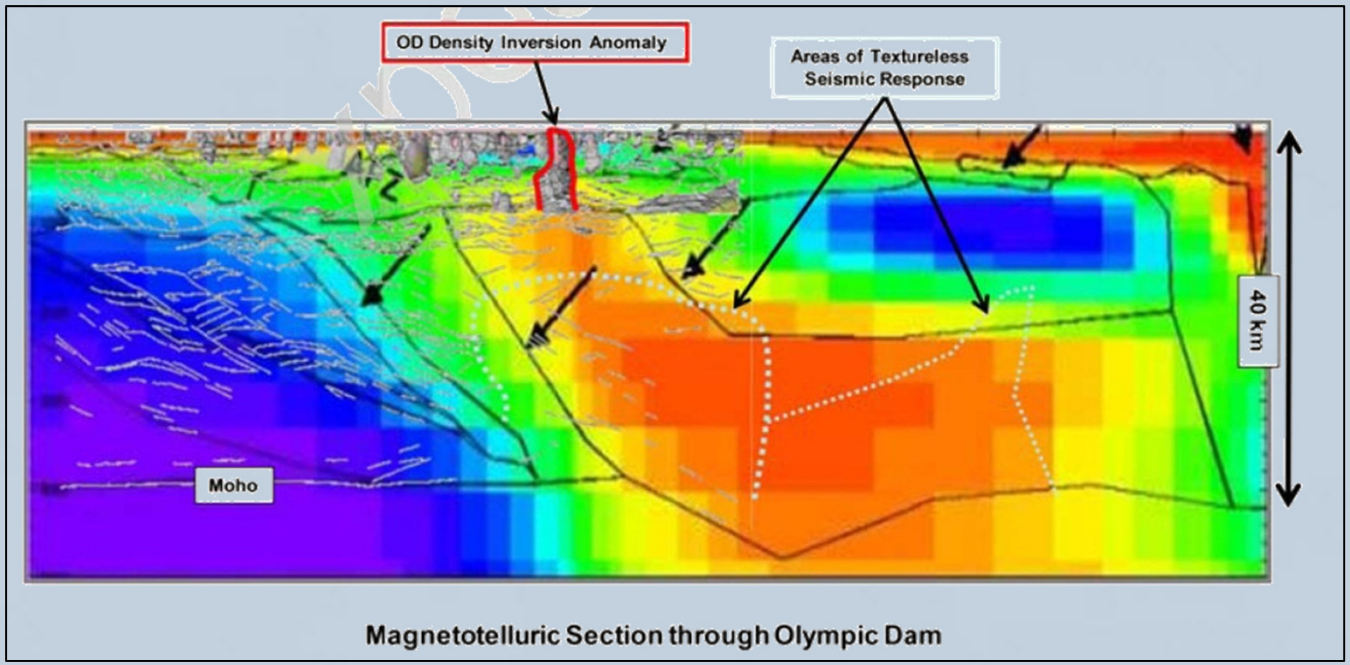
SEAM
Are we ready for a SEAM thread in the Undercover Journey?



Magnetotelluric Section through Olympic Dam

ASEG-PESA 2013
'THE EUREKA MOMENT'
11-14 AUGUST 2013 • MELBOURNE, AUSTRALIA

CSIRO

FIRST QUANTUM MINERALS LTD.

SEAM

	Deposit	Deposit Type	Number of Model Variations	Contributing Company
1	Synthetic Kimberlites	Kimberlite	13	Anglo American and Rio Tinto
2	Brunswick Mining and Smelting #12 Mine	VMS	12	Noranda
3	San Nicolas	VMS	13	Teck-Cominco
4	Spence	Cu Porphyry	14	BHP-Billiton
5	Gamsberg	Sedex	13	Anglo American
6	Red Dog	Sedex	5	Teck-Cominco

Gravity Gradiometry-2001

IP-2005

SEAM

Lithology	Base density	Relative density
ore	4.31	1.73
volcbreccia	2.85	0.27
maflowsed & volcseds	2.87	0.29
rhyoflows breccia & mvt	2.85	0.27
graphmudstone	2.58	0
rhyolite intrusions	2.75	0.17
overburden	2.00	-0.58

