

Exercise walk-through

Sources of Pollution ■ 8.1

eXercise

You must be able to

- distinguish **point-source** 点源 and **nonpoint-source** 非点源 pollution
- give examples of each
- explain why nonpoint pollution is harder to control

Method — Point vs nonpoint

- **Point source** — pollution from a **single, identifiable** location (a factory pipe, a sewage outfall).
- **Nonpoint source** — pollution from **many spread-out** sources (fertilizer runoff from farms, oil from roads).

Method — Why nonpoint is harder

Point sources are easy to find and regulate. **Nonpoint** sources come from a wide area, so they are hard to trace and control — the main challenge in water pollution today.

Method — A worked classification

A pipe discharging waste into a river is a **point source**; fertilizer washing off thousands of farm fields is a **nonpoint source**.

Method — Controlling each

Point: regulate the pipe. Nonpoint: change land-use practices (buffer strips, less fertilizer) across the whole watershed.

Practice 2.1 ■ 1 mark

What is a point-source pollutant?

Solution 2.1

Worked steps

Pollution from a single, identifiable location **B1**.

Practice 2.2 ■ 1 mark

Give one example of nonpoint-source pollution.

Solution 2.2

Method: Point vs nonpoint

Worked steps

Any one: farm fertilizer runoff, road/urban runoff **B1**.

Practice 2.3 ■ 1 mark

Why is nonpoint pollution harder to control?

Solution 2.3

Method: Why nonpoint is harder

Worked steps

It comes from a wide, spread-out area, so it is hard to trace and control **B1**.

Exam-style 3.1 ■ 1 mark

Fertilizer runoff from many farms is an example of

- A** point-source pollution
- B** nonpoint-source pollution
- C** air pollution only
- D** no pollution

Solution 3.1

Method: Point vs nonpoint

- A point-source pollution
- B nonpoint-source pollution**
- C air pollution only
- D no pollution



Worked steps

B — nonpoint-source pollution.

Exam-style 3.2 ■ 2 marks

A river is polluted by both a factory pipe and farm runoff.

- (a) Classify each source.
- (b) Explain why the farm runoff is harder to regulate.

Solution 3.2

Worked steps

(a) Factory pipe = point source; farm runoff = nonpoint source **B1** **B1**. (b) The runoff comes from many spread-out fields rather than one pipe, so there is no single source to regulate **M1** **A1**.

Exam-style 3.3 ■ 1 mark

Suggest one way to reduce nonpoint-source pollution from agriculture.

Solution 3.3

Method: Point vs nonpoint

Worked steps

Any one: buffer strips, reduced/precise fertilizer, cover crops, no-till **B1**.