

# HEALTH SUPPORT SERVICES FOR PEOPLE EXPOSED TO DIOXIN

## Discussion document

For consultation only

Not Government policy

7 July 2007

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### Introduction to this document

In March 2007, Allen & Clarke Policy and Regulatory Specialists Ltd was asked by the Ministry of Health to identify possible health support services for people who lived in Paritutu between 1962 and 1987, and other groups, who may have been exposed to higher levels of dioxin than other New Zealanders.

The purpose of this document is to set out a range of possible health support services, and to seek your views on these. The health support service options in this document are options only. We want your views on whether these options would meet your health needs and your expectations of the services that the Ministry of Health should make available to those who have been exposed to higher levels of dioxin than other New Zealanders. We also want to make sure the services offered are practical and effective.

There may be some options that you consider are missing, and others listed here that you don't think are useful or that don't go far enough. In this document, there are a number of questions. You might want to use these questions as a basis for responding. We have repeated these questions in a separate document that includes space for your response, in case you find it easier responding in this way.

Please let us know your views. You can do this by sending written submissions to us and/or by attending a meeting for residents, being held in New Plymouth on 25<sup>th</sup> July 2007. Information on how to make a submission and how to register your interest in attending the meeting is provided on page 13 of this document.

While the focus of this discussion document is on people who lived in Paritutu between 1962 and 1987, we have been asked to consider the health needs of other exposed groups (for example, those who might have been exposed to dioxin as a result of their occupation and Viet Nam veterans). We want to hear from these other groups as well, as the Ministry of Health and other departments want to consider whether a health support service should also cover the needs of these groups.

We have prepared a detailed report on all the issues covered in this document<sup>1</sup>. This is available on the internet at [www.moh.govt.nz/dioxins](http://www.moh.govt.nz/dioxins) and [www.allenandclarke.co.nz](http://www.allenandclarke.co.nz). Copies are also available to view at the New Plymouth Public Library within Puke Ariki, the New Plymouth District Council Civic Centre in Liardet Street and at the Corporate Reception or Health Promotion/Protection unit at the Taranaki District Health Board in David Street, New Plymouth. Alternatively, please contact *Allen & Clarke*.

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<sup>1</sup> Allen & Clarke. *Health Support Services for Groups Exposed to Dioxin. Phase 1: Assessment of evidence and options*. June 2007.

**Please note:** While we are happy to pass on your views on other matters relating to dioxin exposure to the Ministry of Health, our work is focused entirely on the development of a health support service. As a result, this is the subject on which we are seeking your views.

## 1. Background

### 1.1 Dioxin exposure and health effects

Between 1962 and 1987 Ivon Watkins-Dow (IWD) manufactured the herbicide 2,4,5-T from its plant in Paritutu, New Plymouth. During the manufacture of 2,4,5-T, the dioxin TCDD (2,3,7,8-TCDD) is formed and remains as a contaminant within the herbicide. People living in Paritutu have been very concerned for a long time about dioxin exposure from the IWD plant and a recent serum dioxin study<sup>2</sup> showed that some residents had blood serum levels of TCDD significantly above those of the general New Zealand population.

There are many studies regarding the health effects of exposure to dioxin – and many people dispute what others say about what dioxin does to people. Information on health effects is attached as Appendix 1 to this document.

The Ministry of Health has agreed that the dioxin levels found in Paritutu residents may affect the health of individuals and may cause increased rates of disease, in particular cancer, on a population basis. The extent of the increased cancer risk is difficult to precisely estimate, but the Ministry has previously estimated that it may be up to 10 percent above the national cancer mortality rate for those residents who lived for at least 15 years within 400 metres south and 1,000 metres east of the plant between 1962 and 1987<sup>3</sup>.

### 1.2 The Ministry of Health's response

The Ministry of Health has agreed that a health support service should be developed for those people who lived in Paritutu between 1962 and 1987 who may have been exposed to dioxin from the IWD plant. They have also agreed that a programme of providing ongoing health information and technical support will be required for clinicians and other health professionals who will need to support those people exposed to dioxin.

