
2. Any dry weather release of sewage in excess of 10 000 litres.

G12 The operator must record information for all sewage releases described in condition G11 and provide it to the administering authority (in the form provided in Appendix A) within 14 days of the release.

G13 If the notification requirements in condition G11 do not apply, the operator must notify the administering authority in the form of a (*specify frequency*) summary (using the form provided in Appendix A) for any dry weather release of sewage less than 5 000 litres and for all wet weather releases.

G14 Monitoring

The operator must ensure that all monitoring, assessments and reports required by this development approval are conducted by a person(s) with appropriate experience and/or qualifications. Water monitoring must be undertaken in accordance with the DERM Water Quality Sampling Manual.

G15 Trained / experienced operator(s)

The operator must ensure that the daily operation and maintenance of the sewage pumping station is carried out by a person(s) with experience and/or qualifications appropriate to ensuring the effective operation of the sewage pumping station.

G16 Equipment calibration

The operator must ensure that all instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this development approval are calibrated, and operated and maintained in accordance with the manufacturers' specifications.

G17 Complaint response

The operator must record the following details for all complaints received and this information must be provided to the administering authority on request:

- (a) time, date, name and contact details of the complainant;
- (b) reasons for the complaint;
- (c) any investigation(s) undertaken;
- (d) conclusions formed; and
- (e) any actions taken.

Interest: Air

A1 Nuisance

The operator must ensure that the release of odours or airborne contaminants resulting from the ERA do not cause environmental nuisance.

Interest: Noise

N1 Noise nuisance

The operator must ensure that noise resulting from the ERA does not cause environmental nuisance.

N2 Noise monitoring

When requested by the administering authority, the operator must undertake noise monitoring to investigate any complaint of noise nuisance. The monitoring must be undertaken and results must be notified to the administering authority in the format and within the time specified by the administering authority in the request. Monitoring must include:

- (a) measurement of $L_{A90, adj, 15 mins}$
- (b) measurement of $L_{A10, adj, 10 mins}$
- (c) measurement of $L_{A1, adj, 10 mins}$
- (d) the level and frequency of occurrence of impulsive or tonal noise;
- (e) atmospheric conditions including wind speed and direction;
- (f) effects due to extraneous factors such as traffic noise; and
- (g) the location, date and time of monitoring.

N3 The operator must ensure that the method of measurement and reporting of noise levels complies with the latest edition of the administering authority's Noise Measurement Manual.

Interest: Land and Waters

In setting conditions on the design of the pump stations refer to a site specific risk assessment undertaken for the proposed ERA as well as any site visits undertaken and any historical data, this may identify a requirement for additional site specific conditions.

LW1 Release to land and waters

The operator must ensure that contaminants are not released to land or waters (including the bed and banks of any waters), except where specifically permitted by a condition of this development approval.

LW2 Pumping station design

The operator must ensure that the total pump flow rate of the pumping station (whether using one or more pumps) has a capacity of XXkL per hour (*based on flow rates provided by the applicant*).

- LW3** The operator must ensure that additional storage capacity is provided to accommodate emergency flows up to XXkL based on a maximum detention time of XX hours.
- LW4** The operator must ensure that the pumping station is fitted with inflow and outflow gauges to monitor flow.
- LW5 Alarm system**
To warn of imminent sewage pumping station overflow, the operator must ensure that the sewage pumping station is fitted with the following:
(a) pump-failure alarms; and
(b) level alarms for sewage contained in the pump well.
- LW6** The operator must ensure that the alarms specified in condition LW5 comprise, as a minimum:
(a) a flashing red light with signage to indicate sewage pumping station failure; and
(b) monitoring and communication systems to immediately alert the operator of a sewage pumping station system failure.
- LW7** The operator must ensure the alarm system installed is triggered immediately after any of the following events:
(a) low flow, high water, pump failure, or power failure at the sewage pumping station;
(b) overflow to detention structures;
(c) low flow in on-line sewer monitoring; or
(d) low flow at the sewage treatment plant.
- LW8** The operator must ensure that all alarms are able to operate without mains power.
- LW9** The operator must test and validate the alarm system at least once each month and maintain a log of all alarm testing, faults identified and remedial action taken.

