

# **Science and Communities: ESR's consultation work with the Paritutu community**

**Funded by the Ministry of Health**

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**Specialist Science Solutions**

**Manaaki Tangata Taiao Hoki**  
protecting people and their environment through science

# Presentation outline

- **Study Purpose & Background**
- **Phase I: Consultation**
  - How ?
  - Who was involved ?
  - Key Issues
- **Phase II: Study Design**
  - Selection criteria for serum testing
- **Conclusion**

# Study Purpose

- **Study to investigate allegations of exposure (current and historical) to dioxins for residents living in proximity to Ivon Watkins Dow chemical plant in Paritutu.**

# Phases I & II

- **Phase I: Consult with community and stakeholders to design an appropriate scientific study.**
- **Phase II: Conduct a study to assess community exposure to TCDD, if, in fact, exposure had occurred.**
  - Serum / blood testing
  - Up to 100 samples
  - Determine possible exposure not health effects

# New Zealand

Auckland

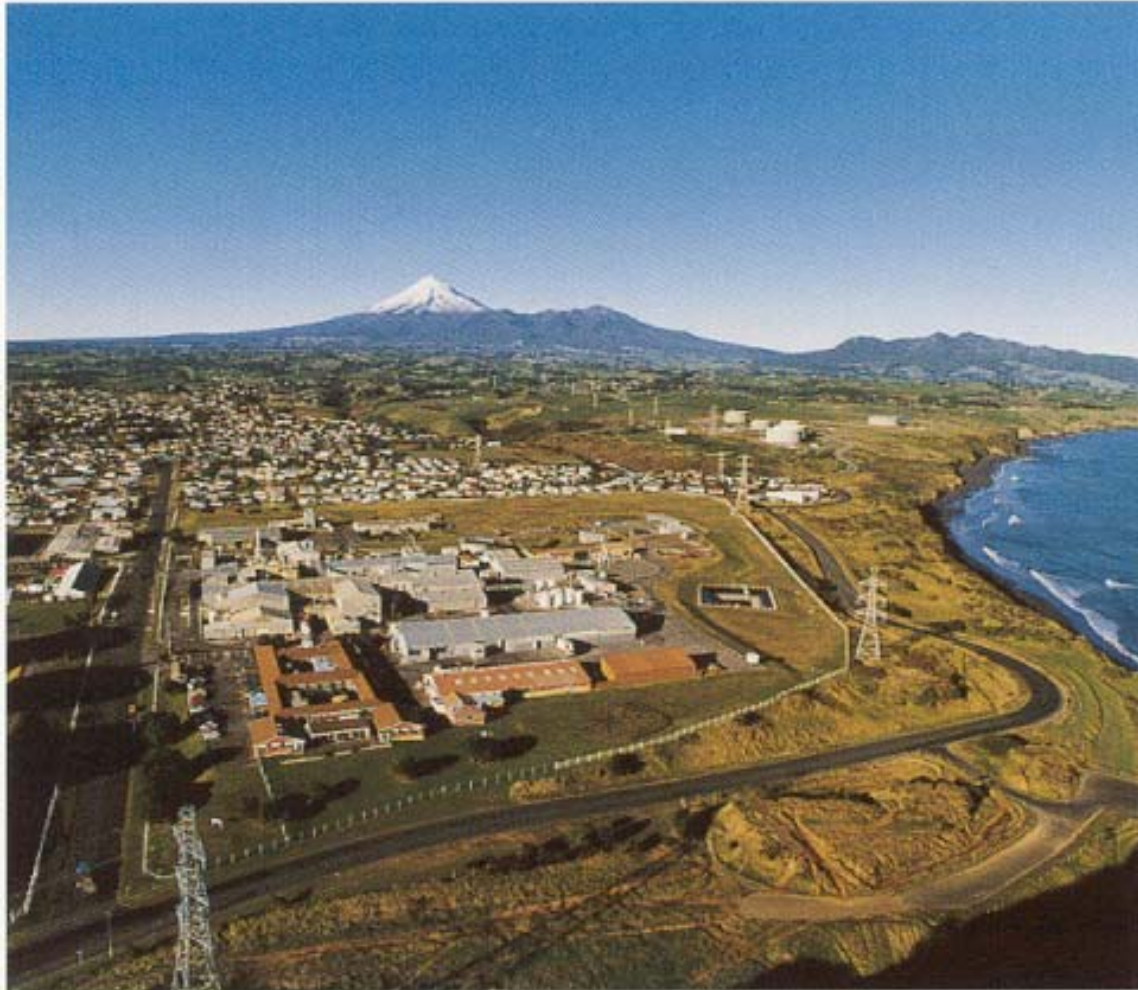
Wellington

Christchurch



# New Plymouth

– the home of Dow AgroSciences (NZ) Limited











# Purpose of Phase I Consultation

- **Relationship building with key stakeholders**
- **Establish 'facts'**
  - Revisit previous NZ govt studies
  - Acknowledge local expertise
  - Share international literature
- **Listen to local concerns and ensure science addresses these to best extent possible**
- **Involve those most affected by the issue in the study design**