### 1.3 The Health Support Service Project

*Allen & Clarke* has been asked to:

- Identify possible health support service options for residents and former residents of Paritutu (as well as considering the needs of other groups, such as workers and Viet Nam veterans, who have been exposed to dioxin);

<sup>2</sup> ESR. 2005. A Study of 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) Exposures in Paritutu, New Zealand. Institute of Environmental Science and Research Limited: Wellington.

<sup>3</sup> Ministry of Health. 2006. *Suggested Policy Options to Address Community Concerns about Residential Exposure to Dioxin at Paritutu: Outline of a Possible Early Intervention Programme with Continuing Medical Education for Medical Practitioners*. Draft for discussion only. Ministry of Health: Wellington.

- Review the evidence for the effectiveness and practicality of such health support services;
- Consult with those who would be making use of any health support services;
- Consult with those who would be delivering services; and
- Consider who should be eligible for such services.

While *Allen & Clarke* has been asked to look at the evidence around what health effects have been shown to be caused by dioxin exposure (in the context of identifying what health services might therefore be necessary for those who have been exposed), this is not the priority focus of our project. We are working from the basis that:

- Significant dioxin exposure does cause harm to exposed populations;
- There has been exposure in the case of a group of people who lived in Paritutu between 1962 and 1987; and
- The Ministry of Health has agreed that there will be a health service developed for these people.

As a result of the above points, our priority is therefore on identifying what health support services should be provided to those who have been exposed – not on a technical discussion of health effects, levels of exposure or the history of the Government’s response or lack of response to residents’ and others’ concerns about their exposure to dioxin.

## 2. Health Support Services

### 2.1 What are we actually trying to achieve for those who have been exposed?

As there is currently no known effective way to decrease the level of dioxin in the body once someone has been exposed (other than through normal excretion over time, which can take a long time), the health service options for those who have been exposed arguably fall within the following approaches:

- Allow time to run its course (i.e. do nothing);
- Treat the range of conditions and diseases associated with dioxin exposure; and/or
- Promote initiatives that maintain and improve health by limiting the impact of conditions and diseases associated with dioxin exposure.

We consider that the “do-nothing” option is unacceptable. It completely ignores the needs of exposed persons. The Ministry of Health also clearly agrees as it has already decided that a health support service is required.

Treatment services are used to address specific diseases and conditions when diagnosed. Dioxin may be associated with illness and there will, therefore, be a need to ensure that exposed persons have access to effective treatment.

The third approach is preventative. It focuses on reducing the factors that can contribute to the illnesses associated with exposure to dioxin. A preventative approach can potentially limit the impact of exposure while promoting a healthier population overall. For example, some of the key risk factors for cancers are tobacco use, poor nutrition and low levels of physical activity. Reducing these risk factors may help reduce the onset of cancers and other diseases.

## 2.2 What principles are important in designing the health support service?

When any health service is proposed or developed it is important to identify some basic principles to guide both the development and the implementation of the health service. In this case, we have identified the following (draft) principles to guide our work:

- **Equity** (all have the right to equal treatment): For example, services should identify and target the most needy and hard to reach within the exposed population, address the needs of Maori and Pacific peoples, and avoid prioritising those with poor health within the exposed population over those with poor health outside of the exposed population;
- **Accessibility** (services should be easy to access): For example, service providers should be knowledgeable about dioxin exposure and its associated health effects, and of the range of services available and how to support access to these;
- **Acceptability** (services should meet the community's expectations and be supported by providers);
- **Effectiveness** (services should draw on evidence and best practice, as well as on experience in health promotion and disease prevention);
- **Population-based**: For example, services should be based on the needs of the exposed population, and not just on the needs of those individuals who actively seek care;
- **Co-ordination** (services should be coordinated, both at the primary care level (e.g. initial services provided by GPs and practice nurses), and in linkages into secondary care (e.g. specialist care that is typically provided in a local hospital) and tertiary treatment services (e.g. very specialised care often only provided in a few locations)); and
- **Sustainability** (services should be cost-effective and affordable to government so that over the long term they continue to be funded).

**Question 1: Do you have any views on the discussion above about the design of a health support service or principles for the delivery of health support services?**

## 2.3 Who would be eligible for the health support service?

The Ministry of Health has already decided that people who lived in Paritutu between 1962 and 1987 and who have potentially been exposed to dioxin from the IWD plant will be eligible for the health support service. This group is, therefore, central to the discussions in this document. However, we also need to consider the benefits in broadening eligibility to other groups exposed to dioxin, such as former IWD workers and timber treatment workers, and are interested in hearing about the health support needs of these groups.

