

THE USE OF REMSCAN™ TO ACCELERATE THE CLEAN-UP OF A MAJOR DIESEL SPILL IN WESTERN AUSTRALIA

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What is RemScan?

- Handheld infrared instrument for the direct measurement of TPH in soil
- User simply pulls the trigger for a 15 second readout of TPH ($C_{10} - C_{36}$) in mg/kg
- No consumables or chemicals required



Diesel Spill at Tank Farm Site, WA





7



The Spill Response

- Project under a high level of scrutiny
 - Sensitive surrounding environment
 - Ongoing investigation
- Required rapid response
 - Minimise risk of further release
 - Avoid storm water impacts
- Clean up criteria
 - 400 mg/kg TPH (C₁₀ to C₃₆)
 - Total removal of impacted materials

Clean Up Validation

- Ziltek was engaged to supply and operate a RemScan unit to assist site validation works by:
 - Accelerating project closure - same day decisions
 - Increasing confidence - more data
 - Minimising lab costs – accurate screening tool
- It was decided to build a site-specific calibration model in the RemScan unit to:
 - Reduce soil interferences (e.g. carbonates)
 - Lower detection limit

Building a Site Specific Calibration

Collect 36 samples from site



Scan using RemScan (5x)

→ *Infrared spectra*



NATA lab analysis TPH

→ *Data*



Build model

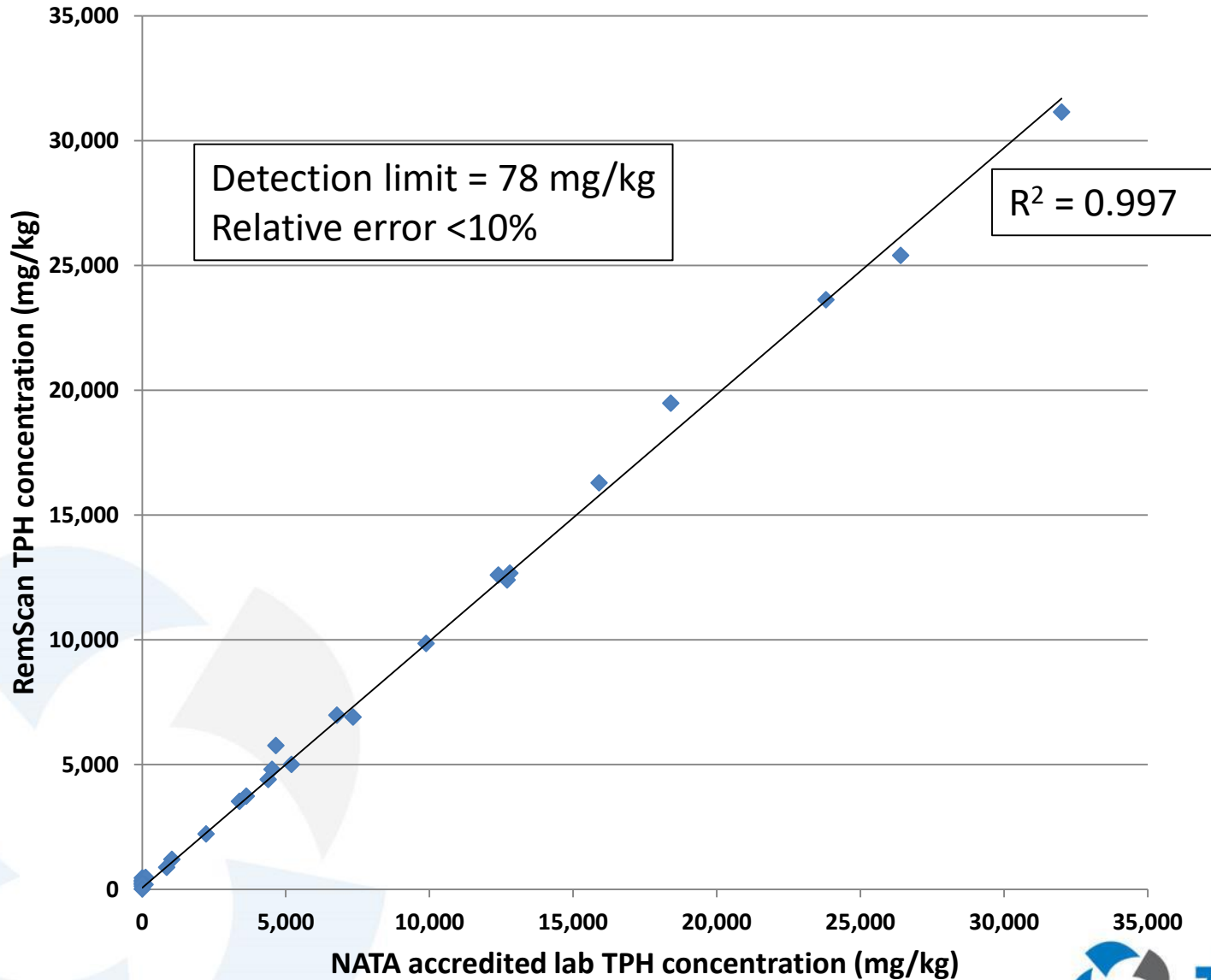


Load RemScan

*Entire process completed in 5 days



Cross Validation of RemScan versus Lab



Site Validation Process





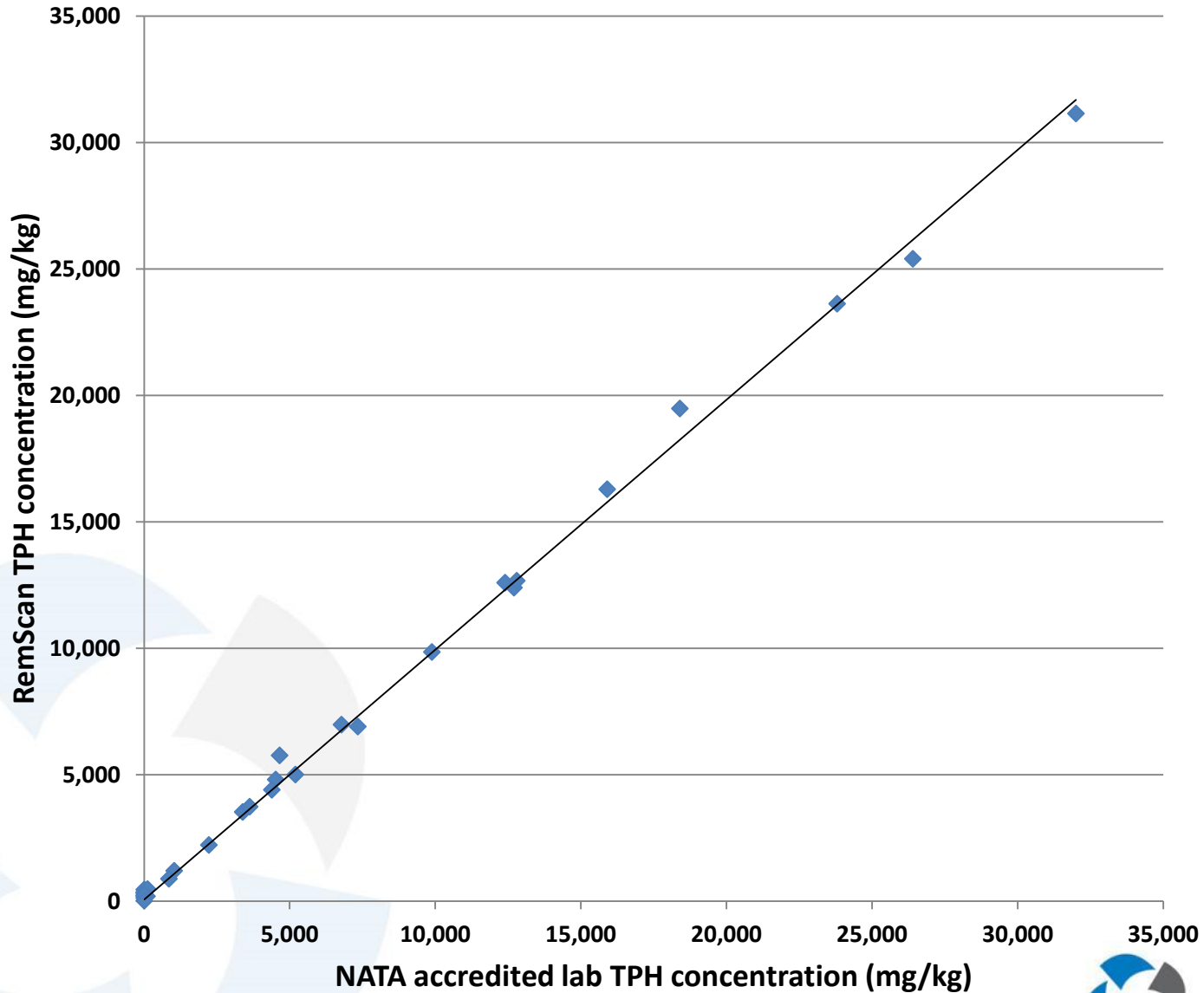




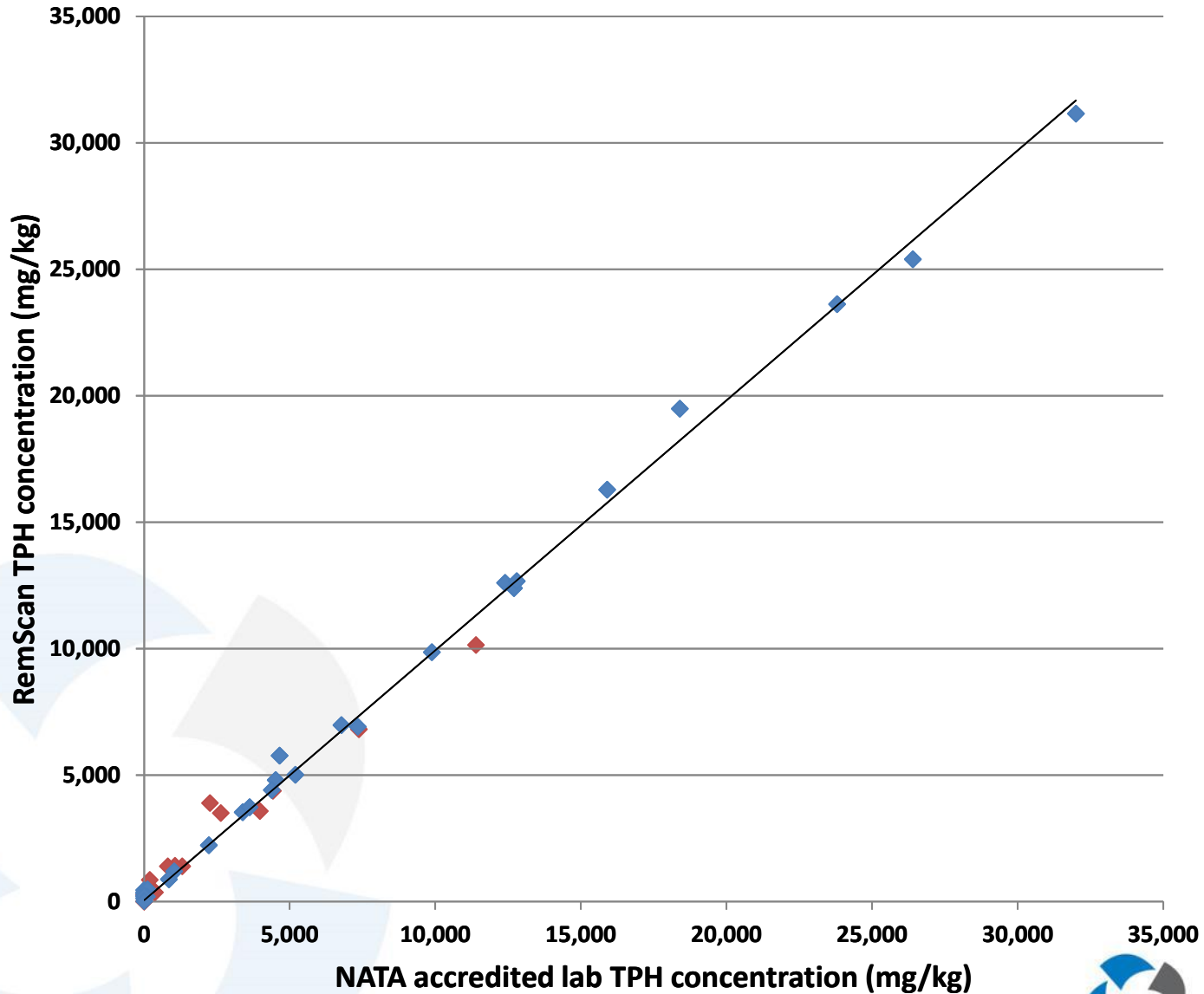
Independent RemScan Verification

- The environmental superintendent selected 19 blind samples for verification
- The samples were measured on site using RemScan and then sent for NATA laboratory analysis
- Each samples was scanned 5 times and the average was compared with lab data

Cross Validation of RemScan versus Lab



Cross Validation of RemScan versus Lab



Project Outcomes

- Site specific calibration developed in 5 days
 - Detection limit of 78 mg/kg TPH C₁₀-C₃₆
 - Relative error <10%
- Completed site validation works in 4 days
- Cost savings estimated by client at >\$30,000
- RemScan sets a new precedent for rapid screening of TPH in soil

Technology Partners



HAZWASTE*fund*



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