# Consultation Process

- **Paritutu Community Health Liaison (PCHL) Group**
- **One on one meetings with stakeholders to check that PCHL group encompassed all those who 'ought' to be involved**
- **Expanded consultation through stakeholder / interest group networks**
- **Principles: Active listening, acknowledgement of community expertise, open information sharing, being accessible**

# Paritutu Community Health Liaison Group

- Taranaki Health
- Paritutu Residents Association
- Ngati Te Whiti hapu
- Te Puni Kokiri
- Cancer Society
- M.S. Society
- New Plymouth District Council
- DIN (Dioxin Investigation Network)
- DIAG (Dioxin Investigation Action Group)
- DLAG (Dioxin Legal Action Group)

# Other stakeholder groups

- Ivon Watkins Dow (now Dow AgroSciences)
- Taranaki Regional Council
- Ministry of Health
- Ministry for the Environment
- OTAG (Organochlorines Technical Advisory Group)
- Poisoned Peoples Assn
- RIMPAC
- N.Z. Vietnam Veterans
- Greenpeace N.Z.





# Community Concerns

## Ngati te Whiti / Residents Assn

- Is it safe to live in Paritutu now ?
- Is it safe for our children and grandchildren living in the area ?
- Property values

## Activist Groups

- Blood testing wrong method, need to test adipose tissue
- Concern that samples would be pooled
- Too much time elapsed since exposure to get positive result – therefore study flawed
- NZ background levels high (1998 national organochlorines survey not a good control)

# Outcomes from Phase I

- **Better understanding of community concerns**
- **Some agreement on historical 'facts'**
- **Boundaries of study (what science can /can't do discussed)**
- **MfE soil study (2002) to address current safety concerns**
- **MoH (ESR) study to investigate historical exposure**

# Community Input to Phase II Study Design

- Reviewed general content of selection questionnaires
- Agreed blood serum testing on individual samples
- Agreed comparison with age / gender matched cohorts from 1998 national survey
- Small targeted study for historical exposure
- Local data helped inform modelling
- Community nominated laboratory - Axys, Canada
- Community nominated peer reviewer – Hatfield Consultants Ltd, Canada

# Phase II: Exposure Study Design

1. Advertising (national newspapers, local posters, leaflets) and mailing of Questionnaire 1
2. Assessment of Q1 / selection for Q2
3. Assessment of Q2
4. Analysis of Questionnaire data & Modelling
5. Final selected participants
6. Blood sampling, collection & analysis
7. Final report & results for participants



# Selection questionnaires

## Questionnaire 1: Exposure Factors

- Residential location
- Time and duration of residence
- Home produce consumption

## Questionnaire 2: Toxico- kinetic Factors

- Age, Gender
- Children & breastfeeding
- Bodyweight history
- Exclusion criteria  
(occupational exposure  
etc)