In proposing eligibility criteria for people that lived in Paritutu between 1962 and 1987, we have looked at a number of different parameters that could, collectively, be used to define the group of people that might be eligible for the proposed health support service. This includes demographic factors (e.g. whether people were exposed to dioxin in their workplace, in addition to where they lived), timing (e.g. the number of years people were exposed for), spatial factors (e.g. where people lived in relation to the plant) and the intensity of exposure. We have found that there is a lot of uncertainty around these factors. As a result, we have consulted a technical group (consisting of epidemiologists, toxicologists and public health specialists) and worked through each of the parameters in an attempt to reach agreement on the exposure group.

The technical group took an inclusive approach (i.e. where they felt there was reasonable doubt about whether a population should be included or not, they decided to include them). The parameters are, therefore, reasonably broad and include not only people who lived in Paritutu, but also people who worked there.

Based on the agreement reached by the technical group, we propose the following criteria for defining the eligible population, accepting that health service providers will need a degree of flexibility in applying these criteria.

The following people would be eligible for access to the health support service that will be implemented:

- For people who lived in Paritutu between 1962 and 1987 – those who lived for at least one year between 1962 and 1969 or for at least five years between 1970 and 1987, within an area 1,000 metres to the east of the IWD plant and 400 metres to the south;
- For people who worked at the IWD plant between 1962 and 1987 – those who worked at IWD for at least six months during this period. These criteria would be reviewed once the results of recent serum dioxin tests are available;
- For people who worked elsewhere in Paritutu between 1962 and 1987 – those who worked for at least one year between 1962 and 1969 or for at least five years between 1970 and 1987, within an area 1,000 metres to the east of the IWD plant and 400 metres to the south. Actual access to the health support service would be determined on a case-by-case basis.

Some information on the basis for these proposals is attached as Appendix 2 to this document.

We need to further consider the implications of these criteria. We also need to consider the acceptability and appropriateness of these criteria amongst exposed people, health providers and others.

<p><b>Question 2:</b> Are these the right criteria for identifying who should be eligible to access the health support service? If not, what criteria do you suggest be used?</p> <p><b>Question 3:</b> Do you think these criteria are too rigid - or are they too broad? Why?</p> <p><b>Question 4:</b> Do you have any views on whether eligibility should be expanded to include any other groups of exposed people, such as timber treatment workers?</p>
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## **2.4 Overview of Health Support Options**

Most of the remainder of this document assesses the health support service options we have identified for consideration by the community and by health providers.

The Ministry of Health has requested that we consider the development of a health support service for the exposed group based on a preventative approach that aims to address the risk factors for, and reduce the incidences of, diseases and conditions that dioxin is associated with. This means the service will need to focus on those people who are not currently diagnosed with a condition associated with exposure to dioxin, and those people who have such a disease or condition.

While no decisions have been made about the final scope of services, the Ministry has indicated that it anticipates that an annual free consultation with a general practitioner will be central to the programme, with any subsequent services required being tailored to individuals' needs.

We have presented the options for a health support service as a menu, recognising that people may, based on their needs and preferences, select from the menu what best suits them. Please note that at this time these are options only and there has been no decision from the Government on what will ultimately be provided and funded.

The menu of options includes:

### **Foundation options**

- Option A: One-off visit to a GP for a full health check; and/or
- Option B: Regular GP visits for a standard consultation; and/or
- Option C: Regular GP visits for a full health check.

### **Add-on options:**

- Option 1: Access to health promotion activities and support;
- Option 2: Access to general counselling;
- Option 3: Develop an exposure registry;
- Option 4: Access to dioxin-related screening tests;
- Option 5: Access to genetic counselling; and
- Option 6: Access to complementary and alternative healthcare.

Alongside these of course are the usual diagnosis and treatment services offered through the public health system.

### **2.4.1 Foundation options**

Options A, B or C could form the foundation of a health support service. Further work needs to be done to look at the cost implications of each option, the number of people likely to access the services, and the ability of health providers (GPs etc) to deliver the services. What is actually carried out during a GP visit would vary based on what foundation option is selected and by any add-on options that are implemented.

