# Abstraction Volume Estimation Examples

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### **Pig Farms**

#### Pig Farm – Example 1

A farm with 500 sows and 5,000 weaners. Water for the farm is abstracted from a well or surface water source.

- 500 Sows using 32 litres / day per animal = 16,000 litres/day (16 m<sup>3</sup>/day)
- 5,000 Weaners using 2.1 litres / day per animal\* = 10,500 litres/day (10.5 m<sup>3</sup>/day)

Estimated maximum volume abstracted = 26,500 litres/day (26.5 m<sup>3</sup>/day)

Is registration of the abstraction required? <u>Yes.</u> Registration is required as the maximum volume used is estimated to be greater than 25  $m^3$ /day.

#### Pig Farm – Example 2

A farm with 400 sows and 3,500 weaners. Water for the farm is abstracted from a well or surface water source.

- 400 Sows using 32 litres / day per animal = 12,800 litres/day (12.8 m<sup>3</sup>/day)
- 3,500 Weaners using 2.1 litres / day per animal\* = 7,350 litres/day (7.35 m<sup>3</sup>/day)

Estimated maximum volume abstracted = 20,150 litres/day (20.15 m<sup>3</sup>/day)

**Is registration of the abstraction required?** <u>No.</u> Registration is not required as the maximum volume used is estimated to be less than 25 m<sup>3</sup>/day.

## Dairy Farms

#### Dairy Farm – Example 1

A farm with 170 dairy cows, 80 calves and 50 replacement heifers. Water for the farm is abstracted from a well or surface water source.

- 150 Dairy Cows using 125 litres / day per animal = 18,750 litres / day (18.75 m<sup>3</sup> / day)
- 70 calves using 20 litres / day per animal = 1,400 litres / day (1.4 m<sup>3</sup> / day)
- 50 replacement heifers using 35 litres / day per animal = 1,750 litres / day (1.75 m<sup>3</sup> / day)

Estimated maximum volume abstracted = 21,900 litres / day (21.9 m<sup>3</sup> / day)

Is registration of the abstraction required? No. Registration is not required as the maximum

#### Dairy Farm – Example 2

A farm with 185 dairy cows, 100 calves and 50 replacement heifers. Water for the farm is abstracted from a well or surface water source.

- 185 Dairy Cows using 125 litres / day per animal = 23,125 litres/day (23.125 m<sup>3</sup> / day)
- 100 calves using 20 litres / day per animal = 2,000 litres / day (2.0 m<sup>3</sup>/ day)
- 50 replacement heifers using 35 litres / day per animal = 1,750 litres / day (1.75 m<sup>3</sup> / day)

Estimated maximum volume abstracted = 26,875 litres / day (26.875 m<sup>3</sup> / day)

Is registration of the abstraction required? <u>Yes.</u> Registration is required as the maximum volume used is estimated to be greater than  $25 \text{ m}^3/\text{ day}$ .

#### Dairy Farm – Example 3

A farm with 220 dairy cows and no calves or replacement heifers. Water for the farm is abstracted from a well or surface water source.

• 220 Dairy Cows using 125 litres / day per animal = 27,500 litres/day (27.5 m<sup>3</sup>/day)

Estimated maximum volume abstracted = 27,500 litres/day (27.5 m<sup>3</sup>/day)

Is registration of the abstraction required? <u>Yes.</u> Registration is required as the maximum volume used is estimated to be greater than  $25 \text{ m}^3/\text{day}$ .

# Mixed Farming including on Farm Enterprise

#### Mixed Farm and on Farm Enterprise – Example 1

A farm with 50 dairy cows, 30 calves, 10 sows and cheese production enterprise on farm. Water for the farm is abstracted from a well or surface water source.

- 50 Dairy Cows using 125 litres / day per animal = 6,250 litres / day (6.25 m<sup>3</sup> / day)
- 30 calves using 20 litres / day per animal = 600 litres / day (0.6 m<sup>3</sup> / day)
- 10 Sows using 32 litres / day per animal = 320 litres/day (0.32 m<sup>3</sup>/day)
- Cheese production enterprise water use is metered with maximum use of 5,000 litres / day (5 m<sup>3</sup> / day)

Estimated maximum volume abstracted = 12,170 litres / day (12.17 m<sup>3</sup> / day)

Is registration of the abstraction required? <u>No.</u> Registration is not required as the maximum volume used is estimated to be less than  $25 \text{ m}^3$  / day.