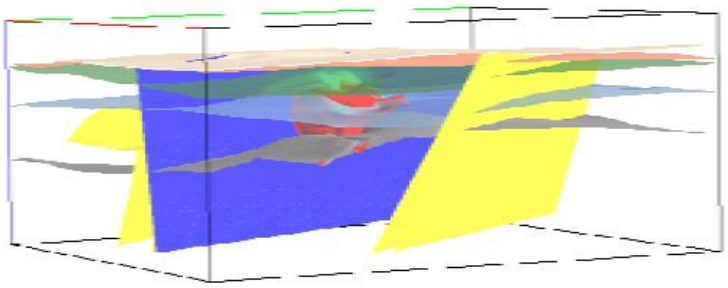
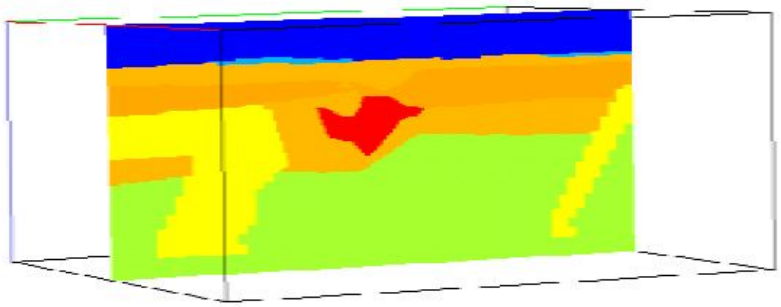
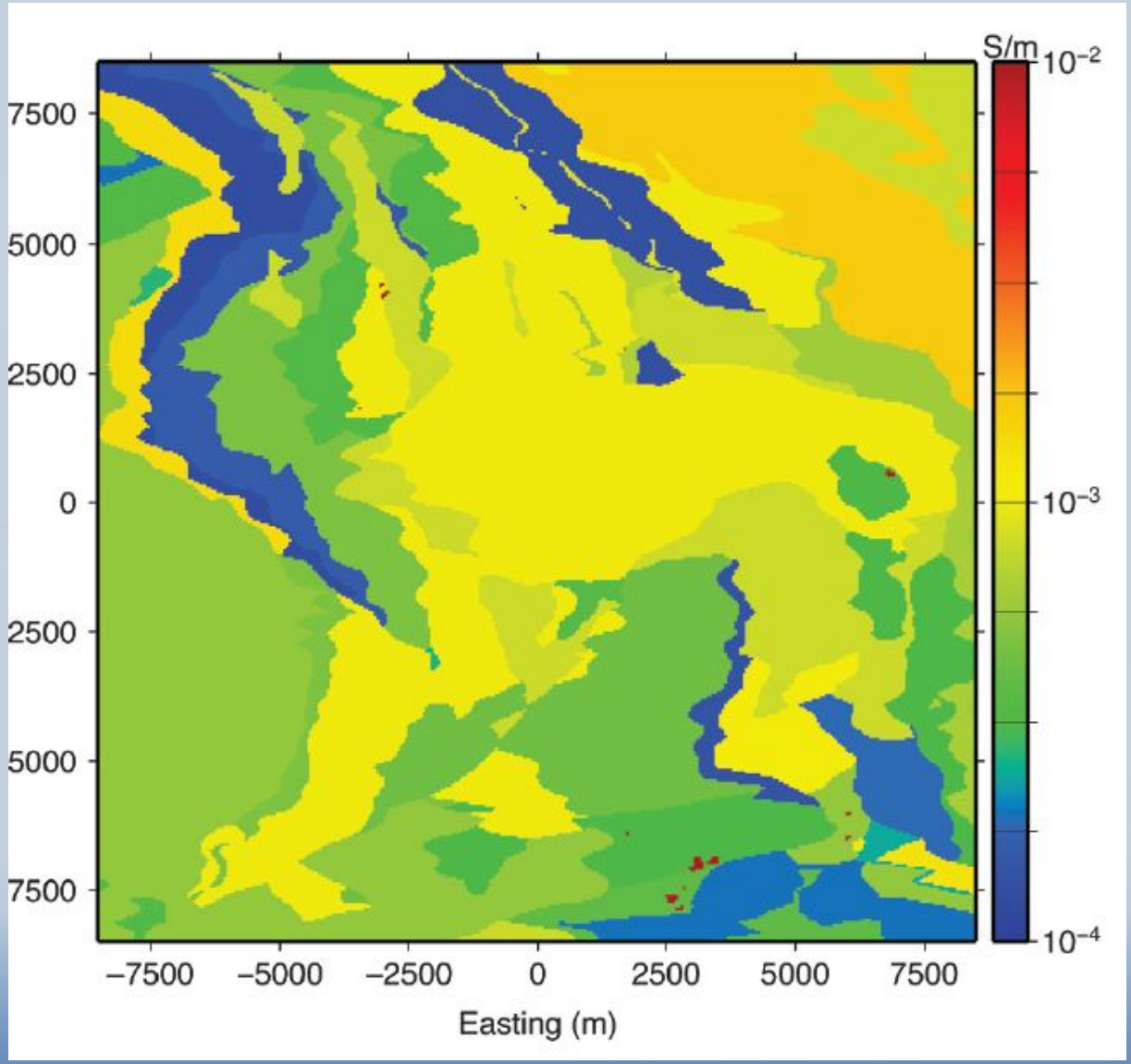


Figure 6. San Nicolas structural model.