**Option A: One-off visit to a GP for a full health check**

This would provide a one-off entitlement to either a GP check-up or a comprehensive medical assessment. The GP check-up would include a standard health consultation, including discussion of potential health risks associated with dioxin exposure and how to reduce any risks. The comprehensive medical assessment would include physical and mental health screening. People would be referred on to other services (see the section below on add-on options) as appropriate.

We suggest that while this option is feasible, it may only be partially effective in terms of its ability to screen for conditions associated with dioxin exposure, many of which take a long time to develop and, on its own, will achieve little in terms of promoting good health.

**Option B: Regular GP visits for a standard consultation**

This option would provide access to a regular GP visit, covering those issues discussed under *Option A* above. Initially, visits may focus on discussing health concerns and establishing health status. Over time, visits may be structured around an individualised care plan which sets realistic, achievable health and quality of life-related goals.

The regularity of the visits could be tailored to different exposed groups according to their health risk, although a standard annual visit is likely to be more appropriate given the difficulty in estimating an individual's risk. Entitlement may or may not be limited to a defined period of time (e.g. five years, 10 years). Depending on the precise nature of the visit, it may be more appropriate and advantageous for practice nurses to lead the consultation.

This would appear to be an appropriate option, in particular in terms of being highly accessible, able to co-ordinate with other health services and effective in terms of supporting early diagnosis and health promotion through ongoing health monitoring.

**Option C: Regular GP visits for a full health check**

This would provide access to a regular health assessment, covering (as in *Option A*) physical and mental health screening, and referral to other public health services as appropriate. The assessment could be on an annual or biannual basis, although it may also be feasible to offer it on a demand basis. Again, entitlement may or may not be limited for a defined time period.

Again we would suggest that this is a feasible option, however, accessibility may be affected by the cost of the services and the availability of screening tests for the conditions associated with dioxin exposure.

- Question 5:** Do you think that a visit to your General Practice is the most appropriate place to initially address your health concerns relating to dioxin exposure?
- Question 6:** Do you think you would benefit from a regular full health check (Option C) and would this be acceptable to you, or would a standard health consultation on a regular basis (Option B) be more appropriate?
- Question 7:** If the health support service was to include a regular visit to your General Practice doctor or nurse, solely to discuss and assess health concerns relating to dioxin exposure, how often would you want to attend these visits (e.g. every six-months, once a year, once every two years)?

## 2.4.2 Add-on options

The add-on option(s) would run alongside the foundation option(s). Once again, further work needs to be done to look at the cost implications of each option, the number of people likely to access the services, and the ability of health providers to deliver the services.

### Option 1: Access to health promotion activities

This option would provide access to health promotion activities to reduce risks associated with tobacco use, high alcohol use, poor nutrition, overweight and obesity and low levels of physical activity, in order to limit the health effects of dioxin exposure. This reflects the evidence that dioxin is a carcinogen and, therefore, reducing the known risks associated with getting cancer and the impact of cancer is important. It also recognises the fact that there are few treatments available for both dioxin exposure and for some of the conditions associated with exposure.

This option might include access to services such as exercise classes, gym club memberships, smoking-cessation support, weight management and nutrition consultation/advice.

We suggest that this is a feasible option that has the potential to lead to clear health gains.

**Question 8: Do you think that you would find health promotion services acceptable and do you think you would be likely to take advantage of such activities if they were offered?**

**Question 9: What sorts of health promotion services would you find useful?**

### Option 2: Access to general counselling

This option would provide access to counselling services to provide support and reassurance for people concerned about their health and wellbeing. The vast majority of mental health support needs are likely to be for mild to moderate conditions, such as anxiety and depression associated with the potential effects of exposure. Such illnesses are commonly undiagnosed, yet treatments are readily available. Counselling may also provide an appropriate, supportive setting where exposed people can discuss concerns relating to their exposure history and health risks.

This option would appear to be feasible, particularly given the effectiveness of diagnosis and treatment and potentially the availability of existing services (although this would need to be assessed further with health providers).