# Vegetable Growing Farms

#### Vegetable Growing – Example 1

A vegetable growing farm with 1 hectare of carrots irrigated by trickle tape. Water for the farm is abstracted from a well or surface water source.

• 1 hectare of carrots irrigated by trickle tape using 18 m<sup>3</sup>/ hectare/day = 18 m<sup>3</sup>/ day

Estimated maximum volume abstracted = 18,000 litres / day (18 m<sup>3</sup> / day)

Is registration of the abstraction required? <u>No.</u> Registration is not required as the maximum volume used is estimated to be less than  $25 \text{ m}^3/\text{ day}$ .

#### Vegetable Growing – Example 2

A vegetable growing farm with 1 hectare of carrots irrigated by spray boom. Water for the farm is abstracted from a well or surface water source.

 1 hectare of carrots irrigated by spray boom using 127 m<sup>3</sup>/ hectare/day = 127 m<sup>3</sup>/ day

Estimated maximum volume abstracted = 127,000 litres / day (127 m<sup>3</sup> / day)

Is registration of the abstraction required? <u>Yes.</u> Registration is required as the maximum volume used is estimated to be greater than  $25 \text{ m}^3/\text{day}$ .

#### Vegetable Growing – Example 3

A vegetable growing farm with occasional irrigation by tanker or piped abstraction from a well or surface water source.

Abstraction estimation based on taker volumes or flow rate to be a maximum volume of approximately 80 m<sup>3</sup> / day for a number of days in the dry period each year.

Estimated maximum volume abstracted = 80,000 litres / day (80 m<sup>3</sup> / day)

Is registration of the abstraction required? <u>Yes.</u> Registration is required as the maximum volume used is estimated to be greater than  $25 \text{ m}^3/\text{day}$ .

## Quarries

#### Quarry – Example 1

A quarry has a maximum discharge of 50 m<sup>3</sup>/ day. Of this 20 m<sup>3</sup>/ day is estimated to be attributable to surface water management leaving an estimated maximum abstraction of 30 m<sup>3</sup>/ day.

Estimated maximum volume abstracted =  $30 \text{ m}^3/\text{ day}$ .

Is registration of the abstraction required? <u>Yes.</u> Registration is required as the maximum volume used is estimated to be greater than 25  $m^3$  / day.

#### Quarry – Example 2

A quarry has a maximum discharge of 10 m<sup>3</sup>/day, excluding surface water management. It also has dust suppression measures and concrete production.

- 10 m<sup>3</sup>/ day discharge (10,000 litres)
- 10 nozzles for dust suppression (un-retrieved) used for 2 hours per day at 1 m<sup>3</sup>/ hour per 10 nozzles (run 10 minutes per hour) = 2 x 1 m<sup>3</sup> per day = 2 m<sup>3</sup>/ day (2,000 litres)
- 5,000 concrete blocks per day at 500 litres / 1,000 blocks made = 5 x 500 litres / day = 2.5 m<sup>3</sup>/day (2,500 litres)

Estimated maximum volume abstracted =  $14.5 \text{ m}^3/\text{ day}$ .

Is registration of the abstraction required? <u>No.</u> Registration is not required as the maximum

#### Quarry – Example 3

A quarry has a maximum discharge of  $15 \text{ m}^3$  / day excluding surface water management. It also has dust suppression measures and concrete production.

- 15 m<sup>3</sup> / day discharge (15,000 litres)
- 30 nozzles for dust suppression (un-retrieved) used for 2 hours per day at 1 m<sup>3</sup>/ hour per 10 nozzles (run 10 minutes per hour) = 3 x 2 x 1 m<sup>3</sup> per day = 6 m<sup>3</sup>/ day (6,000 litres)
- 10,000 concrete blocks per day at 500 litres / 1,000 blocks made = 10 x 500 litres / day = 5 m<sup>3</sup> / day (5,000 litres)
- 500 m<sup>3</sup> of Ready mix concrete (wet mix) per day at 150 litres / m<sup>3</sup> wet mix = 500 x 0.15 m<sup>3</sup> / day = 75 m<sup>3</sup> / day (75,000 litres)

Estimated maximum volume abstracted =  $101 \text{ m}^3/\text{ day}$ .

Is registration of the abstraction required? <u>Yes.</u> Registration is required as the maximum volume used is estimated to be greater than  $25 \text{ m}^3$  / day.