

BP Grangemouth Pipelines

Aerial Surveillance – Expert Panel Review



- **Background**
- **Panel Terms of Reference**
- **Review Process**
- **Main Conclusions**

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GEOGRAPHIC SCOPE OF ONSHORE OPERATIONS





Current Surveillance Techniques

- **Exploration/Oils** (FPS, Finnart, etc.)
 - helicopter ('Twin-Squirrel')
 - BP observer
 - every two weeks with intervening road patrols
- **Chemicals** (MGEP, WGEP, TSEP, etc.)
 - fixed wing (Partinavia 90 twin-engined aircraft)
 - Sky Vision observer
 - every two weeks with intervening road patrols

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PURPOSE

An important element of integrity management which complements ground patrols either by vehicles or on foot and serves to monitor:-

- General condition of the pipeline wayleave
- Environmental and topographic changes that may affect the wayleave
- Authorised and unauthorised wayleave activities
- Works that may extend over wayleave

TERMS OF REFERENCE

“Provide a recommendation as to the most effective and efficient aerial surveillance technique for maintaining pipeline integrity for cross country pipelines operated by BP Grangemouth taking into account the relative safety risks posed by each method.”

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PANEL MEMBERS

- Rod McConnell (ABB Eutech – Chairman)
- Keith Greenwood (Dalriada Avia Ltd)
- Ian MacLachlan (IKM Consulting)
- Ted Findlay (BP)
- Harry Robertson (BP)
- Raj Kaushal (BP, facilitator)

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REVIEW PROCESS

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- **Gather relevant information e.g. BP network, previous studies**
- **Presentations by fixed wing and helicopter operators**
- **Panel discussion**
- **Scoring process on effectiveness and efficiency to arrive at consensus approach**

Aerial Surveillance – Expert Panel Review Main Conclusions

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- **With ALARP mitigation measures in place, the safety risk to observers of both helicopter and fixed wing considered to be tolerable.**
- **Both methods have similar scores for effectiveness and efficiency, with helicopters having a slight edge on effectiveness (n.b. competence of observer is a critical factor)**
- **Significant differentiator is the terrain – ‘difficult’ terrain most effectively flown by helicopter, ‘easy’ (i.e. flat, not wooded, etc.) can be flown by either helicopter or fixed wing.**