**Question 10: Do you think you have a need for services that will help address any stress and anxiety you have as a result of potential or real exposure to dioxin?**

**Question 11: If you were referred to counselling services, do you think it is likely that you would attend?**

**Option 3: Develop an exposure registry**

An exposure registry is not proposed as a direct service, but as a tool for assisting in communicating with the exposed group and, potentially, administering any other services provided, and monitoring and evaluating the implementation of services. At a minimum, the registry would hold the names and contact details of the exposed group eligible for health support services. If it was to be used to administer a health support service it would also need to hold information on the services accessed and there would need to be a means for health professionals to enter this information into the registry. For monitoring and evaluation purposes, it would require additional information such as exposure history and health status.

Although a registry would not directly contribute to improvements in health, it would appear to be a feasible option, particularly in supporting communication with exposed people and, through this, staying in touch with emerging research on the health impacts of dioxin exposure and on any changes to health services.

If it was decided to establish a register, inclusion on the register would be voluntary. Any parameters for the operation of the register would have to be consulted on further with the community before it was established. Privacy concerns, what information it held and what the information could and could not be used for would be key considerations.

- Question 12: What do you think would be the main benefits for you, if any, from being placed on a dioxin exposure register?**
- Question 13: Would you wish to be added to a register of exposed people?**

**Option 4: Access to dioxin-related screening tests**

This option would provide an entitlement for dioxin-related screening tests. This could include tests for determining dioxin exposure, a genetic test to determine DNA damage, and tests for conditions related to dioxin exposure.

A serum dioxin test would give an indication of current TCDD body “burden” and allow an estimation of historic exposure levels. However, the results are not able to be used for disease risk quantification (identifying how likely a person is to develop a disease), disease diagnosis (identifying a disease) or prognosis (identifying how a disease will progress). Furthermore, a “positive” result, demonstrating elevated exposure to dioxin in the past, can be a source of anxiety, particularly where the implications of that elevated exposure are not able to be translated into likely future health consequences. Some people are likely to not want to know what their serum dioxin levels are for these reasons, while others may prefer to know.

Similarly, a genetic test for DNA damage cannot diagnose or predict the health effects of TCDD exposure for individuals. There is considerable evidence to suggest that TCDD does not directly cause DNA damage. Nevertheless, people who have been exposed to dioxin and health providers may have views and expectations concerning DNA damage testing.

Currently there are no proven effective cancer screening tests for the four cancers (see Appendix 1) where there is sufficient evidence of an association with dioxin exposure. However, given that dioxin is a carcinogen and may be associated with some other types of cancer, early detection of cancers through the two existing national cancer screening programmes (for breast cancer and cervical cancer) and through other processes, such as regular health checks, is important. This would include close assessment and surveillance of those with familial risk – where cancer has tended to occur among members of a family.

There are existing screening tests for some of the other conditions associated with exposure to dioxin. People with Type 2 diabetes are entitled to annual check ups and screening for the adverse health effects associated with diabetes under the *Get Checked* programme. Pregnant women are screened for neural tube defects as part of early-pregnancy monitoring. Participation in these initiatives may be particularly important for people exposed to dioxin.

Participation in cancer screening initiatives and referral to specialist assessment services to promote early detection of cancer would appear to be an appropriate response for people exposed to dioxin. Similarly, there would be advantages in ensuring exposed people participate in all other screening tests and programmes for conditions associated with dioxin. The usefulness and desire for serum dioxin testing needs to be tested with the community to see what they think. Given the evidence that TCDD exposure does not directly cause DNA damage, and the uncertainties in the quality of DNA damage testing, the option of DNA damage testing does not appear practical or useful, however again the views of the community are sought on this.

- Question 14:** Based on your knowledge of what a serum dioxin test involves and what it can and cannot show, do you think the Government should fund such tests for those exposed to dioxin?
- Question 15:** Is it likely that you would want to get a serum dioxin test? Why / why not?
- Question 16:** Do you have any views on the value of DNA damage testing?

#### **Option 5: Access to genetic counselling**

This option would provide access to genetic counselling services for individuals or families with genetic disorders. The counselling could be used to help confirm diagnosis of existing medical conditions through discussing family history and other information, and to help people with such disorders to understand how they might progress in the future. Access to genetic counselling services would be based on a referral system, with priority given to cases where there is good evidence of risks to subsequent generations. As such, services would be likely to focus on women of child-bearing age and would evaluate risks for current or future pregnancies.