Definitions

Words and phrases used throughout this guideline are defined below. Where a definition for a term used in this guideline is sought and the term is not defined within this guideline the definitions provided in the relevant legislation must be used.

"approval" means 'notice of development application decision' or 'notice of concurrence agency response' under the *Sustainable Planning Act 2009*.

" $L_{A 90, adj, 15 mins}$ " means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 90% of any 15 minute measurement period, using fast response.

"operator" means any of the following:

- A person having the benefit of this development approval
- The holder of a registration certificate for this development approval
- Anyone undertaking the activity to which this development approval relates (*Note: it is an offence to carry out work under a development approval without a relevant registration certificate*).

Further Information

The *Environmental Protection Act 1994* (EP Act) requires that any person carrying out a Chapter 4 ERA must hold, or be acting under, a registration certificate for the activity. Please refer to the Information Sheet *Requirement to become a registered operator* which can be viewed online.

Advice and support services are available through a state wide network of regional and district offices. Alternatively, telephone Permit and Licence Management on 1300 130 372 or visit the DERM website at <www.derm.qld.gov.au>.

Disclaimer

While this document has been prepared with care it contains general information and does not profess to offer legal, professional or commercial advice. The Queensland Government accepts no liability for any external decisions or actions taken on the basis of this document. Persons external to the Department of Environment and Resource Management should satisfy themselves independently and by consulting their own professional advisors before embarking on any proposed course of action.

Approved by:

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APPENDIX A - Written notification form

a) Registered operator	
Name of registered operator	
Development approval reference number	
Registration certificate reference number	
b) Designated contact person	
Name	
Position and Organisation	
Contact details	
Address:	
Phone number(s):	
Email:	
c) Details of sewage release	

Exact location (e.g. street address, sewage pumping station number, map reference, GPS coordinates etc)	
Infrastructure from which sewage was released (e.g. maintenance hole, rising main, pump/ lift station etc)	
Date and time release started	
Date and time release ceased	
Date and time release first identified	
Date and time of first notification to DERM (and method of notification)	
Approximate volume of substance released (specify how volume was estimated)	
Description of substance released (e.g. household sewage, stormwater, trade waste)	
d) Cause of sewage release	
Describe reason, or suspected reason, for the sewage release (e.g. blockage, power failure, equipment failure, human error, wet weather etc)	
Weather conditions leading up to and during sewage release (e.g. dry, raining, humid, storms, high tide etc)	
e) Environmental harm	
Describe any environmental harm, or nuisance, caused as a result of the sewage release (e.g. visible sewage, odour, dead fish or other aquatic fauna, dead vegetation or other aquatic flora, erosion etc)	
Describe the receiving environment (e.g. pristine or disturbed, urban or rural, waters used for drinking water, recreational use, agricultural use or industrial use etc)	
If sewage was released to water:	
Specify name of water body or closest named downstream water body	
Describe type of water body (e.g. bay, ocean, river, creek, tributary, stormwater drain, gully, wetland, dam etc)	
Approximate volume of substance released to water	
If sewage was released to land:	
Describe land (e.g. private property, public recreational area etc)	

Approximate volume of substance released to land			
Approximate area impacted by the release			
f) Actions taken			
Describe actions taken to stop or minimise the release (e.g. isolate relevant pump, contain release, divert flow, clear blockage, backup power supply, repair fault, tanker sewage etc)			
Describe actions taken to mitigate any environmental harm caused by the sewage release (e.g. contain sewage, remove sewage, remove bulk solids, flush impacted area with fresh water, disinfect impacted area, warning signs etc)			
Provide details of any sampling performed in relation to the overflow (e.g. dissolved oxygen, pH, conductivity, turbidity, ammonia, total Nitrogen, total Phosphorus, BOD, COD, total suspended solids, <i>E. coli</i> , faecal coliforms etc)			
Were samples taken in accordance with the DERM Water Quality Sampling Manual?			
Were samples sent to a NATA (or suitably accredited) laboratory for analyses?			
g) prevention of recurrence			
Describe proposed actions to prevent a recurrence of the sewage release			
Additional information			
Notification completed by			
Name	Position	Signed	Dated