

Geophysicist interview questions

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What to expect

Geophysicist interviews tend to mix genuine technical depth with judgement calls, since much of the job involves making a call on ambiguous subsurface data. Employers are also probing for practical field and software experience that lets someone contribute quickly.

- **Technical process:** Questions on how you actually move from raw survey data to an interpretation, including software and workflow choices.
- **Scenario and judgement:** Ambiguous or conflicting data scenarios that test how you weigh evidence and communicate uncertainty before recommending a drilling location.
- **Behavioural:** Past examples of working with geologists, engineers or other disciplines, and handling disagreement over interpretation.
- **Regulatory and reporting:** How you prepare technical reports for regulators such as NOPSEMA or state mining departments, and non-technical stakeholders.
- **Client and stakeholder facing:** How you translate technical geophysical findings for investors, landholders or other non-specialist audiences.

Most processes start with a phone or video screen covering your technical background, software experience and the types of surveys you have worked on. This is usually followed by a longer technical interview or panel, often including a senior geophysicist and a geologist or engineer, where you may be asked to walk through a past interpretation or work through a data scenario live. Some employers add a short technical exercise or presentation before a final round that focuses on communication, reporting and team fit.

1. Walk me through how you would process and interpret a new seismic dataset, from acquisition through to a drilling recommendation.

Why they ask

This checks whether you understand the full geophysical workflow, not just one stage of it, and whether you can explain technical steps clearly.

How to structure your answer

Walk through the process in order: acquisition, processing, interpretation, integration with other data, and final recommendation, noting the decision points along the way.

Example answer

"I'd start by checking the acquisition parameters and quality of the raw seismic data, flagging any noise or gaps early. From there I'd move into processing in ProMAX, applying the standard corrections and filters before building a workable image. At the interpretation stage I look for structural features that align with known geology in the area, and I'll cross-check against gravity or magnetic data where it's available. Once I have a shortlist of possible targets, I sit down with the geologists and engineers to weigh the geophysical evidence against drilling costs and access, and I put together a report that sets out the recommended location along with the level of confidence behind it."

2. You have seismic data that supports two plausible but different interpretations, pointing to different drilling targets. How do you decide what to recommend?

Why they ask

Exploration decisions are made on incomplete data, so employers want to see how you handle genuine uncertainty rather than presenting false confidence.

How to structure your answer

Set out how you'd assess the risk of each interpretation, what additional data or checks you'd pull in, and how you'd communicate the remaining uncertainty in your final recommendation.

Example answer

"I'd first check whether there's other data I haven't fully used, gravity or magnetic surveys, existing well logs, or regional geological knowledge, that might discriminate between the two interpretations. If the ambiguity holds after that, I'd assess which target carries the lower risk if the interpretation turns out wrong, factoring in drilling cost and access. My recommendation would name a preferred target but state clearly what the uncertainty is and what additional data, such as an infill survey, would tighten it up. I'd rather flag that uncertainty than let a report imply more confidence than the data supports."

3. Tell me about a time you disagreed with a geologist or engineer over the interpretation of your data.

Why they ask

Geophysicists work closely with other disciplines, and disagreements over interpretation are common. This tests how you handle that professionally.

How to structure your answer

Use STAR: describe the situation, the specific task or disagreement, the action you took to resolve it, and the result.

Example answer

"On one project, a geologist favoured a drilling location based on surface geology that didn't match what my seismic interpretation was showing. Rather than pushing back straight away, I pulled together the specific seismic sections that contradicted the surface reading and walked through them with her, explaining what the data was showing and why. We ended up bringing in an additional gravity survey line to settle the question, which supported my interpretation. The drilling location was adjusted, and it reinforced for both of us the value of checking assumptions against multiple datasets before locking in a decision."

4. Which seismic processing software have you used, and how did you apply it on a recent project?

Why they ask

Tool familiarity, particularly with Petrel and ProMAX, is a practical screen for whether you can be productive quickly.

How to structure your answer

Name the specific software, describe the task you used it for, and note the outcome or output it produced.

Example answer

"I've worked mainly in ProMAX for seismic processing and Petrel for building and reviewing subsurface interpretations. On a recent survey, I used ProMAX to apply static corrections and noise filtering to raw field data, then brought the processed sections into Petrel to build a 3D structural model that the wider team used to shortlist potential drilling targets."

5. How do you make sure your survey reports meet the requirements of regulators and other stakeholders?

Why they ask

Geophysicists produce reports that go to bodies such as NOPSEMA or state mining departments as well as to non-technical stakeholders, so accuracy and clarity both matter.

How to structure your answer

Outline your general approach to compliance and audience, then give a concrete example of a report you produced.

Example answer

"I treat the regulatory sections of a report separately from the sections aimed at internal or investor audiences, since the level of technical detail required is different. For a recent exploration licence submission, I made sure the survey methodology and data quality sections met the standard expected by the relevant state mining department, while keeping the summary section in plain language for stakeholders who weren't geophysicists. I also had a colleague review the report before submission to catch anything that assumed too much background knowledge."

6. How would you explain a technical geophysical finding to a non-technical stakeholder, such as an investor or landholder?

Why they ask

Geophysicists often present findings to people without a technical background, and this tests whether you can translate results without losing accuracy.

How to structure your answer

Describe your approach to simplifying technical content, then give a specific example of doing this successfully.

Example answer

"I focus on what the finding means for their decision, rather than how I got there. When presenting seismic results to a landholder recently, I skipped the processing detail and focused on what the survey showed about ground stability near their property, using a simple diagram rather than a seismic section. I made sure to leave room for questions, since people are usually more comfortable once they can ask about the specific thing they're concerned about."