There is some evidence that suggests that dioxin exposure may be associated with spina bifida in the offspring of exposed individuals. It may, therefore, be appropriate to provide genetic counselling to women of child-bearing age, in conjunction with pregnancy screening for neural tube defects.

- Question 17:** If genetic counselling were offered to women of child-bearing age only, would this be of direct relevance to you?
- Question 18:** Do you have any views on genetic counselling?

#### **Option 6: Access to complementary and alternative healthcare**

This option would provide access to complementary and alternative healthcare where the efficacy and effectiveness of specific treatments and therapies had been evaluated. The treatments would need to directly address health effects related to dioxin exposure.

This is a feasible option provided the evaluations of specific treatments are safe, to an acceptable standard, and that there is clear evidence of the health gains associated with the treatments.

- Question 19:** Are you currently using any alternative treatments as a result of your exposure to dioxins?
- Question 20:** Are you aware of any specific treatments and therapies that would address your health needs associated with dioxin exposure?
- Question 21:** Do you agree that any treatments and therapies must have some evidence of safety and efficacy before they are funded?

### ***2.4.3 Health support services for future generations***

People exposed to dioxin in Paritutu and elsewhere have expressed considerable concern about the impacts of their exposure on the wellbeing of their children and grandchildren. However, other than spina bifida (for which there is limited or suggestive evidence of an association with dioxin exposure), there is very little evidence of impacts of dioxin exposure on future generations. Children (and perhaps grandchildren) of exposed people could be provided with specialist paediatric assessments and/or specialist examination to detect the more subtle forms of spina bifida. Or, because of community concerns about their children's wellbeing more generally, perhaps it would be appropriate to provide children of exposed people with access to some of the other support service options outlined above.

- Question 22:** Do you have any concerns for the wellbeing of your children or grandchildren as a result of you being exposed to dioxin?
- Question 23:** Do you think it would be appropriate to provide health support services for children and grandchildren of exposed people? If yes, what services and why?
- Question 24:** Should these services be provided just for children, or for grandchildren as well, and what about further generations?

### ***2.4.4 Other health support services***

There may be other possible health support service options that we have not considered and that you may like to tell us about. If this is so, we would appreciate a full explanation of what you think should be provided, how, and to whom.

- Question 25:** What other health support service options do you think should be provided to exposed persons?
- Question 26:** Do you have any other comments on health support options for residents and former residents of Paritutu, or for other groups that have been exposed to dioxins?

### ***2.4.5 Issues relating to any health service***

We are interested to hear your views on what makes a good health service (generally). This may include issues such as ease of access and level of service to the community, who should bear the cost of provision of services, types of agencies delivering the service, flexibility in terms of ways of providing services (including cultural sensitivity), quality control, accountability to the community, etc.

- Question 27:** Do you have any views about how a health support service should be structured and run?

### 3. Ongoing information and advice for health practitioners: options

Health practitioners who are involved in supporting people exposed to dioxin will need to be knowledgeable about:

- The associations between dioxin exposure and health, and the science behind determining these associations; and
- The scope of the health support services covered under the programme and the ways to access these services, including eligibility criteria, referral mechanisms and the boundaries between the services and other targeted health services.

Until we know what health support services will be available to exposed people and the parameters of the exposure group (the group eligible to access services), it is difficult to propose detailed options on how we might ensure that useful information and advice is provided to health practitioners.

We will need to identify the needs of different health providers and the approaches we take will no doubt vary. Options might include any or all of the following:

- Letters or updates to general practices and other health providers in New Plymouth about dioxin exposure, its health effects and the health support service;
- A one-off or series of local seminars or a conference;
- Continuing medical education endorsed evening events;
- Appointment of a national focal person for dioxin and health who could provide advice on an as-required basis;
- Website / online resources, pamphlets, etc. for health practitioners;
- A detailed resource document for health practitioners; and
- Information and advice to exposed people as a basis for informing their health practitioner (expert patient model).

The last option listed above might see the exposed persons being offered a card that they could present to their GP or other health providers that indicates that they have been exposed to dioxin, notes the services that they are eligible for and refers the health practitioner to further information (for example, on the internet).

