Basics of Section IV
Overburden stress 4,500 psi

Pore pressure 1,500 psi
Wellbore pressure 1,000 psi

Net Effective Stress = Overburden – Pore Pressure
Overburden stress 10,000 psi
Pore pressure 5,000 psi
Wellbore pressure 5,000 psi

Net Effective Stress = Overburden – Pore Pressure
Cement Data Vs. Section IV
The Right Location
Location
Sanding Production

Perpendicular

Parallel
Sanding Production

![Bar chart showing Sand Production (g), Production Rate (b/d), and Differential (psi) for Perpendicular Bedding Planes with values 353, 3703, and 592 respectively.](image)
Erosion of the Perforation
Sanding Production

**Parallel Bedding Planes**

- **Sand Production (g)**: 381 g
- **Production Rate (b/d)**: 1440 b/d
- **Differential (psi)**: 207 psi

Legend: Pre Treatment
Matching the Reservoir
Kill Weight Fluid Analysis
Limitation of Permeability testing

- Core Analysis
- High Grading
- Full core Analysis
Kill Weight Selection – Return Permeability Analysis

Injection Kill Weight Fluid
ΔP 500 psi
360 °F
7 Days with Periodic Circulation
Return Permeability Testing

Permeability ($S_{wi}$) - Pre and Post Kill
20 md Gas Sandstone

Potential Production Rate

Production (mmcf/day)
Jetting
Perforation Flow Laboratory Schematic

Wellbore pressure 2,000 psi

Pore pressure 1,000 psi

Overburden stress 4,000 psi
The effects of Jet Perforating on Coil
Overburden stress 10,000 psi

Wellbore pressure 5,000 psi

Pore pressure 5,000 psi

Net Effective Stress = Overburden – Pore Pressure
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Summary

What Challenges do you have for Section IV

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Perforating