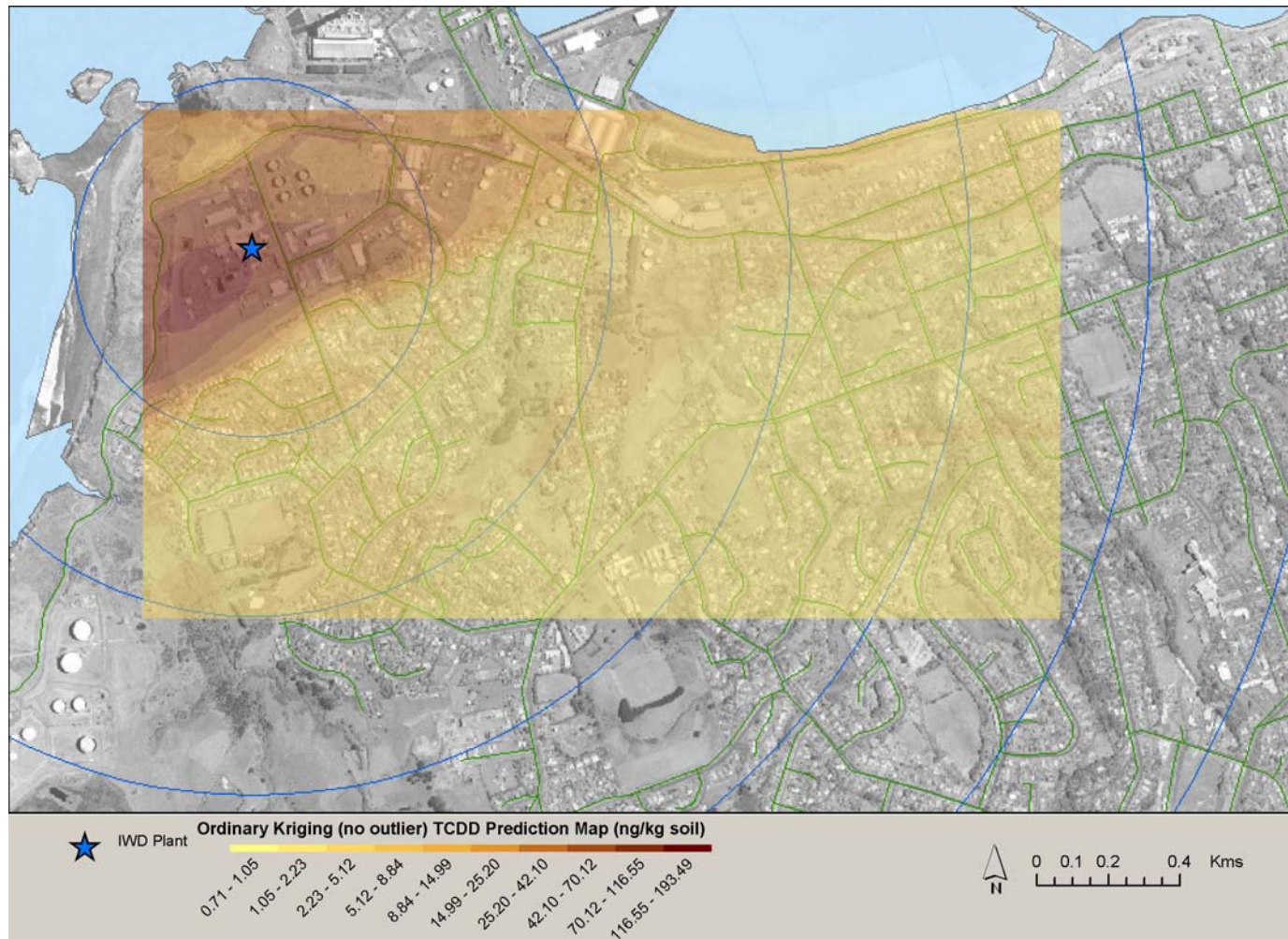
# Modelling

- **Soil Modelling of TCDD in the community**
- **Air Dispersal Modelling for 1986 explosion**
- **Toxico-kinetic modelling for individuals**
- **Multipathway modelling for predicting total TCDD exposures**

# Selection Criteria

- **Must have lived in the area at least 1 year between 1962-1987**
- **Must not have worked at IWD**
- **Did not have an occupation that involved potential TCDD exposure (I.e. herbicide spraying, timber treatment)**
- **Did not live for a substantial time overseas (more than two years)**

# Spatial Prediction Model of Soil TCDD





# Location of Residents Expressing an Interest in Participating



**830 interested**

**370 Q1's**

**149 Q2's**

**52 Selected**

**(Initially 24,  
then 28)**

# Lessons from Phase I

- **Science can investigate, but will not ‘fix’ this problem**
- **Communicating boundaries is very important**
  - **ESR’s mandate for action limited**
  - **Integrate anecdotal evidence**
- **‘Independence’ key**
- **‘Best practice’ risk management or consultation principles are difficult to apply to ‘worst case scenarios’**

# Conclusions

- **The Paritutu community was consulted and had input into the study design**
- **The study was designed to select and test the serum of those most likely to have had historical exposure to dioxin**
- **The study was completed successfully and evidence of exposure was found**
- **On completion, the study design and results were not disputed by the community**

# Acknowledgements

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## **Air and Environmental Sciences Ltd**

**Mathew Noonan (toxico-kinetic modelling)**

**Craig Stevenson (air dispersal modelling)**

## **Ministry of Health**

<http://www.moh.govt.nz/>