<b>Question 28:</b>	<b>Based on your own experience, do you think there is a need for GPs, nurses and other health professionals to improve their understanding about dioxin exposure and its health effects?</b>
<b>Question 29:</b>	<b>Do you personally feel you need to understand more about dioxin exposure and its health effects?</b>

## 4. Next steps

If you have views and opinions on what health support services should be provided to persons exposed to dioxin we would encourage you to provide these to us in writing. Our contact details are listed below.

We would like to collect some basic information on people who make a submission. If you make a submission, it would be helpful if you could fill in your details, as appropriate, on the accompanying *submission form* and send this in with your response. You may want to use the space provided in the form to respond to the questions we have asked in this discussion document.

In addition to inviting written submissions, we are holding a number of meetings with groups in New Plymouth and with key health agencies. A meeting with residents of Paritutu is being held in New Plymouth at 7.00pm on 25 July. If you want to attend this meeting, please contact us **as soon as possible**.

We will analyse all the submissions we receive and provide feedback to all those who gave a submission. We will summarise all those views and present them to the Ministry of Health. We will also draw on those views in our further work and in making our recommendations to the Ministry of Health on what health support services should be provided to those exposed to higher levels of dioxin than other New Zealanders.

We appreciate your critical input into this project and hope that this contributes to a practical and effective service that meets your health needs.

**Post submissions to:** Paritutu Health Support Service  
Allen & Clarke  
PO Box 10 730  
Wellington 6143

**Fax submissions to:** (04) 890 7301

**Email submissions to:** [nhardie-boys@allenandclarke.co.nz](mailto:nhardie-boys@allenandclarke.co.nz)

**If you would like to attend the public meeting in New Plymouth and have not already told us this, please contact:**

Joanne Dowsett  
(04) 890 7300  
[jdowsett@allenandclarke.co.nz](mailto:jdowsett@allenandclarke.co.nz)  
Facsimile: (04) 890 7301

**Please note:** We must receive all submissions by **Friday 31<sup>st</sup> August 2007**.

**Please note:** The purpose of this consultation exercise is to gather information to inform the Ministry of Health on decisions about funding health support services. Information you provide will be held by *Allen & Clarke* but will be made available to the Ministry of Health and may be made available to members of the public that request copies of submissions. Any information that you do not wish to be made public should be clearly marked Confidential. Any request for confidentiality will be subject to the Official Information Act 1982.

## Appendix 1

### Dioxin exposure and its health effects

All New Zealanders are exposed to low levels of dioxin through their diet. This contributes to a current background level of TCDD of around 2 parts per trillion (ppt).<sup>4</sup> Exposure above this background level is mainly as a result of the production and use of the herbicide 2,4,5-T. 2,4,5-T was manufactured at the IWD plant in Paritutu from 1962 to 1987 and was used across New Zealand from the 1960s to the late 1980s to control gorse and scrub.

The ESR serum dioxin study of 52 current and former Paritutu residents found a mean TCDD level of 6.5 ppt. People who had resided in the area for at least 15 years had a mean of 14.7 ppt, suggesting that duration of residence is a key factor in estimating exposure level.

The above levels were measured in 2004, 17 years after the production of 2,4,5-T ceased in 1987. Using these figures, ESR estimated that peak exposures levels for the 52 residents were in the range 17-35 ppt above background levels in 1987, and 39-77 ppt peak increase above background levels for those that had lived in the area for 15 years or more.

This level of exposure for long-term Paritutu residents (39-77 ppt above background levels) is similar to that experienced by residents within an area (called 'Zone B') contaminated by dioxin following a major accident in 1976 at a chemical plant in Seveso, Italy. Health effects from this exposure have been closely monitored and for the period 1976 to 1996 residents of Zone B had a standardised mortality ratio for all cancers of 1.1<sup>5</sup>. This means that there were ten percent more deaths from all cancers than would have been normally expected for this population over this period. Due to the similar level of dioxin exposure, this increase in the cancer mortality rate, along with the findings of increased cancer mortality in a number of occupational studies, has been used as a basis for estimating the increased risk for long term Paritutu residents.

It is not known whether IWD workers or people in adjacent workplaces have been exposed to significant levels of TCDD as serum samples have not been tested or the results of serum tests have not yet been released.