SEAM



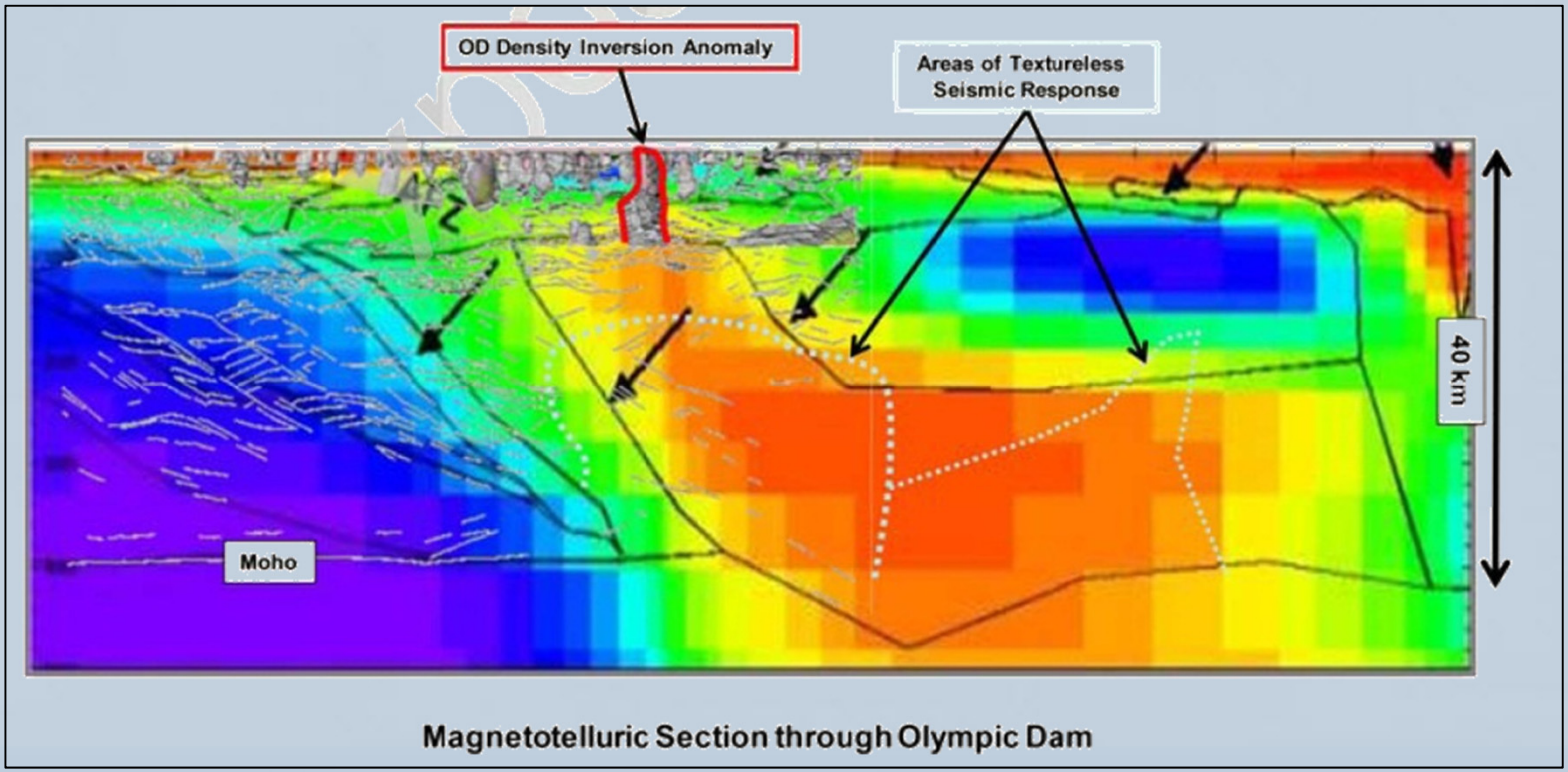
CMIC-Foot Prints

- Canadian Malarctic-QE
- Millennium SK
- Highland Valley-BC

Role of SEAM Models-Value

- Exploration targeting-planning; synthetic/predictive
- Exploration targeting-tactical; real-time data analysis
- Educational

Undercover Toolkit



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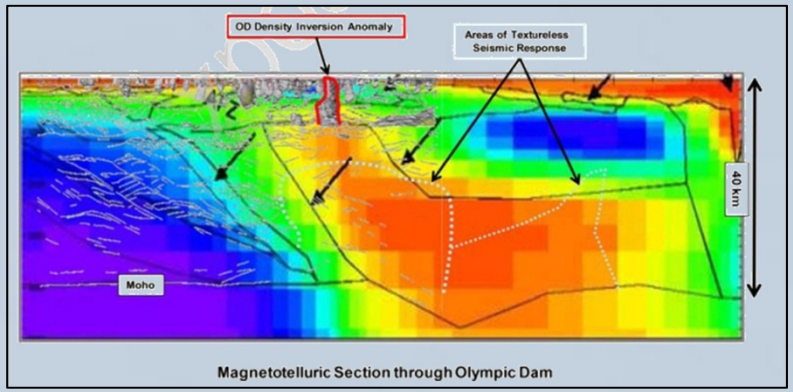
Undercover Toolkit



Density model

Conductivity model

Velocity model

Role of SEAM Models-Challenges

- Oil & gas model is high dependent on internal R&D groups supporting/using SEAM results
- Service component supporting minerals of limited technical depth/resources.
- Cost