Because of the way that dioxin works in the body, it is very likely that the effects of dioxin will differ from one person to another. It is generally accepted that dioxin is a carcinogen. There is a lot of evidence that suggests that dioxin cannot directly cause damage to DNA.

Every two years, the Institute of Medicine of the National Academy of Sciences in the United States reviews recent research on associations between health effects and exposure to dioxins. In its most recent review, it concluded that there is sufficient evidence of a positive association between dioxin and the following diseases and conditions: chronic lymphocytic leukaemia, soft tissue sarcoma, non-Hodgkin's lymphoma, Hodgkin's disease, and chloracne. It also concluded that there is limited but suggestive evidence of an association between dioxin and respiratory cancer (lung and bronchus, larynx, and

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<sup>4</sup> Buckland SJ, Bates MN, Garrett N, et al. 2001. *Concentrations of Selected Organochlorines in the Serum of the Non-occupationally Exposed New Zealand Population*. Wellington: Ministry for the Environment.

<sup>5</sup> Bertazzi PA, Consonni D, Bachetti S, Rubagotti M, Baccarelli A, Zocchetti C, Pesatori A. 2001. 'Health Effects of Dioxin Exposure: A 20-year Mortality Study' in *American Journal of Epidemiology*: vol.153, pp1031-1044.

trachea), prostate cancer, multiple myeloma, early-onset transient peripheral neuropathy, porphyria cutanea tarda, Type 2 diabetes, and spina bifida in the offspring of exposed individuals. The evidence remains inadequate or insufficient to determine whether an association exists between exposure to dioxin and any other health effects at this point.

Research on other chemical exposures indicates that psychological responses such as fear and anxiety can be common amongst exposed communities. This can, in turn, have an effect on stress-related diseases such as cardiovascular and respiratory-related illnesses.

For New Zealand population groups that have been exposed to dioxin above background levels, studies suggest that there is no conclusive evidence of increased health risks, including cancer risks. However, many of the groups studied have been small and this limits the use of the data. A small increase in health risks cannot be excluded.

## Appendix 2

### Basis for criteria on who would be eligible for the health support service

In June 2007, Allen & Clarke called together a technical group to provide expert advice and opinions on defining an exposure group that could be used as a basis for identifying the eligible population for a health support service. The group agreed on a number of parameters for defining an exposure group and this formed the basis for proposing the eligible groups that were presented above under section 2.3. The rationale for these proposals is summarised below.

The technical group agreed that, in terms of dioxin exposure from the IWD plant in Paritutu, IWD workers and residents were the priority groups for having access to health services. Studies have shown that IWD workers have experienced the health effects associated with dioxin exposure and a serum dioxin study has confirmed that a group of residents have been exposed. The technical group also agreed that other (non-IWD) workers should be included within the exposure group on the basis that some would have had a similar potential to be exposed as some residents. However, as there would be considerable variation in the exposure of other workers, the technical group agreed that further information should be considered before determining, on a case-by-case basis, whether individuals within this group would be eligible for the health support service.

The technical group agreed that it was likely that variations in the intensity of exposure occurred and, based on available evidence, it is likely that exposure was more intense for a period in the mid to late 1960s than for any other period. The available evidence included:

- Further and ongoing analysis of the serum dioxin study results which suggests exposure was most significant in the years 1965 to 1968;
- Data on the volume of 2,4,5-T produced at the IWD plant and the concentration of dioxin within this 2,4,5-T that suggests that potential exposure to TCDD was greatest for the years 1962 to 1972.

As a result, the technical group agreed to the shorter temporal parameters for those who worked or lived in the area during the period 1962 to 1969 (ie: one year living or working in the exposed zone during that period), than those who only lived or worked in the area from 1970 to 1987 (five years). For IWD workers, the technical group agreed that it is likely that, on average, they would have experienced significantly higher exposure than residents or other workers and, in the absence of further evidence that may result from an ongoing serum dioxin study of IWD workers, a shorter temporal period of six months is appropriate.

The technical group agreed that soil sampling data should be used to estimate the spatial extents of dioxin exposure at Paritutu. Based on available evidence, the group agreed that the extents of 1,000 metres to the east and 400 metres to the south of the IWD plant were appropriate. This area represents the boundary between background and above-background levels of soil dioxin concentrations.